

Wilinggin–West Kimberley Bush Blitz

Arachnids and Myriapods

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Nomenclature and taxonomy used in this report is consistent with:

The Australian Faunal Directory (AFD)

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List of contributors

List of contributors to this report.			
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<i>Jeremy Wilson</i>	<i>University of Western Australia</i>	<i>Expert on spiders</i>	<i>Some identifications</i>

Abstract

The arachnid and myriapod fauna of the West Kimberley was assessed during a 10-day trip to Charnley River-Artesian Range Wildlife Sanctuary and Wunaamin Conservation Park. The faunal assemblage proved to be rich in various taxa, despite the timing of the survey during the dry season. A total of 69 species of spiders, 3 species of scorpions, 1 species of harvestmen, 9 species of pseudoscorpions, 1 tick, 1 water mite, and 4 species of centipedes were recorded. Of particular interest was the discovery of several species of mygalomorph, all of which are likely to represent undescribed short-range endemic species.

1. Introduction

The Kimberley region of Western Australia is one of Australia's major biodiversity hotspots, which is known to contain numerous endemic taxa found nowhere else on earth. Despite its biodiversity values, the arachnid and myriapod fauna remains relatively unknown due to its isolation and lack of expertise in some taxa. The most thoroughly studied component of the terrestrial invertebrate fauna are those found in the numerous vine thickets of the region, which were collected during a series of collecting expeditions in the late 1980s (McKenzie *et al.* 1991). During these surveys, the spiders (Main 1991), harvestmen (Hunt 1991), pseudoscorpions and schizomids (Harvey 1991) were documented, but very few species have since been described from the material collected during the surveys. Indeed, we included one of the sites visited by the 1980s survey in our own study, (site A6, C), which proved to be an interesting site for arachnids.

The opportunity to survey in the West Kimberley during the Wilinggin–West Kimberley Bush Blitz represented a very welcome opportunity to obtain new samples, search for new species, and obtain fresh samples for molecular sequencing. The Charnley River-Artesian Range Wildlife Sanctuary and Wunaamin Conservation Park proved to be rich in various taxa, despite the timing of the survey during the dry season.

2. Methods

2.1 Site selection

Sites were selected after close examination of aerial images and maps of the region. A variety of sites were included but particular attention was paid to vine thickets and rainforest habitats, gorges, and the banks of streams. Time was also spent in open areas but recently burned sites were avoided, except when specifically searching for spider burrows on the ground, which were easier to detect when long grass was absent.

2.2 Survey techniques

Under rocks: rocks of a suitable size (i.e. capable of being safely lifted by one person) were examined for invertebrates clinging to the underside or in the soil underneath. After examination, the rock was gently replaced.

Under tree bark: the bark of trees, principally species of *Corymbia* and *Eucalyptus*, was examined for invertebrates.

Pandanus: the axils of *Pandanus* trees were gently peeled back to reveal the invertebrates that reside in these spaces.

Leaf litter: leaf litter was sifted in situ using a 1 cm geological sieve, and the resulting debris was placed in a white tray and examined for invertebrates. The leaf litter was returned to its original site.

Spiders in webs: web-building spiders were hand-collected from their webs.

Ground searching: the ground was searched for burrowing spiders and scorpions, which were removed by digging them out.

2.2.1 Methods used at standard survey sites

The following techniques were used, as outlined above:

Under rocks.

Under tree bark.

Pandanus.

Leaf litter.

Spiders in webs.

Ground searching.

2.3 Identifying the collections

The majority of the identifications were undertaken by Julianne Waldock (Technical Officer, Western Australian Museum) with assistance from survey participants Mark Harvey (especially the pseudoscorpions) and Jeremy Wilson.

The published literature that was consulted included:

Davies, V.T. (1994). The huntsman spiders *Heteropoda* Latreille and *Yiinthe* gen. nov. (Araneae: Heteropodidae) in Australia. *Memoirs of the Queensland Museum* **35**: 75–122.

Harvey, M.S. (1993). The systematics of the Hyidae (Pseudoscorpionida: Neobisioidea). *Invertebrate Taxonomy* **7**: 1–32.

Harvey, M.S. (1995). *Barbaraella* gen. nov. and *Cacoxylus* Beier (Pseudoscorpionida: Chernetidae), two remarkable sexually dimorphic pseudoscorpions from Australasia. *Records of the Western Australian Museum, Supplement* **52**: 199–208.

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.

Huber, B.A. (2001). The pholcids of Australia (Araneae: Pholcidae): taxonomy, biogeography, and relationships. *Bulletin of the American Museum of Natural History* **260**: 1–144.

Levi, H.W. (1983). The orb-weaver genera *Argiope*, *Gea* and *Neogea* from the western Pacific region (Araneae: Argiopinae, Araneidae). *Bulletin of the Museum of Comparative Zoology* **150**: 247–338.

Platnick, N.I. and Baehr, B. (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.

Žabka, M. (1995). Salticidae (Arachnida: Araneae) of Oriental, Australian and Pacific regions, XI. A new genus of Astieae from Western Australia. *Records of the Western Australian Museum, Supplement* **52**: 159–164

3. Results and Discussion

Appendix 1 lists all arachnids and myriapods recorded during the Bush Blitz. Collections made during this Bush Blitz will result in 351 specimens being added to public collections and 262 records added to publicly accessible databases.

3.1 Un-named or not formalised taxa

Taxon	Comment
<i>Neosparassus</i> sp. 1	This new species was found at the homestead, Lilly and Grevillea Pools.
<i>Neosparassus</i> sp. 2	This new species was found at Grevillea Gorge and site A6, B.
<i>Neosparassus</i> sp. 3	This new species was found at site SSS1 and Salvodi Gorge.
<i>Tetrablemma</i> sp.	As all of the <i>Tetrablemma</i> species in the Kimberley represent new species, we confidently consider this as a new species. It has been previously collected during the CALM Kimberley surveys in the 1980s.
<i>Feaella</i> 'PSE218'	This new species is endemic to a single vine thicket adjacent to the Charnley River and was first collected during the CALM Kimberley surveys in the 1980s.
New genus PSEAAF, sp. 1	This new species was found at several localities.

3.2 Putative new species (new to science)

In this report, 'putative new species' means an unnamed species that, as far as can be ascertained, was identified as a new species as a direct result of this Bush Blitz.

Species	Comment
<i>Aname</i> 'MYG784'	This new species is only known from site SSS2.
<i>Aname</i> 'MYG785'	This new species is only known from two sites within the reserve.

<i>Kwonkan</i> 'MYG787'	This new species is only known from a small vine thicket in Salvodi Gorge.
Barychelidae, genus indet., sp. nov.	Although the genus to which this species belongs is unknown, no other records of large barychelids fitting the morphology of this species are known.
<i>Cethegus</i> sp.	A single specimen was collected from a sheet web in a gorge.
<i>Conothele</i> sp.	This new species was found in the banks of Plain Creek. All <i>Conothele</i> species in the Kimberley represent undescribed species.
<i>Selenocosmia</i> sp.	As all of the <i>Selenocosmia</i> species in the Kimberley represent new species, we confidently consider this as a new species. The sequence data we obtained for this specimen suggests that it is new to science, differing from all other Kimberley species.
<i>Austrochthonius</i> sp.	This new species was found in a small vine thicket in Salvodi Gorge.
<i>Synsphyronus</i> sp.	This new species was collected from the bark of <i>Corymbia</i> trees at Silent Grove.
<i>Indohya</i> 'PSE232'	This new species is only known from a small vine thicket in Salvodi Gorge.
<i>Afrostermophorus</i> sp.	This new species was found under <i>Corymbia</i> bark at several sites in the Charnley River-Artesian Range Wildlife Sanctuary.

3.3 Exotic and pest species

Only one exotic species of Arachnida or Myriapoda was detected. *Crossopriza lyoni* is broadly distributed in northern Australia, usually near human dwellings and other buildings.

Exotic/pest species	Location sighted/observed	Indication of abundance	Comments
<i>Crossopriza lyoni</i>	Homestead	<i>Moderate</i>	

3.4 Threatened species

No species of Arachnida or Myriapoda listed under Commonwealth or State legislation were detected.

Species	Listing status and level (EBPC, State/Territory)	Location sighted/observed	Indication of abundance

3.5 Range extensions

Species	Location sighted/observed	Distance from nearest known record (km)	Comments
<i>Barbaraella mainae</i>	Homestead and SSS1	244 km	This species was previously known from three localities in the Kimberley region of WA, but the new records represent a significant range extension.

3.6 Genetic information

All specimens were sampled for future molecular research. Small specimens were preserved and stored in 100% ethanol and larger specimens had one or more legs removed and preserved and stored in 100% ethanol. All tissue samples are stored at –80°C at the Western Australian Museum.

4. Information on species lists

Some of the taxa collected during the survey belong to genera or families that are poorly known, often with large numbers of undescribed species, and with considerable numbers of specimens in museum collections that have not been studied in detail.

5. Information for land managers

The vine thickets contain several endemic arachnid species, including the pseudoscorpions *Indohya typhlops*, *Indohya* 'PSE232', *Feaella* 'PSE218' that represent significant taxa. It is crucial that these sites are protected from fire and cattle to retain their biodiversity values.

6. Other significant findings

Nil.

7. Conclusions

The survey yielded a mixture of previously described species, undescribed species that we were previously aware of, and undescribed species that appear to have never been previously collected. Of particular interest were the specialised arachnids that occurred in vine thickets or rocky gorges, which is not unexpected due to their discontinuous patterns of occurrence and long-term isolation in refugia that are relatively buffered from past climatic cycles.

Acknowledgements

We are very grateful to the Traditional Owners of the land on which we worked and acknowledge their commitment to caring for country. We thank the Australian Wildlife Conservancy for their support and interest in the survey. We are deeply grateful to the BushBlitz team for their efforts in making the survey safe and thoroughly enjoyable.

References

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- McKenzie, N.L., Johnston, R.B. and Kendrick, P.G. (1991). *Kimberley rainforests*. (Surrey Beatty & Sons: Chipping Norton).

Appendix 1. List of arachnids and myriapods recorded during the Wilinggin–West Kimberley Bush Blitz						
Family	Species	Common name	Putative new species	Threatened (EPBC Act)	Threatened (State/Territory)	Exotic/pest
SPIDERS						
Anamidae	Aname `MYG784`	Open-holed trapdoor spider	Yes	No	No	No
Anamidae	Aname `MYG785`	Open-holed trapdoor spider	Yes	No	No	No
Anamidae	Kwonkan `MYG787`	Open-holed trapdoor spider	Yes	No	No	No
Araneidae	Argiope aetherea	Saint Andrews Cross Spider	No	No	No	No
Araneidae	Argiope dietrichae	Saint Andrews Cross Spider	No	No	No	No
Araneidae	Argiope ocyaloides	Saint Andrews Cross Spider	No	No	No	No
Araneidae	Argiope radon	Saint Andrews Cross Spider	No	No	No	No
Araneidae	Cyrtophora cylindroides	###	No	No	No	No
Araneidae	Cyrtophora hirta (?)		No	No	No	No
Araneidae	Cyrtophora moluccensis (?)		No	No	No	No
Araneidae	Dolophones sp.		Uncertain	No	No	No
Araneidae	Larinia sp.		Uncertain	No	No	No
Araneidae	Phonognatha sp.	Leaf-curling spider	Uncertain	No	No	No
Araneidae	Poltys sp. 2		Uncertain	No	No	No
Araneidae	Poltys milledgei (?)		Uncertain	No	No	No
Araneidae	Trichonephila edulis	Golden orb-weaving spider	No	No	No	No
Barychelidae	Genus indet., sp. nov.	Brush-footed trapdoor spider	Yes	No	No	No
Cheiracanthiidae	Cheiracanthium sp.		Uncertain	No	No	No
Clubionidae	Clubiona sp. 1		Uncertain	No	No	No
Clubionidae	Clubiona sp. 2		Uncertain	No	No	No
Corinnidae	Nyssus albopunctatus (?)		No	No	No	No
Deinopidae	Asianopis sp.	Ogre-faced spider	Uncertain	No	No	No
Desidae	Phryganoporus sp.		No	No	No	No
Dictynidae	Genus indet., sp.		Uncertain	No	No	No
Euagridae	Cethegus sp.		Yes	No	No	No
Gnaphosidae	Genus indet., sp.	Ground spider	Uncertain	No	No	No
Halanoproctidae	Conothele sp.		Yes	No	No	No
Hersiliidae	Hersilia sp.	Long-tailed spider	Uncertain	No	No	No

Family	Species	Common name	Putative new species	Threatened (EPBC Act)	Threatened (State/Territory)	Exotic/pest
Hersiliidae	Tamopsis sp.	Long-tailed spider	Uncertain	No	No	No
Lycosidae	Hogna crispipes	Wolf spider	No	No	No	No
Miturgidae	Genus indet., sp.		Uncertain	No	No	No
Oonopidae	Opopaea sp.	Goblin spider	Uncertain	No	No	No
Oxyopidae	Oxyopes sp.	Lynx spider	Uncertain	No	No	No
Pholcidae	Crossopriza lyoni	Daddy-long-legs spider	No	No	No	Yes
Pholcidae	Pholcitrichocyclus arabana	Daddy-long-legs spider	No	No	No	No
Pisauridae	Genus indet., sp.		Uncertain	No	No	No
Pisauridae	Dendrolycosa sp.		Uncertain	No	No	No
Prodidomidae	Prodidomus beattyi		No	No	No	No
Salticidae	Cytaea sp. (?)	Jumping spider	Uncertain	No	No	No
Salticidae	Holoplatys cf. planissima	Jumping spider	Uncertain	No	No	No
Salticidae	Lycidas sp. (?)	Jumping spider	Uncertain	No	No	No
Salticidae	Megaloastia mainae	Jumping spider	No	No	No	No
Salticidae	Mopsus mormon	Jumping spider	No	No	No	No
Salticidae	Myrmarachne sp.	Jumping spider	Uncertain	No	No	No
Salticidae	Tara sp. (?)	Jumping spider	Uncertain	No	No	No
Salticidae	Zebraplatys sp. 1	Jumping spider	Uncertain	No	No	No
Salticidae	Zebraplatys sp. (?)	Jumping spider	Uncertain	No	No	No
Salticidae	Zenodorus metallescens	Jumping spider	No	No	No	No
Salticidae	Zenodorus orbiculatus (?)	Jumping spider	No	No	No	No
Selenopidae	Karaops sp.		Uncertain	No	No	No
Sparassidae	Heteropoda renibulbis	Huntsman spider	No	No	No	No
Sparassidae	Neosparassus Charnley sp. 1	Huntsman spider	No	No	No	No
Sparassidae	Neosparassus Charnley sp. 2	Huntsman spider	No	No	No	No
Sparassidae	Neosparassus Charnley sp. 3	Huntsman spider	No	No	No	No
Sparassidae	Pediana longbottomi (?)	Huntsman spider	No	No	No	No
Tetrablemmidae	Tetrablemma sp.		No	No	No	No
Tetragnathidae	Tetragnatha sp. 1		Uncertain	No	No	No
Tetragnathidae	Tetragnatha sp. 2		Uncertain	No	No	No
Theraphosidae	Selenocosmia sp.		Yes	No	No	No
Thomisidae	Amyciaea sp.		Uncertain	No	No	No

Family	Species	Common name	Putative new species	Threatened (EPBC Act)	Threatened (State/Territory)	Exotic/pest
Theridiidae	Ariamnes sp.		Uncertain	No	No	No
Theridiidae	Emertonella sp.		Uncertain	No	No	No
Thomisidae	Porropis sp. (?)		Uncertain	No	No	No
Thomisidae	Stephanopis sp.		Uncertain	No	No	No
Trachycosmidae	Hemicloea sp.		Uncertain	No	No	No
Uloboridae	Philoponella sp.		Uncertain	No	No	No
Uloboridae	Uloborus sp.		Uncertain	No	No	No
Zodariidae	Euasteron sp.	Ant spider	Uncertain	No	No	No
Zodariidae	Neostorena sp.	Ant spider	Uncertain	No	No	No
SCORPIONS						
Buthidae	Lychas sp. 1	Marble scorpion	Uncertain	No	No	No
Buthidae	Lychas sp. 2	Marble scorpion	Uncertain	No	No	No
Buthidae	Lychas sp. 3	Marble scorpion	Uncertain	No	No	No
HARVESTMEN						
Assamiidae	Dampetrus sp. (?)		Uncertain	No	No	No
PSEUDOSCORPIONS						
Chernetidae	New genus PSEAAF, sp. 1		Yes	No	No	No
Chernetidae	Barbaraella mainae		No	No	No	No
Chthoniidae	Austrochthonius sp.		Yes	No	No	No
Feaellidae	Feaella `PSE218`		No	No	No	No
Garypidae	Synsphyronus sp.		Yes	No	No	No
Hyidae	Indohya typhlops		No	No	No	No
Hyidae	Indohya `PSE232`		Yes	No	No	No
Olpiidae	Euryolpium sp.		Uncertain	No	No	No
Sternophoridae	Afrosterophorus sp.		Yes	No	No	No
TICKS & MITES						
Ixodidae	Amblyomma sp.	Tick	No	No	No	No

Family	Species	Common name	Putative new species	Threatened (EPBC Act)	Threatened (State/ Territory)	Exotic/ pest
Limnocharidae	Limnochaeres sp.	Water mite	Uncertain	No	No	No
CENTIPEDES						
Mecistocephalidae	Mecistocephalus sp. 1	Earth centipede	Uncertain	No	No	No
Mecistocephalidae	Mecistocephalus sp. 2	Earth centipede	Uncertain	No	No	No
Scolopendrida	Scolopendra morsitans	Centipede	No	No	No	No
Scutigerae	Thereuopoda sp.	Long-legged centipede	Uncertain	No	No	No