Wudjari Country (Esperance) Bush Blitz

Arachnids

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Nomenclature and taxonomy used in this report is consistent with:

The Australian Faunal Directory (AFD)

Contents

Contents 2
List of contributors 2
Abstract 3
1. Introduction 3
2. Methods 3
2.1 Site selection 3
2.2 Survey techniques 3
2.2.1 Methods used at standard survey sites 4
2.3 Identifying the collections 4
3. Results and Discussion 4
3.1 Un-named or not formalised taxa 4
3.2 Putative new species (new to science) 5
3.3 Exotic and pest species 5
3.4 Threatened species 5
3.5 Range extensions 6
3.6 Genetic information 6
4. Information on species lists 6
5. Information for land managers 6
7. Conclusions 6
References 7
Appendix 1. List of arachnids recorded during the Kepa Kurl (Esperance) Bush Blitz …….. 8

List of contributors

List of contributors to this report.			
Name	**Institution/affiliation**	**Qualifications/area of expertise**	**Level/form of contribution**
Jeremy Wilson	***University of Western Australia***	***Expert on spiders***	***Some identifications, report writing***
Julianne Waldock	***Western Australian Museum***	***Expert on arachnids & myriapods***	***Most identifications; revision of report***
Mark Harvey	***Western Australian Museum***	***Expert on arachnids & myriapods***	***Some identifications; revision of report***

Abstract

The arachnid fauna of the Esperance region of the W.A. south coast was assessed during a 10-day trip to sample Cape Le Grand NP, Cape Arid NP, and surrounding regions. The faunal assemblage proved to be rich in various taxa, although adult spiders of many species were rare. A total of 65 species were collected, including 2 species of mite, 4 species of pseudoscorpion, 3 species of scorpion, and 56 species of spider. Of the spider species, 7 are species of mygalomorph spider, which are potentially vulnerable due to their naturally small ranges.

1. Introduction

The Esperance region presents various habitats and microhabitats, each with diverse and unique arachnid faunas. We focused on surveying each of these habitats, including the moist, wooded gullies and sheltered banksia stands which hold mesic faunal components, the open heath, and the granite outcrops which contain many species adapted to living under and between rocks. The arachnid fauna there is relatively well sampled, however fresh tissues for legacy material were seen as highly valuable, especially for several ‘known-unknown’ species in the area.

Extensive sampling by J. Waldock of the Western Australian Museum, along with colleagues, has led to good sampling of the araneomorph spider fauna as well as other arthropod groups like scorpions, pseudoscorpions and myriapods. Other general collectors over the years include G. Byrne, S. Comer, R. P. McMillan, and V. Framenau. Other more targeted collectors have augmented this, such as M. L. Moir and N. Sloan (myriapods); M. Harvey, F. Stahlavsky (pseudoscorpions); and M. Rix (archaeids and anapids).

In the 10 days of this Bush Blitz, we were able to collect fresh samples of many of the known species of the region, for potential future genetic work, and targeted short-range endemic groups that would feed into current and future projects – namely mygalomorph spiders (trapdoor spiders and their relatives) and pseudoscorpions. We were particularly successful with mygalomorph spiders, collecting 7 species, 4 of which are almost certainly undescribed species.

2. Methods

2.1 Site selection

As mentioned previously, sites were selected to access a diverse array of microhabitats, broadly grouped into banksia thickets, sheltered gullies, granite outcrops, and open heath. The overall approach was to sample these different microhabitats in as many different places in the Esperance region as possible, within the constraints of the expedition. We also specifically targeted areas where ‘known-unknown’ species had been collected in the past.

2.2 Survey techniques

Different sampling techniques were employed at each, depending on target groups, for example in banksia groves we beat foliage and sifted litter for small araneomorph spiders, in sheltered gullies we checked embankments for mygalomorph spider burrows, on granite outcrops we turned rocks to find invertebrates adapted to these areas, and in open heath we examined the ground for burrows and ground spiders, and peeled bark in forest stands. In each case care was taken to return the area to its original state, if possible.

2.2.1 Methods used at standard survey sites

Foliage beating – beating foliage so that arthropods fall into a net placed below (both sites)

Rock turning (both sites)

Bark peeling (Site 1)

Active searching for burrows and webs (both sites).

2.3 Identifying the collections

Preliminary identifications were made in the field by Jeremy Wilson (survey participant), before these were refined and corrected by Julianne Waldock (Technical Officer of Arachnids & Myriapods, Western Australian Museum) with assistance from Mark Harvey (Curator of Arachnids & Myriapods, WAM).

Specimens were identified from published keys combined with referral to W.A. Museum collections. Amongst the spiders there are a number of speciose families which contain un-named species, families such as Zodariidae, Thomisidae and Theridiidae. Recent reviews of a number of Araneidae genera such as *Hortophora* and *Plebs* have clarified the diversity of these common orb-weaving spiders (e.g. Framenau et al., 2021).

3. Results and Discussion

Appendix 1 lists all arachnids recorded during the Bush Blitz. Collections made during this Bush Blitz will result in 116 specimens being added to public collections and 107 records being added to publicly accessible databases.

3.1 Un-named or not formalised taxa

Table 1. Putatively un-named or not formalised taxa

Taxon	Comment
Neostorena sp. (Zodariidae)	A type of ‘ant spider’ – the genus is in need of revision.
Pisauridae specimen	A known but undescribed species in the family Pisauridae (water spiders) from Western Australia. Potentially also a new genus.
Synothele sp. (Barychelidae)	A male brush-footed trapdoor spider. Although the species may be described, males have not been described for either *Synothele* species from the Esperance region – the specimen is important to match male morphology with female.
Aldabrinus ‘PSE187’ (Garypinidae)	Mark Harvey identified this specimen as a known undescribed species that has already been assigned a ‘PSE’ number at the WA Museum.
Stanwellia ‘MYG359’ ‘tiger-striped tube spider’ (Pycnothelidae)	The tube spider (*Stanwellia*) collected from Mount Arid is a known new species, as currently no species of *Stanwellia* from Western Australia are described.

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.

Table 2. Putative new species (new to science)	
Species	**Comment**
Steatoda sp. (Theridiidae)	None of the native *Steatoda* from southern W.A. are described, so this specimen is likely to be a new species.
Idiosoma sp. 1 (Mount Ridley)	*Idiosoma* is currently being revised by Michael Rix, and these specimens are probably a new species, although they may match with a species already known from male specimens. We will know once revisions occur in the next few years.
Idiosoma sp. 2 (Mount Arid)	As above.
Synsphyronus 'PSE237'	Mark Harvey identified this new species of pseudoscorpion from Mount Ridley.
Proshermacha sp. (Mount Arid)	Mark Harvey has checked the two female specimens collected in the gully to the east of Mount Arid and confirmed that they represent a new, previously unknown species.

3.3 Exotic and pest species

Table 3. Exotic and pest species recorded			
Exotic/pest species	**Location sighted/observed**	**Indication of abundance**	**Comments**
Pholcus phalangioides	Mount Ridley	Many specimens seen in caves.	The most common species of introduced daddy-long-legs spider. Not known to cause harm, and widespread in Australia.

3.4 Threatened species

N/A

Table 4. Threatened species			
Species	**Listing status and level (EBPC, State/Territory)**	**Location sighted/observed**	**Indication of abundance**

3.5 Range extensions

Table 5. Range extensions or significant infill in distribution records for species			
Species	**Location sighted/observed**	**Distance from nearest known record (km)**	**Comments**
Storena fungina (Zodariidae – ant spider)	In a roadside burrow, on the eastern side of Mount Arid.	Nearest specimen on ALA is at Peak Charles National Park – about 230 km away.	Julianne states: Endemic to W.A., known from Fitzgerald River NP and inland sites such as Jerdacuttup and Jerramungup, this specimen extends the range east.
Karaops toolbrunup (Selenopidae – flat spider)	Found under rocks on granite slab at standard survey site 2 (Little Hellfire Bay).	About 450 km.	Previously only known from Stirling Range National Park.

3.6 Genetic information

Tissue was taken, preserved in 100% ethanol and kept frozen for 64 specimens of groups of interest or under current revision (pseudoscorpions, miturgids, salticids, mygalomorph spiders, zodariids) for future molecular work.

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 sheltered, dense, unburnt banksia stands, and unburnt gullies on the southern and south-eastern sides of mountains in the Esperance region, often contain species with small natural ranges, that rely on these wetter, more stable regions to survive. It is paramount for their survival that severe fire is not allowed to burn these regions. Another notable discovery was a new, and previously unknown, species of pseudoscorpion in the genus *Synsphyronus*, from the Mount Ridley site. This species was found under rocks on the large, flat, granite slab of this site.

7. Conclusions

The survey yielded a mixture of previously described species, known undescribed species, and new discoveries. Of particular interest were the mygalomorph spiders, especially those collected in the wet gully on the south-eastern side of Mount Arid, including a new *Stanwellia* species, and a new *Proshermacha* species. Both species probably rely on this unburnt gully

for survival, and both are relatively large, charismatic burrowing spiders. Another notable discovery was a new, and previously unknown, species of pseudoscorpion in the genus *Synsphyronus*, from the Mount Ridley site. This species was found under rocks on the large, flat, granite slab of this site.

References

Framenau, V. W., Baptista, R. L. C., Oliveira, F. S. M. & Castanheira, P. de S. (2021). Taxonomic revision of the new spider genus *Hortophora*, the Australasian garden orb-weavers (Araneae, Araneidae). *Evolutionary Systematics* **5**(2): 275-334.

Appendix 1. List of Arachnids recorded during the Wudjari Country (Esperance) Bush Blitz						
Family	**Species**	**Common name**	**Putative new species**	**Threatened (EPBC Act)**	**Threatened (State Act)**	**Exotic/ pest**
ACARI						
Hydrodromidae	Hydrodroma 'sp. indet.'	water mite	No	No	No	No
Fam. Indet.	'genus indet.'	mite	No	No	No	No
ARANEOMORPHAE						
Araneidae	'genus indet.'	NA	No	No	No	No
Araneidae	Araneus cf. eburneiventris'	green orbweaver	No	No	No	No
Araneidae	Argiope trifasciata (Forsskål, 1775)	banded orbweaver	No	No	No	No
Araneidae	Austracantha minax (Thorell, 1859)	spiny orb weaver	No	No	No	No
Araneidae	Backobourkia 'sp. indet. (female)'	desert orbweaver	No	No	No	No
Araneidae	Cyclosa trilobata? (juvenile)'	NA	No	No	No	No
Araneidae	Hortophora biapicata (L.Koch, 1871)	common garden orbweaver	No	No	No	No
Araneidae	Phonognatha graeffei (Keyserling, 1865)	leaf-curling spider	No	No	No	No
Araneidae	Plebs cyphoxis	enamelled orbweaver	No	No	No	No
Arkyidae	Arkys alticephala	NA	No	No	No	No
Arkyidae	Arkys walckenaeri Simon, 1879	triangular spider	No	No	No	No
Clubionidae	Clubiona 'sp. indet.'	sac spider	No	No	No	No
Desidae	Baiami? `sp. indet.`	NA	No	No	No	No
Desidae	Badumna insignis (L. Koch, 1872)	black house spider	No	No	No	No
Gnaphosidae	Encoptarthria 'sp. indet.'	NA	No	No	No	No
Linyphiidae	'genus indet.'	NA	No	No	No	No
Linyphiidae	Laperousea 'sp. indet.'	money spider	No	No	No	No
Lycosidae	Dingosa serrata (L.Koch, 1877)	serrated palisade wolf spider	No	No	No	No
Lycosidae	Venatrix 'sp. indet.'	wolf spider				
Mimetidae	Australomimetus aurioculatus (Hickman, 1929)	pirate spider	No	No	No	No
Miturgidae	'genus indet.'	NA	No	No	No	No
Oecobiidae	Oecobius navus Blackwall, 1859	wall spider	No	No	No	No
Pholcidae	Pholcus phalangioides (Fuesslin, 1775)	daddy-long-legs spider	No	No	No	Yes
Pisauridae	`genus?` sp. indet. (juvenile)'	water spider	No	No	No	No

Family	Species	Common name	Putative new species	Threatened (EPBC Act)	Threatened (State Act)	Exotic/ pest
Salticidae	Adoxotoma chionopogon Simon, 1909	jumping spider	No	No	No	No
Salticidae	Apricia jovialis (L.Koch, 1879)	basking jumping spider	No	No	No	No
Salticidae	Holoplatys planissima (L.Koch, 1879)	flat jumping spider	No	No	No	No
Salticidae	`Maratus spp. grp`	peacock spider	No	No	No	No
Salticidae	Opisthoncus 'sp. indet. 1'	jumping spider	No	No	No	No
Salticidae	Pungalina 'sp. indet.'	jumping spider	No	No	No	No
Salticidae	Sondra 'sp. indet.'	jumping spider	No	No	No	No
Selenopidae	Karaops francesae Crews & Harvey, 2011	flat spider	No	No	No	No
Selenopidae	Karaops toolbrunup Crews & Harvey, 2011	flat spider	No	No	No	No
Sparassidae	Delena lapidicola (Hirst, 1991)	social huntsman spider	No	No	No	No
Sparassidae	Isopeda leishmanni Hogg, 1903	common huntsman spider	No	No	No	No
Sparassidae	Neosparassus 'sp. indet.'	badge huntsman spider	No	No	No	No
Tetragnathidae	Tetragnatha 'sp. indet.'	long-jawed spider	No	No	No	No
Theridiidae	'genus 1'	NA	No	No	No	No
Theridiidae	Steatoda 'native undescribed sp.'	NA	Yes	No	No	No
Thomisidae	Australomisidia 'pilula spp. grp'	crab spider	No	No	No	No
Thomisidae	Sidymella 'sp. indet. 1'	trapezoid crab spider	No	No	No	No
Thomisidae	Sidymella 'sp. indet. 2'	crab spider	No	No	No	No
Thomisidae	Stephanopis 'sp. indet. 1'	cryptic crab spider	No	No	No	No
Thomisidae	Tharpyna 'sp. indet. 1'	crab spider	No	No	No	No
Trachycosmidae	Longrita insidiosa (Simon, 1908)	NA	No	No	No	No
Trochanteriidae	Hemicloea 'sp. indet. 1'	NA	No	No	No	No
Zodariidae	`Habronestes?` sp. indet. (female)'	ant spider	No	No	No	No
Zodariidae	Neostorena 'sp. indet.'	ant spider	No	No	No	No
Zodariidae	Storena fungina Jocqué & Baehr, 1992	ant spider	No	No	No	No
MYGALOMORPHAE						
Anamidae	Proshermacha 'undescribed species'	wishbone spider	Yes	No	No	No
Anamidae	`Teyl` 'sp. indet. (juvenile)'	wishbone spider	No	No	No	No
Barychelidae	Synothele 'rastelloides spp. grp'	brush-footed trapdoor spider	No	No	No	No
Idiopidae	Eucanippe 'probably E. bifida'	spiny trapdoor spider	No	No	No	No

Family	Species	Common name	Putative new species	Threatened (EPBC Act)	Threatened (State Act)	Exotic/ pest
Idiopidae	Idiosoma 'undescribed species 2'	spiny trapdoor spider	Yes	No	No	No
Idiopidae	Idiosoma 'undescribed species 1'	spiny trapdoor spider	Yes	No	No	No
Pycnothelidae	Stanwellia `MYG359`	tube spider	No	No	No	No
PSEUDOSCORPIONES						
Garypidae	Synsphyronus 'undescribed species PSE237'	NA	Yes	No	No	No
Garypidae	Synsphyronus francesae Harvey, 2012	NA	No	No	No	No
Garypidae	Synsphyronus mimulus Chamberlin, 1943	NA	No	No	No	No
Garypinidae	Aldabrinus 'undescribed species PSE187'	NA	No	No	No	No
SCORPIONES						
Bothriuridae	Cercophonius sulcatus Kraepelin, 1908	shiny scorpion	No	No	No	No
Buthidae	Lychas 'sp. indet.'	marbled scorpion	No	No	No	No
Urodacidae	Urodacus novaehollandiae Peters, 1861	coastal scorpion	No	No	No	No