

Cape Range Bush Blitz
Arachnids & 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

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Abstract

A BushBlitz survey of the arachnids and myriapods of Cape Range was conducted during late June 2019. Three confirmed new species were newly collected: trapdoor spiders of the genera *Euoplos* and *Conothele*, and a pseudoscorpion of the genus *Synsphyronus*. Previously known new scorpion species of the genera *Lychas* and *Urodacus* were also collected. The taxonomy of many families and genera is uncertain, and their status could not be determined. Several species (*Lamponata daviesae*, *Hoggicosa castanea*, *Mituliodon tarantulinus*, *Sandalodes joannae*, *Geogarypus taylori* and *Cormocephalus turneri*) are newly recorded from Cape Range.

1. Introduction

Arachnids and myriapods represent a diverse assemblage of mostly terrestrial organisms that occupy most habitats across the globe. They are extremely diverse and new species and genera are constantly being identified and described. This is very true of the Australian region, which has seen a rapid increase in our knowledge of these taxa over the past couple of decades.

The Cape Range survey location sits within the tropical zone, but the terrestrial ecosystems are distinctly arid-adapted, reflecting the climate and intermittent rainfall that is characteristic of the region.

Previous knowledge of the Cape Range arachnid and myriapod fauna can be conveniently divided into two categories. The most well-known and best documented biota occurs in the caves and other subterranean voids that permeate the limestone of the range. This fauna is of international significance and contains numerous endemic species, many of which belong to relictual taxa that are elsewhere only known from other parts of Australia or the world. It is hypothesised that many of these cave endemics have no counterparts in the modern surface fauna of the immediate region and have evolved from rainforest ancestors when the local climate was more mesic (Humphreys 1993, 2000, 2017).

The second component is the terrestrial fauna. The arachnids and myriapods of the region are less well-known due to lack of sampling, especially during climatic periods when this fauna is likely to be active and mature. However, there have been sporadic collections over the years, especially near cave entrances and in the township of Exmouth.

The survey provided an opportunity to fill some of this knowledge gap through dedicated collecting of arachnids and myriapods from a variety of habitats, including locations that are difficult to access through the use of helicopters.

2. Methods

2.1 Site selection

Sites were selected to maximise the geographical and topological coverage on the North-West Cape Peninsula, as well as covering different habitat types. These included limestone outcrops, sand dunes, spinifex sand plains, and gorges.

2.2 Survey techniques

Specimens were collected as follows. Spider and scorpion burrows were located by searching the ground, and excavated using a small geological pick and a knife. Leaf litter was gathered by hand and sifted into a white tray using a 1 cm steel mesh sifting tray, with specimens

collected directly into ethanol. The bark of eucalypt trees was peeled to search for arthropods. The underside of rocks was also examined.

Night collecting was conducted at the standard survey sites but yielded few specimens due to the relatively cold weather.

Small specimens were preserved directly into 100% ethanol. Larger specimens were preserved in 75% ethanol with one or more legs stored in 100% ethanol. All material stored in 100% ethanol was kept frozen and is now stored in the WA Museum's -80°C freezers.

2.2.1 Methods used at standard survey sites

The techniques listed above were used at both surveys sites.

2.3 Identifying the collections

Specimens were examined with a Leica dissecting microscope and compared with the relevant taxonomic literature and/or specimens lodged in the Western Australian Museum.

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3. Results and Discussion

Appendix 1 lists all arachnids and myriapods recorded during the Bush Blitz.

3.1 Un-named or not formalised taxa

Taxon	Comment
<i>Lychas</i> `aitkeni` spp. grp`	The ' <i>aitkeni</i> ' group includes a variety of new species, but the actual number is not known due to lack of taxonomic resolution.
<i>Lychas</i> `bituberculatus` spp. grp`	The ' <i>bituberculatus</i> ' group includes a variety of new species, but the actual number is not known due to lack of taxonomic resolution.
<i>Urodacus</i> `yaschenko`i` spp. grp`	The ' <i>yaschenko</i> ' group includes a variety of new species, but the actual number is not known due to lack of taxonomic resolution.

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>Conothele</i> sp. `MYG673`	Two specimens were located at two different sites. This represents the first record of the genus <i>Conothele</i> from Cape Range.
<i>Euoplos</i> sp. `MYG672`	Two specimens were located at two different sites. This represents the first record of the genus <i>Conothele</i> from Cape Range. A potential third specimen was collected but can only be identified to genus level until molecular analyses are conducted.
<i>Synsphyronus</i> `Cape Range`	A population of this new species was located at a site in Shothole Canyon Road. This represents the first record of the genus <i>Synsphyronus</i> from Cape Range.

3.3 Exotic and pest species

Exotic/pest species	Location sighted/observed	Indication of abundance	Comments

No exotic or pest species were recorded during the survey.

3.4 Threatened species

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

No threatened species were recorded during the survey.

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
<i>Lamponata daviesae</i>	1.5 km SSE. of Tantabiddi Boat Ramp	ca. 500 km	This species is widespread across Australia, but has not previously been recorded from Cape Range. The nearest record is from the central Pilbara.
<i>Hoggicosa castanea</i>	track off Charles Knife Road	Ca. 210 km	This species is widespread across Australia, but has not previously been recorded from Cape Range. The nearest record is from the western Pilbara.
<i>Mituliodon tarantulinus</i>	Shothole Canyon Road & coastal trap line	Ca. 235 km	This species is widespread across Australia, but has not previously been recorded from Cape Range. The nearest record is from the western Pilbara.
<i>Sandalodes joannae</i>	Site SS-E	Ca. 900 km	This species is intermittently distributed across southern Australia, but has not previously been recorded from Cape Range.
<i>Geogarypus taylori</i>	Yardie Creek Trail	Ca. 200 km	This species is widespread across southern Australia, but has not previously been recorded from Cape Range. The nearest record is Barrow Island.
<i>Cormocephalus turneri</i>	Exmouth, car tip	Ca. 200 km	This species is widespread across most of Western Australia, but has not previously been recorded from Cape Range. The nearest record is Barrow Island.

3.6 Genetic information

Although most specimens are stored to enable molecular data to be gathered, none have yet been sequenced.

4. Information on species lists

Many of the specimens are currently unidentified due to (a) poor taxonomic knowledge of the genera or families and (b) the lack of adults among the collected samples, which is mainly due to seasonal factors.

5. Information for land managers

Many of the sites sampled during the survey are in good condition, apart from weeds. The reduction in goats through recent culling operations has resulted in improvements in the habitat of selected areas, which may eventually reduce adverse effects on terrestrial invertebrates such as trampling and habitat degradation.

6. Other significant findings

The population of *Trichonephila plumipes* at Bay of Rest is the only known population of this species from Western Australia, although it is widespread in eastern Australia. It was first recorded in 1987 (WA Museum specimens) and the population is still extant.

7. Conclusions

The results of this survey have augmented our knowledge of the arachnid and myriapod fauna of Cape Range. The most exciting results include the presence of several confirmed new species, as well as several notable range extensions, of which the jumping spider *Sandalodes joannae* is the most extensive, ca. 900 km.

Acknowledgements

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Appendix 1. List of Arachnids and Myriapods recorded during the Cape Range Bush Blitz

Family	Species	Common name	Putative new species	Threatened (EPBC Act)	Threatened (State Act)	Exotic/ pest
Actinopodidae	Missulena	mouse spider	uncertain	No	No	No
Anamidae	Aname	wishbone spider	uncertain	No	No	No
Araneidae	Argiope protensa	orb-weaving spider	No	No	No	No
Araneidae	Argiope trifasciata	orb-weaving spider	No	No	No	No
Araneidae	Austracantha minax	jewel spider	No	No	No	No
Araneidae	Backbourkia collina	orb-weaving spider	No	No	No	No
Araneidae	Celaenia	orb-weaving spider	No	No	No	No
Araneidae	Phonognatha `graeffei?`	leaf-curling spider	No	No	No	No
Araneidae	Trichonephila plumipes	golden orb-weaving spider	No	No	No	No
Barychelidae	Idiommata	brush-footed trapdoor spider	uncertain	No	No	No
Barychelidae	Synothele	brush-footed trapdoor spider	uncertain	No	No	No
Clubionidae	Clubiona	sac spider	uncertain	No	No	No
Ctenidae	`Bengalla?`	cave spider	No	No	No	No
Deinopidae	Deinopis	ogre-faced spider	uncertain	No	No	No
Filistatidae	Wandella	filistatid spider	uncertain	No	No	No
Gnaphosidae	`Anzacia?`	ground spider	uncertain	No	No	No
Gnaphosidae	Eilica	ground spider	uncertain	No	No	No
Gnaphosidae	Nomindra leeuweni	ground spider	No	No	No	No
Halonoproctidae	Conothele `MYG673`	cork-plug trapdoor spider	Yes	No	No	No
Idiopidae	Euoplos `MYG672`	spiny trapdoor spider	Yes	No	No	No
Lamponidae	Lamponata daviesae	ground spider	No	No	No	No
Lamponidae	Notsodipus `sp.`	ground spider	uncertain	No	No	No
Lycosidae	Hoggicosa castanea	wolf spider	No	No	No	No
Lycosidae	Venatrix arenaris	wolf spider	No	No	No	No
Miturgidae	`Miturgopelma?`	ground spider	uncertain	No	No	No
Miturgidae	Mituliodon tarantulinus	ground spider	No	No	No	No
Oonopidae	Opopaea	goblin spider	uncertain	No	No	No
Oonopidae	Pelcinus	goblin spider	uncertain	No	No	No

Pholcidae	Trichocyclus nigropunctatus	daddy-long-legs spider	No	No	No	No
Salticidae	`Menemerus?` `bivittatus? (juvenile)`	jumping spider	uncertain	No	No	No
Salticidae	`Thyene?`	jumping spider	uncertain	No	No	No
Salticidae	Hypoblemum `sp.`	jumping spider	uncertain	No	No	No
Salticidae	Sandalodes joannae	jumping spider	No	No	No	No
Salticidae	Zenodorus orbiculatus	jumping spider	No	No	No	No
Selenopidae	Karaops	flat spider	uncertain	No	No	No
Sparassidae	Neosparassus `sp.`	hunter spider	uncertain	No	No	No
Theridiidae	Steatoda	cob-web spider	uncertain	No	No	No
Thomisidae	Stephanopis	crab spider	uncertain	No	No	No
Thomisidae	Thomisus spectabilis	flower spider	No	No	No	No
Trochanteriidae	Trachyspina capensis	ground spider	No	No	No	No
Zodariidae	`Asteron spp. grp`	ant spider	uncertain	No	No	No
Zodariidae	Euasteron `sp.`	ant spider	uncertain	No	No	No
Zodariidae	Neostorena `sp.`	ant spider	uncertain	No	No	No
Zodariidae	Storena sinuosa	ant spider	No	No	No	No
Oryidae	Orphnaeus	ground centipede	uncertain	No	No	No
Paradoxosomatidae	Boreoheperus capensis	millipede	No	No	No	No
Chthoniidae	Austrochthonius	pseudoscorpion	uncertain	No	No	No
Chthoniidae	Tyrannochthonius	pseudoscorpion	uncertain	No	No	No
Garypidae	Synsphyronus `sp. nov. Cape Range`	pseudoscorpion	Yes	No	No	No
Geogarypidae	Geogarypus taylori	pseudoscorpion	No	No	No	No
Olpiidae	Austrohorus	pseudoscorpion	uncertain	No	No	No
Olpiidae	Beierolpium	pseudoscorpion	uncertain	No	No	No
Olpiidae	Euryolpium	pseudoscorpion	uncertain	No	No	No
Scolopendrida	Ethmostigmus pachysoma	centipede	No	No	No	No
Scolopendridae	Cormocephalus turneri	centipede	No	No	No	No
Scolopendridae	Ethmostigmus pachysoma	centipede	No	No	No	No
Scolopendridae	Scolopendra laeta	centipede	No	No	No	No
Buthidae	Lychas `aitkeni spp. grp`	scorpion	Yes	No	No	No
Buthidae	Lychas `bituberculatus complex`	scorpion	Yes	No	No	No
Urodacidae	Urodacus `sp.`	scorpion	uncertain	No	No	No
Urodacidae	Urodacus `yaschenkoi spp. grp`	scorpion	Yes	No	No	No