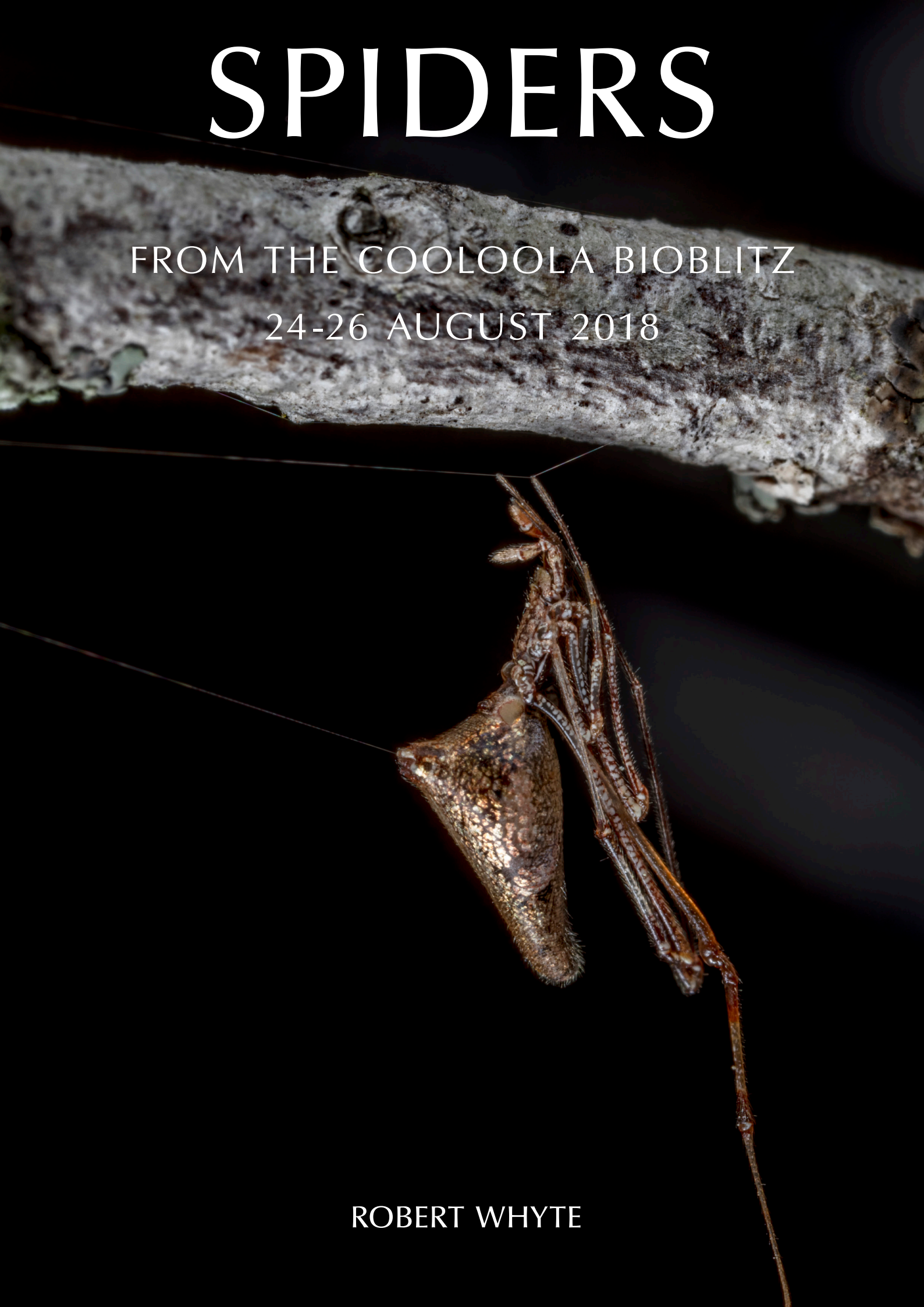
SPIDERS

FROM THE COOLOOLA BIOBLITZ

24-26 AUGUST 2018



ROBERT WHYTE

Acknowledgements

Thanks to Fraser Island Defenders Organisation and Cooloola Coastcare who successfully planned and implemented the 2018 Cooloola BioBlitz Friday 24th August to Sunday 26th August

The aim of the BioBlitz was to generate and extend biodiversity data for Northern Cooloola, educate participants and the larger community about the area's living natural resources, and build citizen science capacity through mentoring and training.

Cooloola is a significant natural area adjoining the Great Sandy Strait Ramsar site with a rich array of habitats from bay to beach, wallum to rainforest and fens to high dunes.

A study by the CSIRO in the late 1970s identified an array of fauna including 280 species of ants including many new to science. Much of Fraser Island (K'gari's) World Heritage values were inferred from that study.

The 2018 Cooloola BioBlitz was strongly supported by many biological scientists, both amateur and professional, who contributed important baseline data for a comprehensive biological inventory. The involvement of scientists, naturalists and community members of all ages in all phases of observation, identification, recording and analysis of habitats of all living natural resources, was an important exercise in promoting and developing citizen science.

Ninety seven people signed on for seven target areas representing distinctive habitat types easily accessible from Rainbow Beach, the centre of operations.

Sites ranged from mangrove forests at Bullock Point to Lake Poona perched in the high dunes; from the littoral forests of Inskip Point Peninsula to rainforest at Bymien; from wallum heathlands to eucalypt forests adjacent to Carlo Sandblow; and from the fens to Seary's Creek.

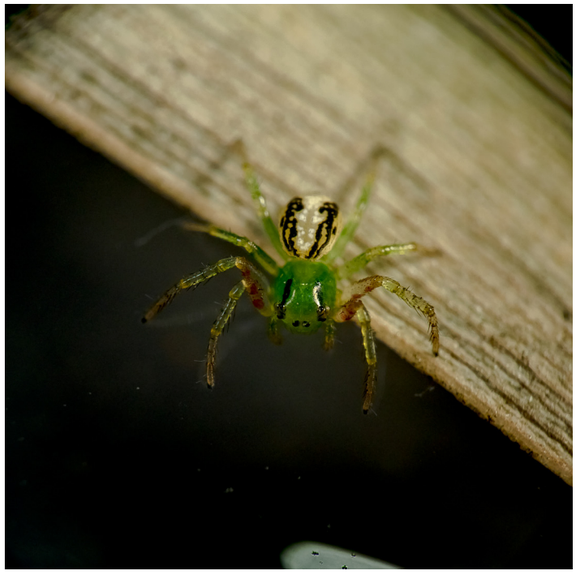
Thanks to all our collectors, especially the Bromley-Forrester family who were highly successful spiderologists on the weekend. Sandra and Lara's enthusiasm at Carlo Point which kept everyone in high spirits and eager to learn.

917 Waterworks Road
The Gap QLD 4061
0409 055 325
robertwhyteus@gmail.com

Cooloola BioBlitz

One of our first 2018 BioBlitz new species was an *Ornodolomedes* sp. nov found at midnight on Friday 24 August at Lake Poona by Ben Revell, who is part of the Australian Questagame Citizen Science team. Ben is a specialist with these Water Spiders (Pisauridae) recently having *Ornodolomedes benrevelli* named in his honour. Adult *Ornodolomedes* can reach a body length of around 7-10 mm. ROBERT WHYTE

The next new species was this tiny Crab Spider (Thomisidae) body length 1.55 mm (from eyes to spinnerets inclusive) one of the first new spider species found on Saturday 25 August at Carlo Point. It may or may not be the same species as one found at the recent Woodfordia Planting Festival. It is an undescribed *Tharrhalea-Lehtinelagia* sp. ROBERT WHYTE



Argyrodes sp. Silver Cobweb Spider, Carlo Point

Introduction

Spiders (order Araneae) have proven to be highly rewarding organisms in biodiversity studies[1], being an important component in terrestrial food webs, an indicator of insect and other invertebrate diversity and abundance (their prey) and in Australia an understudied taxon, with many new species waiting to be discovered and described. In 78 Australian spider families science has so far described about 4,000 species, only an estimated quarter to one third of the actual species diversity.

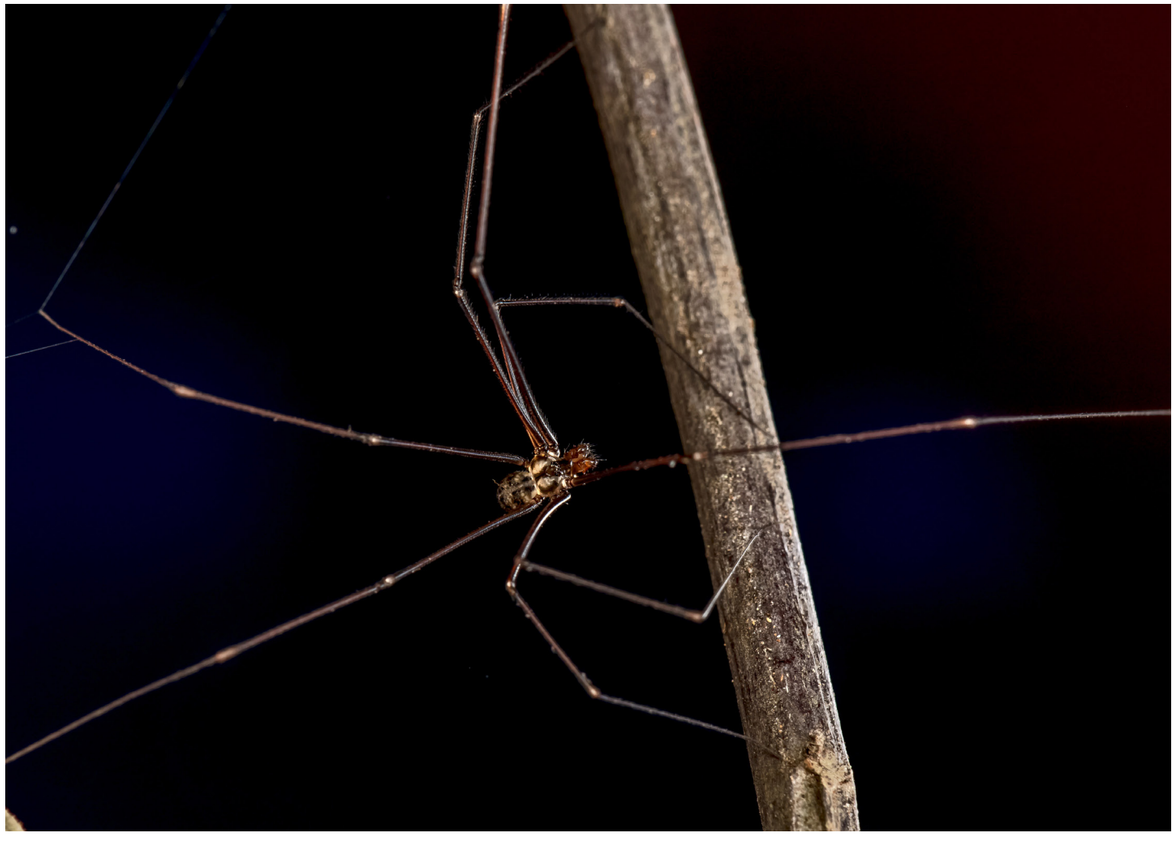
Spiders thrive in good-quality habitat, where structural heterogeneity combines with high diversity of plant and fungi species. These fundamentals result in high diversity and abundance of insects and other terrestrial invertebrates. Many lineages of spiders have evolved to utilise the terrestrial habitat niches where their food is found, some in quite specialist ways.

For the 2018 Cooloola BioBlitz, we utilised techniques to target ground running and arboreal spiders. If the aim is to achieve consistency of future sampling, our methods could be duplicated so results can be used in comparison with our benchmark data. Methods were used in the following sequence:

- careful visual study of bush, leaves, bark and ground, to see movement, spiders suspended on silk, or spiders on any surface
- shaking foliage, causing spiders to fall onto a white tray or cloth
- scraping and brushing bark
- peeling bark (utilised minimally so as to leave habitats relatively undisturbed)
- turning logs and rocks (returning them to their initial position)
- transferring leaf litter into bags, then sifting though a handful at a time

1 https://goo.gl/Q7zGLw Google Scholar resources for spiders biodiversity.

Pholcidae *Wugigurra* sp. adult male possibly *W. yawai*. This is one of the native Australian Daddy Long-legs. There are nine species of Daddy Long-legs spiders which have come from elsewhere. It was found by Chris and Katrina Sanderson. *W. yawai* was named for the Taribelang (also called Yawai) aboriginal tribe



- sitting beside grass tussocks and waiting (watching for movement of Peacock Spiders).

Common collection methods not utilised at Cooloola due to our consideration for the sensitivity of the habitats included: knock down pyrethrum fogging; digging burrows and working litter down to its base.

Spiders can also be attracted with vibrations of a rough-running diesel engine, impractical on this occasion. However we benefited from 'by-catch' from entomologists, botanists and fungi experts.

Our sampling was restricted to three locations, Carlo Point, Seary's Creek and Inskip Point.

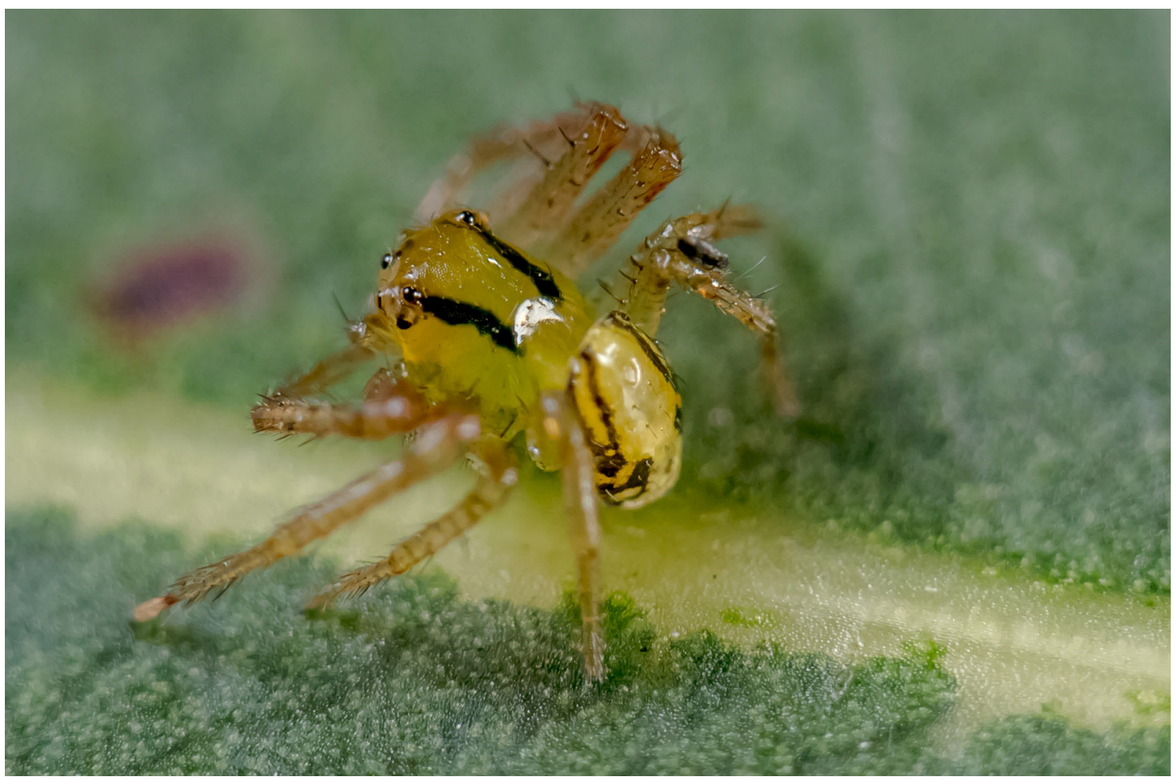
Our initial findings suggested we would encounter far greater diversity than we had expected. We assumed depauperate, old soils with low nutrient levels would mean low diversity. The opposite was true, suggesting that the relative stability of the landscape over long periods of time has resulted in adaptations to suit micro-niches. It seems where life is a struggle, a wide variety of organisms colonise a given area, without any of them becoming overwhelmingly successful to the detriment of others.

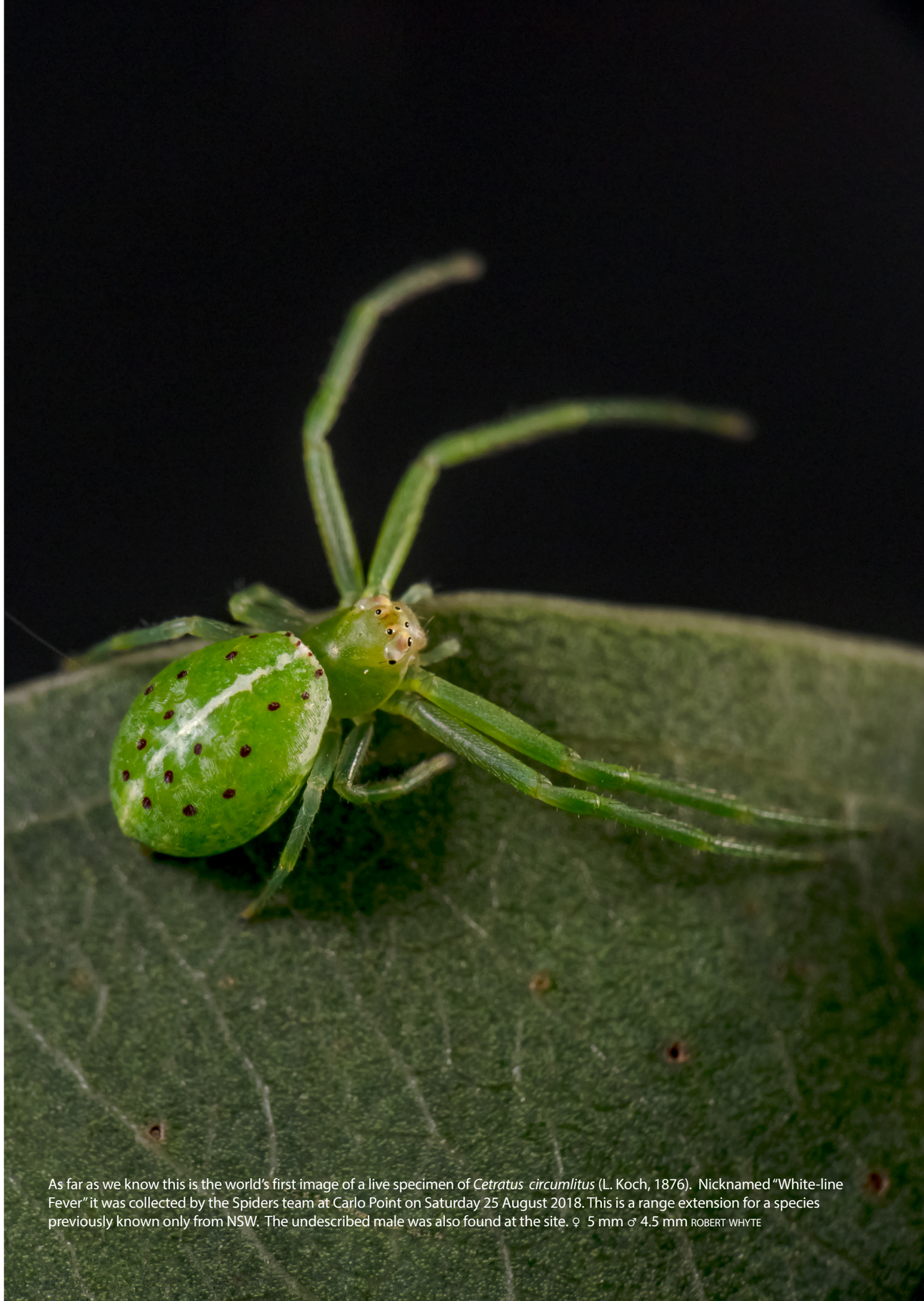
In total we collected over 700 specimens from the three sites, about half of these able to be released on site because they were either very well known, or juveniles which have little taxonomic value. We further culled by releasing duplicates. The number of specimens remaining to be studied in the lab with a stereo microscope was about 250, still containing some that were possibly juvenile, but being tiny, needed verification.

About 165 adults were retained after microscope examination and of these we found a little under a quarter, or 37 species, were not yet described, being 13 confirmed new species, and 24 putative (judged to be) new species, being those for which we could find no match in the literature but which would require examination by other experts or a revision of their genus or family. Orb Weavers (Araneids) are especially difficult to declare as new species because many taxa are described, but lack good documentation and in some cases are without any remaining specimens from their type series.

Naturally we found fewer new undescribed species

Another specimen of the tiny, new, undescribed *Tharrhalea-Lehtinelagia* sp. (Thomisidae) body length 1.50 mm, found on Saturday 25 August at Carlo Point. This the male. ROBERT WHYTE





As far as we know this is the world's first image of a live specimen of *Cetratus circumlitus* (L. Koch, 1876). Nicknamed "White-line Fever" it was collected by the Spiders team at Carlo Point on Saturday 25 August 2018. This is a range extension for a species previously known only from NSW. The undescribed male was also found at the site. ♀ 5 mm ♂ 4.5 mm ROBERT WHYTE

as we progressed, because we recognised the same new species occurring in each location, not retaining specimens where this was obvious.

It was remarkable, however, how many completely new species we found at Seary's Creek and Inskip Point and in particular Inskip Point where the diversity was simply mind-blowing. It suggests the affect of an overlap of many habitat types, because of the still-water side being close to the open ocean side, and the forest, wallum, dunes and heath all in close proximity in a small area. Sampling skills were also improved by that time. The collection at Inskip Point was cut short by half because of rain, making it all the more astonishing.

- ☐ 700 specimens collected
- ☐ 155 juveniles, duplicates or well known taxa immediately released
- ☐ 300 further duplicates and juveniles released on site
- ☐ 80 duplicates, juveniles or DOA released or discarded after microscope examination
- ☐ 165 adults examined
- ☐ 13 confirmed new
- ☐ 24 putative new
- ☐ 37 new species total

A putative (unconfirmed) new *Opisthoncus* sp. body length 3.8 mm from Carlo Point, Saturday 25 August 2018. This Back-walking Garden Jumping Spider could solve a puzzle in *Opisthoncus*. It is a small jumper in the *Opisthoncus parcedentatus* group because if its jaws and male sex organ, but could be the undescribed male *Opisthoncus serratofiasciatus*. ♀ 5.5 mm ♂ 4 mm ROBERT WHYTE