

If you've ever wandered in the bush at night with a head torch on you have probably noticed peculiar reflections on the ground, silvery-yellow pin-pricks of light. And not just in the bush – these same lights can be seen on lawns in urban backyards. If you're very observant you'll see that these reflections move and if you get close enough you'll see the culprit, a wolf spider. The eyes of these spiders reflect light and even tiny spiderlings can be detected using this method. However, the light source must be near your eyes; a torch near your waist is ineffective.

Wolf spiders are among the most diverse spider families and occupy nearly all terrestrial habitats in the world, from the seashore to the slopes of the highest mountain ranges. They are instantly recognisable by the arrangement of their eyes, with four small eyes in a straight line near the front of the carapace (the 'head') and four large eyes arranged in a square just behind them. It's these large eyes that reflect light.

Despite their ubiquity, not all of the Australian species are described. Indeed, not all of the genera are named. Dr Volker Framenau from Phoenix Environmental Sciences and his colleagues have been chipping away at a series of taxonomic revisions aiming to provide descriptions of Australian wolf spiders. Recent publications include redescriptions of previously named species – a necessary component of modern taxonomic monographs – and descriptions of new species and genera. Many of these new species are from Western Australia, highlighting the great diversity of habitats and the relatively unexplored nature of our biological heritage.

A paper published in 2016 by Volker and his colleague Dr Barbara Baehr of the Queensland Museum, studied the Australian Union-Jack spiders of the genus *Tasmanicosa*, finding 14 species, of which six were new. These spiders are morphologically distinctive with a unique carapace colour pattern that resembles a Union-Jack flag. One species, *Tasmanicosa godeffroyi*, is extremely common in south-western and south-eastern Australia, where it occurs in gardens and native bushland. Another,



Wolf spiders

Tasmanicosa gilberta, is equally widespread. Of the six new species they described, two were from WA – *Tasmanicosa salmo* from Salmon Gums, and *T. stella* from the drier regions of southern Australia.

Another publication by Volker and Peter Hudson from the South Australian Museum examined the wolf spiders of the genus *Tetrallycosa*. All members are salt tolerant, with the widely distributed *T. oraria* occurring on coastal beaches across southern Australia, and 12 other species including eight new species, from salt-lakes in arid Australia. The spiders dig shallow burrows on the salt pan and roam on the dry surface of the lake at night, where their pale or contracting colouration provides camouflage from predators.

Wolf spiders are vagrant hunters, and chase their prey at night. They prefer to eat insects but will also devour other invertebrates such as small spiders. Unlike many other spiders, they do not use webs to capture or subdue their prey, they simply pounce and inject their victim with venom before crunching them into a paste to suck in the juices.

Many dig a shallow burrow in the ground and some, like the Australian *Hoggicosa*, cover the entrance with a thin silken flap. It's easy to be fooled by these spiders – closer inspection of a shining reflection can just reveal a flap with the owner safely tucked in its burrow.

Above A female Forrest's wolf spider (*Hoggicosa forresti*).
Photo – Jiri Lochman

Wolf spiders have some fascinating behavioural traits. Females carry their egg sacs attached to their spinnerets (situated at the end of the abdomen) and when the young emerge from the sac, they clamber onto their mother's back. This provides protection for a few weeks until they are a bit larger and able to fend for themselves. The juveniles of many species are capable of dispersing by ballooning, where they release a long silken thread that gets caught in a draught of wind, lifting the spider into the air. It's a game of chance, as they can't guarantee where they'll land. If it's at sea, they quickly become fish food. But if they land in a favourable habitat it provides a magnificent way of locating new environments. Their ability to scatter with the wind has enabled wolf spiders to colonise far-flung islands. Indeed, wolf spiders were among the first colonists on Krakatau after the cataclysmic eruption of 1883 that obliterated all life on the islands. This dispersal behaviour has resulted in some species having very broad distributions, even though others have smaller ranges, presumably limited by environmental factors.

So, pick up a torch and head into the night. There are plenty of silvery points of light out there to be seen – silent hunters lurking in the dark.