



Hadronyche sp.

<h1>Funnel-web Spiders</h1>	<h2>Fact Sheet</h2>
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Introduction

Funnel-web Spiders are one of the most feared spiders in Australia. Few people are unaware of the notorious Sydney Funnel-web and its frequent run-ins with the residents of the New South Wales capital. And for good reason: Funnel-web Spiders are the most dangerous spiders in Australia, potentially the world.

There are 15 named species of Funnel-web Spiders that belong to the Family Hexathelidae, a family closely allied with Trapdoors and Tarantulas, all of which belong to the larger group: the Mygalomorphae. The Mygalomorph spiders are a primitive group of spiders characterised by having parallel, rearward pointing fangs.

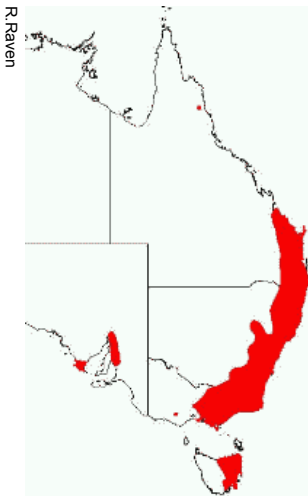


Figure 1. Distribution of Funnel-web Spiders in Australia.

Within the Hexathelidae there are two genera of Funnel-web Spiders, *Atrax* and *Hadronyche*. Species of *Atrax* are known only from the Sydney region (including the Sydney Funnel-web, *Atrax robustus*), but *Hadronyche* species are found across a much broader distribution along the east coast of Australia (Figure 1), with at least six species known from Queensland.

Around Brisbane, Funnel-webs are found at the base of Mt Coot-tha, in Daisy Hill Forest Park and adjacent parts of Springwood, and have recently been discovered in Newmarket. Their distribution in Queensland

is much more restricted than southern populations due to their tendency to inhabit moist, cool rainforest situations; unlike their southern counterparts where they also occur in drier eucalypt forests. Funnel-webs are extremely rare in lowland areas of Queensland within their distribution as shown in Figure 1.

Biology

Male and female Funnel-web Spiders exhibit distinctly different behaviours. While females are largely sedentary and stay in their burrows – only launching out to attack and ensnare a prey item – males actively roam at night searching for females to mate with.

In Queensland, males are most active after light rain during the warmer months of October to May, and it is at this time they are most likely to be encountered wandering into houses or falling into swimming pools. Before daybreak, a male will seek out a moist, dark space to seal himself away for the duration of the day.

If a male is fortunate enough to discover a female, his luck may

well come to an abrupt end: mating in the Funnel-web world is especially deadly. During the mating ritual, females raise the front half of their body in a striking attack pose, within which the male must navigate and use his front legs to hold back the female, preventing her from biting him before he has delivered his precious cargo of sperm (Figure 2).

Like other spiders, male Funnel-web Spiders carry their sperm packet in the bulbous tips of their palps, the forward-most pair of leg-like appendages situated on either side of the fangs (Figure 3). Once mating is complete, the male is either killed by the female as he attempts to retreat, or he dies soon after.



Figure 2. Mating Funnel-web Spiders



Figure 3. Close up of front of male showing tip of palp (red)

After mating, females return to their burrow to lay their eggs. It takes a few weeks for the eggs to hatch, often filling the burrow with over 100 hatchlings when they do. Soon after, the young spiderlings leave the maternal burrow to build nests nearby and begin a life of their own. After five to seven years, surviving offspring reach sexual maturity and begin mating themselves. Adult females can live for up to 20 years.

Burrows of Funnel-web Spiders occur in several different forms and locations: exposed in crevices of tree trunks, concealed within trunks, under rocks, on creek banks, or in soil. Despite their name, the visible entrance to a Funnel-web Spider burrow does not obviously look funnel-shaped, and may appear like an 'X' or 'T'. The top of the burrow is divided into 2 to 4 soft



openings, each with several radiating strands of strong silk. These strands are called triplines and are used by the concealed spider to detect passing insects, lizards, or frogs to feed upon. The entrance itself is held open by silk or may fall limply, completely concealing the entrance. The inside of the burrow is lined with a long, dirty white sock of tough, parchment-like silk.

Funnel-web venom and its effect on humans

There have been only 14 recorded deaths caused by Funnel-web Spiders in Australia, all during the period 1927 – 1980, with no deaths recorded since the development of anti-venom in 1980 by the Commonwealth Serum Laboratories. Due to the close proximity of the Sydney Funnel-web Spider to a dense human population, most deaths are recorded from this region, but males of the genus *Hadronyche* have been responsible for deaths as far north as Wauchope in Northern New South Wales.

Previously it was believed that the bite from a male Funnel-web Spider was more toxic than that delivered by a female, however recent studies have revealed the components of male and female venom to be similar; males appear more venomous simply because they are more frequent biters. Sydney Funnel-web Spider venom remains the most toxic venom known due to the presence of Atracotoxin, a component not found among species of *Hadronyche*.

Funnel-web Spider bites do not always result in symptoms, as like other spiders they do not always deliver venom into the wound. In cases where venom is delivered, symptoms usually consist of severe pain followed by numbness of the bite area. Vomiting, sweating, and muscular cramps may also occur. The venom contains lethal neurotoxins that act on the nervous system of humans and other primates, however other animals such as cats and dogs are largely unaffected by Funnel-web Spider venom. The complex chemistry of Funnel-web Spider venom does have some positive attributes for human society, however, as it is now the subject of research into new methods of insect pest control.

In the event of a suspected Funnel-web Spider bite, medical attention should be sought immediately and the patient kept calm and moved only if needed. A broad bandage should be firmly applied to the bite area and just below it, bandaging firmly up the length of the limb towards the heart. Apply a wooden splint to immobilise the limb. The pressure bandage should only be removed under medical supervision.

Bites can be avoided by shaking out loose clothing or shoes that have been left on the floor during the Funnel-web season. Bites have also occurred while cleaning out gutters and pipes clogged with leaves.

Identifying Funnel-webs and their confusion with other spiders

Funnel-web Spiders are often confused with their close relatives. Usually these Funnel-web-like relatives are considered essentially harmless and of no serious concern to humans. These close relatives are also much more frequently encountered in suburban Queensland backyards than their potentially deadly Funnel-web counterparts.

Funnel-web Spiders are distinguished by often being fairly large spiders. Their general body colour is black, with a black or dark plum coloured abdomen (the back half of the spider's body), although females may have lighter coloured abdomens when carrying lots of eggs. Legs are long and black.

Another diagnostic feature of Funnel-web Spiders is the shiny, jet-black, and hairless front half of the body (the cephalothorax) Close relatives of Funnel-web Spiders usually have some hair on the cephalothorax.

Mouse Spiders (Figure 4) are often confused with Funnel-web Spiders because of their black colouration, large downward-pointing fangs, and highly aggressive attitude. Mouse Spiders

are, however, often smaller (usually only up to the size of a 50c piece) and have disproportionately large fangs. These large fangs are serviced by equally large muscles which result in a distinct step-up towards the front half of the cephalothorax; the cephalothorax of Funnel-web Spiders is much flatter.



Figure 4. Mouse Spider (*Missulena* sp.)

Other Trapdoor Spiders, such as Wishbone Spiders, tend to be paler in colour (often with shades of brown or grey) unlike jet-black Funnel-web Spiders. They also have hairs on their cephalothorax, unlike the bald Funnel-web.

Wolf Spiders (Figure 5) are occasionally mistaken for Funnel-web Spiders because they are frequently found in burrows and roaming about at night. These spiders do not belong to the Mygalomorph group, and possess fangs that face inwards toward each other rather than projecting downwards. They are also usually brown and distinctly patterned, and possess a large pair of forward-facing eyes, unlike Funnel-web Spiders who have small eyes, all of equal size and closely clustered together.



Figure 5. Wolf Spider (*Lycosa* sp.)

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Further reading

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