

Golden Orb-weavers

Fact Sheet



A Humped Golden Orb-weaver, her abdomen swollen with unlaidd eggs. Image: Steve Wilson.

Golden orb-weavers (*Nephila* spp) are found throughout the warmer regions of the world in Africa, the southern United States, South America, and the Asia-Pacific region, including Australia. Five species are found within the Asia-Pacific region. They always have large female and tiny male spiders and use yellow silk in their webs.

In Australia female Golden Orb-weavers are perhaps our most familiar spiders. They are conspicuous and suspend their spectacular yellow-tinged webs across open spaces.



A Golden orb weaver female in her web, probably *Nephila plumipes*. Image: QM, Jeff Wright.

The web

Golden Orb-weavers build their web in a classic wheel-shape with spoke-like threads radiating from a hub. An outer frame of stiff support threads connect the web to trees, wires, or other supports which may be spaced many metres apart. Lying across the supporting spoke threads are finer and more elastic threads that encircle the hub in parallel rows. These are armed with beads of glue to snare flying insects. The female hangs waiting at the hub with her front legs facing downwards. The hub is not central, but rather set closer to the top edge of the web. The web creates a sensory zone for the spider extending far beyond her slender feet. Spiders are ultrasensitive to vibrations transmitted through surfaces, so the web gives the spider a tactile reach of about 1 metre.

The size and strength of orb webs is one of the remarkable feats of engineering in the animal kingdom. The largest orb webs are those built by Golden Orb-weavers. When an insect hits an orb web, the capture threads can stretch to 2.7 times their original length as they absorb the insect's

energy. Amazingly, even though an insect only contacts a few threads when it hits a web, these can be strong enough to hold strongly-flying insects. On rare occasions the web may accidentally entangle small birds. Accordingly Golden Orb-weavers are sometimes referred to as one of the 'bird-eating spiders'. However, this is a misleading name.

Most of the web is flat, but there are some accessory lines such as the extra set of sparse barrier threads set away from the surface of the main web. These probably help protect the spider from predators such as birds. Directly above where the female sits, she hangs a vertical chain of silk-wrapped dead insects. This has been referred to as a food cache; insects are added to it when conditions are good and are used up when food is scarce.

Hotel *Nephila*

Because Golden Orb webs are large and tend to remain in the one place for long periods, they offer great opportunities for a wide range of other spiders to either live in the web or build an adjoining web.

The Dewdrop Spider (*Argyrodes antipodianus*) is the most common of at least five species of *Argyrodes* that inhabit Golden Orb-weaver webs. Dewdrop spiders are readily recognisable by their brilliantly reflective silvery bodies and moderately humped abdomens. They are found in many different webs of large spiders and are very common in Golden Orb webs. Their distinctive 'stalked' egg-sac is also easy to spot. They venture onto the host's web from their small webs built on the margins—mostly to steal food. If the host spider becomes agitated at their thieving antics, the dewdrop spider can escape using special behaviours such as swinging away on a silk thread.



Dewdrop spider and egg-sac. Image: QM.

The presence of freeloading *Argyrodes* is not appreciated by the Golden Orb-weaver but her only option is to tolerate them or move her web. When large numbers of *Argyrodes* are present they can significantly reduce the amount of food available to her and despite their small size, species of *Argyrodes* can also pose a very direct threat by attacking the host orb-weaver and her young spiderlings. It is the largest species of *Argyrodes* that are more likely to attack.

Male Golden Orb-weavers are another frequent visitor to the webs of their female mates. They have a body 4-5 mm long and have an oval abdomen twice as long as it is high.

Life

Mating for the relatively tiny male Golden Orb-weavers is dangerous and he initiates courtship with great caution. Nevertheless, males are not always eaten during courtship or after mating.

Near the end of their life, females produce usually a single egg sac. Humped Golden Orb-weavers near Sydney produce a single egg sac containing, on average, 380 eggs covered with fluffy yellow silk which they suspend amongst vegetation. Once the eggs hatch, the spiderlings do not emerge from the sac until sometime after their second moult and even then they stay close to the egg sac for several days. Gradually they become active and are ready to feed, journeying from their mother's web to produce webs of their own.

When large female orb-weavers suddenly disappear from their webs, it is often assumed that birds have taken them. This is sometimes the case but it is also common for older females to die of natural causes soon after they have reproduced. Despite their size Golden Orb-weavers spiders only live for about a year.

Humped Golden Orb-weaver *Nephila plumipes*

Humped Golden Orb-weavers, sometimes called Coastal Golden Orb-weavers, are found in northern coastal areas with most records from coastal Queensland and New South Wales. However, they occur as far south as central-coastal New South Wales. This is the species commonly seen in Brisbane. The so-called 'humps' on this spider are really two bumps or mounds on their underside near the base of their second leg with other smaller bumps posterior to these.

Australian Golden Orb-weaver *Nephila edulis*

This species is found throughout Australia, including Tasmania, and is the common species found inland of the Great Dividing Range and in drier areas. Females lack large bumps on their underside. The scientific name 'edulis' means edible and it was christened with this name after the original describer noted indigenous people eating this spider in New Caledonia.

Giant Golden Orb-weaver *Nephila pilipes*

This spectacular spider is the largest of the Golden Orb-weavers, with a leg-span of over 150 mm and a body length up to 42 mm. Their abdomen is variable in colour but the legs are typically black with strongly contrasting yellow 'knee' joints. They always have a bright red base to their palps (the small leg-like appendages either side of the fangs). They lack the brushes found on the legs of the other two species.

They are typically found on the edge of forests in coastal Australia from north of Bellingen NSW, however they only become common in the tropics and are widespread throughout Papua New Guinea and tropical Asia. In recent years they appear to have become more common in southern Queensland. Giant Golden Orb-weavers differ from other *Nephila* species in that they bury their egg sac (containing over 2000 eggs) in the ground, and females almost never eat their male partner.



Giant Golden Orb-weaver female and a tiny scavenging *Argyrodes* sp. Image: Steve Wilson.

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