

Cosmophasis Simon, 1901

Taxonomy

Cosmophasis, found in Australian, Pacific and Oriental Regions has ten Australian species: *Cosmophasis baehrae*, *C. bitaeniata*, *C. colemani*, *C. darwini*, *C. lami*, *C. modesta* (doubtful), *C. micans* (*C. thalassina* misidentified by Koch), *C. micarioides*, *C. obscura* (doubtful) and *C. thalassina*. Many of these are shared with Papua New Guinea, Indonesia, Singapore and Malaysia. *Cosmophasis lami* from Fiji is found in Australia in ports (Darwin, Townsville and on the Cocos-Keeling Islands, Whyte and Anderson, 2017, Richardson unpubl.) suggesting human-aided dispersal. Specimens identified as *Cosmophasis micans* are usually *Cosmophasis thalassina*, the most common Australian species. Further information on the genus and described species can be found in Žabka and Waldock (2012), Richardson and Žabka (2017) and Whyte and Anderson (2017).

Description

Cosmophasis spp. are medium-sized to large spiders, with body lengths ranging from 5 to 11 mm, usually with a long, narrow abdomen and a high, flat-faced cephalothorax and long jaws. Others can be rounded with the abdomen as wide as, or wider than the cephalothorax and with shorter jaws. Many species are very brightly-coloured, especially as juveniles, with latitudinal and longitudinal metallic green, orange, red, yellow, black, brown and white stripes while others are more subdued in colour. The chelicerae have a single retro-marginal tooth (unident) with two teeth on the promargin. Some species also have a large projecting tooth on the front of the paturon. The legs are slender and do not differ greatly in length.

The male's palp has a long, slender embolus arising from the proximal or lateral edge of the tegulum which extends distally well past the tegulum. The tegulum is rounded and without a proximal lobe. The retro-lateral tibial apophysis is short and slender, sometimes with a hooked end.

The female has two epigynal atria adjacent to the epigastric fold with well-developed guides. The copulatory openings are located near the posterior edge of the atria and lead to insemination ducts which travel anteriorly, following a convoluted path then joining highly-convoluted, tube-like spermathecae.

Biology

Cosmophasis spp. are found on foliage in habitats ranging from grasslands to rainforest. *Cosmophasis bitaeniata* cohabits with ants and is a chemical (rather than physical) ant-mimic (Allen et al. 2001, 2002). *Cosmophasis* has been used in studies of spider vision, for example by Li and co-workers (2005). Males, especially *Cosmophasis thalassina*, drum the substrate with their pedipalps.

Distribution

Cosmophasis is found in the northern half of Australia south to Brisbane, and on offshore islands, as well as southeast Asia and the southwest Pacific. *Cosmophasis baehrae* is the most widespread species and is found from coastal WA to Brisbane Qld and well inland in the tropics.

References

- Allan, R.A., Capon, R.J., Brown, W.V. & Elgar, M.A. 2002. Mimicry of host cuticular hydrocarbons by salticid spider *Cosmophasis bitaeniata* that prey on larvae of tree ants *Oecophylla smaragdina*. *Journal of Chemical Ecology* 28, 835-848.
- Allen, R.A. & Elgar, M.A. 2001. Exploitation of the green tree ant *Oecophylla smaragdina*, by the salticid spider *Cosmophasis bitaeniata*. *Australian Journal of Zoology* 49, 129-137.
- Davies, V.T. & Žabka, M. 1989. Illustrated keys to the genera of jumping spiders (Araneae: Salticidae) in Australia. *Memoirs of the Queensland Museum* 27, 189-266.
- Elgar, M.A. & Allan, R.A. 2006. Chemical mimicry of the ant *Oecophylla smaragdina* by the myrmecophilous spider *Cosmophasis bitaeniata*. *Journal of Ethology* 24, 239-246.
- Li, D. & Lim, M.L.M. 2005. Ultraviolet cues affect the foraging behaviour of jumping spiders. *Animal Behaviour* 70, 771-776.



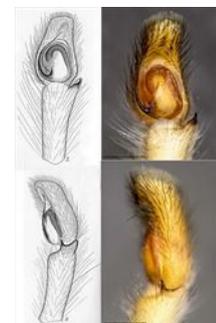
Examples of live *Cosmophasis*

Illustrator (and ©) A.R. Macaulay (TM, BL), R. Whyte



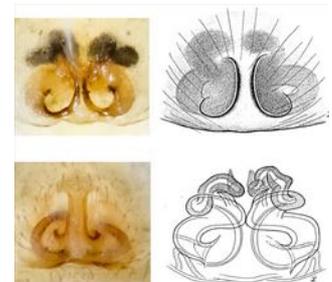
Aspects of the general morphology of *Cosmophasis*

Illustrators (and ©) B.J. Richardson (CSIRO), M. Zabka (diag.) (QMB)



Palp morphology of *Cosmophasis*

Illustrators (and ©) R. Whyte, M. Zabka (diag.) (QMB)



Epigyne morphology of *Cosmophasis*

Illustrators (and ©) R. Whyte, M. Zabka (diag.) (QMB)

Richardson, B.J. & Żabka, M. 2016. Salticidae. Arachnida: Araneomorphae. Canberra, Australian Faunal Directory. Australian Biological Resources Study, at <https://biodiversity.org.au/afd/taxa/SALTICIDAE>.

Whyte, R. & Anderson, G. 2017. *A Field Guide to Spiders of Australia*. CSIRO Publishing: Clayton.

Żabka, M. & Waldock, J. 2012. Salticidae (Arachnida: Araneae) from Oriental, Australian and Pacific regions. Genus *Cosmophasis* Simon, 1901. *Annales Zoologici, Warszawa* 62, 115-198.

* The information sheet should be read in the context of the associated diagrams and photographs. Diagrams explaining anatomical terms can be found in the 'Salticidae' pictures at the beginning of the list of genera.