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Revisions of Australian ground-hunting spiders. V. A new lycosoid genus from eastern Australia (Araneae: Tengellidae)

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Abstract

A new genus, *Austrotengella*, and six new species—*A. toddae, A. hackerae, A. monteithi, A. wrighti, A. hebronae, A. plimeri*—are described from eastern Australia. The genus presents difficulties in its family placement; its relationships are discussed. Downslope altitudinal changes of 400 metres on elevation in the distribution of *A. toddae* contradict predicted shifts from climate change and minimally indicate, in this case at least, that temperature is clearly not the main driver of altitudinal models, which are considered to be far too simplistic.

Key words: Araneomorphae, Tengellidae, Lycosoidea, taxonomy, Australia, biodiversity, biogeography, phenology, distribution, climate change, downslope, altitudinal gradient

Introduction

Tengellid spiders are a diverse and enigmatic group of small to medium-sized spiders that have not been formally reported from Australia. Unlike *Tengella*, the Australian genera hunt in the litter and can easily be mistaken for wolf spiders (Lycosidae) or fishing spiders (Pisauridae). Raven and Stumkat (2005), following Griswold (1993), showed that the family does occur in Australia but that its definition and diagnosis are contentious. The greatest diversity of these spiders is in the USA (Platnick 1999; Platnick and Ubick 2001, 2005, 2008).

Among the collections of the Queensland Museum, one ecribellate group of spiders was identified variously as Pisauridae, Lycosidae, Cycloctenidae, Toxopidae or Amaurobiidae. The problem in placing these spiders is very much akin to that of placing a *Liocranoides* by Barrow (1940) and recounted by Platnick (1999). In the case of the Australian spiders, the three claws, notched trochanters and two recurved eye rows are those of the Pisauridae but the male palp is quite different, lacking pisaurid synapomorphies (see Griswold 1993). On checking for the retrocoxal hymen and predistal tarsal fracture (see Raven *et al.* 2002), which should be absent and present, respectively, in pisaurids, the opposite conditions were noted. That indicated a relationship with other lycosoids (Raven & Stumkat 2005). The similarities (notably in the male palp of this genus) with *Tengella* seemed inescapable, despite the recurved back eye row and absence of a cribellum; it does, however, have a canoe-shaped tapetum and interlocking subtegular-tegular locking lobes (see Griswold 1993). Raven and Stumkat (2005) included this genus in their cladogram as "Australian tengellid" where it grouped with *Bengalla* Gray & Thompson, 2001 as the sister group of the Ctenidae *s. lat.*, not with *Tengella*, as the outgroup.

Silva (2003) examined the relationships of the Ctenidae and a number of groups including the Tengellidae. The preferred cladogram from that study defined the Ctenidae *s. stricto* by the position of the anterior lateral eyes (ALE) relative to the anterior median eyes (AME): the ALE are set so high on the clypeus that they are closer to the eyes of the posterior row than to the AME. However, in *Amauropelma*, Raven *et al.* (2001) showed that the otherwise ctenid-like morphology was contradicted by the normally-positioned two recurved eye rows. Silva (2003) postulated that the ctenoid condition, including that in *Amauropelma*, was diagnosed by a broad epigynal plate, often with lateral teeth. The Ctenidae *s. stricto* (Silva 2003) were delimited by the elevated position of the anterior lateral eyes, only otherwise seen in *Cycloctenus* and perhaps other cycloctenids. However, in *Amauropelma*, the eyes are widely and plesiomorphically not ctenoid in that sense and yet the genus fell well within the Ctenidae *s. stricto* clade close to *Ctenus*, thus the diagnostic eye condition of the Ctenidae is polythetic.

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