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Taxonomy, biogeography and the evolution of twig-lining behaviour in the trapdoor spider genus *Idiosoma* (Mygalomorphae: Idiopidae): the challenge of documenting one of Australia's most diverse spider genera.

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The assembly of the biota of the Australian arid zone has long fascinated biogeographers, and trapdoor spiders of the infraorder Mygalomorphae are a conspicuous and diverse guild of arthropod predators in arid zone ecosystems. The last decade has revealed a hitherto unrecognised diversity of mygalomorph species throughout arid Australia, with the genera *Idiosoma* (family Idiopidae) and *Aname* (family Anamidae) likely to be two of the country's most speciose spider genera, and possibly two of the most diverse mygalomorph genera in the world. Here, we explore the dual challenges of understanding the evolution and biogeography of the iconic spiny trapdoor spiders of the genus *Idiosoma*, and using this phylogenetic foundation to taxonomically document – in a reasonable timeframe – a remarkable fauna of conservation significance. The phylogeny of *Idiosoma* is inferred using a continent-wide taxon sample assembled over the last decade, with 252 terminals incorporating 120 putative species. Arid zone incursions have occurred in multiple lineages out of temperate southern Australia, with behavioural adaptive shifts and the convergent evolution of twig-lining burrow ornamentations a conspicuous feature of the fauna. Complementary taxonomic monography is ongoing, and we discuss the acute challenge of developing an integrative taxonomy for such a highly diverse lineage.

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