



<http://dx.doi.org/10.11646/zootaxa.3637.5.2>

<http://zoobank.org/urn:lsid:zoobank.org:pub:447D8DF5-F922-4B3A-AC43-A85225E56C57>

New species of Mouse Spiders (Araneae: Mygalomorphae: Actinopodidae: *Missulena*) from the Pilbara region, Western Australia

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Abstract

Two new species of Mouse Spiders, genus *Missulena*, from the Pilbara region in Western Australia are described based on morphological features of males. *Missulena faulderi* **sp. nov.** and *Missulena langlandsi* **sp. nov.** are currently known from a small area in the southern Pilbara only. Mitochondrial cytochrome c oxidase subunit I (*COI*) sequence divergence failed in clearly delimiting species in *Missulena*, but provided a useful, independent line of evidence for taxonomic work in addition to morphology.

Key words: taxonomy, systematics, barcoding, mitochondrial DNA, short-range endemism, *Actinopus*, *Plesiolena*

Introduction

The Actinopodidae Simon, 1892 is a small family of mygalomorph spiders with a Gondwanan distribution that includes three genera: *Actinopus* Perty, 1833 (27 species), *Missulena* Walckenaer, 1805 (11 species) and *Plesiolena* Goloboff & Platnick, 1987 (two species). *Actinopus* and *Plesiolena* are known only from South and Central America (Platnick 2012). In contrast, *Missulena* Walckenaer, 1805 includes 10 species from Australia and one species, *M. tussulena* Goloboff, 1994, from Chile.

Australian species of *Missulena*, commonly known as Mouse Spiders, are medium-sized spiders with a steeply elevated cephalic region and a wide eye group (Fig. 1A). Some species have received public attention due to the toxicity of their venom that has been found to be biochemically similar to that of Australian Funnel-web Spiders (family Hexathelidae Simon, 1892) (Isbister 2004; Herzig *et al.* 2008; Rash *et al.* 2000). *Missulena insignis* (O.P.-Cambridge, 1877), *M. occatoria* Walckenaer, 1805 and *M. reflexa* Rainbow & Pulleine, 1918 are known for conspicuous red fangs and cephalic areas in males, although many described species, e.g. *M. bradleyi* Rainbow, 1914, *M. dipsaca* Faulder, 1995, *M. granulosa* (O. Pickard-Cambridge, 1869), *M. rutraspina* Faulder, 1995 and *M. torbayensis* Main, 1996 are uniformly dark brown or black in colour (Main 1956, 1996).

The taxonomy of Australian *Missulena* was first reviewed by Womersley (1943), who recognised and diagnosed six species; only four of these are known from both male and female specimens. Main (1985) summarised the current knowledge of *Missulena* and proposed several taxonomic changes. Shortly after, Faulder (1995) published descriptions of two widespread new species of *Missulena*: *M. dipsaca* and *M. rutraspina*. More recently, Main (1996) named *M. torbayensis* from southwestern Western Australia and noted that “*it is apparent from my field observations and an abundance of specimens (mainly males) in museums that there are many undescribed species.*”

Recent large-scale biological surveys in the Carnarvon Basin (Main *et al.* 2000) and Pilbara region (Durrant *et al.* 2010) of Western Australia have added substantial material of *Missulena*, in particular males, to the collection of the Western Australian Museum (Fig. 2). Our work is based on this material and has two aims: first, we describe males of two morphologically distinct species of *Missulena* from the Pilbara region. Second, we conduct a