



## The type specimens of the Australian open-holed trapdoor spiders attributed to the genus *Proshermacha* (Mygalomorphae: Anamidae)

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### Abstract

The open-holed trapdoor spider genus *Proshermacha* Simon, 1908 was revalidated in 2018 using morphological and molecular data after a century in obscurity. The recent descriptions of several new species of *Proshermacha* from south-western Australia have been hampered by the lack of modern descriptions of the type species, *P. subarmata* Simon, 1908, and of the other species described during the twentieth century and subsequently attributed to the genus. Although a complete revision of the genus is beyond the scope of this study due to the large number of undescribed species, we here redescribe the species named during the twentieth century that are currently attributed to *Proshermacha* based on the original type material. The identity of the type species, *P. subarmata*, is discussed. We propose the new combinations *Proshermacha coenosa* (Rainbow & Pulleine, 1918) **comb. nov.** (from *Aname*), and *Teyl maculatus* (Rainbow & Pulleine, 1918) **comb. nov.** (from *Ixamatus*) and we treat *Chenistonina auropilosa* Rainbow & Pulleine, 1918 as a new junior synonym of *Aname maculata* Rainbow & Pulleine 1918, **syn. nov.**

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## Introduction

The mygalomorph spider family Anamidae is restricted to Australia where it is abundant and widely distributed. The family currently includes 11 genera, which have been treated in several multi-gene molecular phylogenetic studies (e.g., Harvey et al. 2018, 2020b; Rix et al. 2020; Marsh et al. 2023). These studies provided evidence for the presence of two subfamilies: the Anaminae, which includes *Aname* L. Koch, 1873, *Hesperonatalius* Castanelli, Huey, Hillyer & Harvey, 2017, *Kwonkan* Main, 1983, *Swolnpes* Main & Framenau, 2009 and *Troglodiplura* Main, 1969; and the Teylinae with *Chenistonia* Hogg, 1901, *Namea* Raven, 1984, *Proshermacha* Simon, 1908, *Teyl* Main, 1975 and *Teyloides* Main, 1985.

One of the main taxonomic outcomes from these studies was the revalidation of *Proshermacha*, which was removed from synonymy with *Aname*, and newly diagnosed based on various somatic and secondary sexual character states (Harvey et al. 2018). Although *Proshermacha* itself now has a moderately robust diagnosis, the same cannot be said for those species described in the twentieth century, all of which were based on female or juvenile type specimens that often lack species-level diagnostic features compared with males. Indeed, the only description of males prior to Harvey et al. (2018) were some small, indistinct illustrations of *C. tepperi* (now included in *Proshermacha*) by Main (1964). Images of a male of an undescribed species from Western Australia were supplied by Harvey et al. (2018), and males of seven new species have since been described from south-western Australia (Harvey et al. 2023; Leenders et al. 2023; Wilson et al. 2023; Sagastume-Espinoza et al. 2025). In addition, Sagastume-Espinoza et al. (2024) used geometric morphometric analyses to discriminate between the male pedipalps and secondary sexual structures of species of *Proshermacha* occurring in the Stirling Range, prior to their subsequent description (see Sagastume-Espinoza et al. 2025).

The description of seven new species since 2018 has highlighted the problem of the lack of modern descriptions of the older species of *Proshermacha* named in the twentieth century, especially given that geographic distances between known distributions were, in part, required to justify that none were conspecific with the new species (Harvey et al. 2023; Leenders et al. 2023; Wilson et al. 2023; Sagastume-Espinoza et al. 2025). To facilitate further research into the genus *Proshermacha*, we have examined the type specimens of these older species, and provide descriptions and images of their morphology, including the first images of the spermathecae of females in the female type specimens of these species.

## Methods

The specimens examined for this study are lodged in the Australian Museum, Sydney (AM), Natural History Museum, London (BMNH), Western Australian Museum, Perth (WAM), Museum für Naturkunde, Berlin, Germany (ZMB) and Museum of Nature Hamburg–Zoology, Hamburg, Germany (ZMH), and are preserved in 70–75% ethanol. Auto-montaged images were taken at different focal planes (ca. 20–30 images) with a Leica DFC500 digital camera attached to a Leica MZ16A stereo microscope, using Leica Application Suite (LAS) version 2.5.OR1 software.

Morphological terminology follows Raven (1985a, b) and Castalanelli et al. (2020). The following abbreviations are used: AME: anterior median eyes; ALE: anterior lateral eyes; PLE: posterior lateral eyes; PME: posterior median eyes. Pedipalp and leg measurements and ratios were calculated using the terminology and reference points defined by Castalanelli et al. (2020). The species are treated in alphabetical order.

The bioregions mentioned throughout the manuscript are those adopted in the Interim Biogeographic Regionalisation for Australia (Environment Australia 2000; Thackway & Cresswell 1995).

## Taxonomy

### Family Anamidae Simon, 1889

#### Subfamily Teylinae Main, 1985

#### *Proshermacha* Simon, 1908

<https://zoobank.org/NomenclaturalActs/a14bff70-9cd7-4609-ba39-d1f215f279bf>

*Proshermacha* Simon, 1908: 363.

#### Type species

*Proshermacha subarmata* Simon, 1908, by subsequent designation of Rainbow (1911).

#### Diagnosis

Species of *Proshermacha* differ from other anamids as follows: from *Troglodiplura* by the presence of eyes (e.g. Fig. 2C); from all Anaminae (*Aname*, *Hesperonatalius*, *Kwonkan* and *Swolnpes*) by the longer pedipalpal tarsus in males that has a medial constriction; from *Chenistonia* by the long embolus in males; and from *Teyl*, *Teyloides* and *Namea* by the embolus arising from the distal end of the pedipalpal bulb (reflexed in *Teyloides* and most *Teyl* and *Namea*) or by the presence of a single distinct ventral megaspine on tibia I (absent in *Teyl* and *Namea*). Females are more difficult to separate from other genera, however, most *Proshermacha* females can be diagnosed by the presence of straight or obliquely angled spermathecae with a shared atrium (conspicuous in most described *Proshermacha*, less conspicuous in *P.*

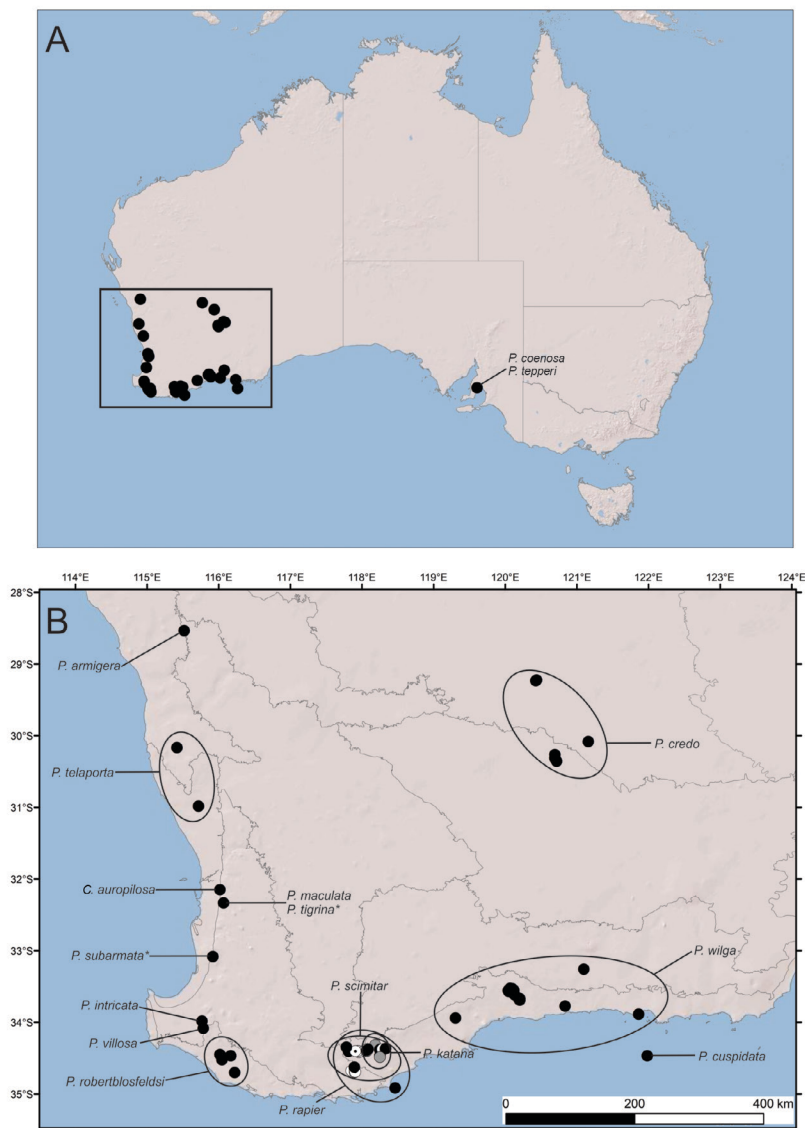


Figure 1. Distributions of the described species of *Proshermacha* Simon, 1908. A, map of Australia depicting *P. coenosa* and *P. tepperi*; B, map of southwestern Australia depicting the other species. The two species here designated as *nomina dubia* (*P. subarmata* Simon, 1908 and *P. tigrina* Simon, 1908) are indicated with asterisks. The type locality of *Chenistonia auropilosa* Rainbow & Pulleine, 1908, now a synonym of *P. maculata*, is also depicted.

*wilga* Leenders, Beach & Harvey, 2023, and potentially absent in the degraded type of *P. armigera* (Rainbow & Pulleine, 1918) (e.g. Figs 2J, 5J); spermathecae tightly coiled in *Teyloides* and without a shared atrium in all other genera) and spermathecae without a secondary receptacle (median receptacle present in most *Aname* and *Kwonkan*) (e.g. Figs 2J, 5J). They can further be diagnosed from *Aname*, *Hesperonatalius* and *Kwonkan* by the maxillary cuspules being clustered on the proximo-basal edge (extending laterally in these other genera) (e.g. Figs 3I, 4I). General somatic differences between females of *Proshermacha* and those of *Teyl* and *Namea* are discussed below under the genus *Teyl*.

**Description**

See Harvey et al. (2018).

**Remarks**

As discussed by Harvey et al. (2018), the taxonomic history of *Proshermacha* is rather convoluted. The genus was initially named by Simon (1908) for two species described from south-western Australia that he included in the Nemesieae within the subfamily Ctenizinae. These species, *P. tigrina* Simon, 1908 and *P. subarmata* Simon, 1908, were based on female or juvenile specimens, and compared with the South African genus *Hermacha* Simon, 1902, which has been recently placed in a different family, Entypesidae (Opatova et al. 2020). Nei-

ther species was nominated by Simon (1908) as the type species, leading Rainbow (1911) to select *P. subarmata* as the type species. Given that Simon (1908) explicitly stated that the specimens of *P. subarmata* were juvenile and that the description is much shorter than that of *P. tigrina*, Rainbow's choice was particularly unfortunate. The lectotype from Harvey, Western Australia, designated by Main (1985a), is a juvenile (Figure 6), as are the paralectotypes from Wooroloo which are lodged in ZMH and WAM.

*Proshermacha* lapsed into obscurity, only appearing in catalogues (Bonnet 1958; Roewer 1942), until Main (1982) noted that *P. tigrina* and *P. subarmata* should be included in the Diplurinae, which at the time included all Australian taxa nowadays included in the Anamidae, as well as genera nowadays included in Microstigmatidae (*Kiama* Main & Mascord, 1969, *Ixamatus* Simon, 1887 and *Xamiatus* Raven, 1991) and Pycnothelidae (*Stanwellia* Rainbow & Pulleine, 1918) (World Spider Catalog 2025). At the same time, Main (1982) synonymised *Proshermacha* with *Chenistonia*, and treated *P. subarmata* and *P. tigrina* as junior synonyms of *C. tepperi*. Due to differences in burrow morphology and abdominal colour which “may represent distinct species” (Main 1982: 86), she treated *C. tepperi* as a ‘superspecies’. The taxonomic position of *C. tepperi* has been slightly volatile, with Main (1982, 1985a, 2012) treating it as a member of the genus *Chenistonia*, and Raven (1981, 2000) including it in *Aname*, based on differing interpretations of the significance of the length of the embolus. The recent revision by Harvey et al. (2018) treated *Chenistonia* and *Aname* as distinct genera, citing consistent, complimentary morphological and molecular phylogenetic differences, and they were later included in different subfamilies, with *Aname* assigned to Anaminae and *Chenistonia* assigned to Teylinae (Harvey et al. 2020b). The molecular analysis of Harvey et al. (2018) found that species traditionally treated as members of *Chenistonia* by Main (1985a) did not cluster with either *Aname* or *Chenistonia* s.s., instead forming a distinct clade sister to *Teyloides*. Harvey et al. (2018) resurrected the genus-group name *Proshermacha* for this third group and transferred eight species from *Chenistonia* to *Proshermacha*, some of which were provisionally removed from the synonymy of *C. tepperi*.

Eight other species have since been added to *Proshermacha* and are not redescribed in this publication. The female holotype of *Aname armigera* Rainbow & Pulleine, 1918 from Mullewa, Western Australia, was found to possess all of the characteristics of *Proshermacha* including the maxillary cuspules being clustered on the proximo-basal edge of the maxilla (Harvey et al. 2020a). The others are new species that were described from south-western Australia: *P. wilga* from the Esperance Plains and Mallee bioregions (Leenders et al. 2023); *P. credo* Wilson, Rix & Harvey, 2023 from the Coolgardie and Murchison bioregions (Wilson et al. 2023); *P. robert-*

*blosfeldsi* Harvey, Wilson & Rix, 2023 from the Warren bioregion; *P. telaporta* Harvey, Wilson & Rix, 2023 from the Geraldton Sandplains and Swan Coastal Plain bioregions (Harvey et al. 2023); *P. katana* Sagastume-Espinoza, Wilson & Harvey, 2025 and *P. rapier* Sagastume-Espinoza, Wilson & Harvey, 2025 from the Esperance Plains bioregion (Sagastume-Espinoza et al. 2025); and *P. scimitar* Sagastume-Espinoza, Wilson & Harvey, 2025 from the Esperance Plains and Jarrah Forest bioregions (Sagastume-Espinoza et al. 2025).

Species of *Proshermacha* are now known to occur across southern mainland Australia, from south-western Western Australia to western Victoria, with the most northerly occurrences from the Murchison bioregion of Western Australia (Figure 1). They occur in a variety of mesic, semi-arid and arid habitats.

### Type species

The juvenile status of the lectotype and paralectotypes of *P. subarmata* threatens the stability of the genus-group name *Proshermacha*, as the identity of the species cannot be accurately ascertained based on morphology. There are several species of *Proshermacha* on the Swan Coastal Plain near Harvey, and we cannot be certain which of these, if any, are conspecific with the lectotype of *P. subarmata*. Furthermore, it is highly unlikely that the lectotype from Harvey is conspecific with the missing syntypes from Wooroloo, as they occur 150 km apart in different bioregions.

The International Code of Zoological Nomenclature (ICZN; International Commission on Zoological Nomenclature 1999) offers three ways to resolve this conundrum. The first is to declare *Proshermacha* as a *nomen dubium*, along with both of the originally included species, and describe a new genus with a new type species for the remaining species. The second is to request the Commission to replace the name-bearing type of *P. subarmata* and replace it with a neotype (Article 75.5). The third is to replace the type species of *Proshermacha* with a different taxon using the Commission's Plenary Power (Article 81.1). We believe that the third option provides the greatest stability, and we have petitioned the ICZN to nominate a new nominal type species that is known from adult males and females, and with associated sequence data, as the type species.

### *Proshermacha armigera* (Rainbow & Pulleine, 1918)

<https://zoobank.org/NomenclaturalActs/47ecbbf8-e50f-401f-9e49-f066921c163e>

*Aname armigera* Rainbow & Pulleine, 1918: 150, plate XXIII, figs 102, 103.

*Proshermacha armigera* (Rainbow & Pulleine): Harvey et al., 2020a: 37, figs 152–156.

**Type material***Holotype*

AUSTRALIA: *Western Australia*: ♀, Mullewa [as “Mullawa” (sic)] [28°32'S, 115°31'E], date unknown, F. May (AM KS.8193).

**Diagnosis**

Females of *Proshermacha armigera* can be distinguished from all other species of the genus by the shape of the spermathecae which comprise of a single pair of widely spaced, thickened, anteriorly directed spermathecae with barely rounded terminal receptacula (Harvey et al. 2020, fig. 156).

**Description**

See Harvey et al. (2020a).

**Remarks**

*Aname armigera* was described by Rainbow and Pulleine (1918) from a single female collected by Miss F. May. It was transferred to *Proshermacha* by Harvey et al. (2020a) after a redescription of the female holotype. No further specimens which match the holotype have been found in museum collections.

*Proshermacha armigera* is known only from the holotype collected from Mullewa in the northern section of the Avon Wheatbelt bioregion, Western Australia (Fig. 1B).

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***Proshermacha coenosa* (Rainbow & Pulleine, 1918), comb. nov.**

## Figure 2

<https://zoobank.org/NomenclaturalActs/D31252F6-66F9-4064-BB1C-EBD1C7EDE846>

*Aname coenosa* Rainbow & Pulleine, 1918: 152, fig. 105.

**Type material***Holotype*

AUSTRALIA: *South Australia*: ♀, Little Kalkabury, Yorke Peninsula [34°14'S, 137°45'E], September 1907, R.H. Pulleine (AM KS.8187).

**Diagnosis**

Females of *Proshermacha coenosa* can be distinguished from all other species of the genus by the shape of the spermathecae which comprise of a single pair of widely spaced, thickened, anteriorly directed spermathecae with rounded terminal receptacula (Fig. 2J).

**Description**

*Female holotype* (AM KS.8187)

*Colour* (in alcohol, faded): carapace mostly yellow-brown with darker radiating bands; chelicerae red-brown; abdomen dorsally and ventrally grey-brown but without paler spots.

*Cephalothorax*: carapace (Fig. 2A) 1.15 × longer than broad; sparsely pilose, uniformly covered with silver and

dark brown setae. Clypeal edge protruding medially. Fovea procurved (Fig. 2D). Eyes on distinct mound (Fig. 2C); from above, anterior eye row straight, posterior eye row slightly recurved; AME about same size as ALE; AME and ALE the largest; PME the smallest; eye group length 0.6, width 1.4. Chelicerae dorsally with a wide band of setae; rastellum absent, but prolateral margin of paturon with numerous short spinulose setae; promargin of tooth row with 8 large teeth, retromargin with 8 small basal teeth. Labium fused to sternum (Fig. 2E); labium without cuspules. Maxilla with 28 (left) cuspules; located on the proximo-basal edge (Fig. 2I). Sternum (Fig. 2E): rounded, posteriorly pointed; 1.06 × longer than broad; uniformly setose; with 3 pairs of sigilla (Fig. 2H), each pair increasing in size from anterior to posterior; with posterior pair ovoid and all reaching edge of sternum.

*Pedipalp*: tarsus densely setose.

*Legs*: coxal cuspules absent (Fig. 2B). Trichobothria: tibia with numerous trichobothria in 2 rows, metatarsi with several trichobothria, tarsi with numerous trichobothria. Claws with 2 rows of teeth; claw tufts absent.

*Abdomen* (Figs 2F, 2G): densely pilose with brown setae. Spinnerets: 2 pairs of spinnerets; PMS unsegmented and separated by about diameter of spinneret; PLS 3-segmented, apical segment elongate, digitiform.

*Genitalia* (Fig. 2J): spermathecae comprising 1 pair of widely spaced, thickened, anteriorly directed spermathecae with rounded terminal receptacula.

*Dimensions (mm)*: Total body length (with chelicerae) 21.1, (without chelicerae) 18.3; carapace length 7.7, width 6.7; sternum length 3.5, width 3.3; abdomen length 10.6, width 7.8. Legs: femur I 6.1.

**Remarks**

*Aname coenosa* was described from a single female collected from the Yorke Peninsula, South Australia (Rainbow and Pulleine 1918) in the Eyre Yorke Block bioregion (Fig. 1A). The burrow morphology was not stated. The holotype is in fair condition but is fragmented with all of the legs disarticulated from the body (Figs 2A, B).

*Aname coenosa* was retained in the genus *Aname* by Main (1985a) and Harvey et al. (2018). Our examination of the holotype revealed that the mouthparts have a narrow band of cuspules on the maxillae (Fig. 2I), and the spermathecae are bulbous and angled laterally. Although the shared spermathecal atrium typical of *Proshermacha* is not visible in the holotype, this may be a result of long-term preservation and degradation (Fig. 2J). Given that the characteristics of the species best fit *Proshermacha*, this species is newly transferred to this genus.

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***Proshermacha cuspidata* (Main, 1954)**

## Figure 3

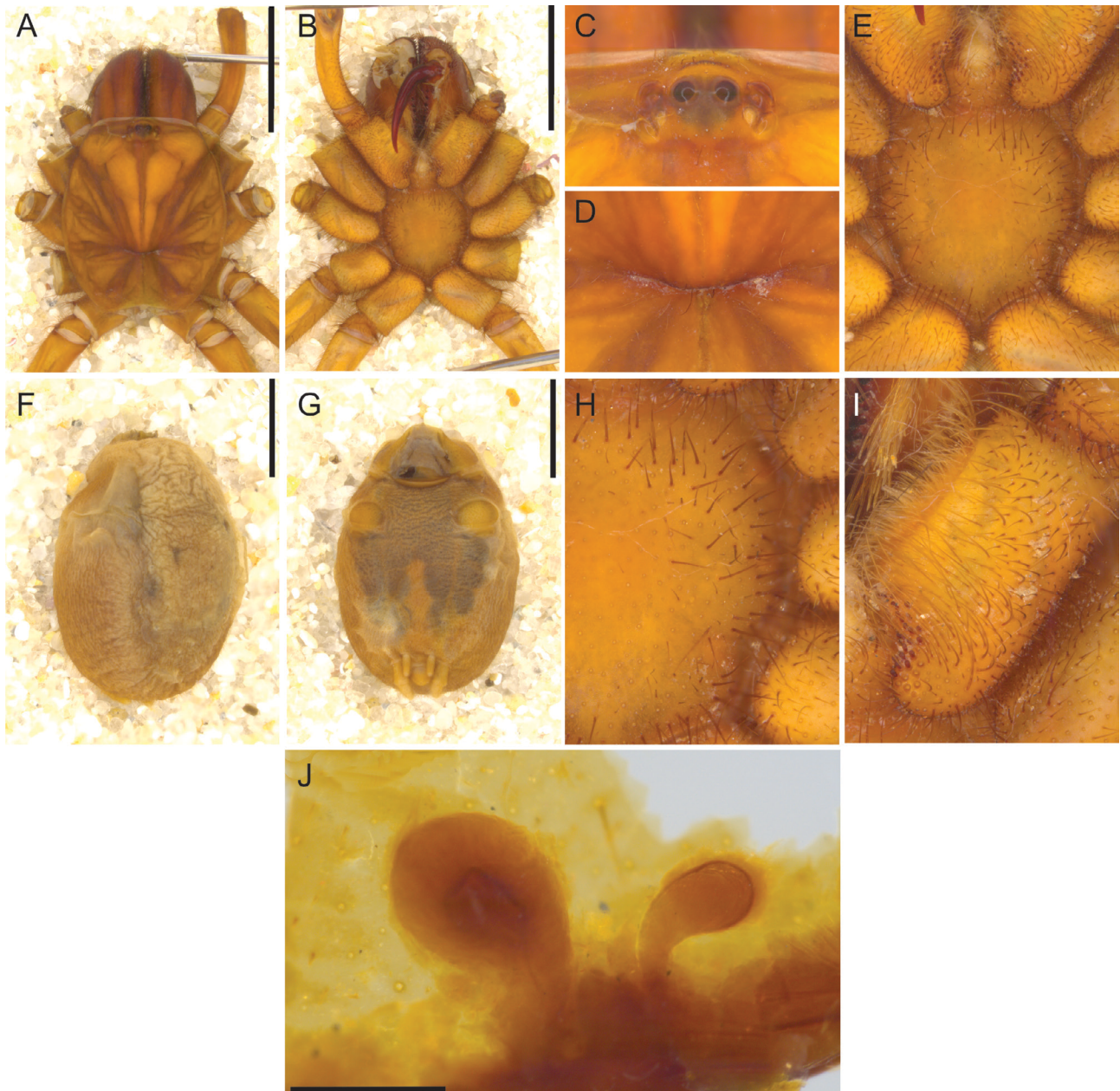


Figure 2. *Proshermacha coenosa* (Rainbow & Pulleine, 1918), holotype female: A, cephalothorax, dorsal view; B, cephalothorax, ventral view; C, ocular region, dorsal view; D, fovea, dorsal view; E, sternum, ventral view; F, abdomen, dorsal view; G, abdomen, ventral view; H, left sternal sigilla, ventral view; I, left maxilla, ventral view; J, spermathecae, dorsal view. Scale bars = 5 mm (A, B, F, G), 0.5 mm (J).

<https://zoobank.org/NomenclaturalActs/EBD4E3BE-B31F-4B53-B5BD-360BD707CC9B>

*Chenistonia cuspidata* Main, 1954: 38–40, plate 1 figs 5–7, plate 2 fig. 8.

*Proshermacha cuspidata* (Main): Harvey et al., 2018: 434.

#### Type material

##### Holotype

AUSTRALIA: *Western Australia*: ♀, Recherche Archipelago, Termination Island [34°28'S, 121°59'E], November 1950, V.N. Serventy (WAM T14279, formerly 82/111).

##### Other material

AUSTRALIA: *Western Australia*: 2 juveniles, Recherche Archipelago, Termination Island [34°28'S, 121°59'E], November 1950, V.N. Serventy (WAM T32703, T32704, formerly 95/1352, 95/1353); 1 juvenile, Recherche Archipelago, Twin Peak Island (probably North Twin Peak Island) [34°00'S, 121°51'E], November 1950, V.N. Serventy (WAM T32702, formerly 95/1351).

##### Diagnosis

Females of *Proshermacha cuspidata* can be distinguished from all other species of the genus by the shape of the spermathecae which comprise of a single pair of widely spaced, thickened, antero-medially directed spermath-

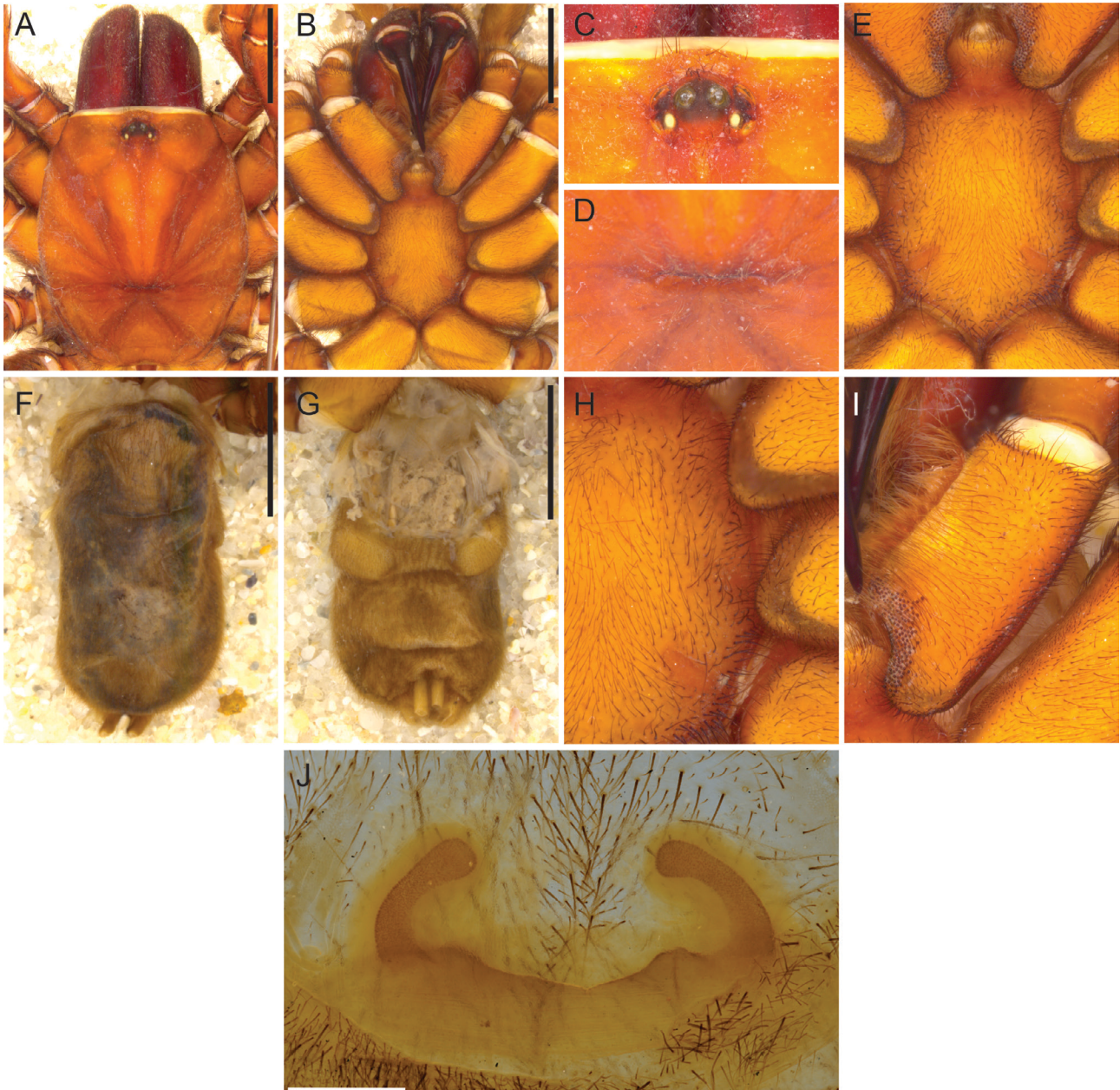


Figure 3. *Proshermacha cuspidata* (Main, 1954), holotype female: A, cephalothorax, dorsal view; B, cephalothorax, ventral view; C, ocular region, dorsal view; D, fovea, dorsal view; E, sternum, ventral view; F, abdomen, dorsal view; G, abdomen, ventral view; H, left sternal sigilla, ventral view; I, left maxilla, ventral view; J, spermathecae, dorsal view. Scale bars = 5 mm (A, B, F, G), 0.5 mm (J).

ecae with rounded terminal receptacula, and the basal portion with a convex enlargement (Fig. 3J).

### Description

*Female holotype (WAM T14279)*

**Colour** (in alcohol): carapace mostly yellow-brown with darker radiating bands; chelicerae dark red-brown; abdomen dorsally grey-brown and apparently with pale, irregular spots, ventrally uniformly yellow-brown.

**Cephalothorax:** carapace (Fig. 3A) 1.21 × longer than broad; densely pilose, uniformly covered with silver and dark brown setae. Clypeal edge protruding medially. Fovea straight (Fig. 3D). Eyes on distinct mound (Fig.

3C); from above, anterior eye row straight, posterior eye row slightly recurved; ALE slightly larger than AME; ALE the largest; PME the smallest; eye group length 1.0, width 1.9. Chelicerae dorsally with a wide band of setae; rastellum absent; promargin of tooth row with 8 large teeth, retromargin with 12 small teeth. Labium fused to sternum (Fig. 3E); labium without cusps. Maxilla with 145 (left) cusps; located on the proximo-basal edge (Fig. 3I). Sternum (Fig. 3E): ovoid, posteriorly pointed; 1.25 × longer than broad; uniformly setose; with 3 pairs of sigilla (Fig. 3H), each pair increasing in size from anterior to posterior; with posterior pair ovoid and reaching edge of sternum.

*Pedipalp*: tarsus densely setose.

*Legs*: coxal cuspules absent (Fig. 3B). Femora paler than other segments. Trichobothria: tibia with numerous trichobothria in 2 rows, metatarsi with several trichobothria, tarsi with numerous trichobothria. Claws with 2 rows of teeth; claw tufts absent.

*Abdomen* (Figs 3A, 3B): densely pilose with a mixture of shorter yellow and longer brown setae. Spinnerets: 2 pairs of spinnerets; PMS unsegmented and separated by about diameter of spinneret; PLS 3-segmented, apical segment elongate, digitiform.

*Genitalia* (Fig. 3J): spermathecae comprising 1 pair of widely spaced, thickened, antero-medially directed spermathecae with rounded terminal receptacula; the basal portion with convex enlargement.

*Dimensions (mm)*: total body length (with chelicerae) 31.3, (without chelicerae) 25.9; carapace length 13.1, width 10.8; sternum length 6.5, width 5.2; abdomen length 12.6, width 6.7. Legs: femur I 9.3; femur II 8.5; femur III 7.5; femur IV 9.6.

### Remarks

*Chenistonia cuspidata* was described from four specimens, the adult female holotype and two juveniles from Termination Island, and one juvenile from "Twin Peak Island", all in the Recherche Archipelago (Main 1954) in the Esperance Plains bioregion (Fig. 1B). The specimens were collected from lidless burrows under rocks (Main 1954).

The holotype is in good condition, with all appendages intact and attached to the body. The configuration of the maxillary cuspules and the spermathecae confirm the placement of *C. cuspidata* in *Proshermacha*, as suggested by Harvey et al. (2018).

The only confirmed locality for *P. cuspidata* is Termination Island, as the identity of the juvenile specimen from Twin Peaks Island cannot be confirmed. Termination Island is situated 50 km from the mainland, and close to the edge of the continental shelf.

The Western Australian Museum collection possesses only four other specimens from islands in the Recherche Archipelago, including two specimens of *P. 'MYG344'* from Goose Island and Mondrain Island, and two unidentified juveniles from Middle Island and Salisbury Island. The unnamed species *P. 'MYG344'* is also known from three localities on the mainland (near Grass Patch, Cape Le Grand National Park, and Orleans Bay), and it differs from *P. cuspidata* by the shape of the spermathecae.

### *Proshermacha intricata* (Rainbow & Pulleine, 1918)

Figure 4

<https://zoobank.org/NomenclaturalActs/B43026CB->

CD5E-4579-9D7D-6D0CD95DCCDD

*Aname intricata* Rainbow & Pulleine, 1918: 157, fig. 111.

*Proshermacha intricata* (Rainbow & Pulleine): Harvey et al., 2018: 434.

### Type material

*Holotype*

AUSTRALIA: *Western Australia*: ♀, Blackwood River, near Nannup [33°59'S, 115°46'E], December 1917, R.H. Pulleine (AM KS.8192).

### Diagnosis

Females of *Proshermacha intricata* can be distinguished from all other species of the genus by the shape of the spermathecae which comprise of a single pair of widely spaced, thickened, obliquely directed spermathecae with rounded terminal receptacula (Fig. 4J).

### Description

*Female holotype* (AM KS.8192)

*Colour* (in alcohol, faded): carapace mostly yellow-brown with darker radiating bands; chelicerae red-brown; abdomen dorsally and ventrally uniformly yellow-brown.

*Cephalothorax*: carapace (Fig. 4A) 1.17 × longer than broad; densely pilose, uniformly covered with silver and dark brown setae. Clypeal edge protruding medially. Fovea straight (Fig. 4D). Eyes on distinct mound (Fig. 4C); from above, anterior eye row straight, posterior eye row slightly recurved; AME slightly smaller than ALE; ALE the largest; PME the smallest; eye group length 0.7, width 1.3. Chelicerae dorsally with a wide band of setae; rastellum absent; promargin of tooth row with 7 large teeth, retromargin with 6 small basal teeth. Labium fused to sternum (Fig. 4E); labium without cuspules. Maxilla with 83 (left) cuspules; located on the proximo-basal edge (Fig. 4I). Sternum (Fig. 4E): rounded, posteriorly pointed; 1.06 × longer than broad; uniformly setose; with 3 pairs of sigilla (Fig. 4H), each pair increasing in size from anterior to posterior; with posterior pair ovoid and reaching edge of sternum.

*Pedipalp*: tarsus densely setose.

*Legs*: coxal cuspules absent (Fig. 4B). Trichobothria: tibia with numerous trichobothria in 2 rows, metatarsi with several trichobothria, tarsi with numerous trichobothria. Claws with 2 rows of teeth; claw tufts absent.

*Abdomen* (Figs 4F, G): densely pilose with brown setae. Spinnerets: 2 pairs of spinnerets; PMS unsegmented and separated by about diameter of spinneret; PLS 3-segmented, apical segment elongate, digitiform.

*Genitalia* (Fig. 4J): spermathecae comprising 1 pair of widely spaced, thickened, obliquely directed spermathecae with rounded terminal receptacula.

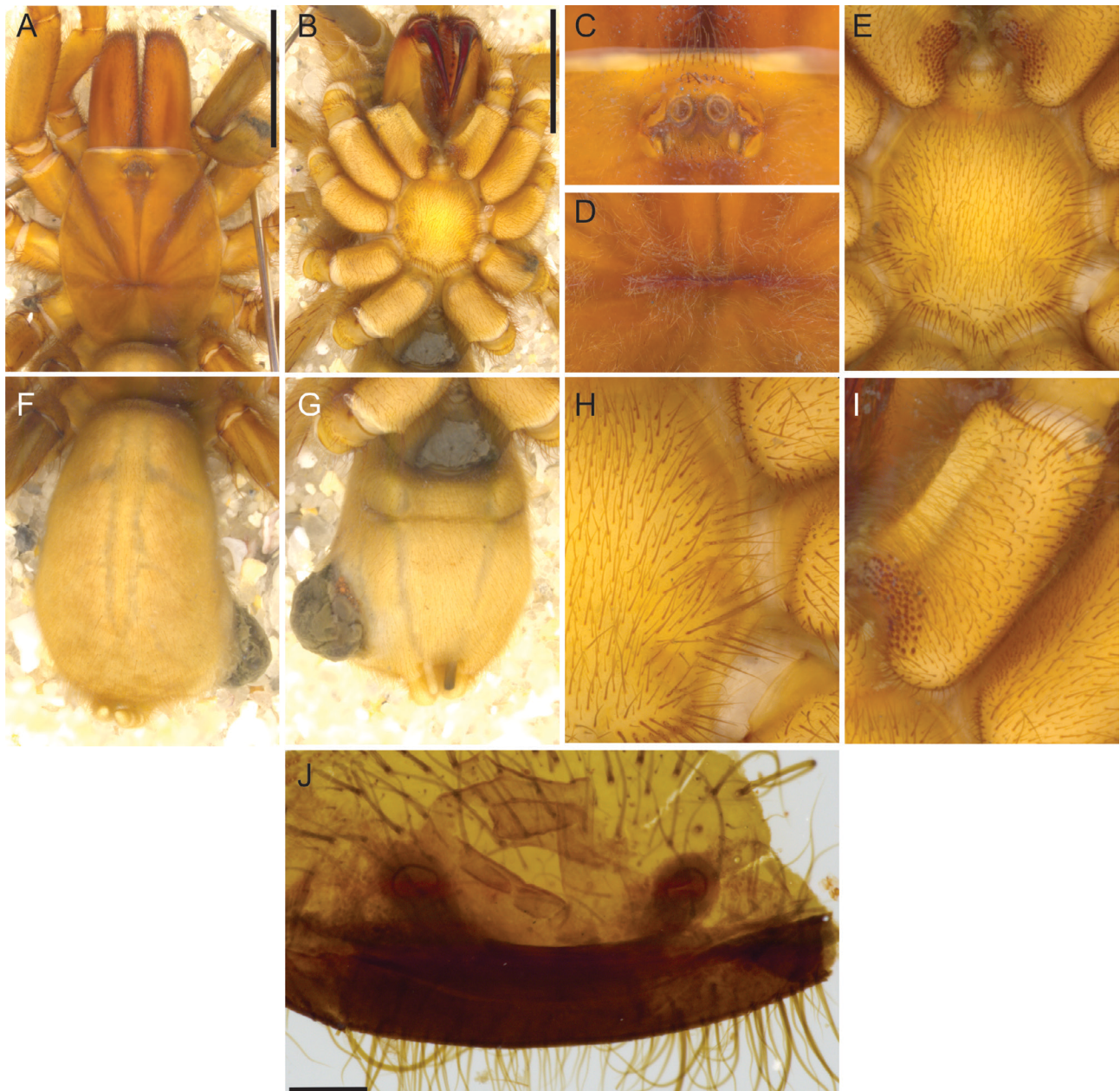


Figure 4. *Proshermacha intricata* (Rainbow & Pulleine, 1918), holotype female: A, cephalothorax, dorsal view; B, cephalothorax, ventral view; C, ocular region, dorsal view; D, fovea, dorsal view; E, sternum, ventral view; F, abdomen, dorsal view; G, abdomen, ventral view; H, left sternal sigilla, ventral view; I, left maxilla, ventral view; J, spermathecae, dorsal view. Scale bars = 5 mm (A, B), 0.5 mm (J).

**Dimensions (mm):** Total body length (with chelicerae) 20.3, (without chelicerae) 15.9; carapace length 7.0, width 6.0; sternum length 3.6, width 3.4; abdomen length 8.9, width 5.6. Legs: femur I 5.7; femur II 5.2; femur III 4.5; femur IV 5.9.

#### Remarks

*Aneme intricata* was described from a single female collected from the “road banks following the course of the Blackwood to Nannup” (Rainbow and Pulleine 1918: 84). The nature of the burrow was not stated. It was treated as a junior synonym of *Chenistonia tepperi* by Main (1982, 1985a) but Harvey et al. (2018) transferred it to *Proshermacha* and reversed the synonymy with *C. tep-*

*peri* due to the presence of numerous species of *Proshermacha* in south-western Australia, and the huge distance between the type localities of *C. tepperi* and *A. intricata*.

The holotype is in good condition and the morphology of the maxillary cuspules (Fig. 4I) and spermathecae (Fig. 4J) confirms its placement in *Proshermacha*. We have not been able to match this female with any other specimens in the Western Australian Museum collection. The specimen was collected only 11 km from the type locality of *P. villosa*, but comparison of the spermathecae demonstrates that they are distinct species, with *P. intricata* having narrow ducts and ovoid receptacula (Fig. 4J),

and *P. villosa* (Fig. 10J) with thick spermathecae without distinct rounded terminal receptacula. The type locality of *P. intricata* is located in the Jarrah Forest bioregion (Fig. 1B).

## *Proshermacha maculata* (Rainbow & Pulleine, 1918)

Figures 5, 6

<https://zoobank.org/NomenclaturalActs/53F688CC-F64C-401B-B5F9-701F88B91106>; <https://zoobank.org/NomenclaturalActs/ABD56CEF-5C22-4B01-AC0E-FCDF96CA41C>

*Aname maculata* Rainbow & Pulleine, 1918: 151–152, fig. 104.

*Chenistonia auropilosa* Rainbow & Pulleine, 1918: 160–161, fig. 115. **New synonymy**

*Proshermacha maculata* (Rainbow & Pulleine): Harvey et al., 2018: 434.

*Proshermacha auropilosa* (Rainbow & Pulleine): Harvey et al., 2018: 434.

### Type material

*Lectotype (present designation)*

AUSTRALIA: *Western Australia*: ♀, Jarrahdale [32°09'S, 116°01'E], 26 May 1912, R.H. Pulleine (AM KS.8190).

*Paralectotype*

AUSTRALIA: *Western Australia*: 1 juvenile, collected with lectotype (AM KS.8190).

*Holotype (Chenistonia auropilosa)*

AUSTRALIA: *Western Australia*: ♀, Armadale [32°09'S, 116°01'E], 23 May 1912, R.H. Pulleine (AM KS.8191).

### Diagnosis

Females of *Proshermacha maculata* can be distinguished from all other species of the genus by the shape of the spermathecae comprising of a single pair of widely spaced, thickened, obliquely directed spermathecae with bulbous terminal receptacula (Figs 5J, 6J).

### Description

*Female lectotype of Aname maculata (AM KS.8190)*

*Colour* (in alcohol, faded): carapace mostly yellow-brown with darker radiating bands; chelicerae red-brown; abdomen dorsally grey-brown with pale, irregular spots, ventrally uniformly yellow-brown.

*Cephalothorax*: carapace (Fig. 5A) 1.2 × longer than broad; densely pilose, uniformly covered with silver and dark brown setae. Clypeal edge protruding medially. Fovea slightly procurved (Fig. 5D). Eyes on distinct mound (Fig. 5C); from above, anterior eye row slightly procurved, posterior eye row slightly recurved; AME about same size as ALE; ALE and AME the largest; PME the smallest; eye group length 0.7, width 1.4. Chelicerae dorsally with a wide band of setae; rastellum absent; promargin of tooth row with 7 large teeth, retromargin with 2 large teeth, plus 15 small basal teeth. Labium

fused to sternum (Fig. 5E); labium without cuspules. Maxilla with 89 cuspules; located on the proximo-basal edge (Fig. 5I). Sternum (Fig. 5E): rounded, posteriorly pointed; 0.97 × longer than broad; uniformly setose; with 3 pairs of sigilla (Fig. 5H), each pair increasing in size from anterior to posterior; with posterior pair ovoid and reaching edge of sternum.

*Pedipalp*: tarsus densely setose.

*Legs*: coxal cuspules absent (Fig. 5B). Femora paler than other segments. Trichobothria: tibia with numerous trichobothria in 2 rows, metatarsi with several trichobothria, tarsi with numerous trichobothria. Claws with 2 rows of teeth; claw tufts absent.

*Abdomen* (Figs 5F, 5G): densely pilose with a mixture of silver and black setae. Spinnerets: 2 pairs of spinnerets; PMS unsegmented and separated by about diameter of spinneret; PLS 3-segmented, apical segment elongate, digitiform.

*Genitalia* (Fig. 5J): spermathecae comprising 1 pair of widely spaced, thickened, obliquely directed spermathecae with bulbous terminal receptacula.

*Dimensions (mm)*: Total body length (with chelicerae) 22.5, (without chelicerae) 17.8; carapace length 7.7, width 6.3; sternum length 3.4, width 3.5; abdomen length 10.8, width 8.3. Legs: femur I 6.2; femur II 5.3; femur III 4.9; femur IV 6.5.

*Female holotype of Chenistonia auropilosa (AM KS.8191)*

*Colour* (in alcohol, faded): carapace mostly yellow-brown with darker radiating bands; chelicerae red-brown; abdomen dorsally grey-brown with pale, irregular spots, ventrally uniformly yellow-brown.

*Cephalothorax*: carapace (Fig. 6A) 1.13 × longer than broad; densely pilose, uniformly covered with silver and dark brown setae. Clypeal edge protruding medially. Fovea slightly procurved (Fig. 6D). Eyes on distinct mound (Fig. 6D); from above, anterior eye row slightly procurved, posterior eye row slightly recurved; AME about same size as ALE; ALE and AME the largest; PME the smallest; eye group length 0.7, width 1.3. Chelicerae dorsally with a wide band of setae; rastellum absent; promargin of tooth row with 8 large teeth, retromargin with 13 small teeth. Labium fused to sternum (Fig. 6E); labium without cuspules. Maxilla with 86 (left) cuspules; located on the proximo-basal edge (Fig. 6I). Sternum (Fig. 6E): rounded, posteriorly pointed; 0.93 × longer than broad; uniformly setose; with 3 pairs of sigilla (Fig. 6H), each pair increasing in size from anterior to posterior; with posterior pair ovoid and reaching edge of sternum.

*Pedipalp*: tarsus densely setose.

*Legs*: coxal cuspules absent (Fig. 6B). Femora paler than other segments. Trichobothria: tibia with numerous trichobothria in 2 rows, metatarsi with several trichobothria

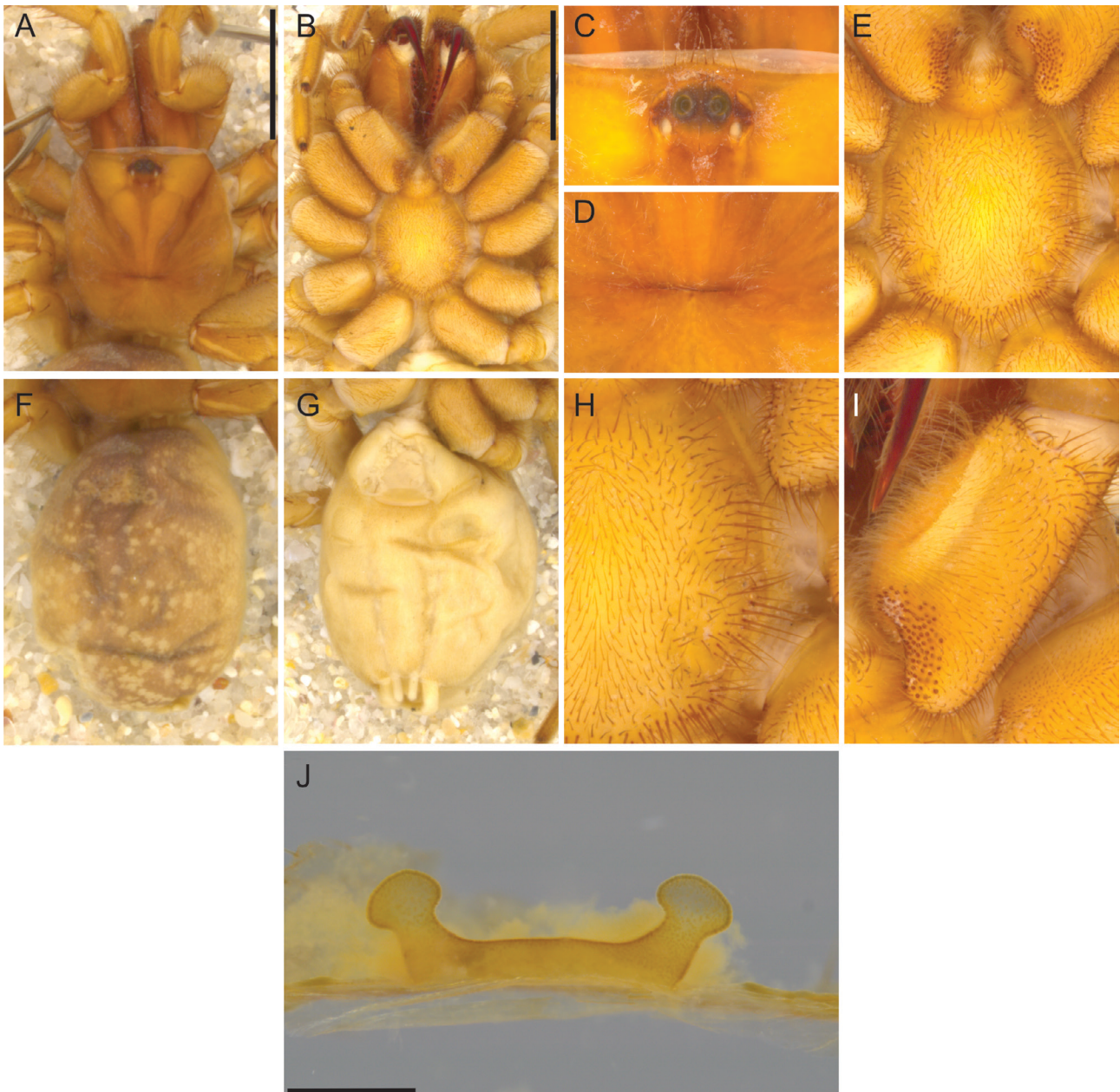


Figure 5. *Proshermacha maculata* (Rainbow & Pulleine, 1918), lectotype female: A, cephalothorax, dorsal view; B, cephalothorax, ventral view; C, ocular region, dorsal view; D, fovea, dorsal view; E, sternum, ventral view; F, abdomen, dorsal view; G, abdomen, ventral view; H, left sternal sigilla, ventral view; I, left maxilla, ventral view; J, spermathecae, dorsal view. Scale bars = 5 mm (A, B), 0.5 mm (J).

ria, tarsi with numerous trichobothria. Claws with 2 rows of teeth; claw tufts absent.

**Abdomen** (Figs 6F, G): densely pilose with a mixture of silver and black setae. Spinnerets: 2 pairs of spinnerets; PMS unsegmented and separated by about diameter of spinneret; PLS 3-segmented, apical segment elongate, digitiform.

**Genitalia** (Fig. 6J): spermathecae comprising 1 pair of widely spaced, thickened, anteriorly directed spermathecae with bulbous terminal receptacula.

**Dimensions (mm):** total body length (with chelicerae) 18.1, (without chelicerae) 14.1; carapace length 6.9,

width 6.1; sternum length 2.9, width 3.1; abdomen length 7.4, width 3.8. Legs: femur I 5.9; femur II 5.3; femur III 4.8; femur IV 6.4.

**Remarks**

The original description of *Aname maculata* recorded that the material was collected from “Jarrahdale Road, Armadale” (Rainbow and Pulleine 1918: 152), but the narrative of the collecting trip stated that the locality was in fact “near Jarrahdale” and “in the steep banks of one of the creeks coming down from the Darling Ranges” (Rainbow and Pulleine 1918: 84). It is difficult to know precisely which watercourse was being referred to, but Gooralong Brook runs adjacent to Jarrahdale

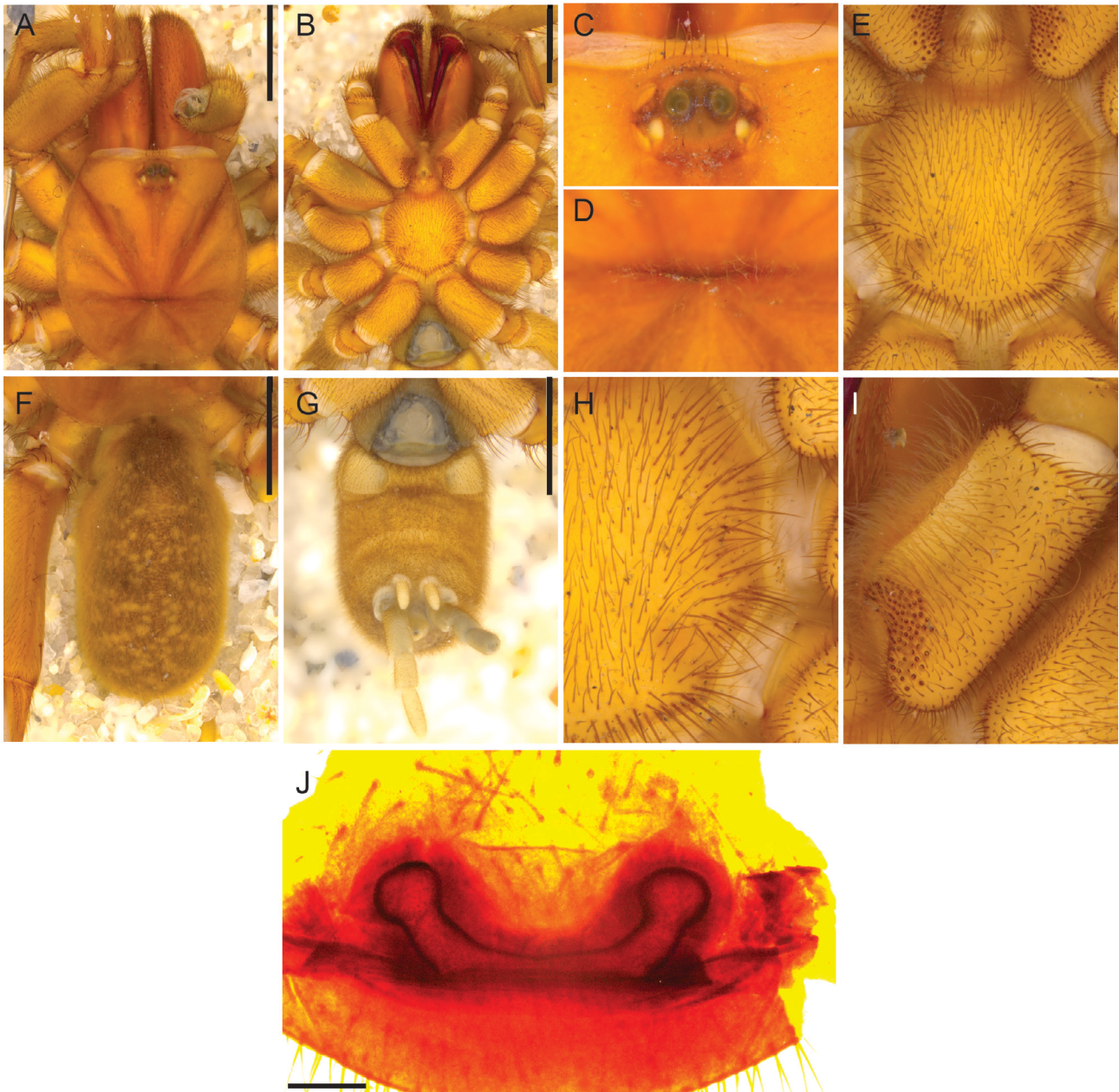


Figure 6. *Proshermacha maculata* (Rainbow & Pulleine, 1918), holotype female of *Chenistonia auropilosa* Rainbow & Pulleine: A, cephalothorax, dorsal view; B, cephalothorax, ventral view; C, ocular region; D, fovea; E, sternum; F, abdomen, dorsal view; G, abdomen, ventral view; H, left sternal sigilla; I, left maxilla; J, spermathecae, dorsal. Scale bars = 5 mm (A, B, F, G), 0.5 mm (J).

which ultimately feeds into the Serpentine River. Main (1985a) was the first to restrict the type locality to Jarrahdale. The burrow was described as “no door to burrow; spun across with web” (Rainbow and Pulleine 1918, page 152), implying that it was not situated under a log or a rock. In addition to an adult female, the vial of type material also contains a small juvenile specimen. Although the maxillary cuspules of the juvenile are arranged in a similar pattern to the female, we hereby designate the female as the lectotype to ensure that the name *Aname maculata* is correctly assigned to the adult. The lectotype has a single pair of thick spermathecae that terminate in bulbous receptacula (Fig. 5J), and a narrow band of cuspules on the maxillae (Fig. 5I). This

configuration is consistent with many species of *Proshermacha* in the vicinity of the type locality.

*Chenistonia auropilosa* was described from a single female taken from an “open burrow” (Rainbow and Pulleine 1918: 161) on the “sheltered banks of a small creek” (Rainbow and Pulleine 1918: 84) at Armadale, Western Australia. The female holotype is in good condition with all but one of the appendages intact and attached to the body. The position of the maxillary cuspules (Fig. 6I) and the morphology of the internal genitalia (Fig. 6J) confirms that *C. auropilosa* belongs to *Proshermacha*.

Main (1982, 1985a) treated *A. maculata* and *C. auropilosa* as junior synonyms of *Chenistonia tepperi*, but Harvey et al. (2018) transferred them to *Proshermacha* and reversed the synonymy with *C. tepperi* due to the presence of numerous species of *Proshermacha* in south-western Australia, and the huge distance between the type localities of *C. tepperi* and the Western Australian species.

Even though Rainbow and Pulleine (1918) described *A. maculata* and *C. auropilosa* in different genera, direct comparison of the type specimens confirms that they are conspecific, especially as the spermathecae are nearly identical (Figs 5J, 6J). The type localities are only 22 km apart and are situated in the Jarrah Forest (*A. maculata*) and Swan Coastal Plain (*C. auropilosa*) adjacent bioregions.

The type series of *A. maculata* contains a female and a juvenile. As the latter cannot be unequivocally assigned to this species, we designate the female as the lectotype.

Despite the presence of several distinct species of *Proshermacha* in the vicinity of the type localities of each species, Armadale and Jarrahdale, Western Australia (Fig. 1B), we have not been able to locate any female specimens in the region that match *P. maculata*.

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### ***Proshermacha subarmata* Simon, 1908, nomen dubium**

Figure 7

<https://zoobank.org/NomenclaturalActs/474f16af-61f1-40de-95db-ef2feca87143>

*Proshermacha subarmata* Simon, 1908: 364.

#### **Type material**

*Lectotype*

AUSTRALIA: *Western Australia*: juvenile, Harvey [33°05'S, 115°54'E], 27 July 1905, W. Michaelsen, R. Hartmeyer (ZMH-A0003086).

*Paralectotypes*

AUSTRALIA: *Western Australia*: 2 juveniles, Wooroloo [31°48'S, 116°19'E], 29 May 1905, W. Michaelsen, R. Hartmeyer (ZMB 35001); 1 juvenile, same data (WAM T143, 11/4272).

#### **Diagnosis**

*Proshermacha subarmata* cannot be distinguished from other species of the genus as adults are not known.

#### **Description**

*Juvenile lectotype* (ZMH-A0003086)

*Colour* (in alcohol, faded): mostly yellow-brown.

*Cephalothorax*: carapace sparsely pilose. Clypeal edge protruding medially. Fovea straight. Eyes on distinct mound; from above, anterior eye row slightly procurved, posterior eye row slightly recurved; AME

about same size as ALE; ALE and AME the largest; PME the smallest. Chelicerae dorsally with a wide band of setae; rastellum absent. Labium fused to sternum (Fig. 7B); labium without cuspules. Maxilla with 40 (left), 38 (right) cuspules; located on the proximo-basal edge (Fig. 7B). Sternum (Fig. 7B): rounded, posteriorly pointed; uniformly setose; with 3 pairs of sigilla.

*Pedipalp*: tarsus densely setose.

*Legs*: coxal cuspules absent (Fig. 7B).

*Abdomen* (Figs 7A, B): moderately pilose, some longer than others. Spinnerets: 2 pairs of spinnerets; PMS unsegmented and separated by about diameter of spinneret; PLS 3-segmented, apical segment elongate, digitiform.

*Dimensions (mm)*: Total body length (with chelicerae) 6.9, (without chelicerae) 5.4.

#### **Remarks**

*Proshermacha subarmata* was described from an unspecified number of juvenile specimens from Wooroloo (Stat. 98) and Harvey (Stat. 136) during the Michaelsen and Hartmeyer Expedition to South-western Australia. None were designated as a holotype, and Main (1985a) designated the specimen from Harvey lodged in ZMH as the lectotype. The type locality is located in the Jarrah Forest bioregion (Fig. 1B).

Main (1982) tentatively treated *P. subarmata* as a junior synonym of *Chenistonia tepperi*, which was confirmed by Main (1985a). Harvey et al. (2018) reinstated *P. subarmata* in the valid genus *Proshermacha* and reversed the synonymy with *C. tepperi* due to the presence of numerous species of *Proshermacha* in south-western Australia, and the huge distance between the type localities of *C. tepperi* and *P. subarmata*.

All of the existing type specimens are rather small juveniles, that can be tentatively referred to *Proshermacha* due to the position of the maxillary cuspules which are clustered on the proximo-basal edge. As discussed above, the lack of adult type specimens renders the species unidentifiable and we regard *P. subarmata* as a *nomen dubium*.

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### ***Proshermacha tepperi* (Hogg, 1902)**

Figures 8, 9

<https://zoobank.org/NomenclaturalActs/A921D768-8BB7-445D-A0C7-0ACA732FE643>

*Chenistonia tepperi* Hogg, 1902: 137–138, fig. 13.

*Proshermacha tepperi* (Hogg): Harvey et al., 2018: 434.

#### **Type material**

*Lectotype* (*present designation*)

AUSTRALIA: *South Australia*: ♀, Ardrossan [34°25'S, 137°54'E], July [18]84, E. H. Cadd (BMNH 1924.III.1.23).

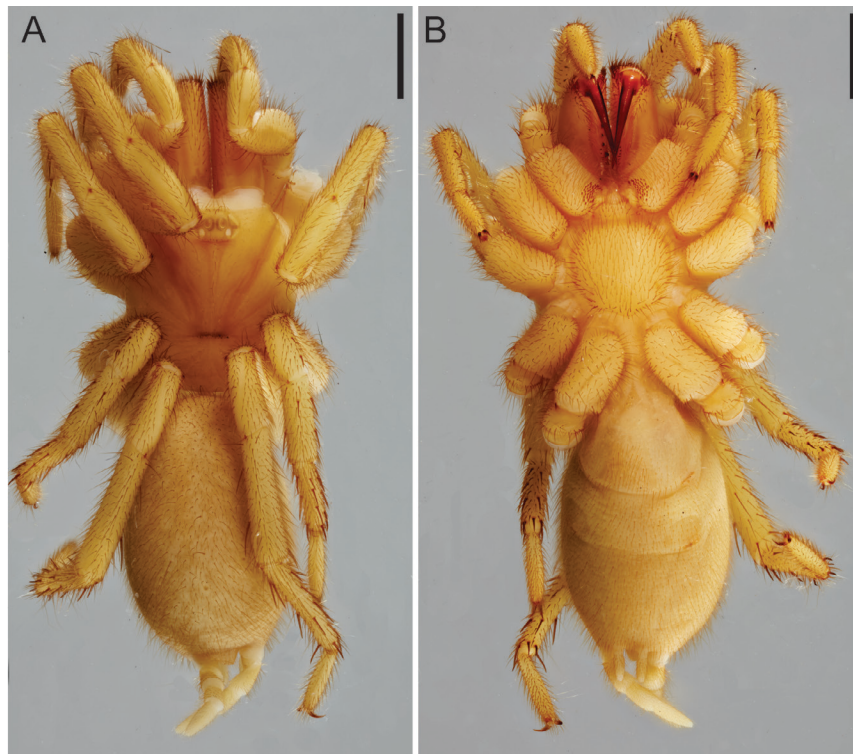


Figure 7. *Proshermacha subarmata* Simon, 1908, lectotype juvenile: A, body, dorsal view; B, body, ventral view. Scale bars = 1 mm.

*Paralectotype*

AUSTRALIA: *South Australia*: 1 ♀, collected with lectotype (BMNH 1924.III.1.24).

**Diagnosis**

Females of *Proshermacha tepperi* can be distinguished from all other species of the genus by the shape of the spermathecae which comprise of a single pair of widely spaced, curved, anteriorly directed spermathecae with rounded terminal receptacula (Fig. 8J).

**Description**

*Female holotype (BMNH 1924.III.1.23)*

*Colour* (in alcohol, faded): carapace mostly brown with darker radiating bands; chelicerae red-brown; abdomen dorsally and ventrally uniformly yellow-brown.

*Cephalothorax*: carapace (Fig. 8A) 1.27 × longer than broad; densely pilose, uniformly covered with silver and dark brown setae. Clypeal edge protruding medially. Fovea slightly procurved (Fig. 8D). Eyes on distinct mound (Fig. 8C); from above, anterior eye row straight, posterior eye row slightly procurved; AME slightly smaller than ALE; ALE the largest; PME the smallest; eye group length 0.7, width 1.6. Chelicerae dorsally with a wide band of setae; rastellum absent; promargin of tooth row with 6 large teeth, retromargin without large teeth. Labium fused to sternum (Fig. 8E); labium without cuspules. Maxilla with 154 (left), 120 (right) cuspules; located on the proximo-basal edge (Fig. 8I). Sternum (Fig. 8E): rounded, posteriorly pointed; 1.15 × longer

than broad; uniformly setose; with 3 pairs of sigilla (Fig. 8H), each pair increasing in size from anterior to posterior; with posterior pair ovoid and reaching edge of sternum.

*Pedipalp*: tarsus densely setose.

*Legs*: coxal cuspules absent (Fig. 8B). Femora paler than other segments. Trichobothria: tibia with numerous trichobothria in 2 rows, metatarsi with several trichobothria, tarsi with numerous trichobothria. Claws with 2 rows of teeth; claw tufts absent.

*Abdomen* (Figs 8A, B): densely pilose with brown setae. Spinnerets: 2 pairs of spinnerets; PMS unsegmented and separated by about diameter of spinneret; PLS 3-segmented, apical segment elongate, digitiform.

*Genitalia* (Fig. 7J): spermathecae comprising 1 pair of widely spaced, curved, anteriorly directed spermathecae with rounded terminal receptacula.

*Dimensions (mm)*: Total body length (with chelicerae) 29.2, (without chelicerae) 23.0; carapace length 9.8, width 7.7; sternum length 4.6, width 4.0; abdomen length 13.4, width 9.6. Legs: femur I 7.2/2.5; femur II 6.1; femur III 5.8; femur IV not measurable.

**Remarks**

*Chenistonia tepperi* was described by Hogg (1902) from five females from four different localities in South Australia: Ardrossan, Kangaroo Island, Burnside and Blakiston. According to Main (1985a), the syntype series is lodged in the Natural History Museum, London, and

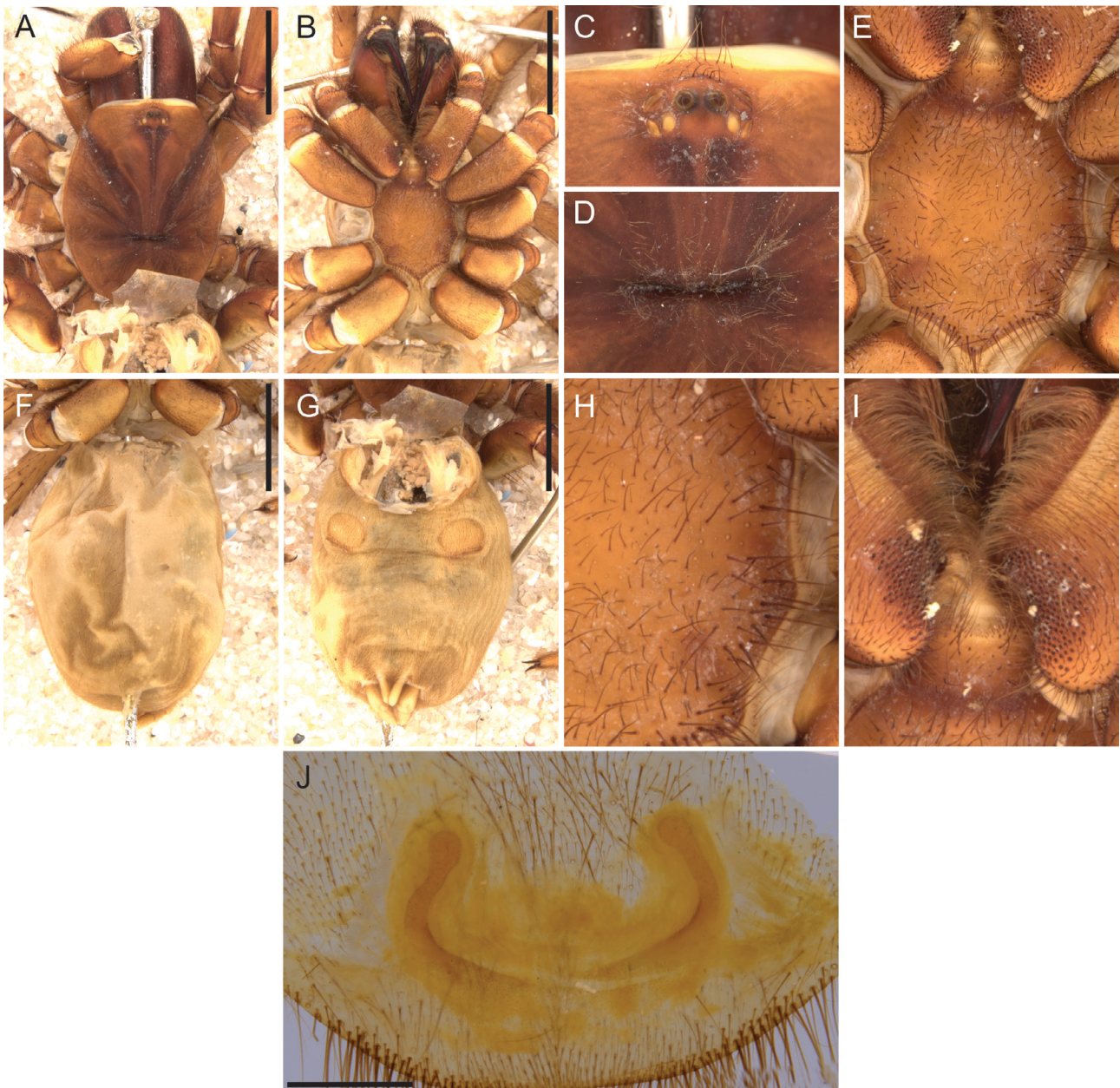


Figure 8. *Proshermacha tepperi* (Hogg, 1902), lectotype female: A, cephalothorax, dorsal view; B, cephalothorax, ventral view; C, ocular region, dorsal view; D, fovea, dorsal view; E, sternum, ventral view; F, abdomen, dorsal view; G, abdomen, ventral view; H, left sternal sigilla, ventral view; I, maxillae, ventral view; J, spermathecae, dorsal view. Scale bars = 5 mm (A, B, F, G), 1 mm (J).

consisted of two adult females (BMNH 1924.III.1.23–24.F62) and an adult female and a juvenile (BMNH 1924.III.1.1507–8), which were only doubtfully regarded as syntypes, and of which one female was apparently missing prior to 1985. We have examined two specimens, BMNH 1924.III.1.23–24, that were placed in separate vials by B.Y. Main, and labelled lectotype and paralectotype. The specimens 1924.III.1.1507–8 have not been available for study.

The larger specimen that was regarded as the lectotype by Main is held together with a pin (Figs 8F, 8G) and in reasonably good condition. The smaller specimen was identified as *Teyloides bakeri* Main, 1985 by B.Y. Main. We concur that this specimen is not conspecific with

the lectotype as it is considerably smaller (e.g. carapace length 6.48 mm vs. 9.81 mm), has far fewer maxillary cuspules (41 vs 120–154) which are arranged differently (Fig. 9E), and has differing spermathecal morphology. As noted by Main, the spermathecae are strongly coiled which is consistent with a species of *Teyloides*. The lectotype, however, has morphology consistent with *Proshermacha*, including the spermathecae with a shared atrium, although the atrium is near the base of the right spermatheca, in dorsal view (see Fig. 8J). However, males are not available from the Ardrossan population, which would help test whether they are conspecific with *T. bakeri*. In addition, Ardrossan is situated on the Yorke Peninsula whereas the type locality of *T. bakeri* is near

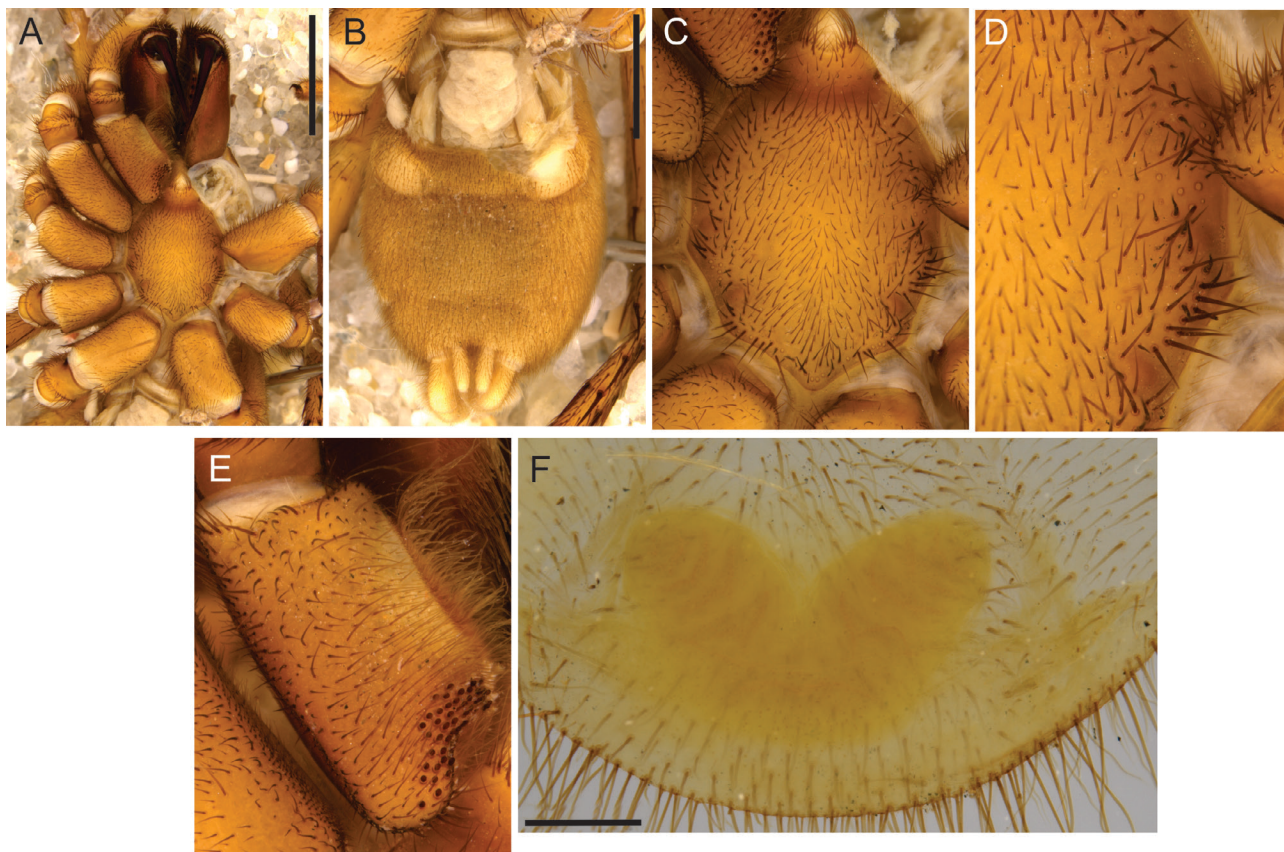


Figure 9. *Teyloides* sp., paralectotype female of *Proshermacha tepperi* (Hogg, 1902): A, cephalothorax, ventral view; B, abdomen, ventral view; C, sternum, ventral view; D, left sternal sigilla, ventral view; E, right maxilla, ventral view; F, spermathecae, dorsal view. Scale bars = 5 mm (A, B), 0.5 mm (F).

Bridgewater in the Mount Lofty Ranges, some 100 km in a straight line but separated by the Gulf Saint Vincent.

Although Main did not publish the lectotype designation, we now do so as the presence of two taxa within the type series mandates a lectotype designation (ICZN Article 74.1). This designation restricts the type locality to Ardrossan, which is located on the Yorke Peninsula in South Australia. The whereabouts of the other syntypes from Kangaroo Island, Burnside, and Blakiston are unknown, and their identity cannot be verified. As they were all female and Hogg did not examine the internal genitalia, and are distantly located from Ardrossan, it is likely that they are not conspecific with the lectotype.

The original pencil label with the lectotype female appears to be in Hogg's handwriting, and states "Chenistonia tepperi nov sp F62 / 2 females HRH / Cadd. Ardrossan July '84". A second label written in ink appears to have been added in 1924 when the specimen was registered. It reads "1924.III.1.23-24. F62 / Chenistonia tepperi Hogg ♀ Cotype / Ardrossan, S Austr / E. H. Cadd. Hogg Coll." The name of the collector is here updated to "E.H. Cadd". Edward Hodges Cadd (1839-1908) was born in England and died in South Australia (<https://www.geni.com/people/Edward-Cadd/600000017184599894>; accessed 24 July 2025), and was at one time postmaster at Black Point

<https://trove.nla.gov.au/newspaper/article/35097940>; accessed 24 July 2025). He was associated with nearby Ardrossan with one daughter and several grandchildren born in the town.

*Proshermacha tepperi* is unequivocally known from the type locality, Ardrossan, South Australia, which is located within the Eyre Yorke Block bioregion (Fig. 1B).

### *Proshermacha tigrina* Simon, 1908, *nomen dubium*

Figure 10

<https://zoobank.org/NomenclaturalActs/8d299dfd-e224-4b41-839e-4fad4086ef2c>

*Proshermacha tigrina* Simon, 1908: 363.

#### Type material

##### Lectotype

AUSTRALIA: *Western Australia*: juvenile, Jarrahdale [32°09'S, 116°01'E], 19-20 September 1905, W. Michaelsen, R. Hartmeyer (ZMB 35005).

#### Diagnosis

*Proshermacha tigrina* cannot be distinguished from other species of the genus as adults are not known.

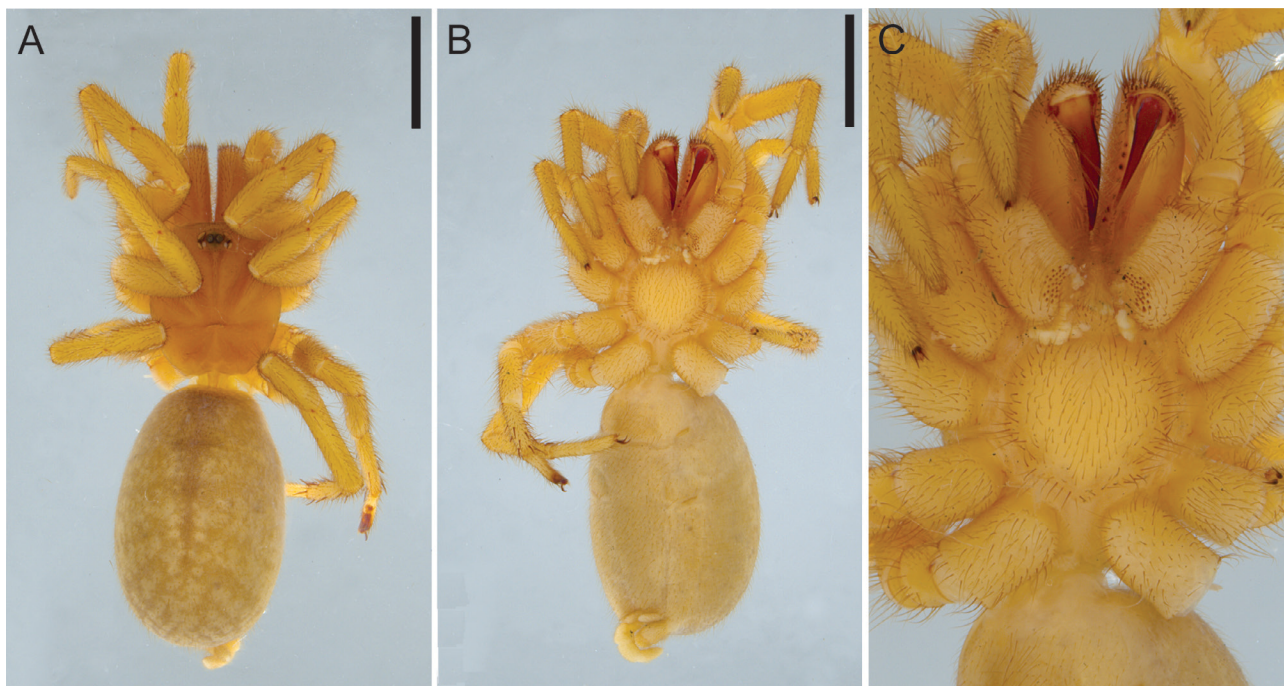


Figure 10. *Proshermacha tigrina* Simon, 1908, lectotype juvenile: A, body, dorsal view; B, body, ventral view; C, cephalothorax, ventral view. Scale bars = 2 mm (A, B).

## Description

*Juvenile lectotype* (ZMB 35005)

*Colour* (in alcohol, faded): mostly yellow-brown.

*Cephalothorax*: carapace sparsely pilose. Clypeal edge protruding medially. Fovea slightly recurved. Eyes on distinct mound; from above, anterior eye row slightly procurved, posterior eye row straight; AME about same size as ALE; ALE and AME the largest; PME the smallest. Chelicerae dorsally with a wide band of setae; rastellum absent. Labium fused to sternum (Fig. 10C); labium without cuspules. Maxilla with 30 (left), 27 (right) cuspules; located on the proximo-basal edge (Fig. 10C). Sternum (Fig. 10C): rounded, posteriorly pointed; uniformly setose; with 3 pairs of sigilla.

*Pedipalp*: tarsus densely setose.

*Legs*: coxal cuspules absent (Fig. 10C).

*Abdomen* (Figs 10A, B): sparsely pilose, some longer than others. Spinnerets: 2 pairs of spinnerets; PMS unsegmented and separated by about diameter of spinneret; PLS 3-segmented, apical segment elongate, digitiform.

*Dimensions* (mm): Total body length (with chelicerae) 9.6, (without chelicerae) 7.7.

## Remarks

*Proshermacha tigrina* was described from an unstated number of specimens collected from Jarrahdale (Stat. 129) and Serpentine (Stat. 132) during the Michaelsen and Hartmeyer Expedition to South-western Australia. Main (1985a) designated the only existing syntype, which was collected from Jarrahdale, as the lectotype.

The whereabouts of the other syntypes are unknown. The type locality is located in the Jarrah Forest bioregion (Fig. 1B).

Main (1982) tentatively treated *P. tigrina* as a junior synonym of *Chenistonia tepperi*, which was confirmed by Main (1985a). Harvey et al. (2018) transferred *P. tigrina* to *Proshermacha* and reversed the synonymy with *C. tepperi* due to the presence of numerous species of *Proshermacha* in southwestern Australia, and the huge distance between the type localities of *C. tepperi* and *P. tigrina*.

The lectotype is a small juvenile that cannot be identified to species level. Like other species of *Proshermacha* the maxillary cuspules are clustered medially (Fig. 10C).

## *Proshermacha villosa* (Rainbow & Pulleine, 1918)

Figure 11

<https://zoobank.org/NomenclaturalActs/5B88BE45-2C1B-4F5F-8091-3753BBD8EE42>

*Chenistonia villosa* Rainbow & Pulleine, 1908: 161–162, fig. 116.

*Proshermacha villosa* (Rainbow & Pulleine): Harvey et al., 2018: 434.

## Type material

*Holotype*

AUSTRALIA: *Western Australia*: ♀, Carlotta Brook [34°05'S, 115°47'E], December 1917, R.H. Pulleine (AM KS.1394).

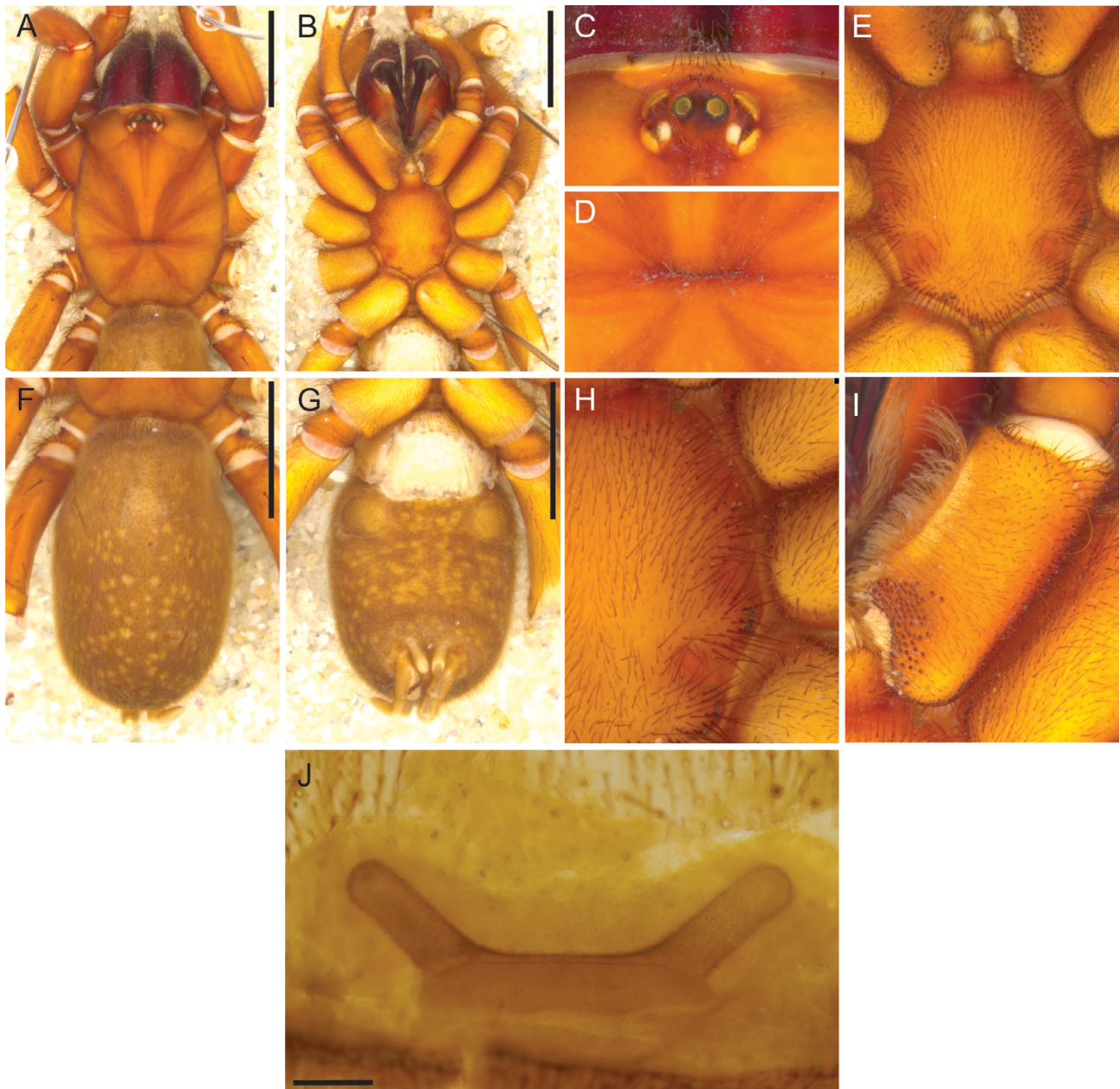


Figure 11. *Proshermacha villosa* (Rainbow & Pulleine, 1918), holotype female: A, cephalothorax, dorsal view; B, cephalothorax, ventral view; C, ocular region, dorsal view; D, fovea, dorsal view; E, sternum, ventral view; F, abdomen, dorsal view; G, abdomen, ventral view; H, left sternal sigilla, ventral view; I, left maxilla, ventral view; J, spermathecae, dorsal view. Scale bars = 5 mm (A, B), 0.2 mm (J).

### Diagnosis

Females of *Proshermacha villosa* can be distinguished from all other species of the genus by the shape of the spermathecae which comprise of a single pair of thick, widely spaced, thickened, obliquely directed spermathecae without distinct rounded terminal receptacula (Fig. 11J).

### Description

*Female holotype (AM KS.1394)*

*Colour* (in alcohol, faded): carapace mostly yellow-brown with darker radiating bands; chelicerae red-brown;

abdomen dorsally and ventrally grey-brown with paler spots.

*Cephalothorax*: carapace (Fig. 11A) 1.29 × longer than broad; densely pilose, uniformly covered with silver and dark brown setae. Clypeal edge protruding medially. Fovea slightly procurved (Fig. 11D). Eyes on distinct mound (Fig. 11C); from above, anterior eye row slightly procurved, posterior eye row slightly recurved; AME smaller than ALE; AME the largest; PME the smallest; eye group length 0.9, width 1.7. Chelicerae dorsally with a wide band of setae; rastellum absent; promargin of tooth row with 8 large teeth, retromargin with 16 small basal teeth. Labium fused to sternum (Fig. 11E); labium

without cuspules. Maxilla with 79 (left) cuspules; located on the proximo-basal edge (Fig. 11I). Sternum (Fig. 11H): rounded, posteriorly pointed; 1.10 × longer than broad; uniformly setose; with 3 pairs of sigilla (Fig. 11H), each pair increasing in size from anterior to posterior; with posterior pair ovoid and reaching edge of sternum.

*Pedipalp*: tarsus densely setose.

*Legs*: coxal cuspules absent (Fig. 11B). Femora apparently same colour as other segments. Trichobothria: tibia with numerous trichobothria in 2 rows, metatarsi with several trichobothria, tarsi with numerous trichobothria. Claws with 2 rows of teeth; claw tufts absent.

*Abdomen* (Figs 11F, G): densely pilose with brown setae. Spinnerets: 2 pairs of spinnerets; PMS unsegmented and separated by about diameter of spinneret; PLS 3-segmented, apical segment elongate, digitiform.

*Genitalia* (Fig. 11J): spermathecae comprising 1 pair of thick, widely spaced, thickened, obliquely directed spermathecae without distinct rounded terminal receptacula.

*Dimensions (mm)*: Total body length (with chelicerae) 24.9, (without chelicerae) 21.2; carapace length 10.3, width 8.0; sternum length 4.5, width 4.1; abdomen length 10.9, width 6.8. Legs: femur I 7.2; femur II 6.2; femur III 5.8; femur IV 7.2.

#### Other material

AUSTRALIA: *Western Australia*: 2 juveniles, Vasse Highway near Carlotta Brook, 5.2 km S. of Nannup, 34°01'36"S, 115°46'06"E, 20 October 2018, in short burrow under log, M.S. Harvey, M.E. Blosfelds (WAM T146686, T146687); 1 juvenile, Roberts Road, Carlotta, 34°04'15"S, 115°46'15"E, 20 October 2018, in short burrow under log, M.S. Harvey, M.E. Blosfelds (WAM T146688).

#### Remarks

*Chenistonia villosa* was described from "one female with young" (Rainbow and Pulleine 1918: 162) which were "in the egg bag just preparing to emerge" (Rainbow and Pulleine 1918: 84), but only the female is present in the type collection at the Australian Museum. The female was found under a log (Rainbow and Pulleine 1918: 84). The type locality of *P. villosa* is located in the Jarrah Forest bioregion (Fig. 1B).

Main (1985a) treated *C. villosa* as a junior synonym of *Chenistonia tepperi*, but Harvey et al. (2018) transferred it to *Proshermacha* and reversed the synonymy with *C. tepperi* due to the presence of numerous species of *Proshermacha* in south-western Australia, and the huge distance between the type localities of *C. tepperi* and *C. villosa*. Comparison of the morphological features of the type specimens of both species show marked differences in the morphology of the spermathecae which clearly demonstrates their distinctiveness (Figs 7, 10J).

The exact site visited by the collector R.H. Pulleine is unknown, as Carlotta Brook crosses or is adjacent to the Vasse Highway for several kilometres. Leenders et al. (2023) attributed three juvenile specimens collected near Carlotta Brook (T146686–T1486688), which were collected from under logs, perfectly matching the burrowing ecology of the holotype (Rainbow and Pulleine 1918: 84). Although we lack fresh adult females from Carlotta Brook, the juveniles match the holotype in locality and burrowing behaviour and can be assigned to *P. villosa*.

Molecular data are available for this species based on two specimens collected near the type locality (Leenders et al. 2023):

WAM T146686: Cytochrome *c* oxidase subunit I (OQ918548), 18S rRNA (OQ91901), 28S rRNA (OQ919003), Histone H3 (OQ918668), 16S rRNA (OQ919025).

WAM T146688: Cytochrome *c* oxidase subunit I (OQ918549), 18S rRNA (OQ91901), 28S rRNA (OQ919004), Histone H3 (OQ918669), 16S rRNA (OQ919026).

#### *Teyl* Main, 1975

<https://zoobank.org/NomenclaturalActs/1fab2c61-cfd8-4b81-8586-4f01943af57a>

*Teyl* Main, 1975: 74.

*Merredinia* Main, 1983: 931 (synonymized by Harvey et al., 2018: 436).

*Pseudoteyl* Main, 1985b: 753 (synonymized by Harvey et al., 2018: 437).

#### Type species

*Teyl*: *Teyl luculentus* Main, 1975, by monotypy.

*Merredinia*: *Merredinia damsonoides* Main, 1983, by original designation.

*Pseudoteyl*: *Pseudoteyl vancouveri* Main, 1985 by original designation.

#### Diagnosis

*Teyl* is the sister-genus to *Namea*, and both genera are easily distinguished from other Anamidae by the absence of a leg I megaspur and the presence of a reflexed embolus in males of most species (Rix et al. 2020). Both groups have non-overlapping distributions in southern (*Teyl*) and eastern (*Namea*) Australia, and can usually (although not always) be distinguished by the setation on the male palpal tibia. For a full discussion on the diagnostic characters separating *Teyl* and *Namea*, see Rix et al. (2020).

#### Remarks

The genus *Teyl* includes 27 described species, most of which (21 species) belong to the distinctive *damsonoides*-group, recently revised by Rix et al. (2023). Diagnostic characters for the genus are based solely

on male morphology, though females often have a distinctive combination of somatic characters, including a glabrous carapace and legs, finely setose abdomen, well-separated spermathecae without secondary receptacles or a shared atrium, and often striking colouration. The addition here of *Teyl maculatus* (Rainbow & Pulleine, 1918) brings the described Australian fauna to 28 species, with a very large number of taxa still remaining to be described (MSH and MGR, unpubl. data).

### ***Teyl maculatus* (Rainbow & Pulleine, 1918), comb. nov.**

Figure 12

<https://zoobank.org/NomenclaturalActs/DE64A053-3EB3-44A0-B333-16F6089D23AF>

*Ixamatus maculatus* Rainbow & Pulleine, 1918: 163164, plate XXIV fig. 117.

*Aname maculata* (Rainbow & Pulleine): Main, 1985a: 28.

*Lectotype*

AUSTRALIA: *Western Australia*: ♀, Armadale [32°09'S, 116°01'E], 25 May 1917, R.H. Pulleine (AM KS.7778).

*Paralectotype*

AUSTRALIA: *Western Australia*: 1 ♀, collected with holotype (AM KS.131265; not examined).

### **Diagnosis**

Females of *Teyl maculatus* can be distinguished from other described species of the genus (for which females are known) by the shape of the spermathecae, which are bulbous, closely spaced, anteriorly directed and approximately twice as long as wide, with poorly demarcated terminal receptacula (Fig. 12J).

### **Description**

*Female lectotype* (AM KS.7778)

*Colour* (in alcohol, faded): carapace mostly yellow-brown with darker radiating bands; chelicerae red-brown; abdomen dorsally and ventrally grey-brown but without paler spots.

*Cephalothorax*: carapace (Fig. 12A) 1.48 × longer than broad; sparsely pilose, covered with silver and dark brown setae. Clypeal edge protruding medially. Fovea slightly procurved (Fig. 12D). Eyes on distinct mound (Fig. 12C); from above, anterior eye row straight, posterior eye row procurved; AME about same size as ALE; AME and ALE the largest; PME the smallest; eye group length 0.5, width 0.9. Chelicerae dorsally with a wide band of setae; rastellum absent; promargin of tooth row with 5 large teeth and 2 small teeth, retromargin with 2 small teeth. Labium fused to sternum (Fig. 12E); labium without cuspules. Maxilla with 38 cuspules; located on the proximo-basal edge (Fig. 12I). Sternum (Fig. 12E): rounded, posteriorly pointed; 1.31 × longer than broad; uniformly setose; with 3 pairs of sigilla (Fig. 12H), each pair

increasing in size from anterior to posterior; with posterior pair ovoid and all reaching edge of sternum.

*Pedipalp*: tarsus densely setose.

*Legs*: coxal cuspules absent (Fig. 12B). Trichobothria: tibia with numerous trichobothria in 2 rows, metatarsi with several trichobothria, tarsi with numerous trichobothria. Claws with 2 rows of teeth; claw tufts absent.

*Abdomen* (Figs 12F, G): moderately pilose with brown setae. Spinnerets: 2 pairs of spinnerets; PMS unsegmented and separated by about diameter of spinneret; PLS 3-segmented, apical segment elongate, digitiform.

*Genitalia* (Fig. 12J): spermathecae comprising 1 pair of moderately spaced, parallel, conical, anteriorly directed spermathecae without distinct terminal receptacula.

*Dimensions (mm)*: Total body length (with chelicerae) 8.0, (without chelicerae) 7.0; carapace length 3.1, width 2.1; sternum length 1.7, width 1.3; abdomen length 3.9, width 2.5. Legs: femur I 3.3; femur II 2.8; femur III 2.6; femur IV 3.4.

### **Remarks**

*Ixamatus maculatus* was originally described from two females collected from Armadale, Western Australia located on the eastern edge of the Swan Coastal Plain bioregion. They were each found in an "open burrow" (Rainbow and Pulleine 1918: 164). Main (1985a) designated one of the specimens as the lectotype and transferred it to the genus *Aname*, forming the new combination *A. maculata* (Rainbow & Pulleine, 1918).

The lectotype is an adult female with a single pair of straight, bulbous spermathecae without a shared atrium (Fig. 12J), a glabrous carapace (Fig. 12A) and a finely setose abdomen (Fig. 12E), all of which are consistent with the genus *Teyl* (Harvey et al. 2018; Rix et al. 2020, 2023). Although the specimen is faded (Fig. 12), it does not appear to have the orange bi-coloured legs characteristic of most species in the *Teyl damsonoides* group (Rix et al. 2023), and the carapace and sternum are more elongate than species of the *Teyl damsonoides* group (Figs. 12A, 12E).

We did not examine the paralectotype in detail.

### **Disclosures**

Mark S. Harvey is Editor-in-Chief of this journal, and Michael G. Rix is a Subject Editor. At no stage did they take part in the handling, peer review or editorial assessment of this manuscript.

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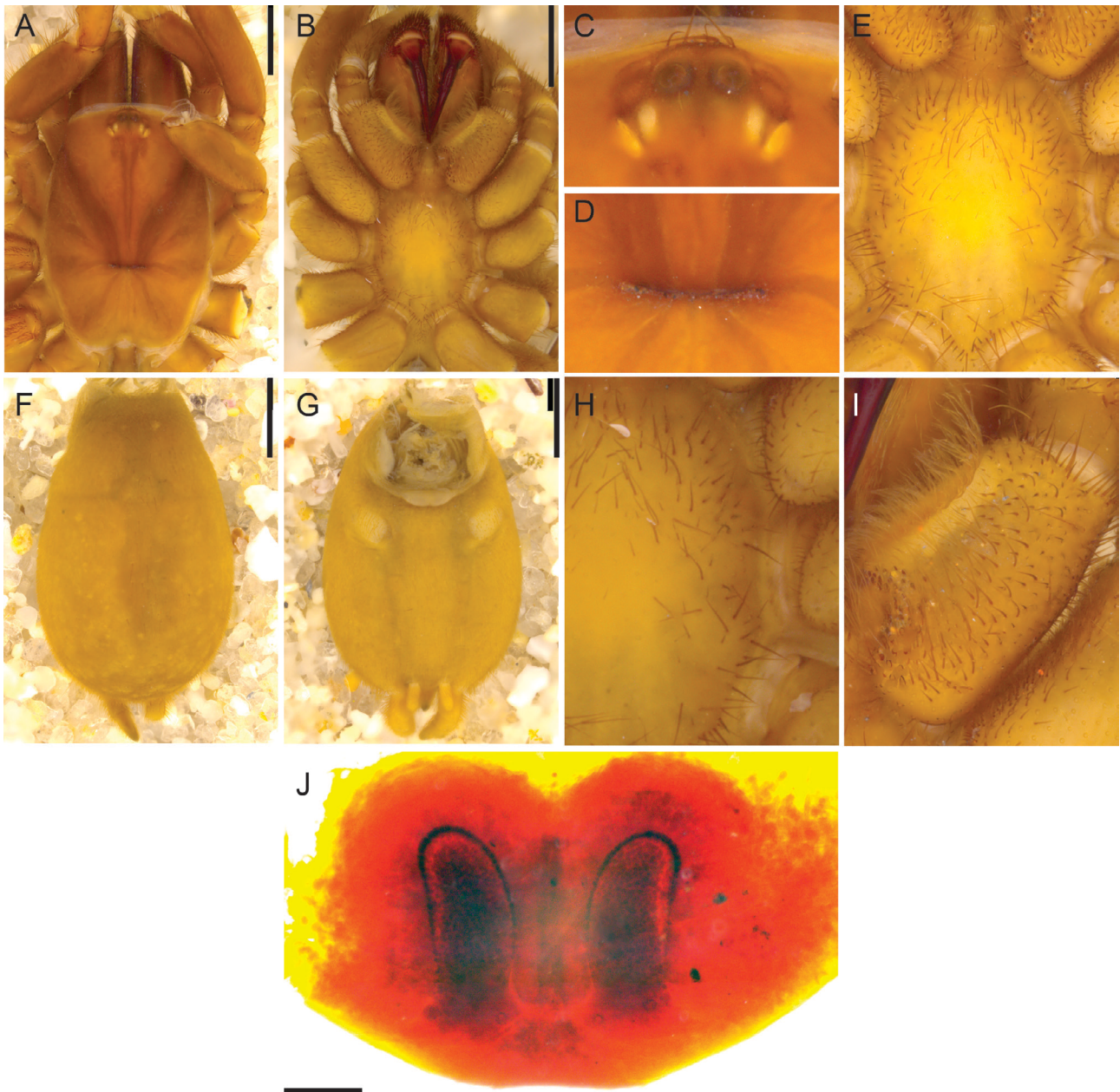


Figure 12. *Teyl maculatus* (Rainbow & Pulleine, 1918), lectotype female: A, cephalothorax, dorsal view; B, cephalothorax, ventral view; C, ocular region, dorsal view; D, fovea, dorsal view; E, sternum, ventral view; F, abdomen, dorsal view; G, abdomen, ventral view; H, left sternal sigilla, ventral view; I, left maxilla, ventral view; J, spermathecae, dorsal view. Scale bars = 1 mm (A, B, F, G), 0.1 mm (J).

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