

A new species of *Symphytognatha* Hickman (Araneae: Symphytognathidae) from Western Australia

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Abstract

The first symphytognathid to be recorded from Western Australia, *Symphytognatha picta*, sp. nov., is described. It appears to be most similar to *S. globosa* Hickman from Tasmania.

Introduction

Only three species of the spider family Symphytognathidae have been previously reported from Australia: *Symphytognatha globosa* Hickman, 1931 from Tasmania, *S. blesti* Forster and Platnick, 1977 from New South Wales, and *Anapistula australia* Forster, 1959 from Queensland (see Forster and Platnick 1977; Davies 1985). This paper presents a description of the first symphytognathid from Western Australia.

Materials and Methods

Material is lodged in the Western Australian Museum (WAM) and the American Museum of Natural History, New York (AMNH). The internal female genitalia were examined by dissecting the epigynum and spinnerets from the abdomen and clearing them in warm 10% potassium hydroxide. A male pedipalp was dehydrated, air-dried and mounted on a stub for examination in a Scanning Electron Microscope. The terminology used here for the pedipalpal conductor lobes is somewhat arbitrary, due to incomplete knowledge concerning the homologies of the palpal sclerites (Coddington 1990): the upper portion (as viewed in Fig. 4) is termed the ventral conductor lobe (C1), and the lower portion (which lies behind the embolus nearer to the cymbium) is termed the dorsal conductor lobe (C2).

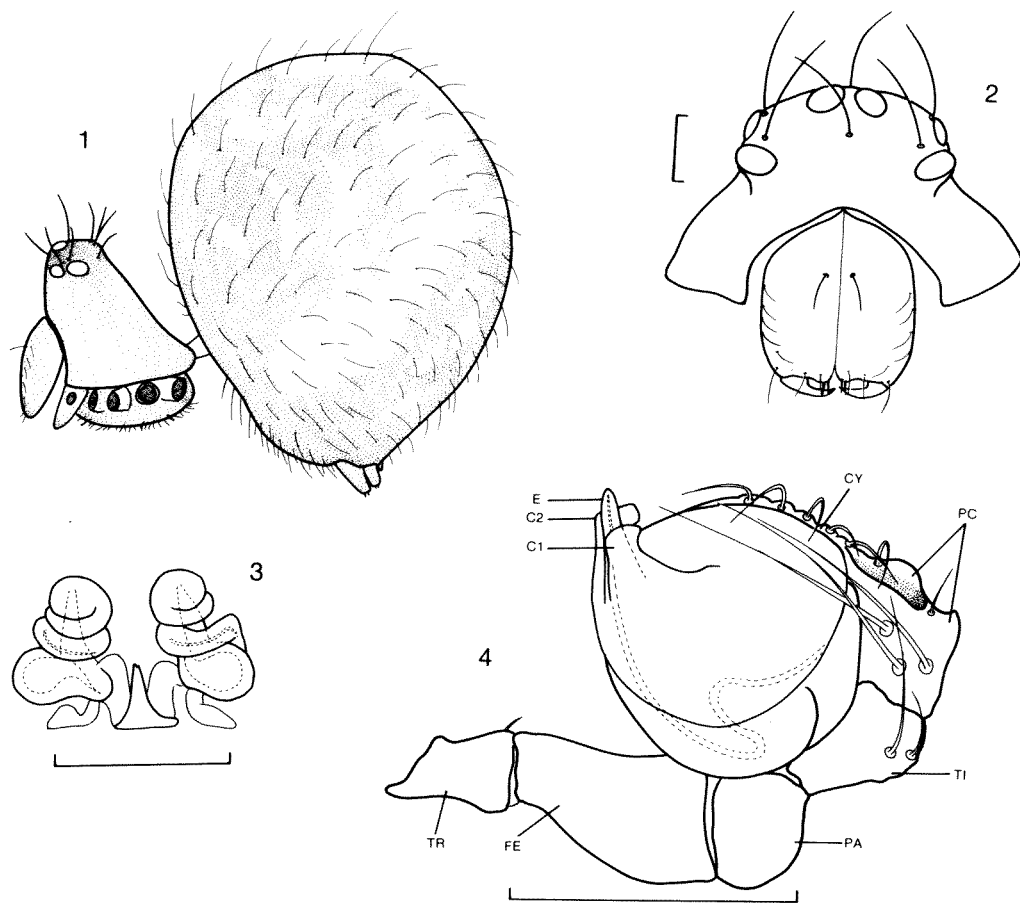
Systematics

Symphytognatha picta, sp. nov. (Figures 1-6)

Holotype

♂, 2 km NE. of Lake Yeagarup, Ritter Road, Western Australia, 34°31'S, 115°53'E, under Marri [*Eucalyptus calophylla*] bark, 2 May 1990, M.S. Harvey, J.M. Waldock (WAM 91/1055).

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Figures 1-4 *Symphytognatha picta*, sp. nov.: 1, cephalothorax and abdomen, lateral, holotype ♂. 2, carapace and chelicerae, anterior, holotype ♂. 3, spermathecae, dorsal, paratype ♀, WAM 91/1062. 4, left pedipalp, retrolateral, paratype ♂, WAM 91/1056. Scale lines = 0.1 mm. Abbreviations: C1 (ventral conductor lobe), C2 (dorsal conductor lobe), CY (cymbium), E (embolus), FE (femur), PA (patella), PC (paracymbium), TI (tibia), TR (trochanter).

Paratypes

5♂, 2♀, same data as holotype (WAM 91/1056-1062).

Other Material

Western Australia: 1 juvenile, Pemberton, Warren National Park, karri base litter berlesate, 5 July 1980, S. and J. Peck (AMNH); 1♂, 5♀, 13 juveniles, Tall Tingle Tree path, Walpole-Nornalup National Park, 13 June 1987, N.I. Platnick, R.J. Raven (AMNH); 1♂, same data (WAM, 92/65); 1♂, Conspicuous Cliffs, Walpole-Nornalup National Park, 13 June 1987, N.I. Platnick, R.J. Raven (AMNH); 2♂, 13 juveniles, Hilltop Road, Walpole-Nornalup National Park, 12 June 1987, N.I.

Platnick, R.J. Raven (AMNH); 1♂, ZigZag Road, Walpole-Nornalup National Park, berlesate bracken, fungi and litter, 20 June-4 July 1980, S. and J. Peck (AMNH); 1 juvenile, Tingle Tree, Walpole-Nornalup National Park, forest carrion on litter, 18 June-29 July 1980, S. and J. Peck (AMNH); 1♂, 1♀, 2 juveniles, Tingle Tree, Walpole-Nornalup National Park, berlesate log and Casuarina litter, 4 July 1980, S. and J. Peck (AMNH); 2♀, Tingle Tree, Walpole-Nornalup National Park, forest malaise and troughs, 18 June-29 July 1980, S. and J. Peck (AMNH).

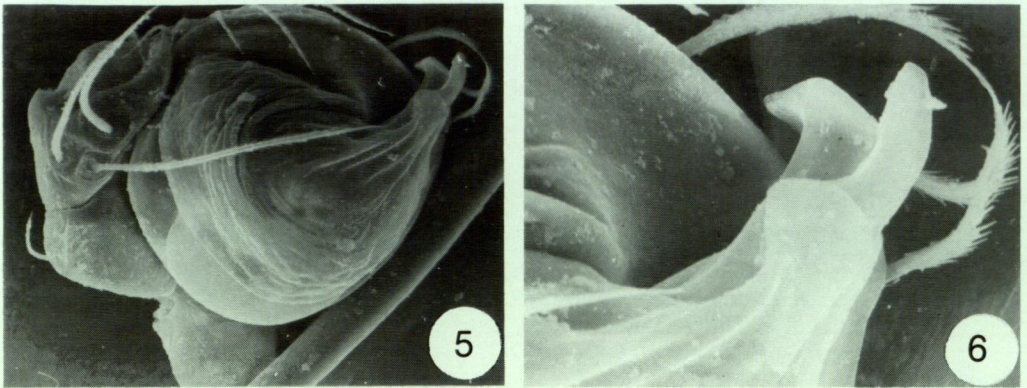
Diagnosis

This species differs from the other Australasian members of *Symphytognatha* as follows: males by the shape of the conductor lobes (Figs 4, 6), and females by the presence of only 2 full coils of the copulatory ducts (Fig. 3).

Description

Colour: carapace dark dusky brown, pars cephalica darkest; sternum dark brown; abdomen mostly purple-grey with broad irregular median pale stripe and irregular lateral pale stripes directed ventrally; chelicerae and legs light brown. Carapace of male (Figs 1-2) with 10 long setae, 1 on clypeus, 1 between PME, 1 pair mesad to ALE, 1 pair mesad to PLE, and 4 on posterior ridge of pars cephalica; carapace of female with 18 long setae, 10 as in male, and 8 along clypeal margin; clypeus slightly oblique. Six eyes, ratio ALE: PME: PLE 1.00: 0.60: 0.95 (♂), 1.00: 0.79: 0.89 (♀). Chelicerae (Fig. 2) fused for most of their length, suture line visible; each chelicera with 6 lateral, 2 mesal and 2 distal setae; distal lobe of fang furrow with 2 large teeth and 1 small tooth. Sternum posteriorly truncate. Male pedipalp (Figs 4-6): trochanter with small subdistal seta, femur and patella without setae, tibia with 2 large and 1 small subdistal seta; subbasal paracymbium present with 3 large setae and deep dorsal notch; outer margin of cymbium with 6 lateral and 3 subdistal plumose setae which extend over bulb; embolus tip blunt, rod-shaped, situated between two conductor lobes; ventral conductor lobe (C1) with rounded distal margin; dorsal conductor lobe (C2) somewhat hooked. Female pedipalp absent except for coxa. Leg formula 4123; patella and tibia with dorsal erect bristle. Superior tarsal claws I and II with 7-8 teeth, superior tarsal claws III and IV without accessory teeth; inferior tarsal claws I-IV long and slender. Female epigyne (Fig. 3) apparently with only 1 external pore; heavily sclerotised triangular apophysis present; copulatory ducts with 2 tight coils around spermatheca. Colulus absent.

Dimensions (mm), holotype ♂, WAM 91/1055 (paratype ♀, WAM 91/1061): total length (excluding chelicerae) 1.06 (0.98). Carapace length 0.32 (0.32) width 0.38 (0.38), height 0.30 (0.32). Eyes: ALE 0.06 (0.06), PME 0.03 (0.04), PLE 0.06 (0.05), PME-PME 0.01 (0.01), PME-PLE 0.09 (0.09), PLE-ALE 0.01 (0.01), eye group width 0.31 (0.32). Sternum length 0.28 (0.30), width 0.21 (0.21). Abdomen length 0.78 (0.68), width 0.79 (0.70), height 0.93 (0.81). Pedipalp: femur 0.06 (-), patella 0.04 (-), tibia 0.05 (-), tarsus 0.12 (-), total 0.27 (-). Leg I: femur 0.37 (0.29), patella 0.15 (0.14), tibia 0.20 (0.16), metatarsus 0.17 (0.16), tarsus 0.19 (0.17), total 1.08 (0.92). Leg II: femur 0.29 (0.27), patella 0.13 (0.15), tibia 0.17 (0.15), metatarsus 0.13 (0.14), tarsus 0.21 (0.18),



Figures 5-6 *Symphytognatha picta*, sp. nov., paratype, WAM 91/1056, right pedipalp, scanning electron micrographs: 5, ventral view. 6, detail of tip of bulb.

total 0.93 (0.89). Leg III: femur 0.26 (0.23), patella 0.11 (0.13), tibia 0.14 (0.12), metatarsus 0.13 (0.11), tarsus 0.17 (0.22), total 0.81 (0.81). Leg IV: femur 0.38 (0.32), patella 0.12 (0.12), tibia 0.23 (0.17), metatarsus 0.17 (0.13), tarsus 0.20 (0.23), total 1.10 (0.97).

Etymology

The specific epithet refers to the abdominal colour pattern (*picta*, Latin, painted).

Remarks

The four known Australasian species of *Symphytognatha* possess a copulatory duct which encircles the spermatheca 2-6 times (Griswold 1987). Three species of this group (*S. globosa*, *S. picta* and *S. blesti*) are united by a distinct abdominal colour pattern which consists of a dark background with dorsal and lateral pale stripes (*S. ulur* from Papua New Guinea lacks the lateral stripes), and possibly by the single median opening of the vulva. *Symphytognatha globosa* and *S. picta* appear to be sister species, as they share the following traits [I was able to directly compare *S. picta* with a female *S. globosa* from Cataract Gorge, Tasmania, 41°27'S, 147°10'E, collected on 18 November 1986, by M.S. Harvey and P.K. Lillywhite (WAM 91/1063)]:

1. The male pedipalp of *S. picta* closely resembles that of *S. globosa*: both possess a rod-shaped embolar tip (Figs 4, 6; Forster and Platnick 1977, fig. 9), which is quite unlike the embolus of other *Symphytognatha* species (Forster and Platnick 1977, figs 28, 38). This is presumably a synapomorphy uniting the two species. However, males of most other *Symphytognatha* species are currently unknown, and are required before definitive statements concerning character polarity can be made.

2. The epigynes of *S. picta* and *S. globosa* (see Hickman 1931, fig. 6) possess a heavily sclerotised triangular apophysis leading anteriorly from the vulva. It is not known whether other Australasian species of the genus possess such an apophysis due to the somewhat simplified epigynal illustrations of Forster and Platnick (1977) and Platnick (1979) (e.g. compare Hickman 1931, fig. 6 with Forster and Platnick 1977, fig. 12). However, it is clear that *S. imbulunga* Griswold, 1987 from South Africa lacks such an apophysis. *S. picta* differs from *S. globosa* (and all other members of the genus) by the presence of only two coils of the copulatory duct around the spermatheca (Fig. 3).

Habitat

The specimens from the type locality were taken from under the bark of a Marri tree in a mixed Marri/Karri [*Eucalyptus calophylla* and *E. diversicolor*, respectively] forest with a sparse shrub layer. It appeared that the forest had been burnt within the past few years, but the Marri bark had not been destroyed. This possibly allowed small spiders such as *S. picta* to survive.

Acknowledgements

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References

- Coddington, J.A. (1990). Ontogeny and homology in the male palpus of orb-weaving spiders and their relatives, with comments on phylogeny (Araneoclada: Araneoidea, Deinopoidea). *Smithson. Contrib. Zool.* **496**: 1-52.
- Davies, V. T. (1985). Araneomorphae (in part). In: Walton, D.W. (ed.). *Zoological Catalogue of Australia*, vol. 3: 49-125. Australian Government Publishing Service: Canberra.
- Forster, R.R. (1959). The spiders of the family Symphytognathidae. *Trans. R. Soc. N. Z.* **86**: 269-329.
- Forster, R.R. and Platnick, N.I. (1977). A review of the spider family Symphytognathidae (Arachnida, Araneae). *Amer. Mus. Novit.* **2619**: 1-29.
- Griswold, C.E. (1987). The spider genus *Symphytognatha* Hickman (Araneae: Symphytognathidae) newly described from Africa. *Ann. Natal Mus.* **28**: 133-136.
- Hickman, V.V. (1931). A new family of spiders. *Proc. Zool. Soc. London* **101**: 1321-1328.
- Platnick, N.I. (1979). A new *Symphytognatha* from New Guinea (Araneae, Symphytognathidae). *Bull. Brit. Arachnol. Soc.* **4**: 337-338.