





A new species in the wolf spider genus *Artoriopsis* from Western Australia (Araneae, Lycosidae, Artoriinae)

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Abstract

A new species of *Artoriopsis* Framenau, 2007 is described based on males and females from south-western Western Australia. *Artoriopsis* now comprises 13 species of vagrant wolf-spiders in Australia, four of which are found in Western Australia.

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Introduction

The Australian wolf spider genus *Artoriopsis* Framenau, 2007 currently includes twelve species (Framenau 2007; Framenau & Douglas 2021). The genus features small to medium-sized vagrant hunters that appear to prefer open, vegetated or sandy areas of moderate humidity (Framenau 2007). For example, some species such as *A. expolita* (L. Koch, 1877) are often found on or near lawns in suburban gardens. This is also the only species known from outside Australia, now being established in the North Island of New Zealand.

Spiders in the genus are readily distinguished by their colouration that includes two basic variations. Most species have broad pale lateral bands on the carapace and the abdomen has a median pale band that cuts through a central dark diamond-shaped patch. The posterior abdomen has a broad, pale rectangular spot. Two

species, *A. whitehouseae* Framenau, 2007 and *A. bogabilla* Framenau & Douglas, 2021, have a somewhat reduced abdominal pattern consisting of an irregular median light band on a largely dark-grey to black surface and these may eventually be shown to belong to a different genus.

A current study on species in the apparently related genus *Artoria* Thorell, 1877 recovered specimens in the Western Australian Museum that clearly show the typical colour pattern of *Artoriopsis*, although less distinct than in other species and hence overlooked in previous studies (Fig. 1A, 2A). This species is described here.

Methods

Descriptions and morphological nomenclature follows studies on the Artoriinae by Framenau (2007, 2010), Fra-

menau & Hudson (2017), Framenau & Douglas (2021) and Framenau *et al.* (2023).

Internal female genitalia were cleared for examination by submersion in 10% KOH at room temperature for ca. 10 min. The embolic division of the male pedipalp was separated from the pedipalp bulb for examination after removing the latter from the cymbium with fine needles.

Microscopic images of all species were taken with a Leica DMC4500 digital camera mounted to a Leica M205C stereomicroscope at the Harry Butler Institute, Murdoch University, HBI). Photographs were taken in different focal planes (ca. 10–25 images) and combined using Leica Application Suite X, v. 3.6.0.20104. All measurements are in millimetres (mm).

All specimens are lodged in the Western Australian Museum (WAM) or the Harry Butler Institute, Murdoch University (HBI).

Geographic coordinates were obtained from original labels or the respective collection databases. When not available, coordinates were estimated to the closest minute latitude and longitude based on information on Google Earth Pro v. 7.3.6.9285 (<https://www.google.com/earth/versions/>; accessed 26 November 2023). The map was compiled using QGIS v.3.32.1 (<https://qgis.org/en/site/>; accessed 20 November 2023).

Abbreviations

AE, anterior eyes; ALE, anterior lateral eyes; AME, anterior median eyes; OL, opisthosoma length; OW, opisthosoma width; PE, posterior eyes; PL, prosoma length; PLE, posterior lateral eyes; PME, posterior median eyes; PW, prosoma width; TL total length.

Taxonomy

Family Lycosidae Sundevall, 1833

Subfamily Artoriinae Framenau, 2007

Artoriopsis Framenau, 2007

Type species. *Lycosa expolita* L. Koch, 1877.

Included species. *Artoriopsis anacardium* Framenau, 2007; *A. bogabilla* Framenau & Douglas, 2021; *A. dubia* **sp. nov.**; *A. eccentrica* Framenau, 2007; *A. expolita* (L. Koch, 1877); *A. joergi* Framenau, 2007; *A. klausii* Framenau, 2007; *A. lacustris* Framenau & Douglas, 2021; *A. melissae* Framenau, 2007; *A. mulier* Framenau & Douglas, 2021; *A. murphyi* Framenau & Douglas, 2021; *A. orientalis* Framenau & Douglas, 2021; *A. whitehouseae* Framenau, 2007.

Diagnosis. See Framenau (2007).

Artoriopsis dubia **sp. nov.**

Figs 1–3

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Holotype. Male, Lily McCarthy Rock (32°41'35"S, 119°20'25"E, Western Australia, AUSTRALIA), 20 May – 29 September 1998, N. A. Guthrie, CALM Salinity Action Plan, site HY10, traps 1, 3, 5, 6, 9 (WAM T68228).

Diagnosis. The male pedipalp morphology of *Artoriopsis dubia* **sp. nov.** resembles that of *A. orientalis* Framenau & Douglas, 2021 with its tegular apophysis broadening apically and bearing a short projecting lobe (Fig. 1C). However, in *A. dubia* **sp. nov.** this lobe is rounded and projected retrolaterally while in *A. orientalis* the entire lobe is projected prolaterally forming an acute tip apically that points basally (Framenau & Douglas 2021; fig. 7C). The epigyne of female *A. dubia* **sp. nov.** is similar to that of *A. orientalis* both having a tongue-like median septum (Fig. 2C). However, in *A. dubia* **sp. nov.** the anterior margin of the atrium describes a continuous and broad curve, in contrast to *A. orientalis* where it forms two almost straight diagonal lines. Also, the median septum of the epigynum of *A. dubia* **sp. nov.** has the anterior margin twice as wide than the posterior margin, while in *A. orientalis* it is approximately as wide as the posterior margin (Fig. 2C) (Framenau & Douglas 2021; fig. 8C).

Description. Male (based on holotype, WAM T68228).

Prosoma, dorsal shield (Fig. 1A). Dark reddish-brown, with broad pale brown median band and pale reddish-brown lateral bands which bear dense silverish setae into the flanks of head.

Anterior eye row slightly procurved, eyes evenly spaced.

Labium. Mostly dark reddish-brown, pale in apical third.

Sternum (Fig. 1B). Dark reddish-brown, black bristles denser towards margins and longer posteriorly.

Chelicerae. Dark reddish-brown; three promarginal teeth, the two basal ones large and of equal size, the apical one shorter; two retromarginal teeth, the apical larger.

Legs. Leg formula IV>I>II>III. Uniformly light reddish-brown, with silverish setae and small dark bristles throughout the articles, long and dark macrosetae on femur, patella, tibia and metatarsus.

Pedipalp (Fig. 1C–E). Tegular apophysis short and concave with a narrow rectangular base, broadening and deepening its concavity distally; on its distal half a conspicuous retrolateral triangular projection with its retrolateral angle rounded, its basal half translucent and distal half sclerotized (Fig. 1C). Basoembolic apophysis subrectangular in ventral view (Fig. 1C). Embolus comma-shaped in ventral view, gradually tapering (Fig. 1E). Terminal apophysis wide, heavily sclerotized, as a gutter following the curve of the embolus, and truncated at its

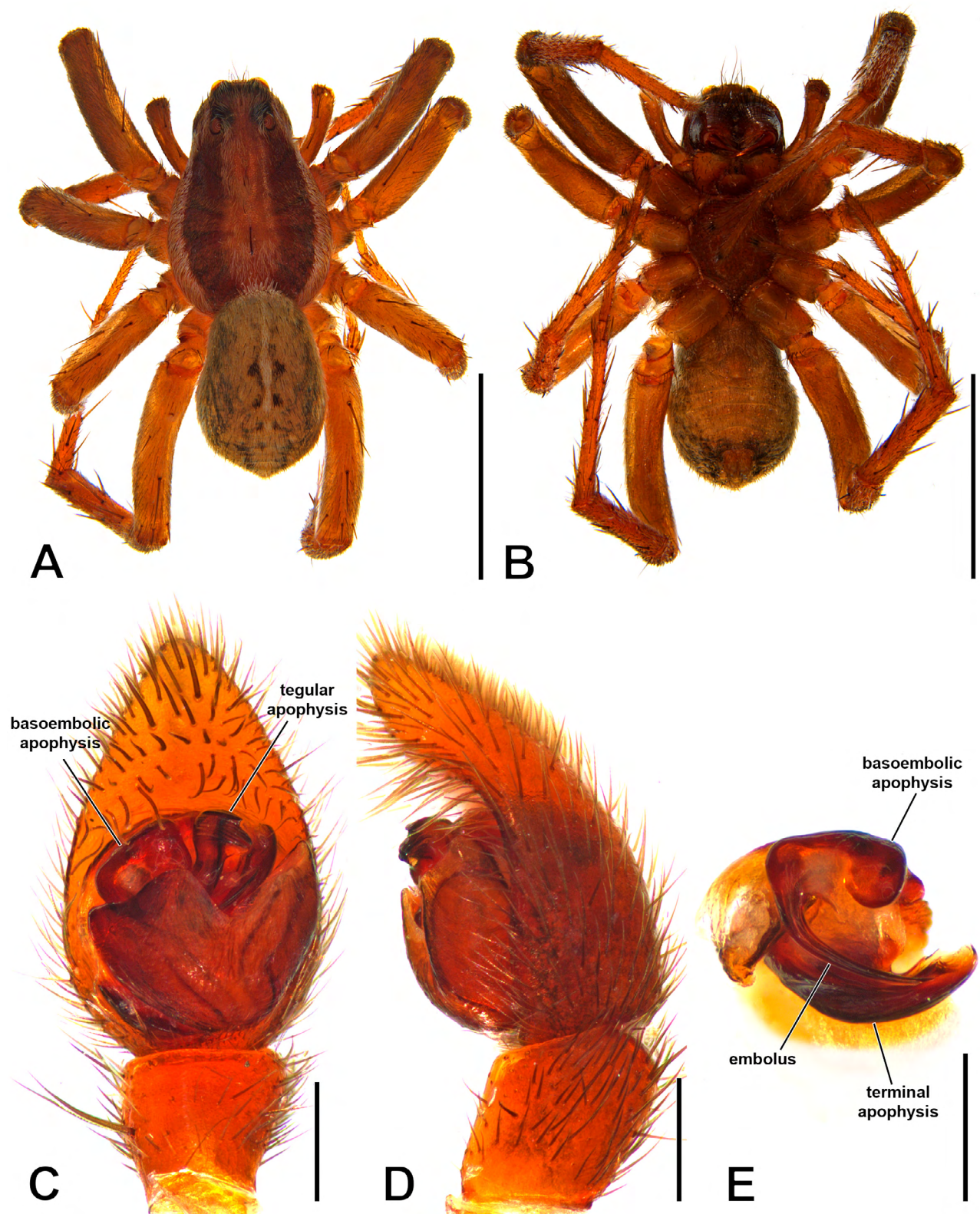


Figure 1. *Artoriopsis dubia* sp. nov., male. (A) habitus, dorsal view; (B) habitus, ventral view; (C) left pedipalp, ventral view; (D) left pedipalp, retrolateral view; (E) left pedipalp, apical part, ventral view. A-D, Male holotype (WAM T68228); E, (WAM T58380). Scale bars: A, B, 2.0 mm; C-E, 0.2 mm.

tip in ventral view, surpassing the tip of the embolus (Fig. 1E).

Opisthosoma (Fig. 1A, B). Dorsum light-brown and with typical *Artoriopsis*-pattern, i.e. dark diamond-shaped

patch centrally that is cut through by light lanceolate cardiac mark, but with repetition of this diamond patch pattern twice posteriorly, ending with a subrectangular frame-like dark patch in posterior third of abdomen

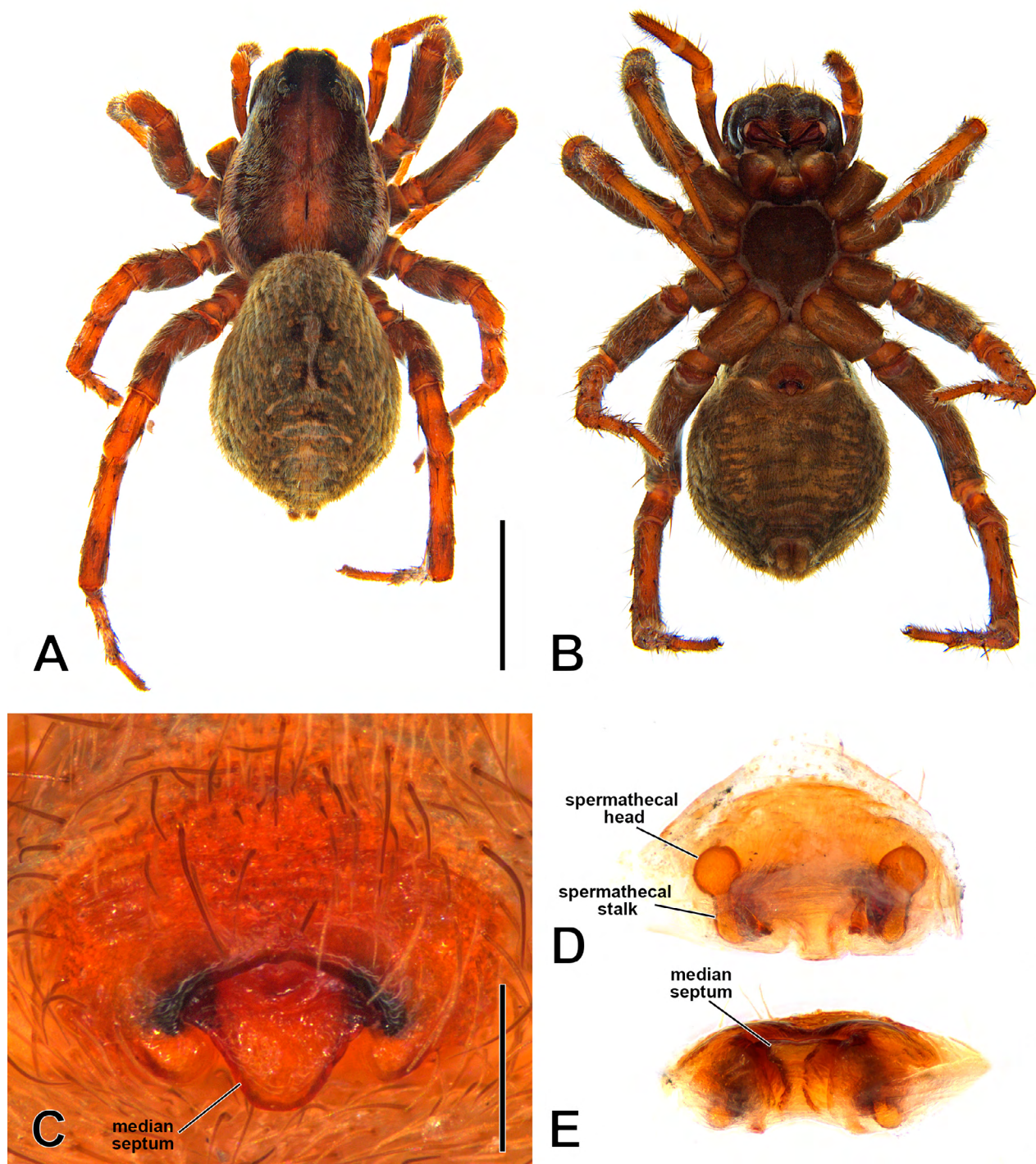


Figure 2. *Artoriopsis dubia* sp. nov., female. (A) habitus, dorsal view; (B) habitus, ventral view; (C) epigyne, ventral view; (D) genitalia, dorsal view; epigyne, posterior view. A–D, (WAM T64609); E, (WAM T58385). Scale bars: A, B, 2.0 mm; C–E, 0.2 mm.

which surrounds an area of pale setae. Laterally mottled dark, venter yellow-brown. Spinnerets reddish-brown.

Measurements. TL 3.98, PL 2.35, PW 1.62. OL 1.81, OW 1.32. Eyes: AME 0.08, ALE 0.08, PME 0.20, PLE 0.16. Row of eyes: AE 0.41, PME 0.57, PLE 0.64. Sternum (length/width) 0.99/0.86. Labium (length/width) 0.23/0.36. Leg: I. femur 1.45; patella 0.70; tibia 1.08; metatarsus 1.17; tarsus 0.91; total length 5.31; II. 1.35; 0.64; 0.99; 1.18; 0.91; 5.07; III. 1.23; 0.51; 0.92; 1.24; 0.71; 4.61; IV. 1.76; 0.71; 1.47; 1.98; 1.07; 6.99.

Female (based on WAM T64609).

Prosoma, dorsal shield (Fig. 2A). Similar to male.

Anterior eye row. Similar to male.

Labium. Similar to male, but darker.

Sternum (Fig. 2B). Dark brown, black bristles denser towards margins and longer posteriorly.

Chelicerae. Dark reddish-brown, with black longitudinal branching stripes; three promarginal teeth, two large

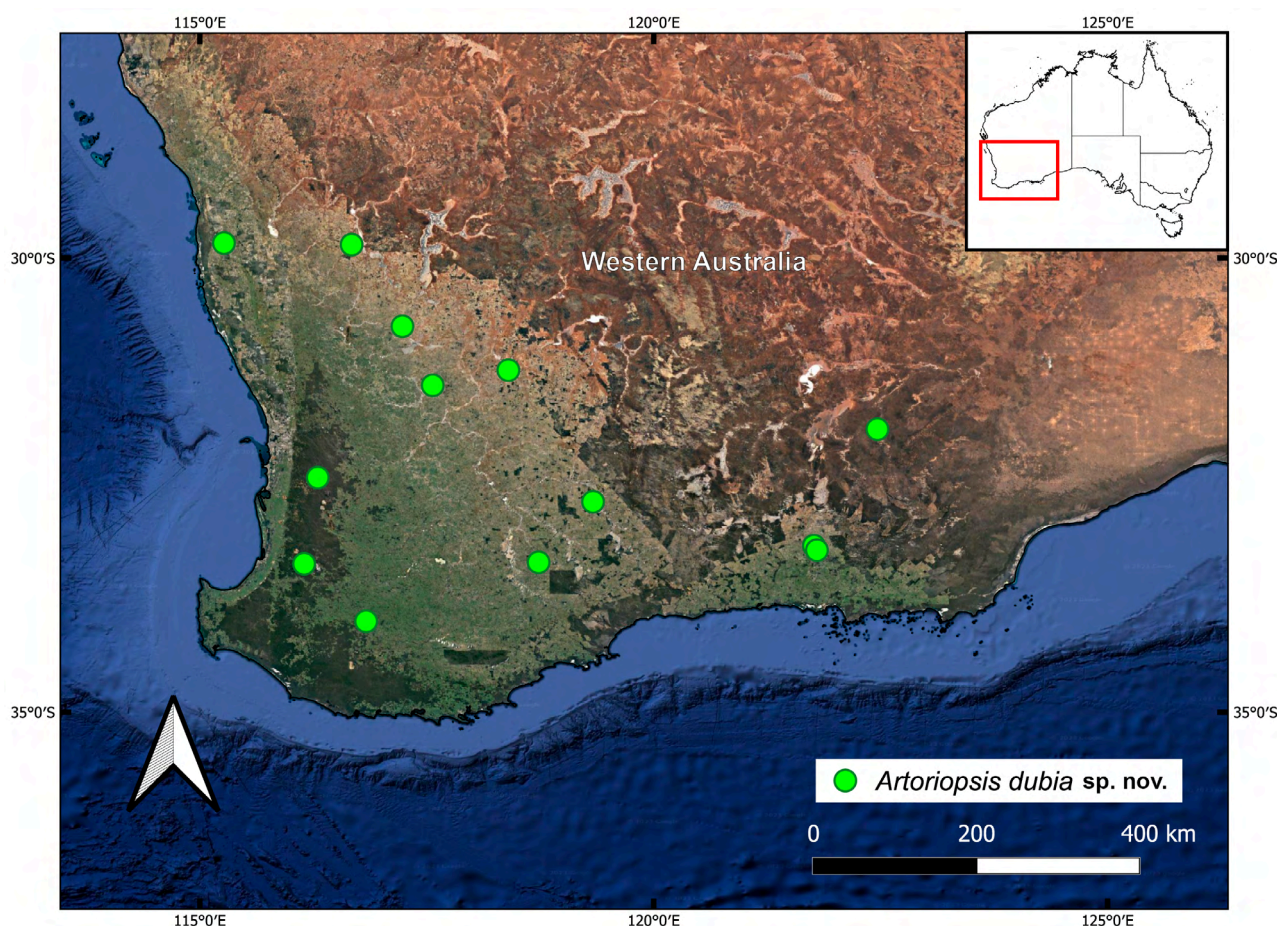


Figure 3. Distribution of *Artoriopsis dubia* sp. nov..

with equal size, and the most apical one shorter; two retromarginal teeth, the most apical larger.

Legs. Leg formula IV>II > I > III. Mostly reddish-brown, with dark patches sparse on patella, tibia and metatarsus and denser on femur.

Opisthosoma (Fig. 2A, B). Dorsum mostly dark grey with profuse silverish covering setae, and with the typical *Artoriopsis*-pattern similar to male. Laterally and venter dark grey. Spinnerets greyish-brown.

Epigyne, ventral view (Fig. 2C). Epigynal area wider than long, atrium with dark anterior margin conspicuously elevated forming a continuous and broad curve delimiting posteriorly the mesal margins of the short and rounded lateral lobes. Median septum tongue-like, elevated, and well delimited, with the anterior margin twice wider than posterior one which surpasses posteriorly the line of the lateral lobes.

Genitalia, dorsal view (Fig. 2D,E). Spermathecal stalks limited to the posterior third of epigynal area, directed dorsally from the copulatory openings and then bending anteriorly in an almost straight line reaching the globular spermathecal heads.

Measurements. TL 6.36, PL 3.11, PW 2.31. OL 3.47, OW 2.61. Eyes: AME 0.12, ALE 0.10, PME 0.23, PLE 0.20. Row

of eyes: AE 0.56, PME 0.72, PLE 0.86. Sternum (length/width) 1.27/1.19. Labium (length/width) 0.38/0.48. Leg: I. femur 1.80; patella 0.83; tibia 1.37; metatarsus 1.18; tarsus 0.93; total length 6.11; II. 1.66; 0.67; 1.19; 1.22; 0.91; 6.84; III. 1.57; 0.67; 1.02; 1.43; 0.90; 5.59; IV. 2.28; 0.87; 1.94; 2.35; 1.12; 8.56.

Other material examined. AUSTRALIA: Western Australia: 1 female, Collie, 33°22'S, 116°09'E, 17 July 1961 (WAM T55443); 1 male, 5 km E of Grass Patch, Fitzgerald Locality 41, 33°13'S, 121°48'E, 31 August 1986 (WAM T70337); 1 female, Grass Patch, 'Sieda', Fitzgerald Locality 41, Tom Starcevic VC Road, 33°10'S, 121°46'E, 23 October 1997 (WAM T64609); 1 female, Holland Rock Nature Reserve, 33°21'35"S, 118°44'50"E, 15 October 1999 – 1 November 2000 (WAM T58429); 1 male, Metabinup Nature Reserve, South, 34°00'24"S, 116°50'21"E, 15 October 1999 – 1 November 2000 (WAM T68331); 2 males, Moonijin Soak Nature Reserve, 30°45'17"S, 117°14'30"E, 15 September 1998 – 18 October 1999 (WAM T68227); 1 male, Mt Cooke, 32°25'S, 116°18'E, 8 September 1990 (WAM T62485); 1 female, same locality, 19 September 1991 (WAM 98/2169); 1 female, near Jibberding, Maya East Road, 29°51'03"S, 116°40'24"E, 29 September 2020 (HBI N25813-3); 1 female, R.G.C. Mine, 10 km S of Eneabba, 29°50'19"S, 115°16'13"E, 3 January 2001 (WAM T58385); 1 male, Tal-

gomine Reserve, North, 31°14'40"S, 118°24'25"E, 28 April – 22 September 1998 (WAM T68344); 1 male, Woodline, 31°53'S, 122°28'E, August 1980 (WAM T58379); 1 male, Yorkrakine, ca. 3 km S of Nock Road, 31°24'S, 117°34'E, July 1992 (WAM T58380).

Etymology. The specific epithet is a Latin adjective meaning 'dubious, uncertain' referring to the species being initially identified as a member of *Artoria*.

Natural history and habitat preferences. There is little habitat information on labels with museum specimens, which read 'vegie garden', 'samphire', and 'in house at night'. Mature males were found between July and September, mature females in September, October and January, indicating a largely winter to spring reproductive period.

Distribution. The species was recorded from southwestern Western Australia (Fig. 3).

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