



Two new species plus new records and observations of shield-backed trapdoor spiders in the *Idiosoma nigrum*-group (Mygalomorphae: Idiopidae: Aganippini) from south-western Australia

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Abstract

The shield-backed trapdoor spiders of the *Idiosoma nigrum*-group are an iconic lineage of conservation-significant mygalomorph spiders endemic to south-western Western Australia. A previous monographic revision of this group in 2018 revealed 16 species, although in the years since the publication of that work, significant new collection material has come to light, belonging to at least 10 described and two undescribed species. In this paper, we describe the two new species in the *nigrum*-group: *Idiosoma ganbarrga* Rix, Harvey & Wilson, **sp. nov.** from Badimia and Yamatji (Widi Mob) Country (in the southern Yalgoo bioregion), and *I. garrawarla* Rix, Harvey & Wilson, **sp. nov.** from Minangu Country (Weld Range in the Murchison bioregion). We further describe the first female specimens of *I. gutharuka* Rix & Harvey, 2018 and *I. kwongan* Rix & Harvey, 2018, provide new collection or survey records for 13 species, and present revised distribution maps for all 18 known species, as a contemporary second stage update to earlier revisionary systematics. These latest records provide substantive range extensions for *I. dandargan* Rix & Harvey, 2018, *I. gutharuka*, *I. intermedium* Rix & Harvey, 2018, *I. kwongan* and *I. nigrum* Main, 1952, with survey-based records for the threatened *I. nigrum* revealing three extant populations in the

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Avon Wheatbelt bioregion. Extensive survey-based records for *I. jarrah* Rix & Harvey, 2018 also reveal important *in situ* biological observations of spiders within their burrows, including novel defensive and other reproductive behaviours, plus the first photographic evidence of a sperm web and male pedipalp 'charging' behaviour in an Australian idiopid.

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<https://zoobank.org/References/6A7A0AC9-0C4D-4046-84A5-30089B48A80B>

Introduction

The shield-backed trapdoor spiders of the *Idiosoma nigrum*-group (family Idiopidae) are an iconic lineage of conservation-significant mygalomorph spiders endemic to south-western Western Australia (Rix et al. 2018, 2026). Long the subject of detailed ecological (e.g., Main 2003), behavioural (e.g., Main 1957, 1982; Ellis 2015) and systematic study (e.g., Main 1985; Rix et al. 2017a, b, 2018, 2026), the *nigrum*-group includes multiple listed threatened species, including Australia's only spider (*I. nigrum* Main, 1952) formally listed as threatened under both State and Commonwealth conservation legislation. Two additional species – *I. formosum* Rix & Harvey, 2018 and *I. kopejtkaorum* Rix & Harvey, 2018 – are also currently listed as Endangered under Western Australian conservation legislation. The *nigrum*-group belongs to a larger assemblage of *Idiosoma* species predominantly found in the south-western portion of the Australian mainland (Rix et al. 2026), and remains the only well-revised lineage within the genus *Idiosoma*, which currently contains 29 described species (Rix et al. 2018). However, it is now known that the genus *Idiosoma* has an estimated total fauna of between 200–300 species, and is perhaps the second-most diverse genus of mygalomorph spiders in the world, after *Aname* L. Koch, 1873 (family Anamidae) (see Wilson et al. 2025; Rix et al. 2026).

The *nigrum*-group is an unequivocally monophyletic assemblage of 16 currently described species (Rix et al. 2026), and was the subject of a monographic study in 2018, in which the then known fauna was systematically revised (see Rix et al. 2018). All species in the group share an unusual morphology, in which multiple posterior abdominal sigilla are sclerotised, most notably sigilla pairs (SP) 3 and 4, in addition to the usual SP2, the latter of which is sclerotised in the majority of *Idiosoma* as well as all species of *Eucanippe* Rix, Main, Raven & Harvey, 2017 (e.g., Figs 10, 21, 48, 60; see Rix et al. 2017b, 2018). Species in the *nigrum*-group are also recognised for constructing ornate doored burrows with 'twig-lines', the latter of which fan out from the burrow entrance in a distinctive bilaterally directed (i.e., 'moustache'-like) arrangement (e.g., Figs 27, 49, 63, 90, 93). This twig-lining behaviour, while not unique to *nigrum*-group species of *Idiosoma*, is a likely behavioural adaptation to the semi-arid woodland habitats of south-western Western Australia most favoured by the group (see Rix et al. 2026). Although the behaviour and somat-

ic morphology of species within the *nigrum*-group is now known to be far from uniform, at least seven highly autapomorphic species are further renowned for having evolved a truly phragmotic defensive system, in which their armoured, reinforced 'shield-backed' abdomens (e.g., Figs 45, 48, 81, 97) are used to physically 'plug' the burrow shaft in a cork-like fashion, thus protecting the rest of the spider within (Figs 45, 46, 97). This phragmotic system works due to a section of the burrow shaft which is acutely narrowed approximately half way down (Figs 44, 49), and it is at or below this 'sphincter-like' section of the burrow that the posterior abdominal shield is wedged like a cork (Figs 45, 46, 97). Phylogenetic evidence indicates that this abdominal phragmotic defensive system may have evolved more than once within the *nigrum*-group (in that fully armoured taxa are a polyphyletic assemblage; see Rix et al. 2018, 2026), and has certainly evolved convergently in a number of other trapdoor spiders, including twice in other Australian *Idiosoma* species (i.e., in *I. galeosomoides* Rix, Main, Raven & Harvey, 2017 and *I. corrugatum* Rix & Harvey, 2018; see Rix et al. 2017b, 2018), in southern African species of *Galeosoma* Purcell, 1903 (family Idiopidae), and in species of *Cyclocosmia* Ausserer, 1871 (family Ctenizidae) from North America and East Asia (see Rix et al. 2018; Fonseca-Ferreira et al. 2025).

Since the revisionary work of Rix et al. (2018), significant new collection material has come to light, belonging to at least 10 described and two undescribed *nigrum*-group species. Dedicated survey work has also occurred in a number of areas, providing an additional important source of georeferenced burrow location data for three named species. In this paper, we summarise these new data since 2018, describing the two new species and the first females of two previously described species, while also providing new records, biological observations, live habitus images and revised distribution maps for other, named taxa. This research is therefore a second stage update to Rix et al. (2018), and contributes to Taxonomy Australia (2020), a national initiative under the Australian Academy of Science that brings together the taxonomic community to accelerate the discovery, documentation and naming of new species. The initiative aims to comprehensively document the Australian biota within a generation.

Methods

Morphological taxonomic methods, including the format of species descriptions, follow Rix et al. (2018), with all measurements in millimetres, and species ordered alphabetically after the descriptions of the two new species. Digital automontage images were taken using either a Leica M165C stereomicroscope with mounted K5C digital camera (and processed using Leica Application Suite Version X Industry Core software), or a Leica MZ16A stereomicroscope with mounted DFC500 digital camera (and processed using Leica Application Suite Version X software). Specimens are lodged at the Western Australian Museum, Perth (WAM), and the following abbreviations are used: ALE, anterior lateral eye/s; AME, anterior median eye/s; DBCA, Western Australian Department of Biodiversity, Conservation and Attractions; PLE, posterior lateral eye/s; PME, posterior median eye/s; RTA, retrolateral tibial apophysis (of male pedipalp). Bioregional definitions are as per the Interim Biogeographic Regionalisation for Australia (IBRA) Version 7.0 (Thackway & Cresswell 1995).

Field survey methods for *I. jarrah* Rix & Harvey, 2018 and *I. nigrum* involved visual searching for burrows within the known distribution of each species, with non-destructive burrow endoscopes used to confirm the identification of resident spiders and to take images within burrows (see Figs 68–76, 97, 99, 100). For *I. nigrum*, surveys by Author MGR used a 'Cozy Hoome' endoscope attached to an Android phone, with CameraFi Live software. The survey of *I. nigrum* by E.S. Volschenk used an unbranded 3.9 mm endoscope attached to an Android phone via USB, with USB Camera Version 10.1.5 software. For *I. jarrah*, surveys by Authors RAL and SJC used a Yateks® Portable Industrial Endoscope. For the threatened *I. nigrum*, surveyed burrow location coordinates within this paper are presented only to the nearest minute of latitude and longitude, due to the conservation risk posed by the illegal collection of specimens for the pet trade (see Marshall et al. 2022; Lassaline et al. 2023; Rix et al. 2023). The large number of surveyed burrow locations for *I. jarrah* are also summarised in a similar way for conservation and ease of presentation.

Taxonomy

Family Idiopidae Simon, 1889

Subfamily Arbanitinae Simon, 1903

Tribe Aganippini Simon, 1903

Genus *Idiosoma* Ausserer, 1871

<https://zoobank.org/NomenclaturalActs/5227b124-4064-4b08-96a7-f0aa37227da1>

Idiosoma Ausserer, 1871: 150.

Aganippe O. P.-Cambridge, 1877: 28. Type species: *Aganippe subtristis* O. P.-Cambridge, 1877, by subsequent designation of Simon (1892: 160). Synonymised by Rix et al. (2017b: 590).

Anidiops Pocock, 1897: 114. Type species: *Anidiops manstridgei* Pocock, 1897, by monotypy. Synonymised by Rix et al. (2017b: 590).

Type species

Idiops sigillatus O. P.-Cambridge, 1870, by monotypy.

Diagnosis

Species of *Idiosoma* can be distinguished from all other Australian Idiopidae by the presence of a median retrolateral digital process on the male pedipalp (this digital process secondarily reduced to a nubbin in a very few species), distal to a burr-like retrolateral tibial apophysis (RTA) (Figs 14, 15). Males and females of most (but not all) *Idiosoma* species also possess at least one prominent pair of sclerotised sigilla (SP) on the dorsal abdomen, at position SP2 (Figs 10, 21, 33, 54; also present in *Eucanippe* as a synapomorphy of the clade uniting *Eucanippe* and *Idiosoma*) (Rix et al. 2018: 9).

The *Idiosoma nigrum*-group (shield-backed trapdoor spiders)

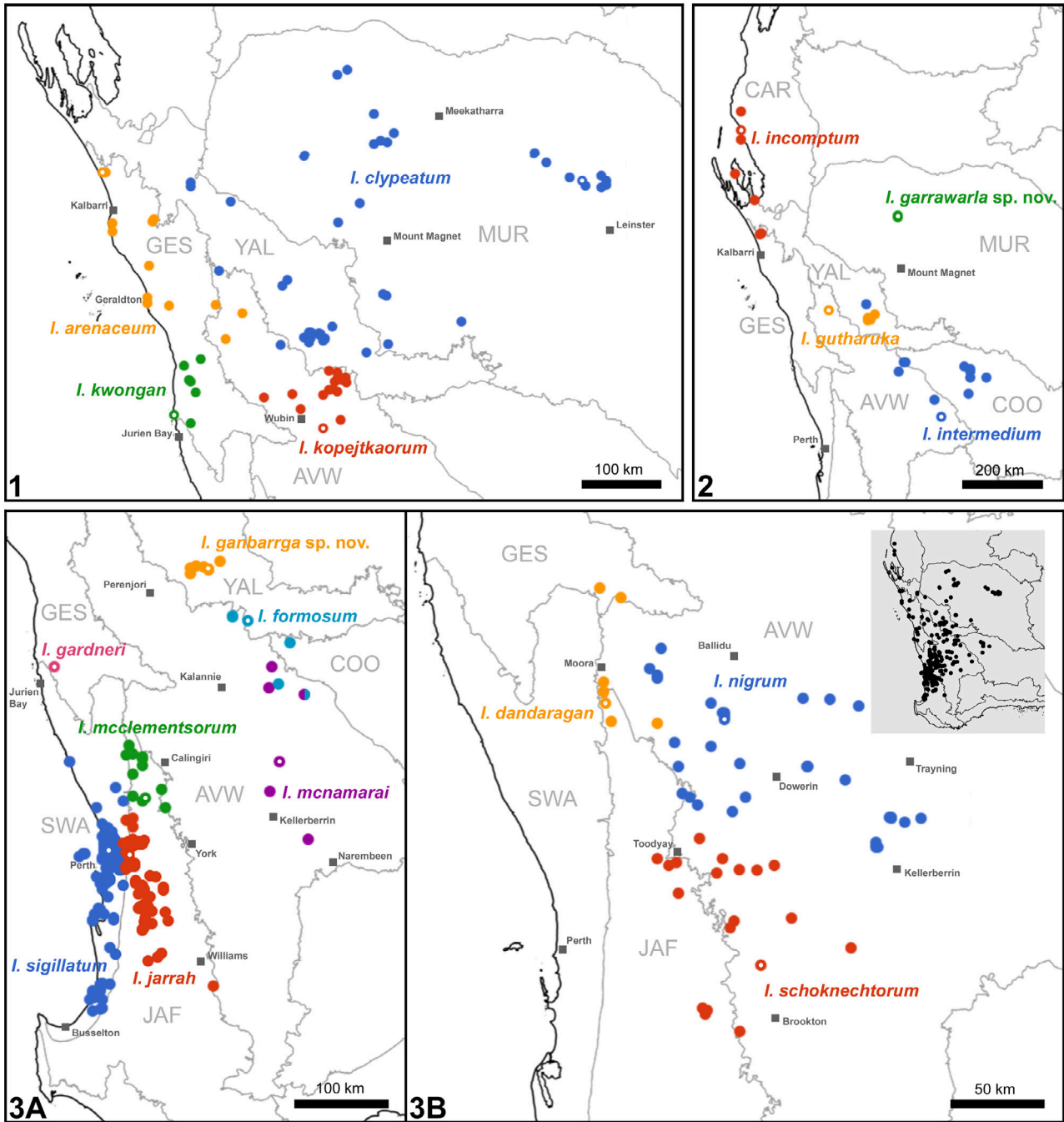
'*Idiosoma* s.s.' Rix et al., 2017a: 317, fig. 8.

'*Idiosoma nigrum*-group' Rix et al., 2018: 10. Rix et al., 2026: 8, figs 3, 6.

Diagnosis and remarks

The monophyletic *nigrum*-group comprises 18 known species within the 'Moustache twig-lining lineage' of the South-western Radiation of *Idiosoma* (see Rix et al. 2026). All are endemic to Western Australia (Figs 1–3), with 16 of the 18 species previously revised or described by Rix et al. (2018). They can be distinguished from most other congeners in Western Australia by the presence of a variably phragmotic abdominal morphology in which SP3 is sclerotised and always larger than SP2 (e.g., Figs 10, 21, 60), and SP4 is also sclerotised to varying degrees (especially in females; see Figs 21, 48, 60). Many (but not all) species possess prominent longitudinal abdominal corrugations, and seven species have a very heavily sclerotised, thickened and leathery abdominal cuticle which is somewhat truncate posteriorly, giving the abdomen an armoured 'shield-like' morphology (hence the common name) (see Figs 41, 46, 48, 78, 81, 91, 97). Three clades are recognised (*sensu* Rix et al. 2018: 10, fig. 25): the *clypeatum*-clade (four species), the *intermedium*-clade (four species) and the *sigillatum*-clade (10 species). Like other members of the 'Moustache twig-lining lineage', all known species in the *nigrum*-group construct burrows with a bilaterally directed (i.e., 'moustache') arrangement of twig-lines (e.g., Figs 27, 40, 44, 49, 64, 65, 90, 96).

It should be noted that another species of *Idiosoma* from Western Australia that is not in the *nigrum*-group



Figures 1-3. Maps showing known collection and survey records of *Idiosoma* species in the *nigrum*-group, separated according to clade designations *sensu* Rix et al. (2018: 10, fig. 25): 1, the *clypeatum*-clade; 2, the *intermedium*-clade; 3, the *sigillatum*-clade, split into non- or semi-armoured taxa (3A, left) and fully armoured taxa (3B, right). Type localities for each species are denoted by white dots, sites with two species in sympatry are denoted by separately coloured semi-circles, and select metropolitan centres are labelled. Note the largely non-overlapping distributions of species within each clade, compared to the partly overlapping distributions of the clades themselves, especially in the north-eastern Avon Wheatbelt and southern Yalgoo bioregions. IBRA 7.0 bioregional acronyms are as follows: AVW, Avon Wheatbelt; CAR, Carnarvon; COO, Coolgardie; GES, Geraldton Sandplains; JAF, Jarrah Forest; MUR, Murchison; SWA, Swan Coastal Plain; YAL, Yalgoo.

– *I. galeosomoides* – also has a phragmotic abdominal morphology with enlarged and sclerotised SP3 and SP4. However, the markedly different shape of the abdomen (with a reinforced abdominal 'rim') and compact (sub-quadrate) eye group easily distinguish this species from *nigrum*-group taxa (see Rix et al. 2017b, figs 118, 120, 124).

The sole *Idiosoma* species with enlarged and sclerotised SP3 and SP4 found outside of Western Australia, *I. corrugatum* from South Australia's Eyre Peninsula, is of uncertain phylogenetic affinity, though is now no longer considered to be a member of the *nigrum*-group (*contra* Rix et al. 2018) due to a suite of conflicting morphological characters, including the shape of the eye group

(subquadrate rather than trapezoidal) and orientation of the male leg I clasping spurs (dorso-ventral rather than longitudinal) (see Rix et al. 2018, figs 104, 108, 117).

Distribution

The *nigrum*-group has a broad distribution in transitional, semi-arid and arid habitats in south-western Western Australia, along the Swan Coastal Plain, and in the northern Jarrah Forest, central and northern Avon Wheatbelt, north-western Coolgardie, Geraldton Sandplains, Yalgoo, central and western Murchison and southern Carnarvon bioregions (Fig. 3B inset; see also Rix et al. 2018, figs 374–376). For updated distribution maps for all 18 species, see Figures 1–3.

Idiosoma ganbarrga Rix, Harvey & Wilson, sp. nov.

Figures 3A, 4–28

<https://zoobank.org/NomenclaturalActs/71B010DA-21B0-4C5C-8A11-0477A464BA49>

Idiosoma 'formosum' Rix et al., 2018: 35 (in part; misidentified specimen WAMT136187 from N. of Rothsay).

Idiosoma 'MYG641' Rix et al., 2026: 8, figs 3, 6.

Holotype

Australia: *Western Australia*: ♂, Mount Mulgine (IBRA_YAL), 29°11'07"S, 116°58'33"E, hand collected from burrow, 30 April 2019, M.T. Ladyman (WAM T147743).

Paratypes

Australia: *Western Australia*: 1 ♂, same data as holotype (WAM T147742); 1 ♀, same data except 29°11'06"S, 116°58'36"E (WAM T147741); 1 ♀, same data except 29°11'07"S, 116°58'34"E, 9 October 2019, A. Heidrich & J. Vos (WAM T147956); 1 ♀, Mount Mulgine, 15 km N. of Rothsay (IBRA_YAL), 29°09'30"S, 116°54'45"E, hand collected from burrow, rocky east-facing slope with mixed lower & taller shrubs, 26 June 2021, A. Heidrich & L. Petersen (WAM T155372); 1 ♀, Mount Mulgine, ca. 70 km NE. of Perenjori (IBRA_YAL), 29°11'15"S, 116°58'52"E, *Allocasuarina* shrubland, granite outcrop, 22 June 2020, A. Heidrich & J. Vos (WAM T150971); 1 ♀, same data except 29°11'34"S, 116°58'29"E, *Allocasuarina* & mixed *Acacia* shrubland, granite slope (WAM T150972); 1 ♀, Karara minesite, ca. 50 km NE. of Perenjori (IBRA_YAL), 29°13'34.15"S, 116°44'51.30"E, 21 June 2020, M. Bamford (WAM T140436); 1 ♀, same data except 29°13'38.56"S, 116°45'13.85"E (WAM T140437); 1 ♀, same data except 29°10'44.04"S, 116°44'54.34"E (WAM T140439); 1 ♀, 16 km N. of Rothsay (IBRA_YAL), 29°09'12"S, 116°49'12"E, 6–11 July 2014, M. Bamford (WAM T136187); 1 ♀, Warriedar Hills (IBRA_YAL), 29°06'18"S, 117°06'30"E, hand collected from burrow, open woodland, 23 June 2022, M.S. Harvey et al. (WAM T157793); 1 ♀, Warriedar [*sic* 'Mount Mulgine'], 30 km NE. of Rothsay, 29°06'23.39"S, 117°06'27.92"E, hand collected from burrow, rocky south-facing slope, *Allocasuarina* & mixed *Acacia*, 26 June 2021, A. Heidrich & L. Petersen (WAM T155371); 1 juvenile, same data (WAM T155370).

Diagnosis

Males of *Idiosoma ganbarrga* Rix, Harvey & Wilson, sp. nov. can be distinguished from those of the seven fully armoured species in the *nigrum*-group (i.e., *I. arenaceum* Rix & Harvey, 2018, *I. clypeatum* Rix & Harvey, 2018, *I. dandaragan* Rix & Harvey, 2018, *I. kopejtkaorum*, *I. kwongan* Rix & Harvey, 2018, *I. nigrum*, *I. schoknechtorum* Rix & Harvey, 2018) by the absence of well-defined lateral sclerotic strips on the male abdomen (Figs 5, 10; cf. Rix et al. 2018, figs 32, 63, 256), and from all other *nigrum*-group species except *I. formosum* by the colour of the abdomen, which is ornately bi-coloured dorsally and laterally with a 'tiger-stripe'-like pattern (Figs 5, 10). Males of this species can further be distinguished from *I. formosum* by the shape of tibia I, which is more elongate (leg I femur–tarsus/carapace length ratio 3.3 [cf. 2.8 in *I. formosum*]), with smaller prolateral clasping spurs occupying only the distal quarter of the segment (Figs 11–13; cf. Rix et al. 2018, figs 152–154).

Females of *I. ganbarrga* Rix, Harvey & Wilson, sp. nov. are similar to those of *I. formosum*, *I. intermedium* Rix & Harvey, 2018 and *I. mcnamarai* Rix & Harvey, 2018 in having a non-armoured (i.e., not strongly corrugate) abdominal morphology (Figs 18, 21, 26), with medium-sized abdominal sigilla in which the SP4 sclerites are equal to or larger than the SP2 sclerites (Fig. 21). Females of this species can further be distinguished from *I. intermedium* and *I. mcnamarai* by the ornate, bi-coloured dorsal abdominal colouration (Figs 18, 21, 26; cf. Rix et al. 2018, figs 220, 223, 321, 324), and from *I. formosum* by the smaller denticle-like setae on the antero-dorsal abdomen, in a slightly narrower medial field anterior to SP2 (Figs 18, 21; cf. Rix et al. 2018, figs 159, 162), and by the marginally smaller size of SP3 and SP4 (Fig. 21; cf. Rix et al. 2018, fig. 162).

Description (male holotype)

Total length 12.7. Carapace 5.6 long, 4.5 wide. Abdomen 5.7 long, 5.2 wide. Carapace (Fig. 4) tan, with darker ocular region; lateral margins with uniformly-spaced fringe of porrect black setae; fovea slightly procurved. Eye group (Fig. 7) trapezoidal (anterior eye row strongly procurved), 0.7 × as long as wide, PLE–PLE/ALE–ALE ratio 1.9; ALE almost contiguous; AME separated by less than their own diameter; PME separated by 3.0 × their own diameter; PME and PLE separated by approximately diameter of PME, PME positioned in line with level of PLE. Maxillae with field of small cuspules confined to inner corner; labium without cuspules. Abdomen (Figs 5, 10) squat, truncate posteriorly, beige-brown in dorsal view, with darker maroon-brown 'tiger-stripe'-like pattern medially and laterally, and assortment of stiff, porrect black setae, each with slightly raised, dark brown sclerotic base. Posterior abdomen moderately sigillate (Figs 5, 10); SP2 sclerites irregular, comma-shaped spots; SP3 sclerites subcircular with irregular margins, each with unsclerotised triangular 'corner' laterally; SP4

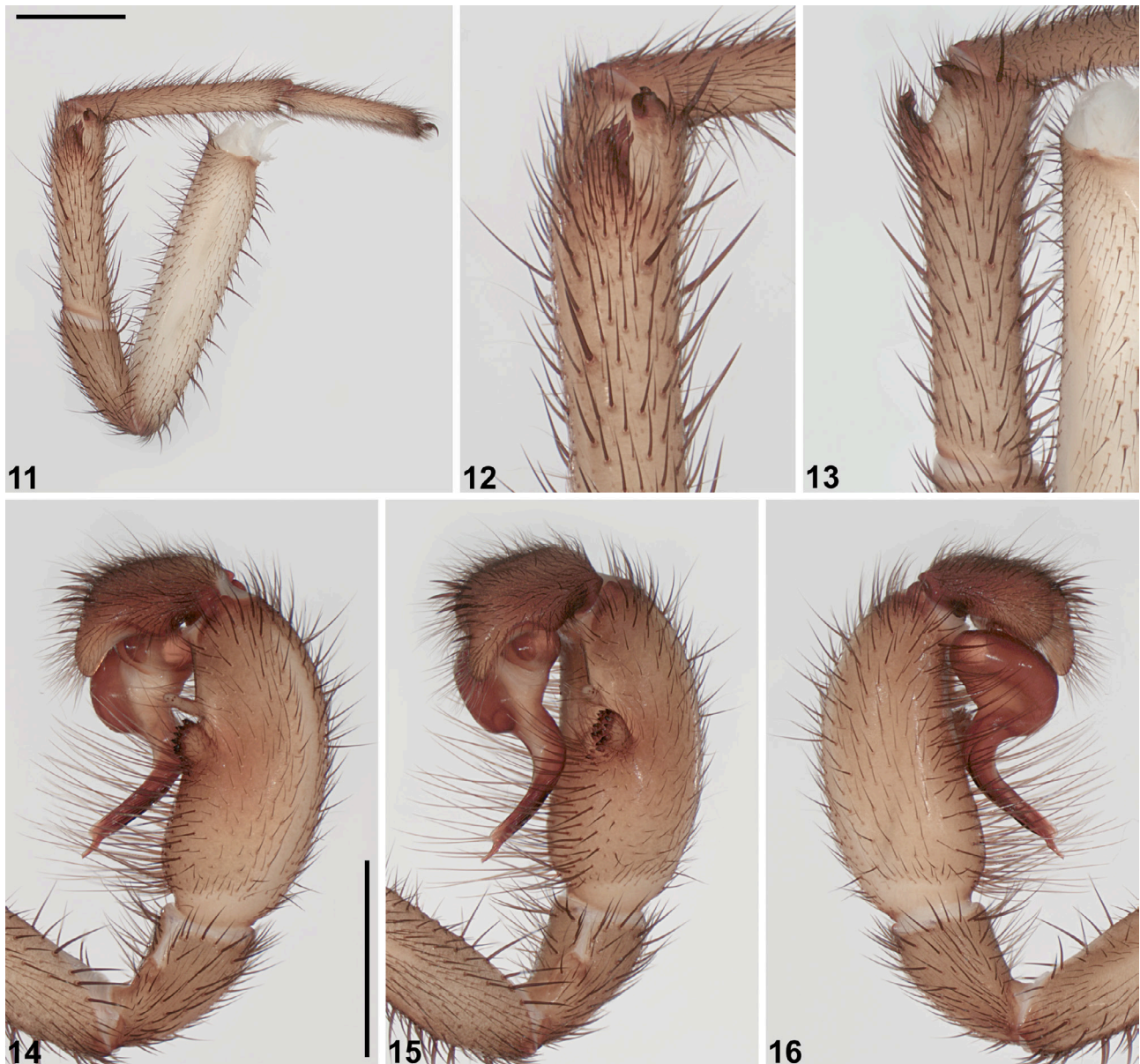


Figures 4–10. *Idiosoma ganbarrga* Rix, Harvey & Wilson, sp. nov., male holotype (WAM T147743) from Mount Mulgine, Western Australia, body morphology: 4, 5, cephalothorax and abdomen, dorsal view; 6, cephalothorax, lateral view; 7, eyes, dorsal view; 8, mouthparts, ventral view; 9, cephalothorax, ventral view; 10, abdomen, posterior view. Scale bars 2.0. SP1–4 = sigilla pairs 1–4.

sclerites circular, each surrounded by chevron-like pad of unsclerotised cuticle laterally. Legs (Figs 11–13) variable shades of beige-brown, with light scopulae on tarsi I–II; distal tibia I with pair of prolateral clasp spurs oriented longitudinally. Leg I: femur 5.5; patella 2.7; tibia 3.8; metatarsus 4.2; tarsus 2.5; total 18.6. Leg I femur–tarsus/carapace length ratio 3.3. Pedipalpal tibia (Figs 14–16) 2.3 × longer than wide; RTA burr-like, with conical basal protuberance and field of retroventral spinules; digital process porrect, unmodified. Cymbium (Figs 14–16) setose, with field of spinules disto-dorsally. Embolus (Figs 14–16) broadly twisted and sharply tapering distally, with prominent longitudinal flange and triangular (sub-distal) embolic apophysis.

Description (female paratype WAMT155371)

Total length 24.4. Carapace 9.3 long, 6.8 wide. Abdomen 10.8 long, 10.0 wide. Carapace (Fig. 17) dark tan (dark chocolate-brown in life; Fig. 26), with darker ocular region and dark reddish-tan chelicerae; fovea procurved. Eye group (Fig. 20) trapezoidal (anterior eye row strongly procurved), 0.7 × as long as wide, PLE–PLE/ALE–ALE ratio 2.1; ALE almost contiguous; AME separated by approximately their own diameter; PME separated by 4.0 × their own diameter; PME and PLE separated by more than diameter of PME, PME positioned marginally posterior to level of PLE. Maxillae with field of cusps confined to inner corner (Fig. 22); labium without cusps. Abdomen (Figs 18, 21) broadly oval, truncate posteriorly, non-armoured, beige-tan in dorsal view,



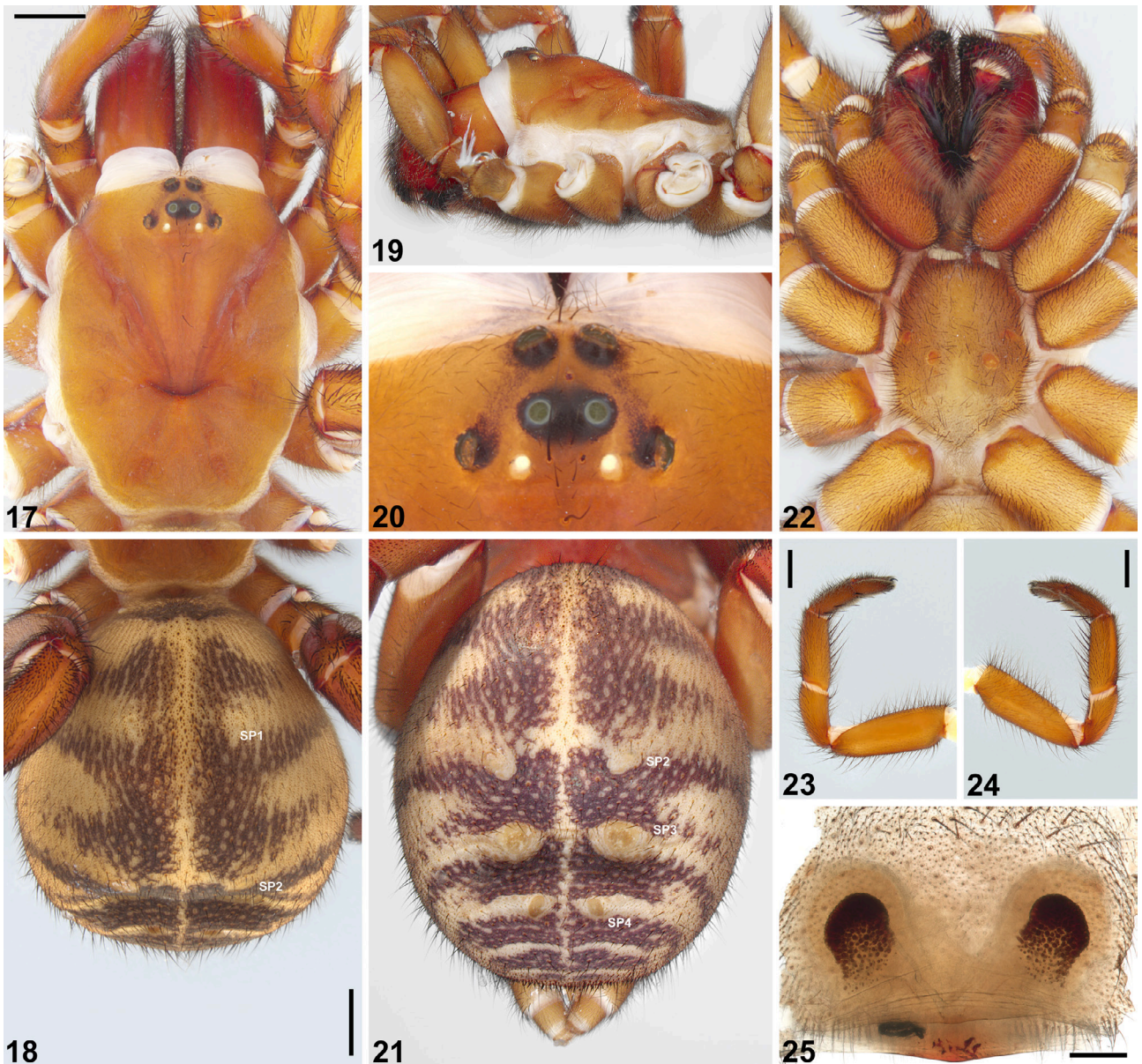
Figures 11–16. *Idiosoma ganbarrga* Rix, Harvey & Wilson, sp. nov., male holotype (WAM T147743) from Mount Mulgine, Western Australia, leg I and pedipalp: 11, leg I, prolateral view; 12, leg I tibia, clasp spurs, prolateral view; 13, leg I tibia, proventral view; 14, pedipalp, retrolateral view; 15, pedipalp, retroventral view; 16, pedipalp, prolateral view. Scale bars 2.0.

with darker maroon-brown ‘tiger-stripe’-like pattern medially and laterally and beige-tan mottling (similar though somewhat darker in life; Fig. 26). Posterior abdomen moderately sigillate (Figs 18, 21); SP2 sclerites irregular, comma-shaped spots; SP3 sclerites subcircular with irregular margins; SP4 sclerites oval with irregular margins, each surrounded by chevron-like pad of unsclerotised cuticle laterally. Abdomen with modified denticle-like setae present in longitudinal field along anterior midline (Fig. 18) and in transverse field on posterior abdomen above spinnerets (Fig. 21). Legs (Figs 23, 24) variable shades of dark tan (dark chocolate-brown in life; Fig. 26); scopulae present on tarsi and metatarsi I, II; tibia I with row of six retroventral macrosetae; metatarsus I and tarsus I with additional stout macrosetae. Leg I: femur 6.2; patella 3.9; tibia 3.8; metatarsus 3.0; tarsus

2.1; total 19.0. Leg I femur–tarsus/carapace length ratio 2.0. Pedipalp dark tan (dark chocolate-brown in life; Fig. 26), spinose on tibia and tarsus, with thick tarsal scopula. Genitalia (Fig. 25) with pair of short spermathecae on broad ‘stems’, with slightly broadened crowns, each bearing dense field of glandular vesicles distally, and more sparsely distributed glandular field sub-distally.

Distribution

Idiosoma ganbarrga has a restricted known distribution in Badimia and Yamatji (Widi Mob) Country (southern Yalgoo bioregion), to the north-west of Lake Moore, in the vicinity of Rothsay, Karara, Mount Mulgine and Warriedar (Fig. 3A).



Figures 17–25. *Idiosoma ganbarrga* Rix, Harvey & Wilson, sp. nov., female paratype (WAM T155371) from Warriedar, Western Australia: 17, 18, cephalothorax and abdomen, dorsal view; 19, cephalothorax, lateral view; 20, eyes, dorsal view; 21, abdomen, posterior view; 22, cephalothorax, ventral view; 23, leg I, prolateral view; 24, leg I, retrolateral view; 25, spermathecae, dorsal view. Scale bars 2.0 (17, 18, 23, 24), 0.5 (25). SP1–4 = sigilla pairs 1–4.



Figures 26–28. Habitus and burrow images of *Idiosoma ganbarrga* Rix, Harvey & Wilson, sp. nov. from Mount Mulgine and Warriedar, Western Australia: 26, habitus of paratype female (WAM T155371); 27, closed burrow of paratype female (WAM T155371); 28, closed burrow of paratype female (WAM T155372). Note the ornate colouration of the abdomen of this species in life (26). Images by A. Heidrich.

Remarks

This newly described species was known from only a single female specimen in collections prior to 2019 (WAM T136187), and this specimen was misidentified by Rix et al. (2018: 35) as the closely related *I. formosum*. The distributions of *I. ganbarrga* and *I. formosum* are now known to be disjunct, and possibly separated by the Mongers Lake system of saline tributaries. It is one of the non-armoured taxa in the *nigrum*-group (Fig. 26), and belongs to a monophyletic complex of three species also including *I. formosum* and *I. mcnamarai* (see Rix et al. 2026, fig. 3). At Mount Mulgine and Warriedar (and probably other localities in the southern Yalgoo), *I. ganbarrga* (a member of the *sigillatum*-clade) can be found sympatrically or parapatrically with two other unrelated species in the *nigrum*-group: *I. gutharuka* Rix & Harvey, 2018 (another non-armoured species in the *intermedium*-clade) and *I. clypeatum* (an armoured species in the *clypeatum*-clade). Burrows are adorned with twig-lines in a moustache-like arrangement (Figs 27, 28), and adult males have been collected (mature in burrows) in late April.

This species was designated as *Idiosoma* 'MYG641' in the molecular phylogenetic analysis of Rix et al. (2026, figs 3, 6), and recovered as the sister-species to *I. formosum*, with which it shares an ornate, bi-coloured dorsal abdominal pattern (Fig. 26). Nucleotide sequence data for the following genes (not available in Rix et al. 2018) can be found on GenBank (see Rix et al. 2026): cytochrome *c* oxidase subunit I (*COI*), cytochrome *b* (*CYB*), ITS1–5.8S rRNA–ITS2–28S rRNA, 39S ribosomal protein L45, mitochondrial (*MRPL45*), ribosome production factor 2 homolog (*RPF2*) and probable Xaa-Pro aminopeptidase 3 (*XPNPEP3*).

Etymology

The specific epithet *ganbarrga* derives from the Badimia language, and means 'spider' (here treated as a noun in apposition). This species name was chosen by the Badimia and Yamatji (Widi Mob) Traditional Owners and is used with the permission of the Badimia Bandi Barna Aboriginal Corporation.

Idiosoma garrawarla Rix, Harvey & Wilson, sp. nov.

Figures 2, 29–40

<https://zoobank.org/NomenclaturalActs/74527F1E-DC05-40AC-89FB-2B00F55BB844>

Idiosoma 'MYG734' Rix et al., 2026: 8, figs 3, 6.

Holotype

Australia: *Western Australia*: ♀, Weld Range, site EVTDS2, ca. 80 km SW. of Meekatharra (IBRA_MUR), 26°50'07"S, 117°44'53"E, 6 July 2021, M. Bamford (WAM T155838).

Paratypes

Australia: *Western Australia*: 1 juvenile, same data as holotype except site EVTDS1, 26°49'12"S, 117°44'39"E (WAM T155837); 1 juvenile (subadult male), Weld Range, site EVTDS7, ca. 81.9 km SW. of Meekatharra (IBRA_MUR), 26°51'11"S, 117°43'55"E, 6 July 2021, M. Bamford (WAM T155836).

Diagnosis

Females of *I. garrawarla* Rix, Harvey & Wilson, sp. nov. are similar to those of *I. gutharuka* and *I. jarrah* (and presumably also *I. incomptum* Rix & Harvey, 2018) in having a non-armoured (i.e., not strongly corrugate) abdominal morphology (Figs 30, 33), with relatively small abdominal sigilla in which the SP4 sclerites are not larger than the SP2 sclerites (Fig. 33). Females of this species can further be distinguished from *I. jarrah* by the alignment of the posterior eye row, in which the PME are positioned marginally posterior to the PLE (Fig. 32; cf. Rix et al. 2018, fig. 244), and from *I. gutharuka* by the shape of the spermathecae, which are shorter and without broadened crowns (Fig. 37; cf. Fig. 58).

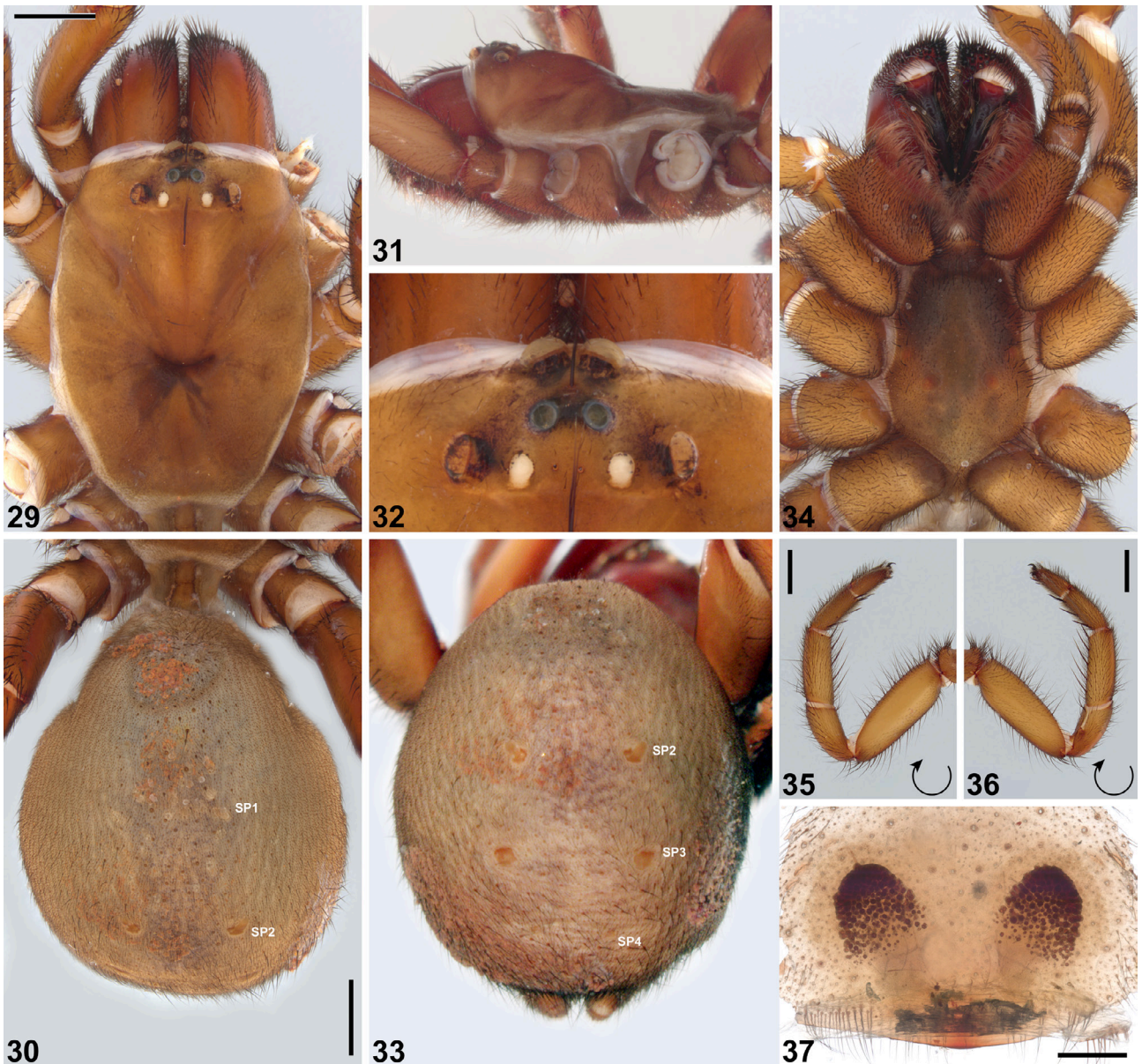
Males are unknown.

Description (female holotype)

Total length 21.8. Carapace 8.8 long, 6.3 wide. Abdomen 10.4 long, 8.8 wide. Carapace (Fig. 29) dark tan, with darker ocular region and darker reddish-tan chelicerae; fovea procurved. Eye group (Fig. 32) trapezoidal (anterior eye row strongly procurved), 0.6 × as long as wide, PLE–PLE/ALE–ALE ratio 2.5; ALE almost contiguous; AME separated by less than their own diameter; PME separated by 2.8 × their own diameter; PME and PLE separated by more than diameter of PME, PME positioned marginally posterior to level of PLE. Maxillae with field of cuspules confined to inner corner (Fig. 34); labium without cuspules. Abdomen (Figs 30, 33) broadly oval, non-armoured, beige-brown in dorsal view with tan mottling. Posterior abdomen weakly sigillate (Figs 30, 33); SP2 sclerites irregular, comma-shaped spots; SP3 sclerites subcircular with irregular margins, each surrounded by pad of unsclerotised cuticle; SP4 sclerites small, subcircular with irregular margins. Legs (Figs 35, 36) variable shades of dark tan; scopulae present on tarsi and metatarsi I, II; tibia I with row of five retroventral macrosetae; metatarsus I and tarsus I with additional stout macrosetae. Leg I: femur 5.3; patella 3.4; tibia 3.3; metatarsus 2.5; tarsus 2.0; total 16.6. Leg I femur–tarsus/carapace length ratio 1.9. Pedipalp dark tan, spinose on tibia and tarsus, with thick tarsal scopula. Genitalia (Fig. 37) with pair of short spermathecae on broad 'stems', without broadened crowns, each bearing dense field of glandular vesicles distally, and more sparsely distributed glandular field sub-distally.

Distribution

Idiosoma garrawarla is known only from Weld Range, on Minangu Country in the northern Murchison bioregion, ca. 80 km south-west of Meekatharra (Fig. 2).



Figures 29–37. *Idiosoma garrawarla* Rix, Harvey & Wilson, sp. nov., female holotype (WAM T155838) from Weld Range, Western Australia: 29, 30, cephalothorax and abdomen, dorsal view; 31, cephalothorax, lateral view; 32, eyes, dorsal view; 33, abdomen, posterior view; 34, cephalothorax, ventral view; 35, right leg I, prolateral view (flipped horizontal for comparison); 36, right leg I, retrolateral view (flipped horizontal for comparison); 37, spermathecae, dorsal view. Scale bars 2.0 (29, 30, 35, 36), 0.5 (37). SP1–4 = sigilla pairs 1–4.



Figures 38–40. Burrow images of *Idiosoma garrawarla* Rix, Harvey & Wilson, sp. nov. from Weld Range, Western Australia: 38–40, burrows of three individuals, showing natural variation in twig-lining arrangements. Images by M. Bamford.

Remarks

This newly described species is one of the non-armoured taxa in the *nigrum*-group, and belongs to the *intermedium*-clade of four species also including *I. intermedium*, *I. incomptum* and *I. gutharuka*. At Weld Range, *I. garrawarla* occurs with *I. clypeatum* (an armoured species in the *clypeatum*-clade), though apparently not sympatrically. Burrows are adorned with twig-lines in a moustache-like arrangement (Figs 38–40).

This species was designated as *Idiosoma* 'MYG734' in the molecular phylogenetic analysis of Rix et al. (2026, figs 3, 6), and recovered as sister to the other three species in the *intermedium*-clade. Nucleotide sequence data for the following genes (not available in Rix et al. 2018) can be found on GenBank (see Rix et al. 2026): cytochrome *c* oxidase subunit I (*COI*), cytochrome *b* (*CYB*), ITS1–5.8S rRNA–ITS2–28S rRNA, ribosome production factor 2 homolog (*RPF2*) and probable Xaa-Pro aminopeptidase 3 (*XPNPEP3*).

Etymology

The specific epithet *garrawarla* derives from the Wajarri language, and means 'big spider' (here treated as a noun in apposition). This species name was chosen by the Minangu Traditional Owners and is used with the permission of the Minangu Land Committee, representatives of the Wajarri Yamaji Aboriginal Corporation. Minangu Country lies within the lands of the Wajarri Yamaji people, and is part of the Southern Wajarri Estate.

Idiosoma arenaceum Rix & Harvey, 2018

Figures 1, 41–46

<https://zoobank.org/NomenclaturalActs/2d4de886-0589-4bff-9ba4-d59bb03afd74>

Idiosoma arenaceum Rix & Harvey, 2018 in Rix et al., 2018: 23, figs 11, 12, 19, 20, 25, 57–78, 374. Rix et al., 2026: 8, figs 3, 6.

Idiosoma 'nigrum' Main, 1957: 440 (in part; cited specimens from Canna, N. of Galena and Woolaga Creek).

Holotype

Australia: *Western Australia*: ♂, Zuytdorp, site ZU1 (IBRA_GES), 27°15'42"S, 114°01'30"E, wet pitfall trap, 19 May–17 August 1995, N. Hall, WAM-CALM Carnarvon Survey (WAM T139527).

Diagnosis

See Rix et al. (2018).

New material

Australia: *Western Australia*: 1 ♀, Murchison House Station, ca. 46 km NNW. of homestead, N. side of Vermin Proof Fence (IBRA_GES), 27°15'27"S, 114°04'10"E, 27 October 2024, J.D. Wilson, M.S. Harvey, G. Thompson (WAM T166785).

Remarks

Idiosoma arenaceum is one of the armoured taxa in the *nigrum*-group (Figs 41, 42), and belongs to the *clypeatum*-clade of four species also including *I. clypeatum*, *I. kopejtkaorum* and *I. kwongan*. The newly published record from Murchison House Station is within the known distribution of the species (Fig. 1). At Zuytdorp in the northern Geraldton Sandplains, *I. arenaceum* occurs near *I. incomptum* (a non-armoured species in the *intermedium*-clade), though apparently not sympatrically. Burrows are adorned with twig-lines in a moustache-like arrangement (Figs 43, 44; see also Rix et al. 2018, figs 19, 20).

Idiosoma clypeatum Rix & Harvey, 2018

Figure 1

<https://zoobank.org/NomenclaturalActs/86dfa140-6ab2-4ffe-b24e-d7f5b7aee3d6>

Idiosoma clypeatum Rix & Harvey, 2018 in Rix et al., 2018: 25, figs 14, 15, 25, 79–100, 374. Rix et al., 2026: 8, figs 3, 6.

Idiosoma 'nigrum' Main, 1957: 440 (in part; cited specimens from E. of Ederga, N. of Gullewa, S. of Mullewa and E./SE. of Paynes Find). Ellis, 2015: 242, 244, figs 1, 3, 4.

Holotype

Australia: *Western Australia*: ♂, Albion Downs, 70.1 km NNW. of Leinster (IBRA_MUR), 27°21'30"S, 120°21'33"E, dry pitfall trap, 28 August–3 September 2008, Z. Hamilton & R. Teale (WAM T96452).

Diagnosis

See Rix et al. (2018).

New material

Australia: *Western Australia*: 1 ♀, Karara minesite, ca. 50 km NE. of Perenjori (IBRA_YAL), 29°13'48"S, 116°45'15"E, 22 June 2020, M. Bamford (WAM T140440); 1 juvenile, same data except 29°13'39"S, 116°45'14"E, 21 June 2020 (WAM T140438); 1 ♀, Mount Mulgine (IBRA_YAL), 29°10'47"S, 116°58'12"E, hand collected from burrow, 30 April 2019, M.T. Ladyman (WAM T147740); 1 ♀, same data except 29°10'51"S, 116°58'42"E, 8 October 2019, A. Heidrich & J. Vos (WAM T147953); 1 ♀, same data except 29°11'49"S, 116°58'41"E, 12 October 2019 (WAM T147954); 1 ♀, same data except 29°12'59"S, 116°57'28"E, 11 October 2019 (WAM T147955); 1 ♀, Mungada Ridge (IBRA_YAL), 29°08'15"S, 116°54'13"E, hand collected from burrow, open woodland, 24 June 2022, M.S. Harvey et al. (WAM T157795); 1 juvenile, Warriedar Hills (IBRA_YAL), 29°03'20"S, 117°03'30"E, hand collected from burrow, open woodland, 23 June 2022, M.S. Harvey et al. (WAM T157794); 1 ♂, Weld Range, pit site 27 (IBRA_MUR), 26°54'S, 117°47'E, pitfall trap, 24 August–24 November 2006, J. Clark (WAM T145341); 1 ♀, Wanjarri Nature Reserve, ca. 18 km W. of Goldfields Highway (IBRA_MUR), 27°21'40"S, 120°41'00"E, hand



Figures 41–46. Habitus and burrow images of *Idiosoma arenaceum* Rix & Harvey, 2018 from Murchison House Station, Western Australia: 41, 42, habitus of female (WAM T166785); 43, 44, closed (43) and open (44) burrow of female (WAM T166785), showing narrowed section of shaft within (44); 45, 46, phragmotic abdominal 'plug' of female (WAM T166785), showing posterior sigillate 'shield' wedged in burrow shaft. Images by J. Wilson.

collected from burrow, 31 July 2024, M.S. Harvey & J.D. Wilson et al. (WAM T164684).

Remarks

Idiosoma clypeatum is one of the armoured taxa in the *nigrum*-group, and belongs to the *clypeatum*-clade of four species also including *I. arenaceum*, *I. kopejtkorum* and *I. kwongan*. The 10 newly published records from Karara, Mount Mulgine, Mungada Ridge, Warriedar, Weld Range and Wanjarri Nature Reserve are all within the known distribution of the species (Fig. 1). At Weld Range, *I. clypeatum* occurs with *I. garrawarla* (a non-armoured species in the *intermedium*-clade), though apparently not sympatrically. Likewise, at Mount Mulgine and Warriedar (and probably other localities in the southern Yalgoo), *I. clypeatum* can be found sympatrically or parapatrically with two other unrelated species in the *nigrum*-group: *I. gutharuka* (a non-armoured species in the *intermedium*-clade) and *I. ganbarrga* (a non-armoured species in the *sigillatum*-clade). Burrows are adorned with twig-lines in a moustache-like arrangement (see Rix et al. 2018, figs 14, 15).

Idiosoma dandaragan Rix & Harvey, 2018

Figures 3B, 47–49

<https://zoobank.org/NomenclaturalActs/e6c8869c-9f37-47d3-b230-9ef5dd690187>

Idiosoma dandaragan Rix & Harvey, 2018 in Rix et al., 2018: 32, figs 25, 123–144, 374. Rix et al., 2026: 8, figs 3, 6.

Idiosoma 'nigrum' Main, 1957: 440 (in part; cited specimens from S. of Moora and E. of Watheroo).

Holotype

Australia: *Western Australia*: ♂, 12.2 miles S. of Moora on Mogumber Road (IBRA_JAF), 30°49'S, 116°02'E, 25 May 1954, B.Y. Main (WAM T139522).

Diagnosis

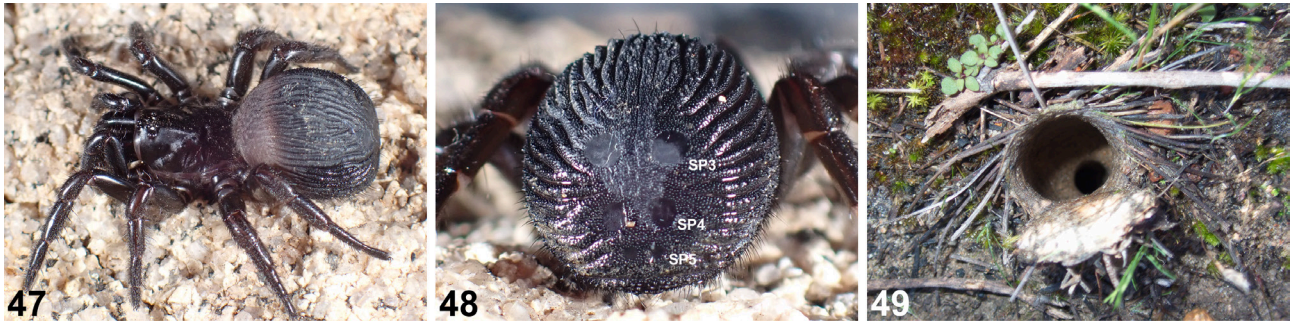
See Rix et al. (2018).

New material

Australia: *Western Australia*: 1 ♀, 3.2 km ENE. of Gillingarra Hall, between Bindoon-Moora Road and Gillingarra-Glentromie Road (IBRA_JAF), 30°54'22"S, 116°04'07"E, hand collected from burrow, 2 September 2025, E.S. Volschenk (WAM T173074); 1 juvenile, same data except 30°54'21"S, 116°04'13"E, 31 August 2025 (WAM T173075).

Remarks

Idiosoma dandaragan is one of the armoured taxa in the *nigrum*-group (Figs 47, 48), and belongs to the diverse *sigillatum*-clade of 10 species. It is morphologically similar to *I. nigrum* and *I. schoknechtorum* (and shares with the latter sclerotised and visible SP5 sigilla; Fig. 48), though has an allopatric and restricted distribution between the northern Jarrah Forest and south-eastern Geraldton Sandplains bioregions, closely abutting the western limit of the range of *I. nigrum* (Fig. 3B). The two newly published records from near Gillingarra provide a slight (ca. 10 km) southern range extension for the species, from the previous closest record near Koojan (south of Moora) (Fig. 3B). Burrows are adorned with twig-lines in a moustache-like arrangement (Fig. 49).



Figures 47–49. Habitus and burrow images of *Idiosoma dandaragan* Rix & Harvey, 2018 from near Gillingarra, Western Australia: 47, 48, female (WAM T173074), showing habitus (47) and sclerotised sigilla on posterior abdomen (48); 49, open burrow of female (WAM T173074), showing narrowed section of shaft within. Note the presence of sclerotised SP5 sigilla (48) in this species. SP3–5 = sigilla pairs 3–5. Images by E.S. Volschenk.

***Idiosoma gutharuka* Rix & Harvey, 2018**

Figures 2, 50–64

<https://zoobank.org/NomenclaturalActs/e2ec1eb4-4422-494e-9a8e-58468891c86d>

Idiosoma gutharuka Rix & Harvey, 2018 in Rix et al., 2018: 39, figs 180–192, 376. Rix et al., 2026: 8, figs 3, 6.

Holotype

Australia: *Western Australia*: ♂, Gutha (IBRA_AVW), 28°59'34"S, 115°56'23"E, wet pitfall trap, 23 May–17 September 1996, M.S. Harvey & J.M. Waldock (WAM T38517).

Diagnosis

As predicted by Rix et al. (2018: 17, 18, couplet 24 [footnote 'E']), the previously unknown females of *I. gutharuka* are similar to those of *I. jarrah* and *I. garrawarla* (and presumably also *I. incomptum*) in having a non-armoured (i.e., not strongly corrugate) abdominal morphology (Figs 51, 54), with relatively small abdominal sigilla in which the SP4 sclerites are not larger than the SP2 sclerites (Fig. 54). Females of this species can further be distinguished from *I. jarrah* by the alignment of the posterior eye row, in which the PME are positioned marginally posterior to the PLE (Fig. 53; cf. Rix et al. 2018, fig. 244), and from *I. garrawarla* by the shape of the spermathecae, which are slightly longer and with broadened crowns (Fig. 58; cf. Fig. 37).

For the diagnosis of males of *I. gutharuka*, see Rix et al. (2018).

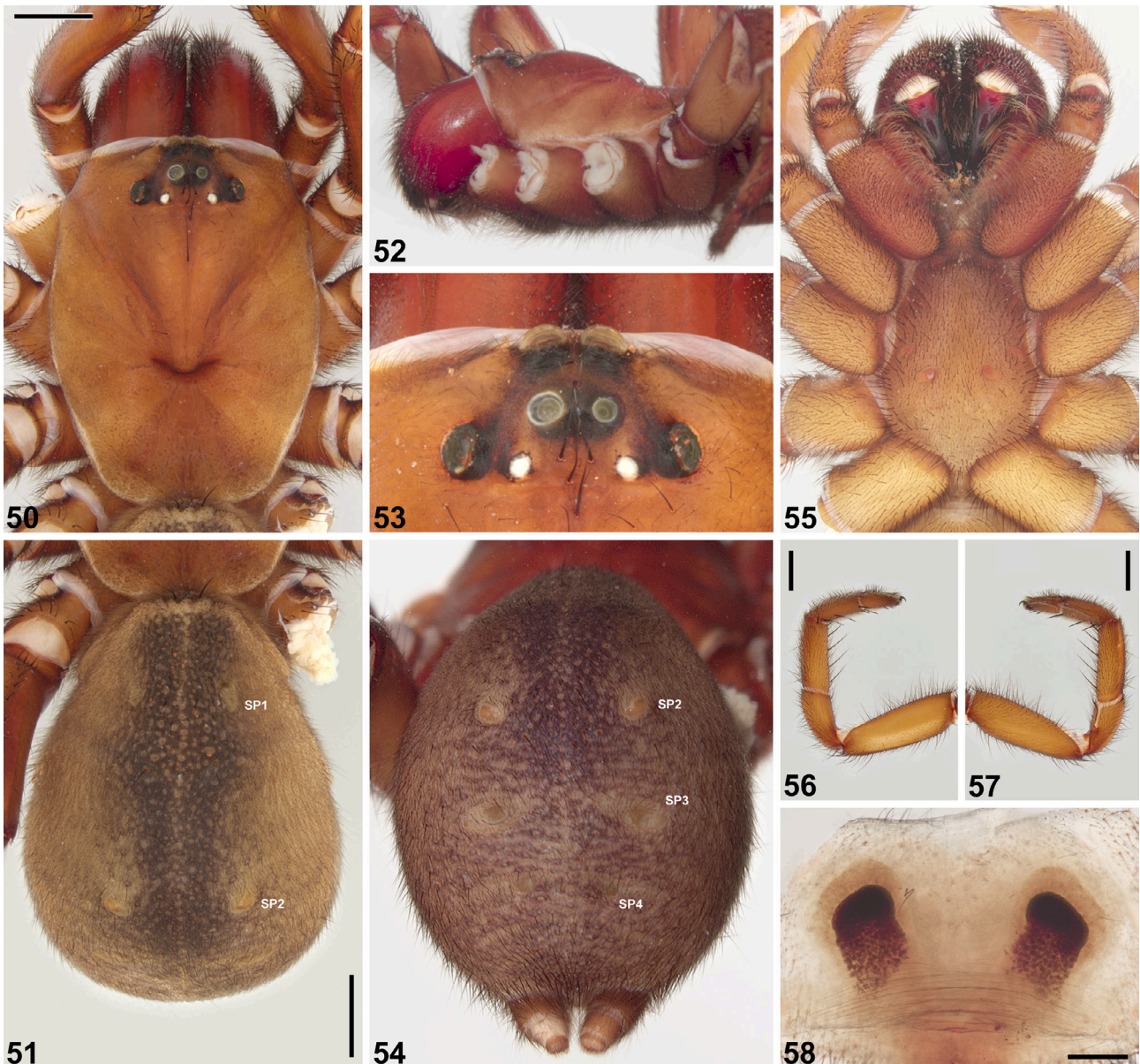
Description (female WAMT147959)

Total length 21.7. Carapace 9.3 long, 6.9 wide. Abdomen 9.9 long, 7.7 wide. Carapace (Fig. 50) dark tan (dark chocolate-brown in life; Fig. 59), with darker ocular region and dark reddish-tan chelicerae (chelicerae dark brown in life; Fig. 59); fovea procurved. Eye group (Fig. 53) trapezoidal (anterior eye row strongly procurved), 0.6 × as long as wide, PLE–PLE/ALE–ALE ratio 2.4; ALE almost contiguous; AME separated by less than their own diameter; PME separated by 3.5 × their own diameter; PME and PLE separated by more than diameter

of PME, PME positioned marginally posterior to level of PLE. Maxillae with field of cuspules confined to inner corner (Fig. 55); labium without cuspules. Abdomen (Figs 51, 54) broadly oval, non-armoured, dark beige-brown in dorsal view, with broad darker brown strip along mid-line and tan mottling (similar though somewhat darker in life; Figs 59, 60). Posterior abdomen weakly sigillate (Figs 51, 54); SP2 sclerites irregular, comma-shaped spots; SP3 sclerites subcircular with irregular margins, each surrounded by pad of unsclerotised cuticle; SP4 sclerites small, subcircular with irregular margins. Legs (Figs 56, 57) variable shades of dark tan (dark chocolate-brown in life; Fig. 59); scopulae present on tarsi and metatarsi I, II; tibia I with row of five retroventral macrosetae; metatarsus I and tarsus I with additional stout macrosetae. Leg I: femur 5.9; patella 3.7; tibia 3.7; metatarsus 2.9; tarsus 2.1; total 18.2. Leg I femur-tarsus/carapace length ratio 2.0. Pedipalp dark tan (dark chocolate-brown in life; Fig. 59), spinose on tibia and tarsus, with thick tarsal scopula. Genitalia (Fig. 58) with pair of short spermathecae on broad 'stems', with slightly broadened crowns, each bearing dense field of glandular vesicles distally, and more sparsely distributed glandular field sub-distally.

New material

Australia: *Western Australia*: 1 ♀, Mount Mulgine (IBRA_YAL), 29°10'49"S, 116°59'20"E, hand collected from burrow, 10 October 2019, A. Heidrich & J. Vos (WAM T147957); 1 ♀, same data except 29°10'55"S, 116°58'37"E, 8 October 2019 (WAM T147958); 1 ♀, same data except 29°10'17"S, 116°57'50"E, 15 October 2019 (WAM T147959); 1 ♀, same data except 29°12'08"S, 116°57'49"E, 11 October 2019 (WAM T147960); 1 juvenile, same data except 29°11'49"S, 116°59'26"E, 13 October 2019 (WAM T147961); 1 juvenile, Warriedar [*sic* 'Mount Mulgine'], 35 km NE. of Rothsay (IBRA_YAL), 29°04'40"S, 117°08'59"E, hand collected from burrow, granite with mixed shrubs, 27 June 2021, A. Heidrich & L. Petersen (WAM T155373).



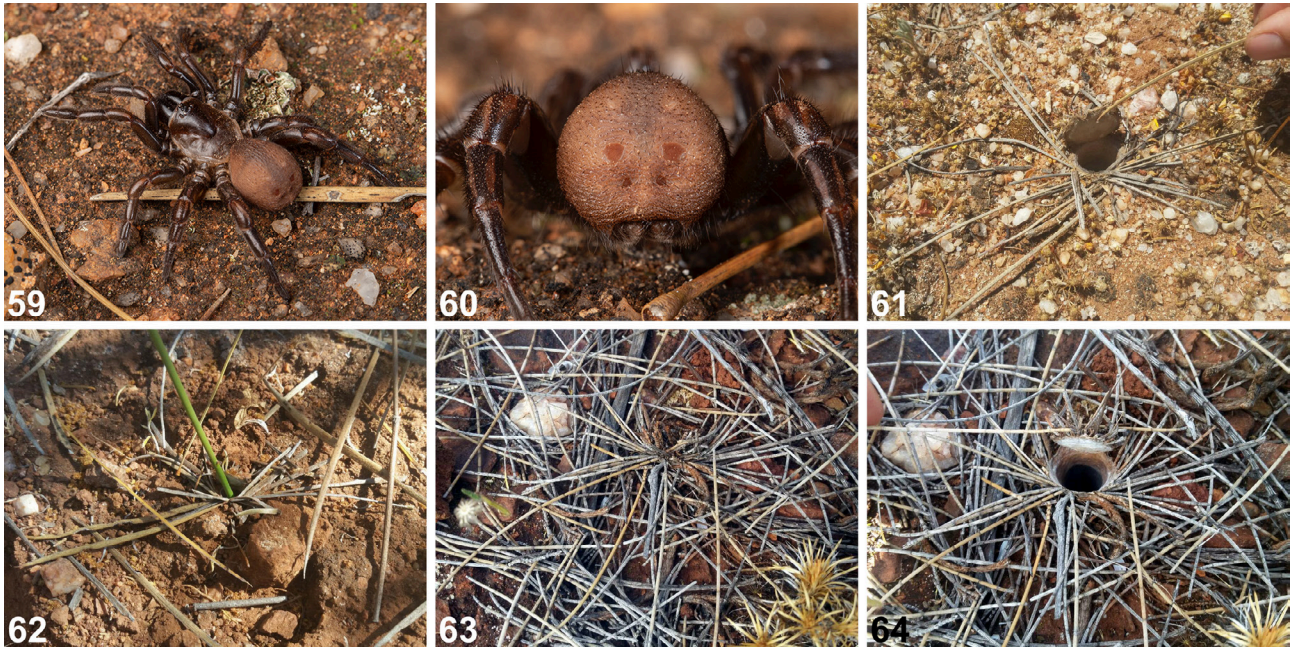
Figures 50–58. *Idiosoma gutharuka* Rix & Harvey, 2018, female (WAM T147959) from Mount Mulgine, Western Australia: 50, 51, cephalothorax and abdomen, dorsal view; 52, cephalothorax, lateral view; 53, eyes, dorsal view; 54, abdomen, posterior view; 55, cephalothorax, ventral view; 56, leg I, prolateral view; 57, leg I, retrolateral view; 58, spermathecae, dorsal view. Scale bars 2.0 (50, 51, 56, 57), 0.5 (58). SP1–4 = sigilla pairs 1–4.

Remarks

Idiosoma gutharuka was known from only a single male specimen in collections prior to 2019, from the north-eastern Avon Wheatbelt bioregion (Rix et al. 2018). Female specimens newly collected since 2019 (Figs 59, 60), from Mount Mulgine and Warriedar in the southern Yalgoo bioregion (ca. 100 km to the east of the type locality; Fig. 2), are here described and assigned to this species based on morphology (i.e., of the abdominal sigilla; see couplet 24 [footnote 'E'] of Rix et al. 2018: 17, 18) and relative geographic proximity (though ultimately, female specimens and/or sequences will be required from the type locality at Gutha to confirm this identification). It is one of the non-armoured taxa in the *nigrum*-group (Figs 59, 60), and belongs to the *intermedi-*

um-clade of four species also including *I. intermedium*, *I. incomptum* and *I. garrawarla*. At Mount Mulgine and Warriedar (and probably other localities in the southern Yalgoo), *I. gutharuka* can be found sympatrically or parapatrically with two other unrelated species in the *nigrum*-group: *I. ganbarrga* (another non-armoured species in the *sigillatum*-clade) and *I. clypeatum* (an armoured species in the *clypeatum*-clade). Burrows are adorned with twig-lines in a moustache-like arrangement (Figs 61–64).

Nucleotide sequence data for the following genes (not available in Rix et al. 2018) can be found on GenBank (see Rix et al. 2026): cytochrome c oxidase subunit I (*COI*), cytochrome *b* (*CYB*), ITS1–5.8S rRNA–ITS2–28S rRNA, 39S ribosomal protein L45, mitochondrial



Figures 59–64. Habitus and burrow images of *Idiosoma gutharuka* Rix & Harvey, 2018 from Mount Mulgine, Western Australia: 59, 60, female, showing habitus (59) and sclerotised sigilla on posterior abdomen (60); 61, open burrow of female (WAM T147957); 62, open burrow of female (WAM T147961); 63, 64, closed (63) and open (64) burrow of female (WAM T147960). Images 59, 60 by J. Vos; 61–64 by A. Heidrich.

(*MRPL45*), ribosome production factor 2 homolog (*RPF2*) and probable Xaa-Pro aminopeptidase 3 (*XPNPEP3*).

Idiosoma intermedium Rix & Harvey, 2018

Figure 2

<https://zoobank.org/NomenclaturalActs/6eb66c6f-97ed-45e9-9821-c533120d26a7>

Idiosoma intermedium Rix & Harvey, 2018 in Rix et al., 2018: 43, figs 25, 206–227, 376. Rix et al., 2026: 8, figs 3, 6.

Holotype

Australia: *Western Australia*: ♂, Bodallin (IBRA_AVW), 31°22'S, 118°51'E, 26 June 1970, L.C. Birlles (WAM T139520).

Diagnosis

See Rix et al. (2018).

New material

Australia: *Western Australia*: 1 ♀, 61 km SSE. of Yalgoo (IBRA_YAL), 28°51'44"S, 116°55'32"E, hand collected from burrow, mixed *Acacia* and *Melaleuca* shrubland with *Callitris*, 11 July 2020, M. Bamford (WAM T140461).

Remarks

Idiosoma intermedium is one of the non-armoured taxa in the *nigrum*-group, and belongs to the *intermedium*-clade of four species also including *I. incomptum*, *I. gutharuka* and *I. garrawarla*. The newly published record from the southern Yalgoo bioregion is a 170 km (north-western) range extension for the species (Fig. 2), from the previous closest records near Karroun Hill. It is likely that this species is widespread (if patchy) through the

north-eastern Avon Wheatbelt, north-western Coolgardie and southern Yalgoo bioregions, and is known to exhibit pronounced genetic structuring across this range (see Rix et al. 2026, fig. 3). Its distribution also overlaps those of two other non-armoured taxa (i.e., *I. formosum* and *I. mcnamarai*; both in the *sigillatum*-clade) in the north-eastern Avon Wheatbelt in the vicinity of Cleary and Billiburning Rock, making for a particularly complex *nigrum*-group fauna in this region. Burrows are adorned with twig-lines in a moustache-like arrangement.

Idiosoma jarrah Rix & Harvey, 2018

Figures 3A, 65–76

<https://zoobank.org/NomenclaturalActs/f0637000-c6d0-4af3-85b2-bf8eeb76ec58>

Idiosoma jarrah Rix & Harvey, 2018 in Rix et al., 2018: 46, figs 7, 22, 23, 25, 228–249, 375. Rix et al., 2026: 8, figs 3, 6.

Holotype

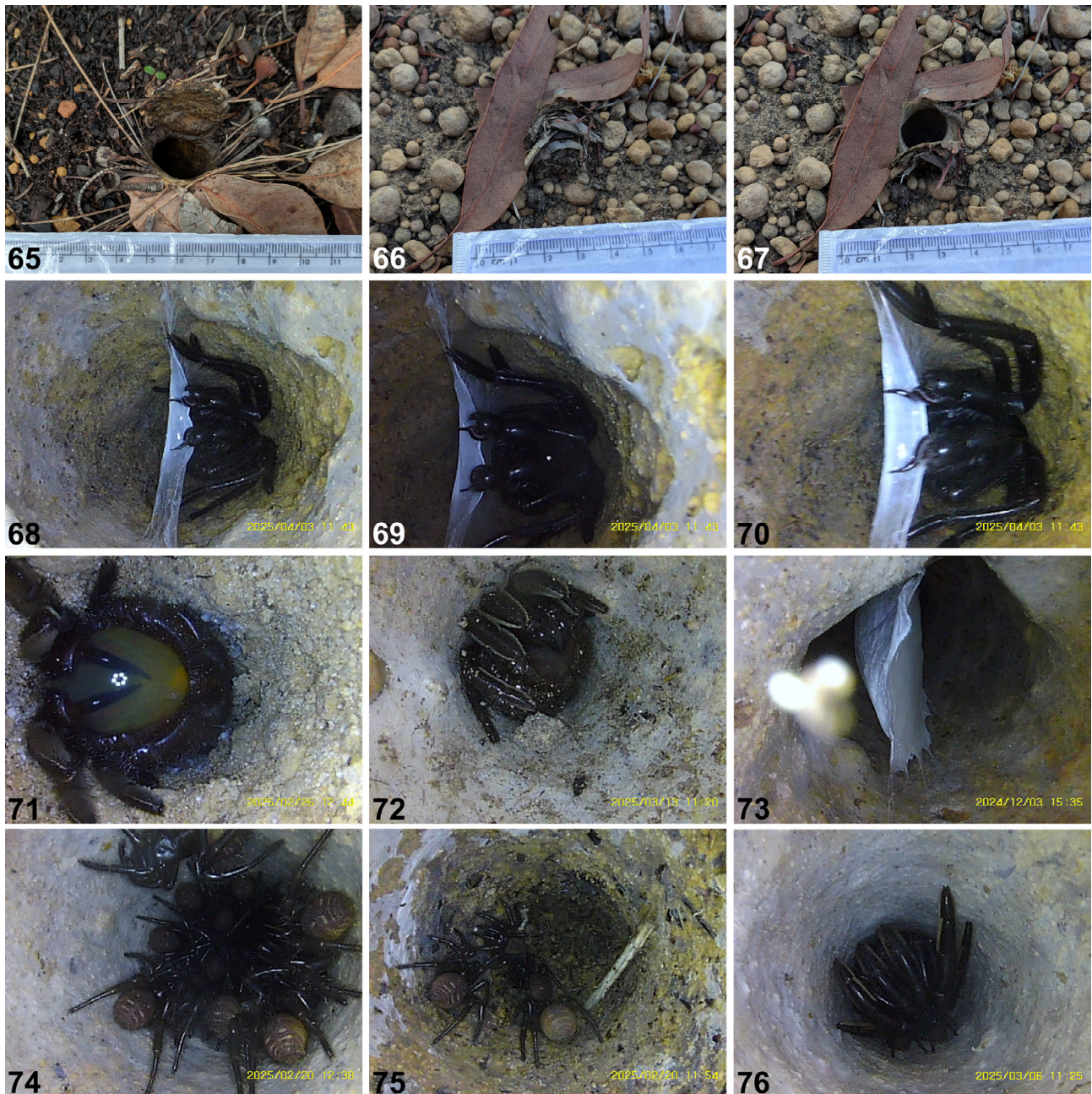
Australia: *Western Australia*: ♂, Lesmurdie, 42 Wheelwright Road (IBRA_JAF), 32°00'20"S, 116°02'59"E, walking in garden on overcast day, 13 June 2012, D. & R. Roberts (WAM T124143).

Diagnosis

See Rix et al. (2018).

New material

Australia: *Western Australia*: 1 ♀, Albany Highway, 5 km N. of Arthur River (IBRA_JAF), 33°16'22"S, 117°00'54"E, hand collected from burrow, 13 February 2020, M.S.



Figures 65–76. Burrow images of *Idiosoma jarrah* Rix & Harvey, 2018 recorded during surveys in the Jarrah Forest bioregion, Western Australia (August 2024–July 2025): 65, open burrow of female from Jarrahdale; 66, 67, closed (66) and open (67) burrow of female from Brookton Highway; 68–70, mature male from Jarrahdale, showing sperm web constructed within burrow and 'charging' of pedipalps, as observed using burrow endoscope; 71, 72, females from Jarrahdale (71) and Brookton Highway (72), showing apparent defensive regurgitation, as observed using burrow endoscope; 73, suspended egg sac in burrow of female from Jarrahdale, as observed using burrow endoscope; 74, 75, spiderlings clustered within burrows of females from Jarrahdale, as observed using burrow endoscope; 76, female and spiderlings within burrow from Jarrahdale, as observed using burrow endoscope. Images by R. Lymbery and S. Cowen (DBCA).

Harvey, D. Schoknecht, K. Tullis (WAM T150097); 1 ♀, ca. 17 km NNE. of Boddington (IBRA_JAF), 32°38'55"S, 116°30'35"E, hand collected from burrow, 3 August 2024, B. Thomson (WAM T169897); 1 juvenile, Dwellingup State Forest, ca. 21 km NW. of Boddington (IBRA_JAF), 32°39'54"S, 116°18'50"E, hand collected from burrow, jarrah/marri forest, 20 July 2022, S. Pynt (WAM T170248); 1 juvenile, same data except ca. 21 km ENE. of Boddington, 32°37'00"S, 116°15'22"E (WAM T170267);

1 juvenile, same data except ca. 27 km SE. of Boddington, 32°29'57"S, 116°16'16"E, 29 August 2023 (WAM T170366); 1 ♀, same data except ca. 29 km NE. of Boddington, 32°32'45"S, 116°18'05"E (WAM T170368); 1 ♀, same data (WAM T170369); 1 ♀, Holyoake, Dwellingup (IBRA_JAF), 32°43'32"S, 116°11'37"E, hand collected from burrow, jarrah/marri forest along drainage line, 5 August 2020, A.E. Jacks (WAM T154518); 1 ♂, Hovea, 545 Hedges Road (IBRA_JAF), 31°53'26"S, 116°06'57"E, day

hand collection, jarrah/marri forest, 10 July 2015, K.N. Framenau (WAM T163719); 1 juvenile, ca. 37 km E. of Jarrahdale (IBRA_JAF), 32°19'04"S, 116°27'02"E, 3 September 2024, T. Linke (WAM T169848); 1 ♂, Midgegooroo National Park, Brookton Highway at Beraking Pool Road (N. side of Highway) (IBRA_JAF), 32°13'11"S, 116°21'32"E, pitfall trap, 13–19 May 2005, B.Y. Main & P. Runham (WAM T148906); 1 ♀, Myara, ca. 24 km SE. of Jarrahdale (IBRA_JAF), 32°28'51"S, 116°15'20"E, 1 August 2024, L. Petersen (WAM T169934); 1 ♀, same data except ca. 22 km SE. of Jarrahdale, 32°30'11"S, 116°11'13"E, 7 October 2024 (WAM T169938); 1 ♀, Myara North, ca. 15 km SE. of Jarrahdale (IBRA_JAF), 32°22'36"S, 116°12'57"E, hand collected from burrow, marri, jarrah and *Allocasuarina* on mid-slope, 20 July 2020, A.E. Jacks (WAM T154147); 1 ♀, ca. 28 km E. of Pinjarra (IBRA_JAF), 32°39'19"S, 116°14'02"E, hand collected from burrow, 5 August 2020, S. Pynt (WAM T140474).

New survey records (see Remarks, below)

Australia: *Western Australia*: **Brookton Highway (IBRA_JAF)**: 6 burrows, 32°13'S, 116°22'E, 28 August 2024–6 May 2025, R. Lymbery & S. Cowen; 1 burrow, same data except 32°21'S, 116°27'E, 13 March 2025; 3 burrows, same data except 32°12'S, 116°18'E, 28 August 2024. **Dwellingup (IBRA_JAF)**: 22 burrows, 32°44'S, 116°12'E, 30 October 2024–10 April 2025, R. Lymbery & S. Cowen; 4 burrows, same data except 32°43'S, 116°14'E, 1 November 2024–8 April 2025; 1 burrow, same data except 33°00'S, 116°22'E, 10 April 2025. **Flint (IBRA_JAF)**: 2 burrows, 32°21'S, 116°27'E, 30 August 2024–12 March 2025, R. Lymbery & S. Cowen. **Huntly Mine, Alcoa (IBRA_JAF)**: 3 burrows, 32°34'S, 116°14'E, 17 October 2024, R. Lymbery & S. Cowen; 2 burrows, same data except 32°32'S, 116°10'E. **Jarrahdale (IBRA_JAF)**: 14 burrows, 32°18'S, 116°12'E, 8 August–3 December 2024, R. Lymbery & S. Cowen; 1 burrow, same data except 32°21'S, 116°11'E, 8 August 2024; 1 burrow, same data except 32°20'S, 116°12'E; 2 burrows, same data except 32°23'S, 116°10'E, 22 August 2024; 1 burrow, same data except 32°23'S, 116°09'E; 5 burrows, same data except 32°20'S, 116°14'E, 3 December 2024; 4 burrows, same data except 32°17'S, 116°08'E, 3 April 2025; 1 burrow, same data except 32°15'S, 116°08'E; 1 burrow, same data except 32°15'S, 116°09'E. **John Forrest National Park (IBRA_JAF)**: 2 burrows, 31°54'S, 116°06'E, 10 October 2024, R. Lymbery & S. Cowen. **Karraigullen (IBRA_JAF)**: 4 burrows, 32°07'S, 116°07'E, 27 August 2024, R. Lymbery & S. Cowen; 1 burrow, same data except 32°05'S, 116°07'E, 6 September 2024. **Midgegooroo National Park (IBRA_JAF)**: 2 burrows, 32°07'S, 116°07'E, 11 March 2025, R. Lymbery & S. Cowen. **Monadnocks Conservation Park (IBRA_JAF)**: 7 burrows, 32°25'S, 116°18'E, 15 May–18 July 2025, R. Lymbery & S. Cowen; 2 burrows, same data except 32°20'S, 116°14'E, 18 July 2025. **Murray Valley (IBRA_JAF)**: 1 burrow, 33°00'S, 116°22'E, 31 October 2024, R. Lymbery & S. Cowen. **Youralling State Forest,**

North Bannister (IBRA_JAF): 2 burrows, 32°33'S, 116°28'E, 14–15 May 2025, R. Lymbery & S. Cowen.

Remarks

Idiosoma jarrah is one of the non-armoured taxa in the *nigrum*-group (see Rix et al. 2018, fig. 7), and belongs to the diverse *sigillatum*-clade of 10 species. It is phylogenetically sister to *I. mcclementsorum* Rix & Harvey, 2018 (see Rix et al. 2026, fig. 3); both species occur allopatrically in the Jarrah Forest bioregion (Fig. 3A) and both have males characterised by pallid proteral femora. The 15 newly published collection records are all within the known distribution of the species, however they fill out previous sampling gaps in the central Jarrah Forest bioregion, especially between the Jarrahdale and Dwellingup State Forests (and are further complemented by numerous new survey records from similar areas; see below). Burrows are adorned with twig-lines in a moustache-like arrangement (Figs 65–67; see also Rix et al. 2018, figs 22, 23).

Extensive visual surveys for *I. jarrah* were conducted by Authors RAL and SJC between August 2024 and July 2025. These surveys through the Jarrah Forest bioregion resulted in 95 new confirmed burrow location records, with the densest populations (>80% of survey records) found to occur in the Jarrahdale and Dwellingup State Forests (including Monadnocks Conservation Park). Using an endoscope to non-destructively observe resident spiders within their burrows, important new biological observations were also recorded for this species. Most importantly, a mature male from Jarrahdale was photographed on 3 April 2025 in the process of 'charging' his pedipalps with sperm (Figs 68–70), having constructed a sperm web within the burrow. This sperm web was spun across the burrow shaft vertically, and the male was photographed using both pedipalps (with the tegulum and embolus twisted and pointing ventrally) to gently fold the upper portion of the sperm web, thus drawing sperm into the spermophor of each bulb simultaneously. We believe that this is the first time the sperm web structure and pedipalp 'charging' behaviour have been documented in an Australian idiopid trap-door spider.

Other reproductive observations of *I. jarrah* made using an endoscope during the survey period included an egg sac at Jarrahdale on 3 December 2024 (Fig. 73; similar in structure to that observed for *I. nigrum*; see Figs 99, 100), and second-instar spiderlings co-habiting with adult females over summer and early autumn (Figs 74–76). This observed seasonal pattern of male maturation in burrows in April (prior to wandering in search of females in late autumn or winter), egg sacs present in burrows over summer, and hatched spiderlings co-habiting with females in late summer and autumn, is identical to the seasonal cycle documented for the idiopid *Euoplos grandis* Wilson & Rix, 2019 in eastern Australia (see Rix et al. 2019, 2023), and is undoubtedly

common to many Australian idiopid taxa (Main 1957; MGR, unpubl. data).

One other unusual biological observation made during the study period was an apparent defensive behaviour in which spiders produced a regurgitated, cloudy yellowish-green liquid from the mouth upon disturbance (which potentially also included venom from the fangs), held in a liquid bubble between the mouth and fangs (Figs 71, 72). This behaviour was observed in multiple individuals, and it is assumed that this liquid is distasteful, poisonous and/or foul smelling to potential predators.

Idiosoma kwongan Rix & Harvey, 2018

Figures 1, 77–91

<https://zoobank.org/NomenclaturalActs/d17d5265-1612-4b92-a3cb-f70eb4ceeab3>

Idiosoma kwongan Rix & Harvey, 2018 in Rix et al., 2018: 53, figs 25, 272–284, 374. Rix et al., 2026: 8, figs 3, 6.

Holotype

Australia: *Western Australia*: ♂, 10 km E. of Green Head (IBRA_GES), 30°04'S, 114°58'E, laterite heath, 31 August 1982, R.P. McMillan (WAM T27142).

Diagnosis

As predicted by Rix et al. (2018: 17, 18, couplet 22 [footnote 'C']), the previously unknown females of *I. kwongan* are similar to those of the six other fully armoured species in the *nigrum*-group (i.e., *I. arenaceum*, *I. clypeatum*, *I. dandaragan*, *I. kopejtkaorum*, *I. nigrum*, *I. schoknechtorum*), in having the entire posterior abdomen heavily sclerotised and strongly sigillate, with a thickened, leathery and truncate 'shield-like' morphology (Figs 78, 81, 91). Females of this species are most similar to those of *I. arenaceum* in having elongate-oval (longitudinal) SP4 sclerites (Fig. 81; cf. Rix et al. 2018, fig. 74) (SP4 sclerites circular, broadly oval or subquadrate in other armoured species). Females of this species can further be distinguished from *I. arenaceum* by the marginally shorter SP4 (Fig. 81; cf. Rix et al. 2018, fig. 74), and the broader lateral indentation adjacent to SP4, which is widest anteriorly (Fig. 81; cf. Rix et al. 2018, fig. 74).

For the diagnosis of males of *I. kwongan*, see Rix et al. (2018).

Description (female WAMT157281)

Total length 25.3. Carapace 10.1 long, 6.6 wide. Abdomen 10.7 long, 11.4 wide. Carapace (Fig. 77) dark tan (black in life; Figs 88, 91), with darker ocular region and darker reddish-tan chelicerae; fovea procurved. Eye group (Fig. 80) trapezoidal (anterior eye row strongly procurved), 0.6 × as long as wide, PLE–PLE/ALE–ALE ratio 2.6; ALE almost contiguous; AME separated by approximately their own diameter; PME separated by 3.3 × their own diameter; PME and PLE separated by more than diameter of PME, PME positioned in line with level of

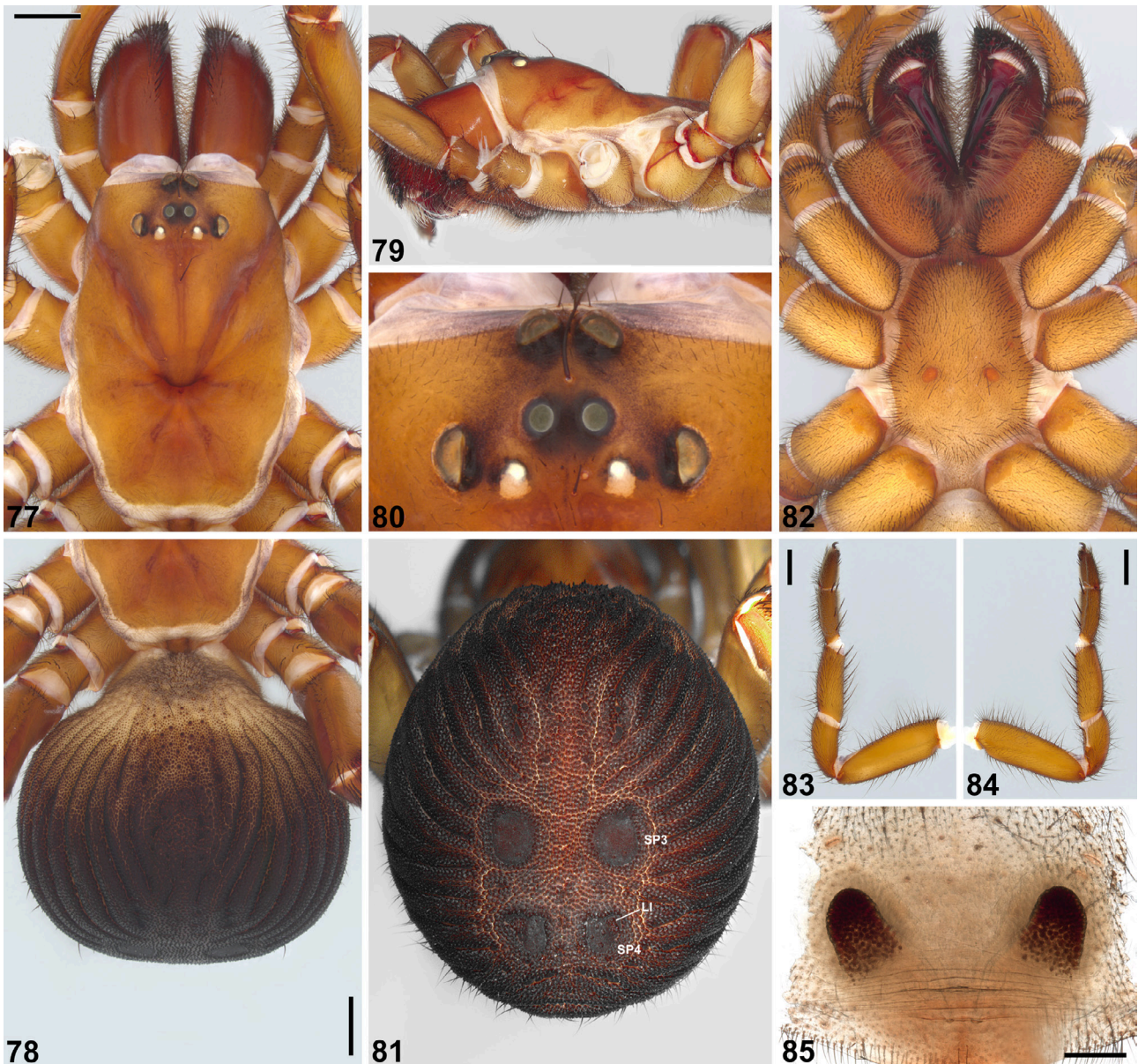
PLE. Maxillae with field of cuspules confined to inner corner (Fig. 82); labium without cuspules. Abdomen (Figs 78, 81) truncate, armoured, strongly corrugate and dark maroon-brown in dorsal view, paler and less sclerotised anteriorly, with tan mottling (charcoal-black in life; Fig. 91). Posterior face of abdomen (Fig. 81) with strongly sigillate 'shield-like' morphology; SP3 sclerites very large and circular; SP4 sclerites longitudinally elongate-oval, each with broad lateral indentation, widest anteriorly. Legs (Figs 83, 84) variable shades of dark tan (black in life; Figs 88, 91); scopulae present on tarsi and metatarsi I, II; tibia I with row of five retroventral macrosetae; metatarsus I and tarsus I with additional stout macrosetae. Leg I: femur 6.2; patella 3.9; tibia 3.8; metatarsus 3.1; tarsus 2.4; total 19.3. Leg I femur–tarsus/carapace length ratio 1.9. Pedipalp dark tan (black in life; Figs 88, 91), spinose on tibia and tarsus, with thick tarsal scopula. Genitalia (Fig. 85) with pair of short spermathecae on broad 'stems', without broadened crowns, each bearing dense field of glandular vesicles distally, and more sparsely distributed glandular field sub-distally.

New material

Australia: *Western Australia*: 1 ♂, Arrowsmith North, ca. 35 km SSE. of Dongara (IBRA_GES), 29°30'30"S, 115°05'40"E, hand collected, 20 June 2021, B.A. Buzatto & H.L. Clarke (WAM T157282); 1 ♀, same data except Arrowsmith Central, 29°39'59"S, 115°09'55"E, 16 June 2021 (WAM T157281); 1 juvenile, same data except 29°40'42"S, 115°10'51"E (WAM T157284); 1 ♀, ca. 28.5 km NE. of Arrowsmith (IBRA_GES), 29°25'23"S, 115°19'26"E, hand collected from burrow, 13 June 2021, M. Bamford (WAM T155165).

Remarks

Idiosoma kwongan was known from only a handful of male specimens in collections prior to 2021, from the southern Geraldton Sandplains bioregion (Rix et al. 2018). Female specimens newly collected in 2021 (Figs 88, 91), from near Arrowsmith (Fig. 1), are here described and unequivocally assigned to this species based on genetics (Rix et al. 2026, fig. 3) and distribution. *Idiosoma kwongan* is one of the armoured taxa in the *nigrum*-group (Fig. 91), and belongs to the *clypeatum*-clade of four species also including *I. arenaceum*, *I. clypeatum* and *I. kopejtkaorum*. It is phylogenetically sister to *I. arenaceum* (see Rix et al. 2026, fig. 3); both species occur allopatrically in the Geraldton Sandplains bioregion (Fig. 1) and both share elongate-oval (longitudinal) SP4 sclerites in females (Fig. 81). The four newly published records from near Arrowsmith provide a 45 km (northern) range extension for the species, from the previous closest record near Eneabba (Fig. 1). Burrows are adorned with twig-lines in a moustache-like arrangement (Figs 86–90).



Figures 77–85. *Idiosoma kwongan* Rix & Harvey, 2018, female (WAM T157281) from near Arrowsmith, Western Australia: 77, 78, cephalothorax and abdomen, dorsal view; 79, cephalothorax, lateral view; 80, eyes, dorsal view; 81, abdomen, posterior view; 82, cephalothorax, ventral view; 83, leg I, prolateral view; 84, leg I, retrolateral view; 85, spermathecae, dorsal view. Scale bars 2.0 (77, 78, 83, 84), 0.5 (85). LI = lateral indentation; SP3, 4 = sigilla pairs 3, 4.

***Idiosoma mcclementsorum* Rix & Harvey, 2018**

Figure 3A

<https://zoobank.org/NomenclaturalActs/35e27f10-28b7-4814-99ec-2dc8622f8d13>

Idiosoma mcclementsorum Rix & Harvey, 2018 in Rix et al., 2018: 55, figs 8, 24, 25, 285–306, 375. Rix et al., 2026: 8, figs 3, 6.

Idiosoma 'sigillatum' Main, 1957: 439 (in part; cited specimens from SW. of Bolgart, Chittering Lakes, Mogumber, E. of Mogumber and Gillingarra).

Holotype

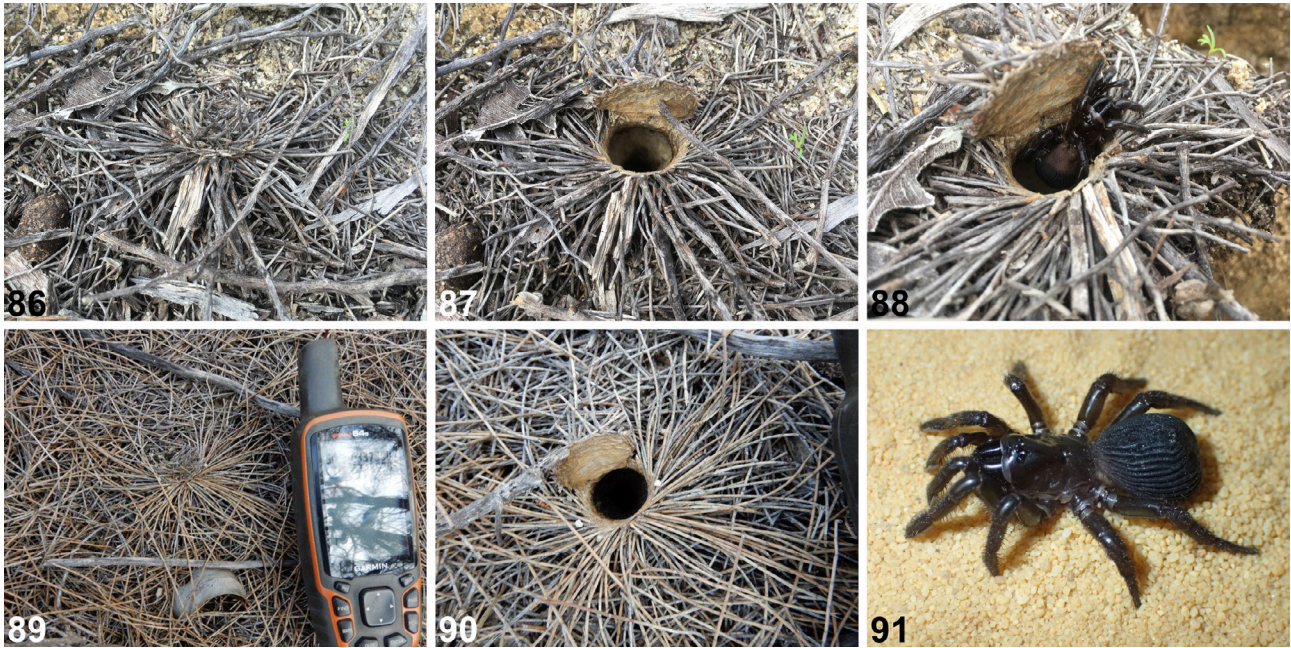
Australia: *Western Australia*: ♂, Julimar Conservation Park, Heine Road, site JB10 (IBRA_JAF), 31°27'03"S, 116°14'42"E, wet pitfall trap, 15 September 1998–4 November 1999, L. King, CALM Survey (WAM T139471).

Diagnosis

See Rix et al. (2018).

New material

Australia: *Western Australia*: 1 ♀, 700 m N. of 7 Mile Well Nature Reserve, Yarawindah (IBRA_JAF), 31°03'11"S, 116°12'23"E, hand collected from burrow, eucalypt woodland with *Casuarina obesa*, 18 July 2018, J. Clark (WAM T146056); 1 ♀, same data except 7.5 km S. of



Figures 86–91. Habitus and burrow images of *Idiosoma kwongan* Rix & Harvey, 2018 from near Arrowsmith, Western Australia: 86, 87, closed (86) and open (87) burrow of female (WAM T157281); 88, open burrow of the same, showing spider at entrance; 89, 90, closed (89) and open (90) burrow of female (WAM T155165); 91, habitus of female (WAM T155165). Images 86–88 by B. Buzatto; 89, 90 by M. Bamford; 91 by M. Harvey.

7 Mile Well Nature Reserve, Yarawindah (IBRA_JAF), 31°07'55"S, 116°11'32"E (WAM T146057).

Remarks

Idiosoma mclelementsorum is one of three semi-armoured taxa in the *nigrum*-group (see Rix et al. 2018, fig. 8), and belongs to the diverse *sigillatum*-clade of 10 species. It is phylogenetically sister to *I. jarrah* (see Rix et al. 2026, fig. 3); both species occur allopatrically in the Jarrah Forest bioregion (Fig. 3A) and both have males characterised by pallid proteral femora. The two newly published records are both within the known distribution of the species. Burrows are adorned with twig-lines in a moustache-like arrangement (see Rix et al. 2018, fig. 24).

Idiosoma nigrum Main, 1952

Figures 3B, 92–100

<https://zoobank.org/NomenclaturalActs/231B3A2F-7ABD-4134-88DB-2146D5407085>

Idiosoma nigrum Main, 1952: 133, pl. 1, figs 2–5, fig. 2C (in part; cited specimens from Wongan Hills, Bolgart and Goomalling). Main, 1957: 439, figs 2G–H, 12D, 14B, 24B (in part; cited specimens from Wongan Hills, Bindi Bindi, Bolgart, Botherling, N. of Bungulla, Calcarra, Goomalling, Koorda, Minnivale, W. of Nittymarra Hill, E. of Walebing and S. of Wyalkatchem). Main, 1985: 13, figs 23, 27, 215. Rix et al., 2017a: 315, fig. 8. Rix et al., 2017b: 601, figs 106, 108. Rix et al., 2018: 18, figs 1–3, 13, 25–56, 374. Rix et al., 2026: 8, figs 3, 6.

Holotype

Australia: *Western Australia*: ♀, Wongan Hills (IBRA_AVW), 30°54'S, 116°43'E, 19 June 1952, B.Y. Main (WAM T3960).

Diagnosis

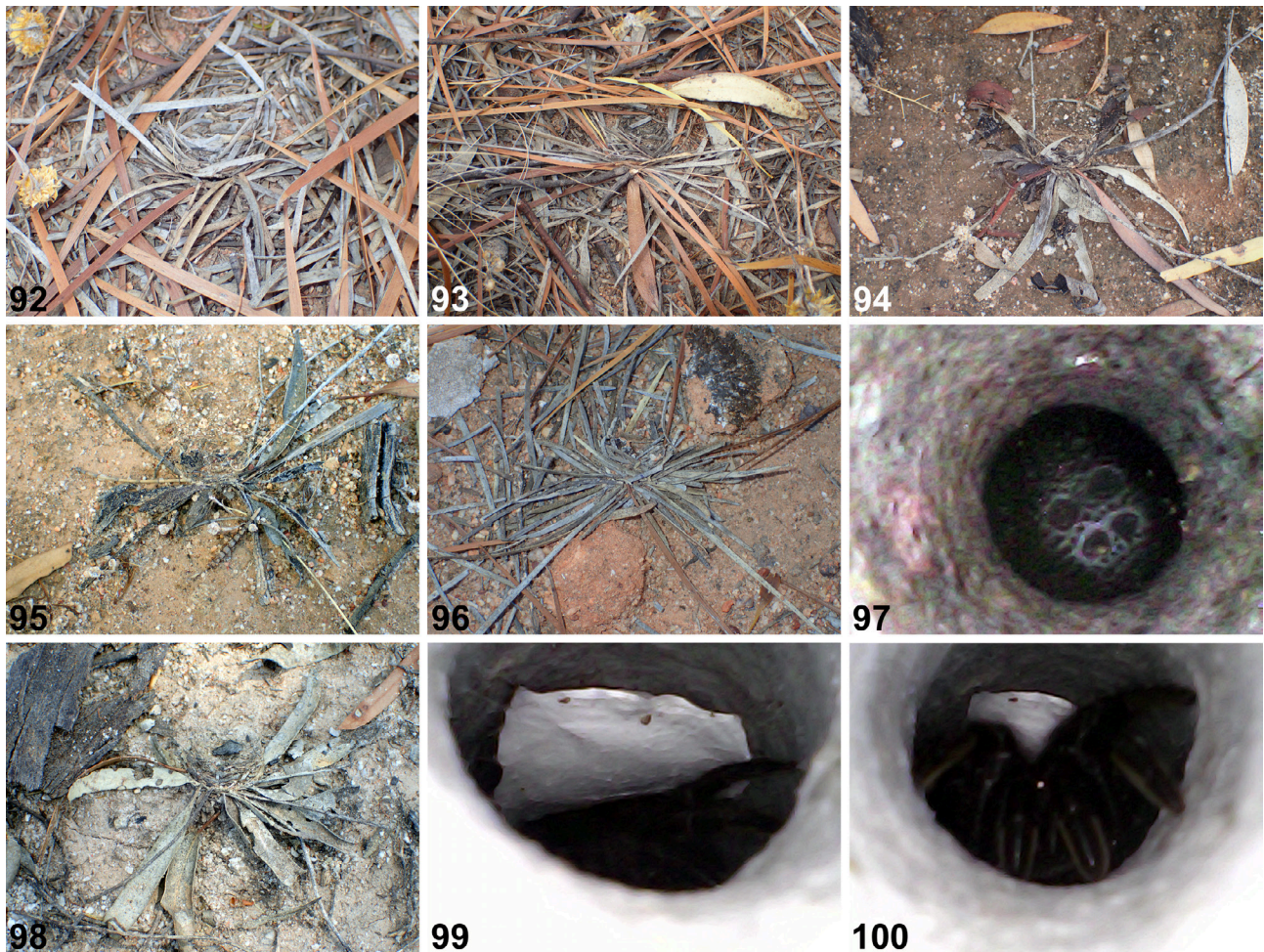
See Rix et al. (2018).

New material

Australia: *Western Australia*: 1 juvenile, 'Fairfields', 9 miles N. of Bungulla (IBRA_AVW), 31°30'S, 117°35'E, 10 March 1957, B.Y. Main (WAM T169155); 2 ♂, Ryans, remnant K84, ca. 29 km NE. of Kellerberrin (IBRA_AVW), 31°23'S, 117°51'E, 30 July 1987, G.T. Smith et al. (WAM T146014); 1 ♀, ca. 7 miles E. of Walebing (IBRA_AVW), 30°41'S, 116°20'E, 6 May 1953, B.Y. Main (WAM T169178).

New survey records (see Remarks, below)

Australia: *Western Australia*: **East Yorkkrakine Nature Reserve (IBRA_AVW)**: 6 burrows, 31°23'S, 117°40'E, door diameters (DD) 12–25 mm, 1 January 2025, M.G. & D.C. Rix; 4 burrows, same data except DD 12–25 mm, 4 January 2025; 5 burrows, same data except DD 18–25 mm, 6 January 2025. **Lind Road, W. of North Bungulla Nature Reserve (IBRA_AVW)**: 1 burrow, 31°31'S, 117°35'E, DD 24 mm, 3 January 2025, M.G. & D.C. Rix; 3 burrows, same data except DD 8–20 mm, 4 January 2025. **Goomalling-Toodyay Road, SW. of Goomalling (IBRA_AVW)**: 2 burrows, 31°21'S, 116°46'E, 29 August & 2 September 2025, E.S. Volschenk.



Figures 92–100. Burrow images of *Idiosoma nigrum* Main, 1952 recorded during surveys in the central Avon Wheatbelt bioregion, Western Australia (January 2025): 92–96, closed burrows of five individuals from East Yorkrakine Nature Reserve (EYNR), showing natural variation in twig-lining arrangements depending on available leaf litter; 97, phragmotic abdominal 'plug' of female from EYNR, showing posterior sigillate 'shield', as observed using burrow endoscope; 98, closed burrow of female from Lind Road, North Bungulla (LRNB); 99, 100, suspended egg sac in burrow of female from LRNB, as observed using burrow endoscope. Images by M. Rix.

Remarks

Idiosoma nigrum is one of the armoured taxa in the *nigrum*-group (Fig. 97; see also Rix et al. 2018, figs 1, 2), and belongs to the diverse *sigillatum*-clade of 10 species. An iconic denizen of the Avon Wheatbelt bioregion (Fig. 3B), *I. nigrum* is a listed threatened species under both the Western Australian *Biodiversity Conservation Act 2016* (Endangered) and the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (Vulnerable). It is phylogenetically sister to *I. schoknechtorum* (see Rix et al. 2026, fig. 3); both species occur allopatrically in the central-western Avon Wheatbelt bioregion (Fig. 3B), with *I. nigrum* found further north. The three newly published collection records from north of Bungulla, north-east of Kellerberrin and east of Walebing are mostly within the known range of the species, although the 1987 record from 'Ryans' (remnant K84, ca. 29 km NE. of Kellerberrin) provides a slight (ca. 10 km) eastern range extension for the species, from the previous closest record at Durokoppin Nature Reserve

(Fig. 3B). Burrows are adorned with twig-lines in a moustache-like arrangement (Figs 92–96, 98; see also Rix et al. 2018, fig. 13).

Limited visual surveys for *I. nigrum* were conducted by Author MGR during January 2025. These surveys revealed seemingly healthy extant populations of this species at two previously known sites, at East Yorkrakine Nature Reserve (EYNR; 15 records) and Lind Road, North Bungulla (LRNB; 4 records) (Figs 92–100). Using an endoscope to non-destructively confirm the abdominal morphology and thus identification of resident spiders (Fig. 97), breeding females with egg sacs were documented at EYNR on 1 January 2025, and at LRNB on 3 January 2025 (Figs 99, 100). Evidence of recruitment was present at both EYNR and LRNB, with juvenile individuals present belonging to a range of different size classes (door diameters 8–25 mm). A further survey record by E.S. Volschenk from August/September 2025 revealed an additional and previously unknown extant population near Goomalling, although this

record was within the known distribution of the species (Fig. 3B).

Idiosoma schoknechtorum Rix & Harvey, 2018

Figure 3B

<https://zoobank.org/NomenclaturalActs/0abf532a-049d-41bb-b63f-455f657420de>

Idiosoma schoknechtorum Rix & Harvey, 2018 in Rix et al., 2018: 60, figs 10, 25, 18, 329–350, 374. Rix et al., 2026: 8, figs 3, 6.

Idiosoma 'nigrum' Main, 1952: 135 (in part; cited specimens from Mount Dick and Northam). Main, 1957: 440 (in part; cited specimens from Beverley, Connolly Gully, Flint Gully, Jimpending Hill, Mount Dick, Northam, Quairading, Toodyay and E. of York).

Holotype

Australia: *Western Australia*: ♂, Beverley (IBRA_AVW), 32°06'S, 116°55'E, May 1954, H.W. Norris (WAM T139512).

Diagnosis

See Rix et al. (2018).

New survey records (see Remarks, below)

Australia: *Western Australia*: **Connolly Creek, off Pike Road (IBRA_JAF)**: Multiple burrows, 32°20'S, 116°36'E, 20 November 2024, M.G. Rix, M.S. Harvey & J.D. Wilson. **Grass Valley, Dempster Street (IBRA_AVW)**: Multiple burrows, 31°38'S, 116°48'E, 15 July 2014, M.G. Rix & M.S. Harvey.

Remarks

Idiosoma schoknechtorum is one of the armoured taxa in the *nigrum*-group (see Rix et al. 2018, fig. 10), and belongs to the diverse *sigillatum*-clade of 10 species. It is phylogenetically sister to *I. nigrum* (see Rix et al. 2026, fig. 3); both species occur allopatrically in the central-western Avon Wheatbelt bioregion (Fig. 3B), with *I. schoknechtorum* found further south. The two legacy observations recorded here as new survey records, from Grass Valley and Connolly Creek, are both within the known range of the species. Burrows are adorned with twig-lines in a moustache-like arrangement (see Rix et al. 2018, fig. 18).

Idiosoma sigillatum (O. P.-Cambridge, 1870)

Figure 3A

<https://zoobank.org/NomenclaturalActs/80d33c74-7828-40d1-bf6a-36a81a9f1d70>

Idiops sigillatus O. P.-Cambridge, 1870: 105, pl. 8, fig. 2A–H.

Idiosoma sigillatum (O. P.-Cambridge): Ausserer, 1871: 150.

Acanthodon sigillatum (O. P.-Cambridge): Simon, 1892: 91.

Idiosoma sigillatum (O. P.-Cambridge): Pocock, 1897: 109. Simon, 1903: 901, fig. 1053. Main, 1952: 131, figs 1A–C, 2A. Main, 1957: 438, fig. 14C (in part; cited specimens from Floreat Park, Inglewood, Kings Park, West Midland, Mount Hawthorn, N. of Muchea, Naval Base, Rockingham and Rottnest Island). Main, 1964: 32, figs A–D, F. Main, 1985: 14, figs 26, 190, 216. Castalanelli et al., 2014: 383. Rix et al., 2017a: 315, fig. 8. Rix et al., 2017b: 593, figs 83, 84, 87, 91, 93, 97. Rix et al., 2018: 64, figs 4–6, 16, 17, 25, 351–373, 375. Rix et al., 2026: 8, figs 3, 6.

Idiosoma hirsutum Main, 1952: 132, fig. 2B. Main, 1957: 440, fig. 15A–B. Main, 1985: 54. Synonymised by Rix et al., 2017b: 593.

Holotype (of *Idiops sigillatus*)

Australia: *Western Australia*: ♂, Swan River [Perth] (IBRA_SWA) (Oxford University Museum).

Holotype (of *Idiosoma hirsutum*)

Australia: *Western Australia*: ♀, Victoria Park [Perth] (IBRA_SWA), 10 August 1929, L.W. Gibbs (WAM T2172).

Diagnosis

See Rix et al. (2018).

New material

Australia: *Western Australia*: 1 ♀, Balcatta, Wanneroo Road, near Reid Highway (IBRA_SWA), 31°51'40"S, 115°49'35"E, day hand collection on carpark, 19 August 2011, J. Clark (WAM T163721); 1 ♀, Churchlands (IBRA_SWA), 31°55'S, 115°47'E, 1–31 May 1969 (WAM T165963); 1 ♂, Coolbellup, intersection of Stock Road and Forrest Road (IBRA_SWA), 32°05'14"S, 115°47'57"E, vertebrate pitfall trap, 11–17 August 2010, J. Clark (WAM T163720); 1 ♀, Duncraig (IBRA_SWA), 31°50'S, 115°46'E, 9 July 2002, R. Nichol (WAM T158231); 1 ♂, Leschenault, Halyard Place (IBRA_SWA), 33°14'35"S, 115°44'05"E, hand collected, walking on lawn in evening, 11 May 2021, P. Tredgett (WAM T155478); 1 ♀, Leschenault, 16 Heritage Close (IBRA_SWA), 33°14'56"S, 115°43'28"E, drowned in bucket on patio near tank, 18 June 2022, A.F. Longbottom (WAM T157996); 1 ♂, same data except found dead in dry watering can on patio, 10 December 2022 (WAM T159158); 1 ♀, Nedlands, Monash Avenue (IBRA_SWA), 31°58'S, 115°49'E, 23 May 1988, E. Armstrong (WAM T152608); 1 ♀, Shenton Park, University of Western Australia bushland (IBRA_SWA), 31°57'06"S, 115°47'56"E, 28 October 2014, L.A. Mason (WAM T147964).

Remarks

Idiosoma sigillatum is one of three semi-armoured taxa in the *nigrum*-group (see Rix et al. 2018, fig. 4), and belongs to the diverse *sigillatum*-clade of 10 species. It occurs widely along the Swan Coastal Plain bioregion including within metropolitan Perth (Fig. 3A), and is phylogenetically sister to *I. jarrah* and *I. mcclémentsorum* (see Rix et al. 2026, fig. 3). The nine newly published records are all within the known distribution of the

species. Burrows are adorned with twig-lines in a moustache-like arrangement (see Rix et al. 2018, figs 16, 17).

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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References

Ausserer A. (1871). Beiträge zur Kenntniss der Arachniden-Familie der Territelariae Thorell (Mygalidae Autor). *Verhandlungen der Zoologisch-Botanischen Gesellschaft in Wien* **21**: 117–224.

Cambridge OP. (1870). Monograph of the genus *Idiops*, including descriptions of several species new to science. *Proceedings of the Zoological Society of London* **1870**: 101–108.

Cambridge OP. (1877). On some new genera and species of Araneidea. *The Annals and Magazine of Natural History* **(4) 19**: 26–39. <https://doi.org/10.1080/00222937708682093>

Castalanelli MA, Teale R, Rix MG, Kennington WJ & Harvey MS. (2014). Barcoding of mygalomorph spiders (Araneae: Mygalomorphae) in the Pilbara bioregion of Western Australia reveals a highly diverse biota. *Invertebrate Systematics* **28**: 375–385. <https://doi.org/10.1071/IS13058>

Ellis RJ. (2015). Some observations on the field behaviour of the vulnerable mygalomorph spider, *Idiosoma nigrum*. *The Western Australian Naturalist* **29**: 241–246.

Fonseca-Ferreira R, Derkarabetian S, Morales MJA, Opatova V, Belintani T, Lyle R & Guadanucci JPL. (2025). Disconnecting trapdoors: phylogenomic analyses reveal evolutionary contrasts in trapdoor spiders with intercontinental distribution (Idiopidae, Idiopinae). *Molecular Phylogenetics and Evolution* **206**: 108323. <https://doi.org/10.1016/j.ympev.2025.108323>

Lassaline CR, Stringham OC, Moncayo S, Toomes A & Cassey P. (2023). Untangling the web: dynamics of Australia's online terrestrial invertebrate trade. *Austral Entomology* **62**: 372–387. <https://doi.org/10.1111/aen.12662>

Main BY. (1952). Notes on the genus *Idiosoma*, a supposedly rare Western Australian trap-door spider. *The Western Australian Naturalist* **3**: 130–137.

Main BY. (1957). Biology of aganippine trapdoor spiders (Mygalomorphae: Ctenizidae). *Australian Journal of Zoology* **5**: 402–473. <https://doi.org/10.1071/ZO9570402>

Main BY. (1964). *Spiders of Australia*. (Jacaranda Press, Brisbane, 124 pp.).

Main BY. (1982). Adaptations to arid habitats by mygalomorph spiders. In *Evolution of the Flora and Fauna of Arid Australia* (Eds. Barker WR & Greenslade PJM). (Peacock Publications in association with Australian Systematic Botany Society and ANZAAS, South Australian Division, Frewville, South Australia, pp. 273–283).

Main BY. (1985). Further studies on the systematics of ctenizid trapdoor spiders: a review of the Australian genera (Araneae: Mygalomorphae: Ctenizidae). *Australian Journal of Zoology Supplementary Series* **108**: 1–84. <https://doi.org/10.1071/AJZS108>

Main BY. (2003). Demography of the shield-back trapdoor spider *Idiosoma nigrum* Main in remnant vegetation of the Western Australian Wheatbelt. *Records of the South Australian Museum Monograph Series* **7**: 179–185.

Marshall BM, Strine CT, Fukushima CS, Cardoso P, Orr MC & Hughes AC. (2022). Searching the web builds fuller picture of arachnid trade. *Communications Biology* **5**: 448. <https://doi.org/10.1038/s42003-022-03374-0>

- Pocock RI. (1897). On some trapdoor spiders of the family Ctenizidae from South and West Australia, contained in the collection of the British Museum. *The Annals and Magazine of Natural History* **(6)** **19**: 109–116. <https://doi.org/10.1080/00222939708680509>
- Rix MG, Cooper SJB, Meusemann K, Klopstein S, Harrison SE, Harvey MS & Austin AD. (2017a). Post-Eocene climate change across continental Australia and the diversification of Australasian spiny trapdoor spiders (Idiopidae). *Molecular Phylogenetics and Evolution* **109**: 302–320. <https://doi.org/10.1016/j.ympev.2017.01.008>
- Rix MG, Harvey MS, Austin AD, Cooper SJB & Wilson JD. (2026). Diversification, biogeography and the evolution of twig-lining behaviours in the Australian trapdoor spider genus *Idiosoma* (Araneae: Idiopidae: Aganippini): the role of parallel evolution and adaptive shifts in a continental radiation of mygalomorph spiders. *Invertebrate Systematics* **40**: IS25061. <https://doi.org/10.1071/IS25061>
- Rix MG, Huey JA, Cooper SJB, Austin AD & Harvey MS. (2018). Conservation systematics of the shield-backed trapdoor spiders of the *nigrum*-group (Mygalomorphae, Idiopidae, *Idiosoma*): integrative taxonomy reveals a diverse and threatened fauna from south-western Australia. *ZooKeys* **756**: 1–121. <https://doi.org/10.3897/zookeys.756.24397>
- Rix MG, Raven RJ, Main BY, Harrison SE, Austin AD, Cooper SJB & Harvey MS. (2017b). The Australasian spiny trapdoor spiders of the family Idiopidae (Mygalomorphae: Arbanitinae): a relimitation and revision at the generic level. *Invertebrate Systematics* **31**: 566–634. <https://doi.org/10.1071/IS16065>
- Rix MG, Wilson JD, Laidlaw MJ, Harvey MS, Rix AG & Rix DC. (2023). Demography, passive surveillance and potential habitat modelling of an Australian giant trapdoor spider (Idiopidae: *Euoplos grandis*) from the Queensland Brigalow Belt: half a decade of population monitoring for conservation outcomes. *Austral Entomology* **62**: 200–219. <https://doi.org/10.1111/aen.12639>
- Rix MG, Wilson JD, Rix AG, Wojcieszek AM, Huey JA & Harvey MS. (2019). Population demography and biology of a new species of giant spiny trapdoor spider (Araneae: Idiopidae: *Euoplos*) from inland Queensland: developing a ‘slow science’ study system to address a conservation crisis. *Austral Entomology* **58**: 282–297. <https://doi.org/10.1111/aen.12367>
- Simon E. (1892). *Histoire naturelle des araignées, Vol. 1.* (Roret, Paris, France, pp. 1–256). <https://doi.org/10.5962/bhl.title.51973>
- Simon E. (1903). *Histoire naturelle des araignées, Vol. 2.* (Roret, Paris, France, pp. 669–1080). <https://doi.org/10.5962/bhl.title.51973>
- Taxonomy Australia. (2020). *Discovering Biodiversity: A decadal plan for taxonomy and biosystematics in Australia and New Zealand 2018–2027.* (Australian Academy of Science, Canberra). <https://www.science.org.au/support/analysis/decadal-plans-science/discovering-biodiversity-decadal-plan-taxonomy>
- Wilson JD, Harvey MS, Simmons LW & Rix MG. (2025). An integrative systematic revision of the wishbone spiders (Araneae: Anamidae: *Aname* L. Koch, 1873) of subtropical and tropical eastern Australia, with the description of 55 new species. *European Journal of Taxonomy* **985**: 1–298. <https://doi.org/10.5852/ejt.2025.985.2845>



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