

Systematics of the spiny trapdoor spider genus *Cryptoforis* (Mygalomorphae: Idiopidae: Euoplini): documenting an enigmatic lineage from the eastern Australian mesic zone

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Abstract. The arbanitine spiny trapdoor spiders of the genus *Cryptoforis* Wilson, Rix & Raven, 2020 are revised, and 15 new species are described from eastern Australia: *C. absona* sp. nov., *C. arenaria* sp. nov., *C. cairncross* sp. nov., *C. cassisi* sp. nov., *C. celata* sp. nov., *C. cooloola* sp. nov., *C. fallax* sp. nov., *C. grayi* sp. nov., *C. hickmani* sp. nov., *C. mainae* sp. nov., *C. montana* sp. nov., *C. monteithi* sp. nov., *C. woondum* sp. nov., *C. xenophila* sp. nov., and *C. zophera* sp. nov. The type species, *C. hughesae* Wilson, Rix & Raven, 2020, and two other previously described species, *C. tasmanica* (Hickman, 1928) and *C. victoriensis* (Main, 1995), are re-described and re-diagnosed, and a key to all species in the genus is provided. Species of *Cryptoforis* are characterized by ‘wafer-door’ burrow entrances; the cryptic nature of these burrows in the natural environment likely contributed to the relatively recent recognition of their widespread occurrence in mainland eastern Australia. One species, however, is an exception: *C. fallax* sp. nov. constructs a ‘palisade’ type burrow remarkably similar to those created by the *turrificus*-group in the sister-genus *Euoplos* Rainbow, 1914. The subtropical region around the McPherson–Macleay overlap appears to be the center of diversity for *Cryptoforis*; however, given the cryptic nature of burrows, and the confinement of some known species to cool, high elevation habitats (which can be difficult to access and sample), we suggest that additional species likely remain undiscovered in parts of New South Wales and tropical northern Queensland.

Keywords: New species, spider evolution, subfamily Arbanitinae, taxonomy

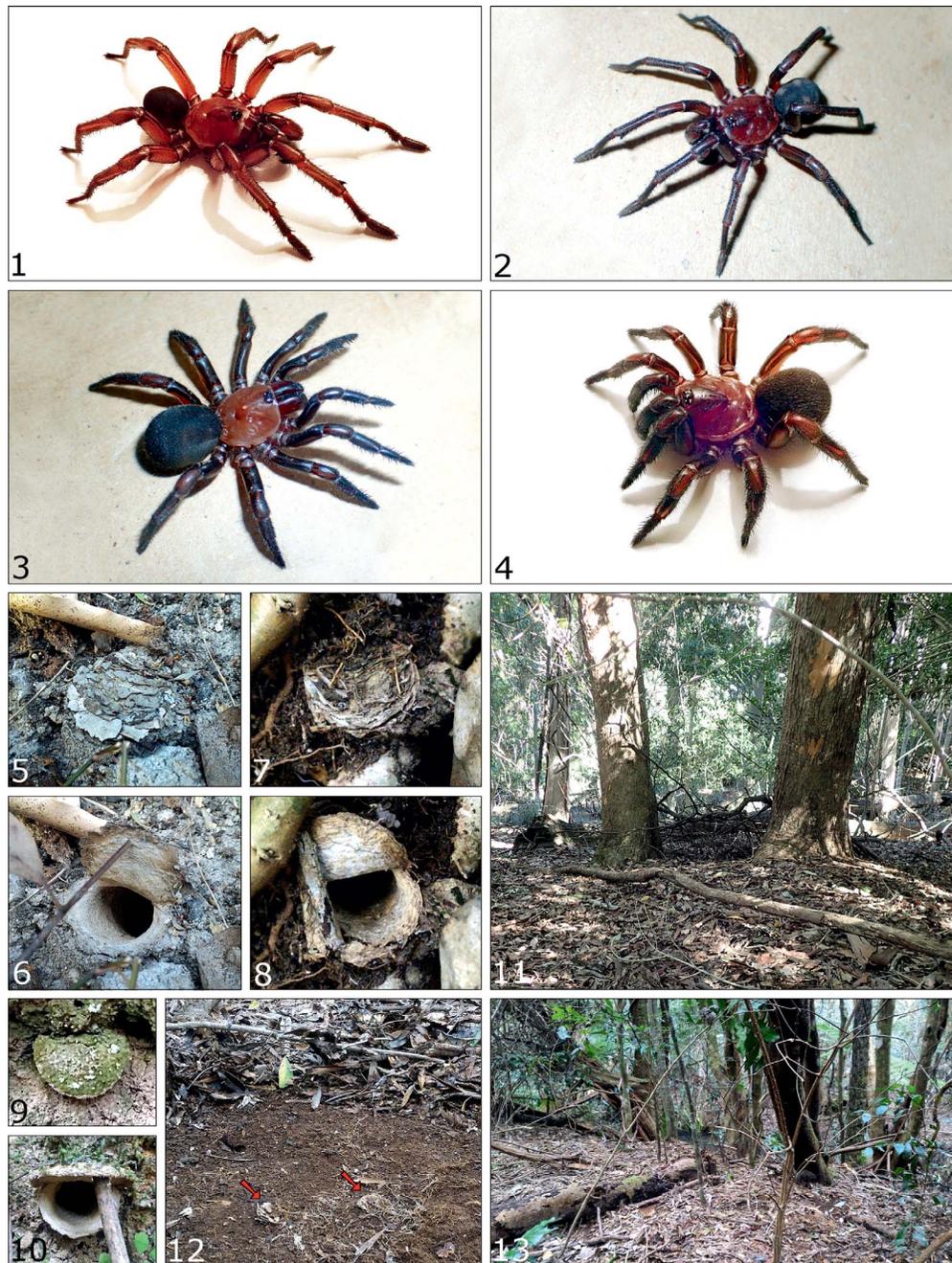
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Spiny trapdoor spiders of the genus *Cryptoforis* Wilson, Rix & Raven, 2020 (Figs. 1–13) can reasonably be described as ‘hidden in plain sight’. Known species occur throughout eastern Australia, with many found around the densely populated region of south-eastern Queensland, and one species found throughout the suburban forests of Queensland’s capital city, Brisbane (Wilson et al. 2018, 2020). While most mygalomorph spiders (Raven 1985; Hedin & Bond 2006; Opatova et al. 2020) construct burrows or hides, many of them well camouflaged, the ‘wafer-door’ burrows constructed by *Cryptoforis* (Figs. 5–8) are particularly cryptic, especially in areas with loose leaf-litter cover – the microhabitat these spiders seem to prefer. The challenge of finding these burrows, along with the general difficulties associated with matching pitfall-trapped male mygalomorph spiders with conspecific females, led to this distinct and widespread lineage remaining unrecognized in mainland Australia until 2018. At this time, a phylogenetic investigation into the previously monogeneric tribe Euoplini (see Wilson et al. 2018) revealed two major lineages which differ in their morphology and burrow entrance architecture: the ‘plug-door/palisade’ lineage and the ‘wafer-door’ lineage. This prompted a second phylogenetic study on the tribe, in which all known eastern Australian species within the tribe Euoplini (both described and undescribed) were included in a total-evidence analysis with the goal of reclassifying the tribe to adequately represent the diverse fauna it encompasses (Wilson et al. 2020). Consequently, the tribe Euoplini was expanded to contain two genera: *Euoplos* Rainbow, 1914, and the new genus *Cryptoforis* Wilson, Rix &

Raven, 2020. Most previously described species in the tribe remained in *Euoplos*, which is now confined to those species which: (i) lack clasping spurs on the male tibia I (see Wilson et al. 2020, fig. 6c, d); (ii) possess a retroventral row of four or more macrosetae on the tibia I of females (see Wilson et al. 2020, fig. 6i, j); and (iii) create plug-door (see Rix et al. 2017c, figs. 312–314, 317, 320) or palisade (see Wilson et al. 2019, figs. 1–11) burrow entrances using soil as the primary substrate. *Euoplos* remains one of the most widespread idiopid genera in Australia, occurring in all eastern states except Tasmania and South Australia, and in south-western and semi-arid Western Australia (Rix et al. 2017c; Wilson et al. 2020). To the keen observer, *Euoplos* burrows are a common sight on exposed embankments around creeks and walking tracks in eastern Australian forests. Spiders in the genus *Cryptoforis* represent the second major lineage of Euoplini from the eastern Australian mesic zone, where they occur sympatrically (and often syntopically) with *Euoplos*, but create cryptic, wafer-door burrows from leaf and humus fragments (Figs. 5–8; see also Rix et al. 2017c, figs. 318, 319). Unlike *Euoplos*, *Cryptoforis* individuals rarely occur on exposed embankments, appearing to prefer microhabitats with some leaf-litter cover (Figs. 11–13). In these areas, the burrows are incredibly well camouflaged.

The most recent phylogenetic analysis of Wilson et al. (2020) revealed morphological features in both male and female *Cryptoforis* which allow their diagnosis from *Euoplos*, but cases of homoplasy occur in many of these characters (see Wilson et al. 2020, table 2). For instance, *C. absona* sp. nov.

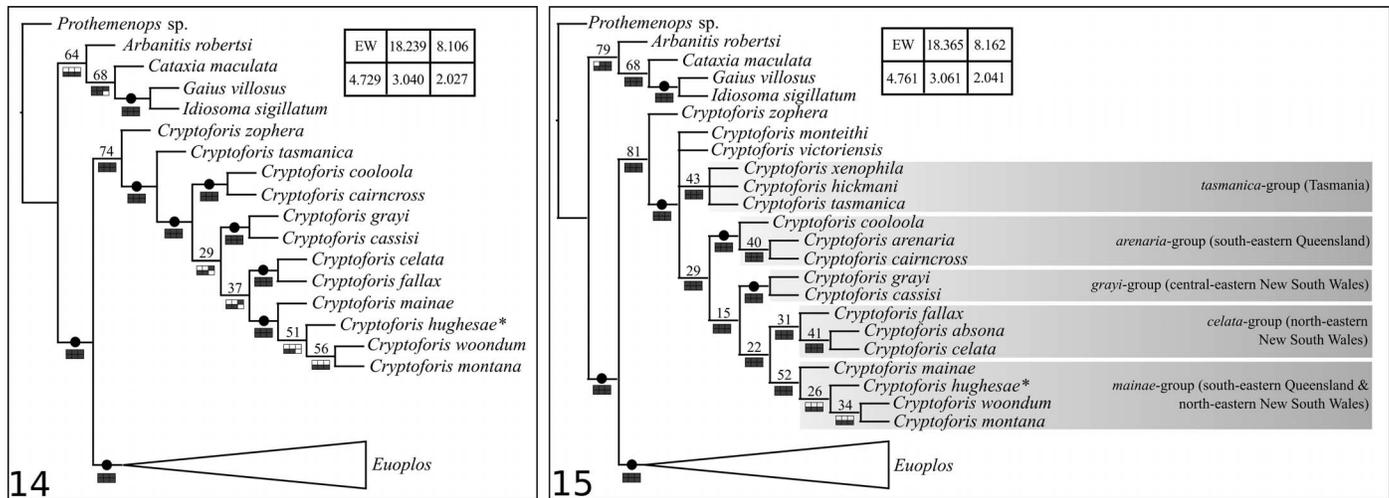


Figures 1–13.—Examples of *Cryptoforis* natural history: 1, male *C. mainae* sp. nov.; 2, male *C. fallax* sp. nov.; 3, female *C. cairncross* sp. nov.; 4, subadult male *C. hughesae* sp. nov.; 5, 6, burrow entrance of *C. woondum* sp. nov.; 7, 8, burrow entrance of *C. montana* sp. nov.; 9, 10, unusual ‘palisade’ burrow entrance of *C. fallax* sp. nov.; 11, collection locality of *C. hughesae* Wilson, Rix & Raven, 2020 within Brisbane, showing the preferred microhabitat; 12, 13, collection locality of *C. mainae* in Springbrook National Park, with leaf-litter swept away to reveal burrow entrances in 12.

has lost the bifurcate clasp spur on tibia I which is present in all other *Cryptoforis* species (Figs. 50–52; cf. Figs. 27–29). Similarly, the cryptic burrow type which gives the genus its name (Figs. 5–8) is modified in *C. fallax* sp. nov., which, although unequivocally a member of the genus, constructs an unusual ‘palisade’ type burrow (Figs. 9, 10) remarkably similar to those constructed by the *turrificus*-group of *Euoplos* from south-eastern Queensland (see Wilson et al. 2019, figs. 1–

11). Wilson et al. (2020) also documented the phylogenetic relationships between all known *Cryptoforis* species, and the morphological characters which distinguish the various clades and subclades within the genus (Figs. 14, 15; see also Wilson et al. 2020, figs. 3–5).

Prior to 2018, only two species now included within *Cryptoforis* were described within the genus *Euoplos*: *C. tasmanica* (Hickman, 1928) from around Hobart, Tasmania



Figures 14, 15.—Schematic representation, focusing only on *Cryptoforis*, of the maximum parsimony (MP) phylogenies produced in Wilson et al. (2020): 14, phylogeny recovered from MP analysis with implied weighting and a K -value of 4.729 (equal to a distortion value of 70%) of the molecular-only dataset (60 OTUs; 5,151 bp); 15, phylogeny recovered from the MP analysis with implied weighting and a K -value of 4.761 (equal to a distortion value of 70%) of the total-evidence dataset (71 OTUs; 5,151 bp and 44 discrete morphological/behavioral characters). In both figures, support values from the displayed parsimony analysis (1,000 replicates, symmetrical resampling [SR], change probability = 33) are displayed above corresponding branches, with values above 90% displayed as a solid black circle on the branch. Boxes displayed below the branches indicate the sensitivity of each branch to different implied weights, and under equal weights (EW). Geographically concordant species-groups are shaded and labelled on Figure 15, and the type species of the genus is highlighted (*).

(Fig. 19); and *C. victoriensis* (Main, 1995) from Buffalo River Dam, Victoria (Fig. 19). *Cryptoforis tasmanica* has now been included in several phylogenetic studies, and its biology and morphology have been well documented (see Hickman 1928; Rix et al. 2017c). The original description of *C. victoriensis*, however, was based on female morphology only, and contained no information on burrow entrance structure or microhabitat preference. It has also not been collected since it was described. Consequently, its position within the *Cryptoforis* lineage was only realized once it was included in the total-evidence phylogeny of Wilson et al. (2020), as the use of female morphological characters in that study meant the *E. victoriensis* holotype could be scored and included in the phylogenetic analysis. Based on the two phylogenetic studies by Wilson et al. (2018, 2020), numerous other species have also been discovered, and represented as undescribed ‘morpho-species’. Most of these occur in the mesic coastal band of New South Wales and southern Queensland, with the highest concentration of species occurring around the McPherson–Macleay overlap zone of north-eastern New South Wales and south-eastern Queensland (Fig. 18), where temperate and tropical zones overlap (Burbidge 1960). A single species, *C. montiethi* sp. nov., is also known from tropical Queensland, where it occurs at high elevation in the Atherton Uplands subregion (Fig. 17), and five species are known from temperate Victoria and Tasmania (Fig. 19). Most *Cryptoforis* specimens listed herein are males that were caught in pitfall traps, and many of the females were collected recently, once targeted searching for specimens in the tribe Euoplini began. This pattern suggests that the cryptic burrows constructed by spiders of the genus have caused them to be largely missed during direct sampling opportunities in the past. Based on this observation and the discovery that many species have geographically restricted distributions (Figs. 17–19), it seems

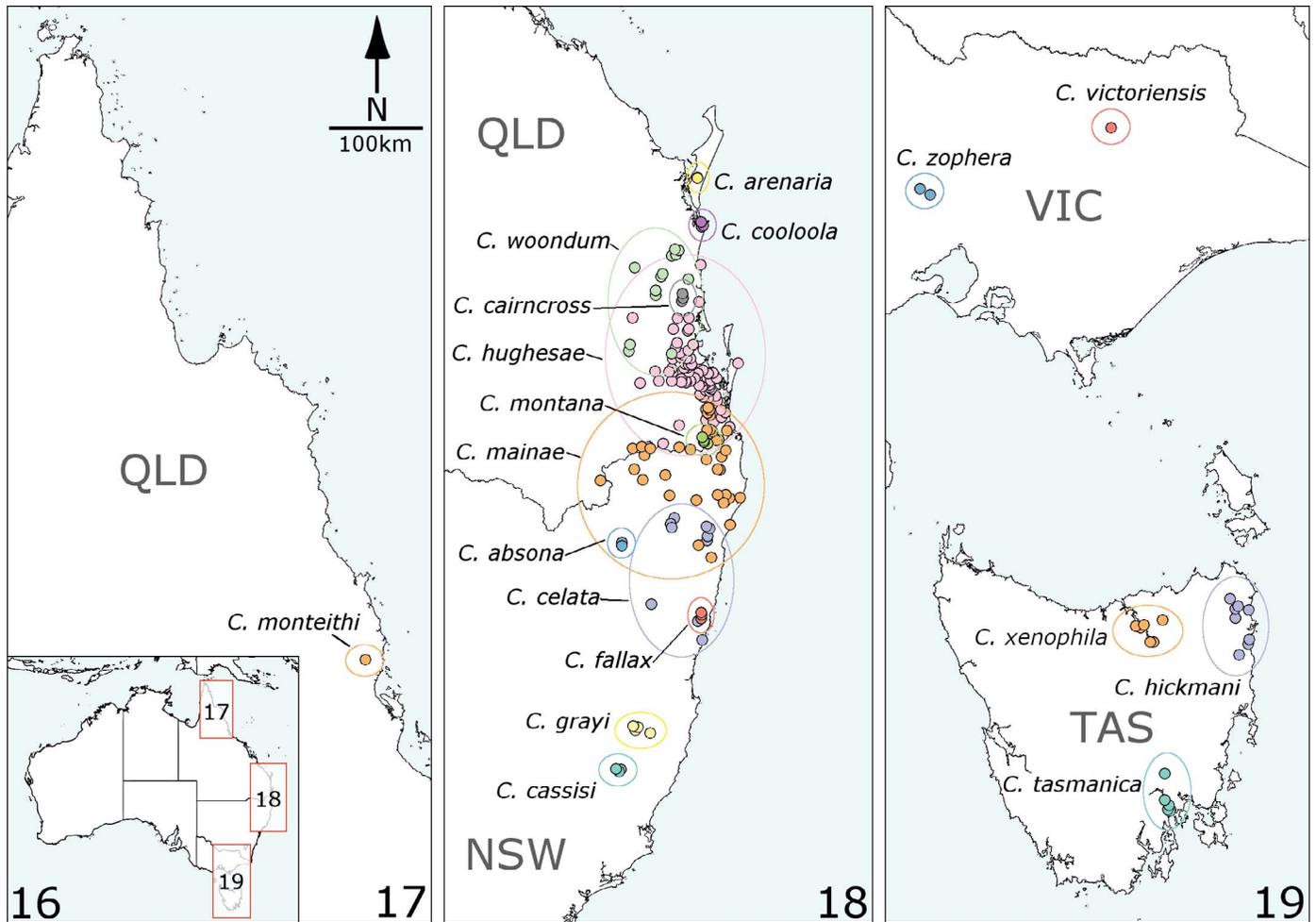
likely that more undescribed species exist in regions which have not been subjected to pitfall trapping collection methods.

In this paper, we formally document all known *Cryptoforis* species identified in the phylogenetic studies of Wilson et al. (2018, 2020). In total, 15 new species are described, and the type species, *C. hughesae* Wilson, Rix & Raven, 2020, along with the previously described species *C. tasmanica* and *C. victoriensis*, are re-described and re-diagnosed. For each species, whenever possible, we detail the morphology of both sexes and provide information on distribution, burrow architecture, microhabitat preferences, seasonal mating patterns, and phylogenetic position. We also provide a morphological key which allows for the diagnosis of all males, and most females, to species level. This paper continues the rapid species-level documentation of the remarkable Australian idiopid fauna (e.g., Rix et al. 2017a, b, c, 2018a, b, c, d, 2019a, b; Harrison et al. 2018; Wilson et al. 2019), building on the higher-level foundations set by Raven (1985), Main (1985), Raven & Wishart (2006), and Rix et al. (2017b, c).

METHODS

Morphological methods.—Species diagnoses presented here are morphological, but we have considered the findings of previous phylogenetic studies (Wilson et al. 2018) to ensure species represent monophyletic lineages, in the few cases where multiple individuals of a species hypothesis were sequenced. Our species concept is therefore integrative (*sensu* De Queiroz 2007), as species must possess morphological autapomorphies which allow for their diagnosis and, in cases where molecular data are available, represent monophyletic lineages.

Morphological taxonomic methods closely follow those employed by Rix et al. (2017c), with some modifications to the description format. All specimens were preserved and exam-



Figures 16–19.—Distribution data for *Cryptoforis*: 16, map of Australia with the areas shown by the three distribution maps (17–19) outlined in red; 17, northern Queensland; 18, north-eastern New South Wales and south-eastern Queensland; 19, Victoria and Tasmania.

ined in 70% ethanol. Digital auto-montage images were taken using a Leica M165C stereomicroscope with mounted DFC425 digital camera and processed using Leica Application Suite Version 3.7 software. Measurements presented are in millimeters, to two decimal places. Leg segments were measured along the dorsal proteral edge while the leg was in lateral view. Total body length measurements include the chelicerae but not spinnerets and were taken while the specimen was in dorsal view. Female genitalia were cleared in 100% lactic acid at room temperature for about three hours prior to examination and imaging.

Material examined in this study includes specimens from most major Australian natural history collections, including the Queensland Museum, Brisbane (QMB), the Australian Museum, Sydney (AMS), the Museum of Victoria, Melbourne (MVM), the Tasmanian Museum and Art Gallery, Hobart (TMAG), and the Queen Victoria Museum, Launceston (QVM). The following abbreviations are used throughout the text: ALE, anterior lateral eye/s; AME, anterior median eye/s; PL, proteral; PLE, posterior lateral eye/s; PME, posterior median eye/s; RL, retrolateral; RTA, retrolateral tibial apophysis (of male pedipalp); RV, retroventral; V, ventral. For readability and ease of diagnosis, 'sp. nov.'

epithets are removed from the body text after the key to species.

SYSTEMATICS

Family Idiopidae Simon, 1889

Subfamily Arbanitinae Simon, 1903

Tribe Euoplinae Rainbow, 1914

Genus *Cryptoforis* Wilson, Rix & Raven, 2020

Cryptoforis Wilson, Rix & Raven, 2020 in Wilson et al., 2020: 558.

Type species.—*Cryptoforis hughesae* Wilson, Rix & Raven, 2020, by original designation.

Diagnosis.—Species of *Cryptoforis* can be distinguished from all other Arbanitinae, except species of *Euoplos*, by the combined presence of a compact, rectangular eye group (Figs. 20, 23, 33, 36), a uniquely broad carapace profile in dorsal view (Figs. 20, 33), and a straight to procurved fovea (Figs. 20, 33; see also Wilson et al. 2020, figs. 6, 7, and Rix et al. 2017c for a key to all genera). Along with *Euoplos*, species of *Cryptoforis* can further be distinguished from species in the tribes Cataxiini, Arbanitini and Aganippini by the unique

deletion of a single codon from the mitochondrial cytochrome *b* gene (see Rix et al. 2017c for nucleotide details).

Males of all *Cryptoforis* species, except *C. absona* sp. nov. (Figs. 43–55), can be distinguished from those of *Euoplos* by the presence of a bifurcate clasping spur on the prolateral tibia I (Figs. 27–29). Males of *C. absona* sp. nov., which lack a clasping spur, can be distinguished from similar species of *Euoplos* by the presence of ventral scopulae on tarsus III.

Females of all *Cryptoforis* species, except *C. fallax* sp. nov. and *C. zophera* sp. nov., can be distinguished from those of *Euoplos* by a row of three long, uniformly spaced macrosetae on the retroventral tibia I (Figs. 41, 113; also see Wilson et al. 2020, fig. 7i, j), as opposed to a row of four or more macrosetae in all *Euoplos* species which occur sympatrically with *Cryptoforis* (see Wilson et al. 2020, fig. 6i, j). Females of *C. fallax* can be distinguished from those of sympatric *Euoplos* by the absence of macrosetae on the prolateral tarsus I (Fig. 181), and females of *C. zophera* can be distinguished from all *Euoplos* species by their extremely elongate spermathecae (Fig. 390).

Males, females and juveniles of all *Cryptoforis* species, except *C. fallax* sp. nov., can also be readily distinguished in the field from those of *Euoplos* by their burrow entrance, which has a hinged, wafer-like door constructed using humus and leaf fragments as the primary substrate (Figs. 5–8). Burrows of *C. fallax* (Figs. 9, 10) differ from those of all other Euoplini except species of *Euoplos* in the *turrificus*-group (i.e., *E. crenatus* Wilson, Rix & Raven, 2019, *E. goomboorian* Wilson, Rix & Raven, 2019, *E. thynnearum* Wilson, Rix & Raven, 2019, and *E. turrificus* Wilson, Rix & Raven, 2019), by their D-shaped, protruding, ‘palisade’ entrance structure.

Description.—Medium to large idiopid spiders, tan to dark brown in colour (e.g., Figs. 1–4). Carapace broad in dorsal view, widest at the level of coxa II (e.g., Figs. 20, 33). Fovea always procurved, often strongly (e.g., Figs. 20, 33). Eye group compact and rectangular (e.g., Figs. 23, 36). Chelicerae with rastellum; maxillae always with cuspules in males and females (e.g., Figs. 24, 37). Labium usually with few cuspules or spinules in males and females (e.g., Figs. 24, 37). Abdomen oval, dorsal surface setose, often with stiff, porrect setae (e.g., Figs. 34, 106, 129, 152). Sclerotized sigilla absent from dorsal abdomen. Legs of males with scopulae on ventral tarsi and distal metatarsi I–II (e.g., Fig. 27); scopulae usually also present on part or all of ventral tarsi III and IV (Figs. 391–395). Male tibia I usually with a bifurcate, prolateral clasping spur (e.g., Figs. 27–29, 99–101, 375–377). Legs of females with or without scopulae on distal segments, and varying in the density of macrosetae (e.g., Figs. 40, 41, 112, 113); tibia I usually with a distinct retroventral row of three long macrosetae (other macrosetae may also be present on this segment but are distinct from the long macrosetae that create the

retroventral row) (e.g., Figs. 41, 113, 136). Male pedipalp with a triangular to conical RTA, lacking any other apophyses (e.g., Figs. 30–32, 53–55, 102–104); cymbium usually with a field of spine-like setae disto-dorsally (e.g., Figs. 30–32). Female genitalia usually consisting of a pair of simple, globose spermathecae, varying in the width and length of the stem, and the width of the crown (e.g., Figs. 42, 114, 137, 160).

Distribution.—The genus *Cryptoforis* occurs along the mesic coastal band of eastern Australia, in the mountains of the Great Dividing Range and the lowlands east of this, as well as in Tasmania (Figs. 16–19). The highest diversity of *Cryptoforis* species can be found around the McPherson–Macleay overlap zone of south-eastern Queensland and north-eastern New South Wales (Fig. 18). Currently, only a single species (*C. monteithi* sp. nov.) is described from tropical north-eastern Queensland (Fig. 17), although other species are likely to occur in the region.

Composition and remarks.—*Cryptoforis* is one of two genera within the tribe Euoplini recognized by Wilson et al. (2020), and is the sister-genus to *Euoplos*. Spiders of the genus *Cryptoforis* are characterized in the field by their distinctive burrows, which in all but one species (*C. fallax* sp. nov.) have wafer-type doors made of humus fragments (Figs. 5–8). These burrows blend in with surrounding leaf-litter (Figs. 11–13), and the cryptic nature of the doors probably contributed to the genus remaining largely unrecognized until recently. The genus includes 18 species, 15 of which are newly described in this study. While the monophyly of the genus is strongly supported by both molecular data and morphology (Wilson et al. 2018, 2020), one species (*C. zophera* sp. nov.) was recovered in some analyses of Wilson et al. (2020) as an independent lineage, sister to all other Euoplini (see Wilson et al. 2020, fig. 3). If future analyses confirm that this species is indeed an independent lineage, it will need to be removed from *Cryptoforis*, however at this time we do not consider the evidence strong enough to elevate a third, monotypic genus in the tribe Euoplini and we have therefore included this species in this revision. Both male and female *Cryptoforis* can be distinguished based on morphological characters alone (Wilson et al. 2020, table 2). Unlike many other arbanitine genera, the presence or absence of scopulae on the ventral tarsi III and IV of males (Figs. 391–395) is particularly informative in *Cryptoforis*, often distinguishing closely related species (see Wilson et al. 2020, fig. 5). Field observations by the authors (JDW, MGR, RJR) suggest *Cryptoforis* may prefer lightly sloping ground with some leaf-litter cover (Figs. 11–13), and the spiders often occur syntopically with other arbanitine genera such as *Euoplos* (which are frequently found on adjacent steep, exposed embankments), *Arbanitis* L. Koch, 1874 (which usually have open-holed burrows) and *Cataxia* Rainbow, 1914.

KEY TO THE AUSTRALIAN SPECIES OF *CRYPTOFORIS*

NB. Males of *C. victoriensis* (Main, 1995), and females (and burrows) of *C. absona* sp. nov., *C. arenaria* sp. nov. and *C. monteithi* sp. nov. are unknown.

1. Adult males (Figs. 1, 2) 2
- Adult females (Figs. 3, 4) and/or burrows (Figs. 5–10) 18
2. Tibia I without bifurcate clasping spur, with ‘comb’ of macrosetae on a single distal prominence (Figs. 50–52) *C. absona* sp. nov.
- Tibia I with bifurcate prolateral clasping spur (e.g., Figs. 27–29) 3

3. Bifurcate clasping spur oriented longitudinally (Figs. 375–377) *C. zophera* sp. nov.
 – Bifurcate clasping spur oriented roughly dorso-ventrally or obliquely (e.g., Figs. 28, 100, 123) 4
4. Base of RTA with prominent, semi-spherical swelling (Figs. 30, 66, 79, 148) 5
 – Base of RTA without semi-spherical swelling (e.g., Figs. 53, 102, 125) 8
5. Ventral tarsus IV without scopulae (Fig. 395) *C. hughesae* Wilson, Rix & Raven, 2020
 – Ventral tarsus IV with scopulae (Fig. 394) 6
6. Embolus short, slightly longer than bulb (Figs. 79–81) *C. cairncross* sp. nov.
 – Embolus longer relative to bulb (Figs. 66–68, 148–150) 7
7. Pedipalp with wide tibia relative to length (Fig. 66); RTA relatively short (Fig. 66); carapace and legs dark red-brown (preserved) (Figs. 56, 63–65) *C. arenaria* sp. nov.
 – Pedipalpal tibia narrower relative to length (Fig. 148); RTA more elongate (Fig. 148); carapace and legs tan-orange or yellow (preserved) (Figs. 138, 145–147) *C. cooloola* sp. nov.
8. Ventral tarsus IV with scopulae (Fig. 394) 9
 – Ventral tarsus IV without scopulae (Fig. 395) 10
9. Embolus with relatively thin tip (Figs. 299–301); cymbium without spine-like setae (Figs. 299–301)
 *C. tasmanica* (Hickman, 1928)
 – Embolus with wider tip (Figs. 194–196); spine-like setae present on disto-dorsal cymbium (Figs. 194–196) *C. grayi* sp. nov.
10. Ventral tarsus III with scopulae along entire length (Fig. 391) 11
 – Ventral tarsus III with scopulae on distal end only, or absent (Figs. 392, 393) 14
11. Embolus with relatively thin tip (Figs. 217–219) 12
 – Embolus with wider tip (Figs. 102–104, 286–288) 13
12. Distal segments of leg I relatively spinose (Fig. 352), prolateral clasping spur heavily pigmented (Figs. 352–354)
 *C. xenophila* sp. nov.
 – Distal segments of leg I less spinose (Fig. 214), prolateral clasping spur less heavily pigmented (Figs. 214–216)
 *C. hickmani* sp. nov.
13. RTA large and conical, projecting distally at an angle of about 40° to tibia midline (Fig. 286) *C. monteithi* sp. nov.
 – RTA smaller and triangular, projecting distally at an angle of about 30° to tibia midline (Fig. 102) *C. cassisi* sp. nov.
14. Distal segments of leg I relatively spinose, with cluster of macrosetae along distal proventral/prolateral tibia I and numerous macrosetae on prolateral tarsus I (Figs. 122, 237, 329) 15
 – Distal segments of leg I less spinose, with fewer macrosetae on distal proventral/prolateral tibia I and prolateral tarsus I (Figs. 168, 260) 17
15. Embolus with relatively thin tip (Figs. 125–127); RTA projecting from near middle of tibia in retrolateral view (Figs. 125–127) *C. celata* sp. nov.
 – Embolus with wider tip (Figs. 240–242, 332–334); RTA projecting from more distal position on tibia in retrolateral view (Figs. 240–242, 332–334) 16
16. Ventral tarsus III with scopulae on distal end (Fig. 392) *C. woondum* sp. nov.
 – Ventral tarsus III without scopulae (Fig. 393) *C. mainae* sp. nov.
17. Embolus with relatively wide tip (Figs. 171–173); fovea slightly procurved (Fig. 161); carapace and legs dark tan-brown, abdomen charcoal-brown with wide, square-ended chevrons (preserved) (Figs. 161, 162, 168–170) *C. fallax* sp. nov.
 – Embolus with narrower tip (Figs. 263–265); fovea more strongly procurved (Fig. 253); carapace and legs lighter tan-brown, abdomen grey-brown with thin, tapering chevrons (preserved) (Figs. 253, 254, 260–262) *C. montana* sp. nov.
18. Spermathecae extremely elongate (Fig. 390); burrow entrance ‘wafer-door’ type *C. zophera* sp. nov.
 – Spermathecae shorter and less elongate (e.g., Figs. 42, 91, 114, 137, 160); burrow entrance ‘wafer-door’ type or ‘palisade’ type (where known) 19
19. Tibia I with numerous macrosetae, including more than three macrosetae in retroventral row (Figs. 181, 182); burrow entrance ‘palisade’ type (Figs. 9, 10) *C. fallax* sp. nov.
 – Tibia I with fewer macrosetae (e.g., Figs. 40, 41, 89, 90, 112, 113); burrow entrance ‘wafer-door’ type (where known) (Figs. 5–8) 20
20. Scopulae absent from pedipalp and usually also legs I–II; scopulae only occasionally present on prolateral tarsi I–II (Figs. 40, 41, 89, 90, 158, 159) 21
 – Scopulae present on pedipalp and prolateral tarsi I–II (e.g., Figs. 112, 113, 135, 136, 204, 205) 23
21. Spermathecae relatively wide, crowns only slightly wider than stems (Fig. 42); carapace and legs dark brown in life (Figs. 33, 40, 41); prolateral tarsi I–II occasionally with sparse scopulae (Figs. 40, 41) *C. hughesae* Wilson, Rix & Raven, 2020
 – Spermathecae narrower, crowns distinctly wider than stems (Figs. 91, 160); carapace orange-brown, contrasting with darker, red-brown legs (Figs. 82, 89, 90, 151, 158, 159); scopulae absent from pedipalp and legs I–II (Figs. 89, 90, 158, 159) 22
22. Spermathecae with relatively short stems (Fig. 91) *C. cairncross* sp. nov.
 – Spermathecae with longer stems (Fig. 160) *C. cooloola* sp. nov.
23. Spermathecae short, with very short, indistinct stems (Figs. 114, 206) 24
 – Spermathecae longer, with distinct stems (e.g., Figs. 137, 229, 252) 25

24. Tibia I relatively spinose (Figs. 204, 205); dorsal abdomen without short, spine-like setae (Fig. 198) *C. grayi* sp. nov.
 – Tibia I with fewer macrosetae (Figs. 112, 113); dorsal abdomen with covering of short, spine-like setae (Fig. 106)
 *C. cassisi* sp. nov.
25. Tibia I with three macrosetae in retroventral row, one ventral macroseta positioned distally (absent in some), and one prolateral macroseta positioned distally and with relatively few macrosetae overall (Figs. 135, 136, 227, 228, 250, 251, 309, 310, 342, 343) 26
 – Tibia I with additional macrosetae to those mentioned above, especially on prolateral surface (Figs. 273, 274, 319, 320); leg I with more macrosetae overall (Figs. 273, 274, 319, 320) 27
26. Scopulae on metatarsus I and tarsus I relatively dense (Figs. 227, 228, 309, 310); spermathecae with relatively narrow stems (Figs. 229, 311) *C. hickmani* sp. nov., *C. tasmanica* (Hickman, 1928), *C. xenophila* sp. nov.^A
 – Scopulae on metatarsus I and tarsus I less dense (Figs. 135, 136, 250, 251, 342, 343); spermathecae with wider stems (Figs. 137, 252, 344) *C. celata* sp. nov., *C. mainae* sp. nov., *C. woondum* sp. nov.^A
27. Posterior sternal sigilla relatively large and positioned centrally (Fig. 271) *C. montana* sp. nov.
 – Posterior sternal sigilla smaller and positioned marginally (Fig. 317) *C. victoriensis* (Main, 1995)

^A We consider current data insufficient to confidently distinguish between females of: *C. celata* sp. nov., *C. mainae* sp. nov. and *C. woondum* sp. nov.; and *C. hickmani* sp. nov., *C. tasmanica* (Hickman, 1928) and *C. xenophila* sp. nov.; male specimens are required for accurate identification of these species.

Cryptoforis hughesae Wilson, Rix & Raven, 2020
 (Figs. 4, 18, 20–42)

Cryptoforis hughesae Wilson, Rix & Raven, 2020 in Wilson et al., 2020: 559, figs. 7–9.

Euoplos ‘morpho-species 15’ Wilson et al., 2018: 159, 160, suppl. file 1.

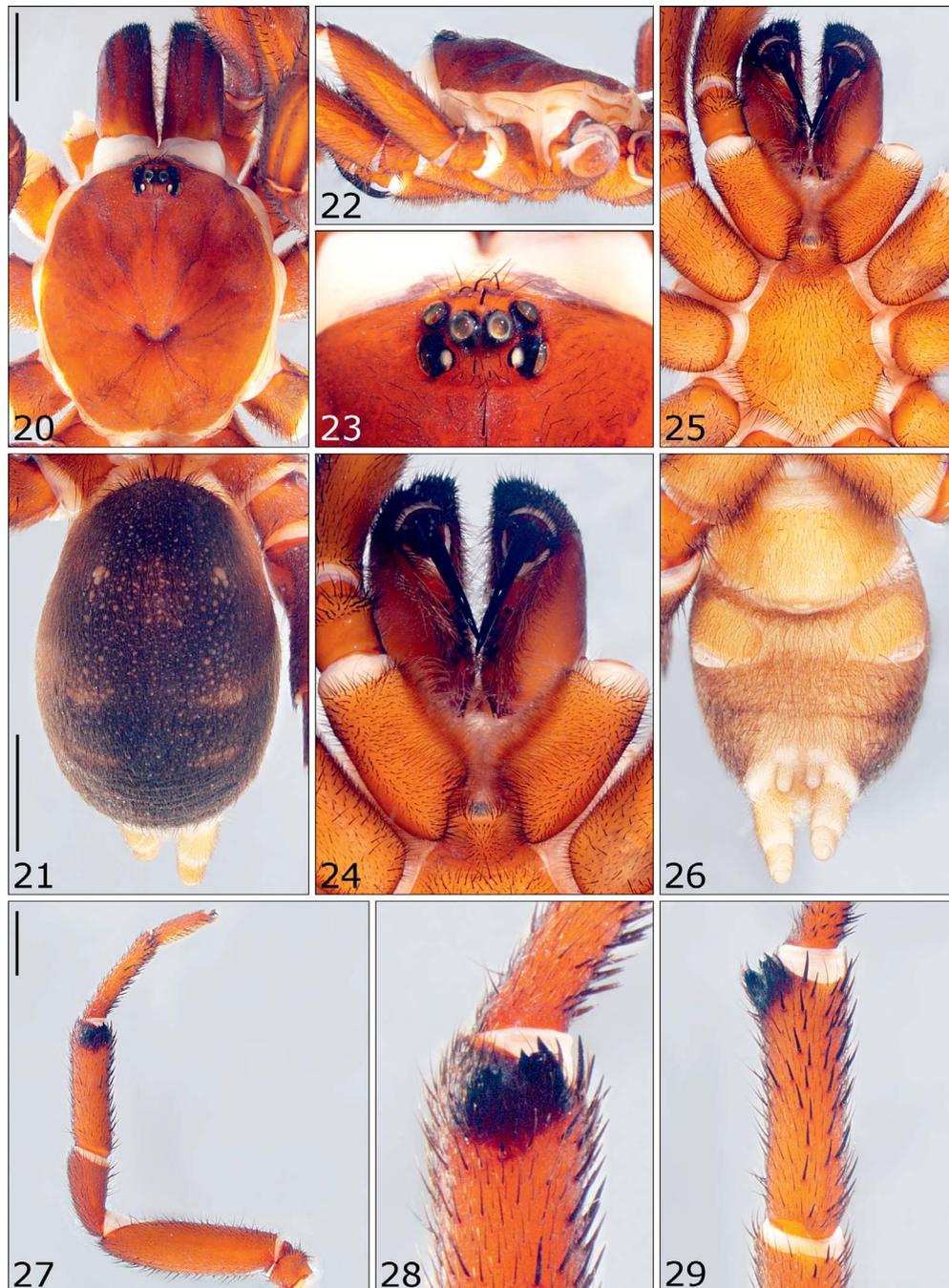
Euoplos ‘Brisbane’/‘morpho-species 18’ Wilson, Rix & Raven, 2020 in Wilson et al., 2020: 548, figs. 3–5.

Type material.—*Holotype male*. AUSTRALIA: *Queensland*: Nathan, Griffith University (Toohey Forest), 27°33’S, 153°03’E, 10 April 1992, P. Vander Klee (QMB S20343; examined).

Paratypes. AUSTRALIA: *Queensland*: 1 ♀, Belmont Hills bushland, via Coronet Close, 27°31’S, 153°07’E, 60 m, excavated from burrow, riparian vine thicket, 25 April 2016, J. Wilson (QMB S28401); 1 ♀, same data except 10 August 2016, J. Wilson, E. Amsters, M. Leister (QMB S32112).

Other material examined.—AUSTRALIA: *Queensland*: 1 juvenile, Acacia Ridge, 27°36’S, 153°01’E, open eucalypt forest, 1 March 1973, T. Dahms (QMB S8861); 1 ♂, same data except found under log, 20 May 1973, E. Dahms (QMB S9109); 1 ♂, Alexandra Hills, 27°31’S, 153°13’E, 20 May 1991, (QMB S29011); 1 ♂, same data except found in pool, 27 April 1987, S. Cuthel (QMB S9344); 1 ♂, Arundel, 27°57’S, 153°22’E, found walking up brick wall, 26 September 1997, Currumbin Sanctuary (QMB S35484); 1 ♂, Bardon, Fletcher Parade, 27°27’S, 152°59’E, found after overnight rain, 20 May 2017, S. Andrews (QMB S108425); 1 ♂, Beenleigh, 27°43’S, 153°12’E, 10 May 1982, M. Rasmussen (QMB S29012); 1 ♂, Beerburum, 26°58’S, 152°57’E, found in caravan annex, 10 April 1981, D. Evans (QMB S9854); 1 ♂, Bellbird Park, Eugene Street, 27°39’S, 152°52’E, 31 March 2014, K. McKosh (QMB S61760); 1 ♂, Brookfield, Brookfield State School, 27°30’S, 152°55’E, 1992, A. Jones (QMB S21225); 1 ♀, Brookfield, Deerhurst Road, 27°30’S, 152°55’E, in creek bank of gap creek, 14 October 1980, N.D. Stallman (QMB S8785); 1 ♀, Browns Plains, 27°40’S, 153°03’E, October 1981, (QMB S8783); 1 ♀, Buhot Creek, 27°35’S, 153°10’E, 58m, excavated from burrow, light slope, rocky, moderate leaf-litter cover, dry eucalypt forest, 20 May 2016, J.D. Wilson & C. Burwell (QMB

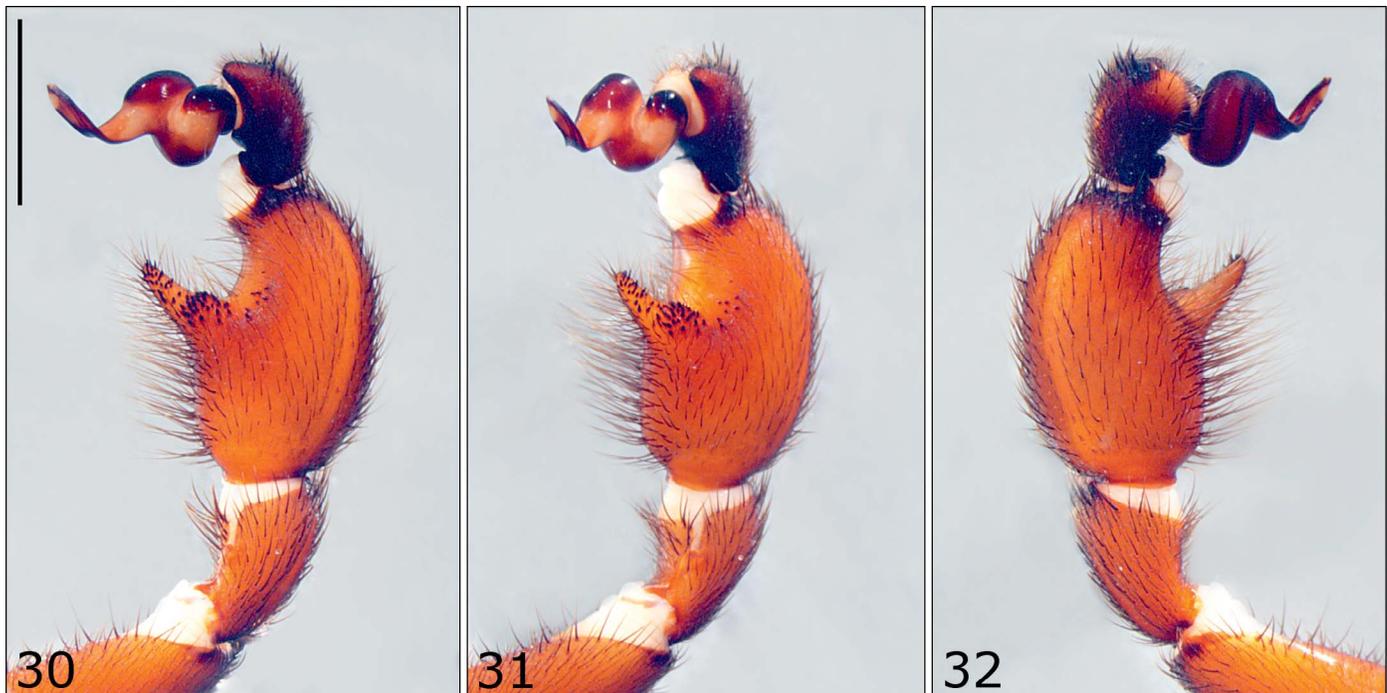
S28392); 1 ♀, Burleigh Heads, 28°06’S, 153°26’E, 23 January 1983, D. Prain (QMB S29199); 1 ♂, Caboolture, 27°06’S, 152°57’E, found in house, near river, 3 May 1980, Q.A.T.B. Caboolture (QMB S9852); 1 ♂, Caboolture, Bellmere, 27°04’S, 152°58’E, found inside house, 5 April 1990, Q.A.T.B. Caboolture (QMB S12540); 1 ♂, Caloundra, Little Mountain, Ascot Way, 26°48’S, 153°05’E, 17 April 1993, M. Glover (QMB S25535); 1 ♀, Caloundra, near Little Mountain, 26°47’S, 153°06’E, 42m, excavated from burrow, riparian embankment, 16 November 2016, J.D. Wilson (QMB S28500); 1 ♂, Cameron’s Scrub Knoll, 27°30’S, 152°45’E, 90m, pitfall trap, vine scrub, 13 January–16 May 1999, G.B. Monteith (QMB S60959); 3 ♂, same data except Cameron’s Scrub, below road, 27°31’S, 152°34’E, 40m (QMB S60958); 2 ♂, same data except located in gully, 27°31’S, 152°44’E, 50m (QMB S49939); 1 ♀, Camira, 27°38’S, 152°56’E, 66m, excavated from burrow, dry sclerophyll, 29 May 2014, M.G. Rix, S.E. Harrison, R.J. Raven & A.G. Rix (WAM T133294); 1 ♂, Canungra, 28°01’S, 153°10’E, June 1983, P. Shannon (QMB S9894); 1 ♂, Capalaba, Deagon Road Childcare Centre, 27°32’S, 153°11’E, 6 May 1994, N. Evdokimov (QMB S21888); 1 ♂, Cashmere, 27°19’S, 152°56’E, 16 April 1995, T. Croft (QMB S26201); 1 ♂, Chambers Flat, 27°45’S, 153°06’E, 4 April 1997, A. Shaw (QMB S24314); 1 ♂, same data except 27 March 1995, I. Reid (QMB S26186); 1 ♂, Chapel Hill, 27°30’S, 152°57’E, 23 April 1989, M. Roberts (QMB S15457); 1 ♂, Closeburn, 27°20’S, 152°52’E, 19 April 2003, (QMB S60843); 1 ♀, Colinton, via Toogoolawah, 26°58’S, 152°18’E, 01 January 1977, Q.A.T.B. (QMB S8789); 1 ♂, Daisy Hill, 27°38’S, 153°09’E, found on concrete at front of house, 10 April 1988, Mr Green (QMB S6561); 1 ♂, same data except 8 May 1980, K. King (QMB S9848); 1 ♂, same data except 13 April 1982, D. Brierley (QMB S9851); 1 ♂, same data except 153°10’E, 3 March 1982, Q.A.T.B. Beenleigh (QMB S8084); 1 ♂, same data except 15 May 1980, Mrs Galea (QMB S9849); 1 ♂, same data except found at Koala Centre, June 2003, P. Black (Q.P.W.S. Daisy Hill) (QMB S48412); 1 ♂, Dayboro, 27°12’S, 152°49’E, 2 July 1981, Q.A.T.B. Dayboro (QMB S9846); 1 ♂, Doolandella, 27°37’S, 152°59’E, 1960, A. Johnson (QMB S64143); 1 ♂, Eagleby, via Beenleigh, 27°42’S, 153°13’E, found in bed at night, after rain, 25 April 1998, L. Veivers (QMB S42071); 1 ♀, Enoggera



Figures 20–29.—*Cryptoforis hughesae* Wilson, Rix & Raven, 2020, male holotype (QMB S20343) from Toohy Forest, Queensland, somatic morphology: 20, 21, carapace and abdomen, dorsal view; 22, cephalothorax, lateral view; 23, eyes, dorsal view; 24, mouthparts, ventral view; 25, 26, cephalothorax and abdomen, ventral view; 27, leg I, prolateral view; 28–29, leg I tibia, prolateral and proventral views. Scale bars = 3.0.

Reservoir, 27°27'S, 152°55'E, rainforest, 16 November 1999, G.B. Monteith (QMB S56739); 1 ♂, same data except 120m, intercept trap, 15 March–18 May 2000 (QMB S56439); 1 ♂, same data (QMB S56440); 1 ♂, same data except 125m, open forest (QMB S63056); 1 ♂, same data except 100m, rainforest, pitfall trap (QMB S63047); 1 ♂, same data except 120m, open forest (QMB S63068); 1 ♂, Everton Hills, 27°23'S, 152°58'E, 22 April 1985, P. Olsen (QMB S8831); 1 juvenile, Ewen Maddock Dam, 26°47'S, 152°60'E, pitfall trap, 23 February

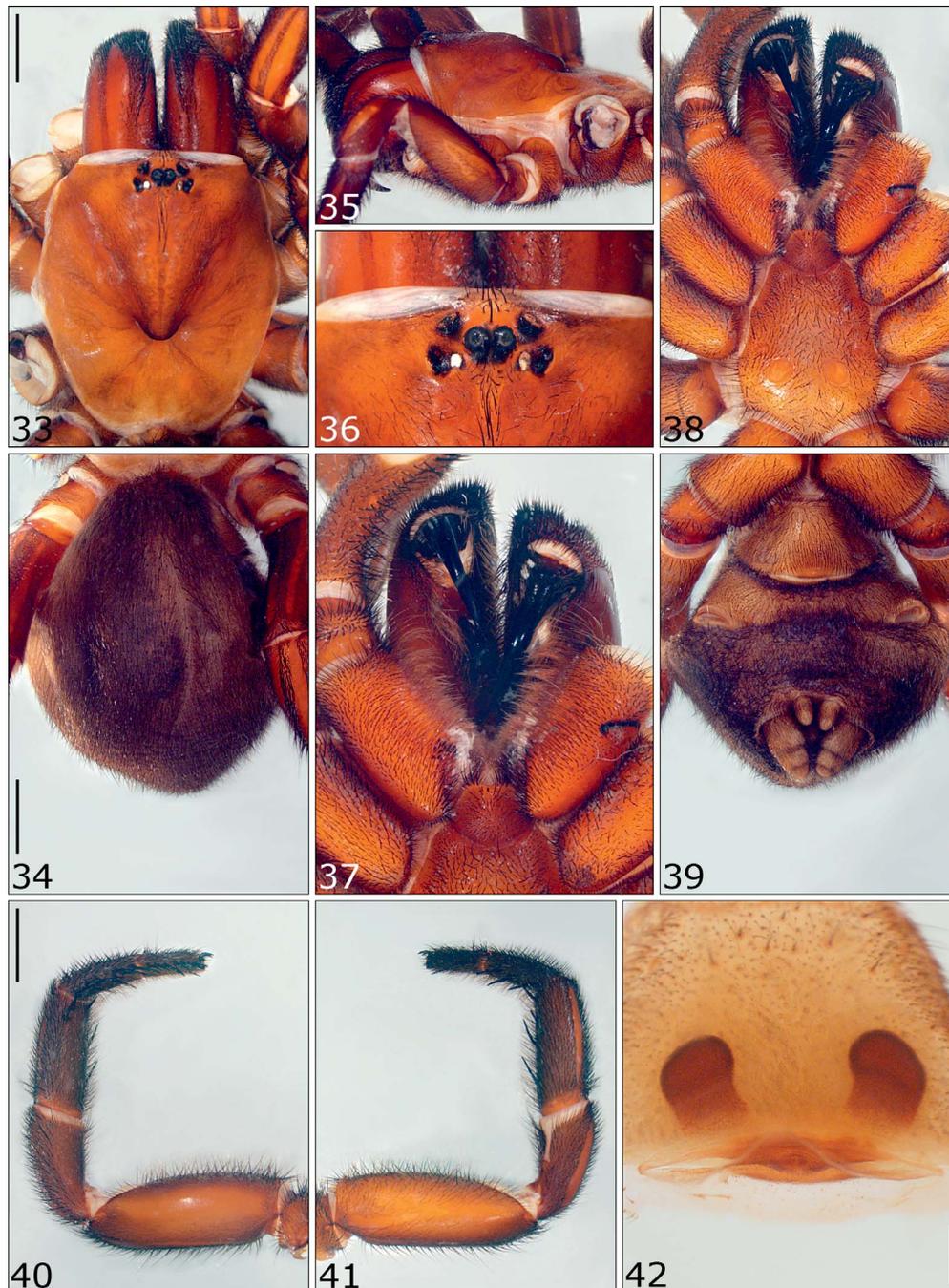
1993, C.M. Glover (QMB S32254); 1 ♂, Ferny Grove, 27°24'S, 152°57'E, 17 July 1986, Mrs Harper (QMB S9014); 1 ♂, Ferny Hills, Barber Road, 27°23'S, 152°56'E, 27 May 1991, P. Graham (QMB S18829); 1 ♂, Fig Tree Pocket, Roedean Street, 27°32'S, 152°57'E, 6 June 1994, V.E. Davies (QMB S23000); 1 ♂, Flinton Hill, via Ipswich, 27°32'S, 152°46'E, 120m, pitfall trap, rainforest, 27 February–20 May 1976, G.B. Monteith & S.R. Monteith (QMB S9845); 5 ♂, Glen Witheren, 28°03'S, 153°10'E, intercept trap, rainforest,



Figures 30–32.—*Cryptoforis hughesae* Wilson, Rix & Raven, 2020, male holotype (QMB S20343) from Toohey Forest, Queensland, pedipalp: 30, retrolateral view; 31, retroventral view; 32, prolateral view. Scale bar = 3.0.

30 December 1991–24 May 1992, G.B. Monteith (QMB S31785); 1 ♂, Helensvale, 27°55'S, 153°20'E, July 1987, (QMB S29044); 1 ♂, Indooroopilly, Jilba Street, 27°31'S, 152°58'E, 20 May 2008, S. Allinson (QMB S87669); 1 ♂, same data except 20 March 2009 (QMB S95202); 1 ♀, Ipswich, 27°37'S, 152°45'E, 2 February 1985, Q.A.T.B. (QMB S8749); 1 ♂, Kallangur, 24 Orchid Avenue, 27°14'S, 153°00'E, found in cat water bowl, 8 April 2006, (QMB S73919); 1 subadult ♂, Karawatha, near Discovery Centre, 27°38'S, 153°05'E, 75m, excavated from burrow, light slope with leaf-litter, dry sclerophyll forest, 3 June 2016, J.D. Wilson & M.G. Rix (QMB S28352); 1 ♀, Kingston, 27°39'S, 153°07'E, April 1971, E.G. Herbert (QMB S8794); 1 ♂, same data except April 1976, B. Jacob (QMB S8815); 1 juvenile, Kobble Creek, 27°17'S, 152°48'E, 107m, excavated from burrow, light slope with leaf-litter further up from riparian zone, wet sclerophyll, 1 July 2016, J.D. Wilson (QMB S28506); 1 ♀, same data (QMB S32157); 1 ♂, Kooralbyn, 28°05'S, 152°51'E, found in house, April 2003, D. Rietana (QMB S60905); 1 ♀, Laidley, Towson area, 27°39'S, 152°24'E, black soil, 1 August 1977, Hr. H. Blisner (QMB S9905); 1 ♂, Logan Reserve, 27°42'S, 153°07'E, found in swimming pool, 26 February 1996, L. Bowman (QMB S29676); 1 juvenile, Logan Village, 27°47'S, 153°07'E, G. Irons (QMB S6907); 1 ♂, Loganholme, 27°41'S, 153°11'E, 2 November 1987, P. Marshall (QMB S8843); 1 ♂, Loganlea, 27°41'S, 153°08'E, 10 April 1985, (QMB S29171); 1 ♂, same data except found in bucket, 5 May 1987, S. Stannard (QMB S9351); 1 ♂, Lower Beechmont, 28°03'S, 153°15'E, 26 March 1997, J. Hanger (QMB S37065); 1 ♂, Mount Barney, Yellowinch Camp, 28°17'S, 152°40'E, 14 July 1984, A. King (QMB S9889); 1 juvenile, Mount Coot-tha, 27°29'S, 152°57'E, pitfall trap, 22 December 1979, R.J. Raven (QMB S8748); 1 ♀, Mount Cotton, 27°37'S, 153°13'E, 17 April 1980, Mrs

Irvine (QMB S29074); 1 ♂, Mount Mee, 27°05'S, 152°46'E, 11 May 1996, K. Bell (QMB S29743); 1 ♂, Mount Nebo, 27°24'S, 152°47'E, found after overnight rain, 19 May 2017, R. Thomas (QMB S108421); 1 ♂, Mount Nebo, Forestry Road, 27°24'S, 152°46'E, 29 May 2008, J. Boyd (QMB S86330); 1 ♀, Mount Tamborine, 27°56'S, 153°11'E, 28 February 1985, M. Allen (QMB S8828); 1 ♂, same data except caught after night of rain, 22 April 2007, B. Atkins (QMB S78080); 1 ♂, same data except 27°55'S, 153°10'E, 21 April 1980, no collector recorded (QMB S9862); 1 ♂, Mount Tamborine, Dalby Property, 27°56'S, 153°11'E, wet sclerophyll, Summer 1980–1981, P. Ogilvie (QMB S1389); 2 ♂, Mount Tamborine, Eagle Heights, 27°55'S, 153°12'E, 26 September 1994, M. Allan (QMB S23064); 1 ♂, Nerang, 27°60'S, 153°20'E, 2 April 1992, E. Crosby (QMB S20496); 1 ♂, same data except found at farmhouse, 15 April 1980, J. Johns (QMB S8779); 1 ♂, Ormeau, Jacobs Ridge, 9 Eumundi Street, 27°47'S, 153°16'E, June 2016, J. Cox (QMB S56714); 1 ♂, Perry's Knob, 27°37'S, 152°36'E, 200m, pitfall trap, vine scrub, 13 January–16 May 1999, G.B. Monteith (QMB S60957); 1 ♂, Pimpama, 27°49'S, 153°18'E, found dead in shed, 1 April 1988, G. Sayer (QMB S6695); 1 ♀, Plunkett State Forest, 27°49'S, 153°10'E, 86m, excavated from burrow, riparian embankment, dry sclerophyll, 19 January 2016, J.D. Wilson & M.G. Rix (QMB S12394); 1 ♀, Redbank Rifle Range, 27°36'S, 152°52'E, 13 May 2000, E. Vanderdums (QMB S110497); 1 ♂, same data except found along dry, sandy gully, open eucalypt forest (QMB S13605); 1 ♂, Rochedale, 27°39'S, 153°09'E, 11 April 1984, Daisy Hill Veterinary Surgery (QMB S8816); 1 juvenile, Rochedale, Daisy Hill, 27°37'S, 153°09'E, 5 March 1985, R.J. Raven (QMB S9888); 1 juvenile, Saint John's Wood, 27°27'S, 152°58'E, Courier Mail (QMB S8862); 1 ♂, Saint John's Wood, 27°27'S, 152°60'E, 15 April 1953, G. Freeman (QMB



Figures 33–42.—*Cryptoforis hughesae* Wilson, Rix & Raven, 2020, female paratype (QMB S28401) from Belmont Hills bushland, Queensland: 33, 34, carapace and abdomen, dorsal view; 35, cephalothorax, lateral view; 36, eyes, dorsal view; 37, mouthparts, ventral view; 38, 39, cephalothorax and abdomen, ventral view; 40, leg I, prolateral view; 41, leg I, retrolateral view; 42, spermathecae, dorsal view. Scale bars = 3.0 (33, 34, 40), 0.5 (42).

S9145); 1 ♂, Samford, 27°22'S, 152°52'E, 30 May 1979, S. Van Dyk (QMB S8814); 1 ♂, same data except 7 April 1970, Chater (QMB S9907); 1 ♂, Samford Valley, 5 Curlew Road, 27°22'S, 152°53'E, 20 May 2009, (QMB S92215); 1 juvenile, Samsonvale, Ladies Road, 26°58'S, 152°49'E, 14 November 2000, T. Caruthers (QMB S39693); 1 ♂, Shailer Park, 27°40'S, 153°10'E, 24 April 2001, D. Koning (QMB S55049); 1 ♂, Shailer Park, 27°39'S, 153°11'E, 22 April 1980, W.F. Pratt

(QMB S8090); 1 ♂, same data except 12 April 1988, F. McPherson (QMB S6312); 1 ♂, Stradbroke Island, Point Lookout, 27°26'S, 153°32'E, 22 April 1989, R. Sparks (QMB S11928); 1 ♂, Sunshine Beach State School, 26°24'S, 153°06'E, found on school grounds, 24 June 1997, S.E. Boundy (QMB S35333); 1 ♂, Tanah Merah, 27°40'S, 153°10'E, 22 May 1992, S. Cunningham (QMB S20380); 1 ♂, same data except April 1987, V. Cutler (QMB S9350); 1 ♂, same data except found

under pot plant, 5 April 1993, R. O'Conner (QMB S22014); 1 ♂, The Gap, 27°27'S, 152°57'E, 12 May 1978, R. Wagner (QMB S8807); 1 ♂, same data except 28 May 1980, (QMB S9856); 3 juveniles, Victoria Point, 27°35'S, 153°17'E, 27 November 1974, J. Lowe (QMB S8856); 1 ♂, Waterford, 27°43'S, 153°09'E, found in house after rain, 17 May 1977, F. Rayner (QMB S8837); 1 ♂, Wilston Park, 27°26'S, 153°01'E, 15 March 1985, (QMB S8805); 2 ♂, Woogaroo Creek, 27°36'S, 152°54'E, 9 May 2012, K. McKosh (QMB S97173).

Diagnosis.—Males of *C. hughesae* can be distinguished from those of all known congeners, except *C. arenaria*, *C. cairncross* and *C. cooloola*, by the presence of a prominent, semi-spherical swelling at the base of the RTA (Fig. 30). Males of *C. hughesae* can be distinguished from *C. arenaria*, *C. cairncross* and *C. cooloola* by the absence of scopulae on the ventral tarsus IV (Fig. 395).

Females of *C. hughesae* can be distinguished from those of all known congeners, except *C. arenaria* and *C. cairncross*, by the absence of scopulae on the pedipalp, and by the absence, or presence on the prolateral tarsi only, of scopulae on legs I–II (Figs. 40, 41). Females of *C. hughesae* can be distinguished from *C. cairncross* and *C. cooloola* by their darker brown carapace (in life), in contrast to the lighter orange carapace of *C. cairncross* and *C. cooloola* (Fig. 33; cf. Figs. 82, 151). Females of *C. hughesae* can also be distinguished from all known congeners by the spermathecae, which have proportionally wider crowns and stems than any other species (Fig. 42).

Description (male holotype).—Total length 23.84. *Carapace*: 9.62 long, 8.09 wide (length/width = 1.19); carapace and chelicerae uniform dark orange-brown; carapace glabrous; fovea very strongly procurved (length/width = 0.39) (Fig. 20). *Ocular region*: on raised mound (Fig. 22); eye group rectangular (width/length = 1.82); length 0.99, anterior width 1.54, posterior width 1.80. Eye diameters: PLE (0.51) > AME (0.45) > ALE (0.38) > PME (0.29) (Fig. 23). *Mouthparts*: maxillae with 25–30 spinules on antero-ental edge; labium 1.74x wider than long, with four cuspules on anterior edge (Fig. 24). *Sternum*: length/width = 1.08; posterior sigilla large, ovoid, roughly equidistant from each other and sternum edge (Fig. 25). *Abdomen*: 9.13 long, 6.32 wide, ovoid; dorsal surface chocolate-brown with beige sigilla-spots and faint, tapering, lateral chevrons; sparse coat of hair-like setae interspersed with bristle-like setae (Figs. 21, 26). *Legs*: concolorous with carapace; scopulae along entire length of ventral tarsi I–II (scopulae present on distal end of ventral tarsus III only, in few specimens) and on distoventral metatarsi I–II; leg I length = 26.38 (8.20, 4.38, 5.94, 5.12, 2.74); leg I length/carapace length = 2.74; tibia I length/width = 3.38 (Fig. 27). *Tibia I*: with bifurcate, prolateral clasping spur, oriented dorso-ventrally; macrosetae on ventral prominence short and rounded; cuticle on and around clasping spur thicker and black (Figs. 28, 29). *Pedipalp*: tibia 1.67x longer than wide in retrolateral view; RTA large, coniform, projecting from position about 50% of the way along tibia, at an angle of about 45° to tibia midline, with a prominent, semi-spherical swelling at base; field of 70–80 spinules on/around RTA, with many clustered on swelling; cymbium with very short, spine-like setae on disto-dorsal third/half (Figs. 30–32). *Copulatory organ*: total length about 65% of pedipalp tibia length;

embolus about 1.5x length of bulb, curved and twisted about 90°, tip about equal in width to base (Figs. 30–32).

Description (female paratype QMB S28401).—Total length 31.55. *Carapace*: 12.02 long, 10.44 wide (length/width = 1.15); carapace and chelicerae dark orange-brown (darker brown in life); carapace glabrous; fovea very strongly procurved (length/width = 0.45) (Fig. 33). *Ocular region*: on raised mound (Fig. 35); eye group rectangular (width/length = 2.11); length 1.33, anterior width 2.34, posterior width 2.80. Eye diameters: PLE (0.61) > ALE (0.55) > AME (0.40) > PME (0.33) (Fig. 36). *Mouthparts*: maxillae with about 25 cuspules on antero-ental edge; labium 1.46x wider than long, with two cuspules on anterior edge (one evidenced from socket) (Fig. 37). *Sternum*: length/width = 1.12, posterior sigilla very large, ovoid, slightly closer to each other than to sternum edge (Fig. 38). *Abdomen*: 13.37 long, 10.58 wide, ovoid; dorsal surface brown (darker brown in life) without abdominal pattern; sparse coat of hair-like setae interspersed with bristle-like setae (Figs. 34, 39). *Internal genitalia*: spermathecae length 0.76 (length/carapace length = 0.063); crown width 0.66 (width/carapace length = 0.055); stem slightly shorter than crown (0.86x), crown slightly wider than stem (1.26x); crown rounded, slightly darker than stem (Fig. 42). *Legs*: concolorous with carapace; scopulae absent from pedipalp and legs, or present only on prolateral tarsi I–II, at light density, not obscuring macrosetae; leg I length = 24.59 (8.02, 5.35, 5.02, 3.58, 2.62); leg I length/carapace length = 2.05; tibia I length/width = 2.30. Leg I spination: femur 0; patella 0; tibia 7(2PL, 1V, 3RV, 1RL); metatarsus 22(16PL, 6RL); tarsus 11(6PL, 5RL); total = 40 (Figs. 40, 41).

Distribution and remarks.—*Cryptoforis hughesae* is a common species found throughout the open eucalypt forests of the Brisbane valley, south-eastern Queensland, with narrow extensions both north and south in sub-coastal lowland eucalypt forests (Fig. 18). The inland distribution of this species is bordered on almost all sides by higher elevation regions such as the Border Ranges, Main Range and D'Aguilar Range. Males of *C. hughesae* mature and wander in search of females mostly in autumn, often after rain events, with a peak in late April, when they sometimes wander into homes or fall into the pools of Brisbane residents who live near forest reserves. This species builds a wafer-door burrow entrance typical of the genus, using humus fragments as the primary substrate in the door (similar to Figs. 5–8). Burrows appear to be most common on lightly sloping ground with a loose leaf-litter layer (Fig. 11), although they can sometimes be found on steeply sloping, exposed embankments. *Cryptoforis hughesae* is part of the *mainae*-group, a phylogenetic clade of *Cryptoforis* from south-eastern Queensland and northern New South Wales. *Cryptoforis mainae*, *C. montana* and *C. woondum* are also part of this species-group (Figs. 14, 15).

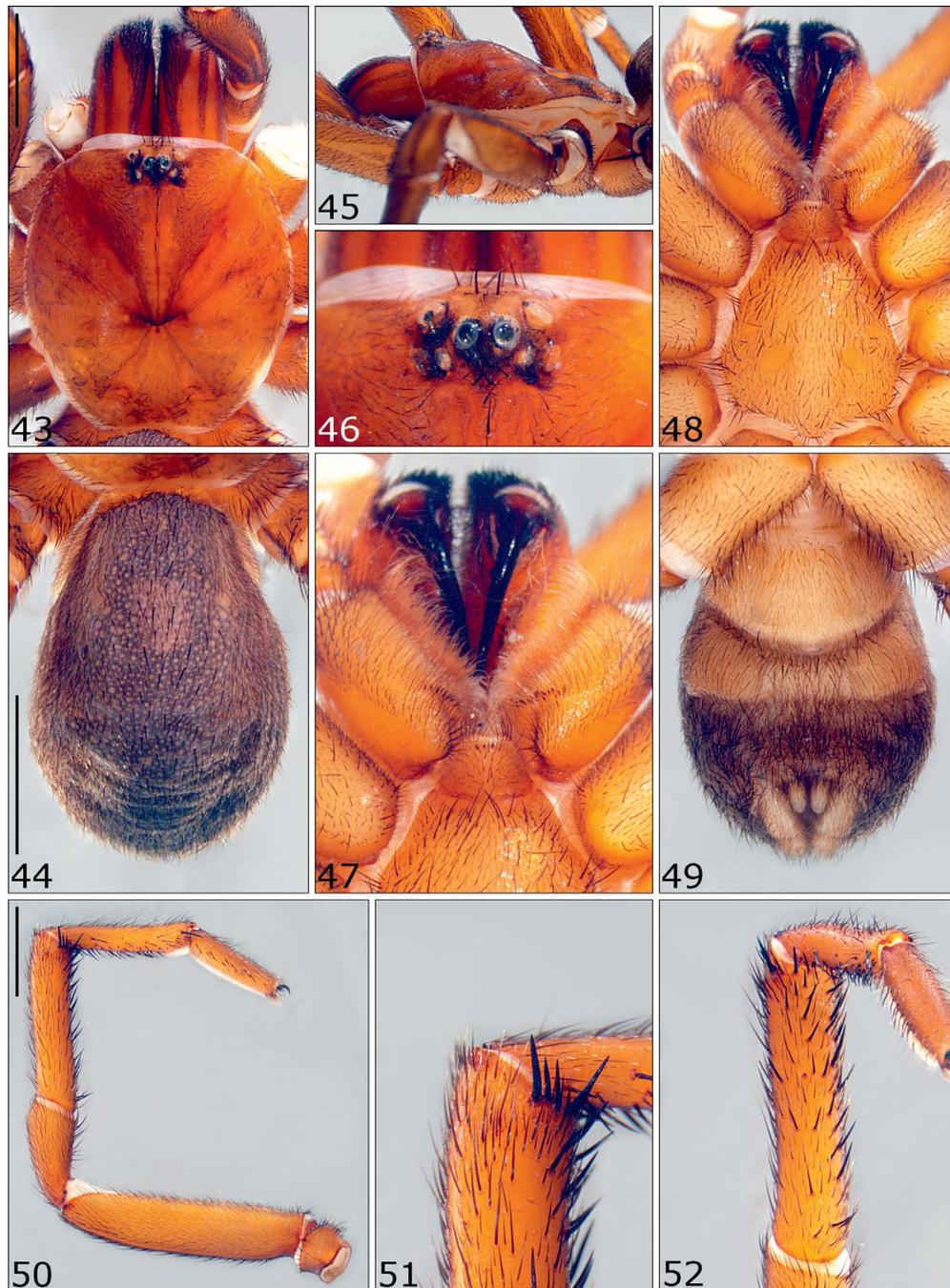
Cryptoforis absona Wilson, Raven & Rix, sp. nov.

<http://zoobank.org/NomenclaturalActs/259A00D7-B668-410D-BEFB-27A98EA7E46B>

(Figs. 18, 43–55)

Euoplos 'morpho-species 8' Wilson et al., 2018: 159, 160, suppl. file 1.

Euoplos 'MountSpirabo'/'morpho-species 15' Wilson et al., 2020: 548, figs. 4, 5.



Figures 43–52.—*Cryptoforis absona* sp. nov., male holotype (AMS KS038676) from Spirabo State Forest, New South Wales, somatic morphology: 43, 44, carapace and abdomen, dorsal view; 45, cephalothorax, lateral view; 46, eyes, dorsal view; 47, mouthparts, ventral view; 48, 49, cephalothorax and abdomen, ventral view; 50, leg I, prolateral view; 51, 52, leg I tibia, prolateral and proventral views. Scale bars = 3.0.

Type material.—*Holotype male.* AUSTRALIA: *New South Wales:* Spirabo State Forest, via Wattle Creek Road, 29°19'S, 152°11'E, 920 m, 4 February–9 April 1993, M. Gray, G. Cassis (AMS KS038676).

Paratype. AUSTRALIA: *New South Wales:* 1 ♂, same data as holotype (AMS KS038672).

Etymology.—The specific epithet is derived from the Latin *absonus* (adjective: 'discordant', 'different' or 'inharmonious';

see Brown 1956), in reference to the unique loss of the bifurcate clasping spur on the tibia I of males of this species. This character is present in all other known species of *Cryptoforis*.

Diagnosis.—Males of *C. absona* can be distinguished from those of all known congeners by the absence of a bifurcate clasping spur on tibia I (Figs. 51, 52; cf. Figs. 28, 29, 64, 65, 100, 101, 123, 124, 376, 377). Females of *C. absona* are unknown.



Figures 53–55.—*Cryptoforis absona* sp. nov., male holotype (AMS KS038676) from Spirabo State Forest, New South Wales, pedipalp: 53, retrolateral view; 54, retroventral view; 55, prolateral view. Scale bar = 3.0.

Description (male holotype).—Total length 17.92. *Carapace*: 7.72 long, 7.13 wide (length/width = 1.08); carapace and chelicerae uniform orange-brown; carapace with bristle-like setae on margin and in patches on pars thoracica; fovea moderately procurved (length/width = 0.26) (Fig. 43). *Ocular region*: on raised mound (Fig. 45); eye group rectangular (width/length = 1.89); length 0.93, anterior width 1.57, posterior width 1.76. Eye diameters: ALE (0.46) = PLE (0.46) > AME (0.43) > PME (0.30) (Fig. 46). *Mouthparts*: maxillae with about 25 cuspules on antero-ental edge; labium 1.58x wider than long, with 3 cuspules on anterior edge (Fig. 47). *Sternum*: length/width = 1.06; posterior sigilla large, ovoid, slightly closer to sternum edge than to each other (Fig. 48). *Abdomen*: 7.04 long, 5.02 wide, ovoid; dorsal surface grey-brown with faint, beige sigilla-spots; sparse coat of hair-like setae interspersed with bristle-like setae (Figs. 44, 49). *Legs*: concolorous with carapace; scopulae along entire length of ventral tarsi I–II, on distal end of ventral tarsi III only, and on distoventral metatarsi I–II; leg I length = 25.99 (8.06, 3.87, 5.57, 5.23, 3.26); leg I length/carapace length = 3.37; tibia I length/width = 4.02 (Fig. 50). *Tibia I*: with prolateral ‘comb’ of macrosetae on a single distal prominence (Figs. 51, 52). *Pedipalp*: tibia 2.01x longer than wide in retrolateral view; RTA short, coniform, projecting from a position about 50% of the way along tibia, at an angle of about 35° to tibia midline; field of 50–60 spinules on/around retrolateral RTA; cymbium with short, spine-like setae on distal third/half (Figs. 53–55). *Copulatory organ*: total length about 65% of pedipalp tibia length; embolus about 1.5x length of bulb, curved and twisted about 90°, tip about 0.4x as wide as base (Figs. 53–55).

Distribution and remarks.—*Cryptoforis absona* is known from only one locality, above 900 m in Spirabo State Forest, New South Wales (Fig. 18). The habitat in this area is predominantly tall open eucalypt forest. Males of this species appear to wander in search of females in autumn. The burrow constructed by this species is unknown. *Cryptoforis absona* is part of the *celata*-group, a phylogenetic clade of *Cryptoforis* from northern New South Wales. *Cryptoforis celata* and *C. fallax* are also part of this species-group (Figs. 14, 15).

***Cryptoforis arenaria* Wilson, Raven & Rix, sp. nov.**

<http://zoobank.org/NomenclaturalActs/2E9B5F66-5AF5-4B0F-BA96-C8E08B7B55A3> (Figs. 18, 56–68)

Euoplos ‘morpho-species 12’ Wilson et al., 2018: 159, 160, suppl. file 1.

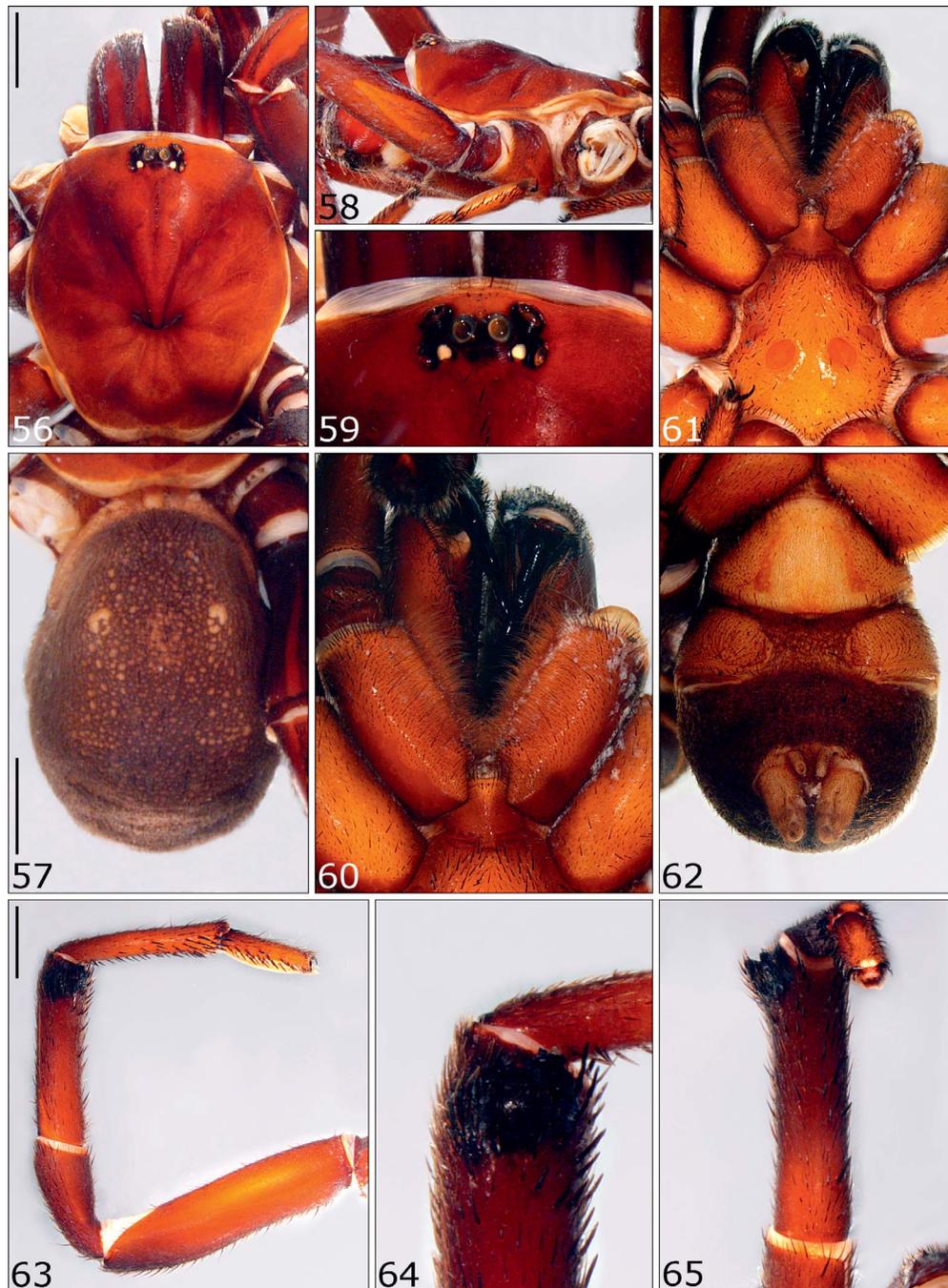
Euoplos ‘FraserIsland’/‘morpho-species 22’ Wilson et al., 2020: 548, figs. 4, 5.

Type material.—*Holotype male*. AUSTRALIA: *Queensland*: Fraser Island-K’gari, Central Station, 25°29’S, 153°04’E, pitfall trap, satinay and brushbox forest, after overnight rain, 28 March 1985, R. Hobson (QMB S30560).

Paratypes. AUSTRALIA: *Queensland*: 1 ♂, same data as holotype (QMB S110503).

Etymology.—The specific epithet is derived from the Latin *arenarius* (adjective: ‘of sand’; see Brown 1956), in reference to the type locality of this species on Fraser Island-K’gari, the largest sand island in the world.

Diagnosis.—Males of *C. arenaria* can be distinguished from those of all known congeners, except *C. hughesae*, *C. cairncross* and *C. cooloola*, by the presence of a prominent, semi-spherical swelling at the base of the RTA (Figs. 66–68). Males

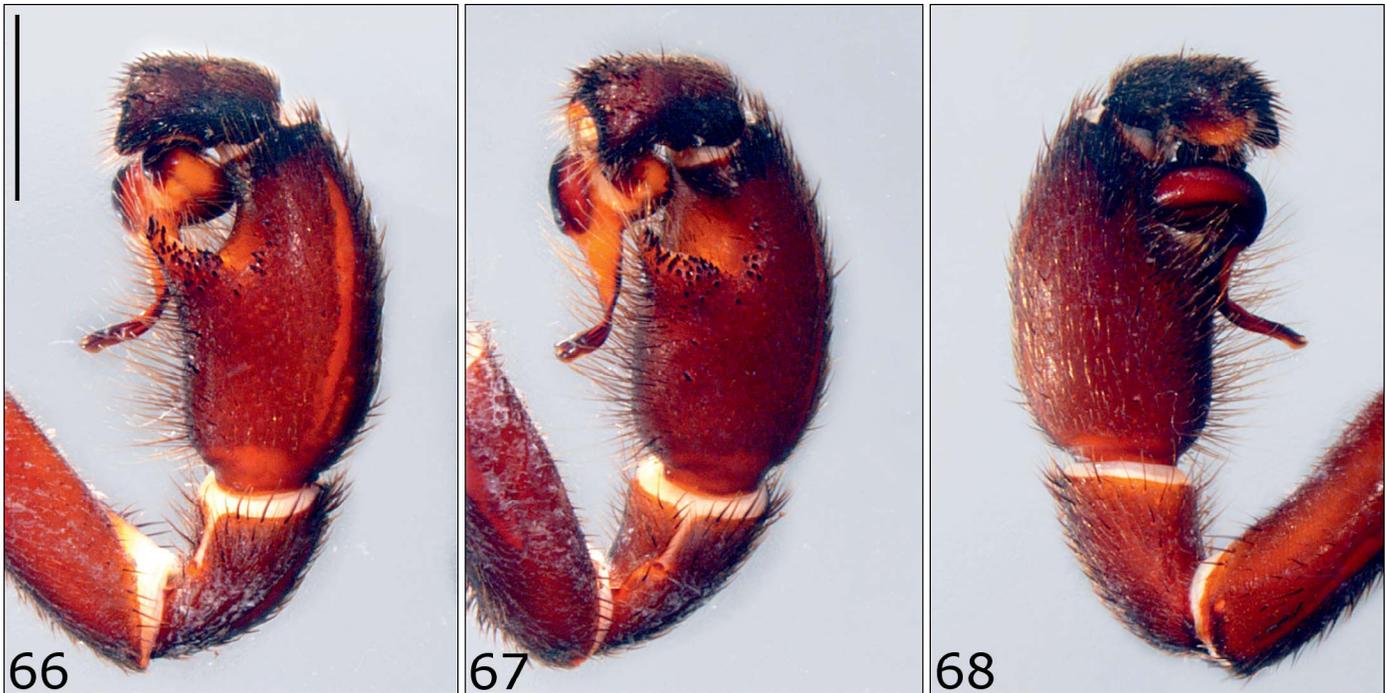


Figures 56–65.—*Cryptoforis arenaria* sp. nov., male holotype (QMB S30560) from Fraser Island-K'gari, Queensland, somatic morphology: 56, 57, carapace and abdomen, dorsal view; 58, cephalothorax, lateral view; 59, eyes, dorsal view; 60, mouthparts, ventral view; 61, 62, cephalothorax and abdomen, ventral view; 63, leg I, prolateral view; 64, 65, leg I tibia, prolateral and proventral views. Scale bars = 3.0.

of *C. arenaria* can be distinguished from *C. hughesae* by the presence of scopulae on tarsus IV (Fig. 394); from *C. cairncross* by the longer embolus relative to the bulb (Figs. 66–68; cf. Figs. 79–81); and from *C. cooloola* by their darker, red-brown color (preserved), in contrast to the lighter orange/tan color of *C. cooloola* (Figs. 56–68; cf. Figs. 138–150). Females of *C. arenaria* are unknown.

Description (male holotype).—Total length 27.57. *Carapace*: 12.24 long, 10.64 wide (length/width = 1.15); carapace

and chelicerae dark red-brown; carapace glabrous; fovea strongly procurved (length/width = 0.32) (Fig. 56). *Ocular region*: on raised mound (Fig. 58); eye group rectangular (width/length = 2.03); length 0.82, anterior width 1.54, posterior width 1.66. Eye diameters: ALE (0.64) > AME (0.53) > PLE (0.51) > PME (0.31) (Fig. 59). *Mouthparts*: maxillae with about 20 cuspules on antero-ental edge; labium 1.47x wider than long, with 3 cuspules on anterior edge (Fig. 60). *Sternum*: length/width = 1.10; posterior



Figures 66–68.—*Cryptoforis arenaria* sp. nov., male holotype (QMB S30560) from Fraser Island-K'gari, Queensland, pedipalp: 66, retrolateral view; 67, retroventral view; 68, prolateral view. Scale bar = 3.0.

sigilla very large, ovoid, closer to each other than to sternum edge (Fig. 61). *Abdomen*: 11.00 long, 8.00 wide, ovoid; dorsal surface chocolate-brown with beige sigilla-spots; sparse coat of hair-like setae (Figs. 57, 62). *Legs*: concolorous with carapace; scopulae along entire length of ventral tarsi I–IV, and on distoventral metatarsi I–II; leg I length = 35.88 (11.24, 5.73, 7.78, 7.42, 3.71); leg I length/carapace length = 2.93; tibia I length/width = 3.95 (Fig. 63). *Tibia I*: with bifurcate, prolateral clasp spur, oriented dorso-ventrally; macrosetae on ventral prominence short and rounded; cuticle on and around clasp spur thickened and black (Figs. 63, 64). *Pedipalp*: tibia 1.83x longer than wide in retrolateral view; RTA large, coniform, projecting from a position about 55% of the way along tibia, at an angle of about 45° to tibia midline, with a prominent, semi-spherical swelling at base; field of 50–60 spinules on/around retrolateral RTA, with many clustered on swelling; cymbium with very short, spine-like setae on distal third/half (Figs. 66–68). *Copulatory organ*: total length about 65% of pedipalp tibia length; embolus about 1.5x length of bulb, curved and twisted about 90°, tip about 0.6x width of base (Figs. 66–68).

Distribution and remarks.—*Cryptoforis arenaria* is known from only one locality in south-eastern Queensland, near Central Station on Fraser Island-K'gari (Fig. 18). The habitat in this area is predominantly rainforest and open eucalypt forest, on sand. Males appear to wander in search of females in autumn. The burrow constructed by this species is unknown. *Cryptoforis arenaria* is part of the *arenaria*-group, a phylogenetic clade of *Cryptoforis* from south-eastern Queensland. *Cryptoforis cairncross* and *C. cooloola* are also part of this species-group (Figs. 14, 15).

Cryptoforis cairncross Wilson, Raven & Rix, sp. nov.
<http://zoobank.org/NomenclaturalActs/D1662DE0-9878-4860-8988-AF3E6025ADF6>
 (Figs. 3, 18, 69–91)

Euoplos 'morpho-species 16' Wilson et al., 2018: 159, 160, suppl. file 1.

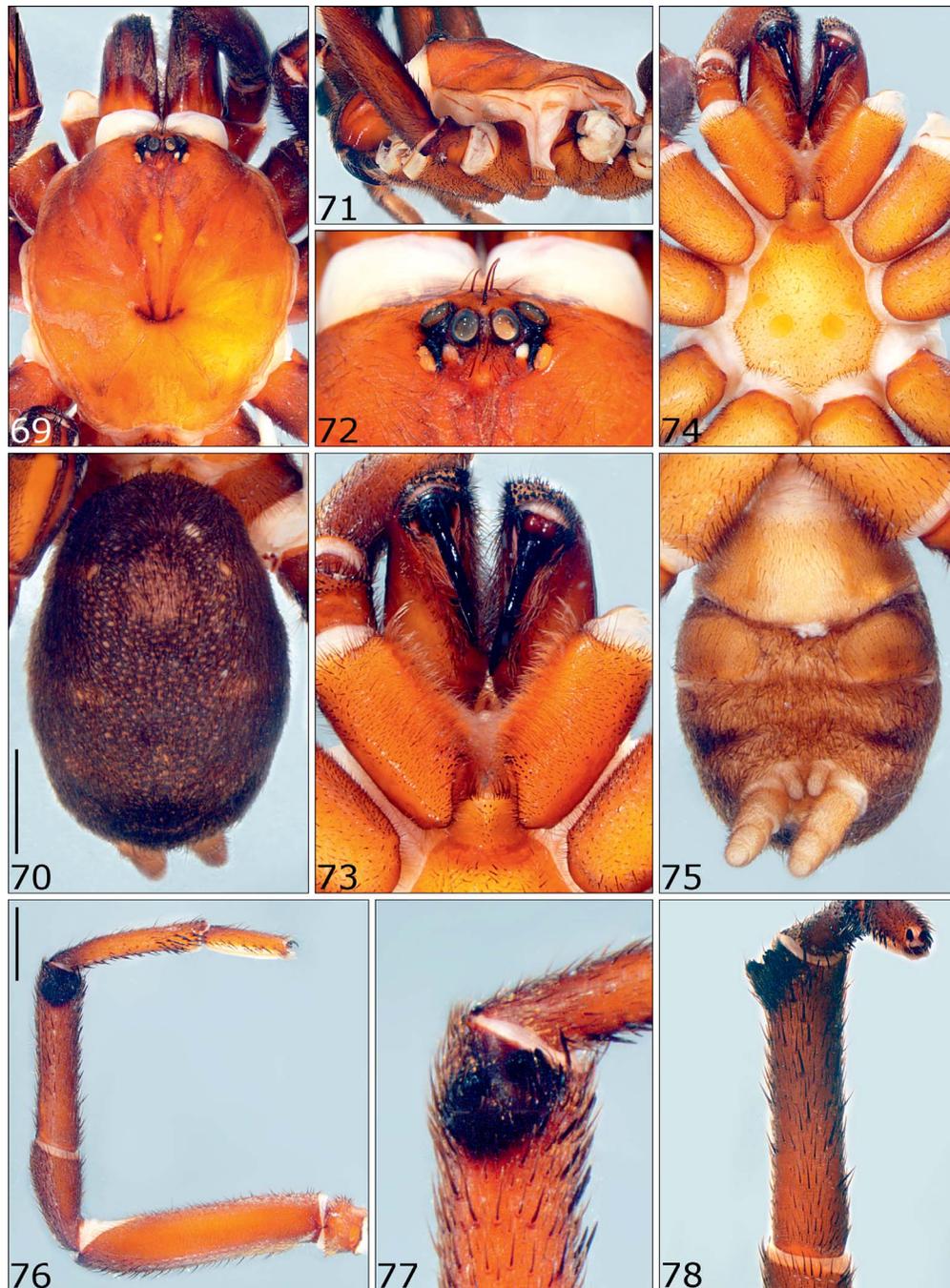
Euoplos 'Maleny'/'morpho-species 20' Wilson et al., 2020: 548, figs. 3–5.

Type material.—*Holotype male*. AUSTRALIA: *Queensland*: Mary Cairncross Scenic Reserve, 26°47'S, 152°53'E, 500 m, intercept trap, rainforest, 29 November 1991–8 January 1992, D. Cook (QMB S20609).

Paratypes. AUSTRALIA: *Queensland*: 1 ♀, Kondalilla National Park, near Lake Baroon, 26°42'S, 152°52'E, 230 m, excavated from burrow, rainforest, 17 January 2017, M. Rix, J. Wilson (QMB S32165); 1 ♀, same data except Glens Road, via Maleny, 26°46'S, 152°53'E, 430 m (QMB S108363).

Etymology.—The specific epithet is a noun in apposition in reference to the type locality of this species at Mary Cairncross Scenic Reserve. This is a small 55-hectare reserve of intact rainforest owned and maintained by the Sunshine Coast Council with the help of volunteers from the surrounding communities.

Diagnosis.—Males of *C. cairncross* can be distinguished from those of all known congeners, except *C. hughesae*, *C. arenaria*, and *C. cooloola*, by the presence of a prominent, semi-spherical swelling at the base of the RTA (Figs. 79–81). Males of *C. cairncross* can be distinguished from *C. hughesae* by the presence of scopulae on tarsus IV (Fig. 394); and from



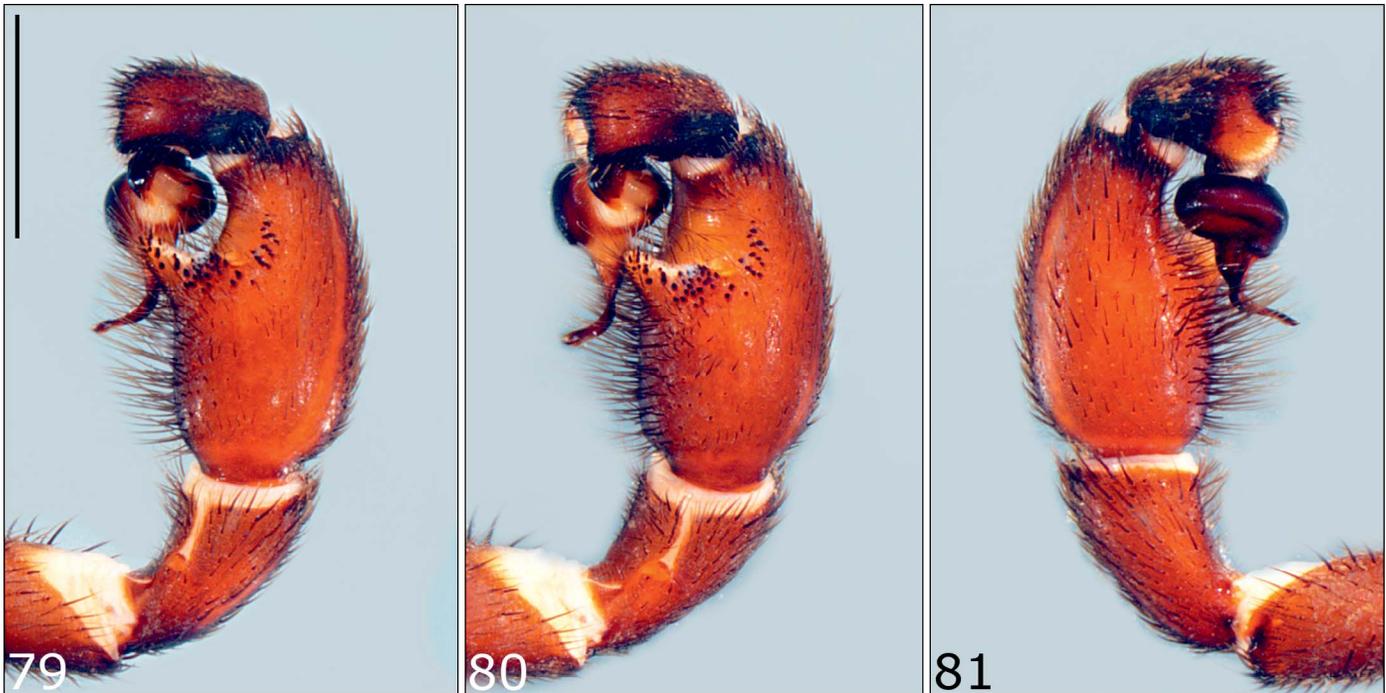
Figures 69–78.—*Cryptoforis cairncross* sp. nov., male holotype (QMB S20609) from Mary Cairncross Scenic Reserve, Queensland, somatic morphology: 69, 70, carapace and abdomen, dorsal view; 71, cephalothorax, lateral view; 72, eyes, dorsal view; 73, mouthparts, ventral view; 74, 75, cephalothorax and abdomen, ventral view; 76, leg I, prolateral view; 77, 78, leg I tibia, prolateral and proventral views. Scale bars = 3.0.

C. arenaria and *C. cooloola* by the shorter embolus relative to the bulb (Figs. 79–81; cf. Figs. 66–68, 148–150).

Females of *C. cairncross* can be distinguished from those of all known congeners, except *C. hughesae*, and *C. cooloola* by the absence of scopulae on the legs and pedipalp (Figs. 89, 90). Females of *C. cairncross* can be distinguished from *C. hughesae* and *C. cooloola* by the spermathecae, which have narrower stems compared to those of *C. hughesae*, and are shorter overall, with shorter stems, compared to those of *C.*

cooloola (Fig. 91; cf. Figs. 42, 160). Females can be further distinguished from *C. hughesae* by their lighter, orange-brown carapace color, in contrast to the dark brown color of *C. hughesae* (Fig. 82; cf. Fig. 33).

Description (male holotype).—Total length 26.04. *Carapace*: 10.63 long, 9.39 wide (length/width = 1.13); carapace and chelicerae orange-brown; carapace glabrous; fovea strongly procurved (length/width = 0.29) (Fig. 69). *Ocular region*: on raised mound (Fig. 71); eye group rectangular (width/length =



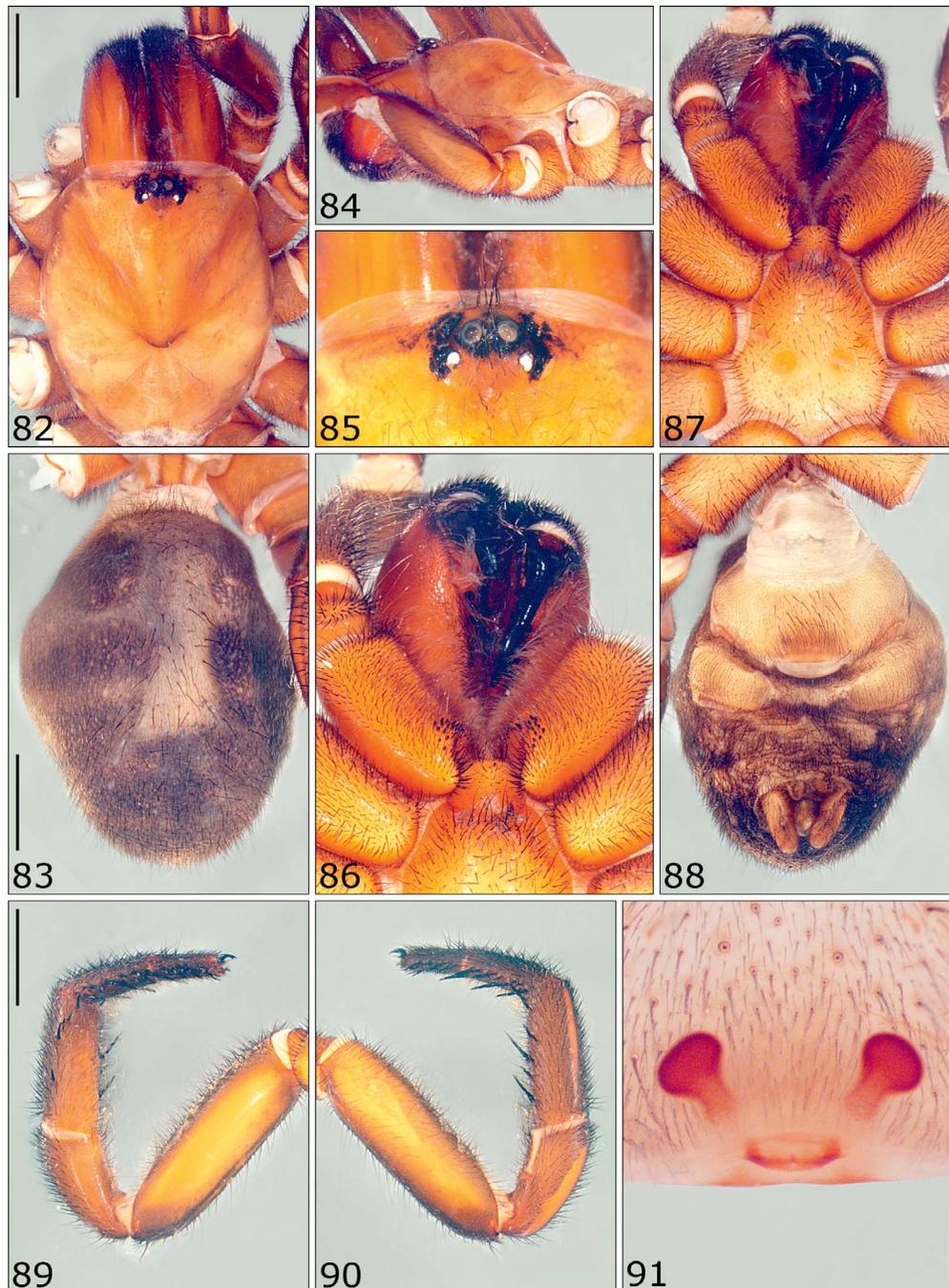
Figures 79–81.—*Cryptoforis cairncross* sp. nov., male holotype (QMB S20609) from Mary Cairncross Scenic Reserve, Queensland, pedipalp: 79, retrolateral view; 80, retroventral view; 81, prolateral view. Scale bar = 3.0.

1.82); length 1.08, anterior width 1.87, posterior width 1.98. Eye diameters: ALE (0.56) > PLE (0.48) = AME (0.48) > PME (0.33) (Fig. 72). *Mouthparts*: maxillae with about 25 cuspules on antero-ental edge; labium 1.41x wider than long, with 2 cuspules on anterior edge (Fig. 73). *Sternum*: length/width = 1.07; posterior sigilla large, ovoid, closer to each other than to sternum edge (Fig. 74). *Abdomen*: 10.98 long, 7.63 wide, ovoid; dorsal surface chocolate-brown with beige sigilla-spots and faint, tapering, lateral chevrons; sparse coat of hair-like setae (Figs. 70, 75). *Legs*: concolorous with carapace; scopulae along entire length of ventral tarsi I–IV, and on distoventral metatarsi I–II; leg I length = 32.06 (9.94, 4.87, 7.29, 6.73, 3.23); leg I length/carapace length = 3.01; tibia I length/width = 4.31 (Fig. 76). *Tibia I*: with bifurcate, prolateral clasp spur, oriented dorso-ventrally; macrosetae on ventral prominence short and rounded; cuticle on and around clasp spur thickened and black (Figs. 77, 78). *Pedipalp*: tibia 1.82x longer than wide in retrolateral view; RTA large, coniform, projecting from position about 55% of the way along tibia, at an angle of about 40° to tibia midline, with a prominent, semi-spherical swelling at base; field of 50–60 spinules on/around RTA, with many clustered on swelling; cymbium with very short, spine-like setae on distal third/half (Figs. 79–81). *Copulatory organ*: total length about 60% of pedipalp tibia length; embolus about 1.2x length of bulb, curved and twisted about 90°, tip about 0.6x width of base (Figs. 79–81).

Description (female paratype QMB S108363).—Total length 27.28. *Carapace*: 9.74 long, 8.24 wide (length/width = 1.18); carapace light tan-brown (orange in life), chelicerae red-brown; carapace glabrous; fovea strongly procurved (length/width = 0.34) (Fig. 82). *Ocular region*: on raised mound (Fig. 84); eye group rectangular (width/length = 1.85); length 1.08, anterior width 1.94, posterior width 2.00. Eye diameters: ALE

(0.56) > PLE (0.50) > AME (0.41) > PME (0.27) (Fig. 85). *Mouthparts*: maxillae with about 20 cuspules on antero-ental edge; labium 1.40x wider than long, with 2 cuspules on anterior edge (one evidenced by socket) (Fig. 86). *Sternum*: length/width = 1.13; posterior sigilla large, ovoid, roughly equidistant from each other and sternum edge (Fig. 87). *Abdomen*: 11.59 long, 8.66 wide, ovoid; dorsal surface grey-brown (darker charcoal-brown in life) with beige sigilla-spots and faint, tapering, lateral chevrons; sparse coat of hair-like setae interspersed with bristle-like setae (Figs. 83, 88). *Internal genitalia*: spermathecae length 0.54 (length /carapace length = 0.056); crown width 0.41 (width /carapace length = 0.042); stem shorter than crown (0.75x), crown much wider than stem (2.50x); crown rounded, distinctly darker than stem (Fig. 91). *Legs*: concolorous with carapace (red-brown in life, contrasting with orange carapace); scopulae absent from pedipalpi and legs; leg I length: 20.82 (7.03, 4.30, 4.25, 3.05, 2.18); leg I length/carapace length = 2.14; tibia I length/width = 2.40. Leg I macrosetation: femur 0; patella 0; tibia 15(6PL, 1V, 3RV, 5RL); metatarsus 24(13PL, 11RL); tarsus 18 (7PL, 3V, 8RL); total = 57 (Figs. 89, 90).

Distribution and remarks.—*Cryptoforis cairncross* is known from only three localities in south-eastern Queensland, all at the southern end of the Blackall Range around the towns of Maleny and Montville (Fig. 18). All three collection localities are within remnant rainforest patches. Males appear to wander in search of females in summer. Spiders build a wafer-door burrow entrance typical of the genus, using humus fragments as the primary substrate in the door (similar to Figs. 5–8). Burrows appear to be most common on lightly sloping ground with a loose leaf-litter layer (similar to Figs. 11–13). *Cryptoforis cairncross* is part of the *arenaria*-group, a phylogenetic clade of *Cryptoforis* from south-eastern Queens-



Figures 82–91.—*Cryptoforis cairncross* sp. nov., female paratype (QMB S108363) from near Maleny, Queensland: 82, 83, carapace and abdomen, dorsal view; 84, cephalothorax, lateral view; 85, eyes, dorsal view; 86, mouthparts, ventral view; 87, 88, cephalothorax and abdomen, ventral view; 89, leg I, prolateral view; 90, leg I, retrolateral view; 91, spermathecae, dorsal view. Scale bars = 3.0 (82, 83, 89), 0.5 (91).

land. *Cryptoforis arenaria* and *C. cooloola* are also part of this species-group (Figs. 14, 15).

Cryptoforis cassisi Wilson, Raven & Rix, sp. nov.

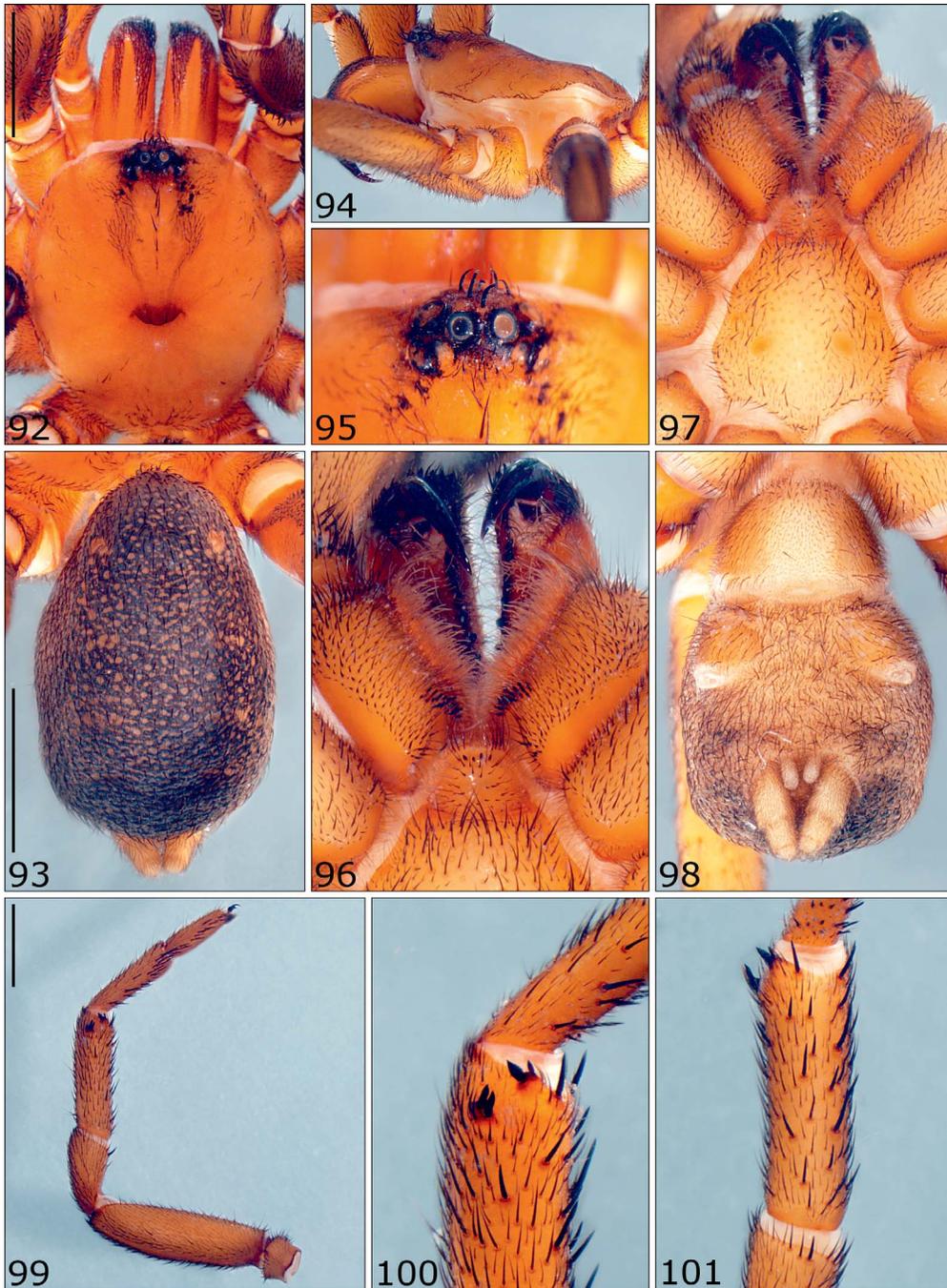
<http://zoobank.org/NomenclaturalActs/54AEA28E-E3CC-4C49-B3A1-71C3EBEF7F3A>
(Figs. 18, 92–114)

Euoplos ‘morpho-species 21’ Wilson et al., 2018: 159, 160, suppl. file 1.

Euoplos ‘TapinTops’/‘morpho-species 11’ Wilson et al., 2020: 548, figs. 3–5.

Type material.—*Holotype male*. AUSTRALIA: *New South Wales*: Tapin Tops National Park, Homewoods Road, via Knodingbul Road, 31°37’S, 152°07’E, 690 m, 4 February–9 April 1993, M. Gray, G. Cassis (AMS KS038674).

Paratypes. AUSTRALIA: *New South Wales*: 1 ♂, same data as holotype except Pole Bridge Forest Road, via Knodingbul Road (AMS KS042940); 1 ♀, Tapin Tops



Figures 92–101.—*Cryptoforis cassis* sp. nov., male holotype (AMS KS038674) from Tapin Tops National Park, New South Wales, somatic morphology: 92, 93, carapace and abdomen, dorsal view; 94, cephalothorax, lateral view; 95, eyes, dorsal view; 96, mouthparts, ventral view; 97, 98, cephalothorax and abdomen, ventral view; 99, leg I, prolateral view; 100, 101, leg I tibia, prolateral and proventral views. Scale bars = 3.0.

National Park, corner of Knodingbul Road and Homewoods Road, 31°38'S, 152°07'E, 830 m, excavated from burrow, high elevation rainforest, 15 December 2016, J. Wilson (QMB S108392).

Etymology.—The specific epithet is in honor of Gerry Cassis, who, alongside Mike Gray, was involved in sampling many of the *Cryptoforis* species now known from New South Wales. Gerry is also a distinguished entomologist, who works

predominantly on true bugs (Heteroptera) and beetles (Coleoptera).

Diagnosis.—Males of *C. cassis* can be distinguished from those of all known congeners, except *C. hickmani*, *C. Monteithi*, *C. xenophila* and *C. zophera* by the combined presence of scopulae along the entire length of ventral tarsus III (Fig. 391), and by the absence of scopulae from tarsus IV (Fig. 395). Males of *C. cassis* can be distinguished from *C. hickmani*, *C. xenophila* and *C. zophera* by the embolus, which



Figures 102–104.—*Cryptoforis cassisi* sp. nov., male holotype (AMS KS038674) from Tapin Tops National Park, New South Wales, pedipalp: 102, retrolateral view; 103, retroventral view; 104, prolateral view. Scale bar = 3.0.

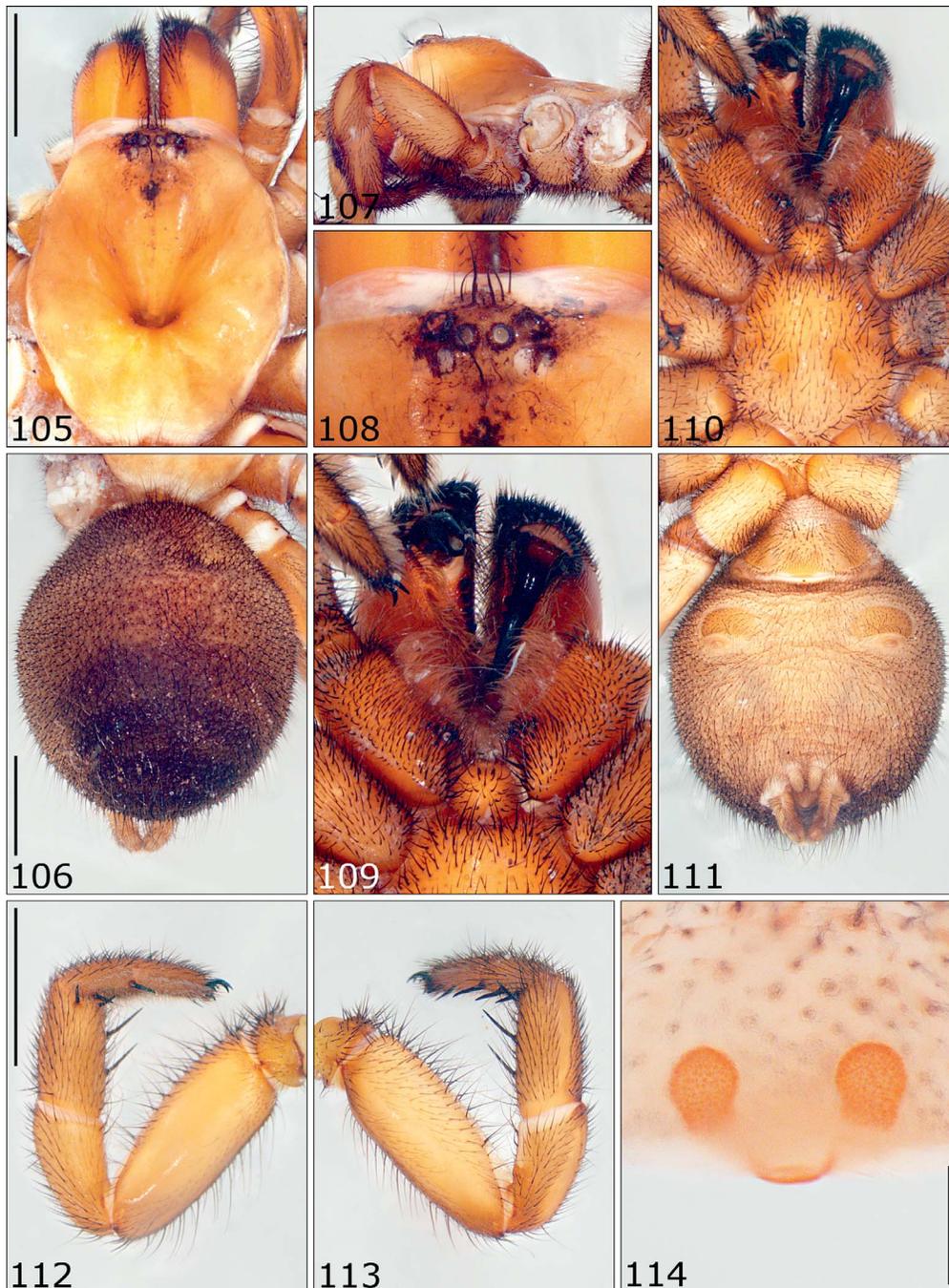
has a wider tip relative to the base (Figs. 102–104; cf. Figs. 217–219, 355–357, 378–380); and from *C. monteithi* by the RTA, which is shorter and more triangular (Figs. 102–104; cf. Figs. 286–288).

Females of *C. cassisi* can be distinguished from those of all known congeners except *C. grayi* by the short spermathecae without obvious stems (Fig. 114; cf. Figs. 42, 137, 229). Females of *C. cassisi* can be distinguished from *C. grayi* by the less spinose leg I (Figs. 112, 113; cf. Figs. 204, 205), and the presence of short, spine-like setae on the dorsal abdomen (Fig. 106; cf. Fig. 198).

Description (male holotype).—Total length 16.97. *Carapace*: 7.03 long, 6.30 wide (length/width = 1.12); carapace and chelicerae uniform orange; carapace with bristle-like setae on margins and in lines on pars thoracica; fovea strongly procurved (length/width = 0.31) (Fig. 92). *Ocular region*: on raised mound (Fig. 94); eye group rectangular (width/length = 1.87); length 0.80, anterior width 1.37, posterior width 1.49. Eye diameters: ALE (0.34) > PLE (0.31) = AME (0.31) > PME (0.23) (Fig. 95). *Mouthparts*: maxillae with about 20 cuspules on antero-ental edge; labium 1.69x wider than long, with four cuspules on anterior edge (Fig. 96). *Sternum*: length/width = 1.06; posterior sigilla moderate size, ovoid, slightly closer to sternum edge than to each other (Fig. 97). *Abdomen*: 6.78 long, 4.45 wide, ovoid; dorsal surface chocolate-brown with beige sigilla-spots; sparse covering of hair-like setae, interspersed with bristle-like setae (Figs. 93, 98). *Legs*: concolorous with carapace; scopulae along entire length of ventral tarsi I–III, and on distoventral metatarsi I–II; leg I length = 20.09 (6.37, 3.20, 4.31, 3.71, 2.51); leg I length/carapace length = 2.86; tibia I length/width = 3.22 (Fig. 99). *Tibia I*: with bifurcate, prolateral clasp spur, oriented

roughly dorso-ventrally; macrosetae on ventral prominence short and sharp; cuticle on and around clasp spur without black pigmentation (figs. 100–101). *Pedipalp*: tibia 1.60x longer than wide in retrolateral view; RTA small, triangular, projecting from position about 50% of the way along tibia, at an angle of about 30° to tibia midline; field of 50–60 spinules on/around RTA; cymbium with short, spine-like setae on distal third/half (Figs. 102–104). *Copulatory organ*: total length about 70% of pedipalp tibia length; embolus about 1.5x length of bulb, curved and twisted about 90°, tip almost as wide as base (Figs. 102–104).

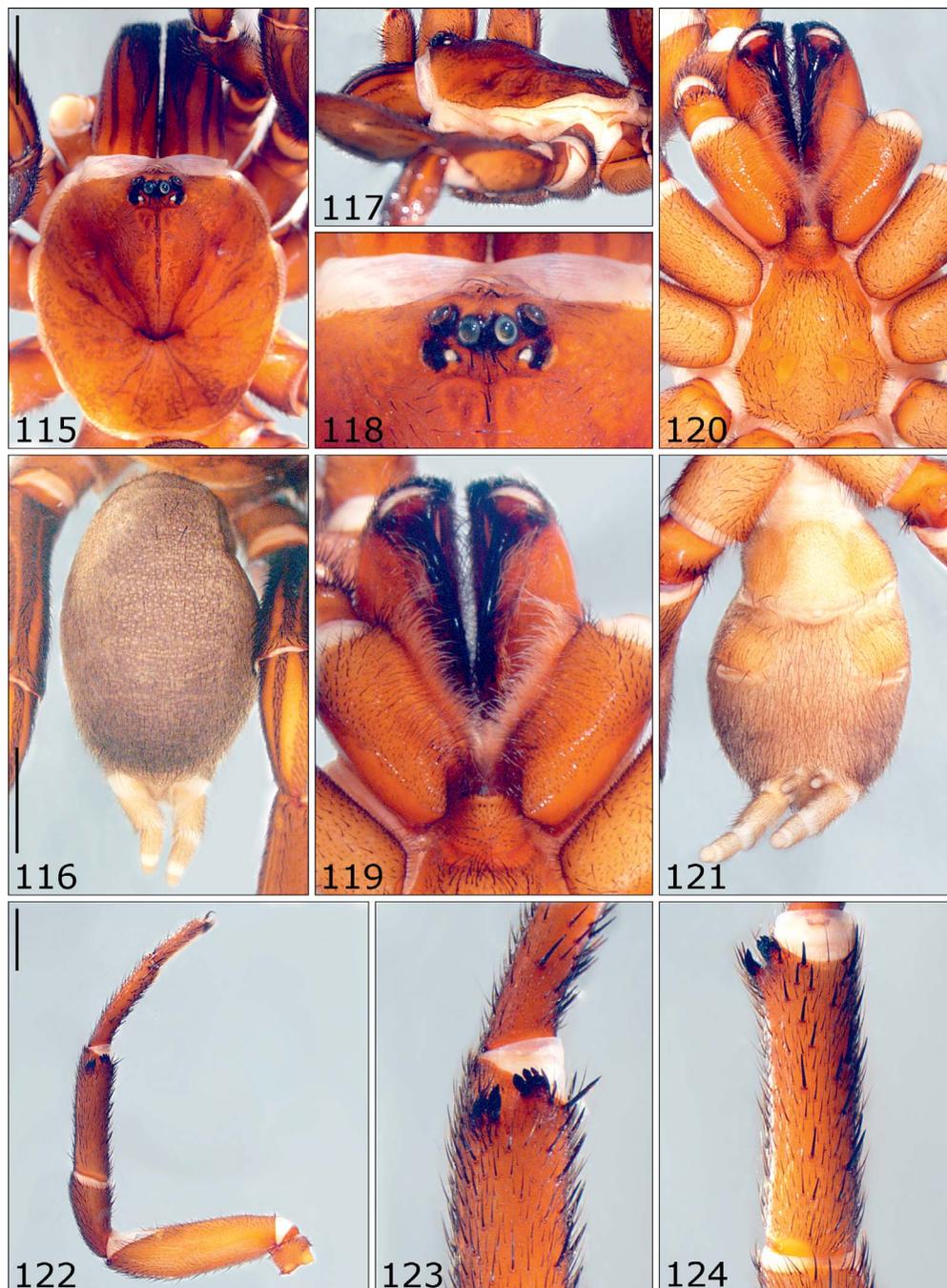
Description (female paratype QMB S108392).—Total length 20.10. *Carapace*: 7.75 long, 6.42 wide (length/width = 1.21); carapace and chelicerae light tan-orange (darker in life); carapace glabrous; fovea strongly procurved (length/width = 0.31) (Fig. 105). *Ocular region*: on raised mound (Fig. 107); eye group rectangular (width/length = 2.12); length 0.77, anterior width 1.49, posterior width 1.64. Eye diameters: ALE (0.34) = PLE (0.34) > AME (0.28) > PME (0.25) (Fig. 108). *Mouthparts*: maxillae with about 20 cuspules on antero-ental edge; labium 1.29x wider than long, with four cuspules on anterior edge (Fig. 109). *Sternum*: length/width = 1.07, posterior sigilla large, ovoid, roughly equidistant from each other and sternum edge (Fig. 110). *Abdomen*: 9.72 long, 8.40 wide, ovoid; dorsal surface chocolate-brown (darker in life) with faint sigilla-spots; sparse coat of hair-like setae interspersed with many very short, spine-like setae (Figs. 106, 111). *Internal genitalia*: spermathecae length 0.35 (length/carapace length = 0.045); crown width 0.29 (width/carapace length = 0.038); stem much shorter than crown (0.38x), crown wider than stem (1.52x); crown rounded, concolorous with stem, stem very short and indistinct (Fig. 114). *Legs*: concolorous



Figures 105–114.—*Cryptoforis cassisi* sp. nov., female paratype (QMB S108392) from Tapin Tops National Park, New South Wales: 105, 106, carapace and abdomen, dorsal view; 107, cephalothorax, lateral view; 108, eyes, dorsal view; 109, mouthparts, ventral view; 110, 111, cephalothorax and abdomen, ventral view; 112, leg I, prolateral view; 113, leg I, retrolateral view; 114, spermathecae, dorsal view. Scale bars = 3.0 (105, 106, 112), 0.5 (114).

with carapace; scopulae present on pedipalp tarsi, and tarsi and metatarsi I–II, at moderate density, not obscuring macrosetae; leg I length = 12.31 (4.08, 2.94, 2.30, 1.60, 1.39); leg I length/carapace length = 1.59; tibia I length/width = 1.75. Leg I macrosetation: femur 0; patella 0; tibia 5(1PL, 1V, 3RV); metatarsus 5(2PL, 3RL); tarsus 3(1V, 2RL); total = 13 (Figs. 112, 113).

Distribution and remarks.—*Cryptoforis cassisi* occurs in high elevation regions of the Tapin Tops National Park in north-eastern New South Wales, with all records collected from 690 m or higher (Fig. 18). The habitat at this elevation is predominantly tall open eucalypt forest with patches of cool temperate rainforest. Males of this species appear to wander in search of females from late summer to autumn. Spiders build a wafer-door burrow entrance typical of the genus, using humus



Figures 115–124.—*Cryptoforis celata* sp. nov., male holotype (AMS KS038663) from Madmans Creek Flora Reserve, New South Wales, somatic morphology: 115, 116, carapace and abdomen, dorsal view; 117, cephalothorax, lateral view; 118, eyes, dorsal view; 119, mouthparts, ventral view; 120, 121, cephalothorax and abdomen, ventral view; 122, leg I, prolateral view; 123, 124, leg I tibia, prolateral and proventral views. Scale bars = 3.0.

as the primary substrate in the door (similar to Figs. 5–8). The paratype female described above was collected from a burrow of this kind on lightly sloping ground with a loose leaf-litter layer (similar to Figs. 11–13). *Cryptoforis cassisi* is part of the *grayi*-group, a phylogenetic clade of *Cryptoforis* from central-eastern New South Wales. *Cryptoforis grayi* is also part of this species-group (Figs. 14, 15).

Cryptoforis celata Wilson, Raven & Rix, sp. nov.

<http://zoobank.org/NomenclaturalActs/A9493A0D-84AB-460F-9C41-789099CDAF4C>
(Figs. 18, 115–137)

Euoplos ‘morpho-species 19’ Wilson et al., 2018: 159, 160, suppl. file 1.



Figures 125–127.—*Cryptoforis celata* sp. nov., male holotype (AMS KS038663) from Madmans Creek Flora Reserve, New South Wales, pedipalp: 125, retrolateral view; 126, retroventral view; 127, prolateral view. Scale bar = 3.0.

Euoplos ‘SherwoodCreek’/‘morpho-species 14’ Wilson et al., 2020: 548, figs. 3–5.

Type material.—*Holotype male*. AUSTRALIA: *New South Wales*: Madmans Creek Flora Reserve, Madmans Creek, via Murphys Road, 30°04’S, 153°06’E, 50 m, 4 February–9 April 1993, M. Gray, G. Cassis (AMS KS038663).

Paratypes. AUSTRALIA: *New South Wales*: 3 ♂, Conglomerate State Forest, Old Growth Road, 30°07’S, 153°04’E, 320 m, 4 February–9 April 1993, M. Gray, G. Cassis (AMS KS038646); 1 ♀, Sherwood Creek Road, creek crossing near Murphys Road, 30°03’S, 153°07’E, 65 m, excavated from burrow, riparian vine scrub, 22 August 2017, J. Wilson (QMB S108339).

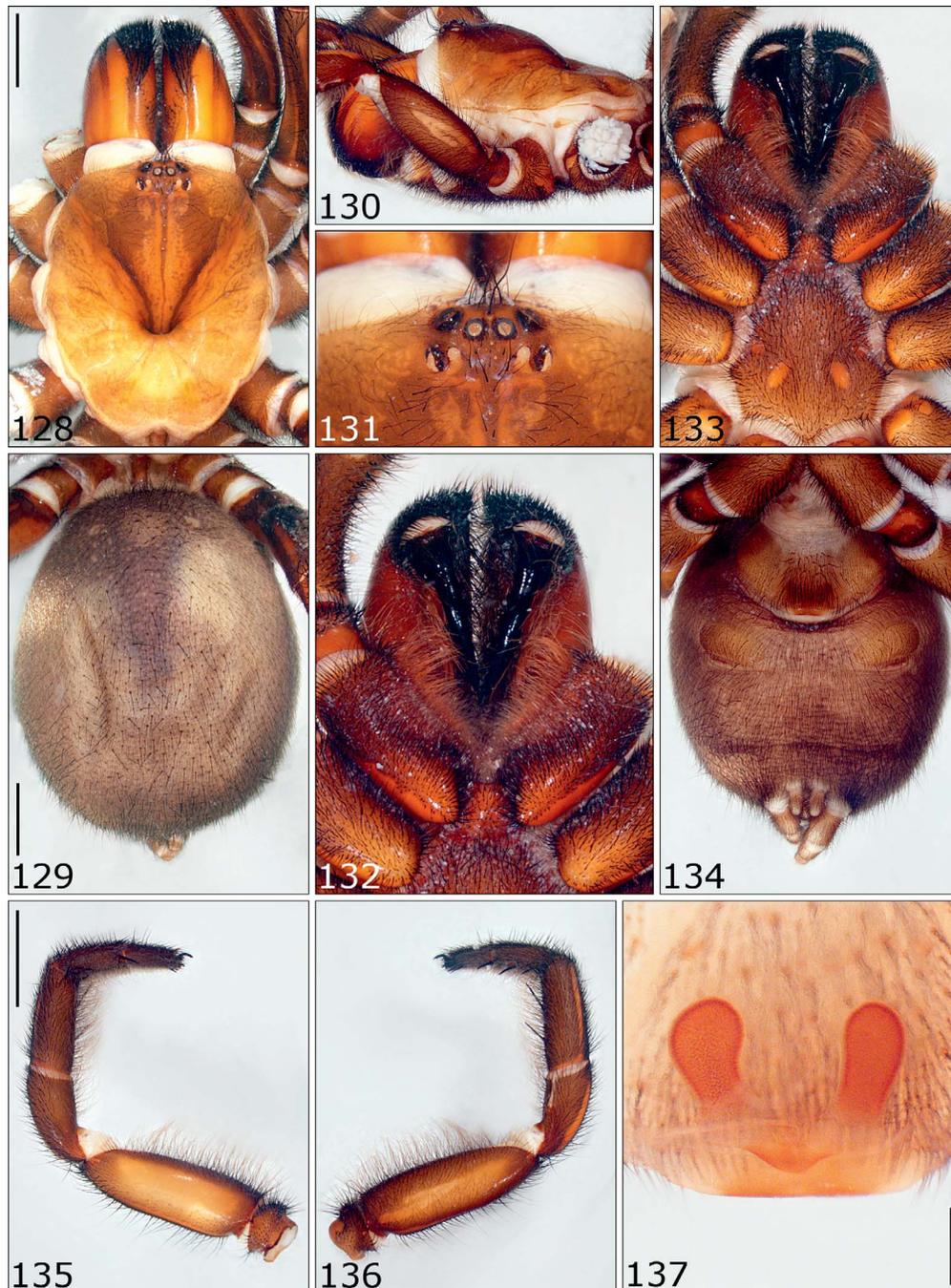
Other material examined.—AUSTRALIA: *New South Wales*: 3 ♂, Bundjalung Crown Reserve, Lockleys Road, 29°14’S, 153°11’E, 30 m, 4 February–9 April 1993, M. Gray, G. Cassis (AMS KS038650); 1 ♂, Chaelundi State Forest, 1.2km west along stockyard fire trail, 29°56’S, 152°31’E, 450 m, 4 February–9 April 1993, M. Gray, G. Cassis (AMS KS042809); 1 ♂, Coffs Harbour, 30°18’S, 153°07’E, January 1998, S. McEwan (AMS KS52181); 1 ♂, Devil’s Pulpit State Forest, 29°17’S, 153°11’E, pitfall trap, *Eucalyptus* forest, February 1997, A. York (AMS KS74416); 1 ♂, same data except Doubleduke State Forest, 29°09’S, 153°12’E (AMS KS74415); 1 ♂, same data except 29°08’S, 153°11’E (AMS KS74412); 1 ♂, same data except Mount Belmore State Forest, 29°08’S, 152°46’E (AMS KS74411); 1 ♂, same data (AMS KS74410); 1 ♂, same data except 29°09’S, 152°46’E (AMS KS74413).

Etymology.—The specific epithet is derived from the Latin *celatus* (adjective: ‘concealed’, ‘hidden’ or ‘covered’; see Brown 1956), in reference to the difficulty the senior author had

finding and sampling a female of this species due to its highly camouflaged burrow entrance.

Diagnosis.—Males of *C. celata* can be distinguished from those of all known congeners except *C. hughesae*, *C. absona*, *C. mainae*, *C. montana*, *C. fallax* and *C. woondum* by the absence of scopulae on tarsus IV (Fig. 395), and the absence, or presence on the distal end only, of scopulae on the ventral tarsus III (Figs. 392, 393). Males of *C. celata* can be distinguished from *C. hughesae* by the absence of a prominent semi-spherical swelling at the base of the RTA (Fig. 125; cf. Fig. 30); from *C. absona* by the presence of a bifurcate prolateral clasp spur on tibia I (Figs. 123, 124; cf. Figs. 51, 52); from *C. mainae* and *C. woondum* by the embolus, which has a thinner tip relative to the base, and further by the RTA, which projects from near the middle of the tibia in retrolateral view (Figs. 125–127; cf. Figs. 240–242, 332–334); and from *C. fallax* and *C. montana* by the more spinose prolateral leg I (Fig. 122; cf. Figs. 168, 260).

Females of *C. celata* can be distinguished from *C. hughesae*, *C. cairncross* and *C. cooloola* by the presence of scopulae on the pedipalp and legs I–II (Figs. 135, 136; cf. Figs. 40, 41, 89, 90, 158, 159); from *C. cassisi* and *C. grayi* by the spermathecae, which have proportionally longer stems (Fig. 137; cf. Figs. 114, 206); from *C. fallax*, *C. montana*, and *C. victoriensis* by the less spinose leg I (Figs. 135, 136; cf. Figs. 181, 182, 273, 274, 319, 320); from *C. hickmani*, *C. tasmanica* and *C. xenophila* by the less dense scopulae on leg I (Figs. 135, 136; cf. Figs. 227, 228, 309, 310) and by the spermathecae, which have wider stems (Fig. 137; cf. Figs. 229, 311); and from *C. zophera* by the spermathecae, which are much wider and less elongate (Fig. 137; cf. Fig. 390). Females of *C. celata*, *C. mainae* and *C.*



Figures 128–137.—*Cryptoforis celata* sp. nov., female paratype (QMB S108339) from Sherwood Creek Road, New South Wales: 128, 129, carapace and abdomen, dorsal view; 130, cephalothorax, lateral view; 131, eyes, dorsal view; 132, mouthparts, ventral view; 133, 134, cephalothorax and abdomen, ventral view; 135, leg I, prolateral view; 136, leg I, retrolateral view; 137, spermathecae, dorsal view. Scale bars = 3.0 (128, 129, 135), 0.5 (137).

woondum are indistinguishable morphologically based on current data; males are required for accurate identification.

Description (male holotype).—Total length 22.86. *Carapace*: 9.19 long, 8.23 wide (length/width = 1.12); carapace and chelicerae uniform orange-brown; carapace glabrous; fovea procurved (length/width = 0.24) (Fig. 115). *Ocular region*: on raised mound (Fig. 117); eye group rectangular (width/length = 1.96); length 1.04, anterior width 1.71, posterior width 2.04.

Eye diameters: PLE (0.51) > ALE (0.43) = AME (0.43) > PME (0.26) (Fig. 118). *Mouthparts*: maxillae with around 20 spinules on antero-ental edge; labium 1.51x wider than long, with three cuspules on anterior edge (Fig. 119). *Sternum*: length/width = 1.11; posterior sigilla large, ovoid, roughly equidistant from each other and sternum edge (Fig. 120). *Abdomen*: 8.78 long, 5.76 wide, ovoid; dorsal surface light grey-brown without abdominal pattern; sparse coat of hair-

like setae (Figs. 116, 121). *Legs*: concolorous with carapace; scopulae along entire length of ventral tarsi I–II, on distal end of ventral tarsi III only (absent in some specimens) (Figs. 392, 393), and on distoventral metatarsi I and II; leg I length = 27.10 (8.44, 4.49, 6.02, 5.44, 2.71); leg I length/carapace length = 2.95; tibia I length/width = 3.59 (Fig. 122). *Tibia I*: with bifurcate, prolateral clasping spur, oriented dorso-ventrally; macrosetae on ventral prominence short, wide, but with a point; cuticle on and around clasping spur mostly without black pigmentation (Figs. 123, 124) *Pedipalp*: tibia 1.98x longer than wide in retrolateral view; RTA moderate size, coniform, projecting from a position about 50% of the way along tibia, projecting at an angle of about 30° to tibia midline, field of 80–90 spinules on/around RTA; cymbium with short, spine-like setae on distal third/half (Figs. 125–127). *Copulatory organ*: total length about 65% of pedipalp tibia length; embolus about 1.5x length of bulb, curved and twisted about 90°, tip about 0.4x width of base (Figs. 125–127).

Description (female paratype QMB S108339).—Total length 32.34. *Carapace*: 11.31 long, 9.21 wide (length/width = 1.23); carapace and chelicerae light tan-brown (darker red-brown in life); carapace virtually glabrous; fovea strongly procurved (length/width = 0.33) (Fig. 128). *Ocular region*: on raised mound (Fig. 130); eye group rectangular (width/length = 1.97); length 1.17, anterior width 2.00, posterior width 2.31. Eye diameters: ALE (0.52) > PLE (0.50) > AME (0.36) > PME (0.28) (Fig. 131). *Mouthparts*: maxillae with about 25 cuspules on antero-ental edge; labium 1.36x wider than long, with three cuspules on anterior edge (Fig. 132). *Sternum*: length/width = 1.05, posterior sigilla large, ovoid, roughly equidistant from sternum edge and each other (Fig. 133). *Abdomen*: 14.66 long, 11.79 wide, ovoid; dorsal surface light brown (darker charcoal-brown in life) with faint beige sigilla-spots; sparse coat of hair-like setae interspersed with bristle-like setae (Figs. 129, 134). *Internal genitalia*: spermathecae length 0.73 (length/carapace length = 0.065); crown width 0.48 (width/carapace length = 0.043); stem shorter than crown (0.65x), crown wider than stem (1.61x); crown rounded, concolorous with stem, transition between stem and crown indistinct (Fig. 137). *Legs*: concolorous with carapace; scopulae present on pedipalp tarsi, and tarsi and metatarsi I–II, at a moderate density, not obscuring macrosetae; leg I length = 16.26 (5.44, 3.46, 3.38, 2.35, 1.62); leg I length/carapace length = 1.44; tibia I length/width = 2.55. Leg I macrosetation: femur 0; patella 0; tibia 5(1PL, 1V, 3RV); metatarsus 5(2PL, 3RL); tarsus 3(1V, 2RL); total = 13 (Figs. 135, 136).

Distribution and remarks.—*Cryptoforis celata* is found throughout the Clarence Sandstones, Clarence Lowlands and Chaelundi subregions of northern New South Wales (Fig. 18). The habitat is variable across this large expanse, but is dominated by open eucalypt forest, with patches of rainforest and vine-scrub throughout. This species is parapatric at its northern extent with *C. mainae* (Fig. 18). Males of *C. celata* appear to wander in search of females at the end of the eastern Australian wet season, from late summer to early autumn. This species builds a wafer-door burrow entrance typical of the genus, using humus fragments as the primary substrate in the door (similar to Figs. 5–8). The paratype female described above was collected from a burrow of this kind on lightly sloping ground with a loose leaf-litter layer

(similar to Figs. 11–13). *Cryptoforis celata* is part of the *celata*-group, a phylogenetic clade of *Cryptoforis* from north-eastern New South Wales. *Cryptoforis absona* and *C. fallax* are also part of this species-group (Figs. 14, 15).

***Cryptoforis cooloola* Wilson, Raven & Rix, sp. nov.**

<http://zoobank.org/NomenclaturalActs/6277540D-B7EF-492B-876C-FCFDB799C385>
(Figs. 18, 138–160)

Euoplos ‘morpho-species 13’ Wilson et al., 2018: 159, 160, suppl. file 1.

Euoplos ‘Cooloola’/‘morpho-species 21’ Wilson et al., 2020: 548, figs. 3–5.

Type material.—*Holotype male*. AUSTRALIA: *Queensland*: Cooloola, Lake Poona, 25°58’S, 153°07’E, 160 m, rainforest, April 1978, G. Monteith (QMB S9860).

Paratype. AUSTRALIA: *Queensland*: 1 ♀, same data as holotype except excavated from burrow, 23 December 2017, M. Rix, J. Wilson (QMB S18373).

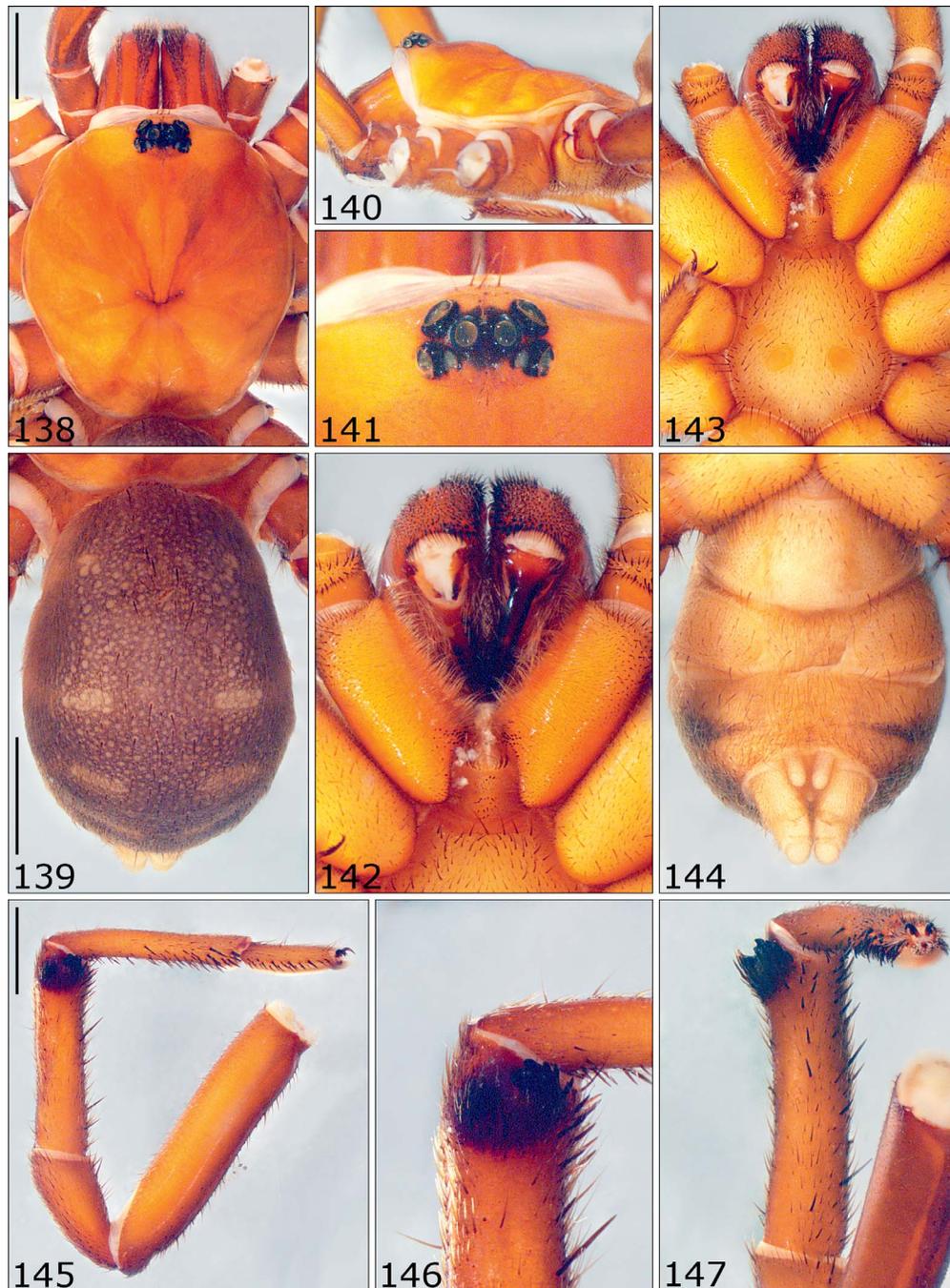
Other material examined.—AUSTRALIA: *Queensland*: 1 ♂, Cooloola, 25°59’S, 153°07’E, April 1978, G. Monteith (QMB S9850); 2 ♂, Cooloola, Seary’s Scrub, 25°59’S, 153°07’E, 180 m, pitfall trap, complex notophyll vine forest, 3–7 February 1976, V. Davies, R. Raven (QMB S9847); 3 ♂, Cooloola, Seary’s Scrub, 25°60’S, 153°07’E, reptile trap, rainforest, 5 February 1976, J. Covacevich, P. Filewood (QMB S9859).

Etymology.—The specific epithet is a noun in apposition, in reference to the distribution of this species within Cooloola, a coastal region of open eucalypt forest and littoral rainforest encompassed by the Great Sandy National Park.

Diagnosis.—Males of *C. cooloola* can be distinguished from those of all known congeners, except *C. hughesae*, *C. arenaria*, and *C. cairncross*, by the presence of a prominent, semi-spherical swelling at the base of the RTA (Figs. 148–150). Males of *C. cooloola* can be distinguished from *C. hughesae* by the presence of scopulae on tarsus IV (Fig. 394); from *C. arenaria* by their lighter, tan-orange color, in contrast to the darker, red-brown color of *C. arenaria* (Figs. 138–150; cf. Figs. 56–68); and from *C. cairncross* by the longer embolus relative to the bulb (Figs. 148–150; cf. Figs. 79–81).

Females of *C. cooloola* can be distinguished from those of all known congeners, except *C. hughesae* and *C. cairncross*, by the absence of scopulae on the legs and pedipalp (Figs. 158, 159). Females of *C. cooloola* can be distinguished from *C. hughesae* and *C. cairncross* by the spermathecae, which have proportionally narrower stems compared to those of *C. hughesae*, and are proportionally longer, with longer stems, compared to those of *C. cairncross* (Fig. 160; cf. Figs. 42, 91). Females can be further distinguished from those of *C. hughesae* by their lighter, orange carapace color, in contrast to the darker brown carapace of *C. hughesae* (Fig. 151; cf. Fig. 33).

Description (male holotype).—Total length 23.13. *Carapace*: 10.57 long, 9.58 wide (length/width = 1.10); carapace and chelicerae tan-orange; carapace glabrous; fovea strongly procurved (length/width = 0.28) (Fig. 138). *Ocular region*: on raised mound (Fig. 140); eye group rectangular (width/length = 1.73); length 1.20, anterior width 1.87, posterior width 2.08. Eye diameters: ALE (0.59) > PLE (0.52) > AME (0.48) >



Figures 138–147.—*Cryptoforis cooloola* sp. nov., male holotype (QMB S9860) from Lake Poona, Queensland, somatic morphology: 138, 139, carapace and abdomen, dorsal view; 140, cephalothorax, lateral view; 141, eyes, dorsal view; 142, mouthparts, ventral view; 143, 144, cephalothorax and abdomen, ventral view; 145, leg I, prolateral view; 146, 147, leg I tibia, prolateral and proventral views. Scale bars = 3.0.

PME (0.34) (Fig. 141). *Mouthparts*: maxillae with about 30 cuspules on antero-ental edge; labium 1.68x wider than long, with 3 cuspules on anterior edge (Fig. 142). *Sternum*: length/width = 1.08; posterior sigilla very large, ovoid, slightly closer to each other than to sternum edge (Fig. 143). *Abdomen*: 9.52 long, 7.07 wide, ovoid; dorsal surface brown with beige sigilla-spots and faint, tapering, lateral chevrons; sparse coat of hair-like setae (Figs. 139, 144). *Legs*: concolorous with carapace; scopulae along entire length of ventral tarsi I–IV, and on

distoventral metatarsi I and II; leg I length = 32.56 (10.32, 5.06, 7.17, 7.02, 2.99); leg I length/carapace length = 3.08; tibia I length/width = 4.19 (Fig. 145). *Tibia I*: with bifurcate, prolateral claspings spur, oriented dorso-ventrally; macrosetae on ventral prominence short and rounded; cuticle on and around claspings spur thickened and dark (Figs. 146, 147). *Pedipalp*: tibia 2.02x longer than wide in retrolateral view; RTA large, coniform, projecting from position about 55% of the way along tibia, at an angle of about 45° to tibia midline,



Figures 148–150.—*Cryptoforis cooloola* sp. nov., male holotype (QMB S9860) from Lake Poona, Queensland, pedipalp: 148, retrolateral view; 149, retroventral view; 150, prolateral view. Scale bar = 3.0.

with a prominent, semi-spherical swelling at base; field of 70–80 spinules on/around RTA, with many clustered on swelling; cymbium with very short, spine-like setae on distal third/half (Figs. 148–150). *Copulatory organ*: total length about 60% of pedipalp tibia length; embolus about 1.5x length of bulb, curved and twisted about 90°, tip about 0.5x width of base (Figs. 148–150).

Description (female paratype QMB S18373).—Total length 29.51. *Carapace*: 11.65 long, 10.58 wide (length/width = 1.10); carapace light orange (slightly darker in life), chelicerae red-brown; carapace glabrous; fovea strongly procurved (length/width = 0.35) (Fig. 151). *Ocular region*: on raised mound (Fig. 153); eye group rectangular (width/length = 1.92); length 1.37, anterior width 2.22, posterior width 2.64. Eye diameters: ALE (0.69) > PLE (0.57) > AME (0.49) > PME (0.40) (Fig. 154). *Mouthparts*: maxillae with about 25 cuspules on antero-ental edge; labium 1.44x wider than long, with a single cuspule on anterior edge (Fig. 155). *Sternum*: length/width = 1.07; posterior sigilla very large, ovoid, closer to each other than to sternum edge (Fig. 156). *Abdomen*: 13.74 long, 11.48 wide, ovoid; dorsal surface grey (dark charcoal-brown in life) with no pattern; sparse coat of hair-like setae interspersed with bristle-like setae (Figs. 152, 157). *Internal genitalia*: spermathecae length 0.85 (length /carapace length = 0.073); crown width 0.50 (width /carapace length = 0.043); stem slightly longer than crown (1.22x), crown much wider than stem (2.24x); crown rounded, distinctly darker than stem (Fig. 160). *Legs*: red-brown, contrasting with carapace (slightly darker in life); scopulae absent from pedipalpi and legs; leg I length = 25.54 (8.70, 5.43, 5.02, 3.74, 2.65); leg I length/carapace length = 2.19; tibia I length/width = 2.26. Leg I macrosetation: femur 0; patella 0; tibia 14(6PL, 1V, 3RV, 4RL); metatarsus 18

(10PL, 8RL); tarsus 12 (5PL, 2V, 5RL); total = 44 (Figs. 158, 159).

Distribution and remarks.—*Cryptoforis cooloola* is known from Cooloola, a coastal stretch of open eucalypt forest and littoral rainforest, on sand, in the Great Sandy National Park of south-eastern Queensland (Fig. 18). Males appear to wander in search of females from late summer to early autumn. This species builds a wafer-door burrow entrance typical of the genus, using humus fragments as the primary substrate in the door (similar to Figs. 5–8). The paratype female described above was collected from a burrow of this kind on flat ground with a loose leaf-litter layer, near Poona Lake (similar to Figs. 11–13). *Cryptoforis cooloola* is part of the *arenaria*-group, a phylogenetic clade of *Cryptoforis* from south-eastern Queensland. *Cryptoforis arenaria* and *C. cairncross* are also part of this species-group (Figs. 14, 15).

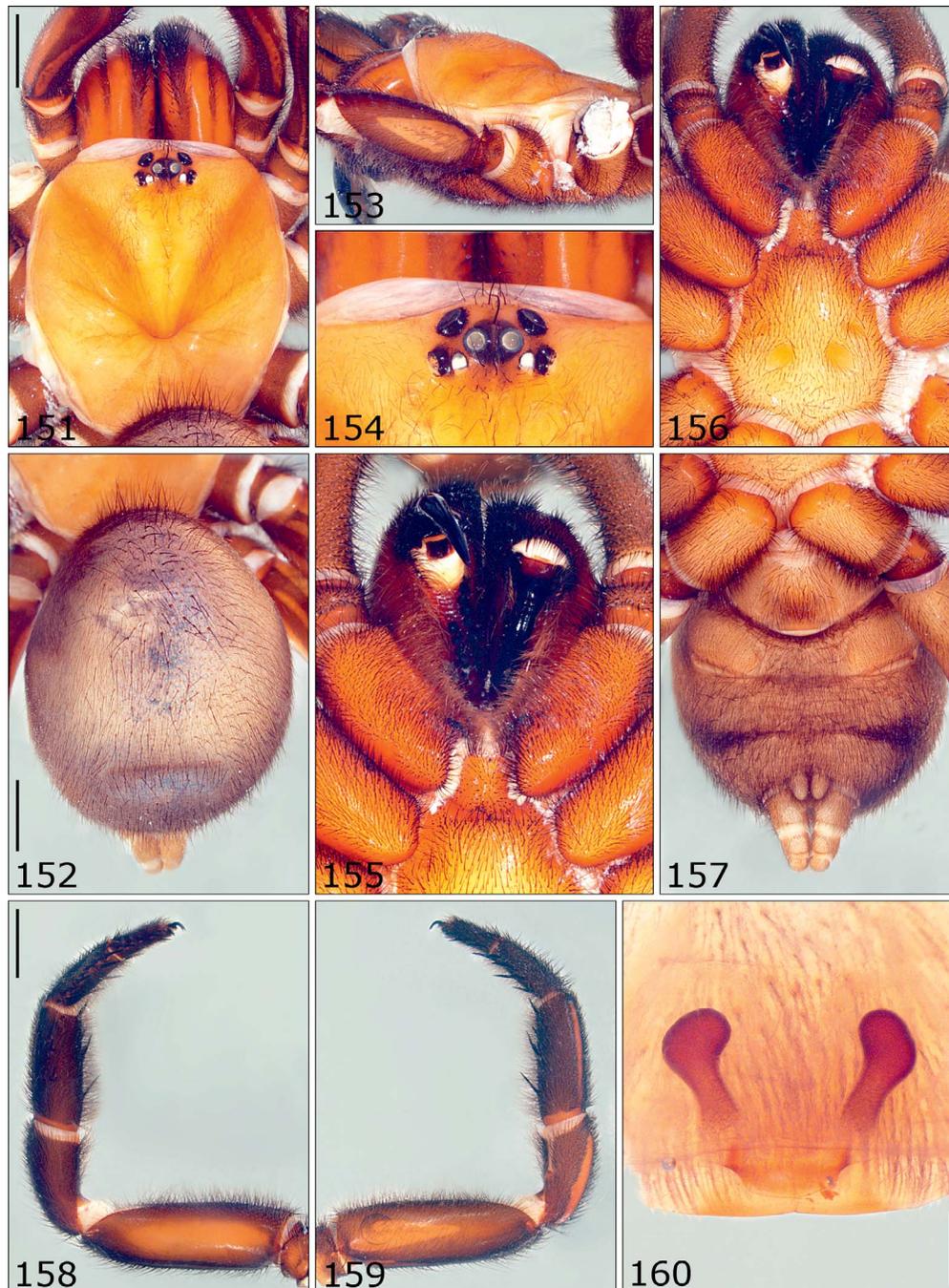
Cryptoforis fallax Wilson, Raven & Rix, sp. nov.

<http://zoobank.org/NomenclaturalActs/D8EBDDA5-FBDD-479A-815B-F613765FAD59>
(Figs. 2, 18, 161–183)

Euoplos ‘MadmansCreek’/‘morpho-species 13’ Wilson et al., 2020: 548, figs. 3–5.

Type material.—*Holotype male*. AUSTRALIA: *New South Wales*: Sherwood Creek Road, creek crossing near Murphys Road, 30°03’S, 153°07’E, 65 m, excavated from burrow, riparian vine scrub, 22 August 2017, J. Wilson (QMB S108340).

Paratypes. AUSTRALIA: *New South Wales*: 1 ♀, same data as holotype (QMB S108338); 1 ♀, Madmans Creek Flora Reserve, Madmans Creek, via Murphys Road, 30°04’S,



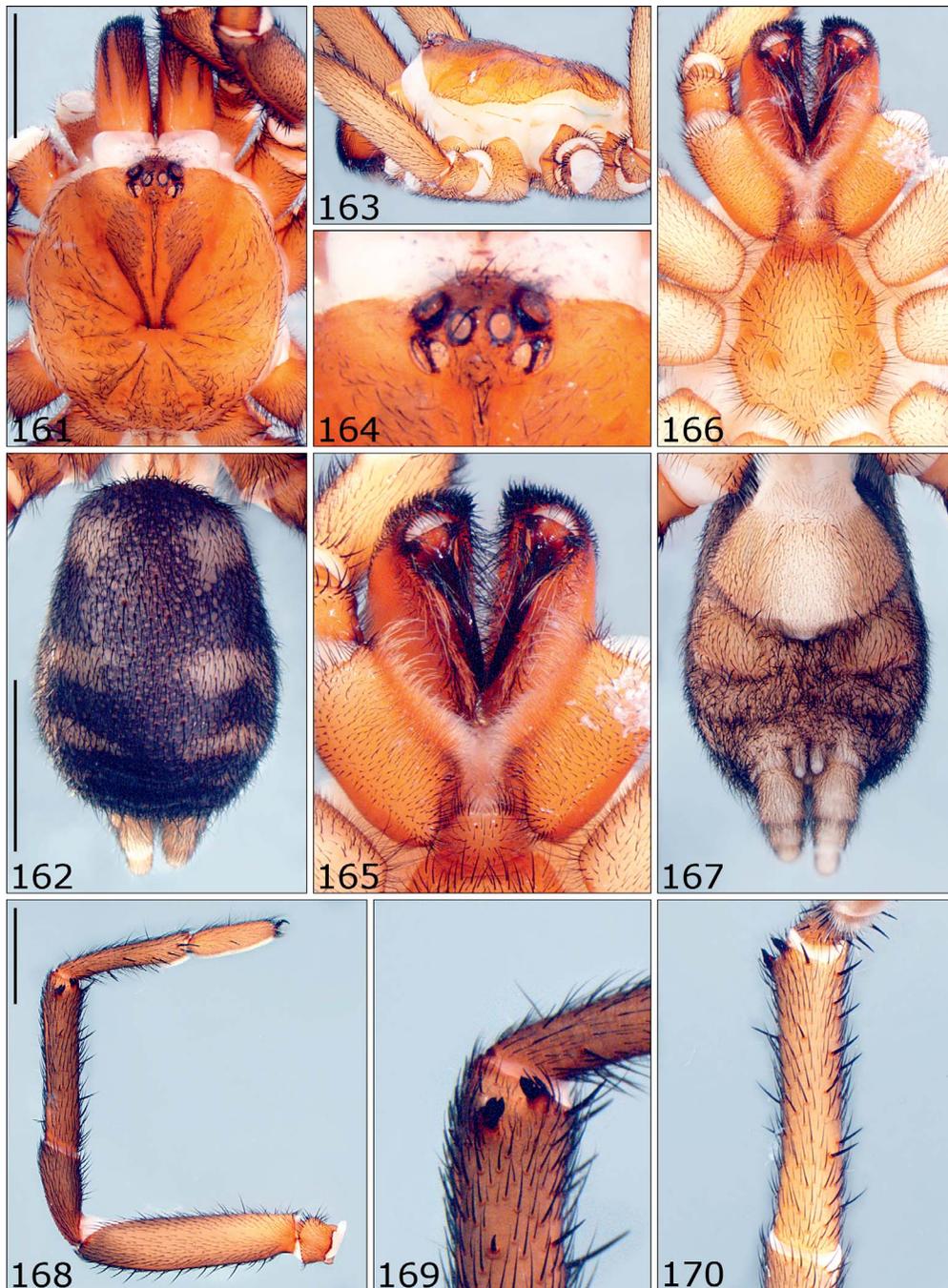
Figures 151–160.—*Cryptoforis cooloola* sp. nov., female paratype (QMB S18373) from Lake Poona, Queensland: 151, 152, carapace and abdomen, dorsal view; 153, cephalothorax, lateral view; 154, eyes, dorsal view; 155, mouthparts, ventral view; 156, 157, cephalothorax and abdomen, ventral view; 158, leg I, proximal view; 159, leg I, retrolateral view; 160, spermathecae, dorsal view. Scale bars = 3.0 (151, 152, 158), 0.5 (160).

153°06'E, 90 m, excavated from burrow, riparian vine scrub, 16 December 2016, J. Wilson (QMB S108389).

Etymology.—The specific epithet is derived from the Latin *fallax* (adjective: 'deceitful', 'false'; see Brown 1956), in reference to the strong similarities in both female morphology and burrow entrance structure of this species relative to the *turrificus*-group of *Euoplos* (see Wilson et al. 2018). Despite this remarkable convergence, *C. fallax* has consistently been

recovered nested within *Cryptoforis*, and the male morphology provides further strong evidence of its generic placement.

Diagnosis.—Males of *C. fallax* can be distinguished from those of all known congeners, except *C. hughesae*, *C. celata*, *C. mainae* and *C. montana*, by the absence of scopulae on tarsi III–IV (Figs. 393, 395). Males of *C. fallax* can be distinguished from *C. hughesae* by the absence of a prominent semi-spherical swelling at the base of the RTA (Fig. 171; cf. Fig. 30); from *C.*

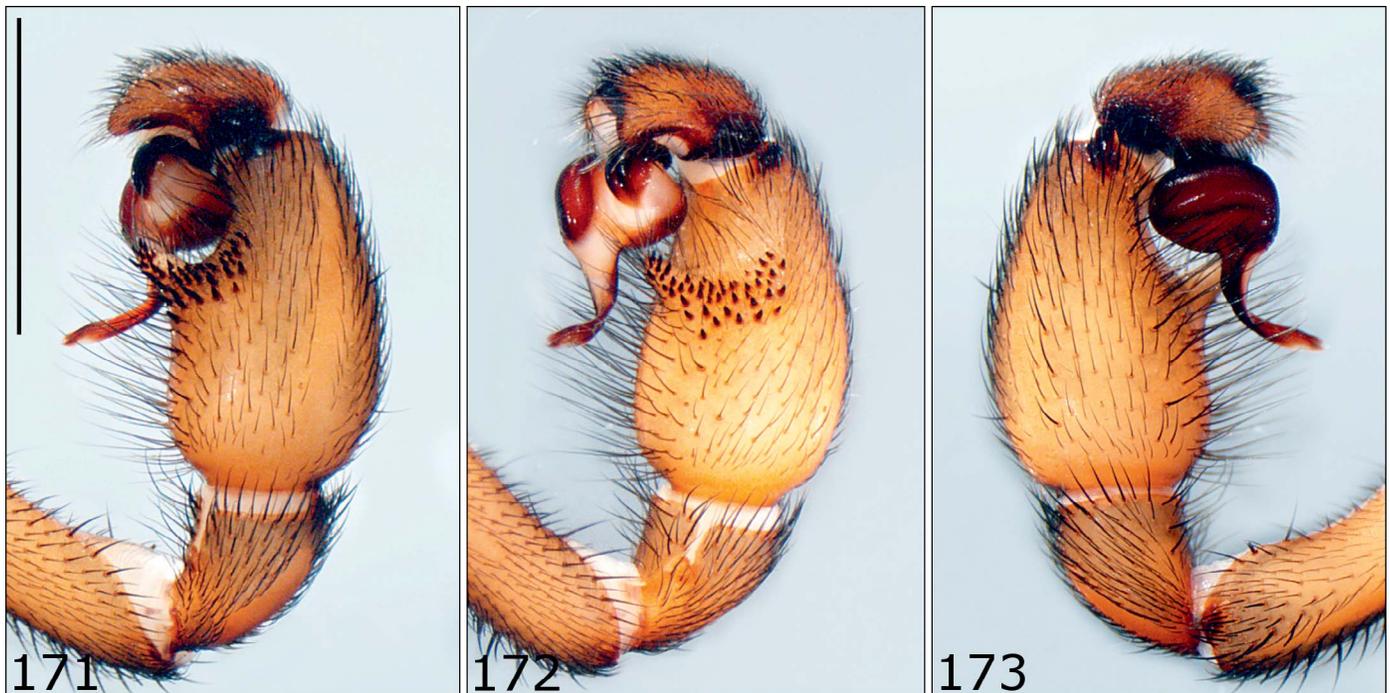


Figures 161–170.—*Cryptoforis fallax* sp. nov., male holotype (QMB S108340) from Sherwood Creek Road, New South Wales, somatic morphology: 161, 162, carapace and abdomen, dorsal view; 163, cephalothorax, lateral view; 164, eyes, dorsal view; 165, mouthparts, ventral view; 166, 167, cephalothorax and abdomen, ventral view; 168, leg I, prolateral view; 169, 170, leg I tibia, prolateral and proventral views. Scale bars = 3.0.

celata and *C. mainae* by the less spinose prolateral leg I (Fig. 168; cf. Figs. 122, 237); and from *C. montana* by the wider embolus tip (Figs. 171–173; cf. Figs. 263–265), the darker overall color (Figs. 161–173; cf. Figs. 253–265) and the presence of wide square-ended chevrons on the abdomen (Fig. 162; cf. Fig. 254).

Females of *C. fallax* can be distinguished from those of all known congeners except *C. zophera* by the tibia I, which has

over three setae in the retroventral row, and is more spinose overall (Figs. 181, 182). Females of *C. fallax* can be distinguished from *C. zophera* by the spermathecae, which are wider and less elongate (Fig. 183; cf. Fig. 390). Males, females and juveniles can also be distinguished from all known congeners by their ‘palisade’ type burrow entrances (Figs. 11, 12), convergently similar only to four species of *Euoplos* in the



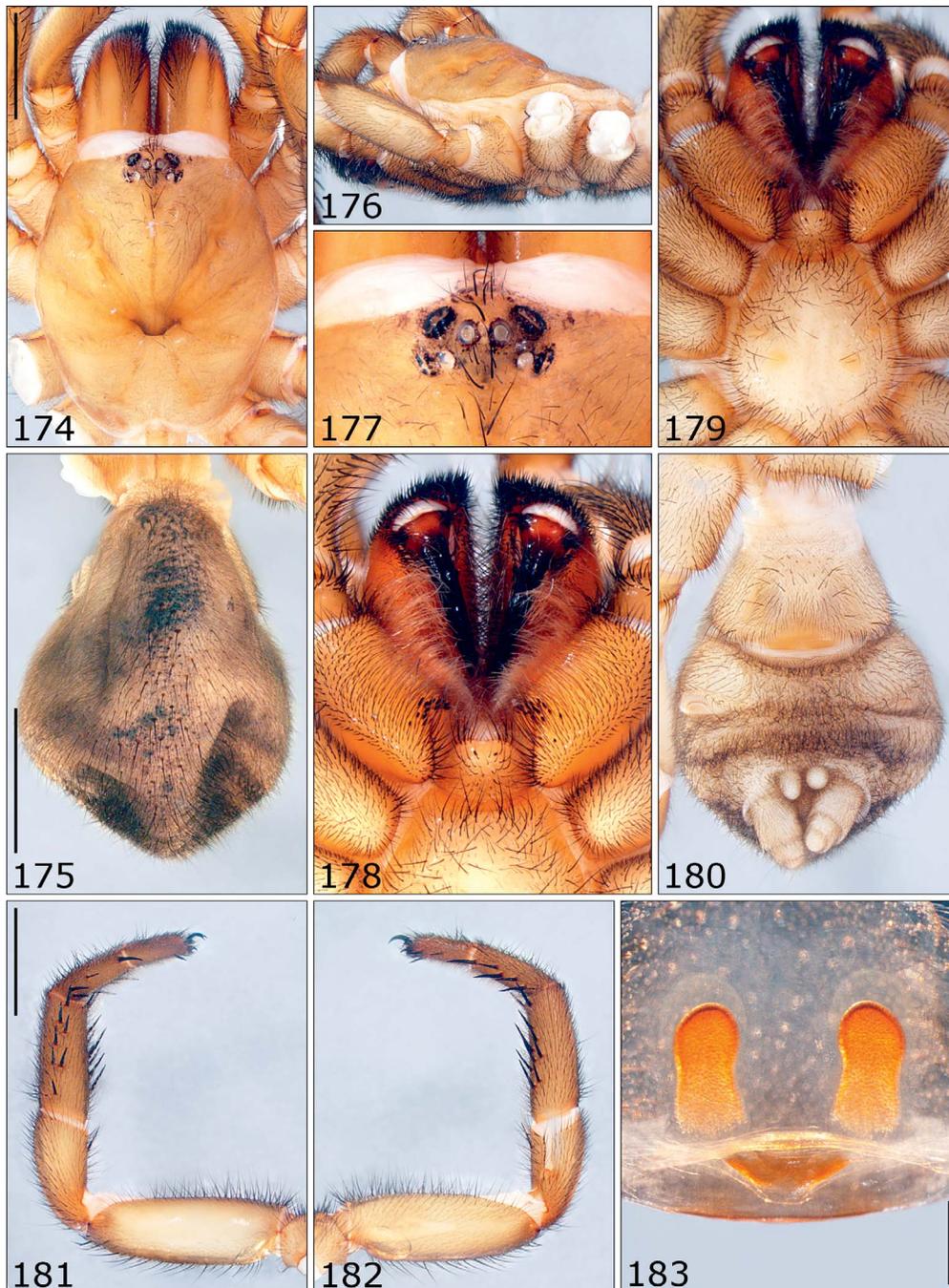
Figures 171–173.—*Cryptoforis fallax* sp. nov., male holotype (QMB S108340) from Sherwood Creek Road, New South Wales, pedipalp: 171, retrolateral view; 172, retroventral view; 173, prolateral view. Scale bar = 3.0.

turrificus-group which occur in south-eastern Queensland (see Wilson et al. 2019).

Description (male holotype).—Total length 16.46. *Carapace*: 6.57 long, 6.09 wide (length/width = 1.08); carapace and chelicerae uniform orange (red-brown in life); carapace with bristle-like setae around margins and in lines and patches on pars thoracica; fovea slightly procurved (length/width = 0.14) (Fig. 161). *Ocular region*: on raised mound (Fig. 163); eye group rectangular (width/length = 1.72); length 0.83, anterior width 1.32, posterior width 1.42. Eye diameters: PLE (0.41) > ALE (0.38) > AME (0.30) > PME (0.28) (Fig. 164). *Mouthparts*: maxillae with 10–15 spinules on antero-ental edge; labium 1.72x wider than long, with two spinules on anterior edge (Fig. 165). *Sternum*: length/width = 1.14; posterior sigilla moderate size, ovoid, closer to sternum edge than to each other (Fig. 166). *Abdomen*: 6.06 long, 4.25 wide, ovoid; dorsal surface dark charcoal-brown (same in life) with beige, square-ended, lateral chevrons; sparse coat of hair-like setae (Figs. 162, 167) *Legs*: concolorous with carapace; scopulae along entire length of ventral tarsi I–II, and on distoventral metatarsi I–II; leg I length: 22.51 (6.79, 3.51, 5.33, 4.35, 2.53); leg I length/carapace length = 3.43; tibia I length/width = 4.76 (Fig. 168). *Tibia I*: with bifurcate, prolateral clasp spur, oriented dorso-ventrally; macrosetae on ventral prominence short and sharp; cuticle on and around clasp spur mostly without black pigmentation (Figs. 169, 170) *Pedipalp*: tibia 1.70x longer than wide in retrolateral view; RTA small, conical, projecting from position about 60% of the way along tibia, at an angle of about 35° to tibia midline; field of 50–60 spinules on/around RTA; cymbium with short, spine-like setae on distal third/half (Figs. 171–173). *Copulatory organ*: total length about 65% of pedipalp tibia length;

embolus about 1.5x length of bulb, curved and twisted about 90°, tip about 0.6x as wide as base (Figs. 171–173).

Description (female paratype QMB S108389).—Total length 19.92. *Carapace*: 8.16 long, 6.91 wide (length/width = 1.18); carapace and chelicerae light tan-orange (much darker brown in life); carapace glabrous; fovea strongly procurved (length/width = 0.33) (Fig. 174). *Ocular region*: on raised mound (Fig. 176); eye group rectangular (width/length = 2.08); length 0.86, anterior width 1.53, posterior width 1.79. Eye diameters: PLE (0.53) > ALE (0.44) > AME (0.27) > PME (0.26) (Fig. 177). *Mouthparts*: maxillae with about 20 cuspules on antero-ental edge; labium 1.62x wider than long, with two cuspules on anterior edge (Fig. 178). *Sternum*: length/width = 1.08, posterior sigilla moderate size, ovoid, closer to sternum edge than to each other (Fig. 179). *Abdomen*: 7.79 long, 5.67 wide, ovoid; surface mottled with tan and brown patches (dark brown in life) with faint, square-ended, lateral chevrons; sparse coat of hair-like setae interspersed with bristle-like setae (Figs. 175, 180). *Internal genitalia*: spermathecae length 0.78 (length/carapace length = 0.096); crown width 0.37 (width/carapace length = 0.046); stem roughly equal in length to crown (0.96x), crown and stem virtually equal in width (1.07x); crown rounded, slightly darker than stem, transition between stem and crown indistinct (Fig. 183). *Legs*: concolorous with carapace; scopulae present on pedipalp tarsi, and tarsi and metatarsi I–II, at moderate density, not obscuring macrosetae; leg I length = 16.83 (5.33, 3.63, 3.27, 2.43, 1.71); leg I length/carapace length = 2.01; tibia I length/width = 2.41. Leg I macrosetation: femur 0; patella 0; tibia 16(7PL, 1V, 5RV, 4RL); metatarsus 10(4PL, 6RL); tarsus 3(1V, 2RL); total = 29 (Figs. 181, 182).



Figures 174–183.—*Cryptoforis fallax* sp. nov., female paratype(QMB S103338) from Sherwood Creek Road, New South Wales: 174, 175, carapace and abdomen, dorsal view; 176, cephalothorax, lateral view; 177, eyes, dorsal view; 178, mouthparts, ventral view; 179, 180, cephalothorax and abdomen, ventral view; 181, leg I, prolateral view; 182, leg I, retrolateral view; 183, spermathecae, dorsal view. Scale bars = 3.0 (174, 175, 181), 0.5 (183).

Distribution and remarks.—*Cryptoforis fallax* occurs within Conglomerate State Forest, in the southern part of the Clarence Sandstones subregion of New South Wales (Fig. 18). The habitat in this area is predominantly tall, open eucalypt forest, with patches of riparian rainforest/vine-thicket. Based on the holotype, some males appear to be mature in their burrow in winter, although the window when males wander in search of females is currently unknown. The burrow entrance architec-

ture of this species is unique for the genus, and remarkably similar to that constructed by species in the *turrificus*-group of *Euoplos* (see Wilson et al. 2019). *Cryptoforis fallax* makes a ‘palisade’ burrow entrance which projects slightly from the surrounding substrate, widening to a flanged opening (Figs. 9, 10). The entrance and door are distinctly ‘D-shaped’, with a relatively wide hinge, and the door itself is constructed using soil as the primary substrate. Despite the similarity in burrow

entrance structure between *C. fallax* and the *Euoplos turrificus*-group, morphology and molecular data place *C. fallax* firmly within *Cryptoforis*, and the burrow therefore likely represents a case of striking convergent evolution. Burrows appear to be most common on the steep, exposed embankments of riparian zones. *Cryptoforis fallax* is part of the *celata*-group, a phylogenetic clade of *Cryptoforis* from north-eastern New South Wales. *Cryptoforis absona* and *C. celata* are also part of this species-group (Figs. 14, 15).

***Cryptoforis grayi* Wilson, Raven & Rix, sp. nov.**

http://zoobank.org/NomenclaturalActs/C4CDFE53-56D5-42FB-9E12-B7E3F76AC22F
(Figs. 18, 184–206)

Euoplos ‘morpho-species 20’ Wilson et al., 2018: 159, 160, suppl. file 1.

Euoplos ‘MountBoss’/‘morpho-species 12’ Wilson et al., 2020: 548, figs. 3–5.

Type material.—*Holotype male*. AUSTRALIA: *New South Wales*: Werrikimbe National Park, North Plateau Road, 31°11’S, 152°20’E, 1120 m, 4 February–9 April 1993, M. Gray, G. Cassis (AMS KS038662).

Paratypes. AUSTRALIA: *New South Wales*: 1 ♀, Mount Boss region, Cockerawombeeba Trail, 31°13’S, 152°20’E, 900 m, excavated from burrow, rainforest, 15 December 2016, J. Wilson (QMB S108391); 1 ♂, Mount Boss State Forest, 31°15’S, 152°31’E, October 1980, G. Webb (Forestry Commission) (AMS KS042844); 5 ♂, same data except Mount Boss State Forest, Easy Creek, 31°11’S, 152°22’E (AMS KS043548).

Etymology.—The specific epithet is in honor of Mike Gray, for his contributions to arachnology, especially his taxonomic work on the mygalomorph family Atracidae. Mike Gray, alongside Gerry Cassis, was involved in sampling many of the *Cryptoforis* species now known from New South Wales.

Diagnosis.—Males of *Cryptoforis grayi* can be distinguished from those of all known congeners, except *C. arenaria*, *C. cairncross*, *C. cooloola* and *C. tasmanica*, by the presence of scopulae on tarsus IV (Fig. 394). Males of *C. grayi* can be distinguished from *C. arenaria*, *C. cairncross* and *C. cooloola* by the absence of a prominent, semi-spherical swelling at the base of the RTA (Fig. 194; cs. Figs. 66, 79, 148); and from *C. tasmanica* by the embolus, which has a wider tip relative to the base (Figs. 194–196; cf. Figs. 299–301).

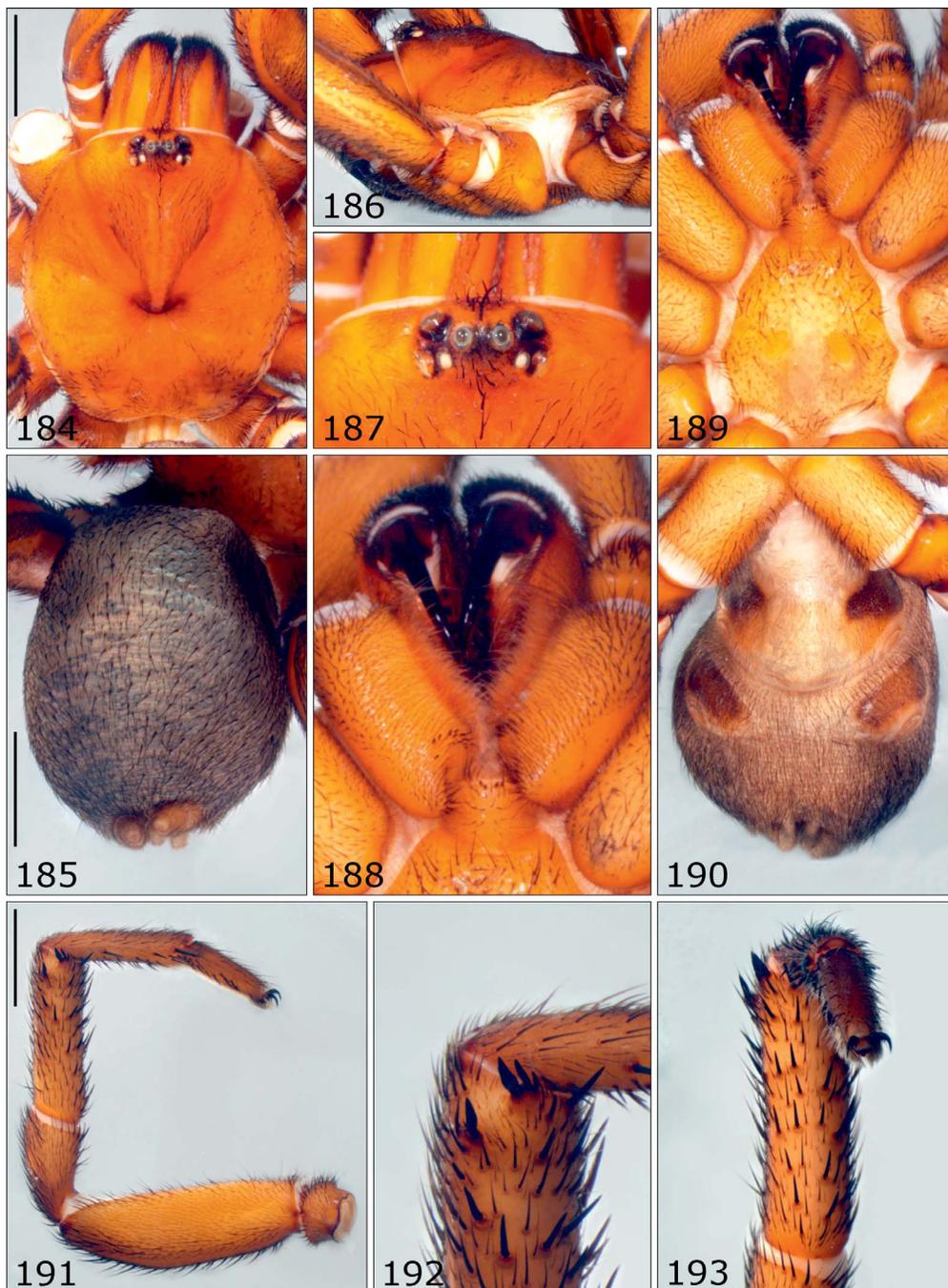
Females of *C. grayi* can be distinguished from those of all known congeners except *C. cassisi* by the spermathecae, which are proportionally shorter, with very short, indistinct stems (Fig. 206; cf. Figs. 42, 137, 229). Females of *C. grayi* can be distinguished from *C. cassisi* by the more spinose leg I (Figs. 204, 205; cf. Figs. 112, 113), and by the absence of short, spine-like setae on the dorsal abdomen (Fig. 198; cf. Fig. 106).

Description (male holotype).—Total length 20.85. *Carapace*: 8.51 long, 8.07 wide (length/width = 1.05); carapace and chelicerae uniform orange-brown; carapace with bristle-like setae around margins and in lines and patches on pars thoracica; fovea strongly procurved (length/width = 0.28) (Fig. 184). *Ocular region*: on raised mound (Fig. 186); eye group rectangular (width/length = 2.01); length 0.96, anterior width 1.80, posterior width 1.93. Eye diameters: PLE (0.45) > ALE

(0.43) > AME (0.37) > PME (0.32) (Fig. 187). *Mouthparts*: maxillae with about 25 cuspules on antero-ental edge; labium 1.52x wider than long, with 4 cuspules on anterior edge (Fig. 188). *Sternum*: length/width = 1.06; posterior sigilla large, ovoid, slightly closer to each other than to sternum edge (Fig. 189). *Abdomen*: 8.57 long, 6.99 wide, ovoid; dorsal surface grey-brown without pattern; sparse coat of hair-like setae (Figs. 185, 190). *Legs*: concolorous with carapace; scopulae along entire length of ventral tarsi I–IV, and on distoventral metatarsi I and II; leg I length = 23.30 (7.47, 3.74, 4.83, 4.70, 2.56); leg I length/carapace length = 2.74; tibia I length/width = 3.08 (Fig. 191). *Tibia I*: with bifurcate, prolateral clasp spur, oriented roughly dorso-ventrally, but slightly more oblique than in other species (dorsal spur more proximal); macrosetae on ventral prominence relatively long and sharp; cuticle on and around clasp spur mostly without dark pigmentation (Figs. 192, 193). *Pedipalp*: tibia 1.74x longer than wide in retrolateral view; RTA short, triangular; projecting from position about 50% of the way along tibia, at an angle of about 35° to tibia midline; field of about 80–90 spinules on/around RTA; cymbium with very short, spine-like setae on distal third/half (Figs. 194–196). *Copulatory organ*: total length about 65% of pedipalp tibia length; embolus about 1.2x length of bulb, curved and twisted about 90°, tip about 0.8x width of base (Figs. 194–196).

Description (female paratype QMB S108391).—Total length 25.92. *Carapace*: 9.76 long, 8.60 wide (length/width = 1.14); carapace and chelicerae uniform orange-brown (darker brown in life); carapace glabrous; fovea strongly procurved (length/width = 0.28) (Fig. 197). *Ocular region*: on raised mound (Fig. 199); eye group rectangular (width/length = 1.96); length 1.11, anterior width 1.87, posterior width 2.17. Eye diameters: PLE (0.58) > ALE (0.45) > AME (0.36) > PME (0.35) (Fig. 200). *Mouthparts*: maxillae with about 20 cuspules on antero-ental edge; labium 1.49x wider than long, with two cuspules on anterior edge (Fig. 201). *Sternum*: length/width = 1.05; posterior sigilla large, ovoid, closer to each other than to sternum edge (Fig. 202). *Abdomen*: 11.53 long, 9.98 wide, ovoid; dorsal surface brown (darker brown in life) with no abdominal pattern; sparse coat of hair-like setae interspersed with bristle-like setae (Figs. 198, 203). *Internal genitalia*: spermathecae length 0.51 (length /carapace length = 0.053); crown width 0.41 (width /carapace length = 0.042); stem much shorter than crown (0.39x), crown much wider than stem (1.95x); crown rounded, concolorous with indistinct stem (Fig. 206). *Legs*: concolorous with carapace; scopulae present on pedipalp tarsi, and tarsi and metatarsi I–II, at moderate density, not obscuring macrosetae; Leg I length = 17.46 (6.14, 4.02, 3.36, 2.24, 1.70); leg I length/carapace length = 1.79; tibia I length/width = 1.86. Leg I macrosetation: femur 0; patella 0; tibia 10(3PL, 1V, 3RV, 3RL); metatarsus 7(3PL, 4RL); tarsus 4(2V, 2RL); total = 21 (Figs. 204, 205).

Distribution and remarks.—*Cryptoforis grayi* is known from the region around Mount Boss, New South Wales, in the Mount Boss State Forest and Werrikimbe National Park. The habitat in this area is predominantly tall open eucalypt forest and subtropical rainforest, with cool-temperate rainforest/cloud forest at higher elevations (Fig. 18). Males appear to wander in search of females from late spring to early autumn. This species builds a wafer-door burrow entrance typical of



Figures 184–193.—*Cryptoforis grayi* sp. nov., male holotype (AMS KS038662) from Werrikimbe National Park, New South Wales, somatic morphology: 184, 185, carapace and abdomen, dorsal view; 186, cephalothorax, lateral view; 187, eyes, dorsal view; 188, mouthparts, ventral view; 189, 190, cephalothorax and abdomen, ventral view; 191, leg I, prolateral view; 192, 193, leg I tibia, prolateral and proventral views. Scale bars = 3.0.

the genus, using humus fragments as the primary substrate in the door (similar to Figs. 5–8). The paratype female described above was collected from a burrow of this kind on lightly sloping ground with a loose leaf-litter layer (similar to Figs. 11–13). *Cryptoforis grayi* is part of the *grayi*-group, a phylogenetic clade of *Cryptoforis* from central-eastern New South Wales. *Cryptoforis cassisi* is also part of this species-group (Figs. 14, 15).

Cryptoforis hickmani Wilson, Raven & Rix, sp. nov.
<http://zoobank.org/NomenclaturalActs/6B57E707-D947-4780-91D0-407C86171F85>
 (Figs. 19, 207–229)

Euoplos ‘SpurrsRivulet’/‘morpho-species 8’ Wilson et al., 2020: 548, figs. 4, 5.



Figures 194–196.—*Cryptoforis grayi* sp. nov., male holotype (AMS KS038662) from Werrikimbe National Park, New South Wales, pedipalp: 194, retrolateral view; 195, retroventral view; 196, prolateral view. Scale bar = 3.0.

Type material.—*Holotype male.* AUSTRALIA: *Tasmania*: Spurrs Rivulet, near Mother Logans Creek, via Terrys Hill Road, 41°13'S, 148°07'E, pitfall trap, March 2001, M. MacDonald (QMB S110508).

Paratypes. AUSTRALIA: *Tasmania*: 1 ♂, Spurrs Rivulet, near Peters Road, 41°09'S, 148°08'E, pitfall trap, March 2001, M. MacDonald (QMB S110510); 1 ♂, same data except 41°09'S, 148°07'E (QMB S110509); 2 ♂, same data except February 2001 (QMB S110507)

Other Material Examined.—AUSTRALIA: *Tasmania*: 1 ♂, Beaumaris South, habitat strip near Coach Road, 41°25'S, 148°15'E, pitfall trap, March 2001, M. MacDonald (QMB S110513); 1 ♂, same data except habitat strip near Scamander River, 41°27'S, 148°15'E, February 2001 (QMB S110511); 1 ♂, Old Chum Dam Area, 41°04'S, 148°03'E, pitfall trap, Pioneer WHS project, February 2000, M. McCormick (QVM:2018:13:0365); 1 ♂, Spurrs Rivulet, near Cornwall, 41°33'S, 148°09'E, pitfall trap, March 2001, M. MacDonald (QMB S110512); 1 ♀, The Gardens, 41°11'S, 148°16'E, 01 January 1981, Mrs Wright (QVM:2018:13:0374).

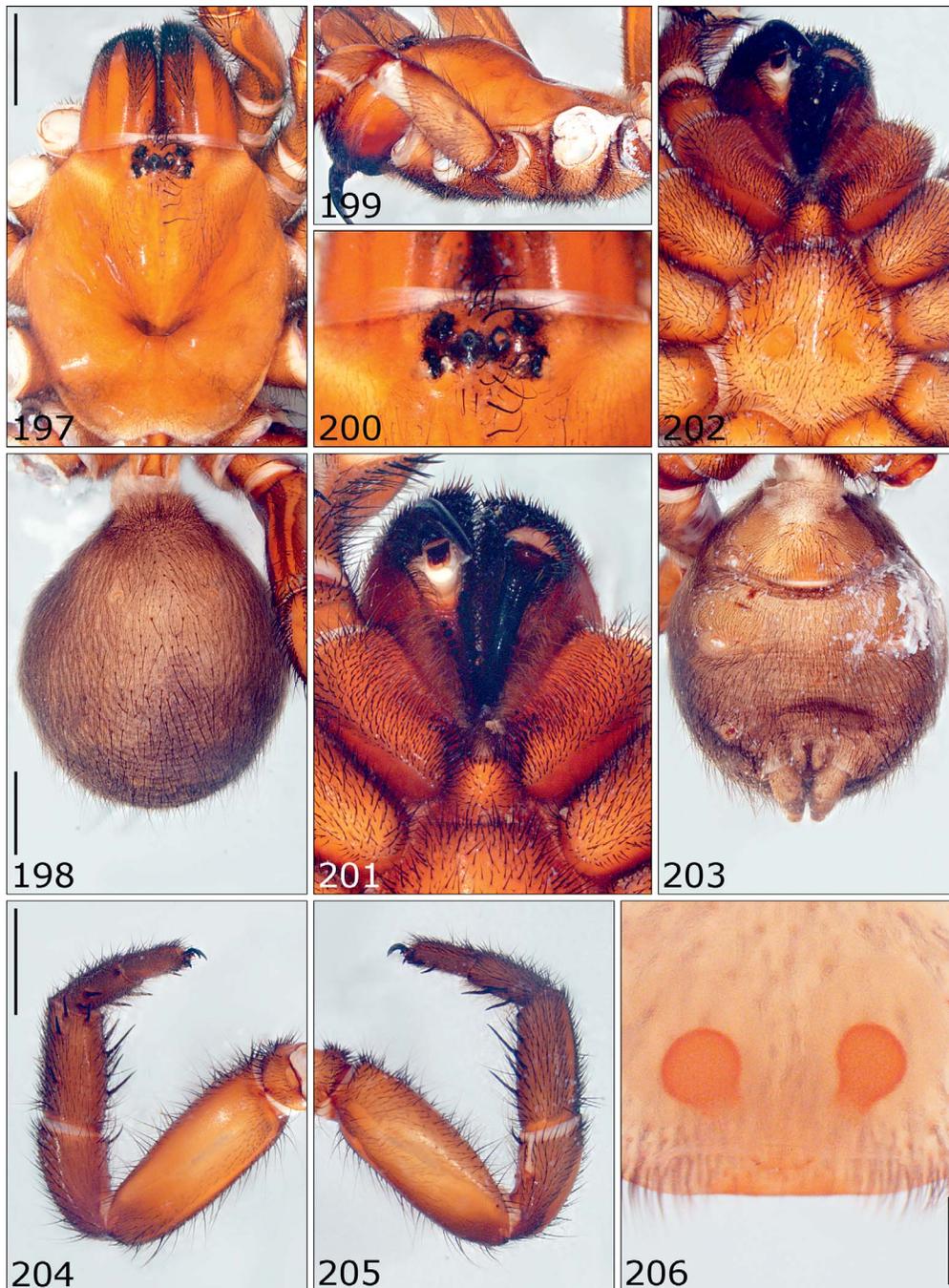
Etymology.—The specific epithet is in honor of the late Vernon V. Hickman (1894–1984), for his enormous contributions to arachnology, and for describing many Tasmanian spider species, including *C. tasmanica*.

Diagnosis.—Males of *C. hickmani* can be distinguished from those of all known congeners, except *C. cassisi*, *C. monteithi*, *C. xenophila* and *C. zophera* by the combined presence of scopulae along the entire length of the ventral tarsus III (Fig. 391), and the absence of scopulae on tarsus IV (Fig. 395). Males of *C. hickmani* can be distinguished from *C. cassisi* and *C. monteithi* by the embolus, which has a thinner tip relative to the base (Figs. 217–219; cf. Figs. 102–104, 286–288); from *C.*

xenophila by the distal segments of leg I which are less spinose (Fig. 214; cf. Fig. 352), and by a less heavily pigmented prolateral clasp spur (Figs. 215, 216; cf. Figs. 353, 354); and from *C. zophera* by prolateral, bifurcate clasp spurs on tibia I which are oriented roughly dorso-ventrally rather than longitudinally (Figs. 215, 216; cf. Figs. 376, 377).

Females of *C. hickmani* can be distinguished from *C. hughesae*, *C. cairncross* and *C. cooloola* by the presence of dense scopulae on the pedipalp and legs I–II (Figs. 227, 228; cf. Figs. 40, 41, 89, 90, 158, 159); from *C. cassisi* and *C. grayi* by the spermathecae, which have proportionally longer stems (Fig. 229; cf. Figs. 114, 206); from *C. fallax*, *C. montana*, and *C. victoriensis* by the less spinose leg I (Figs. 227, 228; cf. Figs. 181, 182, 273, 274, 319, 320); from *C. celata*, *C. mainae* and *C. woondum* by the more dense scopulae on leg I (Figs. 227, 228; cf. Figs. 135, 136, 250, 251, 342, 343) and by the spermathecae, which have narrower stems (Fig. 229; cf. Figs. 137, 252, 344); and from *C. zophera* by the spermathecae, which are shorter, and less elongate (Fig. 229; cf. Fig. 390). Females of *C. hickmani*, *C. tasmanica* and *C. xenophila* are indistinguishable morphologically based on current data; males are required for accurate identification.

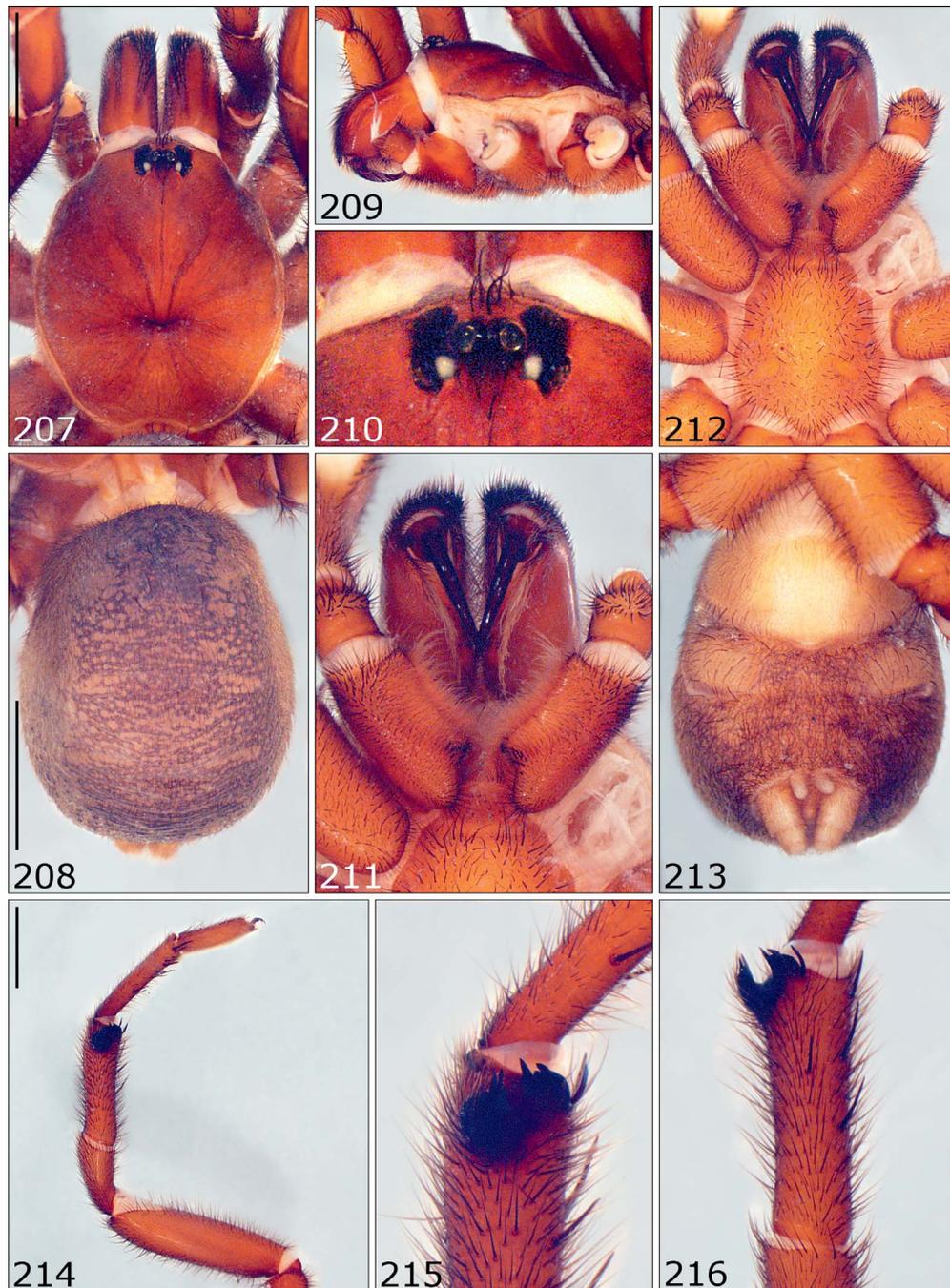
Description (male holotype).—Total length 17.53. *Carapace*: 7.62 long, 6.69 wide (length/width = 1.14); carapace and chelicerae uniform dark orange-brown; carapace glabrous, with inconspicuous bristle-like setae around margins; fovea slightly procurved (length/width = 0.19) (Fig. 207). *Ocular region*: on raised mound (Fig. 209), eye group rectangular (width/length = 1.87); length 0.84, anterior width 1.54, posterior width 1.57. Eye diameters: ALE (0.47) > PLE (0.46) > AME (0.35) > PME (0.28) (Fig. 210). *Mouthparts*: maxillae with about 30 cuspules on antero-ental edge; labium



Figures 197–206.—*Cryptoforis grayi* sp. nov., female paratype (QMB S108391) from Mount Boss, New South Wales: 197, 198, carapace and abdomen, dorsal view; 199, cephalothorax, lateral view; 200, eyes, dorsal view; 201, mouthparts, ventral view; 202, 203, cephalothorax and abdomen, ventral view; 204, leg I, prolateral view; 205, leg I, retrolateral view; 206, spermathecae, dorsal view. Scale bars = 3.0 (197, 198, 204), 0.5 (206).

2.07x wider than long, cuspules absent (Fig. 211). *Sternum*: length/width = 1.14; posterior sigilla small/moderate size, ovoid, closer to sternum edge than to each other (Fig. 212). *Abdomen*: 6.91 long, 5.56 wide, ovoid; dorsal surface light brown with faint sigilla-spots; sparse coat of hair-like setae (Figs. 208, 213). *Legs*: concolorous with carapace; scopulae along entire length of ventral tarsi I–III, and on distoventral metatarsi I–II; leg I length = 21.08 (6.58, 3.19, 4.31, 4.37, 2.62);

leg I length/carapace length = 2.77; tibia I length/width = 3.64 (Fig. 214). *Tibia I*: with bifurcate prolateral clasp spur, oriented roughly dorso-ventrally; macrosetae on ventral prominence relatively long and sharp; cuticle on and around clasp spur thickened and black (Figs. 215, 216). *Pedipalp*: tibia 1.82x longer than wide in retrolateral view; RTA very short, triangular; projecting from position about 50% of the way along tibia, at an angle of about 20° to tibia midline; field



Figures 207–216.—*Cryptoforis hickmani* sp. nov., male holotype (QMB S110508) from Spurrs Rivulet, Tasmania, somatic morphology: 207, 208, carapace and abdomen, dorsal view; 209, cephalothorax, lateral view; 210, eyes, dorsal view; 211, mouthparts, ventral view; 212, 213, cephalothorax and abdomen, ventral view; 214, leg I, prolateral view; 215, 216, leg I tibia, prolateral and proventral views. Scale bars = 3.0.

of about 130–140 spinules on and around RTA; cymbium with hair-like setae only (Figs. 217–219). *Copulatory organ*: total length about 60% of pedipalp tibia length; embolus about 1.2x length of bulb, curved and twisted about 90°, tip about 0.2x width at base (Figs. 217–219).

Description (female QVM:2018:13:0374).—Total length 21.53. *Carapace*: 9.44 long, 7.57 wide (length/width = 1.25); carapace and chelicerae uniform orange-brown; carapace glabrous; fovea procurved (length/width = 0.28) (Fig. 220).

Ocular region: on raised mound (Fig. 222); eye group rectangular (width/length = 1.94); length 0.95, anterior width 1.57, posterior width 1.85. Eye diameters: ALE (0.44) > PLE (0.41) > AME (0.30) > PME (0.24) (Fig. 223). *Mouthparts*: maxillae with about 30–35 cuspules on antero-ental edge; labium 1.60x wider than long, with one cuspule present on anterior edge (Fig. 224). *Sternum*: length/width = 1.15; posterior sigilla moderate, ovoid, closer to sternum edge than to each other (Fig. 225). *Abdomen*: 9.52 long, 7.70 wide, ovoid;



Figures 217–219.—*Cryptoforis hickmani* sp. nov., male holotype (QMB S110508) from Spurrs Rivulet, Tasmania, pedipalp: 217, retrolateral view; 218, retroventral view; 219, prolateral view. Scale bar = 3.0.

dorsal surface brown, with faint sigilla-spots and faint, tapering, lateral chevrons; sparse coat of hair-like setae (Figs. 221, 226). *Internal genitalia*: spermathecae length 0.82 (length / carapace length = 0.043); crown width 0.41 (width / carapace length = 0.043); stem slightly longer than crown (1.06x), crown wider than stem (1.58x); crown rounded, concolorous with stem (Fig. 229). *Legs*: concolorous with carapace; scopulae present on pedipalp tarsi, and tarsi and metatarsi I and II, at heavy density, slightly obscuring macrosetae; Leg I length = 16.84 (5.65, 3.55, 3.08, 2.46, 2.09); leg I length/carapace length = 1.78; tibia I length/width = 1.90. Leg I macrosetation: femur 0; patella 0; tibia 4(1PL, 3RV); metatarsus 5(2PL, 3RL); tarsus 3(2V, 1RL); total = 12 (Figs. 227, 228).

Distribution and remarks.—*Cryptoforis hickmani* is known from the Ben Lomond and Flinders bioregions of north-eastern Tasmania (Fig. 19). Localities where *C. hickmani* has been collected are predominantly open eucalypt forest, interspersed with regions of tall open eucalypt forest (wet sclerophyll). Males appear to wander in search of females during late summer to early autumn. The burrow constructed by this species is unknown. *Cryptoforis hickmani* is part of the *tasmanica*-group, a phylogenetic clade of *Cryptoforis* from Tasmania. *Cryptoforis tasmanica* and *C. xenophila* are also part of this species-group (Figs. 14, 15).

Cryptoforis mainae Wilson, Raven & Rix, sp. nov.

<http://zoobank.org/NomenclaturalActs/70DFE4B5-933A-4BE4-86A5-161940105A0F>
(Figs. 1, 18, 230–252)

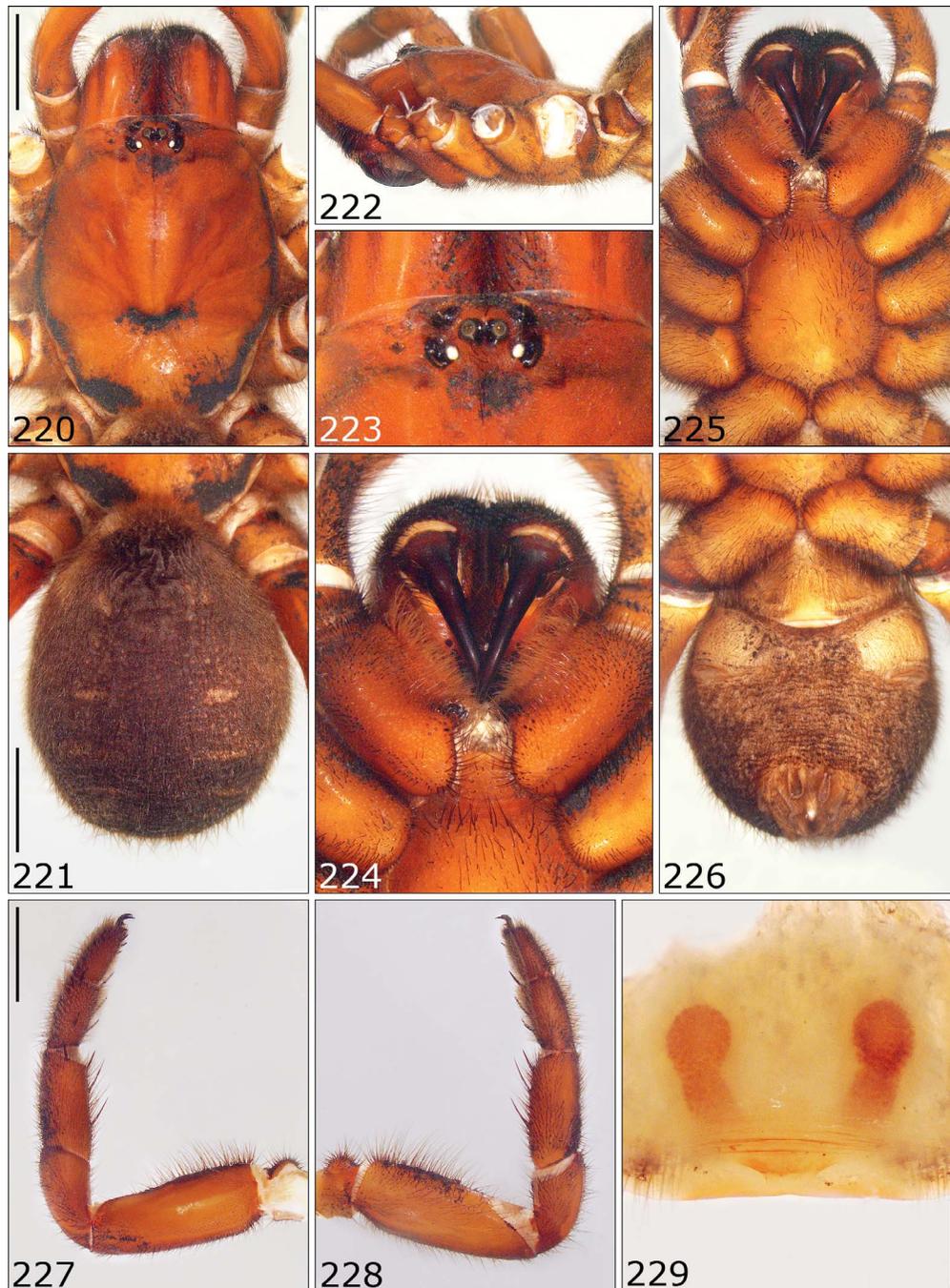
Euoplos ‘morpho-species 17’ (in part) Wilson et al., 2018: 159, 160, suppl. file 1.

Euoplos ‘MountTamborine’/‘morpho-species 17’ Wilson et al., 2020: 548, figs. 3–5.

Type material.—*Holotype male*. AUSTRALIA: *Queensland*: Mount Tamborine, Palm Grove section, 27°56’S, 153°12’E, 670 m, pitfall trap, rainforest, 14 December 1974–22 March 1975, G. & S. Monteith (QMB S1390).

Paratypes. AUSTRALIA: *Queensland*: 1 ♂, Mount Tamborine, Joalah Section, 27°55’S, 153°12’E, 480 m, excavated from burrow, rainforest, 29 April 2018, J. Wilson, M. Rix, K. Abrams (QMB S111315); 1 ♀, Mount Tamborine, Zamia Grove Section, 27°58’S, 153°11’E, 530 m, excavated from burrow, rainforest, 19 January 2017, J. Wilson, M. Rix (QMB S18375); 1 ♂, Mount Tamborine, 27°58’S, 153°12’E, 14 May 1993 (QMB S20995); 1 ♀, Mount Tamborine, 27°58’S, 153°12’E, 8 January 1982 (QMB S9855); 1 ♀, North Tamborine, 27°56’S, 153°11’E, 27 July 1956, J. Stevens (QMB S8797).

Other material examined.—AUSTRALIA: *Queensland*: 1 ♂, Beechmont, 28°08’S, 153°11’E, 7 January 2006, G. Barb (QMB S73268); 1 ♂, same data (QMB S73720); 1 ♂, Bilbrough Lookout, 28°14’S, 153°17’E, 500 m, pitfall trap, brushbox, 4–11 February 2006, D. Cook (QMB S8000); 3 ♂, 2 ♀, Lamington National Park, O’Reilly’s section, 28°14’S, 153°08’E, 960 m, pitfall trap, rainforest, 15–24 January 1982, G. Monteith, R. Raven, D. Yeates (QMB S9030); 2 ♂, Levers Plateau, 28°19’S, 152°51’E, 720 m, intercept trap, rainforest, 2 December 1991–6 January 1992, D. Cook (QMB S20612); 1 ♂, same data except 6 January–29 February 1992 (QMB S20607); 1 ♂, Numinbah Towers, 28°08’S, 153°13’E, 3 March 2000, B. Hands (QMB S52223); 1 ♂, Plateau south of ‘The Head’, via Killarney, 28°20’S, 152°19’E, 1070 m, pitfall trap, rainforest, 31 March–2 Aug 1975, G. & S. Monteith (QMB

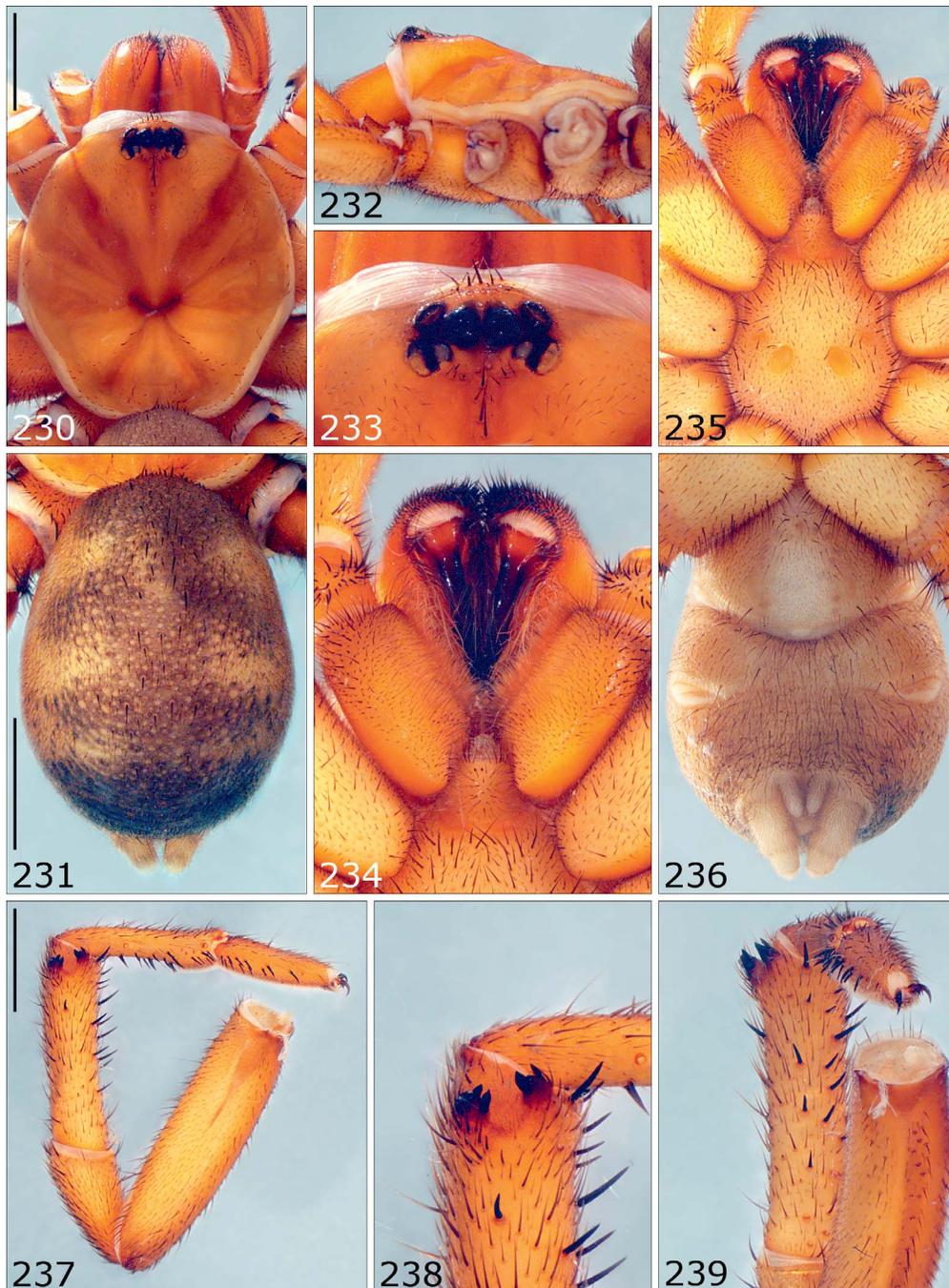


Figures 220–229.—*Cryptoforis hickmani* sp. nov., female (QVM:2018:13:0374) from The Gardens, Tasmania: 220, 221, carapace and abdomen, dorsal view; 222, cephalothorax, lateral view; 223, eyes, dorsal view; 224, mouthparts, ventral view; 225, 226, cephalothorax and abdomen, ventral view; 227, leg I, prolateral view; 228, leg I, retrolateral view; 229, spermathecae, dorsal view. Scale bars = 3.0 (220, 221, 227), 0.5 (229).

S9896); 1 ♀, Rosin's Lookout, via Beechmont, 28°07'S, 153°12'E, 21 March 2002, G. Monteith (QMB S96957); 1 ♀, Springbrook, 28°13'S, 153°16'E, 770 m, excavated from burrow, rainforest, 28 June 2016, J. Wilson (QMB S32162); 1 ♂, Springbrook, 28°12'S, 153°17'E, rainforest, on edge of high water mark, 13 December 1991, Mr Wild (QMB S33680); 1 ♀, Stanthorpe, 28°40'S, 151°56'E, 2 July 1979, C. Hockings (QMB S8808); 1 ♂, Tallebudgera Valley, 28°14'S, 153°18'E,

560 m, intercept trap, rainforest, 28 December 1991–6 March 1992, D. Cook (QMB S20611); 1 ♀, Upper Beechmont, 28°10'S, 153°11'E, 28 June 1977, G. Collum (QMB S9893); 1 ♂, Upper Tallebudgera Valley, 28°08'S, 153°24'E, March–July 1985, D. Cook (QMB S9886).

New South Wales: 1 ♂, 1 ♀, Alstonville, 28°50'S, 153°26'E, rainforest, 1 September 1995–1 March 1996, G. Sharp (QMB S29663); 1 ♂, Beauray State Forest, 28°33'S, 152°19'E, 630 m, 4



Figures 230–239.—*Cryptoforis mainae* sp. nov., male holotype (QMB S1390) from Mount Tamborine, Queensland, somatic morphology: 230, 231, carapace and abdomen, dorsal view; 232, cephalothorax, lateral view; 233, eyes, dorsal view; 234, mouthparts, ventral view; 235, 236, cephalothorax and abdomen, ventral view; 237, leg I, prolateral view; 238, 239, leg I tibia, prolateral and proventral views. Scale bars = 3.0.

February–9 April 1993, M. Gray, G. Cassis (AMS KS038675); 1 ♂, same data except Wallaby Road, 28°24'S, 152°27'E, 410 m (AMS KS038677); 1 ♂, Blue Gum Lookout, via Mallanganee, 28°49'S, 152°44'E, 580 m, pitfall trap, rainforest, 7 February–27 May 1978, G. & S. Monteith (QMB S9192); 1 ♀, Border Ranges National Park, via Lions Road, 28°21'S, 152°58'E, 420 m, excavated from burrow, rainforest, 7 August 2016, J. Wilson (QMB S108384); 1 ♀, same data (QMB S38870); 1 ♀, Casino, 28°52'S, 153°03'E, 2 December 1985, M

O'Neill (QMB S9884); 1 ♂, East Ballina, 28°50'S, 153°34'E, 3 May 1985, J. Izzard (AMS KS16011); 1 ♂, Evans Head, 29°07'S, 153°26'E, found in swimming pool, after overnight rain, 8 May 1994, R. Blake (QMB S22634); 1 ♀, Evans Head, forest remnant via Sunderland Street, 29°07'S, 153°26'E, 20 m, excavated from burrow, small block of native vegetation between streets, 7 August 2016, J. Wilson (QMB S32172); 1 ♀, same data (QMB S28710); 1 ♂, Gibberagee State Forest, 29°19'S, 153°05'E, pitfall trap, *Eucalyptus* forest, February



Figures 240–242.—*Cryptoforis mainae* sp. nov., male holotype (QMB S1390) from Mount Tamborine, Queensland, pedipalp: 240, retrolateral view; 241, retroventral view; 242, prolateral view. Scale bar = 3.0.

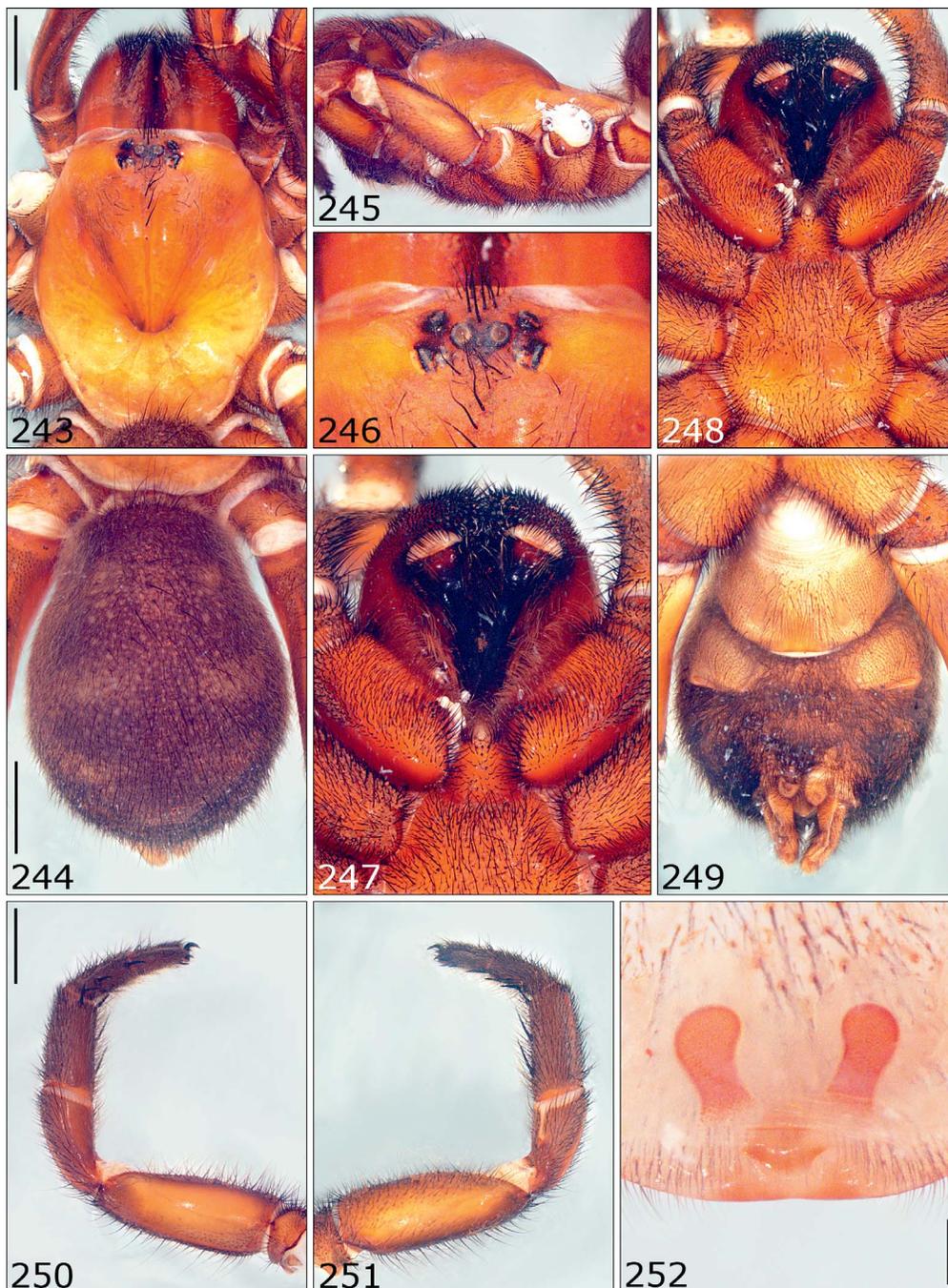
1997, A. York (AMS KS74414); 1 ♂, Koreelah National Park, Acacia Plateau and Wilson's Peak area, 28°18'S, 152°25'E, 600–900 m, sheltered slope, subtropical rainforest, 11 December 1988, Smith, Hines, Pugh, Webber (AMS KS48789); 1 ♂, Lismore, 28°49'S, 153°17'E, 13 March 1991, N. Parker (AMS KS13452); 1 ♂, same data except 4 January 1979, M. Mead (AMS KS2441); 2 ♂, Maclean 29°27'S, 153°13'E, 23 April 1990, C. Warren (AMS KS23328); 1 ♂, Mount Clunie, 28°20'S, 152°32'E, 670 m, pitfall trap, rainforest, 2 August 1975–22 February 1976, G. & S. Monteith (QMB S9897); 1 ♂, Murwillumbah, 28°20'S, 153°24'E, 17 March 1975, D. Ball (QMB S8787); 1 ♂, Nightcap Range, 28°33'S, 153°18'E, 200–300 m, 14 September 1989, Hines, Pugh, Webber, Smith (AMS KS44108); 1 ♂, same data (AMS KS49090); 1 ♂, same data except 28°33'S, 153°19'E, 7 February 1989 (AMS KS49426); 1 ♂, Richmond Range State Forest, Tunners Road, 28°37'S, 152°42'E, 470 m, 4 February–9 April 1993, M. Gray, G. Cassis (AMS KS036005); 1 ♂, Rous Mill, 28°53'S, 153°23'E, 24 April 1984, R. Ahern (AMS KS14369); 1 ♀, same data except 28 November 1980 (AMS KS13620); 1 ♂, Tweed Range, 28°27'S, 153°09'E, 14 September 1989, Hines, Pugh, Webber, Smith (AMS KS044597); 3 ♂, Uki, 28°25'S, 153°20'E, found in pool, 1998–Apr 1999, L. Nagle (QMB S47825); 1 ♂, Wollongbar, 28°49'S, 153°24'E, 1 May 1995, P. Gill (AMS KS043571); 1 ♂, Yabbara State Forest, Yabbara Scrub, 28°39'S, 152°25'E, 14 September 1989, Hines, Pugh, Webber, Smith (AMS KS045659).

Etymology.—The specific epithet is in honor of the late Barbara York Main (1929–2019), for her immense contributions to Australian arachnology, especially the study of mygalomorph spiders. This particular species was chosen to honor Barbara because a statement in her work (Main 1985b:

31) indicated that she knew of its existence, namely when she stated that *E. variabilis* (Rainbow & Pulleine, 1918) (then *Arbanitis variabilis*) “occurs sympatrically on Lamington Plateau with an undescribed species (which has a thinner, less plug-like door)”.

Diagnosis.—Males of *C. mainae* can be distinguished from those of all known congeners, except *C. hughesae*, *C. celata*, and *C. montana*, by the absence of scopulae on tarsi III–IV (Figs. 393, 395). Males of *C. mainae* can be distinguished from *C. hughesae* by the absence of a prominent, semi-spherical swelling at the base of the RTA (Fig. 240; cf. Fig. 30); from *C. celata* and *C. montana* by the embolus, which has a wider tip relative to the base (Figs. 240–242; cf. Figs. 125–127, 263–265); and further from *C. celata* by the RTA, which projects from a more distal position on the palpal tibia (in retrolateral view) (Fig. 240; cf. Fig. 125).

Females of *C. mainae* can be distinguished from *C. hughesae*, *C. cairncross* and *C. cooloola* by the presence of scopulae on the pedipalp and legs I–II (Figs. 250, 251; cf. Figs. 40, 41, 89, 90, 158, 159); from *C. cassis* and *C. grayi* by the spermathecae, which have proportionally longer stems (Fig. 252; cf. Figs. 114, 206); from *C. fallax*, *C. montana*, and *C. victoriensis* by the less spinose leg I (Figs. 250, 251; cf. Figs. 181, 182, 273, 274, 319, 320); from *C. hickmani*, *C. tasmanica* and *C. xenophila* by the less dense scopulae on leg I (Figs. 250, 251; cf. Figs. 227, 228, 309, 310, 365, 366) and the spermathecae, which have wider stems (Fig. 252; cf. Figs. 229, 311, 367); and from *C. zophera* by the spermathecae, which are wider and much less elongate (Fig. 252; cf. Fig. 390). Females of *C. celata*, *C. mainae* and *C. woondum* cannot be distinguished based on current data; males are required for accurate identification.



Figures 243–252.—*Cryptoforis mainae* sp. nov., paratype female (QMB S18375) from Mount Tamborine, Queensland: 243, 244, carapace and abdomen, dorsal view; 245, cephalothorax, lateral view; 246, eyes, dorsal view; 247, mouthparts, ventral view; 248, 249, cephalothorax and abdomen, ventral view; 250, leg I, prolateral view; 251, leg I, retrolateral view; 252, spermathecae, dorsal view. Scale bars = 3.0 (243, 244, 250), 0.5 (252).

Description (male holotype).—Total length 19.95. *Carapace*: 9.28 long, 8.50 wide (length/width = 1.09); carapace and chelicerae uniform tan-orange; carapace glabrous; fovea strongly procurved (length/width = 0.31) (Fig. 230). *Ocular region*: on raised mound (Fig. 232); eye group roughly rectangular (width/length = 2.09); length 1.00, anterior width 1.89, posterior width 2.09. Eye diameters: PLE (0.53) > ALE (0.47) > AME (0.41) > PME (0.25) (Fig. 233). *Mouthparts*:

maxillae with about 25 spinules on antero-ental edge; labium 1.56x wider than long, with two cuspsules on anterior edge (Fig. 234). *Sternum*: length/width = 1.07; posterior sigilla large, ovoid, slightly closer to each other than to edge of sternum (Fig. 235). *Abdomen*: 8.36 long, 6.31 wide, ovoid; dorsal surface brown with beige, tapering, lateral chevrons; sparse coat of hair-like setae interspersed with bristle-like setae (Figs. 231, 236). *Legs*: concolorous with carapace; scopulae

along entire length of ventral tarsi I–II, and on distoventral metatarsi I–II; leg I length = 26.30 (8.21, 3.98, 5.90, 5.09, 3.12); leg I length/carapace length = 2.83; tibia I length/width = 3.68 (Fig. 237). *Tibia I*: with bifurcate, prolateral clasping spur, oriented dorso-ventrally; macrosetae on ventral prominence short and sharp; cuticle on and around clasping spur mostly without dark pigmentation (Figs. 238, 239) *Pedipalp*: tibia 1.93x longer than wide in retrolateral view; RTA moderate size; coniform; projecting from position about 60% of the way along tibia, at an angle of about 30° to tibia midline; field of 50–60 spinules on/around RTA; cymbium with short, spine-like setae on distal third/half (Figs. 240–242). *Copulatory organ*: total length about 65% of pedipalp tibia length; embolus about 1.5x length of bulb, curved and twisted about 90°, tip almost equal in width to base (Figs. 240–242).

Description (female paratype QMB S18375).—Total length 27.14. *Carapace*: 12.12 long, 9.86 wide (length/width = 1.23); carapace and chelicerae orange-brown (darker tan-brown in life); carapace glabrous; fovea strongly procurved (length/width = 0.37) (Fig. 243). *Ocular region*: on raised mound (Fig. 245); eye group roughly rectangular (width/length = 2.29); length 1.25, anterior width 2.43, posterior width 2.86. Eye diameters: PLE (0.60) > ALE (0.57) > AME (0.051) > PME (0.34) (Fig. 246). *Mouthparts*: maxillae with about 20 cuspules on antero-ental edge; labium 1.41x as wide as long, with four cuspules on anterior edge (Fig. 247). *Sternum*: length/width = 1.08; posterior sigilla very large, ovoid, closer to each other than to sternum edge (Fig. 248). *Abdomen*: 11.47 long, 8.67 wide, ovoid; dorsal surface brown (darker brown in life) with beige sigilla-spots and faint, tapering, lateral chevrons; sparse coat of hair-like setae interspersed with bristle-like setae (Figs. 244, 249). *Internal genitalia*: spermathecae length 0.87 (length/carapace length = 0.071); crown width 0.53 (width/carapace length = 0.044); stem roughly equal in length to crown (0.97x), crown wider than stem (1.67x); crown rounded, concolorous with stem, transition between stem and crown indistinct (Fig. 252). *Legs*: concolorous with carapace; scopulae present on pedipalp tarsi, and tarsi and metatarsi I–II, at moderate density, not obscuring macrosetae; leg I length = 20.73 (6.99, 4.69, 3.96, 2.98, 2.11); leg I length/carapace length = 1.71; tibia I length/width = 2.01. Leg I macrosetation: femur 0; patella 0; tibia 5(1PL, 1V, 3RV); metatarsus 6(3PL, 3RL); tarsus 3(1V, 2RL); total = 14 (Figs. 250, 251).

Distribution and remarks.—*Cryptoforis mainae* is found throughout the rainforests and tall eucalypt forests of the ‘scenic rim’ of south-eastern Queensland and north-eastern New South Wales, from Mount Tamborine in the north, throughout the Border Ranges, and into the lowland rainforests of northern New South Wales (Fig. 18). In the north, this species is parapatric with *C. hughesae* (and *C. hughesae* also occurs in the drier forest on Mount Tamborine) and in the south with *C. celata* (Fig. 18). The distribution of this species encompasses that of *C. montana*, which occurs in the higher elevation, cool-temperate rainforests of Lamington National Park where *C. mainae* has not been found (Fig. 18). Males of *C. mainae* appear to wander in search of females throughout the eastern Australian wet season, from late spring to early autumn. This species builds a wafer-door burrow entrance typical of the genus, using humus fragments as the primary substrate in the door (similar to Figs. 5–8). Burrows appear to

be most common on lightly sloping ground with a loose leaf-litter layer (similar to Figs. 11–13), although they can sometimes be found on steeply sloping, exposed embankments. *Cryptoforis mainae* is part of the *mainae*-group, a phylogenetic clade of *Cryptoforis* from south-eastern Queensland and northern New South Wales. *Cryptoforis hughesae*, *C. montana* and *C. woondum* are also part of this species-group (Figs. 14, 15).

***Cryptoforis montana* Wilson, Raven & Rix, sp. nov.**

<http://zoobank.org/NomenclaturalActs/A261854D-B538-4DD3-ACD9-35678956DCC6>
(Figs. 18, 253–275)

Euoplos ‘morpho-species 17’ (in part) Wilson et al., 2018: 159, 160, suppl. file 1.

Euoplos ‘Lamington’/‘morpho-species 16’ Wilson et al., 2020: 548, figs. 3–5.

Type material.—*Holotype male*. AUSTRALIA: Queensland: Lamington National Park, Echo Point, 28°16’S, 153°10’E, 1000 m, intercept trap, rainforest, 27 December 1991–24 March 1992, G. Monteith (QMB S20608).

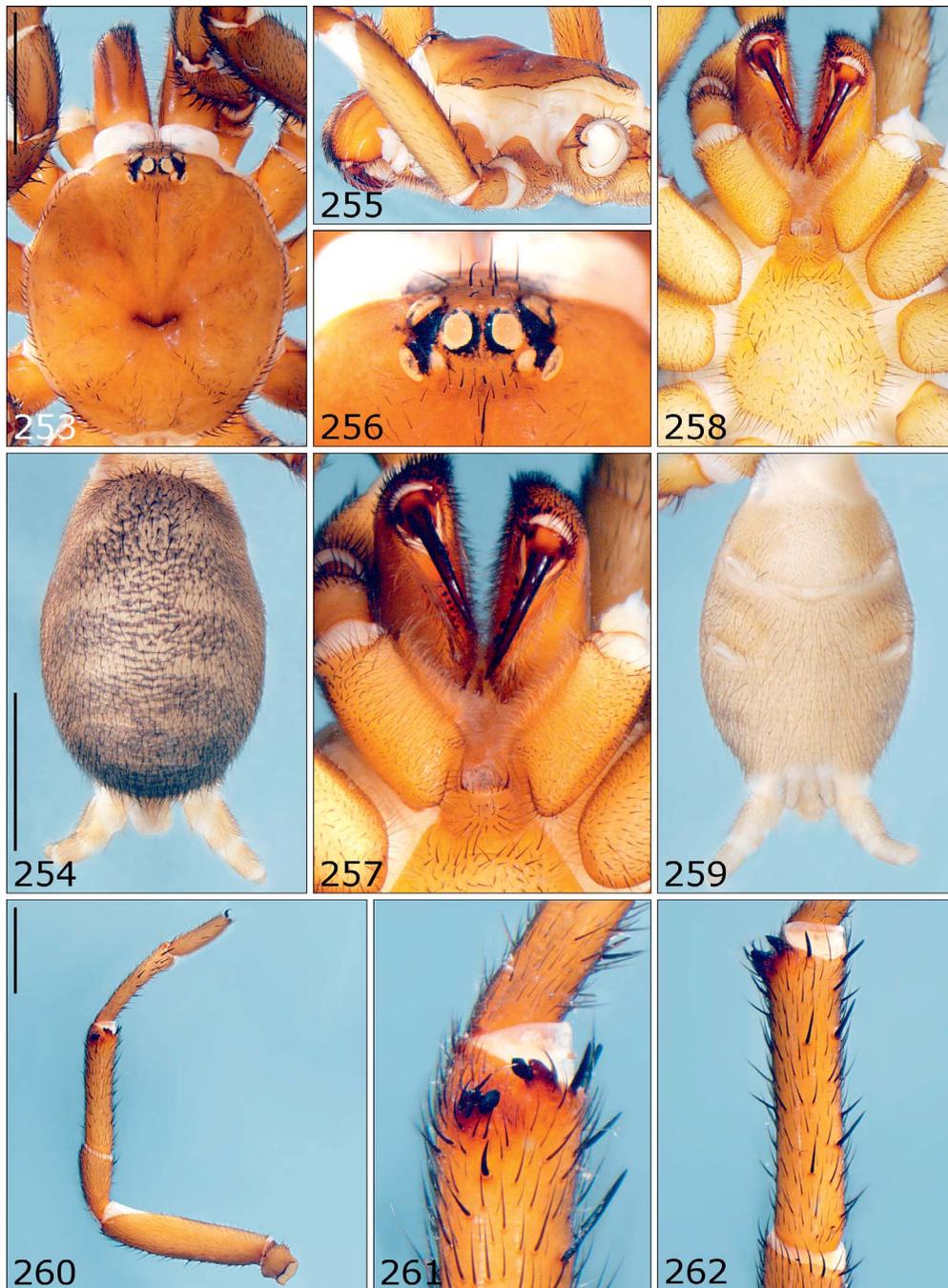
Paratypes. AUSTRALIA: Queensland: 1 ♂, same data as holotype (QMB S110506); 1 ♀, Lamington National Park, Albert River Circuit, near Echo Point, 28°15’S, 153°09’E, 1150 m, excavated from burrow, high elevation rainforest, 26 May 2016, J. Wilson (QMB S28503).

Other material examined.—AUSTRALIA: Queensland: 1 ♂, Lamington National Park, 28°16’S, 153°10’E, 1140 m, intercept trap, rainforest, 23 March–2 April 2007, G. Monteith & R. Menendez (QMB S29065); 1 ♂, same data except 28°15’S, 153°10’E, pitfall trap, 17–22 October 2006 (QMB S76377); 1 ♂, Lamington National Park, O’Reilly’s, 28°14’S, 153°08’E, 12 January 1991, R. Davin (QMB S17675).

Etymology.—The specific epithet is derived from the Latin *montanus* (adjective: ‘of mountains’; see Brown 1956), in reference to the distribution of this species in the cool-temperate cloud forests on the highest peaks of the McPherson Range, in Lamington National Park.

Diagnosis.—Males of *C. montana* can be distinguished from those of all known congeners, except *C. hughesae*, *C. celata*, and *C. mainae*, by the absence of scopulae on tarsi III–IV (Figs. 393, 395). Males of *C. montana* can be distinguished from *C. hughesae* by the absence of a prominent, semi-spherical swelling at the base of the RTA (Fig. 263; cf. Fig. 30); and from *C. celata* and *C. mainae* by a less spinose prolateral leg I (Fig. 260; cf. Figs. 122, 237), and by the embolus, which has a thinner tip relative to the base (Figs. 263–265; cf. Figs. 125–127, 240–242).

Females of *C. montana* can be distinguished from *C. hughesae*, *C. cairncross* and *C. cooloola* by the presence of scopulae on the pedipalp and legs I–II (Figs. 273, 274; cf. Figs. 40, 41, 89, 90, 158, 159); from *C. cassisi* and *C. grayi* by the spermathecae, which have proportionally longer stems (Fig. 275; cf. Figs. 114, 206); from *C. celata*, *C. fallax*, *C. mainae*, and *C. woondum* by the spermathecae, which have thinner stems (Fig. 275; cf. Figs. 137, 252, 344); from *C. hickmani*, *C. tasmanica* and *C. xenophila* by the less dense scopulae on leg I (Figs. 273, 274; cf. Figs. 227, 228, 309, 310, 365, 366); from *C. victoriensis* by the smaller and more marginally positioned

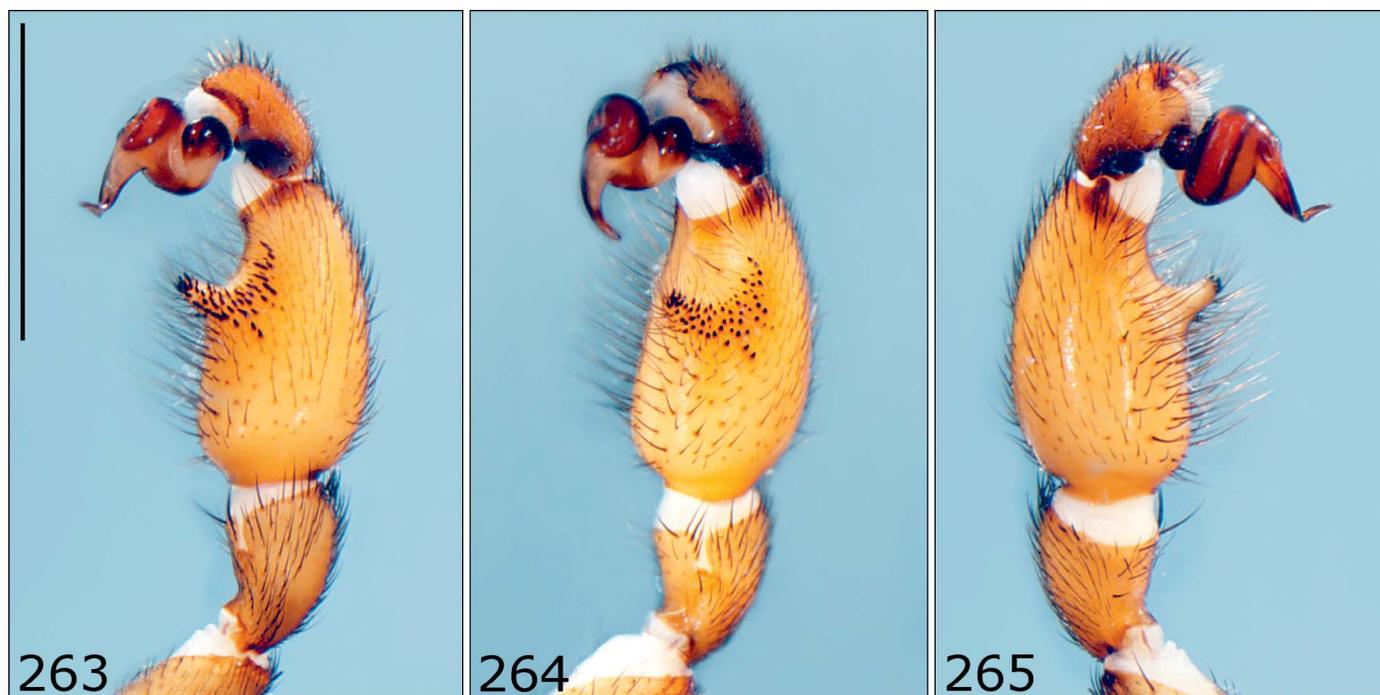


Figures 253–262.—*Cryptoforis montana* sp. nov., male holotype (QMB S20608) from Lamington National Park, Queensland, somatic morphology: 253, 254, carapace and abdomen, dorsal view; 255, cephalothorax, lateral view; 256, eyes, dorsal view; 257, mouthparts, ventral view; 258, 259, cephalothorax and abdomen, ventral view; 260, leg I, prolateral view; 261, 262, leg I tibia, prolateral and proventral views. Scale bars = 3.0.

posterior sigilla (Fig. 271; cf. Fig. 317); and from *C. zophera* by the spermathecae, which are much shorter and less elongate (Fig. 275; cf. Fig. 390)

Description (male holotype).—Total length 15.66. *Carapace:* 6.32 long, 5.57 wide (length/width = 1.13); carapace and chelicerae uniform tan-orange; carapace with bristle-like setae around margin and in lines and patches on pars thoracica;

fovea strongly procurved (length/width = 0.30) (Fig. 253). *Ocular region:* on raised mound (Fig. 255); eye group rectangular (width/length = 1.89); length 0.72, anterior width 1.24, posterior width 1.35. Eye diameters: PLE (0.36) = ALE (0.36) > AME (0.35) > PME (0.19) (Fig. 256). *Mouthparts:* maxillae with 20–25 spinules on antero-ental edge; labium 1.83x wider than long, with two cuspsules on anterior edge



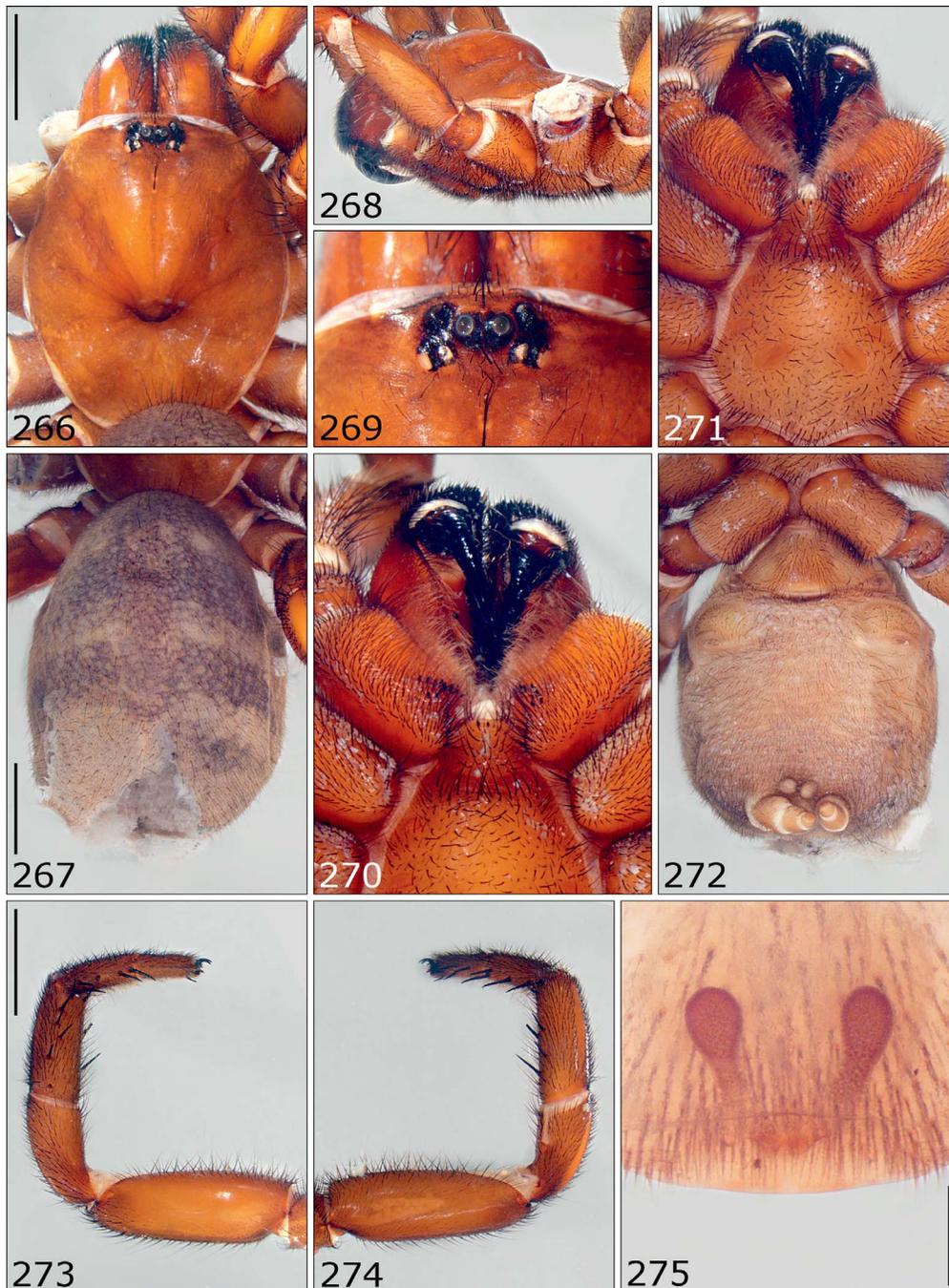
Figures 263–265.—*Cryptoforis montana* sp. nov., male holotype (QMB S20608) from Lamington National Park, Queensland, pedipalp: 263, retrolateral view; 264, retroventral view; 265, prolateral view. Scale bar = 3.0.

(Fig. 257). *Sternum*: length/width = 1.03; posterior sigilla moderate size, ovoid, equidistant from each other and sternum edge (Fig. 258). *Abdomen*: 6.28 long, 4.29 wide, ovoid; dorsal surface grey-brown with white, tapering, lateral chevrons; sparse coat of hair-like setae (Figs. 254, 259). *Legs*: concolorous with carapace; scopulae along entire length of ventral tarsi I–II, and on distoventral metatarsi I–II; leg I length = 18.88 (5.79, 2.82, 4.30, 3.88, 2.09); leg I length/carapace length = 2.99; tibia I length/width = 4.43 (Fig. 260). *Tibia I*: with bifurcate, prolateral claspings spur, oriented dorso-ventrally; macrosetae on ventral prominence short and sharp; cuticle on and around claspings spur mostly without dark pigmentation (Figs. 261, 262). *Pedipalp*: tibia 1.81x longer than wide in retrolateral view; RTA moderate size, subconiform, projecting from position about 60% of the way along tibia, at an angle of about 30° to tibia midline; field of 60–70 spinules on/around RTA; cymbium with short, spine-like setae on distal third/half (Figs. 263–265). *Copulatory organ*: total length about 60% of pedipalp tibia length; embolus about 1.5x length of bulb, curved and twisted about 90°, tip about 0.3x width of base (Figs. 263–265).

Description (female paratype QMB S28503).—Total length 22.45. *Carapace*: 8.78 long, 7.46 wide (length/width = 1.18); carapace and chelicerae dark orange-brown (darker in life); carapace glabrous; fovea strongly procurved (length/width = 0.33) (Fig. 266). *Ocular region*: on raised mound (Fig. 268); eye group rectangular (width/length = 1.97); length 0.90, anterior width 1.63, posterior width 1.78. Eye diameters: PLE (0.41) > ALE (0.40) > AME (0.36) > PME (0.26) (Fig. 269). *Mouthparts*: maxillae with about 20 cuspules on antero-ental edge; labium 1.51x wider than long, with two cuspules on

anterior edge (Fig. 270). *Sternum*: length/width = 0.95, posterior sigilla large, ovoid, roughly equidistant from each other and sternum edge (Fig. 271). *Abdomen*: 11.80 long, 8.65 wide, ovoid; dorsal surface grey-brown (darker charcoal-brown in life) with white, tapering, lateral chevrons; sparse coat of hair-like setae interspersed with bristle-like setae (Figs. 267, 272). *Internal genitalia*: spermathecae length 0.60 (length/carapace length = 0.069); crown width 0.28 (width/carapace length = 0.031); stem shorter than crown (0.69x), crown much wider than stem (2.25x); crown rounded, concolorous with stem, transition between stem and crown indistinct (Fig. 275). *Legs*: concolorous with carapace; scopulae present on pedipalp and tarsi and metatarsi I–II, at light density, not obscuring macrosetae; leg I length = 16.61 (5.55, 3.61, 3.37, 2.48, 1.59); leg I length/carapace length = 1.89; tibia I length/width = 2.50. Leg I macrosetation: femur 0; patella 0; tibia 12(6PL, 1V, 3RV, 2RL); metatarsus 10(5PL, 5RL); tarsus 5(1V, 4RL); total = 27 (Figs. 273, 274).

Distribution and remarks.—*Cryptoforis montana* is found at high elevations (over 1,000 m) in Lamington National Park, south-eastern Queensland (Fig. 18). The habitat at this elevation is predominantly cool-temperate rainforest/cloud forest, with vegetation dominated by *Nothofagus moorei* (Antarctic beech). The distribution of *C. montana* appears to be surrounded by that of *C. mainae*, which occurs at lower elevations both north and south in the subtropical rainforests of the ‘scenic rim’ (Fig. 18). Males appear to wander in search of females throughout the eastern Australian wet season, predominantly from late spring to early autumn. This species builds a wafer-door burrow typical of the genus, using humus as the primary substrate in the door (Figs. 7, 8). The paratype

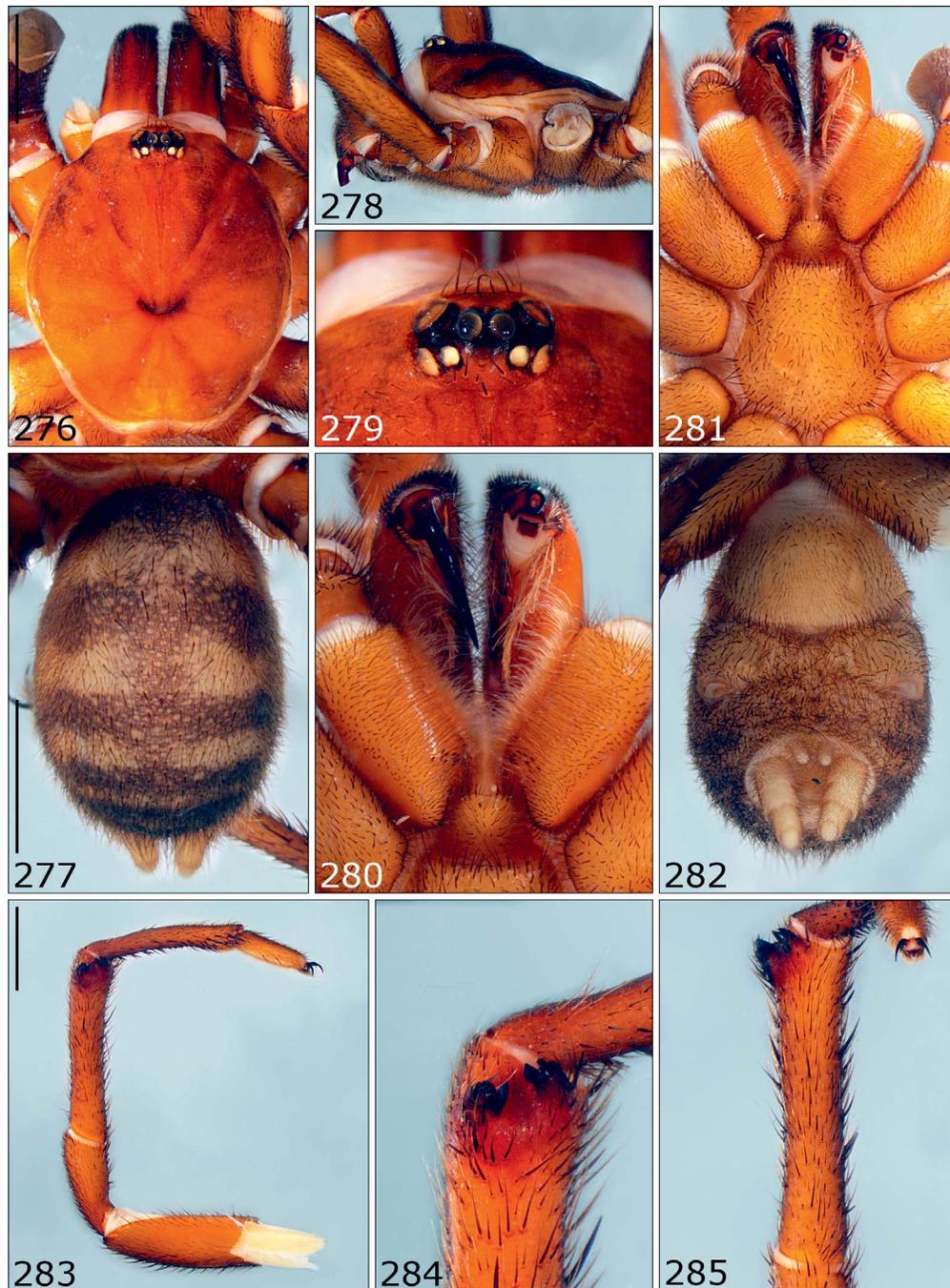


Figures 266–275.—*Cryptoforis montana* sp. nov., paratype female (QMB S28503) from Lamington National Park, Queensland: 266, 267, carapace and abdomen, dorsal view; 268, cephalothorax, lateral view; 269, eyes, dorsal view; 270, mouthparts, ventral view; 271, 272, cephalothorax and abdomen, ventral view; 273, leg I, prolateral view; 274, leg I, retrolateral view; 275, spermathecae, dorsal view. Scale bars = 3.0 (266, 267, 273), 0.5 (275).

female described above was collected from a burrow of this kind on an exposed embankment on the side of a walking track. *Cryptoforis montana* is part of the *mainae*-group, a phylogenetic clade of *Cryptoforis* from south-eastern Queensland and northern New South Wales. *Cryptoforis hughesae*, *C. mainae* and *C. woondum* are also part of this species-group (Figs. 14, 15).

Cryptoforis monteithi Wilson, Raven & Rix, sp. nov.
<http://zoobank.org/NomenclaturalActs/44EE9AFF-0B2A-4EC4-9245-A8D1C54FED56>
 (Figs. 17, 276–288)

Euoplos ‘morpho-species 11’ Wilson et al., 2018: 159, 160, suppl. file 1.



Figures 276–285.—*Cryptoforis monteithi* sp. nov., male holotype (QMB S8796) from Upper Boulder Creek, Queensland, somatic morphology: 276, 277, carapace and abdomen, dorsal view; 278, cephalothorax, lateral view; 279, eyes, dorsal view; 280, mouthparts, ventral view; 281, 282, cephalothorax and abdomen, ventral view; 283, leg I, prolateral view; 284, 285, leg I tibia, prolateral and proventral views. Scale bars = 3.0.

Euoplos ‘Japoon’/‘morpho-species 23’ Wilson et al., 2020: 548, figs. 4, 5.

Type material.—*Holotype male*. AUSTRALIA: *Queensland*: Upper Boulder Creek [Japoon National Park], NW. of Tully, 17°51’S, 145°54’E, 1000 m, rainforest, 17–18 November 1984, V. Davies, G. Monteith, J. Gallon, D. Cook, G. Thompson (QMB S8796).

Etymology.—The specific epithet is in honor of Geoff Monteith, whose extensive collections from the rainforests of eastern Australia contributed numerous specimens of *Cryptoforis* to the Queensland Museum, including the only known material from tropical Queensland, and the holotype specimen of this species.

Diagnosis.—Males of *C. monteithi* can be distinguished from those of all other known congeners, except *C. hickmani*,



Figures 286–288.—*Cryptoforis monteithi* sp. nov., male holotype (QMB S8796) from Upper Boulder Creek, Queensland, pedipalp: 286, retrolateral view; 287, retroventral view; 288, prolateral view. Scale bar = 3.0.

C. cassisi, *C. xenophila* and *C. zophera* by the combined presence of ventral scopulae along the entire length of tarsus III (Fig. 391), and the absence of scopulae on tarsus IV (Fig. 395). Males of *C. monteithi* can be distinguished from those of *C. hickmani*, *C. xenophila* and *C. zophera* by the embolus, which has a wider tip relative to the base (Figs. 286–288; cf. Figs. 217–219, 355–357, 378–380), and from *C. cassisi* by the RTA, which is larger and conical rather than triangular (Figs. 286–288; cf. Figs. 102–104). Females of *C. monteithi* are unknown.

Description (male holotype).—Total length 18.26. *Carapace*: 8.29 long, 7.33 wide (length/width = 1.13); carapace and chelicerae uniform red-orange; carapace glabrous; fovea strongly procurved (length/width = 0.30) (Fig. 276). *Ocular region*: on raised mound (Fig. 278); eye group rectangular (width/length = 1.82); length 0.86, anterior width 1.54, posterior width 1.58. Eye diameters: ALE (0.51) > PLE (0.39) > AME (0.29) > PME (0.27) (Fig. 279). *Mouthparts*: maxillae with about 20 spinules on antero-ental edge; labium 1.67x wider than long, with one cuspule on anterior edge (Fig. 280). *Sternum*: length/width = 1.03; posterior sigilla moderate size, ovoid, slightly closer to edge of sternum than to each other (Fig. 281). *Abdomen*: 6.94 long, 4.88 wide, ovoid; dorsal surface chocolate-brown with conspicuous, beige, square-ended chevrons; sparse coat of hair-like setae (Figs. 277, 282). *Legs*: concolorous with carapace; scopulae along entire length of ventral tarsi I–III, and on distoventral metatarsi I and II. Leg I length: unknown (broken; 2.82; 4.30; 3.88; 2.09) leg I length/carapace length = unknown; tibia I length/width = 5.05 (Fig. 283). *Tibia I*: with bifurcate, prolateral clasp spur, oriented dorso-ventrally; macrosetae on ventral prominence short and wide, but with a point; cuticle on and around

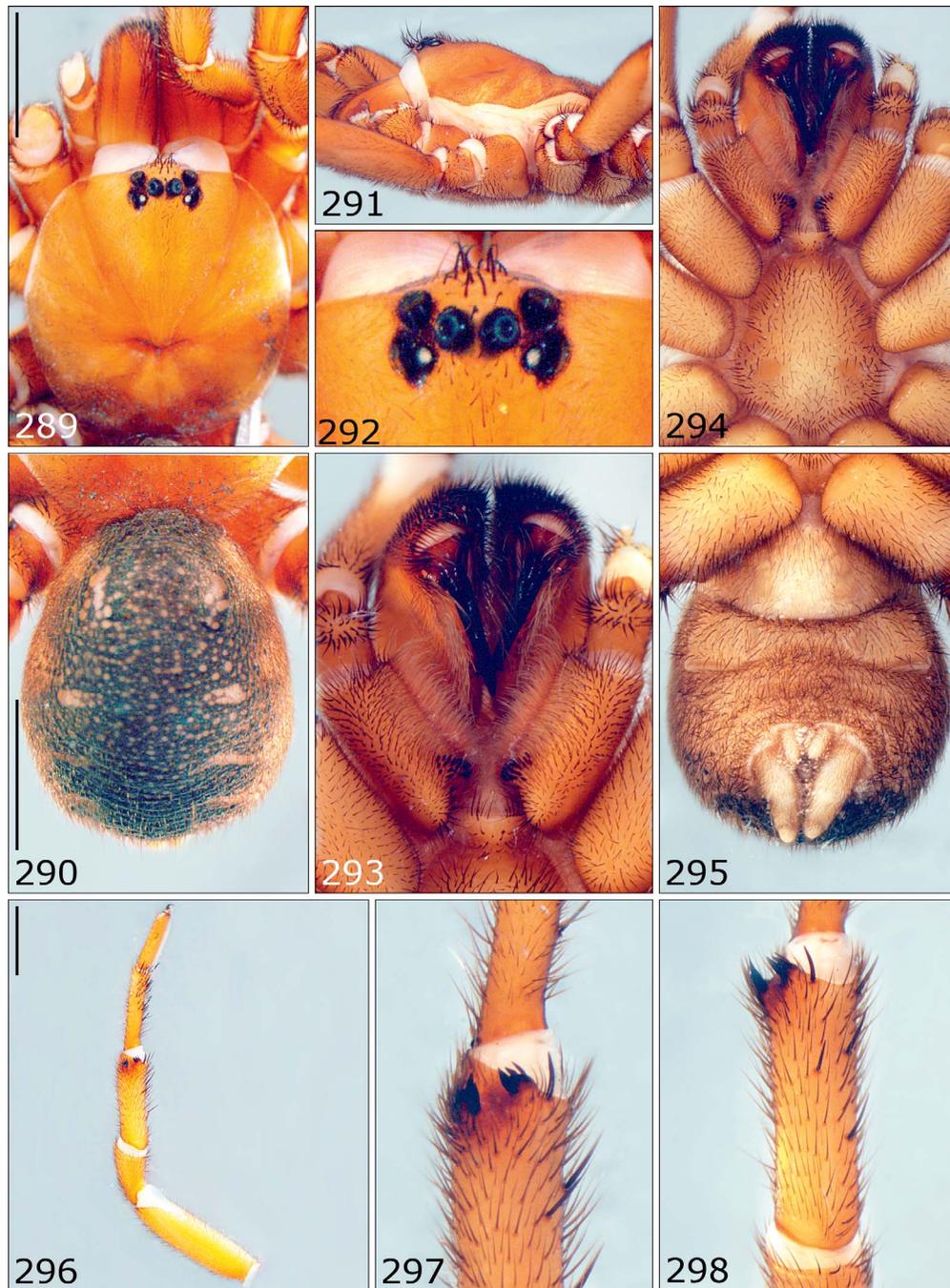
clasp spur slightly thickened and dark (Figs. 284, 285). *Pedipalp*: tibia 1.94x longer than wide in retrolateral view; RTA fairly large, coniform, projecting from position about 60% of the way along tibia, at an angle of about 40° to tibia midline; field of 50–60 spinules on/around RTA; cymbium with short, spine-like setae on distal third/half (Figs. 286–288). *Copulatory organ*: total length about 70% of pedipalp tibia length; embolus about 1.5x length of bulb, curved and twisted about 90°, tip about as wide as base (Figs. 286–288).

Distribution and remarks.—*Cryptoforis monteithi* is known from only a single specimen, found above 900 m in Japoon National Park in the Atherton Uplands subregion of the Queensland Wet Tropics (see Rix & Harvey 2012 for subregional divisions) (Fig. 17). The habitat at this elevation is predominantly warm temperate rainforest. Based on the male holotype, males appear to mature and wander in search of females in summer. The burrow constructed by this species is unknown.

Cryptoforis tasmanica (Hickman, 1928)
(Figs. 19, 289–311)

- Aganippe tasmanica* Hickman, 1928: 158, pls. 21, 22, figs. 1–3.
Arbanitis tasmanicus (Hickman): Main, 1957: 427.
Euoplos tasmanicus (Hickman): Raven & Wishart, 2006: 553.
Rix et al., 2017: 632, figs. 295, 297, 299, 311. Wilson et al., 2018: 159, 161, 162, suppl. file 1.
Euoplos tasmanicus (Hickman)/'morpho-species 7': Wilson et al., 2020: 548, figs. 3–5.
Cryptoforis tasmanica (Hickman): Wilson et al., 2020: 558.

Type material.—*Holotype female*. AUSTRALIA: *Tasmania*:



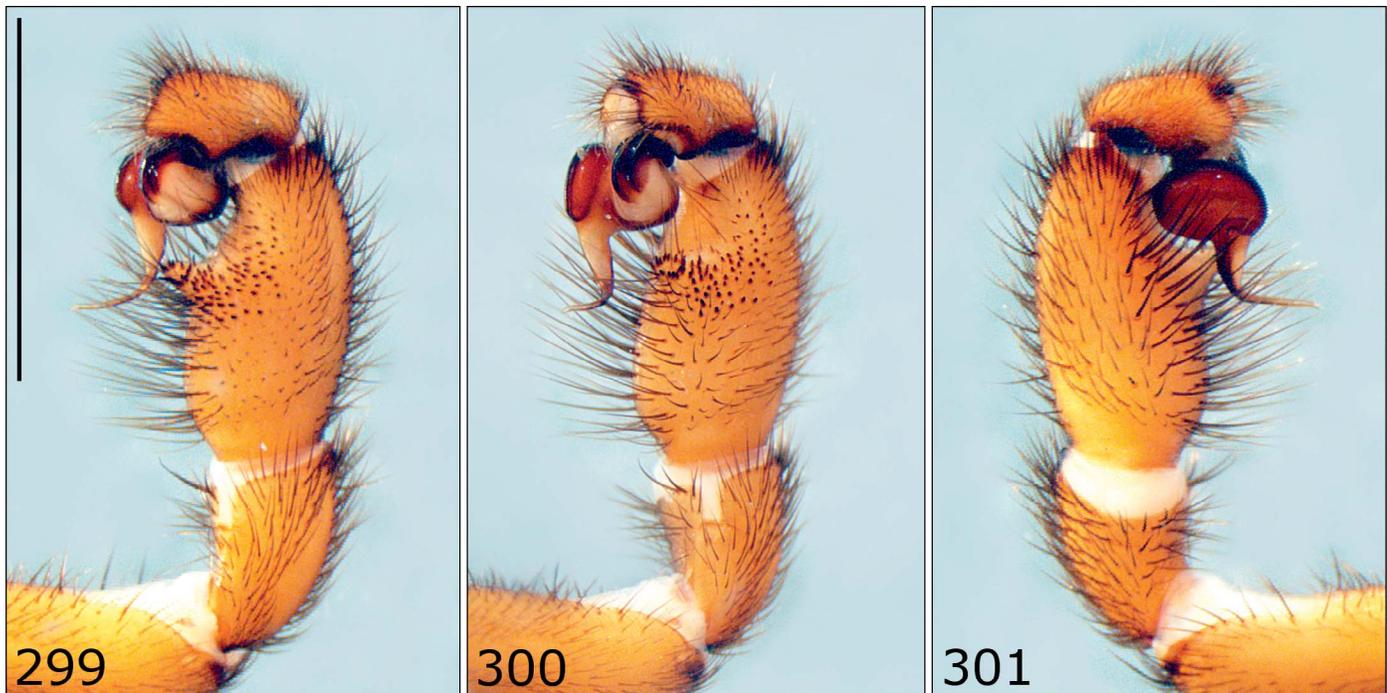
Figures 289–298.—*Cryptoforis tasmanica* (Hickman, 1928), male (WAM T139591) from Sandy Bay, Tasmania, somatic morphology: 289, 290, carapace and abdomen, dorsal view; 291, cephalothorax, lateral view; 292, eyes, dorsal view; 293, mouthparts, ventral view; 294, 295, cephalothorax and abdomen, ventral view; 296, leg I, prolateral view; 297, 298, leg I tibia, prolateral and proventral views. Scale bars = 3.0.

Prince of Wales Bay, Derwent Park, 42°50'S, 147°18'E, 29 April 1927, V. Hickman (QVM:13:7334; examined).

Other material examined.—AUSTRALIA: *Tasmania*: 1 ♂, Flat Rock (Chauncy Vale), 42°36'S, 147°17'E, 18–21 March 2010, R. Raven (TMAG J4303); 1 ♀, same data (TMAG J4304); 1 ♀, Hobart, Queens Domain, 42°52'S, 147°20'E, 5 April 1956, V. Hickman (AMS KS28470); 1 ♀, Porter Hill, Hobart, via Gardenia Grove, 42°55'S, 147°21'E, burrows with 'flappy' trapdoors on bank next to road, 20 May 2014, M.G. Rix, S.E.

Harrison (WAM T133326); 1 ♂, 1 ♀, Sandy Bay, found on university grounds, 42°54'S, 147°19'E, 1 March 1960 (WAM T139591).

Diagnosis.—Males of *C. tasmanica* can be distinguished from those of all known congeners, except *C. arenaria*, *C. caincross*, *C. cooloola* and *C. grayi*, by the presence of scopulae on the ventral tarsus IV (Fig. 391). Males of *C. tasmanica* can be distinguished from *C. arenaria*, *C. caincross* and *C. cooloola* by the absence of a prominent semi-spherical swelling at the



Figures 299–301.—*Cryptoforis tasmanica* (Hickman, 1928), male (WAM T139591) from Sandy Bay, Tasmania, pedipalp: 299, retrolateral view; 300, retroventral view; 301, prolateral view. Scale bar = 3.0.

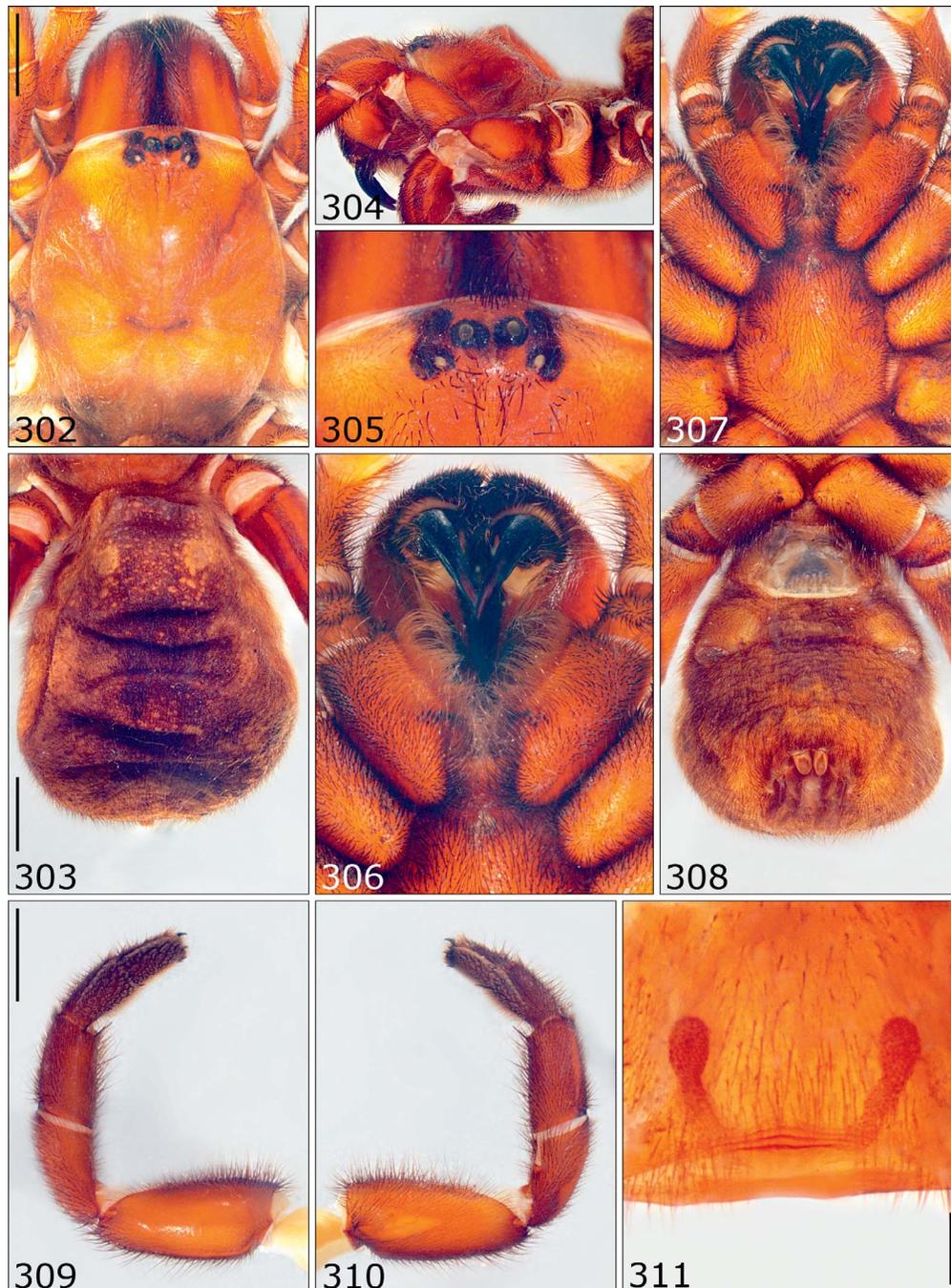
base of the RTA (Fig. 299; cf. Figs. 66, 79, 148); and from *C. grayi* by the embolus, which has a thinner tip relative to the base (Figs. 299–301; cf. Figs. 194–196).

Females of *C. tasmanica* can be distinguished from *C. hughesae*, *C. cairncross* and *C. cooloola* by the presence of dense scopulae on the pedipalp and legs I–II (Figs. 309, 310; cf. Figs. 40, 41, 89, 90, 158, 159); from *C. cassisi* and *C. grayi* by the spermathecae, which have proportionally longer stems (Fig. 311; cf. Figs. 114, 206); from *C. fallax*, *C. montana*, and *C. victoriensis* by the less spinose leg I (Figs. 309, 310; cf. Figs. 181, 182, 273, 274, 319, 320); from *C. celata*, *C. mainae* and *C. woondum* by the more dense scopulae on leg I (Figs. 309, 310; cf. Figs. 135, 136, 250, 251, 342, 343) and by the spermathecae, which have narrower stems (Fig. 311; cf. Figs. 137, 252, 344); and from *C. zophera* by the spermathecae, which are shorter, and much less elongate (Fig. 321; cf. Fig. 390). Females of *C. hickmani*, *C. tasmanica* and *C. xenophila* are indistinguishable morphologically based on current data; males are required for accurate identification.

Description (male WAM T139591).—Total length 16.77. *Carapace*: 6.6 long, 6.33 wide (length/width = 1.04); carapace and chelicerae uniform orange; carapace virtually glabrous; fovea slightly procurved (length/width = 0.19) (Fig. 289). *Ocular region*: on raised mound (Fig. 291); eye group rectangular (width/length = 2.00); length 0.92, anterior width 1.65, posterior width 1.85. Eye diameters: PLE (0.41) > ALE (0.35) = AME (0.35) > PME (0.23) (Fig. 292). *Mouthparts*: maxillae with about 25–30 cuspules on antero-ental edge; labium 1.73x wider than long, with one cuspule on anterior edge (Fig. 293). *Sternum*: length/width = 1.14; posterior sigilla small/moderate size, ovoid, closer to sternum edge than to each other (Fig. 294). *Abdomen*: 6.71 long, 5.47 wide, ovoid; dorsal surface light brown with beige sigilla spots and

tapering, lateral chevrons; sparse coat of hair-like setae (Figs. 290, 295). *Legs*: concolorous with carapace; scopulae along entire length of ventral tarsi I–IV (Figs. 391, 394), and on distoventral metatarsi I and II; leg I length = 18.65(5.76, 2.96, 3.70, 3.78, 2.44); leg I length/carapace length = 2.83; tibia I length/width = 3.17 (Fig. 296). *Tibia I*: with bifurcate, prolateral clasping spur, oriented dorso-ventrally; macrosetae on ventral prominence short and sharp; cuticle on and around clasping spur only slightly pigmented (Figs. 297, 298). *Pedipalp*: tibia 1.89x longer than wide in retrolateral view; RTA small, triangular, projecting from a position about 55% of the way along tibia, at an angle of about 20° to tibia midline, field of 70–80 spinules on/around RTA; cymbium with hair-like setae only (Figs. 299–301). *Copulatory organ*: total length about 65% of pedipalp tibia length; embolus about 1.5x length of bulb, curved and twisted about 90°, tip about 0.2x width of base (Figs. 299–301).

Description (female holotype).—Total length 28.85. *Carapace*: 11.31 long, 9.20 wide (length/width = 1.23); carapace and chelicerae orange-brown; carapace with down of hair-like setae covering pars thoracica; fovea slightly procurved (length/width = 0.17) (Fig. 302). *Ocular region*: on raised mound (Fig. 304); eye group rectangular (width/length = 2.09); length 1.34, anterior width 2.35, posterior width 2.80. Eye diameters: ALE (0.60) > PLE (0.55) > AME (0.40) > PME (0.34) (Fig. 305). *Mouthparts*: maxillae with about 20–25 cuspules on antero-ental edge; labium 1.70x wider than long, cuspules absent (Fig. 306). *Sternum*: length/width = 1.21, posterior sigilla small/moderate, ovoid, closer to sternum edge than to each other (Fig. 307). *Abdomen*: 13.76 long, 11.47 wide, ovoid; dorsal surface dark brown with beige sigilla-spots; sparse coat of hair-like setae (Figs. 303, 308). *Internal genitalia*: spermathecae length 0.98 (length/carapace length = 0.087); crown width 0.29

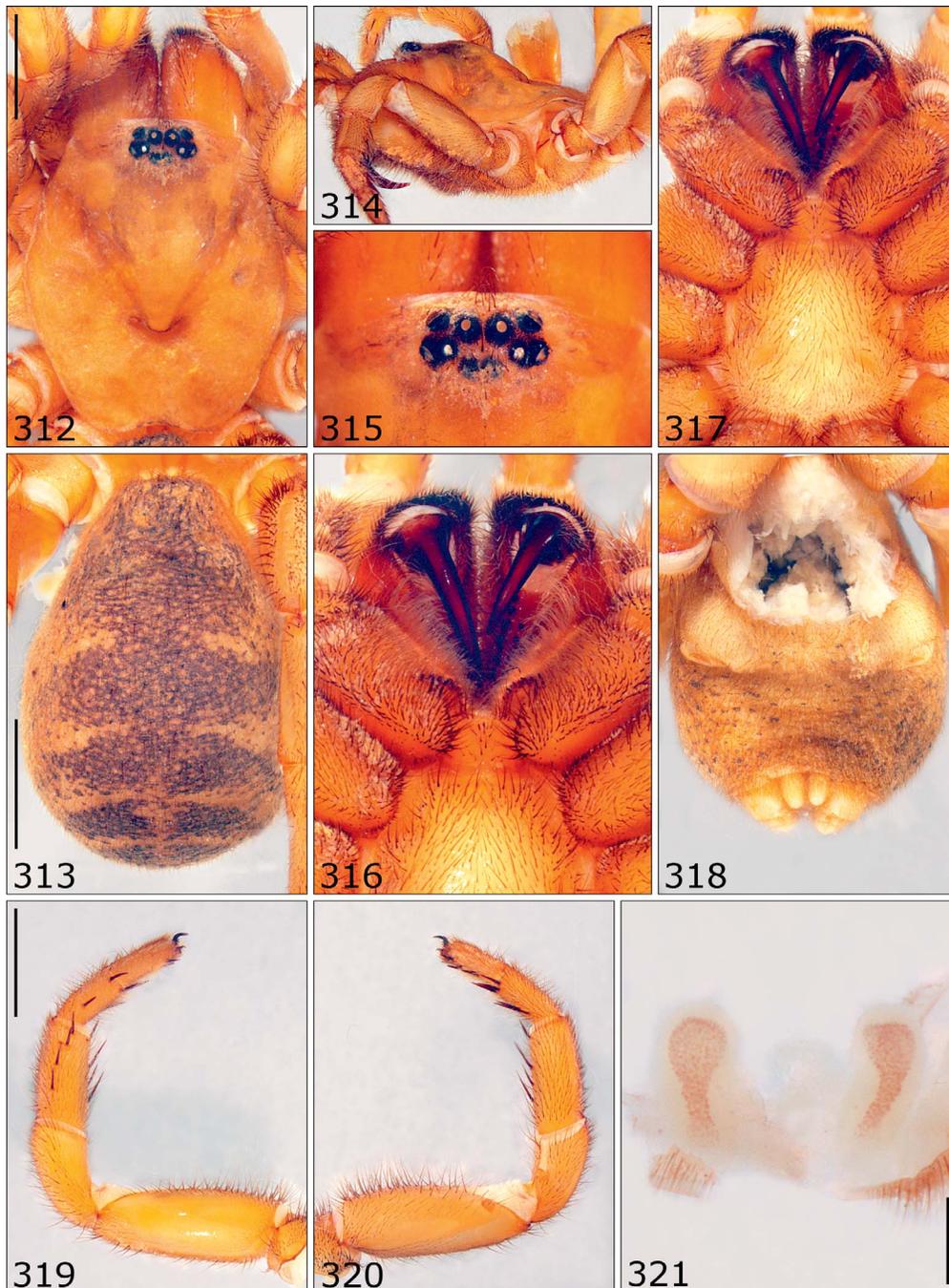


Figures 302–311.—*Cryptoforis tasmanica* (Hickman, 1928), female holotype (QVM:13:7334) from Prince of Wales Bay, Tasmania: 302, 303, carapace and abdomen, dorsal view; 304, cephalothorax, lateral view; 305, eyes, dorsal view; 306, mouthparts, ventral view; 307, 308, cephalothorax and abdomen, ventral view; 309, leg I, prolateral view; 310, leg I, retrolateral view; 311, spermathecae, dorsal view. Scale bars = 3.0 (302, 303, 309), 0.5 (311).

(width/carapace length = 0.025); stem longer than crown (1.44x), crown wider than stem (1.63x); crown rounded, concolorous with stem (Fig. 311). *Legs*: concolorous with carapace; scopulae present on pedipalp tarsi, and tarsi and metatarsi I–II, at a heavy density, partially obscuring macrosetae; leg I length = 17.62(5.61, 4.14, 3.25, 2.55, 2.07); leg I length/carapace length = 1.56; tibia I length/width = 1.71. Leg I macrosetation: femur 0; patella 0; tibia 5(1PL, 1V, 3RV (two

very thin, hair-like); metatarsus 3(1PL, 1V, 1RL); tarsus 2(1V, 1RL); total = 10 (Figs. 309, 310).

Distribution and remarks.—*Cryptoforis tasmanica* is known from the South-east subregion of Tasmania, with most specimens collected from the foothills of Mount Wellington, in the south-western suburbs of Hobart (Fig. 19). The habitat in this region is predominantly open eucalypt forest. Males appear to wander in search of females in late summer and autumn. This



Figures 312–321.—*Cryptoforis victoriensis* (Main, 1995), female holotype (NMV K3001) from Buffalo River Dam, Victoria: 312, 313, carapace and abdomen, dorsal view; 314, cephalothorax, lateral view; 315, eyes, dorsal view; 316, mouthparts, ventral view; 317, 318, cephalothorax and abdomen, ventral view; 319, leg I, prolateral view; 320, leg I, retrolateral view; 321, spermathecae, dorsal view. Scale bars = 3.0 (312, 313, 319), 0.5 (321).

species builds a wafer-door burrow entrance typical of the genus, using humus fragments as the primary substrate in the door (similar to Figs. 5–8; see Rix et al. 2017c, figs. 318, 319 for pictures of a *C. tasmanica* burrow). These burrows have been found on both lightly sloping ground with some leaf-litter and on steep exposed embankments, and the type series was collected from near the banks of the Derwent River. *Cryptoforis tasmanica* is part of the *tasmanica*-group, a phylogenetic clade

of *Cryptoforis* from Tasmania. *Cryptoforis hickmani* and *C. xenophila* are also part of this species-group (Figs. 14, 15).

***Cryptoforis victoriensis* (Main, 1995)**
(Figs. 19, 312–321)

Arbanitis victoriensis Main, 1995: 202, figs. 1–10.

Euoplos victoriensis (Main): Raven & Wishart, 2006: 553.

Euoplos victoriensis (Main)/‘morpho-species 10’: Wilson et al., 2020: 548, figs. 3–5.

Cryptoforis victoriensis (Main): Wilson et al., 2020: 558.

Type material.—*Holotype female*. AUSTRALIA: Victoria: 1 ♀, Buffalo River Dam, 36°44’S, 146°40’E, 8 September 1965 (NMV K3001; examined).

Diagnosis.—Females of *C. victoriensis* can be distinguished from *C. hughesae*, *C. cairncross* and *C. cooloola* by the presence of scopulae on the pedipalp and legs I–II (Figs. 319, 320; cf. Figs. 40, 41, 89, 90, 158, 159); from *C. cassisi* and *C. grayi* by the spermathecae, which have proportionally longer stems (Fig. 321; cf. Figs. 114, 206); from *C. celata*, *C. fallax*, *C. mainae*, and *C. woondum* by the spermathecae, which have thinner stems (Fig. 321; cf. Figs. 137, 252, 344); from *C. hickmani*, *C. tasmanica* and *C. xenophila* by the less dense scopulae on leg I (Figs. 319, 320; cf. Figs. 227, 228, 309, 310, 365, 366); from *C. montana* by the smaller and more marginally positioned posterior sigilla (Fig. 317; cf. Fig. 271); and from *C. zophera* by the spermathecae, which are much shorter and less elongate (Fig. 321; cf. Fig. 390). Males of *C. victoriensis* are unknown.

Description (female holotype).—Total length 20.74. *Carapace*: 8.72 long, 7.45 wide (length/width = 1.17); carapace and chelicerae orange-brown; carapace virtually glabrous; fovea strongly procurved (length/width = 0.31) (Fig. 312). *Ocular region*: on raised mound (Fig. 314); eye group rectangular (width/length = 2.16); length 0.90, anterior width 1.76, posterior width 1.95. Eye diameters: ALE (0.43) > PLE (0.36) = AME (0.36) > PME (0.27) (Fig. 315). *Mouthparts*: maxillae with about 20 cuspules on antero-ental edge; labium 1.72x wider than long, with two cuspules on anterior edge (Fig. 316). *Sternum*: length/width = 1.02, posterior sigilla small/moderate, ovoid, closer to sternum edge than to each other (Fig. 317). *Abdomen*: 9.19 long, 6.31 wide, ovoid; dorsal surface brown with beige, tapering, lateral chevrons; sparse coat of hair-like setae (Figs. 313, 318). *Internal genitalia*: spermathecae length 0.75 (length/carapace length = 0.086); crown width 0.34 (width/carapace length = 0.038); stem roughly equal in length to crown (0.99x), crown much wider than stem (2.55x); crown rounded, concolorous with stem (Fig. 321). *Legs*: concolorous with carapace; scopulae present on pedipalp tarsi, and tarsi and metatarsi I–II, at a light/moderate density, not obscuring macrosetae; leg I length = 14.89(4.90, 3.34, 2.85, 1.98, 1.82); leg I length/carapace length = 1.71; tibia I length/width = 2.07. Leg I macrosetation: femur 0; patella 0; tibia 10(5PL, 1V, 3RV, 1RL); metatarsus 10(2PL, 1V, 7RL); tarsus 4(1V, 3RL); total = 25 (Figs. 319, 320).

Distribution and remarks.—*Cryptoforis victoriensis* is known only from the type locality, at Buffalo River Dam, on the edge of the Highlands-Northern Fall subregion of Victoria (Fig. 19). The habitat in this area is predominantly tall open eucalypt forest. The burrow of *C. victoriensis* is currently unknown.

Cryptoforis woondum Wilson, Raven & Rix, sp. nov.

<http://zoobank.org/NomenclaturalActs/86D387A7-4FCE-4288-B3A0-C7516BB1DACC>
(Figs. 18, 322–344)

Euoplos ‘morpho-species 14’ Wilson et al., 2018: 159, 160, suppl. file 1.

Euoplos ‘Woondum’/‘morpho-species 19’ Wilson et al., 2020: 548, figs. 3–5.

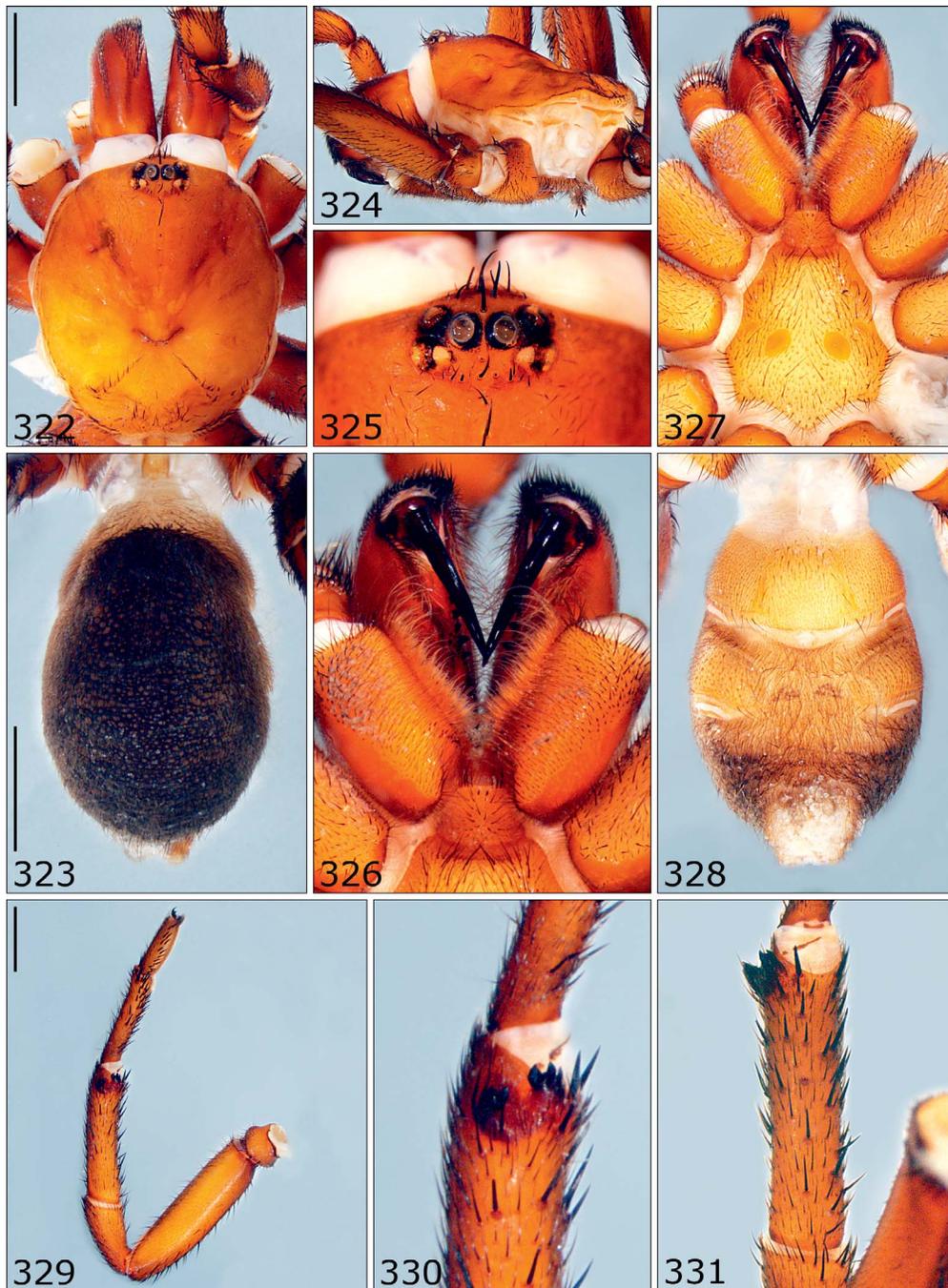
Type material.—*Holotype male*. AUSTRALIA: Queensland: Woondum National Park, Cooran Barracks, 0.5 km north, 26°17’S, 152°50’E, 450 m, intercept trap, rainforest, 16 January–27 May 2002, G. Monteith (QMB S57899).

Paratypes. AUSTRALIA: Queensland: 2 ♂, Woondum National Park, Cooran Barracks, 0.5 km north, 26°17’S, 152°50’E, 450 m, intercept trap, rainforest, 16 January–27 May 2002, G. Monteith (QMB S110496); 1 ♂, Woondum National Park, Cooran Tablelands, 26°16’S, 152°50’E, 400 m, intercept trap, rainforest, 16 January–27 May 2002, G. Monteith (QMB S57910); 1 ♀, Woondum National Park, Boulder Mountain Trail, via Hill Road, 26°15’S, 152°48’E, 340 m, excavated from burrow, tall eucalypt forest, 29 May 2016, J. Wilson (QMB S32147).

Other material examined.—AUSTRALIA: Queensland: 1 ♂, Bouloumba Creek, via Conondale, 26°40’S, 152°35’E, 550 m, pitfall trap, rainforest, 19 April–23 August 1975, G. & S. Monteith (QMB S8820); 1 ♂, Bouloumba Creek, via Conondale, 26°40’S, 152°35’E, 550 m, pitfall trap, rainforest, 17 August–26 October 1974, G. & S. Monteith (QMB S9863); 1 ♂, Casey Creek, via Imbil, 26°30’S, 152°39’E, 90 m, pitfall trap, rainforest, 10 August–9 November 1974, G. & S. Monteith (QMB S9898); 1 ♂, Coolabin, via Yandina, 26°33’S, 152°57’E, 26 May 1981 (QMB S29014); 1 juvenile, Deongwar National Park, 27°18’S, 152°16’E, 490 m, excavated from burrow, riparian rainforest, 3 July 2016, J. Wilson (QMB S108395); 1 ♂, Dingo Creek, via Traveston, 26°19’S, 152°46’E, 30 m, pitfall trap, rainforest, 27 March–13 August 1975, G. & S. Monteith (QMB S9895); 1 ♂, Dingo Creek, via Traveston, 26°19’S, 152°46’E, 30 m, pitfall trap, rainforest, 27 March–13 August 1975, G. & S. Monteith (QMB S9900); 1 ♂, Gallangowan, 26°26’S, 152°20’E, 487 m, pitfall trap, rainforest, 29 March–16 April 1975, G. & S. Monteith (QMB S9899); 1 ♀, Imbil State Forest, via Yandina, 26°31’S, 152°38’E, 140 m, excavated from burrow, riparian rainforest, 11 June 2016, J. Wilson, J. Francis (QMB S32106); 1 ♂, Mount Cabinet, via Conondale, 26°43’S, 152°35’E, 792 m, pitfall trap, rainforest, 16 June–August 1975, G. & S. Monteith (QMB S9861); 2 ♂, Mount Deongwar, 3 km south, 27°14’S, 152°16’E, 460 m, pitfall trap, rainforest, 30 December 1998–26 March 1999, G. Monteith (QMB S34949); 1 ♂, Mount Glorious, 27°20’S, 152°46’E, 630–750 m, malaise trap, rainforest, 13 April–26 March 1983, A. Hiller (QMB S8792).

Etymology.—The specific epithet is a noun in apposition, in reference to the type locality of this species within Woondum National Park.

Diagnosis.—Males of *C. woondum* can be distinguished from those of all known congeners, except *C. hughesae*, *C. absona*, and *C. celata* by the presence of scopulae on the distal end of ventral tarsus III only (Fig. 392), and the absence of scopulae on tarsus IV (Fig. 395). Males of *C. woondum* can be distinguished from *C. hughesae* by the absence of a prominent semi-spherical swelling at the base of the RTA (Fig. 332; cf. Fig. 30); from *C. absona* by the presence of a bifurcate prolateral clasping spur on tibia I (Figs. 330, 331; cf. Figs. 51, 52); and from *C. celata* by the embolus, which has a wider tip relative to the base (Figs. 332–334; cf. Figs. 125–127), and further by the

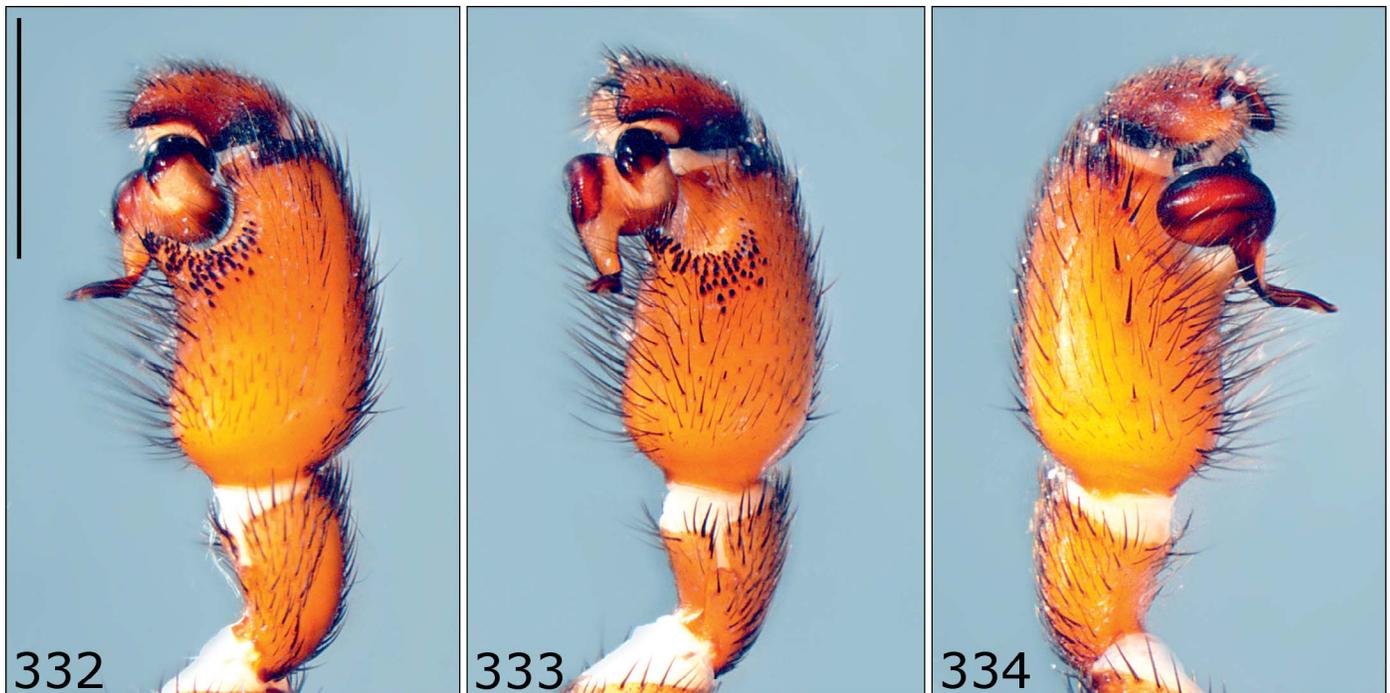


Figures 322–331.—*Cryptoforis woondum* sp. nov., male holotype (QMB S57899) from Woondum National Park, Queensland, somatic morphology: 322, 323, carapace and abdomen, dorsal view; 324, cephalothorax, lateral view; 325, eyes, dorsal view; 326, mouthparts, ventral view; 327, 328, cephalothorax and abdomen, ventral view; 329, leg I, prolateral view; 330, 331, leg I tibia, prolateral and proventral views. Scale bars = 3.0.

RTA, which projects from a more distal position on the palpal tibia (in retrolateral view) (Fig. 332; cf. Fig. 125).

Females of *C. woondum* can be distinguished from *C. hughesae*, *C. cairncross* and *C. cooloola* by the presence of scopulae on the pedipalp and legs I–II (Figs. 342, 343; cf. Figs. 40, 41, 89, 90, 158, 159); from *C. cassisi* and *C. grayi* by the spermathecae, which have proportionally longer stems (Fig. 344; cf. Figs. 114, 206); from *C. fallax*, *C. montana*, and *C. victoriensis* by the less spinose leg I (Figs. 342, 343; cf. Figs.

181, 182, 273, 274, 319, 320); from *C. hickmani*, *C. tasmanica* and *C. xenophila* by the less dense scopulae on leg I (Figs. 342, 343; cf. Figs. 227, 228, 309, 310, 365, 366) and the spermathecae, which have wider stems (Fig. 344; cf. Figs. 229, 311, 367); and from *C. zophera* by the spermathecae, which are much shorter and less elongate (Fig. 344; cf. Fig. 390). Females of *C. celata*, *C. mainae* and *C. woondum* are indistinguishable morphologically based on current data; males are required for accurate identification.

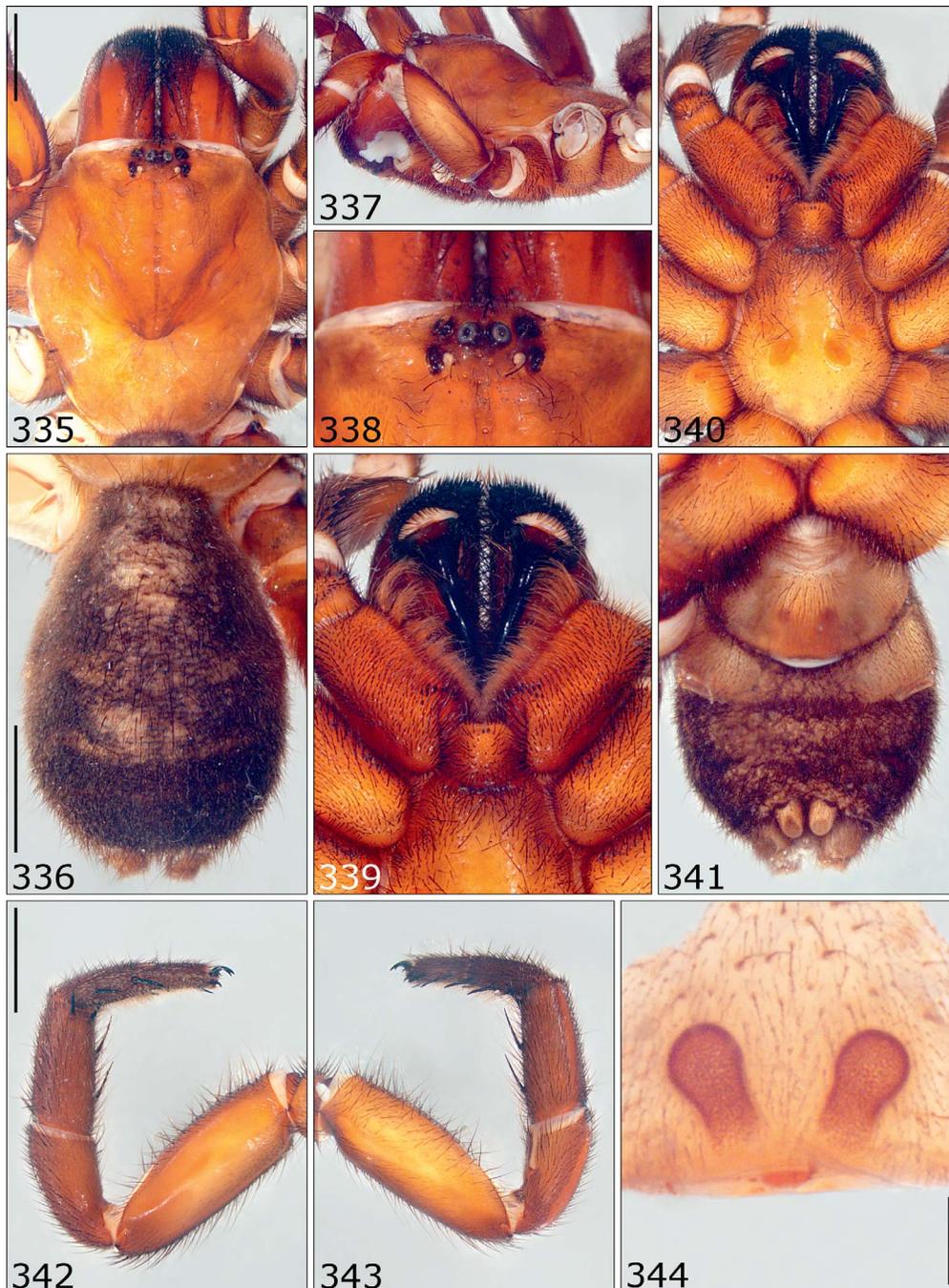


Figures 332–334.—*Cryptoforis woondum* sp. nov., male holotype (QMB S57899) from Woondum National Park, Queensland, pedipalp: 332, retrolateral view; 333, retroventral view; 334, prolateral view. Scale bar = 3.0.

Description (male holotype).—Total length 22.42. *Carapace*: 9.26 long, 7.89 wide (length/width = 1.17); carapace and chelicerae uniform dark orange-brown; carapace with bristle-like setae on posterior pars thoracica; fovea strongly procurved (length/width = 0.29) (Fig. 322). *Ocular region*: on raised mound (Fig. 324), eye group rectangular (width/length = 2.18); length 0.92, anterior width 1.79, posterior width 2.00. Eye diameters: ALE (0.49) > AME (0.42) > PLE (0.40) > PME (0.29) (Fig. 325). *Mouthparts*: maxillae with about 20 spinules on antero-ental edge; labium 1.44x wider than long, with two cuspules on anterior edge (Fig. 326). *Sternum*: length/width = 1.06; posterior sigilla large, ovoid, closer to each other than to sternum edge (Fig. 327). *Abdomen*: 8.04 long, 5.57 wide, ovoid; dorsal surface dark chocolate-brown, with faint sigilla-spots; sparse coat of hair-like setae (Figs. 323, 328). *Legs*: concolorous with carapace; scopulae along entire length of ventral tarsi I–II, on distal end of ventral tarsus III, and on distoventral metatarsi I and II; leg I length = 25.67 (7.88, 4.14, 6.12, 4.75, 2.78); leg I length/carapace length = 2.77; tibia I length/width = 4.22 (Fig. 329). *Tibia I*: with bifurcate, prolateral clasp spur, oriented dorso-ventrally; macrosetae on ventral prominence short, wide, but with point; cuticle on and around clasp spur slightly pigmented (Figs. 330, 331). *Pedipalp*: tibia 1.74x longer than wide in retrolateral view; RTA moderate size, sub-coniform, projecting from position about 60% of the way along tibia, at an angle of about 35° to tibia midline; field of 70–80 spinules on/around RTA; cymbium with short, spine-like setae on distal third/half (Figs. 332–334). *Copulatory organ*: total length about 60% of pedipalp tibia length; embolus about 1.3x length of bulb, curved and twisted about 90°, tip almost as wide as base (Figs. 332–334).

Description (female paratype QMB S32147).—Total length 22.90. *Carapace*: 10.02 long, 8.75 wide (length/width = 1.14); carapace and chelicerae dark orange-brown (darker brown in life); carapace virtually glabrous; fovea strongly procurved (length/width = 0.30) (Fig. 335). *Ocular region*: on raised mound (Fig. 337); eye group rectangular (width/length = 2.01); length 1.09, anterior width 2.01, posterior width 2.20. Eye diameters: ALE (0.48) = PLE (0.48) > AME (0.41) > PME (0.23) (Fig. 338). *Mouthparts*: maxillae with 15–20 cuspules on antero-ental edge; labium 1.52x as wide as long, with two cuspules on anterior edge (Fig. 339). *Sternum*: length/width = 1.09, posterior sigilla large, ovoid, closer to each other than to sternum edge (Fig. 340). *Abdomen*: 8.85 long, 6.22 wide, ovoid; dorsal surface dark chocolate-brown with irregular beige patches (dark-brown in life) with faint, tapering, lateral chevrons; sparse coat of hair-like setae interspersed with bristle-like setae (Figs. 336, 341). *Internal genitalia*: spermathecae length 0.70 (length/carapace length = 0.070); crown width 0.42 (width/carapace length = 0.042); stem slightly shorter than crown (0.78x), crown wider than stem (1.43x); crown rounded, concolorous with stem, transition between stem and crown indistinct (Fig. 344). *Legs*: concolorous with carapace; scopulae present on pedipalp tarsi, and tarsi and metatarsi I–II, at moderate density, not obscuring macrosetae; leg I length: 18.94 (6.21, 4.32, 3.77, 2.77, 1.88); leg I length/carapace length = 1.89; tibia I length/width = 2.21. Leg I macrosetation: femur 0; patella 0; tibia 5(1PL, 1V, 3RV); metatarsus 5(2PL, 3RL); tarsus 4(1V, 3RL); total = 14 (Figs. 342, 343).

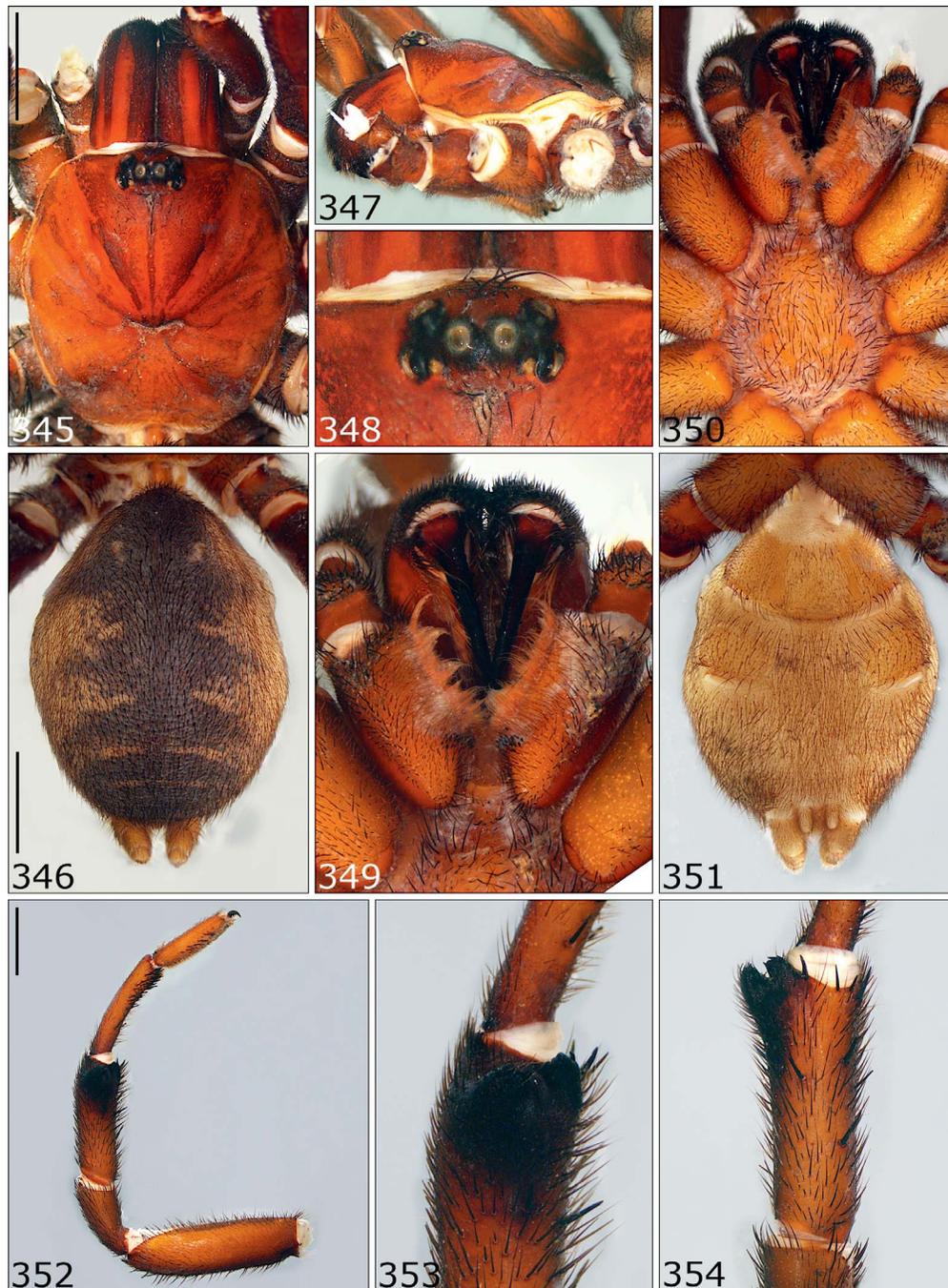
Distribution and remarks.—*Cryptoforis woondum* is found throughout the northern section of the Burringbar-Conondale Range subregion of south-eastern Queensland, from Woondum National Park in the north to D’Aguilar National Park in



Figures 335–344.—*Cryptoforis woondum* sp. nov., female paratype (QMB S32147) from Woondum National Park, Queensland: 335, 336, carapace and abdomen, dorsal view; 337, cephalothorax, lateral view; 338, eyes, dorsal view; 339, mouthparts, ventral view; 340, 341, cephalothorax and abdomen, ventral view; 342, leg I, prolateral view; 343, leg I, retrolateral view; 344, spermathecae, dorsal view. Scale bars = 3.0 (335, 336, 342), 0.5 (344).

the south (Fig. 18). The habitat in this region is predominantly open eucalypt forest with patches of subtropical rainforest and vine-scrub throughout. This species is parapatric at its southern extent with *C. hughesae* (Fig. 18). Males of *C. woondum* appear to wander in search of females most commonly from late summer through to winter. This species builds a wafer-door burrow entrance typical of the genus, using humus fragments as the primary substrate in the door

(similar to Figs. 5–8). These burrows appear to be most common on lightly sloping ground with a loose leaf-litter layer (similar to Figs. 11–13). *Cryptoforis woondum* is part of the *mainae*-group, a phylogenetic clade of *Cryptoforis* from southeastern Queensland and northern New South Wales. *Cryptoforis hughesae*, *C. mainae* and *C. montana* are also part of this species-group (Figs. 14, 15).



Figures 345–354.—*Cryptoforis xenophila* sp. nov., male holotype (QVM:2018:13:0381) from Launceston, Tasmania, somatic morphology: 345, 346, carapace and abdomen, dorsal view; 347, cephalothorax, lateral view; 348, eyes, dorsal view; 349, mouthparts, ventral view; 350, 351, cephalothorax and abdomen, ventral view; 352, leg I, prolateral view; 353, 354, leg I tibia, prolateral and proventral views. Scale bars = 3.0.

Cryptoforis xenophila Wilson, Raven & Rix, sp. nov.
<http://zoobank.org/NomenclaturalActs/AE1CC24B-F61E-47DB-9ADB-17651E149DBA>
 (Figs. 19, 345–367)

Euoplos ‘Launceston’/‘morpho-species 9’ Wilson et al., 2020:
 548, figs. 4, 5.

Type material.—*Holotype male.* AUSTRALIA: *Tasmania*:

Launceston, 87 Reatta Road, 41°26’S, 147°06’E, 18 May 1986, J. Russell (QVM:2018:13:0381).

Paratypes. AUSTRALIA: *Tasmania*: 1 ♀, Launceston, 41°26’S, 147°09’E, 9 June 2003, D. Hutchinson (QVM:13:46866); 1 ♂, Launceston, 19 Rannoch Avenue, Riverside, 41°25’S, 147°06’E, 10 May 1971, V. Whatley (QVM:2018:13:0380).

Other Material Examined.—AUSTRALIA: *Tasmania*: 1 ♂, Exeter, 41°18’S, 146°57’E, 30 June 2006, C. Ambrose



Figures 355–357.—*Cryptoforis xenophila* sp. nov., male holotype (QVM:2018:13:0381) from Launceston, Tasmania, pedipalp: 355, retrolateral view; 356, retroventral view; 357, prolateral view. Scale bar = 3.0.

(QVM:13:47794); 1 ♀, Gravelly Beach, 41°17'S, 146°58'E, in garden, S. Leighton (QMB S11134); 1 ♀, same data except 22 April 1986, R. Colman (QVM:2018:13:0379); 1 ♀, Lilydale, Lilydale Road, 41°15'S, 147°13'E, 6 October 1988, L. McDonald (QVM:2017:13:0498); 1 ♂, Trevallyn, 27 Delamere Crescent, 41°26'S, 147°07'E, 22 March 2012, P. Bean (QVM:2018:13:0363); 1 ♀, Windermere, 41°19'S, 147°01'E, 13 December 1957 (QVM:13:5773).

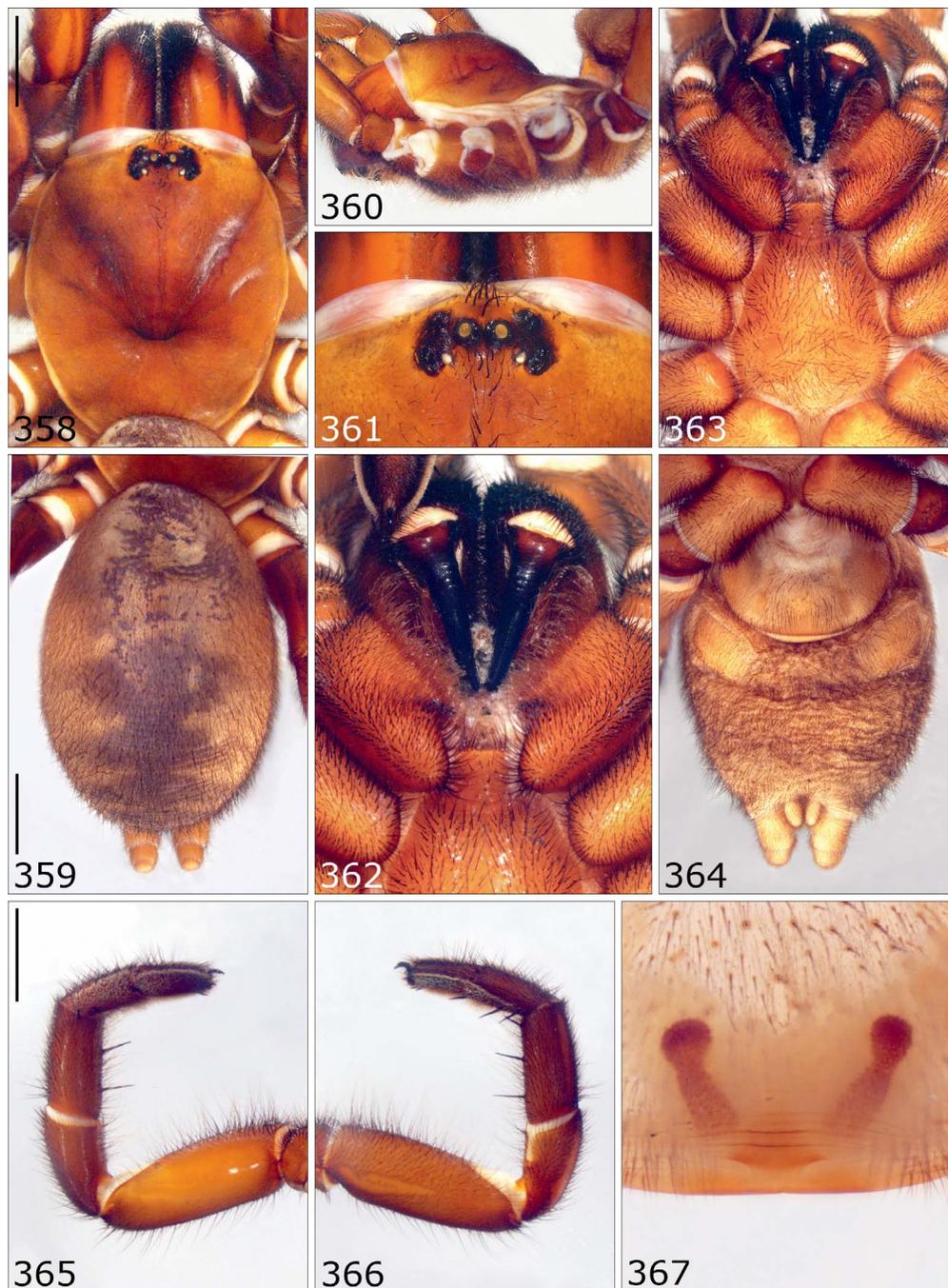
Etymology.—The specific epithet is an adjective meaning ‘stranger-lover’, formed by combining the latinized prefix *xeno-*, from the Greek *xenos* meaning ‘stranger, guest’, with the Latin stem *-phila*, meaning ‘loving’. This is in reference to the distribution of this species in and around the city of Launceston.

Diagnosis.—Males of *C. xenophila* can be distinguished from those of all known congeners, except *C. cassisi*, *C. hickmani*, *C. monteithi*, and *C. zophera* by the combined presence of scopulae along the entire length of the ventral tarsus III (Fig. 391), and the absence of scopulae on tarsus IV (Fig. 395). Males of *C. xenophila* can be distinguished from *C. cassisi* and *C. monteithi* by the embolus, which has a thinner tip relative to the base (Figs. 355–357; cf. Figs. 102–104, 286–288); from *C. hickmani* by the distal segments of leg I which are more spinose (Fig. 352; cf. Fig. 214), and by a more heavily thickened and pigmented prolateral clasp spur (Figs. 353, 354; cf. Figs. 215, 216); and from *C. zophera* by a prolateral, bifurcate clasp spur on tibia I which is oriented roughly dorso-ventrally rather than longitudinally (Figs. 353, 354; cf. Figs. 376, 377).

Females of *C. xenophila* can be distinguished from *C. hughesae*, *C. cairncross* and *C. cooloola* by the presence of dense scopulae on the pedipalp and legs I–II (Figs. 365, 366; cf. Figs. 40, 41, 89, 90, 158, 159); from *C. cassisi* and *C. grayi* by

the spermathecae, which have proportionally longer stems (Fig. 367; cf. Figs. 114, 206); from *C. fallax*, *C. montana*, and *C. victoriensis* by the less spinose leg I (Figs. 365, 366; cf. Figs. 181, 182, 273, 274, 319, 320); from *C. celata*, *C. mainae* and *C. woondum* by the more dense scopulae on leg I (Figs. 365, 366; cf. Figs. 135, 136, 250, 251, 342, 343) and by the spermathecae, which have narrower stems (Fig. 367; cf. Figs. 137, 252, 344); and from *C. zophera* by the spermathecae, which are shorter, and less elongate (Fig. 367; cf. Fig. 390). Females of *C. hickmani*, *C. tasmanica* and *C. xenophila* are indistinguishable morphologically based on current data; males are required for accurate identification.

Description (male holotype).—Total length 22.07. *Carapace*: 8.00 long, 7.59 wide (length/width = 1.10); carapace and chelicerae uniform dark orange-brown; carapace glabrous, with few inconspicuous bristle-like setae around margins; fovea slightly procurved (length/width = 0.15) (Fig. 345). *Ocular region*: on raised mound (Fig. 347), eye group rectangular (width/length = 1.95); length 1.00, anterior width 1.76, posterior width 1.96. Eye diameters: PLE (0.45) > ALE (0.43) > AME (0.37) > PME (0.21) (Fig. 348). *Mouthparts*: maxillae with about 30 cuspules on antero-ental edge; labium 1.81x wider than long, one cuspule present on anterior edge (Fig. 349). *Sternum*: length/width = 1.05; posterior sigilla small/moderate size, ovoid, closer to sternum edge than to each other (Fig. 350). *Abdomen*: 10.10 long, 7.68 wide, ovoid; dorsal surface dark charcoal brown with sigilla-spots and tapering lateral chevrons; sparse coat of hair-like setae (Figs. 346, 351). *Legs*: concolorous with carapace; scopulae along entire length of ventral tarsi I–III, and on distoventral metatarsi I–II; leg I length = 25.97 (7.80, 4.01, 5.33, 5.19, 3.64); leg I length/carapace length = 3.25;

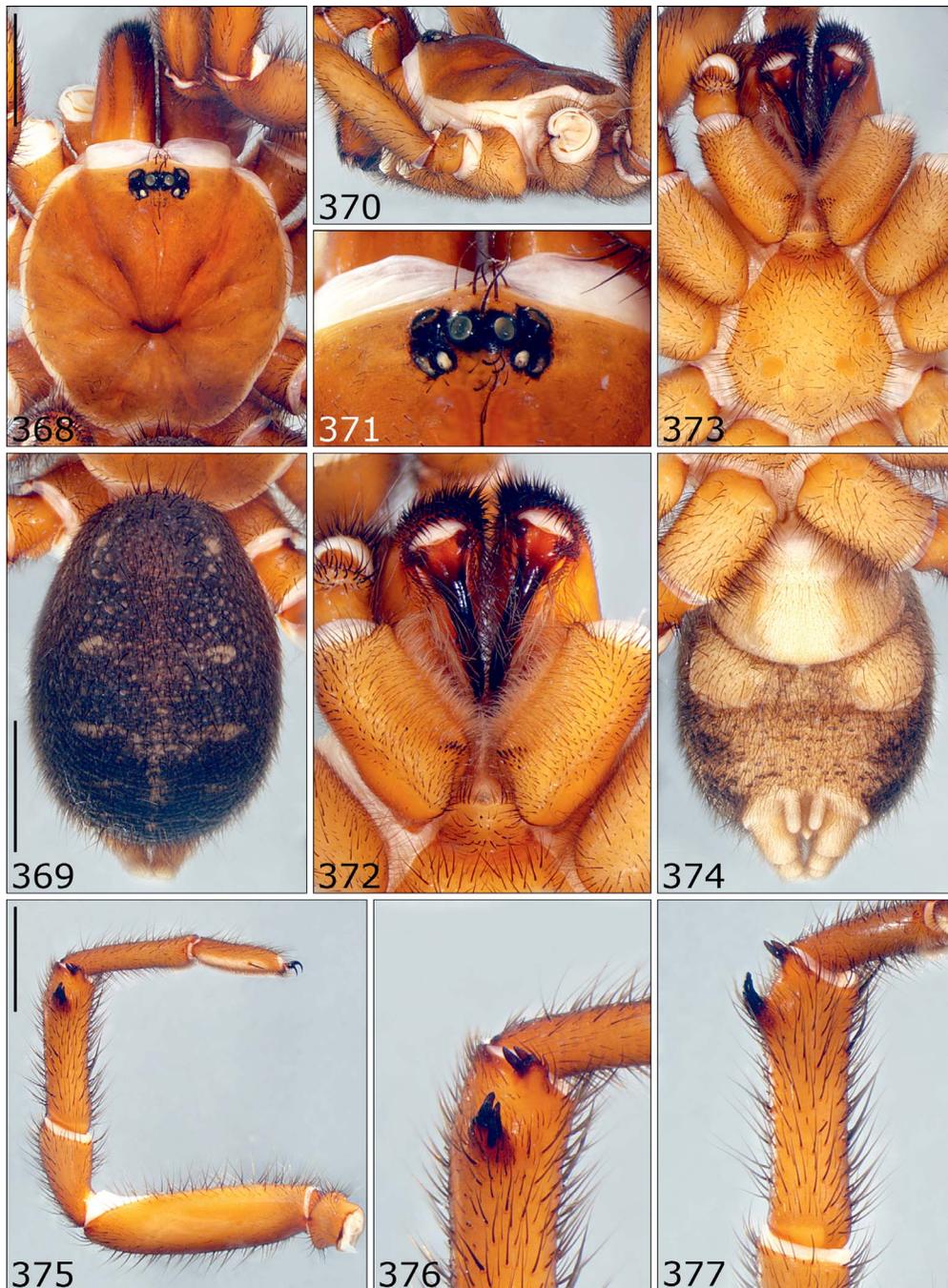


Figures 358–367.—*Cryptoforis xenophila* sp. nov., female paratype (QVM:13:46866) from Launceston, Tasmania: 358, 359, carapace and abdomen, dorsal view; 360, cephalothorax, lateral view; 361, eyes, dorsal view; 362, mouthparts, ventral view; 363, 364, cephalothorax and abdomen, ventral view; 365, leg I, prolateral view; 366, leg I, retrolateral view; 367, spermathecae, dorsal view. Scale bars = 3.0 (358, 359, 365), 0.5 (367).

tibia I length/width = 3.05 (Fig. 352). *Tibia I*: with bifurcate prolateral clasp spur, oriented roughly dorso-ventrally; macrosetae on ventral prominence relatively short and blunt; cuticle on and around clasp spur thickened, very heavily pigmented and black (Figs. 353, 354). *Pedipalp*: tibia 1.76x longer than wide in retrolateral view; RTA very short, triangular; projecting from position about 50% of the way along tibia, at an angle of about 20° to tibia midline; field of

about 110–120 spinules on and around RTA; cymbium with hair-like setae only (Figs. 355–357). *Copulatory organ*: total length about 50% of pedipalp tibia length; embolus about 1.2x length of bulb, curved and twisted about 90°, tip about 0.2x width at base (Figs. 355–357).

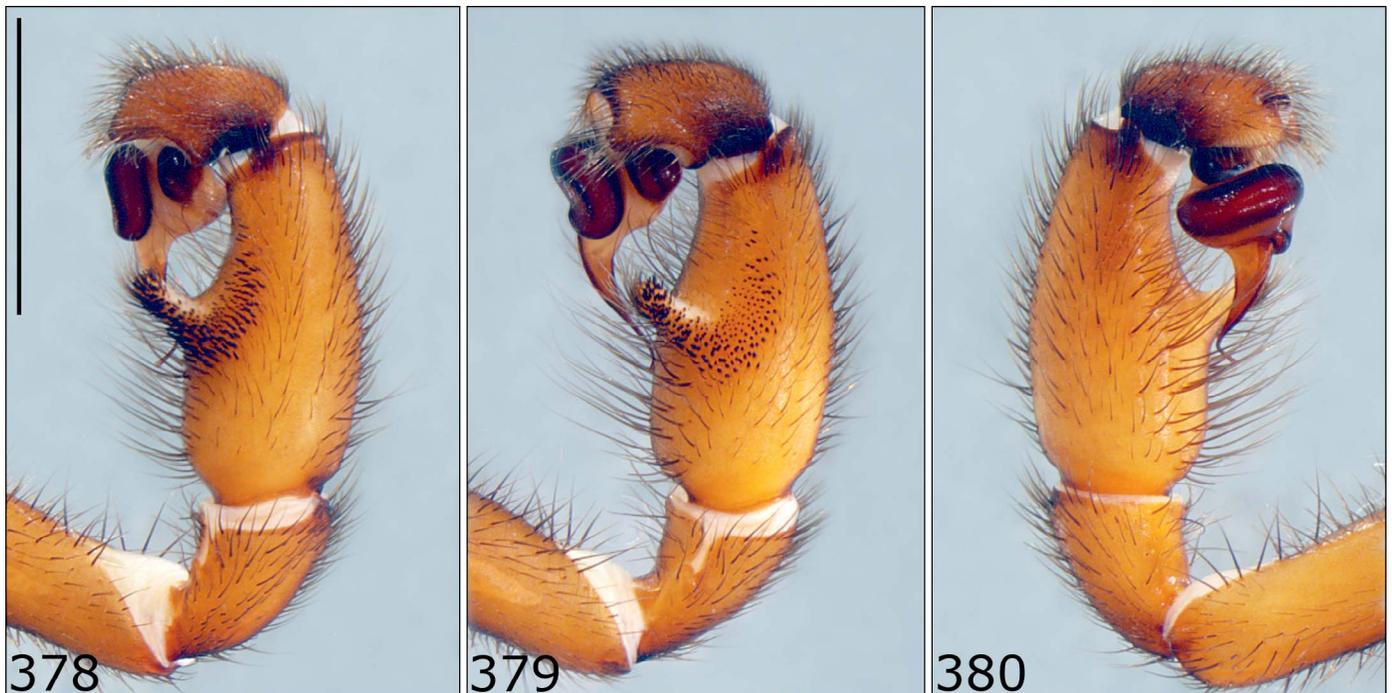
Description (female paratype QVM:13:46866).—Total length 26.98. *Carapace*: 9.88 long, 8.64 wide (length/width = 1.14); carapace and chelicerae uniform orange-brown; carapace



Figures 368–377.—*Cryptoforis zophera* sp. nov., male holotype (NMV K2237) from Woodend, Macedon Ranges, Victoria, somatic morphology: 368, 369, carapace and abdomen, dorsal view; 370, cephalothorax, lateral view; 371, eyes, dorsal view; 372, mouthparts, ventral view; 373, 374, cephalothorax and abdomen, ventral view; 375, leg I, prolateral view; 376, 377, leg I tibia, prolateral and proventral views. Scale bars = 3.0.

glabrous; fovea procurved (length/width = 0.22) (Fig. 358). *Ocular region*: on raised mound (Fig. 360); eye group rectangular (width/length = 2.04); length 1.16, anterior width 2.13, posterior width 2.36. Eye diameters: PLE (0.46) > ALE (0.39) > AME (0.33) > PME (0.27) (Fig. 361). *Mouthparts*: maxillae with about 30–35 cuspules on antero-ental edge; labium 1.79x wider than long, with one cuspule present on anterior edge (Fig. 362). *Sternum*: length/width = 1.10; posterior

sigilla small/moderate, ovoid, closer to sternum edge than to each other (Fig. 363). *Abdomen*: 13.23 long, 8.81 wide, ovoid; dorsal surface light brown, with faint sigilla-spots and tapering, lateral chevrons; sparse coat of hair-like setae (Figs. 359, 364). *Internal genitalia*: spermathecae length 0.88 (length /carapace length = 0.09); crown width 0.37 (width /carapace length = 0.037); stem much longer than crown (1.5x), crown much wider than stem (1.68x); crown rounded, concolorous with stem (Fig.



Figures 378–380.—*Cryptoforis zophera* sp. nov., male holotype (NMV K2237) from Woodend, Macedon Ranges, Victoria, pedipalp: 378, retrolateral view; 379, retroventral view; 380, prolateral view. Scale bar = 3.0.

367). *Legs*: concolorous with carapace; scopulae present on pedipalp tarsi, and tarsi and metatarsi I and II, at heavy density, slightly obscuring macrosetae; Leg I length = 18.10 (6.05, 3.85, 3.37, 2.65, 2.18); leg I length/carapace length = 1.83; tibia I length/width = 1.89. Leg I macrosetation: femur 0; patella 0; tibia 4(1PL, 3RV); metatarsus 5(2PL, 3RL); tarsus 2(1V, 1RL); total = 11 (Figs. 365, 366).

Distribution and remarks.—*Cryptoforis xenophila* is known from the Northern Midlands bioregion of central-northern Tasmania, around the city of Launceston and the Tamar River (Fig. 19). Localities where *C. xenophila* has been collected are predominantly open eucalypt forest, interspersed with regions of tall open eucalypt forest (wet sclerophyll). Males appear to wander in search of females during autumn. The burrow constructed by this species is unknown. *Cryptoforis xenophila* is part of the *tasmanica*-group, a phylogenetic clade of *Cryptoforis* from Tasmania. *Cryptoforis hickmani* and *C. tasmanica* are also part of this species-group (Figs. 14, 15).

Cryptoforis zophera Wilson, Raven & Rix, 2018, sp. nov.
<http://zoobank.org/NomenclaturalActs/A9B41197-CEBE-4B58-A3BC-257EE0167B5C>
 (Figs. 368–390)

Euoplos ‘morpho-species 22’ Wilson et al., 2018: 159, 160, suppl. file 1.

Euoplos ‘MountMacedon’/‘morpho-species 6’ Wilson et al., 2020: 548, figs. 3–5.

Type material.—*Holotype male*. AUSTRALIA: Victoria: Woodend, Macedon Ranges, 37°22’S, 144°32’E, July 1990, D. A. R. A. Bendigo (NMV K2237).

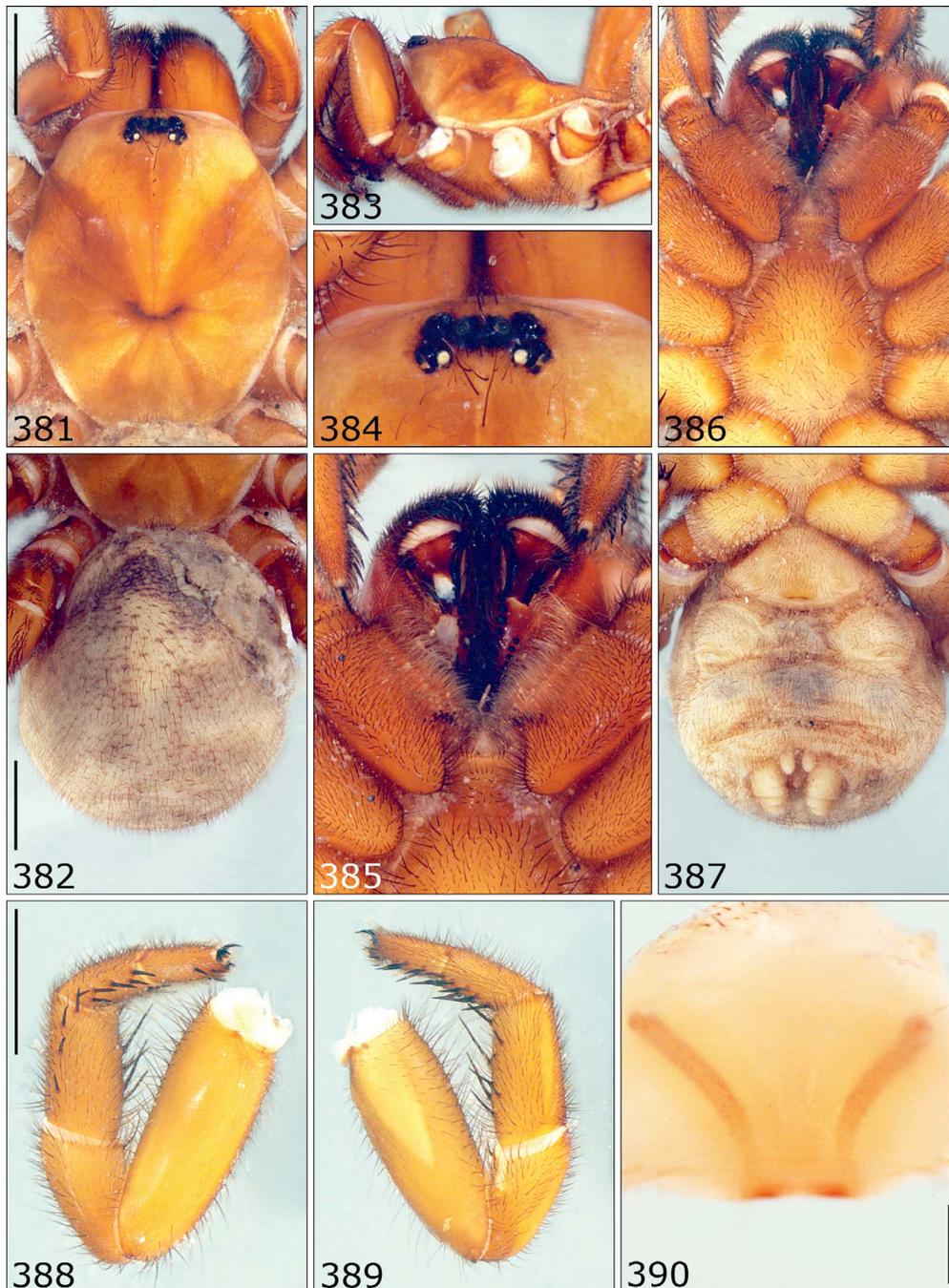
Paratypes. AUSTRALIA: Victoria: 1 ♀, Mount Macedon, Cheniston Road, 37°24’S, 144°36’E, 13 July 1980, R. Raven (QMB S88379).

Other Material Examined.—AUSTRALIA: Victoria: 1 juvenile, Mount Macedon, Cheniston Road, 37°24’S, 144°36’E, 533 m, excavated from burrow, 5 November 2016, J. Wilson, C. Shanahan (QMB S108427); 1 juvenile, same data (QMB S108428).

Etymology.—The specific epithet is derived from the latinized *zopheros* (adjective: ‘dusky, gloomy’; see Brown 1956), in reference to the gloomy, cool, temperate forests of the Macedon Range, where this species is found.

Diagnosis.—Males of *Cryptoforis zophera* can be distinguished from all known other species in the genus by the presence of a longitudinally oriented, bifurcate clasping spur on tibia I (Figs. 376–377). Females of *C. zophera* can be distinguished from all other species in the genus by their spermathecae, which are unusually elongate (Fig. 390).

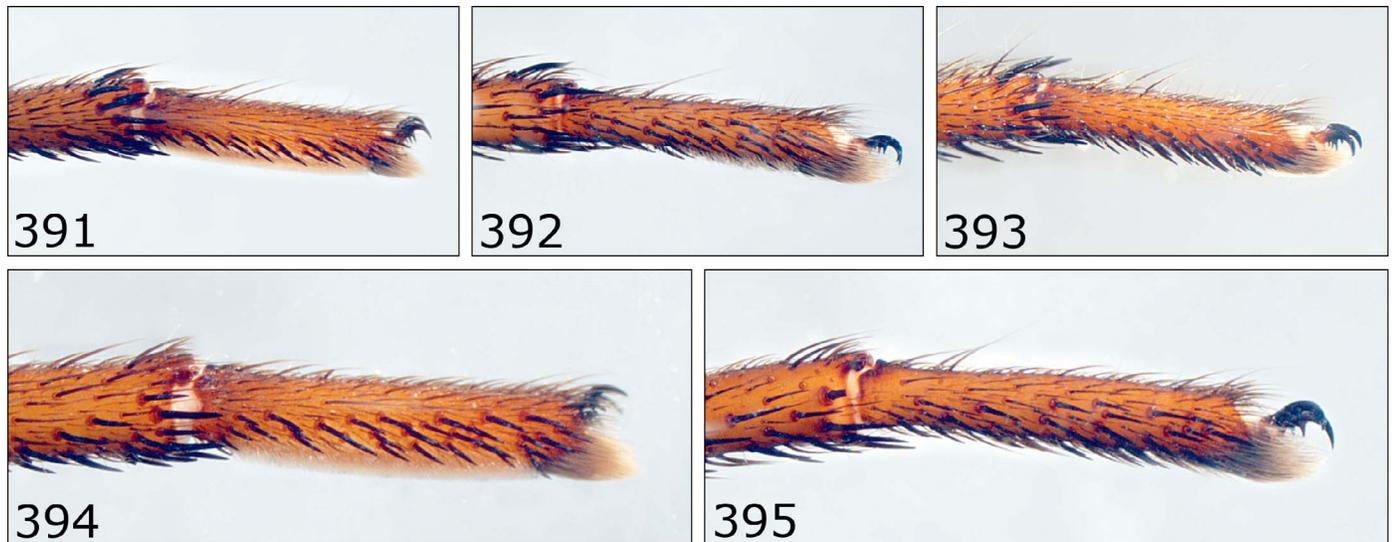
Description (male holotype).—Total length 19.30. Carapace: 7.19 long, 7.06 wide (length/width = 1.02); carapace and chelicerae uniform orange; carapace virtually glabrous, with bristle-like setae around margins; fovea strongly procurved (length/width = 0.28) (Fig. 368). Ocular region: on raised mound (Fig. 370); eye group rectangular (width/length = 1.93); length 0.85, anterior width 1.63, posterior width 1.65. Eye diameters: PLE (0.45) > ALE (0.43) > AME (0.35) > PME (0.26) (Fig. 371). Mouthparts: maxillae with 20–25 cuspules on antero-ental edge; labium 1.96x wider than long, with one cuspule on anterior edge (Fig. 372). Sternum: length/width = 0.97; posterior sigilla moderate size, ovoid, closer to sternum edge than to each other (Fig. 373). Abdomen: 8.10 long, 5.79 wide, ovoid; dorsal surface dark brown with beige sigilla-spots



Figures 381–390.—*Cryptoforis zophera* sp. nov., female paratype (QMB S88379) from Mount Macedon, Victoria: 381, 382, carapace and abdomen, dorsal view; 383, cephalothorax, lateral view; 384, eyes, dorsal view; 385, mouthparts, ventral view; 386, 387, cephalothorax and abdomen, ventral view; 388, leg I, prolateral view; 389, leg I, retrolateral view; 390, spermathecae, dorsal view. Scale bars = 3.0 (381, 382, 388), 0.5 (390).

and posterior-median band; sparse coat of hair-like setae interspersed with bristle-like setae (Figs. 369, 374). Legs: concolorous with carapace; scopulae complete on ventral tarsi I–III, and on distal metatarsi I–II; leg I length= 20.72 (6.48, 3.32, 4.51, 4.07, 2.35); leg I length/carapace length= 2.88; tibia I length/width = 3.41 (Fig. 375). Tibia I: with bifurcate, prolateral clasp spur, oriented longitudinally; macrosetae on ventral prominence long and sharp; cuticle around spurs

mostly without dark pigmentation (Figs. 376, 377). Pedipalp: tibia 2.03x longer than wide in retrolateral view; RTA moderate, digitiform, projecting from position about 45% of the way along tibia, at an angle of about 30° to tibia midline; field of about 200–220 spinules on/around RTA; cymbium with hair-like setae only (Figs. 378–380). Copulatory organ: total length about 65% of pedipalp tibia length; embolus about



Figures 391–395.—Examples of scopulation states on ventral tarsi III and IV in *Cryptoforis*. 391–393, tarsus III with scopulae along entire length (391), on distal end only (392), and absent (393); 394–395, tarsus IV with ventral scopulae present (394) and absent (395).

1.5x length of bulb, curved and twisted about 90°; tip about 0.10x width at base (Figs. 378–380).

Description (female paratype QMB S88379).—Total length 22.09. Carapace: 9.49 long, 7.92 wide (length/width = 1.20); carapace and chelicerae uniform orange; carapace glabrous; fovea strongly procurved (length/width = 0.32) (Fig. 381). Ocular region: on raised mound (Fig. 383); eye group rectangular (width/length = 2.17); length 0.87, anterior width 1.76, posterior width 1.89. Eye diameters: ALE (0.38) = PLE (0.38) > AME (0.33) > PME (0.23) (Fig. 384). Mouthparts: maxillae with about 15–20 cuspules on antero-ental edge; labium 1.80x wider than long, cuspules absent (Fig. 385). Sternum: length/width = 1.11; posterior sigilla large, ovoid, closer to sternum edge than to each other (Fig. 386). Abdomen: 10.38 long, 9.20 wide, ovoid; dorsal surface mostly beige with irregular brown patches, with faint beige sigilla-spots and posterior-median band; sparse coat of hair-like setae interspersed with bristle-like setae (Figs. 382, 387) Internal genitalia: spermathecae length 1.14 (length/car. length = 0.12); crown width 0.21 (width /car. length = 0.022); stem much longer than crown (5.07x), crown slightly wider than stem (1.24x); crown rounded, concolourous with stem, stem extremely elongate (Fig. 390). Legs: concolourous with carapace; scopulae present on pedipalp tarsi, and tarsi and metatarsi I and II, at light density, not obscuring macrosetae; Leg I length = 14.70 (5.24, 3.30, 2.67, 1.96, 1.53); leg I length/carapace length = 1.55; tibia I length/width = 1.67. Leg I macrosetation: femur 0; patella 0; tibia 12(4PL, 4RV, 4RL); metatarsus 15(6PL, 1V, 8RL); tarsus 8(2PL, 1V, 5RL); total = 35 (Figs. 388, 389).

Distribution and remarks.—*Cryptoforis zophera* is currently known from only two localities around Mount Macedon, in the Central Victorian Uplands subregion (Fig. 19). The habitat in this region is predominantly tall open eucalypt forest. Based on the holotype, mature males exist during winter; however, there is currently no information on when males wander looking for a mate. This species builds a wafer-door burrow entrance (similar to Figs. 5–8), using humus

fragments as the dominant substrate in the door. Burrows appear to be most common on lightly sloping ground with a loose leaf-litter layer (similar to Figs. 11–13). As has been mentioned earlier, the phylogenetic position of *C. zophera* remains uncertain. In some analyses of Wilson et al. (2020) it was recovered as a monotypic sister lineage to all other Euoplinae, while in a majority of the analyses it was recovered within *Cryptoforis* (as in Figs. 14, 15). If future analyses confirm that this species is a separately evolving lineage, it may need to be removed from *Cryptoforis* and elevated as a third monotypic genus within the Euoplinae.

ACKNOWLEDGMENTS

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