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Trapdoor Spiders of the Genus *Misgolas* (Mygalomorphae: Idiopidae) in the Illawarra and South Coast Regions of New South Wales, Australia

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ABSTRACT. This paper reports on species of the idiopid trapdoor spider genus *Misgolas* Karsch, 1878 found in the Illawarra and South Coast Regions of New South Wales, Australia. They comprise eight new species: *M. horsemanae* n.sp., *M. gwennethae* n.sp., *M. phippsi* n.sp., *M. kampenae* n.sp., *M. paulaskewi* n.sp., *M. rowelli* n.sp., *M. tannerae* n.sp. and *M. shawi* n.sp. Four species dealt with in Wishart (1992) and one in Wishart (2006) are also included in the region covered by this work: *M. rapax* (synonymous with *M. hubbardi), M. dereki, M. kirstiae, M. robertsi* (Main & Mascord, 1974) and *M. gracilis* respectively. *M. elegans* (Rainbow & Pulleine, 1918) is retained here but is regarded as a nomen dubium. Evidence is provided supporting the species status of *M. montanus* (Rainbow & Pulleine, 1918). A key for males of the species within the region is presented, as well as distribution map and comments on taxonomy and natural history.

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This paper is third in a geographical series and continues the regional documentation of species of the trapdoor spider genus *Misgolas* Karsch, 1878 found in New South Wales (Wishart, 2006 & Wishart & Rowell, 2008). A further eight new species are added to the NSW list of 42. For the completion of the series two NSW regions still remain, the Far North Coast of NSW and the Great Dividing Range together with its Western Slopes. This present work identifies species collected from the region immediately south of the Sydney Region, from Port Hacking south along the coastal strip to the Victorian Border.

One species, *Misgolas gracilis* (Rainbow & Pulleine, 1918), is dealt with by Wishart (2006, p. 7, fig. 3) and Wishart & Rowell (2008). Its distribution extends from the Sydney and Central Coast Regions into the region covered by this work (Fig. 14A). For this spider the southern most extent of its distribution appears to be the Minnamurra Falls National Park.

Material and methods

Methodology follows that of Wishart (2006). All specimens are deposited in the Australian Museum, Sydney. Measuring points are taken from Coyle (1971).

Whilst at rest the bulb of the male palpal organ is folded into the ventral excavation of the palpal tibia. Usually the brown sclerous convex side is uppermost against the tibia cavity and is considered here to be the dorsal surface. The weakly chitinous flange is retrolaterally situated on the basal part of the embolus. The configuration of the embolus of the male bulb (e.g., straight or bent) is described from dorsal aspect. Measurements and counts refer to the characters on the right side of the specimen and where provided data for the left side is given in brackets. Notation of spines is taken from Forster & Wilton (1968).

Terminology

Terminology follows that of Wishart (2006). *ALE*, anterior lateral eyes; *AMS*, Australian Museum, Sydney (specimens listed under accession numbers prefixed *KS* are deposited in the AMS); *AME*, anterior median eyes; *d*, dorsal; *DTA*, distal tibial apophysis, a small, often hooked, apical apophysis positioned retrodorsally on tibia of male palp (usually present); *GW*, Graham Wishart; *pd*, prodorsal; *pl*, prolateral; *PLE*, posterior lateral eyes; *PME*, posterior median eyes; *PMS*, posterior median spinnerets; *pv*, proventral; *rd*, retrodorsal; *rl*, retrolateral; *RTA*, retroventral tibial apophysis, a prominent apophysis projecting generally forward from c. midway on tibia of male palp; *rv*, retroventral; *TEM*, tibial excavation mound, a usually pallid mound within tibial excavation, of variable prominence, prolaterally adjacent to or contiguous with RTA; *TET*, tibial excavation texture, a textured area of a series of raised transverse lines within palpal tibial excavation and which encroaches upon TEM; *v*, ventral; *width/length ratio*, ratio of maximum width to length of ocular area; only rarely, and then only marginally, is this greater than 2 (Main, 1985a).

Key to males of species in the genus *Misgolas* from the New South Wales Illawarra and South Coast Regions

1 Palpal distal tibial apophysis hooked (Fig. 3A) 2
—— Distal tibial apophysis straight, horizontal (Fig. 2A) or absent, embolic apophysis absent (Figs 2B,C) 3

2 Retrolateral embolic flange appearing inflated sail-like; edge markedly curved with three, rarely four, prominent folds (Fig. 1B) ..... *M. dereki*
—— Embolic flange with more than four folds 4

3 Embolus slender & sinuous, apophysis absent (Figs 2B,C) ..... *M. kirstiae*
—— Embolus robust & straight, (Figs 3B,C) 12

4 Embolic apophysis subdistal, retrolaterally positioned (Figs 4B,C) 5
—— Embolic apophysis dorsal, not retrolaterally positioned 6

5 Venter entirely dark brown, black (Fig. 3F) ..... *M. gwennethae*
—— Venter pallid with dark brown speckle (Fig. 4G) ..... *M. rapax*

6 Venter pallid with distinctive dark brown median band (Fig. 5E) ..... *M. robertsi*
—— Venter lacking dark brown median band 7

7 Embolus from dorsal aspect straight or almost so (Fig. 6B) ..... *M. phippsi*
—— Embolus from dorsal aspect with prolateral bend or tip sinuous 8

8 Distal part of embolus short, about half length of embolic flange edge (Fig. 7B) ..... *M. kampenae*
—— Distal part of embolus and embolic flange edge about equal length (Fig. 8B) 9

9 9 Anterior limbs with prominent dark brown lateral smudges (Fig. 8E–H) ..... *M. paulaskewi*
—— Brown smudges weak or absent on anterior limbs (Figs 11E–F) 10

10 Retrodorsal surface of metatarsus IV with spines (Fig. 9E) ..... *M. rowelli*
—— Retrodorsal surface of metatarsus IV lacking spines (Fig. 10F) 11

11 Lateral surfaces of abdomen with distinct, prominent brown spots (Figs 10D,G) ..... *M. tannerae*
—— Prominent brown spots absent ..... *M. shawi*

12 Embolic flange edge entire, lacking folds ..... *M. horsemanae*
—— Embolic flange with one prominent fold (Wishart, 2006, figs 3B–C) ..... *M. gracilis*

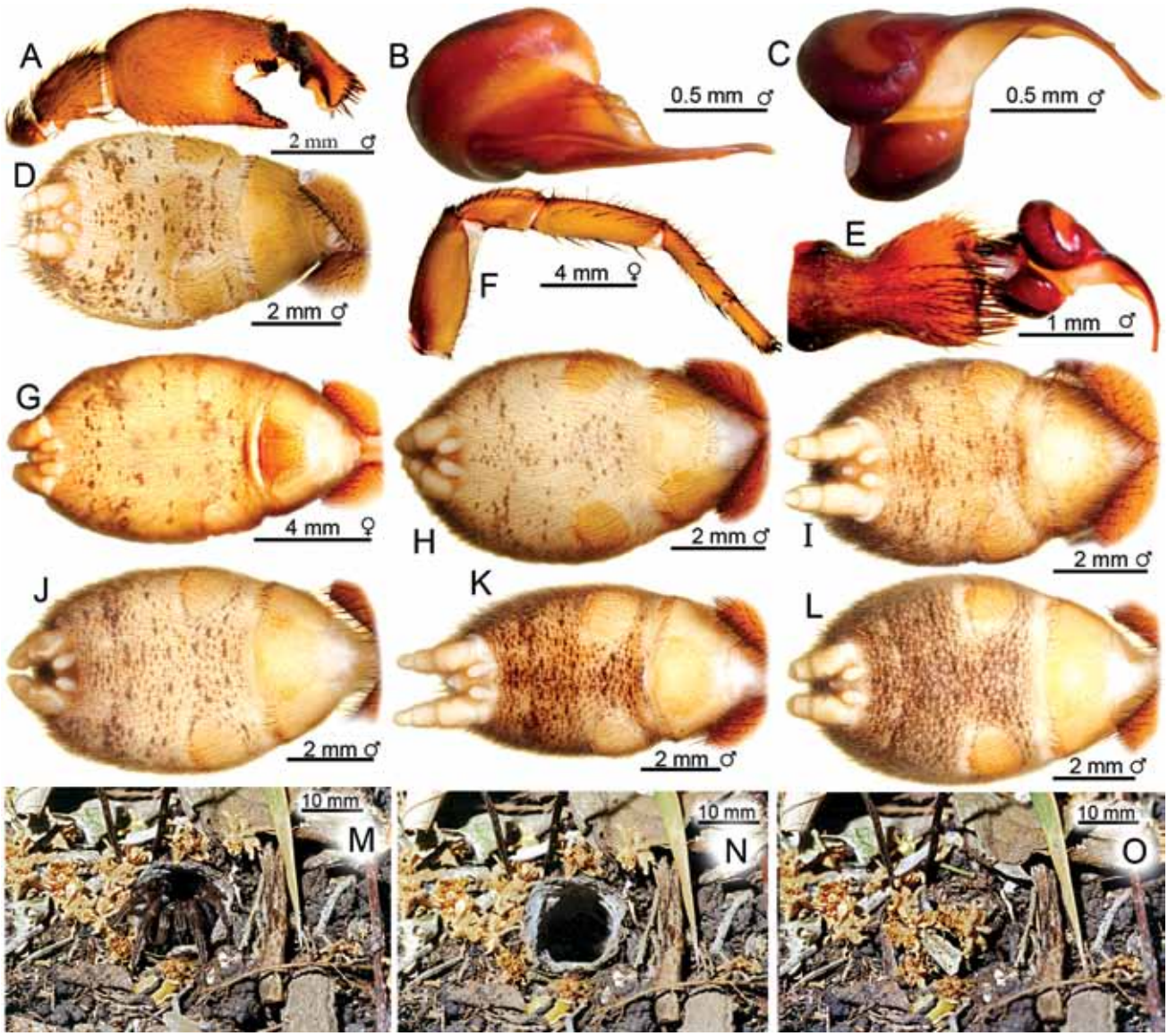

Fig. 1. *Misgolas dereki. (A–E)* ♂, holotype AMS KS22326: *(A)* right palp retrolateral. *(B,C)* right bulb: *(B)* dorsal, *(C)* prolateral. *(D)* venter. *(E)* right cymbium dorsal. *(F)* ♀, allotype AMS KS22327, right leg IV retrolateral. *(G)* ♀, paratype AMS KS22345, venter. *(H–L)* ♂ venter: *(H)* AMS KS92891, *(I)* AMS KS92890, *(J)* AMS KS38819, *(K)* AMS KS38618, *(L)* AMS KS92892. *(M–O)* burrow entrance at type locality 16 Oct 1988: *(M)* spider in foraging position, *(N)* burrow lip/collar open, *(O)* burrow lip/collar closed.

Misgolas Karsch, 1878

Type species. *Misgolas rapax* Karsch, 1878: 821. New South Wales.

Hermeas Karsch, 1878: 823. Type species by monotypy. *Hermeas crispus* Karsch, 1878. Synonymized with *Misgolas* by Main, 1985. See Main (1985) for generic diagnosis.

Misgolas dereki Wishart, 1992

Figs 1A–O, 14B

Misgolas dereki Wishart, 1992: 266–269.

Material examined. New South Wales: holotype ♂, AMS KS22326, "Scalloway", Willow Vale, nr Gerringong, NSW (34°44'11"S 150°47'23"E), 17 Oct. 1985, GW. Allotype ♀, AMS KS22327, 13 Jan. 1986, other details as for AMS KS22326.

The following material, also from New South Wales, also examined: ♂♂ AMS KS3644, Mt Keira Scout Camp, Wollongong (34°24'S 150°51'E), 14 Mar. 1979, M Gray & C Horseman. AMS KS30875, Dapto, NSW (34°30'S 150°47'E), 24 Mar. 1992. AMS KS38618, "Lightwood Park" Williams Rd, Jamberoo, NSW (34°36'46"S 150°47'27"E), 4 Apr. 1988, S Meredith. AMS KS38619, 30 Apr. 1988, other details as for AMS KS38618. AMS KS48700, Wiarborough nr Taralga, NSW (34°12'S 149°54'E), 15 Apr. 1968, G. Cosgrove. AMS KS92890, 30 Apr. 1988, other details as for AMS KS38618. AMS KS92891, 30 Apr. 1988, other details as for AMS KS38618. AMS KS92892, 4 Apr. 1988, other details as for AMS KS38618.

Diagnosis. Specimens located south of approximately latitude 34°38'S, includes type locality: in male & female: medium sized brown spiders, retrodorsal surface of metatarsi IV with spines (Fig. 1F). Venter pallid with sparse, scattered dark brown speckles distant from spinneret region (Fig. 1D,G). In female: carapace length c. 7.7–11.5. In male: carapace length c. 6.0–8.1. Embolus of bulb with small, dorsal, thorn-like apophysis placed about mid-way; retrolateral flange with three prominent folds, edge markedly curved (Fig. 1B,C). Conformation of palp and spination of cymbium as figured (Fig. 1A,E). Specimens found north of latitude 34°38'S: venter pallid with range of densities of dark brown speckles varying from pallid to entirely dark brown often adjacent to spinneret region (Fig. 1H–L).

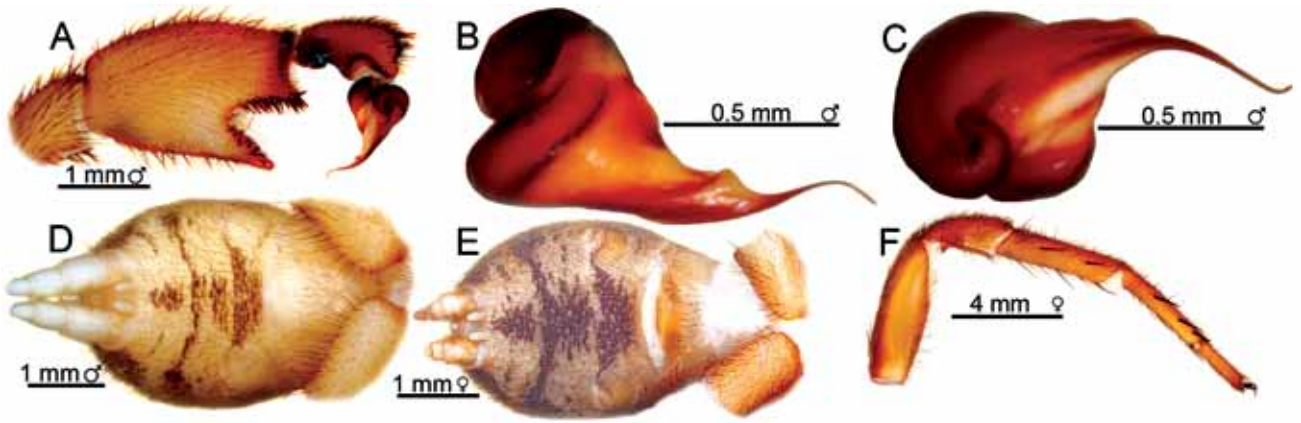

Fig. 2. *Misgolas kirstiae. (A–D)* ♂, holotype AMS KS22355: *(A)* right palp retrolateral. *(B,C)* right bulb: *(B)* dorsal, *(C)* prolateral. *(D)* venter. *(E,F)* ♀, allotype AMS KS22356: *(E)* venter. *(F)* right leg IV retrolateral.

Remarks. Northwards from about a line represented by latitude 34°38'S some male specimens, though determined to be *M. dereki*, exhibit variable venter patterns and rarely, four, rather than three, prominent folds on the retrolateral embolic flange of the male bulb. A consistent unifying character is the retrolateral embolic flange appearing inflated sail-like; edge markedly curved and with prominent folds.

The wandering times of mature male *M. dereki* spiders from the type locality Wishart (1993) found almost all were collected during April to June of each year. This correlates approximately to the February-June period for the, albeit undisciplined, collection of 68 specimens from areas not included in the type locality, in particular the region north of latitude 34°38'S.

Typifying the variations of the venter pattern (Fig. 1H–L) are five male spiders all collected from the same in-ground home swimming pool during April, 1988. Consistent conformation of the palps and bulbs in these specimens supports these spiders being conspecific with *M. dereki*, yet the venter patterns are variable. It appears that there is a southern group within the species *M. dereki* whch exhibit consistent venter patterns and a northern group with inconsistent venter patterns. This is accepted as a natural genetic variation within this species which is fixed in most other *Misgolas* species.

Distribution and natural history. (Figs 1M–O, 14B) This spider has been collected northwards from the Shoalhaven River to Mount Keira nr Wollongong and westwards to Wiarborough (34°12'S 149°54'E) nr Taralga. Burrow entrance collar-like, level with ground (Fig. 1M–O). Subterranean structure about 25 cm deep, lined with fragile silk tube terminating at soft but strong, 3.5 cm long sock in which spider, sometimes with spiderlings, is often found (Wishart, 1992). Male spider wandering times most often during April-June each year (Wishart, 1993).

Misgolas kirstiae Wishart, 1992

Figs 2A–F, 14C

Misgolas kirstiae Wishart, 1992: 269–271.

Type material examined. New South Wales: holotype ♂, AMS KS22355, "Scalloway", Willow Vale, nr Gerringong, NSW (34°44'11"S 150°47'23"E), 6 Nov. 1985, GW. Allotype ♀, AMS KS22356, 5 Oct.1988, locality as for KS22355, maintained alive until 23 Jan. 1989, then preserved with 55 spiderlings.

Diagnosis. In male & female: small sized brown spiders; reflective hairs and many small black setae on carapace, retrodorsal surface of metatarsi IV with spines (Fig. 2F). Venter pallid with dark brown pattern most concentrated along median band (Fig. 2D,E). In female: carapace length c. 5.5–7.5. In male: carapace length c. 5.1–6.4. Embolus of bulb slender, sinuous, apophysis absent; retrolateral flange with one prominent fold (Fig. 2B,C). Conformation of palp as figured (Fig. 2A), distal tibial apophysis absent.

Distribution and natural history. Known only from type locality (Fig. 14C); burrow in the wild not known. Spiders found in excavated soil sometimes encased in soft fragile silken sock about 3 cm long, impregnated with soil; in captivity burrow entrance is sealed by halfmoon-shaped flap (Wishart, 1992). Mature males wander from September to November each year (Wishart, 1993).

Misgolas gwennethae n.sp.

Figs 3A–J, 14C

Misgolas hubbardi.–Wishart, 1992, 264–266, figs 1–6, misidentification. Removed from synonymy with *M. hubbardi* in Wishart & Rowell, 2008.

Type material. Holotype ♂, AMS KS38678, Berry, NSW, Primary School grounds (34°46'41"S 150°41'21"E), 15 Nov.1989, Janice Tanner. Allotype ♀, AMS KS44312, excavated from Berry Primary School grounds (34°46'41"S 150°41'21"E), 18 Sep. 1986, GW. Paratypes ♂♂, AMS KS50064, Berry, in home swimming pool (34°47'S 150°42'E), 10 Sep. 1997, Don Webster. AMS KS38689, 6 June, 1988, other details as for holotype. AMS KS92885, 13 Sep. 2008, other details as for paratype AMS KS50064. Paratypes ♀♀, AMS KS44311, Berry, NSW, Primary School grounds (34°46'41"S 150°41'21"E), 18 Sep. 1986, GW. AMS KS92886, 13 Sep. 2008; other details as for paratype AMS KS44311. AMS KS22394, Berry, NSW, found in shoe (34°47'S 150°41'E), 28 Oct. 1992, Wendy Bramley, nee Hanbridge.

Other material examined. New South Wales: ♂♂, AMS KS38682, Foxground (34°42'44"S 150°44'27"E), 26 Aug.1982, J. Voorwinden. AMS KS23631, Kangaroo Valley (34°44'10"S 150°32'03"E), 15 Feb.1991, K. Goyer. AMS KS38680, Bomaderry railway station (34°51'15"S 150°36'35"E), 17 Sep.1990, C. Davis. AMS KS38679, North Nowra (34°52'23"S 150°35'30"E), 4 Oct.1987, Janice Tanner. AMS KS42343, Nowra (34°52'23"S 150°36'12"E), 15 Nov.1994. AMS KS38688, South Nowra, Quinns Lane (34°54'33"S 150°36'23"E), A. Cooper. AMS KS4279, St. Georges Basin (35°05'28"S 150°35'54"E), 15 Jan.1984, W. Bell. AMS KS22392, Wandandian (35°03'22"S 150°30'34"E), 20 Jul.1985. AMS KS1768, Bendalong (35°14'48"S 150°31'46"E), 2 Oct.1978. AMS KS38598, Milton (35°18'56"S 150°26'05"E), 15 Feb.1972, Carter. AMS KS38683, Bannister Head (35°19'05"S 150°28'20"E), 29 Feb.1988, T. Whittle. AMS KS16420, Batemans Bay (35°42'28"S 150°10'34"E), 15 Feb.1986, Lyn Abra.

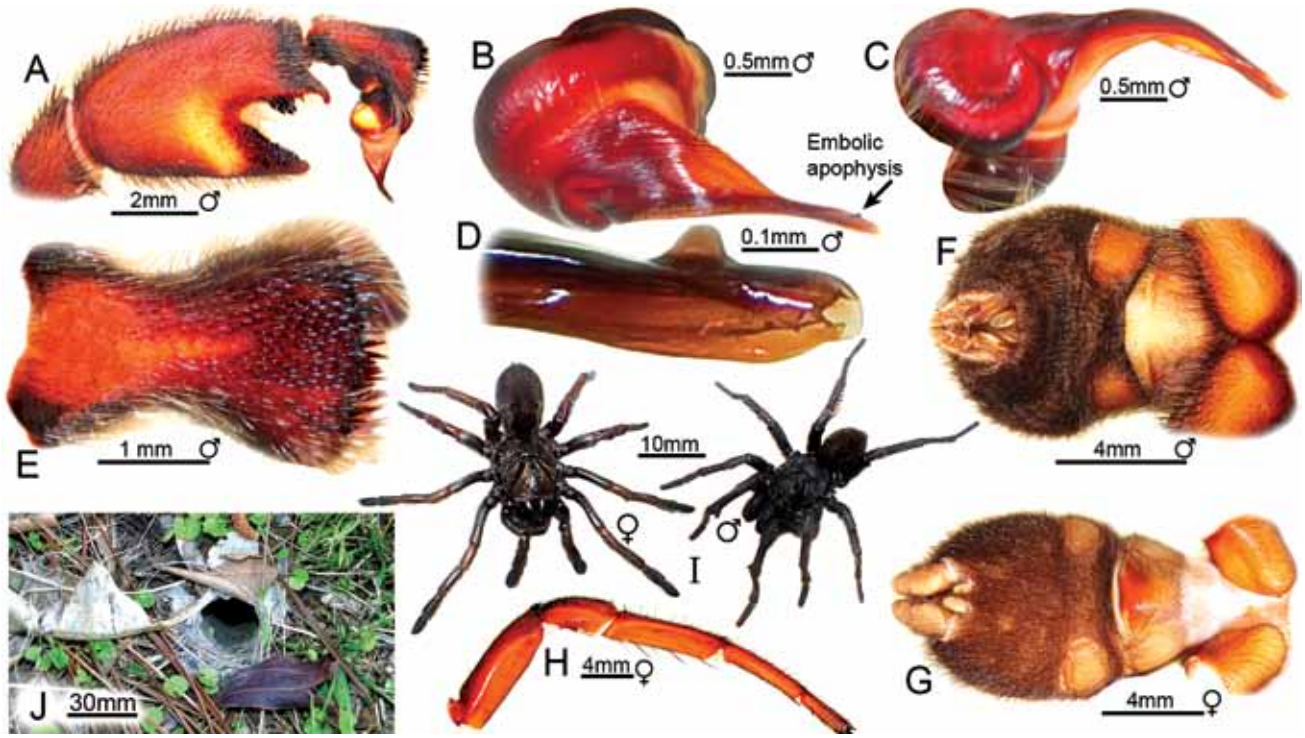

Fig. 3. *Misgolas gwennethae* n.sp. *(A–F)* ♂, holotype AMS KS38678. *(A)* right palp retrolateral. *(B,C)* right bulb: *(B)* dorsal, *(C)* prolateral. *(D)* embolus tip of right bulb dorsal. *(E)* right cymbium dorsal. *(F)* venter. *(G–H)* ♀, allotype AMS KS44312. *(G)* venter. *(H)* right leg IV retrolateral. *(I)* ♀ and ♂ spiders relative sizes, photographed live. *(J)* burrow entrance.

Diagnosis. Large (Fig. 3I), dark brown-black spiders (female lighter brown than male); carapace length male, c. 9.3–11.7, female to 12.3 maximum, retrodorsal surface of metatarsi IV lack spines (Fig. 3H); venter entirely dark brown-black (Fig. 3F,G); limb segments unicolourous. In male palpal bulb (Fig. 3B,C) with narrow retrolateral embolic flange with c. 8 folds, margin straight; embolic apophysis subdistal, retrolateral, apex flat as figured (Fig. 3D); conformation of palp as figured (Fig. 3A,E).

Description

Male holotype (Fig. 3A–F). *Size*. Carapace length 11.66, width 9.41. Abdomen length 8.92, width 6.27. — *Colour*. In alcohol chelicerae, carapace, abdomen dorsum and limbs dark brown; live spider appearing black. Venter entirely black. Dark brown lateral smudges not evident on limbs. Abdomen dorsum bearing few indistinct transverse chevrons. When dry carapace bedecked with golden hirsute sheen. — *Carapace*. Fine golden setae abundant on edge, caput and proximal leg segments. Edge fringed with black bristles which encroach onto posterior half of post foveal surface. Line of median bristles absent from caput arch; 8 posteriorly inclined and 6 anteriorly inclined bristles on clypeus. Fovea width 2.18, straight, recurved edges; posterior wall centrally divided by 2 pitted intrusions. — *Eyes*. Raised on a mound. Area immediately adjacent to eyes black. Anterior width 1.79, posterior width 1.66, length 1.01, width/length ratio 1.77. Line joining posterior edges of ALE transects anterior fifth of AME. Posterior row procurved in front, recurved behind. — *Chelicerae*. Rastellum front row of 7(7) spines, 3(3) behind on inner edge. Intercheliceral tumescence pallid, with cover of prostrate, anteriorly inclined setae. Fang groove with 8(8) promarginal teeth and 10(9) smaller retromarginal/intermediate row teeth. — *Labium*. Bulbous, length 1.31, width 1.72. Labio-sternal suture continuously broad. — *Maxillae* c. 49(60) small, pointed antero-ental cuspules, few terminated by a hair. — *Sternum*. Bulbous, length 6.14, width 4.54. Sigilla all small; first and second pairs submarginal, posterior pair each c. 3 times own diameter from margin. — *Legs*. Tibia I with distal bifid apophysis. Distal process with 2(2) short compact spines; proximal process row of 4(4) longer, curved pointed spines.

	Palp	I	II	III	IV
Femur	6.57	10.48	9.51	4.85	10.39
Patella	3.07	5.29	4.80	2.57	4.80
Tibia	5.83	7.35	6.66	2.95	8.72
Metatarsus	—	7.74	6.95	3.99	8.53
Tarsus	2.88	4.80	4.50	2.64	4.80
Total	18.35	35.66	32.42	17.00	37.24

Palp. (Fig. 3A,E) Many short anteriorly inclined, skewer-like spines on distal half of cymbium d surface. RTA thick set, not inclined from horizontal, not swollen, d and rd surfaces covered with squat pointed spines. Tibial excavation rv edge with suspended brush of c. 27 long spines. Prominent DTA hooked lacking spines. Large TEM, with postero-ental TET, contiguous with RTA. — *Bulb*. (Fig. 3B,C) Length 3.16. Embolic rl flange with 8 major folds, 2 minor folds; margin straight. Embolus straight with subdistal, rl apophysis as figured (Fig. 3D). Length from embolic apophysis to embolus tip (a) 0.17; length from embolic flange terminus to embolus tip (f) 0.69; a/f ratio 0.25. — *Scopula*. Complete on all tarsi and metatarsi I and II; incomplete on metatarsi III and IV. — *Trichobothria*. Palp: tarsi 12, tibia pd 7, rd 7. Leg I: tarsi 16, metatarsi 15, tibia pd 8, rd 9. Leg II: tarsi 14, metatarsi 18,

tibia pd 9, rd 7. Leg III: tarsi 18, metatarsi 16, tibia pd 10, rd 10. Leg IV: tarsi 16, metatarsi 15, tibia pd 9, rd 9. — *Leg spination*. Spines absent on all tarsi. Leg I: tibia rv 0111. Leg II: metatarsi v 0100; tibia v 0113. Leg III: metatarsi v 021, pd 001110, rd 001110; tibia v 0112, pl 0110, rl 00110; patella pd 3. Leg IV: metatarsi v 33 scattered on proximal half; tibia v 0112, rl 010. — *Abdomen*. Dorsum with cover of long, dark brown, erect bristles and underlying dense cover of fine pallid hairs. Venter with cover of shorter dark brown bristles and underlying prostrate hairs.

Female allotype (Fig. 3H,G). *Size*. Carapace length 10.88, width 8.13. Abdomen length 11.56, width 7.64. — *Colour*. In alcohol chelicerae and carapace brown; limbs where pubescent dark brown, glabrous areas lighter; abdomen dorsum dark brown, bearing few indistinct transverse chevrons. Venter entirely dark brown-black (Fig. 3G). When dry carapace displays golden hirsute sheen; long, wispy, golden setae extend onto proximal segments of legs I and II. — *Carapace*. Edge sparsely fringed with pallid brown hairs. Line of weak setae (some removed) on caput arch; c. 12 bristles on clypeus and weakly chitinous pleuron membrane below clypeus. Fovea width 1.89, straight, edges slightly recurved; posterior wall not pitted. — *Eyes*. Placed on a low mound. Area immediately adjacent to eyes dark brown. Anterior width 1.59, posterior width 1.48, length 0.92, width/length ratio 1.73. Line joining posterior edges of ALE is anterior tangent of AME. Posterior row procurved in front, recurved behind. — *Chelicerae*. Rastellum row of 10(9) spines; 10(9) in disordered second row; few retreating along pl edge. Fang groove with 10(8) promarginal teeth and 13(17) small retromarginal/intermediate row teeth. — *Labium*. Bulbous, length 1.26, width 1.70. Labio-sternal suture continuous, narrow. — *Maxillae* c. 40(39) blunt cigar-shaped antero-ental cuspules. — *Sternum*. Length 5.97, width 4.31. Sigilla all small, round; first and second pairs submarginal, posterior pair each c. 3 times own diameter from margin. — *Legs*:

	Palp	I	II	III	IV
Femur	6.39	8.23	7.25	5.49	7.94
Patella	1.96	4.61	4.21	3.53	4.51
Tibia	2.89	5.19	4.31	2.84	6.37
Metatarsus	—	4.31	3.82	3.43	5.49
Tarsus	2.58	2.74	2.65	2.40	2.74
Total	13.82	25.08	22.24	17.69	27.05

Scopula. Dense, dark grey in colour. Complete v cover on palpal tarsi, tarsi I and II and metatarsi I. Weak, incomplete on metatarsi II. Absent on legs III and IV. — *Trichobothria*. Palp: tarsi 13, tibia pd8, rd8. Leg I: tarsi 15, metatarsi 16, tibia pd 9, rd 8. Leg II: tarsi 14, metatarsi 16, tibia pd 9, rd 8. Leg III: tarsi 13, metatarsi 15, tibia pd 9, rd 8. Leg IV: tarsi 11, metatarsi 15, tibia pd 9, rd 8. — *Leg spination*. Palp: tarsi pv 010000, rv 01000; tibia pv 7 scattered, rv 0111. Leg I: metatarsi v 0102; tibia rv 0111. Leg II: metatarsi v 0203; tibia v 0111. Leg III: tarsi v 14 scattered; metatarsi v 9 scattered, pd 001110, rd 000110; tibia pd 0010, rd 01010; patella pd 6. Leg IV: tarsi v 20 scattered; metatarsi v 6 plus many spinules scattered. — *Abdomen*. Dorsum with sparse cover of weak dark brown erect bristles and underlying dense cover of fine hairs. Venter with cover of shorter dark brown bristles and underlying prostrate hairs. — *Genitalia*. Sclerous lip of epigynum as figured (Fig. 3G).

Remarks. Wishart & Rowell (1997) referred to this spider as "Berry population" and attributed it, with some reservations, to *Misgolas hubbardi* Wishart, 1992. Wishart & Rowell (2008) reversed the earlier decision and what was referred to as "Berry population" is raised here to the new species *M. gwennethae. M. hubbardi* was placed in synonymy with *Misgolas rapax* Karsch.

Etymology. The species is named in honour of my wife, Gwenneth, and in recognition of a great part of her lifetime spent encouraging my spider interests.

Distribution and natural history (Fig. 14C). Distribution of the species is taken to be coastal east of the Great Dividing Range, from Foxground (34°42'44"S 150°44'27"E) to the north, southwards to Batemans Bay (35°42'28"S 150°10'34"E), a range of about 120 km.

Of 14 wandering male spiders captured within the Berry township all were collected during the June to December periods of several years. The sample size is small and collection undisciplined but, at least for the restricted Berry region, the conclusion is significant and does not greatly contradict Wishart & Rowell's result (1997) based on 38 spiders collected throughout the range.

The burrow (Fig. 3J) is similar to that of *M. rapax* (= *M. hubbardi*) described by Wishart (1992) with an exception being the entrance which is often only marginally oblique. The underground burrow appears to be identical and is as described for the "Berry population" by Wishart & Rowell (1997).

The male spider is large, essentially very black and has a propensity for prolonged aggressive behaviour in the manner of the Sydney Funnelweb spider, *Atrax robustus* (Hexathelidae: Atracinae). It is not known to be seriously harmful.

Misgolas rapax Karsch, 1878

Figs 4A–K, 14A

Misgolas rapax Karsch, 1878: 821–823. Type species of *Misgolas* Karsch, 1878; Simon, 1892: 116; Bonnet, 1957: 2931; Wishart, 2006: 1–18; Wishart & Rowell, 2008: 45–86.

Misgolas hubbardi Wishart, 1992: 263–278, figs 1–6, 28–29; placed in the synonymy of *M. rapax* by Wishart & Rowell, 2008: 45–86.

Misgolas rapax Karsch, 1878.–Wishart & Rowell, 2008: 45–86: the first three of the six species listed below are explicitly removed from synonymy with *M. rapax*, while the last three species are each considered to be nomen dubia because female characters are unreliable for the diagnosis of these species. All of these species are treated below or in Wishart (2006) and Wishart & Rowell (2008).

Megalosora villosa Rainbow, 1914, *Dyarcyops melancholicus* Rainbow & Pulleine, 1918, *Arbanitis montanus* Rainbow & Pulleine, 1918, *Arbanitis fuscipes* Rainbow, 1914, *Dyarcyops ionthus* Rainbow & Pulleine, 1918 and *Arbanitis chisholmi* Hickman, 1933.

Material examined. NEW SOUTH WALES: holotype ♀ from NSW, Museum fur Naturkunde an der Humbolte Universitat zu Berlin, Germany, dried, pinned, deteriorated specimen, possibly collected 1874–75, Edward Damel (Daemel) (Fig. 4K). Holotype ♂ of *Misgolas hubbardi* Wishart, AMS KS22301, "Scalloway", Willow Vale nr Gerringong, NSW (34°44'11"S 150°47'23"E), 17 Dec. 1985, GW. Allotype ♀ *Misgolas hubbardi* Wishart, AMS KS22302, 10 June 1985, other details as for AMS KS22301.

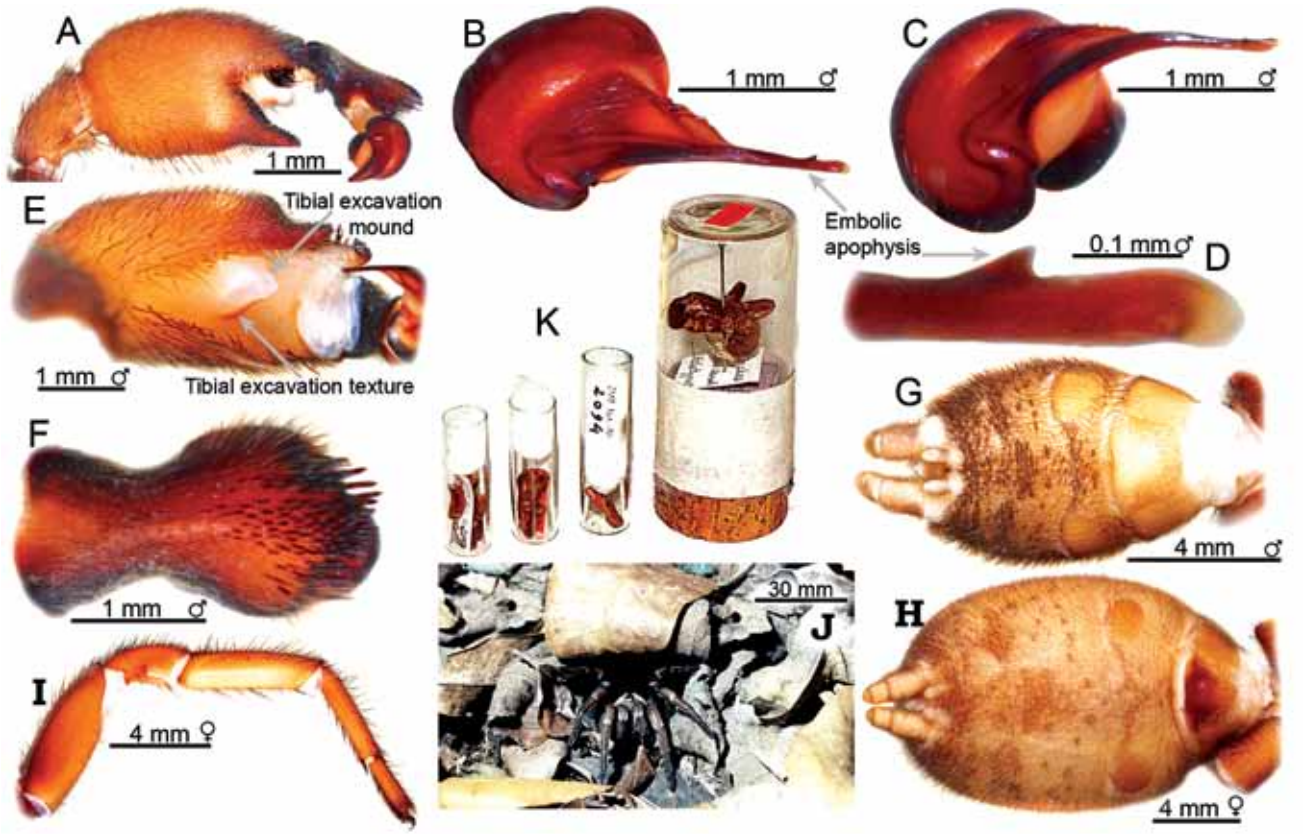

Fig. 4. *Misgolas rapax* Karsch: *Misgolas hubbardi* Wishart *(A–G)* ♂, holotype AMS KS22301. *(A)* right palp retrolateral. *(B,C)* right bulb: *(B)* dorsal, *(C)* prolateral. *(D)* embolus tip of right bulb dorsal *(E)* right palpal tibia excavation ventral. *(F)* right cymbium dorsal. *(G)* venter. *(H–I)* ♀, allotype AMS KS22302. *(H)* venter. *(I)* right leg IV retrolateral. *(J)* burrow entrance, spider in foraging position. *(K) Misgolas rapax*, type specimen of genus *Misgolas* Karsch, 1878.

Diagnosis. In male and female: large sized brown spiders; retrodorsal surface of metatarsi IV lack spines (Fig. 4I). Venter pattern as figured, dark brown speckle more dense immediately adjacent to spinnerets (Fig. 4G,H). In female: carapace length c. 10–13.5. In male: carapace length c. 8.2–10.5. Embolus of bulb apically twisted clockwise through 90° with subdistal thorn-like apophysis as figured (Fig. 4D) appearing to be retrolaterally positioned; retrolateral flange with about 5 folds, edge straight (Fig. 4B,C). Conformation of palp as figured (Fig. 4A,F).

Distribution and natural history. (Figs 4J, 14A) Numerous specimens of this large spider have been collected in and nearby the small township of Gerringong (New South Wales, Australia). Collection sites most remote from Gerringong are the town of Kiama 10 km to the North and localities of Toolijooa and Harley Hill 10 km to the southwest. Mature males wander almost throughout the year (Wishart, 1993). Burrow entrance (Fig. 4J) is rigid, funnel-like, the lip at an oblique angle with leaves attached, one of which is utilized as a trapdoor (Wishart, 1992).

Remarks. The Idiopid genus *Misgolas* was raised by the German taxonomist, Ferdinand Karsch, when in1878 he named and described the new species, *Misgolas rapax*. The spider specimen is the holotype of the type species of the *Misgolas* genus. It is disappointing that the preservation of the specimen has not withstood ravages of time, Main (1985a) describing it as "dried, pinned specimen very shrivelled and difficult to distinguish many features" (Fig. 4K). The spider's condition added to its character poor female gender virtually prevented a positive identity until molecular methods were used. The collector of the type specimen was Edward Damel, a professional German collector, who at one time was based in Sydney, NSW, from May 1874 to February, 1875. During this time it is expected that this spider had been collected from Gerringong or possibly from Kiama, NSW.

Karsch gave no indication of the derivation of the names "Misgolas" or "rapax". A person named Misgolas was a Greek homosexual man known from ancient Greek records and the word "rapax" is believed to translate as "predator". Ferdinand Karsch himself wrote extensively on homosexual affairs quite apart from his arachnology work.

Misgolas robertsi (Main & Mascord, 1974)

Figs 5A–I, 14B

Dyarcyops robertsi Main & Mascord, 1974: 15–21.
Misgolas robertsi.–Main, 1985a: 33, 34, 53, 57; Main, 1985b: 25; Wishart, 1992: 271–273.

Material examined. NEW SOUTH WALES: holotype ♀, AMS KS12, Minnamurra Falls, Kiama, NSW (34°37'S 150°44'E), 12 Oct. 1964, R.M. Mascord. AMS KS22371 ♂, *Scalloway*, Willow Vale, Gerringong, NSW (34°44'11"S 150°47'23"E), 2 May 1986, GW. ♂, AMS KS22399, Mt. Terry nr Albion Park, NSW. (34°35'55"S 150°46'57"E), 27 Nov. 1995, P Cashin.

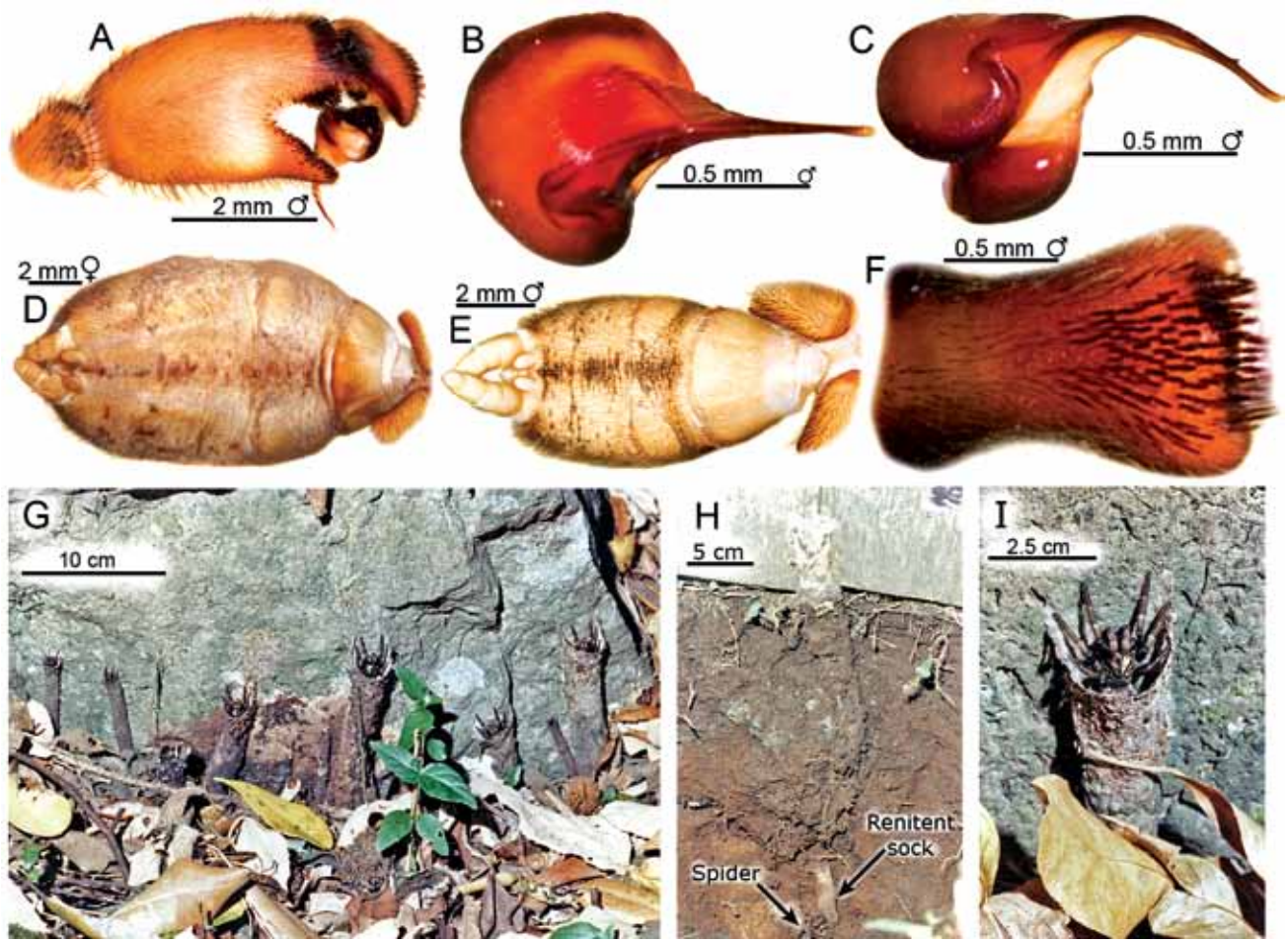

Fig. 5. *Misgolas robertsi. (A–C, E,F)* ♂, AMS KS22371. *(A)* right palp retrolateral. *(B,C)* right bulb: *(B)* dorsal, *(C)* prolateral. *(E)* venter. *(F)* cymbium dorsal. *(D)* ♀, holotype AMS KS12, venter. *(G,I)* burrow aerial tubes at Willow Vale nr Gerringong, *(G)* group of burrows. *(I)* burrow entrance, spider in foraging position. *(H)* exposed complete burrow at Kiama.

Diagnosis. In male & female: medium sized brown spiders, prominent dark brown lateral smudges on anterior limbs; retrodorsal surface of metatarsi IV lack spines. Venter pallid with dark brown speckles concentrated in distinctive median band (Fig. 5D,E). In female: carapace length c. 7.5–11.3. In male: carapace length c. 7.5–8.1. Embolus of bulb with small, dorsal, apically right angled triangular apophysis placed about mid-way; retrolateral embolic flange with about eight fine folds, edge straight (Fig. 5B,C). Conformation of palp as figured (Fig. 5A); cymbium dorsal spines in dense cluster, skewer shaped (Fig. 5F).

Distribution and natural history. (Figs 5G–I, 14B) Prolific population at Willow Vale 3 km West of Gerringong; rare at the type locality and nearby localities of Mt. Terry and Kiama. Burrow entrance by aerial tube (Wishart, 1992) (Fig. 5G,I); underground tube terminated by white renitent sock (Fig. 5H). Mature male spiders wander during summer and late autumn (Wishart, 1993).

Misgolas phippsi n.sp.

Figs 6A–G, 14A

Type material. Holotype ♂, AMS KS7688, Mollymook, NSW (35°20'S 150°29'E), 19 May 1981, J. Sheehan.

Other material examined (most in poor condition). New South Wales: ♂♂ AMS KS1339, Sussex Inlet South, NSW (35°10'S 150°36'E), 7 Mar. 1978, W.K.Jones. AMS KS44343, Greenwell Pt., 82 Greenwell Pt. Road, (34°54'S 150°44'E), 23 Apr.1991, Wayne Moore. AMS KS48695, AMS KS48696 and AMS KS48697, all Erowal Bay, N.S.W., nr. St Georges Basin (35°06'S 150°39'E), collected "prior to last few years" (c. 1990), I. Hammer.

Diagnosis. In male: Medium sized dark brown spider, carapace length c. 7.0–9.0, retrodorsal surface of metatarsus IV with at least one spine (Fig. 6G); venter pale with dense distribution of small dark brown markings most concentrated between book lungs and posterior area immediately adjacent to PMS as figured (Fig. 6D). Spines absent on all tarsi. Palpal bulb (Fig. 6B,C) retrolateral embolic flange with 5 major folds, 2–3 minor folds; embolus narrow, with small, low, subdistal, dorsal apophysis. Cymbium (Fig. 6E) with many closely concentrated acicular spines arising from distal quarter of dorsal surface. Conformation of palpal tibia as figured (Fig. 6A); tibia excavation surface chitinized, tibial excavation mound, pallid, prominent (Fig. 6F). Female not known.

Description

Male holotype (Fig. 6A–G). *Size*. Carapace length 7.00, width 5.83. Abdomen length 7.00, width 5.03. — *Colour*. In alcohol chelicerae, carapace and proximal limb segments dark brown, distal leg segments lighter brown; generally

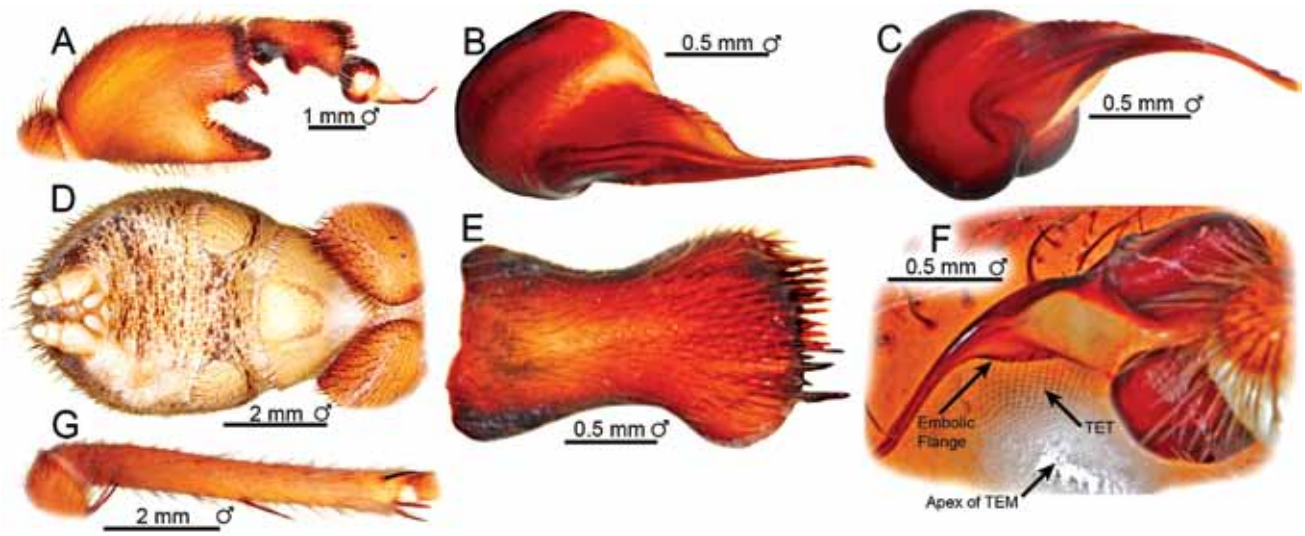

Fig. 6. *Misgolas phippsi* n.sp. *(A–G)* ♂, holotype AMS KS7688: *(A)* right palp retrolateral. *(B,C)* right bulb: *(B)* dorsal, *(C)* prolateral. *(D)* venter. *(E)* right cymbium dorsal. *(F)* right palpal tibia excavation ventral. *(G)* right metatarsus IV retrolateral view.

unicolourous. Dark brown lateral limb smudges absent. Fine golden prostrate hairs sparse, present on carapace cephalic and interstrial areas of thorax. Abdomen dorsum distorted, appearing bleached. Venter pallid with dense distribution of small dark brown markings most concentrated between book lungs and posterior area immediately adjacent to PMS (Fig. 6D). — *Carapace*. Edge fringed with black bristles; some smaller bristles encroach onto posterior third of post foveal surface; remainder of carapace with few weak bristles; 5 bristles between PME, 7 on clypeus. Weakly chitinized area on pleuron membrane below clypeus with 7 bristles. Fovea width 1.38, straight, recurved lateral edges, posterior wall divided by partly obscured pitted intrusion. — *Eyes*. Raised on mound. Ocular area darkest brown adjacent to eyes. Anterior width 1.05, posterior width 0.97, length 0.66, width/length ratio 1.59. Line joining posterior edges of ALE transects anterior quarter of AME. Posterior row procurved in front, straight behind. — *Chelicerae*. Rastellum single row of 7(8) spines, 1(2) smaller spines behind. Fang groove and intercheliceral tumescence obscured. — *Labium*. Bulbous. Length 0.79, width 1.05. Labiosternal suture continuous, straight, lateral edges broad. — *Maxillae* c. 38(47) antero-ental, small, subulate cuspules. — *Sternum*. Bulbous, length 3.75, width 3.08. Sigilla all small, round, third pair largest, first and second pairs c. one and a half own diameter from margin, third pair c. twice own diameter from margin. — *Legs*. Tibia I with distal bifid apophysis; distal process with 2(2) short, compact spines; proximal process with compact group of 5(5) curved, pointed spines.

	Palp	I	II	III	IV
Femur	3.75	6.75	6.20	4.79	6.51
Patella	1.72	3.25	3.07	2.39	3.01
Tibia	3.68	4.61	4.24	2.89	5.46
Metatarsus	—	5.47	4.79	4.17	6.08
Tarsus	1.90	3.07	2.82	2.58	3.19
Total	11.05	23.15	21.12	16.82	24.25

Palp. (Fig. 6A,E) Distal half of cymbium d surface with many closely concentrated, acicular, inclined spines. RTA stout, non-swollen; d surface covered with short, pointed spines; suspended brush of c. 10 longer curvilinear spines with few scattered short spines suspended from tibial excavation rv edge terminated by hooked DTA. Tibial excavation surface chitinized; pallid TEM prominent adjacent to RTA, pl surface with prominent TET (Fig. 6F). — *Bulb*. (Fig. 6B,C) Length 2.00. Embolic rl flange edge curved, with 5 major folds, 3 minor folds. Embolus narrow, almost straight, with small, low, subdistal, dorsal apophysis; length from embolic apophysis to embolus tip (a) 0.13; length from embolic flange terminus to embolus tip (f) 0.56; a/f ratio 0.23. — *Scopula*. Complete on tarsi I and II; sparse, complete on tarsi III and IV; metatarsi I and II sparse, incomplete; metatarsi III weak distal remnant; absent on metatarsi IV. — *Trichobothria*. Palp: tarsi 9, tibia pd 6, rd 6. Leg I: tarsi 12, metatarsi 14, tibia pd 6, rd 6. Leg II: tarsi 12, metatarsi 11, tibia pd 6, rd 6. Leg III: tarsi 10, metatarsi 10, tibia pd 5, rd 6. Leg IV: tarsi 12, metatarsi 13, tibia pd 6, rd 6. — *Leg spination*. Leg I: metatarsi v 01002; tibia v 7 scattered, pd 010. Leg II: metatarsi v 01003; tibia v 6 scattered, pl 00110, patella pd 2(1). Leg III: metatarsi v 6 scattered, pd 0010110, rd 0010100; tibia v 0113, pd 00110, rd 00110; patella pd 5. Leg IV: metatarsi v 8 scattered, rd 000010 (Fig. 6G); tibia v 6 scattered. — *Abdomen*. Dorsum with sparse cover long, erect, brown bristles with fine, underlying setae. Lateral surfaces and venter with dense cover of long fine hairs.

Etymology. The species is named in recognition of friend and colleague, Dr R. Jon Phipps of Kiama, NSW.

Distribution and natural history (Fig. 14A) This species is known from Mollymook (the type locality), Sussex Inlet South (35°10'S 150°36'E), Erowal Bay (35°06'S 150°39'E) and Greenwell Point (34°54'S 150°44'E). All localities are within the narrow coastal plain extending from Mollymook to the Shoalhaven River entrance at Greenwell Point, a linear distance of 51 km. The limited information available indicates mature male spiders wander during April and May each year. The burrow is not known.

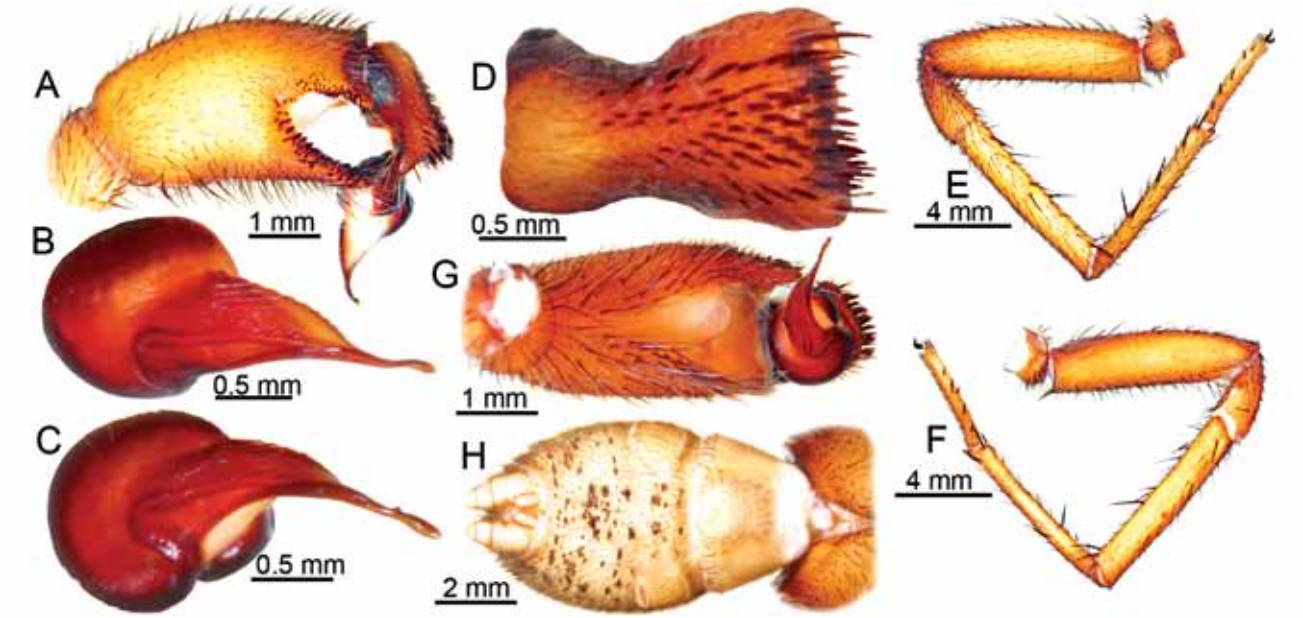

Fig. 7. *Misgolas kampenae* n.sp. *(A–H)* ♂, holotype AMS KS3364: *(A)* right palp retrolateral. *(B,C)* right bulb: *(B)* dorsal, *(C)* prolateral. *(D)* right cymbium dorsal. *(E,F)* right leg IV: *(E)* prolateral, *(F)* retrolateral. *(G)* right palpal tibia excavation ventral. *(H)* venter.

Misgolas kampenae n.sp.

Figs 7A–H, 14A

Type material. HOLOTYPE ♂, AMS KS3364 (abdomen dorsum discoloured, right palpal femur missing), Benandarah State Forest, c. 8 km north of Batemans Bay, NSW (35°40'S 150°14'E), pitfall trap in leaf litter, field No. 1578, set 14 June, collected 12 July 1979, C. Horseman.

Other material examined. NEW SOUTH WALES: ♂♂ AMS KS1727, Kioloa State Forest, Forest Drive 15 km north of Batemans Bay, NSW (35°37'S 150°16'E), pitfall trap in leaf litter, Field No. 1181, set 14 Aug., collected 7 Sep. 1978, C. Horseman. AMS KS2902, Kioloa State Forest rest area, 16 km north of Batemans Bay (35°36'S 150°15'E), 9 Apr. 1979, C. Horseman. AMS KS3836, Kioloa State Forest, Forest Drive 16 km north of Batemans Bay (35°37'S 150°16'E), 28 Jun. 1979, C. Horseman. AMS KS3862, Kioloa State Forest, Forest Drive 15 km north of Batemans Bay (35°37'S 150°16'E), 6 Jul. 1979, C. Horseman. AMS KS65064, Bodalla State Forest, Orange Ridge Road, nr. Bodalla, NSW (36°16'55"S 149°53'31"E), 12 Mar. 1999, L. Wilkie, R. Harris & H. Smith (South East Forest Survey CBCR003-086).

Diagnosis. In male: Medium sized brown spider, carapace length c. 6–7.5, retrodorsal surface of metatarsus IV with at least one spine (Fig. 7F); venter pale with dark brown maculations forming pattern, most concentrated in median band (Fig. 7H). Spines absent on tarsi I and II; tarsi IV with bilateral rows spines adjacent to weak scopula (Fig. 7E,F). Palpal bulb (Fig. 7B,C) retrolateral embolic flange with c. 7–9 distinct folds; embolus with blunt dorsal apophysis placed c. midway between embolic flange and embolus tip; tip from d aspect sinuous, flattened vertically. DTA small, hooked; conformation of palpal tibia as figured (Fig. 7A). Female not known.

Description

Male holotype (Fig. 7A–H). *Size*. Carapace length 7.49, width 6.69. Abdomen length 7.55, width 5.03. — *Colour*. In alcohol carapace, limbs and chelicerae brown. Some disconnected darker brown smudges on tibia and patella lateral surfaces of legs I and II. Carapace almost bare of golden hairs, more prominent on proximal limb segments. Abdomen dorsum discoloured. Venter pallid, with dark brown maculations most concentrated in median band (Fig. 7H). — *Carapace*. Edge fringed with black bristles which encroach onto posterior half of post foveal surface; few scattered interstrial bristles. Evidence of row of c. 7 black bristles on caput arch (some removed); 4 between PME; 8 on clypeus. Weakly chitonized area on pleuron membrane below clypeus with 4 bristles. Fovea width 1.38, straight, recurved edges, posterior wall lacking pitted intrusion. — *Eyes*. Raised on a mound. Ocular area adjacent to eyes black. Anterior width 1.25, posterior width 1.20, length 0.76, width/length ratio 1.64. Line joining posterior edges of ALE transects anterior quarter of AME. Posterior row straight in front, recurved behind. — *Chelicerae*. Rastellum front row of 6(7) spines, 3(4) smaller spines behind, few receding along pl edge. Fang groove and intercheliceral tumescence obscured. — *Labium*. Bulbous, length 0.83, width 1.15. Labiosternal suture broad, continuous, narrow midway. — *Maxillae* c. 15(14) elongate, pointed antero-ental cuspules, all surmounted by a hair. — *Sternum*. Broad, bulbous, length 4.35, width 3.75. Sigilla first and second pairs small, round, submarginal; third pair much larger, distant from margin. — *Legs*. Tibia I with distal bifid apophysis; distal process with 3(2) squat, blunt, compact spines; proximal process with row of 2(2) longer, curved, blunt spines.

	Palp	I	II	III	IV
Femur	(4.42)	7.84	7.31	6.02	7.84
Patella	2.13	3.82	3.56	2.82	3.43
Tibia	3.83	5.68	5.40	3.68	6.86
Metatarsus	—	5.78	5.65	5.16	7.06
Tarsus	1.78	3.62	3.50	3.44	3.92
Total	12.16	26.74	25.42	21.12	29.11

Palp. (Fig. 7A,D,G) Distal half of cymbium d surface with cover of robust, terete, bluntly pointed, anteriorly inclined spines (Fig. 7D). Digitate RTA d surface covered with short pointed spines which continue around and onto rv edge of tibial excavation terminating at tip of small hooked DTA. Prominent pallid TEM adjacent to RTA (Fig. 7G), pl surface

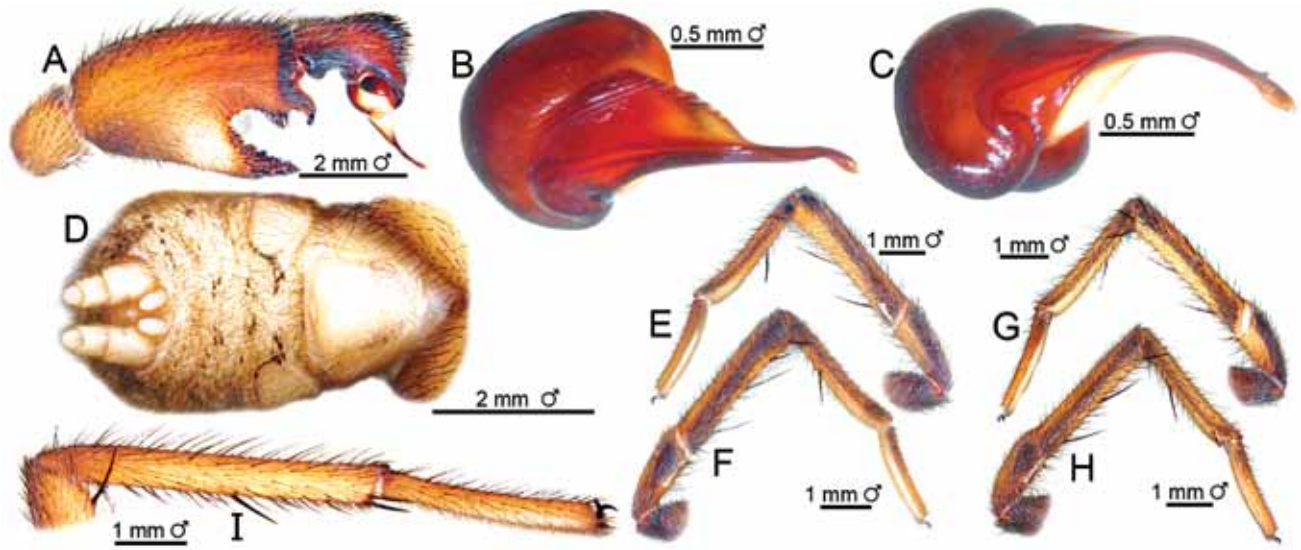

Fig. 8. *Misgolas paulaskewi* n.sp. *(A–I)* ♂, holotype AMS KS22400: *(A)* right palp retrolateral. *(B,C)* right bulb: *(B)* dorsal, *(C)* prolateral. *(D)* venter. *(E,F)* right leg I: *(E)* prolateral, *(F)* retrolateral. *(G,H)* right leg II: *(G)* prolateral, *(H)* retrolateral. *(I)* right leg IV tarsus and metatarsus retrolateral.

with TET. — *Bulb*. (Fig. 7B,C) Length 2.36; length from embolic apophysis to embolus tip (a) 0.26; length from embolic flange terminus to embolus tip (f) 0.46; a/f ratio 0.56. Embolic rl flange with 9 major folds, edge gently curved. Embolus with prominent, blunt, d apophysis placed c. midway between embolic flange and embolus tip; tip from d aspect sinuous, compressed flat in vertical plane. — *Scopula*. Complete on tarsi I and II; incomplete on metatarsi I and II; weak on tarsi III and IV; sparse remnants on metatarsi III and IV. — *Trichobothria*. Palp: tarsi 9, tibia pd 6, rd 6. Leg I: tarsi 13, metatarsi 15, tibia pd 7, rd 7. Leg II: tarsi 13, metatarsi 15, tibia pd 7, rd 6. Leg III: tarsi 11, metatarsi 12, tibia pd 5, rd 7. Leg IV: tarsi 13, metatarsi 17, tibia pd 9, rd 6. — *Leg spination*. Leg I: metatarsi v 0102; tibia v 6 scattered, pl 00110. Leg II: metatarsi rv 0212; tibia v 02111, pd 01110. Leg III: tarsi pv 01000, rv 5 scattered, pd 01000, rl 01000; metatarsi v 13 scattered, pd 001110, rd 0011110; tibia v 9 scattered, pd 0110, rd 0010; patella pd 6. Leg IV (Fig. 7E,F): tarsi pv line of 5, rv line of 7; metatarsi pv 6 scattered, rv 011, rd 01010; tibia v 8 scattered. — *Abdomen*. Anterior face with cover of long, erect, dark brown bristles. All setae and colour lost on pallid dorsum. Venter (Fig. 7H) covered with weak short erect brown bristles.

Etymology. The species is named in recognition of Louise Kampen, technical officer, Australian Museum, Sydney.

Distribution and natural history (Fig. 14A) This species is known from Benandarah State Forest (type locality) near Batemans Bay, New South Wales (Australia), north to Kioloa State Forest (35°37'S 150°16'E) near Kioloa, NSW and south to Bodalla State Forest (36°16'55"S 149°53'31"E) near Bodalla, NSW, localities occupying a linear distance of about 80 km along the coast. The burrow is not known. Limited information indicates mature males wander during the annual period of March to September.

Misgolas paulaskewi n.sp.

Figs 8A–I, 14C

Type material. HOLOTYPE ♂, AMS KS22400, 3 km north-west of Quaama near Bega, NSW (36°27'S 149°50'E), 5 Jul. 1992, Lynne Cook [New South Wales, Australia].

Other material examined ♂, AMS KS2736, Bermagui, NSW, 23 km east of type locality (36°25'S 150°04'E), 24 Apr. 1979, M. Stevenson, [New South Wales, Australia].

Diagnosis. In male: medium sized brown spider, carapace length c. 6.7–8.1, retrodorsal surface of metatarsus IV lack spines (Fig. 8I); venter pallid with some dark brown marks as figured (Fig. 8D); elongate bilateral leg blotches on legs I and II along full lengths of metatarsi, tibia and patella (Fig. 8E–H). Spines absent on tarsi I, II and III and ventral surface of tarsi IV. Palpal bulb (Fig. 8B,C) retrolateral embolic flange with c. 7 prominent folds, c. 2 minor folds; embolus with thornlike dorsal apophysis placed c. one third way from embolus tip; tip from dorsal aspect with prolateral bend. Conformation of palp as figured (Fig. 8A). Female not known.

Description

Male holotype (Fig. 8A–I). *Size*. Carapace length 6.75, width 5.83. Abdomen length 6.45, width 3.93. — *Colour*. In alcohol carapace, limbs and chelicerae brown. Elongate bilateral leg smudges along full lengths of metatarsi, tibia and patella I and II. Carapace covered with prostrate golden hairs. Abdomen dorsum pallid with dark brown maculations, transverse chevrons not evident. Venter pallid with sparse brown marks as figured (Fig. 8D). — *Carapace*. Edge fringed with black bristles; few smaller bristles encroach onto posterior fifth of post foveal surface; rows of small bristles adjacent to striae. Row of c. 16 black bristles on caput arch; 9 between PME; 11 on clypeus. Weakly chitinized area on pleuron membrane below clypeus with some fine golden setae. Fovea width 1.28, straight, deep, posterior wall not divided by pitted intrusion. — *Eyes*. Raised on a mound. Ocular area darker adjacent to

eyes. Anterior width 1.23, posterior width 1.05, length 0.72, width/length ratio 1.71. Line joining posterior edges of ALE tangential to anterior edges of AME. Posterior row straight in front, recurved behind. — *Chelicerae*. Rastellum front row of 7(6) spines, 6(7) smaller spines behind. Fang groove with 6(9) promarginal teeth and 13(10) smaller retromarginal/intermediate row teeth. Pallid intercheliceral tumescence each with a dense tuft of distally inclined brown setae near proximal edge. — *Labium*. Bulbous, length 0.87, width 1.18. Labiosternal suture continuous, narrow midway. — *Maxillae* c. 44(46) antero-ental short blunt cuspules, none surmounted by a hair. — *Sternum*. Bulbous, length 3.83, width 3.12. Front and midrow sigilla small, round, one diameter from margin; left posterior sigilla larger c. one diameter from margin, right sigilla divided into two. — *Legs*. Tibia I with distal bifid apophysis; distal process with 2(2) short compact blunt spines, proximal process with row of 3(3) longer compact curved pointed spines.

	Palp	I	II	III	IV
Femur	4.36	7.12	6.32	5.03	6.82
Patella	1.84	3.32	3.01	3.01	2.95
Tibia	4.18	5.03	4.42	3.07	5.96
Metatarsus	—	4.97	4.54	4.24	6.08
Tarsus	1.90	3.13	1.78	2.88	3.43
Total	12.28	23.57	20.07	18.23	25.24

Palp. (Fig. 8A) Distal half of cymbium d surface with many long attenuate anteriorly inclined spines. RTA midway with small rl swelling; d, rd and small rl swelling surfaces covered with pointed spines. Tibial excavation rv edge with 15 short smaller spines adjacent to a suspended brush of c. 20 longer curved pointed spines; 7 spines terminate hooked DTA. TEM pallid, adjacent to RTA, pl surface with indistinct TET. — *Bulb*. (Fig. 8B,C) Length 2.23; length from embolic apophysis to embolus tip (a) 0.26; length from embolic flange terminus to embolus tip (f) 0.61; a/f ratio 0.42. Embolic rl flange with 7 major folds, 2 minor folds, edge gently curved. Embolus with prominent d thorn-like apophysis placed nearer embolus tip than embolic flange; tip from d aspect with pl bend. — *Scopula*. Complete on all tarsi; sparse incomplete on metatarsi I and II; absent on metatarsi III and IV. — *Trichobothria*. Palp: tarsi 7, tibia pd 5, rd 5. Leg I: tarsi 10, metatarsi 13, tibia pd 7, rd 7. Leg II: tarsi 10, metatarsi 12, tibia pd 6, rd 6. Leg III: tarsi 11, metatarsi 9, tibia pd 5, rd 5. Leg IV: tarsi 10, metatarsi 14, tibia pd 7, rd 7. — *Leg spination*. Leg I: metatarsi rv 010; tibia rv 01112, pl 010. Leg II: metatarsi rv 0010012; tibia v 0113, pd 001010. Leg III: metatarsi v 013, pl 001110, rl 001110; tibia v 0113, pl 0110, rl 0011; patella pd 6. Leg IV: tarsi pl 0110; metatarsi v 5 scattered; tibia v 0112. — *Abdomen*. Dorsum with cover small brown hairs and bristles underlying many erect long brown bristles. Venter covered with long weak erect brown bristles.

Etymology. The species is named in recognition of Paul Askew who, while my neighbour, provided valuable field assistance.

Distribution and natural history (Fig. 14C) This species is known from near the village of Quaama, New South Wales, Australia (type locality), and at the seaside town of Bermagui (36°25'S 150°04'E) NSW, 21 km to the east. The burrow is unknown.

Misgolas rowelli n.sp.

Fig. 9A–H, 14A

Type material. HOLOTYPE ♂, AMS KS51813, Minnamurra, nr Kiama, NSW, in school grounds (34°37'29"S 150°51'08"E), 1 Jun. 2000. PARATYPES ♂♂, AMS KS22398, Minnamurra village, NSW (34°37'S 150°51'E), 15 May 1995, Mrs Kelly; AMS KS50003, Minnamurra village, NSW (34°37'S 150°51'E), 22 May 1997, Paul Askew; AMS KS51796, AMS KS51797 and AMS KS51798, 141 Charles Ave., Minnamurra village, NSW (34°37'S 150°51'E), 16 Apr. 2000, Elizabeth Larborn, from home swimming pool.

Diagnosis. In male medium sized brown spider, carapace length c. 6–7.5; retrodorsal surface of metatarsus IV usually with 1 or 2 spines (Fig. 9E); venter pattern as figured, saturation density various (Fig. 9F–H). Palpal bulb (Fig. 9B,C) retrolateral embolic flange with 6 or 7 folds, margin gently curved; embolus with small, thornlike, dorsal apophysis distant from embolus tip. Cymbium with weak, long, acicular spines arising from distal third of dorsal surface (Fig. 9D). Conformation of palpal tibia as figured (Fig. 9A). Female not known.

Description

Male holotype (Fig. 9A–E). *Size*. Carapace length 7.06, width 5.59. Abdomen length 6.45, width 3.99. — *Colour*. In alcohol chelicerae and abdomen dorsum dark brown, carapace and limbs brown. Weak, dark brown smudges on rl surfaces of patella and tibia I and patella II. Fine pallid prostrate hairs cover carapace. Abdomen dorsum divided by six precise centrally divided transverse pallid lines. Venter pallid with cover of small dark speckles most concentrated immediately adjacent to PMS (Fig. 9F). — *Carapace*. Edge fringed with black bristles which encroach onto posterior quarter of post foveal surface; line of 3 fine black bristles on caput arch, none between PME, 18 between ALE and on clypeus. Some weak bristles on non-chitinized pleuron membrane below clypeus. Fovea width 1.13, straight, recurved lateral edges, posterior wall basally, centrally divided by minute pitted intrusion. — *Eyes*. Raised on mound. Ocular area varying shades of dark brown. Anterior width 1.13, posterior width 0.97, length 0.67, width/length ratio 1.69. Line joining posterior edges of ALE transects anterior sixth of AME. Posterior row straight. — *Chelicerae*. Rastellum single row of 6(6) small spines. Fang groove with 8(9) large promarginal teeth and 15(12) small retromarginal/intermediate row teeth. Intercheliceral tumescence pallid, extending behind proximal teeth of fang groove; surface with complex cover of setae. — *Labium*. Bulbous. Length 0.69, width 0.97. Labiosternal suture continuous, broadening laterally. — *Maxillae* c. 57(48) antero-ental, small, ovoid cuspules. — *Sternum*. Length 3.62, width 2.82. Sigilla small, sub-round, gradually enlarging from first to third pairs, each their own diameter distant from margin. — *Legs*. Tibia I with distal bifid apophysis; distal process with 2(2) short, compact spines; proximal process with 3(3) long, sinuous, pointed spines.

	Palp	I	II	III	IV
Femur	3.87	6.57	6.02	4.79	6.26
Patella	1.78	3.25	2.95	2.27	2.95
Tibia	3.99	4.79	4.11	2.82	5.34
Metatarsus	—	5.22	4.42	3.99	5.77
Tarsus	1.90	3.07	2.76	2.52	3.07
Total	11.54	22.90	20.26	16.39	23.39

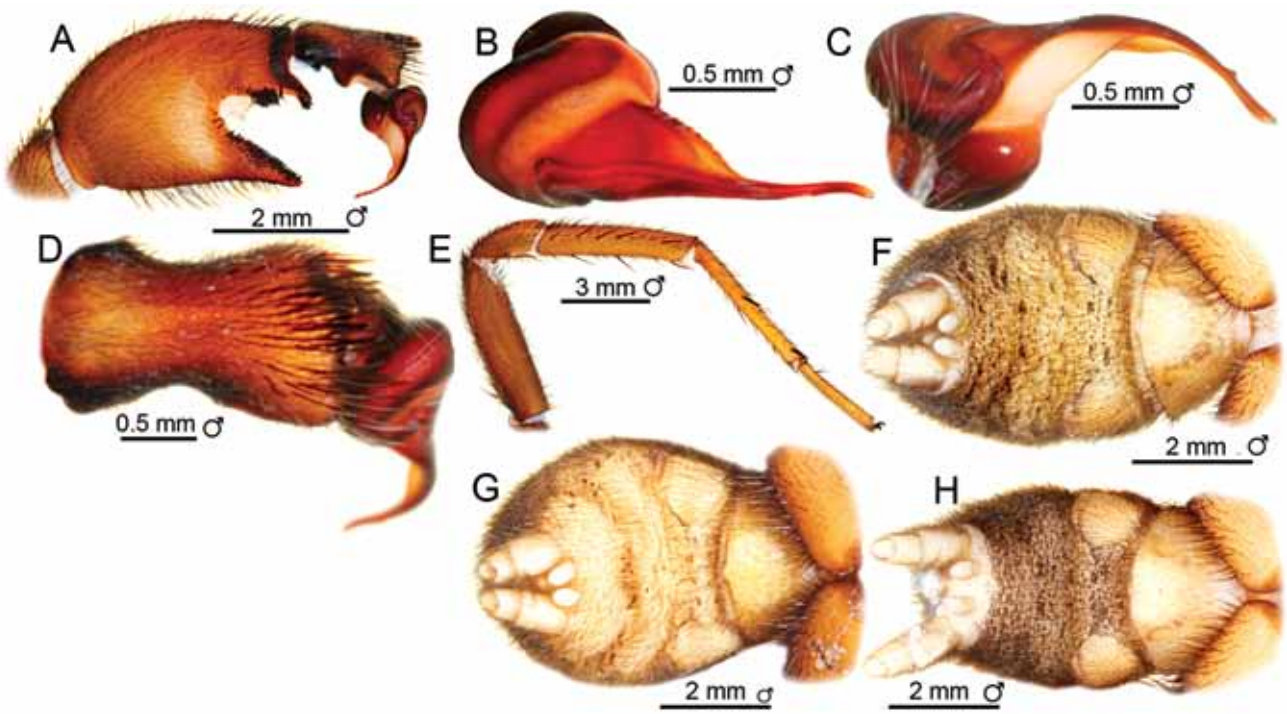

Fig. 9. *Misgolas rowelli* n.sp. *(A–F)* ♂, holotype AMS KS51813: *(A)* right palp retrolateral. *(B,C)* right bulb: *(B)* dorsal, *(C)* prolateral. *(D)* cymbium. *(E)* right leg IV retrolateral. *(F)* venter. *(G)* ♂, paratype, AMS KS22398, venter. *(H)* ♂, paratype, AMS KS51798, venter.

Palp. (Fig. 9A) Distal third of cymbium d surface with c. 25 weak, long, acicular spines, steeply inclined forward (Fig. 9D). RTA d surface flat, covered with many short, pointed spines. Tibial excavation rv edge suspends brush of c. 16 longer spines; edge terminated by hooked DTA, tip covered by c. 12 short spines. Pallid TEM prominent, pl surface with discernable TET. Tibial excavation surface weakly chitinized. — *Bulb*. (Fig. 9B,C) Length 2.10. Embolic rl flange edge gently curved, with 6 folds. Embolus with thornlike, distally pointed, dorsal apophysis distant from prolaterally curved embolus tip. Length from embolic apophysis to embolus tip (a) 0.28; length from embolic flange terminus to embolus tip (f) 0.61; a/f ratio 0.46. — *Scopula*. Complete on all tarsi; metatarsi I and II incomplete; weak distal remnant on metatarsi III and IV. — *Trichobothria*. Palp: tarsi 10, tibia pd 6, rd 6. Leg I: tarsi 14, metatarsi 12, tibia pd 6, rd 6. Leg II: tarsi 12, metatarsi 12, tibia pd 6, rd 6. Leg III: tarsi 11, metatarsi 10, tibia pd 5, rd 6. Leg IV: tarsi 12, metatarsi 14, tibia pd 6, rd 7. — *Leg spination*. Leg I: metatarsi v 0102; tibia v 0112, pd 010. Leg II: metatarsi v 011003; tibia v 01103, pl 00110, pd 010. Leg III: metatarsi v 022, pd 01010, rd 001110; tibia v 0113, pl 0110, rl 00110; patella pd 5. Leg IV: metatarsi v 00223, rd 001010; tibia v 0222. — *Abdomen*. Dorsum covered with erect, long, brown bristles with understory of fine pallid setae. Venter covered by weak brown bristles. Fine pallid setae on venter and lateral surfaces.

Etymology. The species is named in recognition of Associate Professor David M. Rowell, geneticist and gifted teacher at the Australian National University.

Distribution and natural history (Fig. 14A) This species known only from type locality, the seaside village of Minnamurra, NSW. Limited data indicates mature males wander during the annual period of April to June. The burrow is not known.

Misgolas tannerae n.sp.

Figs 10A–I, 14C

Type material. HOLOTYPE ♂, AMS KS38699, Minnamurra Falls, nr Jamberoo, NSW (34°37'S 150°44'E), 15 Jun. 1966 (reared from juvenile captured 12 Nov. 1964). ALLOTYPE ♀, AMS KS38697, 12 Nov. 1964, locality details as for holoype. Paratypes ♂♂, AMS KS38556, AMS KS38564 & AMS KS38698 all details as for holotype. PARATYPES ♀♀, AMS KS38620, Minnamurra Lane, Jamberoo (34°38'58"S 150°46'33"E), 9 Aug. 1991, Peter Butler; AMS KS69971, Minnamurra Falls Reserve, excavated from roadside outside entrance (34°37'S 150°44'E), 14 Jun. 2003, GW & S. Jordan.

Diagnosis. Medium (male carapace length, c. 6.5–8) to large (female carapace length, c. 8–11.6) sized brown spiders (Fig. 10I); retrodorsal surface of metatarsus IV without spines (Fig. 10F); abdomen lateral surfaces with scattered, distinctive dark brown spots (Fig. 10D,G); venter entirely pallid devoid of markings (Fig. 10E,H). In male: palpal bulb (Fig. 10B,C) retrolateral embolic flange with 4 folds, margin curved; embolus with thornlike, distally pointed, dorsal apophysis distant from prolaterally curved embolus tip. Cymbium with weak, long, acicular spines arising from distal half of dorsal surface. Retrolateral tibial apophysis abruptly compressed c. midway, distally digitate; conformation of palpal tibia as figured (Fig. 10A).

Description

Male holotype (Fig. 10A–E). *Size*. Carapace length 7.37, width 6.02. Abdomen length 8.04, width 5.49. — *Colour*. In alcohol chelicerae, carapace and limbs brown; generally unicolourous. Dark brown lateral limb smudges indistinct. Fine pallid prostrate hairs cover interstrial areas of thorax. Brown maculation of dorsum divided by c. six transverse pallid lines. Small precise dark brown spots scattered on abdomen lateral surfaces (Fig. 10D); venter entirely pallid

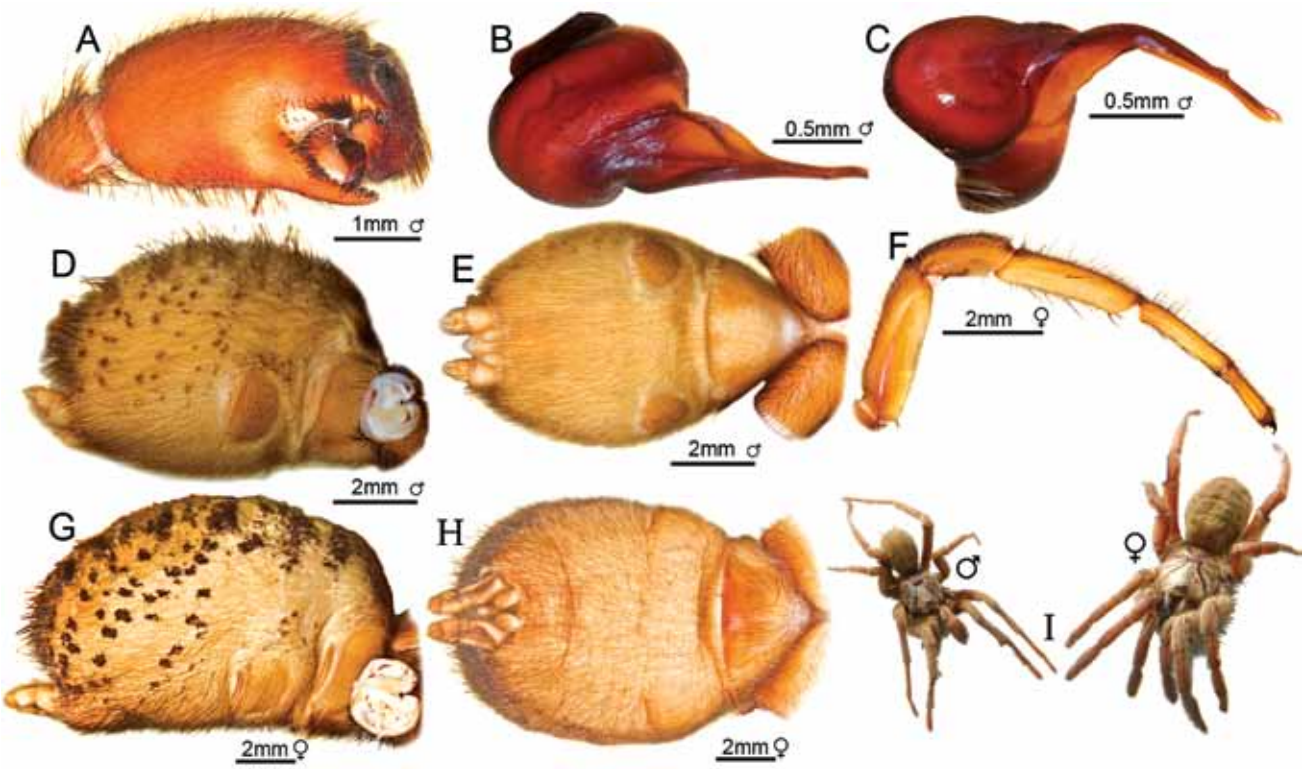

Fig. 10. *Misgolas tannerae* n.sp. *(A–E)* ♂, holotype AMS KS38699. *(A)* right palp retrolateral. *(B,C)* right bulb: *(B)* dorsal, *(C)* prolateral. *(D)* abdomen right side *(E)* venter. *(F–H)* ♀, allotype AMS KS38697. *(F)* right leg IV retrolateral. *(G)* abdomen right side. *(H)* venter. *(I)* ♂ holotype and ♀ allotype spiders relative sizes, approximately life size.

(Fig. 10E). — *Carapace*. Edge fringed with black bristles which encroach onto posterior edge of post foveal surface; line of 5 black bristles on caput arch, sparse on remainder of carapace surface, none between PME, 8 on clypeus and weakly chitinous pleuron membrane below clypeus. Fovea width 1.33, straight, recurved lateral edges, lacking pitted intrusion on posterior wall. — *Eyes*. Raised on mound. Ocular area immediately adjacent to eyes & between PME black. Anterior width 1.15, posterior width 1.10, length 0.70, width/length ratio 1.64. Line joining posterior edges of ALE transects anterior quarter of AME. Posterior row recurved in front and behind. — *Chelicerae*. Rastellum single row of 5(6) spines, 1(1) behind. Fang groove with 8(8) large promarginal teeth and 9(12) small retromarginal/intermediate row teeth. Intercheliceral tumescence small, pallid, not raised. — *Labium*. Bulbous. Length 0.77, width 1.02. Labiosternal suture broad, centrally divided. — *Maxillae* c. 22(24) antero-ental, small, subulate cuspules surmounted by a hair. — *Sternum*. Length 3.82, width 3.19. Sigilla small, sub-round; anterior pair own diameter, mid pair twice its diameter and posterior pair thrice its diameter distant from margin. — *Legs*. Tibia I with distal bifid apophysis; distal process with 2 short, compact spines (1 acute, 1 blunt); proximal process with 3(2) pointed spines.

	Palp	I	II	III	IV
Femur	4.05	7.06	6.75	4.92	7.18
Patella	1.66	3.38	3.01	2.52	3.13
Tibia	3.87	4.61	4.67	3.38	6.02
Metatarsus	—	4.85	4.67	4.36	6.26
Tarsus	1.90	2.52	2.52	2.70	3.19
Total	11.48	22.42	21.62	17.88	25.78

Palp. (Fig. 10A) Cymbium with bilateral placed long fine pallid setae; distal third of d surface with many closely concentrated, acicular, forward inclined long light brown spines. RTA proximally broad, abruptly reduced c. midway, becoming digitate; d surface covered with short, pointed spines. Tibial excavation rv edge suspends extensive brush of long curvilinear spines; edge terminated by hooked DTA, tip covered by c. 30 short spines. Pallid TEM prominent, contiguous with RTA, pl surface with discernable TET. Tibial excavation surface weakly chitinized. — *Bulb*. (Fig. 10B,C) Length 2.15. Embolic rl flange edge curved, with 4 prominent folds. Embolus, with thornlike, distally pointed, dorsal apophysis distant from prolaterally curved embolus tip. Length from embolic apophysis to embolus tip (a) 0.40; length from embolic flange terminus to embolus tip (f) 0.74; a/f ratio 0.53. — *Scopula*. Complete on all tarsi; metatarsi I and II incomplete; weak distal remnant on metatarsi III and IV. — *Trichobothria*. Palp: tarsi 10, tibia pd 6, rd 6. Leg I: tarsi 11, metatarsi 17, tibia pd 7, rd 8. Leg II: tarsi 12, metatarsi 13, tibia pd 7, rd 7. Leg III: tarsi 13, metatarsi 13, tibia pd 7, rd 7. Leg IV: tarsi 12, metatarsi 13, tibia pd 7, rd 8. — *Leg spination*. Leg I: metatarsi v few bristles; tibia v 01112, pd 0110. Leg II: metatarsi rv 0100; tibia v 0113, pd 00110. Leg III: metatarsi v 0113, d 012220; tibia v 0113, pl 010, rl 00110; patella pd 7. Leg IV: metatarsi v 9 scattered; tibia v 7 scattered spines and spinules, rd 011110. — *Abdomen*. Dorsum covered with erect long, brown bristles. Prostrate hairs on lateral surfaces and venter.

Female allotype (Fig. 10F–H). *Size*. Carapace length 11.56, width 8.62. Abdomen length 13.46, width 9.49. — *Colour*. In alcohol chelicerae, carapace and limbs light brown; generally unicolourous. Dark brown indistinct bilateral limb smudges

on femora, patella and tibia of palps and legs I and II. Fine pallid prostrate hairs provide dense golden sheen to caput and interstrial areas of thorax. Dark brown maculated pattern on dorsum. Small precise dark brown spots scattered on abdomen lateral surfaces (Fig. 10G). Venter entirely pallid (Fig. 10H). — *Carapace*. Edge fringed with pallid hairs. Line of 7 fine dark and 3 larger median bristles on caput arch; few bristles between PME; c. 14 bristles on clypeus and pleuron membrane below clypeus. Fovea width 2.69, straight; posterior wall not pitted. — *Eyes*. Placed on a low mound. Area immediately adjacent to eyes dark brown. Anterior width 1.79, posterior width 1.66, length 1.05, width/length ratio 1.79. Line joining posterior edges of ALE tangential to anterior edges of AME. Posterior row straight in front, recurved behind. — *Chelicerae*. Rastellum row of 7(6) spines; c. 8(5) smaller spines behind. Fang groove with c. 9(9) promarginal teeth and c. 16(15) small retromarginal/intermediate row teeth, partly masked by long orange setae. — *Labium*. Bulbous, length 1.61, width 2.12. Labio-sternal suture narrow, continuous. — *Maxillae* c. 60(60) short rounded antero-ental cuspules partly masked by long orange setae. — *Sternum*. Length 6.51, width 5.10. Sigilla anterior pair small, round, 1 diameter from margin; mid-pair larger, ovate, 1 length from margin; posterior pair largest, ovate-elongate, 1 length from margin. — *Legs*:

	Palp	I	II	III	IV
Femur	6.70	8.62	7.94	6.20	8.72
Patella	3.81	5.00	4.50	4.11	5.39
Tibia	4.35	5.59	4.90	3.13	7.15
Metatarsus	—	4.90	4.21	3.99	6.08
Tarsus	4.85	2.94	2.65	2.89	3.04
Total	19.71	27.05	24.20	20.32	30.38

Scopula. Dark grey in colour. Dense, complete v cover on palpal tarsi and tarsi & metatarsi I; less dense, complete on tarsi II, incomplete on metatarsi II; remnant on tarsi III, absent on leg IV. — *Trichobothria*. Palp: tarsi 16, tibia pd 9, rd 9. Leg I: tarsi 26, metatarsi 21, tibia pd 10, rd 12. Leg II: tarsi 19, metatarsi 20, tibia pd 11, rd 10. Leg III: tarsi 22, metatarsi 21, tibia pd 8, rd 11. Leg IV: tarsi 17, metatarsi 24, tibia pd 10, rd 12. — *Leg spination*. Palp: tarsi pv 1 proximal, rv 2 proximal; tibia pv 8 scattered, rv 4 scattered. Leg I: metatarsi pv 01, rv 0011002; tibia v 8 scattered. Leg II: tarsi 00010, metatarsi v 7 scattered; tibia v 7 scattered, pl 0110. Leg III: tarsi v 11 scattered; metatarsi v 8 scattered, pd 0111110, rd 001110; tibia v 6 scattered, pl 0110, rl 0110; patella pd 11. Leg IV: tarsi v 11 scattered; metatarsi v 12 scattered. — *Abdomen*. Dorsum sparsely covered with posteriorly inclined, brown bristles. Prostrate, weak, fine hairs on lateral surfaces; venter covered densely with longer hairs. — *Genitalia.* Sclerotized lip of epigynum straight.

Etymology. The species is named in honour of Miss Janice Tanner, one time principal of the Berry Primary School, the grounds of which are the type locality of *M. gwennethae* n.sp. Her eagerness in facilitating the provision of specimens and behaviour information together with enthusiasm for the development of pupil interest is recognized.

Distribution and natural history (Fig. 14C) This species known only from type locality and nearby township of Jamberoo. The largest burrows readily identified amongst garden mulch and grassed areas; entrance up to 2 cm diameter; lip attached by silk to leaves and forest debris such that entrance is supported about a centimetre above ground level. Below ground level the burrow is lined with fragile silken tube to depth of c. 20 cm.

Misgolas shawi n.sp.

Fig. 11A–G, 14B

Type material. HOLOTYPE ♂, AMS KS12506 (abdomen distorted and discoloured, sternum bilaterally compressed and distorted), Bega, NSW (36°41'S 149°51'E), 23 May 1983, R. Thompson [New South Wales, Australia].

Other material examined. NEW SOUTH WALES: ♀, AMS KS36580, Candello, NSW (36°46'S 149°42'E), 17 May 1973, M. Gray.

Comparing the appearance of this latter female specimen with the neighbouring (17 km apart) male holotype *M. shawi* n.sp. there is suspicion of synonymy, e.g., absence of spines on rd surface of metatarsi IV and venter entirely pallid. Contradicting this is the elongate bilateral leg blotches on legs I and II along full length of relevant leg segments. Until more specimens are collected from the area, a definite species assignment cannot be made for the female specimen.

Diagnosis. In male: Medium sized brown spider, carapace length c. 6, retrodorsal surface of metatarsus IV without spines (Fig. 11G); venter entirely pallid (Fig. 11D); some disconnected dark brown smudges on leg I tibia and patella lateral surfaces (Fig. 11E–F). Spines absent on tarsi I and II (Figs.11E,F), numerous on ventral surface of tarsi III and IV. Palpal bulb (Fig. 11B,C) retrolateral embolic flange with c. 5 major folds, c. 2 minor folds; embolus with thornlike dorsal apophysis placed nearer embolic flange than embolus tip; tip from dorsal aspect with prolateral bend. Conformation of palpal tibia as figured (Fig. 11A). Female not known.

Description

Male holotype (Fig. 11A–G). *Size*. Carapace length 6.02, width 5.40. Abdomen length 5.83, width 4.30. — *Colour*. In alcohol carapace, limbs and chelicerae brown. Some disconnected darker brown smudges on tibia and patella lateral surfaces of legs I and II. Carapace and limbs with very few sparse golden hairs. Abdomen dorsum discoloured. Venter pallid, wrinkled, no dark pattern perceived (Fig. 11D). — *Carapace*. Edge fringed with black bristles which encroach onto posterior half of post foveal surface; very few scattered interstrial bristles. Evidence of row of c. 6 black bristles on caput arch (some removed); 4 between PME; 2 large bristles and 5 other setae on clypeus. Weakly chitinized area on pleuron membrane below clypeus with 5 bristles and few fine setae. Fovea width 1.33, straight, recurved edges, deep, posterior wall centrally divided by small pitted intrusion. — *Eyes*. Raised on a mound. Ocular area darker adjacent to eyes. Anterior width 1.18, posterior width 0.96, length 0.70, width/length ratio 1.69. Line joining posterior edges of ALE transects anterior third of AME. Posterior row straight in front, recurved behind. — *Chelicerae*. Rastellum single row of 7(7) weak spines. Fang groove with 7 promarginal teeth and 13 smaller retromarginal/intermediate row teeth. Left fang groove and intercheliceral tumescence obscured. — *Labium*. Bulbous, length 0.79, width 1.20. Labiosternal suture laterally broad, narrow midway. — *Maxillae* c. 37(46) antero-ental short rotund cuspules, none

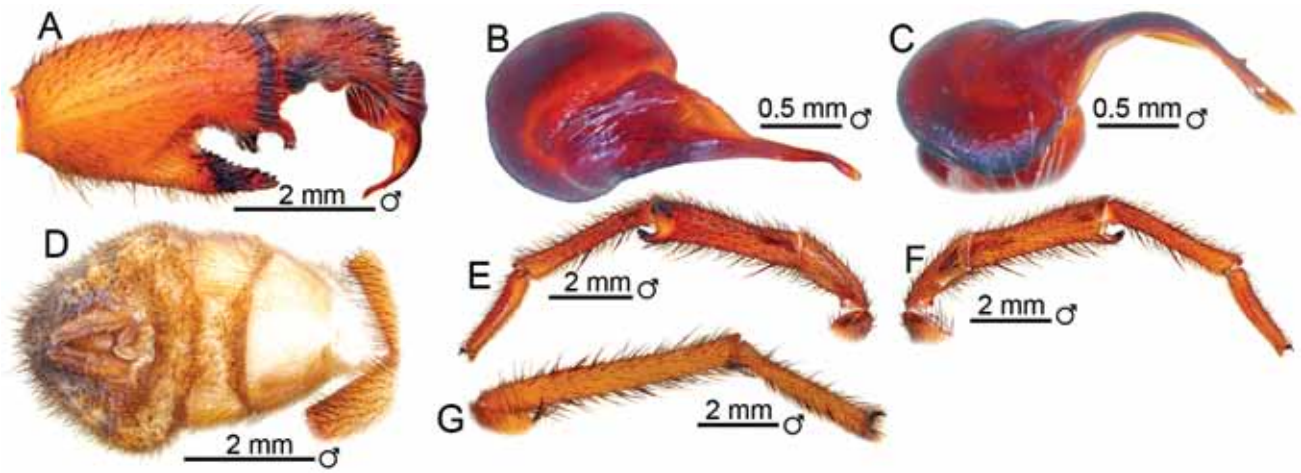

Fig. 11. *Misgolas shawi* n.sp. *(A–G)* ♂, holotype AMS KS12506, *(A)* right palp retrolateral. *(B,C)* right bulb: *(B)* dorsal, *(C)* prolateral. *(D)* venter. *(E,F)* right leg I: *(E)* prolateral, *(F)* retrolateral. *(G)* right leg IV tarsus and metatarsus retrolateral.

surmounted by a hair. — *Sternum*. Bilaterally compressed, distorted. Length 3.52, width 2.01. Sigilla misshapen. — *Legs*. Tibia I with distal bifid apophysis; distal process with 2(2) short compact spines, proximal process with row of 3(3) longer curved pointed spines.

	Palp	I	II	III	IV
Femur	3.95	6.39	6.02	4.79	6.45
Patella	1.87	3.01	2.82	2.33	2.82
Tibia	3.56	4.30	4.05	2.89	5.59
Metatarsus	—	4.48	4.17	3.93	6.20
Tarsus	1.54	2.61	2.64	2.57	3.01
Total	10.92	20.79	19.70	16.51	24.07

Palp. (Fig. 11A) Distal half of cymbium d surface with many long attenuate anteriorly inclined spines. RTA midway with small rl swelling; d, rd and small swelling surfaces covered with pointed spines. Tibial excavation rv edge with 10 short smaller spines progressing distally along edge and increasing in length forming a suspended brush of 11 spines; 6 spines terminate hooked DTA. TEM of right palp collapsed. Both right and left TEMs weakly chitonized; TET not seen. — *Bulb*. (Fig. 11B,C) Length 2.05; length from embolic apophysis to embolus tip (a) 0.38; length from rl flange terminus to embolus tip (f) 0.66; a/f ratio 0.57. Embolic rl flange with 5 major folds and 2 minor folds, edge gently curved. Embolus with prominent d thorn-like apophysis placed nearer embolic flange than embolus tip; tip from d aspect with pl bend. — *Scopula*. Complete and weak on tarsi I and II; small sparse incomplete on metatarsi I and II; absent on legs III and IV. — *Trichobothria*. Palp: tarsi 9, tibia pd 6, rd 5. Leg I: tarsi 13, metatarsi 12, tibia pd 7, rd 7. Leg II: tarsi 11, metatarsi 13, tibia pd 6, rd 7. Leg III: tarsi 13, metatarsi 10, tibia pd 6, rd 7. Leg IV: tarsi 11, metatarsi 12, tibia pd 8, rd 8. — *Leg spination*. Leg I: metatarsi pv 01, rv 0111; tibia rv 0111. Leg II: metatarsi pv 011, rv 02112; tibia v 01112, pv 000010. Leg III: tarsi v 12 scattered, metatarsi v 10 scattered, pl 001110, rl 001110; tibia v 0114, pl 00110, rl 00110; patella pd 2. Leg IV: tarsi pv 14 scattered, rv 4; metatarsi v 14 scattered; tibia v 012. — *Abdomen*. Dorsum with sparse cover of small prostrate bristles underlying many erect long brown bristles. Venter covered with weak short erect brown bristles.

Etymology. The species is named in recognition of Dr David Shaw whose genetic studies over many years has contributed greatly in understanding characteristics of hybrid zone dynamics.

Distribution and natural history (Fig. 14B) This species is known only from the type locality, the town of Bega, New South Wales, Australia. The burrow is not known.

Misgolas horsemanae n.sp.

Figs 12A–K, 14B

Type material. Holotype ♂, AMS KS2980, Kioloa State Forest Rest Area, 16 km North of Bateman's Bay, NSW (35°36'S 150°15'E), 2 May 1979. Pitfall trap, Field No. 1565, set 23 Apr. collected 17 May 1979, C. Horseman [New South Wales, Australia].

Other material examined. New South Wales: ♂, AMS KS65067, Dampier State Forest, Site 1, Coomarong Road, nr. Kianga, NSW (36°06'46"S 149°59'13"E), 10 Mar. 1999, L. Wilkie, R. Harris & H. Smith (South East Forest Survey CBCR003-070).

Diagnosis. In male: Small sized dark brown spider, carapace length c. 5.3, retrodorsal surface of metatarsus IV with at least 1 spine (Fig. 12K); leg segments generally unicolourous, venter with prominent dark markings forming three or four transverse broken lines on pallid background (Fig. 12E). Spines absent on tarsi I and II (Fig. 12F–I). Palpal bulb (Fig. 12B,C) retrolateral embolic flange edge slightly curved, revolute, entire; embolus narrow, tubular, almost straight, lacking apophysis. Cymbium (Fig. 12D) with few sparse acicular spines arising from distal third of dorsal surface. Conformation of palpal tibia as figured (Fig. 12A); tibia excavation surface pallid, tibial excavation mound reduced to a swelling contiguous with retrolateral tibial apophysis. Female not known.

Description

Male holotype (Fig. 12A–K). *Size*. Carapace length 5.34, width 4.30. Abdomen length 5.16, width 2.89. — *Colour*. In alcohol carapace, chelicerae and all limbs brown, generally unicolourous. Weak leg smudges on lateral surfaces of femora, patella and tibia legs I and II. Fine golden prostrate hairs sparse, present only on carapace

perimeter and proximal leg segments. Abdomen dorsum dark brown, pallid transverse chevrons in bilateral series of eight. Venter with prominent dark markings forming four transverse, broken lines (Fig. 12E). — *Carapace*. Edge fringed with black bristles; some large bristles encroach onto posterior half of post foveal surface; remainder of carapace with few weak bristles; bristles absent between PME, 6 on clypeus. Area on pleuron membrane below clypeus non-chitinous, setae absent. Fovea width 0.87, procurved, deep, recurved lateral edges, posterior wall divided by prominent pitted intrusion. — *Eyes*. Raised on mound. Ocular area black adjacent to eyes, posterior perimeter of PLE excepted. Anterior width 0.87, posterior width 0.85, length 0.54, width/length ratio 1.57. Line joining posterior edges of ALE coincides with anterior edges of AME. Posterior row procurved in front, recurved behind. — *Chelicerae*. Rastellum single row of 5(6) weak spines, c. 4(4) bristles. Fang groove and intercheliceral tumescence obscured. — *Labium*. Short, broad, bulbous. Length 0.56, width 0.90. Labiosternal suture continuous, narrowed centrally. — *Maxillae* c. 6(7) antero-ental, long pointed cuspules. — *Sternum*. Bulbous, length 2.76, width 2.15. Sigilla all small, round, equal in size, front and mid pairs c. own diameter from margin, posterior pair c. twice own diameter from margin. — *Legs*. Tibia I with distal bifid apophysis; distal process with 2(2) short, compact, straight, pointed spines; proximal process with row of 3(3) curved, pointed spines.

	Palp	I	II	III	IV
Femur	2.61	4.97	4.61	3.95	5.16
Patella	1.22	2.46	2.33	1.86	2.39
Tibia	2.45	3.68	3.32	2.65	4.67
Metatarsus	—	3.87	3.56	3.52	4.91
Tarsus	1.19	2.76	2.40	2.25	2.83
Total	7.47	17.74	16.22	14.23	19.96

Palp. (Fig. 12A,D) Distal third of cymbium d surface with c. 16(18) long, acicular, inclined spines. RTA digitate, non-swollen; d surface covered with 47(60) short, pointed spines. Tibial excavation rv edge with a suspended brush of c. 32(35) long spines extending onto short horizontal DTA. TEM absent. Tibial excavation chitinized, TET not seen. — *Bulb*. (Fig. 12B,C) Length 1.41. Embolic rl flange edge slightly curved, revolute, entire; flange d surface smooth, without folds. Embolus narrow, tubular, almost straight, apophysis absent. — *Scopula*. Complete on tarsi I and II; sparse, complete on tarsi III and IV; metatarsi I and II incomplete; metatarsi III weak distal remnant; absent on metatarsi IV. — *Trichobothria*. Palp: tarsi 8, tibia pd 6, rd 6. Leg I: tarsi 10, metatarsi 12, tibia pd 6, rd 6. Leg II: tarsi 10, metatarsi 10, tibia pd 5, rd 6. Leg III: tarsi 10, metatarsi 8, tibia pd 6, rd 7. Leg IV: tarsi 11, metatarsi 11, tibia pd 8, rd 7. — *Leg spination*. (Fig. 12F–K) Leg I: metatarsi v 012; tibia v 0112. Leg II: metatarsi v 8 scattered; tibia v 6 scattered, pd 0110 (broken off). Leg III: tarsi pl 01000, rl 01010; metatarsi v 8 scattered, d 020220; tibia v 0122, pl 0110, rl 0110; patella pd 3. Leg IV: tarsi v 7 scattered; metatarsi v 9 scattered; pd 010 (broken off), rd 010010 (1 broken off); tibia v 5 (broken off) scattered, rd 01110 (broken off). — *Abdomen*. Dorsum with sparse cover long, erect, brown bristles with fine, underlying setae. Lateral surfaces and venter with dense cover of long fine hairs.

Taxonomic notes. Male specimen AMS KS65067 collected about 75 km south of the type locality appears to be morphologically identical to the holotype specimen with exception of the former lacking a venter pattern. Both specimens lack a tibial excavation mound and tibial excavation texture. Complementing this the male bulb lacks an apophysis and the retrolateral embolic flange edge is entire. The two specimens are taken to be conspecific with reservations.

Etymology. The species is named in recognition of Christine Horseman, one time technical officer and industrious collector of spiders in the arachnology section of the Australian Museum.

Distribution and natural history (Fig. 14B) Known only from the type locality near the township of Kioloa and c. 75 km S in the Dampier State Forest. The burrow is not known.

Misgolas elegans (Rainbow & Pulleine, 1918)

Arbanitis elegans Rainbow & Pulleine, (1918), pp. 12, 81–169, figs 12–24.
Dyarcyops elegans (Rainbow & Pulleine, 1918).–Main, 1977.
Misgolas elegans (Rainbow & Pulleine, 1918).–Main, 1985b.

The species *Arbanitis elegans* Rainbow & Pulleine, 1918 retained full species status (Main, 1977; Main, 1985b), the revised status being *Misgolas elegans*. With morphology based on a single female its identity is uncertain and is considered here as a nomen dubium. Its collection locality is "Kaianga", revised here to read Kianga, (36°11'46"S 150°07'49"E) near Narooma (Fig. 14A).

Misgolas montanus (Rainbow & Pulleine, 1918)

Arbanitis montanus Rainbow & Pulleine, 1918, pp. 12, 81–169, figs 12–24; Main, 1977, placed in synonymy with *Dyarcyops fuscipes* (Rainbow, 1914); Main, 1985a, *Dyarcyops fuscipes* placed in synonymy with *Misgolas rapax*.

The species status of *Arbanitis montanus* Rainbow & Pulleine, 1918 was revised and removed from synonymy with *M. rapax* by Wishart & Rowell (2008) on expressed grounds of differences in male palpal morphology. Wishart & Rowell, 2008 explicitly removed *M. montanus* from the synonymy of *M. rapax* but this was not accepted by Platnick (2010). To satisfy the minimal requirement the species is figured and diagnosed. Figures of the palp and bulb of *A. montanus* male syntype are provided here (Fig. 13A–C) to enable comparison with *M. rapax* (Fig. 4A–C). Differences in the number and size of folds along edge of retrolateral embolic flange and positions of apophysis on embolus is evidence of considerable weight demonstrating different species are being dealt with.

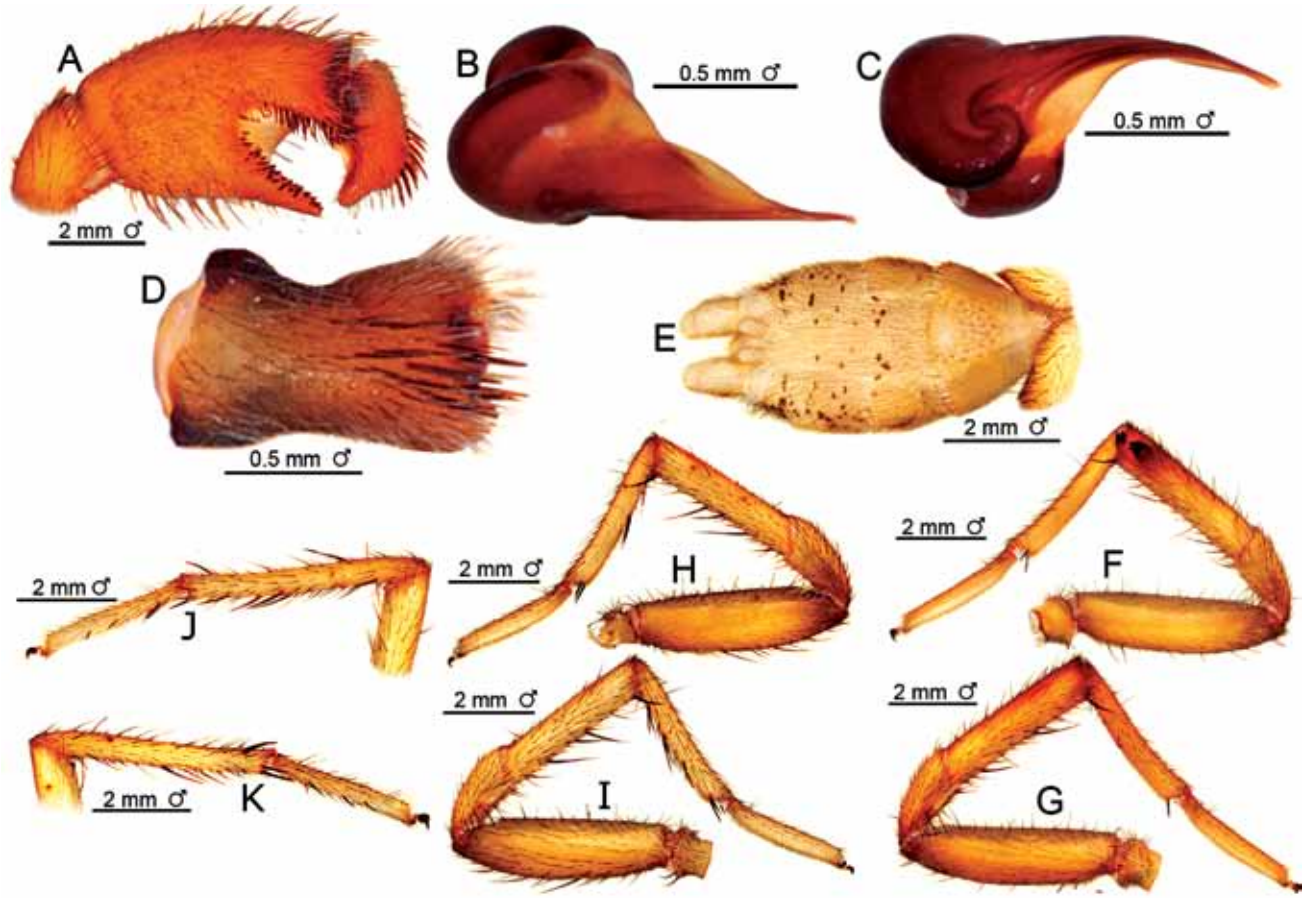

Fig. 12. *Misgolas horsemanae* n.sp. *(A–K)* ♂, holotype AMS KS2980: *(A)* right palp retrolateral. *(B,C)* right bulb: *(B)* dorsal, *(C)* prolateral. *(D)* right cymbium dorsal. *(E)* venter. *(F,G)* right leg I: *(F)* prolateral, *(G)* retrolateral. *(H,I)* right leg II: *(H)* prolateral, *(I)* retrolateral. *(J,K)* right leg IV: *(J)* prolateral, *(K)* retrolateral.

Discussion

The tibial excavation mound (TEM) and texture (TET) are features introduced by Wishart (2006, figs 3H–I) at which time it was suggested to be a stridulatory accessory. An indication supporting this concept is demonstrated in this work where it is possible for the embolic flange, with its species variable corrugations, to be acting as a "plectrum" (Fig. 6F). In conjunction with Dr M.R. Gray some scanning electron microscope views have been examined. The results are not conclusive (the TET lines do not represent surface micro-corrugations and seem to lie just within the smooth cuticle surface) but indicate that the pattern of the texture may be different between species and consistent within species.

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References

Main, B.Y., 1977. Preliminary notes towards a revision of the mygalomorph spider genus *Dyarcyops* (Ctenizidae). *Australian Entomology Magazine* 4(4): 69–72.

Main, B.Y., 1985a. Further studies on the systematics of ctenizid trapdoor spiders: a review of the Australian genera (Araneae: Mygalomorphae: Ctenizidae). *Australian Journal of Zoology, Supplementary Series* 108: 32–39, 53–57.

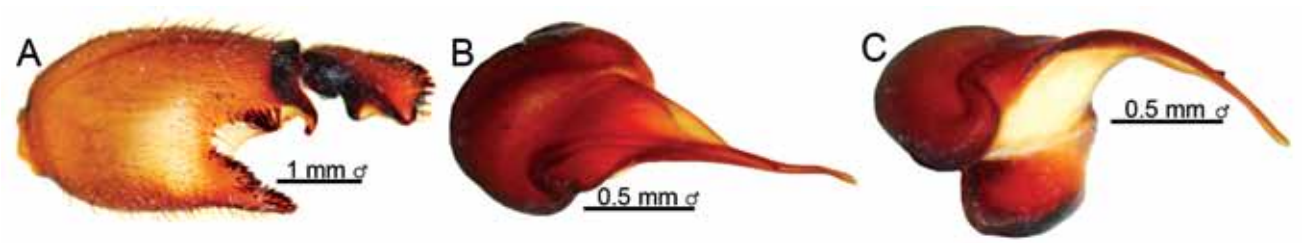

Fig. 13. *Arbanitis montanus* Rainbow & Pulleine. *(A–C)* ♂, syntype AMS KS6265: *(A)* right palp retrolateral. *(B,C)* right bulb: *(B)* dorsal, *(C)* prolateral.

Main, B.Y., 1985b. Arachnida: Mygalomorphae. In *Zoological Catalogue of Australia*, ed. D.W. Walton, pp. 1–48. Canberra: Australian Government Publishing Service.

Main, B.Y., & R.M. Mascord, 1974. Description and natural history of a "tube building" species of *Dyarcyops* from New South Wales and Queensland (Mygalomorphae: Ctenizidae). *Journal of the Australian Entomological Society (NSW)* 1: 15–21.

Wishart, G., 1992. New species of the trapdoor spider genus *Misgolas* Karsch (Mygalomorphae: Idiopidae) with a review of the tube building species. *Records of the Australian Museum* 44(3): 263–278.
doi:10.3853/j.0067-1975.44.1992.35

Wishart, G., 1993. The biology of spiders and phenology of wandering males in a forest remnant (Araneae: Mygalomorphae). *Memoirs of the Queensland Museum* 33(2): 675–680.

Wishart, G., 2006. Trapdoor spiders of the genus *Misgolas* (Mygalomorphae: Idiopidae) in the Sydney Region, Australia, with notes on synonymies attributed to *M. rapax*. *Records of the Australian Museum* 58(1): 1–18.
doi:10.3853/j.0067-1975.58.2006.1446

Wishart, G., & D.M. Rowell, 1997. Phenotypic variation in sexual and somatic morphology in the trapdoor spider *Misgolas hubbardi* Wishart in relation to its genotypic variation (Mygalomorphae: Idiopidae). *Australian Journal of Entomology* 36: 213–219.
doi:10.1111/j.1440-6055.1997.tb01456.x

Wishart, G., & D.M. Rowell, 2008. Trapdoor spiders of the genus *Misgolas* (Mygalomorphae: Idopidae) from Eastern New South Wales, with notes on genetic variation. *Records of the Australian Museum* 60(1): 45–86.
doi:10.3853/j.0067-1975.60.2008.1495

Through publisher error this figure (Figure 14) did not appear in the print version of this work published 29 June 2011. An erratum with this figure will be printed in the next issue of the *Records of the Australian Museum.*

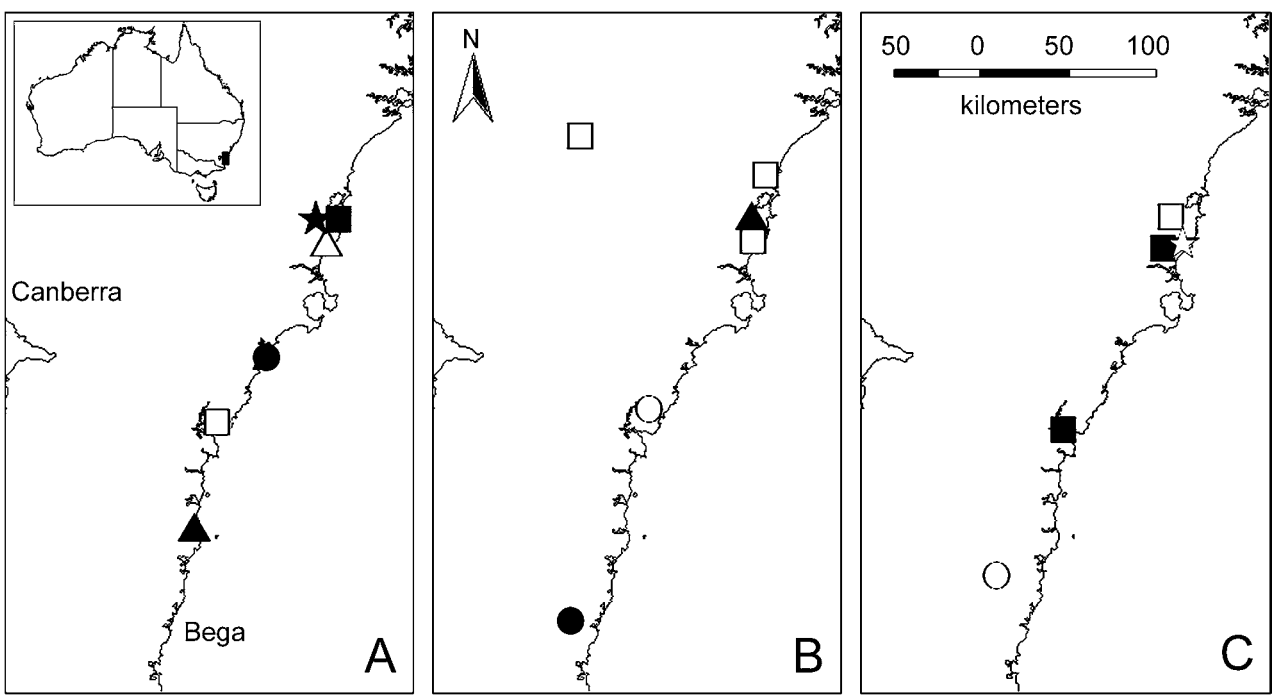

Fig. 14 A–C. Distribution of *Misgolas* species in the New South Wales Illawarra and South Coast (eastern Australia) based on material examined. (Inset [Fig. 14A] with catchment area). *(A)* ★ *M. gracilis*, ■ *M. rowelli*, △ *M. rapax*, ● *M. phippsi*, □ *M. kampenae*, ▲ *M. elegans. (B)* □ *M. dereki*, ▲ *M. robertsi*, ○ *M. horsemanae*, ● *M. shawi. (C)* □ *M. tannerae*, ■ *M. gwennethae*, ☆ *M. kirstiae*, ○ *M. paulaskewi*.