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New Species of the Trapdoor Spider Genus *Misgolas* Karsch (Mygalomorphae: Idiopidae) with a Review of the Tube-building Species

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ABSTRACT. Four sympatric species of *Misgolas* Karsch are studied: *M. hubbardi* n.sp., *M. dereki* n.sp., *M. kirstiae* n.sp., and *M. robertsi* (Main & Mascord, 1974). The male paratype of the tube building spider *M. robertsi* (originally *Dyarcyops robertsi*) from Dorrigo, NSW is removed from that species and designated as the holotype of *Misgolas mascordi* n.sp. The species *M. robertsi* is reconsidered and its male is identified and described. Biological notes are included.

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From field studies and examination of specimens held by the Australian Museum it appears that the idiopid trap-door spider genus *Misgolas* Karsch, 1878 may be represented in the Sydney-Illawarra region by at least seventeen species of which only six have been described: *M. rapax* Karsch, 1878, *M. biroi* (Kulczynski, 1908), *M. elegans* (Rainbow & Pulleine, 1918), *M. gracilis* (Rainbow & Pulleine, 1918), *M. maculosus* (Rainbow & Pulleine, 1918) and *M. robertsi* (Main & Mascord, 1974). Apart from *M. rapax*, the type species of *Misgolas*, the other species were originally described in either the genera *Arbanitis* Koch or *Dyarcyops* Hogg (Main, 1985a,b). Only *M. robertsi* has a male description the remaining species' descriptions being based on less reliable female characters such as eye pattern and dorsal abdominal pattern.

Specimens held in the Australian Museum and attributed to *M. rapax* by Main (1985a,b) were examined, together with specimens of *M. elegans* (Rainbow &

Pulleine, 1918). From morphological differences between these specimens and those collected from the remnant forest at “Scalloway”, Gerringong (34°44'11"S, 150°47'23"E), it is concluded that the Gerringong specimens represent four sympatric distinct species, three of which are newly described in this paper and the one remaining is the tube building spider *M. robertsi* (Table 1 [see Appendix]).

Main & Mascord (1974) suggested that although disjunct populations of tube-building species of *Misgolas* might be one or several species, it was most appropriate to consider them to represent the one species, *Dyarcyops robertsi* Main & Mascord, 1974. A female from southern NSW was described as the holotype and a male from northern NSW as a paratype. In this paper I show that subsequent examination of males from both northern and southern locations, confirm that there are at least two species in this tube-building group.

Materials and Methods

Measuring points for morphological features are taken from Coyle (1971) with the addition of the post foveal height which is the height of the thorax taken from the highest point posterior to the fovea viewed laterally. The caput ratio is the ratio of the caput height to the post foveal height where the post foveal height is taken as unity and is an indication of the relative height of the caput. Linear measurements are expressed in millimetres. The Tibial Index is taken from Petrunkevitch (1942) and is that used by Main (1985a). Measurements and counts refer to the characters on the right side of the specimen with data for the left side given in brackets. Notation of spines is taken from Forster & Wilton (1968).

Male palpal organ variation was found to be consistent within species in *Misgolas*. Whilst at rest the bulb is folded into the ventral cavity of the palpal tibia. Usually the brown sclerotised convex side is uppermost against the tibia cavity and it is considered here to be the dorsal surface. The weakly chitinised flange is retrolaterally situated on the basal part of the embolus. In females the most useful character for species identification and male-female association is differences in the abdominal ventral pattern.

Abbreviations used throughout the text are: d – dorsal; v – ventral; p – prolateral; pd – prodorsal; pv – proventral; r – retrolateral; rd – retrodorsal; rv –

retroventral; ALE – anterior lateral eyes; AME – anterior median eyes; PLE – posterior lateral eyes; PME – posterior median eyes; PMS – posterior median spinnerets; AM – Australian Museum, Sydney; GW – collected by G. Wishart.

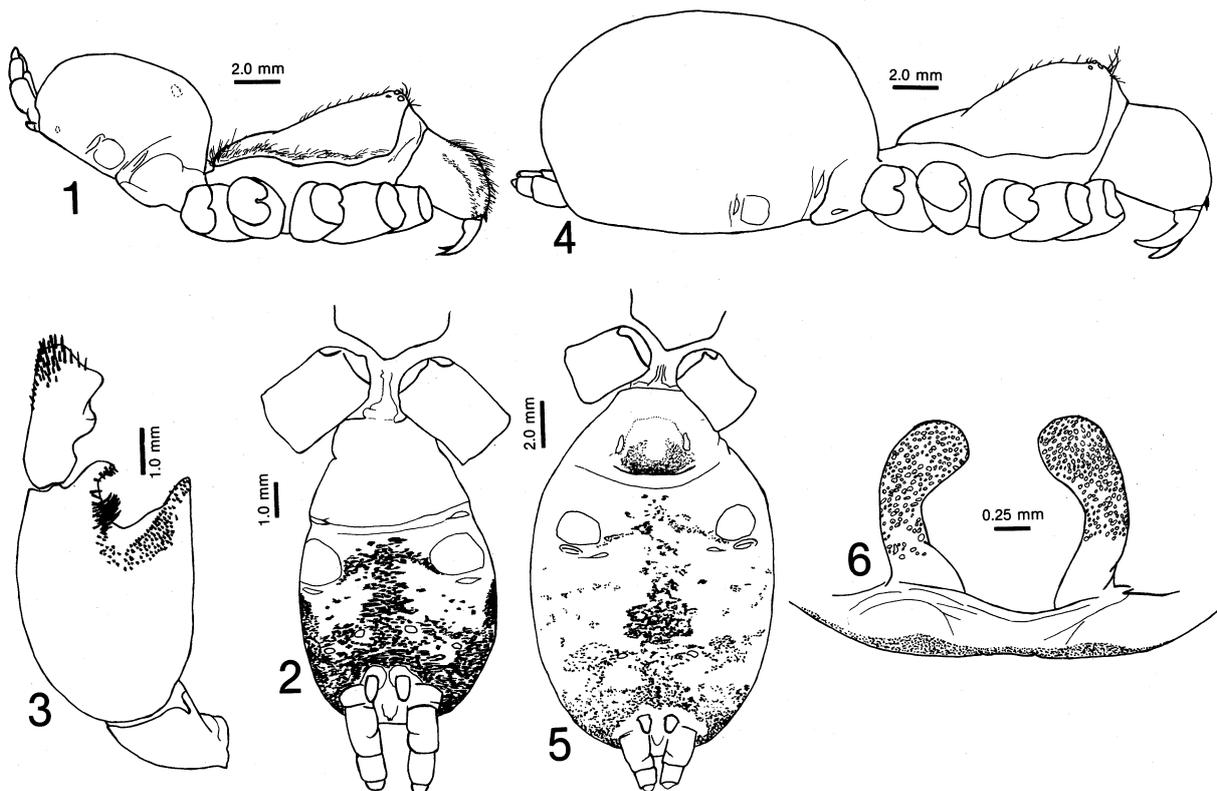
Misgolas hubbardi n.sp.

Figs 1-6, 28,29

Material examined. HOLOTYPE, male, KS22301(AM). "Salloway", Willowvale, near Gerringong, NSW (34°44'11"S 150°47'23"E), 17 Dec. 1985, GW.

ALLOTYPE, female, KS22302(AM). Locality as above, 10 June 1985, GW.

PARATYPES (all AM; excepting where otherwise specified locality as above). *Males*: KS22303, 7 Apr. 1985, GW; KS22304, 29 Dec. 1985, GW; KS22305, 18 Apr. 1987, GW; KS22306, 8 Dec. 1986, GW; KS22307, 11 Dec. 1986, GW; KS22308, 25 Jan. 1987, GW; KS22309, 30 May 1988, GW (mated with KS22319 on 5 June 1988); KS22310, 22 May 1987, GW; KS22311, Jupiter Street, Gerringong (34°45'2"S 150°49'31"E), 20 Dec. 1978, K. Vaux; KS22312, Rowlins Road, Gerringong (34°44'45"S 150°49'12"E), 15 Aug. 1981, K. Davidson; KS22313, Greta Street, Gerringong (34°44'54"S 150°49'24"E), 3 Mar. 1984, S. Hall; KS22314, Belinda Street, Gerringong, (34°44'57"S 150°49'34"E), 7 Aug. 1984, R. Waite; KS22315, Jupiter Street, Gerringong (34°45'6"S 150°49'46"E), 24 Dec. 1986, R. Feeney; KS22316,



Figs 1-6. *Misgolas hubbardi* n.sp.: 1-3, male holotype. 1, body lateral; 2, abdomen ventral; 3, right palpal tibia and cymbium retrolateral. 4-5, female -allotype. 4, body lateral; 5, abdomen ventral. 6, female paratype KS22317 internal genitalia dorsal.

19 June 1987, GW.

Females: KS22317, 2 Aug. 1987, GW (genitalia dissected); KS22318, 27 Sept. 1986, GW; KS22319, 9 Aug. 1987, GW, (mated with KS22309 on 5 June 1988); KS22320, 2 Aug. 1988, GW; KS22321, 7 Mar. 1987, GW; KS22322, 26 Mar. 1987, GW; KS22323, Mayflower Village, Gerringong (34°44'54"S 150°49'13"E), 19 Apr. 1989, GW; KS22324, 29 Nov. 1986, GW; KS22325, 16 Nov. 1986, GW.

Diagnosis. Large brown spiders; retrodorsal surface of metatarsi IV without spines. In female, carapace length 10.0-13.7; fovea strongly procurved; abdomen with indistinct dorsal pattern, venter pattern as figured (Fig.5). In male, carapace length 8.2-10.5; all tarsi without spines; embolus of bulb with retrolateral flange with about five folds; embolus apically twisted clockwise through 90° and armed prolaterally with a subdistal thorn-like apophysis (Figs 28-29). Cymbium with peglike spines on distal third of dorsal surface.

Male holotype (Figs 1-3, 28,29). *Size*. Carapace length 9.31, width 7.81, height 3.25, post foveal height 1.69. Caput ratio 1.92. Abdomen length 8.73, width 5.66.

Colour. Carapace dark tan, in life bedecked with golden hirsute sheen. Legs paler distally; lateral surfaces of palps and legs I and II with some conspicuous longitudinal dark brown smudges. Abdomen dark brown dorsally with indistinct pattern of yellow bands in bilateral series of seven. Venter pale yellow with dark brown speckle becoming more dense maculation and broadening adjacent to spinnerets.

Carapace. Edge fringed with black bristles which encroach onto posterior third of post foveal surface. Posterior edge slightly recurved, almost truncate. Striae glabrous. Line of 12 median bristles occupies low caput arch. Fine golden hairs and band of small bristles prolaterally adjacent to each anterior stria. Group of 4 anteriorly inclined bristles between PME; group of six posteriorly inclined bristles in front of AME. Fovea width 1.30, slightly procurved, glabrous.

Eyes. Placed on low tubercle; anterior width 1.56, posterior width 1.33, length 0.86. Line joining the posterior edges of ALE transects the anterior quarter of AME. Posterior row slightly procurved in front, recurved behind.

Chelicerae. Rastellum with first row of 6(5) short strong spines and second row of 7(5) smaller spines. Small pallid intercheliceral tumescence has covering of fine setae. Fang groove with 8(9) promarginal teeth, and 15(12) small retromarginal/intermediate row teeth beginning adjacent to fourth distal promarginal tooth and terminating slightly beyond proximal promarginal tooth.

Labium. Length 0.97, width 1.37, separated from sternum by broad continuous suture.

Maxillae. About 50(48) anteroental pointed cuspules with constricted base, few surmounted by fine hair.

Sternum. Length 4.91, width 3.86. Anterior sigilla small, round, submarginal; middle and posterior sigilla progressively larger, ovate and distant from margin.

Legs. Limb measurements: leg formula - 4 1 2 3.

Width of patella I, 1.68; tibial index leg I, 17.20. Width of patella IV, 1.60; tibial index leg IV, 14.75.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	5.00	2.44	5.00	-	2.74	15.18
I	7.91	3.94	5.83	6.71	4.10	28.49
II	7.22	3.63	5.19	5.73	3.71	25.48
III	5.89	2.98	3.78	5.09	3.33	21.07
IV	8.30	3.71	7.14	7.14	3.94	30.23

Palp (Fig.3) with dense cluster of peg-shaped spines evenly distributed over distal third of dorsal surface of cymbium, progressively longer towards apex of segment. Tibia with large retroventral apophysis covered dorsally with short spines; ventral surface of tibial excavation with medially placed extended brush of long spines and hooked apical apophysis to which is attached a small terminal tuft of short spines. Bulb with retrolateral embolic flange with four or five folds; embolus twisted clock-wise through 90°; subdistal thorn shaped apophysis on embolus. Scopula dense on tarsi I and II, sparse on tarsi III and IV; incomplete and dense on metatarsi I and II and incomplete and sparse on metatarsi III and IV. Tibia I with apical bifid apophysis; distal process with 3(2) spines, proximal process with 2(3) spines.

Trichobothria. Palp: tarsi 10(12), tibia pd6(6) rd7(7). Leg I: tarsi 13(14), metatarsi 16(14), tibia pd8(8) rd6(6). Leg II: tarsi 14(13), metatarsi 15(13), tibia pd7(8) rd7(7). Leg III: tarsi 12(11), metatarsi 13(13), tibia pd8(6) rd7(7). Leg IV: tarsi 12(13), metatarsi 17(15), tibia pd7(7) rd8(8).

Leg spination. Spines absent from all tarsi. Leg I: metatarsi v0100(011000); tibia v01111102(01110002) pd010(000). Leg II: metatarsi v0202(0100); tibia v0211112(011112), pd001010(001010), p01(01). Leg III: metatarsi v0102013(0002002), d002120(002020); tibia v0123(0123), p0110(0110), r001010(001010); patella pd5(3) including 1(0) on distal edge. Leg IV: metatarsi v0110212(01001101); tibia v01101102(01101102); femur about pd26(26) distal spines.

Abdomen. Dorsum covered with long fine dark bristles, hairs only on ventral surface.

Female allotype (Figs 4-6). *Size*. Carapace length 10.49, width 8.43, height 4.61, post foveal height 1.76. Caput ratio 2.62. Abdomen length 17.18, width 11.66.

Colour. Abdomen pale yellow, ventrally some dark brown speckles forming a short dark median band which widens into a broad maculated pattern in front of spinnerets.

Carapace. Posterior edge broadly recurved. Edge fringed with long fine light hairs which encroach onto posterior two thirds of post foveal surface. Striae glabrous and well defined. Line of eight median bristles along caput arch. Group of 5 anteriorly inclined bristles between PME; group of 4 posteriorly inclined bristles in front of AME. Fovea width 1.86, procurved, glabrous.

Eyes. AME placed on a low mound; anterior width 1.83, posterior width 1.75, length 1.08. Line joining posterior edges of ALE and anterior edges of AME is

straight. Posterior row procurved in front, recurved behind.

Chelicerae. Rastellum with first row of 8(7) strong blunt spines, second row of 11(9), disordered third row and a few smaller spines retreating along the prodorsal cheliceral edge. Fang groove with 9(8) promarginal teeth and 18(19) smaller retromarginal/intermediate row of teeth beginning adjacent to third distal promarginal tooth and extending 4(4) teeth beyond proximal promarginal tooth.

Labium. Length 1.42, width 1.99, separated from sternum by deep continuous suture.

Maxillae. About 54 (55) anteroental fusiform cuspules.

Sternum. Length 5.68, width 4.87.

Legs. Limb measurements: leg formula – 4 1 2 3.

Width of patella II, 1.83; tibial index leg I, 18.77.

Width of patella IV, 2.04; tibial index leg IV, 18.15.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	6.38	3.33	3.53	–	4.27	17.51
I	7.84	4.75	5.00	4.31	2.73	24.63
II	7.19	4.31	4.16	3.84	2.58	22.08
III	5.56	3.61	2.97	3.29	2.43	17.86
IV	7.94	4.55	6.69	5.63	2.84	27.65

Dense scopula complete on tarsi of palp, legs I and II and incomplete on metatarsi of legs I and II.

Trichobothria. Palp: tarsi 12(13), tibia pd8(8) rd9(8). Leg I: tarsi 16(15), metatarsi 18(20), tibia pd9(10) rd8(8). Leg II: tarsi 16(16), metatarsi 21(15), tibia pd10(9) rd9(8). Leg III: tarsi 15(15), metatarsi 15(15), tibia pd8(8) rd8(8). Leg IV: tarsi 15(16), metatarsi 16(18), tibia pd10(10) rd9(10).

Leg spination. Palp: tarsi pv2(2) subproximal, rv01000(01000) plus about v28 subproximal long bristles; tibia pv9(9) rv5(6). Leg I: metatarsi v012002(012001); tibia v011112(021112). Leg II: metatarsi v0110003(022000); tibia v0111111(0212103). Leg III: tarsi v15(14) in scattered group; metatarsi v03223(02213) d002120(002120); tibia v0222(0223) p0110(01110) r001010(001010); patella pd4(6) nil on distal edge. Leg IV: tarsi v17(19) in scattered group; metatarsi v16(16) in scattered group; patella pd10(10) proximal cluster; femur pd40(40) distal group.

Abdomen. Dorsum covered with dark hairs.

Genitalia. Sclerotised lip of epigynum strongly recurved with broad medial indentation. Spermathecae in paratype KS22318 consist of a pair of long vesicles each with a terminal swelling (Fig.6).

Etymology. The species is named in honour of the late Mr Frederick C. Hubbard who collected the first spider from "Scalloway" for taxonomic examination at the Australian Museum.

Distribution and natural history. The species is common in the Gerringong district and north to Kiama.

The burrow has a rigid, funnel-like entrance; the lip is always oblique at an angle of between 30° and 80° in the manner of a hood and is disguised and strengthened with attached leaves and other small pieces of vegetation. The female has been observed to

vacate the burrow and gather vegetation fragments from up to 30 cm away. The burrow tube extends vertically downwards for about 30-40 cm. A typical tube is 35 cm long, 3.5 cm wide at the entrance and narrowing rapidly to 2 cm wide. The tube is lined with strong silk which becomes weaker and more flexible towards the base where it opens into an enlarged earthen retreat. About halfway down the tube there is a weakened band or joint behind which rejected exuviae are placed.

Mature males wander throughout each year with the greatest concentrations during April, May, June and July and during November, December and January.

Misgolas dereki n.sp.

Figs 7-12, 30,31

Material examined. HOLOTYPE, male, KS22326(AM). "Scalloway", Willowvale, near Gerringong, NSW (34°44'11"S 150°47'23"E), 17 Oct. 1985, GW.

ALLOTYPE, female, KS22327(AM). Locality as above, 13 Jan. 1986, GW.

PARATYPES (all AM; excepting where otherwise specified locality as above). Males: KS22328, 22 May 1985, GW; KS22329, 6 July 1985, GW; KS22330, 20 Apr. 1986, GW; KS22331, 11 Apr. 1986, P. Askew; KS22332, 21 May, 1986, GW; KS22333, 10 Apr. 1987, GW; KS22334, 8 May 1987, GW; KS22335, 18 May 1987, GW; KS22336, 7 Sept. 1985, GW; KS22337, Blackwood Street, Gerringong (34°44'48"S 150°49'24"E), 16 Apr. 1989, S. Mace; KS22338, Blackwood Street, Gerringong, 26 Apr. 1989, S. Mace; KS22339, "Rockfield Park" Berry (34°45'56"S 150°37'13"E), 16 June 1986, F. Swane; KS22340, Minnamurra Falls National Park (34°38'30"S 150°45'E), 23 Mar. 1988, R. Standen; KS22341, Wilson Avenue, Gerringong (34°44'38"S 150°49'38"E), 28 Apr. 1989, S. Prosser; KS22342, 16 May 1987, GW. Females: KS22343, 19 May 1985, GW (genitalia dissected, some legs damaged); KS22344, 20 May 1985, GW; KS22345, 7 Dec. 1985, GW; KS22346, 4 Jan. 1989, GW (genitalia dissected); KS22347, Kiama (34°40'S 150°51'E), 10 Jan. 1981, GW; KS22348, Far Meadow, near Berry (34°49'S 150°43'E), 5 Mar. 1989, S. Mace; KS22349, 26 Apr. 1986, GW (some damaged limbs); KS22350, 26 Apr. 1986, GW (with some spiderlings); KS22351, 27 Dec. 1985, GW; KS22352, Kiama (34°40'S 150°51'E), 12 Oct. 1986, K. Mitchell; KS22353, Kiama (34°40'19"S 150°51'0"E), 13 Jan. 1988, Rod Wishart; KS22354, Tombonda Drive, Kiama (34°41'14"S 150°51'17"E), 29 May 1988, GW.

Diagnosis. Medium sized brown spiders; dorsum of abdomen with pattern of transverse bands; venter entirely pale except for sparse scattered dark brown speckles (Figs 8,11). In female carapace length 7.7-11.5; fovea slightly procurved almost straight; spination of retrodorsal surface of metatarsi IV, 001010. In male carapace length 6.0-8.1; spines present on tarsi III and IV; embolus of male bulb with retrolateral flange with three prominent folds; a small thornlike apophysis is placed dorsally about halfway along embolus (Figs 30,31). Cymbium with sparse distal group of long spines on dorsal surface.

Male holotype (Figs 7-9,30,31). *Size*. Carapace length 7.12, width 5.75, height 2.17, post foveal height 1.53. Caput ratio 1.42. Abdomen length 7.19, width 4.28.

Colour. Carapace dark tan, in life bedecked with golden hirsute sheen. Legs paler distally; lateral surfaces of palps and legs I and II with indistinct darker smudges. Abdomen dorsum dark brown with distinct pattern of pale yellow bands in bilateral series of eight. Venter pale with some very sparse scattered dark brown speckles most concentrated behind epigastric furrow.

Carapace. Edge fringed with black bristles which encroach sparsely onto posterior half of post foveal surface. Posterior edge recurved. Striae glabrous. Line of 11 median bristles occupy length of low caput arch. Fine golden hairs and line of small bristles prolaterally adjacent to each anterior stria; hairs terminate at foveal edge. Group of 7 anteriorly inclined bristles between PME; group of 12 posteriorly inclined bristles in front of AME. Fovea width 1.21, recurved.

Eyes. Placed on low tubercle; anterior width 1.10, posterior width 0.99, length 0.86. Line joining the posterior edges of ALE transects the anterior third of AME. Posterior row straight in front, slightly recurved behind.

Chelicerae. Rastellum with first row of 5(5) short strong spines and second row of 2(2) smaller spines. Pallid intercheliceral tumescence has covering of dark

setae concentrated proximally. Fang groove with 9(9) large promarginal teeth and 9(9) small retromarginal/intermediate row teeth beginning adjacent to the fifth (fourth) distal promarginal tooth and terminating slightly beyond proximal promarginal tooth.

Labium. Length 0.74, width 1.04, separated from sternum by broad continuous suture.

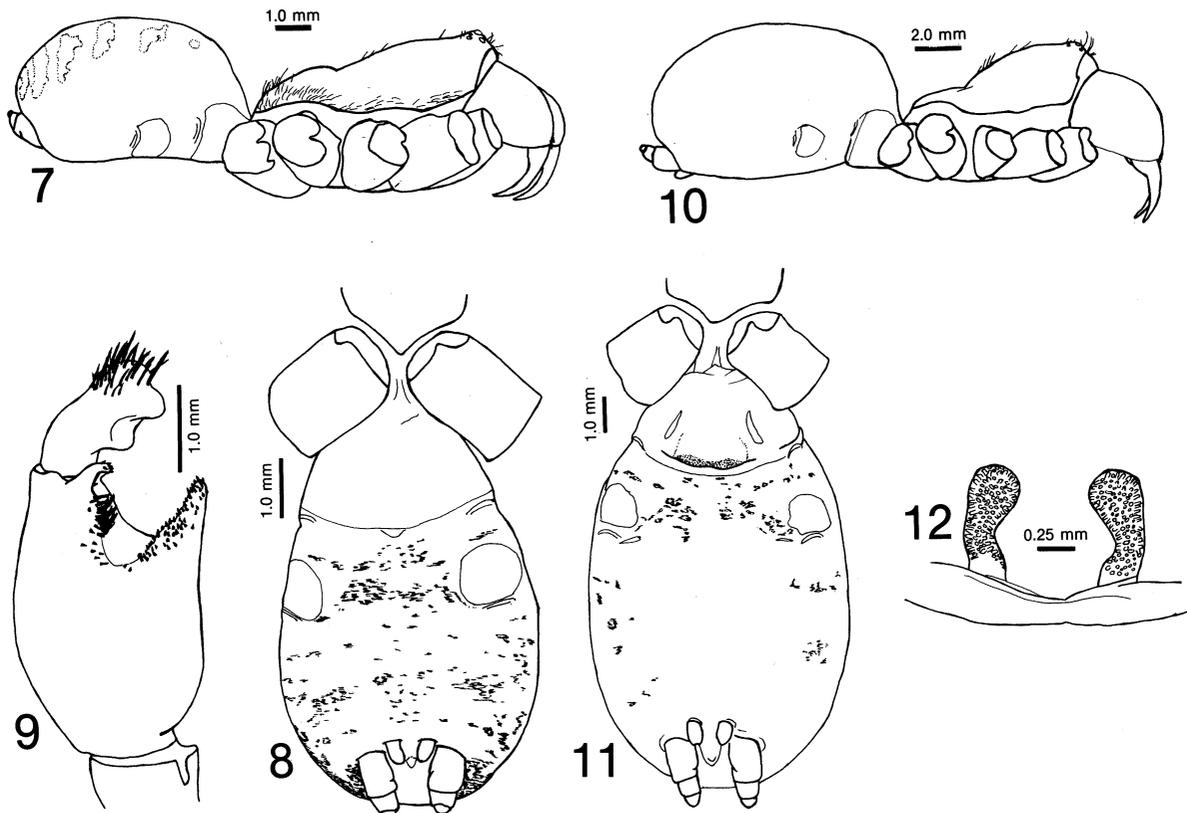
Maxillae. About 45(46) anteroental mostly blunt cuspules.

Sternum. Length 3.84, width 2.64. Anterior sigilla small, round, submarginal; middle and posterior sigilla progressively larger, ovate and distant from margin.

Legs. Limb measurements: leg formula 4 1 2 3. Width of patella I, 1.17; tibial index leg I, 15.92. Width of patella IV, 1.27; tibial index leg IV, 15.41.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	3.63	1.78	3.53	—	1.70	10.64
I	6.26	3.20	4.15	4.66	2.87	21.14
II	5.70	2.95	3.88	4.19	2.69	19.41
III	4.38	2.26	2.64	3.72	2.49	15.49
IV	5.98	3.02	5.22	5.37	3.08	22.67

Palp (Fig.9) with sparse cluster of long weak spines distributed distally over dorsal surface of cymbium. Tibia with large retroventral apophysis covered dorsally with short spines; ventral surface of tibial excavation with few scattered short spines, in midregion an extended brush of about 14 long spines and a hooked apical apophysis to which is attached



Figs 7-12. *Misgolas dereki* n.sp.: 7-9, male holotype. 7, body lateral; 8, abdomen ventral; 9, right palpal tibia and cymbium retrolateral. 10-11, female allotype. 10, body lateral; 11, abdomen ventral. 12, female paratype KS22343 internal genitalia dorsal.

small terminal tuft of about 10 short spines. Bulb with retrolateral embolic flange with 3 prominent folds; embolus arched, not twisted; thornlike apophysis is dorsally placed about halfway along embolus. Scopula dense on tarsi I and II, very sparse on tarsi III and IV; incomplete and sparse on metatarsi I and II; almost absent on metatarsi III and IV and retrolateral surface of metatarsi II. Tibia I with apical bifid apophysis; distal process with 4(6) spines, proximal process with 2(2) spines.

Trichobothria. Palp: tarsi 8(8), tibia pd6(6) rd6(6). Leg I: tarsi 12(11), metatarsi 14(12), tibia pd8(7) rd5(6). Leg II: tarsi 12(10), metatarsi 13(11), tibia pd8(7) rd6(7). Leg III: tarsi 10(10), metatarsi 10(11), tibia pd6(5) rd6(7). Leg IV: tarsi 13(14), metatarsi 17(15), tibia pd8(8) rd8(8).

Leg spination. Spines absent from tarsi I and II. Leg I: metatarsi v01102(0011001); tibia v011112(010102), pd010(010). Leg II: metatarsi v001103(01203), pd0100(0100); tibia v01112(01112), pd00110(00110). Leg III: tarsi v00110(00110); metatarsi v8(9) scattered, d00020220(00020220); tibia v9(7) scattered, p0110(0110), r0001010(0001010); patella pd6(6) including 1(1) on distal edge. Leg IV: tarsi v5(5) scattered; metatarsi v11(11) scattered, rd00001000010(00001000010); tibia v6(6), rd0111110(0111110); femur pd13(13) in distal group.

Abdomen. Dorsum covered with fine bristles reduced to hairs on ventral surface.

Female allotype (Figs 10-12). *Size*. Carapace length 8.33, width 6.19, height 3.25, post foveal height 2.00. Caput ratio 1.63. Abdomen length 12.00, width 7.55.

Colour. Abdomen dorsum with distinct pattern of pale yellow bands in bilateral series. Venter as in male.

Carapace. Posterior edge with mid indentation. Edge fringed with fine hairs which encroach onto posterior half of post foveal surface. Striae glabrous and well defined. Line of 12 median bristles occupies length of caput arch. Fine golden hairs extend into the fovea. Group of 9 anteriorly inclined bristles between PME; a group of 13 posteriorly inclined bristles in front of AME. Fovea width 1.60, slightly procurved, almost straight.

Eyes. Placed on a low mound; anterior width 1.24, posterior width 1.14, length 0.79. Line joining the posterior edges of ALE transects the anterior fifth of AME. Posterior row recurved in front, strongly recurved behind.

Chelicerae. Rastellum with first row of 6(5) short strong spines, disordered second row of smaller spines and a few spines along prolateral cheliceral edge. Fang groove with 12(10) large promarginal teeth and 16(16) small teeth in retromarginal/ intermediate row beginning adjacent to third (fourth) distal promarginal tooth and extending 1 tooth beyond proximal promarginal tooth.

Labium. Length 1.03, width 1.44, separated from sternum by deep narrow suture which expands laterally.

Maxillae. About 59(65) anteroental fusiform cuspules.

Sternum. Length 4.35, width 3.68.

Legs. Limb measurements: leg formula – 4 1 2 3.

Width of patella I, 1.32; tibial index leg I, 19.58.

Width of patella IV, 1.63; tibial index leg IV, 19.33.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	4.47	2.61	2.45	–	2.68	12.21
I	5.75	3.49	3.25	2.71	1.78	16.98
II	4.88	3.14	2.71	2.53	1.65	14.91
III	3.88	2.55	1.83	2.32	1.57	12.15
IV	5.62	3.49	4.94	4.16	2.06	20.27

Dense scopula complete on tarsi of palps and legs I, incomplete on metatarsi of legs I, restricted to prolateral and ventral surfaces of tarsi II and distal prolateral and ventral surfaces of metatarsi II. Scopula absent on retrolateral surfaces of legs II.

Trichobothria. Palp: tarsi 11(10), tibia pd7(7) rd6(6). Leg I: tarsi 13(11), metatarsi 14(13), tibia pd7(7) rd7(7). Leg II: tarsi 12(12), metatarsi 16(15), tibia pd7(8) rd7(8). Leg III: tarsi 10(10), metatarsi 10(9), tibia pd7(7) rd7(7). Leg IV: tarsi 14(12), metatarsi 15(16), tibia pd8(8) rd8(8).

Leg spination. Palp: tarsi pv0100(0100), rv010000(010000), plus about v12(12) divergent subproximal long bristles; tibia v0223(0223). Leg I: metatarsi v0102(0102); tibia v01110(0110). Leg II: tarsi rv01010(01010); metatarsi rv012(013); tibia v01110(01110). Leg III: tarsi v9(7) scattered; metatarsi v023(023), pd00210(011110), rd001110(001110); tibia v023(023), pd0110(010), rd0110(0110); patella pd5(6) including 1(1) on distal edge. Leg IV: tarsi v15(17) in scattered group; metatarsi v10(11) in scattered group, rd001010(001010); patella about pd16(16) in proximal cluster; femur about pd23(25) in distal cluster.

Abdomen. With cover of fine hairs. Dorsum with median band of fine dark bristles.

Genitalia. Sclerotised lip of epigynum gently recurved, almost straight. Spermathecae in paratype KS22343 consist of a pair of bulbous vesicles which gradually enlarge terminally (Fig.12).

Etymology. The species is named in recognition of the author's eldest son, Derek Wishart.

Distribution and natural history. This trap-door spider's distribution extends from Farmeadow and Berry, northwards through Willowvale and Gerringong to Kiama and Minnamurra Falls. It is found in rainforest and urban situations.

The burrow entrance has not been observed in the wild. Burrows have been excavated as a result of systematic digging through a forest floor area, also by slicing off the soil surface of the forest floor and accidentally whilst gardening. In captivity the entrance is tubular, not funnel-shaped, about 10 mm diameter and with attached small pieces of vegetation; the opening is parallel with the ground. The lip is not rigid and may be folded inwards as a seal. In the wild the burrow is usually about 25 cm deep and lined with a continuous fragile silk tube which terminates

immediately before a soft but strong sock 3.5 cm long in which the spider, sometimes with spiderlings, is often found.

Mature males wander during April and May of each year.

Misgolas kirstiae n.sp.

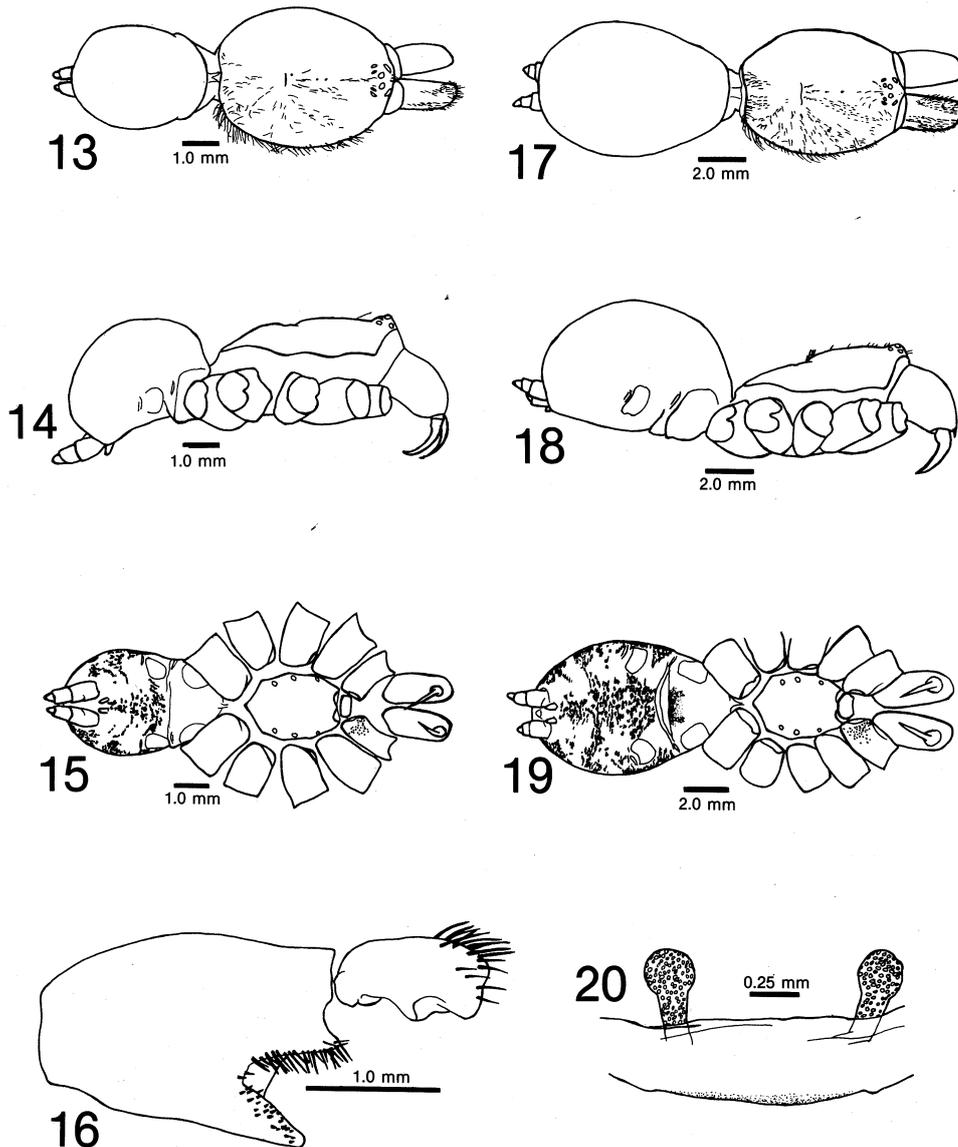
Figs 13-20, 32,33

Material examined. HOLOTYPE, male, KS22355(AM). "Scalloway", Willowvale, near Gerringong, NSW (34°44'11"S 150°47'23"E), 6 Nov. 1985, GW.

ALLOTYPE, female, KS22356(AM). Locality as above, 5 Oct. 1988, GW, maintained alive until 23 Jan. 1989 and then taken with 55 spiderlings and preserved.

PARATYPES (all AM, locality as above and collected GW). Males: KS22357 to KS22367, 19 Sept. 1985, 9 Nov. 1985, 15 Oct. 1986, 23 Sept. 1987, 23 Oct. 1985, 23 Sept. 1985, 20 Oct. 1985, 31 Oct. 1985, 14 Nov. 1985, 17 Oct. 1986, 3 Nov. 1987. Females: KS22368 to KS22370, 17 Mar. 1988 (genitalia dissected), 8 Dec. 1985, 10 Oct. 1986.

Diagnosis. Small brown spiders; reflective hairs and numerous black hairs on carapace. Carapace length in female 5.5-7.5, in male 5.1-6.4. Eyes on a tubercle. Venter of abdomen pale with dark brown pattern (Figs 15,19). Fangs with keel on prolateral edge. Maxillary cuspules extend from anteroental area almost to posteroental angle. Intermediate row of cheliceral teeth absent. Male palpal tibia without a distal hooked apophysis (Fig.16); embolus slender and sinuous with retrolateral lamina with 1 pronounced fold, apophysis



Figs 13-20. *Misgolas kirstiae* n.sp.: 13-16, male holotype. 13, body dorsal; 14, body lateral; 15, body ventral; 16, right palpal tibia and cymbium retrolateral. 17-19, female allotype. 17, body dorsal; 18, body lateral; 19, body ventral. 20, female paratype KS22368 internal genitalia dorsal.

absent (Figs 32,33).

Male holotype (Figs 13-16,32,33). *Size*. Carapace length 5.19, width 4.09, height 1.33, post foveal height 1.10. Caput ratio 1.24. Abdomen length 4.00, width 3.02.

Colour. Light tan; carapace, legs and chelicerae unicolourous except some lateral surfaces of palps and legs I and II with very slightly darker smudges; carapace in life with hirsute sheen. Abdomen dorsum dark brown with precise transverse yellow bands in bilateral series of 8. Venter pale with characteristic dark brown median pattern extending from epigastric furrow to PMS (Figs 15,19).

Carapace. Ovate. Edge evenly fringed with black bristles which encroach uniformly onto all interstitial areas; posterior edge recurved. Striae glabrous. Line of 9 median bristles on very low, almost flat caput arch. 2 pairs of foveal bristles are anteriorly inclined. Group of 6 anteriorly inclined bristles between PME; group of 6 posteriorly inclined bristles in front of AME. Fovea very short, 0.52 wide, straight. Clypeus and ocular area extended anteriorly.

Eyes. Compact on a tubercle, lateral eyes on sides of tubercle facing horizontally. Anterior and posterior widths equal, 0.93; length 0.59. Line joining posterior edge of ALE passes marginally inside AME; posterior eyes straight in front, recurved behind. Tapetum of ALE, PME and PLE highly reflective.

Chelicerae. Light tan, not heavily pigmented. Rastellum a single row of 10(14) long weak spines and spinules. Pallid compact intercheliceral tumescence is sparsely covered with some short setae. Fang groove with 6(7) promarginal teeth and 4(3) smaller retromarginal teeth beginning adjacent to the fourth(sixth) distal promarginal tooth and terminating adjacent to the proximal promarginal tooth; intermediate row absent. Fangs armed with a thin translucent keel suspended along the prolateral edge.

Labium. Length 0.41, width 0.72. Separated from sternum by centrally divided suture. Cuspules absent.

Maxillae. About 61(65) cuspules placed anteroventally and extending almost to posterovental angle. Most cuspules fusiform, some elongate and pointed and few surmounted by fine hair.

Sternum. Length 2.71, width 2.04. Anterior sigilla small, round and close to margin, middle and posterior sigilla larger, round and more distant from margin.

Legs. Limb measurements: leg formula – 4 1 2 3. Width of patella I, 0.90; tibial index leg I, 15.93. Width of patella IV, 0.88; tibial index leg IV, 13.07.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	2.79	1.39	2.43	–	1.11	7.72
I	4.59	2.42	3.25	3.68	2.16	16.10
II	4.31	2.17	2.97	3.21	1.99	14.65
III	3.84	1.88	2.61	3.33	1.99	13.65
IV	4.94	2.40	4.31	4.66	2.40	18.71

Palp (Fig.16) with apical row of weak elongate sharp spines, receding and reduced to spinules over the distal quarter of dorsal surface of cymbium. Palpal tibia with large retroventral apophysis covered dorsally with

spines; ventral surface of tibial excavation with band of long spines; apical hooked apophysis absent. Bulb with retrolateral embolic flange with one pronounced fold; embolus arched, slender and sinuous, apophysis absent. Weak scopula present on tarsi and metatarsi of legs I, incomplete on legs II and III and almost absent on legs IV. Tibia I with apical bifid apophysis; distal process with 3(2) spines and proximal process with 3(2) spines.

Trichobothria. Palp: tarsi 8(7), tibia pd6(5) rd6(6). Leg I: tarsi 9(10), metatarsi 11(10), tibia pd7(7) rd6(6). Leg II: tarsi 10(10), metatarsi 11(10), tibia pd7(6) rd6(6). Leg III: tarsi 12(12), metatarsi 11(11), tibia pd7(6) rd6(6). Leg IV: tarsi 10(10), metatarsi 11(12), tibia pd9(8) rd7(7).

Leg spination. Spines absent from all tarsi. Scopula on tarsi III and IV progressively displaced by about 15 to 20 scattered ventral bristles. Leg I: metatarsi v012(012); tibia v01112(01112), p010(010); patella pd00110(00110). Leg II: metatarsi v01102(01102), p0100(0100); tibia v01112(01112), p01111(01111); patella pd0110(0110). Leg III: metatarsi v01203(00203), d002120(002120); tibia v0112(0112), pv0011(0001), pd0110(0110), rd0110(0110); patella pd0110(group of 5 none on distal edge). Leg IV: metatarsi v10(10), rd0010110(0010010); tibia v9(11), rd00110(00110).

Abdomen. Dorsum with distinct pattern of bilateral transverse bands and covered with long bristles. Sides and ventral surfaces covered with long fine hairs.

Female allotype (Figs 17-20). *Size*. Carapace length 7.45, width 5.87, height 2.27, post foveal height 1.61. Caput ratio 1.42. Abdomen length 8.53, width 6.19.

Colour. Medium tan otherwise as for male.

Carapace. Ovate. Edge fringed with fine dark bristles which encroach onto all interstitial areas. Line of nine small median bristles occupies the full length of very low caput arch. About 5 pairs of anteriorly inclined foveal bristles emerge from the fovea. Group of 13 anteriorly inclined bristles between PME; group of 8 posteriorly inclined bristles in front of AME. Fovea 0.98 wide, procurved. Clypeus and ocular area extended anteriorly beyond base of carapace as for male.

Eyes. Compact, on small tubercle, arranged as for male. Anterior width 1.26, posterior width 1.16, length 0.74. Line joining posterior edge of ALE transects the anterior third of AME. Posterior row straight in front, recurved behind.

Chelicerae. Medium tan, not heavily pigmented. Rastellum single row of 10(9) long weak spines and spinules. Fang groove with 7(7) promarginal teeth and 5(7) smaller retromarginal teeth beginning adjacent to fifth(fifth) distal promarginal tooth and extending 1(1) tooth beyond proximal promarginal tooth.

Labium. Length 0.77, width 1.24.

Maxillae. About 65(64) fusiform cuspules placed anteroventally and extending to posterovental angle.

Sternum. Length 4.00, width 3.02. Three pairs of sigilla all small, round and approximately equidistant from margin.

Legs. Limb measurements: leg formula 4 1 2 3.
Width of patella I, 1.24; tibial index leg I, 19.97.
Width of patella IV, 1.37; tibial index leg IV, 18.08.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	4.00	2.40	2.30	—	2.32	11.02
I	5.19	3.21	2.99	2.53	1.47	15.39
II	4.81	2.99	2.58	2.43	1.39	14.20
III	4.11	2.63	2.22	2.55	1.50	13.01
IV	5.63	3.33	4.23	4.12	1.88	19.19

Scopula present on palpal tarsi and tarsi and metatarsi of legs I and II; sparse on leg II, absent on legs III and IV.

Trichobothria. Palp: tarsi 9(9), tibia pd6(6) rd6(6).
Leg I: tarsi 12(11), metatarsi 12(12), tibia pd7(7) rd6(6).
Leg II: tarsi 12(12), metatarsi 14(15), tibia pd7(7) rd6(6).
Leg III: tarsi 14(13), metatarsi 16(16), tibia pd7(7) rd7(7).
Leg IV: tarsi 12(11), metatarsi 17(14), tibia pd8(9) rd7(8).

Leg spination. Palp: tarsi v0200(0200) plus about 12(12) apically inclined subproximal ventral bristles; tibia v02203(02203), patella pv010(010).
Leg I: tarsi about v17(20) bristles adjacent to unpaired claw; metatarsi v02102(01102), tibia v01112(01112), p01(01).
Leg II: tarsi v00010(0010) plus about 22(22) bristles; metatarsi v011002(012002), p010(010); tibia v01112(01112), p0110(0110).
Leg III: tarsi v3(3) plus about 35(40) bristles along ventral length; metatarsi v011002(012002), d022(022); tibia v01112(01112), p0110(0110), r0000(0010); patella pd00110(001110).
Leg IV: tarsi v10(8) plus about 30(30) bristles along ventral length; metatarsi v11(10) in scattered group, rd0010110(0010110); tibia v020212(020212), r0110(0110).

Abdomen. Dorsum covered with fine dark bristles and fuscous hairs. Setae finer on venter.

Genitalia. Sclerotised lip of epigynum straight; spermathecae divergent. Spermathecae in paratype KS22368 pair of short vesicles each with terminal sphere (Fig.20).

Etymology. The species is named in recognition of the author's eldest daughter, Kirstie Wilson.

Taxonomic remarks. This spider possesses several unusual characters and the question is raised as to whether it should be placed in a new genus. Because the distribution of maxillary cuspules is extensive along the length of the ental surface, an intermediate row of cheliceral teeth is absent, leg markings are greatly reduced, the caput ratio is very low and the carapace is more ovate than elongate there is some basis for a new genus to be raised to accommodate this spider. This proposal is further supported by the uniform cover of fine dark bristles over the carapace, the eyes compactly placed on a distinct tubercle, the short fovea width relative to the width of the carapace, the rastellum spines reduced to long spinules and bristles (as also are all leg and palp spines), the absence of a distal hooked apophysis with a terminal tuft of short spines from the male palpal tibia, and the slender, sinuous embolus of

the male bulb that lacks a small apophysis.

Argument favouring the retention of *M. kirstiae* within the genus *Misgolas* is that the unusual characters may not have great weighting, or are not in conflict with the most recent diagnosis for the genus (Main, 1985 and personal communication) and the proposed new genus would contain but one species and so require a more definite gap (Mayr, 1969) between it and other genera within the Idiopidae. This question should be resolved when a complete revision of the genus can be undertaken, when many more of the species yet to be described are more fully examined and a better appreciation is gained of the variation within it.

Distribution and natural history. The only records of this spider are from the type locality in a remnant rainforest patch. The burrow in the natural habitat is not known. Spiders have been found in removed soil sometimes encased in a soft fragile silken sock about 3 cm long and heavily impregnated with soil. In captivity the entrance of the burrow is sealed by a half-moon shaped flap.

Mature males wander during September, October and November of each year.

Misgolas robertsi (Main & Mascord, 1974)

Figs 21-24, 34,35

Dyarcycops robertsi Main & Mascord, 1974: 15-21.
Misgolas robertsi.—Main, 1985a: 34, 53, 57.

Material examined. HOLOTYPE, female, KS12(AM). Minnamurra Falls, Kiama, NSW, 12 Oct. 1964, R.M. Mascord.
PARATYPES, females, KS13(AM). Minnamurra Falls, Kiama, NSW, Apr. 1965, R. Mascord (genitalia dissected).

Other material (all AM). Males: KS22371 to KS22381. All "Scalloway", Gerringong, NSW (34°44'11"S 150°47'23"E), 2 May 1986, 17 Apr. 1986, 11 Nov. 1986, 7 May 1987, 20 Apr. 1987, 25 Nov. 1985, 6 Jan. 1987, 10 Jan. 1987, 6 Apr. 1987, 29 Apr. 1987, 26 May 1987. Females: KS22382 to KS22389. All "Scalloway", Gerringong, 14 Jan. 1986, 14 Feb. 1986, 24 Apr. 1986, 7 Feb. 1987, 12 Feb. 1987, 10 May 1987, 2 July 1987, 30 Oct. 1988. All collected GW.

Diagnosis. Medium sized brown spider; dorsum of abdomen with distinct pattern of 8 yellow transverse bands; venter pale with dark brown median band (Figs 23,24). Female carapace length 7.5-11.3. Male carapace length 7.5-8.1. Embolus of male bulb with retrolateral flange with about 8 folds; small right angled triangular apophysis is placed dorsally about halfway along embolus (Figs 34,35).

Female holotype KS12(AM), (Fig.24). A supplementary description is given here of the holotype of *Dyarcycops robertsi*.

Carapace height 3.44, post foveal height 1.63. Caput

ratio 2.11. Carapace with fuscous hairs extending to fovea and fringed with hairs encroaching onto posterior half of post foveal area; posterior edge recurved. Line of 7 median bristles occupies caput arch. Line of about 5 small bristles placed prolaterally adjacent to each anterior stria and terminates at foveal edge. Fovea width 1.81; slightly procurved. Group of about 13 bristles between and behind PME; group of 5 posteriorly inclined bristles in front of AME. Eyes placed on low mound. Venter pale with dark brown median band extending from epigastric furrow to PMS. Chelicerae with rastellum of first row of 7(6) short teeth, second row of 11(8) teeth and about 4(5) in disordered third row.

Leg spination. Palp: tarsi pv1(0) sub proximal, rv0100(0); tibia pv7(7), rv7(6); patella pd11(0). Leg I: metatarsi rv missing(010001), tibia v0111111(0111111). Leg II: metatarsi v011003(011003); tibia v0011111(011011). Leg III: tarsi v6(4) in scattered group; metatarsi v012(013), d0002120(0002020); tibia v00202(01202), pd00110(00110), rd00101(00101); patella pd11(11), nil(nil) on distal edge. Leg IV: tarsi v15(15), in scattered group; metatarsi v10(9) in scattered group; femur dense group of about pd40(40) along distal edge.

Trichobothria. Palp: tarsi 13(13), tibia pd8(9) rd8(8). Leg I: tarsi missing(15), metatarsi missing(15), tibia pd9(10) rd7(8). Leg II: tarsi 15(14), metatarsi 15(15), tibia pd9(10) rd8(8). Leg III: tarsi 14(14), metatarsi 12(12), tibia pd9(8), rd9(9). Leg IV: tarsi 13(13), metatarsi 16(16), tibia pd10(9), rd10(9). Sclerotised lip

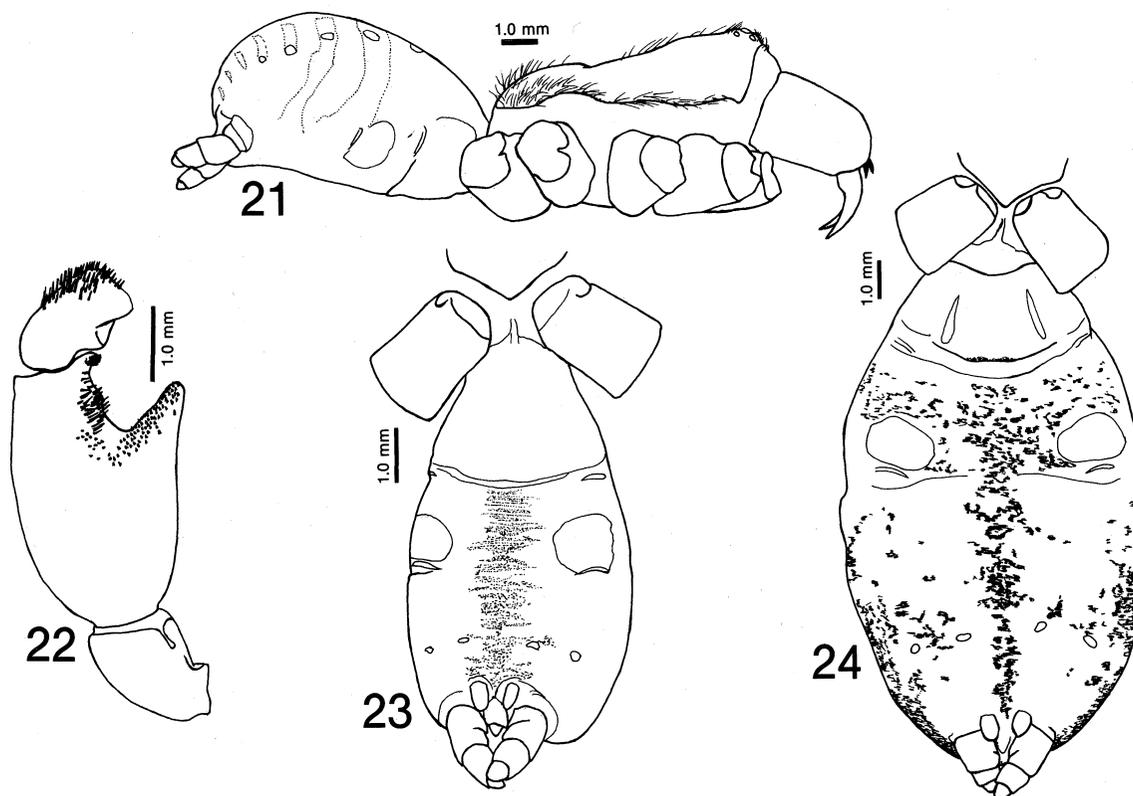
of epigynum recurved with broad extended medial indentation.

Description of male KS22371(AM), (Figs 21-23,34,35). *Size.* Carapace length 7.55, width 6.03, height 2.08, post foveal height 1.49. Caput ratio 1.40. Abdomen length 8.18, width 4.88.

Colour. Generally dark brown, carapace bedecked with golden hirsute sheen. Prominent dark brown blotch on retrolateral distal surface of palpal patella, prolateral distal surface of tibia I, full length of both lateral surfaces of patella I and patella II and full length of retrolateral surface of patella III. Abdomen dorsum dark brown with precise transverse yellow bands in bilateral series of 8. Venter pale with median dark brown band extending from epigastric furrow to PMS.

Carapace. Posterior edge recurved. Edge fringed with brown bristles which encroach onto posterior half of post foveal surface. Striae glabrous. Line of 10 median bristles occupies almost straight caput arch. Line of small bristles and fine golden hairs prolaterally adjacent to each anterior stria and terminates at foveal edge. Group of about 14 anteriorly inclined bristles between PME; group of about 9 bristles in front of AME. Fovea 1.39 wide, slightly recurved.

Eyes. Median eyes placed on low tubercle; lateral eyes on tubercle edge; anterior width 1.23, posterior width 1.15, length 0.72. Line joining posterior edge of ALE passes marginally inside AME; posterior eyes



Figs 21-24. *Misgolas robertsi* (Main & Mascord): 21-23, male specimen KS22371. 21, body lateral; 22, right palpal tibia and cymbium retrolateral; 23, abdomen ventral. 24, female holotype abdomen ventral.

procurved in front, almost straight behind.

Chelicerae. Rastellum with first row of 7(6) long teeth and second row of 5(6) shorter teeth. Pallid elongate intercheliceral tumescence extends beyond half length of chelicera and is sparsely covered with short setae. Fang groove with 7(7) promarginal teeth and 13(11) smaller retromarginal/intermediate teeth beginning adjacent to between third and fourth distal promarginal teeth and terminating 2(0) teeth beyond proximal promarginal tooth.

Maxillae. About 49(47) anteroental small cuspsules of which most are fusiform but apically pointed; a few cuspsules are surmounted by a fine hair and some are tapered apically to form short spiniform cuspsules.

Sternum. Length 4.19, width 2.97. Anterior sigilla small, ovate submarginal; middle and posterior sigilla progressively larger and distant from margin.

Legs. Limb measurements: leg formula – 4 1 2 3. Width of patella I, 1.26; tibial index leg I, 15.02. Width of patella IV, 1.39; tibial index leg IV, 13.65.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	3.96	1.91	3.57	–	1.65	11.09
I	7.19	3.53	5.75	5.13	3.08	24.68
II	6.56	3.33	5.06	4.63	3.04	22.62
III	5.19	2.58	3.49	4.16	2.99	18.41
IV	7.37	3.37	6.81	6.19	3.53	27.27

Palp with dense cluster of skewer shaped spines evenly distributed over distal half of dorsal surface of cymbium. Tibia with large retroventral apophysis covered dorsally with very short spines; ventral surface of tibial excavation with median extended brush of long robust bristles and apical curved apophysis with a terminal tuft of long robust bristles. Bulb with retrolateral embolic flange with about 8 fine folds; embolus straight, not twisted, with small right angled triangular apophysis placed dorsally about halfway along embolus. Scopula dense on tarsi of legs I and II and sparse on legs III and IV. Tibia I with apical bifid apophysis; distal process with 3(3) spines and proximal process with 4(4) spines.

Trichobothria. Palp: tarsi 10(9), tibia pd7(7) rd6(7). Leg I: tarsi 14(14), metatarsi 13(14), tibia pd8(8) rd8(8). Leg II: tarsi 14(14), metatarsi 13(13), tibia pd8(8) rd7(8). Leg III: tarsi 12(12), metatarsi 11(10), tibia pd6(8) rd8(8). Leg IV: tarsi 13(13), metatarsi 14(14), tibia pd8(8) rd8(8).

Leg spination. Spines absent from all tarsi. Leg I: metatarsi v010(010); tibia v011112(011112). Leg II: metatarsi v010(011); tibia v01112(01112). Leg III: metatarsi v0112(0112), d002130(002120); tibia v02(02), p010(000), r011(011); patella pv7(10) including 1(1) on distal edge. Leg IV: metatarsi v8(6) scattered; tibia v011112(011112); femora pd22(19) in distal group.

Abdomen. Anterior band of dorsum pattern is represented by a single bare spot; bands II and III extend to venter each with central sigilla-like spot; bands IV and V terminate laterally at sigilla-like spot; each set of 5 spots arranged in lateral line; bands VI, VII and VIII posteriorly placed and reduced. Venter yellow with dark brown median band extending from

epigastric furrow to PMS; 4 sigilla-like spots in transverse arc around spinnerets.

Distribution and natural history. This spider is usually restricted to rainforest remnant areas near Minnamurra and Gerringong but specimens have been collected from urban Kiama.

The aerial tube of the burrows of these spiders varies between 7 and 12 cm in height and is attached only at entrance level to a rock, tree trunk or stem; the silk material of the tube is thin but durable, impregnated with soil and sometimes small pieces of vegetation such as moss if nearby on the article of attachment and which give the appearance of growing on the tube. At ground level the tube material becomes thick and spongy and below ground it is fine and frail so that the aerial tube may be easily detached at the junction. Unattached to the end of the underground tube and usually at a depth of about 15 cm is a white sock about 4 cm long and 1 cm in diameter in which the spider is usually found. The silk lining of the sock is thin and renitent.

Mature males have been captured in the summer and autumn with the highest concentration in the latter period.

Misgolas mascordi n.sp.

Figs 25-27, 36,37

Material examined. HOLOTYPE, male, KS16(AM), Dorrigo State Park, Apr. 1972, C.E. Chadwick. Right Leg IV fractured, abdomen misshapen and partly blackened. Previously described as male paratype of *Dyarcycops robertsi* Main & Mascord (1974).

ALLOTYPE, female, KS22390(AM). The Glade, Dorrigo National Park, NSW (30°22'30"S 152°43'9"E), 8 Dec. 1987, Bruce Beaumont.

PARATYPE, female, KS22391(AM). The Glade, Dorrigo National Park, NSW, 8 Dec. 1987, (genitalia dissected) GW.

Diagnosis. Medium sized brown spider. In female, carapace in life with abundant cover of reflective golden hairs, length up to 11.5; hairs, especially on proximal segments of palp and legs I and II, long whisker-like. Venter with dense even dark brown speckles on anterior half (Fig.25). In male carapace with sparse covering of reflective golden hairs, length 7.5; embolus of male bulb bilaterally flanged, the embolus appearing flat and blunt (Figs 36,37).

Male holotype (Figs 36,37). Main & Mascord (1974: 18-21) described this male as the paratype of *Dyarcycops robertsi*; a supplementary description is given here.

Carapace height 2.31, post-foveal height 1.50. Caput ratio 1.54. Carapace and all femora even dark brown. Carapace with sparse fuscous hairs which do not extend to fovea and fringed with bristles which encroach onto posterior half of post foveal surface; posterior edge slightly recurved, almost truncate. Line of 10 median

bristles occupies low caput arch and terminates at foveal edge. Line of about 9 small bristles placed prolaterally adjacent to each anterior stria and terminates at foveal edge. Fovea width 1.16; slightly recurved. Group of 12 bristles lies behind PME; single long posteriorly inclined bristle and several much smaller bristles in front of AME. The eyes lie on low tubercle; line joining posterior edge of ALE bisects AME. Posterior eyes straight. Abdomen has prominent sigilla-like glabrous spot on each distal edge of 5 pairs of narrow transverse dorsal bands. Venter pattern obscure appearing pale on anterior half darkening posteriorly, dark brown adjacent to spinnerets; 4 sigilla-like spots arranged in transverse retrocurve near spinnerets. Chelicerae with rastellum of single row of 7(8) robust spines and disordered incomplete second row. Pallid crescent-shaped intercheliceral tumescence is covered with procumbant setae becoming sparse distally.

Leg spination. Spines absent from all tarsi. Leg I: metatarsi v0012000(0212000); tibia v011211(011111). Leg II: metatarsi v01210(00310); tibia v011111(011212). Leg III: metatarsi v022(00212), d0022020(0021020); tibia v0222(0222), p01010(01010), r011(011); patella pd5(5) nil on distal edge. Leg IV: metatarsi pv01101012(00111012) plus several stout bristles, femur pd6(6) plus several strong bristles along distal edge.

Trichobothria. Palp: tarsi 11(10), tibia pd6(6) rd4(4). Leg I: tarsi 13(12), metatarsi 14(15), tibia pd7(7) rd7(7). Leg II: tarsi 12(12), metatarsi 13(14), tibia pd7(8) rd7(7). Leg III: tarsi 12(12), metatarsi 10(10), tibia pd6(6) rd7(7). Leg IV: tarsi 12(12), metatarsi 14(16), tibia pd8(8) rd8(8). Palpal bulb with retrolateral embolic flange with seven folds; flange narrows and continues along embolus; prominent fold of prolaterally placed secondary flange is positioned about halfway

along embolus, the flange continuing with a torn-like edge. The bilaterally flanged embolus appears flat and broad; distal tip of embolus spoon-like, orifice dorsal (Figs 36,37).

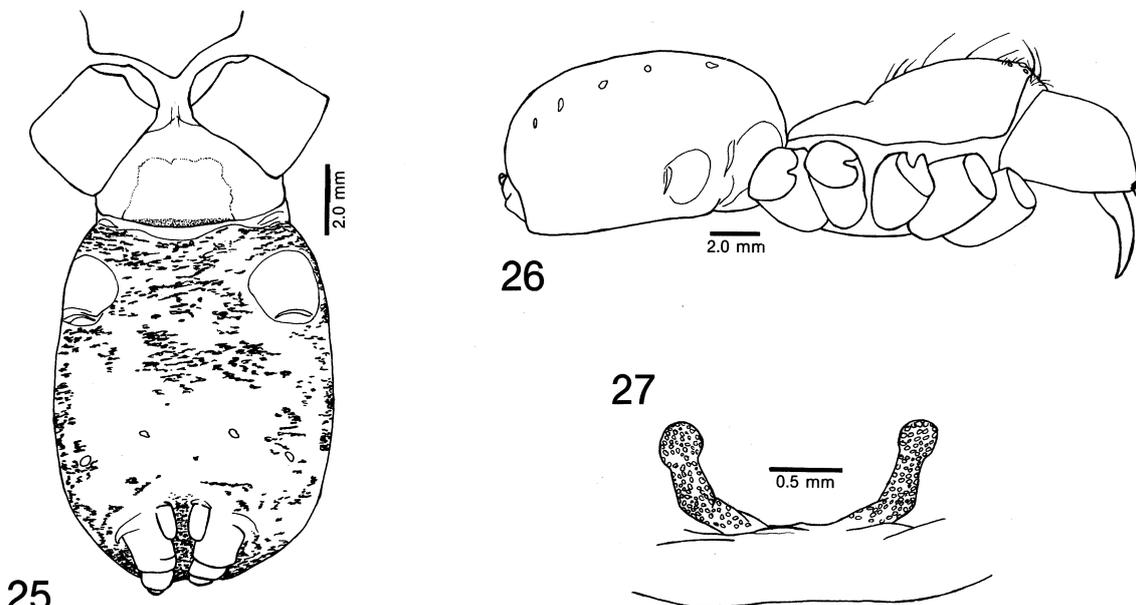
Female allotype (Figs 25-27). *Size.* Carapace length 10.78, width 7.64, height 4.02, post foveal height 2.06. Caput ratio 2.68. Abdomen length 12.46, width 7.74.

Colour. Generally light brown, carapace in life with thick golden hirsute sheen. Limbs with darker lateral longitudinal bands coinciding with hirsute areas. Abdomen dorsum pale with dark brown maculation, bilateral bands absent; venter dark with a dense evenly distributed dark brown speckle on anterior half (Fig.25).

Carapace. Posterior edge with medial indentation. Edge fringed with fine hairs becoming larger posteriorly and encroaching onto most of post foveal surface. Striae glabrous and well defined. Line of 6 median bristles occupies low caput arch. Line of smaller bristles is placed prolaterally adjacent to each anterior stria and terminates at foveal edge. Group of 13 bristles between PME; single long anteriorly directed bristle with several smaller bristles between AME. Fovea 2.09 wide, straight.

Eyes. AME placed on low mound; anterior width 1.82, posterior width 1.57, length 0.88. Line joining posterior edge of ALE transects anterior quarter of AME. Posterior eyes slightly recurved in front, straight behind.

Chelicerae. Rastellum with first row of 6(7) robust spines, second row of 9(9) and a few further small spines retreat along the prodorsal cheliceral edge. Fang groove with 8(8) large promarginal teeth and 17(17) smaller retromarginal/intermediate row teeth beginning adjacent to third distal promarginal tooth and terminating



Figs 25-27. *Misgolas mascordi* n.sp.: 25-26 female allotype. 25, abdomen ventral; 26, body lateral. 27, female paratype KS22391 internal genitalia dorsal.

two teeth beyond the proximal promarginal tooth.

Labium. Length 1.22, width 1.81, separated from sternum by broad suture.

Maxillae. About 60(65) anteroental fusiform cuspules.

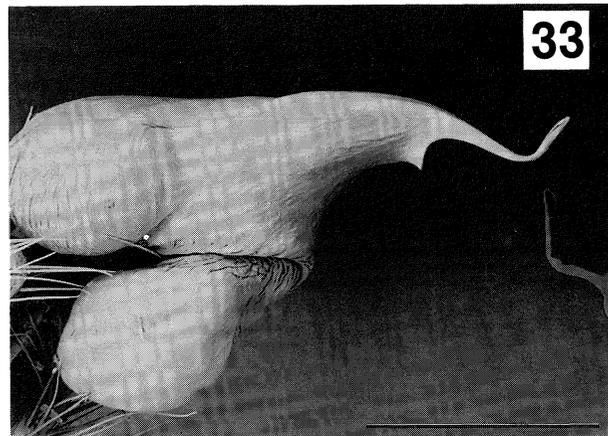
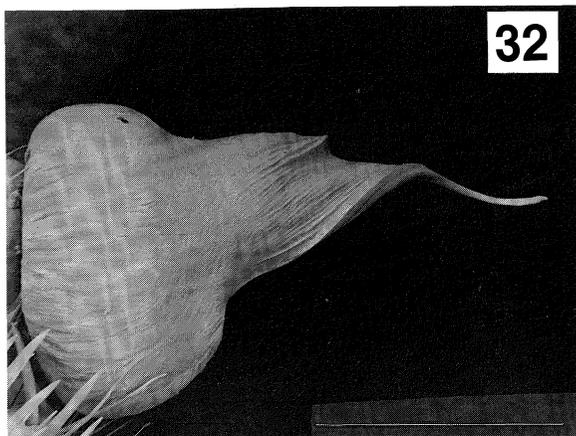
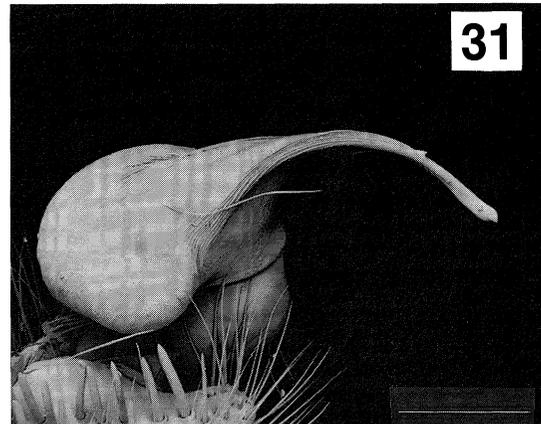
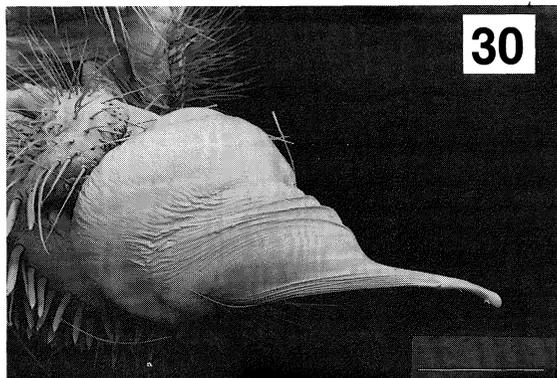
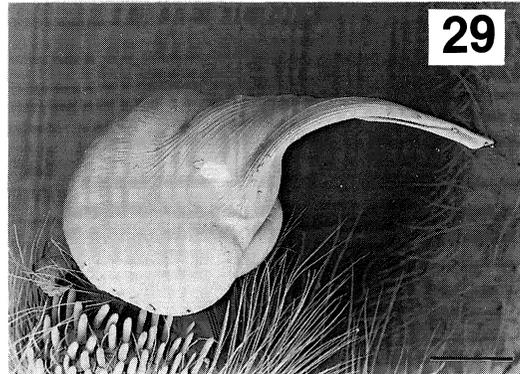
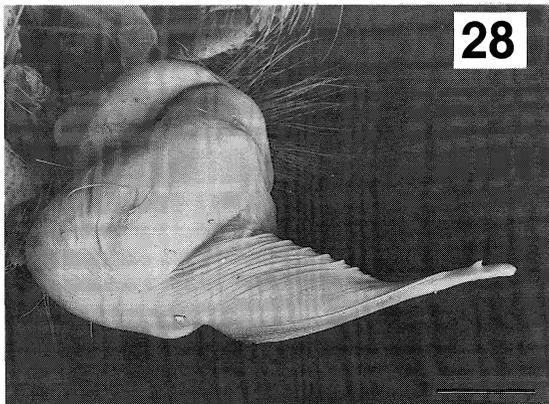
Sternum. Length 5.57, width 4.62. Anterior sigilla small, round, submarginal; middle and posterior sigilla progressively more ovate, larger and distant from margin.

Legs. Limb measurements: leg formula – 4 1 2 3. Width of patella I, 1.78; tibial index leg I, 18.90. Width of patella IV, 1.91; tibial index leg IV, 19.67.

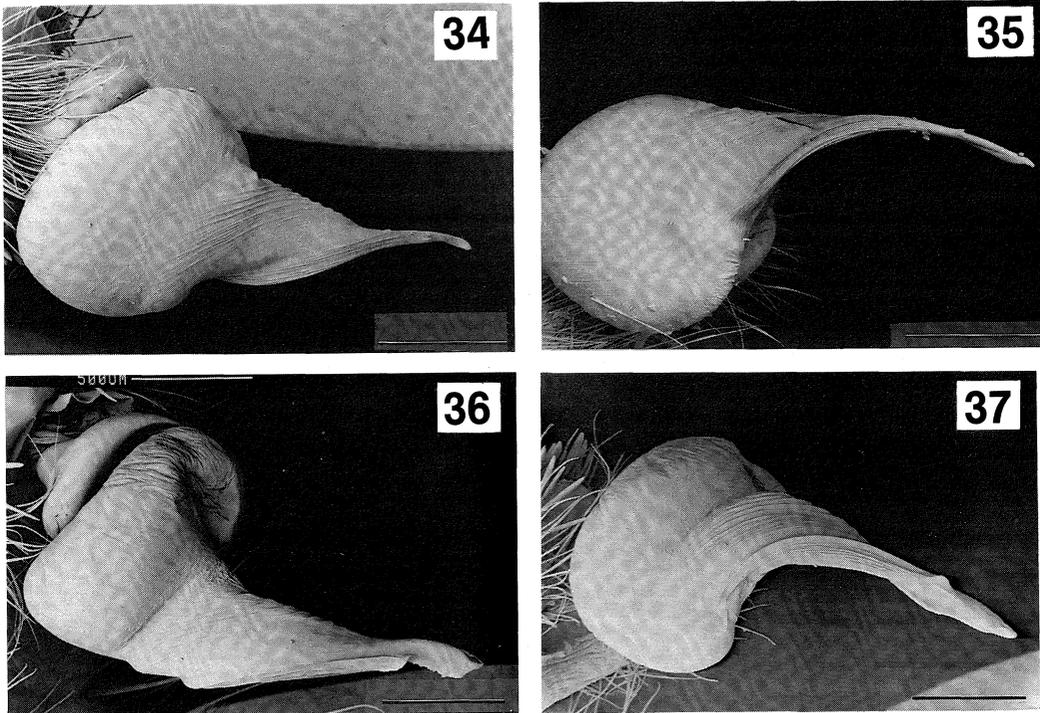
	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	6.12	3.18	3.37	–	3.80	16.47
I	7.55	4.55	4.87	4.00	2.19	23.16
II	6.38	4.08	3.88	3.45	2.01	19.80
III	4.81	3.10	2.40	2.97	1.86	15.14
IV	7.06	4.08	5.63	4.88	2.17	23.82

Dense scopula complete on tarsi of palps and legs I and II. Incomplete on metatarsi of legs I and II.

Trichobothria. Palp: tarsi 11(11), tibia pd7(7) rd8(8). Leg I: tarsi 14(25), metatarsi 19(20), tibia pd10(10) rd7(6). Leg II: tarsi 15(15), metatarsi 16(16), tibia pd8(8)



Figs 28-33. 28-29 - *Misgolas hubbardi* n.sp. male paratype KS22316 right bulb: 28, dorsal; 29, prolateral; 30-31 - *Misgolas dereki* n.sp. male paratype KS22342 right bulb: 30, dorsal; 31, prolateral; 32-33 - *Misgolas kirstiae* n.sp. male paratype KS22361 right bulb: 32, dorsal; 33, ventral. Scale bars: 0.5 mm.



Figs 34-37. 34-35 - *Misgolas robertsi* (Main & Mascord): male specimen KS22375 right bulb: dorsal; 35, prolateral; 36-37 - *Misgolas mascordi* n.sp. male holotype (paratype of *Dyarcyops robertsi* Main & Mascord KS16) right bulb: 36, dorsal; 37, prolateral. Scale bars: 0.5 mm.

rd8(8). Leg III: tarsi 13(12), metatarsi 13(13), tibia pd8(7) rd8(8). Leg IV: tarsi 12(13), metatarsi 20(22), tibia pd9(9) rd9(10).

Leg spination. Palp: tarsi pv01000(01000), rv010000(010000); tibia pv011120(011120), rv01110(01110). Leg I: metatarsi pv010001(010002), r01001(01103); tibia pv01(01), rv011110(011110). Leg II: metatarsi pv01(01), rv0101(01101); tibia v011100(011110). Leg III: tarsus v4(4) scattered; metatarsi v013(023), pd0011010(0001010), rd0000010(0010110), tibia p0110(0110), r0110(0110), patella pd9(9) of which 1(1) is on distal edge. Leg IV: tarsi v11(10) scattered group; metatarsi v023(00213); patella prodorsal group of proximal bristles and small spines; femur pd40(40) short spines on distal edge.

Abdomen. Dorsum with 5 sigilla-like spots corresponding to those described from male. Venter with four sigilla-like spots arranged in a transverse row immediately anterior to the spinnerets.

Genitalia. Sclerotised lip of epigynum slightly recurved, medial indentation absent. Spermathecae in paratype KS22391 pair of long vesicles diverging at about right angles, each terminating in small sphere, trunks bent as if twisted (Fig.27).

Etymology. The species is named in recognition of the late Ramon Mascord, amateur arachnologist, photographer and collector.

Distribution and natural history. This spider is known only from the type locality, Dorrigo National

Park, a subtropical rainforest with a high dense canopy.

The aerial tubes of the burrows, although very rare at the type locality, are conspicuously attached to the trunks or buttress roots of trees. The tube is up to 26 cm in height above ground, attached to its support only at the rear of the lip of the entrance, and is strong, especially at the base where the tube material is much thickened; it may be decorated with mosses (or other vegetative material) transplanted from the immediate vicinity in which case the support is bare of moss for about 5 cm either side of the tube. Below ground level the silk tube is very thin, extends to a depth of about 20 cm and terminates in a thin soft sock. The junction between the thick strong aerial tube and the thin subterranean tube is weak and easily broken. The burrow occupied by the allotype had the tube entrance sealed with the outer lip pulled inwards and secured by the application of silk; 10 cm below ground level a square white pillow shaped eggsac containing 283 eggs was attached to the silk lining of the burrow; the spider was secreted within the terminal sock.

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