AUSTRALIAN MUSEUM SCIENTIFIC PUBLICATIONS

Gray, M. R., and H. M. Smith, 2004. The "striped" group of stiphidiid spiders: two new genera from northeastern New South Wales, Australia (Araneae: Stiphidiidae: Amaurobioidea). *Records of the Australian Museum* 56(1): 123–138. [7 April 2004].

doi:10.3853/j.0067-1975.56.2004.1394

ISSN 0067-1975

Published by the Australian Museum, Sydney

Records of the Australian Museum (2004) Vol. 56: 123–138. ISSN 0067-1975

The "Striped" Group of Stiphidiid Spiders: Two New Genera from Northeastern New South Wales, Australia (Araneae: Stiphidiidae: Amaurobioidea)

MICHAEL R. GRAY* AND HELEN M. SMITH

Australian Museum, 6 College Street, Sydney NSW 2010, Australia
mikeg@austmus.gov.au · hsmith@austmus.gov.au

ABSTRACT. *Borrala* and *Pillara*, two new genera of putative "stiphidiid" spiders from forest habitats in northern New South Wales, are described. They include eight new species: *Borrala dorrigo, B. webbi, B. longipalpis, B. yabbra* and *Pillara karuah, P. coolahensis, P. macleayensis, P. griswoldi*. Brief comments on characters and relationships are given. These genera form part of a generic group characterized by the presence of a palpal tegular lobe and grate-shaped tapeta in the posterior eyes.

GRAY, MICHAEL R., & HELEN M. SMITH, 2004. The "striped" group of stiphidiid spiders: two new genera from northeastern New South Wales, Australia (Araneae: Stiphidiidae: Amaurobioidea). *Records of the Australian Museum* 56(1): 123–138.

Borrala n.gen. and *Pillara* n.gen. are part of a distinctive group of putative stiphidiid spiders that are found in southern and eastern Australia and north to Papua New Guinea. They are characterized by the presence of a basal tegular lobe on the male palp and grate-shaped tapeta in the posterior eyes (characters they share with *Therlinya* Gray & Smith), as well as a posteriorly raised carapace. The longitudinal stripe pattern on the carapace serves as a useful field diagnostic character for the widely distributed "striped" group of genera, although it is not exclusive to them.

The genera dealt with here are known only from forest habitats of the Great Dividing Range between the Hunter River and the Border Ranges in northeastern New South Wales. The data available suggests that most of the species described here have fairly localized distributions. A second manuscript will deal with several additional "striped" group genera.

Material and methods

Specimen examinations, measurements and drawings were made using a Wild M5 or Leica M12 microscope with graticule and drawing attachment. The left male palp is illustrated. Epigynal preparations were cleared in 8% potassium hydroxide or lactic acid, before mounting in glycerol for microscopic examination. Specimen preparations for scanning electron microscopy were air dried from 100% acetone.

Abbreviations and definitions. "Tegular window" refers to the gap between the proximal embolus and the lower edge of the conductor. Carapace length for each measured specimen is followed by a range value in parentheses. BL, body length; CL, carapace length; CW carapace width; CapW, caput width; LL, labium length; LW, labium width; SL, sternum length; SW, sternum width; EGW, eye group width; AME, anterior median eyes; ALE, anterior lateral eyes; PME, posterior median eyes; PLE, posterior lateral eyes; MOQ, median ocular quadrangle; AER, anterior eye row; PER, posterior eye row; RTA, retrolateral tibial apophysis; RVTA, retrolateral ventral tibial apophysis; MA, median apophysis; Co, conductor; CyF, cymbial flange; E, embolus; TL, tegular lobe; TW, tegular window. ALS, anterior lateral spinneret; PMS, posterior median spinneret; PLS, posterior lateral spinneret; Spigots: MAP, major ampullate; mAP; minor

* author for correspondence

ampullate; Cyl, cylindrical; mPLS, modified PLS; Pc, paracribellar; sAc, small aciniform; lAc, large aciniform. NP, National Park; SF, State Forest

Repository institutions. Specimens listed under accession numbers prefixed KS are deposited in the Australian Museum, Sydney (AMS); CAS, Californian Academy of Sciences; and SAM, South Australian Museum, Adelaide.

Borrala n.gen.

Type species. *Borrala dorrigo* n.sp.

Etymology. The generic name is an Aboriginal word meaning the head of a spear, a reference to the tapering shape of the retrolateral tibial apophysis (RTA). The gender is female.

Diagnosis. Cribellate spiders. Carapace with longitudinal pigment stripes; profile highest at fovea. PME largest or subequal to AME in males. Posterior eyes with grate-shaped tapeta. Feathery hairs abundant. Cymbium with retrolateral flange, often weakly developed. Tegular lobe broad, usually basal. MA large, bipartite, with fleshy and sclerotized processes. Tibia with a large, pointed RTA, and a long, stalked ("crochet-hook") RVTA. Epigynum with a pit-like fossa, often narrowest anteriorly; spermathecae behind fossa.

Separated from *Pillara* by the presence of an undivided RTA and a bipartite MA, and from other "striped" genera by the elongate RVTA and the broad tegular lobe; separated from *Therlinya* and *Taurongia* Hogg by the striped carapace highest at fovea, and the relatively larger eyes; separated from *Stiphidion* Simon by eye rows not recurved.

Description. Medium-sized cribellate spiders (CL 1.92–3.31) which build suspended, semi-horizontal sheet webs with a shallow retreat tunnel; spiders run underneath sheet. Colour pattern (Fig. 1a; in alcohol): carapace light amber-brown, darker in front and on jaws, with narrow, grey marginal bands; eyes surrounded by black pigment, eye region dark grey with a pair of dorsolateral dark grey stripes, narrower and lighter anteriorly, darker and wider posteriorly, converging at or coalescing through the foveal region. Dorsal abdomen greyish-brown, with anterior, short, grey middorsal stripe, narrow or indistinct, set in paler lateral chevron patches continuing in decreasing size posteriorly; sides with mosaic of pale brown and grey patches, separated from grey venter by two pale, ventrolateral, longitudinal stripes; legs with distinct grey-brown bands on femora, weaker on tibiae.

Carapace with narrow, prominent caput; highest at fovea and, especially in males, rather flattened above and sloping markedly upward to fovea; foveal slit long and deep, curving down onto concave rear slope of carapace (Fig. 1c,d). Clypeus about 1.5× width of an AME. Chilum an undivided, median plate (Fig. 1e). Eyes eight, relatively large (cf.

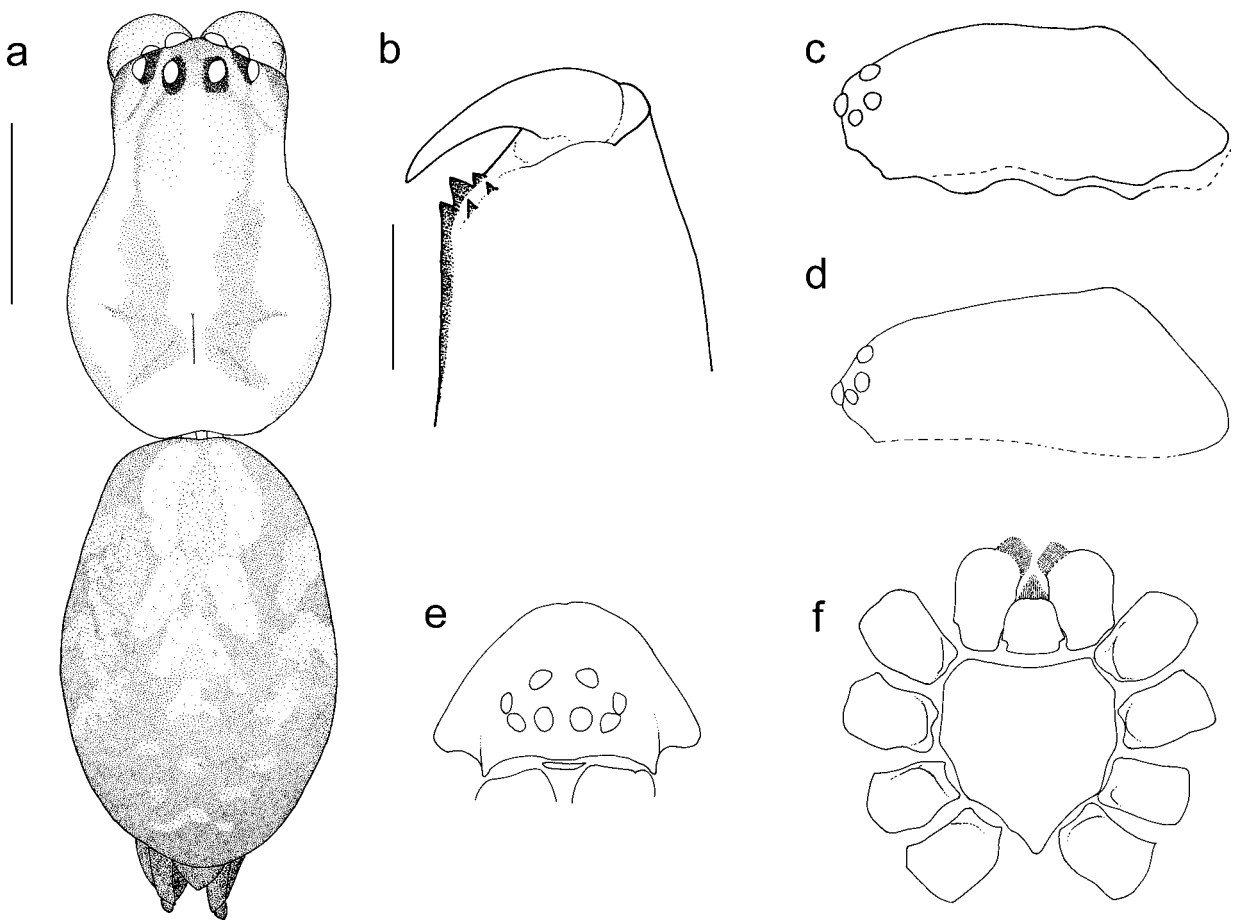

Fig. 1. *Borrala dorrigo* n.sp. (*a*) body, dorsal; (*b*) cheliceral teeth; (*c*,*d*) carapace, lateral: (*c*) female, (*d*) male; (*e*), carapace, frontal (eyes, chilum); (*f*), sternum, mouthparts and coxae, ventral. Scale lines: *a*,*c–f* 1.0 mm, *b* 0.25 mm. Specimens: *a*,*e–f* female KS70125, *b*,*c* female KS60712, *d* male KS70124.

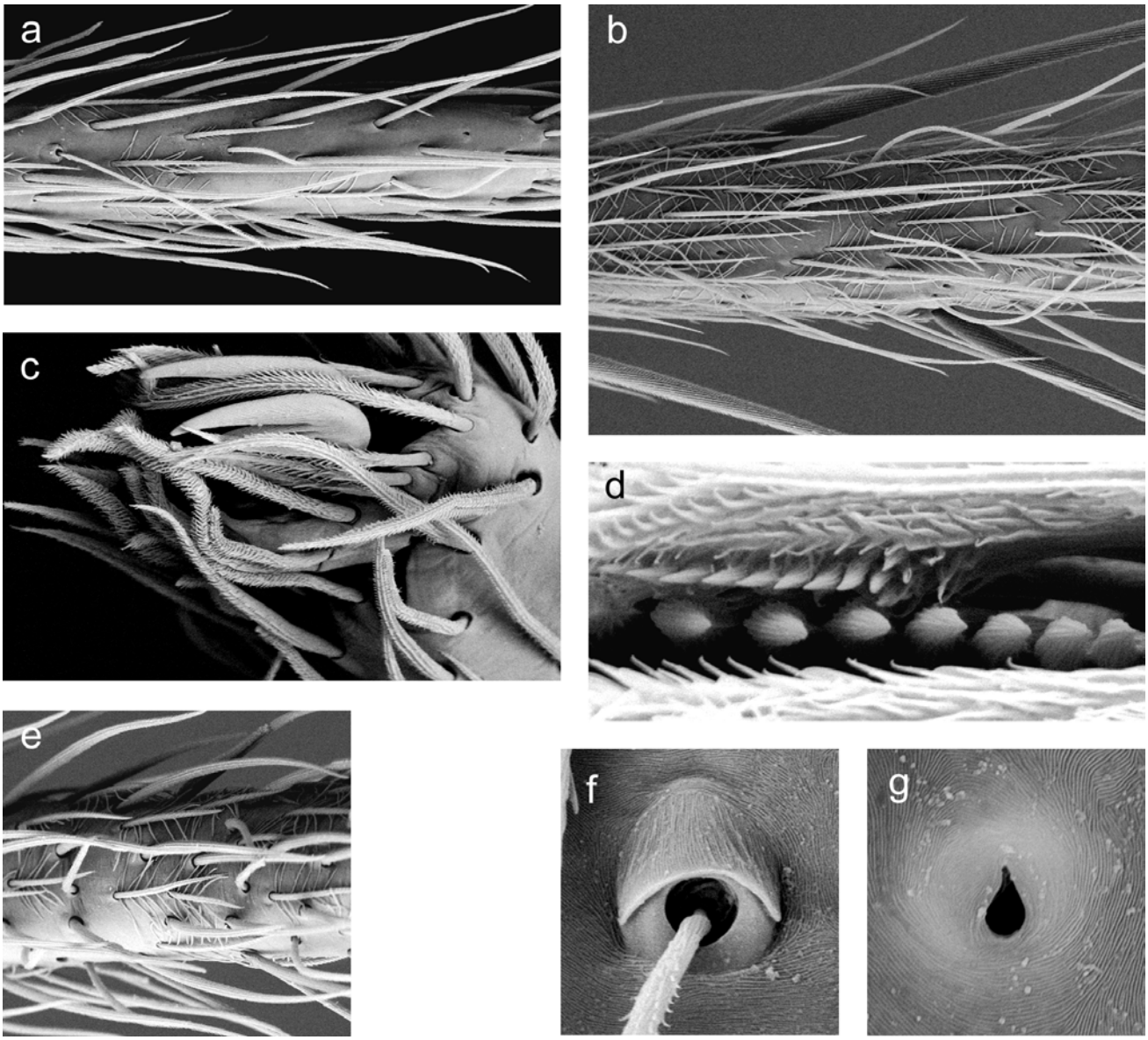

Fig. 2. *Borrala dorrigo* n.sp. (*a–g*) sensilla and claws, female KS60712, leg I: (*a*) tarsus, dorsal, hair types and tarsal organ; (*b*) metatarsus, dorsal, hair types; (*c*) tarsal claws and toothed hairs; (*d*) toothed hair and tarsal claw teeth; (*e*) tarsus, ventral, hair types; (*f*) trichobothrium base; (*g*) tarsal organ.

Therlinya), EGW three-quarters width of caput; eyes in two rows, from above AER recurved, PER procurved; eyes subequal, ALE smallest: male, AME≥PME>PLE>ALE; female, PME≥AME≥PLE>ALE. MOQ almost square, slightly narrower anteriorly (Fig. 1e). Posterior eyes with grate-shaped tapeta. Chelicerae vertical, with boss, paturon retromargin with one long, modified seta near base of each fang, numerous modified setae along promargin; fang groove with 2 retromarginal and 3 promarginal teeth, last promarginal tooth extended as a strong carina (Fig. 1b). Maxillae longer than wide, lateral margins weakly undulate to straight, strong linear serrula present. Labium length/width subequal, narrower & truncate apically, basally shortly excavated. Sternum slightly longer than wide, shortly pointed between coxa IV (Fig. 1f). Body and legs with numerous plumose and feathery hairs (Fig. 2b).

Legs slender, typically 1423 or 1243. Trochanters notched. Legs with feathery and plumose hairs, the latter either long, vertical to strongly angled distad, or shorter and curved (Fig. 2a,b,e); apical tarsus with toothed plumose hairs around claws (Fig. 2c,d). Spines: at least tibiae I & II lacking apical, paired ventral spines. Representative leg spination (*B. dorrigo*): Male (KS70124) - I: femur d122, p011; tibia d0010, v220, p101, r01010; metatarsus d2012, v221, p0101, r0101. II: femur d1202, p011; patella 001; tibia d0010, v220, p1010, r01010; metatarsus d2102, v221, p0101, r0101. III: femur d1202, p0111; patella 001; tibia d1010, v111, p0110, r0110; metatarsus d212, v221, p0101, r0101. IV: femur d1012, p001; patella 001; tibia d1010, v112, p11, r011; metatarsus d2022, v221, p0101, r0001. Female (KS70125)-I: femur d112, p011; tibia d001, v220, p1110, r1010; metatarsus d012, v221, p0101, r0101. II: femur d122, p0111; tibia d001, v220, p1110, r101; metatarsus d012, v221, p101, r101. III: femur d122, p0111; patella 001; tibia d101, v110, p0110, r0110; metatarsus d212, v221, p011, r011. IV: femur d112, p001; patella 001; tibia d101, v110, p101, r0110; metatarsus d222, v211, p0101, r001. Three tarsal claws: superior 10–11 teeth, inferior 2–3 teeth. Female palpal tarsi spinose; palpal claw with 9 teeth. Claw tufts and scopulae

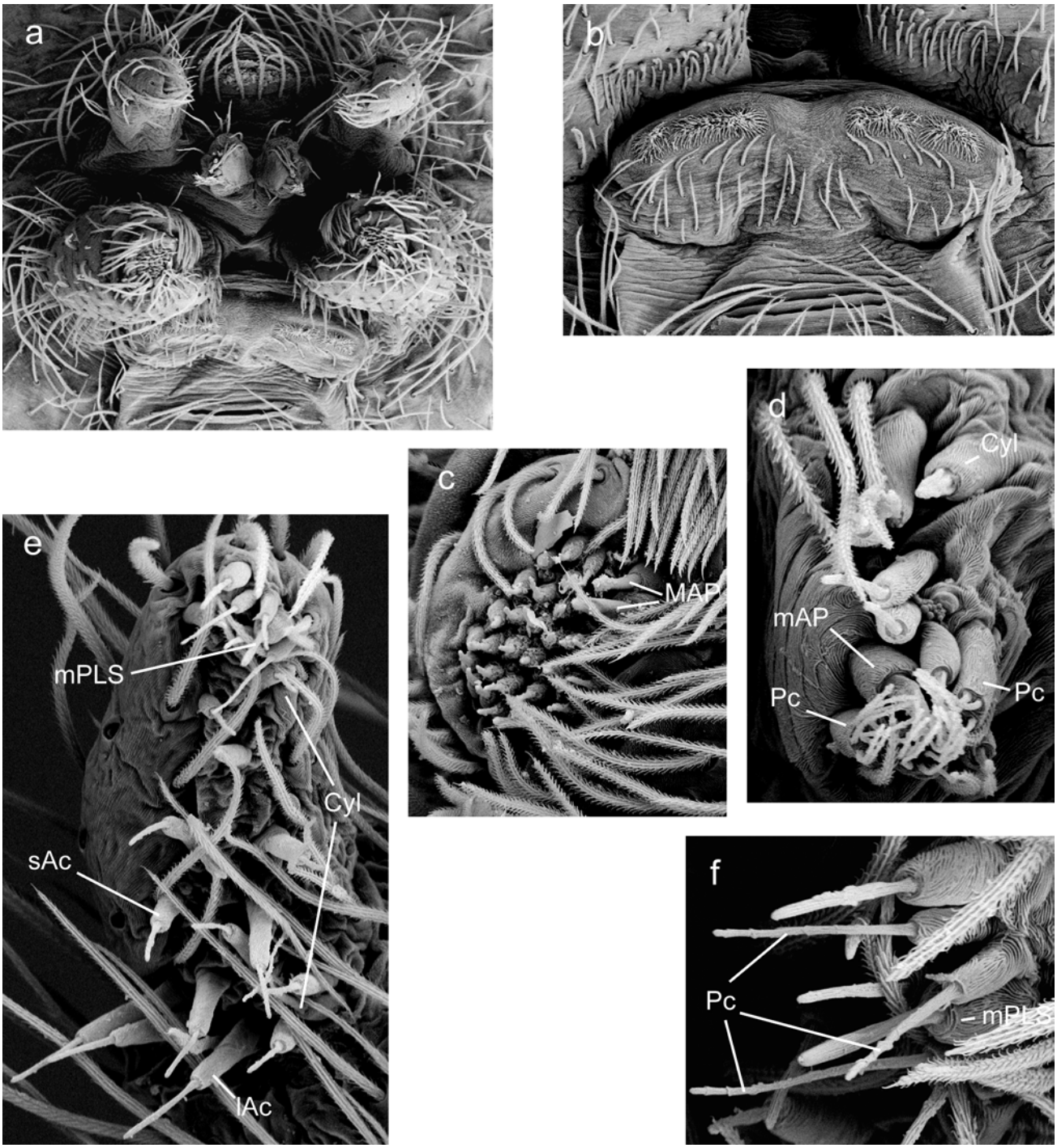

Fig. 3. *Borrala dorrigo* n.sp. (*a–f*) spinnerets, female KS60712: (*a*) spinning field (cribellum below); (*b*) cribellum and spiracle; (*c–f*) spigots: (*c*) ALS, (*d*) PMS, (*e*) PLS, (*f*) detail of PLS apex with modified PLS spigot. Spigots: *MAP* major ampullate, *mAP* minor ampullate, *Cyl* cylindrical, *mPLS* modified posterior lateral spinneret, *Pc* paracribellar, *sAc* short aciniform, *lAc* long aciniform.

absent. Trichobothria increasing in length distally, in single row on tarsi (5) and metatarsi (5–6); two rows on tibia; present on male and female palpal tarsus and tibia. Bothria collariform, proximal plate longitudinally ridged (Fig. 2f). Tarsal organ capsulate, finely longitudinally ridged, with pyriform to keyhole shaped pore (Fig. 2g), placed distal to trichobothria.

Male palp (Figs. 4a,b, 7a,b). Cymbium with a narrow flange retrolaterally and a short, coniform apex with 1–3 bristles or bristle-like spines. Tegulum with a broad tegular lobe, bluntly rounded distally and abutting the subtegulum prolaterally. Sperm duct visible as a long, rather thick, S-shaped duct looping across the basal half of the tegulum. Embolus a curved, thick, marginal rod, tapering or flattened distally, origin prolateral to basal. Conductor a thick stalk, curved retrolaterally, or weakly T-shaped, apical area with deep embolic groove and variably thickened and enlarged. Tegular window moderate-small in size, prolaterally placed. MA retrolateral to conductor base; bipartite, with a prominent, fleshy lobe ventral to a sclerotized, hooked dorsal process. Tibia longer than wide, with 2–3 long prolateral bristles and two large apophyses: RVTA arising apically, long and stalk-like with a beaked, knob-like head;

RTA arising sub-apically, large and spine-shaped. Patella usually slightly longer than wide (Fig. 7b), but longer in *B. longipalpis* (Fig. 6b).

Epigynum (Figs. 4c, 6c) moderately sclerotized, fossa an unpaired pit, either ovoid or trapezium-shaped and narrowest anteriorly. Lateral teeth and lobes absent. Internal genitalia (Fig. 4d) simple, with a pair of short, very broad copulatory ducts opening along each side of the fossa; and a pair of globose spermathecae, in contact or subadjacent medially, and placed posterior to the fossa (visible through cuticle).

Tracheal system simple, with four unbranched tracheal tubes confined to the abdomen. Spiracle just anterior to cribellum and almost half as wide as cribellum plate (Fig. 3b). Calamistrum about 0.4× length of metatarsus, subproximal-central, delimited at each end by a retrodorsal spine; weakly developed in male. Spinning organs (Fig. 3a–f, female). Cribellar plate bipartite, each spinning field over 4× as wide as long and separated by a wide seam (half of a field wide); seam and posterior plate margin strongly sclerotized, latter medially indented. In male, cribellum almost as wide as in female with small, non-functional fields. Spinnerets relatively short. ALS and PLS 2-segmented, latter slightly longer; PMS 1-segmented, shortest; ALS broad with very short apical segment with broad margins; PLS slender with moderately long, conical apical segment. Spigots (*B. dorrigo*). ALS: 2 MAP spigots, mesal, adjacent, size unequal; c. 28 piriform spigots. PMS: 3 fused paracribellar bases grouped antero-ectally, with 5–6, 8 and 6–8 spigots; 1 mAP, mesal; 6 aciniform spigots (1 anterior, rest distributed); 1 cylindrical spigot, postero-ectal. PLS: c. 18 aciniform spigots, distributed; 1 subapical "modified PLS" spigot flanked by 3 paracribellar spigots, all free; 2 cylindrical spigots (1 basal, 1 subapical).

Included species. *Borrala dorrigo, B. webbi, B. yabbra, B. longipalpis*.

Distribution. Northeastern New South Wales, Australia.

Comments. Three species, *B. longipalpis, B. dorrigo* and *B. yabbra*, show increased size and complexity of the distal conductor and flattening of the distal embolus, in contrast to the relatively unmodified conductor and embolus in *B. webbi*, the most southern species of the genus.

Several long, slender, basally placed spigots were noted on the PLS. These spigots, termed "long aciniform" here, are larger than the typical, distributed aciniform spigots (termed "short aciniform"). Such long spigots are similarly present in *Pillara, Therlinya* and *Taurongia* but they are most numerous and distributed in the *Stiphidion* PLS.

Key to *Borrala* species

Males

1 Palpal patella more than twice as long as wide ..... *B. longipalpis*
—— Palpal patella only slightly longer than wide 2

2 Embolus not strongly thickened, tapering distally ..... *B. webbi*
—— Embolus strongly thickened and distally flattened 3

3 Distal conductor angular and box-like, embolic groove and embolus end subapically ..... *B. yabbra*
—— Distal conductor not as above, embolic groove and embolus end at conductor apex ..... *B. dorrigo*

Females

1 Epigynal fossa ovoid ..... *B. longipalpis*
—— Epigynal fossa more rectangular, narrowest anteriorly ("trapezium-shaped") 2

2 Lateral margins of fossa more or less straight, and of internal copulatory ducts convex ..... *B. dorrigo*
—— Lateral margins of both fossa and internal copulatory ducts concave ..... *B. yabbra*

Borrala dorrigo n.sp.

Figs. 1a–f, 4a–d, 8a

Etymology. The specific name is taken from the Dorrigo region, the general locality of many specimen records.

Types. **Australia, New South Wales**. HOLOTYPE ♂ KS70124, Bellinger River SF, c. 200 m along track, 30°25'S 152°45'E, 21 May 1998, H.M. Smith, as juvenile in small sheet web, matured July 1998. PARATYPES 2♀♀, 2♂♂ KS70125–8, data as holotype; ♂ KS77105, Bellinger River SF, c. 600 m along track, 30°25'03"S 152°45'30"E, 4 Feb-9 Apr 1993, M. Gray, G. Cassis, 150 m, pitfall trap, NE NSW NPWS Survey; ♂ KS57008, ♀♀ KS54029, KS57009, 3 km NE of Dorrigo, 30°19'S 152°43'E, 15 May 1998, N. Kirkwood; ♀ KS58109, Gladstone SF, Rickerbys Rd, 30°02'46"S 152°45'07"E, 25 Nov 1999, G. Milledge & H. Smith; ♀♀ KS59581, KS77106, Scotchmans Peak, west of Bellingen along Horseshoe Rd, 30°28'30"S 152°39'43"E, 11 Nov 1999, M.R. Gray, in small sheet webs in earth bank; ♀ KS59582, locality data as holotype, M.R. Gray, H.M. Smith, 12 Nov 1999; ♀ KS75358, Scotchman SF, junction of Horseshoe Rd & Little Boggy Track, 30°26'S 152°48'E, 23 Nov 2001, G. Milledge & H. Smith, Stop 3, in sheet web; ♂ KS75361, locality data as holotype, 22 Nov 2001, G. Milledge & H. Smith, Stop 1, in sheet web; ♀ KS75362, Dorrigo NP, 5.5 km NW of Thora, 30°23'S 152°45'E, 22 Nov 2001, G. Milledge & H. Smith, Stop 2, in sheet web; ♀♀ KS75363, KS77107, Oakes SF, Horseshoe Rd, 1.2 km E of Sirius Rd junction, 30°29'S 152°36'E, 23 Nov 2001, G. Milledge & H. Smith, Stop 6, in sheet webs; ♀ KS75364, Diehappy SF, Orama Rd, 2.8 km from Horseshoe Rd, 30°27'S 152°40'E, 23 Nov 2001, G. Milledge & H. Smith, Stop 8, sheet web; ♂♂ NN19553–4, ♀ NN19555 (SAM), Bruxner Park, NW of Coffs Harbour, 30°14'S 153°06'E, 25–26 May 1986, D. Hirst, at base of trees.

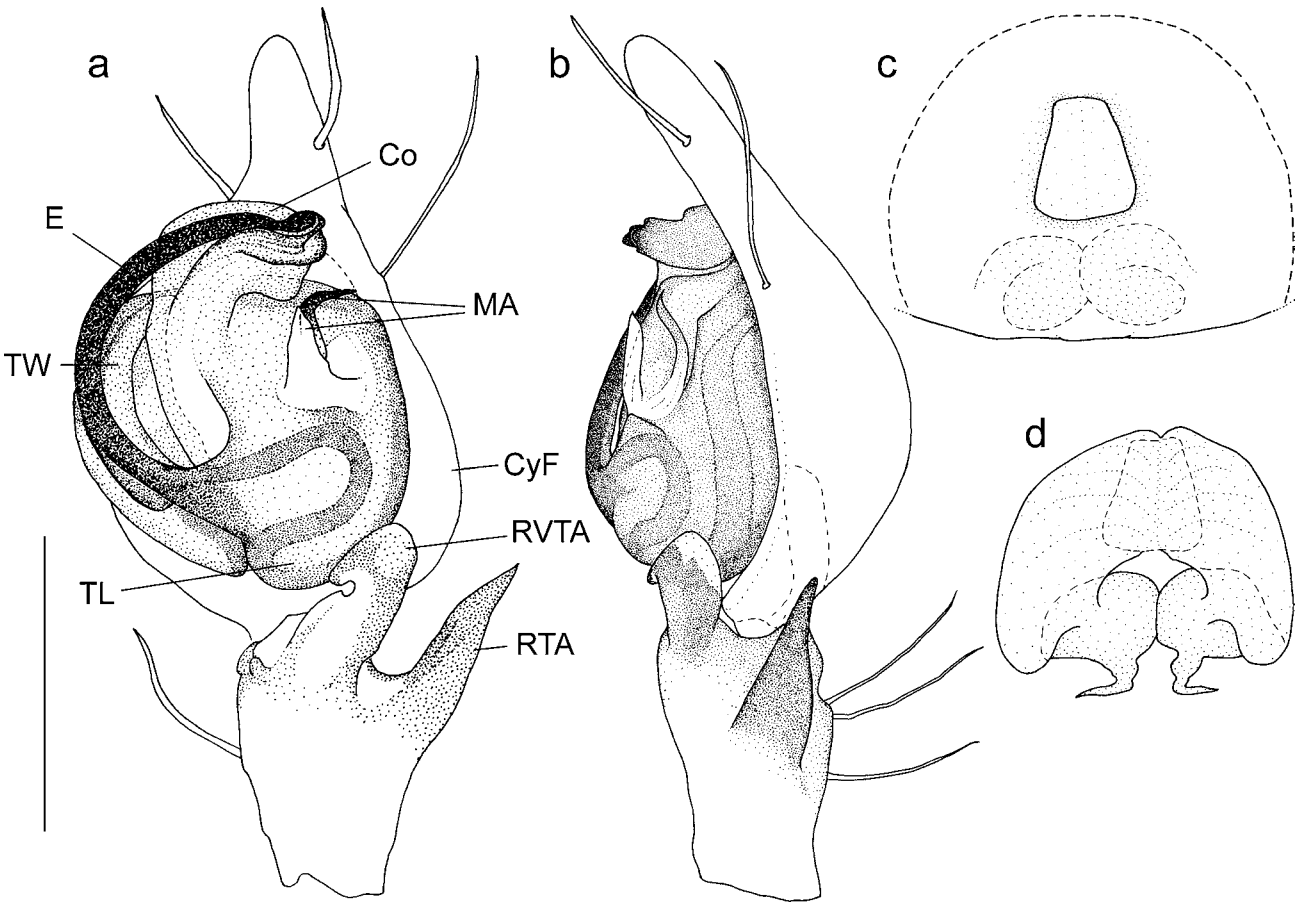

Fig. 4. *Borrala dorrigo* n.sp. (*a*,*b*) Male palp (KS77105): (*a*) ventral, (*b*) retrolateral. (*c*–*d*) Female epigynum (KS70126): (*c*) ventral, (*d*) dorsal-internal genitalia. Scale line 0.5 mm. *Co* conductor; *CyF* cymbial flange; *E* embolus; *MA* median apophysis; *TL* tegular lobe; *TW* tegular window; *RTA* retrolateral tibial apophysis; *RVTA* retrolateral ventral tibial apophysis.

Other material. **Australia, New South Wales**. ♀ KS35267, Dorrigo NP, Wonga Walk, 200 m SW of Hardwood lookout, 30°21'22"S 152°47'12"E, 4 Feb-9 Apr 1993, M. Gray, G. Cassis, 710 m, pitfall trap, NE NSW NPWS Survey; ♀ KS35760, Dome Rd, c. 2 km W of Never Never Picnic Area, about 60 m up small gully, 30°22'53"S 152°44'00"E, 4 Feb-9 Apr 1993, M. Gray, G. Cassis, 630 m, pitfall trap, NE NSW NPWS Survey; ♂ KS35768, Bellinger River SF, c. 600 m along track, 30°25'03"S 152°45'30"E, 4 Feb-9 Apr 1993, M. Gray, G. Cassis, 150 m, pitfall trap, NE NSW NPWS Survey; ♀ KS60712, locality data as holotype, M.R. Gray, H.M. Smith, 12 Nov 1999, abdomen used for SEM; ♀♀ NN19556–7 (SAM), Bruxner Park, NW of Coffs Harbour, 30°14'S 153°06'E, 25–26 May 1986, D. Hirst, at base of trees.

Diagnosis. Separated from all species except *B. yabbra* by the thick, flattened embolic tip. Embolus longer than in *B. yabbra* and embolus and conductor groove reach almost to the end of the conductor (ventral view). Epigynal fossa trapezium-shaped, lateral margins usually straight.

Male (holotype). BL 4.73, CL 2.29 (2.29–3.31), CW 1.63, CapW 0.82, EGW 0.67 LL 0.35, LW 0.35, SL 1.14, SW 1.08. Legs: 1243 (I: 12.49; II: 10.16; III: 8.33; IV: 10.08); ratio tibia I length:CW = 1:0.51. (Male palp of KS77105 illustrated in Fig. 4a,b). Patella only slightly longer than wide. RTA robust, tapers rapidly from subapical region. Conductor a thick, sclerotized stalk, distally expanded with deep, wide groove supporting distal part of embolus. Embolus a thick, strongly curved rod, flattened distally, tip extending almost to end of conductor. Tegular window of moderate size.

Female (KS70125). BL 4.98, CL 2.33 (1.92–2.65), CW 1.55, CapW 1.02, EGW 0.75, LL 0.33, LW 0.35, SL 1.10, SW 1.06. Legs: 1423 (I: 9.43; II: 7.51; III: 6.29; IV: 7.63); ratio tibia I length:CW = 1:0.64. Epigynum: (KS70126: Fig. 4c). Shallow, trapezium-shaped fossa, narrowest anteriorly; lateral margins more or less straight, rather than concave. Internal genitalia: (KS70126: Fig. 4d). Copulatory ducts broad, lateral margins strongly convex. Spermathecae in broad contact medially.

Variation. Shape of epigynal fossa sometimes less symmetrical.

Distribution. Bellinger to Nymboidea River region, eastern slopes of Great Dividing Range, mid northeastern New South Wales.

Borrala yabbra n.sp.

Figs. 5a–e, 8a

Etymology. The specific name is taken from Yabbra Scrub, Yabbra State Forest, one of the type localities.

Types. **Australia, New South Wales**. HOLOTYPE ♂ KS70129, Wiangaree State Forest, NSW, 28°23'S 153°06'E, 16 Oct 1974, M.R. Gray. PARATYPES: ♀ KS57382, Yabbra Scrub, Yabbra SF, 28°38'S 152°30'E, 14 Dec 1988, Smith, Hines, Pugh & Webber, pitfall trap Y5,

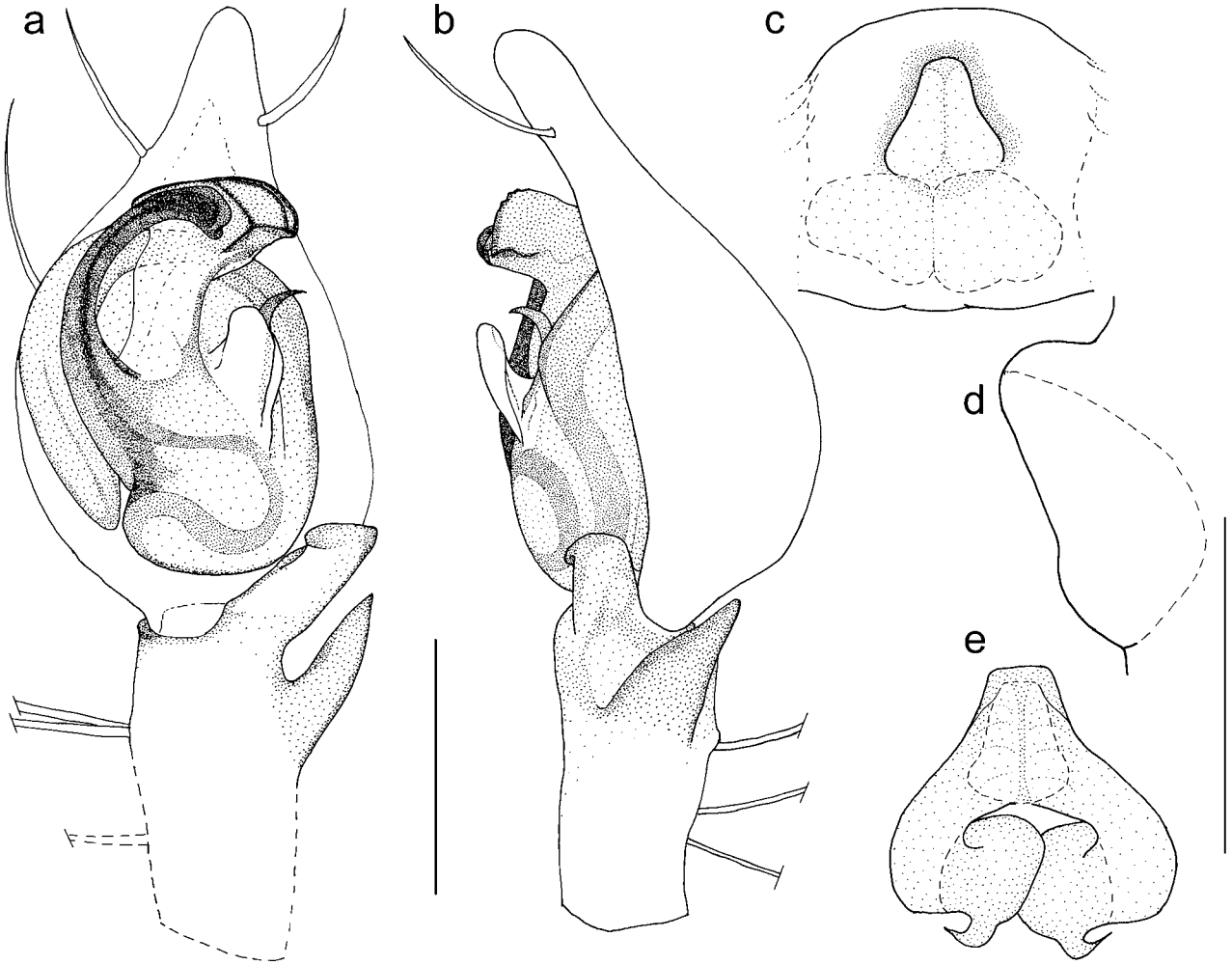

Fig. 5. *Borrala yabbra* n.sp. (*a*,*b*) Male palp (KS34758): (*a*) ventral, (*b*) retrolateral. (*c*–*e*) Female epigynum (KS57682): (*c*) ventral, (*d*) lateral, (*e*) dorsal-internal genitalia. Scale lines 0.5 mm.

dry subtropical rainforest, sheltered gully, 300–600 m, Focal Peaks Survey, UNE; ♀ KS57682, data as KS57382, pitfall trap Y2, dry subtropical rainforest, sheltered slope 600–900 m; ♂ KS34758, data as holotype; ♂ KS51321, Dome Mountain, Richmond Range & Yabbra SF, 28°28'S 152°43'E, 11 Dec 1988, Smith, Hines, Pugh & Webber, pitfall trap DM1, subtropical rainforest, swamp edge, sheltered, 600–900 m, Focal Peaks Survey, UNE.

Other material. **Australia, New South Wales**. ♂ KS57381, Yabbra Scrub, Yabbra SF, 28°38'S 152°30'E, 14 Dec 1988, Smith, Hines, Pugh & Webber, pitfall trap Y8, dry subtropical rainforest, 300–600 m, Focal Peaks Survey, UNE; ♂ KS57383, data as KS57381 but trap Y4, sheltered slope; ♂ KS60763, Dome Mountain, Richmond Range & Yabbra SF, 28°28'S 152°43'E, 11 Dec 1988, Smith, Hines, Pugh & Webber, pitfall, DM3, on unnamed peak to W of Dome Mtn, Focal Peak Survey, UNE; ♂ KS57687, data as KS60763 except trap DM6, road in subtropical rainforest, exposed ridge; ♂ KS51295, Beaury SF, Tooloom Scrub, 28°35'S 152°22'E, 12 Dec 1988, Smith, Hines, Pugh & Webber, pitfall trap T7, bunya pine plantation, sheltered ridge, 600–900 m, Focal Peaks Survey, UNE; ♀♀ & juv. KS9231, Washpool SF, Coobadjah Ck, 0.6 km from Moongem Rd, 29°16'S 152°22'E, 10 Feb 1982, C. Horseman; ♂ KS38094, Washpool SF, 29°16'S 152°22'E, 6–22 Feb 1992, M. Gray & P. Croft, Site 17C, Trap 9.

Diagnosis. Separated from all species except *B. dorrigo* by the thick, flattened embolic tip. Distal conductor more expanded and angular, and embolus shorter than in *B. dorrigo*. Epigynal fossa trapezium-shaped, lateral margins usually concave.

Male (holotype). BL 7.04, CL 3.24 (2.65–3.24), CW 2.25, CapW 1.31, EGW 0.99, LL 0.47, LW 0.47, SL 1.50, SW 1.39. Legs: 1243 (I: 18.53; II: 15.13; III: 11.85; IV: 15.00); ratio tibia I length:CW = 1:0.45. Male Palp: (Fig. 5a,b). Patella only slightly longer than wide. RTA robust, tapering from broad base. Conductor a thick, sclerotized stalk, strongly expanded distally (angular, box-like) and extending retrolaterally and ventrally beyond the end of the wide embolic groove and embolus apex. Embolus a relatively short, thick, curved rod, distal part flattened and curving ventrally in the embolic groove. Tegular window smaller than in *B. dorrigo*.

Female (KS57382). BL 5.76, CL 2.73 (2.20–2.73), CW 1.88, CapW 1.27, EGW 0.92, LL 0.41, LW 0.41, SL 1.33, SW 1.14. Legs: 1423 (I: 10.86; II: 8.78; III: 7.47; IV: 9.18); ratio tibia I length:CW = 1:0.69. Epigynum: (KS57682; Fig. 5c,d). Shallow, trapezium-shaped fossa, narrowest anteriorly; lateral margins usually weakly concave, rather than straight. Internal genitalia: (KS57682; Fig. 5e). Copulatory ducts broad, lateral margins weakly concave proximally, then convex. Spermathecae in broad contact medially.

Distribution. Clarence River catchment from the northern Richmond Range to the Washpool State Forest region, NE New South Wales.

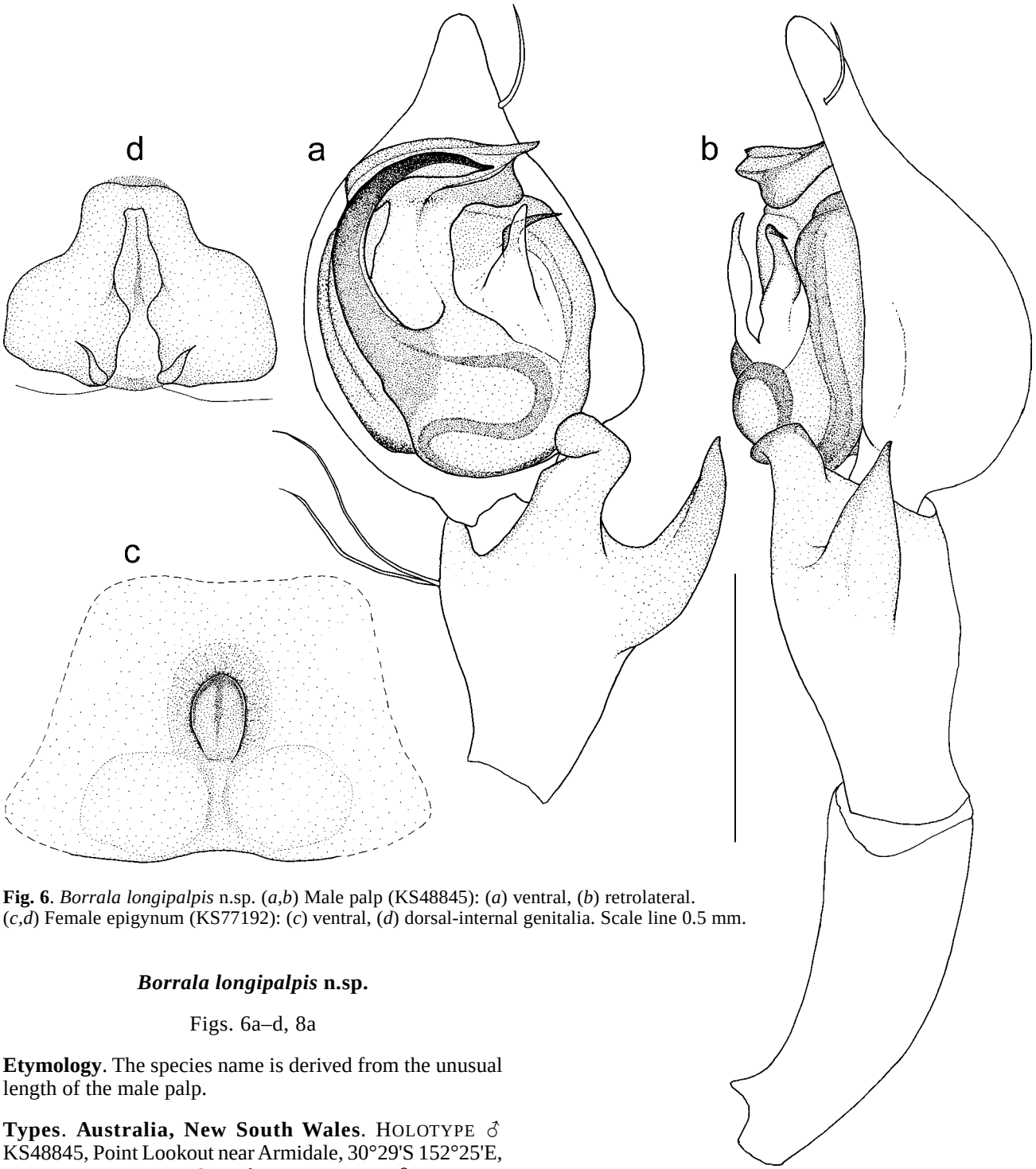

Fig. 6. *Borrala longipalpis* n.sp. (*a*,*b*) Male palp (KS48845): (*a*) ventral, (*b*) retrolateral. (*c*,*d*) Female epigynum (KS77192): (*c*) ventral, (*d*) dorsal-internal genitalia. Scale line 0.5 mm.

Borrala longipalpis **n.sp.**

Figs. 6a–d, 8a

Etymology. The species name is derived from the unusual length of the male palp.

Types. **Australia, New South Wales**. HOLOTYPE ♂ KS48845, Point Lookout near Armidale, 30°29'S 152°25'E, Nov 1969, M.R. Gray, damp forest. PARATYPE ♀ KS77192, data as holotype.

Diagnosis. Male palpal patella clearly longer than in other species (Fig. 6b [cf. Fig. 7b]). Epigynal fossa ovoid.

Male (holotype). BL 5.02, CL 2.45, CW 1.84, CapW 1.02, EGW 0.75, LL 0.35, LW 0.35, SL 1.16, SW 1.14. Legs: 1423 (I: 10.94; II: 9.18; III: 7.92; IV: 9.47); ratio tibia I length:CW = 1:0.69. Legs somewhat shorter than in other species. Male Palp: (Fig. 6a,b). Femur and patella relatively elongate, patella about 2.5× longer than wide; tibia robust. RTA large and very thick basally. Cymbium apical area relatively shorter and with fewer bristles (0–1); cymbial flange of moderate size. Conductor T-shaped; "head of T" short and wide, the retrolateral end shallowly bifurcate with the broad embolic groove ending upon the upper, sclerotized, beak-like process. Embolus thick basally, gradually tapering until flattening distally into a wide, translucent flange with a thicker dorsal edge and pointed apex. Tegular window small.

Female (KS77192). BL 6.04, CL 2.37, CW 1.67, CapW 1.10, EGW 0.73, LL 0.33, LW 0.37, SL 1.12, SW 1.06. Legs: 1423 (I: 8.49; II: 7.02; III: 6.04; IV: 7.31); ratio tibia I length:CW = 1:0.82. Legs somewhat shorter than in other species. Epigynum: (KS77192; Fig. 6c). Strongly

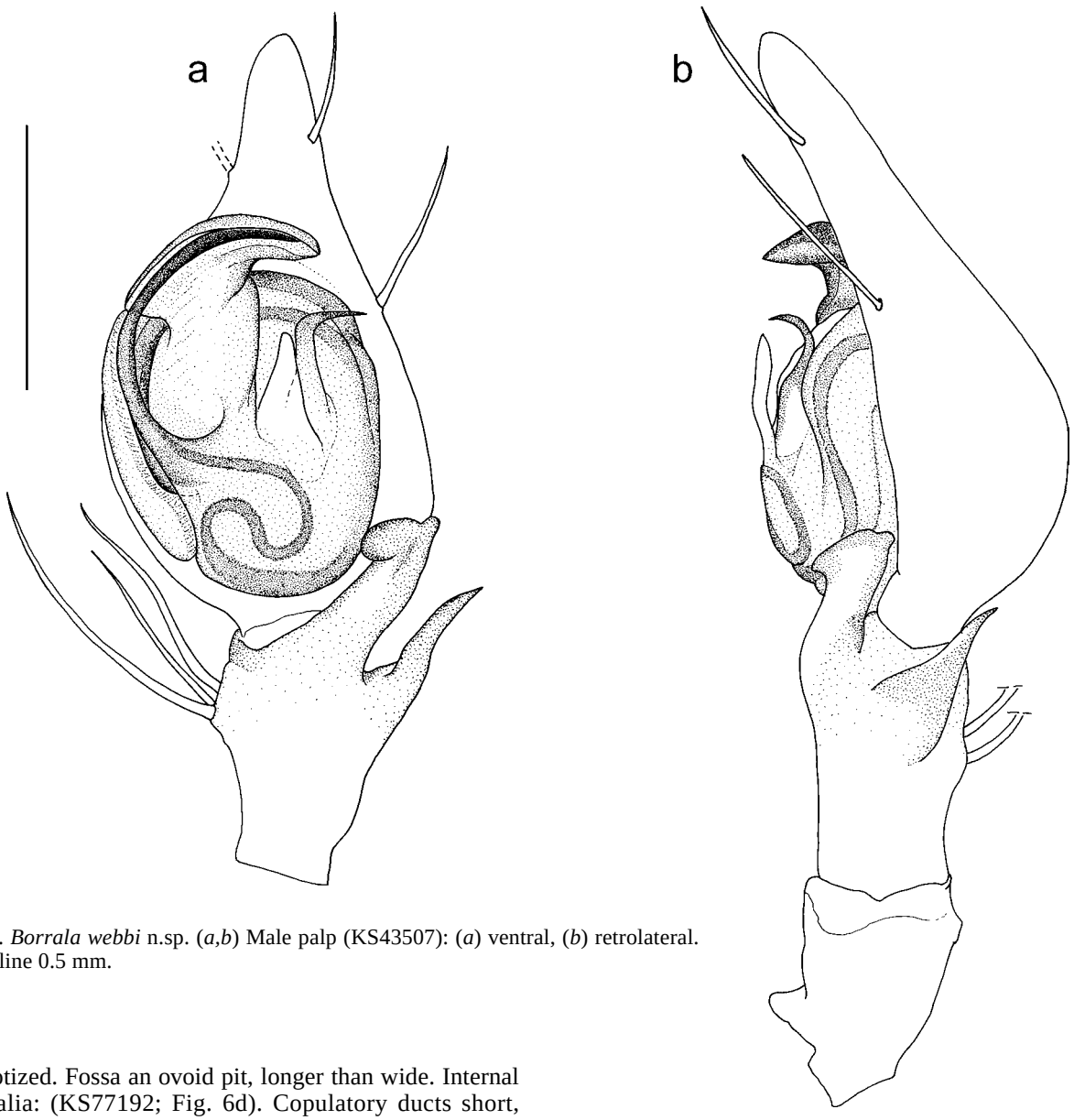

Fig. 7. *Borrala webbi* n.sp. (*a,b*) Male palp (KS43507): (*a*) ventral, (*b*) retrolateral. Scale line 0.5 mm.

sclerotized. Fossa an ovoid pit, longer than wide. Internal genitalia: (KS77192; Fig. 6d). Copulatory ducts short, straight and relatively narrow. Spermathecae adjacent, slightly separated medially.

Distribution. Known only from the type locality on the edge of the New England escarpment.

Borrala webbi n.sp.

Figs. 7a,b, 8a

Etymology. The species is named for of the collector of the types, G.A. Webb.

Types. **Australia, New South Wales**. HOLOTYPE ♂ KS43507, Mt Boss SF (Fenwicks), 31°12'S 152°24'E, Oct 1980, G.A. Webb, Forestry Commission. PARATYPES ♂♂ KS72861 & KS72862, data as holotype; ♂ KS44143, Werrikimbe NP, North Plateau, 31°15'S 152°14'E, 28 Dec 1993, D. Bickel, beech forest.

Other material. **Australia: New South Wales**. ♂ KS17667, Mt Boss SF (Thumb), 31°12'S 152°24'E, Oct 1980, G.A. Webb, Forestry Commission.

Diagnosis. Distinguished from all other members of the genus by the simple, beak-like distal conductor.

Male (holotype). BL 6.33, CL 3.10 (2.37–3.10), CW 2.29, CapW 1.31, EGW 0.86, LL 0.49, LW 0.47, SL 1.49, SW 1.33. Legs: 423 (I: not available; II: 13.42; III: 11.42; IV: 13.50). Male Palp: (Fig. 7a,b). Patella only slightly longer than wide. RTA tapering rapidly from broad base to spine-like apex. RVTA with a retroapical tubercle. Sperm duct relatively thinner and more sinuously S-looped on tegulum. Conductor weakly T-shaped, beak-like distally, with a deep embolic groove along apical margin. Embolus relatively narrow basally and of only moderate thickness, not flattened distally. Tegular window small.

Female. Not known.

Distribution. Northern Hastings River catchment, eastern Great Dividing Range, mid-northeastern New South Wales.

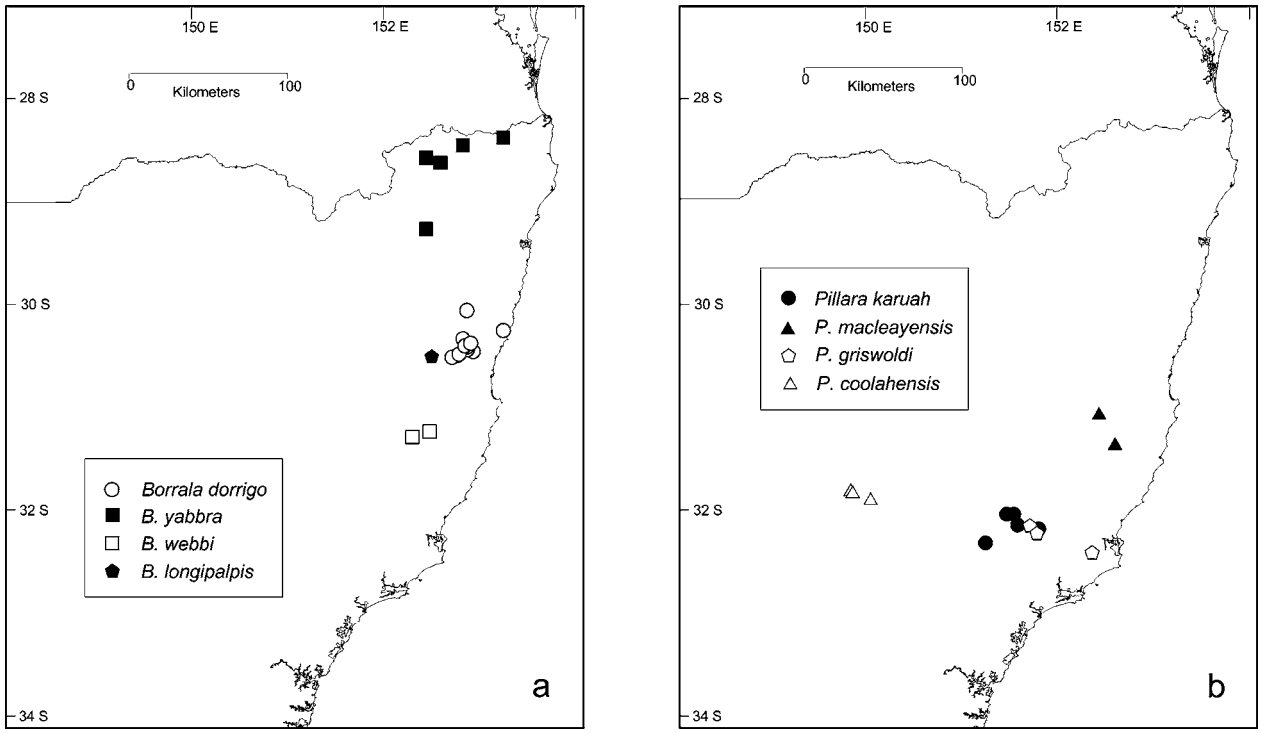

Fig. 8. Locality records for *Borrala* n.gen. (map *a*) and *Pillara* n.gen. (map *b*) species, northeastern New South Wales.

Pillara n.gen.

Type species. *Pillara karuah* n.sp.

Etymology. The generic name is an aboriginal word for a two-barbed spear, a reference to the deeply bifurcate retrolateral tibial apophysis (RTA) in this genus. The gender is female.

Diagnosis. Cribellate. Carapace with longitudinal stripes, highest at fovea. AME or PME largest. Posterior eyes with grate-shaped tapeta. Feathery hairs abundant. Cymbium retrolateral flange usually weakly developed (except *P. coolahensis*). Tegular lobe broad, basal or retrolateral. MA a weakly sclerotized or membraneous hook or reduced. Tibia with a large, bifurcate RTA, and an elongate "crochet-hook" shaped RVTA. Epigynum with a deep, unpaired fossa, round to ovoid in shape (except in *P. griswoldi*); spermathecae behind fossa.

Separated from *Borrala* and other "striped" genera by the presence of the deeply bifurcate RTA; and from *Therlinya* and *Taurongia* by this and presence of striped carapace, highest at fovea.

Description. Medium-sized cribellate spiders (CL 2.04–3.67). Similar to *Borrala* n.gen. (Figs. 1a–f, 2a–g). Eyes: male, AME> PME> PLE> ALE; female, PME> AME≥ ALE> ALE. Representative leg spination (*P. karuah*): Male (KS34509)-I: femur d122, p011; tibia d0010, v220, p1010, r1010; metatarsus d20102, v20201, p0101, r0101. II: femur d1203, p0110; patella 01; tibia d0010, v220, p1010, r01010; metatarsus d2102, v2021, p0101, r0101. III: femur d1202, p0111; patella 01; tibia d1010, v112, p0110, r0110; metatarsus d2102, v2021, p0101, r0101. IV: femur d1102, p0001; tibia d1010, v111-2, p1010, r1010; metatarsus d2022, v2021, p0101, r0001. Female (KS58361)-I: femur d122, p011; tibia d0010, v0220, p1110, r1010; metatarsus d0102, v2021, p0101, r0101. II: femur d1202, p0011; tibia d010, v0120, p110, r110; metatarsus d212, v2021, p0101, r0101. III: femur d122, p001; patella (11); tibia d110, v010, p0110, r0110; metatarsus d212, v2021, p011, r011. IV: femur d112, p001; patella (11); tibia d1010, v0110, p0101, r0110; metatarsus d222, v1021, p011, r001.

Male palp (Figs. 10a,b, 12a,b). Cymbium with a weakly to moderately developed retrolateral cymbial flange and a short, coniform-digitiform apex with 2–3 bristles. Tegulum with a broad, prominent tegular lobe, narrower than in *Borrala* and separated prolaterally from the adjacent subtegulum; lobe basally or retrolaterally placed, and usually rounded distally; lobe partially enclosing the lower part of the sinuous sperm duct. Sperm duct visible on tegulum, S-shaped, thinner and longer than in *Borrala*, its distal loop extending almost full width across ventral tegulum. Embolus a slender, marginal, curved and tapering rod, origin probasal or retrolateral. Conductor a thick sclerotized stalk, spine-like or divided retroapically; or T-shaped. Tegular window small to large, prolaterally to basally placed. MA arising retrolateral to conductor base; unipartite (see under Variation), a weakly sclerotized or membraneous hook, or reduced. Tibia short, slightly longer than or as wide, with 2–3 large, prolateral bristles; with two large apophyses: RVTA arising apically, long and stalk-like with a beaked, knob-like head; RTA arising subapically to centrally, deeply bifurcate with two large, oten digitiform, processes. Patella slightly longer than wide.

Epigynum (Figs. 10c,d, 12c,d). Moderately sclerotized, often most strongly in front of fossa (this area produced as a sclerotized knob in *P. griswoldi*); fossa an unpaired, circular to ovoid pit (except *P. griswoldi*). Lateral teeth and lobes absent. Internal genitalia (Figs. 10e, 12e) simple, with a pair of short, more or less broad copulatory ducts, curving back to a pair of roughly ovoid-circular and medially adjacent spermathecae, placed posterior to fossa (visible through cuticle).

Tracheal system simple, with four unbranched tracheal tubes confined to the abdomen. Spiracle just anterior to cribellum & less than one-third width of cribellum plate (Fig. 9b) Calamistrum about 0.4× length of metatarsus, subproximal-central, delimited at each end by a retrodorsal spine; weakly developed in male. Spinning organs (Fig. 9a–f, female). Cribellar plate bipartite, each spinning field 5–6× as wide as long and well separated by a wide seam (about 0.4× of a field wide); seam and posterior plate margin strongly sclerotized. In male, cribellum almost as wide as in female with small, non-functional fields. Spinnerets relatively short. ALS and PLS 2-segmented, latter slightly longer; PMS 1-segmented, shortest; ALS broad with very short apical segment with broad margins; PLS slender with moderately long, conical apical segment. ALS: 2 adjacent MAP spigots mesally, size unequal; c. 38 piriform spigots. PMS: 3 fully or partially fused paracribellar bases grouped antero-ectally, with 8–9, 12–13 and 6–8 spigots; 1 mAP spigot, mesal; 7–8 aciniform spigots (1 anterior, rest distributed); 1 cylindrical spigot, postero-ectal. PLS: c. 23 aciniform spigots (including group of 4–5 longest basally); 1 subapical "modified PLS" spigot flanked by 3 paracribellar spigots, all free; 2 cylindrical spigots (1 basal, 1 subapical).

Included species. *Pillara karuah*, *P. coolahensis*, *P. macleayensis*, *P. griswoldi*.

Variation. The MA in *P. karuah* is reduced to a membraneous spine(s) but is accompanied by a low, collar-like ridge around the spine base. This may be homologous with the fleshy process seen in the bipartite *Borrala* MA. Genitalic structure is highly derived in *P. griswoldi* (RVTA, conductor and epigynum).

Distribution. Barrington massif north to the Carrai Plateau, mid-eastern New South Wales, Australia.

Key to *Pillara* species

Males

1 Tegular lobe and embolic origin retrolaterally placed ..... *P. coolahensis*

—— Tegular lobe and embolic origin probasal 2

2 Conductor divided apically; long retrolateral prong on RVTA ..... *P. griswoldi*

—— Not as above 3

3 RTA bifurcation wide, processes not digitiform; MA moderately large ..... *P. macleayensis*

—— RTA bifurcation narrow, processes digitiform; MA reduced ..... *P. karuah*

Females

1 Epigynum with a large, sclerotized knob anteriorly, fossa absent ..... *P. griswoldi*

—— Epigynum lacking knob, fossa present 2

2 Fossa small with relatively narrow copulatory ducts ..... *P. macleayensis*

—— Fossa larger with wider copulatory ducts 3

3 Fossa widest anteriorly, copulatory ducts arise at front of fossa ..... *P. karuah*

—— Fossa circular, copulatory ducts arise from anterolateral fossa ..... *P. coolahensis*

Pillara karuah n.sp.

Figs. 8b, 10a–e

Etymology. The species name is taken from one of the major rivers arising in the distribution area of the species.

Types. **Australia, New South Wales**. HOLOTYPE ♂ KS34509, Upper Allyn, 32°10'S 151°30'E, M.R. Gray. PARATYPES ♀ KS70335, Tuglo, 48 km N Singleton, 32°14'S 151°16'E, 19 Jan 1977, M.R. Gray, sheet webs in logs extended 10–15 cm from log, rainforest; ♂ KS70332, ♀ KS70333, data as holotype; ♂♂ KS34505 & KS70336, ♀♀ KS70337–9, data as described ♀ KS70335; ♂ KS23663, Gloucester Tops, 32°04'S 151°34'E, alt. 1280 m, 19 Nov–4 Dec 1988, D. Bickel, malaise trap, nothofagus forest; ♀ KS58361, data as KS23663, 4–30 Dec 1988; ♂ KS34506, Barrington Tops, 31°58'S 151°28'E, alt. 1666 m, 18 Jul 1971, G.S. Hunt, eucalypt forest.

Other material. **Australia, New South Wales**. ♀ KS70334, data as holotype, abdomen used for SEM; ♂ KS41327, Chichester SF, 100 m N of trig tower, Berrico Rd, 32°06'S 151°45'E, 4 Feb–9 Apr 1993, M. Gray & G. Cassis, NE NSW NPWS Survey.

Diagnosis. Differs from all species except *P. macleayensis* by presence of undivided, spine-like distal conductor; from *P. macleayensis* by the reduced MA and narrowly divergent processes of bifurcate RTA. Epigynal fossa and sclerotized area in front of it larger than in *P. macleayensis*.

Male (holotype). BL 6.61, CL 3.06 (2.41–3.59), CW 2.08, CapW 1.27, EGW 0.90, LL 0.49, LW 0.49, SL 1.51, SW 1.35. Legs: 1243 (I: 17.83; II: 14.17; III: 11.83; IV: 14.00); ratio tibia I length:CW = 1:0.46. Male Palp: (Fig. 10a,b). Bifurcate RTA with two large, digitiform processes, diverging at an angle of less than 45° or subparallel, ends rounded with tip upturned and pointed. RVTA with a low retroapical ridge. Tegular lobe basal. Embolic origin probasal. Conductor stalked, bent and extended retrolaterally as a sickle-like, grooved spine. MA reduced to a short, membraneous spine (or 2 smaller spines) with a fleshy, collar-like ridge at base; or MA indistinct.

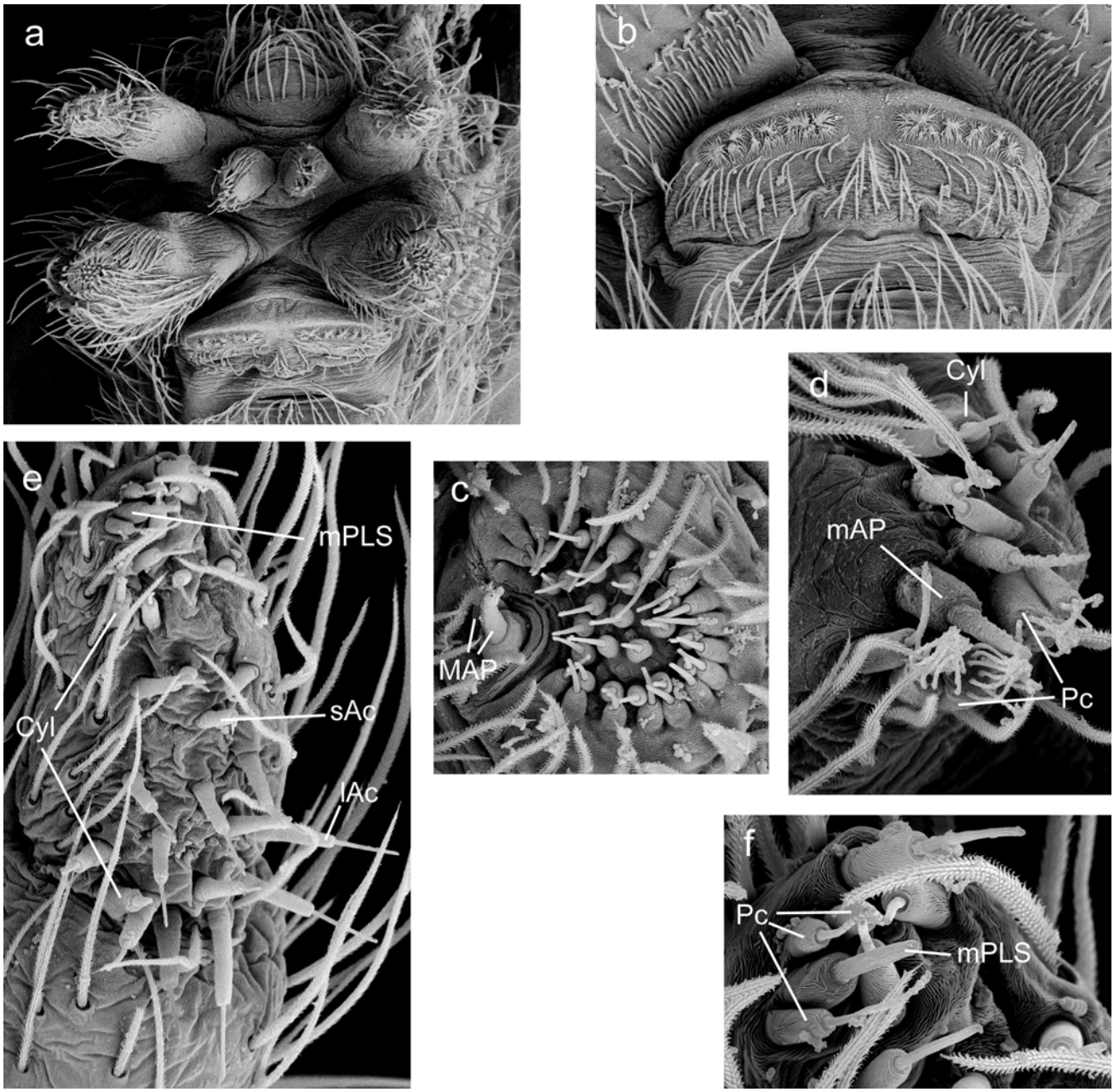

Fig. 9. *Pillara karuah* n.sp. (*a–f*) Spinnerets, female KS75399: (*a*) spinning field (cribellum below), (*b*) cribellum and spiracle. (*c–f*) Spigots: (*c*) ALS, (*d*) PMS, (*e*) PLS, (*f*) detail of PLS apex with modified PLS spigot. (Spigot abbreviations, see Fig. 3).

Female (KS70335). BL 6.49, CL 2.69 (2.04–2.73), CW 1.88, CapW 1.22, EGW 0.82, LL 0.41, LW 0.41, SL 1.29, SW 1.16. Legs: 1423 (I: 11.67; II: 9.42; III: 7.92; IV: 9.58); ratio tibia I length:CW = 1:0.63. Epigynum: (KS70337, Fig. 10c,d). Fossa a subcircular pit, copulatory ducts opening from anterior end, cuticular area anterior to fossa lip strongly sclerotized. Internal genitalia: (KS70337, Fig. 10e). Copulatory ducts moderately broad; spermathecae touching medially.

Variation. MA always reduced but varies from 1–2 membraneous "spines" to indistinct. The low, collar-like ridge around the MA base may be homologous with the fleshy part of the MA in *Borrala* spp.

Distribution. Barrington massif region, New South Wales.

Pillara macleayensis n.sp.

Figs. 8b, 11a–d

Etymology. The species name is taken from the Macleay River region which encompasses the type locality.

Types. **Australia, New South Wales**. HOLOTYPE ♂ KS34508, 3 mi E of Carrai on Kempsey road, 30°57'15"S 152°23'27"E, 26 Apr 1974, M.R. Gray. PARATYPES ♀ KS70130, data as holotype; ♂ KS34507, ♀ KS70131, Carrai, near top of Bat Cave Trail, 30°59'03"S 152°20'27"E, 26 Apr 1974, M.R. Gray, sheet web in litter; ♀ KS34764, Carrai Bat Cave, 30°58'59"S 152°19'49"E, under rock.

Other material. **Australia, New South Wales**. ♀ KS9419, Bellangry SF, Wilson River Flora Reserve, 31°18'S 152°29'E, 6 Mar 1981, M.R. Gray.

Diagnosis. Differs from other species in having the bifurcate RTA processes markedly dissimilar and widely divergent. Epigynal fossa very small.

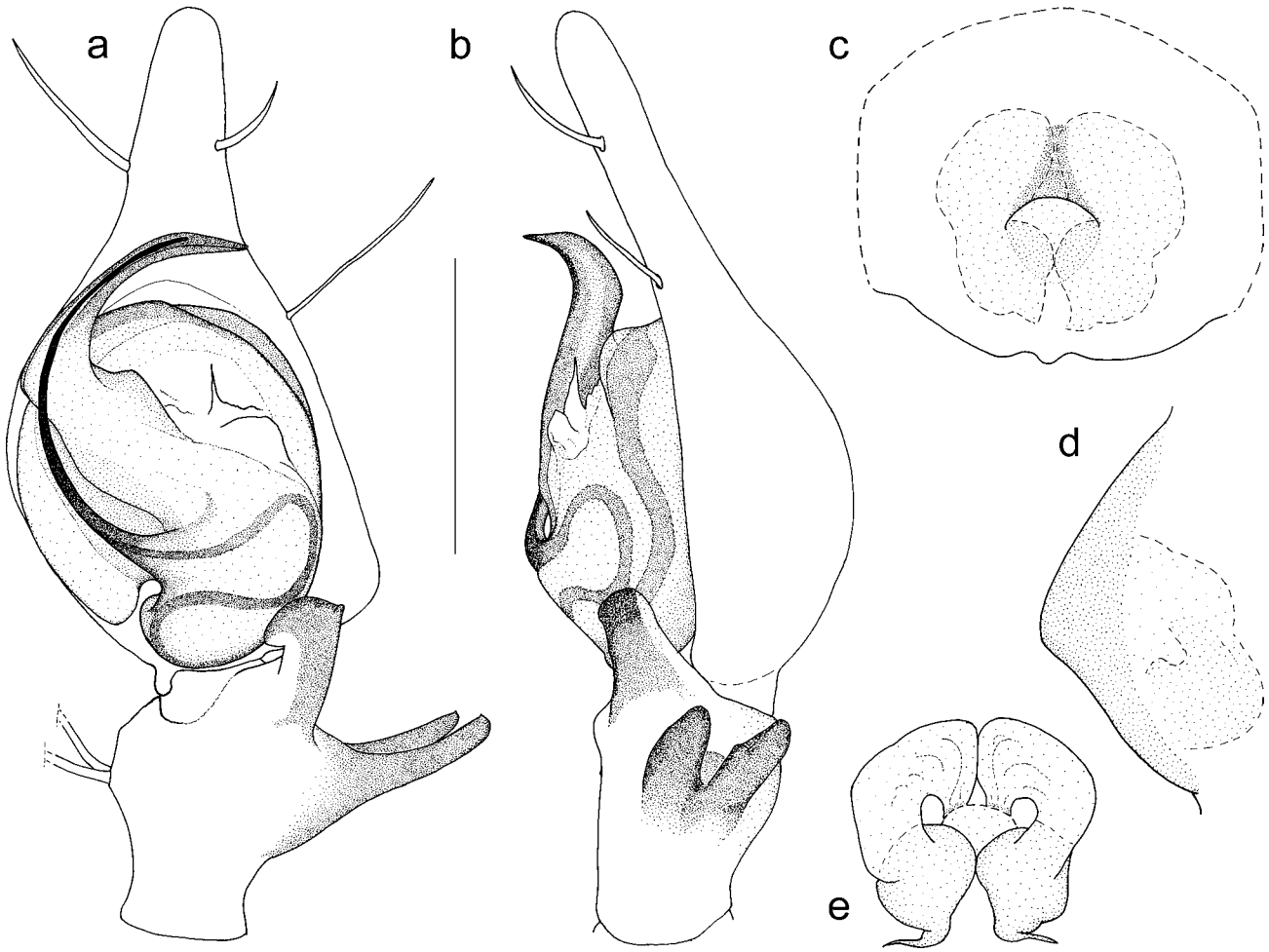

Fig. 10. *Pillara karuah* n.sp. (*a*,*b*) Male palp (KS34509): (*a*) ventral, (*b*) retrolateral. (*c*–*e*) Female epigynum (KS70337): (*c*) ventral, (*d*) lateral, (*e*) dorsal-internal genitalia. Scale line 0.5 mm.

Male (holotype). BL 5.96, CL 2.90 (2.73–2.90), CW 2.00, CapW 1.10, EGW 0.82, LL 0.39, LW 0.41, SL 1.39, SW 1.29. Legs: 1243 (I: 17.00; II: 14.25; III: 11.83; IV: 14.00); ratio tibia I length:CW = 1:0.37. Male Palp: (Fig. 11a,b). Deeply bifurcate RTA with large, thin, widely divergent and dissimilar processes, (ventral process long, tapering; dorsal process shorter, plate-like). RVTA with a small, acute retroapical ridge. Cymbial bristles weak. Tegular lobe basal. Embolic origin probasal. Conductor stalked, bent and extended retrolaterally as a sickle-like, grooved spine. MA a prominent, curved, membraneous process.

Female (KS70130). BL 5.96, CL 2.53 (2.37–2.53), CW 1.67, CapW 1.18, EGW 0.78, LL 0.35, LW 0.39, SL 1.22, SW 1.12. Legs: 1423 (I: 11.00; II: 8.92; III: 7.58; IV: 9.25); ratio tibia I length:CW = 1:0.59. Epigynum: (KS34764, Fig. 11c). Fossa a small pit set in a shallow broad depression; pit narrowest anteriorly where there is a small darker area of strongly sclerotized cuticle; copulatory ducts opening anterolaterally from fossa. Internal genitalia: (KS34764, Fig. 11d). Copulatory ducts less broad than in *P. karuah*; spermathecae closely adjacent medially.

Distribution. Carrai Plateau and the Hastings Range of New South Wales.

Pillara coolahensis n.sp.

Figs. 8b, 12a–d

Etymology. The species name is taken from the type locality.

Types. **Australia, New South Wales**. HOLOTYPE ♂ KS75016, Coolah Tops NP, Breeza Lookout, 31°49'17"S 150°11'28"E, 7 Nov 2001, M. Gray, G. Milledge & H. Smith, fine sheet webs with retreats in earth banks and rotting logs. PARATYPES: ♀ KS75023, data as holotype; ♂♂ KS75017–9, KS75386, KS75402, ♀♀ KS75020–22, data as holotype; ♀♀ KS75024–5, ♀♀ KS75387, KS77103, ♂ KS77104, Coolah Tops NP, Grass Tree Track, 31°44'06"S 150°00'05"E, 8 Nov 2001, M. Gray, G. Milledge & H. Smith, fine sheet webs with retreats in rotting logs; ♂, KS75400, ♀ KS75401, Coolah Tops NP, Bald Hill Track, 2.5 km from The Forest Rd, 31°45'S 150°01'E, 8 Nov 2001, M. Gray, G. Milledge & H. Smith, sheet webs, ♀ with eggsac.

Other material. **Australia, New South Wales**. ♀ KS75399, Coolah Tops NP, Grass Tree Track, data as KS75024, abdomen used for SEM.

Diagnosis. Large T-shaped conductor; tegular lobe and embolus origin retrolateral. Epigynum and fossa deeply sclerotized, fossa circular.

Male (holotype). BL 6.41, CL 3.06 (2.73–3.67), CW 2.24, CapW 1.39, EGW 0.82, LL 0.45, LW 0.46, SL 1.51, SW 1.37. Legs: 1423 (I: 15.25; II: 12.67; III: 9.75; IV: 12.83); ratio tibia I length:CW = 1:0.57. Male Palp: (Fig. 12a,b). Cymbium with well-developed retrolateral flange. Ventral

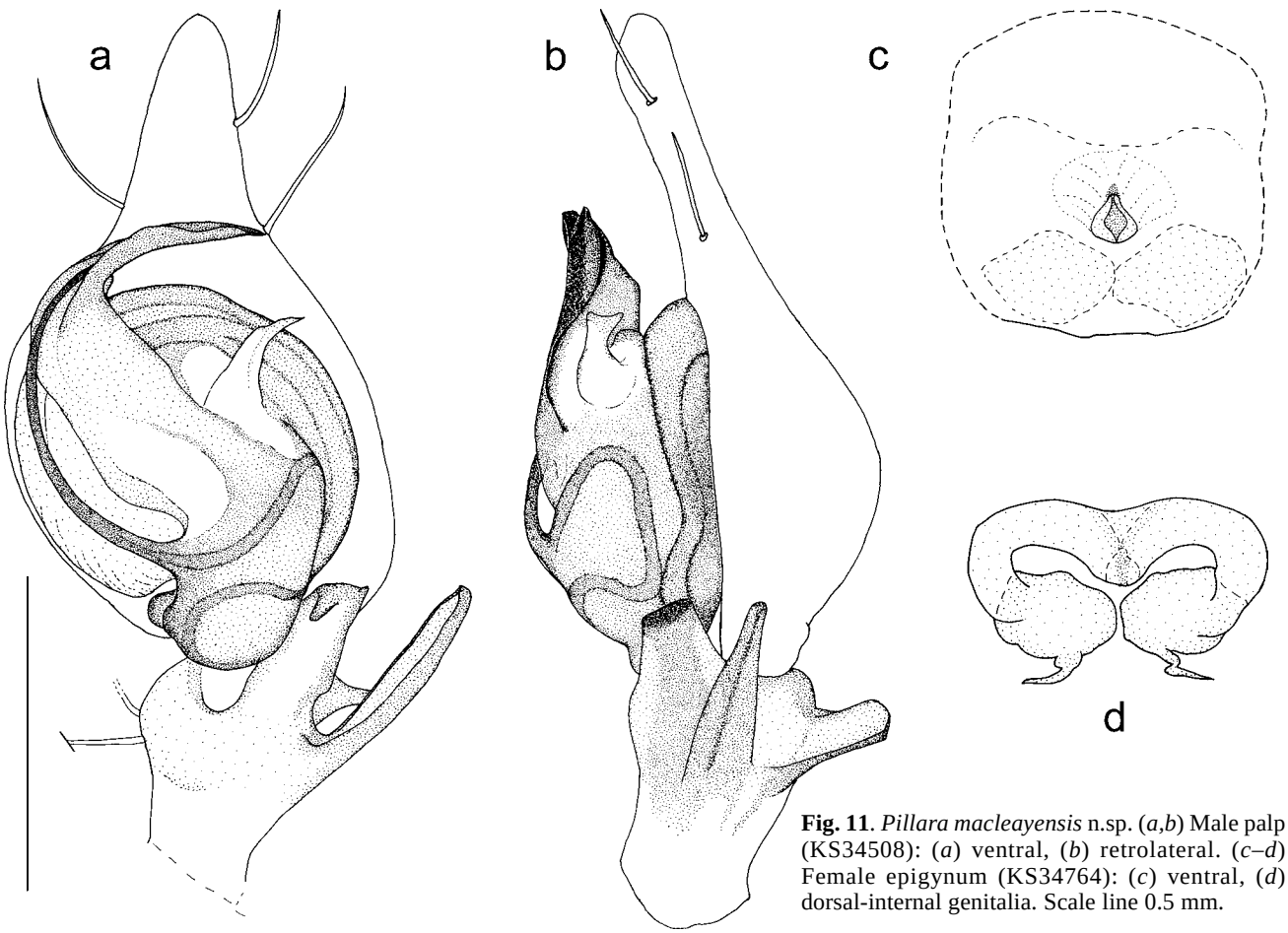

Fig. 11. *Pillara macleayensis* n.sp. (*a*,*b*) Male palp (KS34508): (*a*) ventral, (*b*) retrolateral. (*c*–*d*) Female epigynum (KS34764): (*c*) ventral, (*d*) dorsal-internal genitalia. Scale line 0.5 mm.

process of RTA larger and set higher than curved dorsal process, angled at about 45° to each other. RVTA slender with a prominent retroapical tubercle which projects into the relatively wide gap between the tegular lobe and the subtegulum. Bulb wider than long. Tegular lobe placed retrolaterally, distally truncate, with the tightly looped part of sperm duct contained largely within the lobe. Conductor a large, weakly sclerotized to membraneous T-shaped fan, with stronger sclerotization confined mainly to a corrugated lamina on the retrodorsal side of conductor stalk and the spine-like, ventrally curved, distal part of the conductor. Embolus long, strongly curved, origin retrolateral. Tegular window large, probasally placed. MA a thin, curved rod, distally sclerotized.

Female (KS75023). BL 8.58, CL 3.42 (2.45–3.35), CW 2.24, CapW 1.59, EGW 1.02, LL 0.53, LW 0.51, SL 1.63, SW 1.43. Legs: 1423 (I: 13.25; II: 10.67; III: 9.25; IV: 11.33); ratio tibia I length:CW = 1:0.65. Epigynum: (Fig. 12c). Fossa a sclerotized, circular pit with posterior groove, sometimes flanked by two small "dimples". Internal genitalia (KS75025, Fig. 12d). Copulatory ducts broad, with wide openings along lateral fossa; spermathecae large, in broad contact medially.

Distribution. Known only from Coolah Tops NP, NSW.

Comments. The unique position of the palpal bulb in this species was at first thought to be due to torsion of the bulb during preservation. However, all males examined show the same bulb orientation, which also correlates with the T- shaped expansion of the conductor and the elongate embolus.

Pillara griswoldi n.sp.

Figs. 8b, 13a–e

Etymology. The species is named in honour of Charles Griswold, Californian Academy of Sciences, one of the collectors.

Types. **Australia, New South Wales**. HOLOTYPE ♂ KS72857, Gloucester River camp ground, Barrington Tops NP, 32°04'S 151°41'E, webs on/under mossy logs, M.R. Gray & H.M. Smith, 22 Nov 1996. PARATYPES: ♀ KS72858, ♂♂ KS72859, KS72860, data as holotype; ♂, ♀ (CAS), locality data as holotype, 14 Aug 1990, C. Griswold; ♀ KS41330, Mountain Rd, 0.2 km S of junction with Kunungra Rd, 32°08'S 151°44'E, 4 Feb–9 Apr 1993, M. Gray & G. Cassis, NE NSW NPWS Survey; ♂♂ NN19551–2 (SAM), O'Sullivans Gap, Bulahdelah SF, 32°19'S 152°16'E, under log, 14 May 1988, D. Hirst.

Diagnosis. Separated from all other species by presence of long, rod-like, mid-retrolateral process on RVTA and large, sclerotized, anteromedial knob on epigynum.

Male (holotype). BL 5.27, CL 2.62 (2.53–2.62), CW 1.89, CapW 1.11, EGW 0.77, LL 0.42, LW 0.43, SL 1.44, SW 1.21. Legs: 1243 (I: 15.16; II: 12.51; III: 10.25; IV: 12.47); ratio tibia I length:CW = 1:0.47. Male Palp: (Fig. 13a,b). Bifurcate RTA processes robust, apically pointed, relatively shorter than in other species, subparallel to weakly angled; subapical spine present on thicker dorsal process. RVTA relatively short, and with a long, mid-retrolateral, rod-like process. Tegular lobe basal. Conductor a short wide stalk, widely bifurcate distally with two pointed processes, ventral process spine-like and sclerotized, dorsal process triangular

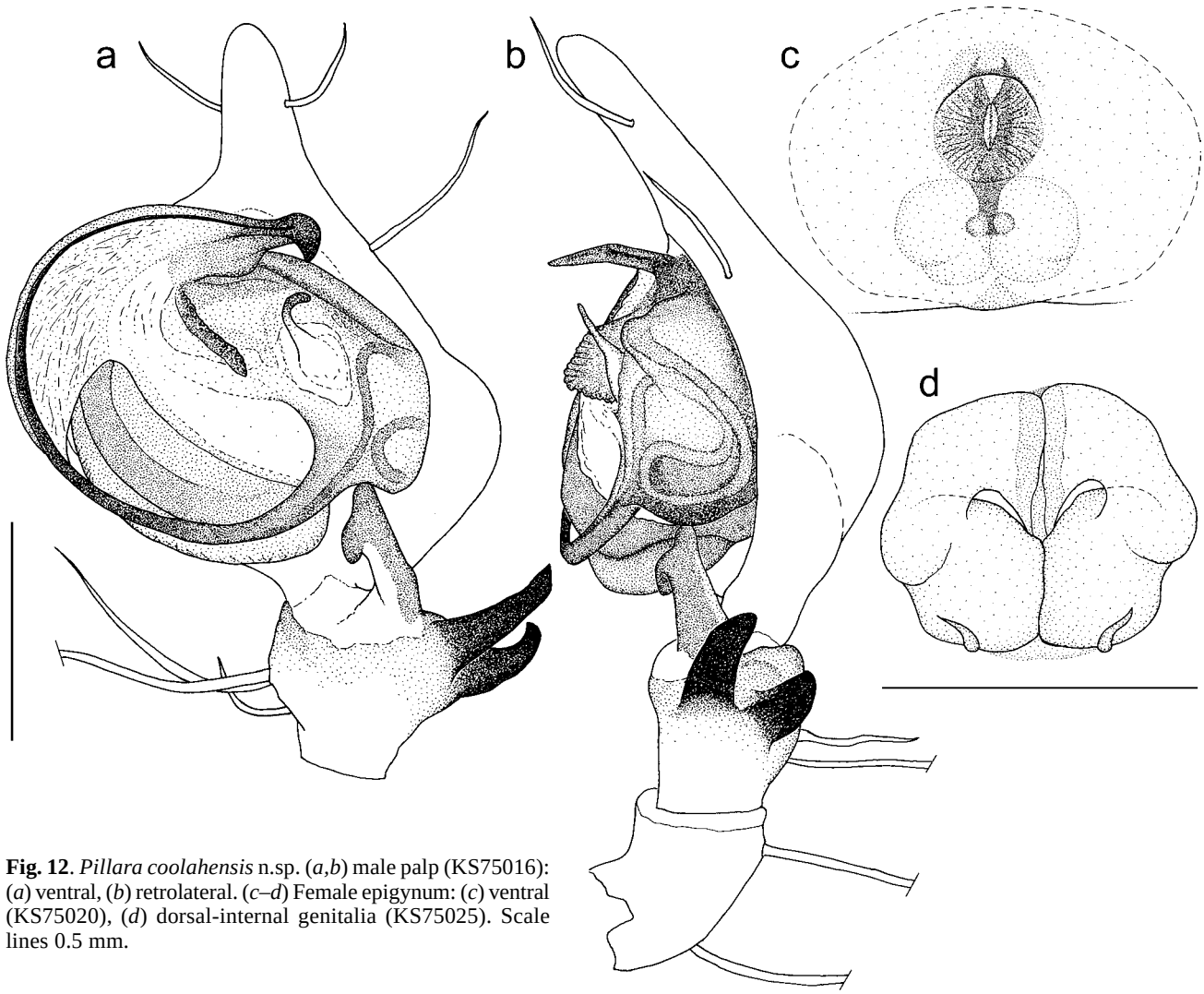

Fig. 12. *Pillara coolahensis* n.sp. (*a*,*b*) male palp (KS75016): (*a*) ventral, (*b*) retrolateral. (*c*–*d*) Female epigynum: (*c*) ventral (KS75020), (*d*) dorsal-internal genitalia (KS75025). Scale lines 0.5 mm.

and membraneous. Embolus relatively short, running from probasal origin into groove on ventral conductor process. MA reduced to a fleshy process. Tegular window very small.

Female (KS 72858). BL 5.78, CL 2.33 (2.24–2.41), CW 1.45, CapW 0.98, EGW 0.70, LL 0.36, LW 0.32, SL 1.14, SW 1.01. Legs: 1423 (I: 10.07; II: 7.53; III: 5.78; IV: 8.07); ratio tibia I length:CW = 1:0.56. Epigynum: (Fig. 13c,d). Epigynal fossa absent. Large, sclerotized, knob-like apophysis placed on anteromedial epigynum and flanked on each side by a lateral groove and ridge converging posteriorly; long copulatory grooves open lateral to each ridge. Internal genitalia: (Fig. 13e). Very short copulatory ducts lead from the copulatory grooves into ovoid spermathecae that are in broad contact medially.

Distribution. Eastern Barrington massif to the Bulahdelah area of NSW.

Comments. This is the most derived representative of the genus in both male palpal and epigynal characteristics. The epigynal structure is especially altered from the general generic pattern. The development of the massive anterior apophysis on the epigynum appears to have obliterated the pit-like fossa and pushed the copulatory duct openings laterally and ventrally to a surface position.

Discussion

***Borrala* and *Pillara* characters**. There are several marked structural trends and differences in the genitalia. Both genera have large palpal tibial apophyses, with a stalked, "crochet hook" RVTA, a broad tegular lobe especially prominent in *Pillara*, a moderate–small tegular window and a variably T-shaped to stalked conductor. In *Pillara*, the RTA is deeply bifurcate with two robust processes. The MA is unipartite (although remnants of a bipartite state may be present in *P. karuah*), usually non-sclerotized and often reduced. In *Borrala*, the RTA is undivided and apically spine-like. The MA is unusual in having a bipartite structure, consisting of a ventral non-sclerotized process and a dorsal sclerotized process. This character may link *Borrala* with other "striped" group genera (Gray & Smith, in prep.) with bipartite MA that range through forested areas from Papua New Guinea to southwestern Australia.

Both *Borrala* and *Pillara* species typically have moderately sclerotized epigyna with unpaired pit-like fossae, placed anterior to the paired spermathecae. In *Borrala*, the fossa is longer than wide, narrower anteriorly or ovoid. In *Pillara*, the fossa is more rounded, often with a deeply sclerotized area of cuticle in front of the anterior margin where the fossa lip and the medial walls of the copulatory ducts meet. However, in one highly derived

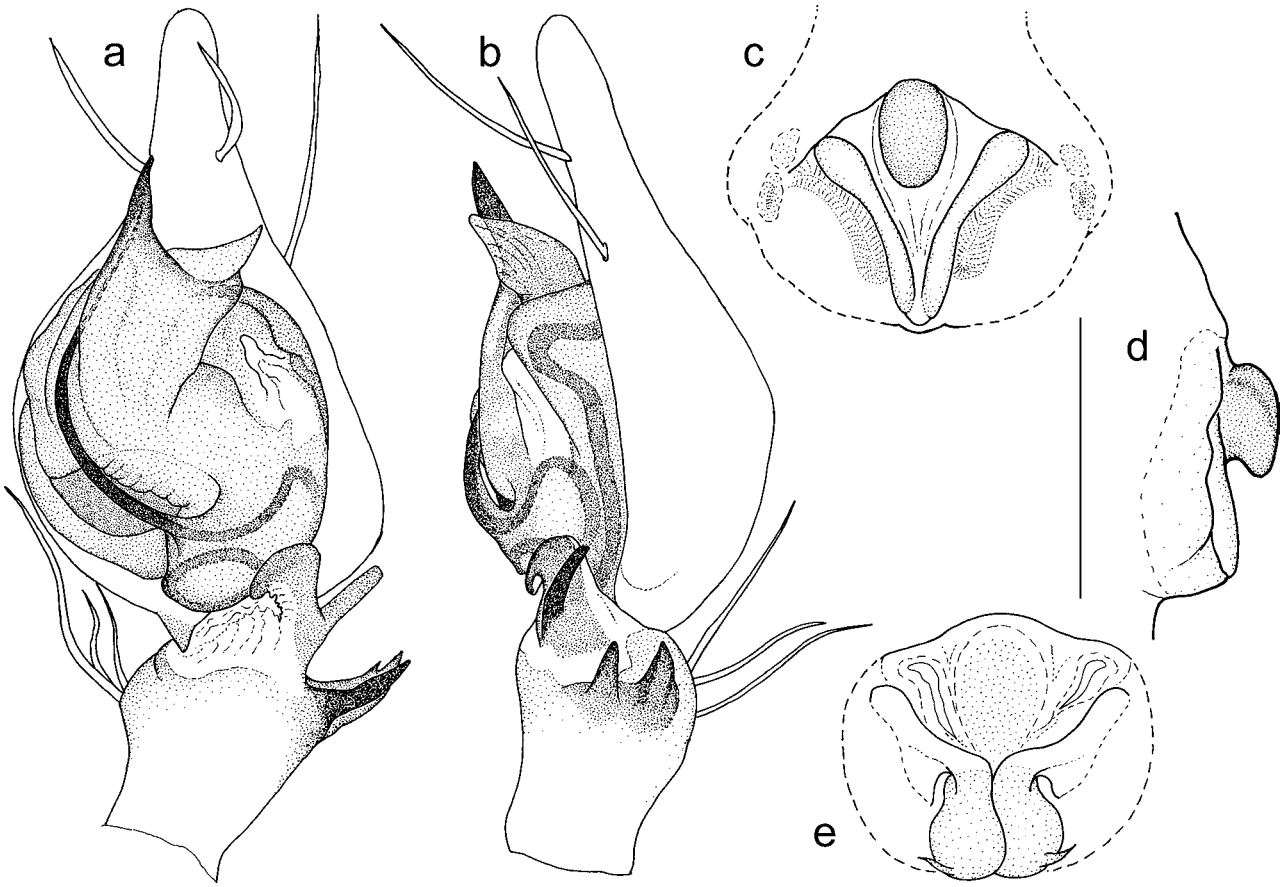

Fig. 13. *Pillara griswoldi* n.sp. (*a*,*b*) Male palp (CAS): (*a*) ventral, (*b*) retrolateral. (*c*–*d*) Female epigynum (*c*) ventral (KS72858), (*d*) lateral (CAS), (*e*) dorsal-internal genitalia (KS72858). Scale line 0.5 mm.

species (*P. griswoldi*) this area is hypertrophied into a sclerotized, knob-like apophysis.

Comments on relationships. *Therlinya* (Gray & Smith, 2002) and the "striped" group of genera described here (and in Gray & Smith, in prep.) share the presence of a well-defined tegular lobe, a uni- or bi-partite MA (both parts, or at least one, membraneous), and grate-shaped tapeta in the posterior eyes. However, both the longitudinally striped patterning of the carapace and its dorsal profile (highest at the fovea), as well as the larger eyes, differentiate the genera described here from both *Therlinya* and the *Taurongia* group genera (Gray & Smith, 2002). At least among these groups, these character states may be derived for the "striped" group, although all appear elsewhere in the Amaurobioidea. The presence of a similar carapace profile and longitudinal stripes in some Kababininae (Davies, 1999), which is associated with *Stiphidion* in Davies & Lambkin (2000), is of particular interest.

The eye tapetum structure in these genera is of particular interest. Contrary to Homann (1971), followed by Griswold *et al*. (1999) and Gray & Smith (2002), the eyes of *Stiphidion* (*S. facetum* ex Hornsby, NSW) lack grate-shaped tapeta; canoe-shaped tapeta are present in the ALE but no tapeta are discernible in the posterior eyes. The presence of a grate-shaped tapetum clearly is not a defining feature of *Stiphidion* or the Stiphidiidae. However, putative stiphidiids like *Therlinya* and the "striped" genera described here all possess grate-shaped tapeta in the PLE and PME (with canoe-shaped tapeta in the ALE). The distribution of the various tapetum types is proving useful in establishing relationships between putative "stiphidiid" genera and potentially for other groupings within the Amaurobioidea.

ACKNOWLEDGMENTS. This project received funding assistance through the New South Wales Biodiversity Strategy: Taxonomy Enhancement Research Grants. We thank Dr Charles Griswold of the Californian Academy of Sciences and Mr D. Hirst of the South Australian Museum for the loan of material.

References

Davies, V.T., 1999. *Carbinea*, a new spider genus from north Queensland, Australia (Araneae, Amaurobioidea, Kababininae). *Journal of Arachnology* 27: 25–36.

Davies, V.T., & C. Lambkin, 2000. *Wabua*, a new spider genus (Araneae, Amaurobioidea, Kababininae) from north Queensland, Australia. *Memoirs of the Queensland Museum* 46(1): 129–147.

Gray, M.R., & H.M. Smith, 2002. Therlinya, a new genus of spiders from Eastern Australia (Araneae: Amaurobioidea). Records of the Australian Museum 54(3): 293–312.
http://www.amonline.net.au/pdf/publications/1368_complete.pdf

Griswold, C.E., J.A. Coddington, N.I. Platnick & R.R. Forster, 1999. Towards a Phylogeny of Entelegyne Spiders (Araneae, Araneomorphae, Entelegynae). *J. Arachnology* 27: 53–63.

Homann, H., 1971. Die Augen der Araneae—Anatomie, Ontogenie und Bedeutung für die Systematik (Chelicerata, Arachnida). *Zoologisches Morphologie des Tiere* 69: 201–272.

Manuscript submitted 12 September 2002, revised August 2003 and accepted 9 September 2003.

Associate Editor Daniel J. Bickel.