



Research article

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A revision of the Australian genus *Pleuroseta* Richards (Diptera, Sphaeroceridae)

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Abstract. The Australian genus *Pleuroseta* Richards, 1973 is revised, including *P. wentworthi* (Richards, 1973) and three new species: *P. ingens* sp. nov. (Queensland), *P. monteithi* sp. nov. (Queensland) and *P. occidentalis* sp. nov. (Western Australia). *Leptocera* (*Biroina*) *dorrignonis* Richards, 1973 is treated as a new junior synonym of *Pleuroseta wentworthi*.

Keywords. Sphaeroceridae, *Pleuroseta*, Australia, taxonomy, new species.

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Introduction

The Australian genus *Pleuroseta* Richards, 1973 is distinguished from other sphaerocerid genera by a patch of setae, usually mixed with setulae, on the posterodorsal corner of the anepisternum (Fig. 1) and previously included only *P. wentworthi* Richards, 1973 (= *Leptocera* (*Biroina*) *dorrignonis* Richards, 1973 syn. nov.) from New South Wales and Queensland. Three new species are described here, two known only from Queensland and one apparently restricted to Western Australia. The genus seems to be relatively uncommon, as only 1.2% of the approximately 15 400 total mounted Australian sphaerocerid specimens examined by the authors belong to *Pleuroseta*.

All four species are known only from adults, mostly collected in dung traps although some specimens have been taken in flight-intercept traps, Malaise traps, or pan traps baited with carrion or other material. *Pleuroseta wentworthi* is known from the Eastern Australian temperate forest ecoregion, *P. ingens* sp. nov. and *P. monteithi* sp. nov. are both known from the Queensland tropical rainforest ecoregion, and *P. occidentalis* sp. nov. is known from the Warren and Jarrah Forest ecoregions of southwestern Western Australia.

Material and methods

Terminology and techniques, including specimen preparation, illustration, and measurements are as in Kuwahara & Marshall (2022). The phallus is described in its normal anteriorly directed position, with the dorsal and ventral surfaces referred to as lower and upper, respectively.

Specimen deposition

Specimens are deposited in the following institutions:

AMSA	=	Australian Museum, Sydney, New South Wales, Australia
ANIC	=	Australian National Insect Collection, Canberra, Australian Capital Territory, Australia
DEBU	=	School of Environmental Sciences, University of Guelph, Guelph, Ontario, Canada
QMBA	=	Queensland Museum, South Brisbane, Queensland, Australia
WAM	=	Western Australian Museum, Perth, Western Australia, Australia

Abbreviations of Australian States and Territories

NSW	=	New South Wales
QLD	=	Queensland
WA	=	Western Australia

Results

Taxonomy

Class Insecta Linnaeus, 1758
Order Diptera Linnaeus, 1758
Superfamily Sphaeroceroidea Macquart, 1835
Family Sphaeroceridae Macquart, 1835
Subfamily Limosiniinae Macquart, 1835

Genus *Pleuroseta* Richards, 1973

Pleuroseta Richards, 1973: 355 (feminine). Type species: *Leptocera (Pleuroseta) wentworthi* Richards, 1973, by monotypy.

Pleuroseta – Marshall 1989: 605 (as genus, Australasian/Oceanian catalog). — Roháček *et al.* 2001: 199 (world catalog). — Kuwahara & Marshall 2022: 17 (key).

Diagnosis

Pleuroseta species differ from all other genera of Sphaeroceridae in having a patch of setae on the posterodorsal corner of the anepisternum (Fig. 1). The genus is further diagnosed by the combination of a relatively tall gena (eye height 1.5–2.4 × genal height), a brown microtrichose notum, 3–5 pairs of dorsocentral bristles including at least one presutural pair, 2–4 pairs of dorsal bristles on the basal half of the mid tibia, an enlarged ventral seta on the mid basitarsus, male S5 with a posteromedial emargination surrounded by thick or long setae, and a surstylus divided into anterior and posterior parts (usually with long setae on the posterior section). The eastern Australian species form a monophyletic group further diagnosed below, but the single Western Australian species differs widely and is only provisionally included in the genus, as discussed below.

Redescription

BODY. Length 1.8–4.4 mm.

HEAD. Golden-brown to dark brown. Frontal width $1.9\text{--}2.3 \times$ height. Interfrontal bristles in 4–5 pairs; two large laterocline orbital bristles, anterior orbital slightly smaller ($0.8\text{--}0.9 \times$) than posterior; ocellar and outer vertical bristles large and subequal; inner vertical bristle very large; paravertical bristle large, occipital bristle strong. Vibrissa large, subequal to genal length, vibrissal angle often with one distinct subvibrissal seta and 1–2 setulae; gena with large ($0.6\text{--}0.7 \times$ genal length) upcurved seta and 8–17 setulae. Lunule small, triangular; palpus elongate, clavate, narrow with 2–4 ventral setae. Antenna divergent; pedicel large, at least $0.7\text{--}1.0 \times$ postpedicel; arista long pubescent. Eye with slight notch at about level of anterior edge of frons, eye height $1.5\text{--}2.4 \times$ genal height.

THORAX. Dark brown to black, paler around margins, scutum and scutellum with fine brown microtrichia. Three to five pairs of dorsocentral bristles, middle pair(s) separated by 8–14 rows of fine acrostichal setulae. Two postpronotal bristles, inner bristle smaller; two notopleural bristles, anterior bristle larger; two supra-alar bristles, anterior bristle larger; postalar and intrapostalar bristles large. Anepisternum with posterodorsal patch of 3–8 setae and 0–13 setulae; katepisternum with distinct anterior seta, larger posterior seta, and several ventral setae. Scutellum large, length $0.4\text{--}0.6 \times$ width, with four long marginal bristles, basal pair $0.8\text{--}0.9 \times$ length of apical pair.

LEGS. Brown to dark brown, with or without yellow bands on femora and/or tibiae; tarsi brown to yellow. Mid tibia with 4–8 dorsal bristles (2–4 pairs) in proximal half and 3–4 dorsal bristles (one anterodorsal, 1–2 dorsal, and one posterodorsal) in distal half. Ventral surface of mid tibia with strong apical seta in males of the *P. wentworthi* species group (see below) and row of thickened setae (but no enlarged apical) in male *P. occidentalis* sp. nov.; females with large apical seta. Mid basitarsus with enlarged ventral seta.

WING. Evenly infuscate or mostly infuscate with ill-defined pale spots and darker patches (mostly around the crossveins). Second costal sector $0.9\text{--}1.5 \times$ length of third costal sector. Vein R_{2+3} sinuate; R_{4+5} sinuate or gently upcurved; costa ending at or extending past apex of R_{4+5} . M_1 not tubular beyond dm-m (except slightly in *P. occidentalis* sp. nov.) but extending almost to wing margin as more-or-less (terminally) coloured pseudovein; M_4 extending beyond dm-m, about halfway to wing margin; crossveins r-m and dm-m separated by $1.2\text{--}1.5 \times$ length of dm-m. CuA+CuP distinct but not tubular in the *P. wentworthi* species group, indistinct in *P. occidentalis*; CuA slightly visible as a diffusely-coloured pseudovein in the *P. wentworthi* species group. Alula relatively large but narrow, length $2.8\text{--}4.5 \times$ width, outer edge sinuate. Halter brown with pale apex.

MALE ABDOMEN. Preabdomen brown. T2–5 and S2–4 broad rectangular, desclerotized marginally, uniformly long setose in posterior half; T4 and T5 with long posterolateral setae. S5 broad, uniformly setose laterally with emarginate or desclerotized posteromedial area. Synsternite 6+7 (S6+7) highly modified in species other than *P. occidentalis* sp. nov.; S6 highly modified in association with posteromedial part of S5, S7 with elongate dextral extension sometimes reaching right side of abdomen; ring sclerite usually present. Epandrium often large ($0.5\text{--}0.9 \times$ head height), rounded, open posteroventrally (i.e. subanal plate absent) in *P. wentworthi* species group; cercus strongly fused to and usually indistinct from epandrium (prominent only in *P. occidentalis*), with several long setae; subepandrial sclerite well-developed and X- or Y-shaped. Hypandrium Y-shaped (as in Fig. 5C) or V-shaped, with a broad sclerotized sheet between the lateral arms (as in Fig. 5D), anteromedial apodeme sometimes weakly developed beyond articulation point with lateral arms; lateral arms strongly connected to anteroventral corners of epandrium and anteromedial apodeme of hypandrium (except in *P. occidentalis*, in which lateral arms are not strongly fused to anteromedial apodeme); no additional posterodorsal or ventral lobes. Surstylus various, bi- or trilobed and narrowly fused posterodorsally to ventral corner of subepandrial sclerite. Postgonite various. Distiphallus composed of several sclerites and divided into basal and apical sections.

FEMALE ABDOMEN. Preabdomen dark brown. T2–5 and S2–5 broad rectangular, desclerotized marginally, uniformly long-setose along entire surface; T4 and T5 with long posterolateral setae. Postabdomen telescoping, fitting fully or partially into segment 5 when at rest: elongate and largely membranous in *P. occidentalis* sp. nov., stout and well-sclerotized in the *P. wentworthi* species group. Spermathecae (2+1) elongate and pear-shaped with an elongate, subconical stem, or stout and spherical with a short stem; ducts elongate and membranous.

Similar genera

As noted by Richards (1973), *Pleuroseta* and *Howickia* Richards, 1951 (= *Biroina* Richards, 1973) have similar mid tibial chaetotaxy, and some characters of the male genitalia also suggest that the genera are closely related. Species of both genera often have multi-lobed surstyli, blunt setae on S5 and surstyli, and a distiphallus composed of several sclerites. *Pleuroseta*, however, does not have the ventral and posterodorsal hypandrial lobes that defines *Howickia* and further differs from *Howickia* in having at least three pairs of large dorsocentral bristles, a large globose epandrium, large phallic structures that often bulge out from between the surstyli, and a bipartite (as opposed to tripartite) female T8. Species in the *P. wentworthi* species group also differ from *Howickia* in having a sinuate R₄₊₅, male tibia lacking ventral bristles other than an apicoventral bristle, a large alula, and conspicuous modifications to S6+7. Some highly distinctive characters of S6+7, especially the relatively complex structures on the ventral part of S6, are unique to the *P. wentworthi* group.

Richards (1973) also noted the maculated legs and paired tibial bristles of *Pleuroseta* as superficial similarities to *Poecilosomella* Duda, 1920, but *Pleuroseta* has an unmaculated thorax, less distinctly patterned wings, and a straighter R₂₊₃. The male and female genitalia of *Pleuroseta* and *Poecilosomella* are dissimilar, offering no evidence for a close relationship between these two genera.

Pleuroseta wentworthi group species superficially resemble many species of *Leptocera* Olivier, 1813, *Rachispoda* Lioy, 1864, and *Pseudocollinella* Duda, 1924 in having a large body, multiple large dorsocentral bristles, paired (or almost paired) dorsal bristles on the basal half of the mid tibia, and an enlarged ventral mid basitarsal seta. However, *Pleuroseta* differs from those genera in having an apicoventral bristle on the mid tibia, and a patch of posterodorsal setae on the anepisternum; the former two genera also differ from *Pleuroseta* in having more than four scutellar bristles. No genitalic characters suggest that the above genera are related to *Pleuroseta*. Other genera with an enlarged ventral mid basitarsal seta (such as *Chaetopodella* Duda, 1920, *Opacifrons* Duda, 1918, *Paralimosina* Papp, 1973, and *Spinilimosina* Roháček, 1983) do not seem to have other characters that suggest a close relationship with *Pleuroseta* and differ widely in characters of the male terminalia.

Distribution

Pleuroseta is thus far known only from Australia, where three species occur in New South Wales and/or Queensland, and one occurs in Western Australia.

Systematics

Of the four known species of *Pleuroseta*, three (*P. wentworthi*, *P. ingens* sp. nov., *P. monteithi* sp. nov.) are externally similar, with a relatively large body, striped legs, patterned wings, eight proximodorsal bristles on the mid tibia, at least two pairs of distinct presutural dorsocentral bristles, distinctively enlarged male genitalia with modifications to the male S6+7, short female terminalia, and pear-shaped spermathecae with elongate, subconical stems; these three species form the *P. wentworthi* species group. The remaining species, *P. occidentalis* sp. nov., is much smaller and uniform in colour, with reduced overall chaetotaxy, smaller male genitalia with a simple male

S6+7, and female terminalia with segments 6–9 elongated to form a largely membranous, telescopic ovipositor similar to that of most species of *Howickia*. Other characters such as the posterodorsal patch of setae on the anepisternum, enlarged presutural dorsocentral bristle, mid basitarsus with an enlarged ventral bristle, posteromedial emargination of the male S5, and two-part surstyli support the placement of *P. occidentalis* in the genus.

The placement of *P. occidentalis* sp. nov. in *Pleuroseta* is provisional, given the marked differences between this species and the more homogeneous *P. wentworthi* species group, and the relatively weak putative synapomorphies linking *P. occidentalis* to the *P. wentworthi* group. However, there are no characters suggesting that *Pleuroseta* including *P. occidentalis* is a paraphyletic group (i.e., there are no synapomorphies linking either the *P. wentworthi* group or *P. occidentalis* to another genus). In the absence of such evidence, it is better to treat *P. occidentalis* as a provisional member of *Pleuroseta*, to which it is easily keyed on the basis of the patch of anepisternal setae, than to place it in a monobasic new genus. Some characters of *P. occidentalis* (unmaculated wings and legs, gently curved R₄₊₅, elongate telescopic female terminalia) superficially resemble some species in the large, heterogeneous genus *Howickia*. *Pleuroseta occidentalis*, however, lacks the tripart hypandrium that defines *Howickia*.

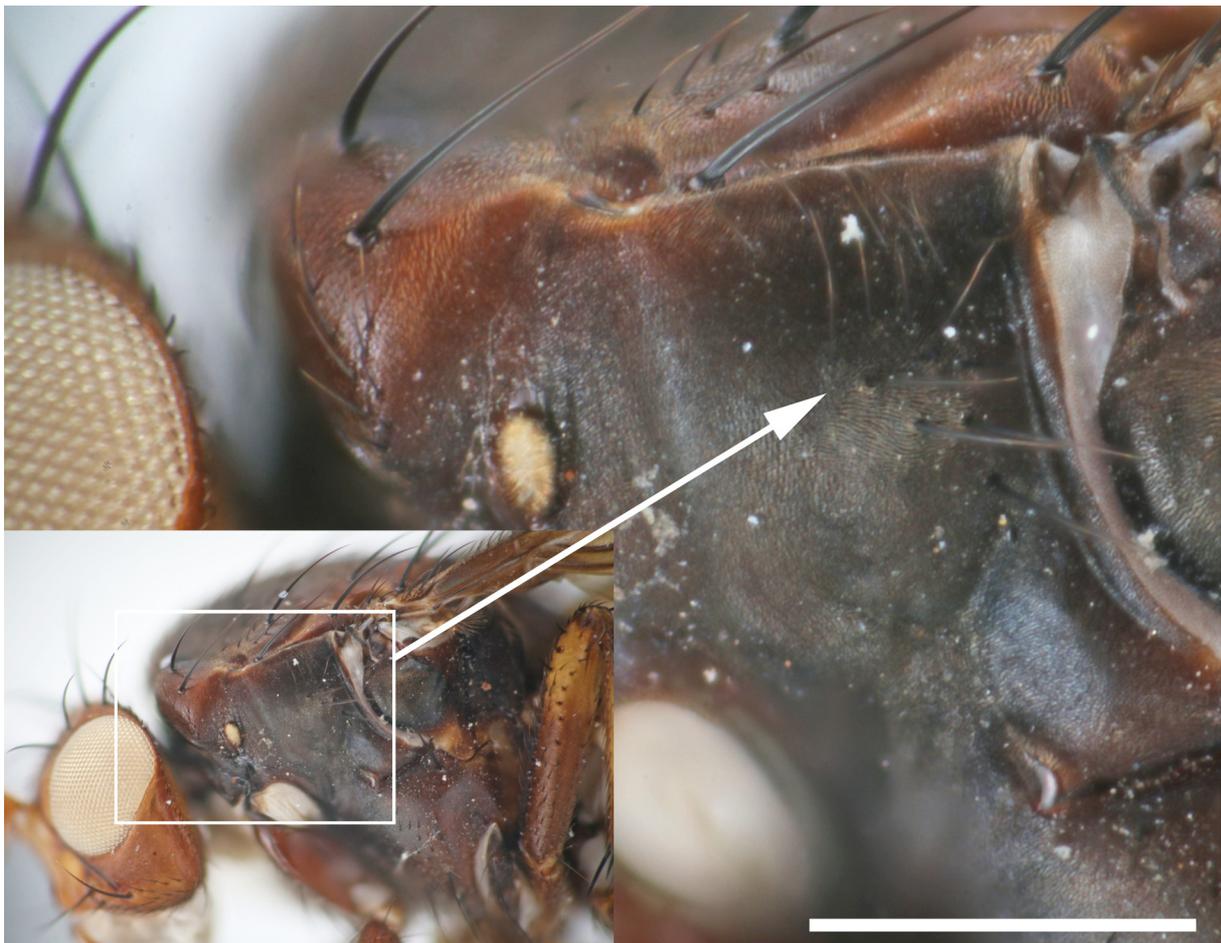


Fig. 1. *Pleuroseta ingens* sp. nov., anepisternum showing posterodorsal patch of setae and setulae (debu00161215). Scale bar=0.50 mm.

Key to species of *Pleuroseta*

1. Small species (1.8–2.3 mm). Legs entirely dark brown; wing uniformly infusate and not patterned. Proximal half of mid tibia with four dorsal bristles. Male S5 with stout, tooth-like setae flanking posteromedial emargination; ventral part of S6 unmodified (Fig. 3B). Female terminalia elongate, telescoped, largely membranous (Fig. 4A–B) *P. occidentalis* sp. nov. (WA)
 - Large species (2.8–4.4 mm). Legs dark brown with yellow bands; wing infusate with pattern of light spots. Proximal half of mid tibia with eight dorsal bristles. Male S5 bare or with unmodified setae flanking posteromedial emargination; S6 with additional lobes situated beneath posteromedial edge of S5 (as in Fig. 7B). Female terminalia short, well-sclerotized (Figs 9A–B, 14A–B) 2
2. Fore tibia entirely brown; fore tarsomeres 2–5 white. Interfrontal bristles in two larger pairs and two smaller pairs. First postsutural pair of dorsocentral bristles separated by 9–14 acrostichal setulae. Male terminalia extremely large, epandrium almost as large as head (Figs 6A, 10A) 3
 - Fore tibia with basal two-thirds yellow; all fore tarsomeres yellow. Interfrontal bristles in three large pairs and one small pair. First postsutural pair of dorsocentral bristles separated by 7–9 acrostichal setulae. Male terminalia relatively small, epandrium much smaller than head (Fig. 12A)
..... *P. wentworthi* (Richards, 1973) (NSW, QLD)
3. First postsutural pair of dorsocentral bristles separated by 12–14 rows of acrostichal setulae. Male S5 with deep, linear posteromedial emargination extending almost to anterior margin of sternite (Fig. 7B). S6 with three distinct, parallel, posteriorly directed lobes (Fig. 8A). Anterior section of surstylus with closely approximated dorsal and ventral lobes, dorsal lobe rectangular and ventral lobe short. Basal section of distiphallus short, stout and boot-shaped, apical section longer
..... *P. ingens* sp. nov. (QLD)
 - First postsutural pair of dorsocentral bristles separated by 9–10 rows of acrostichal setulae. Male S5 with large, triangular posteromedial emargination reaching at most to anterior fifth of sternite (Fig. 11B). S6 with a dark T-shaped sclerotization, only the middle lobe of which extends posteriorly. Anterior section of surstylus with well-separated dorsal and ventral lobes, dorsal lobe semicircular and ventral lobe elongate. Basal section of distiphallus elongate, curved, apical section shorter *P. monteithi* sp. nov. (QLD)

Pleuroseta occidentalis sp. nov.

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Figs 2–4, 5A–B

Etymology

The species name (from the Latin, *occidentalis*, ‘western’) refers to the apparent restriction of *P. occidentalis* sp. nov. to Western Australia.

Material examined

Holotype

AUSTRALIA • ♂; Western Australia, Fernhook Falls, ~30 km north of Walpole, Deep River shoreline; 26–27 Nov. 2003; S.A. Marshall leg.; dung pans; WAM debu00244195.

Paratypes

AUSTRALIA – **Western Australia** • 5 ♂♂, 1 ♀; same collection data as for holotype; WAM • 5 ♂♂, 2 ♀♀; 15 km E of Walpole; 28–30 Nov. 2003; S.A. Marshall leg.; tingle tree forest, dung pans in leaf litter; WAM • 1 ♂; Boranup Forest, ~25 km N of Augusta; 34°09'52" S, 115°04'34" E; 19–20 Nov. 2003; S.A. Marshall leg.; karri forest; DEBU • 1 ♂; Mount Frankland, ~30 km N of Walpole; 26 Nov. 2003;

S.A. Marshall leg.; pans; DEBU • 1 ♀; Peaceful Bay, Ficifolia Road and Nut Road; 28–30 Nov. 2003; S.A. Marshall leg.; dry heath, pans; DEBU • 6 ♂♂, 4 ♀♀; Porongurup National Park, Bolganup Creek; 8–16 Jun. 1980; S. and J. Peck leg.; DEBU • 7 ♂♂, 5 ♀♀; same collection data as for preceding; WAM • 3 ♂♂, 3 ♀♀; Wrenwood Cottages, 10 km N of Augusta; 34°15' S, 115°01' E; 20–23 Nov. 2003; S.A. Marshall leg.; paperbark grove, pans; DEBU.

Description

BODY (Fig. 2A). Length 1.8–2.3 mm. Head dark brown, lower portion of frons orange, antennae brown. Frontal width 1.9–2.0 × interfrontal height. Interfrontal bristles in 3–4 larger subequal pairs surmounting smaller 4th/5th pair. Vibrissal angle with 2–3 subvibrissal setulae; gena with strong upcurved seta and 5–7 setulae, lower half with brown microtomentum. Face evenly rounded ventromedially; palpus with two subapical setae and several small setulae. Antennal pedicel large, at least 0.7 × size of postpedicel; postpedicel spherical. Eye height 2.2–2.4 × genal height. Thorax dark brown. Three pairs of distinct dorsocentral bristles, anterior-most pair at level of suture and only slightly larger than acrostichals, middle pair 0.5 × length of prescutellar pair, separated by 8–10 rows of acrostichal setulae. Outer postpronotal bristle large and inner bristle smaller. Anepisternum with vertical, posterodorsal row of 2–3 setae, otherwise bare; katepisternum with moderate anterior seta, very large posterior seta and several smaller ventral setae. Scutellum subtriangular, length 0.5–0.6 × its width. Legs dark brown; tarsi brown. Mid tibia with four dorsal bristles (two anterodorsal and two posterodorsal, none paired) in proximal half and four dorsal bristles (one anterodorsal, two dorsal, and one posterodorsal, larger bristles paired) in distal half. Ventral surface of mid tibia with distal row of stout setae in males (mid femur with corresponding row of strong proximoventral setae). Wing (Fig. 5A) evenly infusate. CS2 0.7–0.8 × length of CS3. R₄₊₅ gently upcurved, meeting costa before wing tip; costa extending far beyond apex of R₄₊₅ (5–6 × costal width). M₁ and M₄ pseudoveins extending beyond dm-m approximately half way to wing margin; crossvein r-m at 0.3 × length of R₄₊₅; crossveins separated by 1.4–1.5 × length of dm-m; CuA+CuP sinuate but weakly defined. Alula small and parallel-sided, length 4.5 × width. Halter pale brown.

MALE ABDOMEN (Figs 2B–C, 3, 5B). S5 long setose with broad posteromedial emargination flanked by lateral patches of stout, blunt setae. S6+7 simple and unmodified; S7 with small dextral extension. Epandrium large (subequal to eye); cercus small, subtriangular, and slightly flared posteriorly with two long setae; subepandrial sclerite well-developed, broad and bent dorsally, ventrally tapered to a narrow, dark stripe. Hypandrium Y-shaped, anteromedial apodeme very broad; lateral arm with knob-like ventral lobe. Surstylus short, trilobed: the anterior lobe rectangular with two very long, curled setae, mediolateral lobe triangular with several setulae, posterior lobe semicircular with three thick, tooth-like ventral setae and several smaller inner setae. Postgonites broad, slightly curved forwards and constricted in apical third, apex rounded with several minute setulae. Phallapodeme elongate and sinuate; basiphallus large (0.5 × postgonite length), wedge-shaped; epiphallus downcurved and tapered. Distiphallus composed of several sclerites and divided into basal and apical sections: basal section composed of a saddle-shaped upper sclerite which curves around to a triangular lower sclerite; apical section composed of a dark, curved, rectangular upper anterior sclerite and two elongate, curved, lower lateral sclerites which together support sheet-like membranous apex.

FEMALE ABDOMEN (Fig. 4). Postabdomen elongate, segments 6–8 fitting into segment 5 at rest; when everted, postabdomen ~50% of the total abdominal length. T6–7 and S6–7 elongate but reduced, appearing as thin, medially-desclerotized, rectangular or bell-shaped plates and posteriorly bearing 6–8 setae. T8 divided into two elongate, posteriorly setulose, lateral sclerites. Epiproct rectangular, medially desclerotized with pair of dorsal setae. Cercus short, ovoid, with several long sinuate setae. S8 ovoid, anteromedially reduced and posteriorly densely setulose. Hypoproct broad but short, with 8–10 posterior setulae. Spermathecae stout, spherical, strongly grooved with apical invagination.

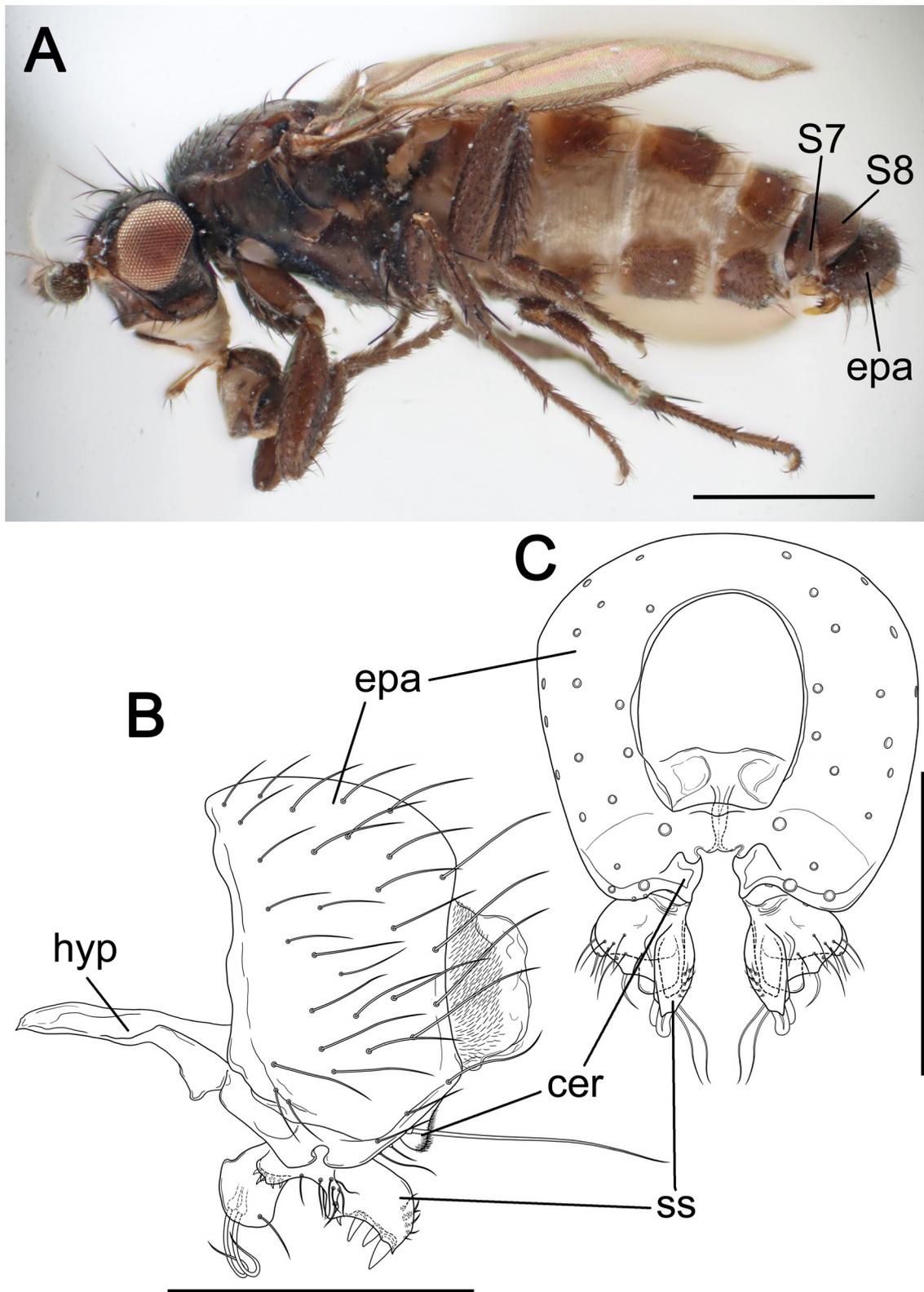


Fig. 2. *Pleuroseta occidentalis* sp. nov. **A.** Male paratype habitus, lateral view (debu00245911). **B.** Male paratype terminalia, lateral view (debu00245797). **C.** Male paratype terminalia, posterior view (debu00245797). Abbreviations: cer=cercus, epa=epandrium; hyp=hypandrium; ss=surstylus. Scale bars: A=0.50 mm; B–C=0.13 mm.

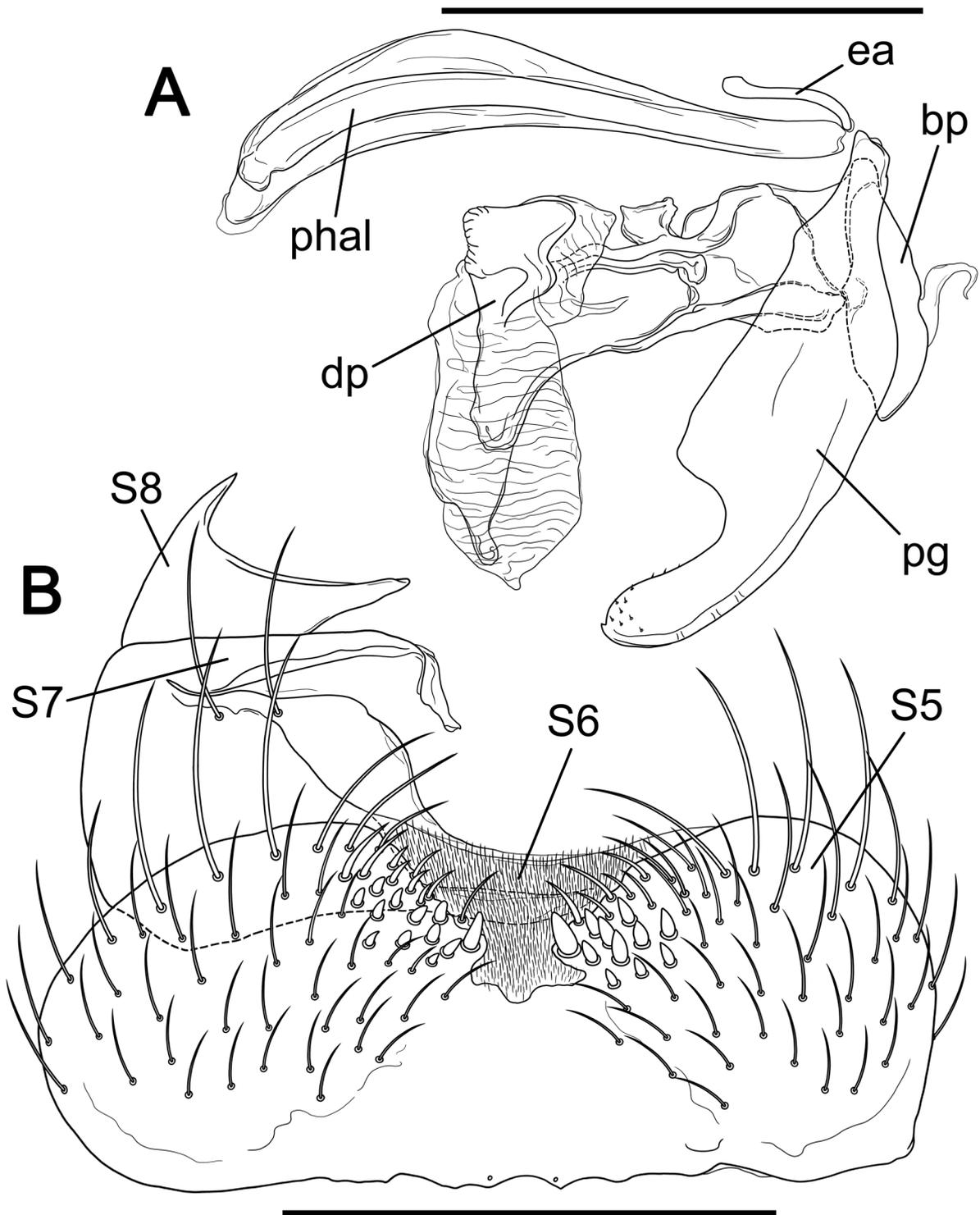


Fig. 3. *Pleuroseta occidentalis* sp. nov. paratype (debu00245797). **A.** Aedeagus and associated structures, lateral view. **B.** Male S5–8, ventral view. Abbreviations: bp=basiphallus; dp=distiphallus; ea=ejaculatory apodeme; phal=phallapodeme; pg=postgonite. Scale bars: A=0.13 mm; B=0.25 mm.

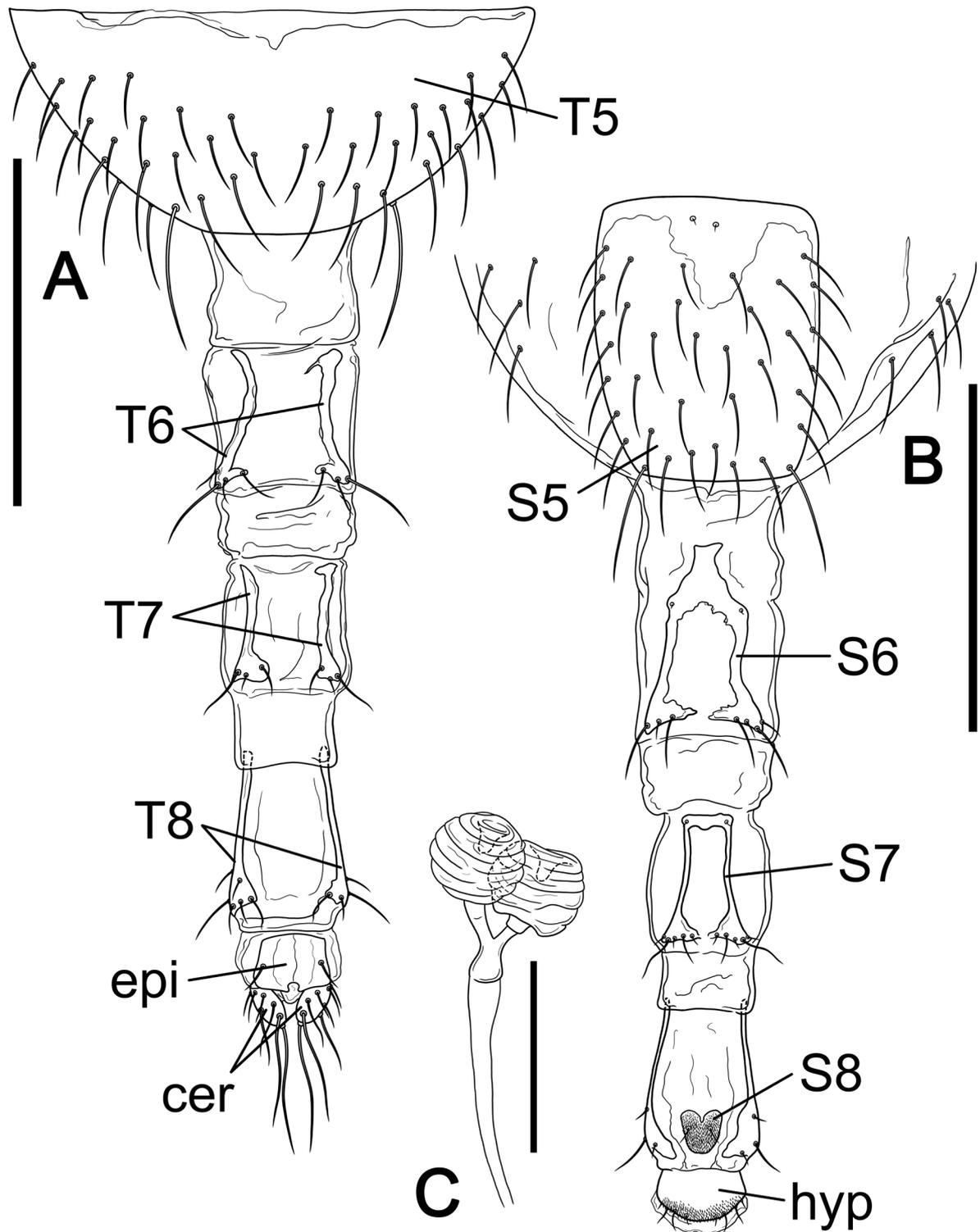


Fig. 4. *Pleuroseta occidentalis* sp. nov. paratype (debu00245809). **A.** Female terminalia, dorsal view. **B.** Female terminalia, ventral view. **C.** Spermathecae. Abbreviations: cer=cercus; epi=epiproct; hyp=hypoproct. Scale bars: A–B=0.40 mm; C=0.04 mm.

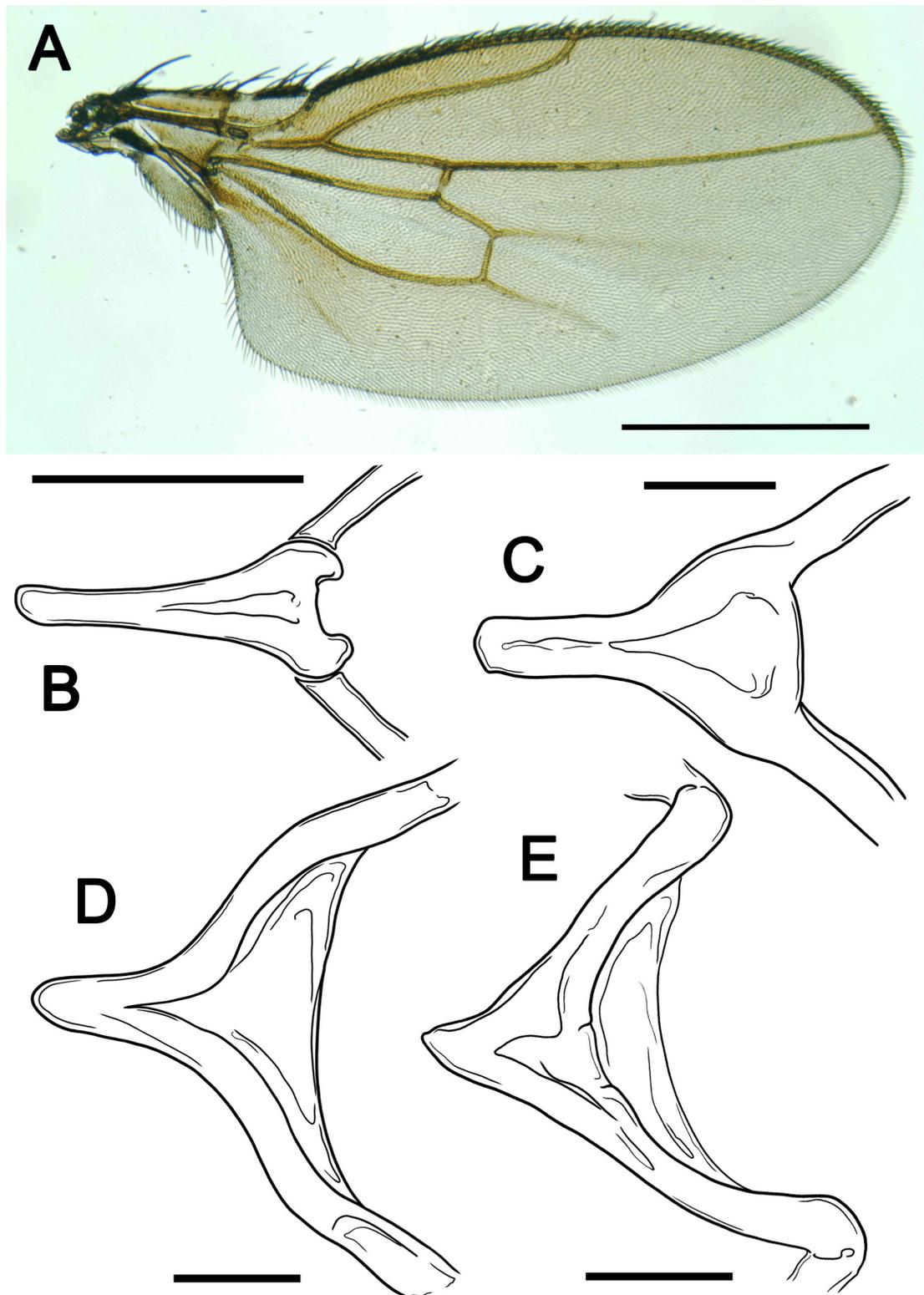


Fig. 5. A. *Pleuroseta occidentalis* sp. nov. paratype, left wing, ventral view (debu00244165). B. *Pleuroseta occidentalis* paratype, hyandrium, dorsal view (debu00245797). C. *Pleuroseta wentworthi* (Richards, 1973), hyandrium, dorsal view (debu00264733). D. *Pleuroseta ingens* sp. nov. paratype, hyandrium, dorsal view (debu00160984). E. *Pleuroseta monteithi* sp. nov. paratype, hyandrium, dorsal view (debu00160892). Scale bars: A=0.50 mm, B–E=0.10 mm.

Remarks

This species is much smaller and less colourful than other species of *Pleuroseta*, from which it differs widely in the structure of the male genitalia, and in having elongate, telescopic female terminalia similar to those of most macropterous *Howickia*. It is here provisionally included in *Pleuroseta* on the basis of the diagnostic posterior anepisternal setae, the third dorsocentral bristle, and the enlarged mid basitarsal seta. *Pleuroseta occidentalis* sp. nov. is the only species of *Pleuroseta* known from Western Australia and the only species not known from Queensland.

Pleuroseta ingens sp. nov.

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Figs 1, 5D, 6–9, 16A

Etymology

The species name (from the Latin *ingens*, 'huge, 'enormous') refers to the greatly enlarged male genitalia and the very large, cup-shaped female epiproct.

Material examined

Holotype

AUSTRALIA • ♂; Queensland, Bartle Frere; 17°23' S, 145°48' E; 1000 m a.s.l.; 29–30 Nov. 1998; G.B. Monteith leg.; boulder cave, dung trap; QMBA debu00160983.

Paratypes

AUSTRALIA – **Queensland** • 2 ♂♂, 2 ♀♀; same collection data as for holotype; DEBU • 3 ♂♂, 2 ♀♀; same collection data as for holotype; QMBA • 1 ♂, 1 ♀; 7 km NE of Ravenshoe; 17°34' S, 145°31' E; 1080 m a.s.l.; 3–5 Feb. 1999; G.B. Monteith leg.; rainforest, dung pitfall; DEBU • 2 ♀♀; 9.5 km N of Ravenshoe; 17°32' S, 145°29' E; 1060 m a.s.l.; 14–17 Apr. 1999; G.B. and S.R. Monteith leg.; wet sclerophyll, dung trap; QMBA • 1 ♀; Arthur Baillie Road; 17°41' S, 145°31' E; 1000 m a.s.l.; 6–8 Feb. 1999; D.J. Cook leg.; rainforest, automatic dung trap (night); QMBA • 2 ♂♂, 2 ♀♀; Bellenden Ker, top station; 17°16' S, 145°51' E; 1500 m a.s.l.; 30 Nov.–2 Dec. 1998; Monteith and Cook leg.; automatic dung trap, 5:30 am –6:15 pm; QMBA • 3 ♂♂, 3 ♀♀; Bellenden Ker, top station; 17°16' S, 145°51' E; 1500 m a.s.l.; 30 Nov.–2 Dec. 1998; G.B. Monteith leg.; dung traps; DEBU • 1 ♂, 2 ♀♀; Charmillin Creek; 17°42' S, 145°31' E; 900 m a.s.l.; 2–5 Dec. 1998; Monteith and Cook leg.; automatic dung trap, 5:30 am –6:15 pm; QMBA • 1 ♂, 4 ♀♀; Kjellberg Road, State Forest boundary; 17°32' S, 145°35' E; 920 m a.s.l.; 6–9 Feb. 1999; G.B. Monteith leg.; rainforest, dung pitfall; DEBU • 1 ♀; Kjellberg Road turnoff; 17°32' S, 145°36' E; 740 m a.s.l.; 6–9 Feb. 1999; G.B. Monteith leg.; rainforest, dung pitfall; DEBU • 5 ♂♂, 6 ♀♀; Longlands Gap, three-ways Road junction; 17°28' S, 145°29' E; 1060 m a.s.l.; 3–6 Feb. 1999; Monteith and Cook leg.; wet sclerophyll, dung trap; QMBA • 1 ♀; same collection data as for preceding; rotten bait; DEBU • 1 ♂; Maalan State Forest, Ravenshoe Road; 17°35' S, 145°36' E; 840 m a.s.l.; 6–9 Feb. 1999; D.J. Cook leg.; rainforest, dung pitfall; DEBU • 7 ♂♂, 2 ♀♀; Millaa Millaa Falls; 17°30' S, 145°51' E; 800 m a.s.l.; 6–9 Feb. 1999; G.B. Monteith leg.; rainforest, dung pitfall; QMBA • 2 ♂♂, 9 ♀♀; Mount Hugh Nelson, south base; 17°31' S, 145°33' E; 1080 m a.s.l.; 7–9 Feb. 1999; Monteith and Cook leg.; rainforest, dung pitfall; QMBA • 5 ♂♂, 6 ♀♀; same collection data as for preceding; rotten bait; DEBU • 2 ♂♂; Mount Hypipamee National Park; 11–17 Apr. 1999; S.A. Marshall leg.; dung; DEBU • 5 ♂♂, 1 ♀; Mount Kooroomool, 7 km south of the summit; 17°54' S, 145°41' E; 1050 m a.s.l.; 3–4 Dec. 1998; G.B. Monteith leg.; dung trap (night/dawn); QMBA • 3 ♂♂, 6 ♀♀; same collection data as for preceding; 4 Dec. 1998; dung trap (day); DEBU • 3 ♂♂, 5 ♀♀; same collection data as for preceding; dung trap (dusk); QMBA • 4 ♂♂, 3 ♀♀; The Millstream, 10 km NNE of Ravenshoe; 17°32' S, 145°31' E; 1040 m a.s.l.; 3–5 Feb. 1999; Monteith and Cook leg.; rainforest, dung

trap; DEBU • 5 ♂♂, 4 ♀♀; same collection data as for preceding; QMBA • 7 ♂♂, 6 ♀♀; Vine Creek, Majors Mountain; 17°41' S, 145°32' E; 1060 m a.s.l.; 4–6 Feb. 1999; Monteith and Cook leg.; rainforest, dung pitfall; DEBU • 1 ♀; same collection data as for preceding; fish pitfall; DEBU.

Description

BODY (Fig. 6A). Length 2.8–4.4 mm. Head golden-brown, orbital plates, interfrontal plates and frontal vitta yellow, antennae yellow. Frontal width $2.2\text{--}2.3 \times$ interfrontal height. Interfrontal bristles in 3–4 pairs, anterior-most pair(s) small, posterior two larger (middle pair largest and cruciate). Vibrissal angle with one large subvibrissal seta and 2–3 setulae; gena with very large upcurved seta and 15–17 setulae. Face ventromedially with triangular indentation; palpus with two subapical setae and several ventral setae. Antennal pedicel large, subequal in size to postpedicel; postpedicel slightly flattened and apically pointed. Eye height $1.9\text{--}2.2 \times$ genal height. Thorax dark brown to black. Five pairs of distinct dorsocentral bristles, anterior three pairs presutural, first two pairs $0.2\text{--}0.3 \times$ length of third; first postsutural pair separated by 12–14 rows of fine acrostichal setulae. Both postpronotal bristles large but inner bristle slightly smaller. Anepisternum with posterodorsal patch of 7–8 setae and 10–13 setulae; katepisternum with distinct anterior seta, very large posterior seta, several smaller setulae, and several large ventral setae. Scutellum rectangular, length $0.4\text{--}0.5 \times$ its width. Legs brown and yellow, femora with preapical yellow patch, fore tibia brown, mid and hind tibiae largely yellow with brown apex; apical three fore tarsomeres white, all other tarsomeres yellow. Mid tibia with eight dorsal bristles (four anterodorsal and four posterodorsal, all paired) in proximal half and three dorsal bristles (one anterodorsal, one dorsal, and one posterodorsal, no pairs) in distal half. Wing (Fig. 16A) infusate with ill-defined pale spots and darker patches at the crossveins and around the center of most cells. CS2 $1.5 \times$ length of CS3. R_{4+5} sinuate, meeting costa at wing tip; costa ending at apex of R_{4+5} . M_1 pseudovein extending beyond dm-m almost to wing margin; M_4 extending beyond dm-m about halfway to wing margin; crossvein r-m just before midpoint of R_{4+5} ; crossveins separated by $1.2\text{--}1.3 \times$ length of dm-m; CuA+CuP distinct but not tubular, and bent apically. Alula large, length $2.8\text{--}3.0 \times$ width, outer edge slightly sinuate.

MALE ABDOMEN (Figs 5D, 6B–C, 7–8). S5 broad, subrectangular with a slight anteromedial emargination and a very deep posteromedial emargination, posterior surface of each lobe with dense setation. S6+7 very large (almost subequal to epandrium) and complex: S6 extending ventrally under (dorsal to) S5 and with three thickened, posteriorly-directed lobes situated under (dorsal to) emargination of S5; posteriorly to this lies a folded sclerite, hourglass-like in shape with the fold occurring at middle (upper half is connected to the rest of S6 and lower half is free-hanging); S7 with elongate, dextral extension reaching across to and fused to ring sclerite; S8 with dorsal, anteromedial semicircular emargination; ring sclerite well-developed. Epandrium very large (only slightly smaller than head); cercus reduced to transverse strip along posteroventral margin of epandrium with several long setae; subepandrial sclerite X-shaped. Hypandrium triangular, anteromedial apodeme curved upwards anteriorly. Surstylus short and complex: anterior half composed of two lobes: a rectangular dorsal lobe which is bent inwards anterodorsally and a thickened, triangular, beak-like ventral lobe; posterior half subtriangular, bulging dorsolaterally, with a broad anterior point, an elongate posterior ‘arm’, and a broad, rounded ventral lobe which has many long setae on the outer surface and a patch of thickened setae along the inner surface. Postgonite elongate, tapered-triangular and apically slightly bent anteriorly. Phallapodeme elongate and slightly sinuate; basiphallus large, wedge-shaped (often visible between surstyli in dried specimens). Distiphallus extremely large ($\sim 12\%$ total body length), divided into basal section and apical section: basal section strongly sclerotized and boot-shaped; apical section composed of a bent, trough-like, sinuate lower sclerite and a pair of flattened, curved lateral sclerites.

FEMALE ABDOMEN (Fig. 9). Postabdomen stout, segments 6–7 partially fitting into segment 5 at rest; when fully everted, postabdomen comprising $\sim 30\%$ of total abdominal length. T6–7 and S6–7 broad but short with 8–10 posterior setae. T8 divided into two broad, posteriorly long-setose, lateral plates. Epiproct

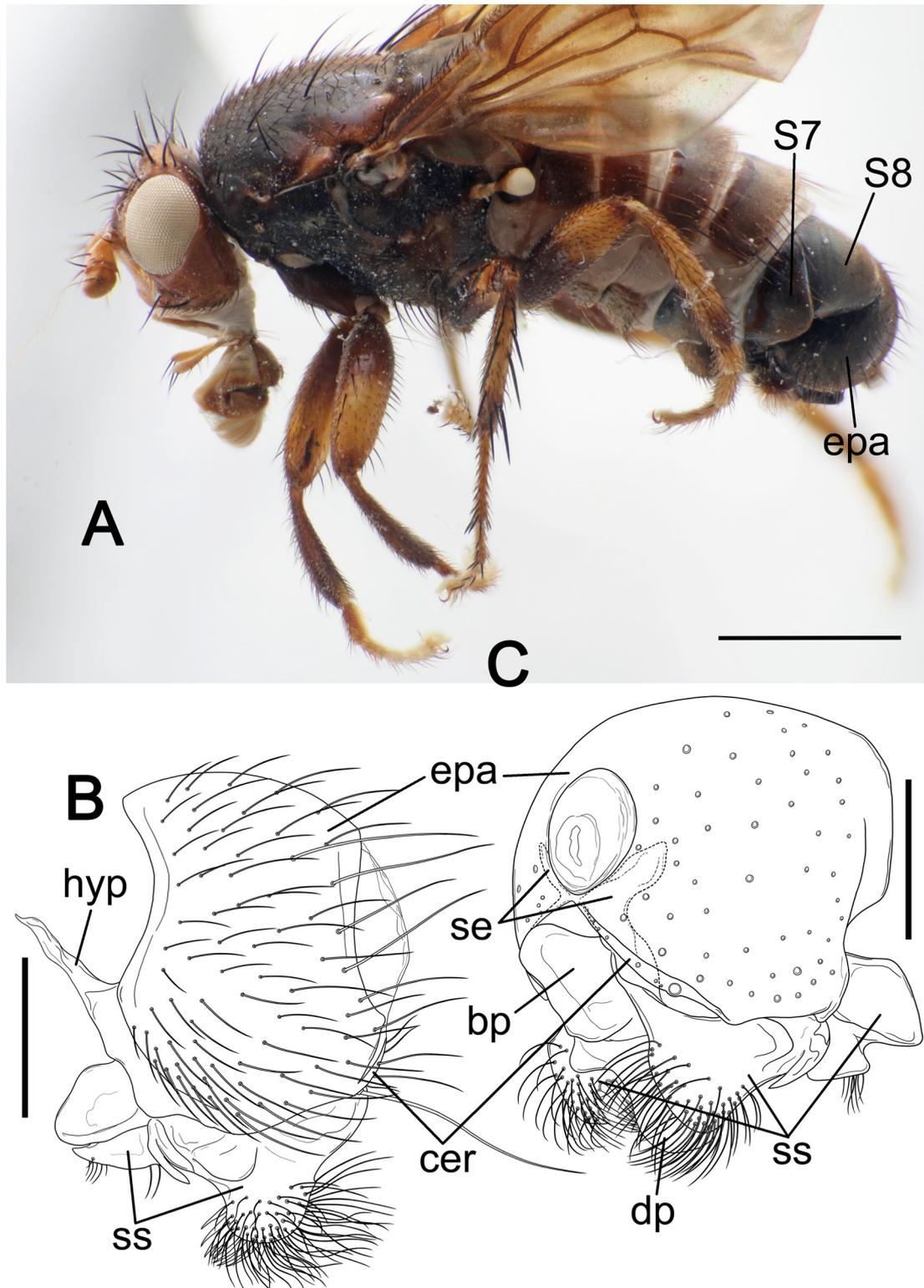


Fig. 6. *Pleuroseta ingens* sp. nov. **A.** Male paratype habitus, lateral view (debu00162612). **B.** Male paratype terminalia, lateral view (debu00160984). **C.** Male paratype terminalia, posterolateral view (debu00160984). Abbreviations: bp=basiphallus; cer=cercus; dp=distiphallus; epa=epandrium; hyp=hypandrium; se=subepandrial sclerite; ss=surstylus. Scale bars: A=1.0 mm; B–C=0.40 mm.

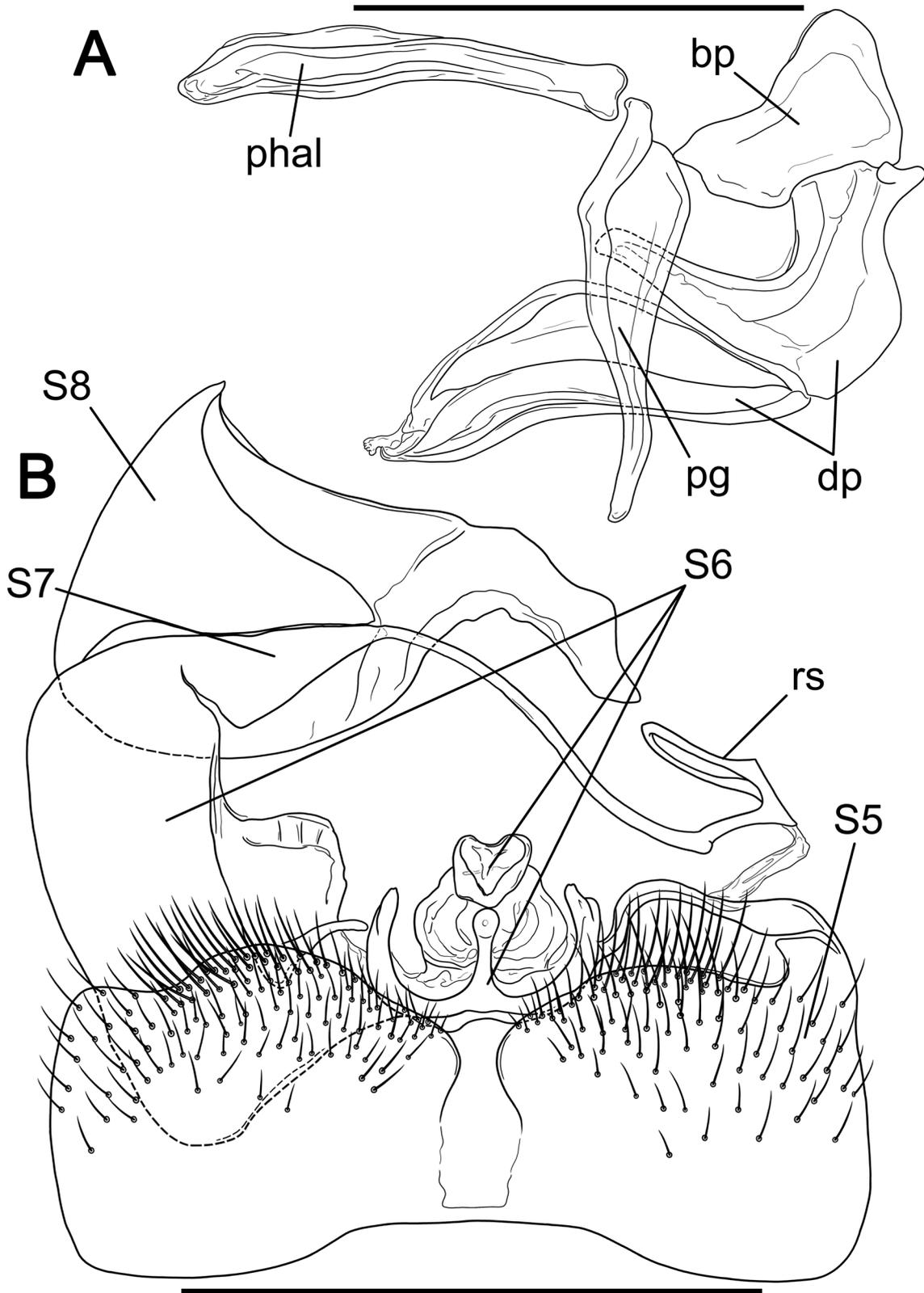


Fig. 7. *Pleuroseta ingens* sp. nov. paratype (debu00160984). **A.** Aedeagus and associated structures, lateral view. **B.** Male S5–8, ventral view. Abbreviations: bp=basiphallus; dp=distiphallus; pg=postgonite; phal=phallapodeme; rs=ring sclerite. Scale bars: A=0.40 mm; B=0.70 mm.

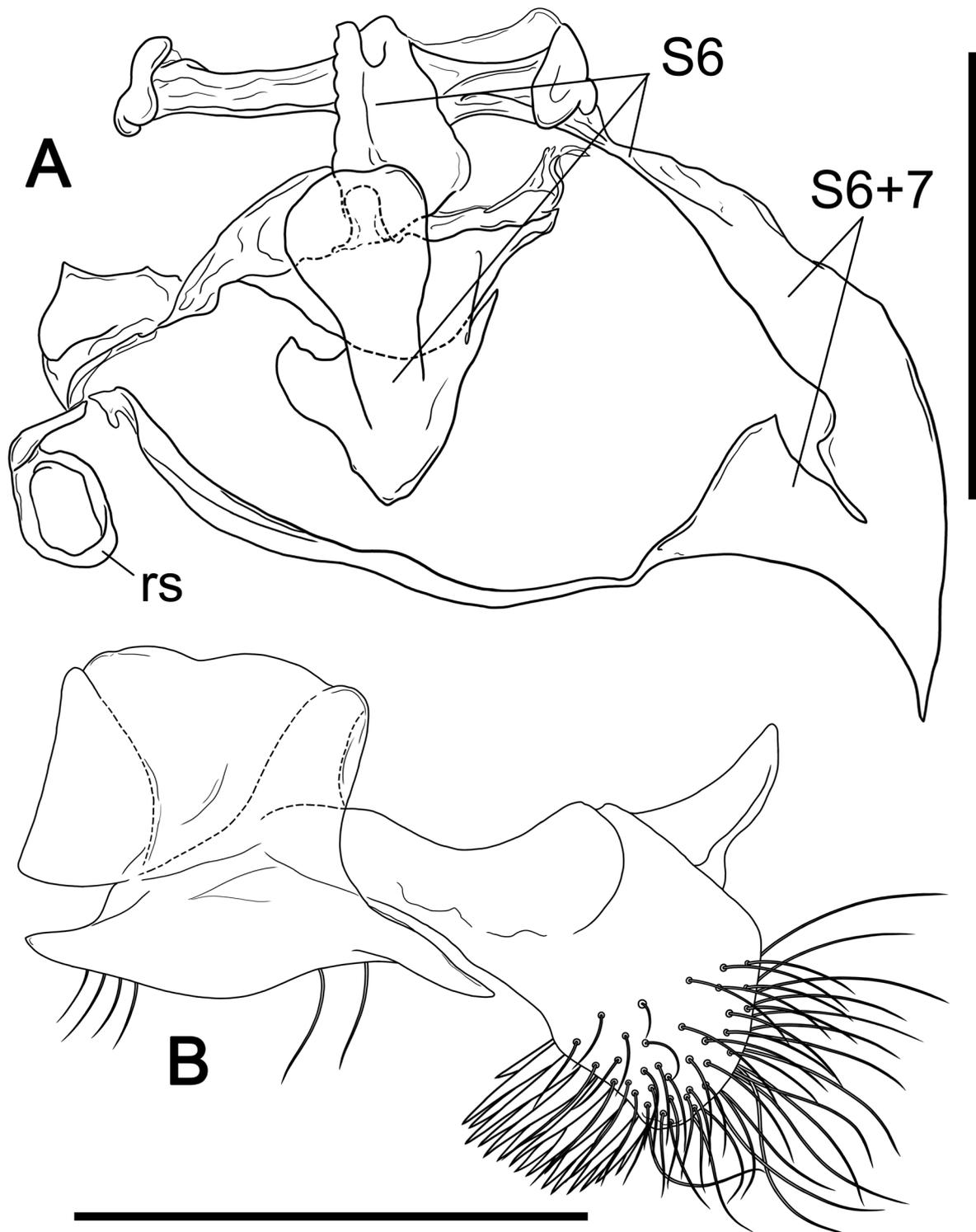


Fig. 8. *Pleuroseta ingens* sp. nov. paratype (debu00160984). **A.** Male S6+7 and ring sclerite, ventrolateral view. **B.** Male surstylus, anterolateral view. Abbreviations: rs=ring sclerite. Scale bar: A=0.50 mm; B=0.30 mm.

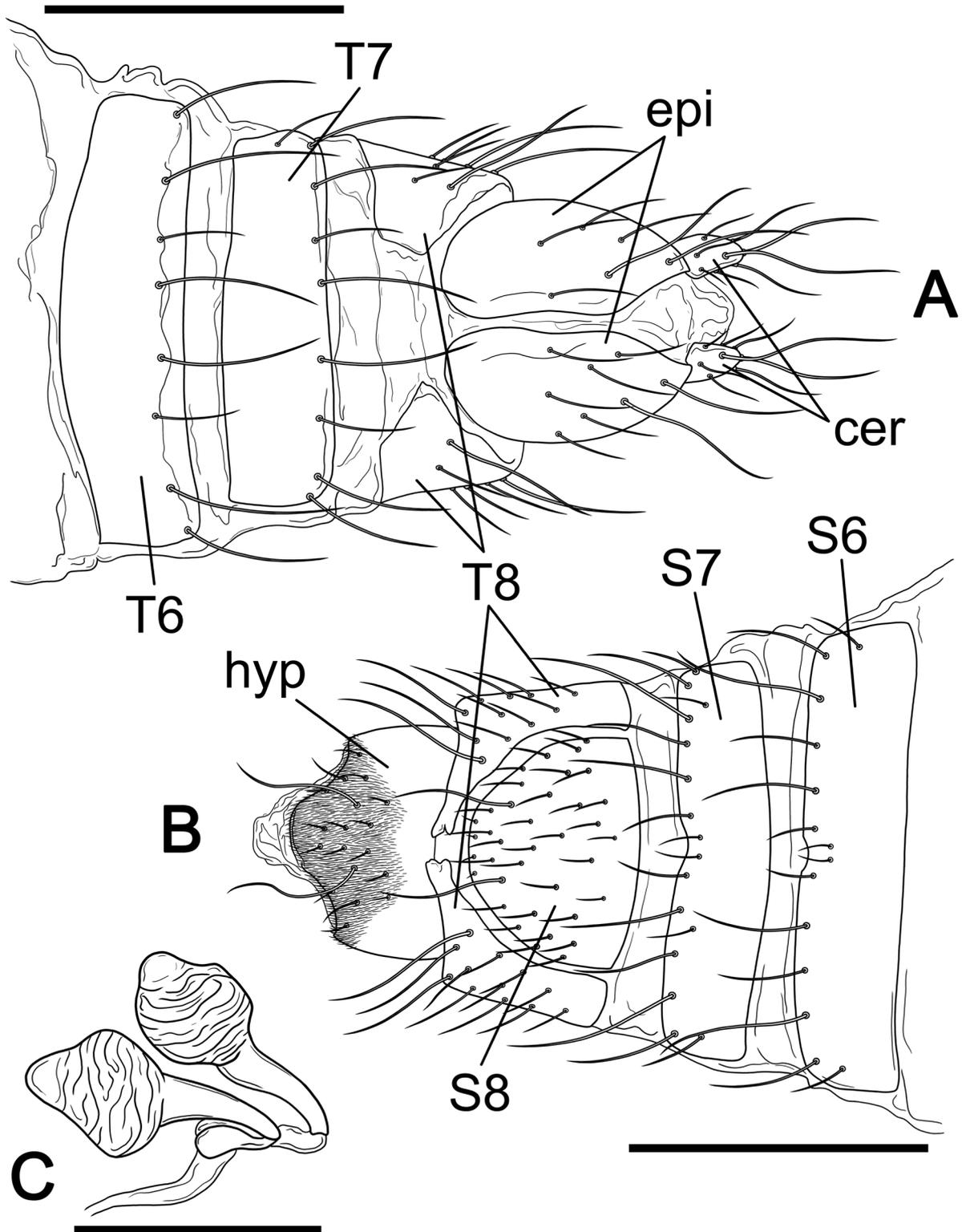


Fig. 9. *Pleuroseta ingens* sp. nov. paratype (debu00162621). **A.** Female terminalia, dorsal view. **B.** Female terminalia, ventral view. **C.** Spermathecae. Abbreviations: cer=cercus; epi=epiproct; hyp=hypoproct. Scale bars: A–B=0.80 mm; C=0.20 mm.

very large (~40% total length of postabdomen), divided into two ovoid, setose sclerites, resembling very large cerci. Cercus small, ovoid with 4–5 long, sinuate setae. S8 broad, semicircular, with long setae in posterior half. Hypoproct well-developed, sub-pentagonal, with two setae, 14–17 setulae, and dense microtomentum in posterior third. Spermathecae stout, pear-shaped and lightly grooved with an elongate, slightly sinuate, subconical stem.

Remarks

Pleuroseta ingens sp. nov. is externally almost indistinguishable from, and internally very similar to, *P. monteithi* sp. nov. but it is distinguished by several characters of the male genitalia (S5 with a linear posteromedial emargination, S6 with three distinct, posteriorly-directed ventral lobes, and basal part of the distiphallus boot-shaped with an elongate apical extension).

Pleuroseta ingens sp. nov. is the most commonly collected species of *Pleuroseta*, comprising about 72% of the specimens we have seen (mostly from trap samples collected by G.B. Monteith and/or D.J. Cook).

Pleuroseta monteithi sp. nov.

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Figs 5E, 10–11, 16B

Etymology

This species name is in honour of Dr Geoff Monteith, who collected the type specimens of this species as well as most of the other known specimens of *Pleuroseta*.

Material examined

Holotype

AUSTRALIA • ♂; Queensland, Cape Tribulation, transect site 8; 16°05' S, 145°26' E; 18 Nov. 1998; G.B. Monteith leg.; dung trap, 6 am –6 pm; QMBA debu00160870.

Paratype

AUSTRALIA – Queensland • 1 ♂; same collection data as for holotype; DEBU.

Description

BODY (Fig. 10A). As described for *P. ingens* sp. nov., except as follows: length 3.7–3.8 mm. Frontal width 2.4–2.5 × interfrontal height. Gena with 11–14 setulae. First postsutural pair of dorsocentral bristles separated by 9–10 rows of fine acrostichal setulae. Anepisternum with posterodorsal patch of 5–6 setae and 10–12 setulae. Wing pattern (Fig. 15B) slightly paler than in *P. ingens*. CS2 1.3 × length of CS3.

MALE ABDOMEN (Figs 5E, 10B–C, 11). S5 broad, subrectangular with large, triangular, posteromedial emargination, posterior surface of each lateral lobe with a dense tuft of fine, curved setae. S6+7 large (almost subequal to epandrium) and complex: S6 extending ventrally under (dorsal to) S5 and with dark, T-shaped posterior extension, the apex of which has a rippled margin; dorsal to this lies a tubular, basally constricted sclerite with heavily sclerotized, flattened, disc-like apex; S7 with elongate, dextral extension reaching across to ring sclerite; S8 with dorsal, anteromedial semicircular emargination; ring sclerite well-developed. Epandrium very large (only slightly smaller than head); cercus indistinct from epandrium; subepandrial sclerite thick, X-shaped. Hypandrium triangular, anteromedial apodeme curved upwards anteriorly. Surstylus short and complex: anterior half composed to two lobes: a semicircular dorsal lobe which is bent inwards anterodorsally and a thick, triangular, beak-like, ventrally setose ventral lobe; posterior half subtriangular, bulging laterally, with a broad anterior point, an elongate posterior ‘arm’, and a broad, rounded ventral lobe which has many long setae on the outer surface and

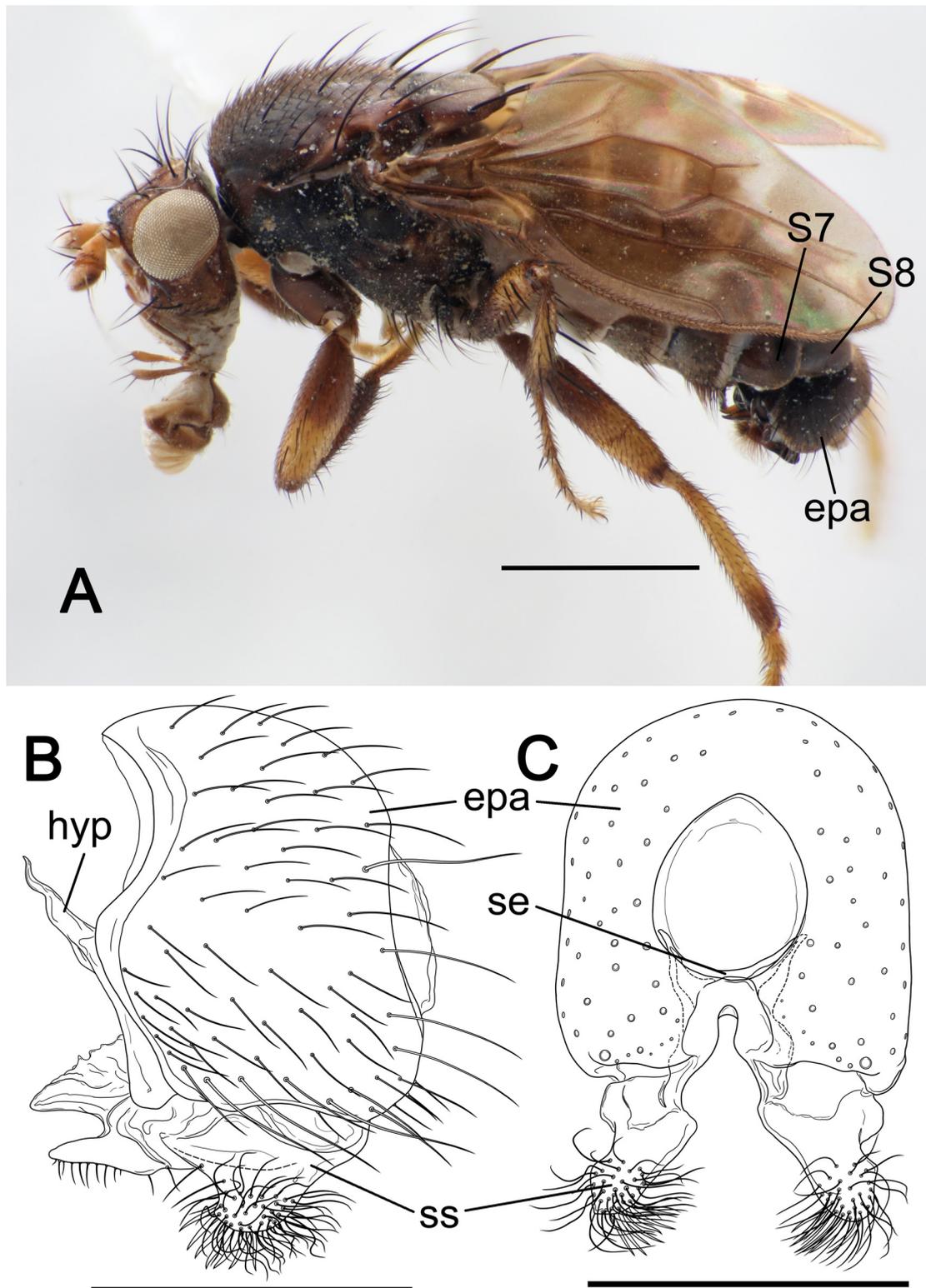


Fig. 10. *Pleuroseta monteithi* sp. nov. **A.** Male holotype habitus, lateral view (debu00160870). **B.** Male paratype terminalia, lateral view (debu00160892). **C.** Male paratype terminalia, posterolateral view (debu00160892). Abbreviations: epa=epandrium; hyp=hypandrium; se=subepandrial sclerite; ss=surstylus. Scale bars: A=1.0 mm; B–C=0.40 mm.

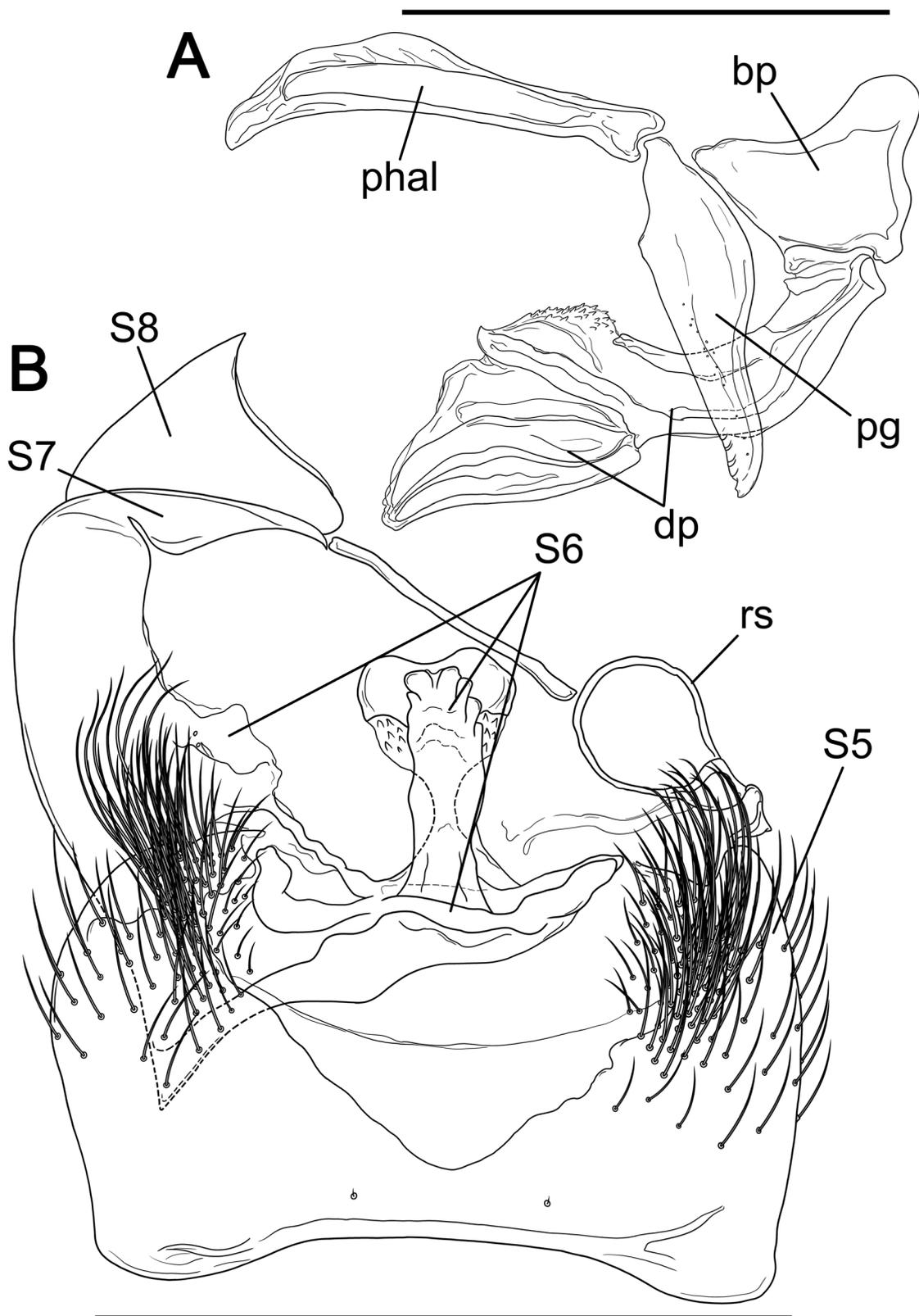


Fig. 11. *Pleuroseta monteithi* sp. nov. paratype (debu00160892). **A.** Aedeagus and associated structures, lateral view. **B.** Male S5–8, ventral view. Abbreviations: bp=basiphallus; dp=distiphallus; pg=postgonite; phal=phallapodeme; rs=ring sclerite. Scale bars: A=0.40 mm; B=0.60 mm.

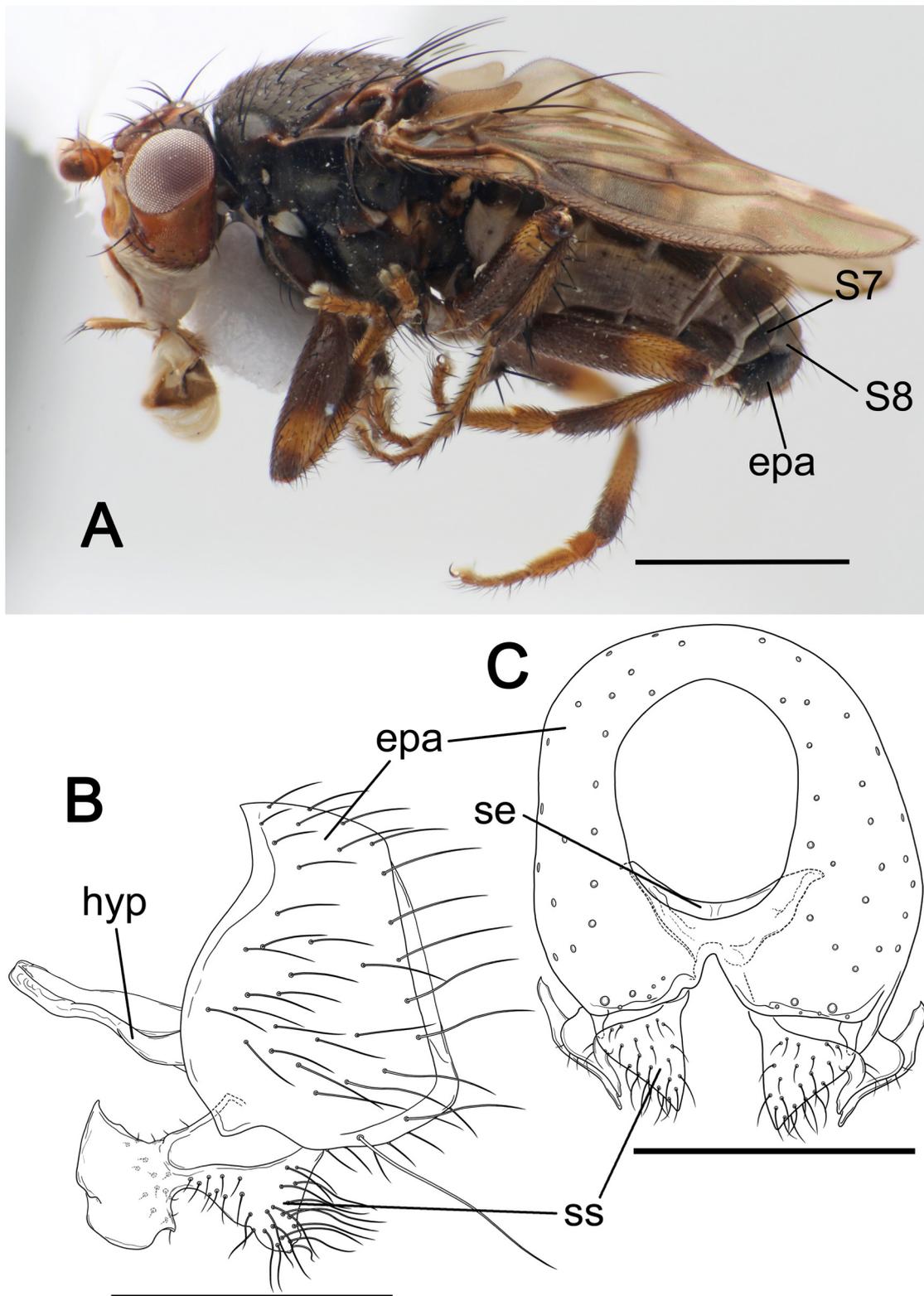


Fig. 12. *Pleuroseta wentworthi* (Richards, 1973). **A.** Male habitus, lateral view (debu00403539). **B.** Male terminalia, lateral view (debu00264733). **C.** Male terminalia, posterolateral view (debu00264733). Abbreviations: epa=epandrium; hyp=hypandrium; se=subepandrial sclerite; ss=surstylus. Scale bars: A=1.0 mm; B–C=0.30 mm.

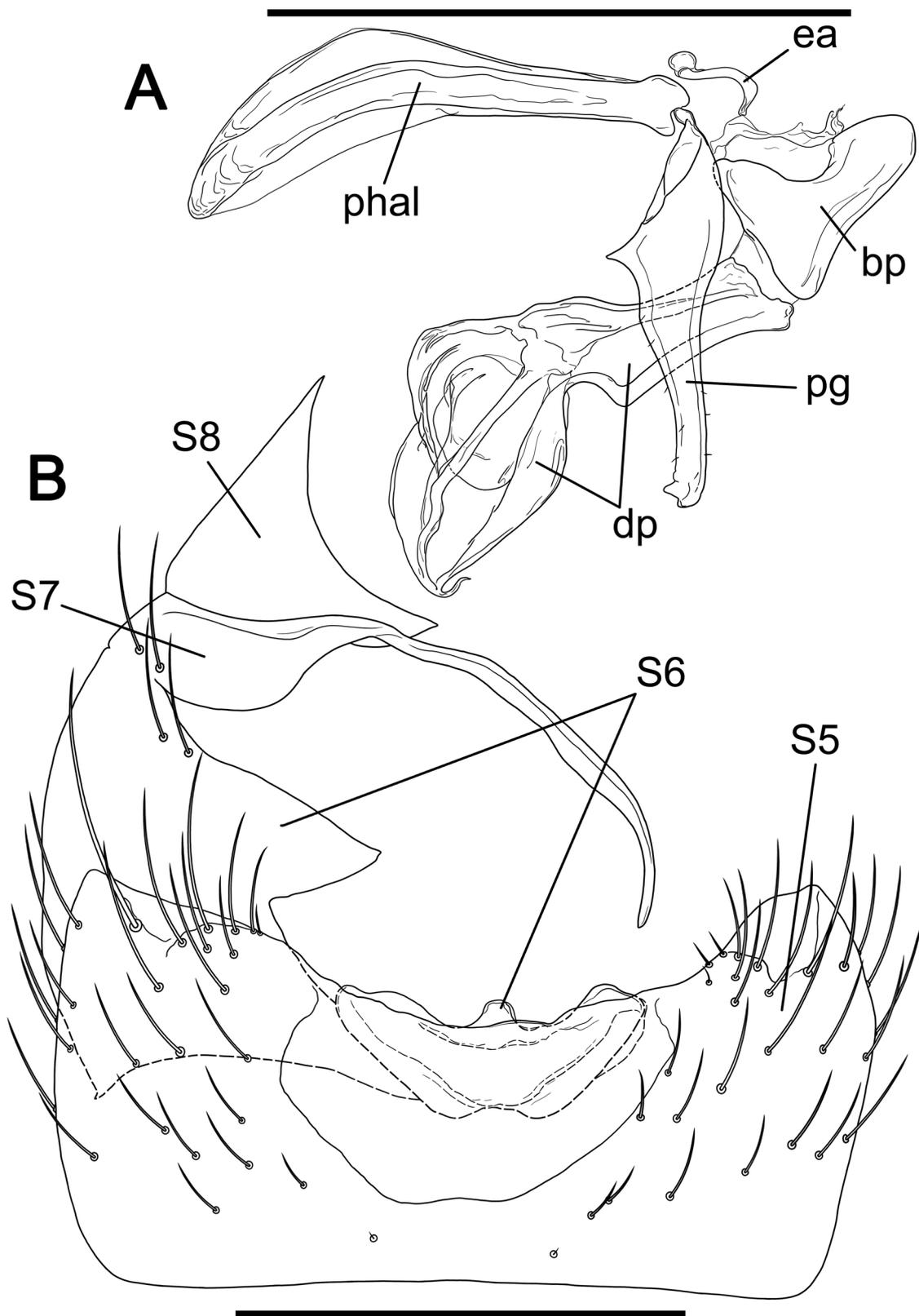


Fig. 13. *Pleuroseta wentworthi* (Richards, 1973) (debu00264733). **A.** Aedeagus and associated structures, lateral view. **B.** Male S5–8, ventral view. Abbreviations: bp=basiphallus; dp=distiphallus; ea=ejaculatory apodeme; pg=postgonite; phal=phallapodeme. Scale bars: A–B=0.30 mm.

a patch of thickened setae along the inner surface. Postgonite elongate, triangular and slightly bent forwards apically into a small hook. Phallapodeme elongate and curved; basiphallus large and saddle-shaped (often visible between surstyli in dried specimens). Distiphallus extremely large (~11% total body length), divided into basal and apical sections: basal section elongate, sclerotized and curved, with small lower knob articulating with apical section and spinose, membranous upper apex; apical section composed of a bent, trough-like, sinuate lower sclerite and a pair of flattened, curved lateral sclerites which fit along inner surface of lower sclerite.

FEMALE ABDOMEN. Female unknown.

Remarks

Pleuroseta monteithi sp. nov. is externally almost indistinguishable from, and internally very similar to, *P. ingens* sp. nov. As such, the male genitalia are required to identify this species: S5 with a triangular posteromedial emargination, S6 with a flattened, T-shaped posterior extension, anterior lobe of surstylus with a more elongate triangular ventral lobe and a semicircular dorsal lobe, postgonite thicker and straighter along the anterior margin, and basal part of the distiphallus more evenly curved without an elongate apical extension.

Both known specimens of *Pleuroseta monteithi* sp. nov. were collected some 150 km north of the northern-most collection locality of the similar *P. ingens* sp. nov. (from Mount Hypipamee National Park), suggesting that they might be allopatric or parapatric sister species.

Pleuroseta wentworthi (Richards, 1973)

Figs 5C, 12–15, 16C

Leptocera (Biroina) dorrignonis Richards 1973: 333, figs 30, 44–45. **Syn. nov.**

Leptocera (Pleuroseta) wentworthi Richards 1973: 355.

Biroina dorrignonis – Marshall 1989: 602. — Roháček *et al.* 2001: 125.

Pleuroseta wentworthi – Marshall 1989: 605. — Roháček *et al.* 2001: 199.

Pleuroseta dorrignonis – Kuwahara & Marshall 2022: 10.

Type material

Holotype of *Leptocera (Pleuroseta) wentworthi*

AUSTRALIA • ♂; New South Wales, Blue Mountains, Wentworth Falls; 20 Nov. 1958; D.K. McAlpine leg.; AMSA K.70475.

Holotype of *Leptocera (Biroina) dorrignonis*

AUSTRALIA • ♂; New South Wales, Dorrigo National Park; 30 Mar. 1960; D.K. McAlpine leg.; AMSA.

Paratypes of *Leptocera (Biroina) dorrignonis* (specimen in BMNH examined by SM in 1989)

AUSTRALIA – **New South Wales** • 1 ♀; Kangaroo Valley; 23 Mar. 1961; D.H. Colless leg.; ANIC • 1 ♂; National Park; 28 Apr. 1956; D.K. McAlpine leg.; AMSA • 1 ♀; Otford; 26 Jan. 1959; D.K. McAlpine leg.; AMSA. – **Queensland** • 1 ♂; Mount Glorious, near Brisbane; 4 Jan. 1961; D.K. McAlpine leg.; BMNH.

Other material examined

AUSTRALIA – **New South Wales** • 1 ♂; 8 km NW of Bruxner Park; 16 Apr. 1970; D.H. Colless leg.; ANIC • 1 ♂; 11 km NE of Bulahdelah, O' Sullivans Gap Reserve; 11 Jun.–27 Aug. 1982; S.

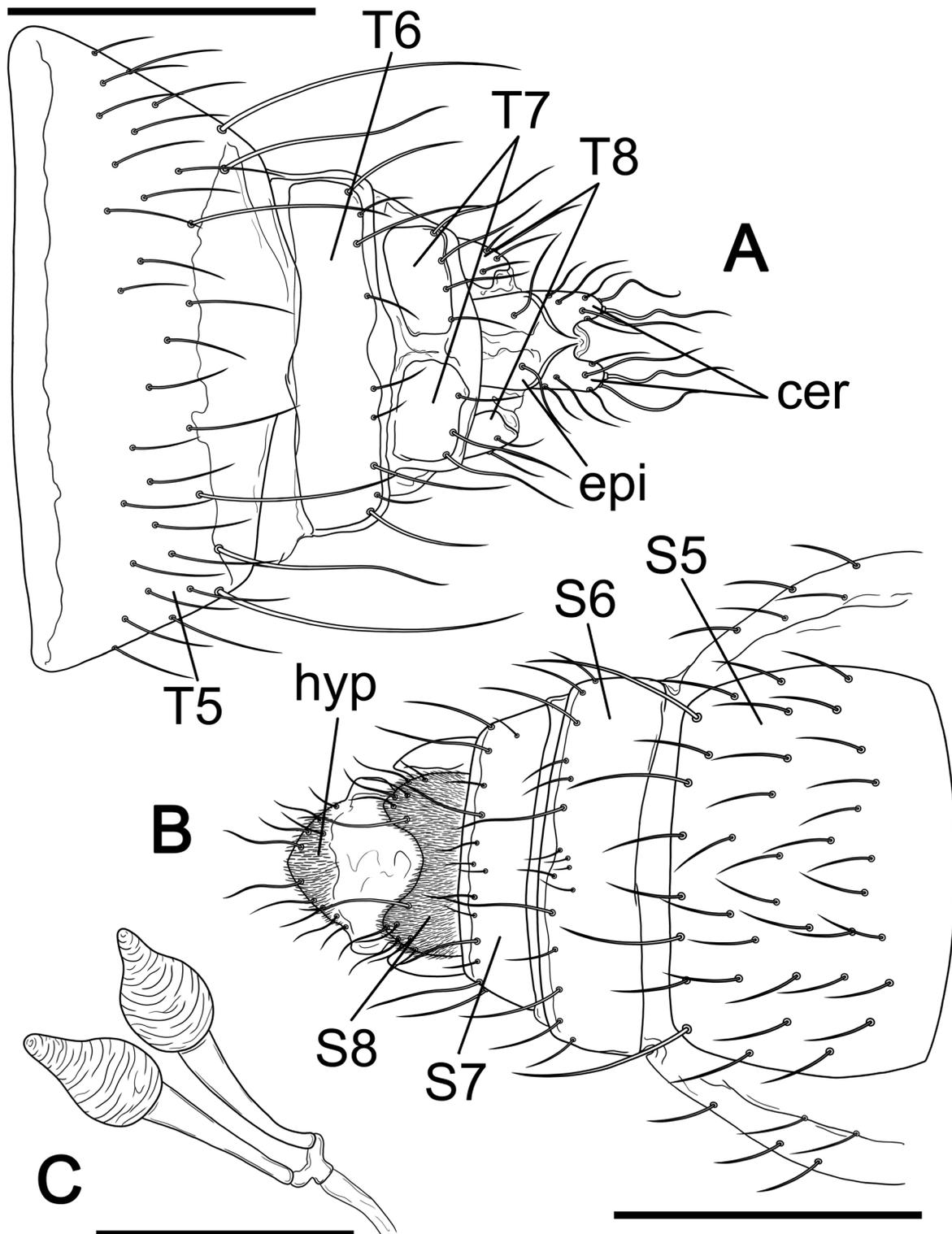


Fig. 14. *Pleuroseta wentworthi* (Richards, 1973) (debu00264635). **A.** Female terminalia, dorsal view. **B.** Female terminalia, ventral view. **C.** Spermathecae. Abbreviations: cer=cercus; epi=epiproct; hyp=hypoproct. Scale bars: A–B=0.40 mm; C=0.06 mm.

Peck leg.; sclerophyll, flight-intercept trap; DEBU • 1 ♂; Crescent Head, Delicate Knobby, ForRest Cottage; 31°15'53" S, 152°57'43" E; 25 Mar. 2019; S.A. Marshall leg.; lower forest, dung; DEBU • 3 ♂♂, 1 ♀; Richmond Range State Forest; 28°28'48" S, 152°35'24" E; 600 m a.s.l.; 13–14 Feb. 1983; T. Weir and A. Calder leg.; human dung trap; ANIC • 7 ♂♂; Ulong, Ashton's Eco Retreat; 30°13'47" S, 152°55'12" E; 22 Mar. 2019; S.A. Marshall leg.; dung; DEBU • 1 ♀; Upper Allyn River; 2 Apr. 1970; D.H. Colless; ANIC. – **Queensland** • 2 ♂♂, 5 ♀♀; Mount Glorious; 27°19'54" S, 152°45'29" E; 3–9 Jan. 1998; T. Hiller leg.; Malaise trap; DEBU.

Description

BODY (Fig. 12A). As described for *P. ingens* sp. nov. except as follows: length 2.7–3.4 mm. Frontal width 2.2–2.3 × interfrontal height. Interfrontal bristles in three large subequal pairs surmounting a smaller pair. Gena with 10–14 setulae. Palpus with 3–4 ventral setae. Eye height 1.5–1.7 × genal height. First postsutural pair of dorsocentral bristles separated by 7–9 rows of fine acrostichal setulae. Anepisternum with posterodorsal patch of 5–6 setae and 9–12 setulae. Legs brown and yellow, femora with preapical yellow ring, basal half to two-thirds of tibiae yellow but not in distinct bands (more gradual colour transition); tarsi yellow. Wing pattern (Fig. 16C) less distinct than in *P. ingens*. CS2 1.4 × length of CS3.

MALE ABDOMEN (Figs 5C, 12B–C, 13). S5 broad, uniformly setose laterally with large posteromedial desclerotized area, posterolaterally flanked by small rounded lobed with slightly enlarged setae. S6+7 complex: S6 with large (about as wide as desclerotized area of S5), dark, M-shaped ventral expansion situated under (dorsal to) emargination of S5; posterior to this lies a weakly sclerotized, cup-shaped central sclerite; S7 with elongate dextral extension reaching across to ring sclerite; S8 with dorsal, anteromedial semicircular emargination; ring sclerite weakly developed and partially fused to (and oriented perpendicular to) right side of S5. Epandrium distinctly bulging on right side; cercus indistinct from epandrium, with several long setae; subepandrial sclerite somewhat X-shaped, with much thicker dorsal arms and longer, thin ventral arms. Hypandrium triangular, anteromedial apodeme curved upwards anteriorly. Surstylus bilobed: anterior lobe hatchet-shaped with small posteroventral lobe and several basal setulae; posterior lobe triangular with many long setae. Postgonites small but elongate, triangular, slightly sinuate with small, triangular, preapical lobe. Phallapodeme elongate and curved; basiphallus large, V-shaped in lateral view, and laterally compressed. Distiphallus large (~7% total body length), divided into basal and apical sections: basal section sclerotized, tubular, and elbowed in apical third; apical section composed of a flattened, scoop-like lower sclerite and a pair of broad, curved lateral sclerites, together supporting largely membranous apex.

FEMALE ABDOMEN (Fig. 14). Postabdomen stout, segments 6–8 partially fitting into segment 5 at rest; when fully everted, postabdomen comprising ~25% of total abdominal length. T6 and S6–7 broad with 8–12 posterior setae, sternites also with posteromedial patch of 2–4 small setae. T7 split medially into pair of rectangular plates, each with 3–4 posterior setae. T8 divided into two tall, curved, posteriorly long-setose, lateral plates. Epiproct shield-like, medially desclerotized with pair of dorsal setae. Cercus small, ovoid with an inner apical notch and 6–8 long, sinuate setae. S8 largely desclerotized, densely microtomentose, posteromedially emarginate, each lateral lobe sclerotized and bearing large seta and several smaller setae. Hypoproct broad, posteromedially triangular with two setae, 7–8 setulae, and dense microtomentum in posterior third. Spermathecae elongate, pear-shaped and lightly grooved with elongate, subconical, slightly curved stem.

Distribution

Australasian/Oceanian: Australia (NSW, QLD).

Remarks

The holotypes of *Leptocera (Pleuroseta) wentworthi* (Fig. 15A) and *Leptocera (Biroina) dorrignonis* (Fig. 15B) show no significant differences in externally visible characters, and Richards' (1973) descriptions of either of these species could be equally applied to the other. Richards emphasized the characteristic patch of anepisternal setae in his description of his monobasic subgenus *Pleuroseta*, stating “ R_{2+3} is less sinuate and the prosternum is linear. From [*Biroina* and *Poecilosomella*] it differs in

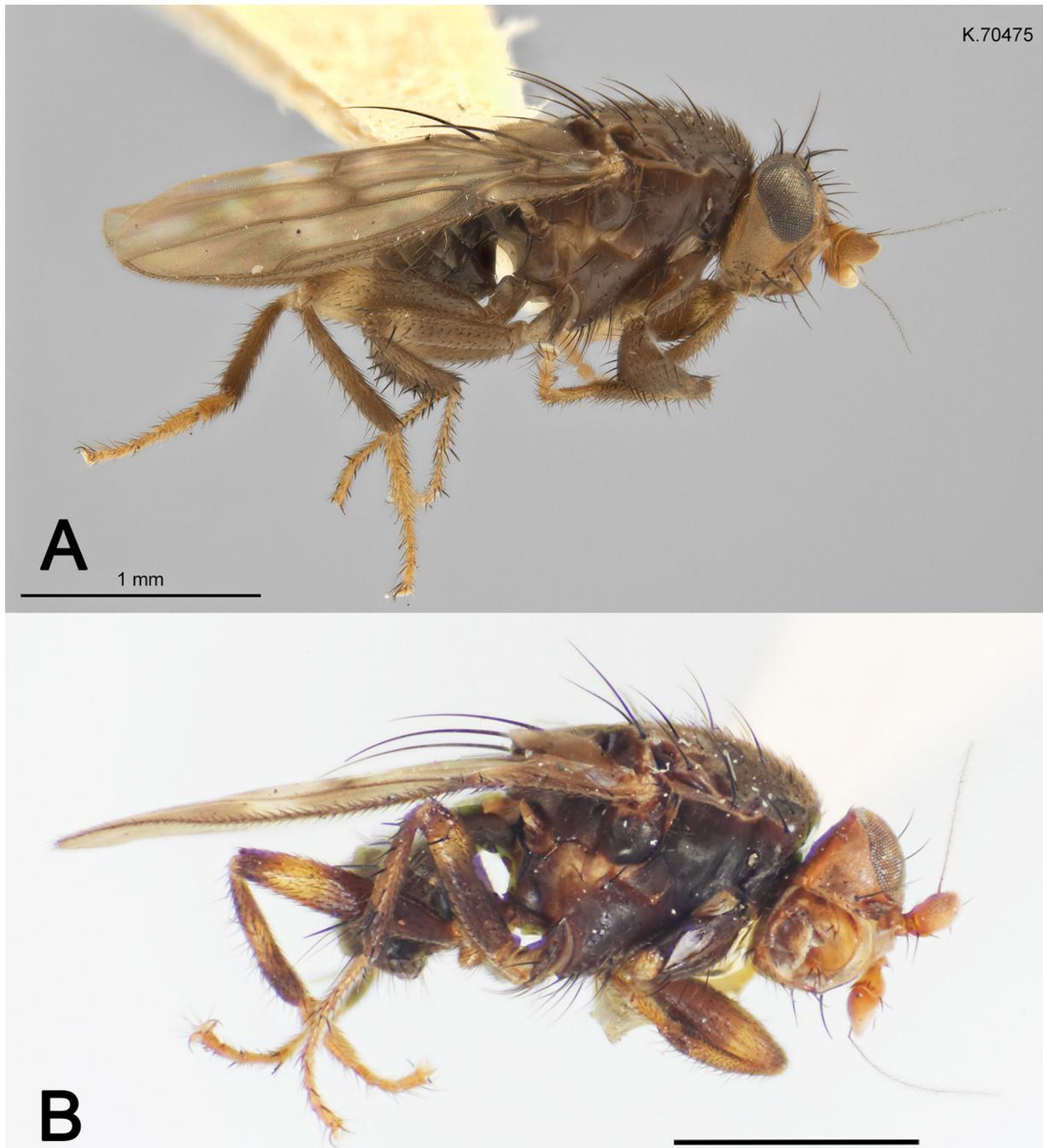


Fig. 15. A. *Pleuroseta wentworthi* (Richards, 1973) holotype, ♂, habitus, lateral view. B. *Pleuroseta dorrignonis* (Richards, 1973) holotype, ♂, habitus, lateral view. Scale bar: A–B=1.0 mm. Photo credit: N. Tees and R. Cox (AMSA).

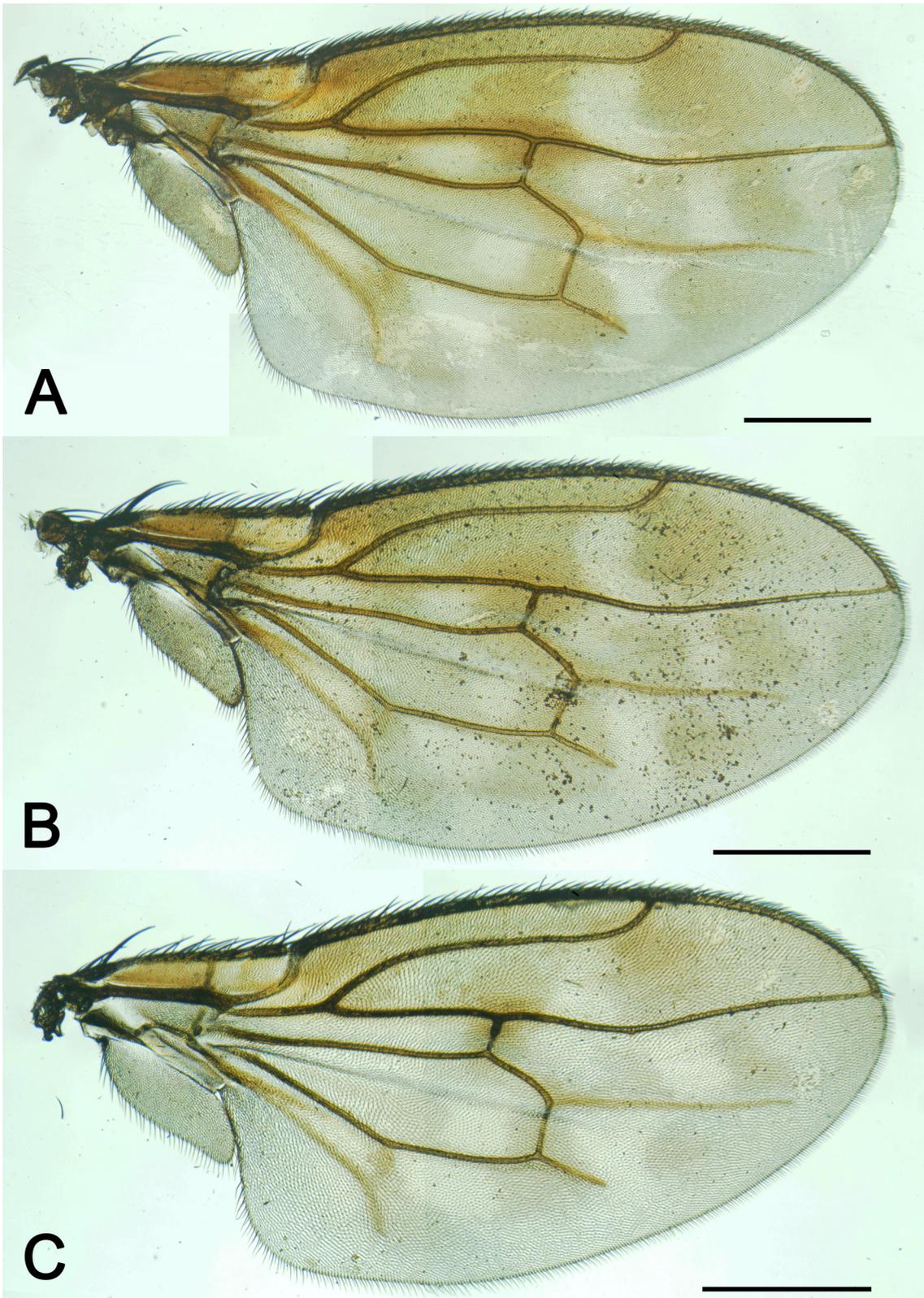


Fig. 16. *Pleuroseta* left wings, ventral view. **A.** *Pleuroseta ingens* sp. nov. paratype (debu00162128). **B.** *Pleuroseta monteithi* sp. nov. paratype (debu00160892). **C.** *Pleuroseta wentworthi* (Richards, 1973) (debu402972). Scale bar: A–C=0.5 mm.

having a patch of about six bristles, three moderately large, near the hind margin of the mesepisternum [anepisternum], a character unique in the family”. Richards made no mention of anepisternal setae in his description of *L. (B.) dorrignonis* as part of his diverse subgenus *Biroina* (now *Howickia*), but the anepisternal setae of that species are identical to those described for *Pleuroseta wentworthi* and the wing venation of both species is the same. Richards describes the wing of *Pleuroseta* as “dark with ill-defined pale spots” and the wing of “*Biroina*” *dorrignonis* as “brownish with about 6 not sharply defined whitish spots” but the wings of the type specimens of these two species are identical. It seems probable that Richards overlooked the anepisternal setae on the type specimens of *P. dorrignonis* and therefore failed to compare his “*Biroina*” *dorrignonis* to the genus *Pleuroseta*. We here treat *P. dorrignonis* as a junior synonym of *P. wentworthi*, with the caveat that the unique male type of *P. wentworthi* has not been dissected to confirm this synonymy by comparison of the male internal genitalia.

While *Leptocera (Biroina) dorrignonis* was published earlier in the same paper as *Leptocera (Pleuroseta) wentworthi*, we are acting as first reviser here to treat *P. wentworthi* as the senior synonym because it is the type species of the genus *Pleuroseta*.

Pleuroseta wentworthi resembles *P. ingens* sp. nov. and *P. monteithi* sp. nov. but differs by the yellow basal two-thirds of the fore tibia, three pairs of large interfrontal bristles, smaller male genitalia (the epandrium is much smaller than the head), and unmodified female epiproct.

Discussion

Prior to this revision, the Australian genus *Pleuroseta* was known only from the holotype of *P. wentworthi* and four type specimens of *Leptocera (Biroina) dorrignonis*, here recognized as a synonym of *P. wentworthi*. *Pleuroseta* now includes four species, bringing the total number of described Australian sphaerocerids to 105 species in 27 genera, of which 61 are endemic. Although *Pleuroseta* is currently known only from New South Wales, Queensland, and Western Australia, we have seen very few sphaerocerid specimens from states other than New South Wales, Queensland, Tasmania, and Western Australia, and the sphaerocerid fauna of New Guinea remains largely unknown.

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