

Two new species of feather mites of the subfamily Pterodectinae (Analgoidea: Proctophyllodidae) from Indonesia

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Original research

ABSTRACT

Two new pterodectine feather mite species collected in Indonesia (Kalimantan) are described: *Montesauria indonesiana* sp. n. from the Asian glossy starling *Aplonis panayensis* (Scopoli, 1786) (Passeriformes, Sturnidae), and *Proterothrix murariui* sp. n. from the White-rumped woodpecker *Meiglyptes tristis* (Horsfield, 1821) (Piciformes, Picidae). Males of *M. indonesiana* have adanal and opisthoventral circular shields, surrounding the base of setae *g* and *ps3*, respectively, and females have the anterior and lobar parts of hysteronotal shields well delimited from each other by a transverse groove. The new species of *Proterothrix* described here is the first species of this genus discovered on a host of the family Picidae. This species has unique character states and cannot be included in any of the species groups defined so far within the genus. In both sexes, dorsal hysterosomal setae *c1* are absent and hysterosomal setae *cp* are spiculiform. Males of *P. murariui* have a pregenital sclerite (epiandrum), the aedeagus is band-shaped, thickened in the anterior half and narrowed in the posterior half, the terminal lobes have two pairs of trapezoidal membranous extensions, coxal fields I are almost closed, and coxal fields III are open. Females have a narrow terminal cleft, parallel-sided in the anterior 2/3, large and with oblique margins in the posterior 1/3.

Keywords feather mites; pterodectines; taxonomy; new species; Indonesia

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Introduction

The subfamily Pterodectinae is one of the two subfamilies currently recognized within the family Proctophyllodidae, and is divided into two tribes: Rhamphocaulini and Pterodectini. Representatives of the tribe Rhamphocaulini occur exclusively on hummingbirds (Apodiformes: Trochilidae), while the Pterodectini occur mostly on passerines (Passeriformes), in addition to other scattered bird orders. In the host birds' plumage, pterodectines mainly inhabit the primaries and secondaries of the wings, where they are located in corridors on the ventral surface of the vane (Mironov *et al.* 2012).

According to modern concepts, the genus *Montesauria* belongs to the *Pterodectes* generic group, characterized by the posterior or postero-lateral position of setae *ps3* in relation to the anal suckers in the male. Along with four other genera it belongs to the *Montesauria* generic complex, whose representatives have the genital papillae situated at level of the genital arch or posterior to it in the male (Mironov *et al.* 2012). Based on morphology, the genus *Montesauria* was divided into nine species groups and its species were revised (Mironov, 2006). Later, an additional species group, *macronoi*, was proposed (Mironov *et al.* 2012). This is the species-richest genus of the subfamily Pterodectinae currently including 64 species distributed

Received 23 January 2019

Accepted 03 May 2019

Published 20 May 2019

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Academic editor

Auger, Philippe

DOI

10.24349/acarologia/20194324

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How to cite this article Constantinescu I. C. *et al.* (2019), Two new species of feather mites of the subfamily Pterodectinae (Analgoidea: Proctophyllodidae) from Indonesia. *Acarologia* 59(2): 196-210; DOI 10.24349/acarologia/20194324

mostly in the Old World (Till 1954, 1957, Gaud 1957, Gaud and Mouchet 1957, Mironov and Kopij 1996a, 1996b, 1997, Mironov and Fain 2003, Mironov 2006, 2008, Kuroki *et al.* 2006, Hernandez *et al.* 2010, Mironov *et al.* 2010, 2012, Mironov and Tostenkov 2013, Hernandez and OConnor 2017, Constantinescu *et al.* 2018b). To date, 14 species of *Montesauria* have been described from Asia: 8 from Vietnam (Gaud and Petitot 1948, Mironov *et al.* 2012, Mironov and Tostenkov 2013), 2 from Japan (Kuroki *et al.* 2006), 2 from India (Constantinescu *et al.* 2018b), 1 from Taiwan (Sugimoto 1941) and 1 from Indonesia (Mironov 2006). Atyeo (in: McClure and Ratanaworabhan 1973), reported 81 supposedly new species of this genus from Southeastern Asia; unfortunately, new species from this material have never been described.

The genus *Proterothrix*, along with seven other genera, belongs to the *Proterothrix* generic group, which incorporates putatively early derivative pterodectines with setae *ps3* anterior to the adanal suckers in males and seta *wa* situated anterior to setae *ra* and *la* on tarsi I and II in both sexes (Mironov 2009; Mironov and Proctor 2009, Hernandez and Valim 2014, Mironov and OConnor 2017). Out of the 30 species of this genus, twenty nine have been arranged into three species groups: *megacaula* (3 species), *schizothyra* (4 species) and *wolffi* (22 species); one species, *P. aculeata* (Canestrini, 1899), remains unassigned to any species group (Gaud 1952, 1962, 1968, 1979, Mironov *et al.* 2008, 2010, 2012, Mironov and Proctor 2009, Mironov and Tolstenkov 2013, Constantinescu *et al.* 2014, 2017a, 2017b, 2018a). Species of the *schizothyra* group are restricted to kingfishers (Coraciiformes: Alcedinidae) and those of the *wolffi* group are known from various passerine families of the infraorders Corvida (Acanthizidae, Dicruridae, Meliphagidae, Monarchidae, Paradisaeidae, Ptilonorhynchidae and Rhipiduridae), and Passerida (Leiothrichidae, Muscicapidae, Paradoxornithidae, Eurylaimidae and Pellorneidae), and the suborder Tyranni (Eurylaimidae), while species of the *megacaula* group are only known from hosts of the infraorder Passerida (Muscicapidae).

The present paper describes two new feather mite species of pterodectines belonging to the genera *Montesauria* and *Proterothrix*, collected from birds in Indonesia (Kalimantan).

Materials and methods

Mites were collected by the authors from museum specimens of birds preserved in ethanol, from the Ornithological Collection of “Grigore Antipa” National Museum of Natural History (Bucharest, Romania). The ethanol in which the birds were preserved was filtered through filter paper, then the mite specimens were collected manually with a fine needle placed in vials filled with 96% ethanol. Then mite specimens were cleared in 90% lactic acid for 24 hours, and mounted on microscope slides in Hoyer’s medium. Drawings were made using an Olympus CX21 compound microscope, equipped with a camera lucida drawing device. The taxonomy of birds follows Lepage *et al.* (2019). The body setation of mites follows that of Griffiths *et al.* (1990) with the modifications by Norton (1998) concerning coxal setae, while the leg setation follows Gaud and Atyeo (1996). Species redescrptions follow the standard style accepted in taxonomic works describing pterodectine mite species (Mironov and Fain 2003, Mironov 2006, Valim and Hernandez 2006, Mironov *et al.* 2008); we measured a set of standard morphological diagnostic features following Mironov and Proctor (2009). Measurements are given for the holotype (male) and followed by ranges for paratypes. All measurements are in micrometers (µm). The mite specimens studied herein are deposited in the Acari Collection of “Grigore Antipa” National Museum of Natural History, Bucharest, Romania (MGAB) and in the Acari Collection of the Department of Zoology of the Universidade Estadual Paulista, Rio Claro, São Paulo, Brazil (DZUnesp-RC).

Taxonomy

Superfamily Analgoidea Trouessart & Mégnin, 1884

Family Proctophyllodidae Trouessart & Mégnin, 1884

Subfamily Pterodectinae Park & Atyeo, 1971

Genus *Montesauria* Oudemans, 1905

***Montesauria indonesiana* Constantinescu sp. n.**

Figures 1 – 4

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Type material — Holotype male and 16 paratypes (7 male and 9 female), from *Aplonis panayensis* (Scopoli) (Passeriformes, Sturnidae), INDONESIA, Kalimantan Island, Lhok Tuan, Kutai National Park, 22 May 1991, bird inventory number 15717, no other data.

Type deposition — Holotype male (ANA 801), 6 male (ANA 802–807) and 8 female (ANA 808–815) paratypes in MGAB collection, 1 male and 1 female paratypes in DZUnesprc collection.

Etymology — The specific name *indonesiana* refers to the name of the country (Indonesia) where the mite was collected.

Description — **Male.** Length of idiosoma 322 (308–312), width 140 (120–140), length of hysterosoma 212 (204–208). Prodorsal shield: entire, anterior margin with lateral margins slightly concave at level of scapular setae, posterior margin with acute median extension, length along midline 110 (104–108), width at posterior margin 118 (100–118), surface with numerous pit-like lacunae. Scapular setae *se* separated by 65 (58–64). Humeral shields small, separated from epimerites III, not encompassing setae *cp*. Setae *c2* situated dorsally on soft tegument. Subhumeral setae *c3* lanceolate, 18 (16–18) × 8 (6–8). Hysteronotal shield: greatest length from anterior margin to lobar apices 200 (196–204), width at anterior margin 122 (102–120), anterior margin slightly convex, surface of this shield with numerous pit-like lacunae. Prodorsal and hysteronotal shields separated by narrow band of soft tegument. Opisthosomal lobes short, roughly trapezoidal, with pair of small extensions at base of setae *h2* and with extensions at base of setae *h3*, terminal cleft V-shaped, 24 (22–24) long. Setae *f2* absent. Setae *h3* lanceolate, with acute tip, 38 (36–37) long, 12 (10–11) wide, setae *h2* 150 (140–160) long, 5 (4–5) wide. Supranal concavity circular, well outlined. Setae *ps2* 66 (54–60) long, thickened in basal part and with filiform apical part, setae *ps1* filiform, about 10 (6–8) long, situated on margins of terminal cleft slightly anterior to level of setae *h3* (Fig. 1A). Distance between bases of dorsal setae: *c2–d2* 104 (84–100), *d2–e2* 96 (84–100), *e2–h3* 52 (48–52), *d1–d2* 46 (40–50), *e1–e2* 22 (22–26), *ps2–h1* 10 (6–10), *h2–h2* 40 (42–44), *h3–h3* 22 (20–22), *ps2–ps2* 70 (64–66).

Epimerites I fused into a Y, posterior end of sternum connected to medial part of epimerites II (Fig. 1B). Coxal fields I, II without wide sclerotized areas. Rudimentary sclerites rEpIIa present. Coxal fields II and III open. Epimerites IVa present. Genital arch small, 16 (17–20) in length, 26 (24–28) in width, basal sclerite of genital apparatus shaped semicircular, aedeagus straight, sword-shaped, 70 (62–65) long, extending to or beyond anterior margin of anal suckers. Genital shield absent, adanal shields present, small, circular, surrounding base of setae *g*. Anal suckers 14 (13–14) in diameter, corolla without indentations, surrounded by radially striated area. Opisthoventral shields small, circular, surrounding base of setae *ps3* (Fig. 1B). Distance between ventral setae: *3a–4b* 30 (28–32), *4b–4a* 28 (28–32), *4a–g* 44 (42–46), *g–ps3* 40 (40–41), *ps3–ps3* 66 (62–64), *ps3–h3* 38 (34–37).

Legs I noticeably longer and thicker than legs II. Genua and tibiae I, II with narrow dorsal crest, femora I, II with ventro-basal crest. Solenidion σ of genu I lanceolate, setae *cGI* and *cGII* spine-like (Fig. 2A, B). Tarsus IV 20 (20–22) long, with small apical claw-like process, modified setae *d*, *e* button-like (Fig. 2D). Length of solenidia: ω /I 11 (12–14), ω /II 6 (6–9), ϕ I 68 (60–68), ϕ II 46 (40–44), ϕ III 24 (20–24), ϕ IV 25 (20–26).

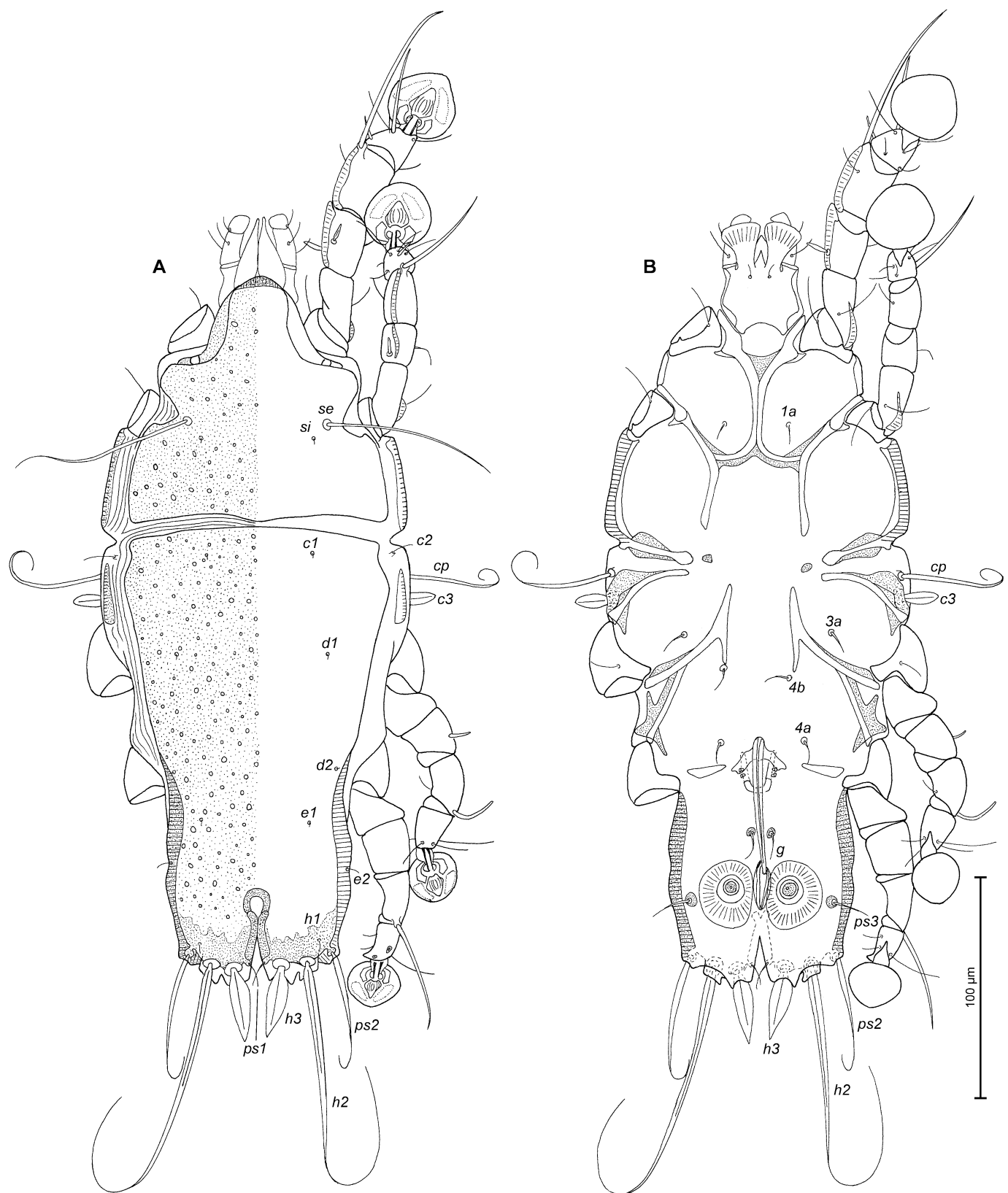


Figure 1 *Montesauria indonesiana* sp. n., Male: A – dorsal view, B – ventral view.

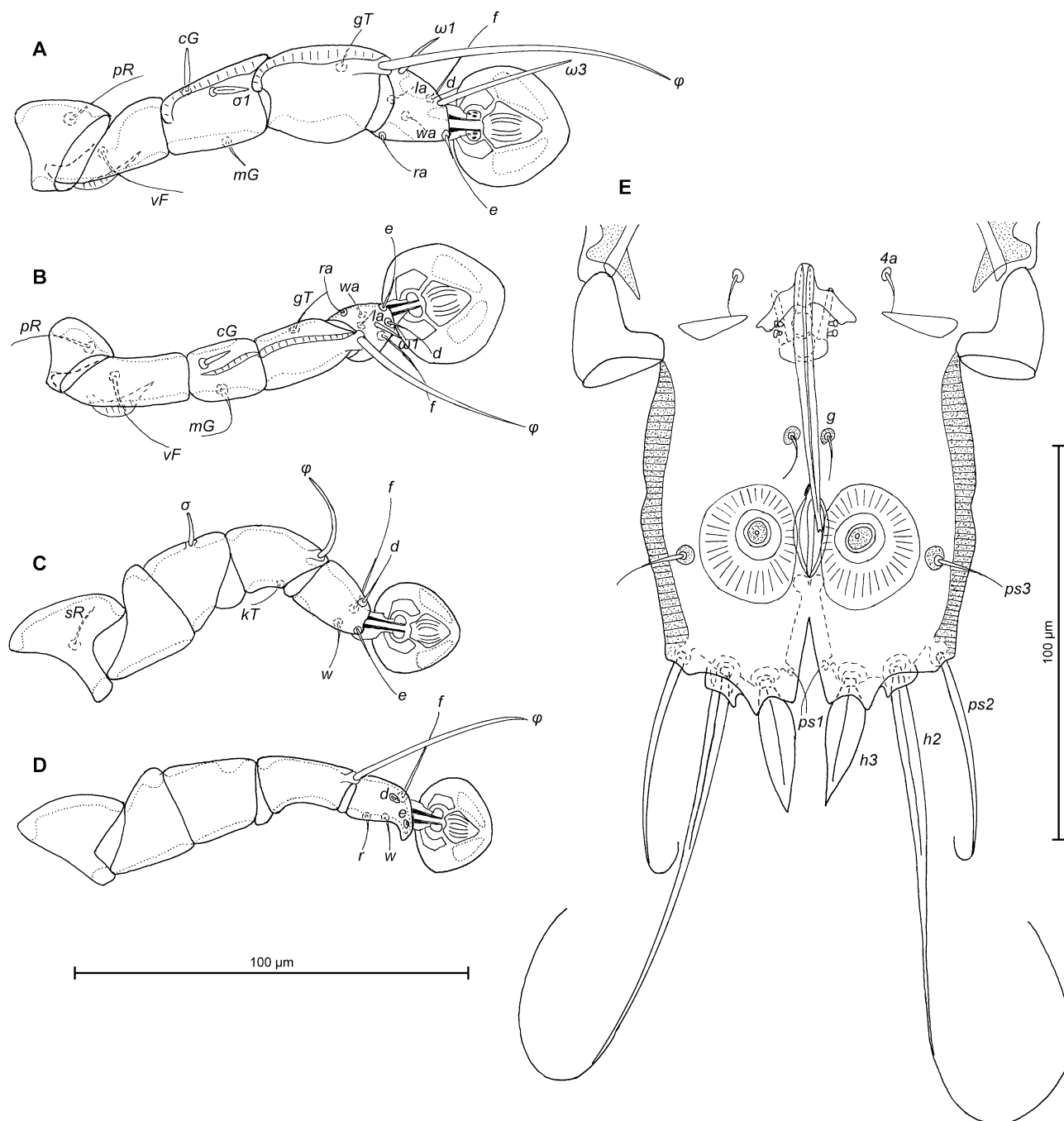


Figure 2 *Montesauria indonesiana* sp. n., Male: A – D – details of legs, A – leg I, antaxial view, B – leg II, antaxial view, C – leg III, paraxial view, D – leg IV, paraxial view; E – details of opisthosoma.

Female (range for 5 paratypes). Length of idiosoma excluding terminal appendages 452–460, width 139–160, length of hysterosoma 300–312. Prodorsal shield: shape as in male, except for convex posterior margin, 144–152 long, 122–142 wide, posterior part with pit-like lacunae (Fig. 3A). Scapular setae *se* separated by 68–76. Humeral shields small, not encompassing setae *cp*. Setae *c2* situated on soft tegument. Setae *c3* lanceolate, 17–18 × 6–7. Prodorsal and hysteronotal shields touching each other. Anterior and lobar parts of hysteronotal shield well delimited from each other by a transverse groove. Hysteronotal shield: anterior margin slightly convex, posterior margin concave in median part, length 236–248, width at

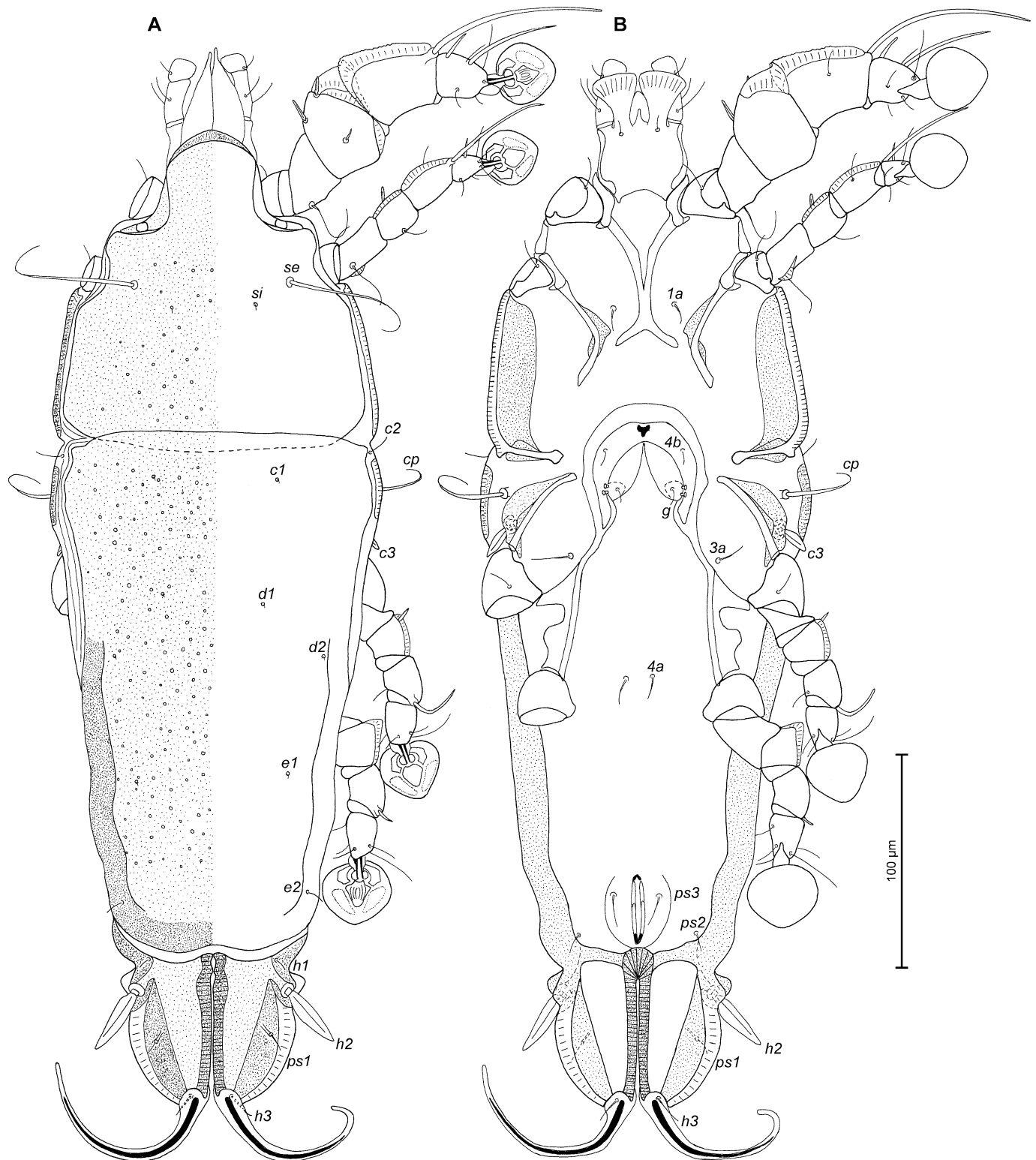


Figure 3 *Montesauria indonesiana* sp. n., Female: A – dorsal view, B – ventral view.

anterior margin 130–148, with pit-like lacunae. Length of lobar region excluding terminal appendages 70–78, width at level of setae *h2* 83–84, median part of anterior margin slightly convex. Terminal cleft as narrow V, 56–60 long, extended beyond level of setae *h2*. Lateral

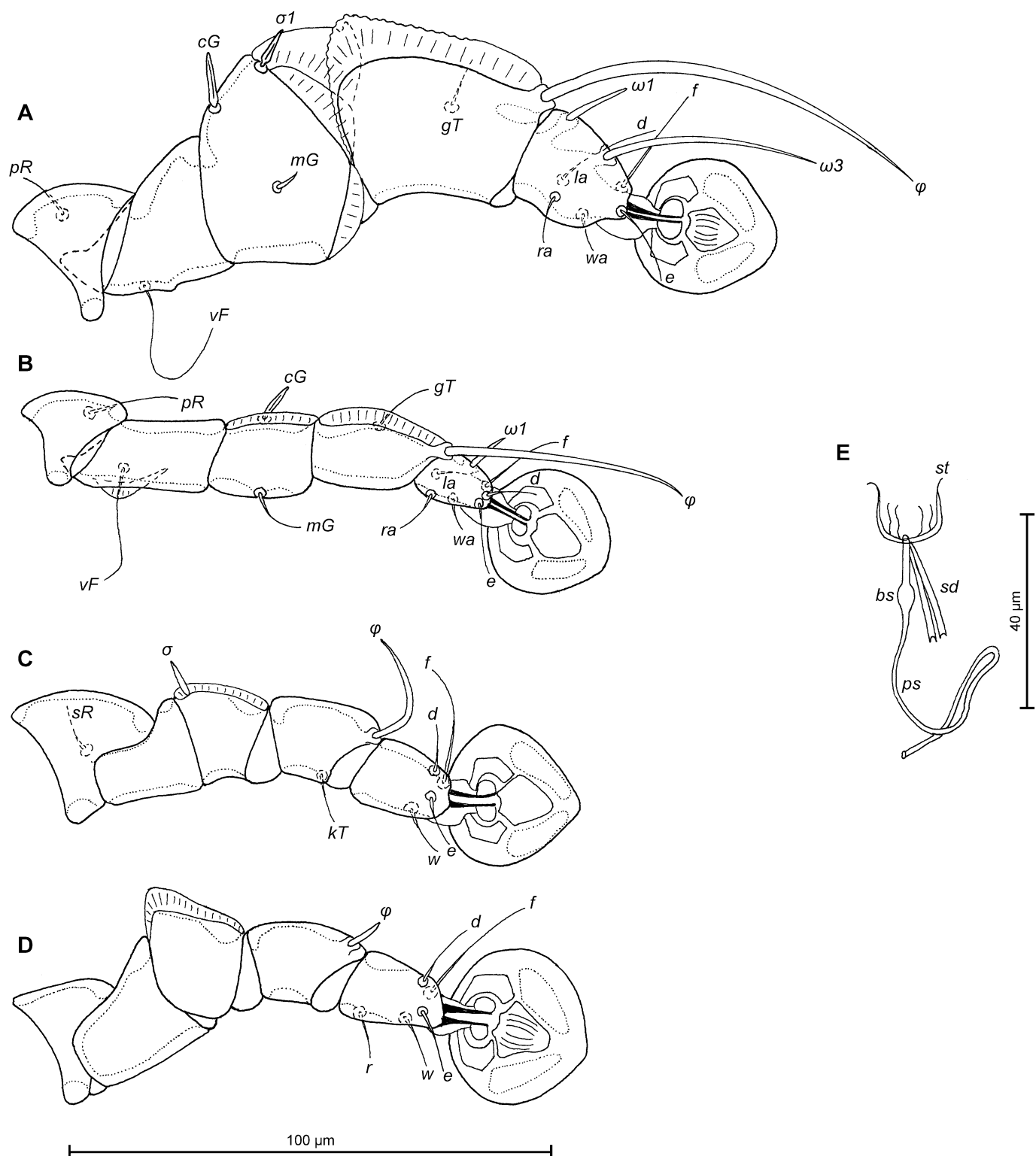


Figure 4 *Montesauria indonesiana* sp. n., Female: A – D – details of legs, A – leg I, antaxial view, B – leg II, antaxial view, C – leg III, paraxial view, D – leg IV, paraxial view; E – spermatheca; Abbreviations: bs – ball-shaped swelling of primary spermaduct, ps – primary spermaduct, sd – secondary spermaduct, st – spermatheca.

margins of opisthosomal lobes posterior to setae *h2* membranous. Setae *f2* absent, setae *h1* on lobar shield, near its anterior margin. Setae *h2* spindle-like, 36–38 long, 8–10 wide. Setae *h3* filiform, 16–21 in length, about 1/6 of the length of terminal appendages. Setae *ps1* situated close to lateral margins of opisthosomal lobes (Fig. 3A). Distance between bases of dorsal setae: *c2–d2* 82–104, *d2–e2* 100–116, *e2–h2* 44–48, *h2–h3* 54–60, *d1–d2* 34–47, *e1–e2* 56–60, *h1–h2* 14–16, *ps1–h2* 22–29, *h1–h1* 60–61, *h2–h2* 68–72.

Epimerites I fused into a Y, posterior end of sternum with acute extensions directed laterally but not connected with epimerites II (Fig. 3B). Lateral parts of coxal fields I without heavily sclerotized areas, coxal fields II with heavy sclerotized areas. Epimerites II do not reach the level of anterior margin of epigynum. Epimerites IVa absent. Translobar apodemes of opisthosomal lobes present, fused with ventral sclerotization of lobar region and posterolateral margins of anterior hysteronotal shield. Epigynum horseshoe-shaped, greatest width 52–65, apodemes of ovipore connected with coxal apodemes IIIa. Head of spermatheca weakly sclerotized, primary spermaduct with ball-shaped enlargement, secondary spermaducts 2 times longer than distance between enlargement of primary spermaduct and spermatheca (Fig. 4E). Distance between pseudanal setae: *ps2–ps2* 56–58, *ps3–ps3* 20–24, *ps2–ps3* 24–28.

Legs I hypertrophied, tibia and genu I strongly inflated on dorsal side, heavily sclerotized and 2.5–3 times thicker than respective segments of legs II. Tibia I with well-developed dorsal crest, its proximal part rounded with indentations, distal part of genu I with large angular paraxial crest and with narrow antaxial crests. Tibia and genu II with narrow dorsal crest and femur II with ventro-basal crest. Genu IV with rounded dorsal crest. Solenidion $\sigma 1$ of genu I lanceolate, setae *cGI* and *cGII* spine-like (Fig. 4A, B). Length of solenidia: ωI 16 (14–16), ωII 8 (6–10), ϕI 72 (66–72), ϕII 44 (40–48), ϕIII 24 (22–24), ϕIV 7 (7–8).

Differential diagnosis. The new species, *Montesauria indonesiana* sp. n., belongs to the *pachypa* species group. This new species is most similar to *M. mainati* (Trouessart, 1885), which was originally described from Common hill myna *Gracula religiosa* Linnaeus, 1758 (Passeriformes, Sturnidae) in Indonesia (Trouessart 1885) and later redescribed (Mironov 2006). Both species have similar ornamentation of the dorsal shields and setae *cGI* and *cGII* are spiniform in male and female. In males of both species, setae *h3* are lanceolate, setae *ps2* are thickened in the basal part and filiform in apical part, and epimerites IVa are present. In females, the terminal cleft is extended beyond the level of setae *h2*. *M. indonesiana* sp. n. clearly differs from *M. mainati* by the following character states in males (corresponding character states of *M. mainati* are in parentheses): the prodorsal and hysteronotal shields are separated by a narrow band of soft tegument (vs. both shields almost touching), the terminal cleft has a triangular anterior end (vs. round), the rudimentary sclerites rEpIIa are present (vs. absent), the adanal shields are present (vs. absent), the opisthoventral shields are small, circular, surrounding the base of setae *ps3* (vs. narrow, with short extension bearing setae *ps3*). In females of the new species, the anterior and lobar parts of hysteronotal shields are well delimited from each other by a transverse groove (vs. poorly delimited by a pair of thin striae on the sides of the opisthosoma), the dorsal crest of genu IV has a round angle (vs. acute angle), the dorsal crest of tibia I has its proximal margin rounded, with indentations (vs. sharp and without indentations), the dorsal crest of genu IV has a round angle (vs. acute angle).

Genus *Proterothrix* Gaud, 1968

Proterothrix murariui Constantinescu sp. n.

Figures 5–8

Zoobank: BB2C9D83-9308-433C-A422-5606060C5283

Type material — Holotype male and 19 paratypes (9 males and 10 females), from *Meiglyptes tristis* (Horsfield) (Piciformes, Picidae), INDONESIA, Kalimantan Island, Lhok Tuan, Kutai National Park, 22 May 1991, bird inventory number 15755, no other data. Type deposition. Holotype male (ANA 1453), 8 male (ANA 1454–1461) and 9 female (ANA

1462–1470) paratypes in MGAB collection, 1 male and 1 female paratypes in DZUnesp-RC collection.

Etymology — This species is named in honour of Dr. Dumitru Murariu, mammologist, correspondent member of the Romanian Academy, who led the expedition organized by “Grigore Antipa” National Museum of Natural History in the islands of the Indonesian archipelago in 1991, and collected himself some of the bird specimens on which the new species of feather mite was identified.

Description — **Male** (holotype, range for 4 paratypes). Length of idiosoma 244 (244–248), width 94 (106–124), length of hysterosoma 162 (164–166). Prodorsal shield entire, with lateral longitudinal bands of sclerotized tegument in anterior third, anterolateral extensions short and with acute tips, lateral margins with a short incision anterior to bases of setae *se*, posterior margin with wide blunt-angular extension, posterior angles round, length 78 (78–88), width 76 (72–76), surface without ornamentation (Fig. 5A). Scapular setae *se* separated by 44 (40–42). Scapular shields well developed. Humeral shields well developed, separated from outer sclerotized areas of epimerites III. Setae *cp* spiculiform, situated ventrally, setae *c2* filiform, situated dorsally on humeral shields. Subhumeral setae *c3* lanceolate, 18 (18–19) × 6 (4–6). Hystronotal shield with anterior margin concave and wavy lateral margins, anterior angles rounded, distance from anterior margin to bases of setae *h3* 145 (146–152), greatest width in anterior part 72 (68–74), surface without ornamentation. Opisthosomal lobes short and narrow, with two almost trapezoidal membranous extensions at the base of setae *h3* and *h2*. Setae *h3* leaf-like, lanceolate with acute apex, 60 (60–70) × 16 (13–16). Setae *h2* situated slightly anterior to setae *h3*, 120 (120–140) × 5 (5–6). Terminal cleft narrowly ovate, 20 (20–22) in length. Supranal concavity clearly outlined, triangular. Setae *f2* slightly anterior to bases of setae *ps2*. Setae *h1* near lateral margins of opisthosoma. Setae *ps1* filiform, length 10 (6–8), situated near lateral margins of opisthosomal lobes, anterior to bases of setae *h3*. Setae *c1* absent. Dorsal measurements: *c2*–*d2* 50 (48–56), *d2*–*e2* 51 (52–56), *e2*–*h3* 46 (46–56), *d1*–*d2* 20 (18–22), *e1*–*e2* 26 (22–24), *h1*–*ps2* 14 (14–20), *h2*–*h2* 43 (40–44), *h3*–*h3* 20 (20–22), *ps2*–*ps2* 56 (54–60).

Epimerites I fused into a Y, with a short sternum, posterior end of sternum with acute extensions directed laterally but not connected with epimerites II. Epimerites II long, with acute extensions on inner margins. Coxal field I almost closed, coxal field II and III open, coxal fields IV with narrow sclerotized areas at bases of trochanters IV. Epimerites IVa present, well developed (Fig. 5B). Pregenital sclerite (epiandrum) present, large. Genital arch 24 (24–25) long, 24 (20–24) wide, aedeagus band-shaped thickened in anterior half and narrowed in posterior half, 39 (40–42) long, extending to level of setae *g*. Genital papillae situated anterior to genital arch. A pair of adanal shields present, represented by slim plates, bearing setae *ps3*. Anal suckers 14 (12–14) in diameter, corolla indented, with 9 small teeth. Measurements of ventral side: *3a*–*4b* 20 (20–22), *4b*–*4a* 22 (20–22), *4a*–*g* 34 (33–36), *g*–*ps3* 23 (22–24), *ps3*–*ps3* 8 (7–8), *ps3*–*h3* 44 (43–44).

Legs I longer than legs II, femora II with ventral crest (Fig. 6A, B). Seta *e* of tarsus I filiform. Setae *mGI* and *mGII* spiculiform, setae *d* of tarsi II, III much shorter than corresponding setae *f*. Tarsus IV 22 (20–22) long, setae *w* situated on small protuberance of tarsus, setae *d*, *e* button-like, seta *d* bigger in diameter than *e*, situated in basal and apical parts of segment, respectively (Fig. 6D). Length of solenidia: ω I 10 (10–12), ω II 7 (6–8), ϕ I 46 (44–48), ϕ II 36 (36–41), ϕ III 16 (16–18), ϕ IV 26 (24–28).

Female (Figs. 7A, B; 8A–E; range for 5 paratypes): Length of idiosoma 344–360, width 126–134, and length of hysterosoma 248–262. Prodorsal shield entire, with lateral longitudinal bands of sclerotized tegument in anterior third, anterolateral extensions with rounded tips, lateral margins with short incisions anterior to bases of setae *se*, posterior margin with wide blunt-angular extension, length 90–94, width 96–100, surface without ornamentation (Fig. 7A). Scapular setae *se* separated by 54–57. Scapular shields narrow. Humeral shields well developed, separated from outer sclerotized areas of epimerites III. Setae *cp* spiculiform, situated ventrally, setae *c2* filiform, situated dorsally on humeral shields. Subhumeral setae *c3* lanceolate, 17–20

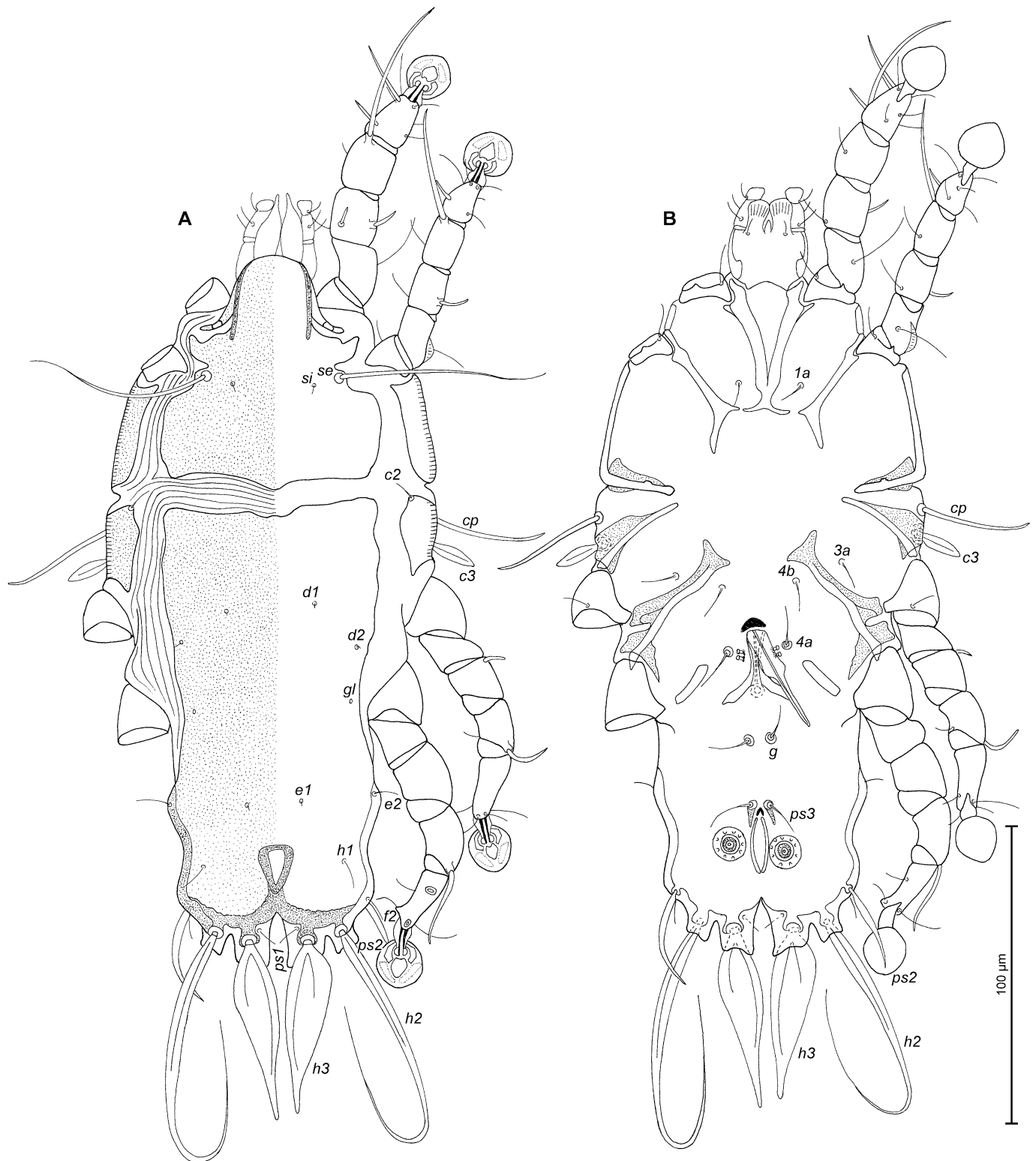


Figure 5 *Proterothrix murariui* sp. n., Male: A – dorsal view, B – ventral view.

× 6–7. Anterior hysteronotal shield roughly rectangular, anterior margin straight, posterior margin convex, greatest length 160–176, greatest width in anterior part 90–94, surface without ornamentation. Length of lobar region 70–80, width at level of setae *h2* 76–82. Terminal cleft

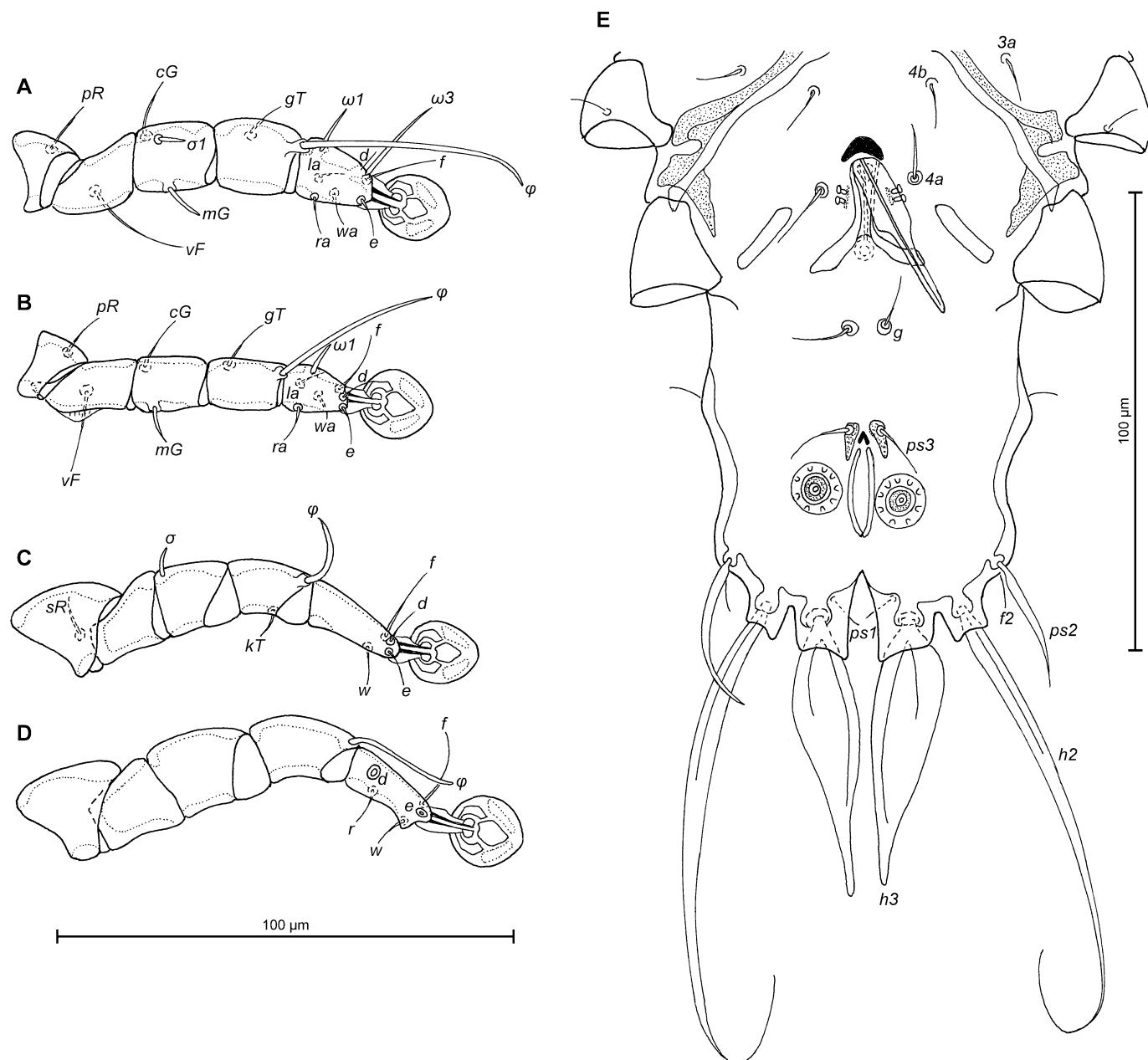


Figure 6 *Proterothrix murariui* sp. n., Male: A – D – details of legs, dorsal view, A – leg I, B – leg II, C – leg III, D – leg IV; E – details of opisthosoma.

narrow parallel-sided in anterior 2/3 and large and with oblique margins in posterior 1/3, 48–54 in length. Setae *ps1* closer to inner margins than outer margins of opisthosomal lobes. Supranal concavity well developed, ovoid. Setae *h1* on lobar shield, near anterior margin of this shield, surface of lobar shield without ornamentation. Setae *h2* spindle-shaped, with terminal filament, 72–84 × 6–9. Setae *h3* 24–36 long, about 1/2 from the length of terminal appendages. Dorsal measurements: *c2*–*d2* 62–66, *d2*–*e2* 86–92, *e2*–*h2* 40–43, *h2*–*h3* 44–50, *d1*–*d2* 25–28, *e1*–*e2* 37–48, *h1*–*h2* 24–28, *h2*–*ps1* 38–42, *h1*–*h1* 36–38, *h2*–*h2* 60–70.

Epimerites I fused as a V. Coxal fields I, II without sclerotized areas, epimerites IVa absent (Fig. 7B). Translobar apodemes of opisthosomal lobes present, fused to each other anterior to terminal cleft. Epigynum horseshoe-shaped, greatest width 60–64. Secondary spermaducts

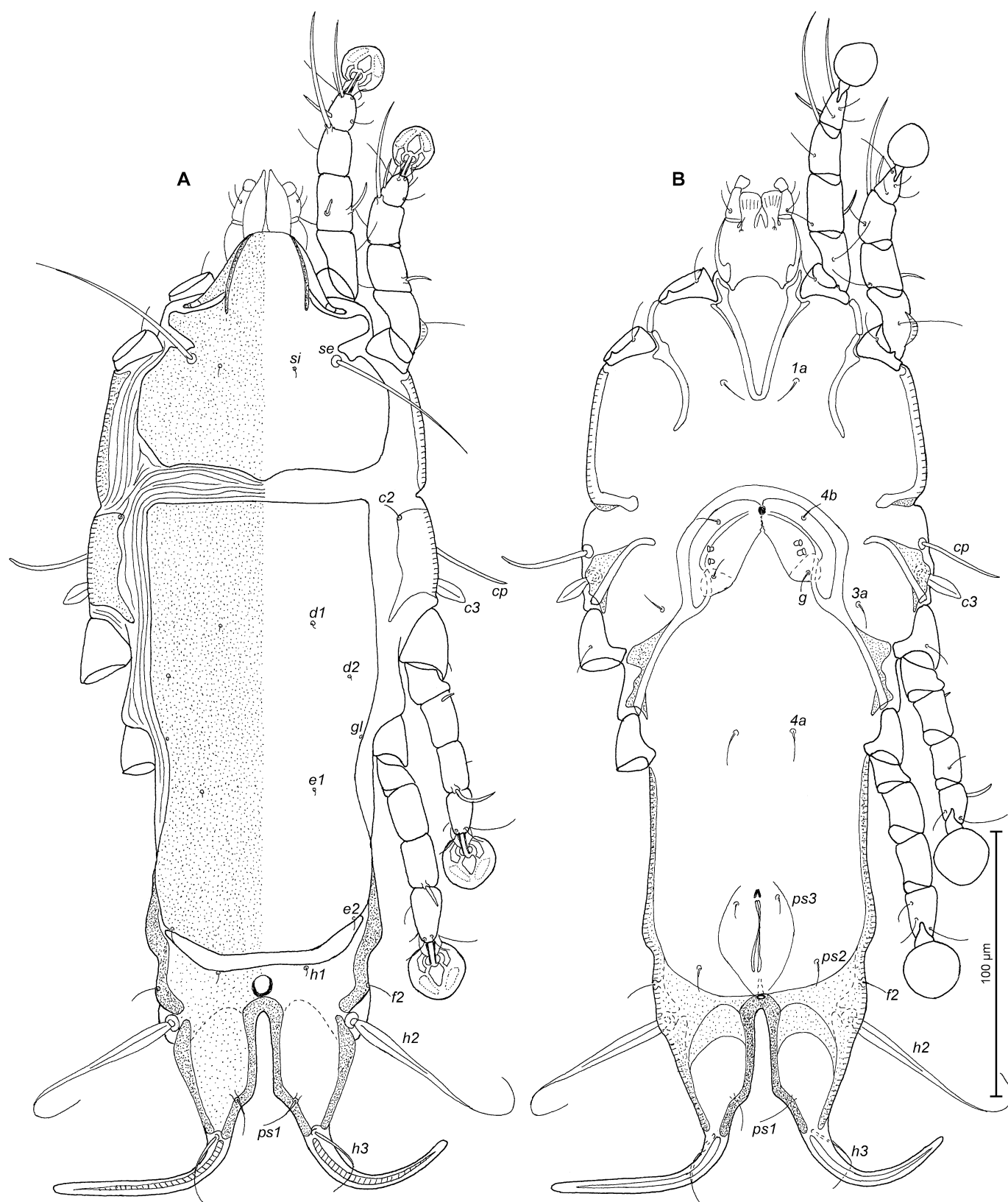


Figure 7 *Proterothrix murariui* sp. n., Female: A – dorsal view, B – ventral view.

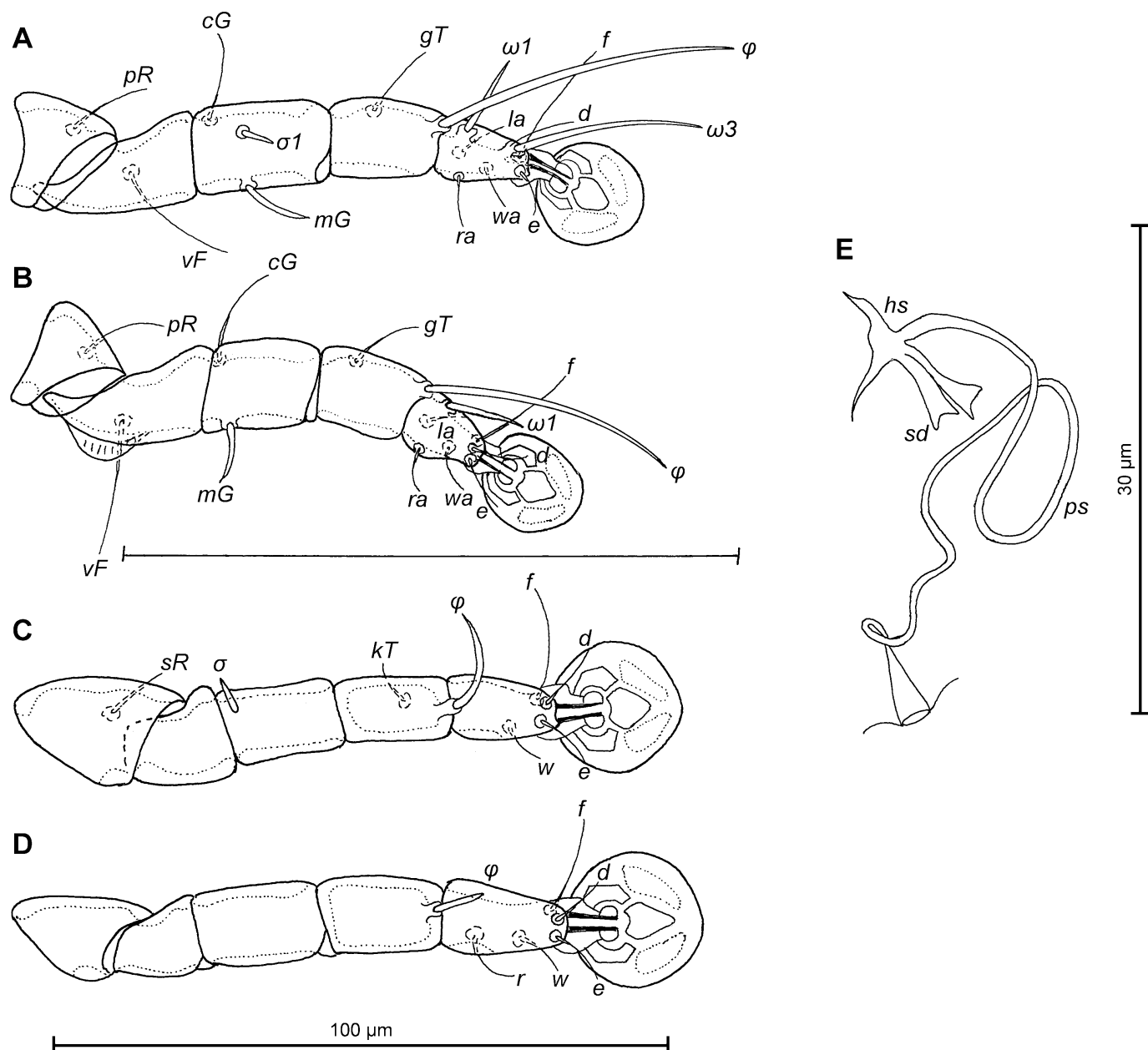


Figure 8 *Proterothrix murariui* sp. n., Female: A – D – details of legs, dorsal view, A – leg I, B – leg II, C – leg III, D – leg IV; E – spermatheca; Abbreviations: hs – head of spermatheca, ps – primary spermaduct, sd – secondary spermaduct.

short, about 10 long (Fig. 8E). Distance between pseudanal setae: *ps2-ps2* 46–54, *ps3-ps3* 15–20, *ps2-ps3* 28–34. Legs I slightly longer than legs II, femora II with wide ventral crest, setae *mGI* and *mGII* spiculiiform. Length of solenidia: ω I 10–13, ω II 6–10, φ I 50–51, φ II 40–44, φ III 14–19, φ IV 6–8 (Fig. 8A–D).

Remarks — *Proterothrix murariui* Constantinescu, sp. n. is the first species of the genus discovered on a host of the family Picidae. This species has unique combination of character states and does not resemble any of the species of *Proterothrix* described so far. It cannot be included in any of the species groups defined so far within the genus. Males of *Proterothrix murariui* have three morphological character states within are unique in *Proterothrix*: a pregenital sclerite (epiandrium) present; the aedeagus is band-shaped, thickened in the anterior

half and narrowed in the posterior half; and the terminal lobes have two pairs of trapezoidal, membranous extensions. In both sexes, dorsal setae *cl* are absent, and setae *cp* are spiculiform. Females have the terminal cleft narrow, parallel-sided in the anterior 2/3, and large with oblique margins in the posterior 1/3. The presence of epandrium in males is a rare occurrence among mites of the subfamily Pterodectinae, encountered only in some species of the genus *Anisodiscus* (Hernandes and OConnor 2013). The absence of dorsal setae *cl* is a character also found to some species of the *Proterothrix megacaula* species group. It is too premature to define a new group of species within the genus *Proterothrix*, based only on this species described here, but maybe the discovery of other species of the genus from woodpeckers, sharing common morphological characters, will make this possible in the future.

Acknowledgements

We are very grateful to the research team who collected bird specimens from some islands of the Indonesian archipelago in the expedition organized by “Grigore Antipa” National Museum of Natural History in 1991: Dr. Dumitru Murariu, the chief of expedition, Dr. Modest Guțu, Dr. Alexandru Marinescu and Dr. Corneliu Pârvu.

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