

Two new feather mites of the subfamily Proctophyllodinae (Acariformes: Proctophyllodidae) from the Yellow-bellied Flycatcher *Empidonax flaviventris* (Passeriformes: Tyrannidae) in Canada

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Original research

ABSTRACT

Two new feather mite species, *Nycteridocaulus sulcatus* **sp. n.** and *Tyranniphyllodes empidonicus* **sp. n.** (Astigmata: Proctophyllodidae), are described from the Yellow-bellied Flycatcher, *Empidonax flaviventris* (Passeriformes: Tyrannidae), in Canada. The clearest distinguishing characteristic of *N. sulcatus* is the structure of the supranal concavity in males, which is parallel-sided, heavily sclerotized and opened posteriorly. *Tyranniphyllodes empidonicus* readily differs from the only previously known species, *T. pitangi* Hernandez *et al.* 2007, by the absence of setae *dl* in both sexes and in having strongly elongated epimerites IVa and the genital sheath in males not extending to the tip of the aedeagus, and long anterolateral extensions of the prodorsal shield in females. This is the first record of the genus *Tyranniphyllodes* in North America.

Keywords Astigmata; feather mites; Proctophyllodidae; *Nycteridocaulus*; *Tyranniphyllodes*; systematics; North America

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Introduction

Feather mites (Astigmata: Analgoidea and Pterolichoidea) are permanent and highly specialized commensals and parasites of birds living mainly on the plumage of their hosts and also on the skin and in the respiratory tracts (Gaud and Atyeo 1996; Dabert and Mironov 1999; Proctor and Owens 2000; Proctor 2003). These mites are known from all extant orders of birds, including penguins, as recently determined (Mironov and Proctor 2008). Owing to their high degree of specialization to particular microhabitats on the host body, one species of host may often be infested by a complex of specific feather mite species.

In terms of global biogeography, diversity of feather mites has been explored quite unequally. Most extensively, with examination of the majority of potential avian hosts, these mites have been well studied only in Europe and to lesser extent in Africa, while the fauna of other continents has been explored significantly less intensively (for major references, see: Gaud and Atyeo 1996). In Canada, diversity of feather mites from birds inhabiting the grassland biomes (Alberta, Saskatchewan, and Manitoba) has been recently summarized (Galloway *et al.* 2014) where 135 described and about 40 undescribed species of 20 families were reported. Beaulieu

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et al. (2019) listed about 280 species of feather mites in 25 families in Canada, but this number represented records from 250 bird species, only one third of the species occurring in Canada.

The present paper continues the series of our taxonomic work on feather mites in Canada (Mironov and Galloway 2002, 2003, 2006, 2014, 2019), and we present descriptions of two species of the family Proctophyllodidae found on the Yellow-bellied Flycatcher, *Empidonax flaviventris* (Baird & Baird, 1843) (Passeriformes: Tyrannidae). Mites of the family Proctophyllodidae are predominantly distributed on passerine birds, although members of the tribe Rhamphocaulini (Pterodectinae) are also widely distributed on hummingbirds (Apodiformes: Trochilidae), and a few species have been recorded from hosts of non-passerine orders (Atyeo and Braasch 1966; Park and Atyeo 1971a, 1971b; Gaud and Atyeo 1996; Mironov 2009; Hernandez and Valim 2014). The new species coinfecting Yellow-bellied Flycatcher represent two different phylogenetic lineages of the subfamily Proctophyllodinae, the *Nycteridocaulus* and *Platyacarus* generic groups (Klimov *et al.* 2017), which are almost exclusively associated with suboscine passerines.

Materials and methods

Bird specimens were obtained from the Wildlife Haven (Manitoba Wildlife Rehabilitation Organization, MWRO, Île des Chênes, Manitoba) and the Prairie Wildlife Rehabilitation Centre (PWRC, St. Adolphe, Manitoba). All birds from the MWRO and PWRC were casualties of various accidents or infections and died at the rehabilitation hospitals. Laboratory techniques for collection of feather mites from frozen bird corpses and preparation of feather mites during this study were described by Mironov and Galloway (2002). Drawings and measurements were made with Leica microscopes (DM2500, Leica Microsystems, Inc.) equipped with differential interference contrast optics (DIC) and a *camera lucida*.

Descriptions of new species follow the modern format and measuring techniques proposed for mites of the family Proctophyllodidae (Hernandez *et al.* 2007; Mironov & González-Acuña 2011; Mironov 2012, 2017; Hernandez 2014; Mironov *et al.* 2017). General morphological terms and idiosomal chaetotaxy are those of Gaud and Atyeo (1996) with minor corrections by Norton (1998), and the leg chaetotaxy is after Grandjean (1939). All measurements are in micrometres (µm).

Scientific names of birds and supraspecific classification follow Gill and Donsker (2020). The abbreviations used in accession specimen numbers and depositories are as follows: CNC—Canadian National Collection of Insects, Arachnids and Nematodes, Agriculture and Agri-Food Canada, Eastern Cereal and Oilseeds Research Centre (Ottawa, Ontario, Canada); UMMZ—Museum of Zoology of the University of Michigan (Ann Arbor, MI, USA); WRME—J.B. Wallis/R.E. Roughley Museum of Entomology, University of Manitoba (Winnipeg, Manitoba, Canada); ZISP—Zoological Institute of the Russian Academy of Sciences (Saint Petersburg, Russia).

Systematics

Family Proctophyllodidae Trouessart & Mégnin, 1884

Subfamily Proctophyllodinae Trouessart & Mégnin, 1884

Genus *Nycteridocaulus* Atyeo, 1966

Type species: *Nycteridocaulus tyranni* Atyeo, 1966, by original designation.

Nycteridocaulus is the most species-rich genus within the *Nycteridocaulus* generic group, one of two major phylogenetic lineages of the subfamily Proctophyllodinae associated with suboscine passerines in the New World (Klimov *et al.* 2017; Mironov and Bermúdez 2018, 2020). Prior to the present study, the genus *Nycteridocaulus* included 15 species mainly

associated with suboscine passerines. Of them, 12 species are distributed on tyrant flycatchers and allies (Tyrannidae: Thamnophilidae, Tyrannidae, and Tytrodidae); one species is known from ovenbirds (Furnariidae: Furnariidae) and two on oscine passerines of the families Parulidae and Troglodytidae (Atyeo 1966; Ayeo and Gaud 1968; De Alzuet and Brandetti 1986; Hernandez 2014; Mironov *et al.* 2017). *Nycteridocaulus tyranni* commonly infests tyrant flycatchers, and two records on birds of the families Passerellidae and Vireonidae by Ayeo (1966), based on collections from museum skins, are questionable and require verification.

The clearest diagnostic feature of the genus *Nycteridocaulus* is the genital arch in males shaped as a recurved bow and the whole genital apparatus resembling a flying bat, the basis for the name of the genus. Among proctophyllodines of the *Nycteridocaulus* group, this genus is the most diverse in the structure of the opisthosomal lobes and terminal lamellae, varying from short rectangular membranes, as in the new species described below, to long leaf-like projections. A key to most presently known species was provided by Mironov *et al.* (2017).

***Nycteridocaulus sulcatus* sp. n.**

Zoobank: 33E79AC0-047C-41F5-9610-7B62F20718F8

Figures 1–3

Type material — Male holotype, 7 males, 12 females from *Empidonax flaviventris* (Passeriformes, Tyrannidae), (YBFL/430/CEN/09), (SM 2000), CANADA, Manitoba, Winnipeg, 5 June 2009, coll. T.D. Galloway and J.A. McLeod.

Additional material — 4 males, 5 females from *E. flaviventris*, (OHM b854-14) (SM 2601), CANADA, Manitoba, High Bluff, 31 August 2014, coll. T.D. Galloway and E.N. McNally.

Depository — Holotype, 2 male and 4 female paratypes—CNC, remaining paratypes—UMMZ, WRME and ZISP.

Description — **Male** (holotype, range for 7 paratypes in parentheses) (Figures 1, 3A–D, G). Idiosoma, length $\times$ width, 290 (275–285) $\times$ 160 (150–165), length of hysterosoma 185 (180–190). Prodorsal shield: anterolateral extensions with acute tips, lateral margins entire, posterior margin slightly concave, posterior corners almost rectangular, 82 (80–88) in length, 105 (100–105) in width, posterior part with minute sparsely disposed lacunae. Setae *ve* rudimentary. Scapular setae *se* separated by 60 (57–63). Setae *c2* and *cp* on humeral shields. Setae *c3* lanceolate, 13 (13–15) long, about 5 wide. Distance between prodorsal and hysteronotal shields 25 (20–25). Hysteronotal shield: 185 (175–185) in length and 105 (95–100) in width; anterior margin slightly concave, surface with sparsely disposed, small, circular lacunae. Opisthosoma slightly attenuate posteriorly. Opisthosomal lobes short, roughly rectangular, posterior margin almost straight; terminal lamellae short rectangular, 10 (10–13) in length and 18 (16–18) in width. Terminal cleft small triangular, with anterior end extending to level of setae *h2*, length from anterior end to margins of lobes 15 (13–15), width at level of setae *ps1* 6 (6–8). Supranal concavity long, parallel-sided, with strongly sclerotized margins, open posteriorly, 58 (52–58) long. Setae *h2* situated on truncate lateral extensions of opisthosomal lobes; setae *h3* situated in posterolateral angles of lobes; setae *ps1* in posteromedial angles of lobes, slightly posterior to level of setae *h3*; setae *h1* situated slightly posterior to setae *ps2*. Distance between dorsal setae: *c2:d2* 60 (55–60), *d2:e2* 65 (62–68), *e2:h3* 60 (52–60), *h2:h2* 60 (57–63), *h3:h3* 50 (47–53), *ps2:ps2* 67 (65–70), *h1:h3* 30 (27–30), *d1:d2* 20 (18–22), *e1:e2* 25 (23–28).

Epimerites I free, close to each other, posterior tips divergent; epimerites I, II with narrow surface fields; epimerites IVa absent. Rudimentary sclerite rEpIIa barely distinct. Trochanters III flanked by sclerotized bands going from bases of epimerites IIIa. Epimerites IIIa with sclerotized areas around their inner tips with acute extensions directed anteromediad. Trochanters IV flanked by sclerotized bands stretching from bases of epimerites IV. Genital apparatus situated at level of trochanters IV. Genital arch shaped as recurved bow, 8 (7–8) in length and 45 (45–48) in width. Aedeagus stylet-like, 17 (17–18) in length, reaching level of setae *g* (Figure 3G). Genital papillae of each side on small oval plates at level of genital arch

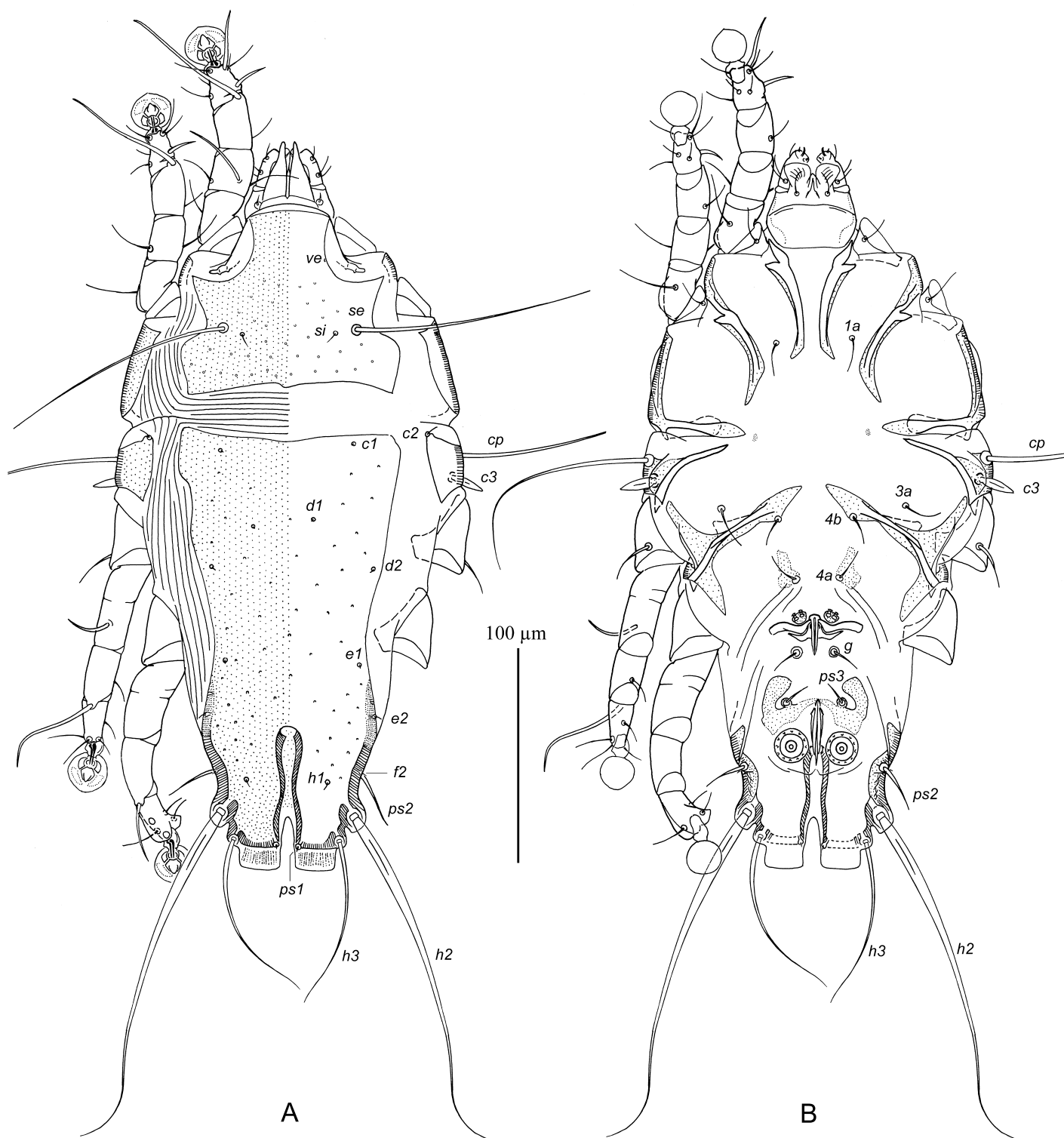


Figure 1 *Nycteridocaulus sulcatus* sp. n., male: A – dorsal view, B – ventral view.

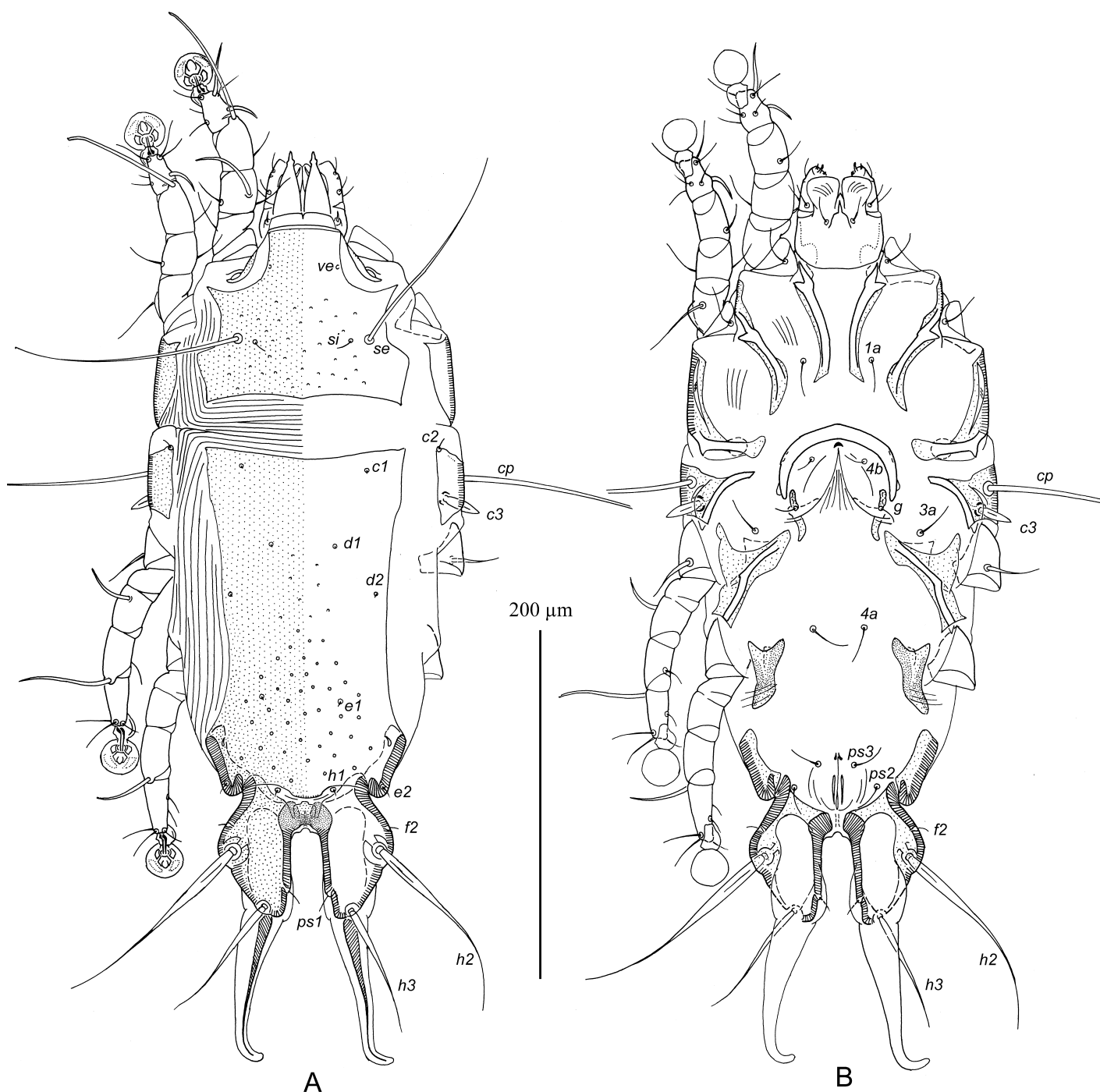
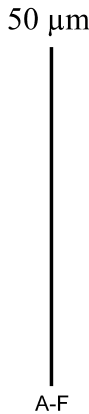


Figure 2 *Nycteridocaulus sulcatus* sp. n., female: A – dorsal view, B – ventral view.

apex. Distance from genital arch apex to level of setae *h3* 105 (100–105). Pregenital apodemes shaped as longitudinal sclerites of irregular form. Setae *4a* on pregenital apodemes, setae *4b* on sclerotized areas of epimerites IIIa. Adanal suckers 15 (14–15) in diameter, corolla with 11–12 denticles. Adanal shields represented by a pair of roughly L-shaped sclerites situated anterior to anal suckers and touching at midline, length of shields 25 (23–25), distance between



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their lateral margins 48 (44–48). Setae *ps3* situated on transverse branches of adanal shields. Opisthoventral shields shaped as small, roughly triangular extensions at level of adanal suckers. Distance between ventral setae: *3a:4b* 7 (5–8), *4b:4a* 27 (23–27), *4a:g* 35 (32–35), *g:g* 20 (19–21), *g:ps3* 25 (23–25), *ps3:ps3* 27 (23–28), *ps3:h3* 65 (58–65).

Femora I, II with ventral crest. Solenidion σ of genu I approximately 1.5 times longer than this segment and situated at its midlevel (Figure 3A). Solenidion σ of genu III situated at midlevel of this segment. Legs III, IV subequal in size, legs IV with ambulacral discs extending beyond posterior margin of terminal lamellae. Tarsus IV 25 (22–25) in length, with longitudinal dorsal ridge and with triangular ventral process bearing seta *w*; modified setae *d* and *e* button-like, setae *d* situated at midlength of segment (Figure 3D). Setae *d* and *f* of tarsi II, III longer, subequal in length. Length of solenidia: σ I 35 (35–40), σ III 20 (20–25), ϕ IV 25 (25–30).

Female (range for 10 paratypes) (Figures 2, 3E, F). Idiosoma, length $\times$ width, 365–385 $\times$ 165–180, length of hysterosoma 250–270. Prodorsal shield: generally shaped as in male, posterior corners pointed, 90–95 in length and 120–125 in width, surface with sparsely disposed minute circular lacunae. Setae *se* separated by 75–78. Setae *c2* and *cp* on humeral shields. Setae *c3* lanceolate, 15–18 long, about 5 wide. Distance between prodorsal and hysteronotal shields 25–32. Anterior hysteronotal shield: 185–190 in length and 110–115 in width, anterior margin slightly concave, posterior margin with small truncate median extension and a pair of shallow concavities, median area of posterior half with sparsely disposed small circular lacunae (Fig. 2A). Lobar region: 72–75 in length and 100–105 in width, lateral margins strongly convex, without noticeable extensions bearing setae *h2*; lobar shield entire, with pair of narrow incisions in anterior margin and with small roughly rectangular extension between them. Terminal cleft narrow, almost parallel-sided, 50–55 in length, 18–22 in width in anterior part. Supranal concavity absent. Setae *h2* lanceolate in basal part and with long filiform apex, 110–120 in length, 6–8 in width; setae *h3* 70–60 in length, approximately 3/4 the length of terminal appendages. Setae *h1* inserted on striated tegument between anterior hysteronotal and lobar shields. Setae *h1* and *f2* in trapezoidal arrangement. Setae *ps1* on inner margins of opisthosomal lobes, close to level of setae *h3*. Distance between dorsal setae: *c2:d2* 78–82, *d2:e2* 95–105, *e2:h2* 35–40, *h2:h3* 32–35, *h1:h2* 35–37, *d1:d2* 25–28, *e1:e2* 45–50, *h1:h1* 25–33, *h2:h2* 80–84, *h2:ps1* 22–30.

Epimerites I as in male; epimerites I, II with narrow surface fields. Epimerites IVa large, roughly triangular, with heavily sclerotized margins. Epigynum horseshoe-shaped, thick, lateral margins without extensions, tips acute, not extending to level of setae *g*, 40–45 in length, 55–67 in width. Genital papillae of each side on small, ovate sclerotized plate. Setae *ps2* situated at midlevel of anal opening. Translobar apodemes not fused to each other anterior to terminal cleft. Copulatory opening situated on anterior end of terminal cleft. Head of spermatheca short; proximal part of primary spermaduct with ampuliform enlargement 20–25 long (Figure 3F). Distance between pseudanal setae: *ps2:ps2* 43–45, *ps3:ps3* 19–21, *ps2:ps3* 13–15.

Legs I, II as male. Legs IV with ambulacral disc extending beyond level of setae *h2*. Solenidion σ of genu I about 1.5 times longer than this segment and situated at its midlevel. Solenidion σ of genu III in proximal half of this segment. Solenidion ϕ of tibia IV equal to corresponding tarsus (Figure 3E). Setae *d*, *f* of tarsi II–IV subequal in length. Length of solenidia: σ I 35–40, σ III 23–25, ϕ III 50–55, ϕ IV 30–35.

Differential diagnosis — The new species, *Nycteridocaulus sulcatus* sp. n., is close to *N. guaratubensis* Hernandez, 2014 from the Restinga Tyrannulet, *Phylloscartes kronei* Willis & Oniki (Tyrannides: Tyrannidae), in having minute lacunae on the hysteronotal shield in both sexes, short and truncate opisthosomal lobes with nearly rectangular terminal lamellae and the adanal shields roughly L-shaped in males, and the primary spermaduct with ampuliform enlargement in females. *Nycteridocaulus sulcatus* differs from *N. guaratubensis* in the following features: in males, the supranal concavity is parallel-sided and open posteriorly, pregenital apodemes are present, and tarsus IV has a longitudinal dorsal ridge (Figures 1A, 3G); in females, the posterior half of the hysteronotal shield bears sparsely disposed small

circular lacunae (Figure 2A), and setae *h3* are 75–85 long, about 3/4 the length of the terminal appendages. In males of *N. guaratubensis*, the supranal concavity is closed posteriorly and shaped as a long teardrop, pregenital apodemes are absent, and tarsus IV does not have a dorsal ridge; in females, the entire surface of the hysteronotal shield bears small circular lacunae and the posterior part has a pair of longitudinal rows consisting of 3 to 4 large ovate lacunae, and setae *h3* are 66–72 long, about 1/2 the length of terminal appendages.

Etymology — The specific epithet *sulcatus* (from *sulcus*, groove, L.) is an adjective referring to the distinct groove-like supranal concavity in males.

Genus *Tyranniphyllodes* Hernandez, Valim & Mironov, 2007

Type species: *Tyranniphyllodes pitangi* Hernandez, Valim & Mironov, 2007, by original designation.

The genus *Tyranniphyllodes* was based on one species, *Tyranniphyllodes pitangi*, described from the Great Kiskadee, *Pitangus sulphuratus* (Linnaeus, 1766) (Tyrannidae: Tyrannidae), in Brazil (Hernandez *et al.* 2007). This genus belongs to the *Platyacarus* generic group, the second major lineage of the proctophyllodines associated with suboscine passerines of the New World (Klimov *et al.* 2017; Mironov and Bermúdez 2018, 2020). Most representatives of the *Platyacarus* group are distributed on ovenbirds and treecreepers (Furnariidae: Furnariidae), and only the one previously known species of the genus *Tyranniphyllodes* is associated with tyrant flycatchers (Tyrannidae) (Kudon 1982; Mironov *et al.* 2017). Interesting morphological features allowing unmistakable recognition of this genus among other proctophyllodines are the strong dimorphism in the prodorsal shield, which is split into anterior and posterior pieces in males and entire in females, and the presence of dorsal crest-like processes on genua III and IV in females.

Tyranniphyllodes empidonicus sp. n.

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Figures 4–6

Type material — Male holotype, 2 males, 11 females from *Empidonax flaviventris* (Tyrannidae), (YBFL/430/CEN/09), (SM 2000), Canada, Manitoba, Winnipeg, 5 June 2009, coll. T.D. Galloway and J.A. McLeod.

Depository — Holotype, 1 male and 3 female paratypes—CNC, remaining paratypes—WRME and ZISP.

Description — **Male** (holotype, range for 2 paratypes in parentheses) (Figures 4, 6A–D, H). Idiosoma, length × width, 250 (235–245) × 115 (110–115), length of hysterosoma 160 (155–160). Prodorsal shield split at level of scapular setae into anterior and posterior parts; anterior part shaped as longitudinal plate with concave lateral margins and rounded posterior end, posterolateral margins with blunt-angular suprattegumental extensions, length along midline 72 (68–72), greatest width 48 (43–45); posterior part trapezoidal in form, posterior margin slightly convex, small anterior extensions encompass bases of setae *se*, length 25 (22–27), width at posterior margin 60 (57–60). Bases of scapular setae *se* separated by 34 (34–37). Inner margin of scapular shields with widely rounded suprattegumental extension. Humeral shields absent, setae *c2* and *cp* on striated tegument. Setae *c3* narrowly lanceolate, 15 (15–18) long, about 3 wide. Distance between prodorsal and hysteronotal shields 15 (15–20). Hysteronotal shield: 165 (155–160) in length and 70 (60–65) in width; anterior margin concave, surface without ornamentation. Setae *c1* on hysteronotal shield. Setae *d1*, *d2* and *e2* absent. Opisthosomal lobes poorly developed, as a pair of short, angular extensions bearing setae *h3* on apices; terminal cleft represented by as shallow concavity, 10 (9–12) long. Supranal concavity groove-like, 37 (34–35) long. Terminal lamellae tongue-shaped, with fine dorsal punctation at base, 30 (30–35) long, 15 (13–15) wide at base, distance between inner margins of lamellae about 8 (8–10). Setae *h1* slightly anterior to level of setae *h2*. Setae *ps1* on margin of terminal cleft or on the base of lamella, slightly anterior to level of setae *h3*. Distance between dorsal setae: *c2:e1* 100

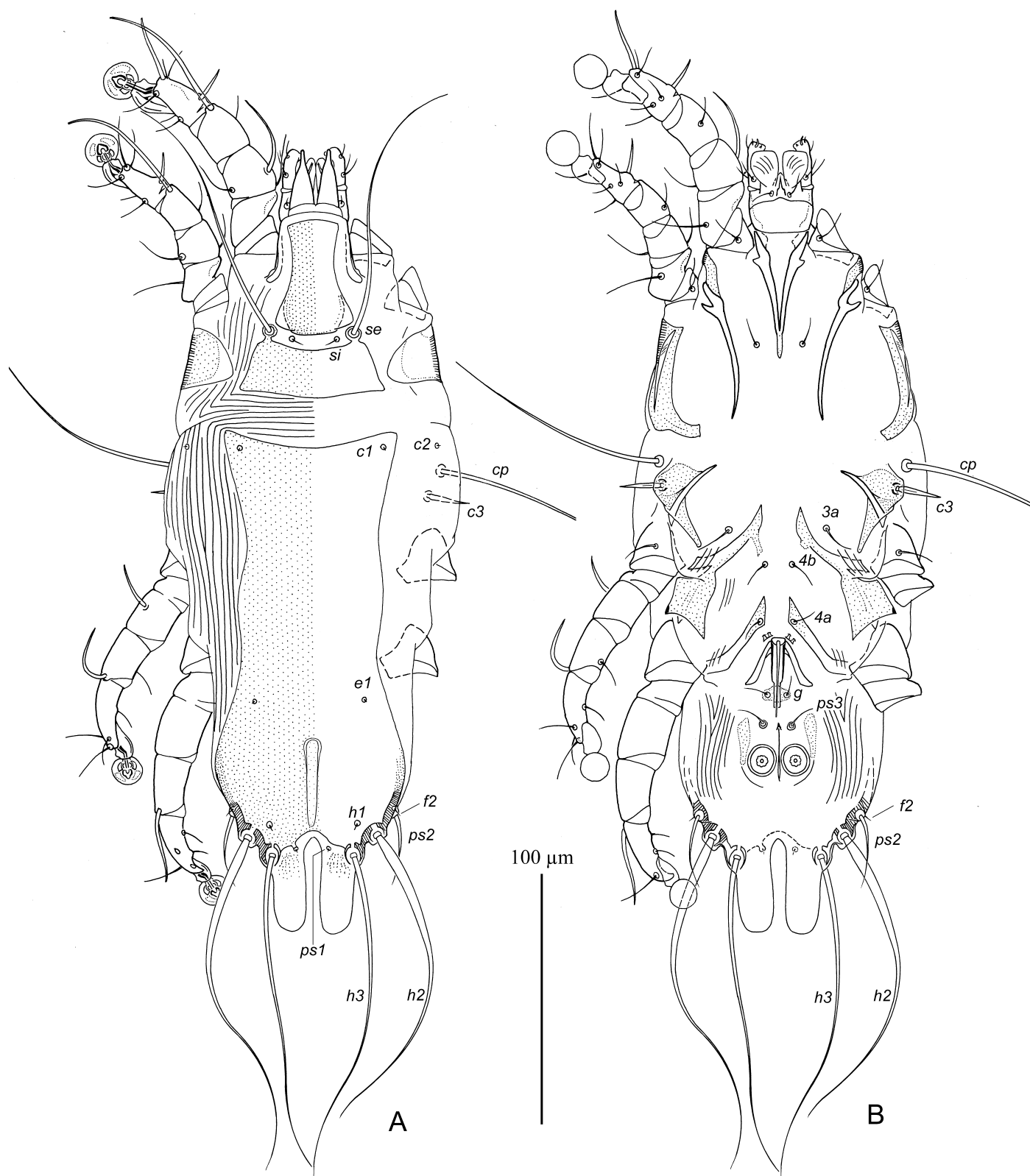


Figure 4 *Tyranniphylloides empidonicus* sp. n., male: A – dorsal view, B – ventral view.

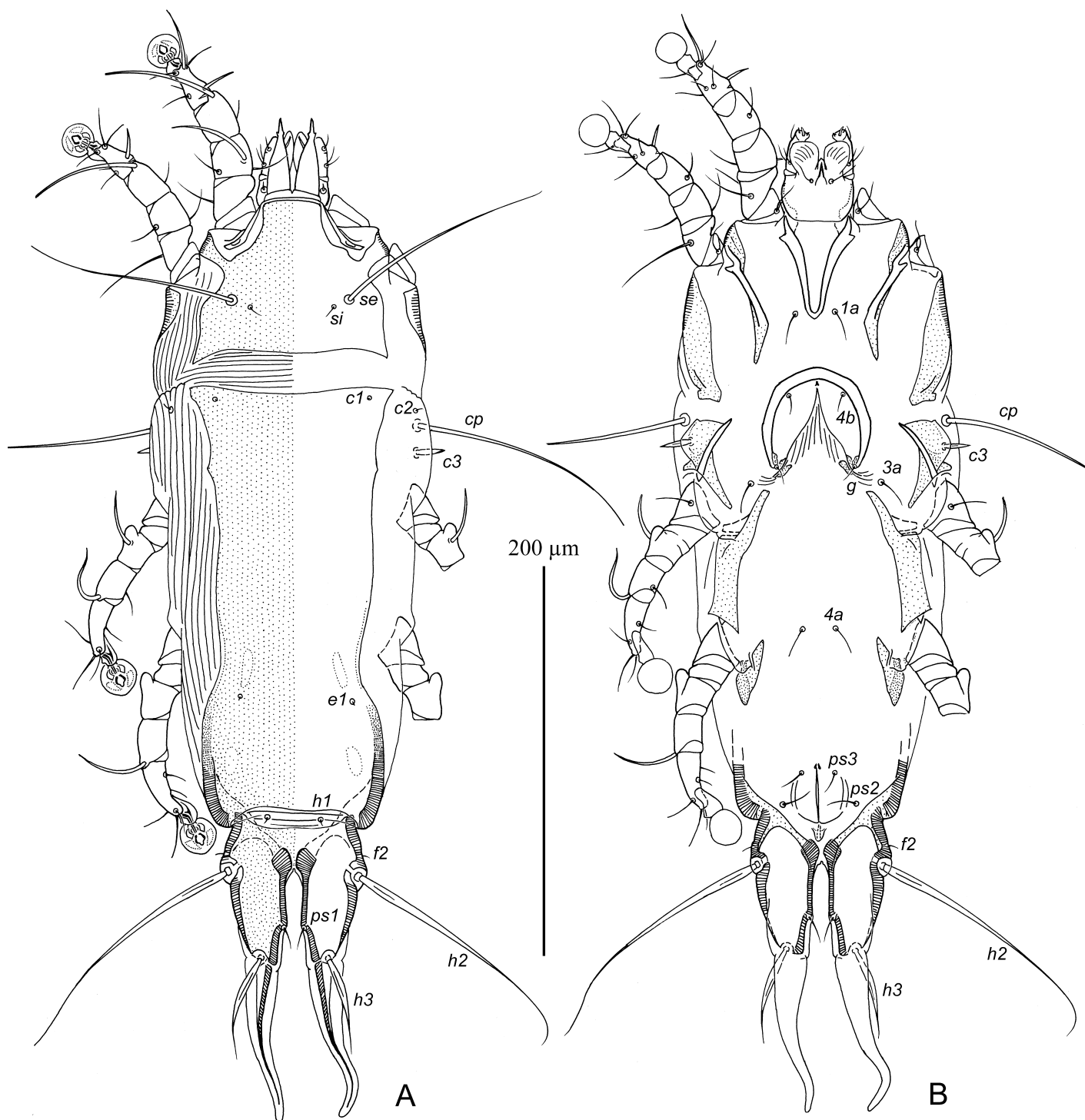


Figure 5 *Tyranniphyllodes empidonicus* sp. n., female: A – dorsal view, B – ventral view.

(95–100), $e1:h3$ 60 (58–60), $e2:h3$ 000 (50–55), $h2:h2$ 50 (48–50), $h3:h3$ 33 (30–33), $ps2:ps2$ 62 (60–62), $h1:h3$ 14 (10–15).

Epimerites I fused into a Y, sternum about 1/4 of the total length of epimerites. Epimerites I, II without wide surface fields; bases of these epimerites I not inflated. Inner ends of epimerites

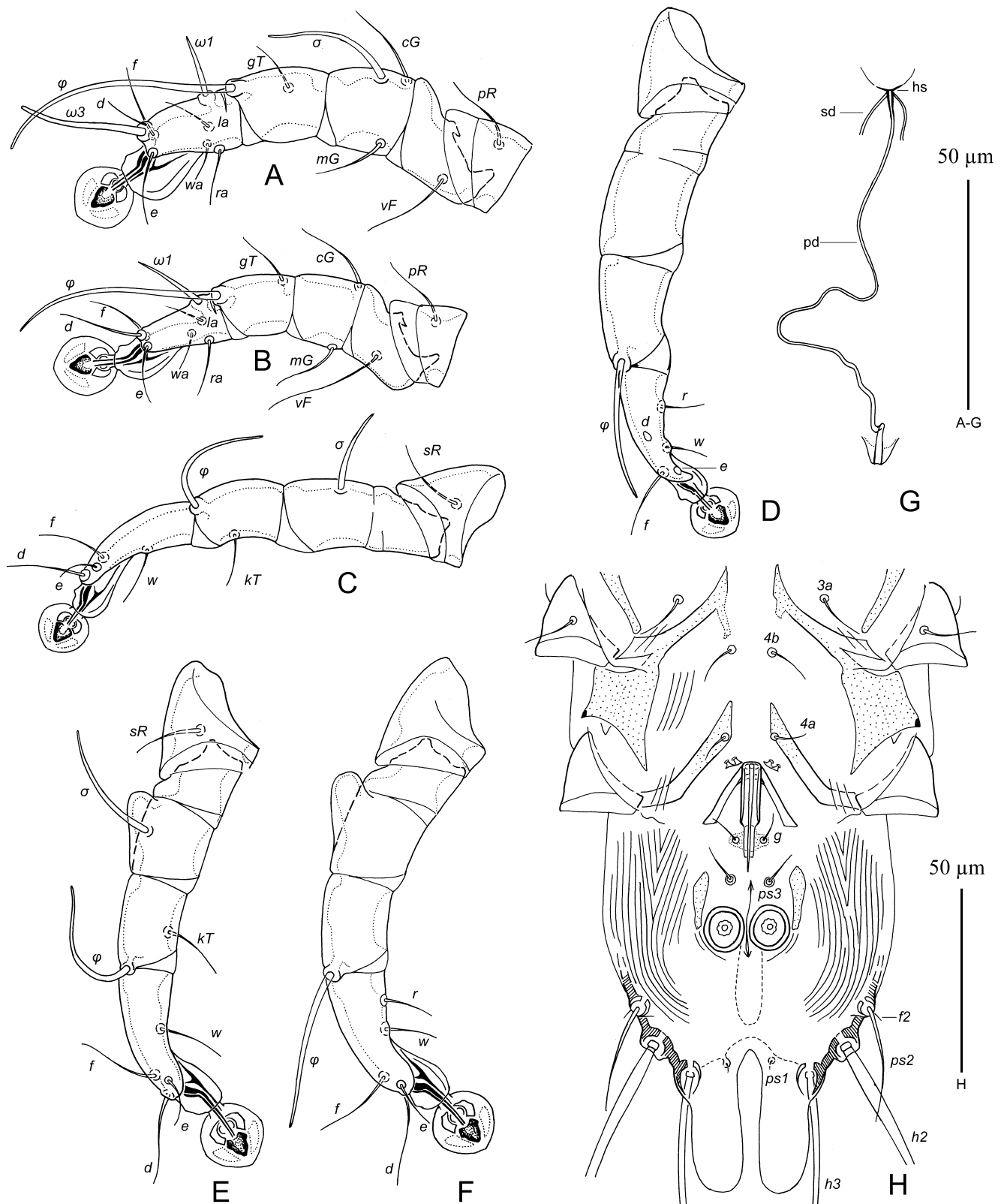


Figure 6 *Tyranniphylloides empidonicus* sp. n., details: A–D – legs I–IV of male, respectively, E, F – legs III, IV of female, respectively, G – spermatheca and spermaducts, H – opisthosoma of male, ventral view. Abbreviations: hs – head of spermatheca, pd – primary spermaduct, sd – secondary spermaducts.

IIIa with small sclerotized extensions directed backward. Epimerites IVa elongated forming paragenital apodemes, their anterior ends encompass setae 4a. Rudimentary sclerites rEpIIa absent. Bases of trochanters III flanked by sclerotized bands stretching from epimerites III. Bases of trochanter IV partly flanked by triangular sclerotized fields of epimerites IVa. Genital arch of moderate size, 17 (17–18) long and 27 (26–28) wide, with apex at midlevel of trochanters IV; aedeagus thin stylet-like, 30 (30–32) long, extending to midlevel between setae g and ps3. Genital sheath with distal half abruptly narrowed, not extending to tip of aedeagus. Distance from genital arch apex to level of setae h3 80 (75–80). Bases of genital papillae connected, situated at level of genital arch apex. Genital shield shaped as small transverse oval bearing setae g. Adanal shields represented by a pair of longitudinal sclerites laterally flanking anal field bearing setae ps3. Adanal suckers circular, 13 (12–13) in diameter; corolla without denticles. Setae 4b posterior to level of setae 3a. Distance between ventral setae: 3a:4b 15 (14–15), 4b:4a 22 (18–20), 4a:g 27 (27–30), g:ps3 11 (11–12), g:g 7 (7–8), ps3:ps3 10 (9–11), ps3:h3 52(45–48).

Legs I noticeably thicker and slightly longer than legs II; femur II with noticeable bluntly rounded ventral extension. Solenidion σ I about 1.5 times longer than genu I and situated closer to base of this segment. Solenidion σ of genu III slightly closer to base of this segment. Legs IV with ambulacral disc extending to midlength of terminal lamellae. Tarsus IV 27 (27–28) long, with claw-like apical process; setae d, e button-like, setae d situated at midlength of this segment, seta e on apical claw-like process. Solenidion ϕ of tibia IV not extending to apex of tarsus IV. Length of solenidia: σ I 30 (30–32), σ III 20 (18–20), ϕ IV 25 (24–27).

Females (range for 10 paratypes) (Figures 5, 6E–G). Idiosoma, length $\times$ width, 355–385 $\times$ 125–145, length of hysterosoma 270–285. Prodorsal shield: entire, occupying most of prodorsum, anterolateral extensions fused with epimerites Ia on the margin of propodosoma, lateral margins without incisions, posterior margin straight or slightly sinuous, posterior corners acute, length 75–80, width 90–100, surface without ornamentation. Bases of setae se separated by 55–60. Humeral shields absent, setae c2 and cp on striated tegument. Setae c3 narrowly lanceolate, 13–15 long, about 3 wide. Distance between prodorsal and hysteronotal shields 8–10. Hysteronotal shield separated dorsally by transverse band of soft tegument into anterior and lobar parts and connected ventrolaterally. Anterior hysteronotal shield: 200–215 in length and 95–100 in width at anterior margin, anterior margin slightly concave, posterior margin almost straight, surface with two pairs of poorly sclerotized areas in posterior half. Setae c1 on anterior hysteronotal shield. Setae d1, d2, and e2 absent. Lobar shield: 70–74 in length and 65–75 in width. Opisthosomal lobes 1.5 times longer than wide at base. Terminal cleft almost parallel-sided, anterior part slightly narrower than posterior part, 47–50 in length, 8–10 in width in anterior part. Supranal concavity absent. Setae h2 enlarged in basal part, with long filiform apical part, 130–150 in length, about 5 wide; setae h3 56–50 long, about 2/3 of terminal appendages. Setae h1 inserted on soft tegument between the anterior hysteronotal and lobar shields. Setae ps1 on inner margins of opisthosomal lobes, closer to setae h3 than h2. Distance between dorsal setae c2:e1 135–145, e1:h3 75–82, h2:h3 40–44, h1:h2 24–36, h1:h1 25–28, h2:h2 57–65, h2:ps1 23–25.

Epimerites I fused into a narrow U with divergent branches. Epimerites I, II without sclerotized fields, bases of these epimerites not inflated. Epimerites IVa large, shaped and narrow triangles. Coxal fields II with large sclerotized areas laterally. Bases of trochanters III partly flanked by sclerotized bands connected to epimerites III. Epigynum horseshoe-shaped, thin, with acute tips touching bases of setae g, 50–58 in length, 52–58 in width, without lateral extensions. Genital papillae on posterior ends of epigynum. Setae ps2 at midlevel of anal opening. Translobar apodemes not fused to each other anterior to terminal cleft. Copulatory opening situated on small cone-like extension, immediately posterior to anal opening. Primary spermaduct with wall slightly thickened near entering into head of spermatheca; secondary spermaducts 10–12 long. Distance between pseudanal setae: ps2:ps2 32–40, ps3:ps3 15–18, ps2:ps3 15–17.

Legs I, II subequal in size, femora I, II without ventral extension. Genua III, IV with rounded dorsal crest. Solenidion σ of genu III situated at midlength of this segment. Legs IV with ambulacral disc barely extending to level of setae f_2 . Solenidion ϕ of tibia IV similar in length to tarsus IV. Length of solenidia: σ I 34–37, σ III 24–25, ϕ III 28–32, ϕ IV 30–35.

Differential diagnosis — *Tyranniphylloides empidonicus* sp. n. differs from *T. pitangi* in a number of characters. In both sexes of *T. empidonicus*, setae $d1$ are absent; in males, the posterior piece of the prodorsal shield is trapezoidal in shape with acute posterior corners, epimerites I are fused into a Y, epimerites IVa are strongly elongated and encompass bases of setae $4a$, the genital sheath is strongly narrowed in the distal half and does not extend to the tip of aedeagus, the genital shield is shaped as a small transverse oval bearing setae g , and the adanal shield is represented by a pair of longitudinal sclerites laterally flanking the anal field; in females, the anterolateral extensions of the prodorsal shield are fused with epimerites Ia, the posterior corners of this shield are directed posterolaterally, the posterior margin is almost straight, and setae se are on this shield and distant from its lateral margins. In both sexes of *T. pitangi*, setae $d1$ are present; in males, the posterior piece of the prodorsal shield is shaped as a narrow transverse plate with blunt-angular posterior margin, epimerites I are fused into a V, epimerites IVa are short and not extending beyond the level of genital arch apex, the genital sheath is bifurcate apically and extends beyond the tip of aedeagus, the genital and adanal shields are fused into the entire H-shaped opisthogastric shield; in females, the anterolateral extensions of the prodorsal shield are absent, the posterior corners of this shield are directed laterally, the posterior margin is strongly convex, and setae se are situated on the lateral margins of this shield.

Etymology — The specific epithet is derived from the generic name of the type host.

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