Proceedings of the Zoological Institute RAS
Vol. 313, No. 4, 2009, pp. 379–396

УДК 576.895.42:599.323.4

A NEW MITE GENUS *CAENOLESTOMYOBIA* GEN. NOV. (ACARIFORMES: MYOBIIDAE) FROM MARSUPIALS OF THE GENUS *CAENOLESTES* (PAUCITUBERCULATA: CAENOLESTIDAE)

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ABSTRACT

A new mite genus *Caenolestomyobia* gen. nov. (Myobiidae: Archemyobiinae) with two new species, *C. lukoschusi* sp. nov. (type species) ex *Caenolestes fuliginosus* (Paucituberculata: Caenolestidae) from Ecuador and *C. faini* sp. nov. ex *Caenolestes caniventer* from Peru, are described. The new genus differs from other two genera of the subfamily, *Archemyobia* and *Dromicimyobia* by the structure of the internal attaching organ of genua I. Additionally, in *Caenolestomyobia*, setae *f2* and *h2* are delayed to adults, and in males, setae *c2* are located on the genital shield. The new genus differs also from *Archemyobia* by the presence of lateral notches on the gnathosoma and by the absence of the second claw on tarsi III and IV. It differs from *Dromicimyobia* by the absence of setae *3b*, *3c*, *4b*, and *4c* in males. Species of the new genus differs from each other by the following characters. In males of *C. faini* sp. nov., setae *e1* are 2.1–2.3 times longer than *c2*, the apices of setae *c2* almost reach the level of seta *e2* bases; in tritonymphs, setae *f1* are shorter than *e2*, their length ratio is 1: 1.2–1.7. In males of *C. lukoschusi* sp. nov., setae *e1* only 1.1 times longer than *c2*, the apices of setae *c2* far distant from the level of seta *e2* bases; in tritonymphs, setae *f1* are longer than *e2*, their length ratio is 1.1–1.4: 1.

Key words: Caenolestidae, *Caenolestomyobia* gen. nov., marsupials, Myobiidae, Paucituberculata, systematics

НОВЫЙ РОД КЛЕЩЕЙ *CAENOLESTOMYOBIA* GEN. NOV. (ACARIFORMES: MYOBIIDAE) С СУМЧАТЫХ РОДА *CAENOLESTES* (PAUCITUBERCULATA: CAENOLESTIDAE)

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РЕЗЮМЕ

Описан новый род *Caenolestomyobia* gen. nov. (Acariformes: Myobiidae: Archemyobiinae) с двумя новыми видами *C. lukoschusi* sp. nov. (типовой вид) с *Caenolestes fuliginosus* (Paucituberculata: Caenolestidae) из Эквадора и *C. faini* sp. nov. с *Caenolestes caniventer* из Перу. Представители нового рода отличаются от клещей двух

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других родов *Archemyobia* и *Dromicimyobia* данного подсемейства структурой внутреннего прикрепительного органа колен I. Кроме того, у *Caenolestomyobia* щетинки *f2* and *h2* появляются только у взрослых клещей, а щетинки *c2* самцов расположены на генитальном щитке. Клещи нового рода отличаются также от представителей *Archemyobia* наличием латеральных зарубок на гнатосоме и отсутствием второго когтя на ногах III и IV, а их самцы отличаются от таковых *Dromicimyobia* отсутствием щетинок *3b*, *3c*, *4b* и *4c*. Виды нового рода отличаются между собой следующими признаками. У самцов *C. faini* sp. nov. щетинки *e1* в 2.1–2.3 раза длиннее, чем *c2*, вершины щетинок *c2* почти достигают уровня оснований щетинок *e2*; у тритонимф щетинки *f1* короче *e2*, отношение их длин 1: 1.2–1.7. У самцов *C. lukoschusi* sp. nov. щетинки *e1* только в 1.1 раза длиннее, чем *c2*, вершины щетинок *c2* далеко не достигают уровня оснований щетинок *e2*; у тритонимф щетинки *f1* длиннее, чем *e2*, отношение их длин 1.1–1.4: 1.

Ключевые слова: Caenolestidae, *Caenolestomyobia* gen. nov., сумчатые, Myobiidae, Paucituberculata, систематика

INTRODUCTION

The mite subfamily Archemyobiinae (Prostigmata: Myobiidae) includes two genera of permanent, tissue fluid-feeding parasites of New World marsupials, *Archemyobia* Jameson, 1955 (7 species) associated with marsupials of the family Didelphidae (Didelphimorphia) and *Dromicimyobia* Fain, 1973 (monobasic) parasitizing *Dromiciops gliroides* (Microbiotheria: Microbiotheridae) (Lukoschus et al. 1972; Fain and Lukoschus 1981; Fain et al. 1981). To date, these mites have not been recorded from hosts of the order Paucituberculata, the third order of marsupials known in the New World. Among myobiid mites, only a single species *Xenomyobia hirsuta* Fain et Lukoschus, 1976, the only species in the subfamily Xenomyobiinae, was described from a host of this order, *Lestoros inca* (Paucituberculata: Caenolestidae), in Peru (Fain and Lukoschus 1976). This mite species is considered as the earliest derivative taxon in the Myobiidae (Fain and Lukoschus 1976; Fain 1994; Bochkov 1997).

In this paper, we describe a new myobiid genus with two new species belonging to the subfamily Archemyobiinae from marsupials of the order Paucituberculata. The new species parasitize marsupials of the genus *Caenolestes* (Caenolestidae) in South America.

MATERIAL AND METHODS

Some parasites were collected in the field in Peru by one of us (BMOC) and others were collected from fluid-preserved museum specimens by us and by the late Dr. Fritz Lukoschus. Mite specimens were cleared in lactophenol and mounted in Hoyer's medium. Drawings were made with a Leica microscope with phase contrast optics and a camera lucida. Structures on legs I that have been treated by some authors as ridged plates (Fain and Lukoschus 1981) were examined with polarized light; the presence of actinopilin in their cuticle demonstrates their setal origin. In the descriptions, idiosomal chaetotaxy follows Grandjean (1939) as interpreted by Bochkov et al. (2008). The leg chaetotaxy follows Grandjean (1944). All measurements are given in micrometres (μm). Names of hosts follow Wilson and Reeder (2005).

Specimen depositories and reference numbers are cited using the following abbreviations: BMOC – B.M. OConnor reference number; IRSNB – Institut royal des Sciences naturelles de Belgique, Brussels, Belgium; MUSM – Museo de Historia Natural de la Universidad Nacional Mayor de San Marcos, Lima, Peru; NNMN – Naturalis, Nationaal Natuurhistorisch Museum, Leiden, the Netherlands; UMMZ – University of Michigan Museum of Zoology, Ann Arbor, USA; ZIN – Zoological Institute of the Russian Academy of Sciences, Saint Petersburg, Russia.

SYSTEMATICS

Family Myobiidae Mégnin, 1878

Subfamily Archemyobiinae Fain, 1973

Genus *Caenolestomyobia* gen. nov.

(Figs. 1–15)

Type species. *Caenolestobia lukoschusi* sp. nov.

Diagnosis. *Both sexes* (Figs. 1–4, 13, 14). Subcapitulum elongated but distinctly shorter than legs I, with 3 pairs of filiform setae, *ao2*, *n*, *m*, 1 pair of dorsal-cheliceral setae *chb* represented by microsetae, and 1 pair of short ventral processes. Idiosoma

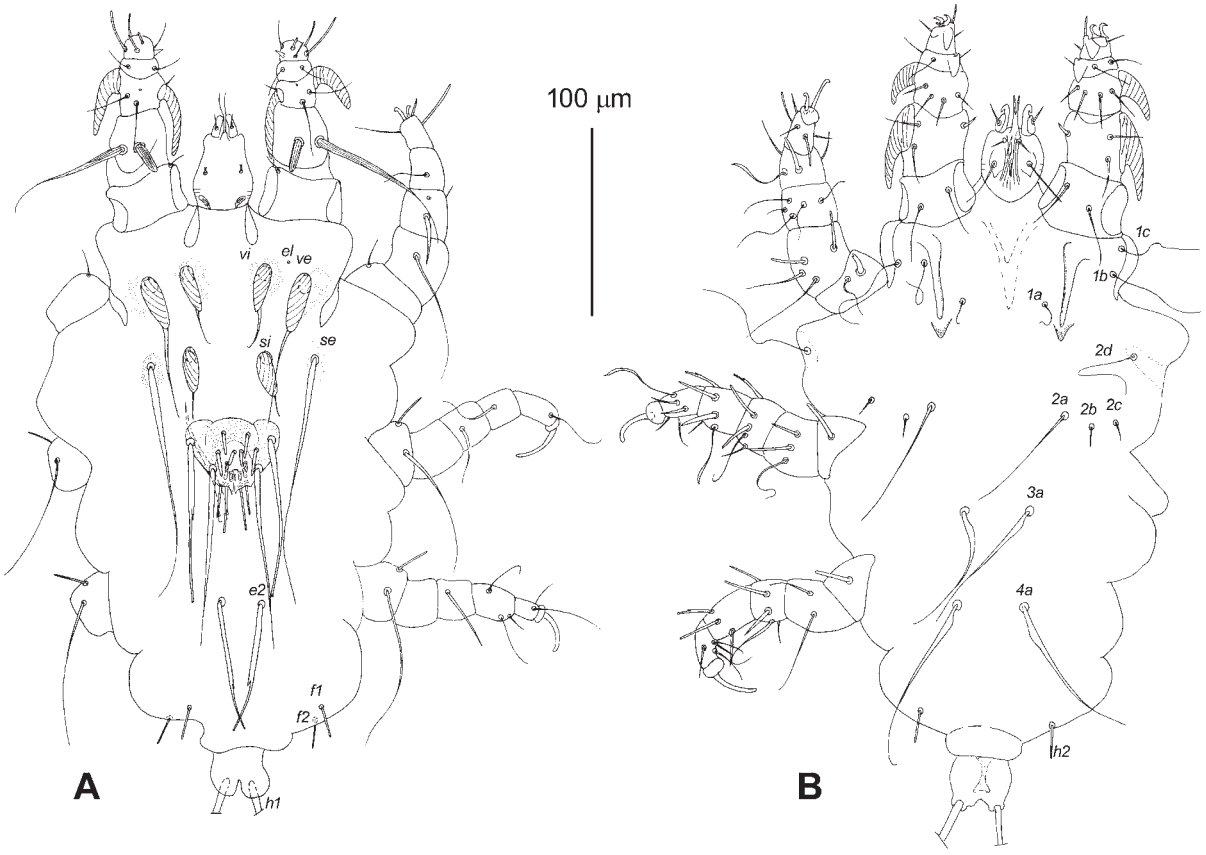

Fig. 1. *Caenolestomyobia lukoschusi* sp. nov., male (holotype): A – dorsal view; B – ventral view.

elongated. Idiosomal setation: *el*, *vi*, *ve*, *si*, *se*, *c1*, *c2*, *d1*, *d2*, *e1*, *e2*, *f1*, *f2*, *h1*, *h2*, *g1*, *g2*, *ps1–ps3* (*ag1–ag3* in female). Setae *vi* and *si* broadened lanceolate. Most dorsal idiosomal setae lanceolate and longitudinally striated. Both legs I similar in form, with 5 distinct, freely-articulated segments. Coxae I with 1 pair of short triangular processes directed posteriorly. Four distal segments of leg I each with ventral triangular retrorse process. Leg I–IV setation: coxa I – 3 (*1a, 1b, 1c*), II – 4 (*2a, 2b, 2c, 2d*), III – 3 (*3a, 3b, 3c* in female) or 1 (*3a* in male), IV – 3 (in female) or 1 (in male); trochanter I – 3 (*d, l', v*), II –3, III – 3, IV – 3; femora I – 6 (*d, l', l", l"1, v', v"*), II – 5 (*d, l', l", v', v"*), III – 3 (*l', l", v*), IV – 3; genu I – 9 setae (*d, d1, l', l'1, l", l"1, v', v'1, v"*) and 1 solenidion (σ), II – 8 (*d, l', l'1, l", l"1, v', v",* σ), III – 6 (*d, l', l", l"1, v', v"*), IV – 6; tibia I – 6 (*d, l', l", v', v", k*), II – 6, III – 6, IV – 6; tarsus I – 8 setae (*tc', tc", p', p", a', a", u', u"*) and 1 solenidion (ω*1*), II – 7 setae (*tc', tc", p", a', a", u', u"*) and 1 solenidion (ω*1*), III – 6 (*tc', tc", a', a", u', u"*), IV – 6. Setae of coxae III and IV narrowly lanceolate. Seta *l'* of trochanters II spur-like; *d* of trochanters III and IV whip-like; *d* of femur I strongly thickened, finger-like, longitudinally striate; *l"1* of femur I costate foliate, entirely covering external (antiaxial) surface of segment; *l"* of genu I fleshy and costate, modified into distinctly developed, hook-like, external process, *l'1* of genu I striate, cylindrical, approximately 5 times longer than wide. Claw formula 2-2-1-1. Pretarsal claws of leg I subequal, each with basal spur. Claws of leg II unequal.

Male (Figs. 1, 2, 13). Lateral parts of subcapitulum with few short transverse notches in basal part. Genital shield distinctly developed, bearing 10 pairs of setae: *g1*, *g2*, *ps1–ps3*, *c1*, *c2*, *d1*, *d2*, and *e1*. Aedeagus short and straight. Setae *f1*, *f2*, and *h2* short, rod-like. Seta *l'* of genu I filiform, displaced ventrally and situated anterior of *l'1* base. Seta *d1* of genu I filiform.

Female (Figs. 3, 4, 14). Lateral parts of subcapitulum with short transverse notches along its full length.

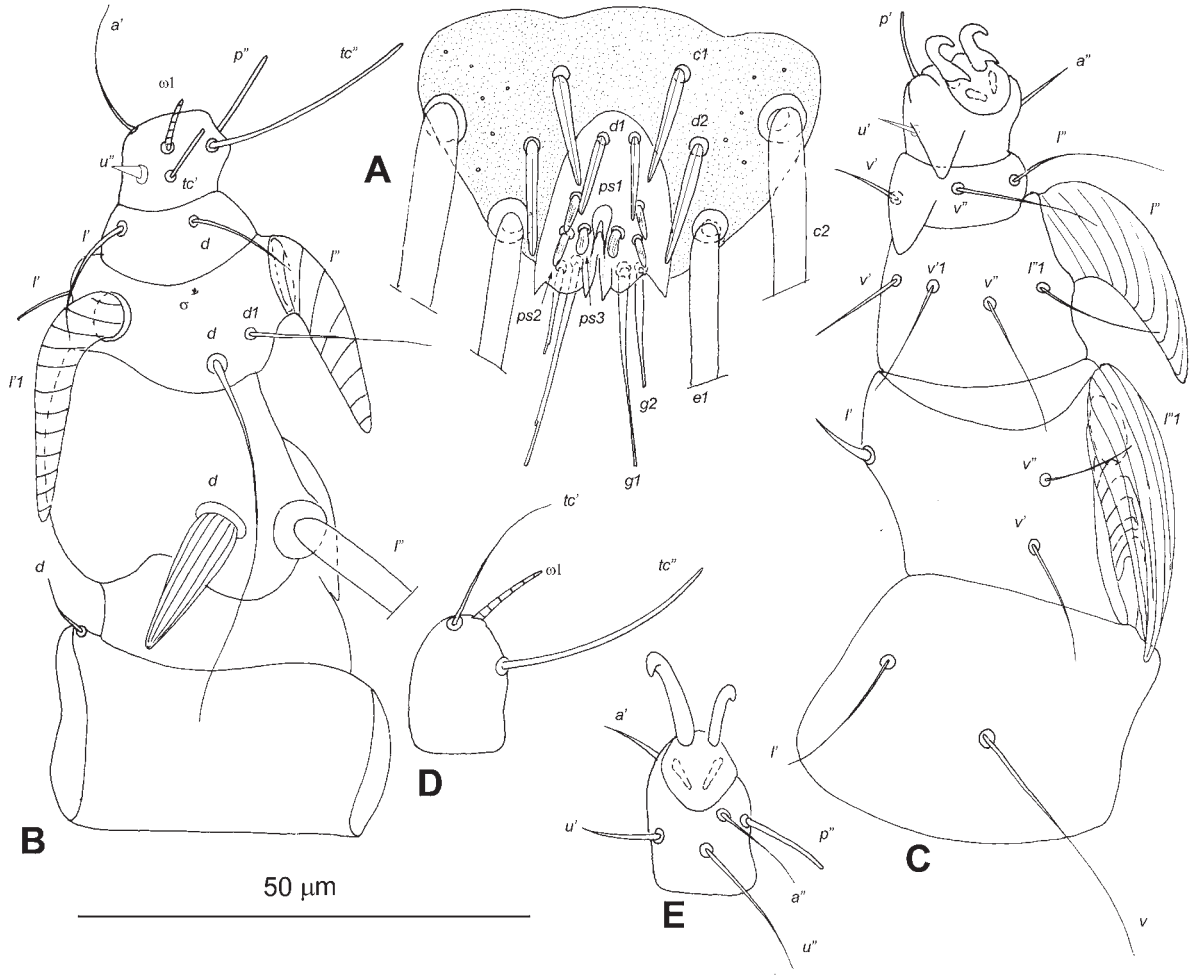

Fig. 2. *Caenolestomyobia lukoschusi* sp. nov., details of male (holotype): A – genital shield; B – leg I, dorsal view; C – same, ventral view; D – tarsus I, dorsal view; E – same, ventral view.

Hypostomal lobes elongated and attenuate apically. Setae *f2,* and *h2* short rod-like. Vulva naked. Setae *ps3* only slightly curved. Setae *g2* located on small sclerotised plate. Ovipore aperture distinctly separated from vulva. Bases of setae *3b*, *3c* and *4b*, *4c* situated anterior to bases of setae *3a* and *4a*, respectively. Costate seta *l'* of genu I strongly thickened. Internal (paraxial) hair-clasping organ of genu I consisting of setae *l'* and *l"1*. Seta *d1* of genu I spindle-shaped.

Immature instars. Egg (Fig. 5A). Elongated, about 2.5 times longer than wide, external surface with distinct net-like pattern. Basal part of egg enclosed in mucous sack attached to host hair.

Prelarva (Fig. 5B). Body elongated, sac-like, about 2 times longer than wide. Cuticle covered by fine transverse striation, excluding apical part. Pair of small sclerites (egg teeth), serving to break egg-shell, located dorso-apically, fused to each other. Pair of valves situated immediately behind egg teeth.

Larva (Fig. 6). Idiosomal setation: *el*, *vi*, *ve*, *si*, *se*, *c1*, *c2*, *d1*, *d2*, *e1*, *f1*, *h1*, and *1a*. Pseudanal setae (*ps*) absent. All dorsal idiosomal setae narrowly lanceolate, *h1* whip-like, positioned ventrally. Legs I–III present. Legs I symmetrical. Leg I–III setation, including solenidia: trochanters 0-0-0, femora-genua 2 (solenidion σ not observed, but probably also present)-3-0, tibiae 4-5-4, tarsi 7-8-6. Claw formula 0-1-1. Ventral seta of femur-genu I and 2 ventral setae of tibia I scale-like. Tarsus I with 4 filiform setae, 2 paraxial costate setae (1 large membranous and l

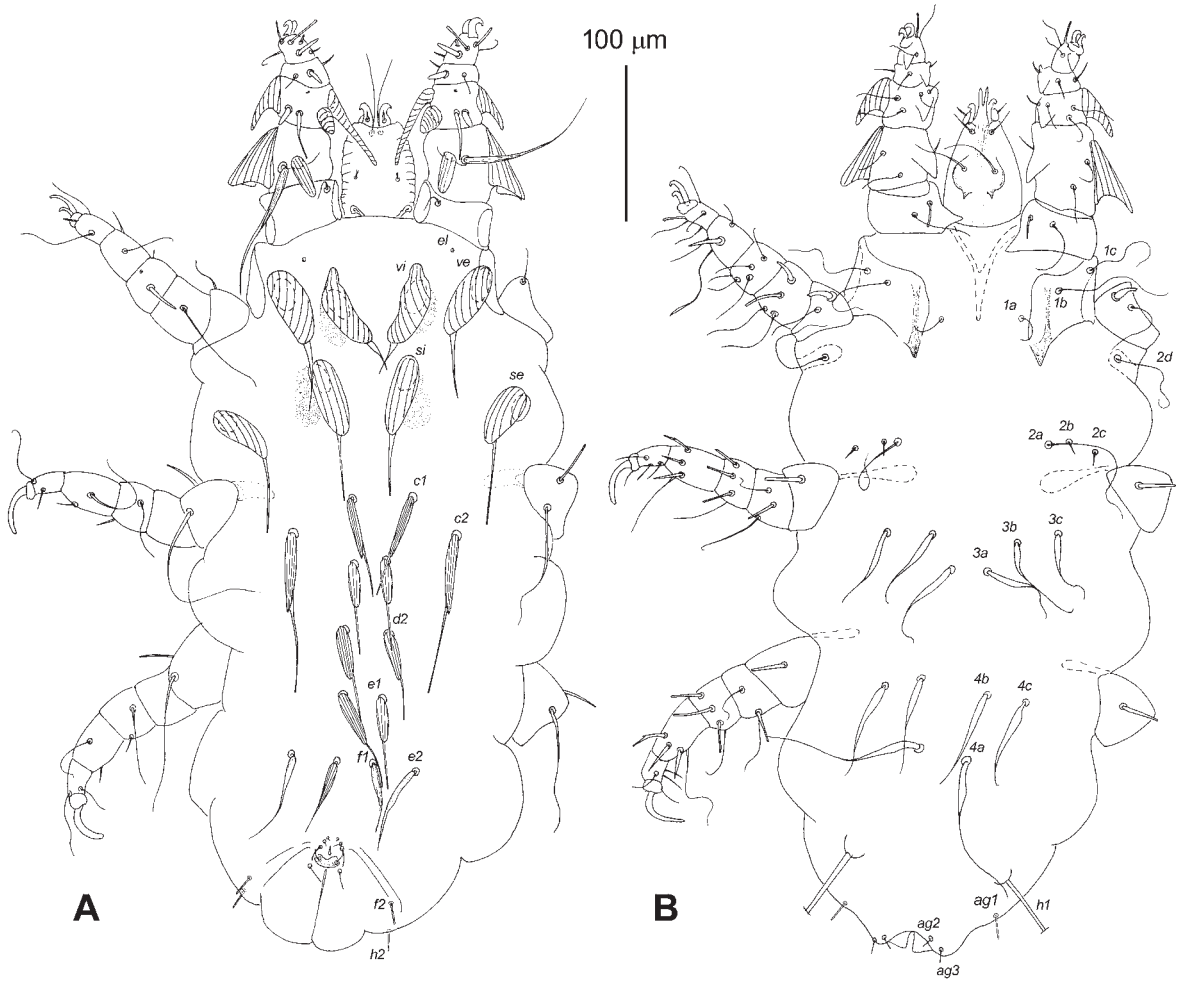

Fig. 3. *Caenolestomyobia lukoschusi* sp. nov., female (paratype): A– dorsal view; B – ventral view.

smaller inflated seta, located at base of segment), and 1 apical fist-like seta.

Protonymph (Figs. 7, 8). Setae *e2, 1b, 2a,* and *3a* added on idiosoma; *1b* scale-like. Legs IV added. Leg I–IV setation: trochanters 0-0-1-0, femora-genua 4-5-2-0, tibiae 4-4-3-4, tarsi 7-8-6-6. Claw formula 0-1-1-1.

Deutonymph (Figs. 9, 10). Setae *2b* added on idiosoma. Leg I–IV setation: trochanters 0-1-1-1, femora-genua 5-4-2-2, tibiae 4-5-4-4, tarsi 7-8-6-6. Claw formula 0-1-1-1.

Female tritonymph (Figs. 11A, B, 12, 15A, B). Setae *1c, 3b,* and *4b* added on idiosoma; *1c* scale-like. Leg setation: trochanters 0-1-2-2, femora-genua 6-5-2-2, tibiae 4-6-5-5, tarsi 7-8-6-6.

Male tritonymph (Figs. 11C, D, 15C, D). Setae *3b* and *4b* absent. Leg setation as in female tritonymph.

Hosts. Ceonolestid marsupials of the genus *Caenolestes* (Paucituberculata: Caenolestidae).

Distribution. South America.

Other included species. *C. faini* sp. nov.

Remarks. Mites of the genus *Caenolestomyobia* possess some features rarely observed in other myobiids.

(1) In females and males of these mites, the numbers of setae on coxal fields III and IV are different – setae *3b*, *3c*, *4b*, and *4c* are present in females, but are absent in males. These differences appear at the tritonymphal stage, because of in male tritonymphs setae *3b*, *3c*, and *4b* are absent, whereas in female tritonymphs, they are present.

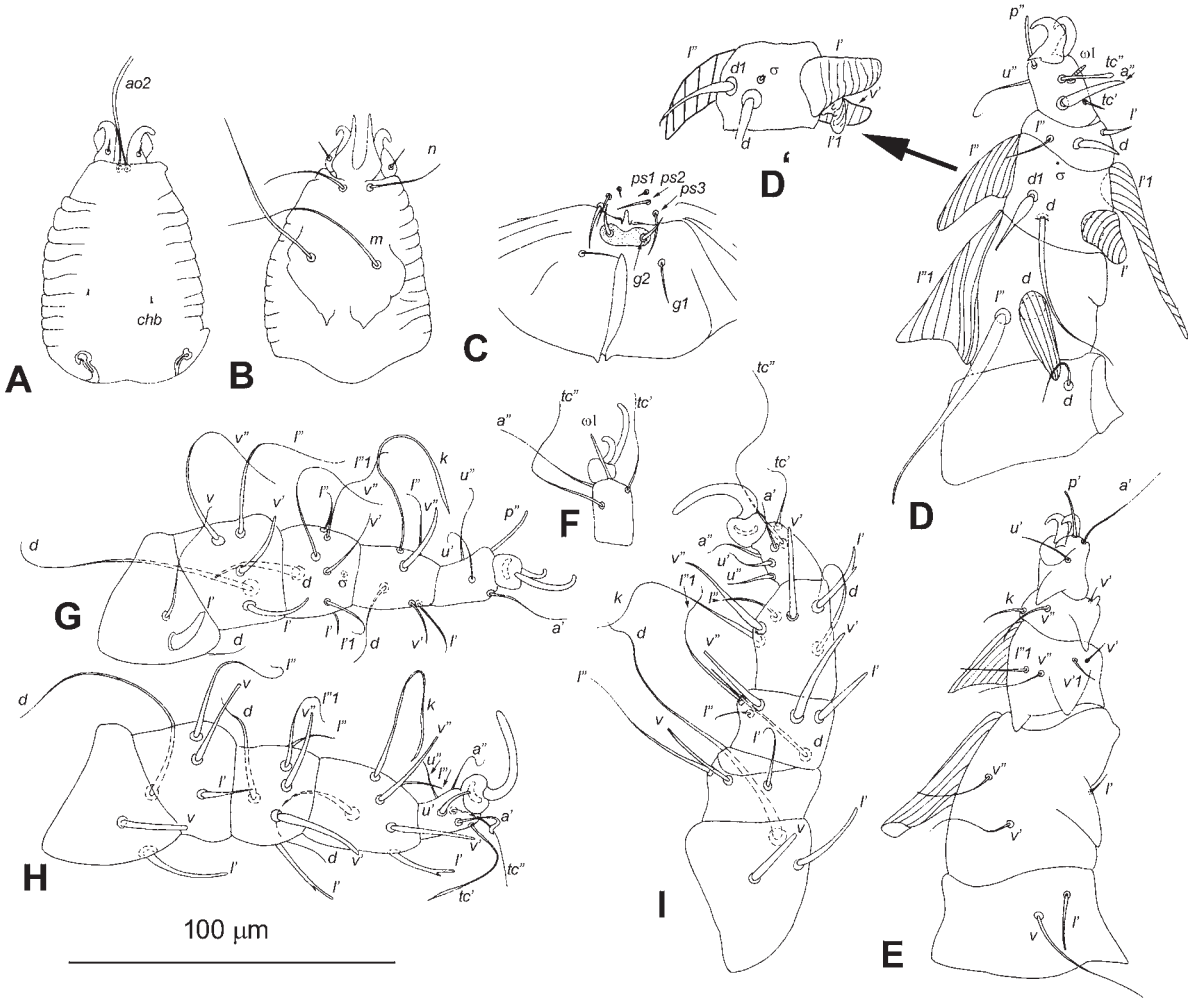

Fig. 4. *Caenolestomyobia lukoschusi* sp. nov., details of female (paratype): A – gnathosoma, dorsal view; B – same, ventral view; C – vulva; D – leg I, dorsal view (D' – scheme of genu I of *Archemyobia* sp. for comparison); E – same, ventral view; F – tarsus II, dorsal view; G – I – legs II–IV, respectively, ventral view.

(2) Setae *f2* and *h*2 that normally appear in archemyobiines in the deutonymph and tritonymph, respectively (Lukoschus et al. 1972; Fain and Lukoschus 1981) are delayed to the adult stage.

(3) In adults, the structure of the internal hair clasping organ of genu I is unique for myobiids (see differential diagnosis).

Differential diagnosis. (1) This new genus differs from other two genera of the subfamily by the elongate, rod-like setae *l*'I of genu I. In both sexes of *Archemyobia*, these setae are foliate and relatively short (Fig. 4D'); in females of *Dromicimyobia*, they are similar to those in *Archemyobia*, but in males, they are thickened and spur-like.

(2) In females of *Caenolestomyobia*, the hair clasping organ of genu I consists of two setae: seta *l'* is strongly thickened and striated, *l'1* is also striated, rod-like, approximately 5 times longer than wide; in males, setae *l'* are filiform, displaced ventrally and probably not a functional part of the clasping organ, setae *l'1* as in females (Fig. 4D, E). In both sexes of *Archemyobia*, the clasping organ of genu I consists of three setae: setae *l'* and *v* are trapezoidal in shape, seta *l'1* is short, foliate and situated between them (Fig.

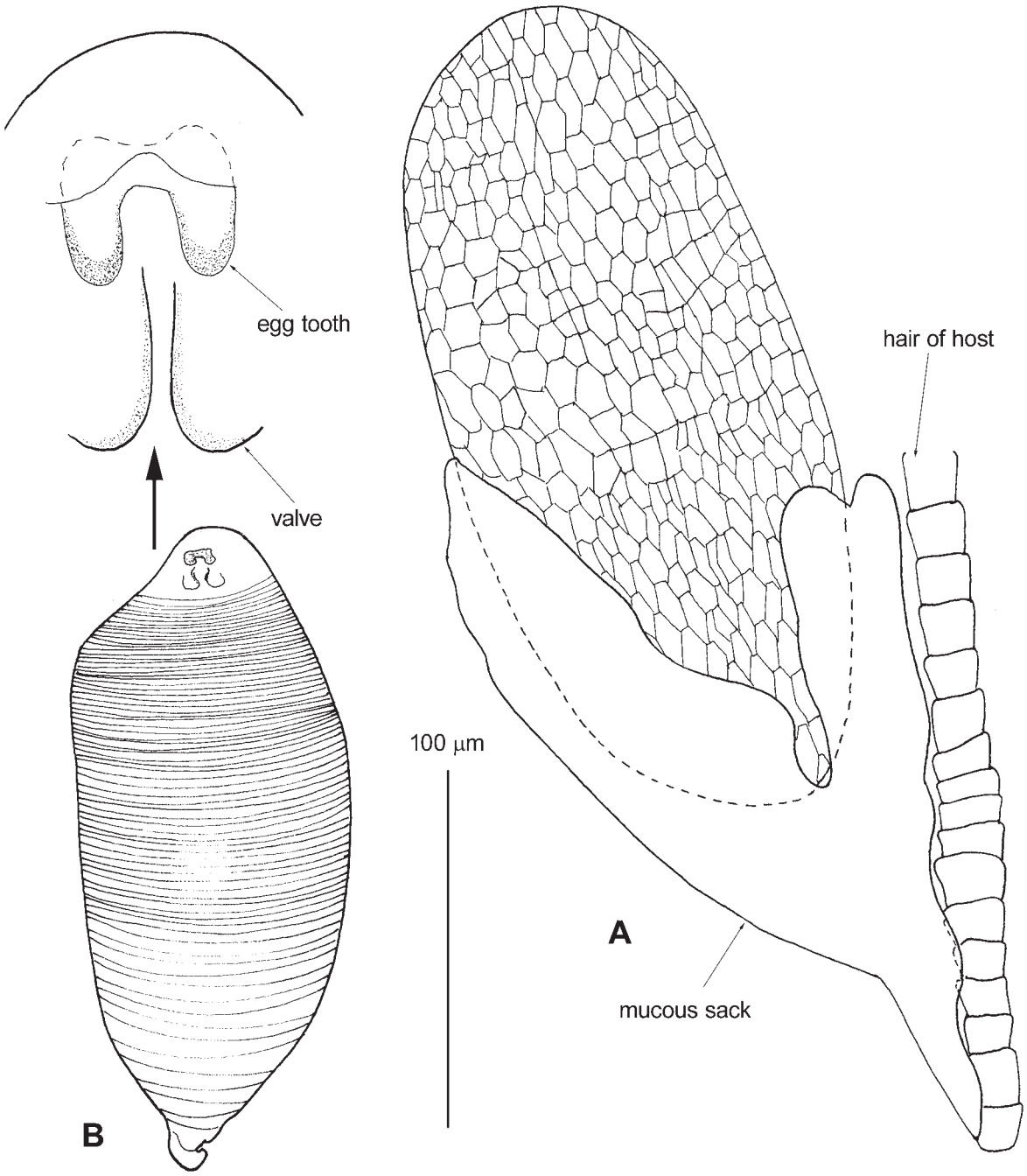

Fig. 5. *Caenolestomyobia lukoschusi* sp. nov., egg and prelarva (paratypes): A – egg; B – prelarva, dorsal view.

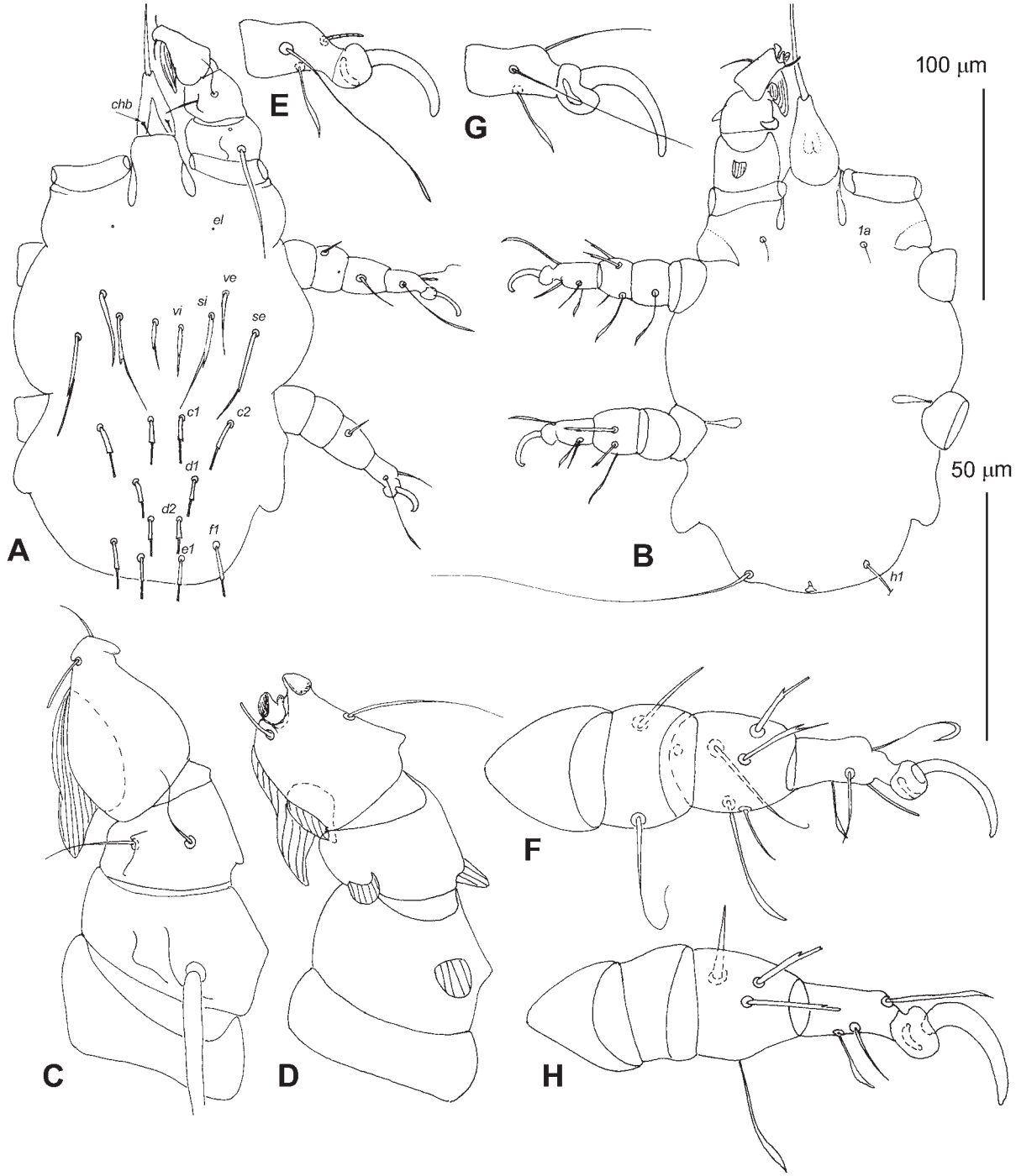

Fig. 6. *Caenolestomyobia lukoschusi* sp. nov., larva (paratype): A – dorsal view; B – ventral view; C – leg I, dorsal view; D, same, ventral view; E – tarsus II, dorsal view; F – leg II, ventral view; G – tarsus III, dorsal view; H – leg III, ventral view. Scale bars: 100 µm = A, B; 50 µm = C–H).

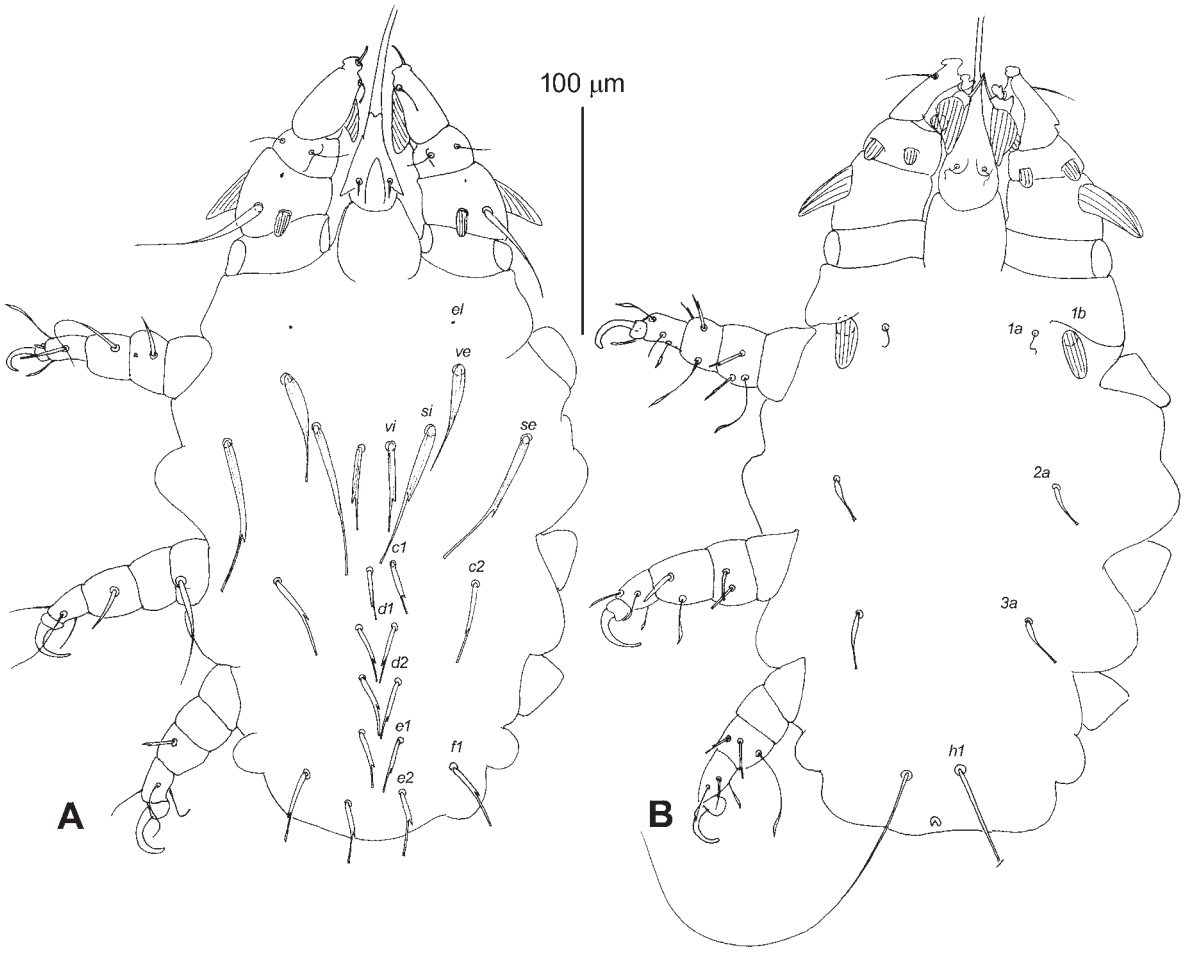

Fig. 7. *Caenolestomyobia lukoschusi* sp. nov., protonymph (paratype): A – dorsal view; B – ventral view.

4D'). In females of *Dromicimyobia*, the clasping organ of genu I consists of two setae having a different shape than those in *Caenolestomyobia*: the large seta *l'* is costate foliate, and seta *l'1* is short foliate; in males, the internal clasping organ of genu I is not developed.

(3) In males of *Caenolestomyobia*, setae *c2* are located on the genital shield, whereas in males of both other genera, these setae are off the genital shield.

(4) Setae *f2* and *h2* are delayed to the adult stage, whereas they appear in juvenile stages of both other genera, deutonymphs and tritonymphs, respectively.

(5) The new genus also differs from *Archemyobia* by the presence of lateral notches on the gnathosoma (vs. absent in *Archemyobia*), and by the absence of the second claw on legs III and IV (vs. present in *Archemyobia*).

(6) It differs from *Dromicimyobia* by the absence of setae *3b*, *3c*, *4b*, and *4c* in males.

***Caenolestomyobia lukoschusi* sp. nov.**

(Figs. 1–12)

Male (holotype; Figs. 1, 2). Body, including gnathosoma, 370 long (370–400 in 6 paratypes), 210 wide (195–210) (Fig. 3). Gnathosoma 55 long (55–62), 35 wide (35–45). Setae *vi*, *ve*, and *si* – all widely lanceolate, about 7–11 wide. Setae *se*, *c2*, *e1*, and *e2* – all narrow lanceolate, 3–4 wide. Length of setae: *vi* 44 (42–45), *ve* 100 (85–100), *si* 45 (45–48),

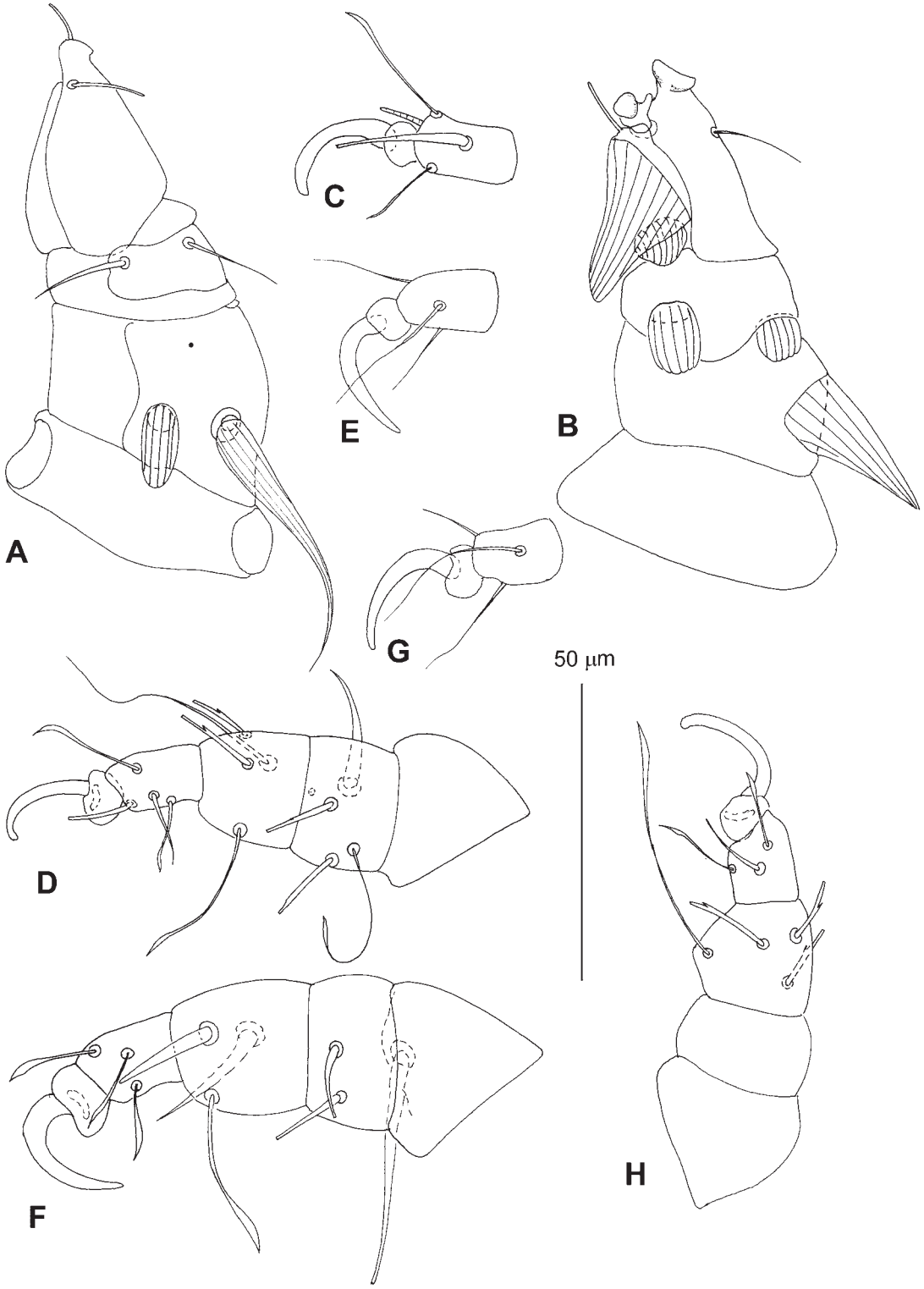

Fig. 8. *Caenolestomyobia lukoschusi* sp. nov., legs of protonymph (paratype): A – leg I, dorsal view; B – same, ventral view; C – tarsus II, dorsal view; D – leg II, ventral view; E – tarsus III, dorsal view; F – leg III, ventral view; G – tarsus IV, dorsal view; H – leg IV, ventral view.

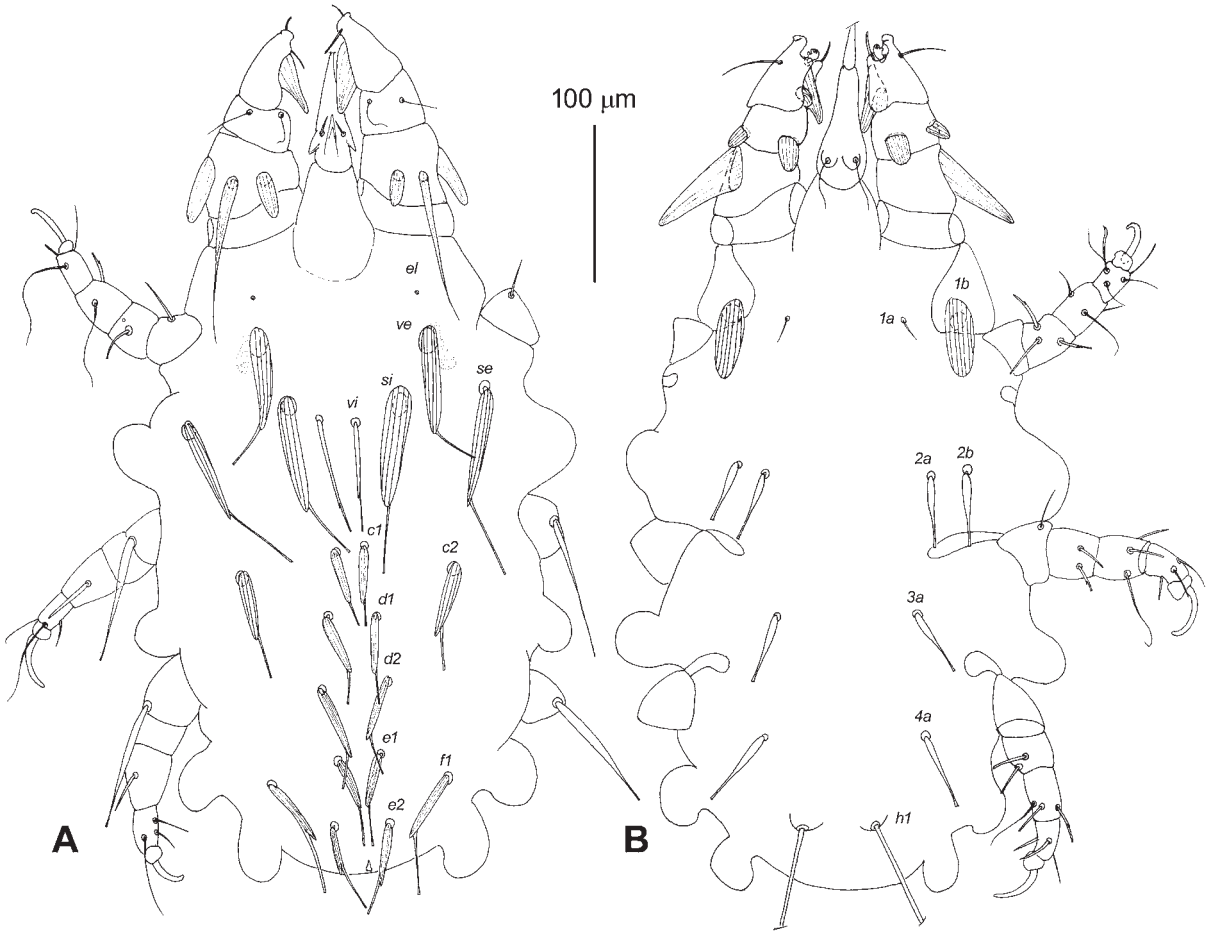

Fig. 9. *Caenolestomyobia lukoschusi* sp. nov., deutonymph (paratype): A – dorsal view; B – ventral view.

se 145 (145–148), *c1* 20 (15–20), *c2* 110 (90–110), *d1* 12 (10–15), *d2* 22 (20–22), *e1* 120 (120–130), *e2* 84 (77–84), *f1*, *f2*, and *h2* – all 15–22, *h1* 335 (330–350), *1a* 17–19, *1b* 70 (70–85), *1c* 77 (65–80), *2a* 75 (65–80), *2b* and *2c* 9–10, *2d* 70 (60–75), *3a* 77 (77–85), *4a* 110 (100–110), *ps1–ps3* about 4, *g1* 26 (23–26), *g2* 15 (14–15). Setae *e1* only slightly longer than *c2*, length ratio *e1*:*c2* 1.1:1. Apices of setae *c2* far distant from level of seta *e2* bases. Aedeagus about 65 long.

Female (10 paratypes; Figs. 3, 4). Body, including gnathosoma, 515–530 long, 230–255 wide (Fig. 3). Gnathosoma 75–80 long and 45–53 wide (Fig. 4A, B). Setae *vi*, *ve*, *si*, and *se* – all widely lanceolate, 15–16, 22, 12–15, and 10–11 wide, respectively. Setae *c1*, *c2*, *d1*, *d2*, *e1*, *e2*, and *f1* – all narrow lanceolate, 7–8 wide. Bases of setae *c2* located slightly posterior to bases of setae *c1*; bases of setae *f1* and *e2* located almost at the same level. Length of setae: *vi* 65–77, *ve* 95–110, *si* 120–125, *se* 105–110, *c1* 68–75, *c2* 110–115, *d1* 60–65, *d2* 58–72, *e1* 60–65, *e2* 80–90, *f1* 60–65, *f2* 16–24, *h1* 265–290, *h2* 14–22, *1a* about 25, *1b* and *1c* 65–75, *2a* 75–90, *2b* and *2c* 11–13, *2d* 70–75, *3a* 75–85, *3b* 55–65, *3c* 50–65, *4a* 110–130, *4b* and *4c* 75–90, *ag1* 15–22, *ag2* and *ag3* 10–15, *ps3* 12–15, *g1* 14–16, *g2* about 10.

Egg (10 paratypes; Fig. 5A). 220–230 long, 80–90 wide.

Prelarva (6 paratypes; Fig. 5B). 150–200 long, 80–90 wide.

Larva (10 paratypes; Fig. 6). Idiosoma 170–185 long, 140–155 wide. Length of setae: *vi* 20–22, *ve* 22–25, *si* 24–26, *se* 42–45, *c1* 17–20, *c2* 22–25, *d1*, *d2*, and *e1* 20–22, *f1* 24–26, *h1* 140–160, *1a* 8–11.

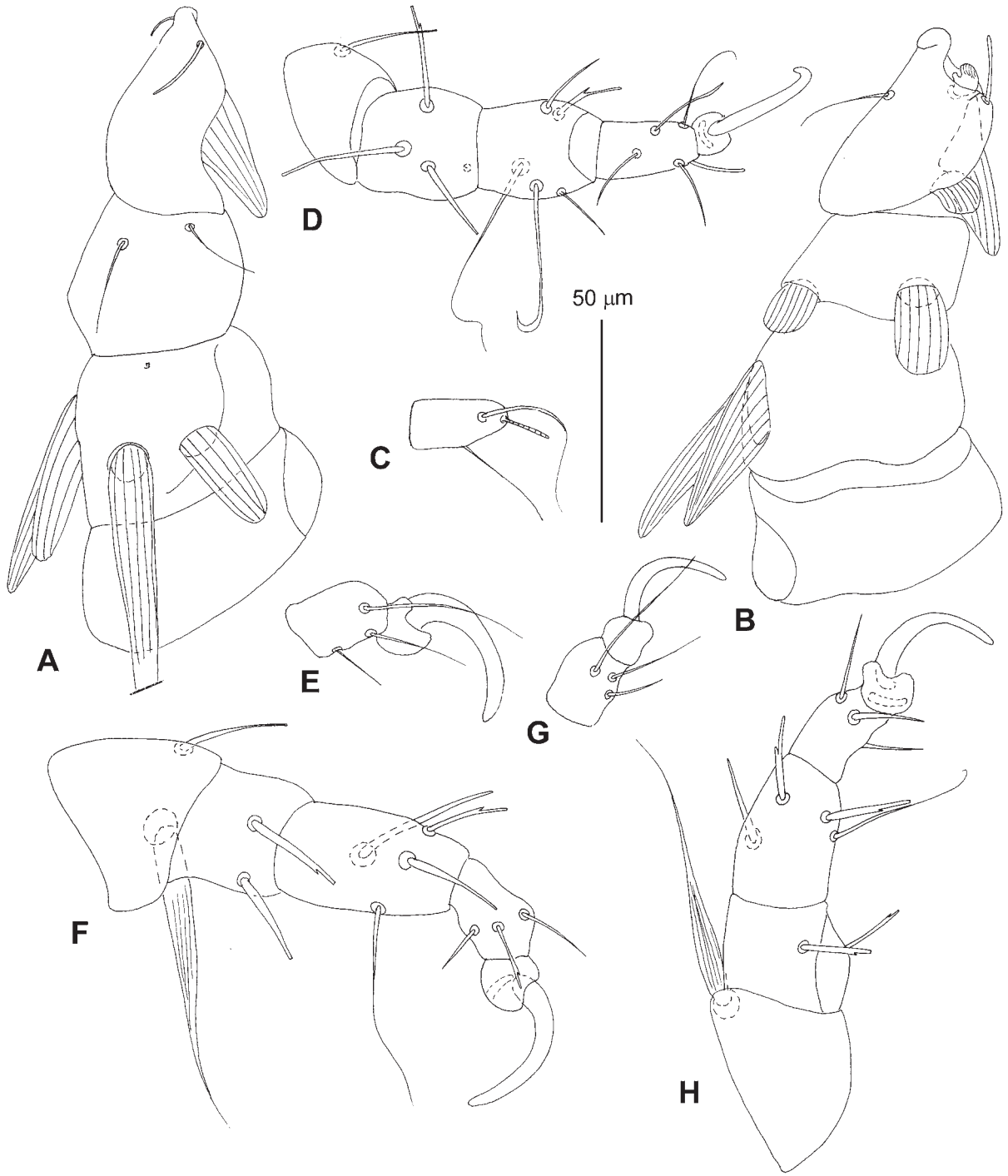

Fig. 10. *Caenolestomyobia lukoschusi* sp. nov., legs of deutonymph (paratype): A – leg I, dorsal view; B – same, ventral view; C – tarsus II, dorsal view; D – leg II, ventral view; E – tarsus III, dorsal view; F – leg III, ventral view; G – tarsus IV, dorsal view; H – leg IV, ventral view.

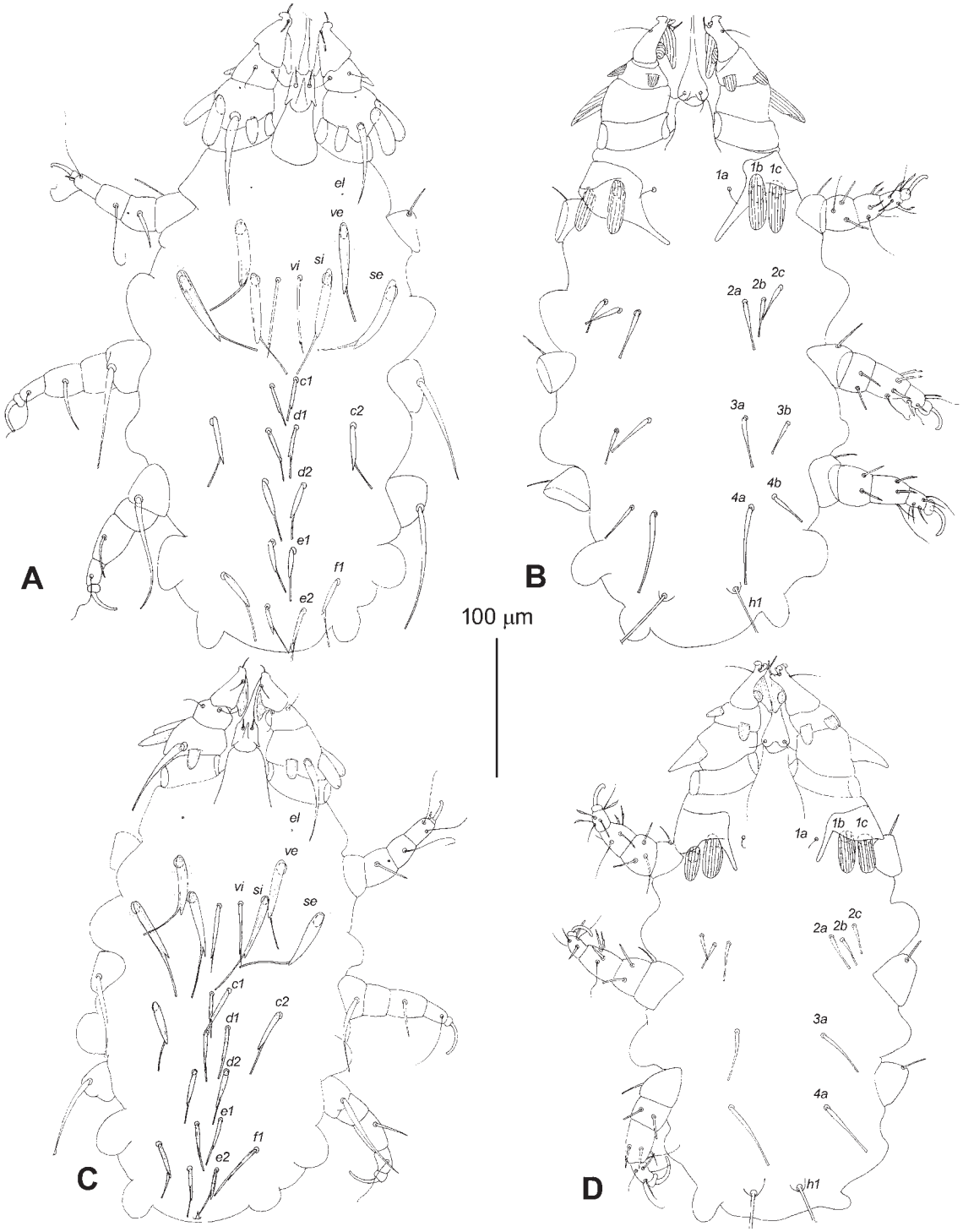

Fig. 11. *Caenolestomyobia lukoschusi* sp. nov., tritonymphs (paratypes): A – female tritonymph, dorsal view; B – same, ventral view; C – male tritonymph, dorsal view; D – same, ventral view.

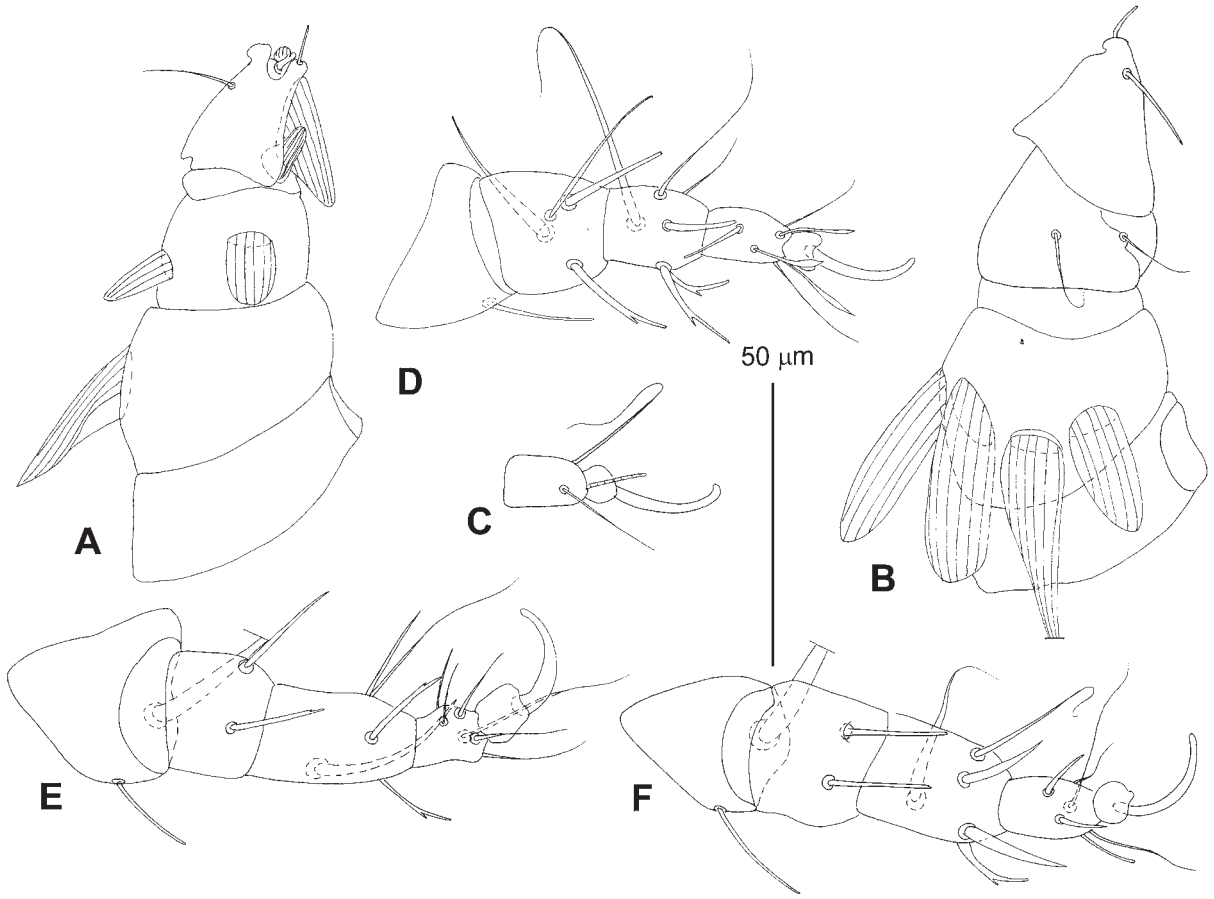

Fig. 12. *Caenolestomyobia lukoschusi* sp. nov., legs of female tritonymphs (paratype): A – leg I, ventral view; B – same, dorsal view; C – tarsus II, dorsal view; D–F – legs II–IV, respectively, ventral view.

Protonymph (10 paratypes; Figs. 7, 8). Idiosoma 205–260 long, 175–185 wide. Length of setae: *vi* 35–40, *ve* 55–60, *si* 65–70, *se* 75–80, *c1* 24–28, *c2* 33–36, *d1*, *d2*, and *e1* 26–28, *e2* 22–26, *f1* 29–32, *h1* 140–160, *1a* 10–11, *1b* 24–26, *2a* 19–21, *3a* 20–22.

Deutonymph (10 paratypes; Figs. 9, 10). Idiosoma 370–390 long, 230–240 wide. Length of setae: *vi* 45–50, *ve* 68–73, *si* 70–75, *se* 86–90, *c1* 32–35, *c2* 44–46, *d1* 33–36, *d2* 42–44, *e1* 35–38, *e2* 45–48, *f1* 47–50, *h1* 200–220, *1a* 10–12, *1b* 35–38, *2a* 30–33, *2b* 22–26, *3a* 28–30, *4a* 35–38.

Female tritonymph (10 paratypes; Figs. 11A, B, 12). Idiosoma 300–400 long, 205–250 wide. Length of setae: *vi* 45–55, *ve* 77–88, *si* 88–100, *se* 105–110, *c1* 33–40, *c2* 45–57, *d1* 39–46, *d2* 46–53, *e1* 37–44, *e2* 42–55, *f1* 48–66, *h1* 200–230, *1a* 11–15, *1b* 44–51, *1c* 33–51, *2a* 33–44, *2b* 28–31, *2c* 24–28, *3a* 37–44, *3b* 22–24, *4a* 57–73, *4b* 30–33. Length ratio *f1*:*e2* 1.1–1.4:1.

Male tritonymph (10 paratypes; Fig. 11C, D). Idiosoma 310–420 long, 210–240 wide. Length of setae: *vi* 44–48, *ve* 75–77, *si* 82–90, *se* 75–93, *c1* 31–33, *c2* 44–53, *d1* 36–42, *d2* 37–44, *e1* 34–39, *e2* 37–42, *f1* 44–53, *h1* 190–210, *1a* 11–12, *1b* and *1c* 37–39, *2a* 32–34, *2b* 22–26, *2c* 17–22, *3a* 33–35, *4a* 44–51. Length ratio *f1*:*e2* 1.2–1.3:1.

Type material. Holotype – male, paratypes: 6 males, 16 females, 38 female tritonymphs (1 pharate), 16 male tritonymphs (3 pharate), 39 deutonymphs (7 pharate), 19 protonymphs (1 pharate), 20 larvae (1 pharate), 6 prelarvae (1 pharate), and 11 eggs (BMOC 81-0129-014) ex *Caenolestes fuliginosus* Tomes, 1863 (Paucituberculata: Caenolestidae) (UMMZ 127158), ECUADOR: Pichincha, Old

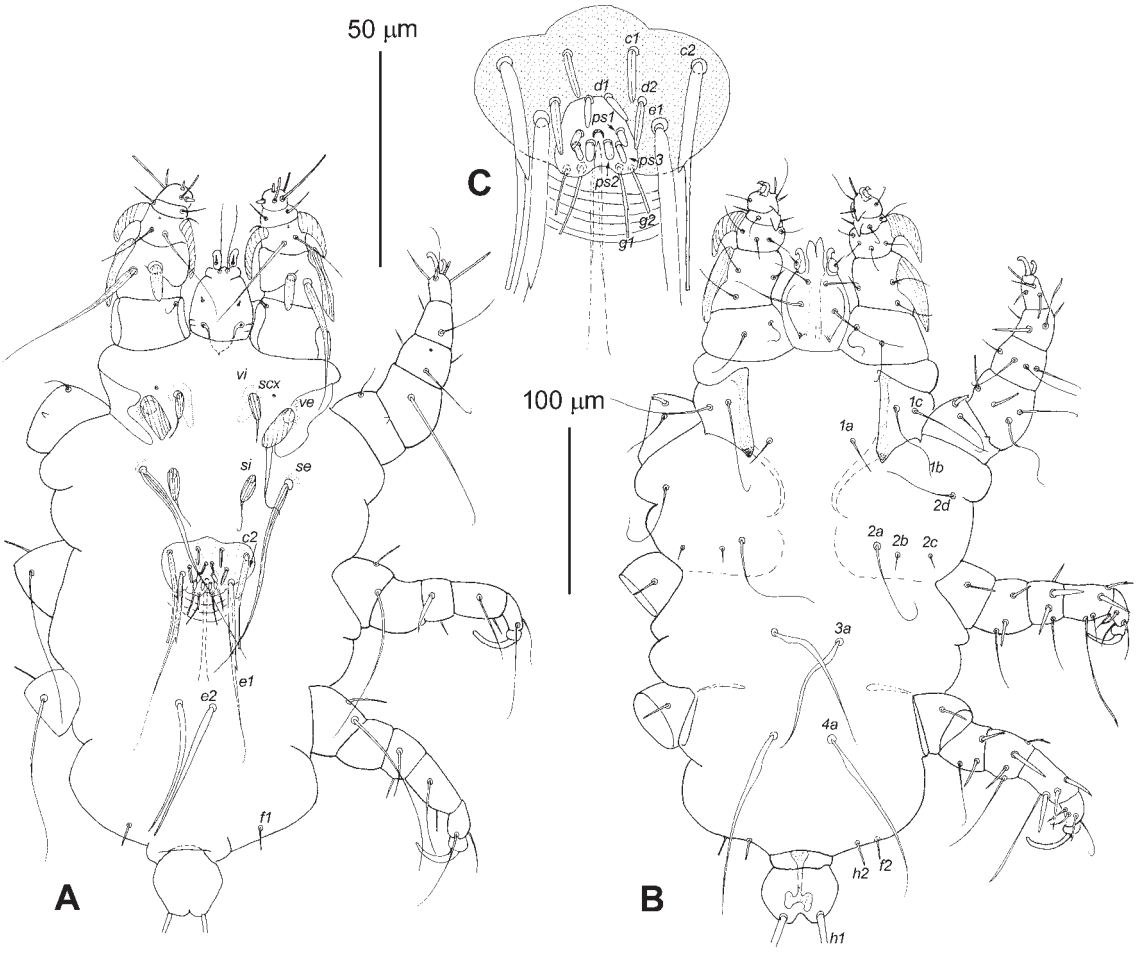

Fig. 13. *Caenolestomyobia faini* sp. nov., male (holotype): A – dorsal view; B – ventral view; C – genital shield. Scale bars: 100 μm = A, B; 50 μm = C.

Santo Domingo Trail, 2652m., 2 June 1978, coll. R. Voss (RSV 139). Mites removed by F.S. Lukoschus.

Type depositories. Holotype and paratypes are deposited at UMMZ; other paratypes in IRSNB, NNMN, and ZIN.

Etymology. This species is dedicated to the late Prof. F.S. Lukoschus (the Netherlands), who recognized this genus and species as new for science and prepared the extensive slide series of these mites. Unfortunately, his untimely death in 1988 prevented him from describing these taxa.

Remarks. Pharate specimens of all stages of *Caenolestomyobia lukoschusi* sp. nov. (see material above) were available for study. This allowed us to verify the presence of three nymphal instars in the life cycle of the subfamily Archemyobiinae as hypothesized by Lukoschus et al. (1972) and Fain and Lukoschus (1981).

Caenolestomyobia faini sp. nov.
(Figs. 13–15)

Male (holotype; Fig. 13). Body, including gnathosoma, 390 long, 195 wide. Gnathosoma 55 long, 36 wide. Setae *vi*, *ve*, and *si* – all widely lanceolate, about 6–10 wide. Setae *se*, *c2*, *e1*, and *e2* – all narrow lanceolate, 3–4 wide. Length of setae: *vi* 33 (35 in 1 paratype), *ve* 75 (75), *si* 33 (39), *se* 140 (130), *c1* 13 (15), *c2* 57 (60), *d1* 11 (14), *d2* 15 (17), *e1* 133 (125), *e2* 88 (84), *f1*, *f2*, and *h2* – all 13–16, *h1* 325, *1a* 13, *1b* and *1c* about 60, *2a* 57, *2b* and *2c* about 10, *2d* 50,

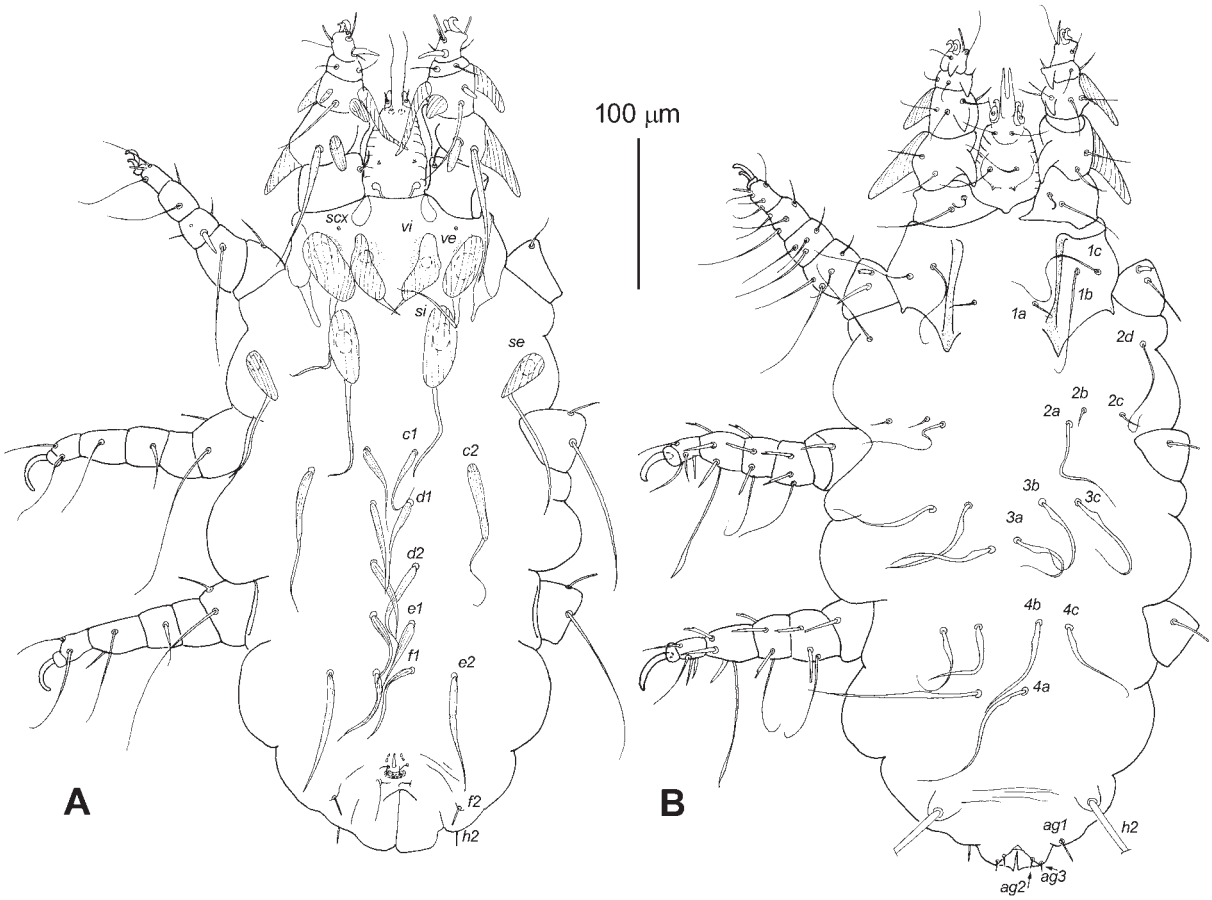

Fig. 14. *Caenolestomyobia faini* sp. nov., female (paratype): A – dorsal view; B – ventral view.

3a 75 (85), *4a* 102 (85), *ps1–ps3* about 6, *g1* 26 (22), *g2* 14 (12). Setae *e1* 2.1–2.3 times longer than *c2*, apices of setae *c2* almost reaching to level of seta *e2* bases. Aedeagus 60 long (70).

Female (paratype; Fig. 14). Body, including gnathosoma, 515 long, 237 wide. Gnathosoma 70 long and 37 wide. Setae *vi*, *ve*, *si*, and *se* – all widely lanceolate, 15, 22, 15, and 13 wide, respectively. Setae *c1*, *c2*, *d1*, *d2*, *e1*, *e2*, and *f1* – all narrow lanceolate, 6–7 wide. Bases of setae *c2* located slightly posterior to bases of setae *c1*; bases of setae *f1* and *e2* located almost at the same level. Length of setae: *vi* 66, *ve* 117, *si* 130, *se* 133, *c1* 55, *c2* 110, *d1* 60, *d2* 62, *e1* 53, *e2* 100, *f1* 66, *f2* 20, *h1* 265, *h2* 21, *1a* 22, *1b* and *1c* about 75, *2a* 73, *2b* and *2c* 11, *2d* 74, *3a* 65, *3b* and *3c* 57, *4a* 122, *4b* and *4c* 65, *ag1* 20, *ag2* and *ag3* 9, *ps3* 13, *g1* 22, *g2* 8.

Female tritonymph (3 paratypes; Fig. 15A, B). Idiosoma 310–510 long, 210–310 wide. Length of setae: *vi* 45–48, *ve* 70–75, *si* 63–68, *se* 85–90, *c1* 35–37, *c2* 33–35, *d1* 36–37, *d2* 37–39, *e1* 37–39, *e2* 55–77, *f1* 44–48, *h1* 200–210, *1a* about 10, *1b* and *1c* about 50, *2a* 26–28, *2b* 24–25, *2c* 21–23, *3a* 31–33, *3b* 24–25, *4a* 45–47, *4b* 28–30. Length ratio *f1*:*e2* 1:1.2–1.7.

Male tritonymph (2 paratypes; Fig. 15C, D). Idiosoma 310–370 long, 220–290 wide. Length of setae: *vi* 44–45, *ve* 58–60, *si* 57–66, *se* 75–88, *c1* about 31, *c2* 32–33, *d1* and *e1* 33–37, *d2* 35–37, *e2* 56–66, *f1* 40–42, *h1* 190–200, *1a* about 11, *1b* and *1c* about 40, *2a* 23–24, *2b* 19–20, *2c* 15–16, *3a* 28–31, *4a* 55–66. Length ratio *f1*:*e2* 1:1.3–1.6.

Type material. Holotype – male (BMOC 06-0924-050, #1), paratypes: 1 pharate male in tritonymph, 1 female, 3 female and 2 male tritonymphs (BMOC 06-0924-050, #2-9) ex *Caenolestes caniventer* Anthony, 1921 (Paucituberculata: Caenolestidae), PERU: Cajamarca Dept., Cutervo Prov., 6km WSW San An-

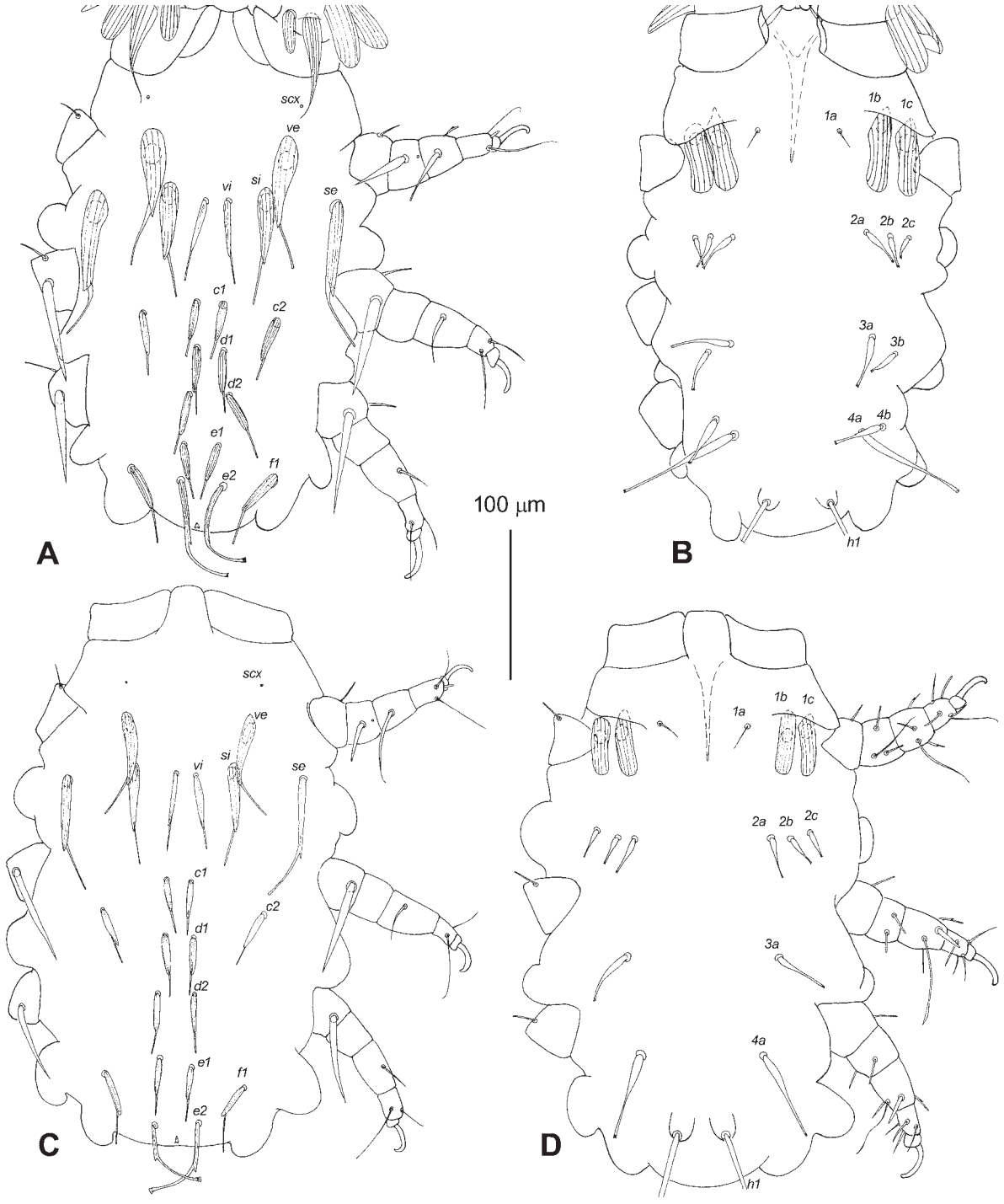

Fig. 15. *Caenolestomyobia faini* sp. nov., tritonymphs (paratypes): A – female tritonymph, dorsal view; B – same, ventral view; C – male tritonymph, dorsal view; D – same, ventral view.

dres de Cutervo, 2969 m, 06°14'59.9"S, 78°45'59.5"W, 13 September 2006, coll. L. Luna Wong (# LLW 1128). Mites removed by B.M. OConnor.

Type depositories. The holotype is deposited in MUSM, paratypes are deposited in UMMZ and ZIN.

Etymology. This species is dedicated to the renowned Belgian acarologist Prof. Alex Fain (1906–2009).

Differential diagnosis. This species differs from *C. lukoschusi* sp. nov. by the following characters. In males of *C. faini* sp. nov., setae *e1* are 2.1–2.3 times longer than *c2*, the apices of setae *c2* almost reach to the level of seta *e2* bases; in tritonymphs, setae *f1* are shorter than *e2*, the length ratio is 1:1.2-1.7. In males of *C. lukoschusi* sp. nov., setae *e1* only 1.1 times longer than *c2*, the apices of setae *c2* are far removed from the level of seta *e2* bases; in tritonymphs, setae *f1* are longer than *e2*, the length ratio *f1* and *e2* is 1.1-1.4:1. Females of these species are almost undistinguished from each other.

ACKNOWLEDGEMENTS

We thank Lucia Luna Wong, University of Michigan, for allowing BMOC access to host specimens collected in Peru and facilitating permits. Mammal specimens were collected in Peru under Autorización No. 037 C/C-2006-INRENA-IANP from the Instituto Nacional de Recursos Naturales, Peru to Lucia Luna Wong. We thank to Dr. J. Miller (NNMN) for access to the specimens of *Caenolestomyobia lukoschusi* collected by F.S. Lukoschus. We thank Dr. S.V. Mironov (ZIN) for helpful suggestions. This research was supported by grants from the U.S. National Science Foundation DEB-0118766 (PEET) to BMOC and from the Russian Foundation for Basic Research (08-04 00754_a) to AVB.

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Submitted May 20, 2009; accepted June 10, 2009.