

# THE FIRST FAUNISTIC DATA ON TYDEIDAE (ACARI: PROSTIGMATA) FROM THE ALTAY, RUSSIA

Alexander A. Khaustov\* and Vladimir A. Khaustov

X-BIO Institute, Tyumen State University, Tyumen, Russia

\*corresponding author; e-mail: alex1973khaustov@gmail.com

**ABSTRACT:** The Tydeidae fauna of the Altay (Altayskiy Kray and Respublika Altay) is reviewed. A total of nine species of the genus *Brachytydeus* were found. Among them, *Brachytydeus montanus* sp.n., *B. altaicus* sp.n. and *B. brevisetosus* sp.n. are new to science. *Brachytydeus politus* (Kuznetsov), *B. reticuloinsignius* (Kazmierski and Panou) and *B. sleipneri* (Momen and Lundquist) comb.n. are recorded from Russia for the first time. *Brachytydeus arkadiensis* (Panou and Emmanouel), *B. magus* (Kuznetsov) and *B. woolleyi* (Baker) are reported from Altay for the first time.

**KEY WORDS:** Tydeoidea, Tydeinae, systematics, morphology, Palearctic, mites, the Altay Mountains

DOI: 10.21684/0132-8077-2023-31-2-249-270

## INTRODUCTION

The family Tydeidae is a diverse group of mites distributed worldwide; it currently includes about 31 genera and more than 300 species (Kaźmierski 1998; Silva *et al.* 2016; André 2021; Khaustov 2023a, b). Although most tydeid mites are fungivorous, some are phytophagous, while others are scavengers or predators of small arthropods (Walter *et al.* 2009). The scientific history of tydeid mites and the current state of knowledge in taxonomy are discussed in Kaźmierski (1998), Silva *et al.* (2016) and André (2021, 2023). The tydeid mites of Western Siberia were recently reviewed by Khaustov (2022, 2023a, b). He recorded 32 species from eight genera in the Tyumenskaya and Kurganskaya Oblasts of Russia. Most species of Tydeidae belong to the genus *Lorryia* Oudemans, 1925 sensu Kaźmierski, 1989 or *Brachytydeus* Thor, 1931 sensu André, 2005, which comprises some 200 described species (André 2023). The problem of *Lorryia/Brachytydeus* synonymy was recently discussed by André (2023), who provided several important criteria to support his previous opinion (André 2005). In particular, he considered the genus *Lorryia* monotypic (comprising only one type species *Lorryia superba*) and assigned other species previously placed in *Lorryia* sensu Kaźmierski, 1989 to the genus *Brachytydeus* Thor. In the present article, we accept the opinion of André (2023) in order to support the stability of Tydeidae systematics.

The present study provides the first data on Tydeidae collected from Altay (Respublika Altay and Altayskiy Kray, Russia).

## MATERIALS AND METHODS

Mites were extracted from various samples (soil, litter, mosses, etc.) using Berlese funnels. All mites

were mounted in Hoyer's medium. Mite morphology was studied using a Carl Zeiss AxioImager A2 compound microscope with phase-contrast and differential interference contrast (DIC) illumination. Notation applied to the body and leg setae follow the system of Grandjean, overviewed by Kethley (1990) and André (1981b), respectively; palpal setation follows André (1981a). Photomicrographs were taken with an AxioCam ICc5 digital camera. For SEM microscopy, several alcohol-preserved mites were dried in a JFD 320 freeze-drying device (JEOL, Japan), dusted with gold and scanned with a TESCAN Mira3 LMU SEM microscope. All measurements for the holotype and for five paratypes (in parentheses) are given in micrometers ( $\mu\text{m}$ ).

Additional materials examined for a comparison with the collected species:

*Brachytydeus recki* (Livshitz, 1973): female holotype and three female paratypes, Georgia, the vicinity of Tbilisi, in moss on rocks, 18 May 1958, coll. G.F. Reck.

## SYSTEMATICS

### Family Tydeidae

#### Subfamily Tydeinae

#### Genus *Brachytydeus* Thor, 1931

Type species: *Tydeus cruciatus* Koch, 1838 by original designation

#### *Brachytydeus montanus* sp.n.

(Figs. 1–9)

**Description.** *Female* (Figs. 1–8, 9A–E). Body ovate (Figs. 1A, 4A). Length of idiosoma 395 (395–465), maximum width 315 (295–350).

*Idiosomal dorsum* (Figs. 1A, 4A–D, 5, 6B, 9A, B). Dorsal ornamentation type “*Lorryia*”; reticu-

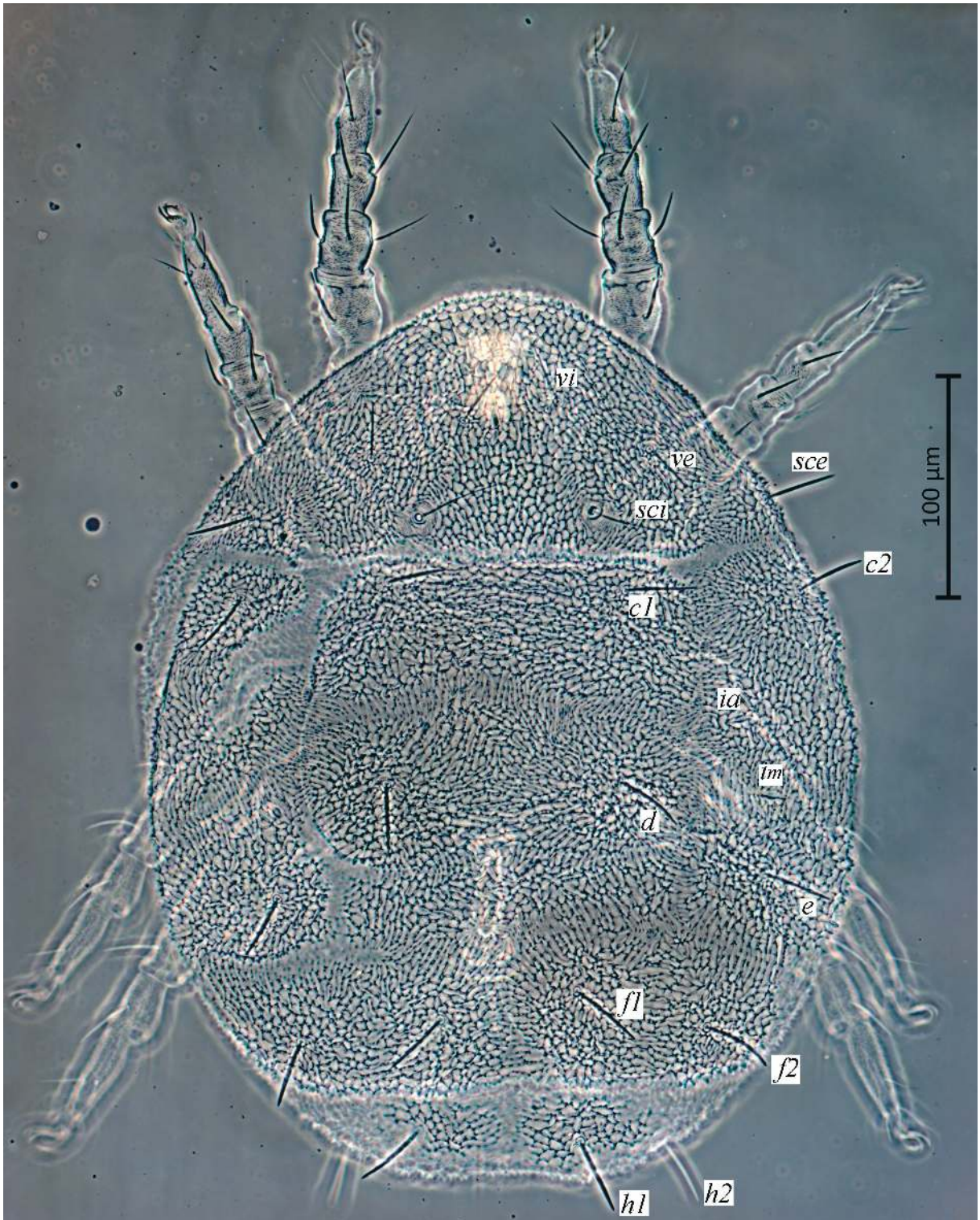


Fig. 1. Phase-contrast micrograph of *Brachytydeus montanus* sp.n., female, (holotype): general view dorsally.

lation forms discrete areas divided by striated integument as illustrated in Figs. 1A and 4A; reticulation meshes irregular in shape (Figs. 4B–D, 5A–C, 6B, 9A, B); cross-ties Y-shaped, rarely X-shaped, frames of meshes with rare I-shaped

costulae oriented longitudinally (Fig. 5B, C). Dorsal hysterosomal setae subequal in length and shape, slightly curved, blunt-tipped (Fig. 9A, B) and with hardly discernible barbs visible only under electron microscope (Fig. 5A); trichobothria

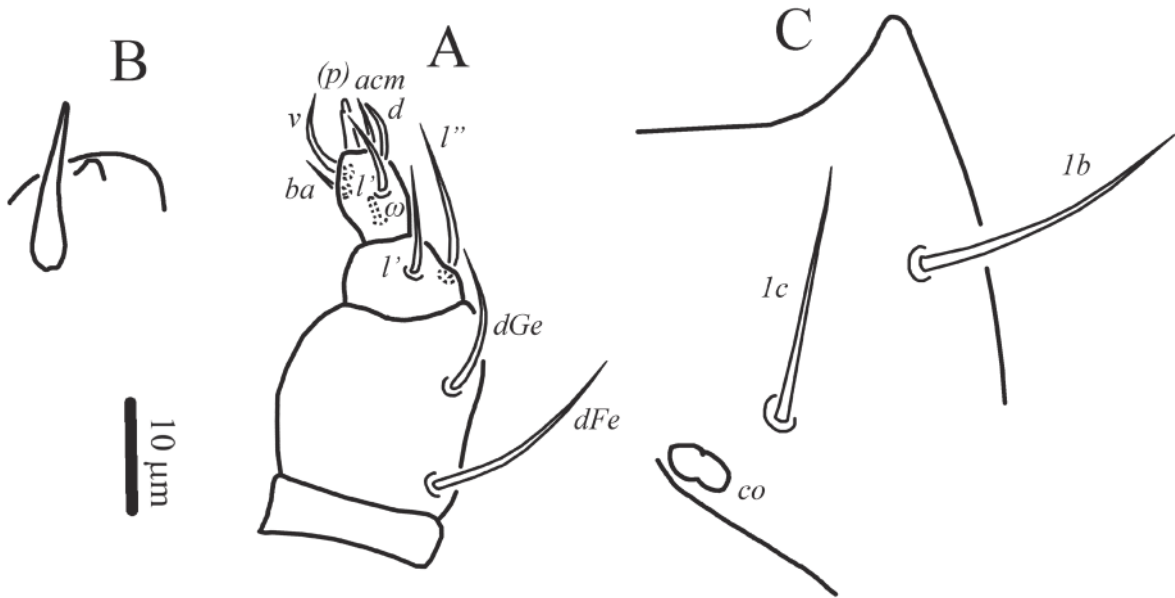


Fig. 2. *Brachytydeus montanus* sp.n., female, (holotype): A—right palp, dorsal aspect, B—cheliceral stylet, C—left coxisternal field I.

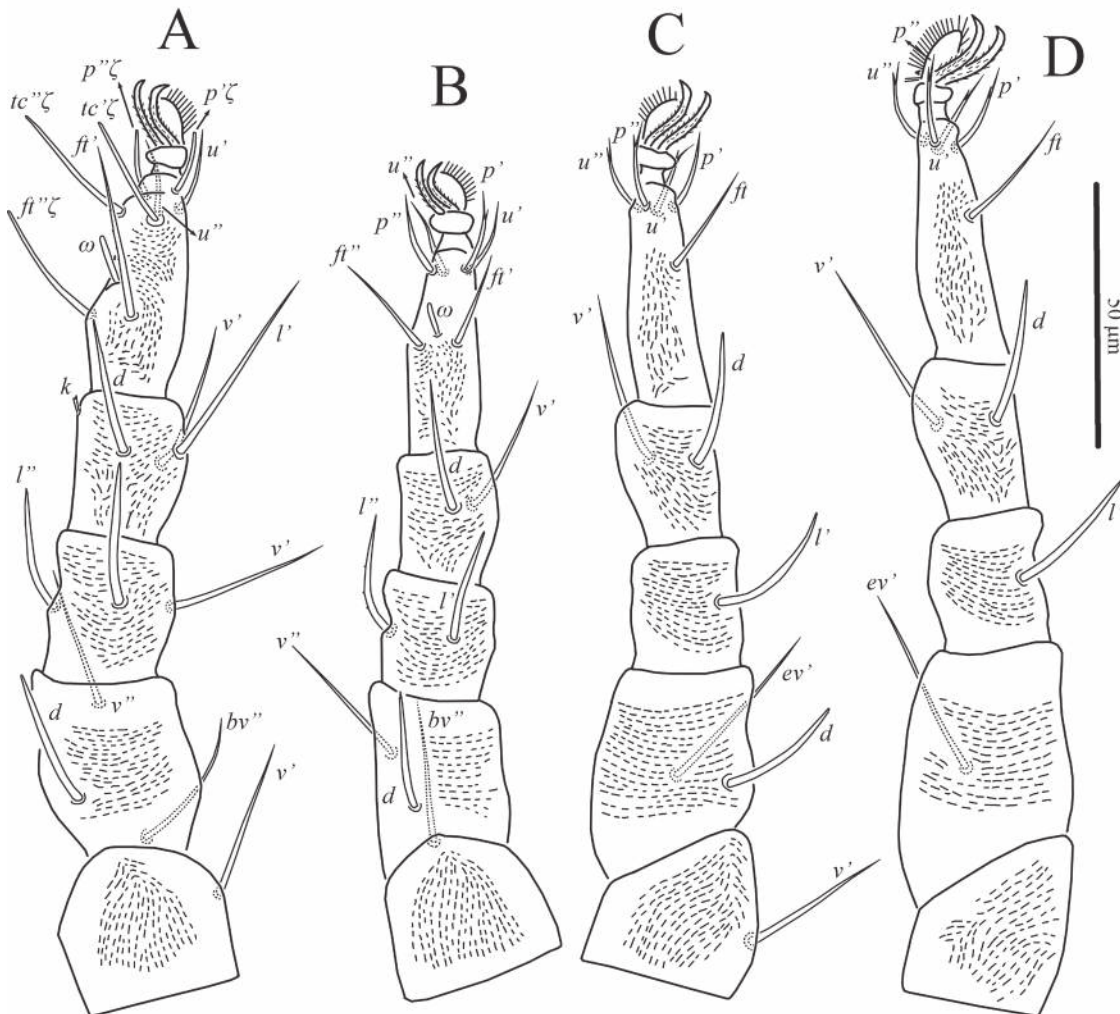


Fig. 3. *Brachytydeus montanus* sp.n., female, (holotype): A–D—left legs I–IV, respectively, dorsal aspect.

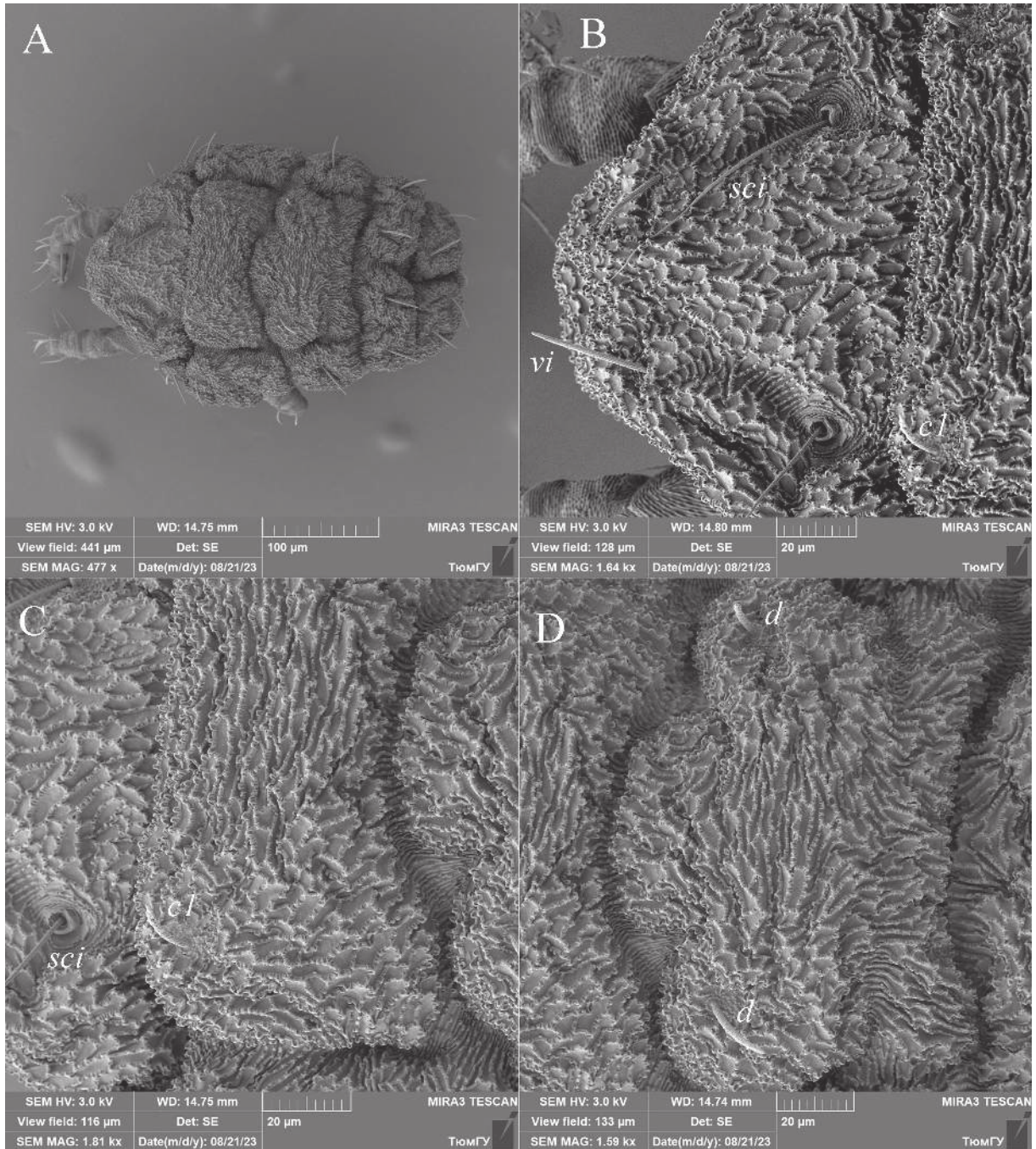


Fig. 4. SEM micrographs of *Brachytydeus montanus* sp.n., female: A—general view dorsally; B—prodorsum; C, D—dorsal idiosomal reticulate areas.

smooth, whip-like, more than two times longer than other dorsal setae. Cupules *ia* and *im* slit-like, located laterad setae *d* and antieriad *e* (Fig. 1A). Lengths of setae: *vi* 20 (25–30), *ve* 28 (28–30), *sci* 87 (85–90), *sce* 36 (34–37), *cl* 35 (30–35), *c2* 33 (30–34), *d* 32 (30–33), *e* 33 (32–36), *fl* 35 (35–39), *f2* 35 (32–36), *h1* 37 (36–39), *h2* 33 (30–34), *ps1* 30 (24–30).

*Idiosomal venter* (Figs. 2C, 6A, C, D, 7A, B, 9C–E). Ventral surface mostly striated; areas be-

tween setae *1a* as well as between *3a* and *4a* reticulated (Figs. 6C, D, 9C, D); some striae mesad bases of setae *g2–g4* without tubercles (Fig. 7A, B). Coxal organ small, ovate (Fig. 2C). Ventral setae smooth and pointed, except *ps1* with same shape as dorsal setae. Six pairs of genital setae (Figs. 7A, 9E). Genital papillae not visible.

*Gnathosoma* (Figs. 2A, B, 7C, D). Gnathosoma completely covered by idiosoma. Cheliceral stylets 16 (15–17), longer than palptarsus 9 (9–10) and

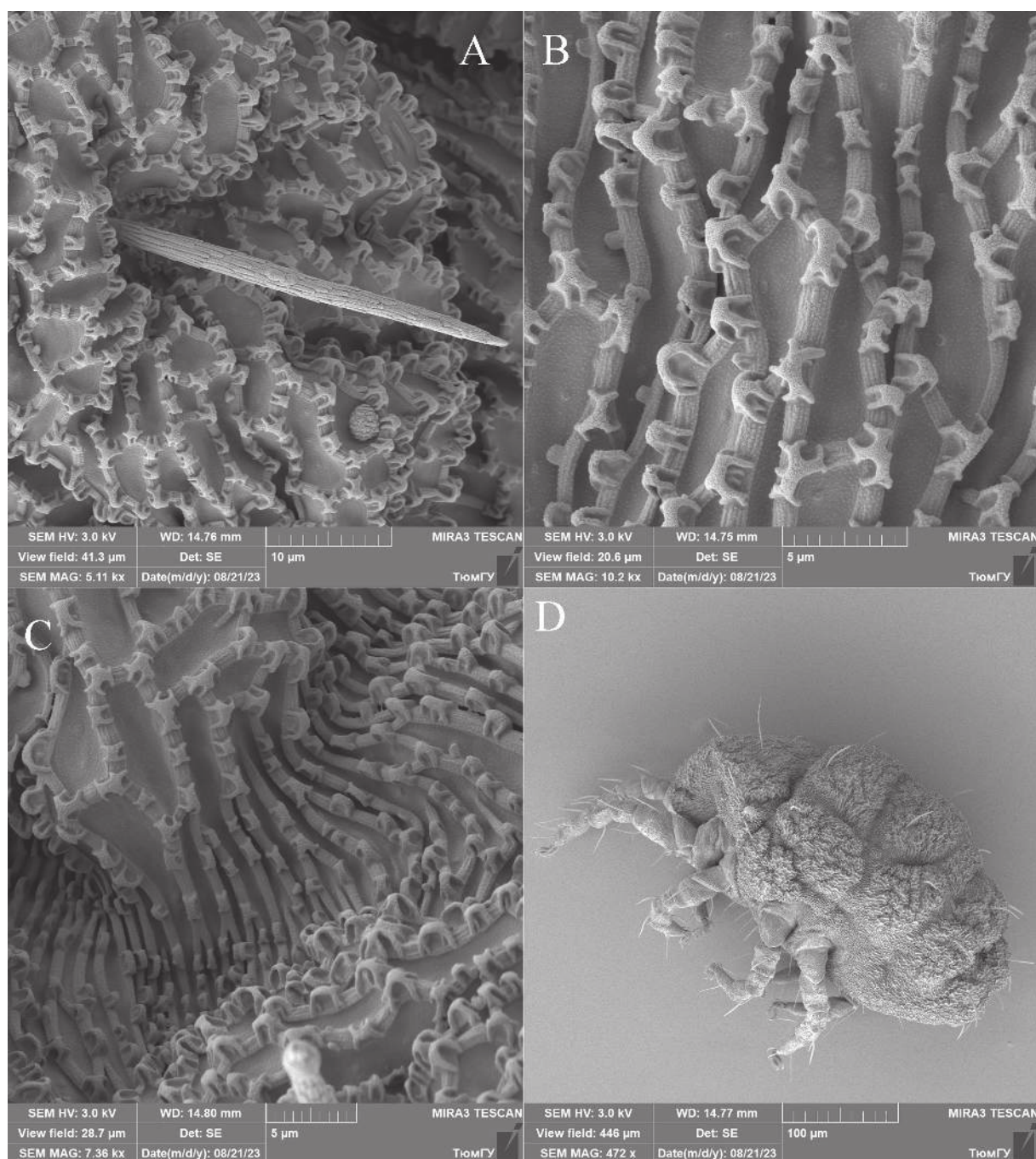


Fig. 5. SEM micrographs of *Brachytydeus montanus* sp.n., female: A—dorsal idiosomal seta, B—detailed structure of dorsal reticulation; C—detailed structure of striae between dorsal reticulation areas; D—general view dorsolaterally.

subequal to combined length of palptarsus and eupathidium (*p*) 15 (14–15). Palpal terminal eupathidium very short, thick in basal part and slightly narrowed distally, with rounded tip; seta *d* blunt-tipped, not bifurcates distally; other palpal setae pointed; seta *v* weakly barbed, other palpal setae smooth. Subcapitulum (Fig. 7C) with smooth and pointed subcapitular setae (*sc1*, *sc2*) and two pairs of short smooth and pointed adoral setae (*or1*, *or2*). Gnathosomal supracoxal setae *ep* rod-like.

*Legs* (Figs. 3, 8). Empodia with small empodial hooks; tarsal claws serrate (Fig. 8B), their tips flattened (Fig. 8D). Leg I (Figs. 3A, 8A–C). Setae (*p*), (*tc*) and *ft*'' of tarsus eupathid-like, smooth and longitudinally striated (Fig. 8A, B); setae *d* of femur, (*l*) of genu and *d* of tibia similar to dorsal idiosomal setae, other setae pointed and weakly barbed. Solenidion  $\omega$  10 (10–11) baculiform; famulus *k* on tibia multibranch distally (Fig. 8A, C). Leg supracoxal seta (*el*) rod-like, located dorsally

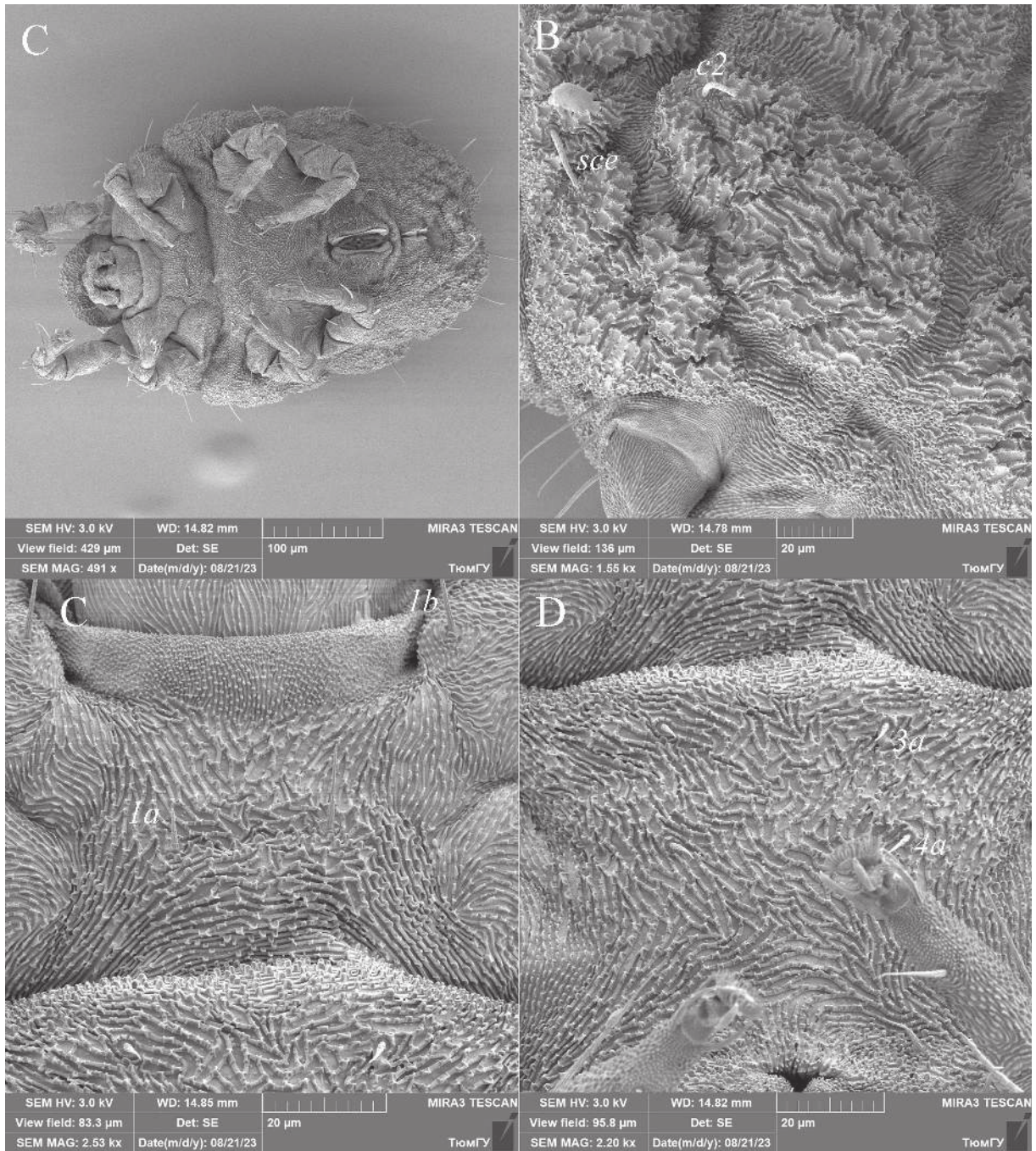


Fig. 6. SEM micrographs of *Brachytydeus montanus* sp.n., female: A—general view ventrally, B—dorsolateral idiosomal reticulate areas; C—propodosoma, ventral aspect; D—metapodosoma, ventral aspect.

near trochanter. Leg II (Figs. 3B, 8D). Setae *d* of femur, (*l*) of genu, *d* of tibia similar to dorsal idiosomal setae, other leg setae pointed and weakly barbed; terminal setae (*p*), (*u*) usually with long subapical projection. Solenidion  $\omega$  8 (8–9) baculiform. Leg III (Fig. 3C). Setae *d* of femur, *l'* of genu and *d* of tibia similar to dorsal idiosomal setae, other leg setae pointed and weakly barbed; terminal setae (*p*), (*u*) usually with long subapical projec-

tion. Leg IV (Fig. 3D). Setae *l'* of genu and *d* of tibia similar to dorsal idiosomal setae, other leg setae pointed and weakly barbed; terminal setae (*p*), (*u*) usually with long subapical projection.

*Male* similar to female, differing only in having longitudinal slit-like genital opening and four pairs of short and barbed eugenital setae (Fig. 9F).

*Larva, protonymph, deutonymph* and *trito-*  
*nymph* unknown.

**Type material.** Female holotype, slide ZISP T-Tyd-005, Russia, Respublika Altay, Ulaganskiy Rayon, 50°18'56" N, 87°42'52" E, 2,205 m a. s. l., in moss, 31 July 2020, coll. A. A. Khaustov; paratypes: 6 females, 1 male, same data.

**Type deposition:** the holotype, one female and one male paratypes are deposited in the acarological collection of the Zoological Institute of the Russian Academy of Sciences (RAS), Saint Petersburg, Russia; other paratypes are deposited in the collection of the Tyumen State University Museum of Zoology, Tyumen, Russia.

**Etymology.** The name of the new species is derived from Latin *montanus* meaning *mountain* and refers to its distribution at high altitude in the Altai Mountains.

**Differential diagnosis.** The new species closely resembles *B. sibiriensis* (Khaustov, 2023) in

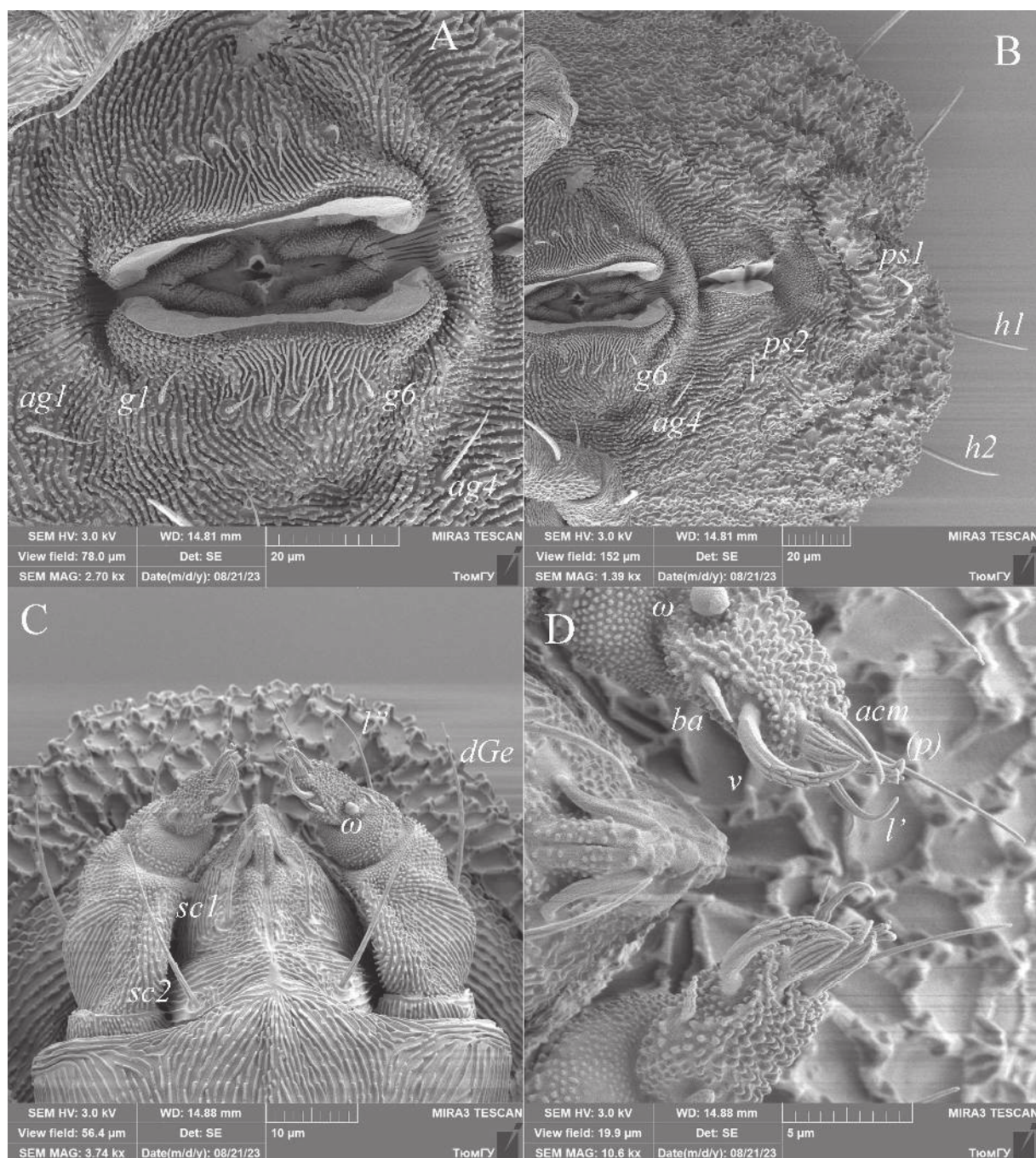


Fig. 7. SEM micrographs of *Brachytydeus montanus* sp.n., female: A—genital area, B—opiosoma, ventral aspect; C—gnathosoma, ventral aspect; D—palpal tarsi, ventral aspect.

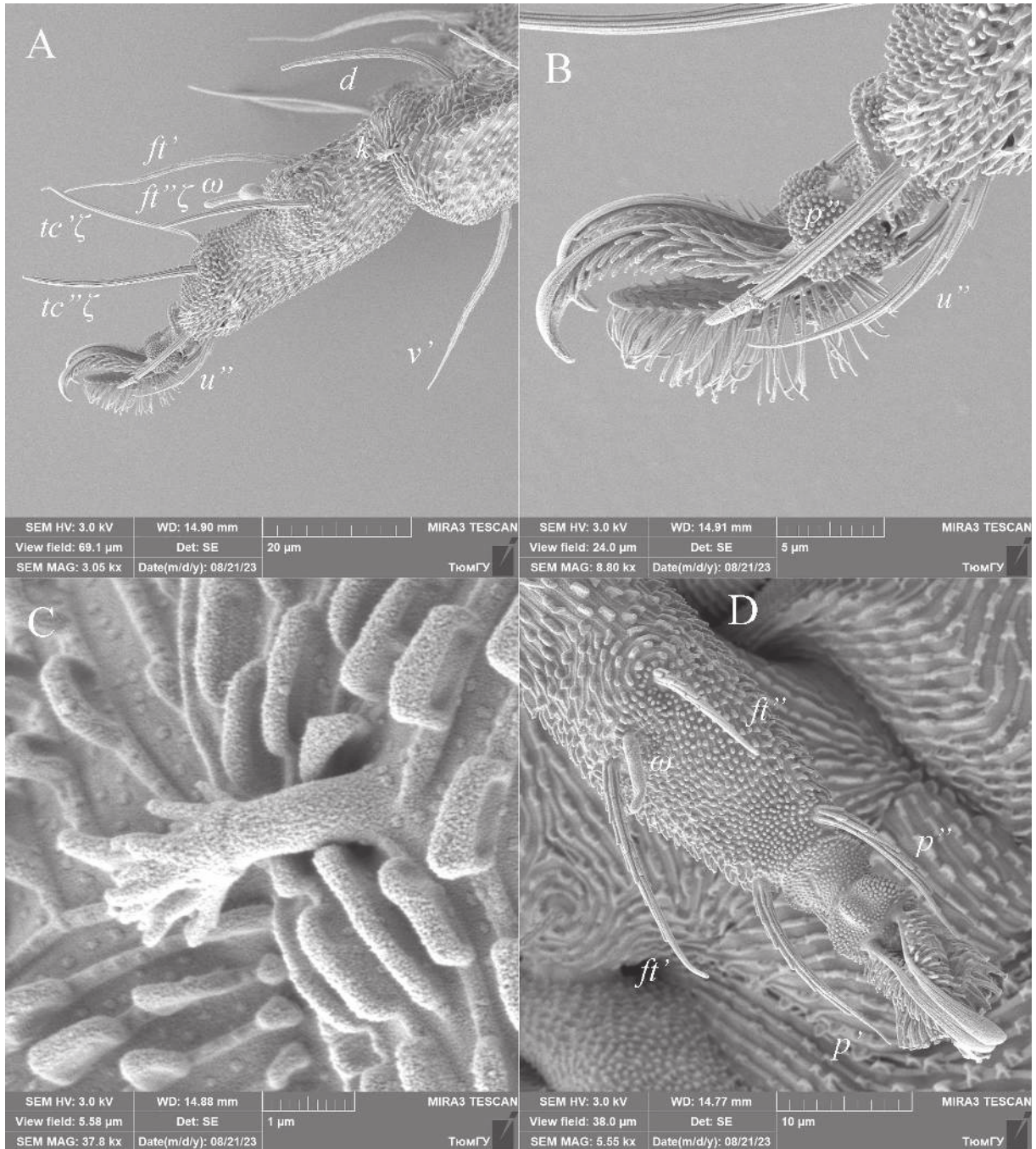


Fig. 8. SEM micrographs of *Brachytydeus montanus* sp.n., female: A—tibia and tarsus I, lateral aspect, B—distal part of tarsus I, lateral aspect; C—famulus *k* on tibia I; D—tarsus II, dorsal aspect.

having a “*Lorryia*” ornamentation type with discrete areas separated by striate cuticle, irregular reticulation and a very short palptarsus. The new species differs from *B. sibiriensis* in having reticulation in the areas between setae *1a* and *3a–4a* (vs. these areas being striated in *B. sibiriensis*); seta *d* of palptarsus blunt-tipped, not bifurcated distally (vs. seta *d* of palptarsus bifurcated distally in

*B. sibiriensis*); and in having longer dorsal idiosomal setae.

***Brachytydeus altaicus* sp.n.**  
(Figs. 10–14A–C)

**Description.** *Female* (Figs. 10–14A–C). Body ovate (Fig. 10). Length of idiosoma 340 (310–345), maximum width 210 (200–225).



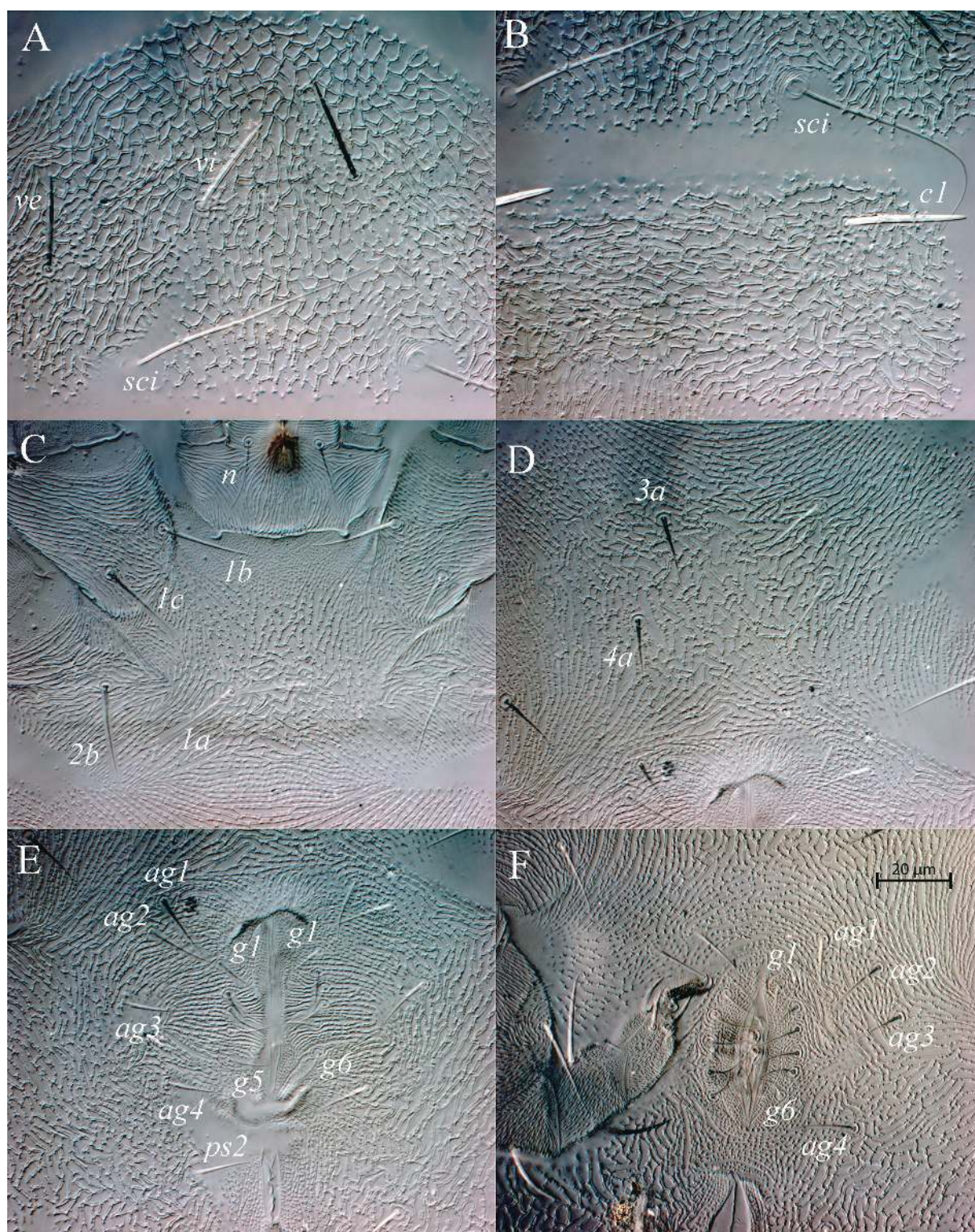


Fig. 9. DIC micrographs of *Brachytydeus montanus* sp.n., female (A–E) and male (F): A—prodorsum, B—dorsal idiosomal reticulation and setae; C—propodosoma, ventral aspect; D—metapodosoma, ventral aspect; E, F—genital area.

*Idiosomal dorsum* (Figs. 10, 13A–C). Dorsal ornamentation type “*Paralorryia*”; without reticulation elements on idiosoma; cuticular costulae

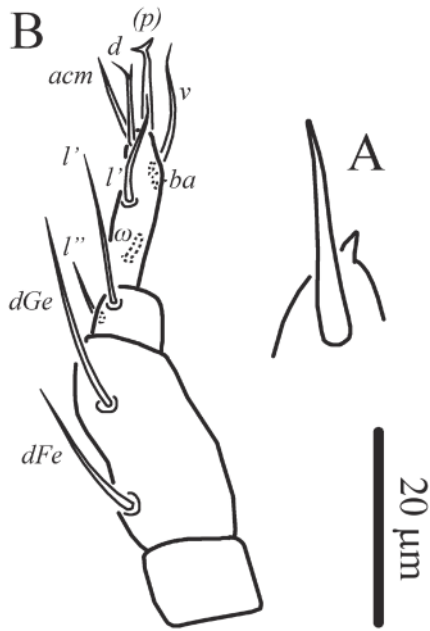
I-shaped (*X*-shaped costulae absent) (Fig. 13A–C). Dorsal hysterosomal setae short, subequal in length and shape, with unusually long barbs (Fig. 13A–C);



Fig. 10. Phase-contrast micrograph of *Brachytydeus altaicus* sp.n., female (holotype): general view dorsally.

trichobothria smooth, whip-like, more than four times longer than other dorsal setae. Cupules *ia* and *im* ovate, located laterad setae *d* and anteriad

*e*. About 20 longitudinal striae between bases of trichobothria. Lengths of setae: *vi* 13 (10–14), *ve* 13 (13–14), *sci* 54 (50–56), *sce* 19 (15–19), *cl* 16



(14–16), *c2* 21 (16–21), *d* 19 (14–19), *e* 15 (13–17), *fl* 17 (15–17), *f2* 19 (15–19), *hl* 18 (15–18), *h2* 18 (14–18), *ps1* 16 (13–16).

*Idiosomal venter* (Figs. 13D–F, 14A, B). Ventral surface striated (Figs. 13D–F, 14A, B); some striae mesad bases of setae *g2–g4* without tubercles (Fig. 14A, B). Coxal organ small, 8-shaped (Fig. 13D). Striae between bases of setae *3a* and *4a* V-shaped (Fig. 13E). Ventral setae smooth and pointed, except *ps1* with same shape as dorsal setae. Six pairs of genital setae (Fig. 14A); rarely, one of genital setae absent (Fig. 14B). Genital papillae not visible.

Fig. 11. *Brachytydeus altaicus* sp.n., female (holotype): A—cheliceral stylet; B—left palp, dorsal aspect.

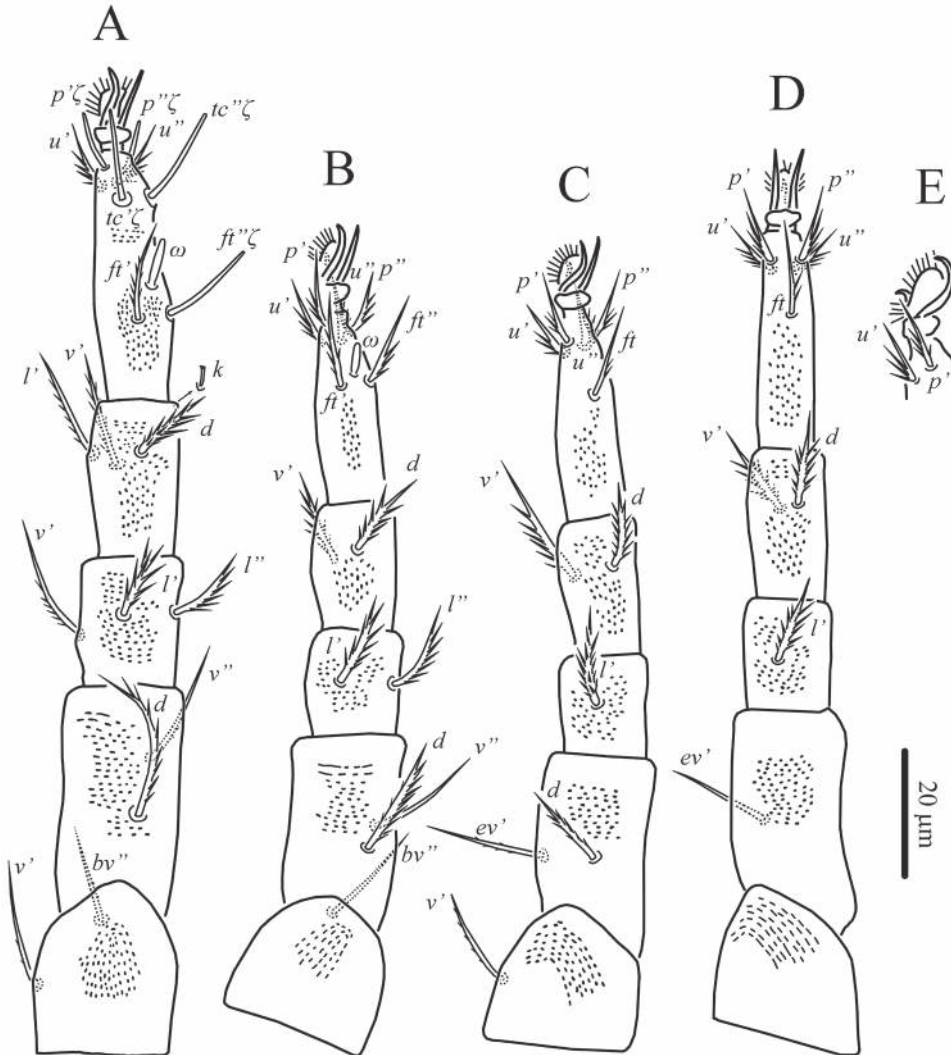


Fig. 12. *Brachytydeus altaicus* sp.n., female (holotype): A–D—right legs I–IV, dorsal aspect; E—tip of tarsus IV, lateral aspect.

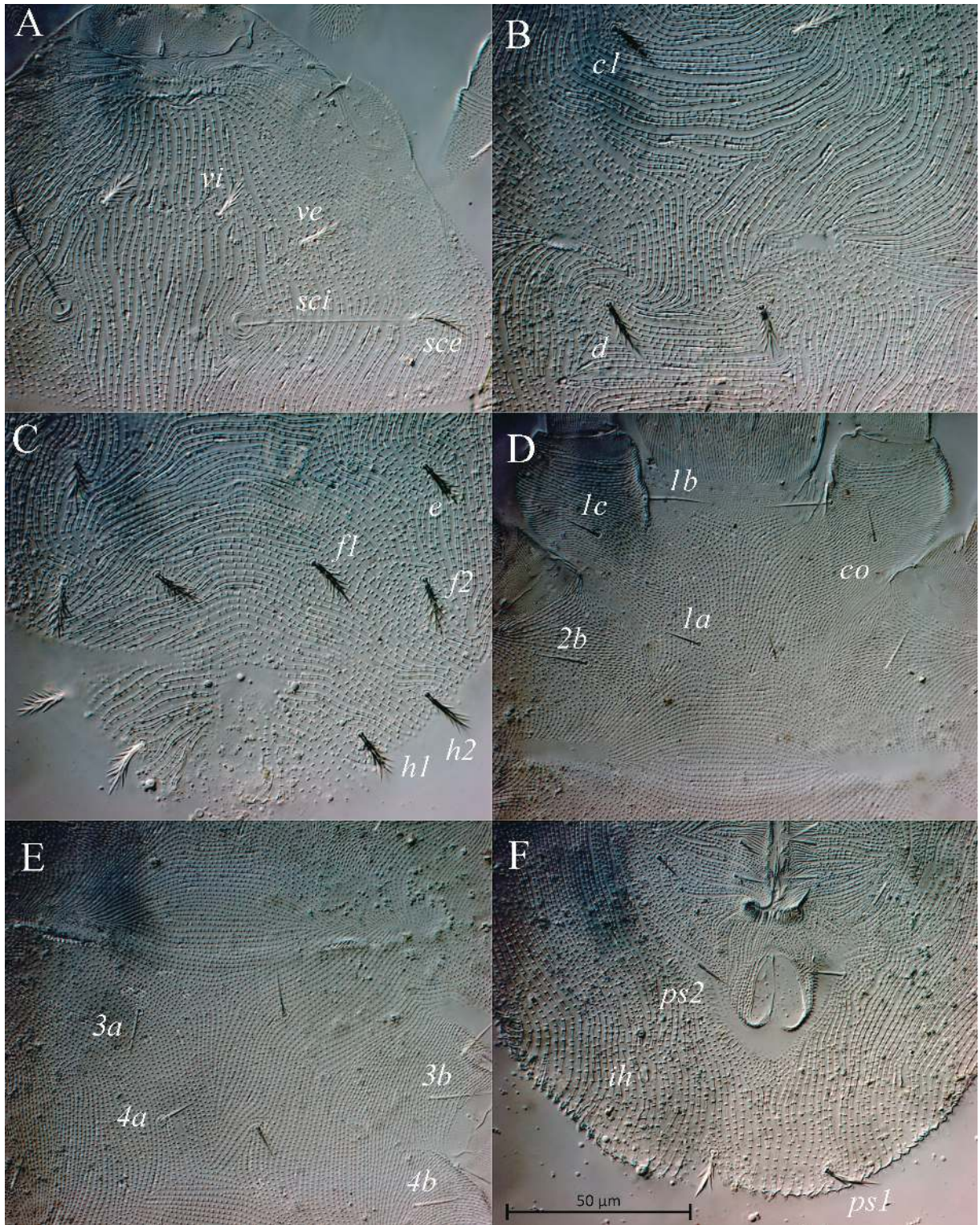


Fig. 13. DIC micrographs of *Brachytydeus altaicus* sp. n., female (holotype): A—prodorsum; B—metapodosoma, dorsal aspect; C—opisthosoma, dorsal aspect; D—propodosoma, ventral aspect; E—metapodosoma, ventral aspect; F—opisthosoma, ventral aspect.

*Gnathosoma* (Fig. 11). Gnathosoma not covered by idiosoma. Cheliceral stylets 24 (22–24), longer than palptarsus 19 (17–19) and shorter than combined length of palptarsus and eupathidium

(*p*) 29 (27–29). Palpal terminal eupathidium T-shaped distally; seta *d* bifurcates distally, seta *ba* very short and hardly visible; other palpal setae pointed; all palpal setae smooth. Subcapit-

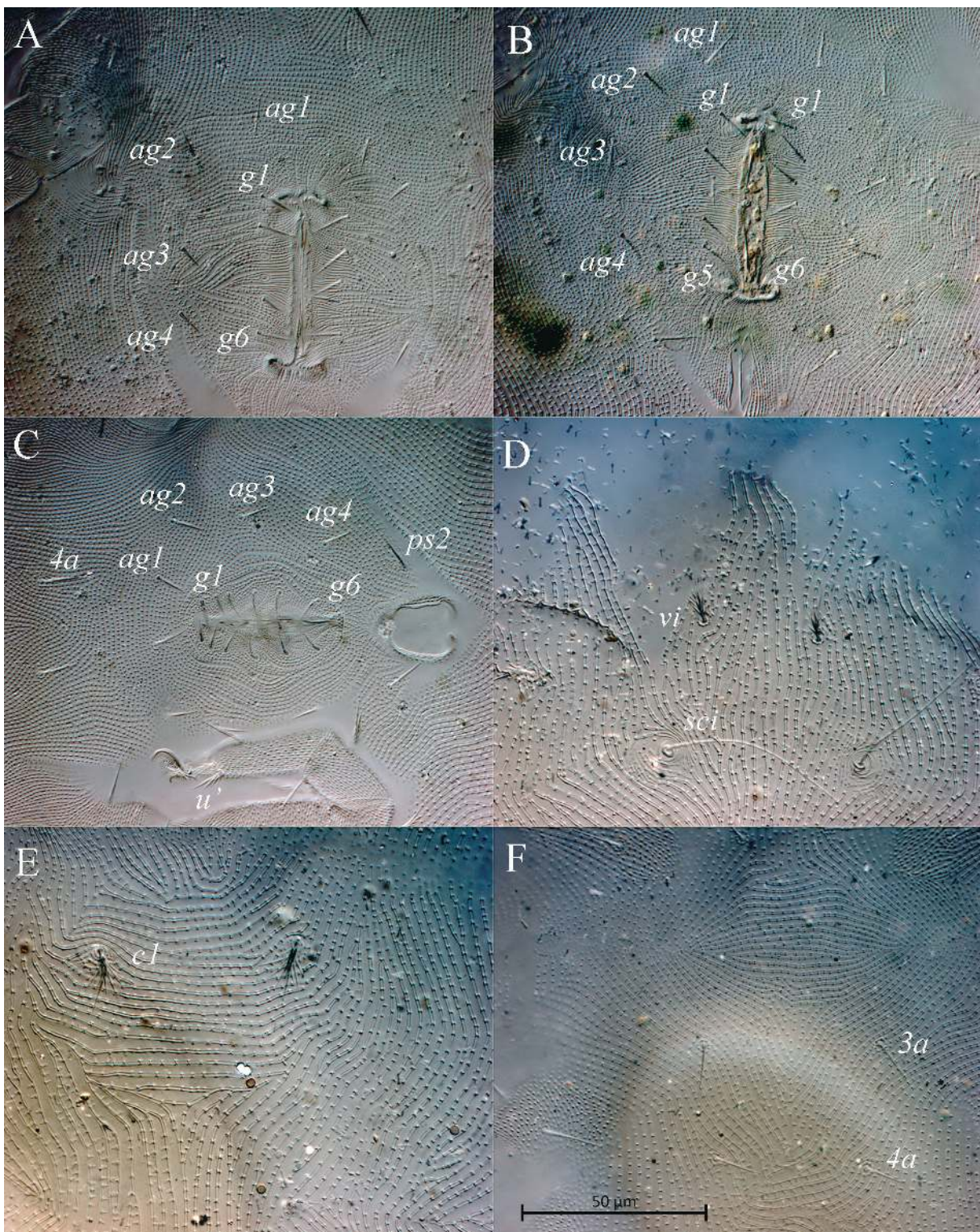


Fig. 14. DIC micrographs of *Brachytydeus altaicus* sp.n. (A–C) and *Brachytydeus recki* (Livshitz, 1973) (female holotype): A, B—female genital area; C—male genital area; D—prodorsum; E—dorsal striation and setae; F—metapodosoma, ventral aspect.

ulum with smooth and pointed subcapitular setae (*sc1*, *sc2*) and two pairs of short smooth and pointed adoral setae (*or1*, *or2*). Gnathosomal supracoxal setae *ep* rod-like.

*Legs* (Fig. 12). Empodia with small empodial hooks; tarsal claws serrate. Leg I (Fig. 12A). Setae (*p*), (*tc*) and *ft*'' of tarsus eupathid-like, smooth; setae *d* of femur, (*l*) of genu and *d* of

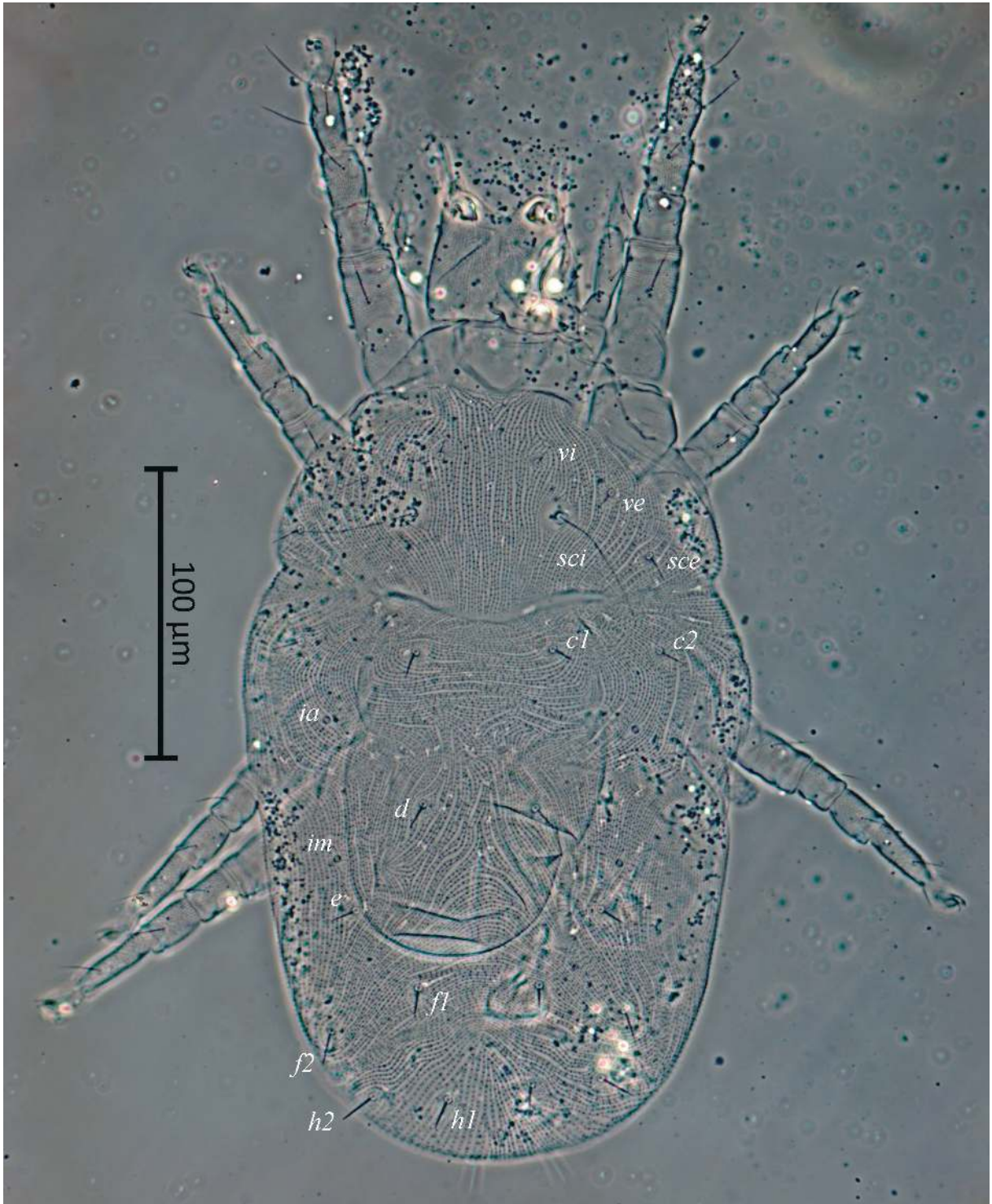
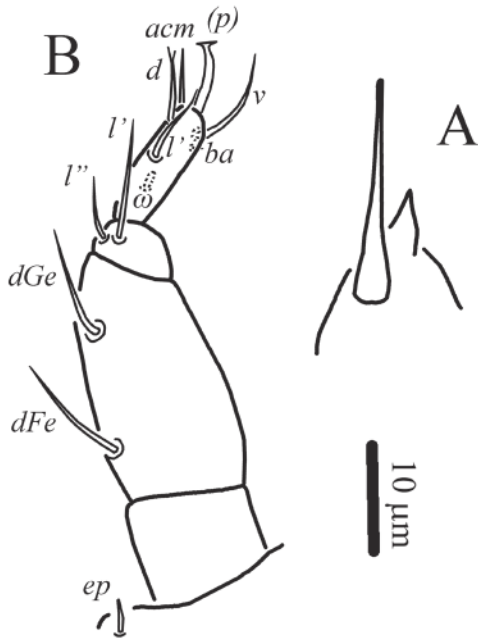


Fig. 15. Phase-contrast micrograph of *Brachytydeus brevisetosus* sp.n., female (holotype): general view dorsally.

tibia similar to dorsal idiosomal setae; seta *ft'* and (*u*) of tarsus strongly barbed, other setae pointed and weakly barbed. Solenidion  $\omega$  7 (7–8) baculiform; famulus *k* on tibia multibranched distally. Leg supracoxal seta (*el*) rod-like, located dorsally near trochanter. Leg II (Fig. 12B). Setae *v''* and

*bv''* of femur weakly barbed and pointed, other leg setae strongly barbed and pointed. Solenidion  $\omega$  5 (5) baculiform. Leg III (Fig. 12C). Setae *v'* of trochanter and *ev'* of femur pointed and weakly barbed, other leg setae pointed and strongly barbed. Leg IV (Fig. 12D). Setae *ev'* of femur



pointed and weakly barbed, other leg setae pointed and strongly barbed.

*Male* similar to female and differs only in having longitudinal slit-like genital opening and four pairs of short and barbed eugenital setae (Fig. 14C).

*Larva, protonymph, deutonymph* and *tritonymph* unknown.

**Type material.** Female holotype, slide ZISP T-Tyd-006, Russia, Respublika Altay, Kosh-Agachskiy Rayon, 50°10'05.7"N 88°11'37.0"E, 1,667 m a. s. l., in dry steppe soil, 13 June 2022, coll. A.A. Khaustov, V.A. Khaustov; paratypes: four females, two males, same data.

Fig. 16. *Brachytydeus brevisetosus* sp.n., female: A—cheliceral stylet; B—left palp, dorsal aspect.

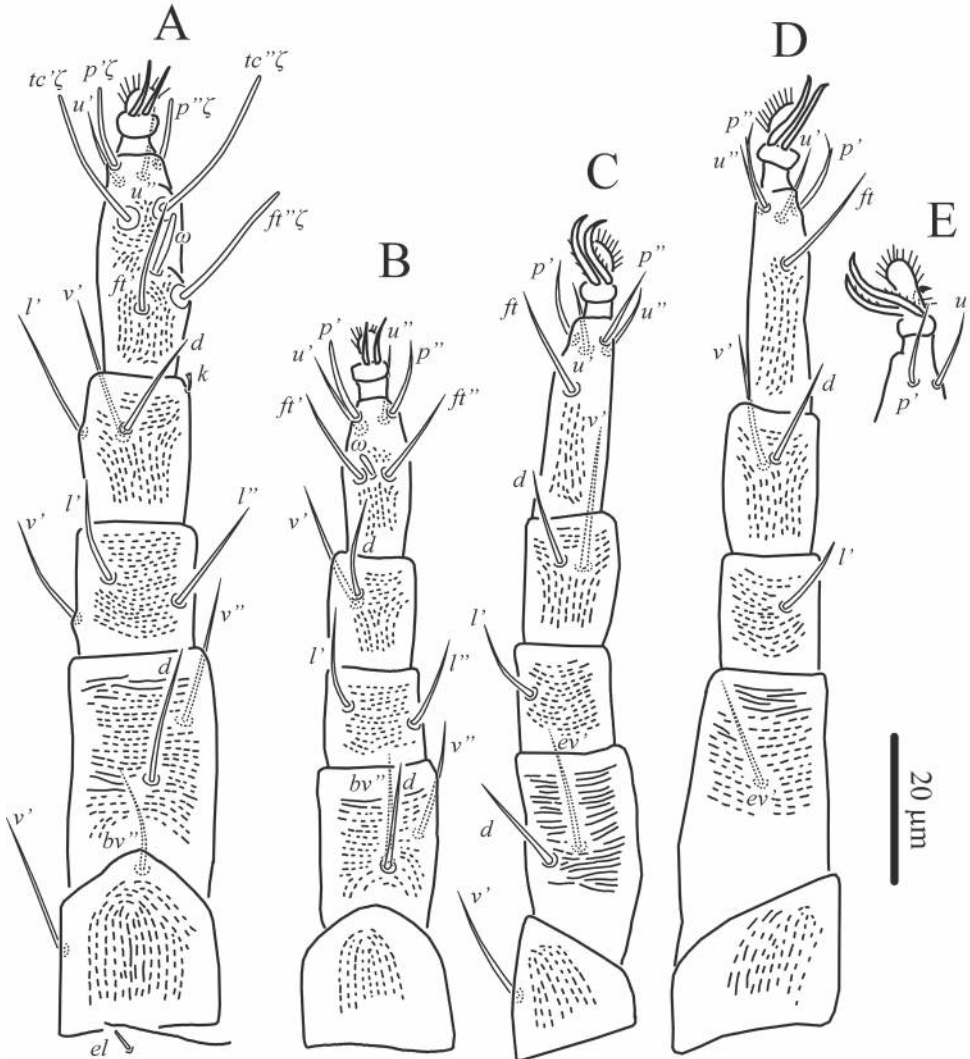


Fig. 17. *Brachytydeus brevisetosus* sp.n., female: A—D—right legs I–IV, dorsal aspect; E—distal part of tarsus IV, lateral aspect.

**Type deposition:** The holotype, one female and one male paratypes are deposited in the acarological collection of the Zoological Institute of

RAS, Saint Petersburg, Russia; other paratypes are deposited in the collection of the Tyumen State University Museum of Zoology, Tyumen, Russia.

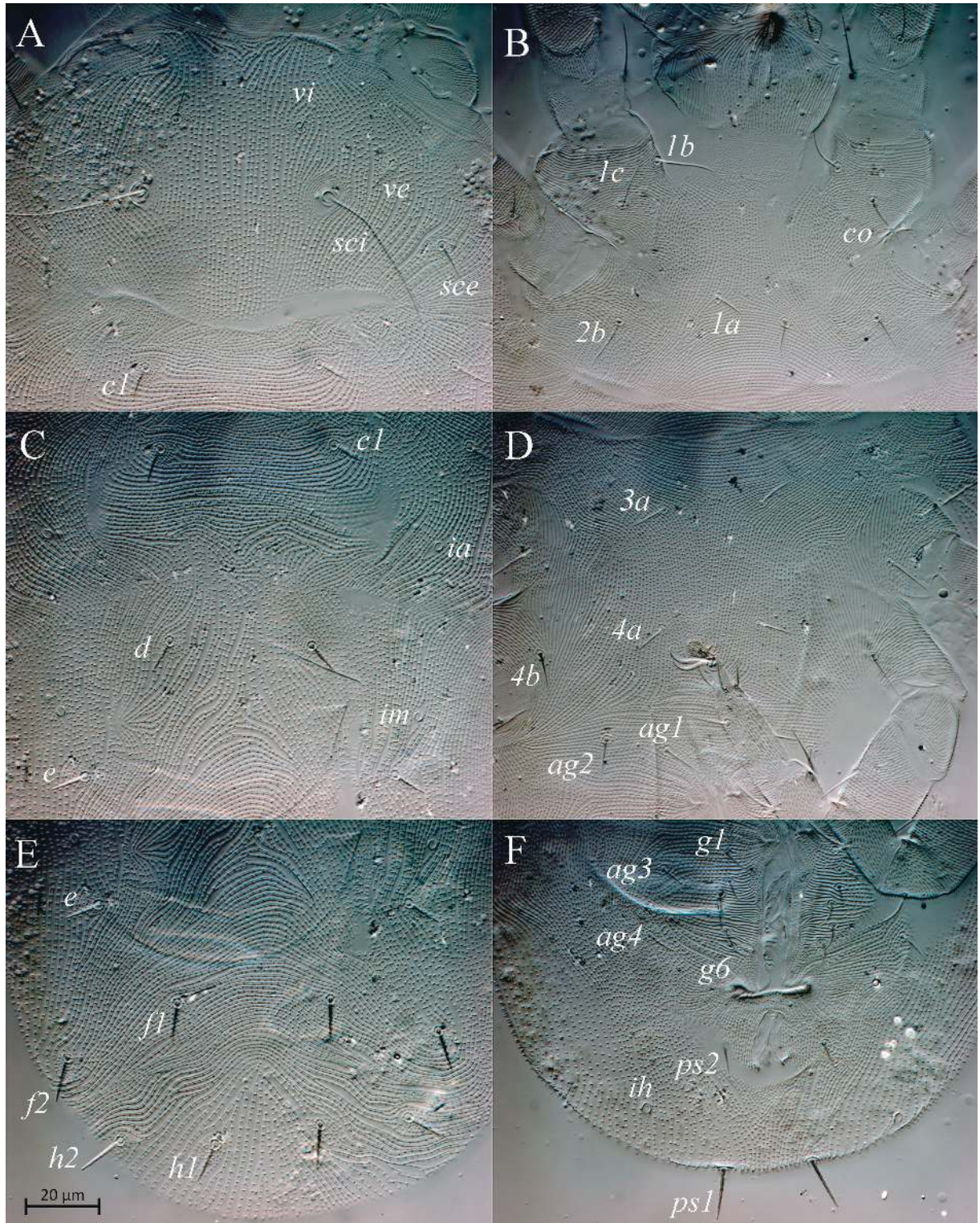


Fig. 18. DIC micrographs of *Brachytydeus brevisetosus* sp.n., female (holotype): A—prodorsum; B—propodosoma, ventral aspect; C—metapodosoma, dorsal aspect; D—metapodosoma, ventral aspect; E—opisthosoma, dorsal aspect; F—opisthosoma, ventral aspect.



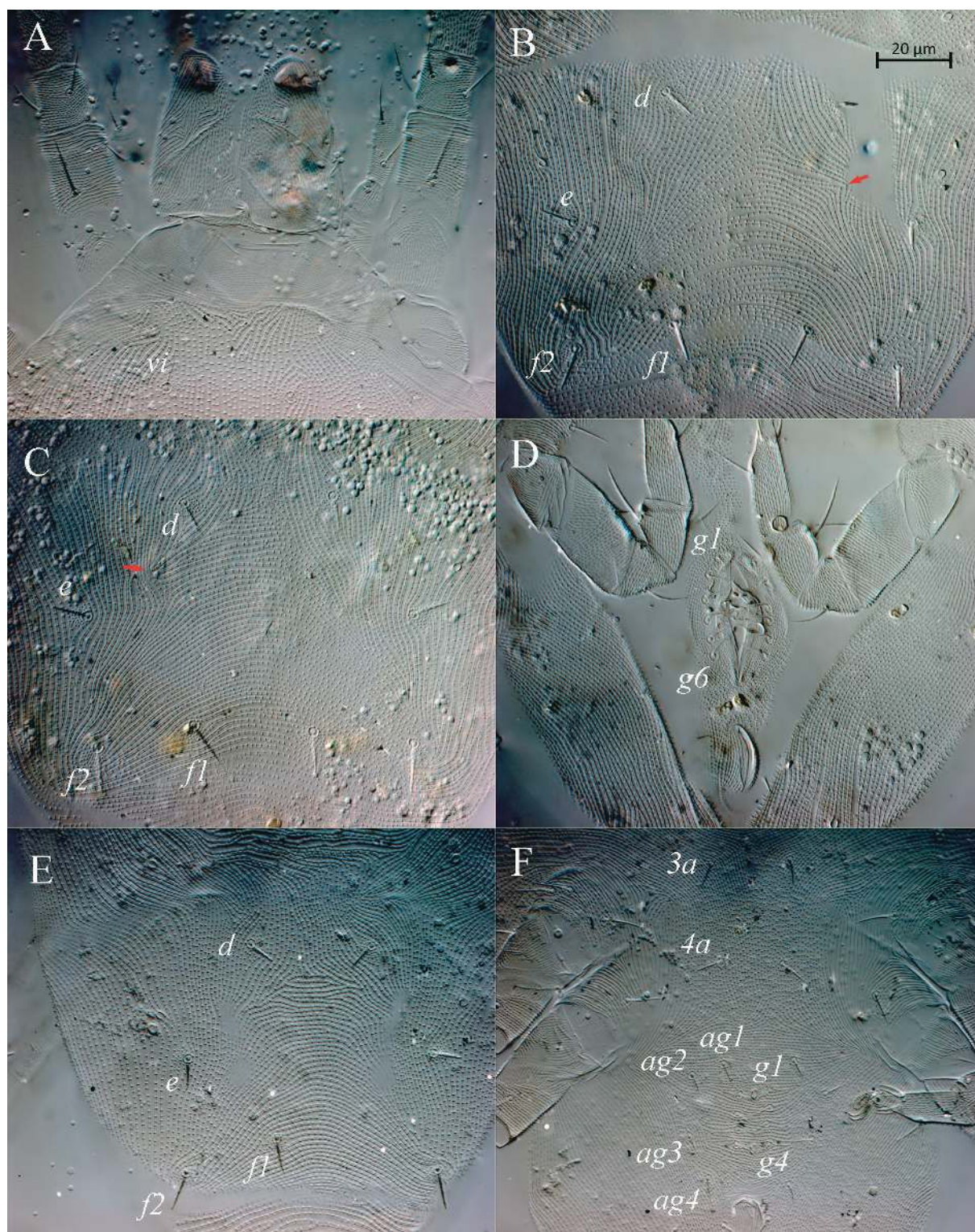


Fig. 19. DIC micrographs of *Brachytydeus brevisetosus* sp.n., female holotype (A), male (B–D) and tritonymph (E, F): A—anterior part of prodorsum and chelicerae, dorsal aspect; B, C—variations in dorsal idiosomal striation; D—genital area; E—hysterosoma, dorsal aspect; F—hysterosoma, ventral aspect.

**Etymology.** The name of the new species *altaicus* refers to its distribution in the Altai Mountains.

**Differential diagnosis.** The new species is very similar to *B. recki* (Livshitz, 1973), described from Georgia (Livshitz and Kuznetsov 1973), in having

a “*Paralorryia*” ornamentation type and dorsal setae with long barbs, as well as in lacking dorsal reticulation. The new species differs from *B. recki* in having I-shaped cuticular costulae (vs. cuticular costulae usually X-shaped in *B. recki*; Fig. 14D–F), distinctly barbed setae *ft*’ and (*u*) on tarsus I (vs. smooth setae *ft*’ and (*u*) on tarsus I in *B. recki*) and in having strongly barbed setae (*p*) and (*u*) on tarsi II–IV (vs. smooth setae (*p*) and (*u*) on tarsi II–IV in *B. recki*).

***Brachytydeus brevisetosus* sp.n.**

(Figs. 15–19)

**Description.** *Female* (Figs. 15–19A). Body elongate-ovate (Fig. 15). Length of idiosoma 290 (285–300), maximum width 175 (175–190).

*Idiosomal dorsum* (Figs. 15, 18A, C, E, 19A). Dorsal ornamentation: striation type “*Veniparalorryia*” (Fig. 18C, E); dorsal striae with tubercles; no reticulation patterns on idiosoma; more than 30 striae lie between trichobothria. Trichobothria smooth, whip-like, with a thin tip (Fig. 18A), about five times longer than other prodorsal setae; other dorsal setae thin, straight, weakly blunt-tipped and very weakly barbed; prodorsal setae thinner than hysterosomal. Cupules *ia* and *im* small, ovate, situated laterad *d* and anteriorad *e* (Fig. 18C). Lengths of setae: *vi* 10 (9–11), *ve* 10 (10–12), *sci* 53 (51–53), *sce* 12 (11–13), *c1* 10 (10–11), *c2* 11 (11–13), *d* 10 (10–12), *e* 10 (10–12), *fl* 13 (13–14), *f2* 13 (13–14), *h1* 12 (12–14), *h2* 14 (14–15), *ps1* 14 (14–16).

*Idiosomal venter* (Fig. 18B, D, F). Cuticular tubercles on ventral striae in general smaller than on dorsal face; striae between setae *3a* and *4a* parallel (Fig. 18D). Cupules *ih* situated near posterior edge of opisthosoma (Fig. 18F). Coxal organs elliptical (Fig. 18B). Six pairs of genitals and four pairs of aggenital setae. Genital papillae not visible.

*Gnathosoma* (Fig. 16). Gnathosoma not covered by idiosoma. Cheliceral stylets 21 (21–23) distinctly longer than palptarsus 11 (11) and combined length of palptarsus and eupathidium (*p*) 17 (17–18). Palpal terminal eupathidium with T-shaped projection distally; seta *d* bifurcate distally. All palpal setae smooth. Palpal supracoxal seta rod-like.

*Legs* (Fig. 17). Setae (*p*), (*tc*) and *ft*’ of tarsus I eupathid-like, smooth, other setae on legs thin, smooth and pointed. Solenidion  $\omega$  9 (8–9) on tarsus I baculiform, shorter than width of tarsus; solenidion  $\omega$  4 (3–4) on tarsus II small, rod-like. Famulus *k* on tibia I multibranch distally. Empodia with small empodial hooks (Fig. 17E).

*Male* (Fig. 19B–D) similar to female, differing in having a longitudinal slit-like genital opening and four pairs of short and barbed eugenital setae (Fig. 19D). Dorsal striation posterior to setae *d* asymmetrical (Fig. 19B, C).

*Tritonymph* (Figs. 19E, F) similar to female, except for presence of four pairs of genital setae and absence of genital opening (Fig. 19F).

*Larva, protonymph and deutonymph* unknown.

**Type material.** Female holotype, slide ZISP T-Tyd-007, Russia, Respublika Altay, Ongudaysky Rayon, in moss on soil, 1 August 2020; 50°23'N 86°40'E, collected by A.A. Khaustov and V.A. Khaustov; paratypes: 4 females, 2 males, 1 TN, same data.

**Type deposition:** The holotype and one male paratype are deposited in the acarological collection of the Zoological Institute of the RAS, Saint Petersburg, Russia; other paratypes are deposited in the collection of the Tyumen State University Museum of Zoology, Tyumen, Russia.

**Etymology.** The name of the new species is a combination of two Latin words, *brevis* (meaning *short*) and *seta* (meaning *bristle*), and it refers to short dorsal idiosomal setae.

**Differential diagnosis.** The new species is most similar to a group of species—*B. argutus* (Kuznetsov and Petrov, 1979), *B. volgini* (Kuznetsov, 1973), *B. breviculus* (Koch, 1838) and *B. frekei* (Momen and Lundquist, 1996)—in the following features: palptarsus no more than two times longer than width; cheliceral stylets longer than combined length of palptarsus and tarsal eupathidium; dorsal setae very short, smooth or with hardly discernible barbs; idiosomal dorsum without reticulation patterns. The new species differs from *B. argutus*, *B. frekei*, *B. volgini* and *B. breviculus* in having the “*Veniparalorryia*” striation subtype (vs. “*Tydeus*” in *B. argutus*, *B. frekei* and *B. volgini*). The new species differs from *B. breviculus* in having “*Veniparalorryia*” striation subtype (vs. “*Biparalorryia-incerta*” in *B. breviculus*). It also differs from *B. breviculus* in having a more elongate body shape and weakly barbed and weakly blunt-tipped dorsal hysterosomal setae (vs. smooth and pointed in *B. breviculus*).

***Brachytydeus arkadiensis*  
(Panou and Emmanouel, 1995)**

*Lorryia arkadiensis* Panou and Emmanouel, 1995, 217

*Brachytydeus arkadiensis*: Silva *et al.* 2016, 10

This species was described from Greece (Panou and Emmanouel 1995). It was also recorded from



Fig. 20. Phase-contrast micrograph of *Brachytydeus reticuloinsignis* (Każmierski and Panou, 1997), female: general view dorsally.

Poland (Kaźmierski 1998; Laniecki *et al.* 2021). It was recently reported from the Tyumenskaya Oblast, Russia (Khaustov 2023a).

This is the first record of *B. arkadiensis* from the Altai.

**Material examined.** Six females, Russia, Altayskiy Kray, vicinity of Belokurikha, 51°57' 14.0"N 84°53'32.6"E, in soil, 10 June 2022, 750 m a. s. l., collected by A. A. Khaustov and V. A. Khaustov.

***Brachytydeus magus* (Kuznetsov, 1973)**

*Paralorryia maga* Kuznetsov, 1973 (in

Kuznetsov and Livshitz 1973), 604

*Venilia maga*: Kuznetsov 1979, 1413

*Tydeus maga*: Momen and Lundqvist 1995, 53

*Lorryia maga*: Kaźmierski 1998, 334

*Kuznetsovia maga*: Kammerer 2006, 269

*Brachytydeus maga*: Silva *et al.* 2016, 18

*Brachytydeus magus*: André 2021

This species was described from Crimea (Kuznetsov and Livshitz 1973). It was also recorded from Sweden (Momen and Lundqvist 1995), Poland (Laniecki *et al.* 2021), Iran (Akbari *et al.* 2015) and Siberia (Kaźmierski 2000). Ueckermann *et al.* (2019) redescribed this species based on materials from Turkey. Recently, it was reported from the Tyumenskaya Oblast, Russia (Khaustov 2023a).

**Material examined.** Six females, Russia, Respublika Altay, Kosh-Agachskiy Rayon, 50°10' 05.7"N 88°11'37.0"E, dry soil in steppe, 13 June 2022, 1,680 m a. s. l., collected by A. A. Khaustov and V. A. Khaustov.

***Brachytydeus politus* (Kuznetsov, 1975)**

*Lorryia polita* Kuznetsov, 1975, 129

*Tydeus polita*: Momen and Lundqvist 1995, 52

*Brachytydeus polita*: Silva *et al.* 2016, 22

*Brachytydeus politus*: André 2021

This species was described from Georgia (Kuznetsov 1975). It was also recorded from Sweden (Momen and Lundqvist 1995) and Poland (Kaźmierski 1990). Recently, Khaustov (2023a) examined the type material of this species and provided supplementary description and differences from closely related species.

This is the first record of *B. politus* in Russia.

**Material examined.** Six females, Russia, Respublika Altay, Kosh-Agachskiy Rayon, 50°05' 14" N, 88°24'34" E, 1,750 m a. s. l., in soil, 30 July 2020, coll. A. A. Khaustov.

***Brachytydeus reticuloinsignis***

**(Kaźmierski and Panou, 1997)**

*Lorryia reticuloinsignia* Kaźmierski and Panou, 1997, 728

*Brachytydeus reticuloinsignia*:

Silva *et al.* 2016, 24

*Brachytydeus reticuloinsignis*: André 2021

(Fig. 20)

This species was described from Bulgaria and Greece (Kaźmierski and Panou 1997).

This is the first record of *B. reticuloinsignis* from Russia.

**Material examined.** Three females, one male and one tritonymph, Russia, Altayskiy Kray, Kluchevsky Rayon, 52°06'36.2"N 79°18'41.6"E, in soil, 8 June 2022, 140 m a. s. l., collected by A. A. Khaustov and V. A. Khaustov.

***Brachytydeus sleipneri***

**(Momen and Lundquist, 1996) comb. n.**

*Quadrotydeus sleipneri* Momen and Lundquist, 1996, 5

*Lorryia sleipneri*: Kaźmierski 1998, 337

This species was described in the monotypic genus *Quadrotydeus* from Sweden (Momen and Lundquist 1996). Kaźmierski (1998) synonymized *Quadrotydeus* under *Lorryia* Oudemans, 1925. In this paper, we follow the opinion of André (2023) on the monotypy of *Lorryia*, with other species, previously placed in this genus by Kaźmierski (1998), belonging to the genus *Brachytydeus*.

This is the first record of *B. sleipneri* from Russia.

**Material examined.** Five females, one male and one tritonymph, Russia, Respublika Altay, Kosh-Agachskiy Rayon, 49°42'40.0"N 88°25'15.3"E, soil and ground moss, 14 June 2022, 2,230 m a. s. l., collected by A. A. Khaustov and V. A. Khaustov.

***Brachytydeus woolleyi* (Baker, 1968)**

*Paralorryia woolleyi* Baker, 1968, 1103

*Lorryia woolleyi*: Kaźmierski 1998, 332

*Brachytydeus woolleyi*: Silva *et al.* 2016, 15

This species was described from the USA (Baker 1968). It was also recorded from Poland, Bulgaria, Russia (including Siberia) (Kaźmierski 2000; Kaźmierski *et al.* 2018) and Iran (Akbari *et al.* 2015).

This is the first record of *Brachytydeus woolleyi* from the Altai.

**Material examined.** One female, Russia, Respublika Altay, Kosh-Agachskiy Rayon, 49°40'50.5"

N 88°27'08.4"E, soil and ground moss, 14 June 2022, 2,150 m a. s. l., collected by A. A. Khaustov and V. A. Khaustov.

### ACKNOWLEDGEMENTS

This research was supported by the cooperative agreement № FEWZ-2021-0004 from the Russian Ministry of Science and Higher Education. The authors also thank N. A. Shulayev (Tyumen State University) for preparing SEM images.

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