Acarina 16 (1): 39–43

TWO NEW SPECIES OF MITES OF THE SUPERFAMILY PYGMEPHOROIDEA (ACARI: HETEROSTIGMATA: PYGMEPHORIDAE, NEOPYGMEPHORIDAE) FROM THE EUROPEAN PART OF RUSSIA

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ABSTRACT: Two new species of pygmephoroid mites (Acari: Pygmephoroidea): *Pediculaster chistyakovi* sp. n. (Pygmephoridae) and *Allopygmephorus bakaninae* sp. n. (Neopygmephoridae) are described from the soil of the European part of Russia.

KEY WORDS: Pygmephoridae, Neopygmephoridae, *Pediculaster*, *Allopygmephorus*, new species, Russia

INTRODUCTION

During a study of soil inhabiting mites of the Nizhniy Novgorod district conducted by the junior author, two new species of mites of the superfamily Pygmephoroidea (Acari: Heterostigmata) from the genera *Pediculaster* (Pygmephoridae) and *Allopygmephorus* (Neopygmephoridae) are found. The mite genus *Allopygmephorus* is recorded for the first time for Russia. The purpose of this paper is to describe two new species: *Pediculaster chistyakovi* **sp. n**. and *Allopygmephorus bakaninae* **sp. n**.

MATERIALS AND METHODS

Mites were extracted from soil samples using Berlese's extraction and mounted on slides (Berlese's medium). In the description, the terminology follows Lindquist (1986). All measurements are given in micrometers (ìm) for holotype and 5 paratypes (in parenthesis).

Family Pygmephoridae Cross, 1965

Genus *Pediculaster* Vitzthum, 1927

Pediculaster chistyakovi Khaustov et Ermilov sp. n.

Figs 1–6.

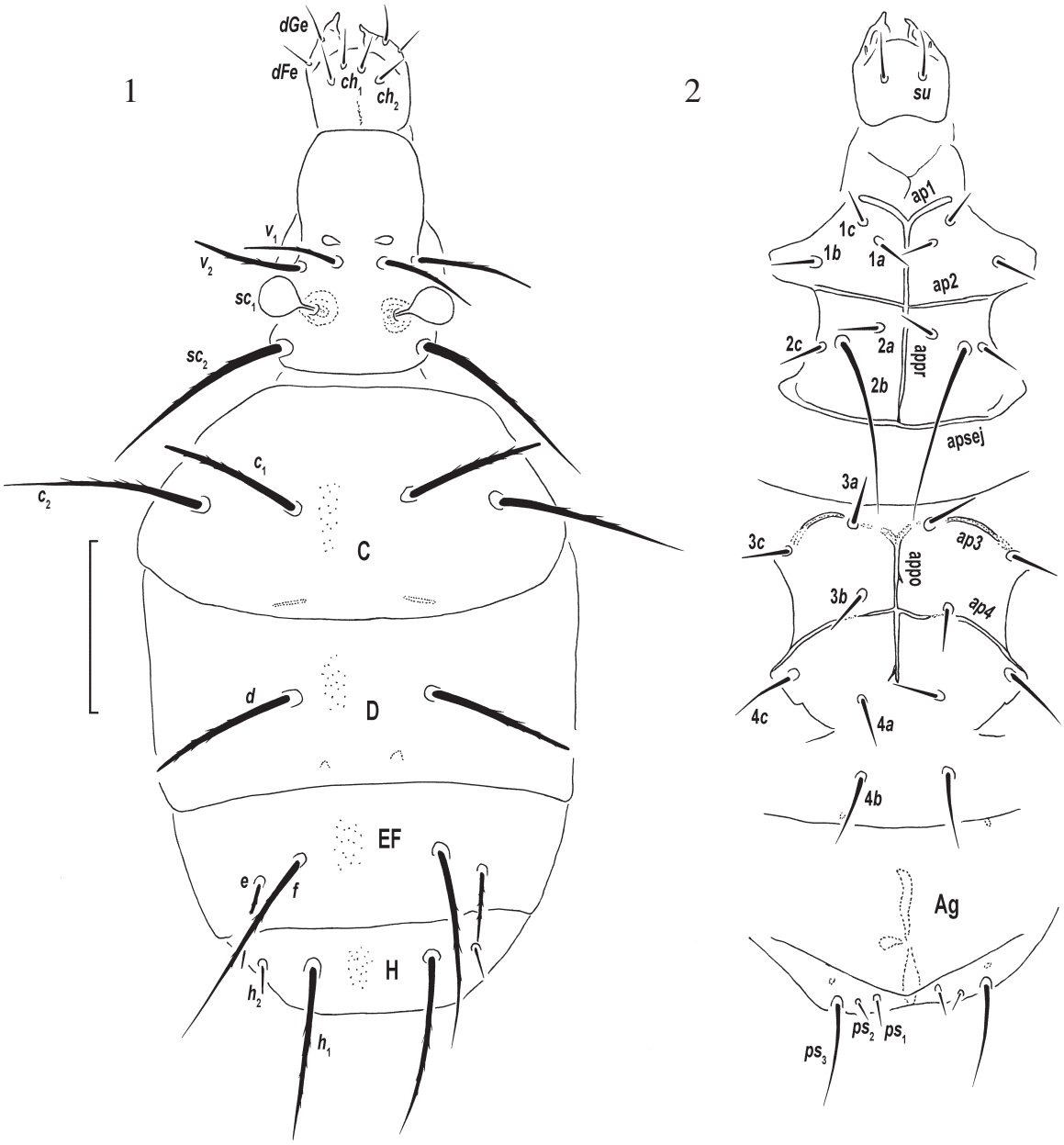
Description. Female. Idiosomal length: 263 (239–278), width 128 (125–144).

Gnathosoma (Figs 1–2). Two pairs of dorsal setae ch_1 and ch_2 present. Pair of ventral setae *su* present. Palp with 2 pairs of setae *d*Ge and *d*Fe, small ventral solenidion, and accessory setigenous structure. Dorsal medial apodeme weakly developed.

Idiosomal dorsum (Fig. 1). Tergites with numerous small dimples. Stigmata small, widely separated. Dorsal setae strong, barbed, except for smooth h_2. Setae c_1 and *d* blunt-ended. Length of dorsal setae: v_1 34 (34–35), v_2 39 (39–41), sc_2 63 (63–69), c_1 44 (44–47), c_2 57 (57–72), *d* 48 (44–56), *e* 27 (25–27), *f* 68 (68–92), h_1 56 (56–64), h_2 9 (9–11). Distances between dorsal setae: v_1–v_1 13 (13–14), v_2–v_2 33 (33–36), sc_2–sc_2 41 (41–44), c_1–c_1 36 (36–43), c_1–c_2 26 (24–30), *d*–*d* 40 (40–47), *e*–*f* 15 (14–15), *f*–*f* 41 (41–48), h_1–h_1 32 (32–39), h_1–h_2 14 (13–16). Trichobothrium with short thin stem, distally spherical.

Idiosomal venter (Fig. 2). All ventral setae smooth. All ventral plates smooth. Setae 2*b* very long and flexible. Ap1 and ap2 well developed and joined with presternal apodeme (appr); presternal apodeme weakly developed in proximal part, sejugal apodeme (apsej) well developed; apodemes 3 (ap3) well developed and reach bases of setae 3*c*. Apodemes 4 (ap4) well sclerotized and protruding setae 4*c*, apodemes 5 (ap5) not developed, poststernal apodeme (appo) in some specimens weakly divided in proximal end. Posterior margin of posterior sternal plate weakly convex, without lobus. Length of ventral setae: 1*a* 11 (11–12), 1*b* 16 (16–18), 1*c* 12 (12–15), 2*a* 12 (12–13), 2*b* 62 (62–65), 2*c* 12 (12–14), 3*a* 16 (16–18), 3*b* 12 (12–15), 3*c* 17 (17–18), 4*a* 13 (13–15), 4*b* 24 (22–27), 4*c* 23 (23–25), ps_1 8 (8–10), ps_2 6 (97), ps_3 34 (34–38).

Legs (Figs. 3–6). Leg I (Fig. 3): Tr 1 – Fe 4 – Ge 1 – Ti+Ta 17 (4) (number of solenidia in parenthesis). Tibiotarsus not thickened, with well developed terminal claw. Solenidia ω_1 23 (22–23) > ω_2 12 (12–13) > φ_1 7 = φ_2 7 (6–7); ω_1, φ_2 and ω_2 uniformly thin, φ_1 baculiform. Setae *d*Fe broadened, spatulate. Leg II (Fig. 4): Tr 1 – Fe 3 – Ge 1 – Ti 4 (1) – Ta 6 (1). Tarsus with sickle-like nonpadded claws. Solenidion ω (8) finger-shaped, solenidion φ weakly visible. Setae *dFeII* pointed. Leg III (Fig. 5): Tr 1 – Fe 2 – Ge 2 – Ti 4 (1) – Ta 6. Claws of same shape as on tarsus II. Solenidion



Figs 1–2. *Pediculaster chistyakovi* sp. n., female: 1 — dorsum, 2 — venter**,** scale bar 50 μm.

φ weakly visible. Setae *dFeIII* pointed. Leg IV (Fig. 6): Tr 1 – Fe 2 – Ge 1 – Ti 4 (1) – Ta 6. Tarsus with two well developed simple claws. Solenidion φ weakly visible. Setae *dFeIV*, *dTiIV* very long, flexible, pointed.

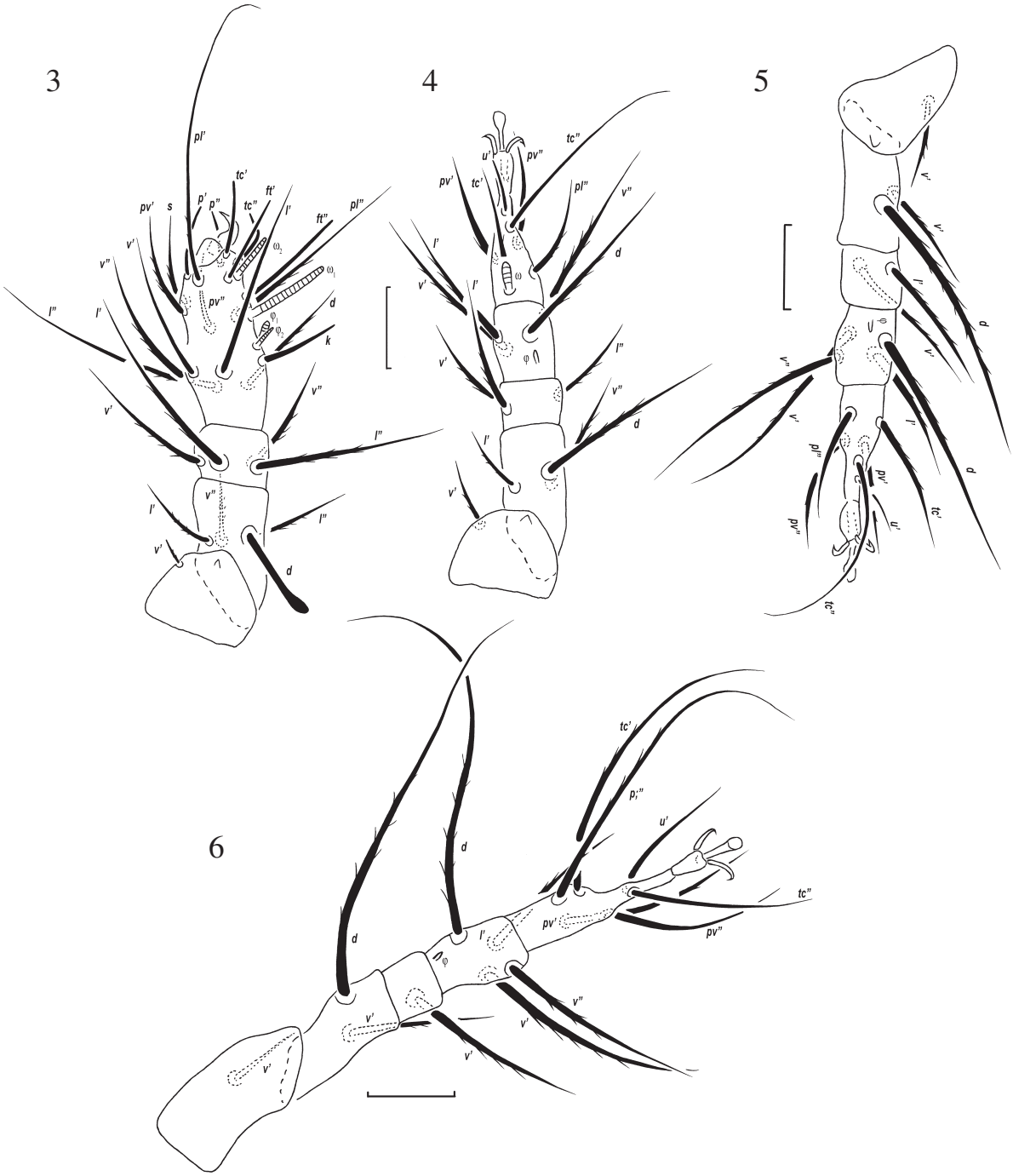
Male, non-phoretic female, and larva unknown.

Type material. Female holotype, slide # SE250307, RUSSIA, 56º12′50″ N 43º21′77″ E, Nizhniy Novgorod distr., Volodarskiy reg., vicinity of Dzerzhinsk, wet soil in bog, 25 March 2007, coll. S.G. Ermilov; paratypes: 11 females, same data.

Type depositories. Holotype deposited at the collection of the Department of Acarology, Shmalgausen Institute of Zoology, Kiev, Ukraine; paratypes in the collection of Nikita Botanical Gardens, Yalta, Ukraine.

Etymology. The new species named after M. P. Chistyakov, the well known acarologist from Nizhniy Novgorod.

Differential diagnosis. The new species is similar to *P. dudichi* Mahunka, 1970, but differs by setae *e* which are distinctly longer than h_2 (*e* and h_2 subequal in *P. dudichi*), by the subequal setae c_1 and *d* (setae c_1 are shorter than *d* in *P. dudichi*), by solenidion ω_1 which is distinctly longer than ω_2 (ω_1 is slightly longer than ω_2 in *P. dudichi*), and by setae *dFeIV* and *dTiIV* which are distinctly longer than in *P. dudichi*.



Figs. 3–6. *Pediculaster chistyakovi* sp. n., female legs I–IV, respectively, scale bar 20 μm.

Family Neopygmephoridae Cross, 1965

Genus *Allopygmephorus* Cross, 1965

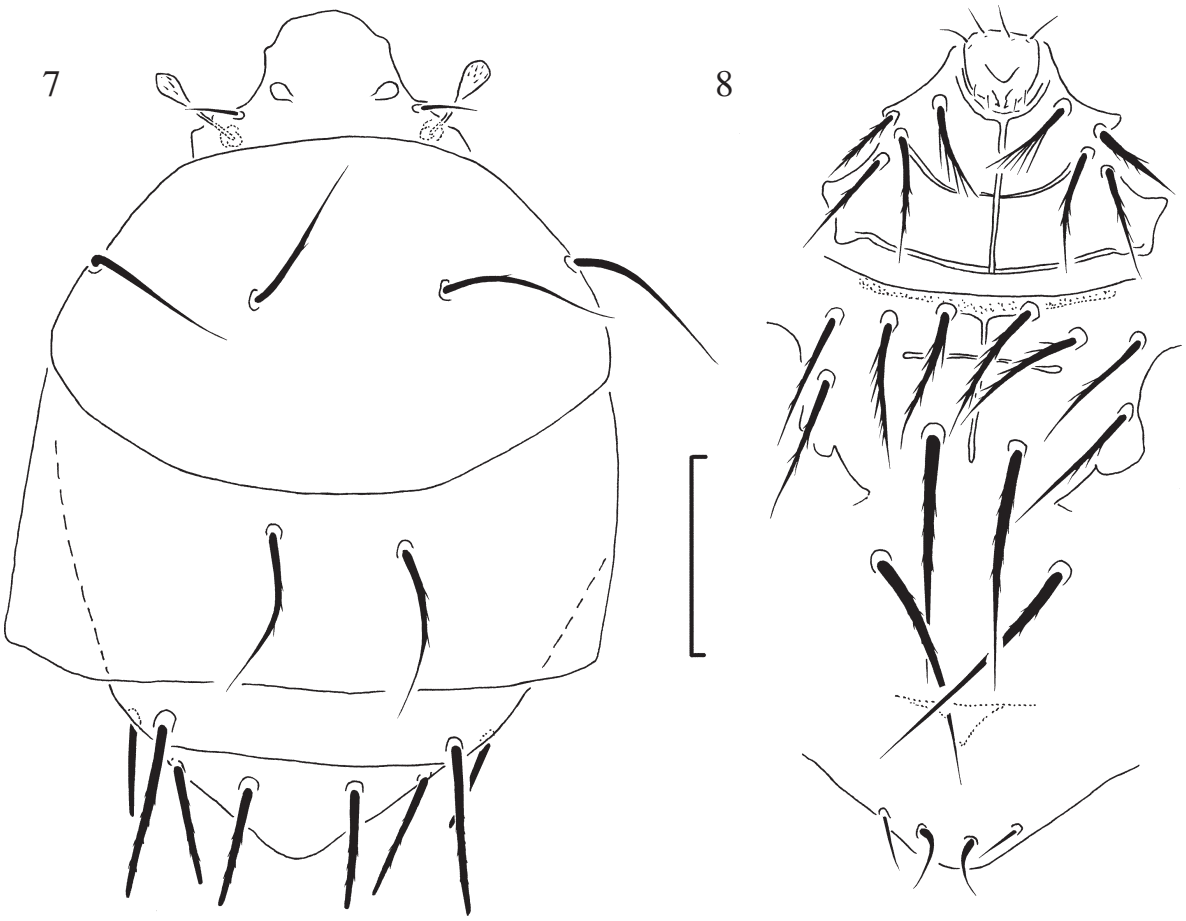
Allopygmephorus bakaninae Khaustov et Ermilov sp. n.

Figs 7–12.

Description. Female. Idiosomal length 178 (194), width 146 (135).

Idiosomal dorsum (Fig. 7). All tergites smooth. Dorsal setae *d*, *f*, h_1, and h_2 weakly barbed. Dorsal setae *e*,*f*, h_1, h_2 blunt-ended, setae v_2, c_1, c_2, *d* sharply pointed. Length of dorsal setae: v_2 18 (16), c_1 40 (43), c_2 50 (52), *d* 40 (39), *e* 29 (24), *f* 47 (40), h_1 34 (30), h_2 34 (33). Distances between dorsal setae: v_2–v_2 44 (38), c_1–c_1 45 (44), c_1–c_2 41 (30), *d*–*d* 34 (30), *e*–*f* 13 (10), *f*–*f* 74 (67), h_1–h_1 27 (25), h_1–h_2 20 (18).

Idiosomal venter (Fig. 8). Ventral setae barbed, except for smooth ps_1 and ps_3. Setae 1*a* with very long barbs. Apodemes 3 distinct, but weakly sclerotized. Apodemes 4 short, reaching setae 3*b*. Apodemes 5 absent. Setae ps_1 distinctly thickened and curved. Length of ventral setae: 1*a* 26 (24), 1*b* 22



Figs 7–8. *Allopygmephorus bakaninae* sp. n., female: 7 — dorsum, 8 — venter, scale bar 50 μm.

(20), 2*a* 35 (32), 2*b* 34 (30), 3*a* 40 (35), 3*b* 35 (34), 3*c* 32 (29), 4*a* 53 (57), 4*b* 62 (64), 4*c* 40 (39), ps_1 18 (20), ps_3 17 (19).

Legs (Figs. 9–12). Leg I (Fig. 9): Tr1 – Fe3 – Ge4 – TiTa 16 (4). Tibiotarsus I with large claw, solenidia ω_1 9 > ω_2 5 < φ_1 8 (6) = φ_2 7 (6). Solenidion ω_1 finger-shaped, characteristically curved. Solenidion φ_1 baculiform. Solenidia ω_2 and φ_2 uniformly thin. Leg II (Fig. 10): Tr 1 – Fe 3 – Ge 3 – Ti 4 (1) – Ta 6 (1), solenidion ω 20 (19) very long, thin. Tarsi II–III with slightly asymmetrical claws. Leg III (Fig. 11): Tr 1 – Fe 2 – Ge 2 – Ti 4 (1) – Ta 6. Leg IV (Fig. 12): Tr 1 – Fe 2 – Ge 1 – Ti 4 (1) – Ta 6, setae v″ on tibia and *v′* on genu IV blunt-ended, other setae on leg IV sharply pointed.

Male, non-phoretic female, and larva unknown.

Type material. Female holotype, slide # SE240 307, RUSSIA, Nizhniy Novgorod distr., Volodarskiy reg., near railway station «421 km», in wet soil near water, 24 March 2007 Ermilov S. G, paratype: 1 female with same data as holotype.

Type depositories. Holotype deposited at the collection of the Department of Acarology, Shmalgausen Institute of Zoology, Kiev, Ukraine; one paratype in the collection of Nikita Botanical Gardens, Yalta, Ukraine.

Etymology. The new species is named after F.M. Bakanina, the well known soil scientist from Nizhniy Novgorod, for her constant support of pedobiological investigations of the junior author.

Differential diagnosis. The new species most similar to *A. matthesi* (Krczal, 1959) but differs by the distinctly blunt-ended setae *f* (pointed in *A. matthesi*) and by the characteristically curved and thick solenidion $\omega_1$on the tibiotarsus I (finger-shaped, not thickened, not curved in *A. matthesi*).

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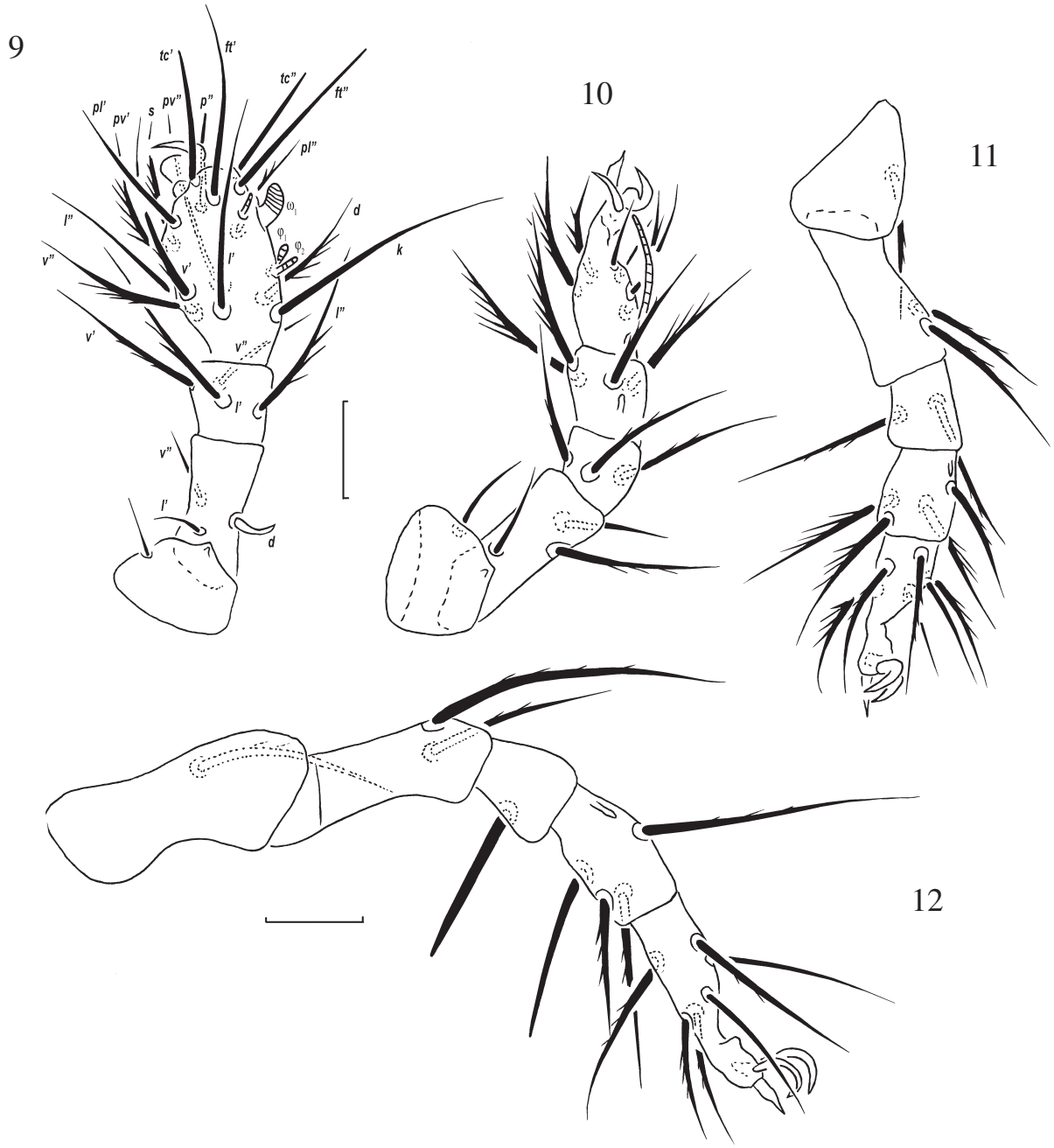

Figs 9–12. *Allopygmephorus bakaninae* sp. n., female legs I–IV, respectively, scale bar 20 μm.