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Two new species of Caligonellidae (Acari: Raphignathoidea) from Western Siberia, Russia

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Original research

ABSTRACT

Female, male, deutonymph and protonymph of *Molothrognathus altaicus* **n. sp.**, and female and deutonymph of *Neognathus sibiriensis* **n. sp.** (Caligonellidae) are described from soil from Altai Republic and Tyumen Region, respectively.

Keywords Prostigmata; mites; *Neognathus*; *Molothrognathus*; systematics; morphology

Zoobank <http://zoobank.org/B6FC7B64-7DC1-4B67-80A3-69F693015950>

Introduction

The family Caligonellidae is a small group of predatory prostigmatid mites, which comprises 5 genera and about 60 species distributed almost worldwide, except Australia and Antarctica (Beron 2020; Khaustov 2021). The caligonellid mites of Asian part of Russia are completely unstudied.

The genus *Molothrognathus* Summers and Schlinger, 1955 comprises 29 described species (see Khaustov 2021).

The genus *Neognathus* Willmann, 1952 comprises 14 valid species: *N. insolitus* Willmann, 1952 (Germany), *N. terrestris* (Summers and Schlinger, 1955) (Canada, Hungary, Iran, Russia, Turkey, USA), *Neognathus spectabilis* (Summers and Schlinger, 1955) (Canada, Hungary, Iran, Latvia, Russia, USA), *N. orientalis* Soliman, 1971 (Egypt), *N. cinis* Chaudhri, Akbar and Rasool, 1979 (Pakistan), *N. eupalopus* Smith Meyer and Ueckermann, 1989 (South Africa, Turkey), *N. davei* Smith Meyer and Ueckermann, 1989 (South Africa), *N. jielui* Hu and Yu, 1995 (China), *N. linanensis* Hu, 1995 (China), *N. ozkani* Akyol and Koç, 2012 (Turkey), *N. pusillus* Doğan and Doğan, 2019 (Turkey), *N. rijabicus* Nazari, Khanjani and Kamali, 2013 (Iran), *N. sinaei* Samadpour, Khanjani and Asalifayaz, 2014 (Iran), and *N. ueckermanni* Bagheri, Doğan and Haddad Irani-Nejad, 2010 (Iran, Turkey) (Beron 2020). *Neognathus harteni* Ueckermann, 2008 (UAE) should belong to the genus *Paraneognathus* Fan, 2000 in having characteristic ω-shaped peritremes and presence of two setae on palpfemur (always one in *Neognathus*).

During the study of predatory mites of Russia, two new species, *Molothrognathus altaicus* **n. sp.** and *Neognathus sibiriensis* **n. sp.** were collected from soil in Altai Republic and Tyumen Region, respectively. The aim of this paper is to describe and illustrate these new species.

Material and methods

Mites were collected from the soil samples by Berlese-Tullgren funnels. Collected mites were mounted in Hoyer's medium. Notation applied to the body and leg setae follow that of Grandjean's system, overviewed by Kethley (1990) and Norton (1977) applied to Caligonellidae by Swift (2001); palpal setation follows Grandjean (1946). Mite morphology was studied using

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an AxioImager A2 compound microscope (Carl Zeiss, Germany) with phase-contrast and differential interference contrast (DIC) illumination. Photomicrographs were taken with an AxioCam ICc5 digital camera. All measurements are given in micrometers (μm) for holotype and available paratypes (in parentheses). For leg chaetotaxy, the number of solenidia is given in parentheses.

Results Systematics

Family Caligonellidae Grandjean

Genus *Molothrognathus* Summers and Schlinger, 1955

Type species: *Molothrognathus leptostylus* Summers and Schlinger, 1955, by original designation

Molothrognathus altaicus n. sp.

Zoobank: [111B34FE-B677-4708-865C-45AAC830DD79](https://zoobank.org/111B34FE-B677-4708-865C-45AAC830DD79)

(Figures 1–6)

Diagnosis

Female. Dorsal shield absent, three pairs of aggenital setae, setae *sce* and *c2* much longer than *c1* and other prodorsal setae, seta *p''* of tarsus II absent.

Description

Female (Figs 1–3) — Length of idiosoma 335 (310–360), width 210 (155–210).

Idiosomal dorsum (Fig. 1A) — Ovate. Dorsal idiosomal striae thin, usually double; dorsal shield absent. Two pairs of ocelli located posterolaterad setae *sci*, anterior ocellus slightly smaller than posterior. Cupuli *ia*, *im* and *ip* large, almost round; *ia* located just posteromesad posterior ocellus, *im* anterolaterad *d*, and *ip* anterolaterad *f*. All dorsal idiosomal setae smooth and pointed; setae *c2* much longer than *c1* and *sci* and slightly shorter than *sce*; setae *f*, *h1* and *h2* much longer than *c1*, *d* and *e*. Anal valves located dorsoterminal, with two pairs of pseudanal setae. A pair of longitudinal, almost parallel rows of tiny subcuticular sclerites situated laterad setae *c1* and *d*. Lengths of dorsal setae: *vi* 26 (24–25), *ve* 25 (23–24), *sci* 26 (23–25), *sce* 83 (77–84), *c1* 22 (21–22), *c2* 66 (57–61), *d* 20 (18–20), *e* 29 (25–26), *f* 64 (59–62), *h1* 53 (48–51), *h2* 54 (51–53), *ps1* 14 (11–12), *ps2* 13 (10–12).

Idiosomal venter (Fig. 1B) — Ventral idiosoma striated, without plates. All ventral setae smooth and pointed. Three pairs of aggenital and one pair of genital setae; cupuli *ih* located anterolaterad *g*. A pair of almost parallel rows of small subcuticular sclerites situated laterad setae *4a*; two pairs of tiny subcuticular sclerites located just posteriad coxal fields II. Lengths of ventral setae: *1a* 37 (34–36), *1b* 29 (26–27), *1c* 24 (22), *2c* 26 (23–26), *3a* 41 (36–37), *3b* 28 (24), *4a* 31 (28–30), *4c* 29 (25–28), *agl* 33 (29), *ag2* 24 (20), *ag3* 12 (11), *g* 27 (26–27).

Gnathosoma (Fig. 2) — Stylophore subtriangular, split distally, longitudinally striated, its width 43 (42–44); peritremes tubular, typical for the genus; peritremes inside with fine striae; cheliceral levers large, oval. Palpal supracoxal setae (*ep*) located in deep depression with terminal pore; palpal chaetotaxy: Tr 0, Fe 1 (*d*), Ge 1 (*d*), Ti 3 (*d*, *l'*, *l''*), Ta 7(1) (*ba*, *bp*, *va*, *acm* ζ , *ul'* ζ , *ul''* ζ , *sul* ζ , *o*); tibial claw large, slightly hooked; all palpal setae smooth, eupathidia *acm* ζ , *ul'* ζ , *ul''* ζ , *sul* ζ distinctly widened distally, with four subapical flat lobes, other palpal setae pointed. Subcapitulum smooth; all subcapitular setae smooth, and pointed; lengths of subcapitular setae: *m* 46 (41–43), *or1* 9 (7–9), *or2* 7 (6–7), length of palptarsal solenidion ω 4 (3–4).

Legs (Fig. 3) — Lengths of legs (excluding claws): I 225 (210–230), II 150 (150–160), III 170 (165–170), IV 185 (180–190). Leg I (Fig. 3A) longer than other legs. Leg setation: Tr 1

Figure 1 *Molothrognathus altaicus* n. sp., female: A – idiosomal dorsum, B – idiosomal venter.

(v'), Fe 2 (d, bv''), Ge 6 (d, l', l'', v', v'', k), Ti 5(2) (d, l', l'', v', v'', ϕ , $\phi\phi$), Ta 16(1) (ft', ft'', tc' ζ , tc'' ζ , p' ζ , p'' ζ , it', a', a'', u', u'', vs, pv', pv'', pl', pl'', ω). Supracoxal seta of leg I (el) located in deep depression with terminal pore; seta k of genu situated in shallow depression; all leg setae smooth; setae (tc) and (p) eupathid-like, blunt-tipped, other leg setae pointed; solenidion ω 8 (8) digitiform, solenidia ϕ 3 (3) and $\phi\phi$ 9 (9–10) baculiform. Leg II (Fig. 3B). Leg setation: Tr 1 (v'), Fe 2 (d, bv''), Ge 5 (d, l', l'', v', v''), Ti 5 (d, l', l'', v', v''), Ta 10(1) (ft', tc', tc'', it'', a', a'', u', u'', pv', pv'', ω). All leg setae smooth and pointed; seta p' ζ absent; solenidion ω 7 (7) digitiform. Leg III (Fig. 3C). Leg setation: Tr 1 (v'), Fe 2 (d, ev'), Ge 2 (d, v'), Ti 4 (d, l'', v', v''), Ta 9 (tc', tc'', it', a', a'', u', u'', pv', pv''). All leg setae smooth and pointed. Leg IV (Fig. 3D). Leg setation: Tr 1 (v'), Fe 2 (d, ev'), Ge 2 (d, v'), Ti 4 (d, l'', v', v''), Ta 9 (tc', tc'', it', a', a'', u', u'', pv', pv''). All leg setae smooth and pointed.

Male (Fig. 4) — Idiosoma narrower posteriorly than in female. Length of idiosoma 250–270, width 120–135.

Idiosomal dorsum (Fig. 4A) — Striation similar with that of female, except presence of pygidial shield with setae h1 and f. Setae d and e distinctly longer than in female; setae h1 and ps1 very short, weakly blunt-tipped. Lengths of dorsal setae: vi 20, ve 20–21, sci 22–23, sce 69–73, c1 18–19, c2 56–57, d 36–37, e 54–58, f 40–41, h1 2–3, h2 42–43, ps1 2, ps2 5–6. Aedeagus well sclerotized, long, thickened in central part.

Idiosomal venter (Fig. 4B) — Ventral idiosoma completely striated. Two pairs of aggenital

Figure 2 *Molothrognathus altaicus* n. sp., female: A – gnathosoma, dorsal aspect, B – subcapitulum.

setae; genital setae absent. Other characters as in female. Lengths of ventral setae: *la* 25–29, *lb* 20–21, *lc* 19, *2c* 20–21, *3a* 30, *3b* 19–23, *4a* 19–20, *4c* 20–22, *ag1* 21, *ag2* 30.

Gnathosoma as in female. Width of stylophore 32–35, lengths of setae: *m* 35–38, *or1* 6–7, *or2* 5–6, length of palptarsal solenidion ω 3–4.

Legs as in female. Lengths of legs: I 170–180, II 120–125, III 130–140, IV 130–150. Solenidia ω I 7, ϕ 2, ϕp 6–7, ω II 3–4, seta *k* 4.

Deutonymph (Fig. 5) — Length of idiosoma 315, width 180.

Idiosomal dorsum (Fig. 5A) — Similar with that of female. Lengths of dorsal setae: *vi* 23, *ve* 20, *sci* 22, *sce* 73, *c1* 20, *c2* 56, *d* 19, *e* 22, *f* 55, *h1* 48, *h2* 48, *ps1* 9, *ps2* 10.

Idiosomal venter (Fig. 5B) — Similar with that of female, except absence of genital opening and genital setae. Lengths of ventral setae: *la* 31, *lb* 23, *lc* 19, *2c* 21, *3a* 32, *3b* 25, *4a* 24, *4c* 21, *ag1* 21, *ag2* 27, *ag3* 10.

Gnathosoma as in female. Width of stylophore 38, lengths of setae: *m* 37, *or1* 8, *or2* 6, length of palptarsal solenidion ω 4.

Legs as in female. Lengths of legs: I 190, II 130, III 150, IV 160. Solenidia ω I 7, ϕ 2, ϕp 8, ω II 4, seta *k* 4.

Protonymph (Fig. 6) — Length of idiosoma 195–265, width 100–160.

Idiosomal dorsum (Fig. 6A) — Similar with that of female. Lengths of dorsal setae: *vi*

Figure 3 *Molothrognathus altaicus* n. sp., female: A-D – right legs I-IV respectively, dorsal aspect.

Figure 4 *Molothrognathus altaicus* n. sp., male: A – idiosomal dorsum, B – idiosomal venter. Striation of soft cuticle not illustrated.

16–18, *ve* 17–19, *sci* 17–18, *sce* 66–68, *c1* 16, *c2* 45–46, *d* 16, *e* 20, *f* 45–48, *h1* 42, *h2* 39, *ps1* 10, *ps2* 10.

Idiosomal venter (Fig. 5B) – Similar with that of female, except absence of genital opening and setae *4a*, *4c*, *ag2*, *ag3* and *g*. Lengths of ventral setae: *1a* 26–27, *1b* 19–20, *1c* 16, *2c* 18, *3a* 27, *3b* 16–18, *ag1* 18.

Gnathosoma as in female. Width of stylophore 31–33, lengths of setae: *m* 27, *or1* 6, *or2* 5, length of palptarsal solenidion ω 3.

Legs I–III as in female. Lengths of legs: I 155, II 110–115, III 125, IV 130–135. Solenidia ω I 6, ϕ 2, ϕp 5–6, ω II 3, seta *k* 4. Leg IV without setae *v'* of trochanter, *d* of femur and genu and *it'* of tarsus.

Type material

Female holotype, slide ZISP T-Cal-03, Russia, Altai Republic, Kosh-Agach, 1765 m a.s.l., 49°57'35.4" N 88°43'04.8" E, 15 July 2021, in dry soil in the steppe, coll. A.A. Khaustov. Paratypes: 3 females, 5 males, 1 deutonymph, 4 protonymphs, same data.

Type deposition

The holotype, one female and one male paratypes of the new species are deposited in the acarological collection of the Zoological Institute of RAS, St. Petersburg, Russia; paratypes are

Figure 5 *Molothrognathus altaicus* n. sp., deutonymph: A – idiosomal dorsum, B – idiosomal venter. Striation of soft cuticle not illustrated.

deposited in the mite collection of the Tyumen State University Museum of Zoology, Tyumen, Russia.

Etymology

The name of the new species refers to geographical distribution in Altai.

Differential diagnosis

Female of the new species is most similar to *M. bahariensis* Ueckermann and Khanjani, 2003, *M. azizi* Ueckermann and Khanjani, 2003, *M. saudiensis* Halawa, 2013 and *M. fulgidus* Summers and Schlinger, 1955 in having setae *sce* longer than other prodorsal setae, in absence of dorsal idiosomal shield, and in presence of seta *ag3*. The new species differs from *M. bahariensis* in having setae *c2* shorter than *sce* (subequal in *M. bahariensis*), in having setae *c2* (57–66), *sce* (77–84) and *f* (59–64) much shorter (*c2* 113–142, *sce* 101–139, *f* 91–123 in *M. bahariensis*). The new species differs from *M. azizi* in having setae *c2* shorter than *sce* (subequal in *M. azizi*), in having setae *f* longer than *h1* (*f* shorter than *h1* in *M. azizi*), and in having 16 setae on tarsus I (15 in *M. azizi*). The new species differs from *M. saudiensis* in having nine setae on tarsi III

Figure 6 *Molothrognathus altaicus* n. sp., protonymph: A – idiosomal dorsum, B – idiosomal venter. Striation of soft cuticle not illustrated.

and IV (eight in *M. saudiensis*), 10 tactile setae on tarsus II (nine in *M. saudiensis*) and much shorter setae *ve* (23–25) and *sci* (23–26) (*ve* 50–60, *sci* 53–59 in *M. saudiensis*). The new species differs from *M. fulgidus* in having setae *f* much longer than *e* (*e* and *f* subequal in *M. fulgidus*).

Genus *Neognathus* Willmann, 1952

Type species: *Neognathus insolitus* Willmann, 1952, by original designation

Neognathus sibiriensis n. sp.

Zoobank: 14E92361-B739-49CB-874B-2603EC02F309

(Figures 7–11)

Diagnosis

Female. Cupuli *ia* well developed, tarsi III and IV with eight setae each (*vs* present), genu III with two setae, tarsus IV without solenidion, tibia IV with solenidion, palpgenu with one seta, stylophore without lateral projections, peritremes with four pairs of segments, two pairs of pseudanal setae, with small area of transverse striae anteromesad setae *c1*.

Description

Female (Figs 7-10) — Length of idiosoma 255 (255–290), width 140 (140–165).

Idiosomal dorsum (Figs 7A, 10A) – Ovate. Dorsal idiosomal striae thin; small area of transverse striae situated anteromesad setae *c1* (Figs 7A, 10A). Dorsal setae smooth, pointed. Cupuli *ia*, *im* and *ip* large, almost round; *ia* located posterolaterad *c1*, *im* anterolaterad *e*, and *ip* anterolaterad *f*. Anterior part of longitudinal rows of small sclerites curved medially anteriad setae *c1*. Lengths of dorsal setae: *vi* 9 (9–11), *ve* 12 (10–14), *sci* 14 (14–15), *sce* 12 (12–14), *c1* 12 (12–13), *c2* 12 (12–14), *d* 11 (10–13), *e* 11 (11–13), *f* 11 (11–12), *h1* 10 (10–12), *h2* 14 (13–15).

Idiosomal venter (Fig. 7B) – All ventral setae smooth and pointed. Four pairs of aggenital and two pairs of genital setae; cupuli *ih* located anteriad *ag4*. Anal valves with two pairs of pseudanal setae. Two longitudinal groups of tiny sclerites situated between setae *4a* and *ag1*. Lengths of ventral setae: *1a* 22 (20–23), *1b* 19 (18–19), *1c* 19 (17–21), *2c* 20 (19–21), *3a* 21 (21–23), *3c* 19 (18–21), *4a* 19 (19–22), *4c* 18 (16–19), *ag1* 19 (18–21), *ag2* 16 (15–19), *ag3* 14

Figure 7 *Neognathus sibiriensis* n. sp., female: A – idiosomal dorsum, B – idiosomal venter.

Figure 8 *Neognathus sibiriensis* n. sp., female: A – gnathosoma, dorsal aspect, B – palptarsus, dorsal aspect, C – subcapitulum.

(14–16), *ag4* 12 (12–14), *gl* 17 (17–18), *g2* 16 (16–18), *ps1* 11 (11–13), *ps2* 12 (12–13).

Gnathosoma (Figs 8, 10B) – Stylophore width 40 (40–43); peritremes with four pairs of segments (Figs 8A, 10B); cheliceral stylets long, slightly curved; cheliceral levers poorly visible, about four times shorter than cheliceral stylets. Palpal supracoxal setae (*ep*) short, peg-like; palpal chaetotaxy: Tr 0, Fe 1 (*d*), Ge 1 (*d*), Ti 3 (*d*, *l'*, *l''*), Ta 8(1) (*ba*, *bp*, *lp*, *va*, *acmζ*, *ul'ζ*, *ul''ζ*, *sulζ*, *ω*); tibial claw well developed, slightly hooked; all palpal setae smooth, eupathidia *acmζ*, *ul'ζ*, *ul''ζ*, *sulζ* blunt-tipped, other palpal setae pointed. Subcapitulum with delicate striae in basal part; all subcapitular setae smooth and pointed; lengths of subcapitular setae: *m* 20 (19–23), *n* 35 (32–35), *or1* 13 (11–13), *or2* 13 (12–14), length of palptarsal solenidion *ω* 4 (3–4).

Legs (Fig. 9) – Lengths of legs: I 175 (175), II 130 (130–135), III 135 (130–135), IV 170 (160–170). Leg I (Fig. 9A). Leg setation: Tr 1 (*v'*), Fe 3 (*d*, *l'*, *bv''*), Ge 6 (*d*, *l'*, *l''*, *v'*, *v''*, *k*), Ti 5(2) (*dζ*, *l'*, *l''*, *v'*, *v''*, *φ*, *φp*), Ta 14(2) (*ft'ζ*, *ft''ζ*, *tc'ζ*, *tc''ζ*, *p'ζ*, *p''ζ*, *a'*, *a''*, *u'*, *u''*, *vsζ*, *pv'*, *pl'*, *pl''*, *ω1*, *ω2*). Supracoxal seta of leg I (*el*) peg-like; seta *k* of genu situated in shallow depression; all

Figure 9 *Neognathus sibiriensis* n. sp., female: A-D – right legs I-IV respectively, dorsal aspect.

Figure 10 DIC micrographs of *Neognathus sibiriensis* n. sp., female: A – prodorsum and anterior part of hysterosoma, B – gnathosoma, dorsal aspect.

leg setae smooth; setae *d* of tibia, (*ft*), (*tc*), (*p*) and *vs* of tarsus eupathid-like, blunt-tipped, with tiny subapical projections; other leg setae pointed; solenidion $\omega 1$ 7 (6–7) digitiform, solenidion $\omega 2$ 11 (10–11) baculiform and curved, solenidion ϕ 5 (4–5) digitiform, solenidion ϕp 8 (7–8) baculiform and curved, seta *k* 4 (3–4). Leg II (Fig. 9B). Leg setation: Tr 1 (*v'*), Fe 3 (*d*, *l'*, *bv''*), Ge 6 (*d*, *l'*, *l''*, *v'*, *v''*, *k*), Ti 5(1) (*d* ζ , *l'*, *l''*, *v'*, *v''*, ϕp), Ta 9(2) (*ft'*, *tc''* ζ , *tc''* ζ , *a'*, *a''*, *u'*, *u''*, *pv*, *vs*, $\omega 1$, $\omega 2$). All leg setae smooth; setae *d* of tibia and (*tc*) of tarsus eupathid-like, blunt-tipped, with tiny subapical projections; other leg setae pointed; solenidion $\omega 1$ 6 (6–7) digitiform, solenidion $\omega 2$ 8 (8–9) baculiform and curved, solenidion ϕp 7 (7) baculiform, seta *k* 3 (3). Leg III (Fig. 9C). Leg setation: Tr 2 (*l'*, *v'*), Fe 2 (*d*, *ev'*), Ge 2 (*d*, *v'*), Ti 4(1) (*d*, *l''*, *v'*, *v''*, ϕp), Ta 8(1) (*tc'*, *tc''*, *a'*, *a''*, *u'*, *u''*, *pv*, *vs*, ω). Solenidion ω 9 (9) digitiform, solenidion ϕp 6 (6–7) baculiform. All leg setae smooth and pointed. Seta *l''* of genu absent. Leg IV (Fig. 9D). Leg setation: Tr 1 (*v'*), Fe 2 (*d*, *ev'*), Ge 3 (*d*, *l''*, *v'*), Ti 4(1) (*d*, *l''*, *v'*, *v''*, ϕp), Ta 8 (*tc'*, *tc''*, *a'*, *a''*, *u'*, *u''*, *pv*, *vs*). Solenidion ϕp 8 (7–8) baculiform. All leg setae smooth and pointed. Solenidion ω on tarsus absent.

Deutonymph (Fig. 11) — Length of idiosoma 220, width 125.

Idiosomal dorsum as in female. Lengths of dorsal setae: *vi* 11, *ve* 12, *sci* 11-, *sce* 11, *c1* 11 *c2* 10, *d* 10, *e* 11, *f* 11, *h1* 11, *h2* 12.

Idiosomal venter (Fig. 11) – similar with that of female, except absence of genital opening and setae *ag3*, *ag4*, *gl* and *g2*. Lengths of ventral setae: *la* 18, *lb* 16, *lc* 15, *2c* 16, *3a* 17, *3c* 16, *4a* 18, *ag1* 16, *ag2* 14, *ps1* 11, *ps2* 9.

Gnathosoma – as in female, except absence of setae *n*. Width of stylophore 36, lengths of setae: *m* 31, *or1* 11, *or2* 11, length of palptarsal solenidion ω 4.

Legs – as in female. Lengths of legs: I 150, II 115, III 110, IV 135. Solenidia: ω I 7, ω II 8, ϕ I 4, ϕp I 8, ω III 6, ω II 7, ϕp II 6, ω III 8, ϕp III 6, ϕp IV 6; setae *k* I 3, *k* II 3.

Type material

Female holotype, slide ZISP T-Cal-04, Russia, Tyumen Region, vicinity of lake Kuchak, 57°20'00.5"N 66°03'01.4"E, 23 September 2021, in sandy soil, coll. A.A. Khaustov. Paratypes: 35 females, 1 deutonymph, same data.

Figure 11 *Neognathus sibiriensis* n. sp., deutonymph: opisthosomal venter.

Type deposition

The holotype and four female paratypes of the new species are deposited in the acarological collection of the Zoological Institute of RAS, St. Petersburg, Russia; other paratypes are deposited in the mite collection of the Tyumen State University Museum of Zoology, Tyumen, Russia.

Etymology

The name of the new species refers to its distribution in Siberia.

Differential diagnosis

The female of the new species is most similar to *Neognathus terrestris* in having large palptibial claw, absence of solenidion ω on tarsus IV, absence of lateral projections on stylophore, presence of two pairs of pseudanal setae, presence of well-developed cupuli *ia*, presence of three setae on femur I, presence of seta *k* on genu II and presence of seta *vs* on tarsi III and IV. The new species differs from *N. terrestris* by the presence of two setae on genu III (three in *N. terrestris*), by the presence of solenidion ϕp on tibia IV (absent in *N. terrestris*), and presence of only one seta on palpgenu (two in *N. terrestris*). The new species is also similar to *N. pusillus* by the absence of solenidion ω on tarsus IV, absence of lateral projections on stylophore, presence of two pairs of pseudanal setae, presence of well-developed cupuli *ia*, presence of three setae on femur I, presence of seta *k* on genu II, presence of solenidion ϕp on

tibia IV, and presence of seta *vs* on tarsi III and IV. The new species differs from *N. pusillus* in having well-developed palptibial claw (very small in *N. pusillus*), by the presence of two setae on genu III (three in *N. pusillus*), and by the presence of only one seta on palpgenu (two in *N. pusillus*).

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References

- Akyol M., Koç K. 2012. A new species and two records of the family Caligonellidae (Acari: Raphignathoidea) from Turkey. *Internat. J. Acarol.*, 38(1): 40-45. <https://doi.org/10.1080/01647954.2011.583275>
- Bagheri M., Doğan S., Haddad Irani-Nejad K., Kamali K., Khanjani M., Saboori A. 2010. A new species of the genus *Neognathus* Willmann (Acari: Prostigmata: Caligonellidae) from Northwest Iran. *Syst. Appl. Acarol.*, 15: 65-68. <https://doi.org/10.11158/saa.15.1.8>
- Beron P. 2020. *Acarorum catalogus VII: Trombidiformes, Prostigmata, Raphignathoidea* (Fam. Barbutiidae, Caligonellidae, Camerobiidae, Cryptognathidae, Dasythyreidae, Dytiscacaridae, Eupalopsellidae, Homocaligidae, Mecognathidae, Raphignathidae, Stigmaeidae, Xenocaligonellidae). Sofia: Pensoft, National Museum of Natural History, Sofia: Bulgarian Academy of Sciences. pp. 306. <https://doi.org/10.3897/ab.e55087>
- Chaudhri W.M., Akbar S., Rasool A. 1979. Studies on the predatory leaf inhabiting mites of Pakistan. USDA and Pakistan Agricultural Research Council. PL 480 Programme. Project No.PK-ARS 30: Agriculture University, Faisalabad, Pakistan, pp. 1-234.
- Doğan S., Doğan S. 2019. New record of an unusual caligonellid (Acari: Caligonellidae) species in Turkey: *Neognathus eupalopus* Meyer & Ueckermann, with the description of a new species. *Syst. Appl. Acarol.*, 24(7): 1162-1176. <https://doi.org/10.11158/saa.24.7.5>
- Fan Q.-H. 2000. A phylogenetic analysis of the family Caligonellidae (Acari: Prostigmata) with description of two new species. *Acta Entomol. Sin.*, 43: 421-428.
- Grandjean F. 1946. Au sujet de l'organe de Claparède, des eupathides multiples et des taenidies mandibulaires chez les Acariens actinochitineux. *Arch. Sci. Phys. Natur.*, 28: 63-87. [in French]
- Halawa A.M. 2013. A new species of *Molothrognathus* Summers and Schlinger (Prostigmata: Caligonellidae) from Saudi Arabia. *Acarines*, 7(2): 3-6. <https://doi.org/10.21608/ajesa.2013.163671>
- Hu C. 1995. A new species of the genus *Neognathus* Willmann (Acari: Caligonellidae). *Entomol. J. East Chin.*, 4(2): 11-13 [in Chinese].
- Hu C., Yu L. 1995. A new species of the genus *Neognathus* Willmann (Acari: Caligonellidae). *Acta Arachnol. Sini.*, 4(2): 96-98 [in Chinese].
- Kethley J. 1990. *Acarina: Prostigmata (Actinedida)*. In: Dindal, D.L., (Ed.). *Soil Biology Guide*. New York: John Wiley and Sons. p. 667-756.
- Khaustov A.A. 2021. Two new species of Caligonellidae (Acari: Raphignathoidea) from Crimea. *Acarologia*, 61(4): 910-927. <https://doi.org/10.24349/DZRV-GldY>
- Nazari A., Khanjani M., Kamali K. 2013. A new species of the genus *Neognathus* (Acari: Caligonellidae) from Iran. *Pers. J. Acarol.*, 2(3): 475-480.
- Norton R.A. 1977. A review of F. Grandjean's system of leg chaetotaxy in the Oribatei and its application to the Damaeidae. In: Dindal, D.L. (Ed.), *Biology of oribatid mites*. SUNY College of Environmental Science and Forestry, Syracuse, pp. 33-62.
- Samadpour M., Khanjani M., Asalifayaz B. 2014. *Neognathus sinaei* sp. nov. (Acari: Caligonellidae), a new species from western Iran. *Syst. Appl. Acarol.*, 19(2): 144-153. <https://doi.org/10.11158/saa.19.2.4>
- Smith Meyer M.K.P., Ueckermann E.A. 1989. African Raphignathoidea (Acari: Prostigmata). *Entom. Mem., Dep. Agric. Tech. Serv., RSA*, 74: 1-58.
- Soliman Z.R. 1971. Four new species of family Caligonellidae. *Bull. Soc. Entomol. Egypt.*, 55: 95-104.
- Summers F.M., Schlinger E.I. 1955. Mites of the family Caligonellidae (Acarina). *Hilgardia*, 23: 539-561. <https://doi.org/10.3733/hilg.v23n12p539>
- Swift S.F., 2001. The leg chaetotaxy of Caligonellidae (Prostigmata: Raphignathoidea). In: Halliday, R.B., Walter, D.E., Norton R.A. & Colloff, M.J. (Eds). *Acarology: Proceedings of the 10th International Congress*. Australia: CSIRO Publ. p. 242-249.
- Ueckermann E.A. 2008. Order Prostigmata, family Caligonellidae In: Van Harten, A. (ed.) *Arthropod fauna of the UAE, Dar Al Ummah*, 1: 33-38.
- Ueckermann E.A., Khanjani M. 2003. Iranian Caligonellidae (Acari: Prostigmata), with descriptions of two new species and re-description of *Molothrognathus fulgidus* Summers and Schlinger, with a key to genera and species. *Acarologia*, 43(1): 291-298.
- Willmann C. 1952. Die Milbfauna der Nordseeinsel Wangerooge. *Veröff. Inst. Meeresforsch. Bremerhaven*, 1: 139-186.