

PAULACARELLUS FAINI SP. N., A NEW SPECIES OF ACARID MITE
(ACARIFORMES: ACARIDAE) FROM THE RUSSIAN FAR EAST

BY P. B. KLIMOV *

TAXONOMY
ACARIDAE
RUSSIAN FAR EAST

SUMMARY: A new species, *Paulacarellus faini* sp. n. (Acariformes, Acaridae), collected in supralittoral zone of Bol'shoy Pelis Is. (Sea of Japan, Far Eastern Marine Reserve, Russia), is described.

TAXONOMIE
ACARIDAE
EXTRÊME ORIENT RUSSE

RÉSUMÉ : Une espèce nouvelle, *Paulacarellus faini* sp. n. (Acariformes, Acaridae), récoltée dans la zone supralittorale de l'Île Bolchoï Peliss (Mer du Japon, Réserve Maritime d'Extrême Orient, Russie) est décrite.

Up to now, the genus *Paulacarellus* Fain, 1977 has been known from a single species, *P. insularis* Fain, 1977, collected on seaweeds in the littoral zone of Saint Paul Is. (Indian Ocean) (FAIN, 1977). During an expedition to the Far Eastern Marine Reserve (Sea of Japan, Russia), a second species of this genus has been collected in a similar biotope. The description of new species is provided below. The terms for body parts and leg chaeto — and solenidiotaxy follow GRIFFITHS (1970); nomenclature for the idiosomal chaetotaxy follows GRIFFITHS *et al.* (1990); measurements of male tarsus IV follow ZACHVATKIN (1941). Measurements of the holotype are given in micrometers (μm), followed by those of the paratype in parenthesis.

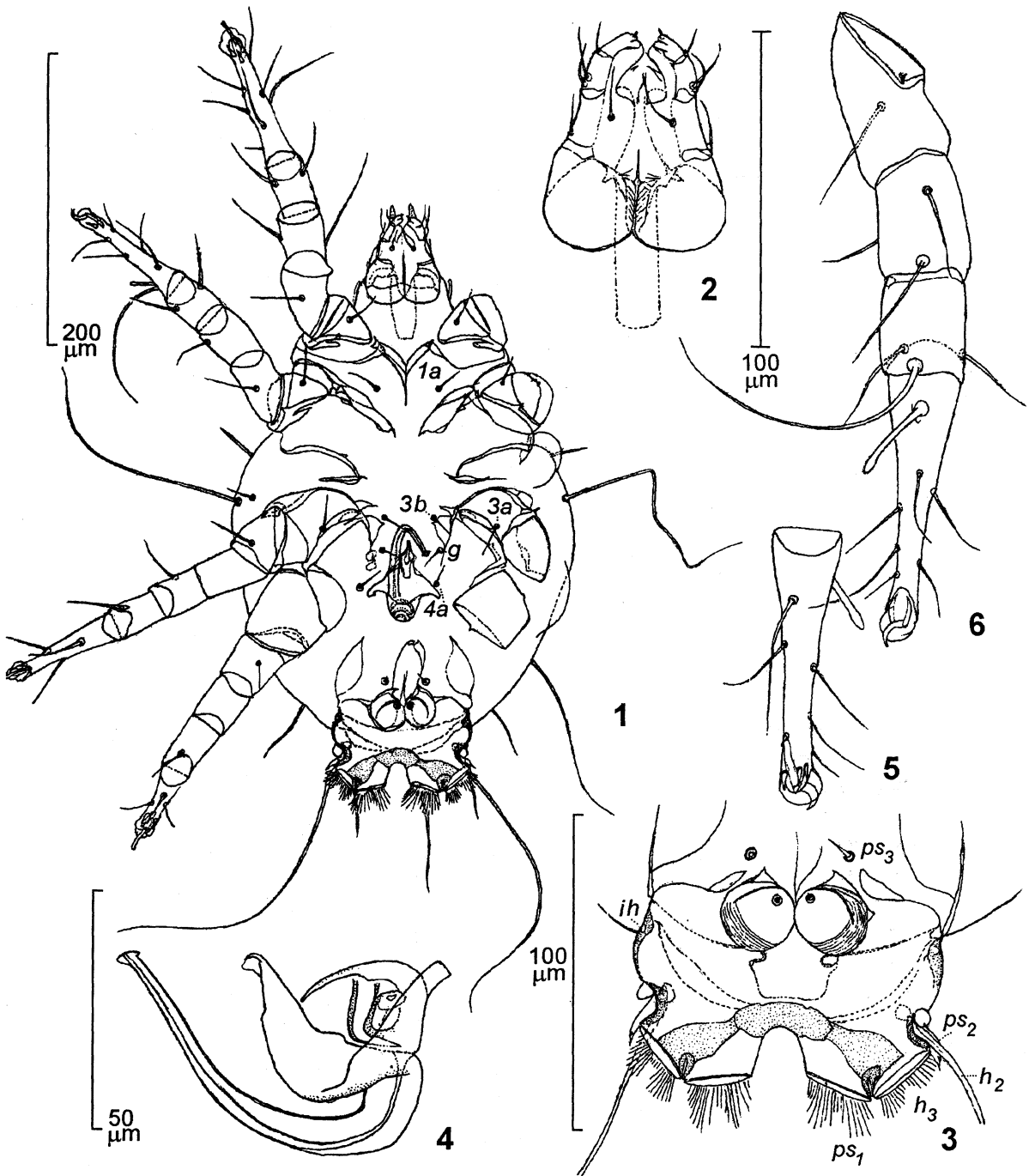
Family Acaridae Latreille, 1802
Subfamily Tyrophaginae Oudemans, 1923
Genus *Paulacarellus* Fain, 1977

Paulacarellus faini sp. n.

(Figs 1–13)

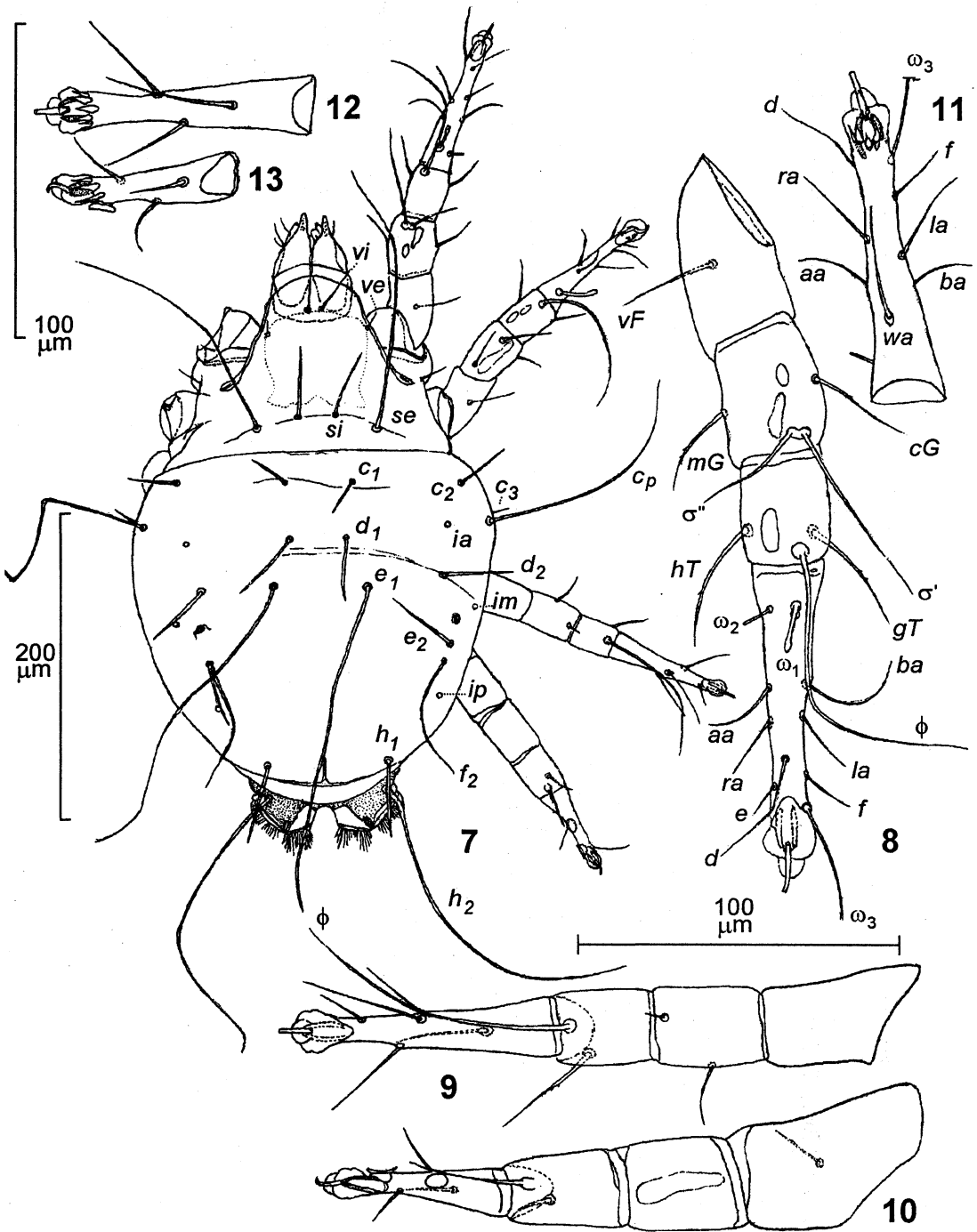
MALE: Total length with opisthosomal lobe 417 (442). Chelicera 67–69 (68–69). Infracapitulum 64×32 (at level of tarsal setae)–52 (maximal width at posterior part) (67×28 –52), with 5 pairs of comparatively long setae. Palpi 3-segmented, with weakly separated femoral palpomere (border between

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FIGS. 1-6: *Paulacarellus faini* sp. n. (male)

1. — Ventral view. 2. — Infracapitulum, ventral view. 3. — Anal region, ventral view. 4. — Penis. 5. — Leg II, dorsal view. 6. — Tarsus II, ventral view. (figs 1-3, 5-6, holotype; 4 paratype.)



FIGS. 7-13: *Paulacarellus faini* sp. n. (holotype male)

7, Dorsal view. 8, Leg I, dorsal. 9, Leg III, dorsal. 10, Leg IV, dorsal. 11. — Tarsus I, ventral. 12. — Tarsus III, ventral. 13. — Tarsus IV, ventral.

femur-genu weakly visible). Gnathosomal setae: anterior 10–13 (12), lateromedial 13 (13), dorsomedial 19–21 (17) and posterior ones (*e* after HAMMEN, 1982) 12–19 (-). Sclerotized wall of pharynx comparatively long, 49×15 (36×12). Idiosoma 372×242 (395×245). *ve* short, 3 (3) times shorter than *vi*, smooth, placed at anterior angles of weakly visible propodosomal shield. *si* 4 (4) times shorter than *se*, placed slightly anteriorly to latter. *scx* 15–16 (15), short, needle-like, smooth. Grandjean's organ simple, not toothed. Length of idiosomal setae: *vi* 38 (32–35), *ve* 10–11 (10–13), *si* 47–49 (47), *se* 187 (177–187), *c₁* 31 (29–30), *c₂* 40 (40–44), *c₃* 17–18 (26), *cp* 156–172 (199), *d₁* 44–46 (45–46), *d₂* 48–50 (44), *e₁* 219–321 (222–228), *e₂* 42 (41–44), *f₂* 91–92 (~108), *h₁* 67–68 (185), *h₂* 221–230 (242), *ps₂* 19–20 \times 3 (16×5), *ps₃* 10 (11–12), *la* 20–24 (21–23), *3a* 17–18, *3b* 22 (24), *4a* 20 (23), *g* 14 (10). All idiosomal setae smooth. Longest hysterosomal setae are: *cp*, *e₁*, *h₂*, and occasionally *h₁* (paratype) (length of *h₁* variable). Bases of *e₂* and *f₂* close to each other. Distance between bases of other setae as follows: *vi-vi* 10 (9), *si-si* 27 (27), *se-se* 78 (76), *c₁-c₁* 47 (48), *d₁-d₁* 37 (41), *e₁-e₁* 60 (68), *h₁-h₁* 70 (78); distance between levels of bases: *c₁-d₁* 36 (33–38), *d₁-e₁* 35–37 (39–42). *ps₂* flattened, lanceolate, simple. Distinct opisthosomal shield absent. Stick-like median sclerite placed at level of *h₁* bases. Setae *h₃* and *ps₃* modified into opisthosomal lobe (Fig. 3). Opisthosomal lobe 23–25 \times 37–39 ($24-25 \times 43-43$), complicated, supported by several sclerites, incorporated with anal suckers (Fig. 3), and divided onto 2 lobes. Each lobe bearing 4 groups of setae-like processes (2 groups correspond 1 seta); measurements of these groups of setae (from inner to outer): 16–17 \times 7–8 ($15-17 \times 7-9$), 15 \times 7–8 ($15-17 \times 7$), 9–10 \times 10–12 (10×10), 9–10 \times 6–9 ($10-11 \times 10-12$). Genital papillae 7 \times 5 (anterior), 5 \times 4 (posterior). Genital apparatus 59 \times 51. Penis 67 (67), protruding from anterior edge of genital apparatus, with slightly but abruptly widened tip and characteristic concentric rings at base (seen ventrally); distal diameter of penis 3 and 5 at end and just posteriorly, respectively (3, 5), proximal diameter 10 (8). Channel of penis near ventral side along distal 3/4 of penis length; located approximately at middle in proximal 1/4; penis narrowed proximally and distally, but distal end abruptly widened (Fig. 4). Anal suckers 25–30 \times 22–23

(31 \times 23–25), contiguous. Sternum 26 (29), epimerites II 52–53 (54–55), epimeres II–IV: 49 (48–49), 52–53 (54), 57–59 (57–58), respectively. Proximal ends of epimeres III and IV contiguous.

LENGTH OF LEGS I–IV: 225–227 (216–217), 195–199 (195), 206 (189–199), 186 (183), respectively. Length of podomeres (femur-tarsus) of legs I–IV: 50–41–35–96 (52–40–35–89), 44–38–32–83 (52–38–33–83), 48–32–27–81 (48–35–31–79), 54–35–37–58 (58–35–36–52) (right side); 52–42–35–99 (54–39–35–92), 50–37–36–86 (50–39–35–80), — (-), 57–35–37–55 (—) (left side). Length of tarsi I–IV with claw: 103 (94–96), 84–86 (82–84), 84 (84), 61 (59). Length of leg setae: *sR* I 21–22 (20), *sR* II 22 (22), *sR* III 21–23 (22), *vFI* 36–38 (36–38), *vF* II 36–41 (38–42), *vF* IV 20–27 (28), *cGI* 32–35 (37), *cG* II 26–28 (27), *mGI* I 34–38 (38), *mGI* II 25–27 (~25–30), *nG* III 27 (28), ' I 68–69 (65), " II 32–34 (44–46), II 38 (38–44), III 6 (8), *gTI* 39 (37–39), *gT* II 36–37 (37–39), *gT* III 41 (41–42), *gTIV* ~27–33 (30), *hTI* I 36–41 (40), *hT* II 38 (36–44), I 105 (99), II ~94–99 (96–106), III 96 (~86), IV 32 (~23–28), 1 I 18–19 (19), 1 II 25 (23–24), 2 10–14 (10–11), 3 36 (27–28), 4 (5–6), *aa* 25–26 (28), *ba* I 32 (31–44), *ba* II 25 (27), *la* I 30–31 (29–30), *la* II 31–24 (31–32), *ra* I 26–35 (33), *ra* II ~20–35 (32), *ra* III 30 (22), *ra* IV 12–16 (17), *wa* I 30–47 (49), *wa* II 37–49 (42), *wa* III 39 (39), *wa* IV 31 (35), *d* I ~52–53 (49), *d* II ~37–39, *d* III 39 (36), *e* I 12–15 (13–16), *e* II 25–26 (16), *e* III 26 (15–18), *f* I 18–20 (19–24), *f* II 14–15 (20–21), *f* III 33 (33), *f* IV ~16 (24). All leg setae long, setiform, some (usually on genua-tibiae I–II) finely serrate, spines beside ventroapical on tarsi (*u*, *s*, *v*, *q*, *p*) absent. I–II comparatively long, IV setiform. Tarsus I: 1 almost straight, slightly widened at base, bases of almost touching 1; 2 at transverse level of 1; *e* setiform; 3 protruding from apex of claw; *ba* setiform, approximately at middle of tarsus; *aa* and *ba* on same transverse level. Tarsus IV: ab 22 (20), cd 8–11 (6), ef 12–15 (7). Leg formula: 1-1-2 + (2)-2 + (1)-13 + (3 + 1), 1-1-2 + (1)-2 + (1)-12 + (1), 1-0-1 + (1)-1 + (1)-10, 0-1-0-1 + (1)-10.

Variations. Additional internal solenidion (length 6) is developed on left genu of paratype male.

FEMALES AND HYPOPI: Unknown.

ACKNOWLEDGEMENTS

DIAGNOSIS: *Paulacarellus faini* sp. n. is closely related to *Paulacarellus insularis* Fain, 1977 but differ as follows (characters of *P. insularis* in parenthesis):

1) *ve* short, 10–13, 2.6–3.4 times shorter than *vi* (longer, 18, *vi/ve* 2.2); 2) *c*₃ short, 17–26; clearly shorter than anterior edge of coxa III (longer, 34–32, longer than anterior edge of coxa III); 3) *sR* II short, 22, not or almost reaching posterior edge of coxae III (longer, 35–37, protruding from posterior edge of coxae III); 4) 1 and touching each other (remote, distance between them approximately equal to length of); 5) *c*₁ slightly longer than distance between levels of *c*₁ and *d*₁, $c_1-d_1/c_1 = 1.1-1.3$ (shorter or almost equal, $c_1-d_1/c_1 = 0.9-1.0$); 6) *d*₁ protruding from bases of *e*₁, $d_1/d_1-e_1 = 1.1-1.3$ (not protruding, $d_1/d_1-e_1 = 0.6-0.8$); 7) On tarsus I, *aa* and *ba* placed on same transverse level (*ba* placed distally of *aa*, approximately at level of *la*). Characters 5–7 should be verified when more material is available.

TYPES: Holotype (marked by ink arrow): Λ – Primorskiy kray, Far Eastern Marine Reserve, Rimskogo-Korsakova Is., Bol'shoy Pelis Is., sea debris (mainly *Zostera*), leaves of *Quercus mongolica* Fischer ex Turczaninow and *Q. dentata* Thunberg (Fagales, Fagaceae), 5 Jun. 1999 (P. KLIMOV leg.); Paratype: Λ – on same slide as holotype. Holotype and paratype are deposited in the Institute of Biology and Pedology (Vladivostok, Russia).

ETYMOLOGY: The specific name is dedicated to Dr A. Fain (Antwerp, Belgium), who described the genus *Paulacarellus*.

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