

DESCRIPTION OF A NEW WATER MITE SPECIES OF THE GENUS *LEBERTIA* NEUMANN  
(ACARIFORMES: LEBERTIIDAE) FROM NORTHEAST OF RUSSIA

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[Тузовский П.В. Описание нового вида водяного клеща рода *Lebertia* Neumann (Acariformes, Aturidae) с Северо-Востока России] Institute for Biology of Inland Waters, Russian Academy of Sciences, Borok, Nekouzskii District, Yaroslavl Province, 152742, Russia. E-mail: tuz@ibiw.yaroslavl.ru

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**Key words:** *Lebertiidae*, *Lebertia remotus*, water mites, new species, female, male

**Ключевые слова:** *Lebertiidae*, *Lebertia remotus*, новый вид, водяные клещи, самка, самец

**Summary.** A new water mite *Lebertia remotus* sp.n. from running waters of the Northeast of Russia is described and illustrated in both sexes.

**Резюме.** Иллюстрированное описание самки и самца водяного клеща *Lebertia remotus* sp.n. (самка, самец) из проточных водоемов Северо-Востока России.

### INTRODUCTION

The purpose of the present paper is to describe female and male of the new water mite species *Lebertia remotus* sp.n. The materials were collected by author in mountain streams of the Magadan Province and Kamchatka.

### MATERIALS AND METHODS

Specimens (9 females, 5 males) were not fixed in Koenike liquid, but slides were made from the fresh material. Most specimens were not dissected, thus preserving the natural shape of the body. For several females and males larvae the gnathosoma was mounted in a position that allowed investigating chelicerae and pedipalp in a lateral view. All mites were mounted in Hoyer's medium. The type material is deposited in the collection of Institute for Biology of Inland waters (Borok, Russia).

Idiosomal setae are named according to Tuzovskij [1987]. Furthermore, the following abbreviations are used: P-1–5: pedipalp segments (trochanter, femur, genu, tibia and tarsus); I-Leg. 1–6: first leg, segments 1–6 (trochanter, basifemur, telofemur, genu, tibia and tarsus), i.e. III-Leg. 4 = genu of third leg; Cx-1–4, coxal plates or coxae I–IV; L – length; n = number of specimens measured. The length of appendage segments was measured along their dorsal side; all measurements are given in  $\mu\text{m}$ .

Family *Lebertiidae* Thor, 1900

Genus *Lebertia* Neuman, 1880

*Lebertia (Mixolebertia) remotus* Tuzovskij, sp. n.

Figs 1–12.

**Type series.** Holotype female, slide 2420, Russia, Magadan Province, Olskij District, brook (inflow of the Ola River) near settlement Ola, depth 0.3–0.5 m, substrates: stones, sand and mosses, 1.06.1979, leg. P.V. Tuzovskij. The holotype is deposited in the collection of Institute for Biology of Inland Waters (Borok, Russia). Paratypes (8 females, 5 males): 1 male from the same locality as holotype; 1 female and 2 males, Magadan Province, Snow Valley near Magadan-City, Medvezhij brook, depth 0.2–0.5 m, substrates: stones, sand and mosses, 30.05.1979; 2

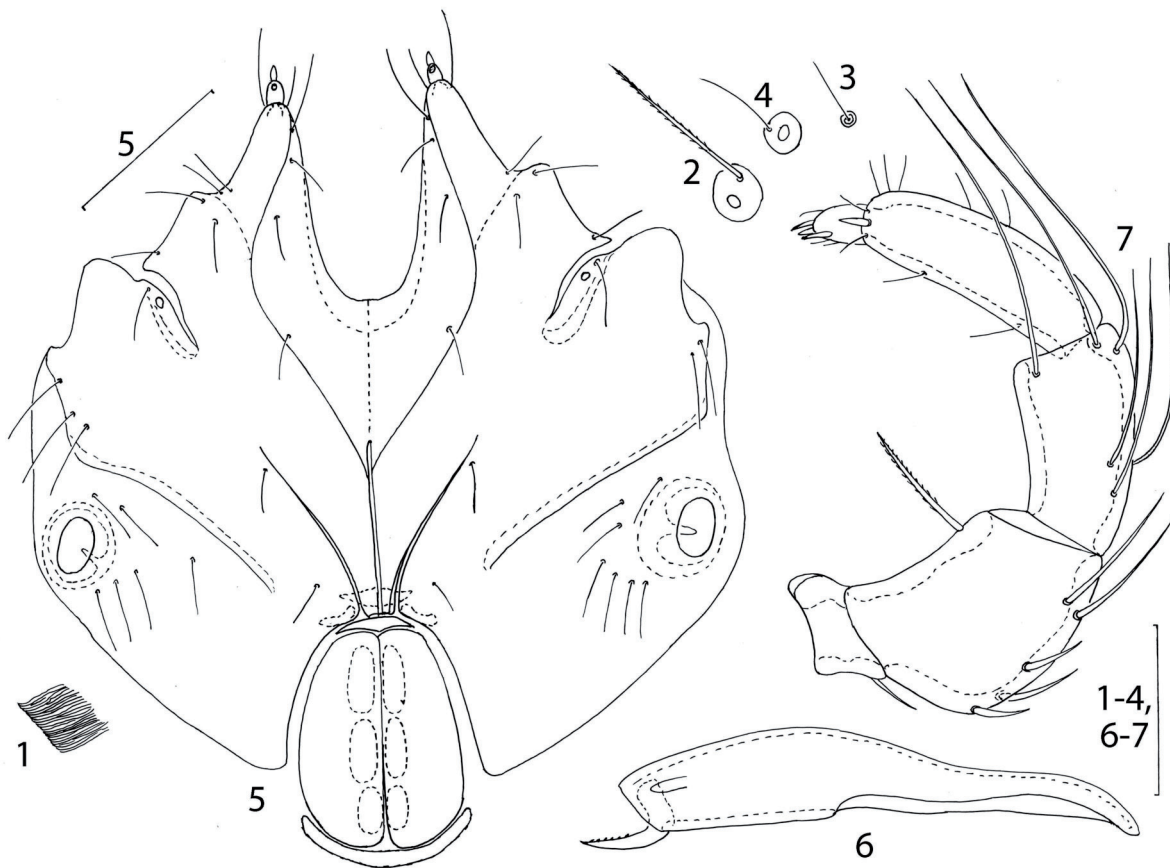
males and 4 females, *ibid.*, 17.06.1979.

**Additional materials.** 2 females, Magadan Province, Chukotka, Beringovskij District, Taalavaren stream (inflow of the Khatyrka River), 03.09.1987; 1 female, Russia, Kamchatka, Ust'-Kamchatskij District, outflow stream from the lake Azhabachje, 24.07.1983.

**Diagnosis.** Adults. Color red, integument striated, coxal shield approximately as long as wide, setae Fch without ramus, glandularia Pe well developed with one hyaline projection each; median portion of Cx-I slightly longer than suture line between Cx-II, posterior margin of Cx-II narrow, posteromedial corners of Cx-IV right-angled or slightly acute; P-3 with 6 setae (3 relatively short proximal setae and 3 long distal setae, distomedial seta close to distodorsal seta), P-4 relatively short and nearly straight, bases of two ventral setae divided P-4 into three unequal sectors (1–2–1 or 2–4–3), P-2 and P-4 subequal on length; legs without swimming setae, IV-Leg.1 with 3 dorsal spines, IV-Leg.6 without ventral spine-like setae near middle of segment; female: coxal plates embracing the genital field to about 1/3–1/4, each genital flap with 17–22 medial and 1–3 lateral setae; male: coxal plates embracing the genital field to about 1/5, each genital flap with 38–45 medial and 5–9 lateral setae.

**Description.** Both sexes. Color red, integument striated (Fig.1). The number and position of idiosomal setae and lyriform organs typical for the genus *Lebertia*. Setae Fch (Fig. 2) longer and thicker than other idiosomal setae. Trichobothria Fp, Oi and setae Pi without glandularia (Fig. 3), other idiosomal setae associated with glandularia (Fig. 4).

Coxal shield (Fig. 5) approximately as long as wide and occupying more than half of idiosoma length. Cx-I fused to each other completely, fragment of suture line between them distinctly visible only in posterior portion. Median portion of Cx-I slightly longer than suture line between Cx-II (L median Cx-I/Cx-II ratio = 1.10–1.50). Posterior margin of Cx-II narrow with short pointed apodemes directed laterally. Suture line between coxal plates III and IV incomplete. Posterior margin of coxal plates IV convex, forming with medial margin right-angled or slightly acute posteromedial corner. External genital field with



Figs 1–7. *Lebertia remotus* sp. n., female: 1 – fragment of integument, lateral view, 2 – seta *Fch*; 3 – seta *Oi*; 4 – seta *Oe*; 5 – idiosoma, ventral view; 6 – chelicera, 7 – pedipalp, lateral view. Scale bars: 1–4, 6–7 = 100  $\mu\text{m}$ , 5 = 200  $\mu\text{m}$ .

Рис. 1–7. *Lebertia remotus* sp. n., самка: 1 – фрагмент покрова, боковой вид, 2 – щетинка *Fch*; 3 – щетинка *Oi*; 4 – щетинка *Oe*; 5 – идиосома, вентральная сторона; 6 – хелицера, 7 – педипальпа, боковой вид. Шкалы: 1–4, 6–7 = 100  $\mu\text{m}$ , 5 = 200  $\mu\text{m}$ .

3 pairs acetabula, anterior genital sclerite considerably smaller than posterior one. Anterior two pairs of acetabula approximately subequal in size and longer than the posterior pair, total length of all acetabula smaller than the length of flap. Excretory pore unsclerotized.

Basal segment of chelicera large, with convex dorsal and concave ventral side (Fig. 6). Cheliceral stylet short, with two rows of fine dorsal teeth.

Trochanter of pedipalp (Fig. 7) with 1 distodorsal seta. Pedipalpal femur with concave ventral and convex dorsal margin, distoventral seta shorter than ventral margin of segment; with five dorsal setae, two distal setae longer than proximal ones. Pedipalpal genu with three relatively short proximal setae (occasionally one proximal seta absent) and three long distal setae (distomedial seta close to distodorsal seta). Pedipalpal tibia relatively short (P-4 and P-2 subequal in length), with straight ventral margin, the bases of two ventral setae divided tibia into three unequal sectors (1–2–1 or 2–4–3); distolateral spine on tibia thick and pointed, subequal to 1/2 of tarsus length.

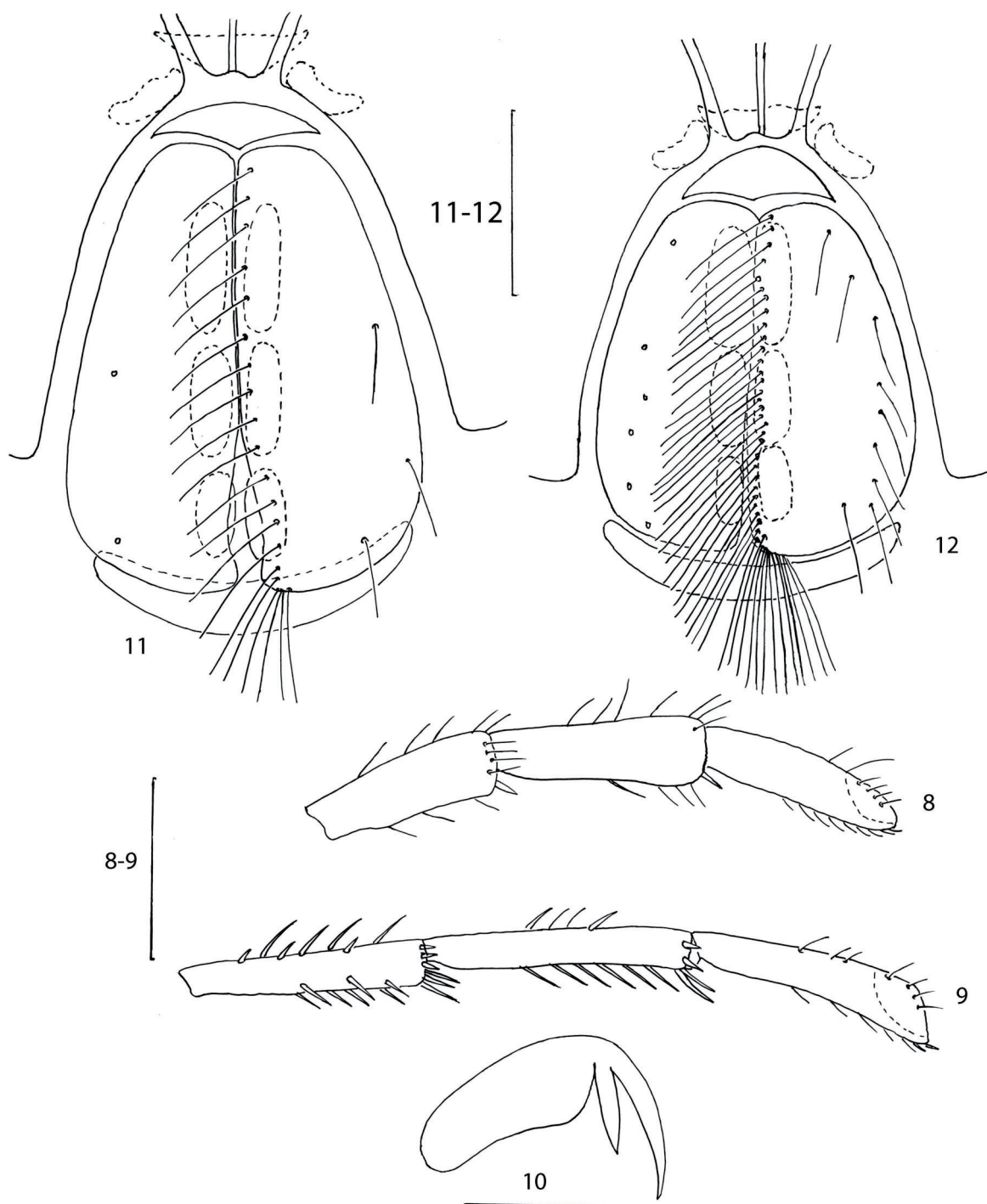
Legs without swimming setae. Terminal segments of legs I with short and mainly fine setae (Fig. 8). Tarsi of legs II–IV slightly expanded distally (Fig. 9); IV-leg.1 with 1 dorsoproximal spine and 2 dorsodistal spines, last considerably larger than dorsoproximal spine; IV-Leg.6 without spine-like ventral setae near middle of segment,

with only short, thin ventral setae in distal half of segment. Claws (Fig. 10) with moderately developed blade and two clawlets: short interior and long exterior, both clawlets with acute tips; claw blade with concave ventral margin.

**Female.** Coxal plates embracing the genital field to about 1/3–1/4 (Fig. 5), genital flaps elongate (ratio length/width 1.6–2.1), each genital flap with 17–22 medial and 1–3 lateral setae (Fig. 11).

Measurements (n=9). Length of body 1020–1400; length of seta *Fch* 100–115; length of coxal shield 685–785, width 680–775; length of median suture of coxal plates I 185–220, length of median suture of coxal plates II 135–165; length of capitular bay 170–200, length of genital bay 150–170; length of genital flaps 185–255, width 80–90; length of genital acetabula (ac. 1–3): 65–72, 55–65, 38–48; length of capitulum 220–240; length of basal segment of chelicera 240–260, length of cheliceral stylet 48–57; length of pedipalpal segments (P-1–5): 40–48, 105–115, 105–125, 130–140, 40–42; length of leg segments: I-Leg.1–6 – 90–105, 130–165, 120–155, 170–220, 185–245, 170–220; II-Leg.1–6 – 90–125, 155–195, 120–165, 200–270, 240–320, 225–270; III-Leg.1–6 – 95–115, 170–205, 145–190, 245–300, 270–360, 265–325; IV-Leg.1–6 – 195–230, 180–230, 205–245, 285–350, 315–400, 305–345.

**Male.** Coxal plates embracing the genital field to about 1/5 (Fig. 12), genital flaps elongate (ratio length/width 1.8–



Figs 8–12. *Lebertia remotus* sp. n., adults: 8 – genu, tibia and tarsus of leg I; 9 – genu, tibia and tarsus of leg IV; 10 – claw of leg IV; 11 – genital field of female, 12 – genital field of male; 8–11 – female, 12 – male. Scale bars: 8–10 = 200  $\mu$ m, 11–12 = 100  $\mu$ m.

Рис. 8–12. *Lebertia remotus* sp. n., взрослые клещи: 8 – колено, голень и лапка ноги I, 9 – колено, голень и лапка ноги IV; 10 – коготок ноги IV; 11 – генитальное поле самки, 12 – генитальное поле самца; 8–11 – самка, 12 – самец. Шкалы: 8–9 = 200  $\mu$ m, 10 = 50  $\mu$ m, 11–12 = 100  $\mu$ m.

2.5), each genital flap with 38–45 medial and 5–9 lateral setae.

Measurements (n=9). Length of body 975–1385; length of seta Fch 105–120; length of coxal shield 675–750, width 665–735; length of median suture of coxal plates I 185–215, length of median suture of coxal plates II 150–170; length of capitular bay 170–200, length of genital bay 150–170; length of genital flaps 185–255, width 80–90; length of genital acetabula (ac. 1–3): 65–72, 45–55, 30–42; length

of capitulum 220–245; length of basal segment of chelicera 240–270, length of cheliceral stylet 48–57; length of pedipalpal segments (P-1–5): 40–48, 115–140, 115–140, 115–145, 32–40; length of leg segments: I-Leg.1–6 – 90–100, 135–165, 120–140, 170–215, 185–220, 175–205; II-Leg.1–6 – 80–105, 150–180, 130–145, 210–260, 240–285, 225–260; III-Leg.1–6 – 90–105, 160–180, 145–165, 225–285, 275–310, 260–300; IV-Leg.1–6 – 160–190, 170–215, 185–235, 270–325, 285–360, 260–325.

**Differential diagnosis.** The new species is very similar to *Lebertia sokolowi* Tuzovskij et Semenchenko, 2009, from which it is easy distinguishable by the structure of pedipalps, the shape of setae Fch and the structure of coxal plates III and IV. The adults of *L. sokolowi* are characterised by the following features: seta Fch with short ramus near its base, suture line between coxal plates III and IV complete, distance between ventral setae on P-4 shorter than the length of distal portion of the segment [Tuzovskij & Semenchenko, 2009]. In contrast, in adult *L. remotus* seta Fch without ramus near its base, suture line between coxal plates III and IV incomplete obliterated medially, distance between ventral setae on P-4 longer than length of distal portion of the segment.

**Habitat.** Running waters.

**Distribution.** Asia (Russia: Magadan Province and Kamchatka Province).

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