

DESCRIPTION OF A NEW WATER MITE SPECIES OF THE GENUS *HYDRYPHANTES* KOCH (ACARI, HYDRACHNIDIA, HYDRYPHANTIDAE) FROM RUSSIA

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ABSTRACT: A description of the male, female and deutonymph of a new water mite species *Hydryphantes samaricus* from Russia is given.

KEY WORDS: Hydryphantidae, *Hydryphantes samaricus*, water mite, new species, male, female, deutonymph, standing waters

INTRODUCTION

In materials of water mites from the National Park “Samara Luka” (Russia, Samara Province), I found a new species of the genus *Hydryphantes* Koch, 1841, which is described below.

MATERIALS AND METHODS

Mites were sampled with a regular hand net, 250 µm mesh size. Fresh specimens were mounted directly in Hoyer’s medium, without fixation in Koenike liquid.

The nomenclature of idiosomal setae follows Tuzovsky (1987). 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); ac1–3 — genital acetabula (first, second, third); L — length, W — width; n = number of specimens measured. The length of appendage segments was measured along their dorsal side. All measurements are given in micrometers (µm).

Family Hydryphantidae Piersig, 1896

Genus *Hydryphantes* Koch, 1841

Hydryphantes samaricus Tuzovskij, sp. n.

Figs 1–17

Type material. Holotype: female, slide 6848, Russia, Samara Province, National natural Park “Samara Luka”, village Koltsovo, sedge bog, 28 May 1993, P.V. Tuzovsky. Paratypes: 6 females and 3 males in May 1993; 3 females and 2 males in May 1996, 9 females, 4 males and 3 deutonymphs in May–June 1997, 1 female, 2 males and 3 deutonymphs in May 1998, P.V. Tuzovsky. All paratypes were collected in the same sedge bog as the holotype. The holotype is deposited in the collection of Institute for Biology of Inland Waters (Borok, Russia).

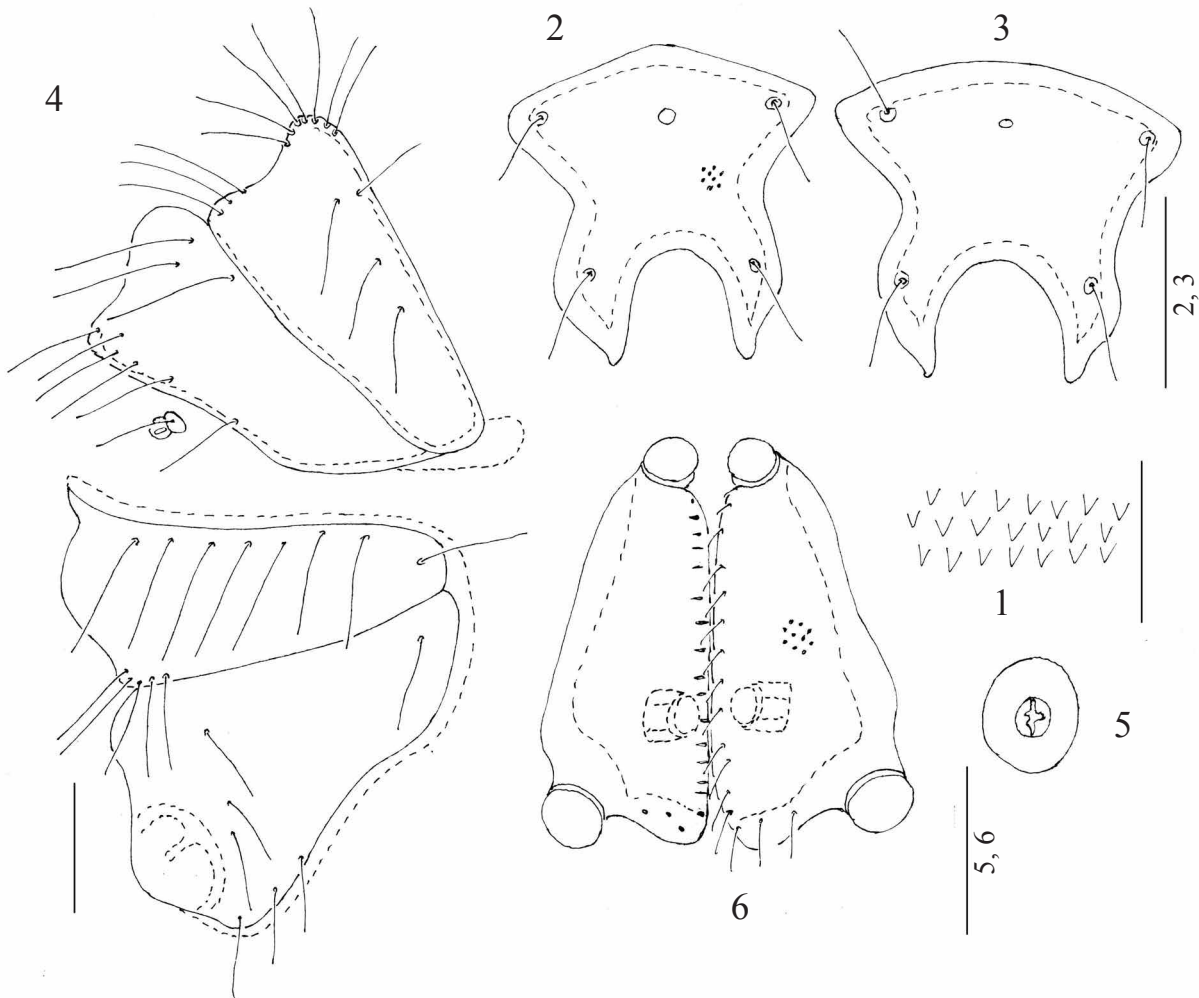
Diagnosis. Adults. Integument with conical papillae; frontal plate compact with obtuse-angled or convex anterior margin, concave posterior margin and long posterior projections, median eye situated at level of anterior setae of plate; coxal plates I–IV with a few long, fine setae each; P-3 with four dorsal setae; capitulum with short rostrum, capitular base slightly convex; acetabular plate elongate (L/W ratio 1.9–2.2); **female:** genital field with 15–18 setae on each side; **male:** genital field with 20–27 setae on each side; **deutonymph:** P-3 with 2 long setae, genital field with two pairs of subequal acetabula and four to five pairs of thin setae.

Description. Adults. Idiosoma soft oval, integument with short conical papillae (Fig. 1). Lateral eyes in capsules. Number and position of idiosomal setae typical for genus *Hydryphantes*. Frontal plate (Figs 2–3) compact with obtuse-angled or convex anterior margin, posterior margin concave, posterior projections long, median eye situated at level of anterior setae (Fp). Coxal plates I–IV with a few long, fine setae each (Fig. 4). Coxal plates I+II forming subcutaneous posteromedial extensions embracing gnathosomal bay, but medially separated by a membranous strip. Medial margins of coxal plates IV short. Excretory pore surrounded by true or oval sclerotized ring (Fig. 5).

Capitulum (Fig. 7) with short rostrum, capitular base slightly convex. Chelicera (Fig. 8) with large basal segment and rather long stylet.

Pedipalp stout (Fig. 9): P-1 with 3–4 short dorsodistal setae; P-2 with 10–14 short setae; P-3 usually with 4 (rarely 3 or 5) long dorsal setae; P-4 slightly tapering distally, with short dorsodistal spine and 3 thin distal setae.

Legs II–IV with swimming setae (Fig. 10). Leg swimming setae numbers: II–Leg-5, 5–8; III–Leg-3, 0–3; III–Leg-4, 7–10; III–Leg-5, 6–10;



Figs 1–6. *Hydryphantes samaricus* sp. n., female: 1 — fragment of integument, 2–3 — frontal plate; 4 — coxal plates, 5 — excretory pore, 6 — acetabular plates. Scale bars: 1 = 50 µm, 2–3 = 200 µm, 4–6 = 100 µm.

IV–Leg-3, 2–4; IV–Leg-4, 7–15; IV–Leg-5, 9–18. Leg claws hook-like, without claw lamella (Fig. 11).

Female. Acetabular plate elongate (L/W ratio 1.9–2.2), with 15–18 medial (rarely present 1–2 lateral) setae (Fig. 6).

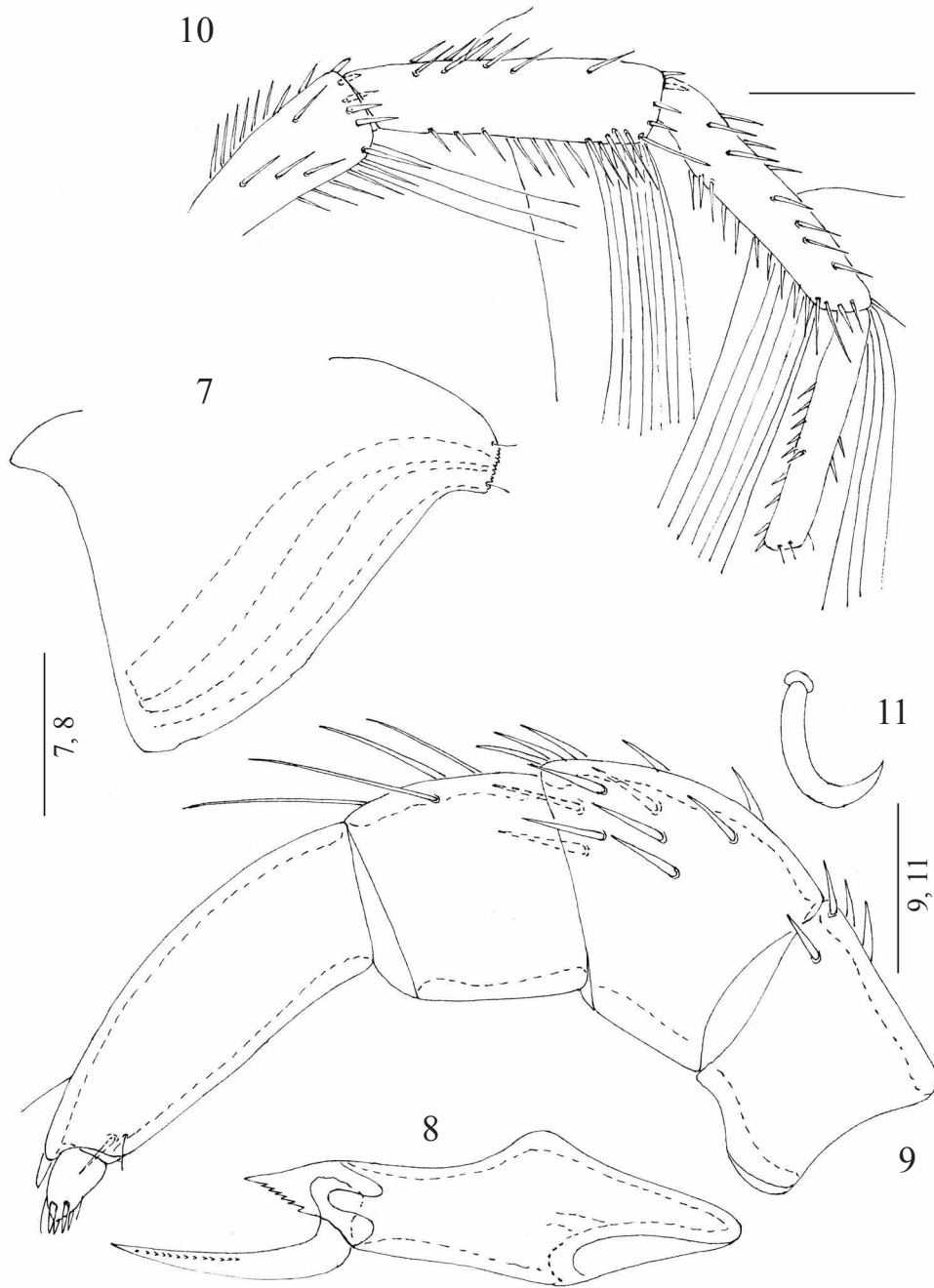
Measurements (n=10). Idiosoma L 1100–1310; coxal plates I+II L 210–260, W 260–350; coxae III+IV L 285–375, W 285–350; genital plate L 185–215, W 90–112; capitulum L 210–240; chelicera L 325–340, cheliceral stylet L 115–125; pedipalpal segments (P-1–5) L: 62–75, 100–112, 60–75, 135–150, 20–26; leg segments L: I–Leg-1–6: 75–85, 90–115, 110–125, 160–175, 175–200, 200–215; II–Leg-1–6: 75–85, 85–100, 125–150, 210–240, 250–280, 260–290; III–Leg-1–6: 75–85, 100–115, 125–150, 210–225, 250–275, 260–290; IV–Leg-1–6: 150–165, 135–165, 190–240, 300–350, 300–350, 260–290.

Male. The male is similar to the female, but smaller. Acetabular plate with more numerous

(20–27) and longer genital setae, especially in posterior half of plate.

Measurements (n=10). Idiosoma L 875–1090; coxal plates I+II L 185–215, W 210–250; coxae III+IV L 275–315, W 260–275; genital plate L 155–175, W 75–88; capitulum L 185–200; chelicera L 275–290, cheliceral stylet L 100–112; pedipalpal segments (P-1–5) L: 50–55, 80–90, 50–63, 115–130, 18–25; leg segments L: I–Leg-1–6: 75–80, 75–85, 100–115, 135–150, 160–180, 185–215; II–Leg-1–6: 75–80, 75–90, 110–125, 175–215, 225–250, 250–265; III–Leg-1–6: 75–80, 85–100, 110–140, 185–215, 210–250, 235–265; IV–Leg-1–6: 125–150, 110–140, 165–190, 260–300, 260–315, 235–265.

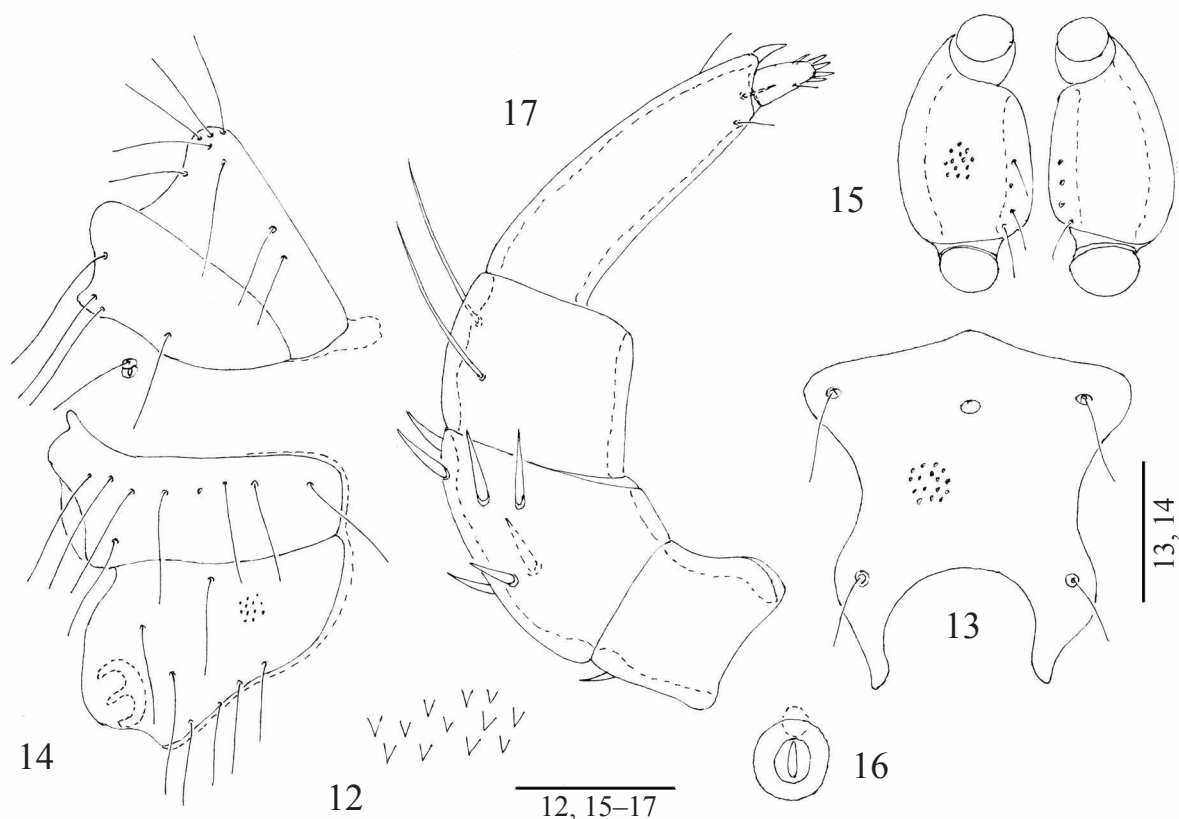
Deutonymph. Integument with conical papillae (Fig. 12). Frontal plate compact, anterior margin obtuse-angled or slightly convex, posterior projections rather long, frontal eye situated at level setae Fp (Fig. 13). Coxal plates I–IV with several long, fine setae each (Fig. 14). Coxal plates



Figs 7–11. *Hydryphantes samaricus* sp. n., female: 7 — capitulum, 8 — chelicera, 9 — pedipalp, 10 — IV-Leg-3–6, 11 — claw. Scale bars: 7–8 = 100 μ m, 9, 11 = 50 μ m, 10 = 200 μ m.

I+II with small subcutaneous posteromedial extension on each side. Medial margins of coxal plates III well developed. Genital field (Fig. 15) with two pairs of subequal acetabula and four to five pairs of thin setae. Excretory pore surrounded by sclerotized ring (Fig. 16). Pedipalp similar to adults, but P-1 with single short seta, P-2 with 6–7 short setae and P-3 with 2 long setae (Fig. 17). Leg swimming setae numbers: II-Leg-5, 5–9; III-Leg-3, 1–2; III-Leg-4, 3–6; III-Leg-5, 9–11; IV-Leg-3, 2; IV-Leg-4, 7–11; IV-Leg-5, 8–11.

Measurements (n=6). Idiosoma L 800–940; coxal plates I+II L 175–190, W 200–210; coxae III+IV L 250–285, W 210–240; anterior genital acetabula D 25–29, posterior genital acetabula D 24–27; capitulum L 175–190; chelicera L 200–215, cheliceral stylet L 80–100; pedipalpal segments (P-1–5) L: 45–50, 73–76, 49–51, 110–115, 25–30; leg segments L: I-Leg-1–6: 65–75, 65–75, 75–80, 100–140, 125–150, 135–150; II-Leg-1–6: 65–75, 65=75, 75–90, 135–165, 165–215, 185–220; III-Leg-1–6: 65–75, 75–90, 85–105, 150–



Figs 12–17. *Hydryphantes samaricus* sp. n., deutonymph: 12 — fragment of integument, 13 — frontal plate, 14 — coxal plates, 15 — genital field, 16 — excretory pore, 17 — pedipalp. Scale bars: 12, 15–17 = 50 μ m, 13–14 = 100 μ m.

200, 185–240, 185–240; IV–Leg-1–6: 110–125, 100–125, 125–150, 200–265, 210–265, 185–225.

Differential diagnosis. The new species is closely related to *Hydryphantes planus* Thon, 1899 and *H. affinis* Sokolow, 1931. Lundblad (1962) and K.O. Viets (1978) considered *H. affinis* as a junior synonym of *H. planus*. The frontal plate in adults of *H. planus* has short posterior projections (Gerecke 1996; Di Sabatino et al. 2010), while the frontal plate of the new species has long posterior projections (Figs 2–3). The frontal plate in adults of *H. affinis* has relatively long extensions, the acetabular plates are long (256 μ m in the female and 210–230 μ m in the male), with numerous genital setae in the female (19–20 medial and 5–6 lateral) (Sokolow 1931); in contrast, the acetabular plates of the new species are relatively short (185–215 μ m in the female and 155–175 μ m in the male), with 15–18 medial genital setae in the female (Fig. 6).

The genital flaps of the deutonymph of *H. affinis* have 2–3 setae each (Sokolow 1931), while the genital flaps of the deutonymph of the new species have 4–5 setae (Fig. 15).

Etymology. The species epithet, *samaricus*, is derived from the province it was collected (Samara).

Habitat. Sedge bogs.

Distribution. Europe, Russia: Samara Province.

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