

**A NEW SPECIES OF THE WATER MITE GENUS *ATRACTIDES* KOCH  
(ACARIFORMES, HYDRACHNIDIA, HYGROBATIDAE)  
FROM THE EASTERN RUSSIA**

**P. V. Tuzovsky**

Institute for Biology of Inland Waters of the Russian Academy of Sciences, Borok, Yaroslavl Prov.,  
152742 Russia; e-mail: tuz@ibiw.yaroslavl.ru

ABSTRACT: A new water mite species, *Atractides kseniae*, inhabiting streams of the Russian Far East is described based on female and male.

KEY WORDS: water mites, Hygrobatidae, *Atractides kseniae*, new species, female, male, Far East of Russia

### INTRODUCTION

The genus *Atractides* Koch, 1837 comprises over 120 species distributed in the Western Palaearctic (Gerecke 2003). At present, more than 30 species of this genus are known from Russia (Sokolow 1940; Tuzovsky 1977, 2004, 2005, 2006, 2010a, 2010b, 2011). My investigations of the water mite fauna of the Far East of Russia have yielded one new species of this genus. The new species is described below.

### MATERIALS AND METHODS

The material was sampled with a common hand net 250 µm mesh size. Specimens were preserved in modified Koenike's solution and mounted in glycerine-gelatine on slides. Idiosomal chaetotaxy follows Tuzovsky (1987), nomenclature for legs setae follows Gerecke (2003).

The following abbreviations are used in the description: 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; S1, proximal sword seta on tibia of leg I; S2, distal sword seta on tibia of leg I; ac. 1-3, genital acetabula (anterior, median, posterior); L — length, W — width; n = number of specimens measured. Appendage segments were measured along their dorsal side; all measurements are given in micrometers (µm).

#### Family Hygrobatidae Koch, 1842

#### Genus *Atractides* Koch, 1837

#### *Atractides (Atractides) kseniae* Tuzovskij, sp. n.

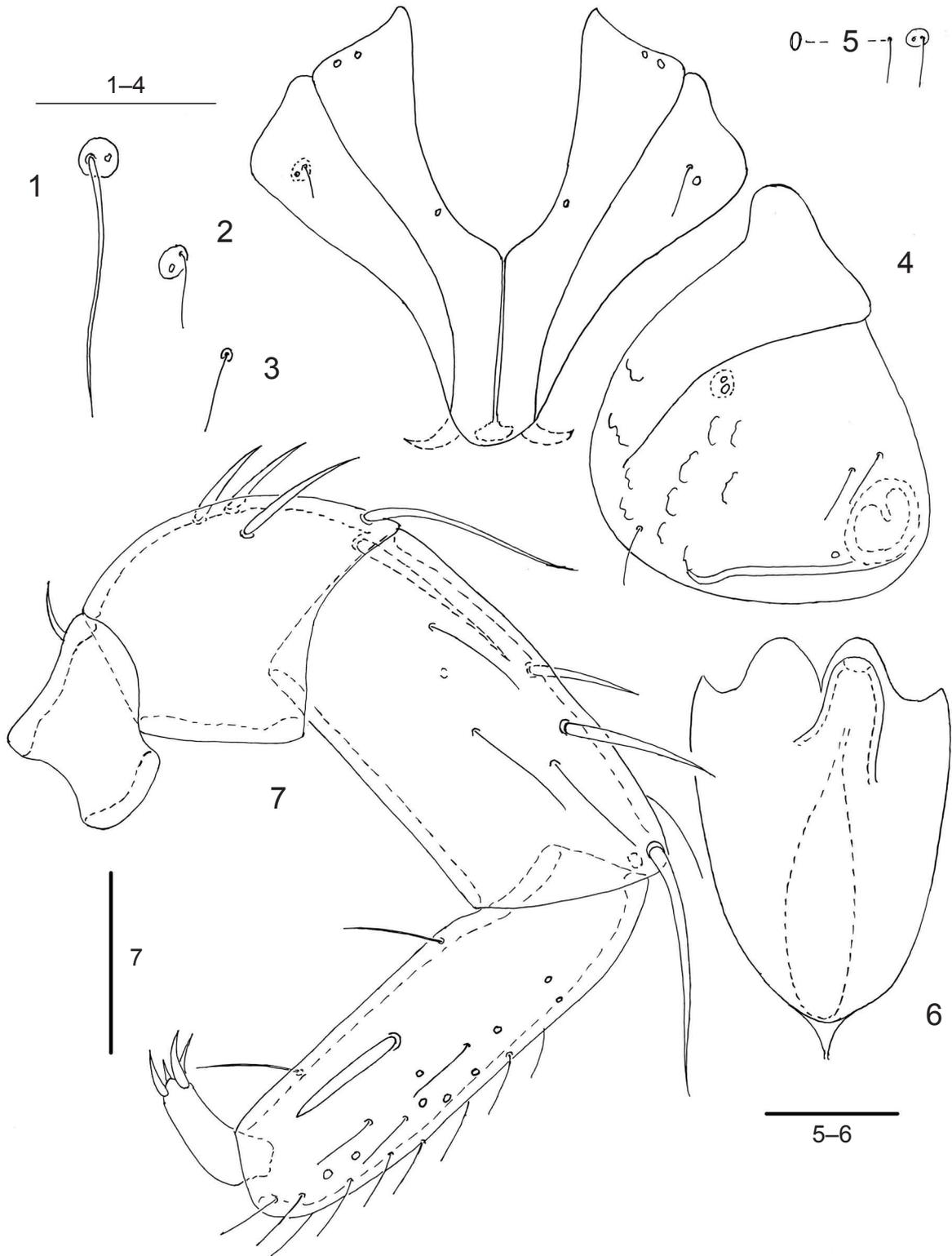
Figs 1-15

**Type material.** Holotype: female (IBIW 9556, Russia, Khabarovsk Territory, Amur basin, Arzan river, 19 October 2006, leg. N.M. Yavorskaya, V.V. Kharitonov, V.A. Galagan. The holo-

type is deposited in the collection of Institute for Biology of Inland Waters (Borok, Russia). Paratypes: one male (IBIW 9554), Khabarovsk Territory, Amur basin, Barachan river, 19 October 2006, leg. N.M. Yavorskaya, V.V. Kharitonov, V.A. Galagan.

**Diagnosis.** Adults: I-Leg-6 strong curved dorsoventrally; central sub-dermal projection very small, transverse and not reaching posterior margin of coxal plates I. Female: genital plates elongate (L/W ratio 2.9); genital acetabula arranged in arc; posterior acetabulum larger than median or anterior acetabula; P-4 ventral margin divided by 2 ventral setae as 2:3:1; Male: P-2 with widely rounded ventrodistal protrusion, without protuberance; P-4 ventral margin divided by 2 ventral setae as 3:1:3.

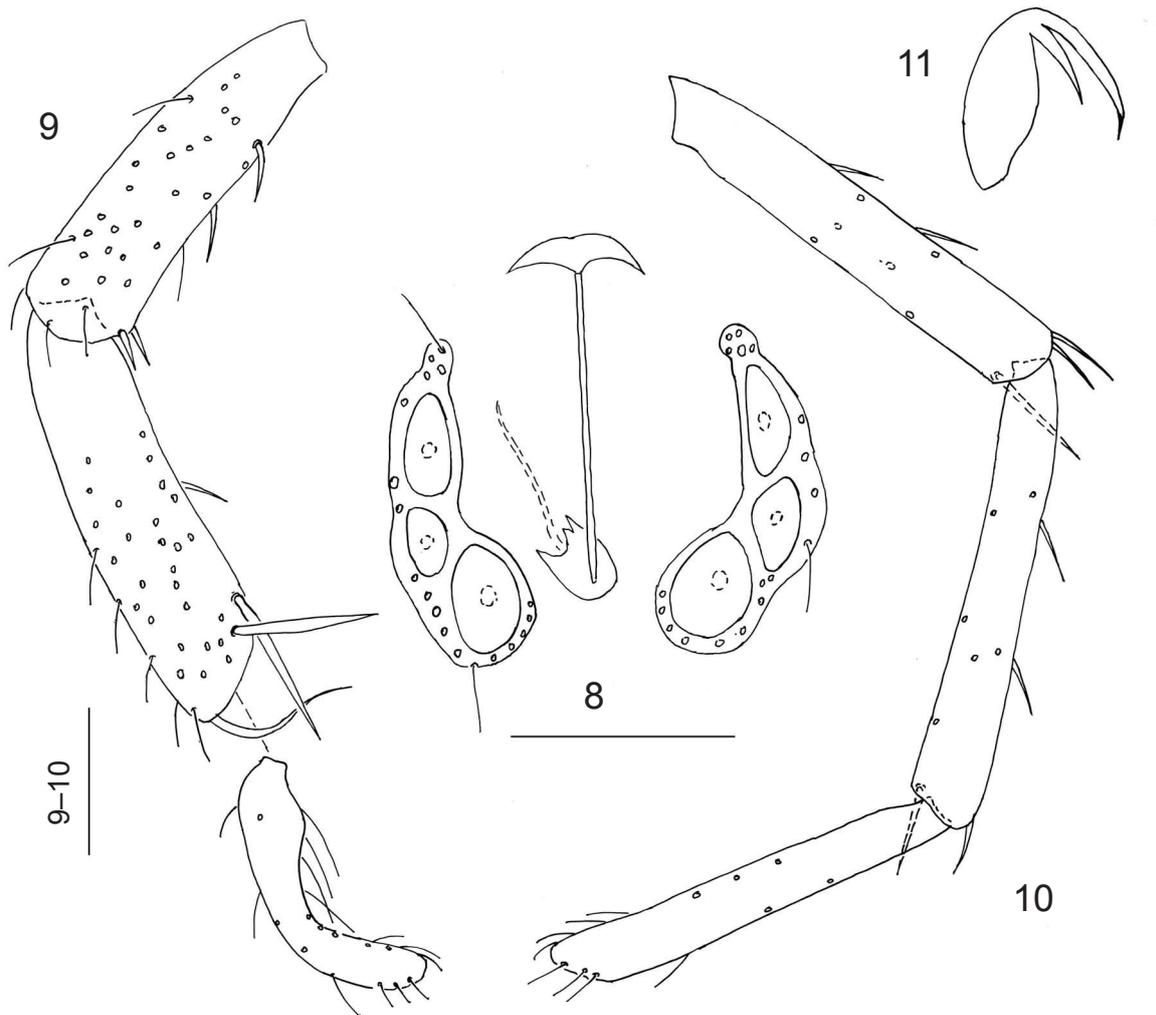
**Description. Female.** The idiosoma flat, oval; integument soft with very fine strips. Number and position of idiosomal setae typical for genus *Atractides*. Setae *Fch*, *Oe*, *Hi* and *He* (Fig.1) long and massive as compared to other dorsal setae (Figs 2-3). Trichobothria *Fp*, *Oi* and setae *Pi* without glandularia, other idiosomal setae associated with glandularia. In mature specimen, coxal plates (Fig. 4) cover less half of the ventral surface of body. Posteromedial margin of coxal plates I+II rounded, with two moderately large apodemes; median suture line between coxal plates I distinct; central sub-dermal projection very small, transverse, not reaching posterior margin of coxal plates I. Seta and glandularium *Hv* situated in posterolateral part of coxal plate II. Medial margin of coxal plates III+IV rounded, base and glandularium of seta *Pe* situated near middle of anterior margin of coxal plate IV. Setae *Pi* and *Ci* separated; excretory pore unsclerotized (Fig. 5). Gonopore and genital plates subequal in length (Fig. 8). Each genital plate with 3 acetabula and 18 fine setae. Genital plates narrow, elongate, L/W ratio 2.9; genital acetabula ar-



Figs 1–7. *Atractides kseniae* sp. n., female: 1 — seta Hi, 2 — seta Sce, 3 — trichobothria Oi; 4 — coxal plates, 5 — excretory pore, seta Pi and Ci, 6 — capitulum, ventral view, 7 — pedipalp, lateral view. Scale bars: 1–4 = 100  $\mu$ m, 5–7 = 50  $\mu$ m.

ranged in arc, posterior acetabulum larger than median acetabulum. Anterior genital sclerite considerably wider than posterior one.

Capitulum (Fig. 6) elongate, rostrum moderately long, narrow, not reaching anterior edge of capitulum.



Figs 8–11. *Atractides kseniae* sp. n., female: 8 — genital plates; 9 — genu, tibia and tarsus of leg I, 10 — genu, tibia and tarsus of leg IV, 11 — claw. Scale bars: 8, 9–10 = 100  $\mu$ m, 11 = 50  $\mu$ m.

Pedipalps (Fig. 7) slender: P-1 short, with a single dorsodistal seta; P-2 with straight ventral margin, with 5 unequal dorsal setae, both distal setae longer than proximal ones; P-3 distinctly longer than P-2, with straight ventral margin; P-4 slightly longer than P-3, bases of ventral setae divide tibia in three unequal sectors (2:3:1), ventrolateral sword-like seta large and situated near middle of segment in space between ventral setae; dorsolateral setae relatively not numerous and situated in central and distal parts of segment.

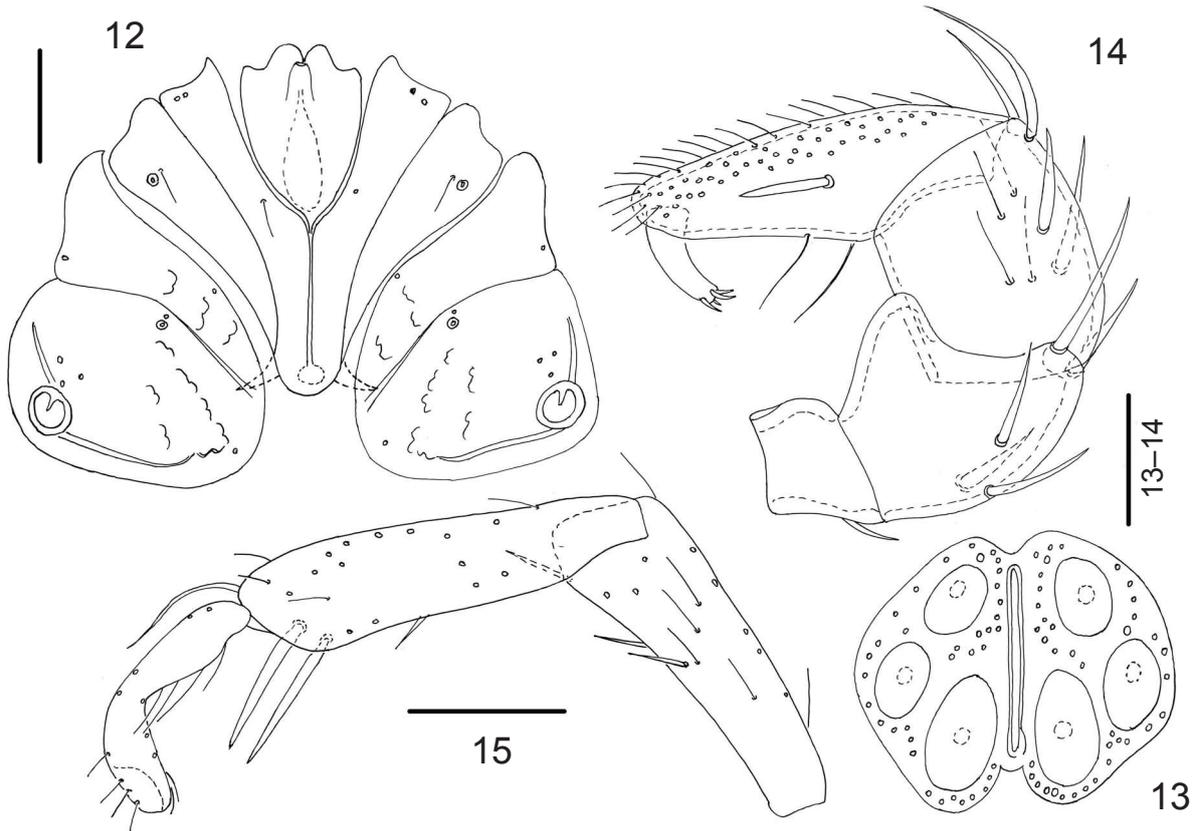
All legs without swimming setae. Bases of setae S1 and S2 on tibia of leg I separated (Fig. 9), narrowed proximally; seta S2 slightly shorter and wider than S1, both setae pointed.

I-Leg-6 relatively short (ratio length tibia/tarsus 1.6), thickened proximally and distally, narrowed near to middle of segment; ventral margin bend almost under right angle, and dorsal margin convex. Posterior legs, in particular legs IV, very slender with few setae on each segment (Fig. 10).

Leg claws with two denticles, internal denticle shorter than external one; lamella with slightly convex ventral margin (Fig. 11).

Measurements (n=1). Length of body 935; length of coxal plates I+II 318, width 380; length of medial portion of coxal I 138; length of coxal plates III+IV 280, width 240; lengths of genital plate 140, width 48; length/width of genital acetabula (ac. 1–3): 50/24, 42/24, 55/36; length of pedipalpal segments (P-1–5): 39, 90, 120, 132, 39; L of sword-shaped seta on P4 35; lengths of leg segments I-Leg-1–6 — 65, 115, 160, 245, 270, 170; II-Leg-1–6 — 70, 90, 140, 185, 185, 195, 185; III-Leg-1–6 — 90, 102, 140, 220, 230, 210; IV-Leg-1–6 — 155, 145, 220, 280, 310, 265; tibia of leg I: length of seta S1 115, width 10; length of seta S2 102–115, width 12; distance between bases of setae S1–S2 18.

**Male.** Dorsal surface, coxae of legs similar to female. Differs from female by smaller size, shape of genital field and pedipalp, and terminal seg-



Figs 12–15. *Atractides kseniae* sp. n., male: 12 — coxal plates and capitulum, ventral view; 13 — genital plate; 14 — pedipalp; 15 — genu, tibia and tarsus of leg I. Scale bars: 12, 15 = 100  $\mu$ m, 13–14 = 50  $\mu$ m.

ments of leg I. Coxae of legs cover larger than one half of ventral surface. Suture line between coxae I clearly developed, central sub-dermal projection small; apodemes of coxal plates II long, well-separated from anteromedial margin of coxal plates III (Fig. 12). Posteromedial margin of coxae I convex. Setae *Hv* situated in lateral portion of coxae II. Coxae IV trapezoidal, their medial margins wide and rounded; glandularia *Pe* situated near anterior margins of coxae IV. Setae *Pi* and *Ci* separated, excretory pore unsclerotized.

Genital plates fused to each other by anterior and posterior ends and forming small anterior and posterior median incisions (Fig. 13). Posterior pair of genital acetabula large, oval and considerably larger than two anterior pairs of acetabula. Genital field wider than long, with 36–37 fine setae on each side, genital opening narrow.

Pedipalp (Fig. 14) stout; P–1 short, with a single short dorsodistal seta; P–2 with widely rounded ventrodistal protrusion (hump), protuberance on protrusion not developed, with five dorsal (two proximal and three distal) unequal setae; P–3 thick with straight ventral margin, with two proximal and two distal thick unequal setae and 5–6

fine ones; P–4 narrowed proximally with convex dorsal edge and very numerous dorsolateral setae, bases of two ventral setae divide tibia in three sectors (3:1:3); peg-like seta large, distinctly longer than distance between ventral setae.

I–Leg-4 and I–Leg-5 (Fig. 15) thickened distally; seta *S1a* little longer and thinner than *S2*, both these setae more or less pointed, narrowed proximally; I–Leg-6 relatively short, strong curved, thickened proximally and distally, narrowed medially.

Measurements (n=1). Length of idiosoma 600; length of coxae I+II 275, width 250, length of medial portion of coxae I 140; length of coxae III+IV 240, width 215; lengths of genital plate 120, width 130; length/width of genital acetabula (ac. 1–3): 48/30, 39/30, 55/36; lengths of pedipalpal segments (P–1–5): 30, 72, 72, 108, 30; L of sword seta on P4 36; lengths of leg segments: I–Leg-1–6: 60, 90, 130, 185, 210, 120; II–Leg-1–6: non measurable; III–Leg-1–6: 65, 80, 120, 180, 205, 180; IV–Leg-1–6: 125, 120, 180, 220, 245, 210; tibia of leg I: length of seta *S1* 90, width 6; length of seta *S2* 75, width 8, distance between setae *S1* and *S2* 12.

**Differential diagnosis.** The new species is similar to *Atractides nodipalpis* Thor, 1899, but differs by the following (character states of *A. nodipalpis* are given after Gerecke 2003): both sexes; I–Leg-6 strong, curved (slightly curved in *A. nodipalpis*), the central sub-dermal projection very small, transverse and not reaching the posterior margin of coxal plates I (moderately long, well extending the posterior margin of coxal plates I); male: P-2 with the widely rounded ventrodistal protrusion, the protuberance not developed (with the blindly-pointed protrusion and the short lateral protuberance), P-4 ventral margin 3:1:3 (2:1:2); female: genital acetabula arranged in an arc (at an obtuse angle).

**Etymology.** The species is named in honour of Ksenia Semenchenko, who collected the specimens.

**Habitat.** Running waters.

**Distribution.** Russia, Far East, Khabarovsk Territory.

#### ACKNOWLEDGEMENTS

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