

## DESCRIPTION OF A NEW WATER MITE SPECIES OF THE GENUS *HYDRODROMA* KOCH (ACARI, HYDRACHNIDIA, HYDRODROMIDAE) FROM ETHIOPIA

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ABSTRACT: A description of the male, female and deutonymph of a new water mite species, *Hydrodroma zhokhovii*, from Ethiopia is given.

KEY WORDS: Hydrodromidae, *Hydrodroma zhokhovi*, water mite, new species, male, female, deutonymph

### INTRODUCTION

The genus *Hydrodroma* Koch, 1837 includes about 50 species (Viets 1987) reported from all continents except Antarctica. A new species of the genus *Hydrodroma* was found in the Ethiopian Tana lake. A description of this species is given below.

### MATERIALS AND METHODS

Mites were collected with a regular hand net, 250 µm mesh size. Specimens were fixed in 4% formalin. All mites were mounted in Hoyer's medium.

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); L — length, W — width; ag — accessory gland (after Barr 1972); n = number of specimens measured. The length of appendage segments was measured along their dorsal side. All measurements are given in micrometers (µm).

#### Family Hydrodromidae K. Viets, 1936

#### Genus *Hydrodroma* Koch, 1837

#### *Hydrodroma zhokhovi* Tuzovskij, sp. n.

Figs 1–21

**Type material.** Holotype: male, slide 9653, Ethiopia, Tana lake, 15.11.2007 (coll. A.E. Zhokhov). Paratypes: 8 males, 2 females and 5 deutonymphs collected together with holotypes some data. The holotype is deposited in the collection of Institute for Biology of Inland Waters (Borok, Russia).

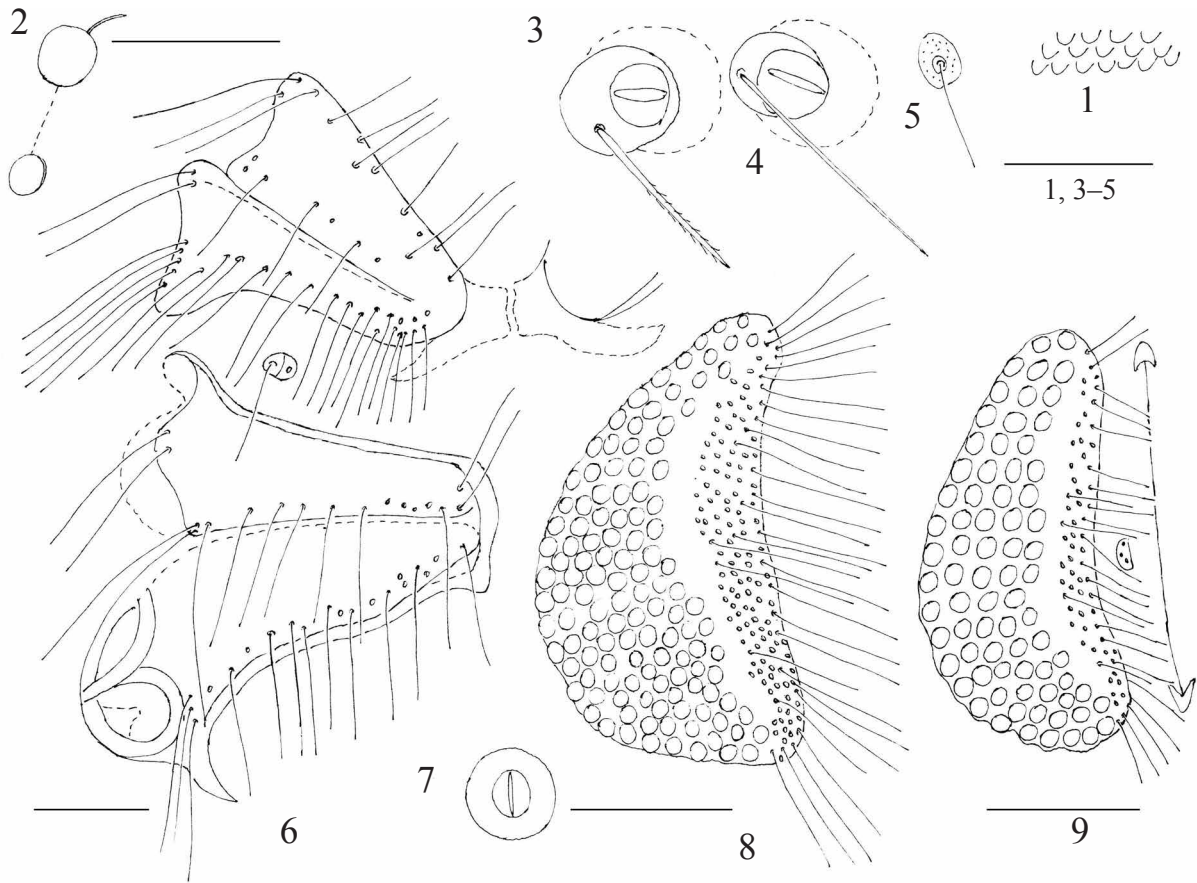
**Diagnosis. Adults.** Integument papillae short, distally rounded; anterior eye lenses larger than

posterior ones; P-3 with two long unequal dorso-distal setae; II–Leg-5 with two swimming setae; excretory pore surrounded by true sclerotized ring; **male:** genital field with 70–120 acetabula and 75–140 long subequal setae, ejaculatory complex with two well developed accessory glands; **female:** genital field with 65–75 acetabula and 45–65 short subequal setae; **deutonymph:** P-1 without seta, P-2 with four setae, I–Leg-5 with two swimming setae, posterior pair of acetabula larger than anterior pair of acetabula.

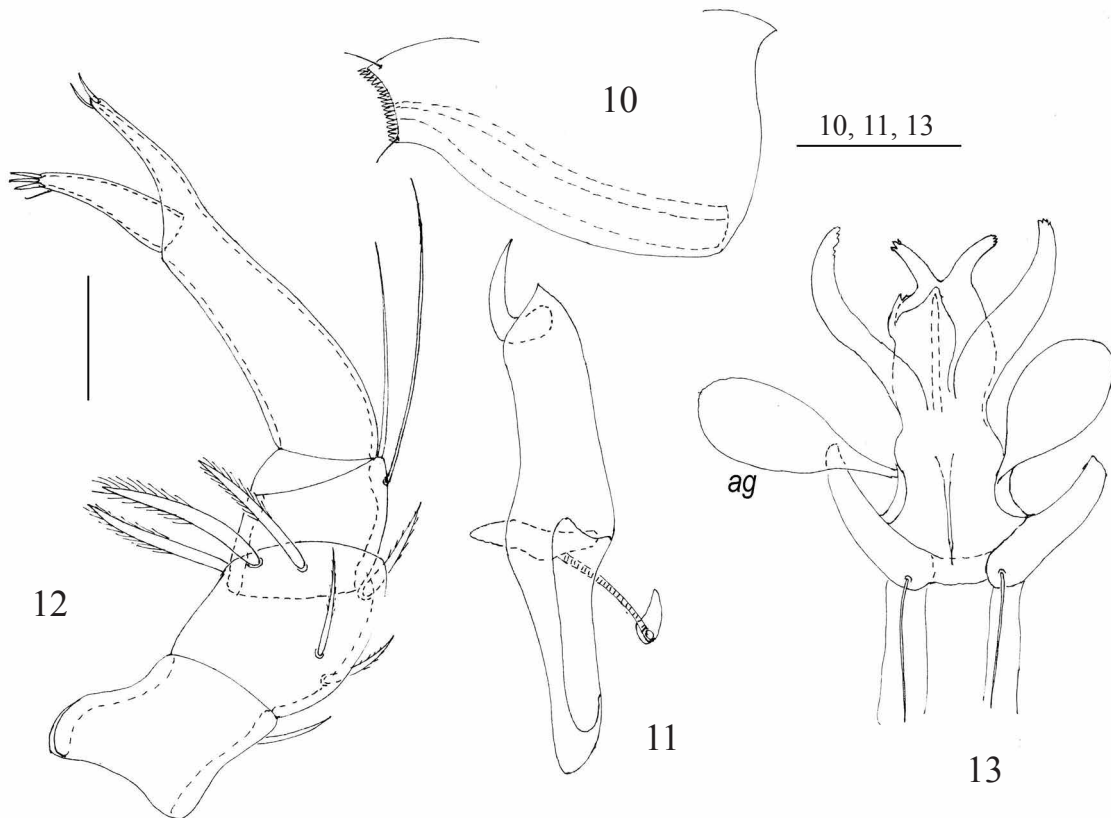
**Description. Adults.** The idiosoma oval, integument soft with short papillae rounded distally (Fig. 1). Lateral eyes not capsulated, on each side with two lenses well separated from each other, anterior lenses larger than posterior ones (Fig. 2). Number and position of idiosomal setae typical for genus *Hydrodroma*. Setae *Fch* thick (Fig. 3), but shorter than other idiosomal setae associated with glandularia (Fig. 4). Trichobothria *Fp* and *Oi* short and not associated with glandularia (Fig. 5). Coxal plates I+II forming subcutaneous postero-medial extensions embracing gnathosomal bay, but medially separated by a membranous strip (Fig. 6). Medial margins of coxal plates III+IV well developed and nearly straight. Rows of characteristic long, thin setae at anterior and posterior margins of coxal plate I, and posterior margins of coxal plates II–IV. Excretory pore surrounded by true sclerotized ring (Fig. 7).

Capitulum (Fig. 10) with short rostrum; capitular base slightly convex. Chelicerae (Fig. 11) with large basal segment and short stylet.

Pedipalps moderately slender (Fig. 12): P-1 with single dorsodistal seta; P-2 with six pectinate setae (three long mediodistal and three relatively short dorsal); P-3 with two long unequal dorsodistal setae; P-4 with long pointed dorsodistal projection reaching tip of elongated P-5.



Figs 1–9. *Hydrodroma zhokhovi* sp. n., adults: 1 — fragment of integument, 2 — lateral eyes, 3 — seta Fch, 4 — seta He, 5 — trichobothria Oi; 6 — coxal plates, 7 — excretory pore, 8–9 — acetabular plate, 1–8 male, 9 — female. Scale bars: 1, 3–5 = 50 µm, 2 = 200 µm, 6–9 = 100 µm.



Figs 10–13. *Hydrodroma zhokhovi* sp. n., male: 10 — capitulum, 11 — chelicera, 12 — pedipalp, 13 — ejaculatory complex. Scale bars: 10, 11, 13 = 100 µm, 12 = 50 µm.

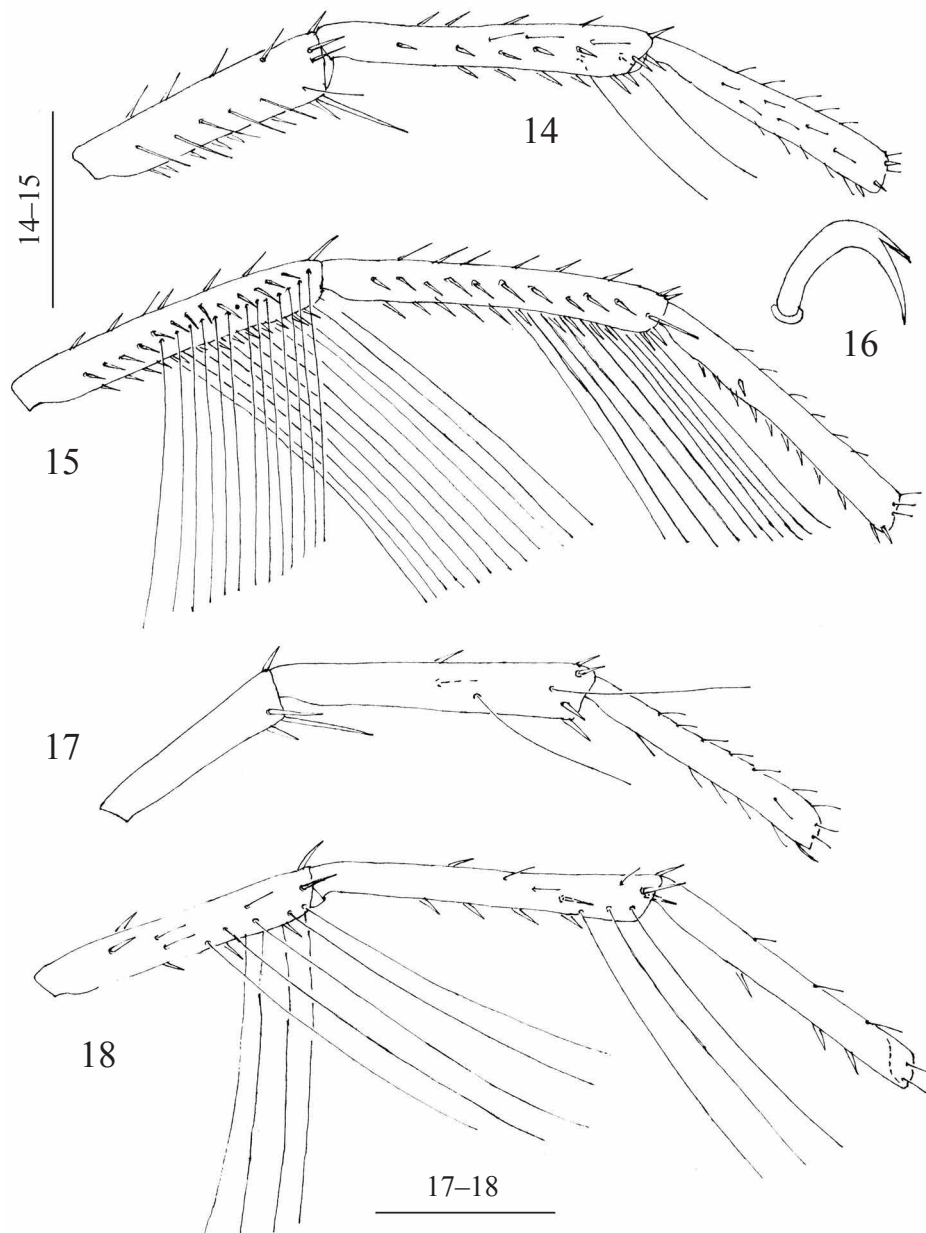


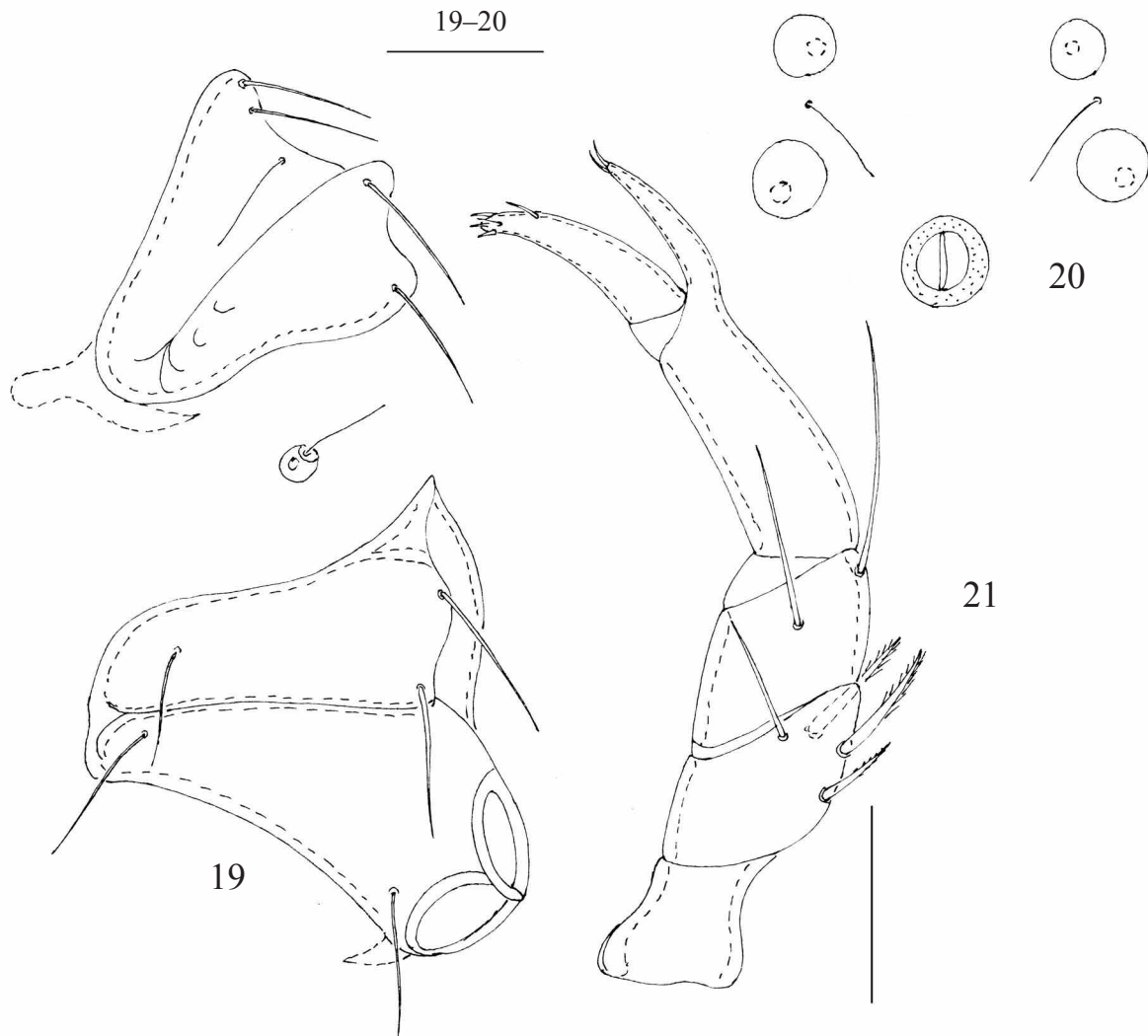
Fig. 14–18. *Hydrodroma zhokhovi* sp. n.: 14, 17 — genu, tibia and tarsus of leg I; 15, 18 — genu, tibia and tarsus of leg IV; 16 — claw; 14–16 male, 17–18 — deutonymph. Scale bars: 14–15 = 200  $\mu$ m, 16 = 50  $\mu$ m, 17–18 = 100  $\mu$ m.

Legs II–IV with swimming setae (Figs 14–15). Leg swimming setae counts: II–Leg-5 posterior 2; III–Leg-4 posterior 10–14, III–Leg-5 posterior 8–10; IV–Leg-4 anterior 11–14, IV–Leg-4 posterior 8–15; IV–Leg-5 posterior 8–11. Leg claws hook-like, with long ventral clawlet and short dorsal one (Fig. 16).

**Male.** Acetabular plate elongate (L/W ratio 2.0–2.3), with numerous acetabula and long, subequal setae (Fig. 8). Acetabula number 70–120, setae number 75–140. Proximal chamber of ejaculatory complex moderate in size, with two short proximal horns (Fig. 13). Proximal arms slightly

longer than distal arms. Accessory glands (after Barr 1972) well developed, sack-like.

Measurements (n=9). Idiosoma L 850–1000; coxal plates I+II L 210–250, W 260–290; coxae III+IV L 310–350, W 360–375; genital plate L 250–290, W 120–130; capitulum L 225–250; basal segment of chelicera L 250–290, cheliceral stylet L 62–75; pedipalpal segments (P-1–5) L: 55–65, 75–88, 60–65, 185–215, 75–80; leg segments L: I–Leg-1–6: 85–100, 100–125, 110–125, 200–225, 250–265, 225–240; II–Leg-1–6: 85–100, 125–150, 130–150, 275–290, 325–350, 260–275; III–Leg-1–6: 75–85, 100–125, 135–145, 255–265,



Figs 19–21. *Hydrodroma zhokhovi* sp. n., deutonymph: 19 — coxal plates, 20 — genito-anal field, 21 — pedipalp. Scale bars = 50  $\mu$ m.

310–325, 250–275; IV–Leg-1–6: 110–140, 160–175, 200–225, 325–340, 350–375, 300–315.

**Female.** Acetabular plate elongate (L/W ratio 2.0–2.3), with short, subequal genital setae (Fig. 9). Acetabula number 65–75, setae number 45–65.

Measurements (n=2). Idiosoma L 950–1185; coxal plates I+II L 260–315, W 225–240; coxae III+IV L 325–350, W 335–400; genital plate L 225–275, W 100–140; capitulum L 225–240; basal segment of chelicera L 275–290, cheliceral stylet L 62–75; pedipalpal segments (P-1–5) L: 55–60, 75–75, 60–65, 200–215, 75–80; leg segments L: I–Leg-1–6: 75–90, 100–115, 110–120, 200–215, 250–265, 225–240; II–Leg-1–6: 75–90, 125–150, 150–160, 275–290, 325–350, 270–280; III–Leg-1–6: 80–90, 125–140, 140–150, 270–290, 310–340, 270–280; IV–Leg-1–6: 110–125, 175–190, 225–235, 350–365, 360–375, 310–325.

**Deutonymph.** Idiosoma similar to adults, but coxal plates (Fig. 19) with smaller number of setae, and setae *Pi* not associated with glandularia. Genital field (Fig. 20) with two pairs of acetabula and one pair thin setae; posterior pair of acetabula larger than anterior one. Excretory pore surrounded by narrow true ring. Pedipalp similar to adults, but P-1 without seta and P-2 with four setae (Fig. 21). Shape and arrangement of setae on terminal segments of leg I and IV as shown in Figs 17–18. Distal half of I–Leg-5 with two short swimming setae, distal half of IV–Leg-4 with three to four anterior and four to five posterior long swimming setae, and distal half of IV–Leg-5 with three to four long swimming setae.

Measurements (n=5). Idiosoma L 560–1000; coxal plates I+II L 100–115, W 90–100; coxae III+IV L 130–145, W 335–400; anterior genital

acetabula D 20–22, posterior genital acetabula D 24–27; capitulum L 90–110; basal segment of chelicera L 95–98, cheliceral stylet L 30–33; pedipalpal segments (P-1–5) L: 35–39, 40–48, 30–36, 93–102, 42–48; leg segments L: I–Leg-1–6: 35–40, 54–60, 45–50, 70–90, 108–120, 100–120; II–Leg-1–6: 35–42, 54–65, 60–65, 90–115, 130–165, 125–135; III–Leg-1–6: 35–40, 60–70, 54–60, 90–105, 135–155, 125–140; IV–Leg-1–6: 48–65, 65–78, 78–90, 120–140, 150–175, 140–170.

**Differential diagnosis.** The new species is closely related to *Hydrodroma capensis* (Viets, 1914) which is known from a female (Viets 1914; Lundblad 1933, 1946; Bader 1968) and deutonymph (Bader 1968). It differs from *H. capensis* by the following characters (character states of the female of *H. capensis* are given after Viets 1914, Lundblad 1933 and Bader 1968 in parenthesis): the integument papillae cylindrical, rounded distally (conical), the acetabular plate long, L = 250–275  $\mu\text{m}$ , with 65–75 acetabula and 45–65 genital setae (relatively short, L = 205  $\mu\text{m}$ , with 47–52 acetabula and 29–30 genital setae), IV–Leg-4 with 19–25 long swimming setae (11 short swimming setae).

The deutonymph of the new species differs from the deutonymph of *H. capensis* mainly by the structure of pedipalps. The pedipalp in the deutonymph of new species characterized by the following features: P-1 without seta, P-2 with four setae, P-2 L 40–48  $\mu\text{m}$ , P-4 L 93–105  $\mu\text{m}$ , P-5 L 42–48  $\mu\text{m}$ ; while in the deutonymph of *H. capensis* P-1 with a single seta, P-2 with six setae; P-2 L 64  $\mu\text{m}$ , P-4 L 145  $\mu\text{m}$ , P-5 L 61  $\mu\text{m}$  (Bader 1968).

**Etymology.** The species is named after the collector, Dr. Alexandr Zhokhov.

**Habitat.** Standing waters.

**Distribution.** Africa, Ethiopia: Tana lake.

#### ACKNOWLEDGEMENTS

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