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DESCRIPTION OF A NEW WATER MITE OF THE GENUS *ZSCHOKKEA* KOENIKE, 1892 (ACARI, HYDRACHNIDIA, HYDRYPHANTIDAE) FROM NORTHEASTERN RUSSIA

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Abstract. A description of the male and female of a new water mite species of the genus *Zschokkea* from the Asian part of Russia is given.

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Keywords: Hydrachnidia, water mites, *Zschokkea orientalis*, new species, morphology, male, female.

ОПИСАНИЕ НОВОГО ВИДА ВОДЯНЫХ КЛЕЩЕЙ РОДА *ZSCHOKKEA* KOENIKE, 1892 (ACARI, HYDRACHNIDIA, HYDRYPHANTIDAE) С СЕВЕРО-ВОСТОКА РОССИИ

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Аннотация. Описание самца и самки нового вида водяных клещей рода *Zschokkea* из азиатской части России.

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Ключевые слова: Hydrachnidia, водяные клещи, *Zschokkea orientalis*,
новый вид, морфология, самец, самка.

INTRODUCTION

The world fauna of water mites of the genus *Zschokkea* Koenike, 1892 currently includes several species (Viets 1987). The fauna of this genus collected in Russia includes two species: *Z. oblonga* Koenike, 1892 and *Z. langei* (Tuzovskij, 1976). First species is widely distributed in Europe (Lundblad 1927; 1968; Sokolov 1940; Gerecke, Gledhill, Pešić, Smit 2016), and second species was described from West Siberia and known only from female (Tuzovskij 1976). The aim of this paper is to describe a new water mite species of the genus *Zschokkea* and to give an identification key for adults collected in Russia.

MATERIAL AND METHODS

Specimens were collected by the author in standing waters of the Asian part of Russia with a common hand net (250 µm mesh). Most specimens were not dissected, thus preserving the natural shape of the body. For several males and females, the gnathosoma was mounted in a position that allowed investigating pedipalps in lateral view.

Idiosomal setae and lyriform organs are named according to Tuzovskij (1987): *Fch*—frontales chelicerarum, *Fp*—frontales pedipalporum, *Vi*—verticales internae, *Ve*—verticales externae, *Oi*—occipitales internae, *Oe*—occipitales externae, *Hi*—humerales internae, *He*—humerales externae, *Hv*—humerales ventralia, *Sci*—scapulares internae, *Sce*—scapulares externae, *Li*—lumbales internae, *Le*—lumbales externae, *Si*—sacrales internae, *Se*—sacrales externae, *Ci*—caudales internae, *Pi*—praeanales internae, *Pe*—praeanales externae, *i1–i5*—lyriform organs. 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–3 = genu of third leg; ac. 1–3, genital acetabula (anterior, medial, lateral); D—diameter, H—height; 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 µm.

Family Hydryphantidae Piesig, 1896 Subfamily Euthyadinae K. Viets, 1931

Genus *Zschokkea* Koenike, 1892

Zschokkea orientalis sp. n.

<http://zoobank.org/NomenclaturalActs/3FE921B2-7B7A-4810-8F6F-62050FAF52BF>

(Figs 1–3: 1–13)

Type series. Holotype: male, slide 2884, Asia, Russia, Chukotka, Anadyr District, small tundra pool near settlement Markovo, 30 August 1981. Paratypes: from the same locality as holotype, 1 female 10 July 1978, 1 female 10 August 1981. Additional material: Kamchatka Region, Ust-Kamchatsk District, sedge-sphagnum bog on the right bank of the Kamchatka river, 40 km upstream from Ust-Kamchatsk city near biological station “Raduga”, 2 females 21 June 1983, 1 female 24 June 1983, 1 male 26 June 1983, 1 male and 2 female 30 June 1983, 2 females 3 July 1983, 1 male 17 July 1983 and 1 female 21 August 1983.

Diagnosis. Idiosoma without dorsal and ventral platelets; medial eye small, surrounded by sclerotized ring; idiosoma papillae flat; second and third acetabula in trapezoid arrangement in male, and in female they form straight transverse row; medial and lateral margins of genital flaps convex in both sexes, number of genital setae without essential differences in both sexes; P–3 quadrate in lateral view, with five to eight dorsal setae.

Description. Both sexes. Color red. Idiosoma dorsal and ventral platelets completely absent (Figs. 1: 1, 2). Lateral eyes in capsules, anterior lens larger than posterior one on each side. Medial eye very small and surrounded by sclerotized ring (Fig. 1: 3). Number of idiosomal setae typical for the family Hydryphantidae (Tuzovskij 1987), trichobothria *Fp* and *Oi* not associated with glandularia, other idiosomal setae associated with glandularia. Idiosoma bears five pairs of lyriform organs, first four pairs (*i1–i4*) located dorsally, fifth pair (*i5*) ventrally. Idiosoma integument with flat papillae (Fig. 1: 4). Genital field with large flaps and three pairs of very small acetabula, which are located on extension each and all included into genital flap margins. Excretory pore unsclerotized.

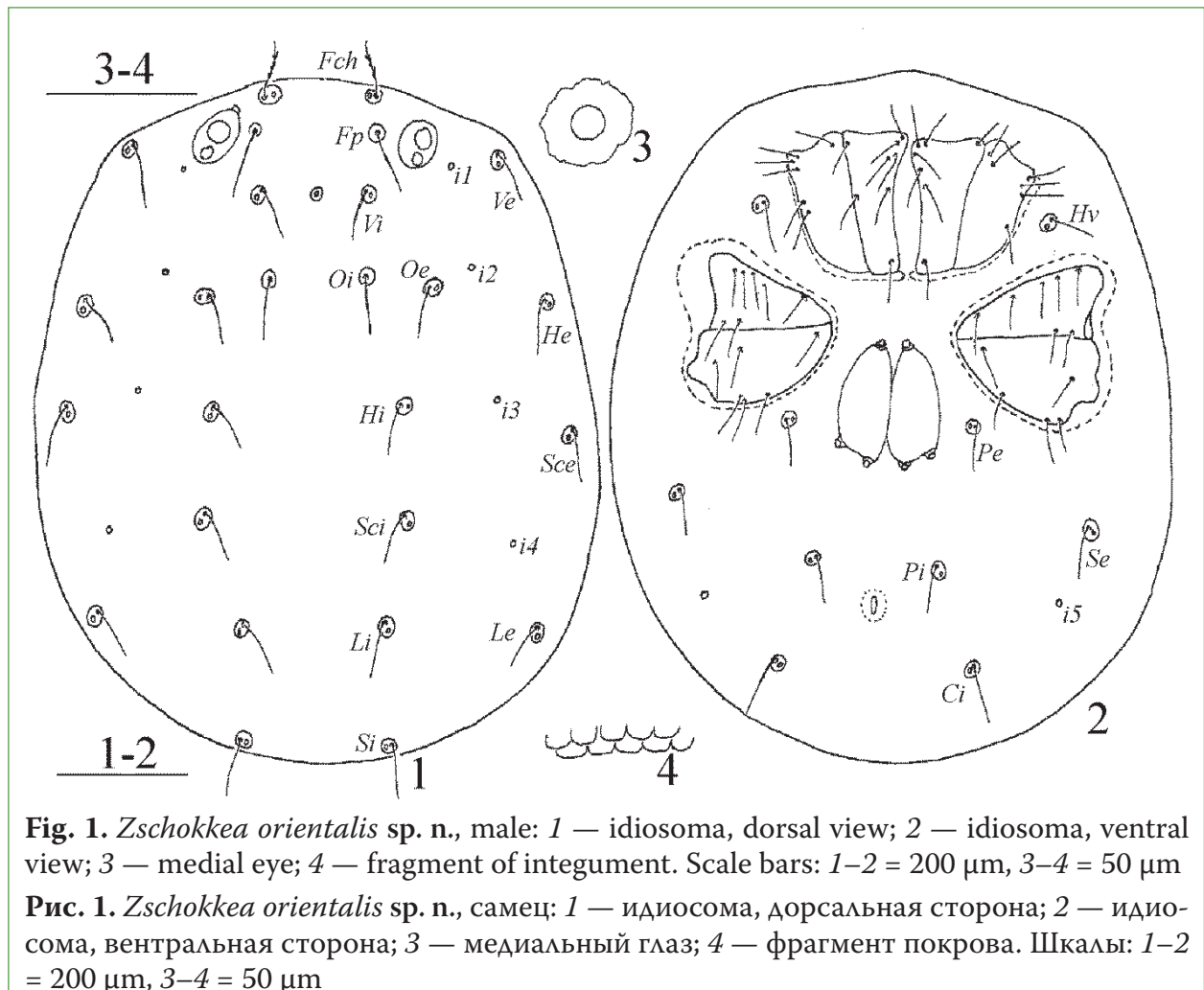


Fig. 1. *Zschokkea orientalis* sp. n., male: 1 — idiosoma, dorsal view; 2 — idiosoma, ventral view; 3 — medial eye; 4 — fragment of integument. Scale bars: 1–2 = 200 μ m, 3–4 = 50 μ m
Рис. 1. *Zschokkea orientalis* sp. n., самец: 1 — идиосома, дорсальная сторона; 2 — идиосома, вентральная сторона; 3 — медиальный глаз; 4 — фрагмент покрова. Шкалы: 1–2 = 200 μ m, 3–4 = 50 μ m

Capitulum (Fig. 2: 5) with very short rostrum, mouth opening small. Chelicera basal segment with relatively large dorsal hump, crescent chela short (Fig. 2: 6). Pedipalp (Fig. 2: 7) moderately slender, setation: P–1, 1–2; P–2, 8–10; P–3, 5–8; P–4, 4 (all distally, two dorsally: one proximal fine and one peg-like distally, two ventral: proximal seta thickened basally, distal seta not thickened basally), P–5, 10 (proximal solenidion short, five pointed and four obtuse thick setae distally, Fig. 8). Pedipalpal genu (P–3) quadrate in lateral view (L/H ratio 0.95–1.0). Legs stout, setae in low numbers, but strong and without swimming setae (Fig. 2: 9). Leg claws simple, hook-shaped, with supraclaw platelet each (Fig. 2: 10).

Male. Shape of coxal plates and genital field as shown in Fig. 2: 2. Genital flaps broad (L/W ratio 2.05–2.30), with 14–21 long setae each (11–16 medial and 2–5 lateral), lateral margins well convex, medial margins straight or slightly convex; both posterior pairs of

genital acetabula in trapezoid arrangement, third pair acetabula situated anterior and lateral to second ones, posteromedial extension with two setae (Fig. 3: 11). Ejaculatory complex proximal chamber large, oval, bearing a short curved horn apically; proximal arms massive, strongly curved, broadest basally, tapering gradually to apex, distal arms slightly developed (Fig. 3: 12).

Measurements (n = 5). Idiosoma L 800–1000, W 700–800; medial eye D 9–11; genital flap L 160–195, W 70–85; cheliceral segments: base L 160–185, chela L 54–60; acetabula (ac. 1–3) D: 15–18, 18–24, 15–18; pedipalp segments (P–1–5) L: 39–50, 120–125, 70–80, 125–140; 40–42; legs segments L: I–Leg–1–6: 60–65, 115–125, 85–100, 120–130, 155–170, 205–245; II–Leg–1–6: 55–70, 100–130, 95–100, 145–150, 180–190, 235–270; III–Leg–1–6: 65–75, 85–105, 75–90, 125–140, 175–210, 190–205; IV–Leg–1–6: 120–150, 105–140, 115–130, 175–190, 185–205, 200–215.

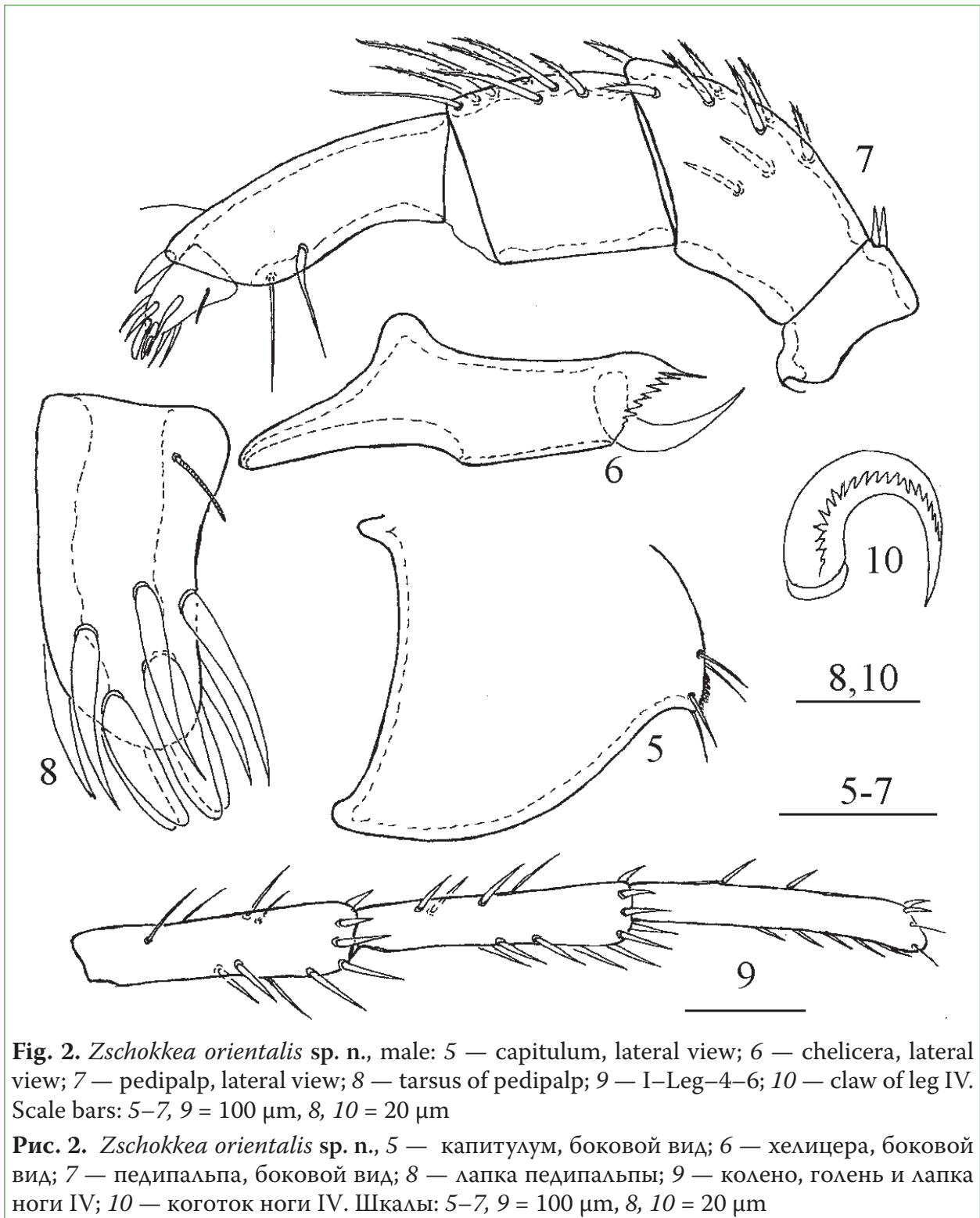
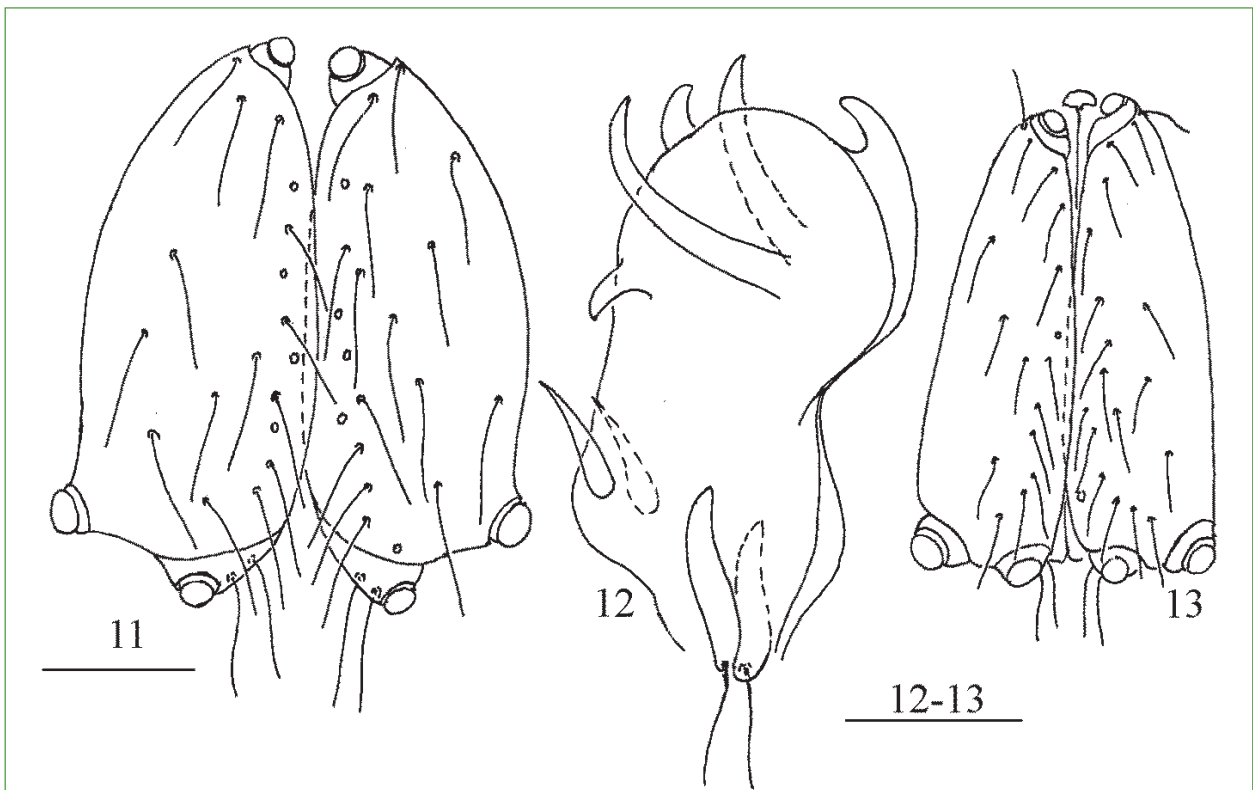


Fig. 2. *Zschokkea orientalis* sp. n., male: 5 — capitulum, lateral view; 6 — chelicera, lateral view; 7 — pedipalp, lateral view; 8 — tarsus of pedipalp; 9 — I-Leg-4-6; 10 — claw of leg IV. Scale bars: 5-7, 9 = 100 μ m, 8, 10 = 20 μ m

Рис. 2. *Zschokkea orientalis* sp. n., 5 — капитулум, боковой вид; 6 — хелицера, боковой вид; 7 — педипальпа, боковой вид; 8 — лапка педипальпы; 9 — колено, голень и лапка ноги IV; 10 — коготок ноги IV. Шкалы: 5-7, 9 = 100 μ m, 8, 10 = 20 μ m

Female. Genital flaps large, elongate (L/W ratio 2.6-2.7), with 14-22 relatively short setae each (10-17 medial and 2-7 lateral), lateral margins slightly convex, medial margins straight or slightly convex, second and third pairs of genital acetabula arranged in a straight transverse row, posteromedial extension with two setae (Fig. 3: 13).

Measurements (n = 7). Idiosoma L 810-1500, W 625-1100; medial eye D 11-13; genital flap L 260-275, W 100-115; cheliceral segments: base L 180-230, chela L 55-70; acetabula (ac. 1-3) D: 18-25, 25-30, 18-25; pedipalp segments (P-1-5) L: 39-50, 120-125, 70-80, 125-140; 40-42; legs segments L: I-Leg-1-6: 60-90, 105-



Figs 3. *Zschokkea orientalis* sp. n., adults: 11, 13 — genital field, 12 — ejaculatory complex; 11–12 male, 13 female. Scale bars: 11 = 50 μ m 12, 13 = 100 μ m

Рис. 3. *Zschokkea orientalis* sp. n., взрослые: 11, 13 — генитальное поле; 12 — семяизвергательный комплекс; 11–12 самец, 13 самка. Шкалы: 11 = 50 μ m 12, 13 = 100 μ m

145, 80–110, 115–150, 135–185, 150–185; II–Leg–1–6: 60–80, 110–140, 85–115, 120–170, 145–205, 180–210; III–Leg–1–6: 65–85, 100–125, 90–110, 110–165, 145–205, 170–220; IV–Leg–1–6: 120–165, 115–155, 115–155, 155–220, 170–240, 175–240.

Differential diagnosis. The new species is similar to *Z. oblonga* and *Z. langei* (Tuzovskij, 1976). The present species is closely related to *Z. oblonga*; however, the following clear differences can be found in the morphology of adults (character states of adults of *Z. oblonga* are given parenthesis after Lundblad 1927, Sokolov 1940 and Gerecke, Gledhill, Pešić, Smit 2016; 2016): the idiosoma dorsal and ventral platelets completely absent (present), the genital flaps medial margin straight or slightly convex (equally concave), the genital setae number without essential differences in both sexes (female genital setae less than in the males), P–3 with five to eight setae (four setae). The

female of *Zschokkea langei* is characterized by the presence of idiosomal platelets, genital flaps with convex medial margins and straight lateral margins and with more numerous genital setae (Tuzovskij 1976).

Key to adults of *Zschokkea* species in Russia:

1. Idiosomal platelets completely absent (Figs 2: 1, 2), number of the genital setae without essential differences in both sexes *Z. orientalis* sp. n.
 — Idiosomal platelets present, female genital setae number is less than in the males 2
2. Lateral margins of genital flap equally convex, medial margins equally concave (Sokolov 1940; Gerecke, Gledhill, Pešić, Smit 2016
 *Z. oblonga* Koenike, 1892
 — Lateral margins of genital flaps straight, medial margins equally convex (Tuzovskij 1976) *Z. langei* (Tuzovskij, 1976)

Etymology. The species' epithet, *orientalis*, is derived from the name of oriental re-

gions of Russia, where it was collected (Kamchatka and Chukotka).

Habitat. Sedge-sphagnum bogs, tundra pools.

Distribution. Asia, Russia: Chukotka, Kamchatka.

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