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DESCRIPTION OF *DIAMESA KOLYMA* SP. N. (DIPTERA: CHIRONOMIDAE: DIAMESINAE) FROM THE KOLYMA RIVER BASIN, RUSSIA

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Summary. An illustrated description of a new chironomid species *Diamesa kolyma* sp. n. of the subfamily Diamesinae from the Kolyma River basin (Russian Far East) is given based on the adult male, pupa and larva. The new species is closely related to *Diamesa bertrami* Edwards, but differs well from it in the shape of the gonostylus, size and shape of anal point, superior volsellae and some other features of male.

Key words: taxonomy, new species, Russian Far East.

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Резюме. По имаго самца, куколке и личинке приведено иллюстрированное описание нового вида хирономид подсемейства Diamesinae *Diamesa kolyma* sp. n. из бассейна реки Колыма (российский Дальний Восток). Новый вид наиболее близок *Diamesa bertrami* Edwards, но хорошо отличается от него формой гоностилия, размером и формой нижнего придатка гонококситы самца.

INTRODUCTION

Currently, the genus *Diamesa* Meigen, 1835 includes at least 107 valid species (Ashe & O'Connor, 2009) of which more than 25 species are known from the Russian Far East and adjacent territories (Makarchenko & Orel, 2023). In this article we continue to publish the data obtained as a result of the revision of the genus *Diamesa* from subfamily Diamesinae of the Russian Far East and bordering territory (Makarchenko, 2022, 2023; Makarchenko & Hansen, 2022; Makarchenko *et al.*, 2018, 2022). A new species of *Diamesa* is found in the Kolyma River basin of the Russian Far East and described below.

MATERIAL AND METHODS

The material was preserved in 96% ethanol and mounted in the polyvinyl lactophenol. The morphological terminology and abbreviations used below generally follow Sæther (1980). The photographs were taken using an Axio Lab.A1 (Karl Zeiss) microscope with an AxioCam ERc5s digital camera and an Olympus SZX16 stereomicroscope with an Olympus DP74 digital camera, and then stacked using Helicon Focus software. The final illustrations were post-processed for contrast and brightness using Adobe®.

The holotype and paratypes of new species are deposited in the Bioresource Collection (reg. number 2797657) of the Federal Scientific Center of the East Asia Terrestrial Biodiversity, Far East Branch of the Russian Academy of Sciences, Vladivostok.

DESCRIPTION OF NEW SPECIES

Diamesa kolyma Makarchenko, sp. n.

<https://zoobank.org/NomenclaturalActs/BD7A2D0F-1E06-4081-A8D5-171F854A0ADF>

Figs 1–13

TYPE MATERIAL. Holotype – 1 pharate adult ♂ extracted from mature pupa, **Russia:** Magadan Region, Tenkinsky District, Natalkinskyi GOK, Geologicheskyy Stream (Kolyma River basin), 61.6659°N, 147.8541°E, h=838 m, 04.VIII. 2024, leg. A. Krashenninnikov. Paratypes: 2 pharate adult males, 4 mature pupae, 6 larvae, the same data as holotype.

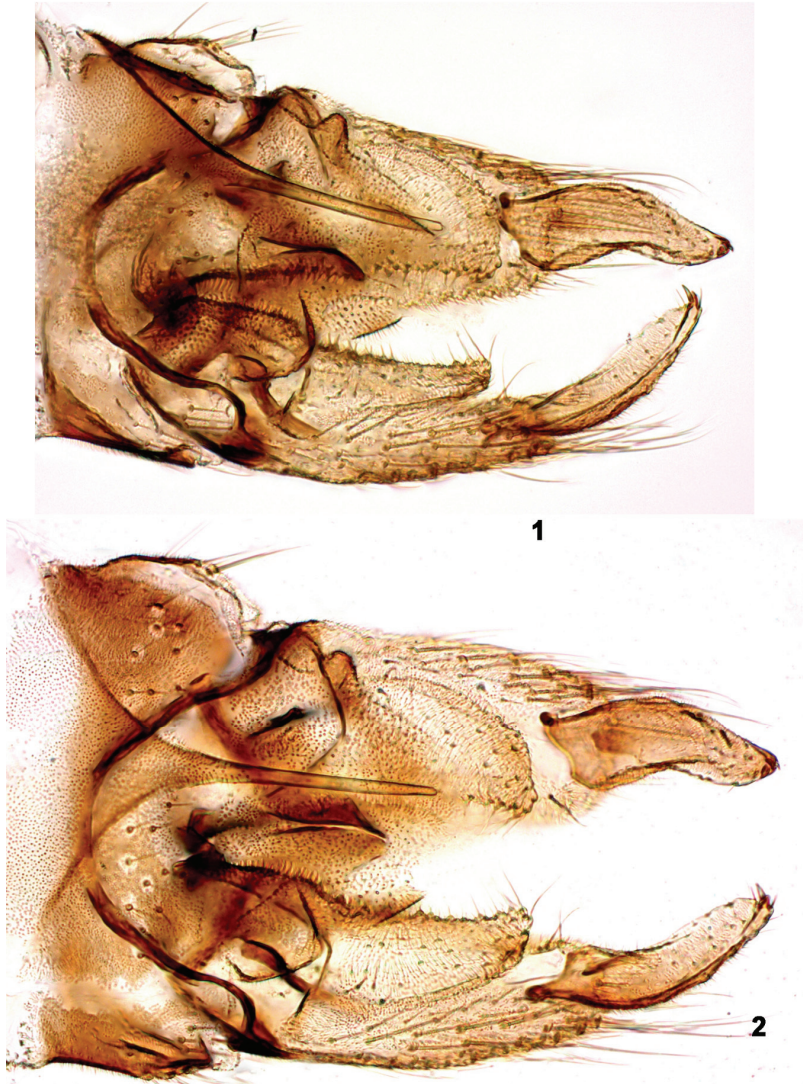
DESCRIPTION. Pharate adult male (n=2). Total coloration brown to dark-brown; head, thorax, legs, and abdomen brown to dark brown; antennae light brown.

Head. Eyes bare and not extended dorsomedially. Temporal setae including 3 preoculars, 14 verticals, 10–11 postorbitals. Clypeus with 15 setae. Antenna with 13 flagellomeres and developed plume of setae; terminal flagellomere with 1 subapical setae, 40 µm long; AR 2.0–2.04. Palpomere length (µm): 40, 68, 88, 92, 140. Palpomere 3 in distal part with sensilla capitata with diameter *ca* 16 µm. Head width/palpal length 1.57.

Thorax. Anteprepronotum with 7 ventrolateral setae. Dorsocentrals 8–9 (in 1 row), prealars 6–9, scutellars 36 (in 2–3 rows).

Wings and legs absent.

Hypopygium (Figs 1–3). Tergite IX with 8–11 setae on each side and with anal point 196–200 μm long, 8 μm wide, with rounded apex (Figs 1–2). Laterosternite IX with 9–10 setae. Transverse sternapodeme narrow, arcuate, 252 μm long. Phallapodeme 112 μm long. Gonocoxite 208 μm long; inferior volsellae large and wide, tapering slightly distally, covered with short setae, the longest subapically (Figs 1–2);

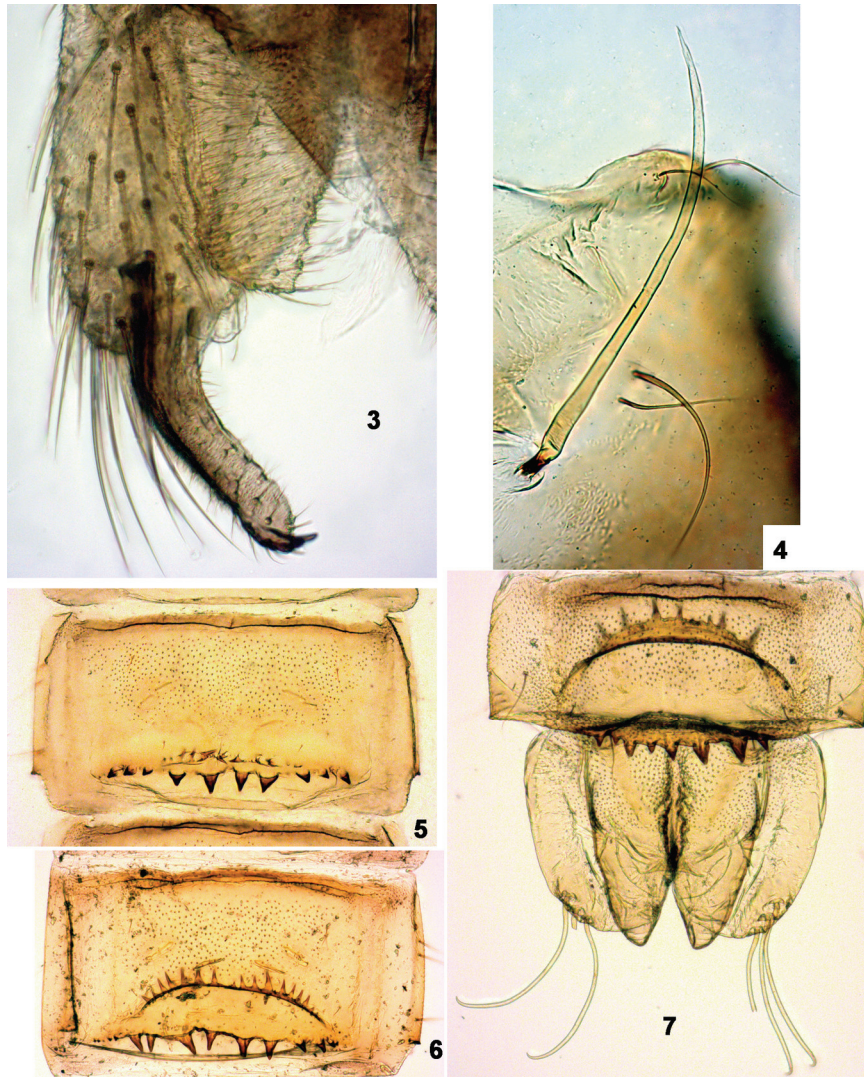


Figs 1–2. Adult male hypopygium of *Diamesa kolyma* sp. n. in dorsal view.

basimedial setae cluster absent. Gonostylus 160 μm long, slightly curved, covered with short setae, apical part angular-rounded, with megaseta 10 μm long (Figs 1–3). HR 1.3.

Pupa (n=2). Total length 4.0–4.2 mm.

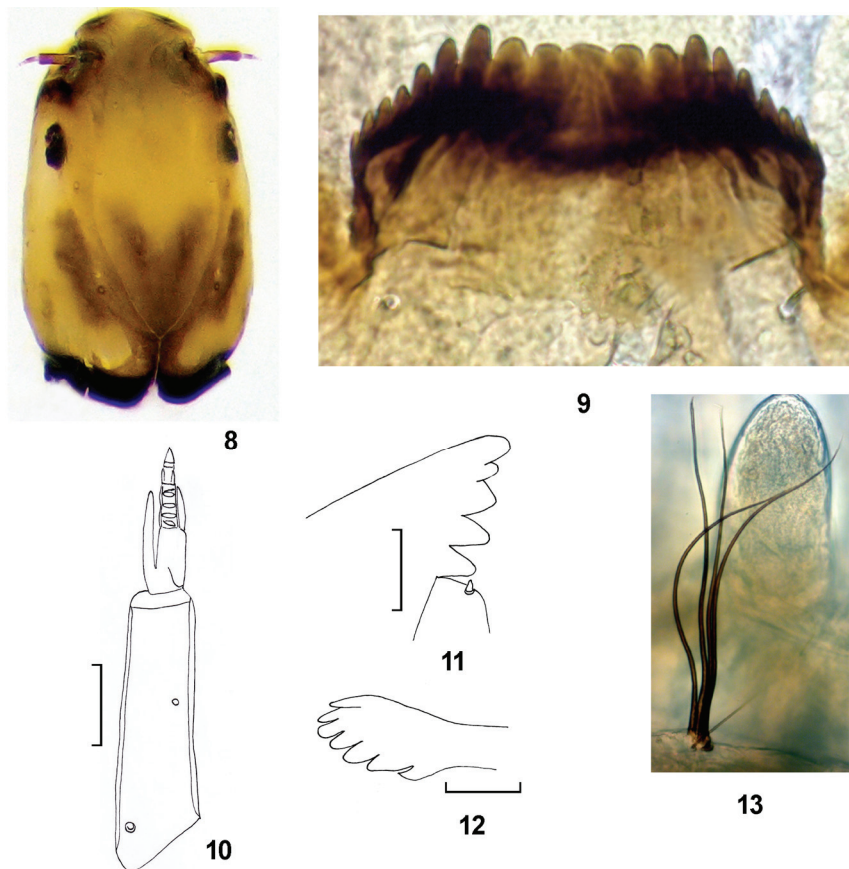
Coloration. Cephalothorax dark brown, thoracic horn yellow, abdomen yellowish brown. Exuviae yellow.



Figs 3–7. Adult male (3) and pupa (4–7) of *Diamesa kolyma* sp. n. 3 – gonocoxite and gonostylus; 4 – thoracic horn and precorneal setae; 5 – tergite III; 6 – tergite V; 7 – tergite IX and anal segment.

Cephalothorax. Frontal apotoma with 2 setae 256–276 μm long. Thorax wrinkled, in anterodorsal and lateral parts granulated. Thoracic horn 361–416 μm long, filiform, with small spinules at the top. Precorneal setae lengths (μm): Pc_1 – 200–262, Pc_2 – 128–164 (Fig. 4). Anteprenotum with 2 median and 2 lateral anteprenotals, 104–108 μm long. Mesonotum with 2 dorsocentrals: Dc_1 strong, 249 μm long, Dc_2 hair-like, 40 μm long.

Abdomen. Tergite I without shagreen and teeth. Tergites II–VII with shagreen in anterior third or half, tergite VIII almost all with shagreen. Sternites I–II without shagreen, sternites III–VIII with rare shagreen and IX without shagreen. Tergite I and sternites I–II without posterior transverse row of spines. Tergites II–VIII with spines of sternites III–VIII respectively – 10–11 : 10 : 12 : 12 : 8–9 : 8–9 (Figs 5–7). Segments I–2 with 2 pairs of lateral setae, 52–136 μm long; segments III–VII posterior



Figs 8–13. Larva of fourth instar of *Diamesa kolyma* sp. n. 8 – head; 9 – mentum; 10 – antenna; 11 – distal part of mandible; 12 – distal part of premandible; 13 – procercus. Scale bars: 20 μm .

transverse row spines, number of these spines on tergites respectively – 10–11 : 10 : 12 : 12–13 : 10 : 8 : 6 (Figs 5–7). Number of posterior transverse row with 3 pairs of strong lateral setae, 112–148 μm long (L_1 – L_3) and 1 pair of hair-like setae, 52 μm long (L_4). Segments II–VIII with spine-like process on posterolateral corner. Anal lobe with 3 yellow anal macrosetae, 280–304 μm long, slightly curved in distal part and pointed. Male genital sac little extended beyond anal lobe (Fig. 7).

Fourth instar larva ($n=4$). Total length 7.8–9.8 mm. Head capsule yellow, with brown or dark brown spots in basal half dorsally (Fig. 8), 574–623 μm long and 377–410 μm width; postoccipital margin black and wide. S_I and S_{II} short and simple, S_{III} bifurcate, hair-like. Labral lamellae consisting of 5 lobes. Premandible broad, apically with 7–8 teeth (Fig. 12). Antenna with 5 segments, length of antennal segments (μm): 64, 16, 10, 3, 4. Lauterborn organs small; style reaches base of fourth segment; longest branch of antennal blade reaches the apex of the fourth segment; ring organ *ca* 6 μm diameter located in basal quarter of first segment (Fig. 10); AR 1.77–1.94. Mandible dark brown to black, with apical tooth and 4 inner teeth; apical tooth slightly longer than the first inner tooth; seta subdentalis minute; seta interna with 24–26 simple branches (Fig. 11). Mentum with 1 median and 9 pairs of lateral teeth; median tooth about the same size as the first and second lateral teeth or little wider and together with them below third pair of lateral teeth; ventromental plate small (Fig. 9). Procercus dark brown, in the form of incompletely sclerotized ring, bearing 4 dark brown strong anal setae, 228–236 μm long and 1 hair-like lateral seta which is on the body, 64–68 μm long (Fig. 13). Posterior parapods in 1.4 times as long as last body segment. Dorsal and ventral pairs of anal tubulus 136–172 μm long.

DIAGNOSIS. The male of new species is closely related to *Diamesa bertrami* Edwards but differs well from it in the shape of the gonostylus, size and shape of anal point and superior volsellae. Also, eyes of *D. bertrami* hairy and AR 1.53, while *D. kolyma* sp. n. with not hairy eyes and AR 2.0–2.04. The larva is most closely related to *D. vernalis* Makarchenko but the latter has yellow head without dark brown spots, like a new species. A similar spotting of the head is typical for the larvae of *D. tsutsuii* Tokunaga, but it has dark triangular spot in the clypeal region, while *D. kolyma* sp. n. without spot in this area.

DISTRIBUTION. Known only from type locality.

ETYMOLOGY. The species is named as *kolyma* after the type locality in the Kolyma River basin. The name is a noun in apposition.

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