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New findings of micro-caddisflies (Trichoptera: Hydroptilidae) from the Russian Far East

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Abstract. To date, only 24 species in nine genera of micro-caddisflies (Trichoptera: Hydroptilidae) have been recorded from the Russian Far East. with only three species known from Sakhalin Island. Specimens collected during expeditions to the continental Khabarovsk Territory in 1996 and 2000 and on Sakhalin Island in 2000 and 2001 have increased this total. Two hydroptilid species new to science: Hydroptila spinosa sp. n. and Oxvethira tiunovae sp. n. are herein described and illustrated. Oxyethira distinctella MACLACHLAN, 1880 is recorded for the first time from the Russian Far East. Three species already known from the continental portion of the Russian Far Hydroptila spinosa sp. n. (Figs. 1-2) East (Orthotrichia costalis (CURTIS) 1834; Stactobiella biramosa MARTYNOV 1929; and, Stactobia tshistjakovi AREFINA and MORSE 2002) represent new records for Sakhalin Island.

Keywords: Trichoptera, Hydroptila. Oxvethira, Russian Far Khabarovsk, Sakhalin Island.

Introduction

Even though several recent publications have appeared which are devoted to the hydroptilid (Trichoptera: Hydroptilidae) fauna of the Russian Far East, our knowledge of this family remains incomplete. Currently, 24 species of microcaddisflies in nine genera are known from the elongated latero-ventral lobes directed caudad. region (AREFINA, 1997; AREFINA et al., 2002; MORSE et al., 2001). The hydroptilid fauna of Sakhalin Island is poorly known. Only three taxa, Palaeagapetus flexus ITO 1991 (AREFINA 1997), Agraylea sp. (VSHIVKOVA and KHOLIN 1997) and Hydroptila itoi KOBAYASHI 1977 (AREFINA 2002), have been previously recorded for the island. During the expeditions to the island sponsored by the International Programs Division of the U.S. National Science Foundation and the Institute of Biology and Soil Sciences of Russian Academy of slightly sclerotized, tapering, with six long and Sciences (IBSS RAS, Vladivostok) in 2001 and 2002 new collections of microcaddisflies were made. In addition, specimens from continental areas in the Khabarovsk Territory were made in 1996 and 2000 during the expeditions of the IBSS RAS. Two hydroptilid species new to science: Hydroptila spinosa sp. n. and Oxyethira tiunovae sp. n. are described and illustrated. Oxyethira in any of the existing groups of Hydroptila distinctella MACLACHLAN, 1880 is recorded for according to MARSHALL (1979). The male of the first time from the Russian Far East. Three Hydroptila spinosa could be recognized by the species already known from the continental presence of elongate latero-ventral lobes of

costalis (CURTIS) 1834; Stactobiella biramosa MARTYNOV 1929; and, Stactobia tshistjakovi AREFINA and MORSE 2002) represent new records for Sakhalin Island.

The purpose of this paper is to report on two new taxa and one new record for the Russian Far East and three new records for Sakhalin Island. Type material is held in alcohol and deposited in the collection of the IBSS RAS. Terminology used in the descriptions follows MARSHALL (1979).

Collection Locations

The Russian Far East consists of ten federal divisions. The Khabarovsk Territory occupies 788,600 square kilometers. Sakhalin Island is in the Sakhalin Region and occupies 87,100 square kilometers. Both of these regions are located in the southern half of the Russian Far East.

Type material: Holotype male: Central Sakhalin, middle part of Tym' River, 20 km SW from Yasnoye Village, 1 August 2002 (V. Teslenko). Paratypes: 3 males, same data as holotype: 1 male. South Sakhalin, north shore of Vavaiskoye Lake, Hydroptilidae, near the mouth of Shlyuzovka River, 18 July 2002 East, (N. Minakawa).

> Description: Length of fore wing: male -2.5-2.7 mm, female - 2.7-3.0 mm. Male antennae -30-segmented. female antennae -24-26 segmented. Spur formula: 0.2.4. Sternite VII of male with long and expanded caudally, pointed process. Sternite VI of female with small and acute median process.

> Male genitalia (Fig. 1): Segment IX with Tergite X almost transparent, its apical half semicircular in ventral view, broadened basally. Subgenital plate slightly emarginate, sclerotized apically, surrounded with semi-membranous structure armed with 7-9 rather long, stout spines located marginally. Inferior appendages straight and elongate, directed latero-caudad, shorter than tergum X. Aedeagus straight, slender, paramere (par) broad at base, tapering to curved apex.

> Female genitalia (Fig. 2): Segment VIII quite stout setae, erected perpendicular to segment and located evenly along distal margin ventrally, and two thin setae dorsally. Segment VIII having undulate transverse groove ventrally. Vaginal apparatus with long posterior branches.

> > Immature Stages: Unknown,

Diagnosis: This species cannot be placed portion of the Russian Far East (Orthotrichia segment IX; by complex structure of the subgeni-



Figure 1. Hydroptila spinosa sp. n.: male genitalia in lateral (A) and ventral (B) views; phallus in ventral view (C). Abbreviations: ae - aedeagus, inf.ap - inferior appendages, sg.pl - subgenital plate, st.VII - sternite VII, IX - segment IX, X tergite X.



Figure 2. Hvdroptila spinosa sp. n.: segment VIII of female in ventral view (A); vaginal apparatus in ventral view (B).

tal plate armed with stout spines; by the shape of paramere.

Distribution: Russia (Sakhalin Island).

Etymology: This species is named for the stout spines found on the subgenital plate.

Oxyethira tiunovae sp. n.

Territory, Ussuri River Basin, Kiya River at process, inf.ap - inferior appendage, par -Ekaterinoslavka Village, 26 July 1996 (T. parameres, se.lb - setal lobe, sg.pr - subgenital Arefina). Paratypes: 42 males, 110 females, same processes, VII - sternite VII, VIII - segment VIII, data as holotype; 5 males, 3 females, South IX - segment IX.

Sakhalin, north shore of Vavaiskoye Lake, near the mouth of Shlyuzovka River, 18 July 2002 (V. Teslenko & N. Minakawa); 1 male, North Sakhalin, Rybnoye Lake near Val Village, 27 August 2002 (N. Minakawa).

Description: Length of fore wing: male -2.2-2.5 mm, female - 2.5-2.9 mm. Male antennae -34-38 segmented, female antennae - 23-25 segmented. Spur formula 0.3.4.

Sternite VII of male with short, acute posteromesal process.

Male genitalia (Fig. 3): Segment VIII nearly as long as high; its anterior margin slightly concave at ventral portion; postero-lateral margin with rounded excision medially; postero-dorsal margin with shallow, rounded excision. Segment IX withdrawn into segment VIII, with ventral portion longer than dorsal one. Subgenital processes projecting as pair of heavy sclerotized bars massive basally and tapering to slender apical half with blunt apex and directed ventro-caudad. Arms of bilobed process directed dorso-laterad, each with terminal seta. Inferior appendages triangular in lateral view, with upturned apex; in ventral view, appendages fused basomesally, with wide rounded excision apically, lateral margins parallel-sided; each setal lobe somewhat triangular, with rounded apex and several terminal setae. Aedeagus with apex capitate, projecting



Figure 3. Oxyethira tiunovae sp. n.: male genitalia in lateral (A) and ventral (B) views; distal margin of segment VIII in dorsal view (C); phallus in ventral view (D) (holotype); enlarged middle portion of paramere in ventro-lateral view (E) Rybnoye (paratype Sakhalin, Lake). Type material: Holotype male: Khabarovsk Abbreviations: ae - aedeagus, bl.pr - bilobed



Figure 4. Oxyethira tiunovae sp. n.: female genitalia in lateral (A), dorsal (B) and ventral (C) views. Abbreviations: se.lb - setose lobe, sg.pl subgenital plate, VII - segment VII, X - tergite X.

laterad, without lobes or spines; paramere turning one time around phallus, broad at proximal part, first divided at midlength into two strands wide record for the Russian Far East. and narrow, then wide strand divided again into two branches of nearly equal length; one of Stactobia tshistjakovi AREFINA et MORSE, 2002 strands bearing rather long hook-shaped projection Stactobia tshistjakovi AREFINA et al., 2002: 103angled about 90 degrees.

Female genitalia (Fig. 4): Disto-ventral margin of segment VII with shallow medial Sakhalin, middle part of Tym' River, 20 km SW excision. Posterior margin of tergite VIII arched band produced as spatulate setose lobe; sternite VIII forming triangular subgenital plate. Tergite X short, semicircular. Vaginal apparatus complex.

Immature Stages: Unknown.

Diagnosis: This species belongs to the Oxyethira (O.) flavicornis Group. Within the group, this Stactobiella biramosa MARTYNOV, 1929 species most closely resembles to O. ecornuta Stactobiella biramosa MARTYNOV, 1929: 297, MORTON, 1893 and O. flavicornis PICTET, 1834. figs. 5-6 (male); AREFINA et al., 2002: 104-105, The male of O. sakhalinica sp. n. differs from the figs. 22-23 (female). mentioned above species by the shape of the subgenital processes and inferior appendages and Sakhalin, Lyutoga River, 25 July 2001 (Yu. also by number of paramere branches. It can be Marusik); 1 male, Central Sakhalin, middle part of easily recognized by the structure of paramere.

Distribution: Russian Far (Khabarovsk Territory, Sakhalin).

Dr. Tatyana M. Tiunova of the Institute of Biology Territories, Sakhalin). Remarks: This species and Soils Science, Far Eastern Branch of the represents a new record for Sakhalin Island. Russian Academy of Science, Vladivostok, Russia.

Remarks: AREFINA et al. (2002, p. 102) treated this new species mistakenly as O. ecornuta. Petersburg However, a closer examination of recently and Russia) for helpful comments and all collectors of previously collected specimens revealed consistent differences between males of these two species.

Orthotrichia costalis (CURTIS), 1834

Hydroptila costalis CURTIS, 1834: 218.

4 (male); Arefina et al., 2002: 100-102.

Material examined: 1 \mathcal{J} , South Sakhalin, Vavaiskoye Lake, 18 July 2002 (V. Teslenko).

Distribution: Europe, Russian Far East (Khabarovsk and Primorye Territories, Sakhalin). Remarks: This species represents a new record for Sakhalin Island.

Oxyethira distinctella MACLACHLAN, 1880

Oxyethira distinctella MACLACHLAN, 1880: 521-522, Pl. 59, figs. 1-2 (male); KELLY, 1982: 141-142, fig. 86 (female).

Material examined: 102 males, 109 females, North Sakhalin, Rybnoye Lake near Val Town, 27-30 July 2002 (N. Minakawa); 5 males, 7 females, North Sakhalin, an unnamed small lake at Val River Basin, 28 July 2002 (N. Minakawa); 33 males, 11 females, Khabarovsk Territory, Tuguro-Chumikansky Region, an unnamed lake at Neran Village, 3 August 2000 (T. Tiunova).

Distribution: Europe, Russian Far East (North of Khabarovsk Territory and North of Sakhalin). Remarks: This species represents a new

104, figs. 16-18 (male).

Material examined: 3 males, Central from Yasnoye Village, 1 August. 2002 (V. Teslenko).

Distribution: Russian Far East (Primorye Territory, Sakhalin Island). Remarks: This species represents a new record for Sakhalin Island.

Material examined: 25 males, 2 females, Tym' River, 20 km SW from Yasnoye Village, 1 East August 2002 (V. Teslenko).

Distribution: Siberia (Bija River). Etymology: This species is named after Russian Far East (Khabarovsk and Primorye

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AREFINA T.I. 1997. Fam. Hydroptilidae. pp. 41- The following text was found in Nota lepidopterologica

Lepidoptera. Vladivostok, Resolution adopted by the General Meeting of the Societas Europaea Lepidopterologica (SEL) at the AREFINA T.I. 2002. Hydroptila itoi KOBAYASHI, XIII European Congress of Lepidopterology in

Hydroptilidae) from Russia. - Far Eastern Lepidopterists are strongly recommended to use species-group names of Lepidoptera established in the form of an adjective or participle in the nominative singular only in their original (gender) form given in the original description, unless the name was fixed otherwise by a subsequent opinion of the International KELLEY, R.W. 1982. The micro-caddisfly genus Commission on Zoological Nomenclature. In this respect the gender agreement requirements of Artt. and 31.2, 34.2 of the actual (4th edition) of the Code shall be disregarded, and such species-group names of Lepidoptera in the form of an adjective or participle in the nominative singular shall generally be treated as nouns in apposition and must in no case be changed to the Hydroptilidae (Trichoptera). - Bulletin of the agree in gender with whichever generic name they are

When naming new species of Lepidoptera, MARTYNOV A.V. 1929. On a collection of taxonomists shall make sure that the form (epithet) of Trichoptera from the River Bija and the vicinity of an adjectival species name either matches the obvious gender of the genus name (cf. Recommendation 30A, 30B) it shall be combined with or follows the example

The President is empowered to take appropriate Y.J. BAE (ed.). The 21th Century and Aquatic action so that the afore mentioned general mode of the Entomology in East Asia. Proc. 1st Symp. application of the gender agreement provisions of the AESEA. Korean Soc. Aquatic Entomol., Korea: Code in the nomenclature of Lepidoptera can be formally accepted by the institutions concerned.

species described by J. CURTIS. - Beitr. Ent., Good for lepidopterists only ? I remember to have "amendments" such as found in recent papers malatestus or Apsilochorema

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