BRAUERIA (Lunz am See, Austria) 46:18 (2019)

A small collection of caddisflies (Insecta, Trichoptera) from the Arctic marine localities of European Russia

Stanislav I. MELNITSKY & Vladimir D. IVANOV

The current deficiency of precise data on the distribution of Trichoptera is common place in the literature; e.g., the recent manual on the distribution of the European Trichoptera (NEU & al. 2018) has some lacunas across its study area and large empty spaces in the territory of the Russian Federation. For some reasons, especially because of low accessibility, the polar areas belong to the least studied areas in the globe, and Trichoptera are poorly known there except for a few countries, e.g. Finland (SALOKANNEL & MATTILA 2018). The fauna of Russia has been studied fragmentary (IVANOV 2011) so its northern areas are poorly investigated.

There is a small collection of Trichoptera sampled in the Kara and Barents Seas by Nikolai Paramonov, a fellow researcher from the Zoological Institute of the Russian Academy of Sciences. He got an opportunity to sample insects while performing ecological monitoring on board of a research ship in late summer 2018. The ship visited the open sea near the Arctic shores of Russia along the Northeast passage (NEP) and in proximity to major ports and drilling platforms. All samples were taken by hand picking and net captures onboard. A total of 8 species from 4 families were found. The season was limited by the end of August which is the autumn season in the polar regions; nonetheless the temperatures in the sampling area were rather high varying from +7 to +17°C in locality 1, +5 to +7°C in locality 4, and reaches +20°C in locality 5, thus supporting the flight activity of insects.

Since the caddisflies were sampled in sea areas with full water salinity, the sources for all localities were the on-shore waters. It is notable that in some instances, the material was sampled at distances up to 50 km from the nearest shores (locality 1). It is not impossible that the river species sampled in locality 1 could be visitors from the Pechora River, a large water stream ending by an estuary some 150 km southeast to the sampling site.

Insects sampled far from the land might be carried by wind and partly could cover the distance in active flight. The instances of far flights are known for certain species when the adults covered up to 200 km from their places of development (IVANOV 1985). The sampled material was not the major target of sampling and is a part of monitoring sampling, hence the list is not fully compatible to the shore faunas. Nonetheless the abundance and diversity of the material suggest the significant development of northern faunas on the adjacent shores. This material can also explain the abundance of insects including the Trichoptera in the marine fossil deposits. Besides that, the data uncover the significant dispersal abilities of some species of Trichoptera that can enter remote habitats by active flight and wind transfer. Hence the distances of 50-150 km are easily achievable by adult caddisflies and compatible areas of plains and sea waters cannot be distributional barriers for Trichoptera species.

The samplings localities were as follows:

Locality 1: Russia, Arkhangelsk region, Barents Sea, Sea ice-resistant stationary platform "Prirazlomnaya", on board of ship, 55 km NW from settlement Varandey, 69°15'57"N, 57°17'09"E, 21.-24.8.2018, N. Paramonov leg.

Locality 2: Russia, Arkhangelsk region, Yugorsky Strait (between Vaygach Island and Yugorsky Peninsula), on board of ship, 69°43'00"N, 60°3'00"E, 29.8.2018, N. Paramonov leg.

Locality 3: Russia, Arkhangelsk region, Yugorsky Strait (between Vaygach Island and Yugorsky Peninsula), on board of ship, 69°43'00"N, 60°3'00"E, 8.8.2018, N. Paramonov leg.

Locality 4: Russia, Tyumen region, Sabetta, sea port, Kara Sea, 71°16'05"N, 71°58'58"E, 12.8.2018, N. Paramonov leg.

Locality 5: Russia, Tyumen region, 2 km W Kharasavey, Kara Sea, on board of ship, 71°10'50"N, 66°51'50"E, 24.8.2018, N. Paramonov leg.

List of sampled species

Hydropsychidae CURTIS, 1835

Hydropsyche bulgaromanorum MALICKY, 1977 L1: 8♂

Polycentropodidae ULMER, 1903

Neureclipsis bimaculata (LINNAEUS, 1758) L1: 1♂, 1♀

Phryganeidae LEACH, 1815

Agrypnia czerskii (MARTYNOV, 1924) L1: 1♀
Agrypnia pagetana CURTIS, 1835 L2: 1♂
Oligotricha lapponica (HAGEN, 1864) L1: 1♀

Limnephilidae KOLENATI, 1848

Asynarchus lapponicus (ZETTERSTEDT, 1840) L3: 1♂; L4: 1♂, 2♀; L5: 2♂, 1♀
Grammotaulius signatipennis MCLACHLAN, 1876 L3:1♂
Limnephilus femoratus (ZETTERSTEDT, 1840) L5: 1♂

Acknowledgement

We are grateful to Nikolai Paramonov (ZIN RAS) for his sampling efforts and provided material.

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Adress of authors: Department of Entomology, Faculty of Biology, St. Petersburg State University, Universitetskaya nab., 7/9, 199034 Russia: simelnitsky@gmail.com; v--ivanov@yandex.ru