

Updates to the Trichoceridae (Diptera) fauna of Finland

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Three species of Trichoceridae (Diptera) are reported as new to Finland: *Trichocera* (*Metatrachocera*) *forcipula* Nielsen, 1920, *Trichocera* (*Saltrichocera*) *rufulenta* Edwards, 1938, and *Trichocera* (*Staryia*) *dufour* Krzemińska, 2020. *Trichocera arctica* Lundström, 1915 is removed from the list of Finnish species. After a decades-long period without Finnish observations, *Trichocera* (*Trichocera*) *sibirica* Edwards, 1920 and *Trichocera* (*Saltrichocera*) *maculipennis* Meigen, 1818 are again recorded from the country.

Suomen talvisääskilajistoon ilmoitetaan kolme uutta lajia ja yksi poistetaan. Kahden muun lajin havaintoja julkaistaan ensi kertaa vuosikymmenien tauon jälkeen.

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Introduction

The knowledge of winter gnats, i.e. family Trichoceridae, in Finland has increased significantly during the last decade. The checklist of Finnish Trichoceridae published in 2014 included 15 species and two uncertain species (Salmela & Petrašiūnas 2014). Since then, Krzemińska & Gorzka (2014, 2016), Viitanen (2015) and Krzemińska (2020, 2021) have reported eleven new species, six of them new for science. Adding the results of this paper, the number of Finnish trichocerid species grows to 29. The alleged 30th species, *Cladoneura hirtipennis* (Siebke, 1863), remains uncertain.

Despite several recent publications, the family must still be considered poorly known in Finland. It still seems rather easy to find new species for the country, while the distribution of the species within the country, the male morphology of six species, and the biology of all species is more or less unknown. However, the very recent publication of the European-wide key for the genus *Trichocera* (Krzemińska, 2021) has increased interest and facilitated studying the group in more detail.

Material and Methods

The specimens were collected from several locations in Finland in 2020–2021. Collecting methods and other information is presented for each record. In addition, a voucher specimen

of the alleged *T. arctica* record was borrowed from the Forssa Museum of Natural History for re-examination.

Identification was based on the characters used in Krzemińska (2021). The abdominal terminalia were macerated in about 10% KOH or NaOH to study the species level characters, except when very characteristic structures could be seen without treatment.

Coordinates are in WGS84 decimal degrees.

Species

Trichocera (*Trichocera*) *sibirica* Edwards, 1920

A species with very characteristic gonostyli. The last published record from Finland we are aware of is from Ks: Kuusamo in 1969 (Krzemińska 2021). Four new records were made in 2021, and province Oba was added to the previously known provinces Ks, Ta, and Lkoc (FinBIF 2021).

Ks: Kuusamo, Uopajanpuro, 66.3403 °N, 29.5218 °E, 19.IX.2021, 1 male, with LED light, Juha Salokannel leg. & coll. Specimen code: JS-D0131.



Fig. 1. *Trichocera maculipennis* male, wing length 6.9 mm. Oulu 2020. Photo: Ari Kakko.

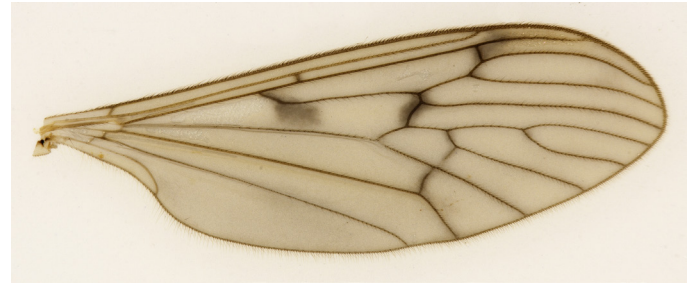


Fig. 2. *Trichocera maculipennis* female, wing length 6.5 mm. Oulu 2020. Photo: Ari Kakko.

Ks: Kuusamo, Nurmisaarenniemi, 66.3485 °N, 29.4576 °E, 19.IX.2021, 1 male, with a sweep net, Juha Salokannel leg. & coll. Specimen code: JS-D0068. Permission MH 749/2018/06.06.02.

Ta: Juupajoki, Hyytiälä, 61.8458 °N, 24.2880 °E, 6.–14.X.2021, 1 male, in a light trap (Nocturna), Reijo Pilkottu leg. Coll. Salokannel. Specimen code: JS-D0162.

Oba: Oulu, Korvenkylä, 65.0573 °N, 25.6234 °E, 1.–18.X.2021, 2 males, in 2 light traps, Harry Nyström leg. Coll. Nyström and coll. Kakko.

Trichocera (Metatrachocera) forcipula Nielsen, 1920

New to Finland. The species is widely distributed within Europe, but not known elsewhere (Krzemińska, 2021). Male of *T. forcipula* has characteristic gonocoxite and gonostyli (Figures 3A–B).

Ta: Pälkäne, Rautajärvi, 61.4124 °N, 24.7166 °E, 3.X.2021, 1 male, at light, Keijo Mattila leg. Coll. Lapin maakuntamuseo (LMM). <http://tun.fi/NVO.JS-D0277>.

Trichocera (Saltrichocera) arctica Lundström, 1915

Removed from the Trichoceridae list of Finland. The only specimen reported from Finland, collected in Ta: Urjala 23.IX.1965 (T. Brander leg.) and stored in the Forssa Natural History Museum, was re-examined. The gonostyli of this male specimen are thick and the basal tubercle is distinct. However, the gonocoxite bridge is not sharply triangular as it should be in *arctica*, but instead shaped as e.g. in *T. recondita* Starý. Prof. Ewa Krzemińska and the authors agreed that the specimen is probably a variant of *T. recondita*.

Trichocera (Saltrichocera) maculipennis Meigen, 1818

A species with unique three-spotted wings (Figures 1–2). *T. maculipennis* is also exceptional in that it has been regularly found in cellars and caves due to its synanthropic ecology. One more interesting detail about this species is that it was observed in Maritime Antarctica on October 23, 2017. This is the

first record of dispersal of flying non-native insects introduced by human activity to Antarctica (Potocka & Krzemińska 2018).

Four old records of the species were previously known from Finland, the most recent being April 4, 1961 (Dahl 1968).

Oba: Oulu, Yli-Ii, 65.3320 °N, 25.7319 °E, 29.X.2020, 20 males and 20 females, overwintering in a root cellar, Ari Kakko leg. & coll.

Trichocera (Saltrichocera) rufulenta Edwards, 1938

New to Finland. Widespread in Europe. The nearest records to Finland are from Lithuania (Krzemińska, 2021). *T. rufulenta* belongs to a group of species with a row of setae on the more or less straight margin of the 9th sternite and an indistinct basal tubercle of the gonostyle (Figures 3C–D). Furthermore, *T. rufulenta* differs from the common *T. saltator* (Harris, 1776) by a straighter gonostyle, the shape of the aedeagal complex and the lighter colour of the body. The 9th sternite margin is often bent like in Figure 3D, which makes it rather easy to confuse with other species like *T. recondita* Starý, 2000. Most specimens of *T. rufulenta* were caught in a suburban garden in Tampere. The female has the smallest ovipositor in the genus (Krzemińska, 2021), but so far only males have been recorded in Finland.

Ta: Ruovesi, Väärinmaja, 61.938 °N, 24.3299 °E, 7.–14.X.2020, 1 male, in a light trap (Nocturna), Markus J. Rantala & Pentti Rantala leg. Coll. Krzemińska. Specimen code: JS-D0044. Krzemińska cnf.

Ta: Tampere, Lukonmäki, 61.4663 °N, 23.8449 °E, 10.X.2020, 2 males and 4.X.2021 2 males, in a light trap, Juha Salokannel leg. Coll. Salokannel. Specimen codes JS-D0049, JS-D0051 and coll. LMM: JS-D0272 and <http://tun.fi/NVO.JS-D0273>.

Trichocera (Staryia) dufouri Krzemińska, 2020

New to Finland. The species is characterized e.g. by the shape of the ovipositor and the outgrowth at tergite 9 (Figure 3E). Two females were found in a countryside garden. The species is an international rarity, so far known only from Switzerland and Sweden (Krzemińska 2021). The male remains unknown.

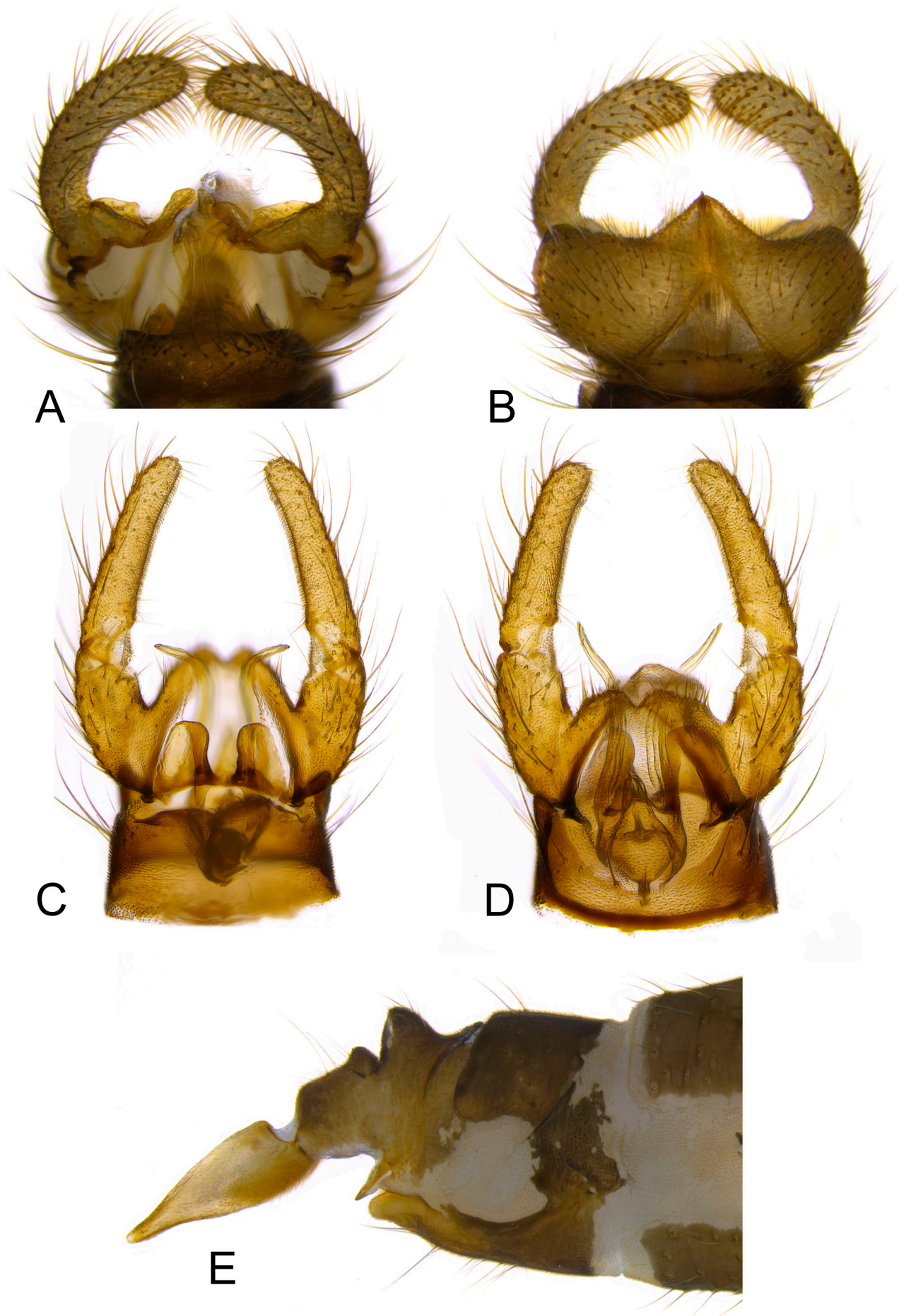


Fig. 3. Abdominal terminalia: *T. forcipula* JS-D0277, male, dorsal (A) and ventral (B), *T. rufulenta* JSD0273, male, dorsal (C) and ventral (D), *T. dufouri* JS-D0206, female, lateral (E). Photos: Jukka Salmela.

Ta: Pälkäne, Käpylämäki, 61.3013 °N, 24.3186 °E, 16.-30. IX.2021, 2 females, in a light trap (Nocturna), Hannu Alén leg. Coll. Salokannel. Specimen code JS-D0193 and Coll. LMM: <http://tun.fi/NVO.JS-D0273>. Krzemińska cnf.

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