Designation and description of lectotype *Trichocera (Saltrichocera) borealis* Lackschewitz, 1934 (Diptera, Trichoceridae)

Christine Dahl & Ewa Krzeminska

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Trichocera borealis Lackschewitz, 1934 was described from Spitsbergen, but for many years the type material seemed to be lost. Since then several closely related species have been described, creating a situation where the identity of *T. borealis* needs to be establish. However, in 1985 the material was rediscovered at Tromsø museum. A lectotype is here designated, and a summary of the known distribution, biology and the generic affiliation is presented.

Keywords: *Trichocera (Saltrichocera) borealis*, lectotype, paralectotype, distribution, biology

Christine Dahl, Uppsala University, EBC, Norbyvägen 18D, SE-75236 Uppsala and Lunds University, Zoological Museum, Helgonavägen3. SE-22362 Lund, Sweden

Ewa Krzeminska , Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, ul. Slawkowska 17. PL-31-016 Krakow, Poland

INTRODUCTION

Despite intensive searches in the late 1960ties the type material of Lackschewitz *T. borealis* from Longyearbyen, Spitsbergen, was not found in the Tromsø Museum collection. It was considered to be lost. The Greenland and Alaskan material of *T. borealis* shows much variation (Dahl 1967) and might contain closely related and unidentified species. Dahl (1973) established larval material from Longyearbyen as type material. However, 1985 Arne Fjellberg found the Lackschewitz adult material in a store room of the museum. No holotype specimen was asigned. Recently northern species were described on adult males by Stary (2001) and Krzeminska (2001, 2002). Krzeminska (2002, 2004) revised the subgenus systematics of Trichoceridae. Lackschewitz original description and figure of the hypopygium do not rearch current standards of species definitions. Therefore the fixation of an adult male lectotype from the original material is necessary.

MATERIAL

Lackschewitz based his *T. borealis* on 34 males and 4 females, labelled Longyearbyen 14/7-28 coll. Sømme. The lectotype with these original labels and the female paralectotype are additionally labelled with lectotype Dahl & Krzeminska 2008. Additional preparations were made by Dahl on 6 males and 2 females and labelled paralectotypes Dahl 2007. The drawings are based on photographs made under magnifications 40-100x by E. Krzeminska. The genitalia of the male lectotype and the female paralectotype are stored in glycerine in glass vials pinned under the specimens, the rest of the paralectotype genitalia are mounted in euparal on slides. The material is in the Tromsø University Museum.

Lackschewitz description from 1934 is in German, and here we provide a translation: *" Brownish grey to blackish grey species. Antennae as long as head and thorax together. The basal flagellars longish-oval, rather densely covered with setae, against the needle-like end cylindrically. Praescutum dull, brownish grey, abdomen somewhat shiny, brownish grey, legs more sturdy than in T. saltator, brownish grey, wings with a brownish tinge, without spots. R 2+3 as long or shorter, seldom longer than the basal part of R2. Halteres light grey with dark brown knobs. Wing length 6-7 mm. Hypopyg: Dististyli (pincers) sturdier than in T. saltator. Outer segment at base with small setae on its knob. Gonapophyses bleak yellow, sickle-shaped, very long. Ovipositor (terebra) shorter and less bent than in T. saltator."*

Lackschewitz (1934) compared *T. borealis* with *T. arctica* Lundström, 1915 and *T. (Salt.) saltator* Harris 1815. At that time *T. arctica* was only known from the Russian localities mentioned in the original description and from the Tschuktschen Penninsula in northeast Russia (Lackschewitz 1934). Kandybina & Lantsov (1987) mention several additional locations, e.g. Taimyr Peninsula, and it is also known from Alaska, Point Barrow (Dahl 1960, Pratt 2003). Lantsov (1987) also described *T. lackschewitzi*, redescribed by Krzemińska (1996) who included this species in the subgenus *Trichocera s.str.* (Krzemińska 2001). This species in known from the type locality and Isle of Vaygach and probably has a wider, northern Palaearctic distribution.

Three species of similar distribution can be separated from *T. borealis* by the following characters: from *T. (S.) obtusa* Stary by the cut off margin of sternite IX, against a straight margin in *T. (S.) borealis*; *T. (S.) arctica* Lundström and *T. (T.) lackschewitzi* by having the bridge fused; the inner genitalia of the latter are of the subgenus *Trichocera* type. *T. (S.) saltator* mentioned by Lackschewitz (1934) as species known to him, has no tubercle on the dististyli and has not been found in subarctic or arctic areas.

TAXONOMIC REMARKS

There exist two previous invalid designations of types for *T. borealis*. One of a larval type (Dahl 1973) and one of syntypes by Kandybina & Lantsov (1987). Before the original material was found, Dahl (1973) selected by inference a type from a larval collection from Spitsbergen. No reared material exists to prove the identity of the specimen as *T. (S.) borealis*. The syntypes of Kandybina & Lantsov (19879) are not from the type locality in Spitsbergen and published in the Petersburg Museum catalogue without descriptions (Article 72.4.7), and thus invalid.

Trichocera (Saltrichocera) borealis Lackschewitz, 1934

(Figs. 1-2)

Lectotype male. Specimen labelled: "Spitsbergen Longyearbyen 14/7 -28 coll. S. Sömme, lectotype prep nr L1, Dahl & Krzeminska 2008."

DIAGNOSIS

T. borealis: Body size medium, wings between 6 to 8 mm (male/female). Colour greyish without lighter rings on abdomen, wings with an indiscernible brown patch across r-m, cell m1 short to medium long, Antennae in lateral view short, not exceeding twice the length of the head. First flagellar segment in the male and female antennae conspicuously swollen, up to twice the length of the following segment. Male hypopygium with shorter and stouter dististyli than in *T. saltator* and a distinct, round basal tubercle. Bridge broad, divided. Aedeagal apparatus with long, basally stout parameres and a pear-shaped aedeagus. Margin of IX sternite straight. Female ovipositor slightly, to conspicuously curved with broad tip. Genital plate with wide foramen, apodeme not forked, but bowl-like, supravaginal plate with two setae, hypogynal valves long and broad. Some variation in single parameters exists in both males and females.

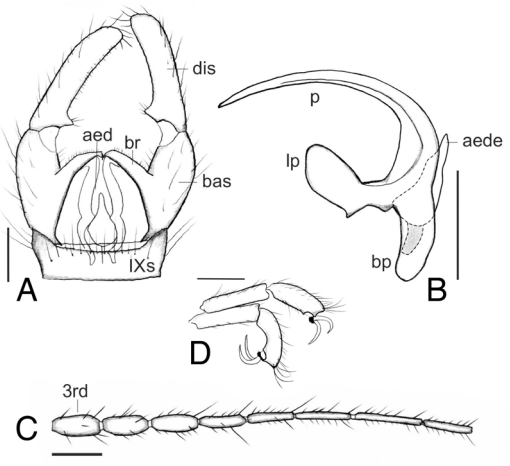

Figure 1 A–D. Lectotype male prep. nr. L1. ***A***. Hypopygium: IXs-sternit, br - bridge, bas - basistylus, dis - dististylus, aed - aedeagal apparatus. ***B***. Aedeagal apparatus: p - parameres, bp - basal part, lp - lateral part, aede - aedeagus. ***C***. Antenna: 3rd - third segment. Scale bars 0.1 mm. ***D***. Hind legs: tarsae with claws.

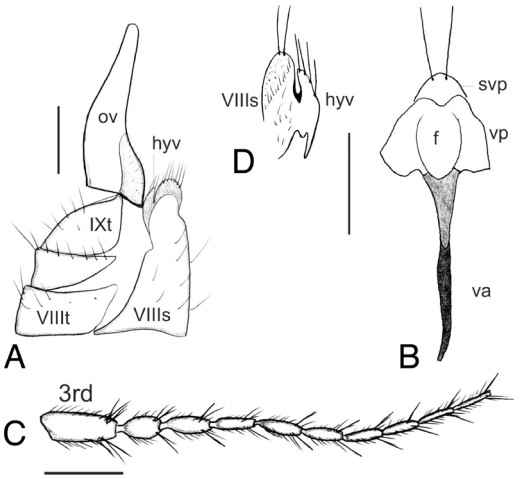

Figure 2 A–D. Paralectotype female prep. nr. L3. ***A***. ov - ovipositor. VIIIs - sternite, IXt - tergite, VIIIt - tergite, hyv - hypogynal valve. ***B***. Vaginal plates: vp - vaginal plate, f - foramen, svp - supravaginal plate, va - vaginal apodeme. ***C***. Antenna: 3rd-third segment. Scale bars 0.2 mm. ***D***. Hypogynal valves: VIIIs - sternite. hyv-hypogynal valve.

DESCRIPTION

Size: medium, body length 5.5 mm, wings 7 mm, colour greyish.

Head: with greyish tinge, lateroventrally near the eyes scattered long setae, labellum rounded, palpi with second segment longer than the following one, all with short stout setae.

Antennae: first flagellar segment (3rd antennal segment) thickened, as long as the following one, subsequent segments rather short, (Figure 1 C-D) slightly gradually growing in length, with longer, strong setae at their distal ends.

Thorax: Pleura with greyish tinge, shape of katepisternum as in genus *Trichocera* (Dahl & Krzeminska 1997).

Wings: A2 short, bent, Sc dorsally few bristles, ventrally none, cell m1 short, over cross vein r-m a barely discernible tinge of brown.

Legs: greyish, the coxae somewhat lighter with a group of long setae apically, tibia with a dense setation on all segments and two stout tibial spurs. On all legs the first tarsal segment twice the length of the second one, tarsal claws in males relatively very long and strong, exceeding half of fifth tarsomere (Figure1 D).

Hypopygium (Figs.1 A-B): IX sternite straight, with a row of long setae and protruded edges.

Basistyli not ballon-like, dististyli stout, medium long, parameres long, near the aedeagus broad with broad basal apodemes and wide lateral apodemes, aedeagus pear-shaped moderately elongated with round tip.

Paralectotype female: The specimen is labelled Spitsbergen Longyearbyen 14/7 -28 coll. Sömme. Paralectotype female L3, Dahl & Krzeminska 2008.

Body, wings and *antennae* (Figure 2 C) same size as the male, palpi missing. Setation on ventral wing veins is denser than in the male and dorsally on Sc, with proximal denser setae. Cell m1 longer

than in male. Legs densely setate; tarsal claws small and delicate, not exceeding one third of the last tarsomere.
Ovipositor (Figure 2 A): long, 0.5 mm, somewhat longer than the genital segment, only slightly curved with elongated and rounded tip.
Vaginal plate (Figure 2 B): with wide foramen, apodeme with bowl-like apical part; supravaginal plate with two long setae.
Hypogynal valves (Figure 2 D): long, with broad dorsal part, deeply divided.

DISTRIBUTION

T. (S.) borealis is holarctic. In the Palaearctic it is recorded from Spitsbergen (Dahl 1957, 1973), King Karls Island (Dahl 1981), Scandinavia: Norway, Faroe Islands (materials identified by E.K. in BMNH, not recorded till now); the Kola Peninsula, from Novaya Zemlya, and near the Bering Street at the Island of Wrangel and in the Anadyr Mountains (Lantsov & Tschernov 1987); from the Nearctics from Alaska (Pratt 2003), Canada, NWT and Greenland, where it is the most common species of Trichoceridae (Dahl 1967). Samples from Spitsbergen contained larvae and pupae of *T. (S.) borealis* from beginning July. They were found in a *Microtus arvalis* (Pallas), now recorded as *Microtus rossiaemeridionalis* Ognev, 1924, nest and also beneath dead voles in detritus rich ground (Dahl 1973). The most interesting collection was made on King Karls Land during the Swedish YMER 80 expedition.

BIOLOGY

In Museum collections from holarctic/subarctic regions *T. (S.) borealis* is represented by both males and females from the months June, July and first half of August (Dahl 1970). On Spitsbergen Lackschewitz (1934) caught mostly males and a few females in the last half of July. Biological features from a large museum and recently collected material from Greenland (Copenhagen, Zoological Museum) were not analysed (Dahl & Krzeminska, in press), but records are mostly from June-July. Berlese-trap material from Spitsbergen was from June and July (Dahl 1973) and larvae, male/female pupae and males/females were collected during July in pitfall traps on King Karls Island, Ymer expedition 1980 (Dahl & Danielsson, pers.com).

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