

New data on gall midges from lake shore habitats in NW Russia (Diptera: Cecidomyiidae)

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New regional records are given for 12 species of Cecidomyiidae. Two species are recorded from Russia for the first time. Ecological information on praeimaginal stages is provided for 4 species. All species listed but one are shown to develop within the lake shore zone.

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The paper is based on the materials collected by A. Przhiboro in 1997-2001 at the following small lakes in the North-West of Russia: lakes Pionerskoe, Bol'shoe Rakovoe and Okhotnich'e (60°18'N 29°17'E, 60°37'N 29°25'E and 60°37'N 29°20'E, respectively; Vyborg Distr. of Leningrad Prov.), Anninskoe and Anisimovo (56°12'N 28°40'E; Sebezhdistr. of Pskov Prov.). Below, in the "Material" section for each species, only the names of lakes are given. For details of the study lakes and habitats, see Mamaev & Przhiboro (2001) and Przhiboro (2001a, 2001b).

All material was collected from the zone of water margin (= water line; within the borders: from 5 cm below the water level to 10 cm above it). Here, three morphological types of this zone are recognized (see Przhiboro, 2001b, 2003). All data except one record at the Pionerskoe Lake are obtained from sites belonging to type 3. It is a shore marsh (3-50 m wide), abounding in mounds, completely protected from wave action and densely covered with semiaquatic vegetation (mainly Cyperaceae and Poaceae).

All imagines but one were reared in laboratory from separate larvae and pupae obtained from samples in the course of processing, as well as from substrata collected in the zone of water margin and kept in laboratory conditions. Most of imagines were reared after 1-2 month exposure of the material to a temperature of 5-10 °C (during all other time, the material was kept at a room temperature, ca. 20 °C). Of reared imag-

ines, only some individuals of *Lestremia cinerea*, *Stomatocolpodia iridis* and of all listed *Coquillettomyia* species emerged without thermic reactivation.

Gall midge specimens are deposited mostly at the Zoological Institute, St.Petersburg (some specimens, in B. Mamaev collection, Zoological Museum of the Moscow State University).

The following abbreviations are used in the text:

1) new records: LP, for Leningrad Prov.; PP, for Pskov Prov.; *, far outside the previously known range.

2) larval habitats in lakes of the respective regions: MZ, zone of water margin, with number corresponding to the type of this zone.

Subfamily LESTREMIINAE

Lestremia cinerea Macquart, 1826 (LP, PP: MZ3)

Material. Lake Anninskoe: 1 ♂, 1 ♀ reared 12.VIII.1998 from substratum collected 25.VII.1998. Lake Anisimovo: 1 ♂ reared 16.X.1998 from pupa collected 25.VII.1998. Lake Bol'shoe Rakovoe: 1 ♂ reared 13.XII.2001 from substratum collected 31.X.2001. Lake Okhotnich'e: 2 ♂ reared 17.XII.2001 from larva collected 30.X.2001.

Notes. This common species is recorded from Latvia, Lithuania, central and southern parts of European Russia (Mamaev & Berest, 1984; Pakalniškis et al., 2000). At the lake shores, it is found only within the water margin zone of type 3.

Subfamily PORRICONDYLINEAE

Camptomyia abnormis Mamaev, 1961 (PP)

Material. Lake Anninskoe: 1 ♂, by aspirator, 25.VII.1998.

Notes. The species was known from Latvia, Lithuania and the central part of European Russia (Skuhravā, 1986; Pakalniškis et al., 2000).

Claspettomyia montana Mamaev in Mamaev & Krivosheina, 1965 (LP: MZ3)

Material. Lake Bol'shoe Rakovoe: 1 ♂ reared 13.XII.2001 from substratum collected 31.X.2001; 1 ♂ reared 7.I.2002 from larva collected 31.X.2001.

Notes. New record for NW Russia. The species was known from Finland, Latvia, Lithuania, the Ukraine and the central part of European Russia (Skuhravā, 1986, as *C. hamata* (Felt); Pakalniškis et al., 2000; Spungis, 2000).

Coccopsis paneliusi Yukawa, 1971 (LP*: MZ3)

Material. Lake Bol'shoe Rakovoe: 3 ♂ reared 8, 13 and 18.XII.2001 from substratum collected 31.X.2001.

Notes. New record for NW Russia. The species was known from Latvia, Lithuania and the central part of European Russia (Skuhravā, 1986; Pakalniškis et al., 2000; Spungis, 2000).

Dicerura iridis (Kaltenbach, 1874) (PP*: MZ3)

Material. Lake Anninskoe: more than 100 larvae of different instars, collected from early May to late July 1998-1999.

Notes on distribution. The easternmost earlier records are those from Latvia (Spungis, 1987), Lithuania and Kaliningrad Prov. (Mamaeva, 1973).

Notes on biology. Larvae were common in samples with above-ground parts of *Acorus calamus* L.; a part of larvae was sampled from *Acorus* leave sheaths, their probable microhabitat. In all other samples and in sites without *Acorus*, no one larva was found (*Iris pseudacorus* L., another host of this species, was absent as well). Mature larvae (with body weight up to 0.002 g) were common in May; at this time, the density of 7.4 ± 4.4 ind./0.06 m² and the biomass of 0.003 ± 0.0017 g/0.06 m², were registered. This density is 3-100 times as high as reported by Mamaeva (1973) for a number of *Iris* and *Acorus* stands in Lithuania. No larvae were found in September.

Monocolpodia spiniformis (Mamaev, 1964) (LP*: MZ3)

Material. Lake Bol'shoe Rakovoe: 2 ♂ reared 27.XII.2001 and 8.I.2002 from larvae collected 30-31.X.2001.

Notes. New record for NW Russia. The species was known only from the central part of European Russia (Skuhravā, 1986).

Stomatocolpodia iridis Mamaev, 1990 (LP*, PP*: MZ3)

Material. Lake Anninskoe: 1 ♂ reared 25.VII.1999 from larva collected 11.VII.1999; 1 ♂ reared 18.VIII.1998 from substratum collected 25.VII.1998; 1 ♂ reared 31.VII.1999 from substratum collected 11.VII.1999. Lake Bol'shoe Rakovoe: 1 ♂ reared 18.XII.2001 from substratum collected 31.X.2001; 3 ♂ reared 16, 18 and 19.I.2002 from larva collected 31.X.2001.

Notes. New record for Russia (the species was described from Lithuania). One of the most common gall midge species in the water margin zone of type 3 (seems to be confined to this type within the water margin zone).

Subfamily CECIDOMYIINAE

Coniophora semimarina Mamaev & Przhiboro, 2001 (LP*: MZ3)

Material. Lake Bol'shoe Rakovoe: 1 ♂ reared 25.VIII.2001 from larva collected 30.VII.2001; 4 ♂ reared 25.XII.2001, 1, 5 and 6.I.2002 from 3 larvae and 1 pupa collected 31.X.2001.

Notes. This species described from a similar habitat in the water margin zone of the Anninskoe Lake is likely to be widespread in NW Russia.

Coquillettomia dentata Felt, 1918 (LP*: MZ3)

Material. Lake Okhotnich'e: 1 ♂ reared 3.IX.2001 from larva collected 5.VII.2001.

Notes. New record for NW Russia. The nearest records are those from the Ukraine and the central part of European Russia (Fedotova & Kovalev, 2001).

Coquillettomia elongata Bu & Zheng, 1994 (LP*: MZ3)

Material. Lake Bol'shoe Rakovoe: 1 ♂ reared 1.I.2002 from larva collected 30.X.2001; 1 ♂ reared 21.VII.2001 from substratum collected 5.VII.2001.

Notes. New record for Europe [the species described from China was found later only in the Russian Far East (Fedotova & Kovalev, 2001)].

Coquillettomia lobata (Felt, 1907) (LP*: MZ2; PP*: MZ3)

Material. Lake Pionerskoe: 1 ♂ reared 7.VI.1998 from substratum collected 3.V.1998. Lake Anninskoe: 1 ♂ reared 12.VIII.1998 from substratum collected 25.VII.1998. Lake Bol'shoe Rakovoe: 1 ♂ reared 27.XII.2001 from larva collected 31.X.2001; 1 ♂ reared

17.VII.2001 from substratum collected 5.VII.2001. Lake Okhotnich'e: 1 ♂ reared 21.XII.2001 from larva collected 30.X.2001; 1 ♂ reared 21.VII.2001 from substratum collected 5.VII.2001.

Notes. New record for NW Russia. The nearest records are those from Lithuania and the central part of European Russia (Pakalniškis et al., 2000; Fedotova & Kovalev, 2001). *C. lobata* is one of the most common gall midge species in the water margin zone of type 3.

Thuraia aquatica Rübsaamen, 1899 (LP *: MZ3)

Material. Lake Bol'shoe Rakovoe: 1 ♂, 1 ♀ reared 27.XII.2001 from substratum collected 5.VII.2001; 9 ♂, 2 ♀ reared 1-2.I.2002 from larvae collected 5.VII.2001; 4 ♂, 2 ♀ reared 6-7.I.2002 from larvae collected 5.VII.2001. Lake Okhotnich'e: 1 ♂, 3 ♀ reared 1.I.2002 from larvae collected 30.X.2001. Several thousand larvae collected 5.VII. and 30-31.X.2001 in water margin zone of both mentioned lakes.

Notes on distribution. New record for Russia. The species was known only from Germany and Czechia (Skuhřavá, 1986, 1997).

Notes on biology. The most abundant gall midge in the water margin zone of type 3; the species was described from a similar habitat in Germany (Rübsaamen, 1899). However, *Th. aquatica* was not registered in similar habitats of lakes in Pskov Prov. Possibly, it is intolerant of prolonged flooding.

Larvae are found to form large aggregations (50-100 individuals and more) under decaying sheath leaves in bases of *Carex* (both on living and dead plants). Probable hosts are the abundant *Carex chordorrhiza* Ehrh. ex L. f. and *C. diandra* Schrank, but not the larger *C. rostrata* Michx. During hibernation, the larvae left this microhabitat (their coloration changed from cream-white to orange) and pupated in the upper layer of substratum (moistened cotton), in cocoons.

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