

New and poorly known fungus gnats of the families Bolitophilidae, Diadocidiidae and Keroplatidae from Eastern Fennoscandia (Diptera, Nematocera)

A.V. Polevoi

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New data on six species of Bolitophilidae, Diadocidiidae and Keroplatidae poorly known in Eastern Fennoscandia are given. New species *Bolitophila melanoleuci* from Russian Karelia, *Bolitophila limitis* and *Diadocidia trispinosa* from Finland and the previously unknown female of *Bolitophila aperta* Lundström are described. Notes on biology are provided wherever possible.

A. V. Polevoi, Forest Research Institute, Karelian Centre of Russian Academy of Sciences, Pushkinskaya 11, 185610 Petrozavodsk, Russia.

In the extensive material collected since 1989 in Russian Karelia and Eastern Finland, some new or poorly known fungus gnats species were found. The present paper comprises ten species, of which three are new to science. Types are deposited in the Zoological Institute, St.Petersburg (ZIN). The rest of the material is kept in the Forest Research Institute, Petrozavodsk (FRI).

Family BOLITOPHILIDAE

Bolitophila (Bolitophila) austriaca (Mayer, 1950)

Material. Russia, Karelia: 1 ♂, Kivach, 30.V.1991, Humala leg.; 1 ♂, same locality, 5-11.VI.1991, Polevoi leg. Finland: 1 ♂, Pirhu, 22-24.VI.1993, Polevoi leg.; 2 ♂, same locality, 6.VI.1994, Polevoi leg. Collected with Malaise traps and sweep netting in pine and spruce stands. Known from Central Europe to Kuril Islands (Plassmann, 1988; Zaitzev, 1994), but only recently found in Finland (Polevoi, 1995).

Bolitophila (Cliopisa) aperta Lundström, 1914 (Fig. 1)

Material. Russia, Karelia: 1 ♀, 4 ♂, Kivach, 28.V.1991, Polevoi leg. (FRI). Collected in mixed stand.

B. aperta is widely distributed in Palaearctic (Plassmann, 1988; Zaitzev, 1994). The female described here has been collected together with

four *B. aperta* males in a group of gnats swarming near decaying spruce stump. This evidently allows to consider it as female of the same species, previously unknown.

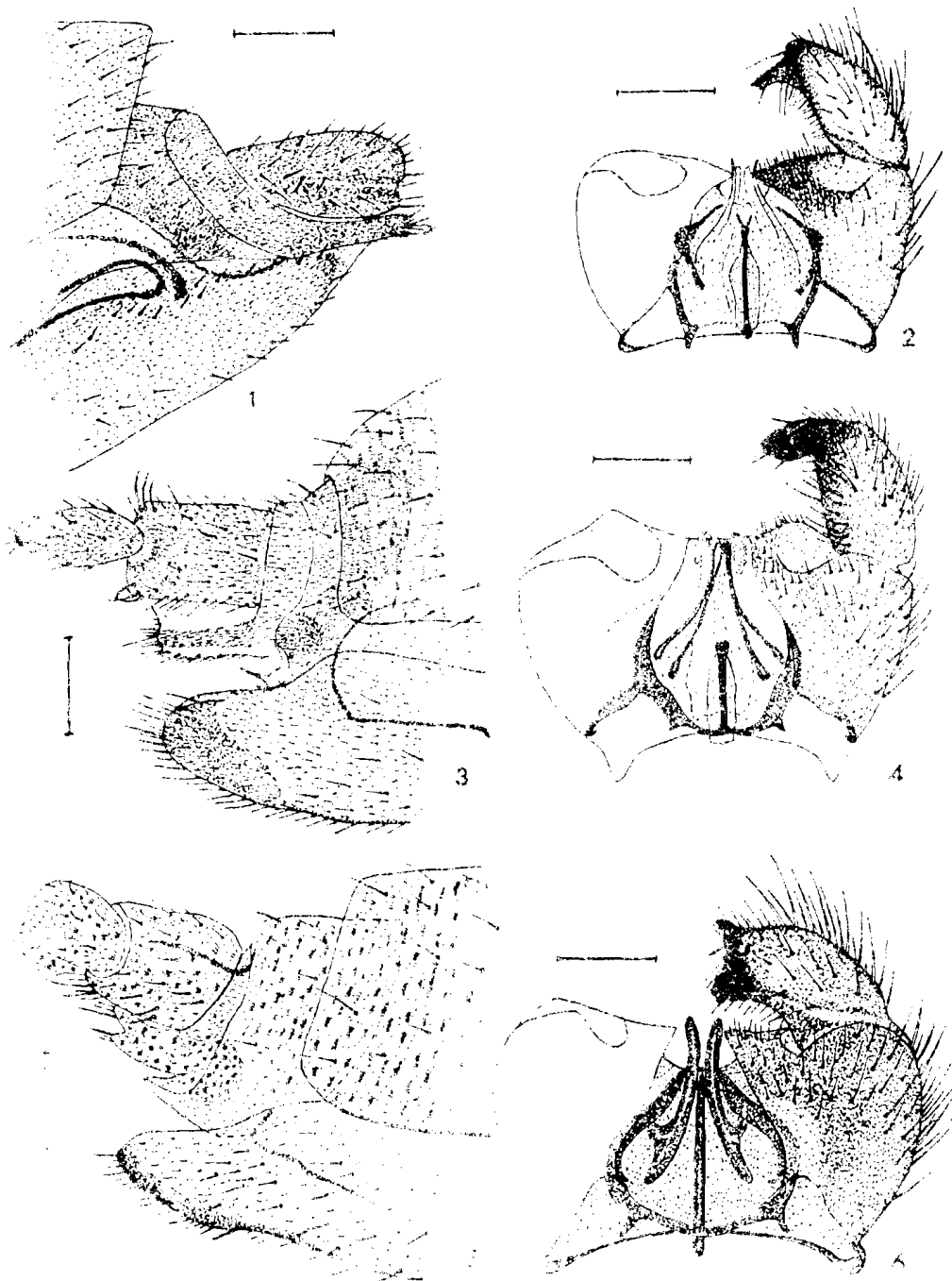
Female. Head black. Mouthparts and palpi brown. Antennae yellowish brown with short pubescence. Sixth flagellomere about 6 times longer than wide. Pleurae yellowish brown. Mesonotum yellowish brown, with three fused brown stripes. Scutellum yellow. Legs yellow. Leg ratios: $t_1 : bt_1 = 1.2$, $t_2 : bt_2 = 1.5$, $t_3 : bt_3 = 1.4$. Fore tarsomeres not modified. Wing length 5.5 mm. Wings hyaline, stigma scarcely developed. Costa extending far beyond the tip of R_{4+5} . Crossvein tp present or missing, M_{3+4} somewhat weaker at base. Halter yellow with darkened knob. Abdomen light brown. Female terminalia (Fig. 1) brown. Sternite VIII with short spines along upper and lower margins. Cerci 1-segmented.

Bolitophila (Cliopisa) limitis sp. n. (Figs 2-3)

Holotype. ♂, Finland, Ilomantsi, Pirhu, about 200 m above sea level, 3.VI.1994, Polevoi leg. (ZIN). Collected in copula with sweep netting under young spruces.

Paratype. ♀, same data.

Description. Male. Head black. Mouthparts and palpi brown. Antennae brown; scape and pedicel black. Antennal pubescence short, hairs approximately equal to width of flagellar



Фиг. 1. *Phlebotomus (Chopra) apica* эмбистриды (тип) — *serotomana*, lateral view, 2-3, 5; 2, 3, 5 — lateral view of epopygium, dorsal view; 3 — female terminalia, lateral view; 4-6. *Ph. (C.) bennoiscandica* sp. n. — 4, 5 — epopygium, dorsal view; 2 — gonostyle terminata, lateral view; 6. *Ph. (C.) obscurior* Staekelberg, male epopygium, dorsal view (G. sp.).

segments. Sixth flagellomere about 5 times longer than wide. Pleurae dark brown, with lighter pteropleura and prothoracic region. Mesonotum brown with three black longitudinal stripes fused almost along the whole length. Scutellum brown. Legs yellow. Leg ratios: $t_1 : bt_1 = 1.1$, $t_2 : bt_2 = 1.4$, $t_3 : bt_3 = 1.3$. Wing length 4.4 mm. Wings hyaline with dark stigma distinctly wider than half distance between R_1 and R_{4+5} . Costa extending far beyond tip of R_{4+5} . tp missing. M_{3+4} at base well developed. Halter with yellow stem and dark brown knob. Abdomen dark brown. Male genitalia (Fig. 2) brown. Gonostylus with elongated sclerotized apical processus.

Female. Similar to male, but somewhat more brightly coloured. Pleurae with brighter yellow spots. Mesonotum yellow with three distinct black stripes fused only at base. Scutellum yellowish brown. Leg ratios: $t_2 : bt_2 = 1.5$, $t_3 : bt_3 = 1.4$. Wing length 5.6 mm. Wings with brown stigma and distinct spot over RM . Abdomen brown. Female terminalia (Fig. 3) brown.

Remarks. *B. limitis* is related to *B. bimaculata* Zetterstedt and *B. subbimaculata* A. Zaitzev, differing in the black basal segments of antenna and presence of more or less developed yellow pleural spots in both sexes. Its male gonostylus differs in the elongated apical processus.

Bolitophila (Cliopisa) melanoleuci sp. n.
(Figs 4-5)

Holotype. ♂. **Russia, Karelia,** Petrozavodsk, 27.VIII.-16.IX.1990, Yakovlev leg. (ZIN).

Paratypes. 3 ♂, 3 ♀, same data.

Description. Male. Head black. Mouthparts and palpi brown. Antennae dark brown; scape, pedicel and base of first flagellomere lighter. Antennal pubescence short, hairs approximately equal to width of flagellar segments. Sixth flagellomere 6 times longer than wide. Pleurae yellowish brown. Mesonotum brown somewhat shiny. Scutellum yellow. Legs entirely yellow. Leg ratios: $t_1 : bt_1 = 1.1$, $t_2 : bt_2 = 1.5$, $t_3 : bt_3 = 1.5$. Wing length 4.2-4.9 mm. Wings hyaline with faint stigma. Costa extending far beyond tip of R_{4+5} . tp missing, seldom present. M_{3+4} well developed at base. Halter yellow with dark brown knob. Abdomen brown. Male genitalia (Fig. 4) brown. Gonostylus apically narrowing and sclerotized.

Female. Similar to male. Fore tarsi with a row of 3-4 distinct spines. Pleurae with

$t_1 : bt_1 = 1.2$, $t_2 : bt_2 = 1.4$, $t_3 : bt_3 = 1.7$. Wing length 4.7-4.9 mm. Female terminalia (Fig. 5) brown.

Remarks. *B. melanoleuci* resembles *B. hybrida* Meigen, but distinctly differs in the structure of male and female genitalia (male gonostylus without apical process; female tergite X with shorter and broader basal projection not reaching the apex of cerci). Yakovlev (1993) reared *B. melanoleuci* from fungi *Melanoleuca melaleuca* (Fr.) Murr. and *M. brevipes* (Fr.) Pat. and referred to this species as *B. latipes* Tollet.

Bolitophila (Cliopisa) nigrolineata Landrock,
1912

Material. **Russia, Karelia:** 1 ♂, Petrozavodsk, 22.VI.-2.VII.1991, Polevoi leg.; **Finland:** 1 ♂, Ilomantsi, Pirhu, 2-6.VII.1993, Polevoi leg. (FRD). Reared from fungus *Lyophyllum decastes* (Fr.) Sing. Yakovlev (1993) collected this species with Malaise trap in abandoned and afforested field.

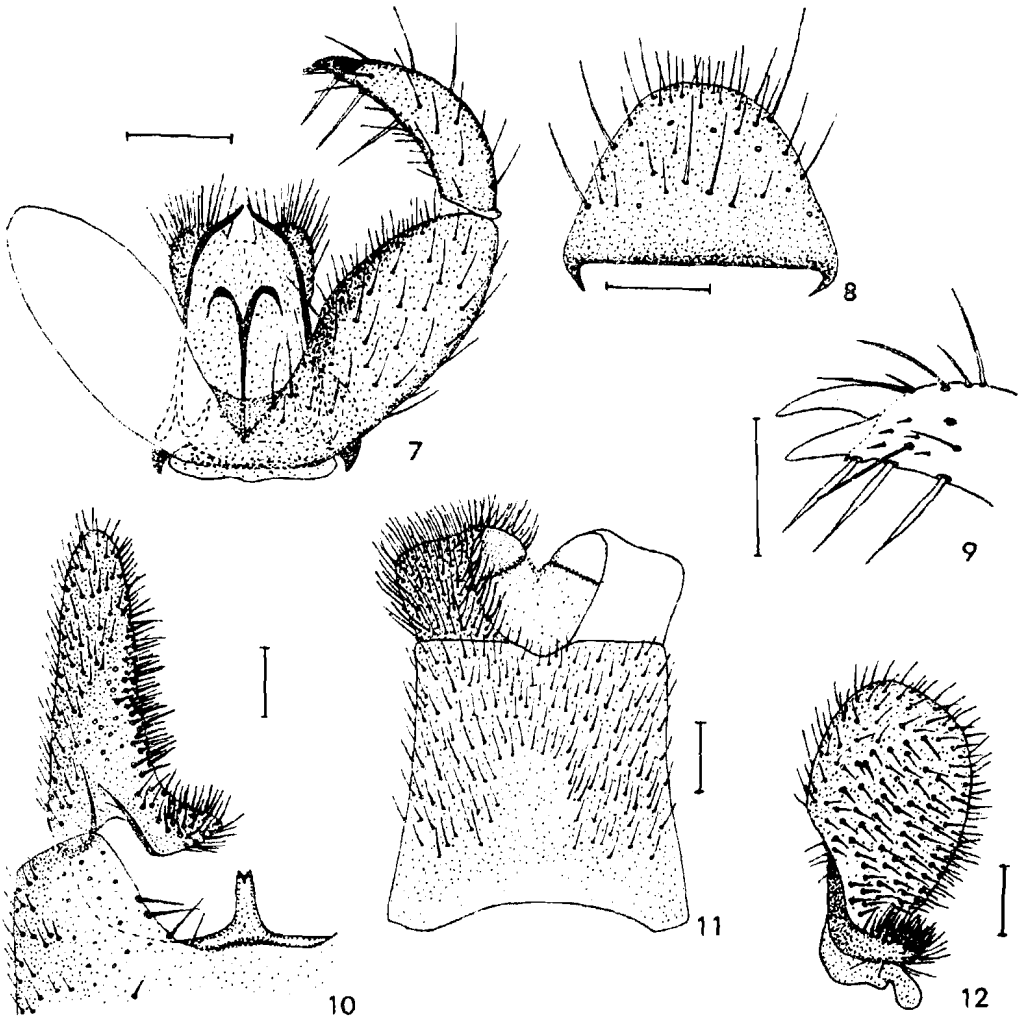
Transpalearctic species reported from territories between Germany and Japan (Plassmann, 1988). It has been recently found also in Britain (Chandler, 1992) and Finland (Polevoi, 1995).

Bolitophila (Cliopisa) obscurior Stackelberg,
1969
(Fig. 6)

Material. **Finland:** 1 ♂, Ilomantsi, Pirhu, 10-17.VI.1993, Polevoi leg.; 2 ♂, same locality, 31.V.-6.VI.1994, Polevoi leg. (FRD). Collected with Malaise trap in abandoned and afforested field.

This species has been known only from Russia (Zaitzev, 1994): Leningrad Province and Siberia. As rather small material of this species has been previously available, it seems worthy to give here a description based on new specimens.

Male. Head black, grey dusted. Mouthparts black, palpi dark brown. Antennae dark brown, with short pubescence. Sixth flagellomere about 8 times as long as wide. Thorax black, intensively grey dusted. Mesonotum with three distinct longitudinal stripes. Central stripe additionally divided by grey medial line. Legs brownish. Leg ratios: $t_1 : bt_1 = 1.1-1.2$, $t_2 : bt_2 = 1.5-1.6$, $t_3 : bt_3 = 1.5-1.6$. Wing length 4.2-4.9 mm. Wings hyaline with distinct stigma. Costa extending far beyond tip of R_{4+5} . tp missing. Aedeagus developed to base of



Figs 7-12. 7-9. *Diadocidia (Adidocidia) trispinosa* sp. n.: 7, male hypopygium, ventral view; 8, tergite IX; 9, apical part of gonostylus. 10-12. *Keroplatus tuvensis* A. Zaitzev: 10, male hypopygium, ventral view; 11, tergite IX; 12, gonostylus. Scales 0.1 mm.

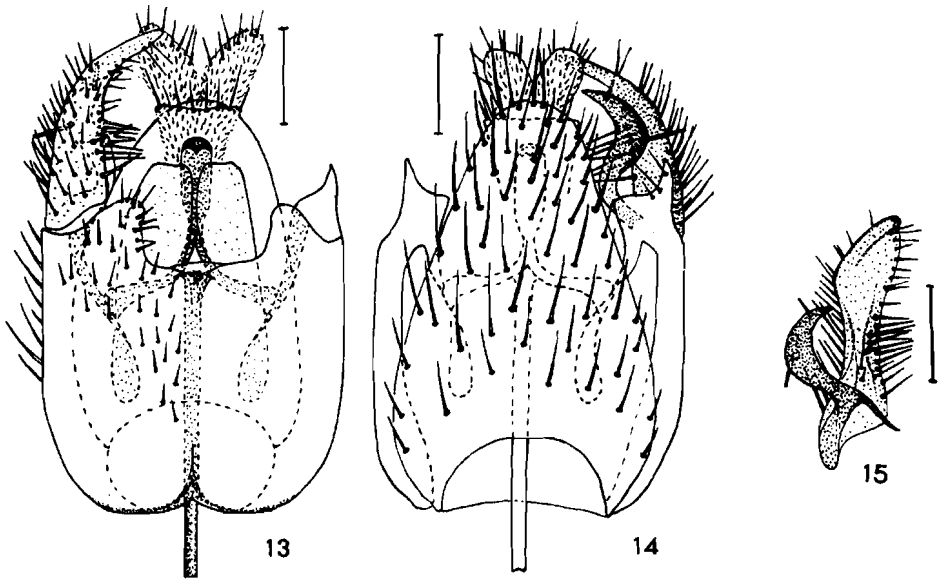
yellow with dark brown knob. Abdomen brown. Male genitalia (Fig. 6) brown. Gonostylus apically sclerotized, with teeth.

Family DIADOCIDIIDAE

Diadocidia (Adidocidia) trispinosa sp. n.
(Figs. 7-9)

Diadocidia (Adidocidia) trispinosa sp. n. (Figs. 7-9). Length 1.5 mm. Head black. Mouthparts and palpi brown. Antennae black; scape and pedicel brown. Sixth flagellomere about 3 times as long as wide. Pleurae dark brown, propleurae somewhat lighter. Mesonotum dark brown, grey dusted with lighter humeral spots. Legs yellowish brown. Leg ratios: $t_1 : bt_1 = 1.1$, $t_2 : bt_2 = 1.6$, $t_3 : bt_3 = 2.2$. Wings greyish. Wing length 3.6 mm. Halter yellowish brown. Abdomen dark brown. Male genitalia (Figs 7-9) brown. Tergite IX with apical bristles not thickened. Gonostylus with two apical teeth and two pairs of bristles.

Description. Male. Head black; mouthparts and palpi brown. Antennae black; scape and pedicel brown. Sixth flagellomere about 3 times as long as wide. Pleurae dark brown, propleurae somewhat lighter. Mesonotum dark brown, grey dusted with lighter humeral spots. Legs yellowish brown. Leg ratios: $t_1 : bt_1 = 1.1$, $t_2 : bt_2 = 1.6$, $t_3 : bt_3 = 2.2$. Wings greyish. Wing length 3.6 mm. Halter yellowish brown. Abdomen dark brown. Male genitalia (Figs 7-9) brown. Tergite IX with apical bristles not thickened. Gonostylus with two apical teeth and two pairs of bristles.



Figs 13-15. *Orfelia falcata* A. Zaitzev: **13**, male hypopygium, ventral view; **14**, hypopygium, dorsal view; **15**, gonostylus. Scales 0.1 mm.

Remarks. *D. trispinosa* is close to *D. borealis* Coquillet. The gonostylus in the latter however has only one strong apical seta (Lastovka & Matile, 1972), while in *D. trispinosa* it bears three strong setae. This species has been (Polevoi, 1995) misidentified as *D. ferruginosa* Meigen.

aho, 2-8.VIII.1994, Polevoi leg. (FRI). Collected with Malaise traps in pine and mixed stands.

Occurring in Europe from British Islands to Baltic region (Krivosheina & Mamaev, 1988). Recently reported also from Carpathians, Altai Province (Zaitzev, 1994) and Finland (Polevoi, 1995).

Family KEROPLATIDAE

***Orfelia falcata* A. Zaitzev, 1994**
(Figs 13-15)

***Keroplatus tuvensis* A. Zaitzev, 1991**
(Figs 10-12)

Material. Russia, Karelia: 1 ♂, Kivach, 11-18.IX.1990, Polevoi leg. (FRI). Collected with Malaise trap in birch stand.

This species has been known only from the type locality: Tuva, Russia (Zaitzev, 1991, 1994). The Karelian specimen has wing length 6.5 mm. Male genitalia are shown in Figs 10-12. Ventral medial processus of gonocoxites with an apical triangular depression distinguishing this species from other members of the *testaceus* group.

Material. Russia, Karelia: 1 ♂, Kivach, 15-18.VI.1989, Polevoi leg.; 1 ♂, same locality, 25.VI.-2.VII.1991, Polevoi leg.; Finland: 1 ♂, Ilomantsi, Pirhu, 12-13.VII.1993, Polevoi leg.; 2 ♂, Ilomantsi, Tapionaho, 6-11.VII.1994, Polevoi leg. (FRI). Collected with Malaise traps in spruce, aspen and mixed stands.

Zaitzev (1994) reported *O. falcata* from the Kuril Islands, Khabarovsk Territory and Vologda Province. Present findings are the westernmost. Finnish and Karelian males have wing length 4-4.8 mm. Unlike type material, some specimens, have almost entirely dark brown head and generally darker thorax and abdomen. Male genitalia as in Figs 13-15.

***Neoplatyura flava* (Macquart, 1826)**

Material. Russia, Karelia: 1 ♂, Kivach, 7-11.VII.1989, Yakovlev leg.; 1 ♀, same locality, 30.VII.-2.VIII.1990, Yakovlev leg.; Finland: 1 ♂, Ilomantsi, Pirhu, 12-13.VII.1993, Polevoi leg.; 1 ♂, Ilomantsi, Tapion-

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