

Curtonotidae (Diptera) of Russia

Двукрылые семейства Curtonotidae (Diptera) фауны России

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ABSTRACT. Flies of the family Curtonotidae of Russia are reviewed. Fauna includes four species, all are in the genus *Curtonotum* Macquart. Genus and species diagnosis or confirmatory characters, photos of male sternite 5 and key for identification of species are given. Data on distribution are provided.

РЕЗЮМЕ. Приведен обзор двукрылые семейства Curtonotidae России. Фауна включает четыре вида, все из рода *Curtonotum* Macquart. Даны диагнозы рода и видов, фотографии стернита 5 самцов, таблица для определения видов, а также данные по их распространению.

Introduction

The Curtonotidae is a small, but widespread family of acalyptrate flies. It comprises about 90 known species in four genera: *Axinota* van der Wulp, 1886, *Cyrtona* Ségué, 1938, *Curtonotum* Macquart, 1843 and *Tigrisomyia* Kirk-Spriggs, 2010 [Kirk-Spriggs & Freidberg, 2007; Kirk-Spriggs, 2010a, 2010b; Klymko & Marshall, 2011].

Family can be diagnosed as follows (based on Kirk-Spriggs & Freidberg [2007], Klymko & Marshall [2011]): small to medium sized (3–10 mm), light brownish, hump-backed flies (Fig. 1); arista plumose, with long dorsal and ventral rays; postocellar setae strong and convergent; costa with two breaks (humeral and subcostal); subcosta complete, cells *dm* and *bm* confluent (Fig. 4); cell *cup* present; aedeagus large and C-shaped with anteroventrally directed distiphallus (Fig. 5); two spermathecae present.

5 species of Curtonotidae, all are in the genus *Curtonotum*, are known in Palearctic [Kirk-Spriggs & Freidberg, 2007; Ozerov, 2007], four of them from

Russia: *C. amurensis* Ozerov 2007, *C. anus* (Meigen 1830), *C. maritimum* Ozerov 2007, and *C. shatalkini* Ozerov 2007.

The biology of Palearctic *Curtonotum* is little known. Adults of *C. anus* were collected in sandy areas of Hungary, what makes it probable that their habits are those of locust parasitoids or egg predators [Papp, 1989] and are prone to the attack of Laboulbeniales (Ascomycetes) parasitic on Diptera [Rossi, 1993]. This species has been found on dung in sand dunes in Turkey (N. Vihrev, pers. comm.), and is common along the shaded and muddy shoreline of the Jordan River in Israel [Kirk-Spriggs & Freidberg, 2007]. Nothing is known about the life histories of the Far Eastern species: *C. amurensis*, *C. maritimum*, and *C. shatalkini*. Information on habitats of Afrotropical, Nearctic and Neotropical species are given by Kirk-Spriggs [2008], Kirk-Spriggs & Freidberg [2007], and Klymko & Marshall [2011].

This work is based on material from Zoological Museum, Moscow Lomonosov State University (Russia). The material of *Curtonotum helvum* (Loew, 1862), loaned from Canadian National Collection of Insects, Ottawa (Canada) was studied also.

Terminology follows McAlpine [1981] and Cumming et al [2009], except that “postpedicel” is used for antennal flagellomere 1 (third antennal segment). Abbreviations used in the text and on the figures: *bm* — basal medial cell; *bp* = basiphallus of aedeagus; *ce* — cercus; *cup* — posterior cubital cell; *dm* — discal medial cell; *dm-cu* — discal medial-cubital crossvein; *dp* = distiphallus of aedeagus; or — orbital seta; *r-m* — radial-medial crossvein; *S4*, *S5*, *S7*, *S8*, *S10* — abdominal sternites 4, 5, 7, 8 and 10; *T7*, *T8* — abdominal tergites 7 and 8.



Fig. 1. *Curtonotum anus* (Meigen), male.

Рис. 1. *Curtonotum anus* (Meigen), самец.

Taxonomy

Family Curtonotidae Duda, 1924

Genus *Curtonotum* Macquart, 1844

Curtonotum Macquart, 1844 (type species: *Musca gibba* Fabricius, 1805 [preoccupied, = *Curtonotum taeniatum* Hendel 1913, accepted as the replacement name by Thompson & Pont [1994]].

Curtonotum Agassiz, 1846 (unjustified emendation of *Curtonotum* Macquart).

Diplocentra Loew, 1862 ([unnecessary] new replacement name for *Curtonotum* Macquart).

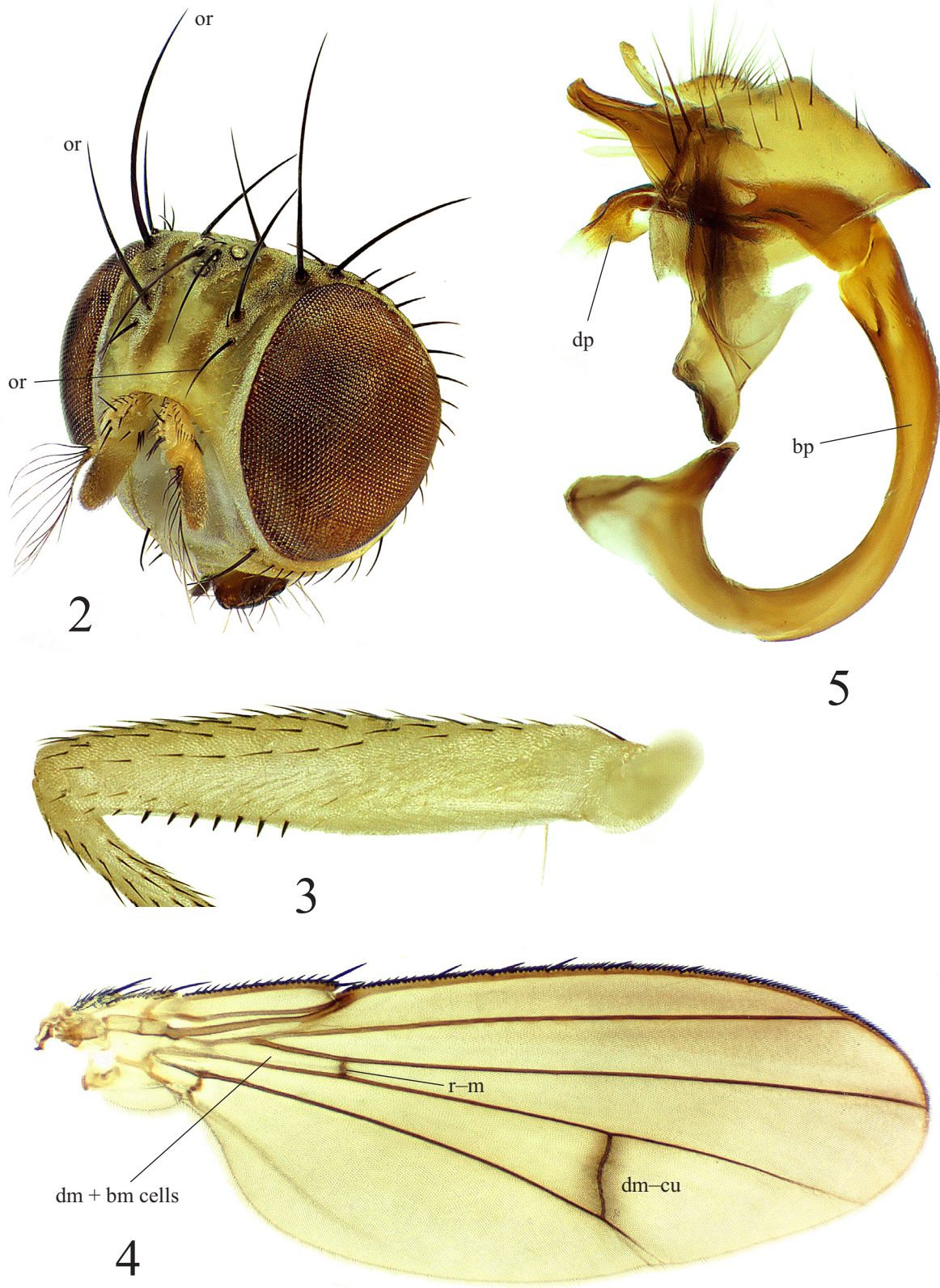
Parapsinota Duda, 1924 (type-species: *Drosophila angustipennis* de Meijere, 1911, by monotypy).

DIAGNOSIS (based on Kirk-Spriggs & Freidberg [2007], Klymko & Marshall [2011]).

Head (Fig. 2) wide in both sexes, with two pairs of long and strong reclinate, one pair of moderate proclinate and often with one pair of a minute reclinate orbital setae, the last seta positioned between proclinate and lower strong proclinate orbital setae. Scutum hump-backed. 2 postpronotal, 2 notopleural, 1+1 supra-alar, 2 postalar, 2 dorsocentral and 1 prescutellar acrostichal setae present. Scutellum entirely covered with setulae, with pairs of strong basal scutellar and apical scutellar setae. Fore femur with well-defined ctenidial comb posteroventrally in distal half (Fig. 3); each tibia with preapical dorsal seta.

Wing (Fig. 4); costal vein with prominent spines.

Abdomen long, cylindrical; ovipositor tubular. Aedeagus large and C-shaped, basiphallus and distiphallus fused and asymmetrical (Fig. 5). Female cerci



Figs 2–5. *Curtonotum anus* (Meigen): 2 — head; 3 — fore right femur, anterior view; 4 — wing; 5 — genitalia, lateral view.
 Рис. 2–5. *Curtonotum anus* (Meigen): 2 — голова; 3 — переднее правое бедро, спереди; 4 — крыло; 5 — гениталии, сбоку.

dorsally with stout setae (Figs 6–8). Spermathecae long, flattened and slender.

Curtonotum anus (Meigen, 1830)

Figs 1–9.

Diastata anus Meigen, 1830: 95 (Type locality: Italy (see: Kirk-Spriggs & Freidberg [2007: 138]).

MATERIAL. RUSSIA: Astrakhanskaya oblast', Kopanovka [47.45N, 46.8E], 8.VIII.1989, E.Antonova (1 ♀).

ADDITIONAL MATERIAL. KAZAKHSTAN: Almaty (43.218173N, 76.933967E), 18.VI.2008, coll. D. Gavryushin (3 ♀♀); **TURKEY:** Antalia reg., R. Köprü (37.075N, 31.232E), 6–10.IX.2009, coll. N. Dvoretzkaya (5 ♂♂, 6 ♀♀); Antalia reg., 36.779N, 33.778E river, 8.IX.2009, coll. N. Vikhrev (2 ♂♂); Side, sand dunes, 4.X.2006 and 25.IX.2007, coll. N. Vikhrev (2 ♂♂); **TURKMENISTAN:** near Chardzhou [now =Türkmenabat], 7.V.1990, coll. A.L. Ozerov (1 ♂).

DESCRIPTION. MALE, FEMALE. Frons broad in both sexes, about half of head width; velvety tawny, nearly parallel sided, with two narrow brownish stripes from the inner vertical seta to the base of antenna; eye margins narrowly white microtomentose. Face, gena and postcranium tawny, white microtomentose. Gena below eye approximately equal to width of postpedicel. Clypeus tawny. Palpus black, slender. Antenna tawny; postpedicel may be darkened, approximately 2.5 times as long as wide, rounded apically; arista with about 9–11 dorsal and 3–4 ventral long branches. One long upper vibrissa, succeeding one very short.

Scutum tawny with large grey point in centre, greyish microtomentose, usually with strong parallel brownish vittae; with numerous setulae; scutellum tawny with two darkened points laterally, grey-white microtomentose, with numerous setae over the discal surface. Pleural sclerites tawny, whitish microtomentose; anepimeron with two strong setae along posterior margin and some short setae in posterior part; katapisternum with one strong seta.

Legs entirely yellow; fore femur with a row of 10–14 short anteroventral spines in distal half (Fig. 3) and 3–4 strong postero–posterodorsal setae; mid femur with a row of strong setae anteriorly, with 1 anteroventral apical and 1 posteroventral apical setae; hind femur with strong anterodorsal seta apically.

Wings brownish, with brown veins; crossveins r–m and dm–cu slightly darkened; costa with 6–9 prominent spines, gradually shortened towards apex. Halteres yellow.

Abdominal tergites tawny in ground colour, grey-white microtomentose; tergite 1+2 with 4 blackish points: 2 dorsally and 2 near lateral margins; tergites 3–5 each with 5 blackish points: 3 dorsally and 2 near lateral margins. Male sternite 5 with apical conical extension medially; sternite 4 sub-quadrate, narrower than sternite 5 (Fig. 9). Male genitalia as in Fig. 5.

MEASUREMENTS. Length of body 4.5–7.5 mm, length of wing 4.0–6.5 mm.

DISTRIBUTION. Russia (Astrakhanskaya oblast'); Palaearctic Region: Albania, Austria, France, Greece, Hungary, Israel, Italy, Kazakhstan (**first record**), Moravia, Romania, Serbia, Slovakia, Turkey, Turkmenistan

(**first record**); Oriental Region: Pakistan. Registration for the Far East of Russia [Sidorenko, 2001], and possibly for Japan [Okada, 1960] are wrong.

Curtonotum amurensis Ozerov, 2007

Fig. 10.

Curtonotum amurensis Ozerov, 2007: 2 (Type locality: town Zeya, Russia: Amurskaya oblast').

MATERIAL. RUSSIA: Amurskaya oblast', town Zeya, 2.VIII.1979, 18.VII.1981, 3–4.VIII.1981, coll.: O. Gorbunov, A. Ozerov, A. Shatalkin (5 ♂♂, 3 ♀♀, holotype and paratypes).

DIAGNOSIS. Similar to *C. anus* except as follows. Palpus tawny completely or brownish in basal half. Scutum without or with faint parallel brownish vittae. Male sternite 5 rectangular with two central stripes of dense setae; sternite 4 oval, as wide as sternite 5 (Fig. 10).

MEASUREMENTS. Length of body 5.1–6.2 mm, length of wing 4.8–5.8 mm.

DISTRIBUTION. Russia (Amurskaya oblast').

Curtonotum maritimum Ozerov, 2007

Fig. 11.

Curtonotum maritimum Ozerov, 2007: 2 (Type locality: Primorskyi Kray (~43.696466N, 132.153812E), Russia).

MATERIAL. RUSSIA: Primorskyi Kray, Gorno-Taezhnaya stantsia (43.696466N, 132.153812E), 22.VII.1948, coll. Gussakovskiy (holotype ♂); same locality, 18 and 26.VII.1948, coll. Gussakovskiy (1 ♂, 2 ♀♀); Primorskyi Kray, Spassk, 22.VII. and 3.VIII.1961, coll. Zhelochovtsev (2 ♂♂), and 23.VII.1962, coll. L. Zimina (1 ♂); Primorskyi Kray, Gorno-Taezhnaya stantsia; 25.IX.1980, coll. A. Shatalkin (1 ♂); Primorskyi Kray, Kamenushka; 25.VII. and 9.VIII.1984, 23.VIII. and 9.IX.1987, coll. A. Shatalkin (1 ♂, 7 ♀♀).

ADDITIONAL MATERIAL. CHINA: Gongzhuling, 60 km SW of Changchun, 25.VIII.1954, coll. Bey-Bienko (1 ♂, 2 ♀♀).

DIAGNOSIS. Similar to *C. anus* except as follows. Palpus tawny completely or brownish in basal half. Scutum without or with faint parallel brownish vittae. Fore femur with 4–6 strong postero–posterodorsal setae. Male sternite 5 oval with two groups of setae laterally and with emargination posteriorly; sternite 4 oval, approximately 2 times narrower than sternite 5 (Fig. 11).

MEASUREMENTS. Length of body 4.7–6.0 mm, length of wing 4.5–5.6 mm.

DISTRIBUTION. Russia (Primorskyi Kray); China (Gongzhuling).

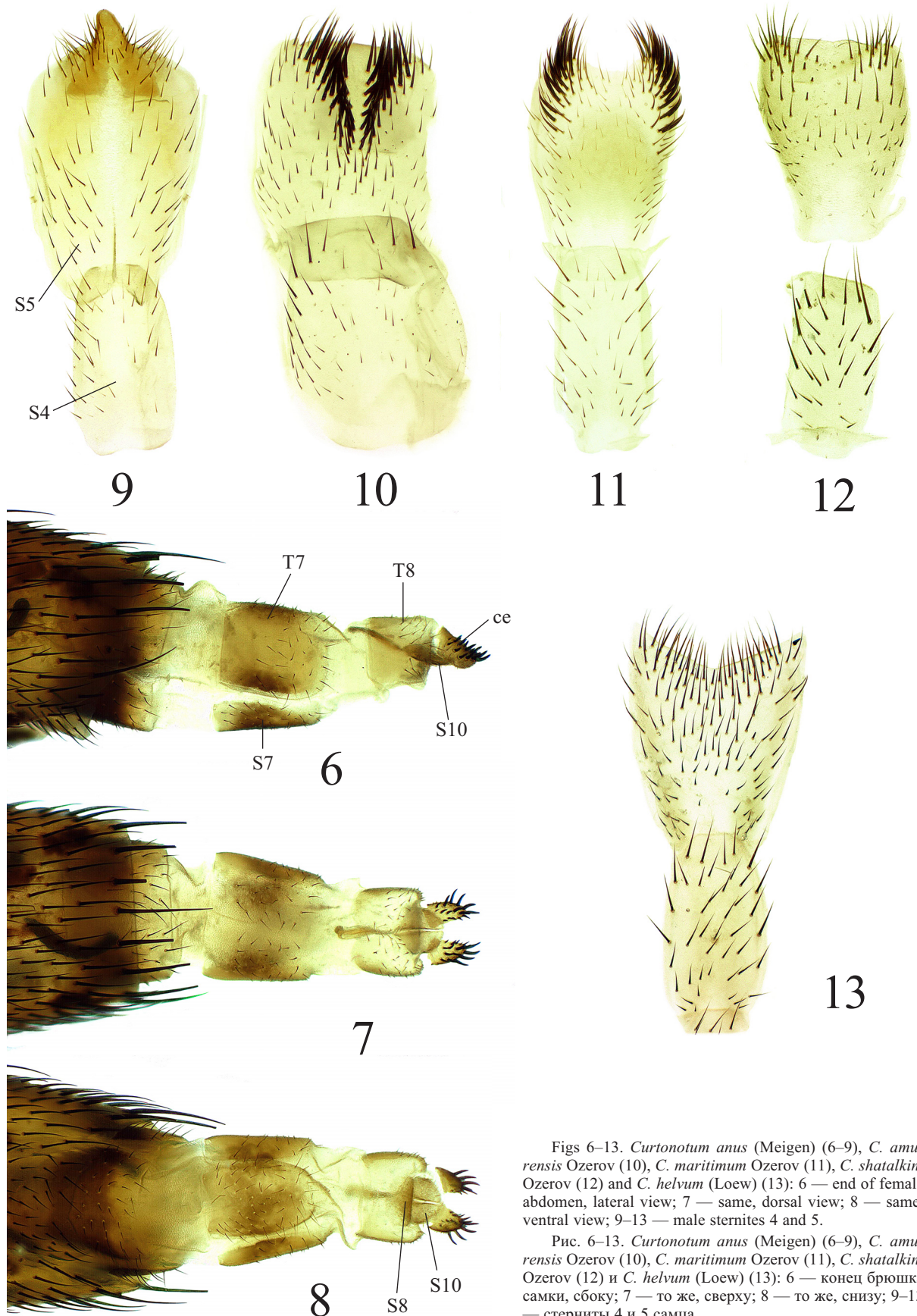
Curtonotum shatalkini Ozerov, 2007

Fig. 12.

Curtonotum shatalkini Ozerov, 2007: 4 (Type locality: Kamenushka (43.634295N, 132.222080E), Russia: Primorskyi Kray).

MATERIAL. RUSSIA: Primorskyi Kray, Kamenushka (43.634295N, 132.222080E), 01.VIII.1987, coll. A. Shatalkin (2 ♂♂, holotype and paratype); same locality, 23.VIII.1987, coll. A. Shatalkin (1 ♂); Primorskyi Kray, Gorno-Taezhnaya stantsia (~43.696466N, 132.153812E), 26–29.VII.1948, coll. Gussakovskiy (2 ♂♂).

DIAGNOSIS. Habitus similar to *C. anus*, but palpus tawny, darkened basally. Scutum with faint parallel brownish vittae. Male sternite 5 subconical with irregular short and rare lateral setulae; sternite 4 oval, ap-



Figs 6–13. *Curtonotum anus* (Meigen) (6–9), *C. amurenensis* Ozerov (10), *C. maritimum* Ozerov (11), *C. shatalkini* Ozerov (12) and *C. helvum* (Loew) (13): 6 — end of female abdomen, lateral view; 7 — same, dorsal view; 8 — same, ventral view; 9–13 — male sternites 4 and 5.

Рис. 6–13. *Curtonotum anus* (Meigen) (6–9), *C. amurenensis* Ozerov (10), *C. maritimum* Ozerov (11), *C. shatalkini* Ozerov (12) и *C. helvum* (Loew) (13): 6 — конец брюшка самки, сбоку; 7 — то же, сверху; 8 — то же, снизу; 9–13 — стерниты 4 и 5 самца.

proximately 2 times narrower than sternite 5 (Fig. 12). Structure of male sternite 5 is more similar to Northamerican *Curtonotum helvum* (Loew), but sternite 5 of the latter species is densely covered with setae (Fig. 13).

MEASUREMENTS. Length of body 3.2–3.9 mm, length of wing 3.2–4.1 mm.

DISTRIBUTION. Russia (Primorskyi Kray).

IDENTIFICATION. The Russian species of Curtonotidae are very similar habitually, but are very good distinguished by male sternite 5 and may be separated by the following key:

1. Male sternite 5 with apical conical extension medially (Fig. 9) *Curtonotum anus* (Meigen)
– Male sternite 5 without apical conical extension medially ...
..... 2
2. Male sternite 5 with two groups of setae laterally (Figs 10, 11) 3
– Male sternite 5 without two groups of setae laterally (Fig. 12) *Curtonotum shatalkini* Ozerov
3. Rows of setae on male sternite 5 are close to each other in the middle of sternite (Fig. 10)
..... *Curtonotum amurensis* Ozerov
– Rows of setae on male sternite 5 are distant (Fig. 11)
..... *Curtonotum maritimum* Ozerov

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