NEW PECULIAR EASTERN PALAEARCTIC *RHAMPHOMYIA* (DIPTERA: EMPIDIDAE)[1]

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ABSTRACT**:** *Rhamphomyia* (*Pararhamphomyia*) *minutiforceps* sp. n. (Russia, Primorskiy Territory) and *R.* (*P.*) *minutiforcipella* sp. n. (Russia, Amur Province) are described and illustrated.

KEY WORDS: Empididae, *Rhamphomyia*, *Pararhamphomyia*, new species, Russia, East Palaearctic

Rhamphomyia Meigen is a large genus of the family Empididae comprising about 350 described species in the Palaearctic Region (Barták et al., 2007), however, many new species are still awaiting description, especially in South and East parts of this region. All species of the genus are predators, at least in larval stage, and the adults of several species are important pollinators in high mountains and in boreal environments. Studying materials deposited in the Zoological Museum of Moscow State University, we found two peculiar species of *Pararhamphomyia* with very small epandrium and relatively large U-shaped cercus resembling the Neotropical genus *Macrostomus* Wiedemann (redescribed by Rafael and Cumming, 2004). However, both species described below differ in other morphological characters (e.g. wing with well developed axillary lobe, acrostichals present and biserial, etc.).

METHODS

The material studied is deposited in the following collections: CULSP (Czech University of Life Sciences, Prague – former Czech University of Agriculture) and ZMMU (Zoological Museum of Moscow State University).

The genitalia were macerated in 10% KOH (24 hours, room temperature) and stored together with specimens in plastic microvials with glycerine. The morphological terms used here follow those of Merz and Haenni (2000) and Sinclair (2000). Abbreviations: T1l, T2l, T3l = length of fore, mid, hind tibia; B1l, B2l, B3l = length of fore, mid, hind basal tarsomere; B1w, B2w, B3w = width of fore, mid, hind basal tarsomere; M2/D = length of vein M2: greatest length of discal medial cell; M3/Db = length of apical: preapical sections of vein CuA_1; lw: ww = greatest length of wing: greatest width of wing. Ratio of antennal segments = length of first: 2nd: 3rd: style (in 0.01 mm scale). Characters marked with a question mark "?" are unclear (e.g. width of face or frons may be difficult to measure when shrunken, or length of setae when broken, etc.).

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Rhamphomyia (*Pararhamphomyia*) *minutiforceps* NEW SPECIES

Figures 1-2

Male: Eyes holoptic, facets in ventral half of eye smaller than those in dorsal half. Frons brownish-black, grey microtrichose, setulae absent. Ocellar setae black and fine, half as long as frons, ocellar triangle with 2 pairs of additional rather long setae. Face brownish-black, grey microtrichose, about 0.15 mm broad ventrally and 0.27 mm long, bare. Occiput brownish-black, grey microtrichose, covered with rather long and fine black setae, postocular row distant from eye margin on middle third and absent on ventral third. Both basal antennal segments brown, remaining parts brownish-black, ratio of antennal segments = 8: 9: 29: 9, both basal antennomeres rather short setose (the longest setae about 0.08 mm long). Labrum brown, lustrous, 2/3 as long as head is high. Palpus brown, short, bearing several setae. Gena narrow and microtrichose, clypeus microtrichose. Thorax brownish-black, mesoscutum rather dark brown microtrichose, without stripes, pleura more grey microtrichose. All setae black. Chaetotaxy: 6-8 setae on proepisternum; prosternum bare; proepisternal depression with 1-2 setae; about 30 biserial, fine acrostichals; more than 30 irregularly 3-4 serial dorsocentrals ending in 2-3 scarcely differentiated prescutellars (both acrostichals and dorsocentrals about 0.20 mm long in middle of rows); entire presutural part of mesoscutum covered with dense setae from which neither intrahumerals nor posthumerals are differentiated; postpronotum with 1 long and about 15 slightly shorter setae; 3 notopleurals (many long setae on anterior part of notopleuron); 1 supra-alar, 5-7 setae on prealar area, and several additional setae between supra-alar and prealars; 1 long and 1 small postalars; two pairs of scutellars (1 additional internal pair of small setae present in holotype); laterotergite with black setae. Legs including coxae blackish-brown, microtrichose, black setose. One long and strong seta present in comb at tip of hind tibia. Fore femur with short anteroventral setae, posteroventral setae short on basal part of femur but on apical third nearly as long as femur is deep, dorsal setation short. Fore tibia with uniform posterodorsal setation nearly as long as tibia is deep, dense ventral setae short. Mid femur with anteroventral setae about half as long as femur is deep (only on basal part with several longer setae), posteroventrals short on basal half but on apical half with 1-2 setae slightly longer than femur is deep, dorsal setation short. Mid tibia with 2-3 anterodorsal and 1-2 posterodorsal setae on basal half slightly longer than tibia is deep (and with similar preapical pair), ventrally with anteroventral row of spine-like setae and posteroventral row of setae, those on posteroventral position slightly longer than anteroventrals and slightly longer than tibia is deep. Hind femur with anteroventral setae shorter than femur is deep and with dense posteroventral setation and anterodorsal setae — all of them slightly shorter than femur is deep. Hind tibia rather stout, dorsally with 3-4 setae slightly longer than tibia is deep, ventral setae short except several spinose setae slightly longer than tibia is deep. Basal tarsomeres of all legs thin and short setose, T1l: B1l = 2.3, B1l: B1w = 6.1, T2l: B2l = 2.6, B2l: B2w = 6.0, T3l: B3l

= 2.1, B3l: B3w = 5.8. Wing (Fig. 2) light brownish, stigma brown, veins yellowish-brown, anal vein (A1) absent in apical part. Costal seta present, axillary angle right to slightly acute. M2/D = 1.3, M3/Db = 1.5-1.6, lw: ww = 2.7-2.8. Halter brownish-yellow with brown stem, calypter dark brown with dark fringes. Abdomen brown, microtrichose, with all setae dark. Hind marginal setae on sides of tergites as long as or slightly longer than corresponding segments, discal setae shorter. Dorsum of tergites relatively long setose. Terminalia as in Fig. 1: hypandrium well developed, forming tube-like sheet around basal part of phallus; epandrium triangular, higher than long, firmly attached to cercus; cercus deeply U-shaped, posterior part developed in a form of S-shaped finger-like process; phallus long, slightly swollen basally, narrowly S-shaped medially and with small hook apically. Length of body 4.4 mm (without genitalia), wing 4.8 mm.

Female: Similar to male but with the following exceptions. Eyes broadly dichoptic, dorsalmost facets slightly smaller than ventral ones. Frons 0.17 mm broad and 0.21 mm long, with several rather long setae on each side. Face equally long and broad as frons. Ratio of antennal segments = 12: 7: 26: 9. Ocellar setae strong, longer than frons. Occiput short and sparsely setose, bare in middle part except complete postocular row. Labrum slightly shorter than head is high. Thorax similarly colored and setose as in male, only setae shorter (both acrostichals and dorsocentrals about 0.12 mm long) and less numerous (more strikingly on presutural area laterad of dorsocentrals), 2 pairs of scutellars (no additional pair). Legs including coxae similarly colored as in male, however, differently setose. Fore femur as in male. Fore tibia short setose, with several short but distinct anterodorsal setae. Mid femur with broad pennation dorsally and posteroventrally and with row of short anteroventral setae. Mid tibia with dense but short pennation dorsally, ventrally with row of spine-like setae on basal third of tibia somewhat longer than tibia is deep but shorter apically. Hind femur broadly pennate on both sides, otherwise almost bare. Hind tibia broadly pennate on both sides and with row of posterodorsal setae as long as anterodorsal pennation. Basal tarsomeres of all legs thin and short setose, T1l: B1l = 2.1-2.2, B1l: B1w = 6.7, T2l: B2l = 2.1-2.2, B2l: B2w = 6.2-6.3, T3l: B3l = 2.2, B3l: B3w = 5.3. Wing brown, darker brown on basal part and along costal margin, stigma equally dark, M2/D = 1.2-1.3, M3/Db = 1.4, lw: ww = 2.8. Halter brown, anal vein (A1) almost complete. Abdomen brown, microtrichose, hind marginal setae on sides of tergites 2-4 half as long as their corresponding segments, on tergite 5 1/3 as long as segment, on remaining tergites shorter, discal setae shorter than marginals. Length of body (without genitalia) 4.9 mm, wing 4.6 mm.

Differential Diagnosis: *Rhamphomyia* (*P.*) *minutiforceps* sp. n. belongs to a species-rich group of *Pararhamphomyia* with multiserial dorsocentral setae, dark legs and entirely black setose body. The most allied species is undoubtedly *R. minutiforcipella* sp. n. Both species can be readily distinguished from remaining species of this group by characteristic genitalia (see Remarks, page 341). Female may be distinguished from other species of the above-mentioned group due to dark brown mesoscutum, entirely microtrichose abdomen, brown halter

and pennation pattern on legs. *Rhamphomyia minutiforcipella* sp. n. is distinctly smaller than *R. minutiforceps* sp. n. (wing length 3.4-3.7 mm) with yellow halteres, slightly different male genitalia (see figures and discussion under *R. minutiforcipella* sp. n.) and different pennation pattern on the female legs (notably, mid tibia is not pennate in the former species).

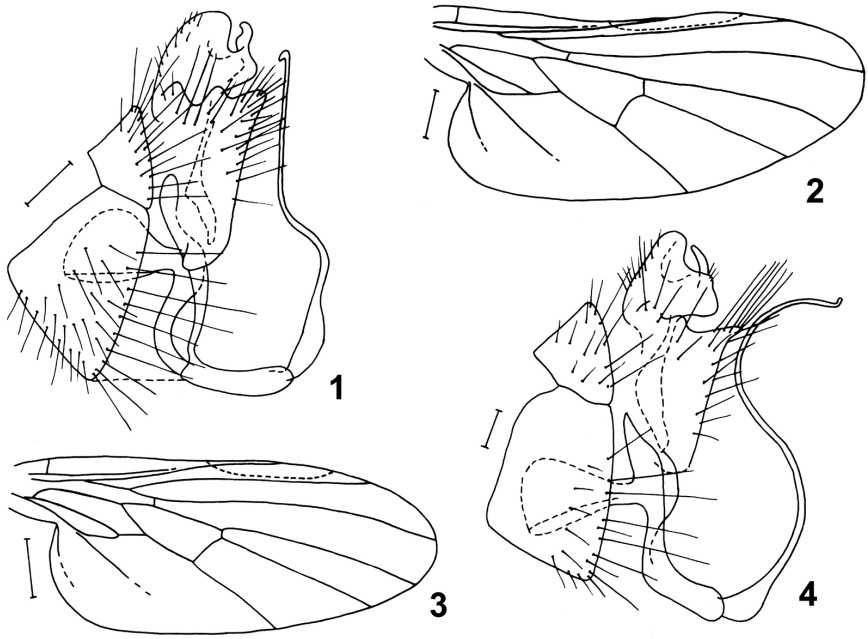
Remarks: The general shape of the epandrium (triangle-shaped and higher than long) and the cercus (bilobate with internal process) is strikingly similar to the Neotropical genus *Macrostomus* (as redescribed and delimited by Rafael and Cumming, 2004). Also the hypandrium is similar (with a dorsal sulcus in which the phallus fits), only shorter. However, both species described here differ from *Macrostomus* in several other morphological characters (e.g. the wing has a well developed axillary lobe, the phallus is long and free, acrostichals are present and biserial, reaching prescutellar depression posteriorly, etc.).

Type Data. Holotype male: Juzhnoje Primorie, Kamenuschka, 15.vi.1984, A. Shatalkin leg. (ZMMU). **Paratypes**: same locality as holotype, 1 female, 13.vi.1984 (CULSP).

Distribution: Russia (Primorskiy Territory).

Dates of Occurrence: June.

Derivatio Nominis: The species is named after the unusually short epandrium.



Figures 1-2. *Rhamphomyia* (*Pararhamphomyia*) *minutiforceps* sp. n. 1. Male (holotype) terminalia (macerated), lateral view, scale 0.2 mm, 2. Male (holotype) wing. Scale 0.5 mm. Figures 3-4. *R.* (*P.*) *minutiforcipella* sp. n. 3. Male (holotype) wing. Scale 0.5 mm, 4. Male (holotype) terminalia (macerated), lateral view, scale 0.1 mm.

***Rhamphomyia* (*Pararhamphomyia*) *minutiforcipella* NEW SPECIES**
Figures 3-4

Male: Eyes holoptic, facets in ventral half of eye smaller than those in dorsal half. Frons brownish-black, grey microtrichose, lacking setulae. Ocellar setae black and fine, scarcely half as long as frons, ocellar triangle with 2 additional setae. Face brownish-black, grey microtrichose, about 0.13 mm broad ventrally and 0.20 mm long, bare. Occiput brownish-black in ground-colour, brownish-grey microtrichose, covered with rather long and fine black setae, postocular row complete but distant from eye margin on middle third. Both basal antennal segments brown, remaining parts brownish-black, ratio of antennal segments = 6: 7: 20: 8, both basal antennomeres rather short setose (longest setae about 0.06 mm long). Labrum brown, lustrous, 4/5 as long as head is high. Palpus brown, short, with several setae. Gena narrow and microtrichose, clypeus microtrichose. Thorax blackish-brown, mesoscutum brown microtrichose, without stripes, pleura grey microtrichose. All setae black. Chaetotaxy: 4-6 setae on proepisternum; prosternum and proepisternal depression bare; about 18 biserial, fine acrostichals; about 19 irregularly 2-3 serial dorsocentrals ending in 2-3 prescutellars (both acrostichals and dorsocentrals about 0.15 mm long in middle of rows); about 6 setae on presutural part of mesoscutum laterad of dorsocentrals including scarcely differentiated intrahumeral and better differentiated posthumeral; postpronotum with one long and about 8 slightly shorter setae; 3 notopleurals (fore one in unusually forward position and 3-4 rather long setae on anterior part of notopleuron); 1 supra-alar and 3-4 setae on prealar area; 1 long and 1 small postalars; two pairs of scutellars; laterotergite with black setae. Legs including coxae blackish-brown, microtrichose, black setose. One long and strong seta in comb at tip of hind tibia. Fore femur almost lacking anteroventrals, posteroventrals very short on basal part of femur, on apical third slightly shorter than femur is deep, dorsal setation short. Fore tibia with fine setae dorsally nearly as long as tibia is deep, ventral setae short. Mid femur with anteroventral and posteroventral rows of setae shorter than femur is deep (posteroventrals slightly more numerous and stronger than anteroventrals), dorsal setation short. Mid tibia with 2-4 irregularly arranged setae dorsally nearly twice as long as tibia is deep, ventrally with 2 rows of subequally long spine-like setae. Hind femur with row of anteroventral setae short on basal part and somewhat longer on apical part of femur and similar setae arranged in almost regular posterior row longest on basal third of femur and short apically, dorsal setation short. Hind tibia rather stout, with 1-2 anterodorsals and 6-7 posterodorsals slightly longer than tibia is deep, and with anteroventral row of spinose setae on middle part slightly longer than tibia is deep, posteroventrals short and fine. Basal tarsomeres of all legs thin and short setose, those on mid and hind legs with short ventral spines, T1l: B1l = 1.9, B1l: B1w = 8.8, T2l: B2l = 2.8, B2l: B2w = 7.0, T3l: B3l = 2.3, B3l: B3w = 5.5. Wing (Fig. 3) clear, stigma yellowish, veins brownish-yellow, anal vein (A1) incomplete, absent in apical part. Costal seta present, axillary angle right. M2/D =

1.5, M3/Db = 1.9, lw: ww = 2.6-2.7. Halter yellow including stem, calypter brown with dark fringes. Abdomen, including terminalia, brown, microtrichose, only cercus lustrous, all setae dark. Hind marginal setae on sides of tergites 2-4 as long as or longer than corresponding segments, on segment 5 slightly shorter and on segment 6 short, discal setae shorter than marginals. Dorsum of tergites relatively long setose. Terminalia as in Fig. 4: hypandrium as in preceding species; epandrium triangular, higher than long, firmly attached to cercus; cercus U-shaped, posterior part with a nearly straight finger-like process; phallus broadly S-shaped. Length of body 3.1 mm (without genitalia), wing 3.7 mm.

Female: Similar to male but with the following exceptions. Eyes broadly dichoptic, dorsalmost facets slightly smaller than ventral ones. Frons 0.13 mm broad and 0.22 mm long, with several setae on each side. Face subequally long and broad as frons. Ratio of antennal segments = 8: 5: 21: 8. Ocellar setae strong and subequally long as frons. Occiput as in male, without bare median area. Labrum as long as head is high. Thorax similarly colored and setose as in male, thoracic setae almost as long as in male. Legs including coxae similarly colored as in male, however, differently setose. Fore femur and tibia short setose. Mid femur with short anteroventral setae and posteroventral pennation on apical half of femur, dorsal setae short. Mid tibia with 0-1 anterodorsal and posterodorsal setae an middle subequally long as tibia is deep, otherwise short setose. Hind femur with anteroventral setae almost as long as femur is deep and with subequally long posteroventral pennation, dorsally with somewhat shorter pennation arranged in two rows. Hind tibia with short pennation on both sides. Basal tarsomeres as in male, T1l: B1l = 1.9, B1l: B1w = 6.9, T2l: B2l = 2.1-2.2, B2l: B2w = 4.7, T3l: B3l = 2.3-2.4, B3l: B3w = 5.3. Wing brown, stigma equally dark, M2/D = 1.4, M3/Db = 2.3, lw: ww = 2.4. Abdomen brown, microtrichose, hind marginal setae on sides of tergites 2-5 half as long as their corresponding segments, on remaining tergites slightly shorter, discal setae shorter than marginals. Length of body 3.4 mm, wing 3.4-3.7 mm.

Differential Diagnosis: *Rhamphomyia* (*P.*) *minutiforcipella* sp. n. belongs to the same group as the previous species. The most allied species is undoubtedly *R. minutiforceps* sp. n. Both species can be readily distinguished from other species of this group by characteristic genitalia (see note under *R. minutiforceps* sp. n.). The female specimens may be recognized from other species of abovementioned group due to the leg pennation pattern (the mid femur is pennate only ventrally, the mid tibia is not pennate, both hind femur and tibia pennate on both sides), blackish-brown mesoscutum lacking stripes and microtrichose abdomen. *Rhamphomyia minutiforceps* sp. n. is distinctly larger than *R. minutiforcipella* sp. n. (wing length 4.6-4.8 mm), with darker halteres and different pennation pattern on female legs (especially the mid tibia is shortly pennate dorsally in the former species). There are also slight differences in the terminalia between *R. minutiforceps* sp. n. and *R. minutiforcipella* sp. n.: the 8th sternum in the former species is more densely setose (about 30 discal setae on each side, but only about 15

setae in the latter species), the shape of the phallus is different including the ejaculatory apodeme (compare figures 1 and 4), and an internal finger-like tooth of the cercus is distinctly S-shaped in the former species but nearly straight in the latter species.

Type Data. Holotype male: Russia, Amur region, Zeja, 9.vii.1978, leg. A. Shatalkin (ZMMU). **Paratypes:** same locality as the Holotype, 6.vi.1984, 1 female, leg. A. Shatalkin; same locality, 30.vi.1981, 1 female, leg. A. Shatalkin; same locality, 6.vii.1982, 1 female, leg. A. Ozerov (ZMMU and CULSP).

Distribution: Russia (Amur Province).

Dates of Occurrence: June-July.

Derivatio Nominis: The name of this species stresses its similarity with *R. minutiforceps* sp. n.

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ERRATUM

The actual mailing date for *Entomological News* Vol. 119 Number 3 (May-June 2008) was June 24, 2008 not June 23, 2008 as it was printed on the publication. The Editor deeply regrets this delay.