

## Revision of Palaearctic species of *Rhamphomyia* (*Megacyttarus*) *argentea* group (Diptera: Empididae)

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**ABSTRACT:** Altogether 14 Palaearctic species of *Rhamphomyia* (*Megacyttarus*) *argentea* group are revised, two new species are described, *R. (M.) ozerovi* and *R. (M.) kamenuschka*, both from the eastern part of Asian Russia. Lectotype of *R. (M.) anomala* Oldenberg, 1915 is designated. All species are fully redescribed, keyed, and main differential characters (male terminalia, female wing) are illustrated.

**KEY WORDS:** Diptera, Empididae, *Rhamphomyia*, *Megacyttarus*, Palaearctic region, new species, descriptions, redescriptions, key, lectotype, distribution

### INTRODUCTION

The species of the *Rhamphomyia* subgenus *Megacyttarus* are Holarctic in distribution. The present paper represents a continuation of the revision of Nearctic *Rhamphomyia* (*Megacyttarus*) by Barták (2002). Revision of *Rhamphomyia* (*Megacyttarus*) *poissoni* group (Barták in press) will follow. *R. argentea* group was fully defined by Barták (2002). The key to world groups of the subgenus is in preparation by Barták (in press). *R. argentea* group covers Holarctic species having distribution centre probably in West Nearctic region. At present, 48 Nearctic and 14 Palaearctic species of this group are known.

### MATERIAL AND METHODS

The list of abbreviations and acronyms used in the text: ac (acrostichal setae), dc (dorsocentral setae), h (humeral = postpronotal seta), ih (intrahumeral seta), ph (posthumeral seta), n (notopleural seta), sa (supra-alar seta), pa (postalar seta), sc (scutellar setae – all are counted), mtpl (metapleural setae), ad (anterodorsal), av (anteroventral), pd (posterodorsal), pv (posteroventral), T1(2,3): Mt1(2,3) (ratio length of front, middle hind tibia: length of front, middle, hind basitarsus), Mt1,2,3: Mt1,2,3 (ratio length: width of front, middle, hind basitarsus), vein A (anal vein),

(similarly as in *R. argyrosoma*) and simple basal swelling of phallus. Female is quite unique by peculiar wing venation.

**Material examined:** JAPAN, Honshu, Kanayama, Yamanashi, 6.vi.1962, 1 ♀, T. Saigusa leg. (Paratype), same locality, 6.v.1964, 1 ♀, A. Kato leg. (CUP), same locality, 3.vi.1975, T. Saigusa, 1 ♂, (DEI).

**Distribution:** Japan: Honshu.

**Dates of occurrence:** v–vi.

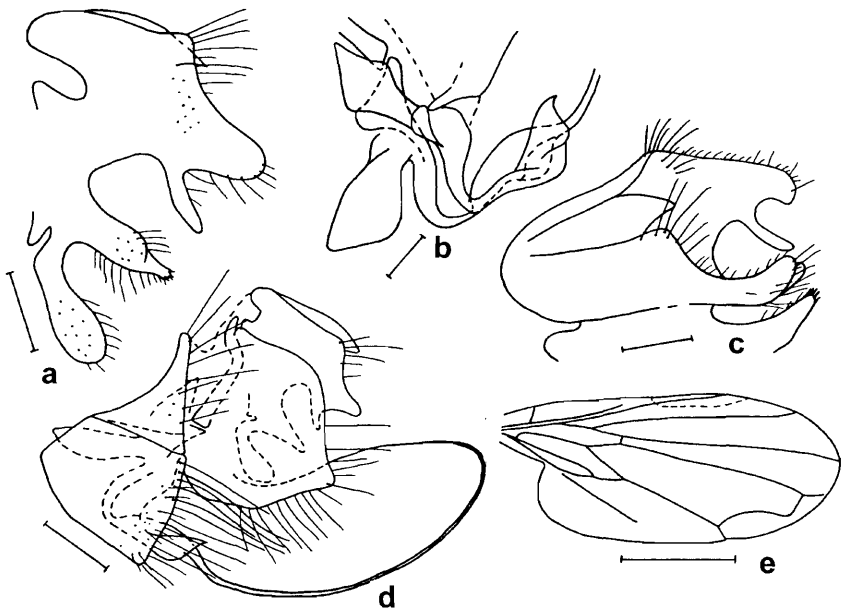
#### 10. *Rhamphomyia* (*Megacyttarus*) *kamenuschka* sp.n.

(Figs 10a–e)

**Male.** Eyes dichoptic, facets in the upper part of eye much smaller than lower ones. Frons brownish black, grey pruinose, 0.18 mm broad above and 0.13 mm below, being 1.4 times as long as broad, bearing 4–6 black hairs on each side which are slightly longer than frons is broad. Ocellar bristles longer than frons, black, and ocellar triangle with 2–4 additional hairs. Face brownish black, grey pruinose, 0.03 mm broad at midlength, being almost parallel sided and more than 10 times as long as broad, bare. Occiput brownish black, grey pruinose, black haired, with a few pale hairs below neck, postocular row complete. Antennae black, both basal segments brown, ratio of antennal segments = 10: 8: 19: 7. Labrum brown, polished, shorter than head is high. Palpi brown, short, covered with a few hairs. Thorax brownish black, grey pruinose, scutum rather light grey, with barely visible darker and more brownish stripes between rows of ac and dc. Large bristles black, hairs both black and pale. Chaetotaxy: 4–8 pale hairs on proepisternite, propleura and prosternite bare, 14–21 biserial, very fine ac are shorter than the distance between ac and dc, 9–18 dc are irregularly biserial and slightly shorter than the distance between ac and dc, ending in 3–4 prescutellars, 1 h (and several pale short hairs), 1–2 ih, 1 ph (1–2 hairs between them), 2 n (several pale hairs in front part of notopleura), 1–2 sa (1–3 pra hairs), 1 pa, 2 sc (plus 2–4 short hairs), mtpl pale. Coxae brown, pruinose, pale haired. Legs brown, pruinose, knees yellowish. Legs mostly pale haired and bristled (hind tibia conspicuously pale haired dorsally), but also with brown hairs and bristles (e.g. middle tibia). Rather long bristle present in “comb” at tip of hind tibia. Femora of all legs short haired, with fine ventral “pilosity”, hind femur with several short preapical av and pv. Front tibia with almost homogeneous pd ciliation as long as diameter of tibia, ventral hairs short. Middle tibia with several pd and pv bristles which are up to as long as diameter of tibia, ad rarely differentiated and shorter, other ciliation short. Hind tibia slightly swollen apically, with heterogeneous ciliation dorsally, the longest bristles are up to as long as diameter of tibia, ventral hairs short. Basitarsus of front leg slightly swollen and short haired,  $T1: Mt1 = 2.0$ ,  $Mt1: Mt1 = 4.0$ . Basitarsus of middle leg thin and short haired,  $T2: Mt2 = 2.5$ ,  $Mt2: Mt2 = 5.3$ . Basitarsus of hind leg swollen, dorsal hairs as long as or slightly longer than greatest diameter of basitarsus, even the second hind tarsomere distinctly swollen,  $T3: Mt3 = 2.1$ ,  $Mt3: Mt3 = 2.6$ . Wings clear, stigma brownish, veins pale brownish, vein A absent in apical third. Costal bristle very short to absent, ax angle  $90^\circ$ .  $M2/D = 1.2$ – $2.0$ ,  $M3/Db = 2.6$ – $3.6$ . Halter yellow, squama yellow with pale fringes. Abdomen brown, light grey pruinose. Bristles and hairs almost

exclusively pale, only those on dorsal genital lamella and sometimes hind marginals on dorsum of tergite 8 are dark. Hind marginal bristles on sides of tergites 2–4 are  $2/3$  as long as segments, on tergite 5–7 half as long as segments. Dorsum of tergites with hairs about  $1/3$  as long as segments. Discal hairs subequally long as marginals. Terminalia as in Figs 10a–d. The 8th tergite extremely narrow dorsally, sternite with long pale and almost wavy bristles in the upper third, whereas lower part covered with short bristles, lateral genital lamella with rather acute lower angle, arms of dorsal genital lamella bifurcated apically forming finger like apicoventral process, ventral lobe depigmented, hypandrium formed of two lateral sheets which are sharply tipped apically, basal swelling of phallus with depigmented ventral constriction. Length of body 2.9 – 2.2 mm, wing 3.2–3.6 mm.

**Female.** Eyes broadly dichoptic, facets in the upper part of eye smaller than the lower ones. Frons, face and occiput black, light grey pruinose. Frons 0.19 mm broad above and 0.16 mm below, being slightly longer than broad, frontal hairs shorter than frons is broad. Face about 0.15 mm broad at midlength, slightly broadening below, being slightly longer than broad. Ratio of antennal segments = 8: 8: 18: 7. Labrum shorter than head is high. Thorax black, light grey pruinose, scutum almost silvery (especially prescutellar depression and scutellum), with two darker and more polished (but not brown) stripes between ac and dc, the stripes extend from anterior margin of scutum to the last ac. Thoracic chaetotaxy and colour of hairs and bristles as in male, bristles very slightly shorter. Colour of legs including



**Fig. 10.** *Rhamphomyia* (*Megacyttarus*) *kamenuschka* sp. n. a – dorsal genital lamella, b – hypandrium and phallobase, c – dorsal lamella in dorsolateral view, d – hypopygium (macerated), e – female wing. a–e – Paratype (Russia, Kamenuschka). Scales: a–c – 0.1 mm, e – 1 mm, d – 0.2 mm.

coxae and hairs and bristles as in male. Femora of all legs short haired, only middle and hind ones with several av and pv just before apex. Front tibia with pd bristles which are as long as or shorter than diameter of tibia. Middle tibia as in male. Hind tibia not swollen, with two (ad and pd) rows of bristles (3–5 in each row) which are shorter than diameter of tibia. Basitarsi of all legs thin and short haired. T1: Mt1 = 2.3, Mt1: Mt1 = 5.8, T2: Mt2 = 2.4, Mt2: Mt2 = 6.0, T3: Mt3 = 2.2, Mt3: Mt3 = 6.4. Wing (Fig. 10e) clear, stigma light brownish. Veins yellow in basal part of wing and brown in apical part of wing, vein M2 absent or very short, both veins M1 and M3 short, discal crossvein angulate in upper part. Abdomen brown, tergites 2–5 silvery, the rest of abdomen grey pruinose. Discal hairs on sides of tergites 4–5 sparse and short (about 0.05 mm). Length of body 3.2–3.7 mm, wing 3.2–3.4 mm.

**Variability:** unknown.

**Differential diagnosis:** *Rhamphomyia (Megacyttarus) kamenuschka* sp. n. belongs to the *R. anomalipennis* complex of species. Both sexes may be identified according to the key. The species described above is rather similar to *R. anomalina*. However, both species differ in many characters. In male sex: *R. anomalina* has broader face, scutum dark, thinly pruinose, hind tibia not so swollen apically and dark haired, knees of all legs dark and is larger (wing more than 3.9 mm), whereas *R. kamenuschka* has narrower face, scutum heavily pruinose, light grey, with stripes (even if barely distinct), hind tibia swollen apically and pale haired, knees of all legs yellowish and it is smaller (wing less than 3.6 mm). Moreover, there are striking differences in terminalia (compare figures) and shape of the second joint of hind tarsus which is slightly swollen and longer haired in *R. anomalina* but not swollen and short haired in *R. kamenuschka*. Differences in female sex: the colour of scutum is dark brownish black and rather subpolished, leaving narrow light grey stripes below rows of bristles in *R. anomalina* and light grey with two darker stripes between ac and dc in *R. kamenuschka*. Differences in colour of legs (knees) and length of wing are similar to male. Moreover, the above described species has slightly longer apical section of vein M1 than M3 whereas in *R. anomalina*, apical section of vein M3 is slightly longer than M1 (however, this character may be variable).

**Holotype** ♂: Russia, Juzhnoje Primorije, Kamenuschka, 9.vi.1984, A. Shatalkin leg., deposited in ZMUM.

**Paratypes:** 3 ♂, 3 ♀, same locality as the Holotype (males also same date) but females collected 13.vi.1984, deposited in ZMUM and PCMB.

**Distribution:** Russia, South Primorije.

**Dates of occurrence:** vi.

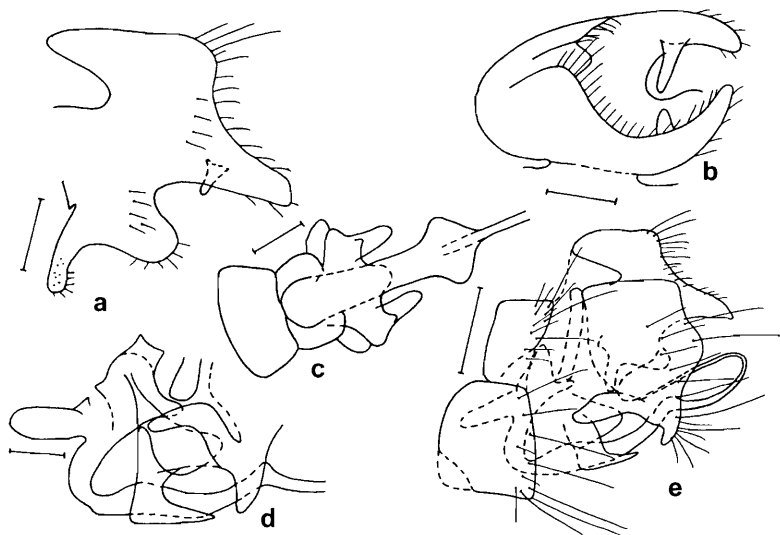
**Derivatio nominis:** The species is named after the type locality.

## 11. *Rhamphomyia (Megacyttarus) ozerovi* sp.n.

(Figs 11a–e)

**Male.** Eyes dichoptic, facets in the upper part of eye smaller than lower ones. Frons brownish black, dark velvety brownish grey pruinose, 0.14 mm broad above and 0.10 mm below, being 1.5 times as long as broad, bearing 4 black hairs on each side which are much longer than frons is broad. Ocellar bristles longer than frons, black, and ocellar triangle with

4 long additional hairs. Face coloured as frons, 0.03 mm broad in the narrowest place at midlength, slightly broadening both above and below, being more than 10 times as long as broad, bare. Occiput brownish black, dark brownish grey pruinose, rather long black haired, postocular row complete. Antennae black, ratio of antennal segments = 11: 7: 20: 6. Labrum brown, polished, shorter than head is high. Palpi brown, short, covered with a few rather long hairs. Thorax brownish black, dark brownish grey pruinose, scutum deeply dark brownish black, without any stripes. All body bristling and hairing dark. Chaetotaxy: 1 hair on proepisternite, propleura and prosternite bare, 14 biserial, fairly fine ac are 1.5 times as long as the distance between ac and dc, 9–10 dc are irregularly biserial to almost uniserial (2–3 small hairs outside the row), medium thick to rather strong, the longest being more than twice as long as the distance between ac and dc, ending in 2–3 prescutellars, 1 h (and a few shorter hairs), 1 ih, 1 ph (0–2 hairs between them), 2 n (several fairly long hairs in front part of notopleura), 1 sa (2 strong pra hairs), 1 pa, 2 sc (plus 2 short hairs), mtpl dark. Coxae blackish brown, pruinose, dark haired and bristled. Legs blackish brown, pruinose, dark bristled and haired. No detectable bristle in “comb” at tip of hind tibia. Front femur short haired, av and pv elongated only just before tip. Front tibia with unusually long d and pd ciliation up to 2.5 times as long as diameter of tibia, ventral hairs short. Middle femur with av and pv bristles which are about as long as vertical diameter of femur. Middle tibia with only 1–2 pd and pv bristles which are up to 1.5 times as long as diameter of tibia, other ciliation slightly longer than diameter of tibia. Hind femur with av bristles which are in apical



**Fig. 11.** *Rhamphomyia (Megacyttarus) ozerovi* sp. n. a – dorsal genital lamella, b – dorsal lamella in dorsolateral view, c – hypandrium and phallobase (ventral view), d – hypandrium and phallobase, e – hypopygium (macerated). a–e – Holotype (Russia, Amurskaja obl., Zeja). Scales: a–d – 0.1 mm, e – 0.2 mm.

third of femur as long as vertical diameter of femur, shorter in basal two thirds and with pv which are slightly shorter than av. Hind tibia with a row of 6–8 pd bristles which are slightly longer than diameter of tibia, 2–4 ad are slightly shorter than diameter of tibia. Basitarsus of front leg thin, dorsal hairs up to twice as long as diameter of basitarsus, T1: Mt1 = 2.4, Mt1: Mt1 = 3.6, Basitarsus of middle leg thin and short haired, with short ventral spines, T2: Mt2 = 2.5, Mt2: Mt2 = 5.6. Basitarsus of hind leg slightly swollen, short haired, T3: Mt3 = 2.3, Mt3: Mt3 = 3.4 (? slightly collapsed). Claws of hind leg asymmetrical. Wings clear, stigma light brownish, veins pale brownish, vein A absent in apical half and even in basal half mostly developed only as a fold. Costal bristle very short to absent, ax angle 100–110°. M2/D = 1.4–1.5, M3/Db = 2.0. Halter brown, squama brown with dark fringes. Abdomen brown, pruinose, entirely black haired and bristled. Hind marginal bristles on sides of tergites are nearly as long as segments, on dorsum of tergites slightly shorter, discal hairs almost subequally long. Terminalia as in Figs 11a–e. Lateral genital lamella with extended lower angle, arms of dorsal genital lamella with finger like medial outgrowth, ventral lobe short, hypandrium bilamellate, basal swelling of phallus strongly broadened laterally, forming peculiar “knee”. Length of body 2.7 mm, wing 3.0 mm.

**Female** unknown.

**Variability:** unknown.

**Differential diagnosis:** *Rhamphomyia* (*Megacyttarus*) *ozeroi* sp. n. belongs to the *R. anomala* complex of species. Male may be identified according to the key. The species is superficially rather similar to *R. anomalipennis*. However, *R. anomalipennis* has both dark and pale haired abdomen and broader face. Moreover, there are striking differences in terminalia (compare figures). There are only two species of Palearctic *Megacyttarus* with completely dark haired body in male: *R. brunneostriata* and *R. ozeroi*. Both differ (except differences in genitalia) in face which is long haired in the former and bare in the latter species. Female remains unknown.

**Holotype** ♂: Russia, Amurskaja obl. (=region), Zeja, 12.vi.1981, A. Ozerov leg., deposited in ZMUM.

**Paratypes:** no additional materials.

**Distribution:** Russia, Amurskaja region.

**Dates of occurrence:** vi.

**Derivatio nominis:** The species is dedicated to Dr. A.L. Ozerov, a collector of the Holotype.

## 12. *Rhamphomyia* (*Megacyttarus*) *pilosifacies* Saigusa, 1963 (Figs 12a–d)

*Rhamphomyia* (*Megacyttarus*) *pilosifacies* Saigusa, 1963: Sieboldia, 3: 155.

**Male.** Eyes dichoptic, facets in the upper part of eye smaller than lower ones. Frons brownish black, grey pruinose, 0.16 mm broad above and 0.12 mm below, being twice as long as broad, bearing 3–6 black hairs on each side which are longer than frons is broad. Ocellar bristles as long as frons, black, and ocellar triangle with 2 additional hairs. Face brownish black, grey pruinose, 0.09 mm broad at midlength, slightly broadening below being