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NEW SPECIES OF THE FAMILY RHAGIONIDAE (DIPTERA) FROM THE RUSSIAN FAR EAST

V. N. Makarkin and V. S. Sidorenko

*Institute of Biology and Soil Sciences, Far Eastern Branch of the Russian
Academy of Sciences, Vladivostok, 690022, Russia*

Four new species of the family Rhagionidae: *Ptiolina leleji* sp. n., *P. nagatomii* sp. n., *P. alarponica* sp. n. and *Chrysopilus sobolevae* sp. n., are described from Primorye, Russian Far East.

KEY WORDS: Rhagionidae, *Ptiolina*, *Chrysopilus*, taxonomy.

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Из Приморского края описаны 4 новых вида семейства Rhagionidae: *Ptiolina leleji* sp. n., *P. nagatomii* sp. n., *P. alarponica* sp. n. и *Chrysopilus sobolevae* sp. n.

Биолого-почвенный институт, Дальневосточное отделение Российской Академии Наук, Владивосток, 690022, Россия.

INTRODUCTION

Up to now, 23 valid species of the Rhagionidae have been recorded from the Russian Far East (Majer, 1988; Makarkin, 1990; 1992; Makarkin & Sidorenko, 2000). In present paper four new species of the genera *Ptiolina* and *Chrysopilus* are described. All holotypes and paratypes are deposited in the Institute of Biology and Soil Sciences, Vladivostok.

Genus *Ptiolina* Zetterstedt, 1842

REMARKS. Hitherto no species of the genus *Ptiolina* were recorded from the Russian Far East. However, Makarkin (1990) mentioned two undescribed species from Primorye, and Soboleva (1987) reported "*Ptiolina mongolicus* Beck." [sic!] as distributed also in Primorye. We consider this name as nomen nudum because there is no such a species in this genus and Th. Becker never used the specific name *mongolicus* to any rhagionid genera. In adjacent regions (Siberia, Japan, western North America) this genus is represented by a number of species (Nagatomi, 1986a, 1986b; Hardy & McGuire, 1947; Majer, 1988), but in the China mainland only one undescribed species has been recorded (Yang et al., 1997). We follow here Nagatomi (1982) in treating the genus *Ompholaphora* Becker, 1900 as a synonym of the *Ptiolina*.

***Ptiolina leleji* Makarkin et Sidorenko, sp. n.**

Figs 4, 5

MATERIAL. Holotype - ♀, Primorskii krai [Primorye], Dzhigitovka River, 20 km N of Plastun, 30.VII 1986 (A. Lelej). Paratype - ♀, the same data as holotype.

DESCRIPTION. FEMALE. Head. Blackish. Face, clypeus, genae and occiput grayish pollinose; face bare but tomentose; clypeus tomentose and with a few, very short, recumbent, pale hairs; genae with comparatively long pale hairs. Frons, vertex and ocellar triangle brownish pollinose; frons with short almost recumbent brownish hairs; ocellar triangle with comparatively short blackish hairs, confined mainly to posterior part; occiput with short black hairs. Antennae dark brown; scapus apparently without hairs; pedicellus with very short blackish hairs which are not longer than pedicellus; flagellum rounded, without hairs but tomentose; stylus long, bare but tomentose. Palpus brown with long pale hairs. Width of eye on a mid line from a direct frontal view 1.2 times distance from antenna to median ocellus, 0.5 times width of face at lowest portion from a direct frontal view, and 0.9 times width of front just above antenna which is 2.2 times width of ocellar triangle; width of front at median ocellus 1.4 times that just above antennae and 3.1 times width of ocellar triangle; ocellar triangle 0.9 times as wide as long; space between antennae 0.6 times width of ocellar triangle; distance from proboscis to antenna 1.4 times that from antenna to median ocellus; clypeus 0.9 times as wide as long; width of clypeus 0.6 times width of face on at top portion of clypeus; length of clypeus 0.8 times distance from proboscis to antenna, and 0.6 times width of face on at top portion of clypeus; stylus 2.2 times as long as flagellum; relative length of antennal segments 1, 2 and 3 (excluding stylus) 80-100-220 and their relative width 150-160-180; flagellum (antennal segment 3) 1.2 times as long as wide; morphological characters are based on one specimen.

Thorax. Blackish. Stripes on mesonotum invisible because of poor condition. Mesonotum brownish pollinose with very short, recumbent, rather pale hairs in anterior

half, and longer erect ones in posterior half and near base of wing. Scutellum blackish with comparatively long, erect, brownish hairs. Pronotum with long pale hairs. Pleura somewhat grayish pollinose; lower part of katepisternum with sparse, short, pale hairs; pleura otherwise bare. Halter brown, its knob darker, blackish.

Wing. Membrane monotone light brown, veins in general dark brown; stigma dark brown.

Legs. Coxa blackish with long pale hairs, legs otherwise dark brown. Femur with comparatively short, rather pale hairs; other segments with short brownish hairs. Spures on hind leg lacking. Relative length of segments (excluding coxa and trochanter) of fore leg 182–236–100–32–27–20–36, of mid leg 218–273–91–36–27–20–36, of hind leg 291–318–127–45–36–24–36 [N = 1].

Abdomen. Blackish with short and dark hairs, except for anterior tergites which haired laterally long and pale.

Genitalia (Figs 4, 5). Tergite 7 much longer than wide. Tergite 8 nearly rounded with anterior margin almost straight and with small, rather deep incision. Intersegmental membrane between tergites 7 and 8 long. Sternite 8 with posterior and anterior margins widely and deeply concave. Tergite 9 rather elongate, heavily pigmented laterally with a medial almost unpigmented narrow zone; the anterior margin somewhat concave medially. Tergite 10 is elongate transversely, about 2 times as wide as long, not divided into a pair. Sternite 10 divided into a pair. Segment 1 of cercus not longer than wide, somewhat dilated outward. Segment 2 rather elongate, about 1.5–2 times as long as wide.

Length. Body about 5,0 mm; wing 5.3–5.5 mm; fore basitarsus 0.55 mm.

MALE. Unknown.

DISCUSSION. The new species is most closely related to European *Ptiolina grandis* Frey, 1918 but distinguished by the following characters: wing darker, sternite 8 with both posterior and anterior incisions, tergite 9 longer, cercus 1 not dilated outward (in *P. grandis* wing paler, sternite 8 with posterior incision only, tergite 9 shorter, cercus 1 dilated outward).

DISTRIBUTION. Russia: Primorye.

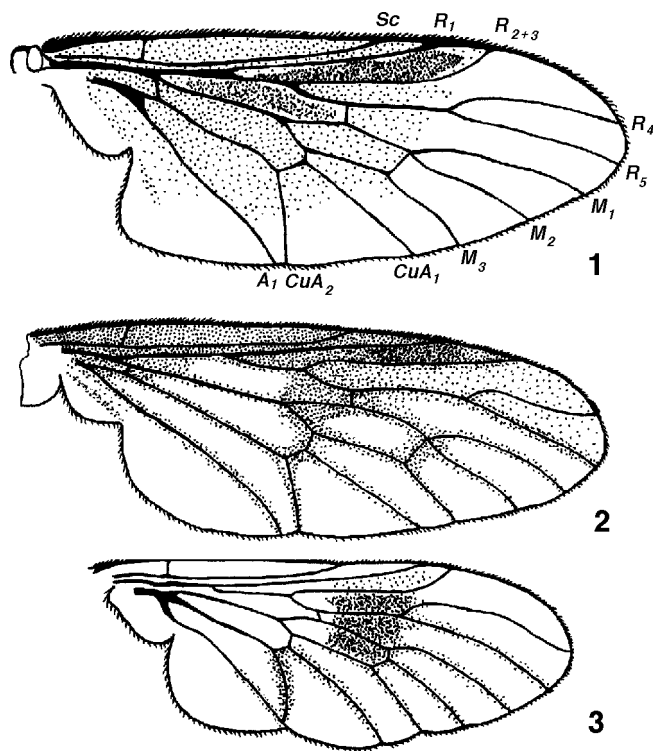
ETYMOLOGY. The species is named in honor of Russian entomologist Dr. Arkady S. Lelej (Vladivostok).

***Ptiolina nagatomii* Makarkin et Sidorenko, sp. n.**

Figs 1, 6, 7

MATERIAL. Holotype - ♂, Primorskii krai [Primorye], Khasanskii raion [Khasan District], Ryazanovka, 24.VII 1987 (V. Makarkin). Paratypes - 17 ♂, the same data as holotype; 1 ♂, the same locality as holotype, 13.VIII 1987 (V. Makarkin).

DESCRIPTION: MALE. Head. Blackish, brownish pollinose; face and clypeus bare but tomentose; genae with long brownish hairs. Ocellar triangle with several rather long and black hairs. Palpus dark brown with long blackish hairs. Antennae dark brown to blackish; scapus with very short hairs, a few in number; pedicellus



Figs 1-3. Wings. 1) *Ptiolina nagatomii*, sp. n.; 2) *P. alaponnica*, sp. n.; 3) *Chrysopilus sobolevae*, sp. n.

with rather short black hairs equal in length to pedicellus; flagellum and stylus bare but tomentose. Eyes dark reddish brown, bare, contiguous for a distance which is 0.6-0.8 times length of ocellar triangle. Width of eye on a mid line from a direct frontal view 0.8 times distance from antenna to median ocellus, 0.5-0.6 times width of face at lowest portion from a direct frontal view, and 1.9 times width of front just above antenna, which is 1.1-1.2 times length of ocellar triangle; ocellar triangle 0.8-0.9 times as wide as long; space between antennae 0.4-0.5 times width of ocellar triangle; distance from proboscis to antenna 0.6 times that from antenna to median ocellus; width of clypeus 1.1 times its length, 0.5-0.6 times width of face on at top portion of clypeus; length of clypeus 0.7 times distance from proboscis to antenna; stylus 1.7 times as long as antennal segment 3; relative length of antennal segments 1, 2 and 3 (excluding stylus) 80-100-220 and their relative width 150-170-160; flagellum (antennal segment 3) 1.4 times as long as wide; morphological characters are based on 2 specimens except antenna based on 1 specimen.

Thorax. Mesonotum dark brown, brown pollinose with two distinct narrow light brown stripes which are posteriorly fused and form a light brown spot near

scutellum (in most specimens these stripes and spot invisible because of poor condition); covered densely with rather long, erect, dark hairs. Scutellum dark brown with rather long, erect, brown hairs. Pronotum with brownish hairs. Pleura dark brown, brownish pollinose, bare except for lower part of katepisternum which covered with sparse, short, brown hairs. Stem of halter light brownish, knob dark brown.

Wing (Fig. 1). Membrane light brown in basal, apical and posterior portions, much more darker below pterostigma. Pterostigma dark brown. Veins in general brown.

Legs. Coxa dark brown, brownish pollinose, legs otherwise dark brown except tibia and basitarsus which are light brownish or yellowish. Femur with fine, comparatively long, pale hairs; other segments with short pale hairs except terminal tarsomeres which covered with dark hairs. Spurs on hind leg lacking. Relative length of segments (excluding coxa and trochanter) of fore leg 185(190–179)–227(216–238)–100–31(29–33)–27(25–29)–23(21–24)–36(34–38), of mid leg 200–250(242–257)–91(84–97)–33(32–33)–25(24–26)–20(19–21)–33(32–33), of hind leg 244(229–258)–298(282–314)–113(111–114)–39(38–39)–27(25–29)–21(19–23)–32 [N=2].

Abdomen. Entirely dark brown, densely covered with long and brownish hairs.

Genitalia (Figs 6, 7). Tergite 9 rather short, anterior and posterior margins gently concave. Tergite 10 trapeziform. Cercus approximately as wide as long, somewhat acute apically. Inner side of gonocoxite with a large projection. Gonostyle tapering to the apex.

Length. Body 4.0–4.8 mm; wing 3.7–4.2 mm; fore basitarsus 0.48–0.53 mm.

FEMALE. Unknown.

DISCUSSION. This new species is related to the European *P. obscura* (Fallén, 1814) and *P. nitida* Wahlberg, 1854 and the Japanese species described by Nagatomi (1986a, 1986b) but distinguished by the coloration of tibia which is light brownish or yellowish (in all these species tibia is dark brown to black). Also, *P. nagatomi* sp. n. differs from all the Japanese species by shape of tergite 9 which is in the latter deeply concave at anteriorly.

DISTRIBUTION. Russia: Primorye.

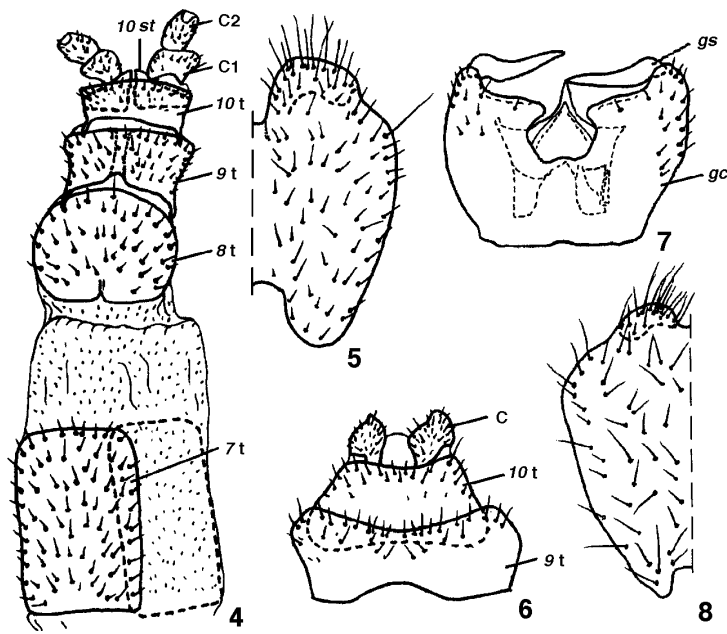
EYMOLOGY. The species is named in honor of Japanese dipterologist Prof. Akira Nagatomi (Kagoshima).

***Ptiolina alapponica* Makarkin et Sidorenko, sp. n.**

Figs 2, 8–10

MATERIAL: Holotype - ♀, Primorskii krai [Primorye], Khasanskii raion [Khasan District], vicinity of Ryazanovka, Poima [Adimi] River, 17.VI 1987 (V. Makarkin). Paratypes - 2 ♀, the same data as holotype; 1 ♀, 'Kedrovaya Pad' Nature Reserve, 11.VI 1982 (R. Soboleva leg.).

DESCRIPTION. FEMALE. Head. Brown in ground colour but entirely gray pollinose; face and clypeus light gray pollinose, bare but tomentose; frons, vertex,



Figs 4-8. Genitalia of *Ptiolina*. 4, 5) *P. leleji*, sp. n.: 4) female terminalia, dorsal view, 5) 8 sternite, ventral view; 6, 7) *P. nagatomii*, sp. n., apex of male abdomen: 6) dorsal view; 7) ventral view; 8) *P. alaponnica*, sp. n., 8 sternite, ventral view. (gc – gonocoxite; gs – gonostyle; 7t, 8t, 9t, 10t – 7-10 tergites; C, C1, C2 - cercus.)

ocular triangle and occiput somewhat darker than face; frons and upper occiput sometimes brownish pollinose, covered densely with rather long, erect, black hairs; genae with dense, very long, pale hairs. Antennae dark brown, flagellum and stylus somewhat darker. Scapus and pedicellus grayish pollinose with long, dense, black hairs. Flagellum without hairs but tomentose. Stylus long, bare but tomentose. Palpus light brown to brown covered densely with rather long, black hairs. Proboscis dark brown. Width of eye on a mid line from a direct frontal view 0.9-1.0 times distance from antenna to median ocellus, 0.3-0.4 times width of face at lowest portion from a direct frontal view, and 0.5 times width of frons just above antenna which is 3.8-4.5 times width of ocellar triangle; width of frons at median ocellus 1.0-1.1 times that just above antennae and 3.7-4.7 times width of ocellar triangle; ocellar triangle 0.7 times as wide as long; space between antennae 0.6-0.8 times width of ocellar triangle; distance from proboscis to antenna 0.9-1.1 times that from antenna to median ocellus; width of clypeus 0.7-0.8 times its length and 0.2-0.3 times width of face at top portion of clypeus; length of clypeus 0.6-0.8 times distance from proboscis to antenna; stylus 1.3-1.4 times as long as antennal segment 3; relative length of antennal segments 1, 2 and 3 (excluding stylus) 124(122-125)-100-224(222-225) and their relative width 153(156-150)-147(144-150)-171(167-

175); flagellum (antennal segment 3) 1.3-1.4 times as long as wide; morphological characters are based on 2 specimens.

Thorax. Dark brown to almost black in ground colour but entirely dark gray pollinose. Mesonotum with 3 indistinct broad blackish (or brownish in other lights) stripes not reaching to hind margin of mesonotum, covered with long, erect, blackish hairs. Scutellum dark gray pollinose with blackish hairs. Pronotum with long brownish hairs. Posterior part of anepisternum and lower part of katepisternum with rather long, numerous, blackish to brownish hairs; pleura otherwise bare. Halter rather pale, brownish.

Legs. Coxa brown, gray pollinose, with mixed black and pale hairs. Fore femur brown with long black hairs; mid femur brown with rather short blackish hairs; hind femur darker than former two, dark brown, with short blackish hairs; spurs on hind legs quite long. Tibiae and proximal tarsomeres light brown with short black hairs. Distal tarsomeres dark brown, almost black, with short black hairs. Relative length of segments (excluding coxa and trochanter) of fore leg 181(179-183)-211(209-212)-100-35(34-35)-24(23-25)-19-32(31-32), of mid leg 195(191-200)-242(241-243)-89(88-89)-33(32-34)-26-21(20-21)-32(31-32), of hind leg 12(309-314)-332(324-340)-121(120-121)-52(51-53)-33(31-35)-24(23-24)-32 (31-32) [N=2].

Wing. (Fig. 2). Membrane along longitudinal veins and crossveins, in costal, subcostal cells, in basal and central parts of wing dark brown; light brownish otherwise. Anal cell open.

Abdomen. Entirely brown to dark brown with sparse, short, blackish hairs; tergites 1 and 2 laterally with long pale hairs.

Genitalia (Figs 8-10). Tergite 7 nearly rectangular. Tergite 8 rounded with anterior margin gently concave. Intersegmental membrane between tergites 7 and 8 rather long. Sternite 8 with posterior and anterior margins concave, its shape is somewhat variable. Tergite 9 rather elongate, heavily pigmented laterally with a medial almost unpigmented zone which is very narrow at posterior margin and expanded towards anterior margin. Tergite 10 is comparatively elongate, not divided into a pair. Sternite 10 divided into a pair. Segment 1 and 2 of cercus elongate, about 1.5-2 times as long as wide.

Length. Body 6.1-8.8 mm; wing 6.0-8.1 mm; fore basitarsus 0.85-0.88 mm.

MALE. Unknown.

DISCUSSION. The new species is most closely related to *P. lapponica* (Frey, 1907), but distinguished by darker hairs especially on frons (yellowish in *P. lapponica*) and by shape of sternite 8 (Fig. 8, 9 cf. Fig. 11).

DISTRIBUTION. Russian Far East (Primorye).

NOTES. Possibly, this species has been reported as "*Ptiolina mongolicus* Beck." [sic!] (Soboleva, 1987: 115) because the specimen from 'Kedrovaya Pad' Nature Reserve is only one *Ptiolina* species from Russian Far East in the materials of R. Soboleva deposited in collection of Institute of Biology and Soil Sciences.

ETYMOLOGY. The specific name consists of *a* (from Greek *a*, not) and *lapponica* (from the name of species which is most closely related to new species).

Genus *Chrysopilus* Macquart, 1826

REMARKS. Numerous species of the genus *Chrysopilus* are distributed in Japan, China and western North America (Hardy, 1949; Nagatomi, 1958; 1968; 1978; Nagatomi & Kanmiya, 1968; Yang, Yang & Nagatomi, 1997), eight species have been recorded from the Russian Far East (Soboleva, 1986; Makarkin, 1990).

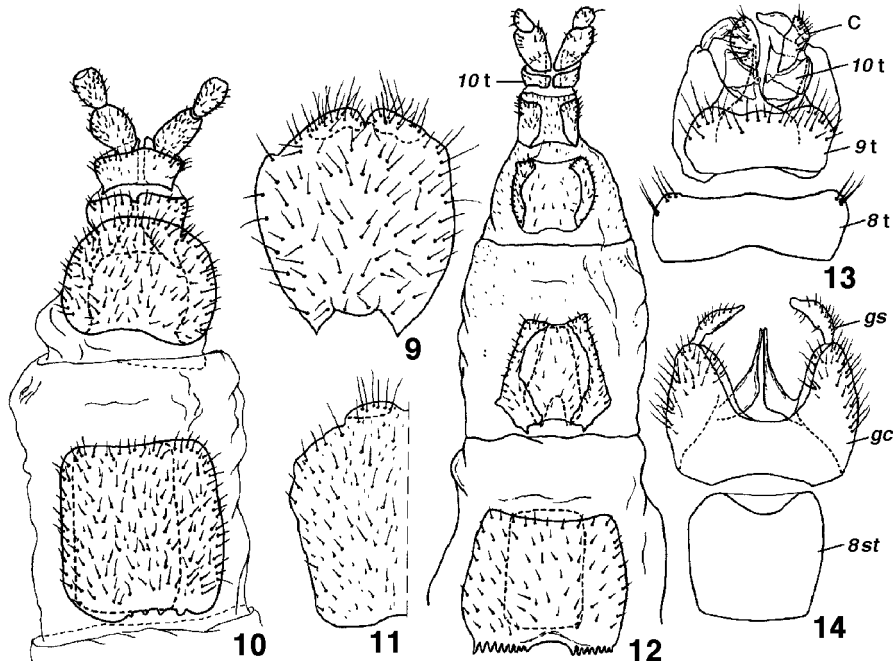
Chrysopilus sobolevae Makarkin et Sidorenko, sp. n.

Figs 3, 12-14

MATERIAL. Holotype - ♀: Primorskii krai [Primorye], Ryazanovka, 20.VI 1987 (V. Makarkin). Paratypes - 9 ♂, 12 ♀, the same locality as holotype, 16-17.VI 1987 (V. Makarkin); 3 ♂, 1 ♀, same locality as holotype, 11-20.VI 1987 (V. Makarkin); 3 ♀, Peschanyi Peninsula, 8.VI 1991 (V. Makarkin); 1 ♂, 'Kedrovaya Pad' Nature Reserve, 11.VI 1977 (N. Azarova).

DESCRIPTION. MALE. Head. Face and clypeus pale gray pollinose; clypeus bare; parafacials with rather long, sparse, black hairs. Genae and lower occiput dark gray pollinose with long black hairs; occiput with short black hairs; upper occiput bare. Ocellar triangle dark brownish gray with rather short black hairs. Palpus dark brown with long black hairs. Antennae dark brown; scapus and pedicellus with short hairs; flagellum rounded, without hairs but tomentose. Arista bare but tomentose. Eyes reddish brown, bare. Eyes contiguous for a distance which is 0.7-0.8 times length of ocellar triangle; width of eye on a mid line from a direct frontal view 0.7 times distance from antenna to median ocellus, 0.4-0.5 times width of face at lowest portion from a direct frontal view, and 1.2 times width of frons just above antenna, which is 1.5 times length of ocellar triangle; width of ocellar triangle 0.8 times its length; space between antennae 0.4 times width of ocellar triangle; distance from proboscis to antenna 0.9 times that from antenna to median ocellus; width of clypeus 0.9-1.1 times as its length, 0.5 times as width of face on at top portion of clypeus; length of clypeus 0.6 times distance from proboscis to antenna; arista about 6 times as long as antennal segment 3 and about 2 times as long as rest of antenna; relative length of antennal segments 1, 2 and 3 (excluding arista) 74(71-77)-100-145(143-146) and their relative width 152(150-154)-149(143-154)-178(171-185); flagellum (antennal segment 3) 0.8 times as long as wide; morphological characters are based on 2 specimens.

Thorax. Mesonotum in ground colour dark brown to blackish, dark gray pollinose with 3 distinct narrow brown longitudinal stripes, and with short, recumbent, pale pile which are intermixed with longer, rather sparse, erect, black hairs. Scutellum dark brownish gray pollinose with short, recumbent, pale pile which are intermixed with longer, erect, black hairs. Pronotum with black hairs. Pleura black, gray pollinose.



Figs 9-14. Genitalia. 9, 10) *Ptiolina alaponica*, sp. n.: 9) 8 sternite, ventral view, 10) female terminalia, dorsal view; 11) *P. lapponica*, 8 sternite, ventral view; 12-14) *Chrysopilus sobolevae*, sp. n.: 12) female terminalia, dorsal view; 13, 14) apex of male abdomen: 13) dorsal view, 14) ventral view. Abbreviations as on Figs 4-8.

Upper part of anepisternum and lower part of katepisternum with blackish hairs; katatergite with long, dense, blackish hairs which are intermixed with pale ones; anatergite with long, dense, pale hairs which are intermixed with blackish ones; posterior margin of katepisternum with 3-5 rather long, pale hairs; posterior margin of metepimeron with several short, fine, pale hairs. Halter pale light yellow.

Wing. Membrane dark yellowish, with maculations shown in fig. 3. Pterostigma rather pale, light brownish. Veins dark brown.

Legs. Coxa dark brown, grayish pollinose, with long black hairs. Femur dark brown, knee somewhat paler, with dark brown to pale hairs which are anteriorly shorter and recumbent. Tibiae and proximal tarsomeres light brownish or yellowish with dense, very short, pale hairs; hind tibia posteriorly with longitudinal row of longer and darker hairs; distal tarsomeres brown to dark brown with hairs of same colour. Spures pale with black apex. Relative length of segments (excluding coxa and trochanter) of fore leg 115(111-118)-166(161-170)-100-33(30-35)-25(24-25)-12(11-12)-20(19-20), of mid leg 122(118-126)-202(193-210)-93(90-95)-33(32-33)-24(22-25)-11(10-11)-19(18-20), of hind leg 157(156-158)-209(198-220)-92(91-92)-34(30-37)-26(24-28)-11(10-12)-21(19-22) [N=2].

Abdomen. Blackish in ground colour, entirely gray pollinose, with long, erect, black hairs.

Genitalia (Figs 13, 14). Tergite 8 much wider than long with a mid-anterior concavity. Sternite 8 as long as wide, with a deep mid-posterior incision. Tergite 9 wider than long, without a mid-anterior incision. Gonocoxites wide with a weak anterior concavity on fused ventral portion. Gonostylus curved and truncate apically.

Length. Body 6.1-7.2 mm; wing 5.6-6.7 mm; fore basitarsus 1.25-1.43 mm.

FEMALE. Similar to male except as follows. Head. Frons, vertex and uppermost occiput brown pollinose with short black hairs. Width of eye on a mid line from a direct frontal view 1.0-1.1 times distance from antenna to median ocellus, 0.4-0.5 times width of face at lowest portion from a direct frontal view, and 0.6 times width of frons just above antenna; width of frons at median ocellus 1.0 times that just above antennae and 2.9-3.4 times width of ocellar triangle; width of ocellar triangle 0.8 times as its length; space between antennae 0.6-0.8 times width of ocellar triangle; distance from proboscis to antenna 1.5-1.6 times that from antenna to median ocellus; width of clypeus 1.1 times as its length, 0.5 times as width of face on at top portion of clypeus; length of clypeus 0.5-0.6 times distance from proboscis to antenna. Arista 4.5-5.5 times as long as antennal segment 3; relative length of antennal segments 1, 2 and 3 (excluding arista) 100-100-171 (157-185) and their relative width 164(157-171)-157-200; flagellum (antennal segment 3) 0.8-0.9 times as long as wide and 2 times as long as rest of antenna; morphological characters are based on 2 specimens.

Legs. Relative length of segments (excluding coxa and trochanter) of fore leg 108(108-108)-180(170-190)-100-33(30-35)-23(22-23)-13(13-13)-17(17-17), of mid leg 128(127-129)-184(177-190)-93(92-94)-31(30-31)-22(22-22)-12(10-13)-16(16-16), of hind leg 172(170-174)-214(206-222)-94(92-95)-36(34-38)-24(23-24)-13(13-13)-17(17-17) [N=2].

Wing. Similar to male except for membrane somewhat whitish and pterostigma more yellowish.

Genitalia (Fig. 12). Tergite 6 entirely heavily pigmented, nearly rectangular. Tergites 7-9 laterally heavily pigmented, otherwise almost unpigmented. Tergite 10 transverse, divided into a pair. Sternite 6 about 1.5 times as long as wide. Sternite 7 narrowed toward posterior margin and with a deep anterior incision. Sternite 8 with a deep incision posteriorly and large projections laterally. Segment 1 of cercus large, without outward dilation; segment 2 of cercus much smaller, rounded.

Length. Body 6.8-8.6 mm; wing 6.8-8.5 mm; fore basitarsus 1.58-1.60 mm.

DISCUSSION. The new species differs from all known species by wing maculation (Fig. 3) and peculiar structure of female tergites 7-9 having a great unpigmented portion. Also, male tergite 9 in the Chinese and Japanese species have always more or less a deep concavity anteriorly, but in *Ch. sobolevae* this margin is almost straight.

DISTRIBUTION. Russian Far East (Primorye).

ETYMOLOGY. This species is named in honor of the Russian dipterologist Dr. Rosa G. Soboleva, Petrozavodsk.

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