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A review of the genera *Cleigastra* Macquart, *Gonarcticus* Becker, *Gonatherus* Rondani, *Hexamitocera* Becker, *Nanna* Strobl, *Orthacheta* Becker and *Spathephilus* Becker (Diptera, Scathophagidae) of Russia

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Abstract

Flies of the genera *Cleigastra* Macquart, 1835, *Gonarcticus* Becker, 1894, *Gonatherus* Rondani, 1856, *Hexamitocera* Becker, 1894, *Nanna* Strobl, 1894, *Orthacheta* Becker, 1894 and *Spathephilus* Becker, 1894 (all Scathophagidae) of the fauna of Russia are reviewed. Key to genera, generic descriptions and keys for determination of species are given, and data on geographical distribution are summarized. One species, *Nanna cryophila* **sp. nov.**, is described as new to science. One new synonymy is proposed: *Nanna kamtschatkense* (Hendel, 1930) = *Nanna tibiella* (Zetterstedt, 1838). *Orthacheta cornuta* (Loew, 1863) is recorded from Europe for the first time. *Gonarcticus arcticus* (Becker, 1907) is newly recorded from the Palaearctic Region and Russia. Additionally, *Nanna flavipes* (Fallén, 1819) is newly recorded from China, and *Spathephilus nigriventris* (Loew, 1864) is newly recorded from Kazakhstan.

Key words: Diptera, dung flies, new records, new species, Russia, review, Scathophagidae

Introduction

The Scathophagidae are a small family of calyptrate Diptera distributed mainly in the Northern Hemisphere. The world fauna currently comprises 419 species in 57 genera (Pape *et al.* 2011) distributed throughout the world, except for the Australasian and Oceanian regions. The majority of species in the Afrotropical, Oriental and Neotropical Regions are known from high elevations.

The fauna of Russia includes 172 species in 35–38 genera (Gorodkov 1986; Šifner 2008; Ozerov 2008, 2009, 2010a, 2010b, 2010c, 2010d, 2010e, 2012, 2013, 2014; Ozerov & Krivosheina 2011, 2012a, 2012b, 2012c, 2013, 2014a, 2014b). Revisions or reviews of the genera are available for several small genera only: *Delina* Robineau-Desvoidy, 1830 and *Neochirosia* Malloch, 1917 (Ozerov 2010b), *Parallelomma* Strobl, 1894 (Ozerov 2010c), *Spaziphora* Rondani, 1856 (Ozerov 2012), *Mixocordylura* Hendel, 1909 (Ozerov & Krivosheina 2012a), *Pleurochaetella* Vockeroth, 1965 (Ozerov & Krivosheina 2012c) and *Paracosmetopus* Hackman, 1956 (Ozerov & Krivosheina 2014a). Faunistic reviews of some districts of Russia were published for the Volga Region (Ovchinnikov 2004), Karelia (Humala & Polevoi 2009) and Russian Far East (Ozerov & Krivosheina 2014b).

The family Scathophagidae is not currently divided into subfamilies, although this question is under discussion (Jong 2000; Šifner 2003, 2008). The present article concerns the genera with more than one setae on the katepisternum (with 2 or 3 setae), which can be distinguished using the following key:

1. Proepisternum bare, without hairs at middle and on anterior part 2
- Proepisternum covered with hairs at middle or on anterior part (Fig. 2) 6
2. Postpedicel short, not more than 2 times as long as pedicel 3
- Postpedicel approximately 3 times as long as pedicel 4
3. Three strong katepisternal setae present . . . . . *Neochirosia* Malloch
- Two strong katepisternal setae present . . . . . *Delina* Robineau-Desvoidy
4. Frons strongly produced. Vibrissae weakly developed (Fig. 3). Proboscis short and wide, palpus longer than proboscis. Postsutural intra-alar setae absent . . . . . *Hexamitocera* Becker
- Frons weakly produced. Vibrissae well developed (e.g., Figs 12, 45). Proboscis long, palpus shorter than proboscis. Two postsutural intra-alar setae present 5
5. Vein R_1 bare (Fig. 11) . . . . . *Nanna* Becker (part)
- Vein R_1 setulose on apical third of dorsal surface (Figs 9, 10) . . . . . *Cleigastra* Macquart (part)
6. Scutellum with apical scutellar setae absent (Fig. 6) or short and thin (Fig. 7) 7
- Scutellum with strong apical scutellar setae (Fig. 8) 9
7. Vein R_1 bare 8
- Vein R_1 setulose on apical third of dorsal surface (Figs 9, 10) . . . . . *Cleigastra* Macquart (part)
8. Scutellum with apical scutellar setulae present (Fig. 7). Postpedicel with upper apical corner pointed (Fig. 5) . . . . . *Nanna* Becker (part)
- Scutellum with apical scutellar setulae absent (Fig. 6). Postpedicel with upper apical corner more or less rounded (Fig. 4) . . . . . *Spathephilus* Becker

9. Arista pubescent along its length (Fig. 177) . . . . . *Orthacheta* Becker
- Arista bare 10
10. Three strong katepisternal setae (as in Fig. 1). . . . . *Gonarcticus* Becker (part)
- Two strong katepisternal setae 11
11. Katepisternum with upper and lower posterior setae present, anterior seta absent 12
- Katepisternum with anterior and upper posterior setae present, lower posterior seta absent . . . . . *Chaetosa* Coquillett (♂ of *Ch. punctipes* (Meigen))
12. Coxae of fore legs yellow. Postcranium black on upper half and pale yellow on lower half. Female terminalia strongly compressed laterally (Figs 50–53) . . . . . *Gonatherus* Rondani
- Coxae of fore legs black. Postcranium completely black. Female terminalia not compressed laterally (Figs 39–41) . . . . . *Gonarcticus* Becker (part)

The genera *Delina* and *Neochirosia* are excluded from this study because they were recently revised (Ozerov, 2010b). The genus *Chaetosa* Coquillett, 1898, in which the male of *Ch. punctipes* (Meigen, 1826) has two katepisternal setae, is also excluded because the female of the same species and males and females of other species of *Chaetosa* have only one katepisternal seta.

The characters given for the determination of the genera in the foregoing key were traditionally used by many dipterists (Hackmann, 1956; Gorodkov, 1970; Vockeroth, 1987; Jong, 2000, Šifner, 2003) but the majority of them are variable and have doubtful taxonomic value. The exception is the genus *Hexamitocera* Becker, 1894, which is well delimited by the characters in the key.

Specimens of *Cleigastra* normally lack proepisternal hairs but we found two females from Khabarovsk Kray with such hairs. In contrast, species of the genus *Nanna* are generally characterized by the presence of proepisternal hairs but in *N. articulata* (Becker, 1894), as correctly noted by Bartak & Kubik (2013), these hairs are absent.

Hackmann was the first investigator (1956: 47) who noted that the presence or absence of setulae on vein R_1 "cannot be used as a key character for separating *Gonarcticus* from *Orthochaeta*", based on his discovery that these setulae can be present or absent in *G. abdominalis* (Zetterstedt, 1846). We have found that this is true also in *G. antennatus* (Zetterstedt, 1846).

The number of setae on the scutellum are variable in different species of the genera *Gimnomera* Rondani, 1866 and *Cordilura* Fallén, 1810. This character can therefore be used for separating species but not genera (in our case not for *Cleigastra* and *Orthacheta*).

Ovipositors of *Cleigastra*, *Gonarcticus*, *Nanna* and *Spathephilus* have a similar structure (Figs 14–16, 39–41, 163–165, 179–181). The female tergite 7 is desclerotized in the middle and its lateral margins are fused with the lateral margins of sternite 7 forming a syntergosternite in *Cleigastra*, *Spathephilus* and some species of *Nanna* (Figs 16, 103, 181). The ovipositors of *Gonatherus* and *Orthacheta* differ from those of the other genera in having sternite 7 flattened laterally (Figs 52, 53, 173, 174).

Kutty *et al.* (2007) indicated that the genera *Cleigastra*, *Orthacheta* and *Nanna* form a monophyletic group based on DNA sequences from seven genes (12S, 16S, Cytb, COI, 28S, Ef1-alfa, Pol II). However, they did not investigate any species of *Gonarcticus*, *Gonatherus* and *Spathephilus*.

All the abovementioned facts testify to the possibility that the genera *Cleigastra*, *Gonarcticus*, *Gonatherus*, *Nanna*, *Orthacheta* and *Spathephilus* might be better placed in one single genus *Cleigastra* sensu lato with two alternative compositions: with six subgenera (*Cleigastra* sensu stricto, *Gonarcticus*, *Gonatherus*, *Nanna*, *Orthacheta* and *Spathephilus*) or with only three subgenera (*Cleigastra* sensu stricto, *Gonatherus* and *Orthacheta*). For the time being we follow the current traditional classification pending further study of the abovementioned genera and especially the results of a molecular analysis based on DNA sequences including a more complete taxonomic sampling of this complex of genera.

Material and methods

The majority of specimens examined for this study are deposited in the Zoological Museum, Moscow State University, Russia (ZMUM) and Zoological Institute of Russian Academy of Sciences, St. Petersburg, Russia (ZISP). We also studied some material from the following museums and institutes: CNC—Canadian National Collection of Insects, Ottawa, Canada; MZH—Finnish Museum of Natural History, Helsinki, Finland; ZMB—Museum für Naturkunde—Leibniz-Institut für Evolutions- und Biodiversitätsforschung an der Humboldt-Universität zu Berlin, Germany.

The majority of original Russian geographical names are given in transliteration, but names of some large geographical regions (e.g. Amur Oblast, Sakhalin Oblast, Khabarovsk Kray, Primorskiy Kray) follows Merriam Webster's Geographical Dictionary (1997). Geographical coordinates are given in the Decimal Degrees format.

The data on distributions are cited as follows: Russia is in the first place, other countries of the world are given after a m-dash [—]. More detailed data on the distributions of species in Europe may be found in the work by Šifner (2008), and in North America in the work by Vockeroth (1965).

The terminology used in the generic descriptions, species diagnoses, description of the new species, and keys follows McAlpine (1981), Cumming *et al.* (2009), and Stuckenberg (1999).

Dissected male genitalia were examined with a Nikon SMZ645 zoom stereomicroscope and then photographed using an eTREK DCM900 digital camera attached in place of an eyepiece of monocular microscope. Resulting batches of images were processed with CombineZP software (Hadley 2007), editing of stacked images was performed in Adobe Photoshop.

Taxonomic results

Cleigastra Macquart, 1835

Cleigastra Macquart, 1835: 384. Gender: feminine. Type species: *Cordylura apicalis* Meigen, 1826, by designation of Westwood (1840: 144).

Cnemopogon Rondani, 1856: 100. Gender: masculine. Type species: *Cordylura apicalis* Meigen, 1826, by original designation.

Clidogastra: error (Becker, 1894: 179).

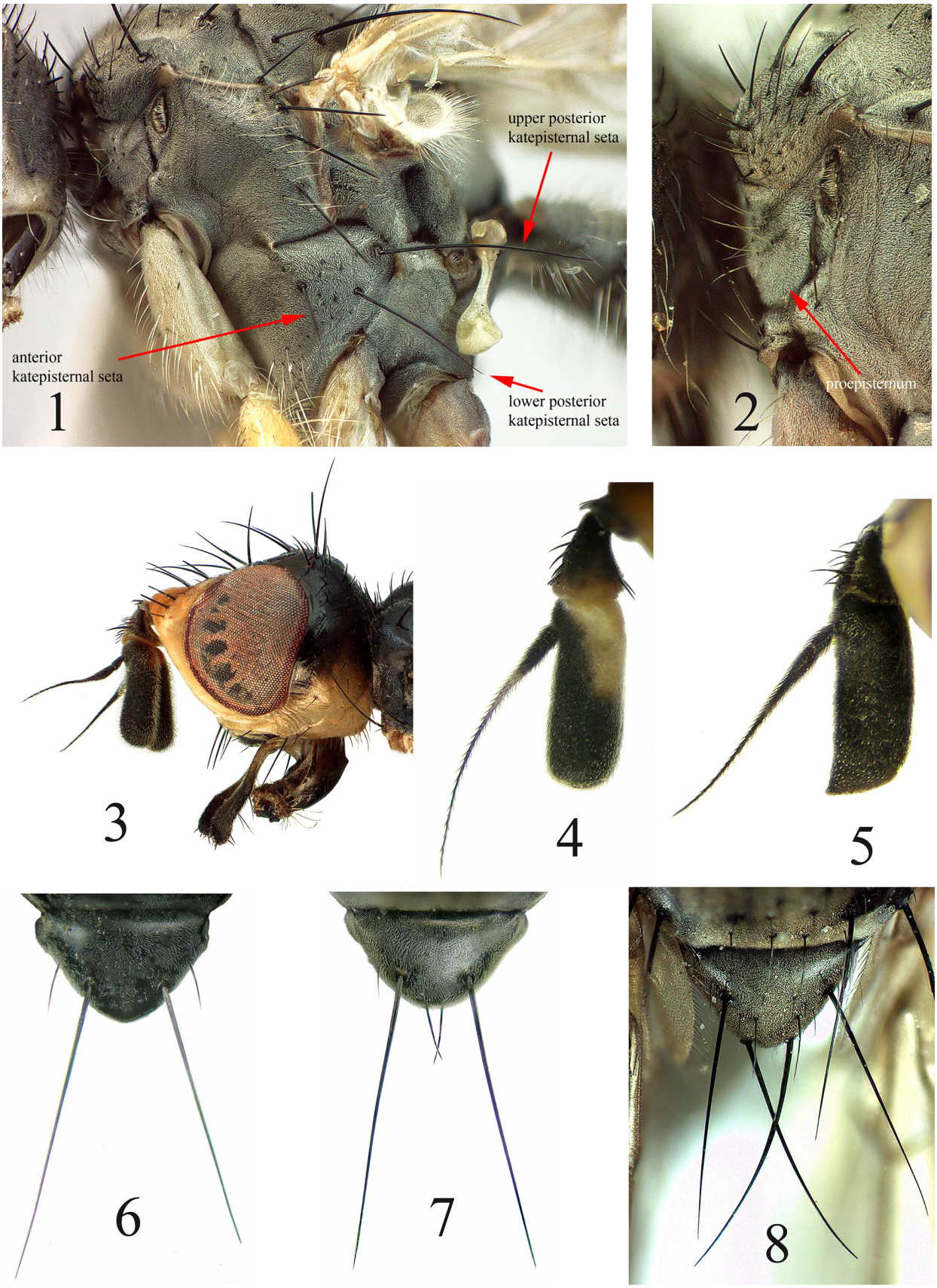
Two species are known in the world, both occurring in Russia (Gorodkov 1986; Ozerov & Krivosheina 2014b).

Cleigastra species are slender, medium-sized flies (4.3–7.2 mm long). *Head*. Frons black. Face, parafacial and gena pale yellow. Postcranium black, greyish dusted, covered with yellow hairs and with black postocular setulae. Chaetotaxy: 3 orbital, 2–3 frontal, 1 ocellar, 1 inner vertical, 1 outer vertical (short), 1 postocellar; 1 pair of strong vibrissae and 2 pairs of short subvibrissae present. Antenna black. Postpedicel with acutely angled upper apical corner, long, approximately 4–4.5 times as long as wide. Arista black, pubescent throughout its length. Palpus long, yellow.

Thorax black, greyish dusted. Scutum with following setae: acrostichals in two rows, prescutellar pair not differentiated or only slightly longer than the other hairs on scutum, dorsocentrals 3+3, intra-alars 0+2, supra-alars 1+2, postpronotals 2, notopleurals 2, postalars 2. Proepisternum usually bare in central part (rarely with several hairs), with 2 setae near lower margin. Proepimeron with 1 seta. Anepisternum covered with hairs in posterior half (pale yellow in male and black in female) and with 2–4 black setae along posterior margin. Katepisternum covered with long setae in ventral corner (the setae pale yellow in male and black in female) and 3 strong setae. Anepimeron bare. Scutellum black, with pair of strong lateral scutellar setae and pair of apical setulae.

Legs. Coxae and fore femora yellow to black, tibiae yellow, tarsi black. Male coxae inside and femora ventrally with long hairs and setae. Fore femur with rows of dorsal, posterodorsal and anterior setae. Fore tibia with 2 posterodorsal, 2 anterodorsal and 1 posterior setae at middle, and apical ventral, dorsal and posterior setae. Mid femur with 1 anteroventral seta on apical half and row of anterior setae, also with preapical posterior and posterodorsal setae; in female additionally with 3–4 long ventral setae on basal half. Mid tibia with 2 anterodorsal, 2 posterodorsal, 1 posterior (posteroventral), 1 anteroventral setae and ring of apicals; posterior (posteroventral) surface with 1–3 thin setae in male and with 1 stong seta in female. Hind femur with row of anterodorsal setae, also with 1 preapical posterodorsal and 2–3 dorsal setae; in female additionaly with rows of posteroventral and anteroventral setae. Hind tibia with 2–3 anterodorsal, 2–3 posterodorsal, 1–2 anteroventral, 0–1 posterior (posteroventral), 1 dorsal setae and ring of apicals.

Wing tinged with brownish; veins blackish; vein R_1 setulose on apical third of dorsal surface. Calypters, margins of calypters, and halteres yellowish.



FIGURES 1–8. *Nanna flavipes* (Fallén) (1, 2, 5, 7), *Hexamitocera loxocerata* (Fallén) (3), *Spathephilus nigriventris* (Loew) (4, 6) and *Orthacheta cornuta* (Loew) (8): 1—thorax, lateral view; 2—proepisternum; 3—head, lateral view; 4, 5—antenna, lateral view; 6–8—scutellum. Figures 4–7 after Ozerov (2010e, Figures 10–13).

Abdomen cylindrical, black, greyish dusted, covered with black hairs. Tergites 2–6 each with row of long marginal setae. Sternite 4 simple, 2 times as long as wide. Sternite 5 with triangular-shaped lobes (Figs 17, 22). Surstyli simple, cerci fused (Figs 18, 19, 23, 24). Ovipositor long, cylindrical (Figs 14–16). Female tergite 7 desclerotized in middle, its lateral margins fused with lateral margins of sternite 7 forming syntergosternite (Fig. 16), as in several *Nanna* (Fig. 103). Tergite 8 of V-like form, sternite 8 as two small round sclerites.

Adults are found in wet localities like the edges of lakes, rives or ponds. According to Groth (1969) larvae of *C. apicalis* inhabit tunnels of larvae of Noctuidae (Lepidoptera), where they feed mainly on the frass of the caterpillars or on dead caterpillars. Grochowska (2006) described the second- and third-instar larvae and pupa of *C. apicalis*. Observations by Grochowska showed that second- and third-instar larvae "were found on reed stems inside the galls of *Lipara lucens*, *L. similis*, *L. pullitarsis*, *L. rufitarsis*, *Platycephala planifrons* and *P. umbraculata* and inside internodes attacked by *Arenostola phragmitidis*. On a few occasions larvae were also found among decaying plant tissue in the apical part of stems not inhabited by other insect species". Larvae inside galls feed primarily on dead plant tissue.

Cleigastra apicalis (Meigen, 1826)

Figs 9, 10, 12, 14–21.

apicalis Meigen, 1826: 236 (*Cordylura*). Type-locality: not given.

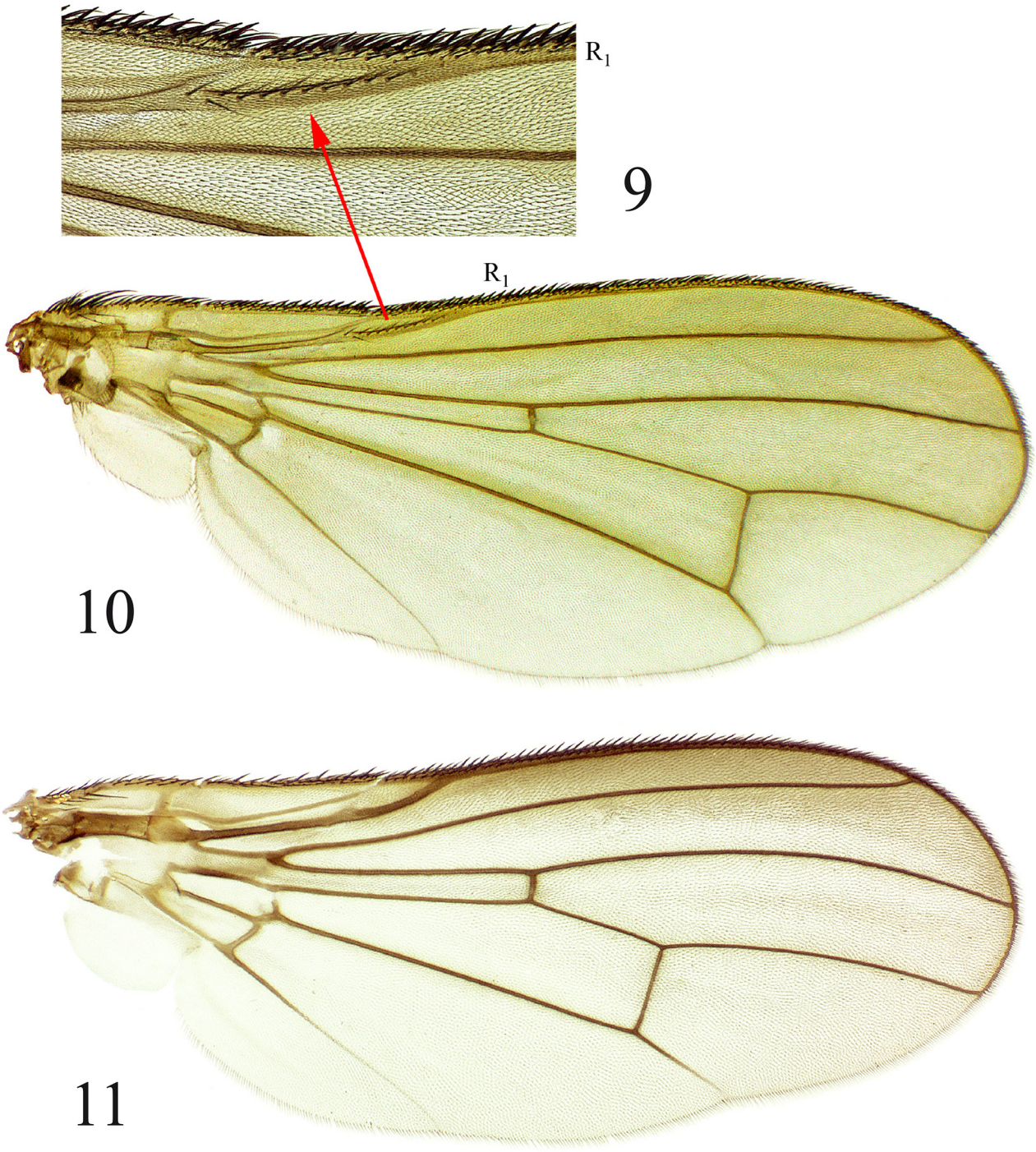
Remarks. The species was mentioned by Gorodkov (1986: 20) for the European part of Russia without indicating a specific locality and by Humala & Polevoi (2009: 71) from Karelia; and then recorded in the Russian Far East by Ozerov & Krivosheina (2014b: 206).

Material examined. Altay: Lake Teletskoe, Artybash (~ 51.7925N 87.2594E), 17.V.2009, V. Zinchenko (1 ♂, in ISEA); **Archangelsk Oblast**: bald Teni-Seda (68.1488N 51.8238E), 3.VIII.1978, Gorodkov (2 ♂♂, ZISP); **Astrakhan Oblast**: Baskunchak salt lake (48.193N 46.813E), 2–4.V.2010, K. Tomkovich (1 ♀, ZMUM); Ikryanoe (46.112N 47.767E), 10.V.2010, K. Tomkovich (1 ♂, ZMUM); Zyuzino (45.751N 47.678E), 8–9.V.2010, K. Tomkovich (2 ♂♂, 1 ♀, ZMUM); **Bashkiria**: Irgizly (52.9591N 57.0241E), 12.VI.1899, Yakobson & Shmidt (1 ♀, ZISP); **Chelyabinsk Oblast**: 63 km NNW of Chelyabinsk (55.8N 61.03E), 17–19.V.1992, M. Krivosheina (2 ♂♂, 1 ♀, ZMUM); **Karelia**: Primorskiy (66.5463N 33.1036E), 5.VII.2010, A.L. Ozerov (1 ♀, ZMUM); Kizhi (62.0663N 35.2377E), 19.VI.1979, Gorodkov (1 ♀, ZISP); **Khabarovsk Kray**: Manoma River (49.44N 137.41E), 8.VI.2014, N. Vikhrev (1 ♀, ZMUM); Khicha River (49.05N 139.43E), 690 m, 10.VI.2014, N. Vikhrev (1 ♀, ZMUM); **Komi**: Ust-Tsilma (65.4407N 52.1534E), 9.VIII.1978, Gorodkov (2 ♂♂, 2 ♀♀, ZISP); Inta (66.0362N 60.1628E), 7.VII.1961, Gabova (1 ♀, ZISP); **Krasnodar Kray**: Sochi/Khosta (43.5233N 39.8797E), 19.V.2011, D. Gavryushin (1 ♀, ZMUM); **Kursk Oblast**: Oboyan' (51.1919N 36.3123E), 20–21, 25–26.V., 6.IX.2007, A.L. Ozerov (3 ♂♂, 4 ♀♀, ZMUM); **Leningrad Oblast**: Gatshina (ca. 59.56N 30.13E), 24.V.1940, A. Stackelberg (1 ♀, ZISP); Gobzhitsy (ca. 58.83N 30.13E), 10.VIII.1931, A. Stackelberg (1 ♀, ZISP); Jukki (ca. 60.11N 30.29E), 13 and 20.VI.1928, A. Stackelberg (1 ♂, ZISP); Luga (ca. 58.73N 29.84E), NW Tolmatschevo, 19.VII.1935, A. Stackelberg (1 ♂, ZISP); Yaschera (58.8945N 29.8206E), 5.VI.1963, A. Stackelberg (1 ♀, ZISP); **Moscow** and **Moscow Oblast**: Izmaylovo (55.7867N 37.8350E), 15.V., 3.VII.1983, A.L. Ozerov (1 ♂, 1 ♀, ZMUM); Andreevskoe (55.9755N 35.6039E), 1.VIII.2011, A.L. Ozerov (1 ♂, ZMUM); Burtsevo (55.9817N 35.5982E, 55.9755N 35.5897E), 5.VIII.2007, 29.V.2010, A.L. Ozerov (1 ♂, 1 ♀, ZMUM); Burtsevo (55.9377N 37.3886E), 13.V.2010, A.L. Ozerov (1 ♀, ZMUM); Dmitrov env. (56.3163N 37.7258E), 28.VI.2007, 27.V.2009, N.Vikhrev (2 ♂♂, 1 ♀, ZMUM); Ivanovskoe (55.9256N 35.6056E), 17.VII.2007, A.L. Ozerov (1 ♂, ZMUM); Lugovaya (56.2037N 37.8233E), 26.VI.1993, A.L. Ozerov (2 ♀♀, ZMUM); Naro-Fominsk (55.3729N 36.7578E), 30.V.2006, 14.V.2010, D. Gavryushin (3 ♂♂, ZMUM); **Nizhegorod Oblast**: Dzerzhinsk (56.21N 43.62E), 16.VIII.2009, N. Vikhrev (1 ♀, ZMUM); **Novosibirsk**: (54.8250N 83.1141E), 18.VI.2009, O. Kosterin (1 ♂, ZMUM); **Omsk Oblast**: near River Irtysh (54.99N 73.32E), 8.VI.2007, O. Kosterin (1 ♀, ZMUM); **Rostov Oblast**: Kamensk-Shakhtinsky (48.2930N 40.2574E), 22–25.V.2011, D. Gavryushin (1 ♂, 2 ♀♀, ZMUM); **Tyumen' Oblast**: Lake Varchaty (64.8618N 68.87681E), 27.VIII. and 2.IX.1925, Fridolin (3 ♂♂, ZISP); Shapsha env. (61.085N 69.458E), 1–4.VIII.2010, K. Tomkovich (3 ♂♂, ZMUM).

Diagnostic description. Body-length 4.2–7.2 mm. Fore coxa completely yellow, femora yellow in ground

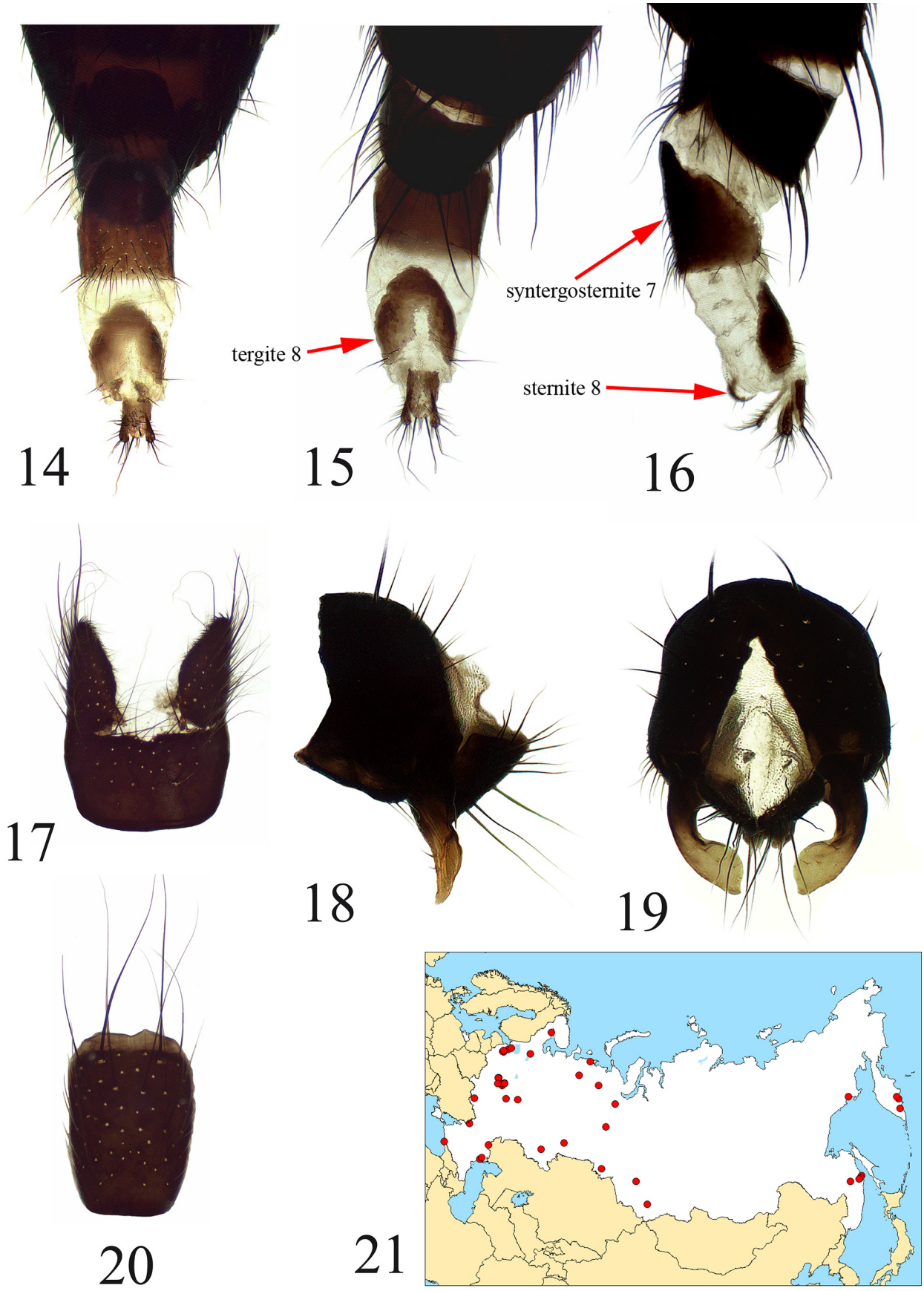
color: fore femur yellow, often with black stripe anteriorly, mid and hind femora yellow with black spot apically; male femora with black hairs ventrally. Sternites 4 and 5 as in Figs 20, 17. Epandrium, cerci and surstyli as in Figs 18, 19. Ovipositor as in Figs 14–16.

Distribution. Russia (Fig. 21): Altay, Archangelsk Oblast, Astrakhan Oblast, Bashkiria, Chelyabinsk Oblast, Kamchatka Kray, Karelia, Khabarovsk Kray, Komi, Krasnodar Kray, Kursk Oblast, Leningrad Oblast, Magadan Oblast, Moscow and Moscow Oblast, Nizhegorod Oblast, Novosibirsk, Omsk Oblast, Rostov Oblast, Tyumen' Oblast.—Europe (widespread), Asia (Iraq, Mongolia).



FIGURES 9–11. *Cleigastra apicalis* (Meigen) (9–10) and *Nanna flavipes* (Fallén) (11): 9—fragment of wing; 10, 11—wing.

FIGURES 12–13. *Cleigastra apicalis* (Meigen) (12) and *Cleigastra sundukovi* Ozerov (13), male habitus. Fig. 12 after Ozerov (2013, Figure 19).



FIGURES 14–21. *Cleigastra apicalis* (Meigen): 14—end of female abdomen, ventral view; 15—same, dorsal view; 16—same, lateral view; 17—male sternite 5; 18—epandrium, cerci and surstyli, lateral view; 19—same, dorsal view; 20—male sternite 4; 21—distribution map.

Cleigastra sundukovi Ozerov, 2013

Figs 13, 22–24, 29.

sundukovi Ozerov, 2013: 85 (*Cleigastra*). Type-locality: Tserkovnaya Bay (43.75N 146.70E), Shikotan I. (Russia).

Remarks. Recorded in Russian Far East by Ozerov & Krivosheina (2014b: 206).

Material examined. Sakhalin Oblast: Sakhalin I., 30 km W of Yuzho-Sakhalinsk (ca. 46.9717N 142.2735E), 27 and 28.V.1968, Nartshuk (1 ♂, ZISP); Kunashir I., Lake Lagunnoe (44.0629N 145.7589E), 18.VI.1968, Nartshuk (1 ♂, ZISP).

Diagnostic description. Body-length 4.3–6.8 mm. Fore coxa yellow inside and blackish outside, femora black completely or almost completely (basally sometimes yellow); male femora ventrally with long pale yellow hairs. Sternites 4 and 5 as in Fig. 22. Epandrium, cerci and surstyli as in Figs 23, 24.

Distribution. Russia (Fig. 29): Sakhalin Oblast.

Key to the species of *Cleigastra* of Russia

1. Femora yellow in ground color: fore femur yellow often with black stripe anteriorly, mid and hind femora yellow with black spot apically; male femora with black hairs ventrally; fore coxa yellow completely (Fig. 12) . . . *Cleigastra apicalis* (Meigen)
- Femora black completely or almost completely (basally sometimes yellow); male femora ventrally with long pale yellow hairs; fore coxa yellow inside and blackish outside (Fig. 13). . . . . *Cleigastra sundukovi* Ozerov

Gonarcticus Becker, 1894

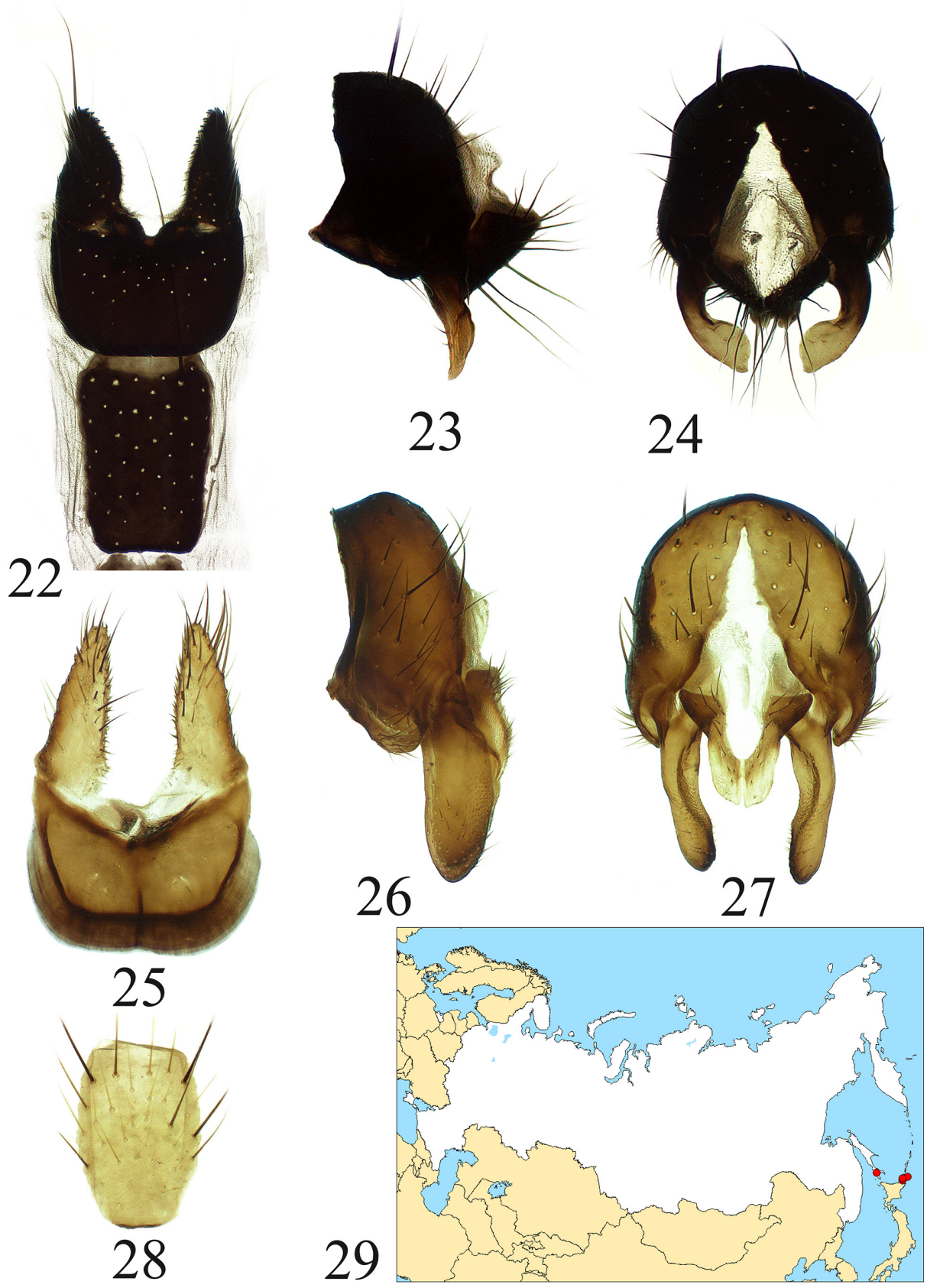
Gonarcticus Becker, 1894: 103. Gender: masculine. Type species: *Scatomyza antennata* Zetterstedt, 1838, by original designation.

The world fauna comprises four species, two of them recorded from the Palaearctic, including Russia (Gorodkov, 1970, 1986).

Gonarcticus species are slender, medium-sized flies, about 5–6 mm long (Fig. 42). *Head*. Frontal vitta yellow or blackish in upper half and yellow in lower half, frontal plate black, grey dusted. Face, parafacial and gena yellow. Postcranium black completely or black in upper half and yellow in lower half, greyish dusted, covered with yellow hairs in lower half or third, with black postocular setulae and black setae in upper part. Chaetotaxy: 3 orbital, 4–5 frontal, 1 ocellar, 1 inner vertical, 1 outer vertical, 1 postocellar; 1 pair of strong vibrissae and 2–4 pairs of subvibrissae present. Antenna yellow or black. Postpedicel with slightly acute upper apical corner, approximately 2.5–3.0 times as long as wide. Arista black, bare or pubescent throughout its length. Palpus long, yellow completely or darkened apically.

Thorax black, grey dusted. Chaetotaxy of scutum: acrostichals in two rows, prescutellar pair slightly longer than the other acrostichals, dorsocentrals (3–4)+3, intra-alars 1+2, supra-alars 1+2, postpronotals 2, notopleurals 2, postalars 2. Proepisternum with hairs in central part, with 1 seta near lower margin. Proepimeron with 1 seta. Anepisternum covered with hairs in posterior half and with 2–5 black setae along posterior margin. Katepisternum covered with hairs in ventral corner and with 2 or 3 strong setae; in *G. arcticus* anterior katepisternal seta absent. Anepimeron bare. Scutellum black, grey dusted, with pairs of strong basal scutellar and apical scutellar setae.

Legs usually completely yellow, but in *G. arcticus* coxae of all legs blackish, tarsi of all legs and fore femur posterodorsally darkened. Fore femur with rows of posterior, posterodorsal and posteroventral setae. Fore tibia with 1–2 posterodorsal, 1–2 anterodorsal and 0–1 posterior setae at middle, and apical setae: 0–1 posterodorsal, 1 dorsal and 1 posterior. Mid femur with row of anterior and posteroventral setae, 2 preapical posterior and 3–4 anteroventral setae on apical half, in *G. arcticus* additionally with a row of posteroventral setae. Mid tibia with 1–2 anterodorsal, 1–2 posterodorsal, 0–1 posterior (posteroventral), 0–1 anteroventral setae, and ring of apicals. Hind femur with row of anterior (anterodorsal) setae, with 0–3 dorsal setae on apical third, 1 preapical posterior (posterodorsal) seta, 4–5 anteroventral setae on apical half, and usually with a row of thin posterovental setae. Hind tibia with 2–3 anterodorsal, 2–3 posterodorsal, 0–1 anteroventral, 1 preapical dorsal setae, and apical setae: 1 anteroventral, 0–1 posteroventral, 1 anterodorsal, 0–1 posterodorsal.



FIGURES 22–29. *Cleigastra sundukovi* Ozerov (22–24, 29) and *Gonarcticus abdominalis* (Zetterstedt) (25–28): 22—male sternites 4 (lower) and 5 (upper); 23, 26—epandrium, cerci and surstyli, lateral view; 24, 27—same, dorsal view; 25—male sternites 5; 28—male sternites 4; 29—distribution map. Figures 22–24 after Ozerov (2013, Figures 21–23).

Wing tinged with brownish; veins blackish; vein R_1 bare or setulose on apical third of dorsal surface. Calypters, margins of calypters, and halteres yellowish.

Abdomen cylindrical, yellow or black, grey dusted, covered with black hairs and setae. Tergites 2–6 each with row of marginal setae. Sternite 4 simple, longer than wide (Figs 28, 33, 37). Sternites 5 as in Figs 25, 30, 36. Surstyli simple and wide, cerci fused (Figs 26, 27, 31, 32, 34, 35). Ovipositor long, cylindrical, not compressed (Figs 39– 41).

Biology of all species is still unknown.

Gonarcticus abdominalis (Zetterstedt, 1846)

Figs 25–28, 44.

abdominalis Zetterstedt, 1846: 2080 (*Cordylura*). Type-locality: "Lapponia Lulensi... alpis Snjerrack" (Lapland, Sweden).

Remarks. Recorded in Russia from Kanin Peninsula (Arkhangel'sk Oblast) by Gorodkov (1970: 449).

Material examined. Krasnoyarsk kray: Taymyr, River Zakharova Rassokha (72.7N 101.08E), 5.VII.2011, A. Barkalov (1 ♂, ZMUM); Taimyr Biosphere Reserve, Ary-Mas field station (72.5N, 101.94E), 14 m, 13–18.VII.2010, O. Chruleva (1 ♂, ZMUM).

Additional material examined. FINLAND: Kuopio, 16.VI.1865, C. Lundström (1 ♀, ZMH); [SWEDEN]: "Gellivara VII 59863", "Gonarcticus abdominalis Ztt. Det. J.R. Vockeroth 1954" (1 ♂, ZMB).

Diagnositic description. Body-length about 5 mm. Frontal vitta yellow. Antenna yellow. Palpus yellow. Eyes not higher than wide. Katepisternum with 3 strong black setae. *Legs* yellow. Hind tibia without posteroventral apical seta. Vein R_1 bare or setulose on apical third of dorsal surface. Abdomen from reddish-yellow to black. Sternites 4 and 5 as in Figs 28, 25. Epandrium, cerci and surstyli as in Figs 26, 27.

Distribution. Russia (Fig. 44): Arkhangel'sk Oblast, Krasnoyarsk Kray.—Czech Republic, Scandinavia, Mongolia (Šifner, 2008: 149).

Gonarcticus antennatus (Zetterstedt, 1838)

Figs 30–33, 38.

antennata Zetterstedt, 1838: 724 (*Scatomyza*). Type-locality: "Dalekarlia" (Dalarna, Sweden).
validicornis Zetterstedt, 1846: 2065 (*Cordylura*). Type-locality: "Dalecarliae paroecia Särna" (Sweden).

Remarks. Hackmann (1956: 47) recorded this species in Russia from Kuzomen and Ponoy, Murmansk Oblast.

Material examined. Murmansk Oblast: Kuzomen (66.2875N 36.87E), 22.VI.1913, W. Hellén (1 ♂, in ZMH); Ponoy (67.0759N 41.1256E), 15.VII.1913, R. Frey (2 ♀♀, in ZMH).

Additional material examined. "Sc. antennat. Ztt Bohm * Lapp", "Coll. H. Loew", "Gonarcticus antennatus Zett. Det. J.R. Vockeroth 1954" (1 ♂, ZMB).

Diagnostic description. Similar to *G. abdominalis*, but eyes distinctly higher than wide Postpedicel blackish. Abdomen blackish. Sternites 4 and 5 as in Figs 33, 30. Epandrium, cerci and surstyli as in Figs 31, 32.

Distribution. Russia (Fig. 38): ?Moscow Oblast' (Šifner, 2008: 149), Murmansk Oblast.—Norway, Sweden.

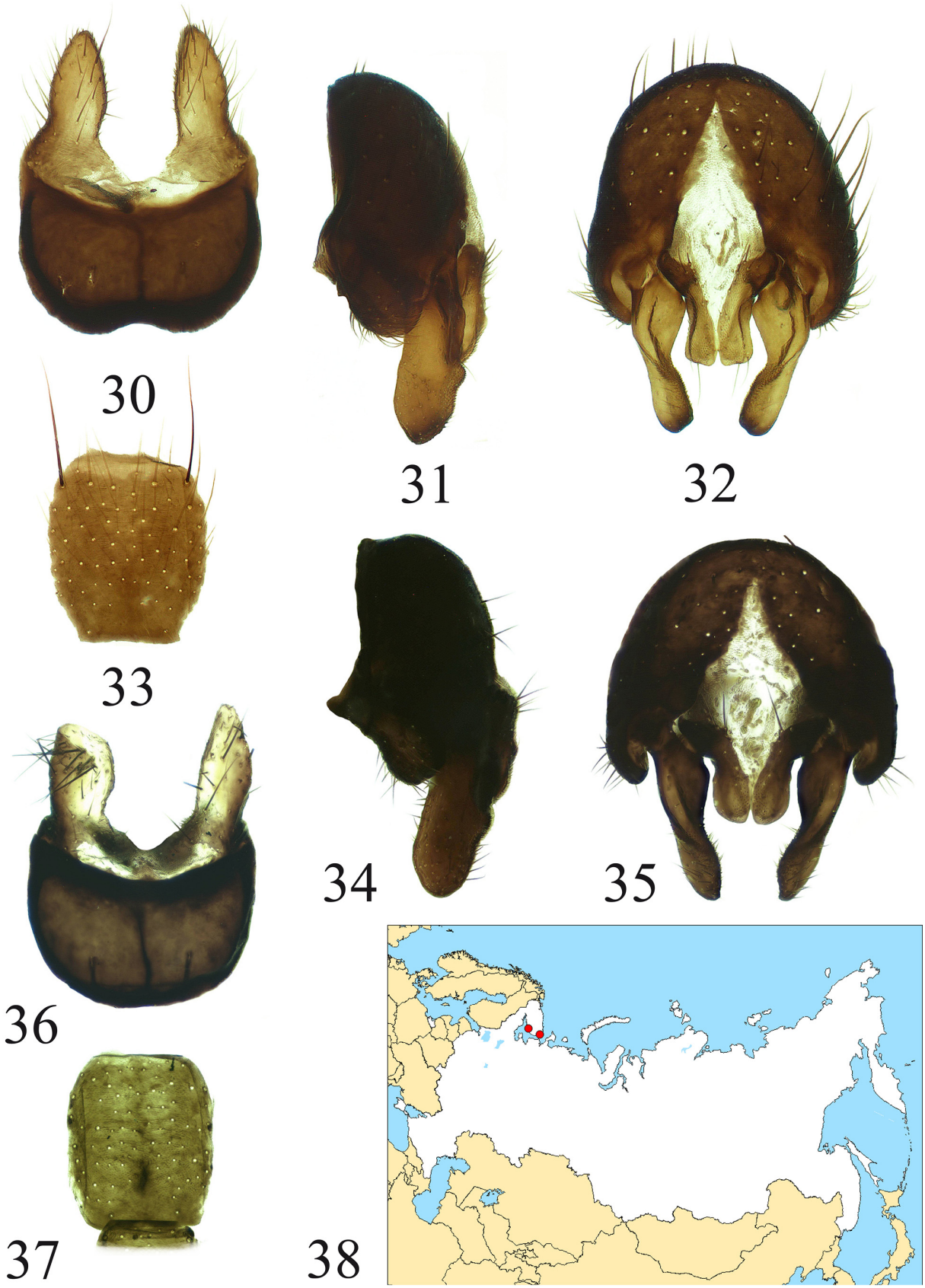
Gonarcticus arcticus (Becker, 1907)

Figs 34–37, 39–43.

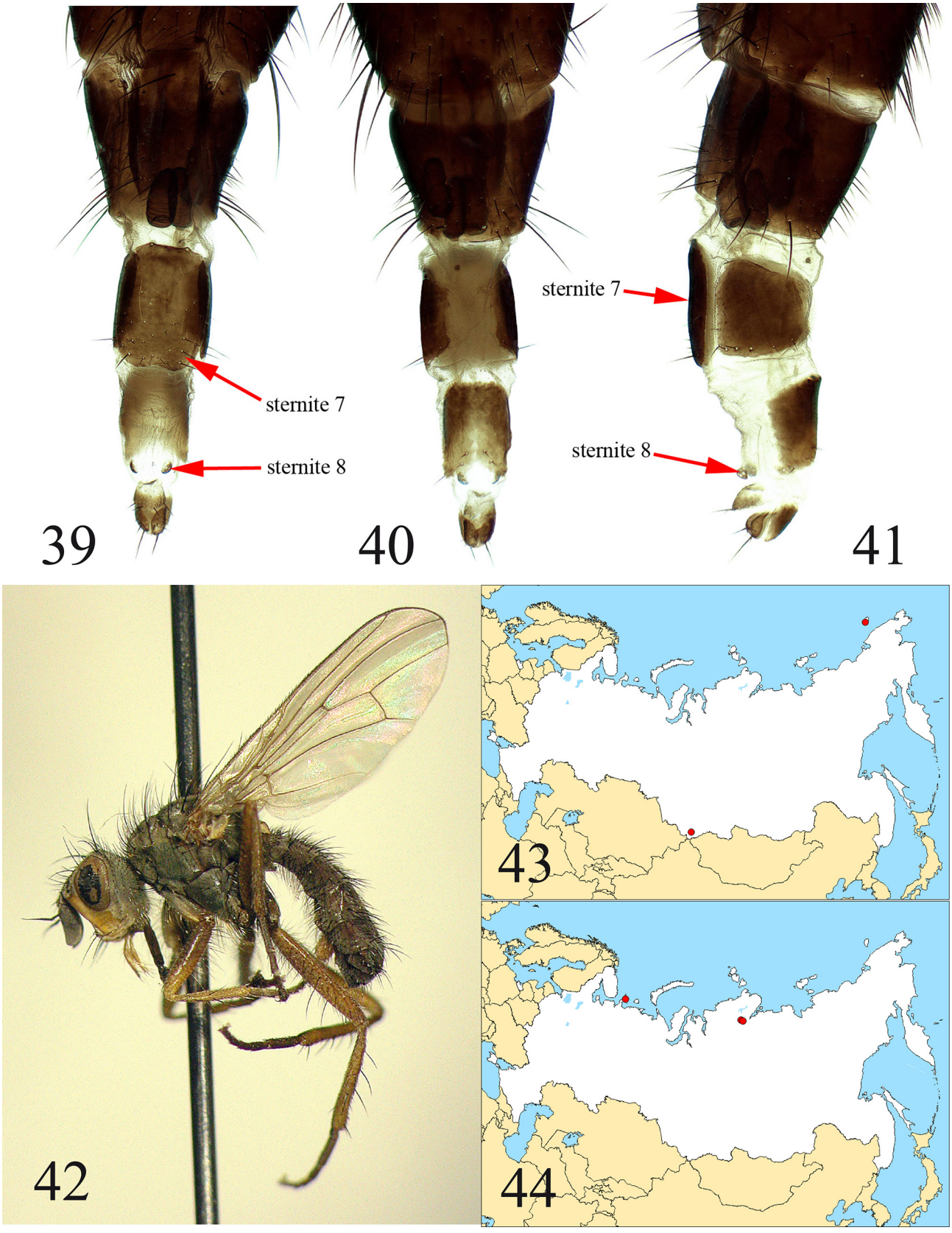
arctica Becker, 1907: 412 (*Pselaphephila*). Type-locality: East Greenland.

Material examined. Altay: Ridge Kurayskiy, 2500–2700 m (50.33N 87.75E), 3.VII.2008, A. Barkalov (1 ♀, ZMUM); **Chukotka**: Vrangel I. (71.29N 179.63E), 13.VII.2008, O. Chruleva (1 ♂, ZMUM).

Additional material examined. CANADA: Cambrige Bay, N.W.T., 1 and 22.VII.1950, G.K. Sweatman (1 ♂, 2 ♀♀, ZMH; all determined by J.R. Vockeroth as *G. arcticus*).



FIGURES 30–38. *Gonarcticus antennatus* (Zetterstedt) (30–33, 38), *Gonarcticus arcticus* (Becker) (34–37): 30, 36—male sternite 5; 31, 34—epandrium, cerci and surstyli, lateral view; 32, 35—same, dorsal view; 33, 37—male sternite 4; 38—distribution map.



FIGURES 39–44. *Gonarcticus arcticus* (Becker) (39–43) and *Gonarcticus abdominalis* (Zetterstedt) (44): 39—end of female abdomen, ventral view; 40—same, dorsal view; 41—same, lateral view; 42—male, habitus; 43, 44—distribution maps.

Diagnostic description. Body-length 5–6 mm. *Head*. Frontal vitta blackish in upper half and yellow in lower half. Antenna black. Palpus darkened apically. Katepisternum with 2 strong black setae, anterior katepisternal seta absent. *Legs* yellow, but all coxae blackish, fore femur posterodorsally and tarsi darkened. Mid femur with a row of posteroventral setae. Hind tibia with posteroventral apical seta. Vein R_1 bare on apical third of dorsal surface. Abdomen black. Sternites 4 and 5 as in Figs 37, 36. Epandrium, cerci and surstyli as in Figs 34, 35. Ovipositor as in Figs 39–41.

Distribution. Russia (Fig. 43): Altay, Chukotka (**first record for Russia and Palaearctic)**.—North America (Vockeroth, 1965: 832).

Key to the species of *Gonarcticus* of Russia

1. Coxa of fore leg yellow 2
- Coxa of fore leg blackish . . . . . *G. arcticus* (Becker)
2. Eye distinctly higher than wide. Postpedicel blackish . . . . . *G. antennatus* (Zetterstedt)
- Eye not higher than wide. Postpedicel yellow . . . . . *G. abdominalis* (Zetterstedt)

Gonatherus Rondani, 1856

Gonatherus Rondani, 1856: 99. Gender: masculine. Type species: *Cordilura planiceps* Fallén, 1826, by original designation.

One Holarctic species, *Gonatherus planiceps* (Fallén, 1826), is known in the world.

Gonatherus planiceps is slender, medium-sized fly (4–5 mm long) (Fig. 45). *Head*. Frontal vitta yellow, frontal plate black, grey dusted. Face, parafacial and gena pale yellow. Postcranium black in upper half and pale yellow in lower half, greyish dusted, covered with yellow hairs in lower half, with black postocular setulae and black setae in upper half. Chaetotaxy: 3 orbital, 7–9 frontal setae in two rows, 1 ocellar, 1 inner vertical, 1 outer vertical, 1 postocellar; 1 pair of strong vibrissae and 2–3 pairs of subvibrissae present. Antenna black, but postpedicel sometimes yellowish at base or more. Postpedicel with slightly acute upper apical corner, in male wider than in female, approximately 2.5–3.5 times as long as wide. Arista black, bare. Palpus long, yellow.

Thorax black, extensively grey dusted. Scutum with following setae and setulae: acrostichal setulae in two rows, prescutellar pair slightly longer than the other setulae, dorsocentrals 3+3, intra-alars 1+2, supra-alars 1+2, postpronotals 2, notopleurals 2, postalars 2. Proepisternum with hairs in central part, with 1 seta near lower margin. Proepimeron with 1 seta. Anepisternum covered with hairs in posterior half and with 2–3 black setae along posterior margin. Katepisternum covered with hairs in ventral corner and with 2 strong setae (upper posterior katepisternal and lower posterior katepisternal). Anepimeron bare. Scutellum black, extensively grey dusted, with pairs of strong basal scutellar and apical scutellar setae.

Legs usually completely yellow, but sometimes male fore femur with dark stripe posterodorsally and hind coxa blackish. Fore femur with rows of posterior, posterodorsal and posteroventral setae. Fore tibia with 1 posterodorsal, 2 anterodorsal and 1 posterior setae at middle, and apical setae: anteroventral, ventral, dorsal and posterior. Mid femur with row of anterior setae, 1 preapical posterior, 1 preapical posterodorsal and 3–4 anteroventral setae. Mid tibia with 1–2 anterodorsal, 1–2 posterodorsal, 1 posterior (posteroventral), 0–1 anteroventral setae, and ring of apicals. Hind femur with row of anterior (anterodorsal) setae, with 3–4 dorsal (anterodorsal) setae on apical third and 4–5 anteroventral setae on apical half. Hind tibia with 3 anterodorsal, 3 posterodorsal, 0–1 anteroventral, 1 preapical dorsal setae, and apical setae: anteroventral, posteroventral, anterodorsal.

Wing often darkened brownish along anterior margin and around r-m and dm-cu crossveins; veins blackish; vein R_1 bare. Calypters, margins of calypters, and halteres yellowish.

Abdomen cylindrical, black, grey dusted, covered with black hairs and setae. Tergites 2–6 each with row of marginal setae. Sternite 4 simple, as long as wide (Fig. 47). Sternite 5 as in Fig. 46. Surstyli simple and long, cerci fused (Figs 48, 49). Ovipositor long, cylindrical (Figs 50–53). Female segment 7 compressed laterally (Fig. 52). Sternite 7 long, triangular (Fig. 53).

Biology unknown.

Gonatherus planiceps (Fallén, 1826)

Figs 45–54.

planiceps Fallén, 1826: 12 (*Cordylura*). Type-locality: "Vestrogothia" (Västergötland, S. Sweden).
friesi Zetterstedt, 1838: 729 (*Cordylura*). Type-locality: "Lapponia Tornensi... Juckasjervi... (Lappon, borealis—Dalekarlia)" (Sweden).
fumipennis Hendel, 1930: 7 (*Gonatherus*). Type-locality: "Klutchi" (Russia, Kamchatka Kray).

Remarks. The species was recorded for Russia by Hendel (1930: 7) from Kamchatka, by Gorodkov (1970: 449) from Kola Peninsula, and by Humala & Polevoi (2009: 71) from Karelia.

Material examined. Altay: Ridge Kurayskiy, 2500–2700 m (50.33N 87.75E), tundra, 3.VII.2008, A. Barkalov (1 ♀, ZMUM); **Kursk Oblast**: Streletskaya Steppe (51.5795N 36.0870E), 5–15.V.2008, K. Tomkovich (1 ♂, 2 ♀♀, ZMUM); **Moscow Oblast**: Naro-Fominsk (55.3574N 36.7361E), 10.IV.2007, D. Gavryushin (1 ♂, ZMUM); **Murmansk Oblast**: basin of Lake Vud'yavr (ca. 67.6464N 33.6449E), 1935, Fridolin (1 ♂, 1 ♀, ZISP).

Distribution. Russia (Fig. 54): Altay, Kamchatka Kray, Karelia, Kursk Oblast, Moscow Oblast, Murmansk Oblast.—Europe, North America.

Hexamitocera Becker, 1894

Hexamitocera Becker, 1894: 107. Gender: feminine. Type species: *Cordilura loxocerata* Fallén, 1826, by original designation.

Hexamitocera includes five species in the world: two are Palaearctic, two are Nearctic and one is Holarctic. Only one species, *H. loxocerata* (Fallén, 1826), is known in Russia.

Slender, about 6–7 mm long flies. *Head*. Frons strongly produced (Fig. 3). Frontal vitta yellow; face, parafacial and gena pale yellow. Frontal plate black in upper part and yellow in lower one. Postcranium black, shining, only median occipital sclerite greyish dusted, covered with black hairs. Chaetotaxy: 2 orbital, 5 frontal, 1 ocellar, 1 inner vertical, 1 outer vertical (short), 1 postocellar; 1 pair of small vibrissae and 1–2 pairs of short subvibrissae present. Scapus and pedicel yellow to brownish. Postpedicel black, sometimes yellow basally, rounded apically, approximately 4 times as long as wide. Arista black, pubescent throughout its length. Palpus long, yellow in male and black in female. Proboscis short and wide, palpus longer than proboscis (Fig. 3).

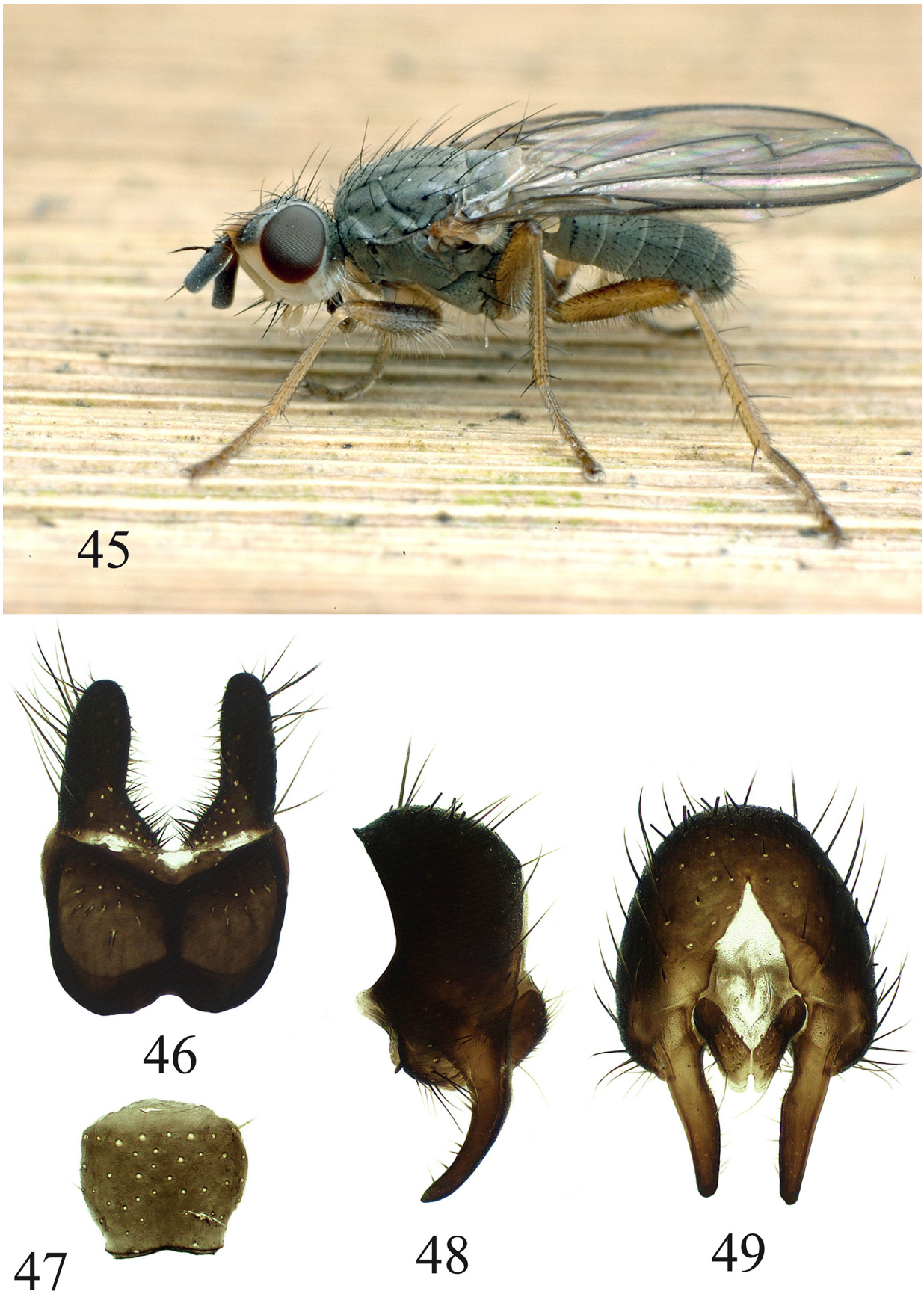
Thorax black, subshining. Acrostichals short and rare, irregular; dorsocentrals 3+2 (first presutural pair pointed anteriorly towards head and short), intra-alars usually absent (1+2 very short, if present), supra-alars 1+2, postpronotals 1–2, notopleurals 2, postalars 2. Proepisternum bare in central part, with 1 long seta near lower margin. Proepimeron with 1 seta. Anepisternum covered with hairs in posterior half and with 1 strong and 2–3 small setae along posterior margin. Katepisternum covered with setae in ventral corner and 2 strong setae (anterior katepisternal and upper posterior katepisternal). Anepimeron bare. Scutellum black, with pair of strong lateral scutellar setae, and pair of apical setulae.

Legs. Coxae yellow; femora yellow but mid femur with black dorsal spot apically and hind femur with black ring at apex; tibiae usually yellow on basal half and darkened apically, but sometimes yellow completely; tarsi usually blackish. Fore femur as a rule with rows of posterodorsal, anteroventral and posteroventral setae, the setae black in female and usually yellow in male. Fore tibia with 1 dorsal (anterodorsal) and 1 posterior setae at middle, and with apical dorsal, apical posterior (posteroventral) setae. Mid femur with row of anterior and 1 preapical posterior setae. Mid tibia with 1 posterodorsal, 1 anterodorsal, 0–1 posterior setae at middle, and ring of apicals. Hind femur with row of anterodorsal, 1 preapical anterior, 1 apical posterior setae, and 1–2 anteroventral setae on apical third. Hind tibia with 2 anterodorsal, 2 posterodorsal, 1 anteroventral, 1 preapical dorsal setae, and 1 apical anteroventral seta.

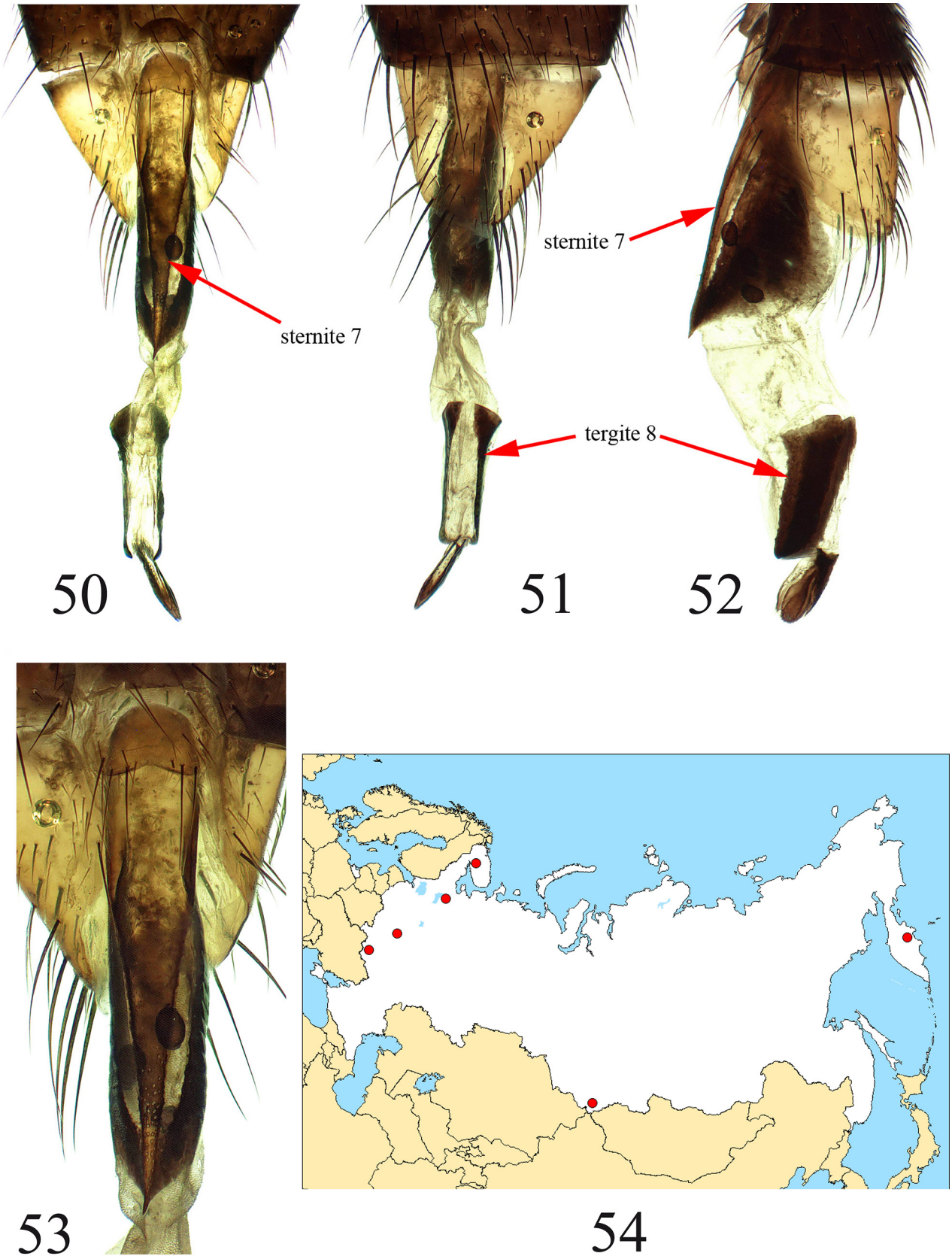
Wing tinged with brownish; veins blackish; vein R_1 bare apically on dorsal surface. Calypters, margins of calypters, and halteres whitish.

Abdomen cylindrical, black, subshining. Female tergites 2–4 each with discal and marginal setae at sides; tergite 5 with discal setae at sides. Male sternite 4 simple, approximately 2 times as long as wide, sternite 5 with short wide lobes (Fig. 60). Surstyli long, simple, cerci fused (Figs 58, 59). Ovipositor short, cylindrical (Fig. 55–57). Sternite 8 absent.

Biology unknown.



FIGURES 45–49. *Gonaterus planiceps* (Fallén), male: 45—habitus; 46—sternite 5; 47—sternite 4; 48—epandrium, cerci and surstyli, lateral view; 49—same, dorsal view.



FIGURES 50–54. *Gonaterus planiceps* (Fallén): 50—end of female abdomen, ventral view; 51—same, dorsal view; 52—same, lateral view; 53—female abdominal sternite 7; 54—distribution map.

***Hexamitocera loxocerata* (Fallén, 1826)**
Figs 3, 55–61.

loxocerata Fallén, 1826: 12 (*Cordilura*). Type-locality: "In pratis Scaniae" (Sweden, Skåne).
longifrons Zetterstedt, 1838: 729 (*Cordylura*). Type-locality: "Nordlandiae... Bjŏrkvik... (Lappon)" (Norway).

Remarks. The species was mentioned by Gorodkov (1986: 38) for European part of Russia without indicating specific locality and by Ovchinnikov (2004: 422) from Volgograd Oblast; was recorded in the Russian Far East by Ozerov & Krivosheina (2014b: 213).

Material examined. Leningrad Oblast: Preobrazhenskay (=Tolmachovo) (58.8718N 29.8996E), 19.V.1898, Pleske (1 ♀, ZISP); **Tatarstan**: Reserve Volzhsko-Kamskiy, Raifa (55.8973N 48.733E), 11.V.2005, Basov (1 ♂, ZMUM).

Distribution. Russia (Fig. 61): Leningrad Oblast, Magadan Oblast, Tatarstan, Volgograd Oblast, Sakhalin Oblast.—Europe, North America.

Nanna Strobl, 1894

Nanna Strobl, 1894: 77 [as subgenus of *Cordilura* Fallén, 1810]. Gender: feminine. Type species: *Cordylura flavipes* Fallén, 1819, by designation of Vockeroth (1965: 830).
Amaurosoma Becker, 1894: 109. Gender: neuter. Type species: *Cordylura flavipes* Fallén, 1819, by original designation.
Pselaphephila Becker, 1894: 122. Gender: feminine. Type species: *Pselaphephila loewi* Becker, 1894, by monotypy.

Nanna species are slender, small to medium-sized flies (about 3–6 mm long). *Head*. Frons and face yellow to black, parafacial and gena pale yellow. Postcranium black, greyish dusted, covered with yellow or black hairs and with black postocular setulae. Chaetotaxy: 2–3 orbital, 2–4 frontal, 1 ocellar, 1 inner vertical, 1 outer vertical (short), 1 postocellar; 1 pair of strong vibrissae and 1–2 pairs of short subvibrissae present. Scapus and pedicel yellow to black. Postpedicel black, with acutely angled upper apical corner (Fig. 5), usually in male wider than in female, 2–5 times as long as wide. Arista black, bare or pubescent throughout its length. Palpus long, yellow.

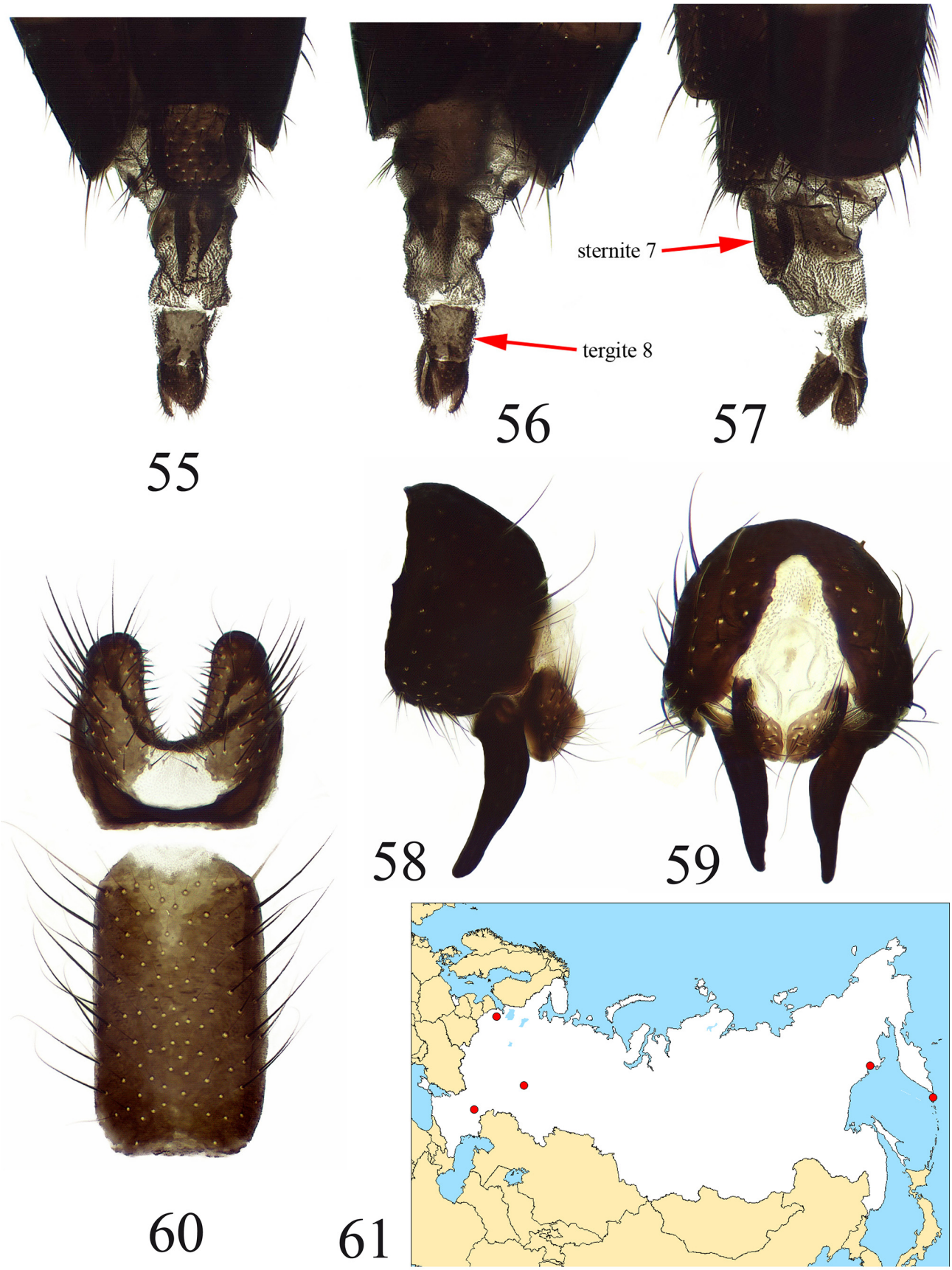
Thorax black, greyish dusted or with shining spots. Scutum with following setae: acrostichals short in two rows, prescutellar pair not differentiated or only slightly longer than other acrostichals, dorsocentrals 3+3, intra-alars 1+(1–2), supra-alars 1+2, postpronotals 2, notopleurals 2, postalars 2. Proepisternum with hairs in central part or bare, with 2 setae near lower margin. Proepimeron with 1 seta. Anepisternum covered with hairs in posterior half (usually pale yellow in male and black in female) and with 2–4 black setae along posterior margin. Katepisternum covered with long setae in ventral corner (the setae pale yellow in male and black in female) and 2–3 strong setae (if two, then anterior katepisternal seta absent). Anepimeron bare. Scutellum black, with pair of strong lateral scutellar setae and pair of apical setulae (Fig. 7).

Legs yellow to black, but fore and mid tibiae usually yellow. Fore femur usually with rows of dorsal (anterodorsal) and posterodorsal setae, often with anteroventral, anterior or posteroventral setae. Fore tibia with 1–2 dorsal (posterodorsal), 1–2 anterodorsal and 0–1 posterior setae at middle, and usually with apical ventral, dorsal and posterior setae. Mid femur with row of anterior, 1–2 anteroventral, 1 preapical posterior, and 0–1 preapical anterior setae. Mid tibia with 1 posterodorsal, 1 anterodorsal at middle, 0–1 anterior (anteroventral) setae, and ring of apicals. Hind femur usually with row of anterior, 0–2 preapical anterodorsal and 1–6 ventral setae. Hind tibia with 2 anterodorsal, 2 posterodorsal, 0–1 anteroventral, 1 preapical dorsal setae, and ring of apicals.

Wing clear or tinged with brownish; veins blackish; vein R_1 bare. Calypters, margins of calypters, and halteres yellowish.

Abdomen cylindrical, black, subshining or greyish dusted, covered with hairs. Tergites 2–6 each with row of marginal setae. Male sternite 4 simple, 1.5–2 times as long as wide. Male sternite 5 with triangular-shaped lobes (e.g. Fig. 78), often apically broadened, but it is evident laterally only (Fig. 79) because the lobes usually are curved like propeller. Surstyli simple, cerci fused. Ovipositor moderately long, cylindrical (Figs 163–165). Female tergite 7 desclerotized in middle, in some species forming syntergosternite (e.g. *N. flavipes*, Fig. 103). Female tergite 8 of V-like form, sternite 8 as one undivided or two small round sclerites.

Adults common in spring (in cold regions later) on grasses. Larvae develop in the flower heads of *Phleum* and *Secale* (Gramineae) (e.g. Ferrar, 1987).



FIGURES 55–61. *Hexamitocera loxocerata* (Fallén, 1826): 55—end of female abdomen, ventral view; 56—same, dorsal view; 57—same, lateral view; 58 —epandrium, cerci and surstyli, lateral view; 59—same, dorsal view; 60—male sternites 4 (lower) and 5 (upper); 61—distribution map.

***Nanna amurensis* Ozerov, 2010**
Figs 62–67.

amurensis Ozerov, 2010e: 160, 164 (*Nanna*). Type-locality: town Zeya (Russia, Amur Oblast).

Remarks. Reported by Ozerov & Krivosheina (2014b: 214) from Russian Far East.

Material examined. Amur Oblast: town Zeya, 11–14.VI.1978, A. Shatalkin (holotype ♂, paratypes 3 ♂♂ and 6 ♀♀, ZMUM); **Khabarovsk Kray**: Vanino (49.11N 140.31E), 9.VI.2014, N. Vikhrev (4 ♂♂, ZMUM); Kirpichnyy Stream (49.261N 140.33E), 11.VI.2014, N. Vikhrev (1 ♂, ZMUM); Khicha River (49.05N 139.43E), 690 m, 10.VI.2014, N. Vikhrev (2 ♂♂, ZMUM); Khabarovsk (48.6N 135.1E), 2–6. and 13.VI.2014, N. Vikhrev (1 ♀, ZMUM); **Magadan Oblast**: Sokol env. (59.92N 150.71E), 11–19.VII.2014, N. Vikhrev (1 ♂, ZMUM); **Primorskiy Kray**: Khasan env. (42.4245N 130.6511E), 25.V.1979, A. Zinov'ev (1 ♂, ZISP).

Diagnostic description. Body-length 3.0–4.1 mm. *Head*. Frons yellow, but darkened in upper half. 3 orbital setae present. Antenna black. Postpedicel with acutely angled upper apical corner, approximately 2.5–3 times as long as wide, in male wider than in female. *Thorax* black, extensively grey dusted. Proepisternum with hairs in central part. Katepisternum with 3 strong black setae. *Legs* yellow, only tarsi slightly darkened. Fore femur with 3–4 anterior setae (Fig. 62). Fore tibia with 1 anterodorsal, 1 posterodorsal and 1 posterior setae at middle. Hind tibia without apical posteroventral seta. *Wing* clear. *Abdomen* black, greyish dusted. Male sternite 4 oval, approximately 2 times as long as wide (Fig. 66). Male sternite 5 with black lobes, as in Fig. 63. Epandrium, cerci and surstyli as in Figs 64, 65. Female sternite 8 as two small separate sclerites.

Distribution. Russia (Fig. 67): Amur Oblast, Khabarovsk Kray, Magadan Oblast, Primorskiy Kray.

***Nanna armillata* (Zetterstedt, 1846)**
Figs 68–73.

armillata Zetterstedt, 1846: 2069 (*Cordylura*). Type-locality: "Scania ad Lund & Abusa; ex Hafnia Daniae" (Sweden, Denmark).

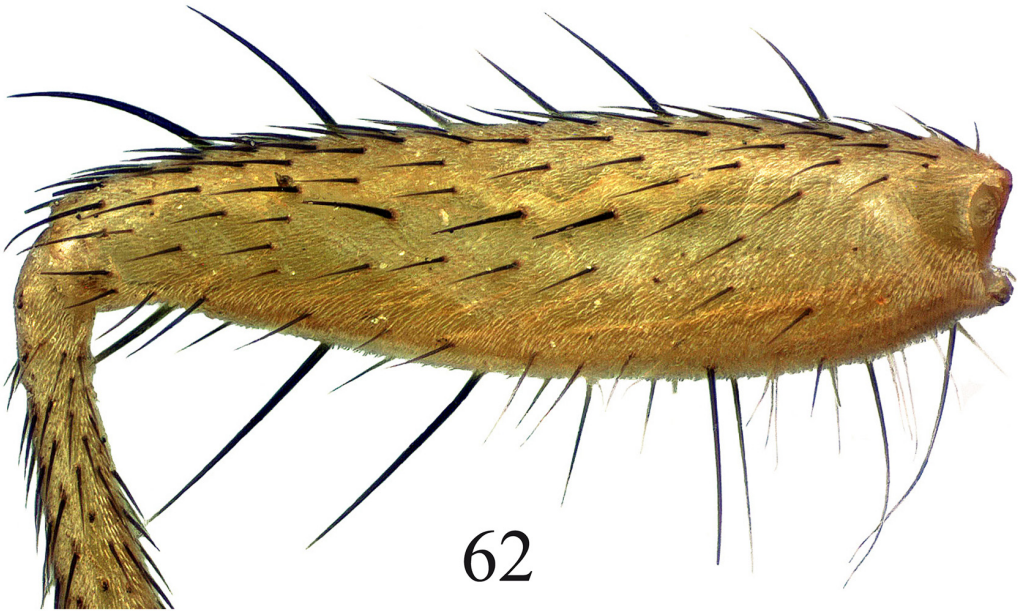
mensurata Becker, 1894: 119 (*Amaurosoma*). Type-locality: "Schlesien, vom Wälfelsfall bei Glatz" (Poland, near Bystrzyca Kłodzka SW).

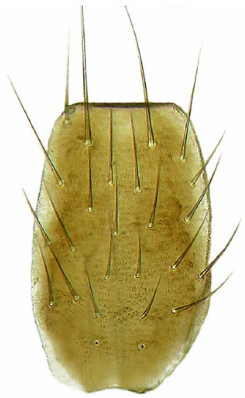
Remarks. Noted by Gorodkov (1970: 449; 1986: 17) for European part of Russia without indicating specific locality.

Material examined. Komi: Mt. Sablya (ca. 64.7771N 58.8919E), 4.VII.1990, Malozemov (1 ♂, ZISP); **Kursk Oblast**: Streletskaya Steppe (51.5795N 36.0870E), 5–15.V.2008, K. Tomkovich (2 ♂♂, 2 ♀♀, ZMUM); **Leningrad Oblast** and **St.-Petersburg**: Jukki (ca. 60.11N 30.29E), 27.V.1956, A. Stackelberg (2 ♂♂, 1 ♀, ZISP); Udel'naya (ca. 60.01N 30.29E), 20.V.1954, 24.V. 1956, 22.V.1958, 12.V.1959, A. Stackelberg (17 ♂♂, 11 ♀♀, ZISP); **Moscow** and **Moscow Oblast**: Zelenograd (55.9860N 37.2023E), 15.V.1999, A. Gusakov (1 ♀, ZMUM); Andreevskoe (55.9674N 35.6094E), 6.V.2009, A.L. Ozerov (1 ♂, 1 ♀, ZMUM); Golitsyno (55.6496N 37.0117E), 8 and 20.V.1978, A. Shatalkin (2 ♂, 2 ♀♀, ZMUM); Dmitrov env. (56.3163N 37.7258E), 9.V., 13.V.2007, 7.V.2010, D. Gavryushin, N. Vikhrev (3 ♂♂, 2 ♀♀, ZMUM); Burtsevo (55.9817N 35.5982E, 55.9815N 35.5972E), 18.V.2006, 3.V.2008, A.L. Ozerov (1 ♂, 1 ♀, ZMUM); Burtsevo (55.9377N 37.3886E), 13.V.2010, A.L. Ozerov (1 ♂, ZMUM); Elektrogorsk env. (ca 55.9124N 38.8411E), 15.V.2010, A.L. Ozerov (1 ♀, ZMUM).

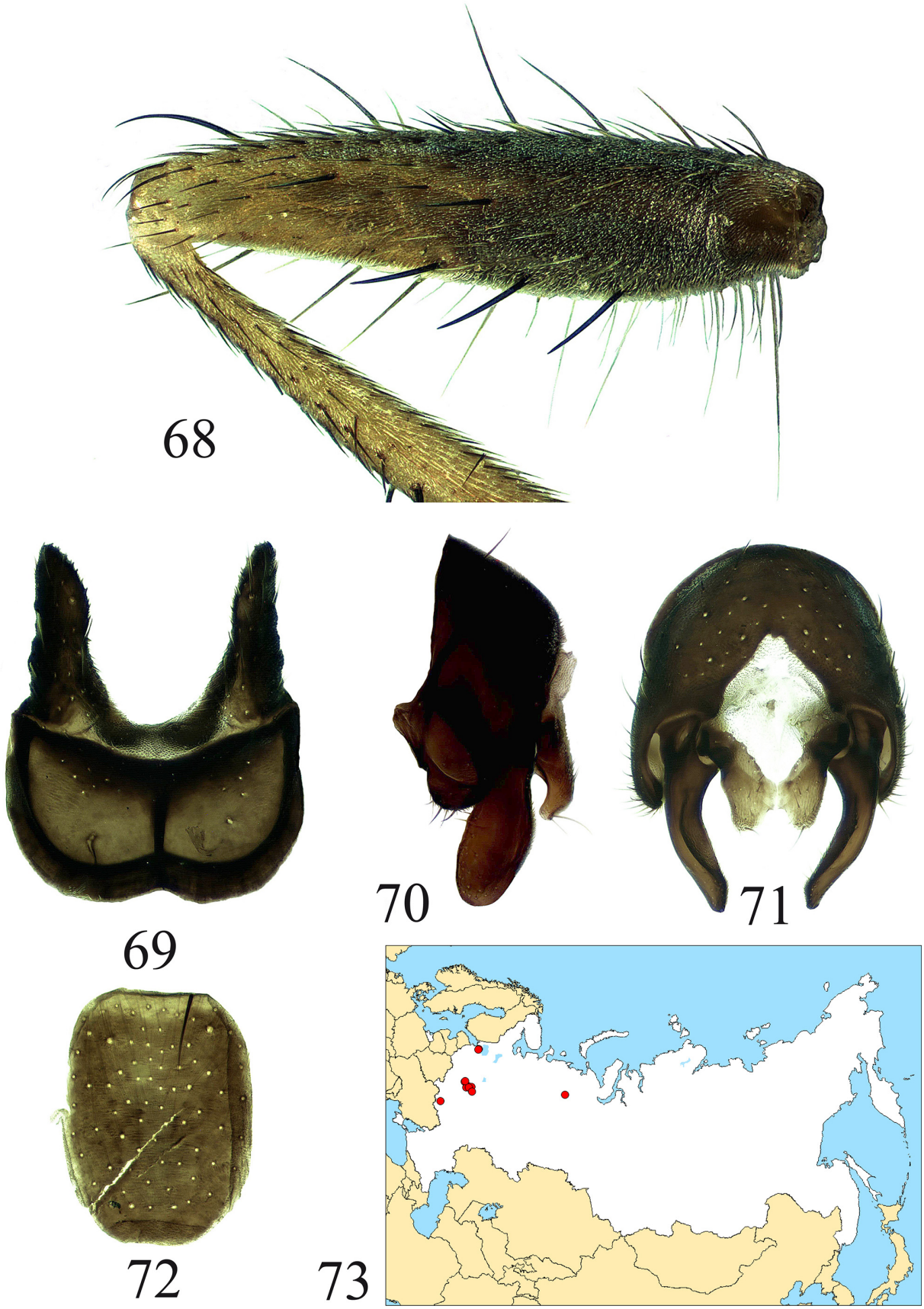
Diagnostic description. Body-length 4.0–5.2 mm. *Head*. Frons black in upper part and reddish-yellow in lower quarter. 3 orbital setae present. Antenna black. Postpedicel with acutely angled upper apical corner, approximately 2.5–3 times as long as wide, in male wider than in female. *Thorax* black, extensively grey dusted. Proepisternum with hairs in central part. Katepisternum with 3 strong black setae. Coxae darkened. Femora black, but fore and hind ones yellow apically, and mid femur yellow apically and basally. Tibiae yellow, tarsi slightly darkened. Fore femur with 3–5 anteroventral setae (Fig. 68). Hind tibia without apical posteroventral seta. *Wing* tinged with brownish. *Abdomen* black, greyish dusted. Male sternite 4 rectangular, approximately 1.5 times as long as wide (Fig. 72). Male sternite 5 with black lobes, as in Fig. 69. Epandrium, cerci and surstyli as in Figs 70, 71. Female sternite 8 as two small separate sclerites.

Distribution. Russia (Fig. 73): Komi, Kursk Oblast, Leningrad Oblast and St.-Petersburg, Moscow and Moscow Oblast.—Europe.





FIGURES 62–67. *Nanna amurensis* Ozerov: 62—fore femur, anterior view; 63—male sternite 5; 64—epandrium, cerci and surstyli, lateral view; 65—same, dorsal view; 66—male sternite 4; 67—distribution map. Figures 63–66 after Ozerov (2010f, Figures 18–21).



FIGURES 68–73. *Nanna armillata* (Zetterstedt): 68—fore femur, anterior view; 69—male sternite 5; 70—epandrium, cerci and surstyli, lateral view; 71—same, dorsal view; 72—male sternite 4; 73—distribution map.

***Nanna articulata* (Becker, 1894)**
Figs 74–81.

articulata Becker, 1894: 117 (*Amaurosoma*). Type-locality: "Rothkirch" [=Czerwony Kościół (51.186N 16.061E)] (Poland).

Remarks. Noted by Gorodkov (1970: 449; 1986: 18) for European part of Russia without indicating specific locality.

Material examined. Moscow and **Moscow Oblast**: Izmaylovo (55.7867N 37.8350E, 55.7870N 37.8338E, 55.7872N 37.8365E), 11.V.2007, 11.V., 12.VI.2009, A.L. Ozerov (10 ♂♂, 9 ♀♀, ZMUM); Golitsyno (55.6496N 37.0117E), 21.V.1977, A. Shatalkin (1 ♂, ZMUM); Dmitrov env. (56.3163N 37.7258E), 27.V.2009, N. Vikhrev (1 ♂, ZMUM); Naro-Fominsk (55.3955N 36.7823E), 1.V.2008, D. Gavryushin (1 ♀, ZMUM); **Tatarstan**: Volzhsko-Kamskiy Reserve, Lake Raifa (55.897357N 48.733022E), 11 and 20.V.2005, Basov (2 ♀♀, ZMUM);

Diagnostic description. Body-length 3.5–4.5 mm. *Head*. Frons black in upper part and reddish-yellow in lower quarter. 2 orbital setae present. Antenna black. Postpedicel with acutely angled upper apical corner, approximately 3 times as long as wide, in male slightly wider than in female. *Thorax* black, extensively grey dusted. Proepisternum without hairs in central part. Katepisternum with 3 strong setae: anterior katepisternal seta black and the rest pale in male and all black in female. *Legs* yellow, only tarsi slightly darkened. Fore femur with 6–8 anteroventral setae (Fig. 74). Hind tibia without apical posteroventral seta. *Wing* clear. *Abdomen* black, greyish dusted. Male sternite 4 rectangular, approximately 2 times as long as wide (Fig. 75). Male sternite 5 with black lobes, as in Figs 78, 79. Epandrium, cerci and surstyli as in Figs 76, 77. Female sternite 8 as two small separate sclerites (Fig. 80).

Distribution. Russia (Fig. 81): Moscow and Moscow Oblast, Tatarstan.—Europe.

***Nanna bispinosa* (Malloch, 1920)**
Figs 82–87.

bispinosa Malloch, 1920: 285 (*Amaurosoma*). Type-locality: "Saldovia, Alaska" (USA).

Remarks. Noted by Ozerov (2010d : 7) for European part of Russia from Karelia.

Material examined. Karelia: 4 km N of Medvezh'egorsk (62.9171N 34.4548E), 15.V.–16.VI.1991, Polevoy (1 ♀, ZMUM); **Tatarstan**: Volzhsko-Kamskiy reserve, Lake Raifa (55.897357N 48.733022E), 8.VI.1982, Basov (1 ♂, ZMUM).

Diagnostic description. Body-length 3.0–4.5 mm. *Head*. Frons black in upper half and reddish-yellow in lower half. 3 orbital setae present. Antenna black. Postpedicel with acutely angled upper apical corner, approximately 2.5 times as long as wide, in male wider than in female. *Thorax* black, grey dusted, but scutum with two shining spots, also anepisternum, katepisternum and anepimeron partly shining. Proepisternum with hairs in central part. Katepisternum with 2 strong setae (black in female and pale in male), anterior katepisternal absent. *Legs* yellow, only mid and hind coxae, and tarsi slightly darkened; fore femur sometimes with dark stripe posterodorsally. Fore femur with 2 anteroventral setae (Fig. 82). Hind tibia with apical posteroventral seta, which is shorter than anteroventral apical seta. *Wing* tinged with brownish. *Abdomen* black, greyish dusted. Male sternite 4 oval, approximately 1.5 times as long as wide (Fig. 86). Male sternite 5 with black lobes, as in Fig. 83. Epandrium, cerci and surstyli as in Figs 84, 85. Female sternite 8 as two small separate sclerites.

Distribution. Russia (Fig. 87): Karelia, Tatarstan.—Scandinavia, North America.

***Nanna brevifrons* (Zetterstedt, 1838)**
Figs 88–93.

brevifrons Zetterstedt, 1838: 729 (*Cordylura*). Type-locality: "Lapponia Umensi … Salice ad Lyksele (Lappon.—Dalekarlia)" (Sweden).

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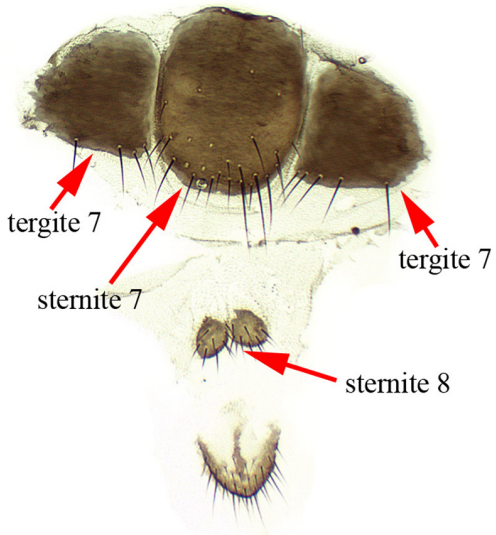

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FIGURES 74–81. *Nanna articulata* (Becker): 74—fore femur, anterior view; 75—male sternite 4; 76—epandrium, cerci and surstyli, lateral view; 77—same, dorsal view; 78—male sternite 5; 79—same, lateral view; 80—female abdominal sternites 7 and 8; 81—distribution map.

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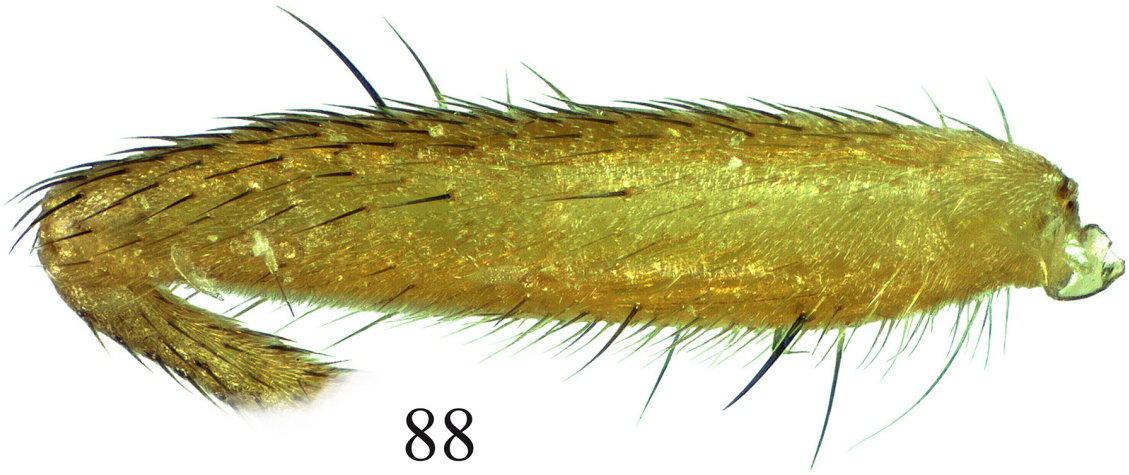
FIGURES 82–87. *Nanna bispinosa* (Malloch): 82—fore femur, anterior view; 83—male sternite 5; 84—epandrium, cerci and surstyli, lateral view; 85—same, dorsal view; 86—male sternite 4; 87—distribution map.



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FIGURES 88–93. *Nanna brevifrons* (Zetterstedt): 88—fore femur, anterior view; 89—male sternite 5; 90—epandrium, cerci and surstyli, lateral view; 91—same, dorsal view; 92—male sternite 4; 93—distribution map. Figures 89–91 after Ozerov (2010e, Figures 4–6).

Remarks. Noted by Gorodkov (1970: 449; 1986: 18) for European part of Russia without indicating specific locality.

Material examined. Irkutsk Oblast: Bolshoy Lug (52.12N 104.1E), 21.VI.1971, V. Richter (1 ♂, ZISP); **Komi**: Ust-Tsilma (65.4407N 52.1534E)16.VI.1908, Zhuravskiy (1 ♀, ZISP); **Krasnoyarsk Kray**: Turuchansk (65.7972N 87.9586E), 27.VI.1967, Gorodkov (1 ♂, ZISP); **Moscow Oblast**: Bol'shevo (55.9250N 37.8683E), 7.V.1930, N. Violovich (1 ♂, 1 ♀, ZMUM); **Tyumen' oblast**: (63.818N 59.562E), 1–4.VII.2010, K. Tomkovich (1 ♀, ZMUM).

Diagnostic description. Body-length about 5 mm. *Head*. Frons black in upper part and reddish-yellow in lower quarter. 2 or 3 orbital setae present. Antenna black. Postpedicel with acutely angled upper apical corner, approximately 2.5–3 times as long as wide, in male wider than in female. *Thorax* black, grey dusted. Postpronotal lobe in lower part, katepisternum in upper dorsal corner, anepisternum almost completely and anepimeron in anterior part shining; sometimes scutum with two shining spots before transverse suture. Proepisternum with hairs in central part. Katepisternum with 2 strong setae (black in female and pale in male), anterior katepisternal absent. *Legs* yellow, only mid and hind coxae, and tarsi darkened. Fore femur with one anteroventral seta (Fig. 88). Hind tibia without apical posteroventral seta. *Wing* tinged with brownish. *Abdomen* black, slightly greyish dusted. Male sternite 4 rectangular, approximately 1.5 times as long as wide (Fig. 92). Male sternite 5 with black lobes, as in Fig. 89. Epandrium, cerci and surstyli as in Figs 90, 91. Female sternite 8 as two small separate sclerites.

Distribution. Russia (Fig. 93): Irkutsk Oblast, Komi, Krasnoyarsk Kray, Moscow Oblast, Tyumen' Oblast.—Europe.

***Nanna cryophila* sp. nov.**
Figs 94–99.

Material examined. Holotype ♂, "RUS. **Khabarovsk** reg. Khicha R. 690 m 49.05N 139.43E 10.VI.2014, N. Vikhrev" (ZMUM). Paratypes: same label as holotype (1 ♂, ZMUM); "RUS. Khabarovsk reg. **Khabarovsk** 48.6N 135.1E 2–6.VI.2014, N. Vikhrev" (1 ♀, ZMUM); "RUS. **Khabarovsk** reg. Vanino 49.1N 140.31E 9.VI.2014, N. Vikhrev" (3 ♂♂, ZMUM); "RUS. **Khabarovsk** reg. Kirpichny R. 49.261N 140.33E 11.VI.2014, N. Vikhrev" (1 ♂, ZMUM); "RUS. **Magadan** reg. Sokol env. 69.92N 150.71E 11–19.VII.2014, N. Vikhrev" (1 ♂, ZMUM). The follows labels written in Russian: **Kamchatka Kray**: Sivuchiy Island (56.3605N 162.708E), 26.VI.1908, A. Derzhavin (1 ♀, ZISP); River Kichiga (ca. 59.8277N 163.3969E), 30.VII.???7, Smetanin (1 ♀, ZISP); **Khabarovsk Kray**: lateral channel Malyshevskaya (48.7119N 135.5637E), 27.V.1910, Soldatov (1 ♀, ZISP); **Tyumen' Oblast**: Neroyka (ca. 64.57N 59.67E), 700 m, 29.VI.1990 and 30.VI.–3.VII.1990, Malozemov (2 ♂♂, ZISP).

Description. Male, female. Body-length 4.2–5.0 mm. *Head*. Frons yellow or black in upper half, matt. Ocellar triangle black. Fronto-orbital plate greyish dusted. Face, parafacial and gena pale yellow. Postcranium black, greyish dusted, covered with yellow hairs and black setulae and with row of postocular setae. Setae: 2–3 orbital, 2–3 frontal, 1 ocellar, 1 inner vertical, 1 outer vertical (short), 1 postocellar; 1 pair of strong vibrissae and 1 pair of short subvibrissae present. Antenna black. Postpedicel with acutely angled upper apical corner, approximately 2–2.5 times as long as wide. Arista black, bare. Palpus long, yellow. Clypeus and proboscis black.

Thorax black, greyish dusted. Scutum with following setae: acrostichals short in two rows, prescutellar pair not differentiated or only slightly longer than other acrostichals, dorsocentrals 3+3, intra-alars 1+2, supra-alars 1+2, postpronotals 2, notopleurals 2, postalars 2. Proepisternum with hairs in central part, with 1–3 setae near lower margin. Proepimeron with 1 seta. Anepisternum covered with hairs in posterior half and with 1 black and 2–3 pale setae along posterior margin. Katepisternum covered with long setae in ventral corner and 3 strong setae (the setae pale in male, black in female). Anepimeron bare. Scutellum black, with pair of strong lateral scutellar setae and pair of apical setulae.

Legs yellow, only tarsi slightly darkened. Male coxae inside with pale yellow hairs. Fore femur with row of anterodorsal setae; in male with 1–2 pale posteroventral setae, in female with 1 black posteroventral seta on basal half. Fore tibia with 1 posterodorsal, 1 anterodorsal at middle, 1 preapical dorsal, and 1 posterior apical setae. Mid femur with row of anterior, 1–2 anteroventral, 1 preapical posterior, and 0–1 preapical anterior setae. Mid tibia with 1 posterodorsal, 1 anterodorsal at middle, 1 anterior (anteroventral) setae, and ring of apicals. Hind femur with row

FIGURES 94–99. *Nanna cryophila*, **sp. nov.**: 94—fore femur, anterior view; 95—male sternite 5; 96—epandrium, cerci and surstyli, lateral view; 97—same, dorsal view; 98—male sternite 4; 99—distribution map.

of anterodorsal, 0–1 preapical posterodorsal and 2–3 dorsal setae; in female also with 1 ventral seta. Hind tibia with 2 anterodorsal, 2 posterodorsal, 1 anteroventral, 1 preapical dorsal setae, and ring of apicals, including posteroventral apical seta.

Wing clear with brownish veins; vein R_1 bare. Calypters, margins of calypters, and halteres yellowish.

Abdomen black, greyish dusted, covered with pale hairs in male and black short hairs in female. Tergites 2–6 each with row of marginal setae. Male sternite 4 as in Fig 98; sternite 5 with black lobes (Fig. 95). Epandrium, cerci and surstyli as in Figs 96, 97. Female tergite 7 desclerotized in middle, it lateral margins fused with lateral margins of sternite 7 forming syntergosternite; sternite 8 as two small separate sclerites.

Etymology. The specific epithet *cryophila* is derived from the Greek words *kruos* (cold, frost) and *phileo* (friend, loving), and means "living where it is cold".

Comparison. See key to species below.

Distribution. Russia (Fig. 99): Kamchatka Kray, Khabarovsk Kray, Magadan Oblast, Tyumen' Oblast.

Nanna flavipes (Fallén, 1819)

Figs 1, 2, 5, 7, 11, 100–110.

flavipes Fallén, 1819: 9 (*Cordylura*). Type-locality: "ad lacum Gyllebo Scaniae" (Sweden).
frontalis Macquart, 1835: 387 (*Cleigastra*). Type-locality: "Du nord de la France".
trilineata Meigen, 1838: 341 (*Cordylura*). Type-locality: not given.
minuta Becker, 1894: 116 (*Amaurosoma*). Type-locality: "Livland" (Latvia or Estonia).
multisetosum Hackman, 1956: 16 (*Amaurosoma*). Type-locality: "N: Helsinge" (Nyland, Finland).

Remarks. Noted by Gorodkov (1970: 449; 1986: 18) for European part of Russia without indicating specific locality, by Šifner (2008: 153) from Kamchatka Kray and by Ozerov & Krivosheina (2014b: 214) from Russian Far East.

Material examined. Altay: Lake Manzherok (51.825278N 85.812778E), 10.V.2008, O. Kosterin (1 ♂, ZMUM); **Arkhangelsk Oblast**: Nenetskiy Rezerve, Cordon "Bol'shoy Gusinets" (68.1759N 53.6453E), 11.VII.2008, A.L. Ozerov (1 ♀, ZMUM); Island Kashin (68.242042N 53.856746E), 10.VII.2008, A.L. Ozerov (1 ♂, ZMUM); **Chelyabinsk Oblast**: 63 km NNW of Chelyabinsk (55.8000N 61.0333E), 17–19.V.1992, M. Krivosheina (1 ♀, ZMUM); **Irkutsk Oblast**: Novochunka (56.1144N 99.2735E), 5.VI.1957, Gorodkov (1 ♂, ZISP); Os'kino (60.8116N 107.9858E), 12.VI.1875, Chekanovsky (1 ♂, ZISP); Yurty (56.05N 97.63E), 21.V.1912, Mishin & Verchov (1 ♂, 1 ♀, ZISP); **Kamchatka Kray**: Kluchi (56.3226N 160.8295E), 5.VI.1909, A. Derzhavin (1 ♂, ZISP); **Karelia**: Reserve Kivach (ca. 62.2954N 33.9214E), 18–21.V.1989, 14–21.VI.1990, A. Polevoy (2 ♂♂, ZISP); Kizhi (62.0663N 35.2377E), 19.VI.1979, Gorodkov (1 ♀, ZISP); **Krasnodar Kray**: Sochi, Estosadok env., Mt. Psekhako (43.6911N 40.3666E), 14–18.VI.2008, K. Tomkovich (2 ♀♀, ZMUM); range Azish-Tau, Biological Station "Kamyshanova Polyana" env. (44.168784N, 40.044638E), 1240 m, 13.VI.–6.VII.2010, Kustov, (1 ♂, ZMUM); Chechtshir (48.2911N 135.095E), 18.V.1973, Gorodkov (1 ♂, ZISP); **Krasnoyarsk Kray**: Turuchansk (65.7972N 87.9586E), 27.VI.1967, Gorodkov (4 ♂♂, ZISP); **Kursk Oblast**: Streletskaya Steppe (51.5795N 36.0870E), 5–15.V.2008, K. Tomkovich (2 ♂♂, 11 ♀♀, ZMUM); Borisovka (51.6705N 35.4515E), 18–25.IV.1915, Sokolov (1 ♂, 1 ♀, ZISP); **Leningrad Oblast** and **St.-Petersburg**: Gatshina (59.56N 30.13E), 24.V. and 10.VI.1940, A. Stackelberg (2 ♀♀, ZISP); Jukki (ca. 60.11N 30.29E), 5.VI.1931, A. Stackelberg (1 ♂, ZISP); Luga (ca. 58.73N 29.84E), 27.V.1956, A. Stackelberg (1 ♂, 1 ♀, ZISP); Peri (ca. 60.24N 30.46E), 15.VI.1952, A. Stackelberg (2 ♀♀, ZISP); Pesochnaya (60.1175N 30.1518E), 30.V.1963, 22.V.1966, K. Gorodkov (14 ♂♂, 7 ♀♀, ZISP); Island Bol'shoy Berezovyy (60.3N 28.62E), 29 and 31.V.1981, Kandybina (2 ♂♂, 1 ♀, ZISP); Yashchera (58.8945N 29.8206E), 13 and 26.V.1957, 19.VI.1957, 23.VI.1964, 25.V.1965, 26.VI.1966, 24 and 26.V.1968, 1.VI.1968, A. Stackelberg (3 ♂♂, 8 ♀♀, ZISP); Komarovo (60.18N 29.81E), 2.V.1953, A. Stackelberg (1 ♂, ZISP); N. Bronnaya (ca. 60.19N 29.64E), 8.VI.1918, A. Stackelberg (1 ♀, ZISP); Rozhdestveno (59.3236N 29.9472E), 20.VI.1956, A. Stackelberg (2 ♀♀, ZISP); **Moscow** and **Moscow Oblast**: Izmaylovo (55.8028N 37.8408E, 55.7870N 37.8345E, 55.7871N 37.8358E, 55.7872N 37.8365E, 55.7923N 37.8385E, 55.7923N 37.8385E, 55.7867N 37.8350E, 55.7882N 37.8384E), 11.V.2007, 26.IV., 15–18.V.2008, 18–31.V., 12.VI.2009, A.L. Ozerov (17 ♂♂, 18 ♀♀, ZMUM); Petrovsko-Razumovskoe (55.8399N 37.5694E), 6.V.1931, N. Violovich (1 ♂, ZMUM); Andreevskoe (55.9783N 35.5885E, 55.9815N 35.5972E), 13 and

14.V.2007, A.L. Ozerov (2 ♂♂, 2 ♀♀, ZMUM); Burtsevo (55.9817N 35.5982E, 55.9799N 35.5898E, 55.9752N 35.5862E), 18 i 25.V., 2–3.VI.2006, A.L. Ozerov (3 ♂♂, 4 ♀♀, ZMUM); Golitsyno (55.6496N 37.0117E), 21 and 29.V., 11.VI.1977, 8 and 20.V.1978, 9.V.1979, 29.V.1982, 25.V.1990, A. Shatalkin (6 ♂♂, 13 ♀♀, ZMUM); Dmitrov env. (56.3163N 37.7258E), 19.V., 10.VI.2006, 7–9.V., 15 and 19.V.2007, 30.IV., 9 and 10.V.2008, 27.V., 9.VI.2009, 7.V.2010, 15.V.2011, D. Gavryushin, N. Vikhrev (17 ♂♂, 29 ♀♀, ZMUM); Ivanovskoe (55.9262N 35.6198E, 55.9338N 35.6275E), 14.V., 15.VI.2006, A.L. Ozerov (5 ♂♂, 4 ♀♀, ZMUM); Naro-Fominsk (55.3643N 36.7410E, 55.3955N 36.7823E, 55.3729N 36.7578E, 55.3574N 36.7361E, 55.3930N 36.77790E, 55.3678N 36.7381E), 8–13.V.2006, 1.V.2008, 14 and 17.V., 26.VI.2009, 14.V., 22.VI.2010, D. Gavryushin (7 ♂♂, 6 ♀♀, ZMUM); Ozhigovo (55.448N 36.8709E), 2.V.2008, D. Gavryushin (1 ♂, 1 ♀, ZMUM); Zvenigorod env. (55.7003N 36.7223E), 24.V.1981, A.L. Ozerov (1 ♀, ZMUM); River Ruza near Rozhdestveno (55.9322N 35.6327E), 5.V.2011, A.L. Ozerov (1 ♂, ZMUM); Desna (55.5230N 37.3720E), 9.V.1982, A.L. Ozerov (2 ♂♂, ZMUM); Stepan'kovo (55.0045N 35.6247E), 3.VI.2007, A.L. Ozerov (4 ♀♀, ZMUM); Elektrogorsk env. (55.9124N 38.8411E), 15.V.2010, A.L. Ozerov (1 ♂, ZMUM); Yakshino (55.9198N 35.5833E), 2.V.2008, A.L. Ozerov (1 ♂, 2 ♀♀, ZMUM); **Novgorod Oblast**: Vereb'e (58.6782N 32.6965E), 10.V.1975, Gorodkov (2 ♂♂, ZISP); **Novosibirsk Oblast**: (55.52N 83.24E), 22.V.2011, O. Kosterin (1 ♂, 1 ♀, ZMUM); Zherebtsovo env. (55.125833N 83.256111E), 31.V.2008, O. Kosterin (15 ♀♀, ZMUM); 4 km S of Novososedovo (54.6169N 83.9850E), 7.VII.2008, O. Kosterin (1 ♀, ZMUM); **Sakhalin Oblast**: Yuzho-Sakhalinsk (46.95N 142.74E), 27.V.1954, Violovich (2 ♂♂, ZISP); **Stavropol' Kray**: Teberda Reserve (43.4472N 41.744E), 12.V.1964, Gorodkov (1 ♂, ZISP); **Tatarstan**: Reserve Volzhsko-Kamskiy, Lake Raifa (55.8973N 48.733E), 5–15.V.2005, Basov (6 ♂♂, 21 ♀♀, ZMUM); **Tula Oblast**: near Novomoskovsk (55.0352N 38.1547E), 13.VI.2009, N. Vikhrev (1 ♀, ZMUM); **Tyumen' Oblast**: (63.818N 59.562E), 5–11.VII.2010, K. Tomkovich (1 ♂, 2 ♀♀, ZMUM); Neroyka (ca. 64.57N 59.67E), 700 m, 24–27.VI.1990, 6–9.VII.1990, Malozemov (4 ♂♂, ZISP); same place, 6–12.VII.1990, Malozemov (2 ♂♂, ZISP); **Yakutia**: River mouth of Viluy (63.0406N 112.3146E), 8–16.VI.1875, Chekanovsky (1 ♀, ZISP); **Yaroslavl' Oblast**: Berditsino (57.45N 40.10E), 8, 9 and 29.V.1907, A.I. Yakovlev (2 ♂♂, 2 ♀♀, ZISP).

Additional material examined. China: prov. Sichuan, Tatsienlu (=Kangting) (29.9995N 101.955E), 21.V 1893, Potanin (1 ♂, ZISP).

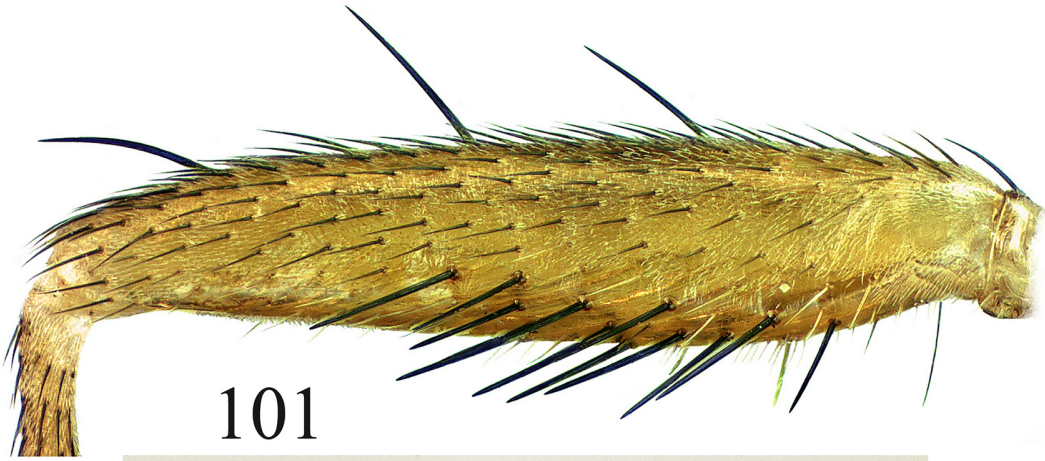
Diagnostic description. Body-length 3.8–6.0 mm. *Head*. Frons from completely yellow to black, only lower quarter always yellow. Female frons usually yellow completely, while male frons black in upper part. 3 orbital setae present. Antenna black. Postpedicel with acutely angled upper apical corner, approximately 2 times as long as wide, in male wider than in female. *Thorax* black, grey dusted. Proepisternum with hairs in central part. Katepisternum with 3 strong setae, from black to yellow. *Legs* yellow, only mid and hind coxae and tarsi darkened. Fore femur usually with dark stripe posterodorsally (Fig. 102), with 7–17 anteroventral setae in 2–3 irregular rows (Figs 100, 101). Fore tibia with 1 anterodorsal, 1 posterodorsal and 1 posterior setae at middle. Hind tibia with apical posteroventral and anteroventral setae, posteroventral one is equal to anteroventral or 1/2 as long as anteroventral. *Wing* tinged with brownish, sometimes strongly darkened along anterior margin. *Abdomen* black, greyish dusted, covered with pale hairs in male and black short hairs in female. Male sternite 4 rectangular, approximately 1.5 times as long as wide (Fig. 109). Male sternite 5 with black lobes, as in Fig. 106. Epandrium, cerci and surstyli as in Figs 107, 108. Female sternite 8 from single plate (Fig. 103, 105) to two separate sclerites (Fig. 104).

Distribution. Russia (Fig. 110): Altay, Amur Oblast, Arkhangelsk Oblast, Chelyabinsk Oblast, Irkutsk Oblast, Kamchatka Kray, Karelia, Krasnodar Kray, Krasnoyarsk Kray, Kursk Oblast, Leningrad Oblast and St.-Petersburg, Magadan Oblast, Moscow and Moscow Oblast, Novgorod Oblast, Novosibirsk Oblast, Primorskiy Kray, Sakhalin Oblast, Stavropol' Kray, Tatarstan, Tula Oblast, Tyumen' Oblast, Yakutia, Yaroslavl' Oblast.—Europe (widespread), China (**first record**), Mongolia.

***Nanna inermis* (Becker, 1894)**
Figs 111–116.

inermis Becker, 1894: 119 (*Amaurosoma*). Type-locality: "Livland" (Latvia or Estonia).
albipilum Ringdahl, 1936: 177 (*Amaurosoma*). Type-locality: "Jämtland bei Vallbo" (Sweden).

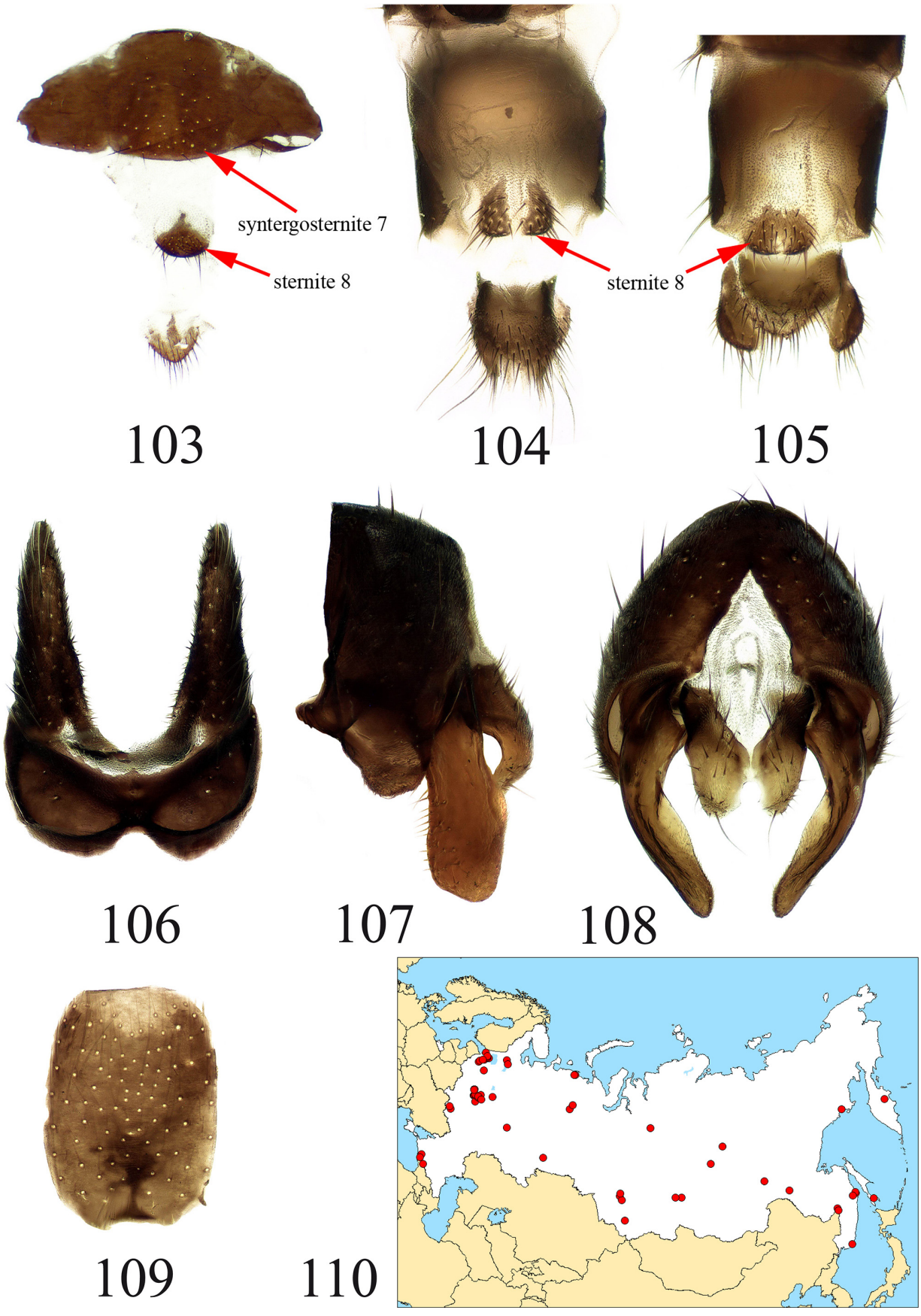
100



101

102

FIGURES 100–102. *Nanna flavipes* (Fallén): 100, 101—fore femur, anterior view; 102—male, habitus.



FIGURES 103–110. *Nanna flavipes* (Fallén): 103–105—female abdominal sternite 8; 106—male sternite 5; 107—epandrium, cerci and surstyli, lateral view; 108—same, dorsal view; 109—male sternite 4; 110—distribution map.

FIGURES 111–116. *Nanna inermis* (Becker): 111—fore femur, anterior view; 112—male sternite 5; 113—epandrium, cerci and surstyli, lateral view; 114—same, dorsal view; 115—male sternite 4; 116—distribution map.

Material examined. Adygea: Lagonaki (44.01N 40.02E), 1500–1700 m, 11.VI.2012, 5–7.V.2013, N. Vikhrev (2 ♂♂, 3 ♀♀, ZMUM); **Arkhangelsk Oblast**: Nenetskiy Reserve, Cordon "Bol'shoy Gusinets" (68.1759N 53.6453E), 10.VII.2008, A.L. Ozerov (1 ♀, ZMUM); **Krasnodar Kray**: Sochi, Estosadk env., Mt. Psekhako (43.6911N 40.3666E), 14–18.VI.2008, K. Tomkovich (2 ♂♂, 2 ♀♀, ZMUM); **Kursk Oblast**: Streletskaya Steppe (51.5795N 36.0870E), 5–15.V.2008, K. Tomkovich (2 ♂♂, ZMUM); **Leningrad Oblast** and **St.-Petersburg**: Jukki (ca. 60.11N 30.29E), 18.V.1933, 27.V.1956, A. Stackelberg (9 ♂♂, 2 ♀♀, ZISP); Luga (ca. 58.73N 29.84E), 11.V.1954, A. Stackelberg (1 ♂, ZISP); Pesochnaya (60.1175N 30.1518E), 22.V.1966, K. Gorodkov (3 ♂♂, ZISP); Roshino (60.25N 29.61E), 20.V.1954, A. Stackelberg (2 ♂♂, 4 ♀♀, ZISP); Yashchera (58.8945N 29.8206E), 26.V.1957, A. Stackelberg (5 ♂♂, 2 ♀♀, ZISP); Komarovo (60.18N 29.81E), 13.V.1951 and 23.V.1954, A. Stackelberg (2 ♂♂, 1 ♀, ZISP); Udel'naya (ca. 60.01N 30.29E), 13.V.1952, 24.V.1956, A. Stackelberg (4 ♂♂, 2 ♀♀, ZISP); **Moscow** and **Moscow Oblast**: Petrovsko-Razumovskoe (55.8399N 37.5694E), 6.V.1931, N. Violovich (1 ♂, ZMUM); Andreevskoe (55.9783N 35.5885E), 14.V.2007, A.L. Ozerov (1 ♀, ZMUM); Burtsevo (55.9957N 35.6174E), 9–10.VI.2008, A.L. Ozerov (1 ♂, 1 ♀, ZMUM); Golitsyno (55.6496N 37.0117E), 20 and 27.V.1978, A. Shatalkin (1 ♂, 1 ♀, ZMUM); Dmitrov env. (56.3163N 37.7258E), 21.IV., 7–15.V.2007, N. Vikhrev (5 ♂♂, 1 ♀, ZMUM); Ivanovskoe (55.9338N 35.6275E), 14.V.2006, A.L. Ozerov (3 ♀♀, ZMUM); Mikhnevo (55.1258N 37.9620E), 17.V.1964, E. Antonova (1 ♂, ZMUM); Yakshino (55.9198N 35.5833E), 2.V.2008, A.L. Ozerov (1 ♂, ZMUM).

Diagnostic description. Body-length 3.0–5.0 mm. *Head*. Frons black in upper half and reddish-yellow in lower half. 3 orbital setae present. Antenna black. Postpedicel with acutely angled upper apical corner, approximately 2–2.5 times as long as wide, in male wider than in female. *Thorax* black, extensively grey dusted. Proepisternum with hairs in central part. Katepisternum with 3 strong setae, from yellow to black. *Legs.* All coxae and femora blackish, tibiae yellow, sometimes hind tibia darkened on apical half, tarsi slightly darkened. Fore femur without setae anteroventrally (Fig. 111). Hind tibia without apical posteroventral seta. *Wing* clear or tinged with brownish. *Abdomen* black, greyish dusted. Male sternite 4 rectangular, approximately 2 times as long as wide (Fig. 115). Male sternite 5 with black lobes, as in Fig. 112. Epandrium, cerci and surstyli as in Figs 113, 114. Female sternite 8 as two small separate sclerites.

Distribution. Russia (Fig. 116): Adygea, Arkhangelsk Oblast, Krasnodar Kray, Kursk Oblast, Leningrad Oblast and St.-Petersburg, Moscow and Moscow Oblast.—Europe; Mongolia (Šifner, 1975: 220).

Nanna katmaiensis (Malloch, 1920)

Figs 117–122.

katmaiensis Malloch, 1920: 284 (*Amaurosoma*). Type-locality: "Katmai, Alaska" (USA).
variofemoratum Hendel, 1930: 10 [as var. of *kamtschatkense*]. Type-locality: "Klutchi" (Russia, Kamchatka Kray).

Remarks. The species was recorded by us from the Far East (Ozerov & Krivosheina, 2014b: 214). During the present study the determination of material was checked and it was discovered that 2 specimens only from Magadan Oblast (♀ from Ust'-Omchug and ♀ from Sokol env.) belong to this species. The rest of specimens proved to be *Nanna tibiella* (Zetterstedt, 1838).

Material examined. Chukotka: bank of Anadyr River (64.72N 175.21E), 25.VI.–19.VII.2014, A. Barkalov (1 ♂, ZMUM); Egvekinot (66.3224N 179.12W), 26.VII.1963, Gorodkov (5 ♂♂, 9 ♀♀, ZISP); **Tyumen' Oblast**: Neroyka (ca. 64.57N 59.67E), 450 m, 24–27.VI.1990, Malozemov (2 ♂♂, ZISP); river mouth of Arkayakha, 85 km NSW of Antipayut (ca. 69.4401N 74.8555E), 31.VII.1977, Gorodkov (1 ♂, ZISP).

Diagnostic description. Body-length 4.0–6.0 mm. *Head*. Frons from completely yellow to black, only lower quarter always yellow. 3 orbital setae present. Antenna black. Postpedicel with acutely angled upper apical corner, approximately 2–2.5 times as long as wide, in male slightly wider than in female. *Thorax* black, extensively grey dusted. Proepisternum with hairs in central part. Katepisternum with 3 strong setae, usually black in both sexes. *Legs.* All coxae blackish; femora blackish in central part and yellow basally and apically; tibiae yellow, sometimes hind tibia darkened on apical half; tarsi slightly darkened. Fore femur with 8–12 anteroventral setae (Fig. 117). Hind tibia with apical posteroventral seta, which usually is shorter than anteroventral apical seta. *Wing* tinged with brownish. *Abdomen* black, greyish dusted. Male sternite 4 rectangular, approximately 1.5 times as long as wide (Fig. 121). Male sternite 5 with black lobes, as in Fig. 118. Epandrium, cerci and surstyli as in Figs 119, 120. Female sternite 8 as two small separate sclerites.

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FIGURES 117–122. *Nanna katmaiensis* (Malloch): 117—fore femur, anterior view; 118—male sternite 5; 119—epandrium, cerci and surstyli, lateral view; 120—same, dorsal view; 121—male sternite 4; 122—distribution map.

Distribution. Russia (Fig. 122): Chukotka, Kamchatka Kray, Magadan Oblast, Tyumen' Oblast.—North America.

Nanna leucostoma (Zetterstedt, 1846)

Figs 123–128.

leucostoma Zetterstedt, 1846: 2063 (*Cordylura*). Type-locality: "Lapponia Lulensi ad Qvickjock" (Sweden).

Remarks. Reported by Humala & Polevoi (2009: 71) from Karelia and by Ozerov & Krivosheina (2014b: 214) from the Russian Far East.

Material examined. Karelia: Reserve Kivach (ca.62.2954N 33.9214E), 28.V.–5.VI.1991, A. Polevoy (1 ♂, ZISP); **Leningrad Oblast**: Gatshina (59.56N 30.13E), 11.VI.1940, A. Stackelberg (1 ♀, ZISP); Luga (ca. 58.73N 29.84E), 19.VI.1935, A. Stackelberg (1 ♂, ZISP); Yashchera (58.8945N 29.8206E), 31.V.1968, A. Stackelberg (1 ♂, ZISP); Jukki (ca. 60.11N 30.29E), 27.V.1956 and 13.VI.1958, A. Stackelberg (2 ♂♂, ZISP); Kartashevskaya (ca. 59.40N 30.07E), 8.VII.1952, A. Stackelberg (1 ♀, ZISP); **Moscow** and **Moscow Oblast**: Izmaylovo (55.8001N 37.8325E, 55.7870N 37.8345E, 55.7871N 37.8358E, 55.7872N 37.8365E, 55.7945N 37.8328E, 55.7923N 37.8385E, 55.7867N 37.8350E), 17–30.V.1986, 3.VI.1990, 31.V.1992, 3.VIII.1993, 17.VII.1996, 11.V.2007, 15–18.V.2008, 16–20.VI.2007, 11–31.V., 12.VI.2009, A.L. Ozerov (21 ♂♂, 6 ♀♀, ZMUM); Molzhaninovka (55.9369N 37.3859E), 13.V.2010, A.L. Ozerov (1 ♂, ZMUM); Ozhigovo (55.4480N 36.8709E), 2.V.2008, D. Gavryushin (1 ♂, ZMUM); **Tyumen' Oblast**: Neroyka (ca. 64.57N 59.67E), 700 m, 6–9.VII.1990, Malozemov (7 ♂♂, 1 ♀, ZISP);

Diagnostic description. Body-length 3.0–4.5 mm. *Head*. Frons yellow. 3 orbital setae present. Antenna black. Postpedicel with acutely angled upper apical corner, approximately 2–2.5 times as long as wide. *Thorax* black, extensively grey dusted. Proepisternum with hairs in central part. Katepisternum with 2–3 strong setae, from yellow to black. *Legs* yellow, only mid and hind coxae and tarsi darkened. Fore femur with 4–5 anteroventral setae (Fig. 123). Hind tibia without apical posteroventral seta. *Wing* clear. *Abdomen* black, greyish dusted. Male sternite 4 rectangular, approximately 2 times as long as wide (Fig. 127). Male sternite 5 with yellow lobes, as in Fig. 124. Epandrium, cerci and surstyli as in Figs 125, 126. Female sternite 8 as two small separate sclerites.

Distribution. Russia (Fig. 128): Amur Oblast, Karelia, Khabarovsk Kray, Leningrad Oblast, Magadan Oblast, Moscow and Moscow Oblast, Tyumen' Oblast.—Europe; North America.

Nanna loewi (Becker, 1894)

Figs 129–133.

loewi Becker, 1894: 123 (*Pselaphephila*). Type-locality: Poland.
carbonarium Hendel, 1930: 11 (*Amaurosoma*). Type-locality: "Klutchi" (Russia, Kamchatka Kray).

Remarks. Recorded by Hendel (1930: 11, as *Amaurosoma carbonarium*) for the Russian Far East.

Material examined. Yakutia: Oktemtsy (61.6737N 129.4213E), 4 and 15.VI.1978, Vinokurov, Bagachanova (2 ♂♂, 2 ♀♀, ZMUM).

Diagnostic description. Body-length about 6 mm. *Head*. Frons reddish-yellow. 3 orbital setae present. Antenna black. Postpedicel with acutely angled upper apical corner, approximately 2.5–3 times as long as wide. *Thorax* black, extensively grey dusted. Proepisternum with hairs in central part. Katepisternum with 3 strong black setae. *Legs*. All coxae blackish; femora blackish, but yellow apically; tibiae yellow. Fore femur with 4–5 setae anteriorly (Fig. 129). *Wing* tinged with yellowish. *Abdomen* black, greyish dusted. Male sternite 4 rectangular, approximately 2 times as long as wide (Fig. 130). Male sternite 5 with blackish lobes, as in Fig. 131. Epandrium, cerci and surstyli as in Figs 132, 133.

Distribution. Russia: Kamchatka Kray, Yakutia.—North America.

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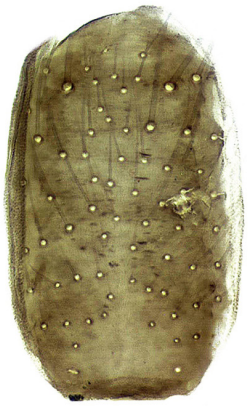

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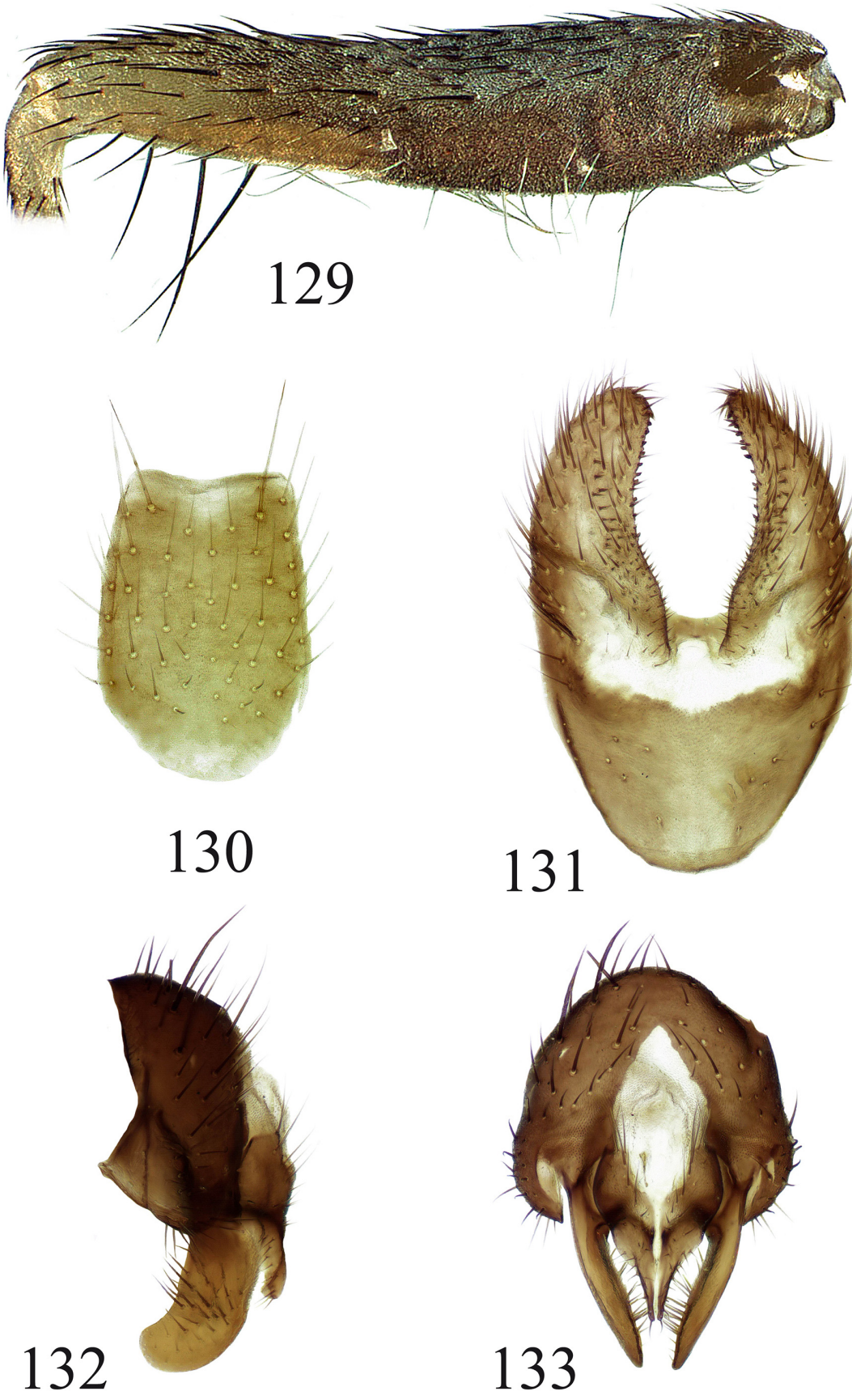
FIGURES 123–128. *Nanna leucostoma* (Zetterstedt): 123—fore femur, anterior view; 124—male sternite 5; 125—epandrium, cerci and surstyli, lateral view; 126—same, dorsal view; 127—male sternite 4; 128—distribution map.



FIGURES 129–133. *Nanna loewi* (Becker): 129—fore femur, anterior view; 130—male sternite 4; 131—male sternite 5; 132—epandrium, cerci and surstyli, lateral view; 133—same, dorsal view.

***Nanna longicornis* (von Roser, 1840)**
Figs 134–139.

longicornis von Roser, 1840: 59 (*Cordylura*). Type-locality: not given (?Württemberg).
"*longirostris*", error (Ozerov, 2010d: 3, 5).

Remarks. This species was recorded for the first time for Russia by Ozerov (2010d: 5) from Karelia.

Material examined. Karelia: Reserve "Kivach" [ca. 62.2672N 33.9822E], 26.VI.2001 and 27.V.2003, Polevoy (1 ♂, 2 ♀♀, ZMUM); **Novosibirsk Oblast**: 55.52N, 83.24E, pine forest and bog, 22.V.2010, Kosterin (1 ♀, ZMUM).

Diagnostic description. Body-length about 4 mm. *Head*. Frons black in upper half and yellow in lower half. 2 orbital setae present. Antenna black. Postpedicel with a few acutely angled upper apical corner, approximately 4 times as long as wide. *Thorax* black, grey dusted, but scutum with four shining spots, also anepisternum and katepisternum with shining spots. Proepisternum with hairs in central part. Katepisternum with strong and usually pale upper posterior and lower posterior katepisternal setae. *Legs* yellow, only mid and hind coxae, and tarsi slightly darkened. Fore femur without or with one anteroventral seta (Fig. 134). Hind tibia with apical posteroventral seta, which is sometimes shorter than anteroventral apical seta. *Wing* tinged with brownish. *Abdomen* black, greyish dusted. Male sternite 4 rectangular, approximately 2 times as long as wide (Fig. 138). Male sternite 5 with black lobes, as in Fig. 135. Epandrium, cerci and surstyli as in Figs 136, 137. Female sternite 8 as two small separate sclerites.

Distribution. Russia (Fig. 139): Karelia, Novosibirsk Oblast.—Europe.

***Nanna obscuripes* (Becker, 1915)**
Figs 140–145.

obscuripes Becker, 1915: 64 (*Acerocnema*). Type-locality: "Tundra des Fl. Kara" [Valley of the River Nyarma-Yaga [Nyarmayakha], 80 m (about 68°36′N, 65°57′E, see Sorokina & Pont, 2014)] (Russia: Tumen' Oblast).
indotatum Engelmark, 1999: 163 (*Nanna*). Type-locality: Ayon Island (69.7833N 168.5666E), Chukotka (Russia).

Remarks. Reported by Becker (1915: 64, 65) from Tumen' Oblast and by Engelmark (1999: 163, 164) from Chukotka.

Material examined. Chukotka: Kolyuchin Island (67.4647N 174.6178W) (1 ♂, 3 ♀♀, ZISP); **Krasnoyarsk Kray**: River Nizhnyaya Agapa about 40 km lower of springhead (~ 70.0972N 86.6883E), 12–14.VII.1973, V. Zherikhin and I. Sukacheva (2 ♂♂, ZMUM).

Diagnostic description. Body-length about 4 mm. *Head*. Frons black, only lower quarter always yellow, grey dusted. 3 orbital setae present. Antenna black. Postpedicel with acutely angled upper apical corner, approximately 2–2.5 times as long as wide. *Thorax* black, extensively grey dusted. Proepisternum with hairs in central part. Katepisternum with 2–3 strong (anterior katepisternal may be absent) pale setae. *Legs.* All coxae blackish; femora black, but narrowly yellow apically; tibiae yellow, usually mid and hind tibiae darkened on apical half; tarsi darkened. Fore femur without anteroventral setae (Fig. 140). Hind tibia without apical posteroventral seta. *Wing* clear. *Abdomen* black, greyish dusted. Male sternite 4 rectangular, slightly longer than wide (Fig. 144). Male sternite 5 with black lobes, as in Fig. 141. Epandrium, cerci and surstyli as in Figs 142, 143.

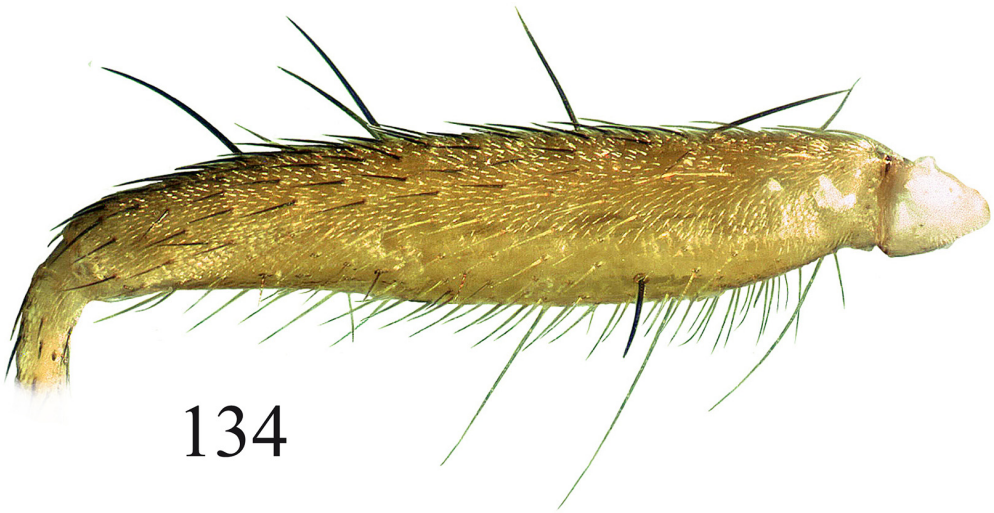
Female unknown.

Distribution. Russia (Fig. 145): Chukotka, Krasnoyarsk Kray, Tyumen' Oblast.

***Nanna puberula* (Becker, 1894)**
Figs 146–150.

puberula Becker, 1894: 114 (*Amaurosoma*). Type-locality: not stated.

Remarks. This species was recorded for the first time for Russia by Šifner (2008: 154) from Moscow Oblast.



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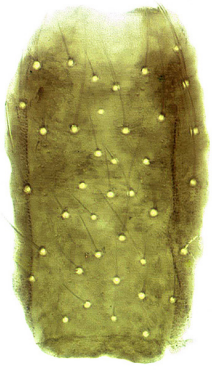

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FIGURES 134–139. *Nanna longicornis* (von Roser): 134—fore femur, anterior view; 135—male sternite 5; 136—epandrium, cerci and surstyli, lateral view; 137—same, dorsal view; 138—male sternite 4; 139—distribution map.

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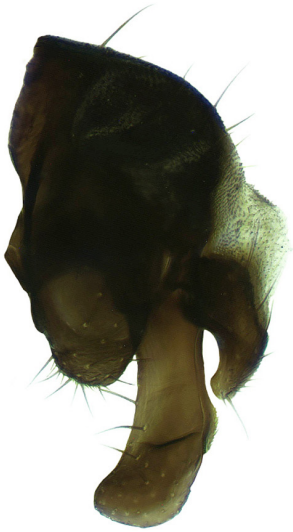

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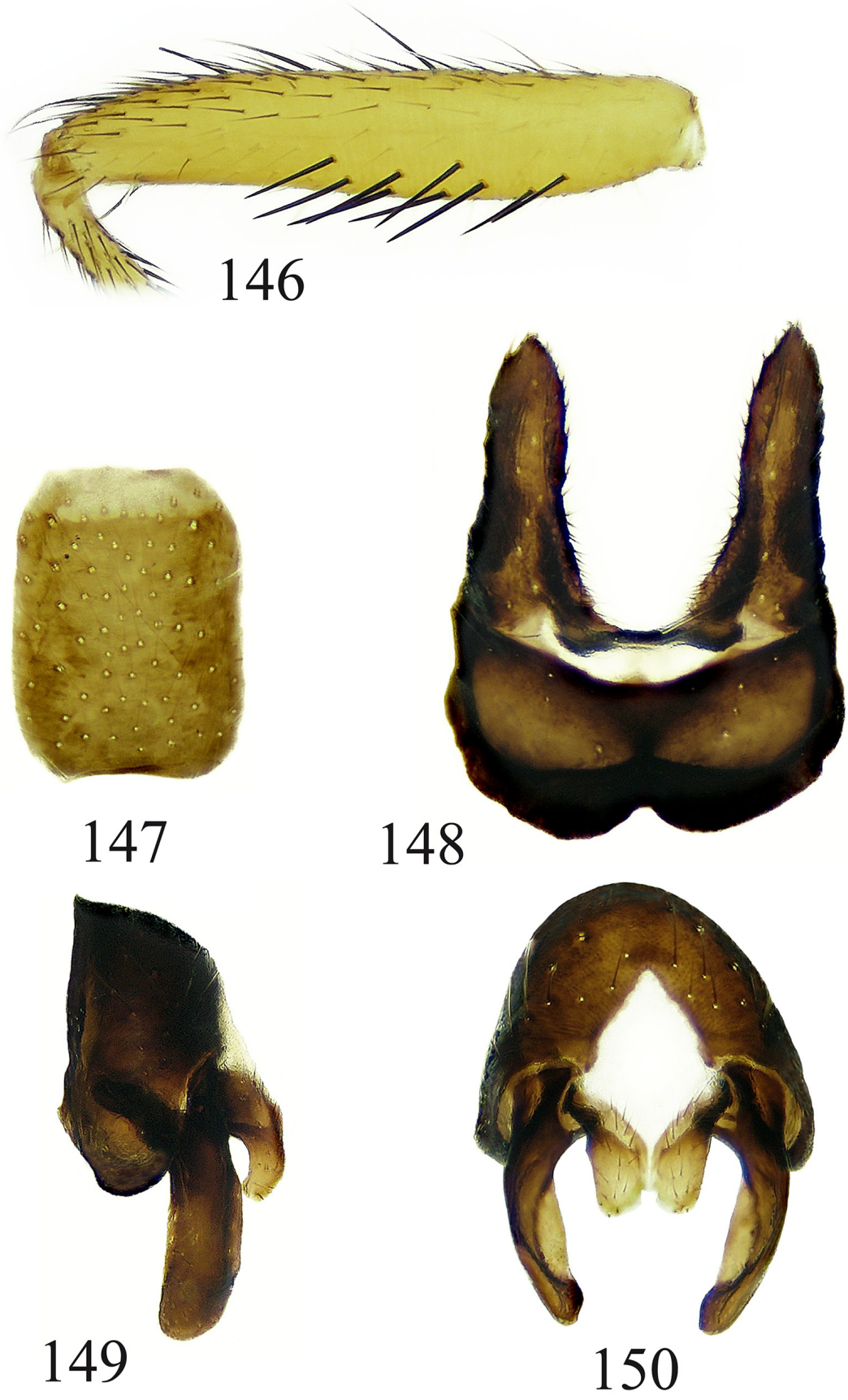
FIGURES 140–145. *Nanna obscuripes* (Becker): 140—fore femur, anterior view; 141—male sternite 5; 142—epandrium, cerci and surstyli, lateral view; 143—same, dorsal view; 144—male sternite 4; 145—distribution map.



FIGURES 146–150. *Nanna puberula* (Becker): 146—fore femur, anterior view; 147—male sternite 4; 148—male sternite 5; 149—epandrium, cerci and surstyli, lateral view; 150—same, dorsal view. Fig. 146 after Ozerov (2013e, Figure 15).

Material examined. No material was examined from the territory of Russia.

Additional material examined. "**Czech Republic**: Krkonoše, Labský důl near Labe river, MT, 1040 m (50°45'48"N, 15°33'05"E), 15–21.VI 2006, J. Vaněk", "*Nanna puberula* det. M. Barták" (1 ♂, ZMUM).

Diagnostic description. Male. Body-length about 4 mm. *Head*. Frons black in upper half and reddish-yellow in lower half. 3 orbital setae present. Antenna black. Postpedicel with acutely angled upper apical corner, approximately 2.5 times as long as wide. *Thorax* black, grey dusted, but scutum with two shining spots, also postpronotal lobe shining anteriorly. Proepisternum with hairs in central part. Katepisternum with strong anterior katepisternal and upper posterior katepisternal black setae. *Legs* yellow, only tarsi slightly darkened. Fore femur with 8–9 anteroventral setae (Fig. 146). Hind tibia with strong apical posteroventral seta. *Wing* tinged with brownish. *Abdomen* black, greyish dusted. Male sternite 4 rectangular, approximately 2 times as long as wide (Fig. 147). Male sternite 5 with black lobes, as in Fig. 148. Epandrium, cerci and surstyli as in Figs 149, 150.
Female not examined.

Distribution. Russia: Moscow Oblast (Šifner, 2008: 154).—Europe.

Nanna rossolimoae Ozerov, 2010

Figs 151–156.

rossolimoae Ozerov, 2010e: 161, 165 (*Nanna*). Type-locality: town Zeya (Russia, Amur Oblast).

Remarks. This species is known only from the type-locality (Ozerov, 2010e: 161).

Material examined. Amur Oblast: town Zeya, 20.VII. and 7.VIII.1981, A. Ozerov (holotype ♂, paratypes 7 ♂♂ and 10 ♀♀, ZMUM).

Diagnostic description. Body-length 4.0–4.5 mm. *Head*. Frons yellow. 3 orbital setae present. Scape and pedicel yellow. Postpedicel blackish, with acutely angled upper apical corner, approximately 3 times as long as wide. *Thorax* yellow, grey dusted, but scutum with two blackish stripes along dorsocentral lines; scutellum blackish. Proepisternum with hairs in central part. Katepisternum with 3 strong black setae in both sexes. *Legs* yellow. Fore femur with 1–4 anterior setae (Fig. 151). Hind tibia without apical posteroventral seta. *Wing* tinged with yellowish. *Abdomen* yellow to blackish, greyish dusted. Male sternite 4 rectangular, slightly longer than wide (Fig. 155). Male sternite 5 with yellow lobes, as in Fig. 152. Epandrium, cerci and surstyli as in Figs 153, 154. Female sternite 8 as two small separate sclerites.

Distribution. Russia (Fig. 156): Amur Oblast.

Nanna tibiella (Zetterstedt, 1838)

Figs 157–165.

tibiella Zetterstedt, 1838: 731 (*Cordylura*). Type-locality: "Juckasjervi Lapponiae Tornensis, ad Lycksele Lappon. Umensis, ut et ad Bjǒrkvik Nordlandiae... Dowre... Uplandia ad Nacka prope Stockholmiam... Smoland..." (Sweden, Norway).

nigripes Zetterstedt, 1846: 2026 (*Cordylura*). Type-locality: "Smolandia ... Jemtlandia boreali ad diversorium Skalstugan... Lapponia Lulensi" (Sweden).

nigrifrontata Becker, 1894: 120 (*Amaurosoma*). Type-locality: "Süd-Tirol vom Lusier Pass" [now Passo di Lusia (Italy, Trentino)].

nutans Becker, 1894 (*Amaurosoma*). Type-locality: Legnica (formerly Liegnitz), Poland.

kamtschatkense Hendel, 1930: 9 (*Amaurosoma*). Type-locality: "Klutchi" (Russia, Kamchatka Kray)—**syn. nov.**

Remarks. Noted by Gorodkov (1970: 449, as *Amaurosoma nigripes* (Zetterstedt); 1986: 17) for European part of Russia without indicating specific locality.

The study of the photo made from the lectotype of *Amaurosoma kamtschatkense* Hendel, 1930 (lectotype was designated by Ozerov, 2007: 7, deposited in Naturhistoriska riksmuseet, Stockholm, Sweden) demonstrated that this specimen belongs to the species *Nanna tibiella* (Zetterstedt, 1838), not *katmaiensis* Malloch.

Material examined. Chukotka: Shmidt (68.8935N 179.4177W), 18.VII.1963, K. Gorodkov (1 ♂, ZISP); **Kamchatka Kray**: Sivuchiy Island (56.3605N 162.708E), 26.VI.1908, A. Derzhavin (1 ♂, ZISP); **Krasnoyarsk Kray**: Ust'-Tareya (73.2527N 90.5962E), 4.VIII.1967, K. Gorodkov (1 ♀, ZISP); **Leningrad Oblast** and **St.**

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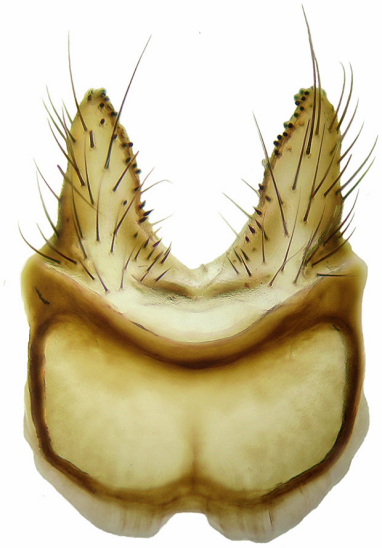

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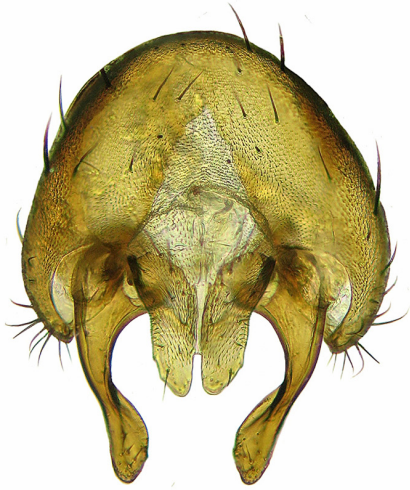

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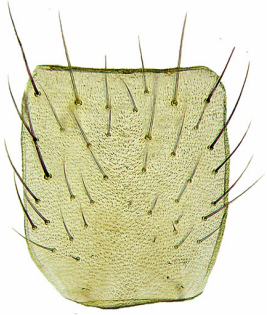

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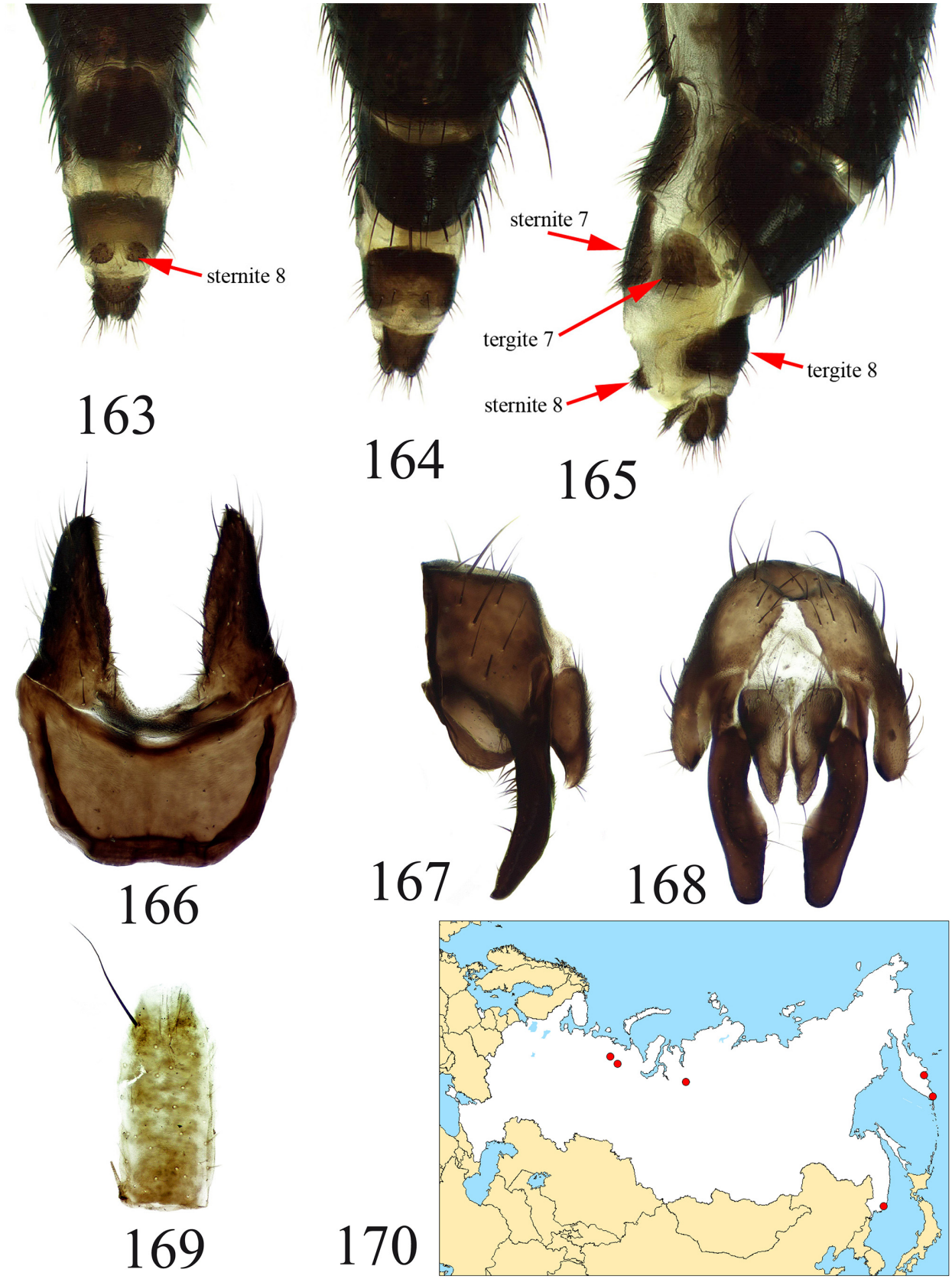
FIGURES 151–156. *Nanna rossolimoae* Ozerov: 151—fore femur, anterior view; 152—male sternite 5; 153—epandrium, cerci and surstyli, lateral view; 154—same, dorsal view; 155—male sternite 4; 156—distribution map. Figures 152–155 after Ozerov (2010f, Figures 23–26).

FIGURES 157–162. *Nanna tibiella* (Zetterstedt): 157—fore femur, anterior view; 158—male sternite 5; 159—epandrium, cerci and surstyli, lateral view; 160—same, dorsal view; 161—male sternite 4; 162—distribution map.



FIGURES 163–170. *Nanna tibiella* (Zetterstedt) (163–165) and *Orthacheta cornuta* (Loew) (166–170): 163—end of female abdomen, ventral view; 164—same, dorsal view; 165—same, lateral view; 166—male sternite 5; 167—epandrium, cerci and surstyli, lateral view; 168—same, dorsal view; 169—male sternite 4; 170—distribution map.

-Petersburg: Agalatovo (60.2198N 30.2817E), 12.V.1963, A. Stackelberg (1 ♂, ZISP); Gatshina (ca. 59.56N 30.13E), 26.V.1951, 25.V.1952, 9.V.1954, A. Stackelberg (1 ♂, 2 ♀♀, ZISP); Jukki (ca. 60.11N 30.29E), 18.V.1933, 27.V.1956, A. Stackelberg (1 ♂, 1 ♀, ZISP); Kartashevskaya (ca. 59.40N 30.07E), 8.VII.1952, A. Stackelberg (5 ♂♂, 2 ♀♀, ZISP); Luga (ca. 58.73N 29.84E), 1.V.1936, 2.V.1937, 11.V.1954, A. Stackelberg (2 ♂♂, 1 ♀, ZISP); Pesochnaya (60.1175N 30.1518E), 30.V.1966, K. Gorodkov (4 ♂♂, 6 ♀♀, ZISP); Roshino (60.25N 29.61E), 20.V.1954, A. Stackelberg (2 ♂♂, ZISP); Sertolovo (60.1498N 30.2E), 13.V.1962, A. Stackelberg (1 ♂, ZISP); Bol'shoi Berezovyi Island (60.3N 28.62E), 23 and 31.V.1981, Kandybina (2 ♀♀, ZISP); Yaschera (58.8945N 29.8206E), 26.V.1957, A. Stackelberg (1 ♂, ZISP); cemetery Smolenskoe (59.94N 30.24E), 19.V.1922, A. Stackelberg (1 ♂, ZISP); Komarovo (60.18N 29.81E), 13.V.1951, A. Stackelberg (1 ♀, ZISP); Udel'naya (ca. 60.01N 30.29E), 13.V.1952, 24.V.1954, A. Stackelberg (2 ♂♂, 1 ♀, ZISP); **Moscow** and **Moscow Oblast**: Petrovsko-Razumovskoe (55.8399N 37.5694E), 6.V.1931, N. Violovich (2 ♂♂, 3 ♀♀, ZMUM); Andreevskoe (55.9674N 35.6094E), 6.V.2009, 15.V.2007, A.L. Ozerov (4 ♂♂, 2 ♀♀, ZMUM); Burtsevo (55.9783N 35.5905E, 55.9815N 35.5972E), 5.V.2007, 1.V.2010, 8.V.2011, A.L. Ozerov (4 ♂♂, ZMUM); Golitsyno (55.6496N 37.0117E), 6.V.1979, 29.V.1982, A. Shatalkin (1 ♂, 2 ♀♀, ZMUM); Dmitrov env. (56.3163N 37.7258E), 29.IV., 7–10.V.2007, 30.IV.2008, 20.V.2009, 29.IV.2010, 7.V.2010, N. Vikhrev (18 ♂♂, 4 ♀♀, ZMUM); same locality, 7.V.2010, D. Gavryushin (5 ♂♂, ZMUM); Ozhigovo (55.4353N 36.8827E), 10.V.2009, D. Gavryushin (1 ♀, ZMUM); Yakshino (55.9198N 35.5833E), 2.V.2008, A.L. Ozerov (1 ♂, ZMUM); **Sakhalin Oblast**: Kunashir I., Mendeleevo (43.9621N 145.685E), 9.VI.1968, V. Richter (2 ♂♂, ZISP); Kunashir I., Lake Lagunnoe (44.0629N 145.7589E), 18.VI.1968, Nartshuk (1 ♀, ZISP); Kunashir I., State Nature Reserve Kurilskiy, Cordon Andreevskyi (45.54N 145.37E), 8.VII.2014, T.V. Galinskaya (5 ♀♀, ZMUM); Novoaleksandrovsk (47.0564N 142.7303E), 23.V.1973, Kerzhner (1 ♂, ZISP); **Tumen' Oblast**: (63.818N 59.562E), 6–8.VII.2010, K. Tomkovich (1 ♂, 1 ♀, ZMUM).

Diagnostic description. Body-length 3.5–5.0 mm. *Head*. Frons usually black in upper half and yellow in lower third or quarter. 3 orbital setae present. Antenna black. Postpedicel with acutely angled upper apical corner, approximately 2–3 times as long as wide, in male wider than in female. *Thorax* black, extensively grey dusted. Proepisternum with hairs in central part. Katepisternum with 3 strong setae, the setae black in female, black or pale in male. *Legs.* All coxae and femora black; sometimes hind tibia darkened on apical half; tarsi blackish. Fore femur usually with 6–10 anteroventral setae (Fig. 157). Hind tibia with apical posteroventral seta, which usually is shorter than anteroventral apical seta. *Wing* tinged with brownish. *Abdomen* black, greyish dusted. Male sternite 4 rectangular, slightly longer than wide (Fig. 161). Male sternite 5 with black lobes, as in Fig. 158. Epandrium, cerci and surstyli as in Figs 159, 160. Female sternite 8 as two small separate sclerites.

Distribution. Russia (Fig. 162): Chukotka, Kamchatka Kray, Krasnoyarsk Kray, Leningrad Oblast and St.-Petersburg, Magadan Oblast, Moscow and Moscow Oblast, Sakhalin Oblast, Tumen' Oblast.—Europe.

Key to the species of *Nanna* of Russia

1.	Femora yellow, at most fore femur with dark stripe posterodorsally (Fig. 102). Coxa of fore leg yellow	2
-	Femora black completely or at least to a great extent dark-coloured. Coxa of fore leg black or darkened	11
2.	Katepisternum, anepimeron and/or scutum and postpronotum with shining spots. Katepisternum with 2 setae, anterior seta absent	3
-	Pleural sclerites, postpronotum and usually scutum completely grey dusted. Katepisternum with 3 setae	6
3.	Anepisternum with broad shining stripe. Postcranium subshining	*N. brevifrons* (Zetterstedt)
-	Anepisternum almost completely grey dusted. Postcranium extensively grey dusted	4
4	Fore femur with 7–10 anteroventral setae (Fig. 146). Postpronotum shining anteriorly	*N. puberula* (Becker)
-	Fore femur with 0–2 anteroventral setae (Fig. 82, 134). Postpronotum comletely grey dusted	5
5.	Three orbital setae. Postpedicel 2.5–3 times as long as wide	*N. bispinosa* (Malloch)
-	Two orbital setae. Postpedicel long, approximately 4–5 times as long as wide	*N. longirostris* (von Roser)
6.	Proepisternum bare, without hairs at middle and on anterior part	*N. articulata* (Becker)
-	Proepisternum covered with hairs at middle or on anterior part (Fig. 2)	7
7.	Fore femur without anteroventral setae or with only one often yellow anteroventral seta	8
-	Fore femur with 3–20 black anteroventral setae	10
8.	Scape and pedicel yellow. Arista pubescent. One postsutural intra-alar seta present. Thorax (sometimes abdomen also) partly yellow	*N. rossolimoae* Ozerov
-	Scape and pedicel black or dark brown. Arista bare. Two postsutural intra-alar setae present. Thorax and abdomen completely black	9

9. Fore femur with 0–1 black posteroventral seta on apical half (Fig. 94). Hind tibia with posteroventral apical seta . . . . . *N. cryophila* **sp. nov.**
- Fore femur with 3 black posteroventral setae on apical half (Fig. 62). Hind tibia without posteroventral apical seta . . . . . *N. amurensis* Ozerov
10. Fore femur with 8–20 anteroventral setae in more than one row (Figs 100, 101). Male sternite 5 black . . . *N. flavipes* (Fallén)
- Fore femur with 3–4 anteroventral setae in one row (Fig. 123). Male sternite 5 yellow . . . . . *N. leucostoma* (Zetterstedt)
11. Fore femur without anteroventral setae or with only one basal anteroventral seta (Figs 111, 129, 140) 12
- Fore femur with several anteroventral setae (Figs 68, 117, 157) 14
12. Mid tibia ventrally with long pale hairs . . . . . *N. loewi* (Becker)
- Mid tibia ventrally without long pale hairs 13
13. Frons yellow in lower third or quarter . . . . . *N. obscuripes* (Becker)
- Frons yellow in lower half . . . . . *N. inermis* (Becker)
14. Femora dark brown or black completely . . . . . *N. tibiella* (Zetterstedt)
- Femora dark brown or black, but yellow apically and often basally 15
15. Fore femur with 8–12 anteroventral setae (Fig. 117) . . . . . *N. katmaiensis* (Malloch)
- Fore femur with 3–6 anteroventral setae (Fig. 68) . . . . . *N. armillata* (Zetterstedt)

Orthacheta Becker, 1894

Orthacheta Becker, 1894: 101. Gender: feminine. Type species: *Cordylura pilosa* Zetterstedt, 1838, by original designation.
Orthochaeta: emend. (Aldrich, 1905: 567; Hendel, 1930: 8; Hackman, 1956: 47).
Orthacheta Rondani: error (wrong author given by Vockeroth, 1995: 733).

Orthacheta species are slender, medium-sized flies (about 4–8 mm long). *Head*. Frons yellow to black; face, parafacial and gena pale yellow. Postcranium black, grey dusted, covered with yellow and black hairs and with black postocular setulae. Chaetotaxy: 3 orbital, 2–4 frontal, 1 ocellar, 1 inner vertical, 1 outer vertical, 1 postocellar; 1 pair of strong vibrissae and 1–2 pairs of short subvibrissae present. Antenna black. Postpedicel with acutely angled upper apical corner, 2–3 times as long as wide, usually in male longer than in female. Arista black, pubescent throughout its length (Fig. 177). Palpus slender, yellow.

Thorax black, grey dusted. Scutum with following setae: acrostichals short in two rows, prescutellar pair not differentiated or only slightly longer than the other acrostichals, dorsocentrals 3+3, intra-alars 1+2, supra-alars 1+2, postpronotals 2, notopleurals 2, postalars 2. Proepisternum with hairs anteriorly, with 2 setae near lower margin. Proepimeron with 1 seta. Anepisternum covered with hairs in posterior part and with 2–4 black setae along posterior margin. Katepisternum covered with long setae in ventral corner and 3 strong katepisternal setae. Anepimeron bare. Scutellum black, with pair of strong basal scutellar and pair of strong apical scutellar setae (Fig. 8).

Legs yellow, only tarsi darkened. Fore femur usually with rows of anterodorsal (anterior), posterodorsal, posterior and ventral setae. Fore tibia with 1 posterodorsal, 2 dorsal (anterodorsal) and 1 posterior setae at middle, and usually with apicals: dorsal, anteroventral and posteroventral. Mid femur with row of anterior setae, with 1 anteroventral on apical third, 2–4 ventral (posteroventral) on basal half, 1 preapical posterior, and 1 preapical posterodorsal setae. Mid tibia with 2 posterodorsal, 2 anterodorsal, 1 posterior, 1 anterior (anteroventral), and 0–1 ventral at middle setae, and ring of apicals. Hind femur with row of anterior setae, with 2 preapical anterodorsal and 1 preapical posterior (posterodorsal) setae, with 1 anteroventral seta on apical third, and 2–4 ventral (posteroventral) setae on basal half. Hind tibia with 3 anterodorsal, 3 posterodorsal, 1–2 anteroventral, 1 preapical dorsal setae, and ring of apicals, apical posteroventral setae absent, if present then two times shorter than anteroventral apical seta.

Wing tinged with brownish or distinctly brownish; veins blackish; vein R_1 setulose on apical third of dorsal surface. Calypters, margins of calypters, and halteres yellowish.

Abdomen cylindrical, black, greyish dusted, covered with hairs. Tergites 2–6 each with row of marginal setae. Male sternite 4 simple, approximately 2 times as long as wide. Male sternite 5 with black or yellow triangular-shaped lobes (Fig. 166, 182). Surstyli simple, cerci fused (Figs 167, 168, 175, 176). Ovipositor long, cylindrical (Fig 171–174). Apex of female sternite 7 flattened laterally (Fig. 173, 174). Female tergite 8 of V-like form, sternite 8 as two small sclerites (Fig. 171).

Larvae of Nearctic species *Orthacheta hirtipes* Johnson, 1927 are predators of *Cordilura* spp. larvae (Neff & Wallace, 1969). Nothing is known about the biology of Palaearctic species.

***Orthacheta cornuta* (Loew, 1863)**
Figs 8, 166–174.

cornuta Loew, 1863: 26 (*Cordylura*). Type-locality: "English River" (Canada, Ontario).
fuscipennis Hendel, 1930: 8 (*Orthochaeta*). Type-locality: "Klutchi" (Russia, Kamchatka Kray).

Remarks. Besides Hendel's (1930: 8, as *fuscipennis*) record from Kamchatka, this species was recorded for the Russian Far East by Ozerov & Krivosheina (2014b: 215).

Material examined. Arkhangelsk Oblast: Nar'yan-Mar (67.631761N, 52.985770E), 7.VII.2008, N.E. Vikhrev (2 ♂♂, ZMUM); **Kamchatka Kray**: Bay Vestnik (51.4823N 157.5301E), 27.VII.1999, A. Leley, S. Storozhenko (1 ♀, ZMUM); Valley of Geysers (ca. 54.43N 160.15E), 12.VIII.1985, V. Zlobin (2 ♂♂, 1 ♀, ZISP); **Komi**: Schel'yaboj (66.29N 56.45E), 14.VIII.1978, Gorodkov (1 ♂, ZISP); Inta (66.0362N 60.1628E), 5.VIII.1985, Gorodkov (1 ♂, ZISP); **Krasnoyarsk Kray**: Igarka (67.457N 86.598E), Enisey, 30.VI.1967, Gorodkov (8 ♂♂, ZISP).

Diagnostic description. Body-length 5.0–7.0 mm. *Head*. Frons usually black in upper part and yellow in lower third or half. Postpedicel approximately 3 times as long as pedicel. *Thorax* black, grey dusted. Proepisternum with hairs in central part. Katepisternum with 3 strong setae, in ventral corner with yellow setae. *Legs* yellow, only tarsi darkened. Fore coxae with white hairs. Femora slender. *Wing* usually distinctly brownish. *Abdomen* black, greyish dusted. Male sternite 4 rectangular, 2 times as long as wide (Fig. 169). Male sternite 5 as in Fig. 166. Epandrium, cerci and surstyli as in Figs 167, 168.

Distribution. Russia (Fig. 170): Arkhangelsk Oblast and Komi (**first record for Europe**), Kamchatka Kray, Krasnoyarsk Kray, Primorskiy Kray.—North America.

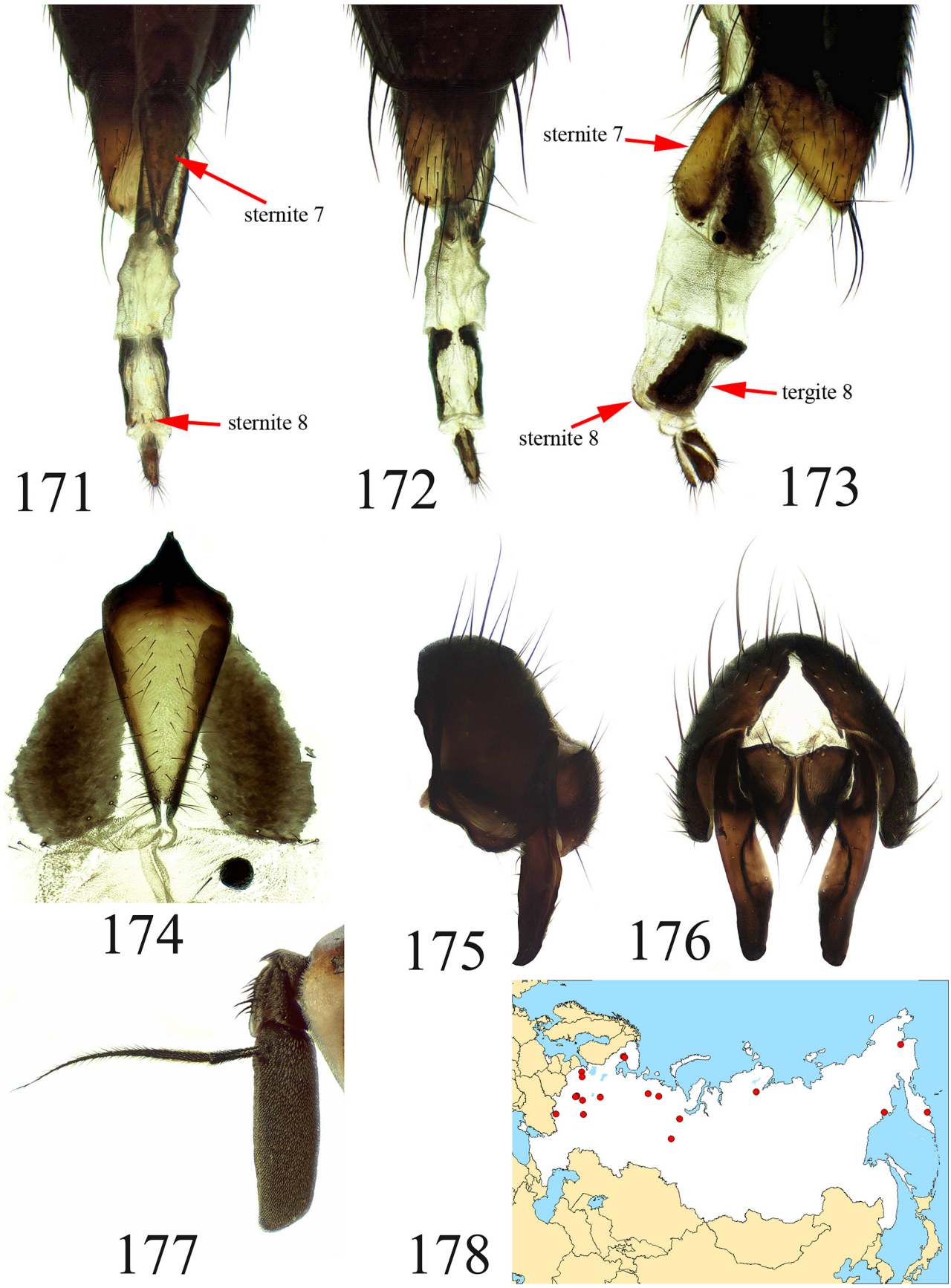
***Orthacheta pilosa* (Zetterstedt, 1838)**
Figs 175–178, 182, 183.

pilosa Zetterstedt, 1838: 732 (*Cordylura*). Type-locality: "Lycksele... Naestansjö... (Lappon... Umensis... Westrogoth.)" (Sweden).

Remarks. Recorded by Gorodkov (1970: 449) for European part of Russia without indicating specific locality, and by Humala & Polevoi (2009: 72) from Karelia. Recorded in the Russian Far East by Ozerov & Krivosheina (2014b: 215).

Material examined. Chukotka: bank of Anadyr River (64.72N 175.21E), 25.VI.–19.VII.2014, A. Barkalov (1 ♂, ZMUM); **Kamchatka Kray**: Valley of Geysers (ca. 54.43N 160.15E), 12.VIII.1985, V. Zlobin (2 ♂♂, 1 ♀, ZISP); **Karelia**: Primorskiy (66.5463N 33.1036E), 3 and 7.VII.2010, A.L. Ozerov (2 ♂♂, 1 ♀, ZMUM); Poyakonda (66.5898N 33.8210E), 8.VII.2010, A.L. Ozerov (3 ♂♂, 4 ♀♀, ZMUM); **Komi**: Schel'yabozh (66.29N 56.45E), 14.VIII.1978, Gorodkov (2 ♀♀, ZISP); Ust-Tsilma (ca. 65.45N 52.11E), 10.VIII.1978, Gorodkov (1 ♂, ZISP); **Krasnoyarsk kray**: Taimyr Biosphere Reserve, Ary-Mas field station (72.5N, 101.94E), 14 m, 10–22.VII.2010, A. Barkalov (2 ♂♂, 2 ♀♀, in ISEA and ZMUM); **Kursk Oblast**: Zorino (51.1720N 36.3535E), 14.V.2008, K. Tomkovich (1 ♂, ZMUM); **Leningrad Oblast**: Yaschera (58.8945N 29.8206E), 20.VI.1959 and 6.VI.1960, A. Stackelberg (1 ♂, 1 ♀, ZISP); **Magadan Oblast**: Sokol env. (59.92N 150.71E), 11–19.VII.2014, N. Vikhrev (1 ♀, ZMUM); **Moscow Oblast**: Burtsevo (55.9766N 35.5902E), 13.V.2010, A.L. Ozerov (1 ♀, ZMUM); Ivanovskoe (55.9262N 35.6198E, 55.9253N 35.6129E), 15.VI.2006, 11.VI.2011, A.L. Ozerov (2 ♀♀, ZMUM); Dmitrov env. (56.3163N 37.7258E), 27.V.2009, N. Vikhrev (1 ♂, ZMUM), Porechie (55.7157N 35.5553E), 12.VI.1903, Bianki (1 ♀, ZISP); **Novgorod**: (58.5462239N 31.2574768E), 22.VI.1975, Gorodkov (1 ♀, ZISP); **Tyumen' Oblast**: Lake Varchaty (64.8618N 68.87681E), 29.VIII. and 1–2.IX.1925, Fridolin (5 ♀♀, ZISP); Shapsha env. (61.087N 69.442E), 14–16.VII.2010, K. Tomkovich (1 ♂, 1 ♀, ZMUM); **Vladimir Oblast**: (59.06N 40.46E), 5.VI.2011, N. Vikhrev (1 ♂, ZMUM).

Diagnostic description. Body-length 4.5–8.0 mm. Head. Frons usually black in upper part and yellow in lower third or half. Postpedicel approximately 2.5 times long as pedicel. Thorax black, grey dusted. Proepisternum with hairs in central part. Katepisternum with 3 strong setae, in ventral corner with black setae. Legs yellow, only tarsi darkened dorsally. Fore coxae with black setae. Femora slightly thickened. Wing tinged with brownish.



FIGURES 171–178. *Orthacheta cornuta* (Loew) (171–174) and *Orthacheta pilosa* (Zetterstedt) (175–178): 171—end of female abdomen, ventral view; 173—same, dorsal view; 174—same, lateral view; 174—female abdominal sternite 7; 175—epandrium, cerci and surstyli, lateral view; 176—same, dorsal view; 177—antenna, lateral view; 178—distribution map.

Abdomen black, greyish dusted. Male sternite 4 slightly longer than wide (Fig. 183). Male sternite 5 as in Fig. 182. Epandrium, cerci and surstyli as in Figs 175, 176.

Distribution. Russia (Fig. 178): Chukotka, Kamchatka Kray, Karelia, Komi, Krasnoyarsk Kray, Kursk Oblast, Leningrad Oblast, Magadan Oblast, Moscow Oblast, Novgorod, Tyumen' Oblast, Vladimir Oblast.—Northern and central Europe, Mongolia.

Key to the species of *Orthacheta* of Russia

1. Fore coxa with black setae. Katepisternum in ventral corner with black setae. Male sternite 4 slightly longer than wide (Fig. 183) . . . . . *O. pilosa* (Zetterstedt)
- Fore coxa with white hairs. Katepisternum in ventral corner with yellow setae. Sternite 4 two times as long as wide (Fig. 169) . . . . . *O. cornuta* (Loew)

Spathephilus Becker, 1894

Spathephilus Becker, 1894: 121. Gender: masculine. Type species: *Cordylura breviventris* Loew, 1873, by original designation.

Monochaeta Becker, 1894: 87, 186. Gender: feminine. Junior homonym, preoccupied by *Monochaeta* Brauer et Bergenstamm, 1890. Type species: *Cordylura breviventris* Loew, 1873, by original designation.

Spathephilus is a monotypic genus with a single species *S. nigriventris* (Loew, 1864).

Slender, about 3.5–5.5 mm long flies. *Head*. Frontal vitta yellow; face, parafacial and gena pale yellow. Frontal plate black in upper part and yellow in lower one. Postcranium black, greyish dusted, covered with yellow and black hairs, with black postocular setulae. Chaetotaxy: 3 orbital, 3–4 frontal, 1 ocellar, 1 inner vertical, 1 outer vertical (short), 1 postocellar; 1 pair of strong vibrissae and 1–2 pairs of short subvibrissae present. Scape and pedicel black. Postpedicel (Fig. 4) black in ground colour, but usually white inside basally and posteriorly, more or less rounded at apex, approximately 3–3.5 times as long as wide. Arista black, pubescent throughout its length. Palpus long, yellow.

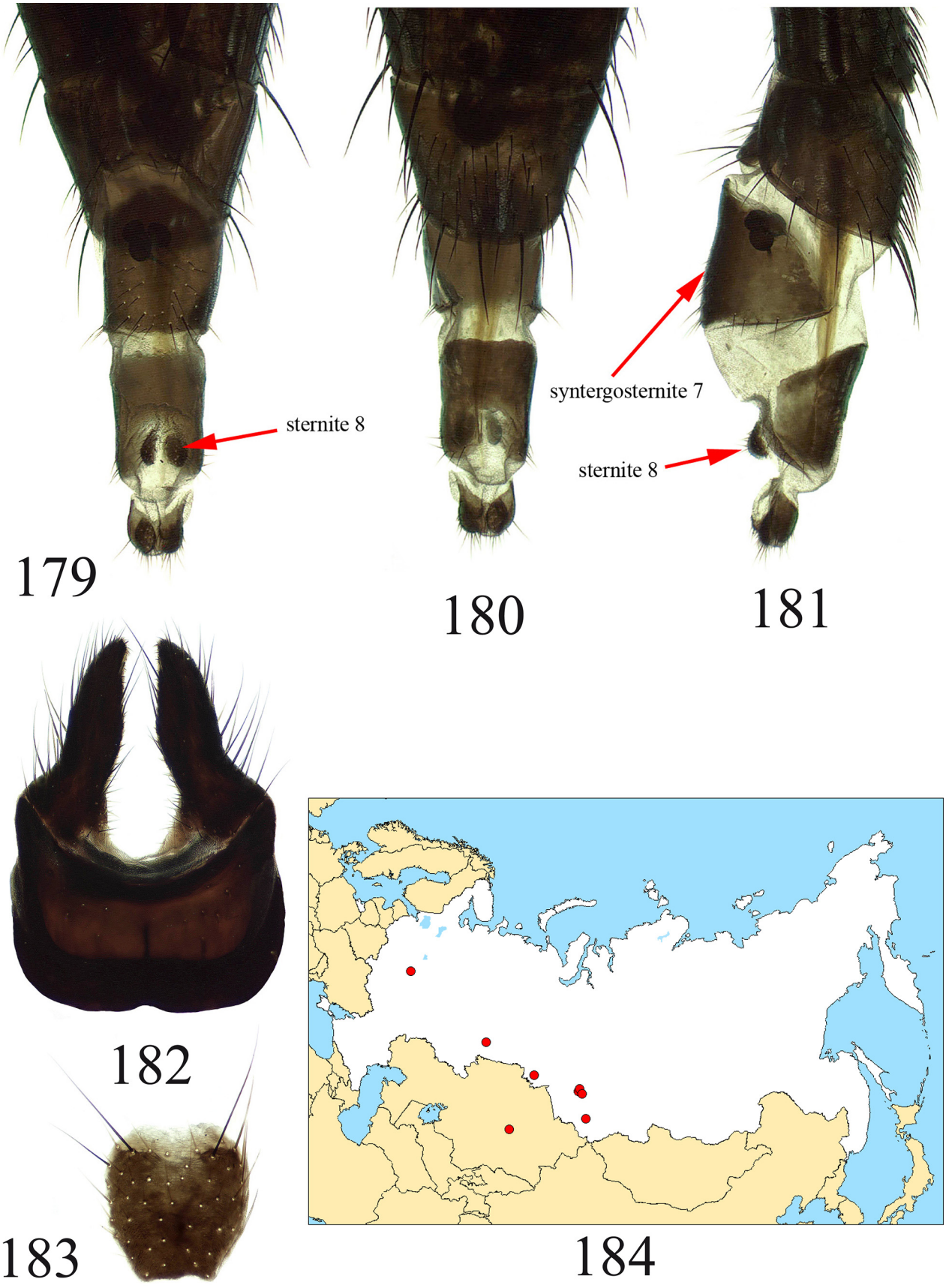
Thorax black. Scutum greyish dusted, but subshining or shining inside from dorsocental lines, with following setae: acrostichals short in two rows, prescutellar pair not differentiated or only slightly longer than the other acrostichals, dorsocentrals (3–4)+3, intra-alars 1+2, supra-alars 1+2, postpronotals 2, notopleurals 2, postalars 2. Proepisternum with hairs in central part, with 2 setae near lower margin. Proepimeron with 1 seta. Anepisternum covered with hairs in posterior half and with 2–4 black setae along posterior margin. Katepisternum covered with long setae in ventral corner (pale yellow in male and black in female) and 3 strong katepisternal setae. Anepimeron bare. Scutellum black, with pair of strong lateral scutellar setae, apical setae or setulae absent (Fig. 6).

Legs yellow, only tarsi of mid and hind legs darkened. Fore femur (Fig. 185) usually with rows of anterodorsal/anterior and ventral setae. Fore tibia with 1 posterodorsal, 1 dorsal (anterodorsal) and 1 posterior setae at middle, and usually with apical dorsal and posterior setae. Mid femur with row of anterior, 2 anteroventral, 1 preapical posterior, and 2 preapical anterodorsal setae. Mid tibia with 1 posterodorsal, 1 anterodorsal, 1 posterior and 1 ventral (anteroventral) setae at middle, and ring of apicals. Hind femur with row of anterior, 2 preapical anterodorsal setae, and 1–4 anteroventral setae on apical half. Hind tibia with 3 anterodorsal, 3 posterodorsal, 1 anteroventral, 1 preapical dorsal setae, and ring of apicals, but apical posteroventral setae absent.

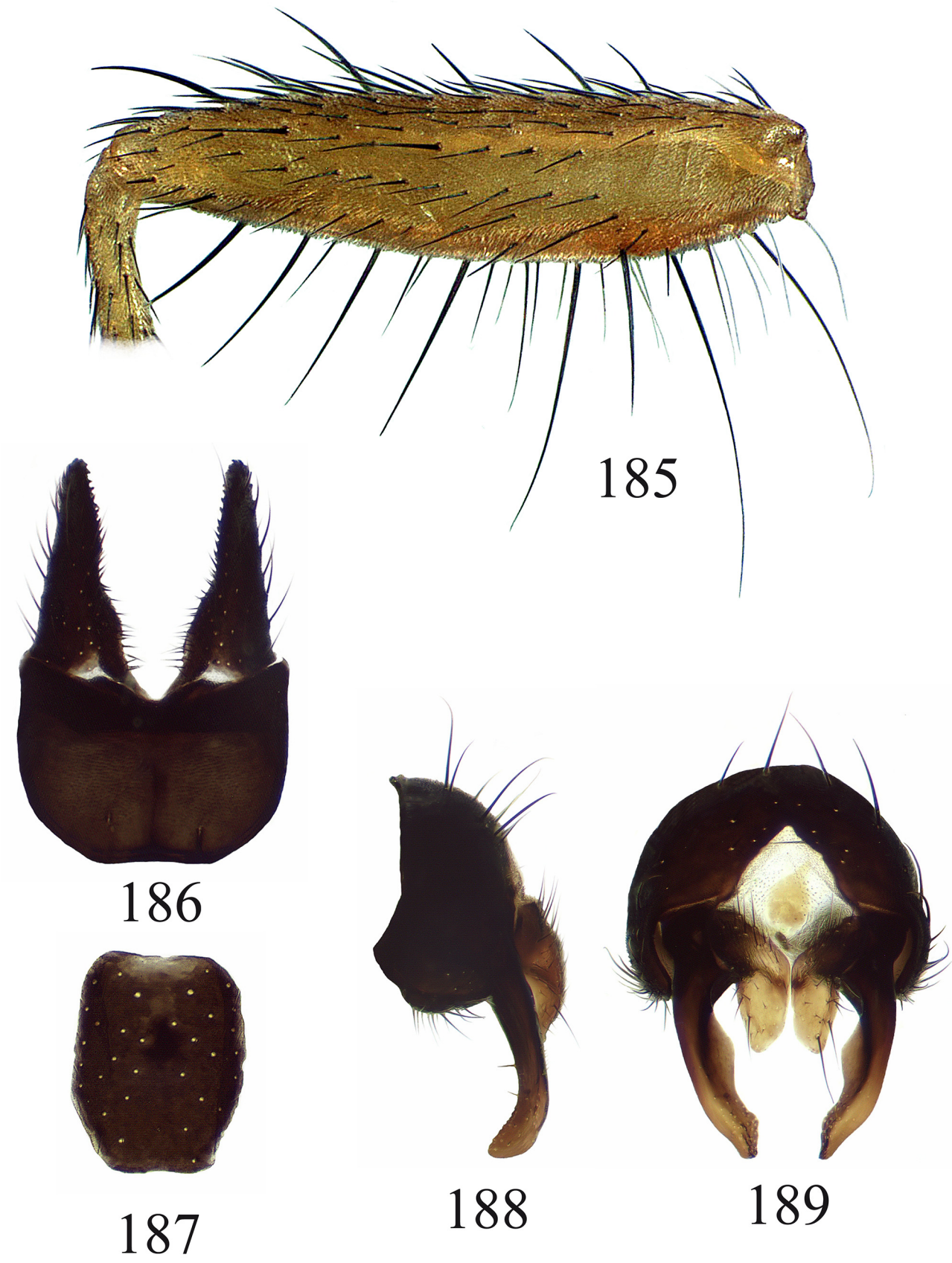
Wing tinged with brownish or distinctly brownish; veins blackish; vein R_1 bare. Calypters, margins of calypters, and halteres yellowish.

Abdomen cylindrical, black, subshining or greyish dusted, covered with hairs. Tergites 2–6 each with row of marginal setae. Male sternite 4 simple, approximately 1.5 times as long as wide (Fig. 187). Male sternite 5 with black triangular-shaped lobi (Fig. 186). Surstyli narrow, simple, cerci fused (Figs 188, 189). Ovipositor long, cylindrical (Figs 179–181). Female tergite 7 desclerotized in middle, with lateral margins fused with lateral margins of sternite 7 forming syntergosternite (Fig. 181). Female tergite 8 of V-like form, sternite 8 as two small round sclerites (Fig. 179). The ovipositor was fully described and illustrated by Ovchinnikov (2009: 317, as *breviventris*).

Biology unknown.



FIGURES 179–184. *Spathephilus nigriventris* (Loew) (179–181, 184) and *Orthacheta pilosa* (Zetterstedt) (182, 183): 179—end of female abdomen, ventral view; 180—same, dorsal view; 181—same, lateral view; 182—male sternite 5; 183—male sternite 4; 184—distribution map.



FIGURES 185–189. *Spathephilus nigriventris* (Loew): 185—fore femur, anterior view; 186—male sternite 5; 187—male sternite 4; 188—epandrium, cerci and surstyli, lateral view; 189—same, dorsal view.

***Spathephilus nigriventris* (Loew, 1864)**
Figs 4, 179–181, 184–189.

nigriventris Loew, 1864: 19 (*Cordylura*). Type-locality: "Posen" [Poznań] (Poland).
breviventris Loew, 1873: 250 (*Cordylura*). Type-locality: "Gegend von Sarepta" [=Krasnoarmeisk (ca. 48.512N 44.554E), Volgograd Oblast] (Russia).

Material examined. Altay: Lake Manzherok (51.825278N 85.812778E), 10.V.2008, O. Kosterin (1 ♀, ZMUM); **Chelyabinsk Oblast**: 63 km NNW of Chelyabinsk (55.8000N 61.0333E), 17–19.V.1992, M. Krivosheina (3 ♂♂, ZMUM); **Moscow Oblast**: Elektrogorsk env. (55.9124N 38.8411E), 15.V.2010, A.L. Ozerov (1 ♀, ZMUM); **Novosibirsk**: (54.8250N 83.1141E), 10.V.2008, O. Kosterin (16 ♂♂, 7 ♀♀, ZMUM); **Novosibirsk Oblast**: Zherebtsovo env. (55.125833N 83.256111E), 31.V.2008, O. Kosterin (1 ♀, ZMUM); 3 km S of Novososedovo (54.6169N 83.9850E), 13.VI.2010, N. Pryidak (1 ♀, ZMUM).

Additional material examined. Kazakhstan: Bosaga (47.8802N 72.9564E), 17.V.1957, Grunin (1 ♀, ZISP).

Distribution. Russia (Fig. 184): Altay, Chelyabinsk Oblast, Moscow Oblast, Novosibirsk and Novosibirsk Oblast, Volgograd Oblast.—Europe (Austria, Czech Republic, Hungary, Poland, Slovakia), Kazakhstan (**first record**), Mongolia.

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