

New species of tachinid flies (Diptera: Tachinidae) from Russia, mostly from Republic of Mordovia

Новые виды тахинид (Diptera: Tachinidae) из России, в основном из Республики Мордовия

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Ключевые слова: новые виды, Мордовский государственный природный заповедник, Национальный парк Смольный, биология.

Abstract. Four new species of Tachinidae (Diptera) are described from the European part or Russia, three of those, *Panzeria brevipila* Zeegers, **sp.n.**, *Phebellia mordoviensis* Zeegers, **sp.n.** and *Lydella villosiventralis* Zeegers, **sp.n.** from the Republic of Mordovia and *Melibaea shimai* Zeegers, **sp.n.** from Moskovskaya Oblast. In separating two well recognised lineages within the genus *Phebellia* Robineau-Desvoidy, 1846 sensu latum, some nomenclatorial issues have arisen. It is argued that the genus should be split into *Phebellia* Robineau-Desvoidy, 1846 sensu strictum (= *Prooppia* Townsend, 1926 **syn.n.**) and *Melibaea* Robineau-Desvoidy, 1848 **stat.rev.**

Резюме. Описаны четыре новых вида Tachinidae (Diptera) из европейской части России, три из которых из Республики Мордовия: *Panzeria brevipila* Zeegers, **sp.n.**, *Phebellia mordoviensis* Zeegers, **sp.n.** и *Lydella villosiventralis* Zeegers, **sp.n.** и один из Московской области: *Melibaea shimai* Zeegers, **sp.n.** Предлагается выделить внутри рода *Phebellia* Robineau-Desvoidy, 1846 sensu latum два самостоятельных рода: *Phebellia* Robineau-Desvoidy, 1846 sensu strictum (= *Prooppia* Townsend, 1926 **syn.n.**) и *Melibaea* Robineau-Desvoidy, 1848 **stat.rev.**

Introduction

Tachinidae from one of the largest families of Diptera. The world fauna includes more than 8500 species of Tachinidae [O'Hara et al., 2020]. The diversity of the Tachinidae of Palaearctic fauna reaches currently 2112 known species [O'Hara et al., 2020]. The family belongs to the Oestroidea section of the Calyptrate flies and therefore is relatively modern in an evolutionary sense. The monophyly of the family is well established [Stireman et al., 2019].

All Tachinidae are in their larval stage parasitoids of arthropods, mostly insects. Hosts of Tachinidae are found in families as Lepidoptera, Coleoptera, Hemi-

ptera, Hymenoptera, Orthoptera and other insects [Stireman et al., 2006; Mei et al., 2021]. A few are found in centipedes Chilopoda, but none in Crustacea. Woodlice Isopoda are parasitized by the family Rhinophoridae only. A full host catalogue for Palaearctic Tachinidae is provided by Tschorsnig [2017]. Since all Tachinidae are parasitoids, they are of interest in reducing plague insects in agriculture and forestry. Imagines of several species feed regularly on flower nectar (Apiaceae, Euphorbiaceae, Asteraceae) and honeydew secreted by aphids and coccidae, though many species are never seen on flowers [Jervis et al., 1993; Ziegler, 2003].

From Russia, more than 700 species are known, but there is still no complete list of representatives from this family. Important keys to the Tachinidae of Russia have been provided by Zimin et al. [1969] and, for the Far East, Richter [2004]. The fauna of the European part of Russia has been little studied. Most information is available from the surroundings of Saint Petersburg and Moscow, due to the works of Stackelberg, Richter, Vikhrev, Ozerov and others, but other regions of the European part of Russia are poorly studied. Recently, five species found in Republic of Mordovia were mentioned as new for Russia by Ruchin et al. [2021], one of which was also found near Moscow.

Material and method

The field research was conducted in 2017–2021 by A.B. Ruchin, M.N. Esin, G. Semishin and K. Tomkovich. Tachinid flies were collected both with Malaise traps and by net. Priority was given to the two major nature reserves in Mordovia: Mordovia State Nature Reserve and National Park Smolny, both locat-

ed at the northern border of Mordovia. The material description includes complete label data with coordinates, dates, geographical indication, and the material collector. Additive information not written on label is given between square brackets []. Part of the material was pinned. The other part was at first contained in vials with alcohol. These specimens were later pinned and labelled individually. The material was identified by the first author, using Tschorsnig & Richter [1998] for identification to genera and literature mentioned at genus level for identification of species.

For terminology of body parts, we follow Merz & Haenni [2000]. Photographs of imagines have been made with a Nikon 105 mm zoom lens with macroflashes. Close-ups have been made with a Olympus stereomicroscope with additional phototube, depth of focus has been improved by stacking.

Type material mentioned will be deposited in collection of Naturalis Biodiversity Center, Leiden, the Netherlands [RMNH].

Results

Genera *Melibaea* Robineau-Desvoidy 1848 and *Phebellia* Robineau-Desvoidy, 1846

The two new species described below agree with the characteristics for the genus *Phebellia* in a broad sense, characterized by the presence of three strong bristles on the postpronotum placed in the distinct triangle and the presence of several anterodorsal setae on mid tibia. They differ, however, from most species by several unusual features: the lack of black hairs on occiput behind occipital row, the absence of setulae on fourth section of costa and the presence of a seta on posterior surface of hind coxa. The last feature is also found in *P. nigricauda* Mesnil, 1963 and, as a rule, in females of *M. glauca* (Meigen, 1824) from northern regions (Estonia, Russia).

Nomenclatorial considerations

Phebellia Robineau-Desvoidy, 1846

Type species *Phebellia aestivalis* Robineau-Desvoidy, 1846 (= *Tachina villica* Zetterstedt, 1838) by monotypy.

= *Prooppia* Townsend, 1926 **syn.n.**, type species *Hubneria nigripalpis* Robineau-Desvoidy, 1848 (designated O'Hara et al. [2009]: 137).

Based on the male and female genitalia, Shima [1982] recognised two different lineages. The first one he called the *glauca*-group, the second one the *villica*-group. The DNA analysis by Pohjoismäki et al. [2016] supports Shima's division. His analysis shows that the genus *Phebellia* in a traditional broad sense is not monophyletic, but both of Shima's group are. The *glauca*-group is, as far known, ovularviparous, the *villica*-group is oviparous [Herting, 1960]. The correlation between the reproductive strategy and female abdominal forms was already established by Herting [1957]. For the oviparous *villica*-group, Herting [1960] and Wood [1987] apply the name *Prooppia*

Townsend, 1926, which is followed by O'Hara et al. [2020]. However, the type species of *Phebellia* is *Ph. aestivalis* Robineau-Desvoidy, 1846, which is according to Herting [1974] a junior synonym of *Ph. villica* (Zetterstedt, 1838). The type species of *Prooppia* is *nigripalpis*. Both type species belong to the same monophyletic clade and hence both names are synonymous. The oldest available name has priority and therefore *Phebellia* is the valid senior name for the genus. *Prooppia* syn.n. is a junior subjective synonym. For the *glauca*-clade (formerly known as *Phebellia*), we need to apply another name.

Melibaea Robineau-Desvoidy 1848 **stat.resurr.**

Type species *Phryno aurulenta* Robineau-Desvoidy, 1848.

For the *glauca*-group, *Melibaea* Robineau-Desvoidy 1848 **stat.resurr.** is available. Robineau-Desvoidy [1863] selected *Phryno aurulenta* Robineau-Desvoidy, 1848 as its type species, which is identical with *Phebellia glauca* (Meigen, 1824) [Herting, 1974]. It has been claimed [Herting, 1974] that *Melibaea* Robineau-Desvoidy, 1848 is preoccupied by *Melibaea* Forbes, 1838. However, the latter name has been ruled to be a rejected and invalid name by the I.C.Z.N. [1964]. Therefore, *Melibaea* is the oldest available name for Shima's *glauca*-group.

As far as currently known, *Phebellia glauca* (Meigen, 1824), *Ph. glaucoides* Herting, 1961, *Ph. glirina* (Rondani, 1859), *Ph. laxifrons* (Shima, 1981) and *Ph. margaretae* (Bergström, 2005) are considered to belong to the genus *Melibaea* [Shima, 1982; Pohjoismäki et al., 2016; O'Hara et al., 2020]. Next to *Phebellia villica* (Zetterstedt, 1838), the species *Ph. crassiseta* (Aldrich et Webber, 1924), *Ph. latipalpis* Shima, 1981, *Ph. nigripalpis* (Robineau-Desvoidy, 1848), *Ph. strigifrons* (Zetterstedt, 1838) and *Ph. stulta* (Zetterstedt, 1844) are considered to belong to *Phebellia* [O'Hara et al., 2020]. Based on the phylogenetic analysis by Shima, *Phebellia agnatella* Mesnil, 1955, *Ph. flavescens* Shima, 1981, *Ph. nigricauda* Mesnil, 1963, *Ph. nudicosta* Shima, 1981, *Ph. trisetata* Pandellé, 1896 and additionally based on Pohjoismäki et al. [2016] *Ph. pauciseta* (Villeneuve, 1910) should be attributed to the genus *Phebellia* as well. The placement of the other species traditionally attributed to *Phebellia* is currently uncertain.

Description of new species

We describe four species new for science, one each in the genera *Panzeria* Robineau-Desvoidy 1830, *Phebellia* Robineau-Desvoidy 1846, *Melibaea* Robineau-Desvoidy 1848 and *Lydella* Robineau-Desvoidy 1830. The Russian species of *Panzeria* were revised by Zimin [1957, 1960]. Important contributions to the knowledge of this genus in Russia were made by Chao and Shi [1981], Zeegers [2017] and Shima [2020]. The genus *Phebellia* was revised by Shima [1981, 1982].

Modern interpretation based on reproduction strategies, female terminalia and DNA consider this group to fall into two monophyletic genera [O'Hara et al., 2020], for which some nomenclatorial issues need to be addressed here. The genus *Lydella* was discussed by Zeegers [2013] in a broad sense.

Panzeria brevipila Zeegers, **sp.n.**

Figs 1–6.

Material. Holotype: ♂, Russia, Republic of Mordovia: Ichalki district, National Park Smolny, Lvovskoe forestry, quarter 53, 54.8337° N, 45.3990° E, 23.VI.2017, leg. G. Semishin.

Description. Male. Generally dark species with grey pruinosity, quite similar in colouration to *P. rudis*. Eye with yellow hairs. Occipital setulae on backside of head mostly white, about 5–6 rows of black setulae behind postocular row. Antenna dark in ground colour, scape yellow at apex, pedicel yellow on apical half, first flagellomere yellow on basal third,

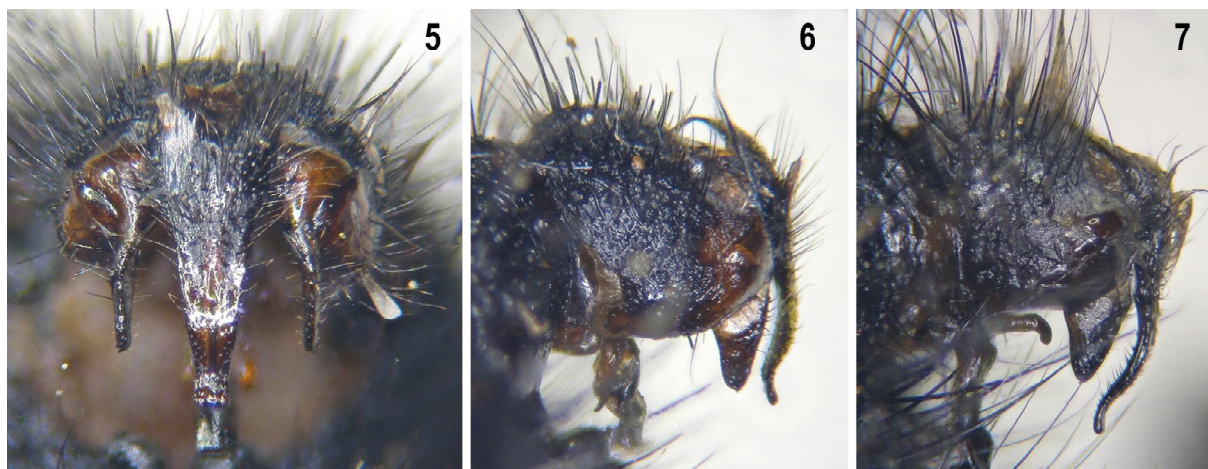
reddish brown on middle third. Parafacial bicolorous, upper two thirds quite dark grey, lower third yellow, the colour difference not only visible in lateral view, but also in dorsal view. Frontal vitta black, lunula brown. Palpus yellow. Thorax dark with inconspicuous grey pruinosity, suggesting two pairs of light vitta, the inner one narrow. Scutellum dark with yellow apical half. Legs black. Halter and calypter white, lower calypter with inner margin brown. Wing clear with brown in wing base, veins yellowish brown, tegula black, basicosta very dark brown (so slightly lighter than tegula). Abdomen dark, tergite 3 with large red lateral spot, tergite 4 with smaller brown lateral spot. Tergites 3 and 4 with silvery pruinosity on anterior two-thirds, leaving a central dark vitta; pruinosity on tergite 5 unclear due to influence by alcohol.

Vertex narrow, its width about 0.17 x width of one eye. Ocelli positioned in a slightly elongated triangle which is about 1.5 times as long as broad at base, frontal vitta at narrowest point as broad as frontal ocellus. Length of face about three-quarters of frons, vibrissal angle only slightly projecting, gena



Figs 1–4. *Panzeria brevipila* sp.n., male, holotype. 1 — habitus, dorsal view; 2 — habitus, lateral view; 3 — head, dorsal view; 4 — head, lateral view.

Рис. 1–4. *Panzeria brevipila* sp.n., самец, голотип. 1 — внешний вид, сверху; 2 — внешний вид, сбоку; 3 — голова, сверху; 4 — голова, сбоку.



Figs 5–7. *Panzeria* sp., male genitalia. 5 — *P. brevipila*, holotype, dorsal view; 6 — *P. brevipila*, holotype, lateral view; 7 — *P. vagans* from the Netherlands, lateral view.

Рис. 5–7. Гениталии самцов двух видов рода *Panzeria*. 5 — *P. brevipila*, голотип, сверху; 6 — *P. brevipila*, голотип, сбоку; 7 — *P. vagans* из Нидерландов, сбоку.

broad, about 2/5th of larger diameter of an eye, parafacial slightly broader (1.25 x) than first flagellomere. Proboscis about six times as long as its diameter, labella large, half the length of proboscis. Vertex with vertical and postvertical setae broken off. Ocellar seta hairlike, proclinate.

Frontal setae descending towards base of second antennal segment, some eight setulae on parafacial below lowest frontal seta. Antenna with pedicel triangulate, first flagellomere rectangular, its inner length slightly larger than inner length of postpedicel. Arista thickened at basal third, second aristemere 1.5 x as long as broad.

Thorax with 3+3 acrostichal setae, dorsocentrals 3+4, intra-alar 1+3, five strong supra-alar setae, the second the smallest, the first as long as first notopleural seta. Three katepisternal setae accompanied by many long hairs. Anepimeral seta doubled, reaching to hind margin of upper calypter. Setae at posterior margin of episternum long, curved backwards, anteriorly accompanied by densely set, more slender setae (similar to those of *Panzeria emdeni* (Mesnil, 1957)). Prosternum bare. Scutellum with five marginal setae, apical ones smallest and crossed. Hairs on margin of upper calypter much longer than those on lower calypter.

Claws and pulvilli 1.5 times as long as apical tarsal segment. Fore tibia with 6–7 smaller ad setae, 2 stronger posterodorsal and 2 posteroventral, mid tibia with 4 anterodorsal, 4 posterodorsal, 3 posteroventral and 2 ventral, basal one smaller, hind tibia with 4 anterodorsal, 3 posterodorsal and 2 anteroventral setae. Hind coxa bare on posterior surface.

Fore tibia with 2 small posterodorsal setae, claws and pulvilli slightly longer than apical tarsal segment. Mid tibia with a strong ventral seta, a strong anterodorsal seta accompanied by a second, much smaller one and 2 smaller posterior setae. Hind tibia with 3 anteroventral, 3 anterodorsal, 2 posterodorsal setae and 3 dorsal pre-apicals (posterodorsal, dorsal and anterodorsal), coxa bare on backside, postmetacoxal area membranous.

Bend in vein *M* in wing abruptly curved, apical section of vein *M* strongly concave, vein *M* reaching wing margin close to apex of wing (sixth section of costa just larger than fifth). Crossvein *dm-cu* distinctly closer to bend of vein *M* than to cross-vein *r-m*. Costal spine present not differentiated from costal setulae. Base of vein R_{4+5} with three small, hairlike setulae, veins otherwise bare.

Excavation on syntergite 1+2 large, reaching hind margin syntergite. Syntergite 1+2 with a pair of strong central marginal setae and a pair of lateral marginals, tergite 3 with two pairs of central marginal setae, lateral marginal and a pair of central discal setae, tergite 4 with a row of marginal setae and several discal setae.

Male genitalia: very similar to those of *P. vagans* (Figs 5–7), with syncercus sinuate in lateral view. Syncercus in comparison to surstylus somewhat shorter than in *P. vagans*.

Length: 12 mm.

Female unknown.

Etymology. *pilus* = hair, *brevis* = short, referring to the characteristically short hairs on upper part of the eye.

Diagnosis. In external appearance, this species is very similar to *Panzeria rudis* (Fallén, 1810). However, the male genitalia are very similar to those of *P. vagans* (Meigen, 1824). It differs from both species by the short, light hairs on upper half of the eye and the dark brown, not black, basicosta.

Remarks. As said, the new species exhibits a confusing mixture of features of both *P. rudis* and *P. vagans*. It agrees with *P. rudis* first and foremost by the light coloured hairs on the eye. It agrees with *P. vagans* first and foremost by the shape of the male genitalia, but also by the less projecting vibrissal angle and presence of several hairs on parafacial below lowest frontal seta. In the presence of long, densely set hairs on postpronotum and anepisternum (the ‘*emdeni*’ hairs), the new species is intermediate, though closer to *P. vagans* than to *P. rudis*. The yellow lunula agrees with *rudis*. The very dark but not completely black basicosta seems to be unique for *brevipila*, as, of course, are the short hairs on upper part of eye. Table 1 summarises the features mentioned for the three species involved.

Melibaea shimai Zeegers, sp.n.

Figs 8–11.

Material. Holotype: ♀, Russia, *Moskovskaya Oblast*: Podolsk city, railway station Vesennyaya, 55.39° N, 37.51° E, 26.VII.2019, leg. K.P. Tomkovich.

Description. *Female.* Species densely covered with yellow pruinosity. Frontal vitta black, fronto-orbital plate with golden yellow pruinosity, parafacial with white. Palpus yellow,

Table 1. Main characters for the three *Panzeria* species discussed (unique characters in bold)
 Таблица 1. Основные признаки трёх видов *Panzeria* (отличительные признаки выделены жирным шрифтом)

Feature	<i>P. brevipila</i>	<i>P. rudis</i>	<i>P. vagans</i>
Hairs on eye, colour	light	light	Dark
Hairs on eye, length	short	long	Long
Hairs on parafacial below lowest frontal seta	about 8	few	about 8
Projection of vibrissal angle	weak	strong	weak
Lunula	yellow	yellow	black
Basicosta	dark brown	black	black
Syncercus, lateral view	sinuate	straight	sinuate

antenna black. Thoracic dorsum with yellow pruinosity leaving two pairs of dark vittae, the inner one narrow, the outer one before suture reduced to a triangle. Scutellum dark at base, orange on apical half. Legs black, tibiae at center dark red. Calypters white, halter yellow, epaulette black, basicosta dark

brown. Tergites densely covered with yellow pruinosity, fourth with very narrow black apical margin and a pair of elongated dark grey spots. Fifth tergite, by contrast, with yellow pruinosity in the middle only on anterior half, shiny black on apical half, anterior yellow band laterally broadening.



Figs 8–11. *Melibaea shimai* sp.n., female, holotype. 8 — habitus, dorsal view; 9 — habitus, lateral view; 10 — head, lateral view; 11 — head, dorsal view.

Рис. 8–11. *Melibaea shimai* sp.n., самка, голотип. 8 — внешний вид, сверху; 9 — внешний вид, сбоку; 10 — голова, сбоку; 11 — голова, сверху.

Face about as long as frons. Eye hairy. Vertex narrow, its width about 0.75 x of width of one eye. Fronto-orbital plate 1.5 x as broad as frontal vitta. Inner vertical setae strong, outer vertical three-quarters of inner. Ocellar seta proclinate, two pairs of strong reclinate orbital setae present. Two pairs of strong proclinate orbital setae present as well. Frontal setae descending on parafacial to apex of pedicel. Width of parafacial about half of width of first flagellomere, gena narrow, as broad as parafacial. Occiput behind occipital row with white hairs only. Palpus slightly clavate at apex. Antenna with first flagellomere 3.1 times as long as broad, about 2.7 times as long as pedicel. Arista bare, thickened at basal fifth.

Thorax with 3+3 acrostichal setae, dorsocentral setae 3+4, intra-alar setae 1+3, three strong supra-alar setae, the first 1.5 times as long as notopleural setae. Postpronotum with 3 setae standing in a clear triangle with apical angle about 120 degrees. Three katepisternal setae. Anepimeral seta reaching to hind margin of upper calypter. Scutellum with four pairs of marginal setae, apical ones crossed, horizontal.

Fore tibia with 2 posterior setae, mid tibia with 2 anterodorsal seta, the lower one twice as strong as the upper one, and 1 ventral; hind tibia with 3 anterodorsal, 2 posterodorsal and two smaller 2 anteroventral setae. Hind tibia with an irregular row of 12 smaller anterodorsal setae and one much stronger in between. Hind coxa on posterior surface with one strong seta.

Crossvein *dm-cu* distinctly closer to bend of vein *M* than to cross-vein *r-m*. Costal spine not differentiated from costal setulae. Fourth section of costa 1.5 x as long as sixth, setulae on costa reaching to apex of vein R_{2+3} , hence fourth section of costa bare. From below only first costal section covered with setulae, second bare. Base of vein R_{4+5} with three setulae, veins otherwise bare.

Abdomen elongated, fifth tergite almost as long as its basal width. Excavation on syntergite 1+2 large, reaching hind margin of syntergite. Syntergite 1+2 with a pair of strong central marginal setae and a pair of lateral marginals, tergite 3 with two pairs of central marginal setae and lateral marginal setae, tergite 4 with a row of marginal setae. Tergites 3 and 4 with irregular discal setae. Tergite 5 with many marginal and discal setae.

Female genitalia: sternite 7 without free distal portion; intersegmental membrane between 7th and 8th segment with hairs.

Length: 9 mm.

Male unknown.

Etymology. This species is dedicated to Dr. H. Shima, for his outstanding contribution to the Tachinidae of the eastern Palaearctic in general and more specific for his contribution to the knowledge of the genus *Phebellia* sensu lato.

Diagnosis. A member of the tribe Eryciini with generally yellow appearance due to yellow pruinosity, which makes it resemble a species of *Zenillia* Robineau-Desvoidy, 1830 or *Senometopia* Macquart, 1834 at first glance. Eye hairy. Occiput behind occipital row with white hairs only. Palpus yellow. Postpronotum with three setae placed in the distinct triangle. Three katepisternal setae. Katepimeron bare. Scutellum with strong crossed horizontal apical setae. Mid tibia with two strong anterodorsal setae and one ventral seta. Hind coxa on posterior surface with one strong seta. Fourth section of costa bare. Tergites 3 and 4 with discal setae. Based on the female terminalia, we place this species in the genus *Melibaea* (= *glauca*-group of Shima [1982]).

The new species differs from other *Melibaea* by the presence of a strong seta on hind coxa, the absence of black

hairs behind occipital row and the overall yellow pruinosity. It differs from *P. flavescens* by the presence of four posterior dorsocentral setae, three katepisternal setae and by the presence of a strong seta on hind coxa.

Phebellia mordoviensis Zeegers, sp.n.

Figs 12–15.

Material. Holotype: ♀, Russia, Republic of Mordovia: Zubova Polyana district, 5 km south of the settlement of Dachnyi, 54.5233° N, 42.6308° E, 23–26.VII.2021, leg. M. Esin.

Description. *Female.* Species generally covered with golden yellow pruinosity, at first sight reminiscent of a *Senometopia* species. Frontal vitta black, fronto-orbital plate with golden yellow pruinosity, parafacial with white. Palpus yellow with dark base, antenna black. Thoracic dorsum yellow with two pairs of dark vittae, the inner one narrow, the outer one before suture reduced to a triangle. Scutellum yellow as well at base, orange on apical half. Legs black, tibiae at center dark red. Calypters yellow, halter yellow with darkened head, epaulette black, basicosta dark brown. Tergites yellow, third with diffuse dark central vitta, fourth with very narrow black apical margin. Fifth tergite, by contrast, yellow in the middle only on anterior one-third, shiny black on apical two-thirds, anterior yellow band laterally broadening

Face slightly shorter than frons. Eye hairy. Vertex narrow, about 0.65 x width of one eye. Fronto-orbital plate 1.5 times as broad as frontal vitta. Inner vertical setae strong, outer vertical two-thirds of inner. Ocellar proclinate, two pairs of reclinate orbital setae present, the posterior one as strong as the ocellar, the anterior one stronger. Two pairs of proclinate orbital setae present as well, as strong as anterior reclinate one. Frontal setae descending on parafacial to apex of pedicel. Width of parafacial about half of width of first flagellomere, gena narrow, as broad as parafacial. Occiput behind occipital row with white hairs only. Parafacial bare. Facial ridge with only 3 setulae above strongest vibrissal seta. Palpus at apex 1.5 times as broad than at base. Antenna with first flagellomere 2.9 times as long as broad, about 2.4 times as long as pedicel. Arista bare, thickened at basal quarter.

Thorax with 3+3 acrostichal setae, dorsocentrals 3+4, intra-alar 1+3, three strong supra-alar setae, the first 1.5 times as long as notopleural setae. Postpronotum with 3 setae standing in a clear triangle with apical angle about 110 degrees. Three katepisternal setae accompanied by many long hairs. Anepimeral seta reaching to hind margin of upper calypter. Scutellum with four pairs of marginal setae, apical ones crossed, horizontal.

Fore tibia with 2 posterior setae, mid tibia with 2 strong anterodorsal, and 1 ventral. Hind tibia with a regular row of 15 smaller anterodorsal setae and one much stronger in between. Hind coxa on posterior surface with one strong seta.

Crossvein *dm-cu* distinctly closer to bend of vein *M* than to cross-vein *r-m*. Costal spine not differentiated from costal setulae. Fourth section of costa 1.5 times as long as sixth, setulae on costa reaching to apex of vein R_{2+3} , hence fourth section of costa bare. Base of vein R_{4+5} with two setulae, veins otherwise bare.

Abdomen broad, length of fifth tergite only half its basal width. Excavation on syntergite 1+2 large, reaching hind margin syntergite. Syntergite 1+2 with a pair of strong central marginal setae and a pair of lateral marginals, tergite 3 with two pairs of central marginal setae and lateral marginal setae, tergite 4 with a row of marginal setae. No distinct discal setae present on tergites 3 and 4. Tergite 5 with many marginal and discal setae.

12



14



13



15



Figs 12–15. *Phebellia mordoviensis* sp.n., female, holotype. 12 — habitus, dorsal view; 13 — habitus, lateral view; 14 — head, dorsal view; 15 — head, lateral view.

Рис. 12–15. *Phebellia mordoviensis* sp.n., самка, голотип. 12 — внешний вид, сверху; 13 — внешний вид, сбоку; 14 — голова, сверху; 15 — голова, сбоку.

Female genitalia: sternite 7 with free distal portion as in *Ph. nigripalpis*, no trace of sternite 8 visible. Length: 8 mm.

Male unknown.

Etymology. Named after the locus typicus, the Republic of Mordovia.

Diagnosis. Generally resembling *Phebellia nigripalpis* in appearance, but body covered with golden yellow pruinosity, reminiscent of a species of *Senometopia*. Eye hairy. Vertex narrow, about 0.65 x width of one eye in female. Occiput behind occipital row with white hairs only. Palpus yellow with darker base. Postpronotum with three setae placed in the distinct triangle. Three katepisternal setae. Katepimeron bare. Scutellum with strong crossed horizontal apical setae. Mid tibia with two strong anterodorsal setae and one ventral seta. Hind tibia with a regular row of smaller anterodorsal setae and one much stronger in between. Hind coxa on posterior surface with one strong seta. Fourth section of costa bare. Tergites 3 and 4 without clear discal setae, tergite 5 with strong discal setae. Based on the female terminalia, we place this species in the genus *Phebellia* (= *villica*-group of Shima [1982]).

The new species does not only differ from *Ph. nigripalpis* by the more yellow colouration, but also by the partially yellow palpus, absence of black setulae behind occipital row and presence of a strong seta on hind coxa.

Lydella villosiventralis Zeegers, **sp.n.**

Figs 16–20.

Material. Holotype: ♂, Russia, Republic of Mordovia: Temnikov district, Mordovia State Nature Reserve, quarter 301, 54.792° N, 43.176° E, 23–26.VII.2020, leg. M. Esin, K. Tomkovich. Paratype: 1♀, labelled as holotype.

Description. Black and grey species. Frontal vitta black, fronto-orbital plate and parafacial silvery grey. Palpus and antenna black. Thoracic dorsum black with grey pruinosity leaving with two pairs of dark vittae, the inner one narrow, the outer one before suture reduced to a triangle. Scutellum black. Legs black. Calypters yellow with orange border, halter dark with yellow base, epaulette and basicosta black. Tergites black with silvery bands, covering anterior two-thirds on tergite 3, anterior half of tergite 4 and anterior third

on tergite 5, a narrow but distinct black central vitta present over all tergites. Ventral side of tergites in posterior view dark (as in *L. ripae* (Brischke, 1885)), in antero-lateral view with diffuse grey pruinosity. Wing transparent, somewhat yellow at base.

Face as long as frons. Eye bare. Vertex 1.0 times width of one eye. Fronto-orbital plate as broad as frontal vitta. Inner

vertical setae strong, outer vertical half of inner. Ocellar proclinate, two pairs of strong reclinate orbital setae present. Row of frontal setae doubled, descending on parafacial to just below the base of arista. Face about as long as frons. Parafacial bare. Facial ridge with only 3 setulae above strongest vibrissal seta, facial ridge very straight in lateral view, only slightly concave in lower quarter. Parafacial slightly broader

16



19



17



20



Figs 16–20. *Lydella villosiventralis* sp.n., male, holotype. 16 — habitus, dorsal view; 17 — habitus, lateral view; 18 — abdomen, obliquely from below and aside; 19 — head, dorsal view; 20 — head, lateral view.

Рис. 16–20. *Lydella villosiventralis* sp.n., самец, голотип. 16 — внешний вид, сверху; 17 — внешний вид, сбоку; 18 — брюшко, наклонное вниз и в сторону; 19 — голова, сверху; 20 — голова, сбоку.

than width of first flagellomere, width of gena about 1/5th of larger eye diameter. Occiput white hairs and three rows of black hairs behind occipital row. Palpus not clavate. Antenna with first flagellomere 4 times as long as broad, 3 times as long as pedicel. Arista bare, thickened at basal three-fifth.

Thorax with 3 + 3 acrostichal setae, dorsocentrals 3+4, intra-alar 1+3, all strong, three strong supra-alar setae. Postpronotum with 4 setae with basal three standing in on a straight line. Four katapisternal setae, the central (third) one much smaller. Anepimeral seta strong, reaching to middle of lower calypter. Scutellum with four pairs of marginal setae, apical ones crossed, half erect.

Claws and pulvilli elongated, 1.5 as long as apical tarsal segment. Fore tibia with 2 posterior setae, mid tibia with 3 anterodorsal and 1 very strong ventral. Hind tibia with a very irregular row of anterodorsal setae and with 2 dorsal preapical setae. Hind coxa bare on posterior surface.

Crossvein *dm-cu* distinctly closer to bend of vein *M* than to cross-vein *r-m*. Distance from crossvein *dm-cu* to bend of vein *M* smaller than distance from bend to hind margin of wing. Costal spine not differentiated from costal setulae. Setulae on costa reaching to apex of vein *R*₄₊₅, hence fourth section of costa bare. Fourth section of costa only slightly larger than sixth. Second costal section from below with a few setulae. Base of vein *R*₄₊₅ with one strong seta, veins otherwise bare.

Excavation on syntergite 1+2 large, reaching hind margin of syntergite. Syntergite 1+2 with a pair of strong central marginal setae and a pair of lateral marginals, tergite 3 with one pair of central marginal setae and lateral marginal setae and discal setae, tergite 4 with a row of marginal setae and a pair of discal setae. Tergite 5 with many marginal and discal setae. Ventral side of tergite 4 without sexual patches of specialised setulae, setulae on locality of sexual patch only very slightly more densely set than on third tergite.

Female. Very similar to male, different as follows. Fronto-orbital plate with 2 proclinate setae. Apex of palpus yellow, clavate. First flagellomere three times as long as broad, twice as long as pedicel. Claws and pulvilli short. Length: 10.5 mm.

Diagnosis. Most similar to *L. stabulans* (Meigen, 1824) male with elongated claws and pulvilli and vertex just as broad as width of one eye. However, differing from *stabulans* in the male lacking sexual patches of specialised setulae on ventral side of fourth tergite [Cerretti et al, 2015] and by the hairs on dorsal side of tergites 2–4 being adpressed. Differs from *L. ripae* (Brischke, 1885) by the narrower vertex, longer claws and pulvilli and absence of any specialised hairs on ventral side of third tergite.

Etymology. *Villosus* = hairy, *ventralis* = of the ventral side of the abdomen, to be treated as an adjective. The name refers to the ventral side of tergite 4 being covered with ordinary long hairs, without sexual patch.

Remarks. This new species confusingly exhibits both features of *L. stabulans* and *L. ripae*. In the male sex, it agrees with *L. stabulans* in having elongated claws and pulvilli and a narrow vertex in the male sex. However, it agrees with *L. ripae* in having adpressed hairs on tergites 3 and 4, which has short claws and pulvilli and less obvious sexual patches on ventral side of both tergite 3 and 4. The male differs from all *Lydella* s.str. by the absence of sexual patches on ventral side of third and fourth tergite. This might suggest a relationship with the subgenus *Lydelloxenis* Mesnil, 1956. It differs from *Lydelloxenis* in other characters mentioned by Zeegers [2013]. The loss of sexual patches on tergite 4 is considered both secondary and independent of this loss in *Lydelloxenis*. Secondary loss of sexual patches is known in other genera as well [Cerretti et al., 2015].

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