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## Checklist of the tachinid flies (Diptera: Tachinidae) of the Republic of Mordovia (Russia) including state protected areas

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**Abstract.** An annotated checklist for the dipteran family Tachinidae of the Republic of Mordovia (Russia) is presented. This checklist is based on the material collected in 2016–2021. In total 228 species are recorded, two of which for the first time for both Europe and Russia, two for Europe, eleven for Russia and another eight for the European part of Russia. Special reference is made to the occurrence of Tachinidae in the two largest state protected areas of Mordovia. The tachinid fauna of the Republic of Mordovia reflects its zoogeographical position on the crossroads of Europe and Siberia, as well as on the crossroads of taiga and steppe.

**Key words:** Diptera, Tachinidae, fauna, species diversity, European Russia.

### Список мух-тахинид (Diptera: Tachinidae) Республики Мордовия (Россия), включая охраняемые государством территории

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**Резюме.** Представлен аннотированный список видов мух семейства Tachinidae Республики Мордовия (Россия), основанный на материалах, собранных в 2016–2021 годах. Всего зарегистрировано 228 видов, два из которых впервые указаны для Европы и России, два для Европы, одиннадцать для России и восемь для европейской части России. Особое внимание уделяется встречаемости Tachinidae на двух крупнейших федеральных особо охраняемых территориях Республики Мордовии. Фауна тахинид Республики Мордовия отражает ее биогеографическое положение на стыке Европы и Сибири, а также тайги и степи.

**Ключевые слова:** Diptera, Tachinidae, фауна, видовое разнообразие, Европейская Россия.

## Introduction

The family Tachinidae is one of the largest families of Diptera. The world fauna includes more than 8500 species of Tachinidae [Stireman et al., 2019; O'Hara et al., 2020], well over 2100 of which are found in the Palaearctic region [O'Hara et al., 2020]. Immature stages of Tachinidae are exclusively parasitoids of arthropods (mostly insects) and therefore of ecological and economical importance. As parasitoids, tachinid flies are of interest in reducing insect plagues in agriculture and forestry. Hosts of Tachinidae are found in such orders as Lepidoptera, Coleoptera, Hemiptera, Hymenoptera, Orthoptera and others, taking preference to those of the larger size [Stireman et al., 2006]. A full host catalogue for Palaearctic Tachinidae is provided by Tschorsnig [2017]. Imagines of several species feed regularly on flower nectar (Apiaceae, Euphorbiaceae, Asteraceae). Other species feed on honeydew secreted by aphids and coccids, thus many species are never seen on flowers.

Altogether more than 700 species are known from the Russian Federation, but there is still no complete list of representatives of this family. Important keys to the Tachinidae of Russia have been provided by Zimin et al.

[1970] for its European part and Richter [2004] for the Far East. Since the review by Zimin et al. [1970], the fauna of the European part of Russia has been little studied, with the exception of Voronezh Region [Khitsova 1998, 2019; Aksyonenko, 2013] and Ryazan Region [Khitsova, 2017]. The Republic of Mordovia is of special interest, since its locality is on crossroads between Western and Eastern Palaearctic and also between taiga and steppe zones. Till recently, no records of the family Tachinidae were known from Mordovia. Over the last five years, the family was studied intensively. This resulted in three species described as new for science from Mordovia [Zeegers et al., 2023] and five species recorded for the first time from Russia [Ruchin et al., 2021].

Based on the recently collected material by the third and fourth authors and co-workers, we present a checklist of Tachinidae currently known from Mordovia (Table 1).

## Material and methods

The material was collected in 2016–2021. Species were identified by the first two authors based on all available literature, primarily Zimin et al. [1970], Richter [2004] and

Cerretti et al. [2012]. Most of the material was identified by the first author, this material is present in his personal collection.

The checklist contains species ordered by subfamilies (Dexiinae, Exoristinae, Phasiinae and Tachininae), and species are listed alphabetically within each subfamily. We follow O'Hara et al. [2020] in nomenclature, and the known distribution of species is derived from the same source unless stated otherwise. Indications of hosts are based on Tschorsnig [2017]. Species recorded for the first time

from the European part of Russia, from the whole of Russia and/or from Europe are annotated. We make a special reference to records made in the two large and important state protected areas of Mordovia: Mordovia State Nature Reserve and National Park Smolny. It should be noted that the first protected area has been much better studied than the last one, at the moment.

The following abbreviations are used: MSNR – Mordovia State Nature Reserve, NPS – National Park Smolny.

## Checklist of species

Table 1. Species of the family Tachinidae registered in protected areas of the Republic of Mordovia.  
Таблица 1. Виды семейства Tachinidae, отмеченные на охраняемых территориях Республики Мордовии.

Species Виды	Mordovia State Nature Reserve Мордовский заповедник	National Park Smolny Национальный парк «Смольный»
Subfamily Dexiinae / Подсемейство Dexiinae		
<i>Athrycia curvinervis</i> (Zetterstedt, 1844)	+	+
<i>Athrycia impressa</i> (Van der Wulp, 1869)	-	-
<i>Billaea fortis</i> (Rondani, 1862)	+	-
<i>Billaea kolomyetzi</i> Mesnil, 1970	+	+
<i>Billaea triangulifera</i> (Zetterstedt, 1844)	+	-
<i>Blepharomyia pagana</i> (Meigen, 1824)	+	+
<i>Campylocheta fuscinervis</i> (Stein, 1924)	+	-
<i>Campylocheta inepta</i> (Meigen, 1824)	+	-
<i>Chetoptilia puella</i> (Rondani, 1862)	+	-
<i>Cyrtophloeba ruricola</i> (Meigen, 1824)	-	+
<i>Cyrtophloeba vernalis</i> (Kramer, 1917)	+	-
<i>Dexia rustica</i> (Fabricius, 1775)	+	+
<i>Dinera ferina</i> (Fallén, 1817)	+	+
<i>Dinera fuscata</i> Zhang et Shima, 2006	+	-
<i>Dinera grisescens</i> (Fallén, 1817)	+	+
<i>Eriothrix argyreata</i> (Meigen, 1824)	+	-
<i>Eriothrix rufomaculata</i> (De Geer, 1776)	+	+
<i>Estheria picta</i> (Meigen, 1826)	-	-
<i>Halydaia aurea</i> Egger, 1856	-	-
<i>Hyleorus elatus</i> (Meigen, 1838)	+	-
<i>Litophasia hyalipennis</i> (Fallén, 1815)	+	-
<i>Periscepsia latifrons</i> (Zetterstedt, 1844)	+	+
<i>Periscepsia spathulata</i> (Fallén, 1820)	+	-
<i>Prosenia siberita</i> (Fabricius, 1775)	-	-
<i>Stomina tachinoides</i> (Fallén, 1817)	+	-
<i>Thelaira leucozona</i> (Panzer, 1806)	-	-
<i>Thelaira nigripes</i> (Fabricius, 1794)	+	+
<i>Thelaira solivaga</i> (Harris, 1780)	-	-
<i>Voria ruralis</i> (Fallén, 1810)	+	+
<i>Wagneria gagatea</i> Robineau-Desvoidy, 1830	+	-
<i>Zeuxia cinerea</i> Meigen, 1826	+	+
Subfamily Exoristinae / Подсемейство Exoristinae		
<i>Acemya acuticornis</i> (Meigen, 1824)	+	-
<i>Acemya rufitibia</i> (von Roser, 1840)	-	+
<i>Alsomyia olfaciens</i> (Pandellé, 1896)	-	+
<i>Aplomya confinis</i> (Fallén, 1820)	+	-
<i>Bactromyia aurulenta</i> (Meigen, 1824)	-	-
<i>Belida angelicae</i> (Meigen, 1824)	-	+
<i>Bessa parallela</i> (Meigen, 1824)	-	-
<i>Bessa selecta</i> (Meigen, 1824)	+	-

Table 1 (continuation).  
Таблица 1 (продолжение).

Species Виды	Mordovia State Nature Reserve Мордовский заповедник	National Park Smolny Национальный парк «Смольный»
<i>Blepharipa pratensis</i> (Meigen, 1824)	+	-
<i>Blepharipa schineri</i> (Mesnil, 1939)	+	-
<i>Blondelia inclusa</i> (Hartig, 1838)	+	-
<i>Blondelia nigripes</i> (Fallén, 1810)	+	-
<i>Botria frontosa</i> (Meigen, 1824)	+	-
<i>Botria subalpina</i> (Villeneuve, 1910)	+	-
<i>Carcelia falenaria</i> (Rondani, 1859)	+	-
<i>Carcelia lucorum</i> (Meigen, 1824)	+	+
<i>Carcelia puberula</i> Mesnil, 1941	+	-
<i>Carcelia rasa</i> (Macquart, 1850)	-	-
<i>Ceratochaetops delphinensis</i> (Villeneuve, 1931)	-	-
<i>Chetogena acuminata</i> Rondani, 1859	-	-
<i>Chetogena filipalpis</i> Rondani, 1859	+	-
<i>Chetogena obliquata</i> (Fallén, 1810)	-	-
<i>Chetogena tschorsnigi</i> Ziegler, 1999	+	-
<i>Clemelis massilia</i> Herting, 1977	-	+
<i>Compsilura concinnata</i> (Meigen, 1824)	-	-
<i>Cyzenis albicans</i> (Fallén, 1810)	+	-
<i>Cyzenis jucunda</i> (Meigen, 1838)	+	-
<i>Drino galii</i> (Brauer et Bergenstamm, 1891)	+	-
<i>Drino inconspicua</i> (Meigen, 1830)	+	+
<i>Drino vicina</i> (Zetterstedt, 1849)	-	-
<i>Erycia fasciata</i> Villeneuve, 1924	+	-
<i>Erycia fatua</i> (Meigen, 1824)	+	-
<i>Erynnia ocypterata</i> (Fallén, 1810)	+	-
<i>Erythrocerca nigripes</i> (Robineau-Desvoidy, 1830)	-	-
<i>Eumea linearicornis</i> (Zetterstedt, 1844)	-	-
<i>Eumea mitis</i> (Meigen, 1824)	-	-
<i>Exorista larvarum</i> (Linnaeus, 1758)	+	+
<i>Exorista rustica</i> (Fallén, 1810)	+	-
<i>Gastrolepta anthracina</i> (Meigen, 1826)	+	-
<i>Gonia capitata</i> (De Geer, 1776)	-	-
<i>Gonia distinguenda</i> Herting, 1963	+	-
<i>Gonia divisa</i> Meigen, 1826	+	+
<i>Gonia foersteri</i> Meigen, 1838	+	-
<i>Gonia ornata</i> Meigen, 1826	+	-
<i>Gonia picea</i> (Robineau-Desvoidy, 1830)	+	-
<i>Gonia vacua</i> Meigen, 1826	+	-
<i>Hubneria affinis</i> (Fallén, 1810)	-	+
<i>Lecanipa bicincta</i> (Meigen, 1824)	+	-
<i>Lecanipa leucomelas</i> (Meigen, 1824)	-	-
<i>Ligeria angusticornis</i> (Loew, 1847)	+	-
<i>Lydella stabulans</i> (Meigen, 1824)	+	+
<i>Lydella thompsoni</i> Herting, 1959	+	-
<i>Lydella villosventralis</i> Zeegers, 2023	+	-
<i>Masicera silvatica</i> (Fallén, 1810)	-	-
<i>Medina collaris</i> (Fallén, 1820)	+	+
<i>Medina melania</i> (Meigen, 1824)	-	-
<i>Medina separata</i> (Meigen, 1824)	+	-
<i>Meigenia dorsalis</i> (Meigen, 1824)	-	-
<i>Meigenia incana</i> (Fallén, 1810)	+	-
<i>Meigenia mutabilis</i> (Fallén, 1810)	-	-
<i>Meigenia uncinata</i> Mesnil, 1967	+	+
<i>Melibaea glauca</i> (Meigen, 1824)	+	-

Table 1 (continuation).  
Таблица 1 (продолжение).

Species Виды	Mordovia State Nature Reserve Мордовский заповедник	National Park Smolny Национальный парк «Смольный»
<i>Nemorilla floralis</i> (Fallén, 1810)	-	+
<i>Nemorilla maculosa</i> (Meigen, 1824)	+	-
<i>Nilea hortulana</i> (Meigen, 1824)	+	-
<i>Pachystylum breinii</i> Macquart, 1848	-	+
<i>Pales pavidata</i> (Meigen, 1824)	-	-
<i>Parasetigena silvestris</i> (Robineau-Desvoidy, 1863)	+	-
<i>Paratryphera barbatula</i> (Rondani, 1859)	+	+
<i>Paratryphera bisetosa</i> (Brauer et Bergenstamm, 1891)	+	-
<i>Phebellia mordoviensis</i> Zeegers, 2023	-	-
<i>Phebellia nigripalpis</i> (Robineau-Desvoidy, 1848)	+	+
<i>Phorinia aurifrons</i> Robineau-Desvoidy, 1830	+	-
<i>Phorocera assimilis</i> (Fallén, 1810)	+	-
<i>Phorocera obscura</i> (Fallén, 1810)	+	+
<i>Phryno vetula</i> (Meigen, 1824)	+	-
<i>Phryxe erythrostoma</i> (Hartig, 1838)	-	-
<i>Phryxe heraclei</i> (Meigen, 1824)	+	+
<i>Phryxe nemea</i> (Meigen, 1824)	-	-
<i>Phryxe vulgaris</i> (Fallén, 1810)	+	+
<i>Platymya fimbriata</i> (Meigen, 1824)	+	+
<i>Prosopaea nigricans</i> (Egger, 1861)	+	-
<i>Pseudogonia rufifrons</i> (Wiedemann, 1830)	-	-
<i>Pseudoperichaeta nigrolineata</i> (Walker, 1853)	-	-
<i>Senometopia pilosa</i> (Baranov, 1931)	-	-
<i>Smidtia amoena</i> (Meigen, 1824)	+	+
<i>Smidtia conspersa</i> (Meigen, 1824)	+	+
<i>Spallanzania quadrimaculata</i> Herting, 1967	-	+
<i>Vibrissina turrata</i> (Meigen, 1824)	-	+
<i>Winthemia quadripustulata</i> (Fabricius, 1794)	+	-
<i>Winthemia variegata</i> (Meigen, 1824)	+	-
<i>Zaira cinerea</i> (Fallén, 1810)	+	-
Subfamily Phasiinae / Подсемейство Phasiinae		
<i>Besseria reflexa</i> Robineau-Desvoidy, 1830	-	-
<i>Brullaea ocypteroidea</i> Robineau-Desvoidy, 1863	-	-
<i>Catharosia pygmaea</i> (Fallén, 1815)	-	-
<i>Cinochira atra</i> Zetterstedt, 1845	+	-
<i>Cistogaster globosa</i> (Fabricius, 1775)	+	-
<i>Clytiomya continua</i> (Panzer, 1798)	+	-
<i>Cylindromyia auriceps</i> (Meigen, 1838)	+	+
<i>Cylindromyia brassicaria</i> (Fabricius, 1775)	+	+
<i>Cylindromyia intermedia</i> (Meigen, 1824)	-	-
<i>Cylindromyia interrupta</i> (Meigen, 1824)	+	+
<i>Cylindromyia pilipes</i> (Loew, 1844)	-	+
<i>Cylindromyia pusilla</i> (Meigen, 1824)	-	+
<i>Dionaea aurifrons</i> (Meigen, 1824)	-	-
<i>Ectophasia crassipennis</i> (Fabricius, 1794)	+	+
<i>Eliozeta helluo</i> (Fabricius, 1805)	+	+
<i>Eliozeta pellucens</i> (Fallén, 1820)	+	-
<i>Gymnosoma clavatum</i> (Rohdendorf, 1947)	+	+
<i>Gymnosoma desertorum</i> (Rohdendorf, 1947)	+	+
<i>Gymnosoma dolycoridis</i> Dupuis, 1960	+	-
<i>Gymnosoma nudifrons</i> Herting, 1966	+	+
<i>Gymnosoma rotundatum</i> (Linnaeus, 1758)	+	-
<i>Hemyda obscuripennis</i> (Meigen, 1824)	-	-
<i>Hemyda vittata</i> (Meigen, 1824)	-	-

Table 1 (continuation).  
Таблица 1 (продолжение).

Species Виды	Mordovia State Nature Reserve Мордовский заповедник	National Park Smolny Национальный парк «Смольный»
<i>Leucostoma anthracinum</i> (Meigen, 1824)	-	+
<i>Phania funesta</i> (Meigen, 1824)	+	-
<i>Phania thoracica</i> Meigen, 1824	+	-
<i>Phasia albopunctata</i> (Baranov, 1935)	+	-
<i>Phasia aurigera</i> (Egger, 1860)	+	-
<i>Phasia obesa</i> (Fabricius, 1798)	-	+
<i>Phasia pusilla</i> Meigen, 1824	-	-
<i>Strongygaster globula</i> (Meigen, 1824)	+	+
<i>Subclytia rotundiventris</i> (Fallén, 1820)	+	+
Subfamily Tachininae / Подсемейство Tachininae		
<i>Actia crassicornis</i> (Meigen, 1824)	-	-
<i>Actia infantula</i> (Zetterstedt, 1844)	+	-
<i>Actia lamia</i> (Meigen, 1838)	+	+
<i>Aphria longilingua</i> Rondani, 1861	+	-
<i>Aphria xyphias</i> Pandellé, 1896	+	-
<i>Bithia immaculata</i> (Herting, 1971)	-	-
<i>Bithia jacentkovskyi</i> (Villeneuve, 1937)	-	-
<i>Bithia spreta</i> (Meigen, 1824)	-	+
<i>Ceromya bicolor</i> (Meigen, 1824)	+	-
<i>Ceromya dilecta</i> Herting, 1977	+	-
<i>Ceromya silacea</i> (Meigen, 1824)	+	+
<i>Cleonice callida</i> (Meigen, 1824)	+	-
<i>Demoticus plebejus</i> (Fallén, 1810)	-	-
<i>Dexiosoma caninum</i> (Fabricius, 1781)	+	+
<i>Entomophaga sufferta</i> (Villeneuve, 1942)	+	-
<i>Germaria angustata</i> (Zetterstedt, 1844)	+	-
<i>Germaria ruficeps</i> (Fallén, 1820)	-	+
<i>Gymnocheta viridis</i> (Fallén, 1810)	+	+
<i>Gymnocheta zhelochovtsevi</i> Zimin, 1958	+	-
<i>Linnaemya comta</i> (Fallén, 1810)	+	+
<i>Linnaemya frater</i> (Rondani, 1859)	+	-
<i>Linnaemya picta</i> (Meigen, 1824)	+	+
<i>Linnaemya rossica</i> Zimin, 1954	-	+
<i>Linnaemya tessellans</i> (Robineau-Desvoidy, 1830)	+	+
<i>Linnaemya vulpina</i> (Fallén, 1810)	+	+
<i>Loewia foeda</i> (Meigen, 1824)	+	-
<i>Loewia nudigena</i> Mesnil, 1973	+	-
<i>Lydina aenea</i> (Meigen, 1824)	+	-
<i>Lypa dubia</i> (Fallén, 1810)	+	-
<i>Macquartia dispar</i> (Fallén, 1820)	+	-
<i>Macquartia grisea</i> (Fallén, 1810)	+	-
<i>Macquartia tenebricosa</i> (Meigen, 1824)	+	+
<i>Macroprosopa atrata</i> (Fallén, 1810)	-	-
<i>Microphthalma europaea</i> Egger, 1860	+	-
<i>Mintho rufiventris</i> (Fallén, 1817)	+	-
<i>Nemoraea pellucida</i> (Meigen, 1824)	+	+
<i>Nowickia ferox</i> Panzer, 1806	+	+
<i>Nowickia marklini</i> Zetterstedt, 1838	+	+
<i>Nowickia stackelbergi</i> (Zimin, 1951)	-	-
<i>Panzeria anthophila</i> (Robineau-Desvoidy, 1830)	+	+
<i>Panzeria brevipila</i> Zeegers, 2023	-	-
<i>Panzeria caesia</i> (Fallén, 1810)	+	-
<i>Panzeria connivens</i> (Zetterstedt, 1844)	+	-
<i>Panzeria consobrina</i> (Meigen, 1824)	+	+

Table 1 (completion).  
Таблица 1 (окончание).

Species Виды	Mordovia State Nature Reserve Мордовский заповедник	National Park Smolny Национальный парк «Смольский»
<i>Panzeria puparum</i> (Fabricius, 1794)	+	+
<i>Panzeria rudis</i> (Fallén, 1810)	–	+
<i>Pelatachina tibialis</i> (Fallén, 1810)	+	–
<i>Peleteria meridionalis</i> (Robineau-Desvoidy, 1830)	+	–
<i>Peleteria rubescens</i> (Robineau-Desvoidy, 1830)	+	–
<i>Peribaea longirostris</i> Andersen, 1996	+	–
<i>Peribaea setinervis</i> (Thomson, 1869)	+	–
<i>Peribaea tibialis</i> (Robineau-Desvoidy, 1851)	+	+
<i>Siphona confusa</i> Mesnil, 1961	+	–
<i>Siphona cristata</i> (Fabricius, 1805)	+	–
<i>Siphona geniculata</i> (De Geer, 1776)	–	–
<i>Siphona grandistylum</i> Pandellé, 1894	+	–
<i>Siphona hokkaidensis</i> Mesnil, 1957	+	–
<i>Siphona paludosa</i> Mesnil, 1960	–	–
<i>Siphona pauciseta</i> Rondani, 1865	+	–
<i>Siphona setosa</i> Mesnil, 1960	–	–
<i>Solieria inanis</i> (Fallén, 1810)	–	–
<i>Solieria munda</i> Richter, 1975	–	+
<i>Solieria pacifica</i> (Meigen, 1824)	–	+
<i>Solieria vacua</i> (Rondani, 1861)	–	–
<i>Tachina fera</i> (Linnaeus, 1761)	+	+
<i>Tachina grossa</i> (Linnaeus, 1758)	+	+
<i>Tachina lurida</i> (Fabricius, 1781)	+	–
<i>Tachina magnicornis</i> (Zetterstedt, 1844)	+	–
<i>Tachina nupta</i> (Rondani, 1859)	+	+
<i>Tachina praeceps</i> Meigen, 1824	–	–
<i>Tachina rohdendorfi</i> Zimin, 1935	–	+
<i>Ziminia masiceraeformis</i> (Portschinsky, 1881)	–	–
<i>Zophomyia temula</i> (Scopoli, 1763)	+	+

## First records for Russia and Europe

### *Nowickia stackelbergi* (Zimin, 1951)

**Material.** 1♂, Dubenki Distr., Yavleyka, 54.3167°N / 46.3944°E, 10.08.2017 (A.B. Ruchin).

**Notes.** This taxon was treated by Zimin and Kolomiets [1984]. They recorded it from Kazakhstan and Tajikistan. It is remarkable within the genus *Nowickia* Wachtl, 1894 for having red tibiae.

### *Tachina rohdendorfi* Zimin, 1935

**Material.** 1♂, NPS, Kemlyanskoe forestry, quarter 87, 54.7444°N / 45.2796°E, 12–14.07.2019 (G.B. Semishin).

**Notes.** *Tachina rohdendorfi* is well characterized by uniformly brownish wings. It is a typical Asian steppe species, recorded from Armenia in the west via the Central Asian republics towards Mongolia and China. The first author found the species in South Kazakhstan. It has been reared from *Agrotis segetum* (Denis et Schiffermüller, 1775) (Lepidoptera: Noctuidae) in Tajikistan and Uzbekistan. The new record from Mordovia is the most western and most northern record known.

## First records for Europe

### *Phasia albopunctata* (Baranov, 1935)

**Material.** 1♂, MSNR, cordon Inorskiy, 54.7280°N / 43.1490°E, 23.08.2017 (G.B. Semishin).

**Notes.** *Phasia albopunctata* is characteristic for the Far Eastern areas of the Palaearctic region [Draber-Moňko, 1965]. It was also recorded by Sun and Marshall [2003] from Novosibirsk (Russia). Unfortunately, their key for the males interchanged the features separating *Ph. albopunctata* from *Ph. grazynae* (Draber-Moňko, 1965). It is a large and conspicuous species visiting flowers and has been reared from several species of Pentatomidae (Heteroptera). Since we found only one specimen, the species is likely to be rare in the European part of Russia.

### *Solieria munda* Richter, 1975

**Material.** 1♂, 3♀, NPS, cordon Mokrov, 54.7585°N / 45.6119°E, 25.07.2021 (G.B. Semishin).

**Notes.** This species was described by Richter [1975] from Mongolia and later recorded from China and the Russian Far East as well. It is similar to *S. fenestrata* (Meigen,

1824), however the male genitalia are distinctive. The first author had the opportunity to compare the specimens from Mordovia with one from Mongolia in his collection and found it to be conspecific.

### First and interesting records for Russia

#### *Campylocheta fuscineris* (Stein, 1924)

**Material.** 1♂, MSNR, Inorki Lake, 54.7277°N / 43.1510°E, 23–26.06.2021 (M.N. Esin).

**Notes.** *Campylocheta fuscineris* has its centre of distribution in Eastern Europe. It is considered very rare in Central Europe [Tschorsnig, Herting, 1994], though it is common in Lithuania in some years [Lutovinovas, 2009]. Zimin et al. [1970] did not distinguish this species from *C. praecox* (Meigen, 1824), which is likely the reason *C. fuscineris* was never recorded for Russia. It has been reared once from *Thyatira batis* (Linnaeus, 1758) (Lepidoptera: Thyatiridae).

#### *Litophasia hyalipennis* (Fallén, 1815)

**Material.** 1♂, MSNR, Pushta settlement, 54.72°N / 43.22°E, 17–21.07.2020 (K.P. Tomkovich).

**Notes.** *Litophasia hyalipennis* was known from Europe to the east to Ukraine. It is considered rare [Tschorsnig, Herting, 1994], but small and possibly overlooked.

#### *Periscepsia (Ramonda) latifrons* (Zetterstedt, 1844)

**Material.** 1♀, MSNR, cordon Steklyanny, 54.8940°N / 43.6010°E, 8.09.2019 (G.B. Semishin); 3♀, MSNR, cordon Taratinskiy, 54.748°N / 43.087°E, 27–29.06.2020 (K.P. Tomkovich); 2♀, Elniki Distr., Svobodny settlement, 54.7221°N / 43.9036°E, 21–24.08.2020 (M.N. Esin); 1♀, MSNR, quarter 442, 54.729°N / 43.273°E, 2–16.09.2020 (A.B. Ruchin); 1♀, Staroe Shaygovo Distr., Nikolskaya Salovka vill., 54.318°N / 44.208°E, 17–20.09.2020 (A.B. Ruchin); 1♀, MSNR, cordon Taratinskiy, 54.740°N / 43.086°E, 10.09.2021 (M.N. Esin); 1♀, NPS, cordon Obrezki, 54.8344°N / 45.3782°E, 17.08.2021 (G.B. Semishin); 1♀, NPS, Selishchinskaya chashchoba site, 54.8331°N / 45.7319°E, 17.08.2021 (G.B. Semishin).

**Notes.** *Periscepsia (Ramonda) latifrons* is generally rare, but one of the more common species of *Periscepsia* Gistel, 1848 in Central Europe [Tschorsnig, Herting, 1994]. The lack of records from Russia is peculiar; it already puzzled Zimin et al. [1970]. Given the number of records mentioned above, it clearly is not rare in Mordovia. It has been reared from *Mythimna Ochseneheimer*, 1816 (Lepidoptera: Noctuidae).

#### *Alsomyia olfaciens* (Pandellé, 1896)

**Material.** 1♀, NPS, cordon Mokrov, 54.7585°N / 45.6119°E, 29.06.2021 (G.B. Semishin).

**Notes.** *Alsomyia olfaciens* is a rare species from eremial regions from the Mediterranean via Ukraine all the way to China [O'Hara et al., 2020]. It was noted in the Crimean Peninsula [Richter, 1996]. As other species in this genus, *A. olfaciens* is a well-known parasitoid of *Zygaena* Fabricius, 1775 (Lepidoptera: Zygaenidae).

#### *Carcelia puberula* Mesnil, 1941

**Material.** 1♂, MSNR, quarter 375, 54.7856°N / 43.4669°E, 14–27.05.2020 (A.B. Ruchin).

**Notes.** *Carcelia puberula* is a common species occurring all over the forests of the Palaearctic region. Zimin et al. [1970] did not distinguish this species from *C. bombylans* Robineau-Desvoidy, 1830, which is likely the reason *C. puberula* was never recorded for Russia. Representatives of the genus *Lymantria* Hübner, 1819 (Lepidoptera: Erebidae) species are the main hosts.

#### *Chetogena tschorsnigi* Ziegler, 1999

**Material.** 1♀, MSNR, quarter 276, 54.7917°N / 43.1750°E, 15.05–5.06.2020 (M.N. Esin); 1♂, MSNR, quarter 330, 54.7750°N / 43.1850°E, 15.04.2021 (M.N. Esin); 1♂, MSNR, quarter 329/330, 54.7770°N / 43.1840°E, 15–19.04.2021 (M.N. Esin); 1♂, MSNR, cordon Podrubnyy, 54.7982°N / 43.1460°E, 12.05.2021 (M.N. Esin).

**Notes.** *Chetogena tschorsnigi* is a European species of grasslands. It has been confused with *Ch. fasciata* (Egger, 1856) in the older literature. Typical host is *Rhagades pruni* (Denis et Schiffermüller, 1775) (Lepidoptera: Zygaenidae).

#### *Gonia distinguenda* Herting, 1963

**Material.** 1♀, MSNR, cordon Inorskiy, 54.7280°N / 43.1490°E, 21.05.2017 (A.B. Ruchin).

**Notes.** *Gonia distinguenda* has apparently a disjunct distribution in Europe and Korea. Such a disjunct distribution is well known in Tachinidae, for instance in the case of *Phasia hemiptera* (Fabricius, 1794) [Sun, Marshall, 2003]. Hosts belong to the Noctuidae family (Lepidoptera).

#### *Senometopia pilosa* (Baranov, 1931)

**Material.** 1♂, Tengushevo Distr., Ivanovka vill., 54.6695°N / 42.8314°E, 10–14.09.2020 (M.N. Esin).

**Notes.** *Senometopia pilosa* is a very rare species recorded from both the Western and Eastern Palaearctic. Since it can only be recognized on male genitalia, only males can be recorded. Hosts belong to the Noctuidae family (Lepidoptera).

#### *Smidtia conspersa* (Meigen, 1824)

**Material.** 1♀, MSNR, Novenkovskiy cordon, 54.9316°N / 43.4215°E, 12.05.2020 (G.B. Semishin); 2♀, MSNR, quarter 400, 54.7755°N / 43.4795°E, 14.05.2020 (M.N. Esin); 3♂, MSNR, quarter 373, 54.7883°N / 43.4400°E, 14–27.05.2020 (A.B. Ruchin); 5♂, 1♀, MSNR, quarter 375, 54.7856°N / 43.4669°E, 14–27.05.2020 (A.B. Ruchin); 1♂, Zubova Polyana Distr., 6 km E Vysha vill., 53.8491°N / 42.5102°E, 15–28.05.2020 (A.B. Ruchin); 1♀, MSNR, quarter 360, 54.7730°N / 43.2298°E, 25.05–5.06.2020 (A.B. Ruchin); 1♂, 2♀, NPS, cordon Mokrov, 54.7399°N / 45.4736°E, 16, 18.05.2021 (G.B. Semishin); 1♂, 1♀, MSNR, quarter 375, 54.7897°N / 43.4493°E, 27.05–6.06.2021 (A.B. Ruchin).

**Notes.** *Smidtia conspersa* is a common species of deciduous forests nearly all over the Palaearctic region. The lack of previous records from Russia is difficult to understand. Clearly, this spring species is quite common in Mordovia, as to be expected. It was noted in the Crimean Peninsula [Richter, 1996]. Primary hosts are Geometridae (Lepidoptera).

#### *Bithia immaculata* (Herting, 1971)

**Material.** 2♂, 1♀, Torbevo Distr., Nikolskoe vill., 54.0528°N / 43.1294°E, 31.07–4.08.2020 (K.P. Tomkovich, M.N. Esin); 1♂, 1♀, Kovylnino Distr., Troitsk vill., 54.1012°N / 43.7843°E, 31.07–4.08.2020 (K.P. Tomkovich, M.N. Esin).



**Notes.** *Bithia immaculata* occurs in southern Europe. It was described after the review by Zimin et al. [1970] was published, which explains absence of records in Russia. Typically for the genus, its hosts are found in the family of Sesiidae (Lepidoptera).

*Ceromya dilecta* Herting, 1977

**Material.** 2♂, 2♀, MSNR, quarter 375, 54.7897°N / 43.4493°E, 14–27.05.2020, 27.05–6.06.2021 (A.B. Ruchin).

**Notes.** *Ceromya dilecta* is an extremely rare species, so far only recorded from Switzerland (type locality), Italy and Bulgaria [Andersen, 1996]. It is nearly exclusively found in Malaise traps.

*Entomophaga sufferta* (Villeneuve, 1942)

**Material.** 1♂, MSNR, 54.7897°N / 43.4493°E, 14–27.04.2020 (A.B. Ruchin).

**Notes.** *Entomophaga sufferta* is recorded from Northern Europe: Scandinavia, Great Britain [Andersen, 1996], and some locations of Central Europe: Czech Republic, Lithuania [Vaňhara et al., 2004; Lutovinovas, 2012]. It is very difficult to distinguish this species from *E. nigrohalterata* (Villeneuve, 1921). Zimin et al. [1970] did not distinguish two these species, which is likely the reason *E. sufferta* was never recorded for Russia.

*Siphona grandistylum* Pandellé, 1894

**Material.** 1♀, MSNR, cordon Pavlovskiy, 54.7541°N / 43.4006°E, 5.05.2020 (G.B. Semishin).

**Notes.** *Siphona grandistylum* is a very rare species, supposedly mostly recorded from European mountains [Andersen, 1996]. However, in recent years it has become more and more clearly that the species occurs in Northern Europe at low elevations as well [Lutovinovas, 2012; Pohjoismäki, Kahanpää, 2014]. The setulae present on vein R<sub>1</sub> traditionally considered to be diagnostic are often lacking, which complicates the identification. The distribution is probably better described as boreo-mountainous.

## First records for the European part of Russia

*Thelaira solivaga* (Harris, 1780)

**Material.** 1♀, Torbeevo Distr., Nikolskoe vill., 54.0528°N / 43.1294°E, 31.07–4.08.2020 (K.P. Tomkovich, M.N. Esin); 1♀, Torbeevo Distr., Kazhlodka vill., 54.0371°N / 43.2120°E, 31.07–4.08.2020 (K.P. Tomkovich, M.N. Esin); 1♀, Kovytkino Distr., Samaevka settlement, 53.9954°N / 43.6982°E, 31.07–4.08.2020 (K.P. Tomkovich, M.N. Esin); 1♂, Kovytkino Distr., Samaevka settlement, 53.9993°N / 43.6987°E, 31.07–4.08.2020 (K.P. Tomkovich, M.N. Esin); 1♀, Kovytkino Distr., Troitsk vill., 54.1012°N / 43.7843°E, 31.07–4.08.2020 (K.P. Tomkovich, M.N. Esin).

**Notes.** *Thelaira solivaga* is very similar to *Th. leucozona* (Panzer, 1809) and *Th. nigripes* (Fabricius, 1794). They can be reliably separated by the key given by Tschorsnig and Herting [1994]. The male genitalia are distinctive [Ziegler, Shima, 1996]. Zimin et al. [1970] did not distinguish these species from *Th. nigripes*. The absence of records from the European part of Russia is possibly due

to these identification challenges. We also found several specimens in Moscow Region. Its hosts are found in the family Erebidae (Lepidoptera).

*Wagneria gagatea* Robineau-Desvoidy, 1830

**Material.** 1♀, MSNR, cordon Novenkovskiy, 54.9316°N / 43.4215°E, 29.04.2019 (G.B. Semishin).

**Notes.** *Wagneria gagatea* is found in Europe and the Far East (Russia, Korean Peninsula). The distribution is apparently disjunct, since no records are known from either China or Mongolia. It has been reared from several families of Lepidoptera, mostly Noctuidae.

*Ceratochaetops delphinensis* (Villeneuve, 1931)

**Material.** 1♀, Kovytkino Distr., Troitsk vill., 54.1012°N / 43.7843°E, 31.07–4.08.2020 (K.P. Tomkovich, M.N. Esin).

**Notes.** *Ceratochaetops delphinensis* is very fragmentary distributed in the Palaearctic region, but it might be overlooked due to the non-conspicuous habitus. In Europe, it is known from Western Alps and from the Balkan Peninsula [Cerretti, Ziegler, 2004; Lutovinovas et al., 2018]. It has been reared once from Crambidae (Lepidoptera).

*Erycia fasciata* Villeneuve, 1924

**Material.** 1♀, MSNR, Pushta settlement, 54.72°N / 43.22°E, 13–15.07.2020 (M.N. Esin); 1♂, MSNR, quarter 301, 54.7960°N / 43.1833°E, 23.07.2020 (M.N. Esin); 1♂, MSNR, quarter 301, 54.7920°N / 43.1760°E, 23–26.07.2020 (M.N. Esin, K.P. Tomkovich).

**Notes.** *Erycia fasciata* has been recorded from Southern Europe and Asia (China, Eastern Siberia). As other members of this genus, *E. fasciata* is specialized as parasitoid of Nymphalidae (Lepidoptera).

*Phryxe heraclei* (Meigen, 1824)

**Material.** 1♀, MSNR, cordon Novenkovskiy, 54.9316°N / 43.4215°E, 6.09.2019 (G.B. Semishin); 1♂, 1♀, Tengushevo Distr., Ivanovka vill., 54.6695°N / 42.8314°E, 10–14.09.07.2020 (M.N. Esin); 1♂, NPS, cordon Mokrov, 54.7585°N / 45.6119°E, 29.06.2021 (G.B. Semishin); 1♀, NPS, Barakhmanovskoe forestry, quarter 113, 54.7404°N / 45.4736°E, 1.08.2021 (G.B. Semishin).

**Notes.** *Phryxe heraclei* is relatively common over large areas of both the European and Asian parts of the Palaearctic region. For a reliable identification, the male genitalia need to be inspected. The absence of records from the European part of Russia might be due to identification problems. Its primary host is *Euthrix potatoria* (Linnaeus, 1758) (Lepidoptera: Lasiocampidae).

*Hemyda obscuripennis* (Meigen, 1824)

**Material.** 1♂, Temnikov Distr., Zhegalovo vill., 54.7067°N / 42.4050°E, 21–24.08.2020 (M.N. Esin); 1♀, Zubova Polyana Distr., 5 km S Dachnyy vill., 54.5233°N / 42.6308°E, 23–26.07.2021 (M.N. Esin).

**Notes.** *Hemyda obscuripennis* is widespread over the Palaearctic region. It is currently unclear whether the population in the Far East and Japan is disjunct from the western. The species is replaced by *H. dominikae* Draber-Moňko, 2008 in Korean Peninsula. Hosts belong to the family Pentatomidae (Heteroptera).

*Gymnocheta zhelochovtsevi* Zimin, 1958

**Material.** 1♀, MSNR, cordon Inorskiy, 54.7280°N / 43.1490°E, 13.05.2018 (G.B. Semishin); 1♂, NPS, Lvovskoe forestry, quarter 53, 54.8337°N / 45.3990°E, 1.08.2021 (G.B. Semishin).

**Notes.** The discovery of *G. zhelochovtsevi* in this study came as a surprise, since this species was only known from the Russian Far East. Meanwhile, the species was recorded from Europe, both Finland and Sweden, by Pohjoismäki and Bergström [2021]. Clearly, it was overlooked in both Scandinavia and the European part of Russia. They provide an excellent redescription with plates and a key, therefore, we do not need to discuss the taxonomy. At first impression, *G. zhelochovtsevi* has a less shiny appearance.

*Peribaea setinervis* (Thomson, 1869)

**Material.** 1♀, MSNR, quarter 449, 54.7191°N / 43.2236°E, 28.08.2018 (G.B. Semishin).

**Notes.** *Peribaea setinervis* occurs all over the Palaearctic region. It is found in deciduous forests, where its primary hosts are various Geometridae (Lepidoptera). Therefore, it was definitely to be expected in the European part of Russia.

**Species recently described as new from the Republic of Mordovia** [Zeegers et al., 2023]: *Lydella villosiventralis* Zeegers, 2023, *Phebellia mordoviensis* Zeegers, 2023, *Panzeria brevipila* Zeegers, 2023.

**Species from the Republic of Mordovia recently recorded for Russia for the first time** [Ruchin et al., 2021]: *Carcelia falenaria* (Rondani, 1859), *Clemelis massilia* Herting, 1977, *Spallanzania quadrimaculata* Herting, 1967, *Loewia nudigena* Mesnil, 1973, *Peribaea longirostris* Andersen, 1996.

## Discussion

Over the last five years, 228 species of Tachinidae have been found in Mordovia. Of these, three were described as new [Zeegers et al., 2023] and five species were recorded by Ruchin et al. [2021]. In this study, two species are recorded for the first time for Europe and Russia, two for Europe (already reported from the Asian part of Russia), and 11 species for the first time for Russia. Finally, another eight are recorded for the first time for the European part of Russia. Clearly, more species of Tachinidae are likely to be found. It is here estimated that at least 325 species of Tachinidae are likely to occur in Mordovia.

The tachinid fauna of Mordovia reflects a very interesting mix of northern and southern species and also of European and Siberian ones. Mordovia is on the crossroads of Europe and Siberia in both geographical and biogeographical sense, as well as on the crossroads of taiga and steppe. As well known, the West Siberian Plain has been an inland sea over long periods during the glacials [de Lattin, 1967], often leading to strictly Western or strictly Eastern Palaearctic species or Palaearctic species with a disjunct distribution. *Phasia albopunctata* is a typical Siberian species never found in Europe so far and the same is true for *Solieria munda*. On the other hand, *Litophasia hyalipennis* is a typical European species. *Phasia aurigera*

and possibly *Dionaea aurifrons* are examples of species with a disjunct distribution. On the north-south axis, *Nowickia marklini* is a typical boreo-mountainous species from Europe and Asia. On the other hand, species as *Alsomyia olfaciens*, *Carcelia falenaria*, *Clemelis massilia*, *Peleteria meridionalis* and *Tachina praeceps* are southern in distribution. Both *Nowickia stackelbergi* and *Tachina rohdendorfi* were known from the Asian steppe region only. *Ziminia masiceraeformis* was so far recorded for Russia only from North Ossetia [Richter, 1971].

## References

- Aksyonenko E.V. 2013. Dvukrylye podsemeystva Phasiinae (Diptera, Tachinidae) yugo-vostoka Tsentral'nogo Chernozem'ya [Diptera of the subfamily Phasiinae (Diptera, Tachinidae) of the south-east of the Central Black Earth region. PhD Thesis]. Voronezh. 170 p. (in Russian).
- Andersen S. 1996. Fauna Entomologica Scandinavica. Vol. 33. The Siphonini (Diptera: Tachinidae) of Europe. Leiden: E.J. Brill. 148 p.
- Cerretti P., Tschorsnig H.-P., Lopresti M., Di Giovanni F. 2012. MOSCHweb, a matrix-based interactive key to the genera of the Palaearctic Tachinidae (Insecta, Diptera). *ZooKeys*. 205: 5–18. DOI: 10.3897/zookeys.205.3409
- Cerretti P., Ziegler J. 2004. Chorologic data on Tachinid flies from mainland Greece. *Fragmenta entomologica*. 36(2): 275–317.
- De Lattin G. 1967. Grunriss der Zoogeographie. Stuttgart: Gustav Fischer Verlag. 602 p.
- Draber-Moriko A. 1965. Monographie der paläarktischen Arten der Gattung *Alphora* R.-D. (Diptera, Larvaevoridae). *Annales Zoologici*. 23(6): 69–194.
- Khitsova L.N. 1998. Bioekologicheskie osobennosti takhin (Diptera, Tachinidae) tsentra Russkoy ravniny [Bioecological features of the tachinids (Diptera, Tachinidae) of the center of the Russian Plain. SciD Thesis]. Voronezh. 599 p. (in Russian).
- Khitsova L.N. 2017. Tachins of the Blondeliini tribe (Diptera: Tachinidae, Exoristinae) of the central Russian forest-steppe and adjacent territories. *Vestnik Voronezhskogo gosudarstvennogo universiteta. Seriya: Khimiya, Biologiya, Farmatsiya*. 4: 88–92 (in Russian).
- Khitsova L.N. 2019. Takhiny (Diptera: Tachinidae) Vostochno-evropeyskoy (Russkoy) ravniny (ekologo-faunisticheskiiy srez) [Tachinid flies (Diptera: Tachinidae) of the East European (Russian) Plain (ecological and faunal aspect)]. Voronezh: Nauchnaya kniga. 382 p. (in Russian).
- Lutovinovas E. 2009. Tachinidae (Diptera) from the Dūkštų Ažulynas forest (Neris Regional Park). *Dipteron*. 25: 38–45.
- Lutovinovas E. 2012. New country and host records for Lithuanian Tachinidae (Diptera). *Entomologica Fennica*. 28(2): 54–60. DOI: 10.33338/ef.84588
- Lutovinovas E., Barták M., Kokan B., Ozimec R. 2018. An update to the Tachinidae fauna of Croatia (Diptera). *Entomologica Fennica*. 28(2): 54–60. DOI: 10.33338/ef.71222
- O'Hara J.E., Henderson S.J., Wood D.M. 2020. Preliminary checklist of the Tachinidae of the world. Version 2.1. Available at: <http://www.nadsdiptera.org/Tach/WorldTachs/Checklist/Worldchecklist.html> (accessed 4 March 2024).
- Pohjoismäki J., Bergström Ch. 2021. Review of the Nordic *Gymnocheta* Robineau-Desvoidy (Diptera, Tachinidae) with report of two species new to Europe. *ZooKeys*. 1053: 145–184. DOI: 10.3897/zookeys.1053.52761
- Pohjoismäki J.L.O., Kahanpää J. 2014. Checklist of the superfamilies Oestroidea and Hippoboscoidea of Finland (Insecta, Diptera). *ZooKeys*. 441: 383–408. DOI: 10.3897/zookeys.441.7252
- Richter V.A. 1971. A brief overview of the Tachinidae (Diptera) fauna in the Caucasus. II. Subfamilies Tachinidae, Dexiinae, Phasiinae. *Entomologicheskoe obozrenie*. 50(4): 811–825 (in Russian).
- Richter V.A. 1975. Contribution to the fauna of tachinids (Diptera, Tachinidae) of the Mongolian People's Republic and Southern Siberia. *In: Nasekomye Mongolii. Vypusk 3* [Insects of Mongolia. Number 3]. St Petersburg: Nauka: 628–654 (in Russian).
- Richter V.A. 1996. On the fauna of tachinids (Diptera, Tachinidae) of the Crimea. *Entomologicheskoe obozrenie*. 75(4): 908–929 (in Russian).
- Richter V.A. 2004. Systematic and faunistic notes on tachinids of the Far East of Russia (Diptera: Tachinidae). *Zoosystematica Rossica*. 2003. 12(2): 276.

- Ruchin A.B., Zeegers T., Esin M.N. 2021. New species Tachinid flies (Diptera: Tachinidae) in the Russian fauna. *Russian Entomological Journal*. 30(2): 196–199. DOI: 10.15298/rusentj.30.2.15
- Stireman J.O., Cerretti P., O'Hara J.E., Blaschke J.D., Moulon J.K. 2019. Molecular phylogeny and evolution of world Tachinidae (Diptera). *Molecular Phylogenetics and Evolution*. 139: 106358. DOI: 10.1016/j.ympev.2018.12.002
- Stireman J.O., O'Hara J.E., Wood D.M., 2006. Tachinidae: evolution, behavior, and ecology. *Annual Review of Entomology*. 51: 525–555. DOI: 10.1146/annurev.ento.51.110104.151133
- Sun X., Marshall S.A. 2003. Systematics of *Phasia* Latreille (Diptera: Tachinidae). *Zootaxa*. 276(1): 1–320. DOI: 10.11646/zootaxa.276.1.1
- Tschorsnig H.-P., Herting B. 1994. Die Raupenfliegen (Diptera: Tachinidae) Mitteleuropas: Bestimmungstabellen und Angaben zur Verbreitung und Ökologie der einzelnen Arten. *Stuttgarter Beiträge zur Naturkunde, Serie A (Biologie)*. 506: 1–170.
- Tschorsnig H.-P. 2017. Preliminary host catalogue of Palaearctic Tachinidae (Diptera). Available at: [https://www.uoguelph.ca/nadsfly/Tach/WorldTachs/CatPalHosts/Cat\\_Pal\\_tach\\_hosts\\_Ver1.pdf](https://www.uoguelph.ca/nadsfly/Tach/WorldTachs/CatPalHosts/Cat_Pal_tach_hosts_Ver1.pdf) (accessed 4 March 2024).
- Vaňhara J., Tschorsnig H.-P., Barták M. 2004. New records of Tachinidae (Diptera) from the Czech Republic and Slovakia, with a revised checklist. *Studia dipterologica*. 2003. 10(2): 679–701.
- Zeegers T., Ruchin A.B., Esin M.N. 2023. New species of tachinid flies (Diptera: Tachinidae) from Russia, mostly from Republic of Mordovia. *Euroasian Entomological Journal*. 22(2): 85–94. DOI: 10.15298/euroasentj.22.02.06
- Ziegler J., Shima H. 1996. Tachinid flies of the Ussuri area (Diptera: Tachinidae). Contributions to the knowledge of East Palaearctic insects (5). *Beiträge zur Entomologie*. 46(2): 379–478. DOI: 10.21248/contrib.entomol.46.2.379-478
- Zimin L.S., Kolomiets N.G. 1984. Paraziticheskie dvukrylye fauny SSSR (Diptera, Tachinidae) [Parasitic Diptera of the fauna of the USSR (Diptera, Tachinidae)]. Novosibirsk: Nauka. 232 p. (in Russian).
- Zimin L.S., Zinov'eva K.B., Stackelberg A.A. 1970. 114. Family Tachinidae (Larvaevoridae). In: *Opredelitel' nasekomykh evropeyskoy chasti SSSR. Tom 5. Dvukrylye, blokhi. Chast' 2* [Key to the insects of the European part of the USSR. Volume 5. Diptera, Aphaniptera. Part 2]. Leningrad: Nauka: 678–798 (in Russian).

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