

COMPOSITION AND ZOOGEOGRAPHICAL CHARACTERISTICS OF THE FAMILY TACHINIDAE (DIPTERA: INSECTA) IN SERBIA AND BULGARIA

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Abstract — A total of 465 species of the family Tachinidae have been established in Serbia and Bulgaria so far. They belong to 200 genera and four sub-families. Altogether, 288 species have been reported from Serbia and 409 from Bulgaria. The degree of similarity between the Tachinidae fauna of the two countries is 66.3%. The tachinids belong to 48 zoogeographical categories, divided into two groups: 1) species with the Mediterranean type of distribution – more thermophilic and distributed mainly in southern parts of the Palearctic (77 species, or 16.6%); and 2) species with Palearctic and Euro-Siberian distribution – more cold-resistant and widely distributed in the Palearctic (388 species, or 83.4%).

Key words: Diptera, Tachinidae, faunistics, zoogeography, Serbia, Bulgaria

INTRODUCTION

The first data on the family Tachinidae in Serbia were reported by Strobl (1900, 1902). Between the two world wars, Baranov (1926a, 1926b, 1927a, 1927b, 1929a, 1929b, 1930, 1931) **published information about the morphology and hosts of many species.** After World War II, systematic investigations on the species composition and biology of the Serbian tachinids were carried out by Sisojević (1953a, 1953b, 1955, 1975), Sisojević and Čepelak (1983, 1987, 1998a, 1998b, 1998c), and Sisojević et al. (1991). There are also many reports containing incidental data on some Tachinidae species or their hosts.

The first data on the Bulgarian Tachinidae were reported by Löw (1862, 1863). Between the two world wars, the works of Nedelkov (1912) and Jacentkovsky (1936, 1937) and some short papers by Drensky (1942) and Tschorbadjiew (1925, 1926, 1928, 1930) were published. The last-named author published data about the family's hosts, **predominantly ones of insect pests. More systematic investigations were carried out by Hubenov (1980, 1982, 1983, 1985, 1992, 1993, 1995, 1996, 2001, 2006).** Many articles containing incidental information about Tachinidae species and their hosts have been published as well.

The aim of this study is to present the species composition, level of study and some zoogeographical features of the Tachinidae faunas in Serbia and Bulgaria.

MATERIALS AND METHODS

The article summarizes data on the family Tachinidae in Serbia and Bulgaria obtained over the last two centuries. A total of 300 works are known for the two countries together. A considerable number of them are not devoted to the family Tachinidae in particular, but contain incidental information about the family or its hosts. Some monographs and catalogs also include separate data about the tachinids of the two countries (Mesnil, 1944-1975, 1980; Herting, 1984; Herting and Dely-Draskovits, 1993).

A zoogeographical analysis of species was carried out. This method provides information about species complexes with different zoogeographical character on the basis of their distribution. To compare the tachinid faunas of the two countries, the Czekanowski-Dice-Sørensen coefficient of similarity was used. **The data on species distribution** were taken from Mesnil (1944-1975, 1980), Herting (1983, 1984), Herting and Dely-Draskovits (1993), O'Hara and Wood (2004), Richter (2004), and Tschorsnig et al. (2005).

Abbreviations used: Afrotropical-Mediterranean (**am**), boreo-montane (**bm**), cosmopolitan (**c**), Central and South European (**cse**), Central and Southeast European (**csee**), disjunct Euro-Siberian (**des**), disjunct Palearctic (**dp**), European (**e**), Balkan endemic (**Eb**), European-Central Asian (**eca**), East European-Central Asian (**eecca**), East Mediterranean (**em**); East Mediterranean-Turanian (**emt**), Euro-Siberian—Central Asian (**esca**), European and South Siberian (**ess**), European-Turanian (**et**), European-West Central Asian (**ewca**), Holarctic (**h**), Holarctic species introduced in North America (**h***), Holo-Euro-Siberian (**hes**), Holo-Mediterranean (**hm**), Holarctic-Oriental (**ho**), Holo-Palearctic (**hp**), Holarctic-Paleotropical-Australian (**hpta**), Mediterranean-Central Asian (**mca**), Mediterranean and South Siberian (**mss**), Mediterranean and Southwest Siberian (**msws**), Mediterranean-Turanian (**mt**), Mediterranean-West Central Asian (**mwca**), Northeast Mediterranean (**nem**), North Mediterranean (**nm**), North Mediterranean-Central Asian (**nmca**), North Mediterranean-Turanian (**nmt**), North Mediterranean and Southwest Siberian (**nmsws**), Oriental-Mediterranean (**om**), Palearctic-Afrotropical (**pa**), Palearctic-Oriental (**po**), Palearctic-Paleotropical (**ppt**), Palearctic-Paleotropical-Australian (**ppta**), South European (**se**), South Palearctic (**sp**), South Palearctic-Afrotropical (**spa**), South Palearctic-Paleotropical (**sppt**), South Palearctic-Paleotropical-Australian (**sppta**), South European and South Siberian (**sess**), trans-Palearctic (**tp**), West and Central Euro-Siberian (**wces**), West and Central Palearctic (**wcp**), West Euro-Siberian (**wes**), West Palearctic (**wp**).

RESULTS AND DISCUSSION

Until now, 465 species of the family Tachinidae have been recorded in Serbia and Bulgaria together. They belong to 200 genera and four subfamilies (Table 1). The most numerous is the sub-family Exoristinae – 198, followed by Tachininae – 128, Phasiinae – 74, and Dexiinae – 65. Many genera contain a comparatively small

number of species, which is a typical feature of the family Tachinidae. The richest genera include from 10 to 14 species in both countries. There are five of them: *Exorista* – 14 species, *Carcelia* – 13 species, *Tachina* – 10 species, *Linnaemya* – 13 species, and *Cylindromyia* – 14 species. Thirteen genera contain from six to nine species: *Chetogena*, *Winthemia*, *Drino*, *Gonia*, *Peleteria*, *Eurithia*, *Macquartia*, *Siphona*, *Bithia*, *Billaea*, *Gymnosoma*, *Phasia*, and *Leucostoma*. The above-mentioned 18 genera unite 156 species or 33.5% of all tachinids. From comparison with the faunas of some well-studied European countries such as Hungary (Mihályi, 1986 – 479 species), Switzerland (Herting and Tschorsnig, 1997 – 524 species), Denmark (Zeegers, 1998 – 316 species), Germany (Tschorsnig and Ziegler, 1999 – 494 species), and the Czech Republic (Vaňhara et al., 2003 – 462 species), it can be seen that the tachinid faunas of Serbia and Bulgaria are still insufficiently investigated. Altogether, 600 Tachinidae species have been established on the Balkan Peninsula as a whole (Tschorsnig et al., 2005): 48.0% in Serbia and 68.2% in Bulgaria. The number of species of the family in each of the two countries could probably reach about 480-500 species, pending further investigations.

In regard to sub-families, the difference in number of species between the two countries varies from 2.4 to 11.1%. Thus, the sub-family Exoristinae includes 50.0% (144 species) of the species known from Serbia and 38.9% (159 species) of the species recorded from Bulgaria. For Tachininae, this difference is lower: 24.3% (70 species) for Serbia and 28.1% (115 species) for Bulgaria. The lowest difference is for the sub-family Dexiinae, which includes 12.5% (36 species) of the Serbian and 14.9% (61 species) of the Bulgarian fauna. For the sub-family Phasiinae, the difference is higher: 13.2% (38 species) for Serbia and 18.1% (74 species) for Bulgaria. Of the species scrutinized, a total of 231 are known for both of the two countries. Of the others, 57 species have been recorded from Serbia only and 178 species from Bulgaria only. This results in a relatively low level of similarity between the faunas of the two countries (66.3%), which is due to their insufficient investigation.

Zoogeographical categorization of species (Table 1) was done on the basis of current data about their distribution. Thus, the tachinids are divided into 48 zoogeographical categories, combined in two large groups and five subgroups (Table 2).

Species distributed in the Palearctic and beyond it. This group (31 species, or 6.7%) includes 13 zoogeographical categories (Table 2), eight of which unite species of the northern type (widely distributed in the Holarctic or Palearctic) and five – species of the southern type (distributed mostly in the southern Palearctic). The group is not important for zoogeographical characterization of the Tachinidae because of its heterogeneity and small number of species. The difference between Serbia and Bulgaria with respect to the examined group is 0.7% (seven species). The group includes 8.3% (24 species) of the Serbian and 7.6% (31 species) of the Bulgarian tachinid fauna. The cosmopolitan *Voria ruralis* (Fall.) and sub-cosmopolitan *Prosenia siberita* (F.), which are the most widely distributed Tachinidae in the investigated region, belong to this group. Species of the northern type have vast areas and ecological flexibility. The Holarctic species are the most numerous and together with taxa introduced

Table 1. Species composition of the family Tachinidae (Diptera) from Serbia and Bulgaria

Taxa	Serbia	Bulgaria	Areas
Exoristinae	144	159	
<i>Exorista (Exorista) fasciata</i> (Fallén, 1820)	+		eca
<i>Exorista (Exorista) larvarum</i> (Linnaeus, 1758)	+	+	hp
<i>Exorista (Exorista) segregata</i> (Rondani, 1859)	+	+	mca
<i>Exorista (Podotachina) grandis</i> (Zetterstedt, 1844)	+	+	ess
<i>Exorista (Podotachina) sorbillans</i> (Wiedemann, 1830)	+	+	sppta
<i>Exorista (Thrycolyga) nova</i> (Rondani, 1859)		+	nmt
<i>Exorista (Ptilotachina) civilis</i> (Rondani, 1859)	+	+	sess
<i>Exorista (Ptilotachina) deligata</i> Pandellé, 1896		+	wp
<i>Exorista (Ptilotachina) florentina</i> Herting, 1975	?		e
<i>Exorista (Ptilotachina) xanthaspis</i> (Wiedemann, 1830)	+	+	sppt
<i>Exorista (Adenia) mimula</i> (Meigen, 1824)	+	+	hp
<i>Exorista (Adenia) nympharum</i> (Rondani, 1859)	+		csena, ? hm
<i>Exorista (Adenia) rustica</i> (Fallén, 1810)	+	+	hp
<i>Exorista (Adenia) tubulosa</i> Herting, 1967	+		e
<i>Neophryxe vallina</i> (Rondani, 1861)		+	cse
<i>Chetogena acuminata</i> Rondani, 1859	+	+	tp
<i>Chetogena fasciata</i> (Egger, 1856)		?	ess
<i>Chetogena filipalpis</i> Rondani, 1859	+	+	nmt
<i>Chetogena media</i> Rondani, 1859	+		cse
<i>Chetogena nigrofasciata</i> (Strobl, 1902)	+		Eb
<i>Chetogena obliquata</i> (Fallén, 1810)		+	tp
<i>Diplostichus janitrix</i> (Hartig, 1838)	+	+	des
<i>Parasetigena silvestris</i> (Robineau-Desvoidy, 1863)	+	+	des
<i>Phorocera assimilis</i> (Fallén, 1810)	+	+	des
<i>Phorocera grandis</i> (Rondani, 1859)		+	dp
<i>Phorocera obscura</i> (Fallén, 1810)	+	+	des
<i>Phorinia aurifrons</i> Robineau-Desvoidy, 1830	+	+	des
<i>Bessa parallela</i> (Meigen, 1824)	+	+	hes
<i>Bessa selecta</i> (Meigen, 1824)		+	hes
<i>Belida angelicae</i> (Meigen, 1824)		+	wcp
<i>Meigenia dorsalis</i> (Meigen, 1824)	+	+	hes
<i>Meigenia incana</i> (Fallén, 1810)		+	wces
<i>Meigenia majuscula</i> (Rondani, 1859)	+	+	po
<i>Meigenia mutabilis</i> (Fallén, 1810)	+	+	wcp
<i>Meigenia uncinata</i> Mesnil, 1967	+	+	wces
<i>Conogaster pruinosa</i> (Meigen, 1824)		+	ess
<i>Zaira cinerea</i> (Fallén, 1810)	+	+	tp
<i>Gastrolepta anthracina</i> (Meigen, 1826)	+	+	ewca
<i>Steleoneura czernyi</i> Stein, 1924		+	mca
<i>Medina collaris</i> (Fallén, 1820)		+	hes

Table 1. Continued.

Taxa	Serbia	Bulgaria	Areas
<i>Medina luctuosa</i> (Meigen, 1824)	+	+	hes
<i>Medina multispina</i> (Herting, 1966)	+		? cse
<i>Medina separata</i> (Meigen, 1824)		+	des
<i>Policheta unicolor</i> (Fallén, 1820)	+		e
<i>Istocheta cinerea</i> (Macquart, 1850)	+	+	hm
<i>Istocheta longicornis</i> (Fallén, 1810)	+		des
<i>Lecanipa bicincta</i> (Meigen, 1824)	+	+	wces
<i>Lecanipa leucomelas</i> (Meigen, 1824)	+	+	e
<i>Leiophora innoxia</i> (Meigen, 1824)	+		des
<i>Admontia maculisquama</i> (Zetterstedt, 1859)	+	+	e
<i>Admontia podomyia</i> Brauer & Bergenstamm, 1889		+	e, bm
<i>Oswaldia muscaria</i> (Fallén, 1810)		+	des
<i>Oswaldia spectabilis</i> (Meigen, 1824)	+	+	e
<i>Lomachantha parra</i> Rondani, 1859		+	et
<i>Ligeria angusticornis</i> (Loew, 1847)	+	+	des
<i>Picconia incurva</i> (Zetterstedt, 1844)	+	+	? wp
<i>Erynniopsis antennata</i> (Rondani, 1861)		+	? hm
<i>Ligeriella aristata</i> (Villeneuve, 1911)	+	+	eca
<i>Blondelia inclusa</i> (Hartig, 1838)	+	+	e
<i>Blondelia nigripes</i> (Fallén, 1810)	+	+	tp, h*
<i>Compsilura concinnata</i> (Meigen, 1824)	+	+	hes, h*
<i>Vibrissina debilitata</i> (Pandellé, 1896)		+	e
<i>Vibrissina turrata</i> (Meigen, 1824)	+	+	dp
<i>Acemya acuticornis</i> (Meigen, 1824)		+	ess
<i>Acemya rufitibia</i> (von Roser, 1840)	+	+	des
<i>Ceracia mucronifera</i> Rondani, 1865		+	hm
<i>Ethilla aemula</i> (Meigen, 1824)	+	+	nmt
<i>Paratryphera barbatula</i> (Rondani, 1859)	+	+	tp
<i>Paratryphera bisetosa</i> (Brauer & Bergenstamm, 1891)	+		des
<i>Paratryphera palpalis</i> (Rondani, 1859)	+		se
<i>Atylomyia loewi</i> Brauer, 1898	+	+	tp
<i>Rhaphiochaeta breviseta</i> (Zetterstedt, 1838)	+		des
<i>Smidtia amoena</i> (Meigen, 1824)	+	+	hes
<i>Smidtia conspersa</i> (Meigen, 1824)		+	et
<i>Winthemia cruentata</i> (Rondani, 1859)		+	hes
<i>Winthemia erythrura</i> (Meigen, 1838)	+	+	wces
<i>Winthemia quadripustulata</i> (Fabricius, 1794)	+	+	h
<i>Winthemia rufiventris</i> (Macquart, 1849)	+		? ewca
<i>Winthemia variegata</i> (Meigen, 1824)	+	+	e
<i>Winthemia venusta</i> (Meigen, 1824)	+		hes
<i>Nemorilla floralis</i> (Fallén, 1810)	+	+	hp

Table 1. Continued.

Taxa	Serbia	Bulgaria	Areas
<i>Nemorilla maculosa</i> (Meigen, 1824)	+	+	po
<i>Aplomya confinis</i> (Fallén, 1820)	+	+	hp
<i>Phebellia glauca</i> (Meigen, 1824)	+		hes
<i>Phebellia nigripalpis</i> (Robineau-Desvoidy, 1847)	+	+	des
<i>Phebellia pauciseta</i> (Villeneuve, 1908)		+	e
<i>Phebellia stulta</i> (Zetterstedt, 1844)	+		des
<i>Ptesiomyia alacris</i> (Meigen, 1824)		+	e
<i>Nilea hortulana</i> (Meigen, 1824)	+	+	hes
<i>Nilea innoxia</i> Robineau-Desvoidy, 1863	+		hes
<i>Phonomyia aristata</i> (Rondani, 1861)	+		wces
<i>Tlephusa cincinna</i> (Rondani, 1859)		+	ess
<i>Epicampocera succincta</i> (Meigen, 1824)	+	+	tp
<i>Buquetia musca</i> Robineau-Desvoidy, 1847		+	wp
<i>Phryxe erythrostoma</i> (Hartig, 1838)	+	+	wes
<i>Phryxe magnicornis</i> (Zetterstedt, 1838)	+	+	hes
<i>Phryxe nemea</i> (Meigen, 1824)	+	+	hes
<i>Phryxe prima</i> (Brauer & Bergenstamm, 1889)	+	+	mt
<i>Phryxe vulgaris</i> (Fallén, 1810)	+	+	h
<i>Periarchiclops scutellaris</i> (Fallén, 1820)	+	+	wces
<i>Bactromyia aurulenta</i> (Meigen, 1824)	+	+	des
<i>Pseudoperichaeta nigrolineata</i> (Walker, 1853)	+	+	des
<i>Pseudoperichaeta palesoidea</i> (Robineau-Desvoidy, 1830)	+	+	wcp
<i>Catagonia aberrans</i> (Rondani, 1859)	+	+	cse
<i>Lydella grisescens</i> Robineau-Desvoidy, 1830		+	wcp
<i>Lydella stabulans</i> (Meigen, 1824)		+	wes
<i>Lydella thompsoni</i> Herting, 1959	+	+	sess, h*
<i>Chetina setigena</i> (Rondani, 1856)		+	mwca
<i>Cadurciella tritaeniata</i> (Rondani, 1859)		+	des
<i>Drino atropivora</i> (Robineau-Desvoidy, 1830)	+	+	sp
<i>Drino galii</i> (Brauer & Bergenstamm, 1891)	+		? wces
<i>Drino gilva</i> (Hartig, 1838)		+	des
<i>Drino inconspicua</i> (Meigen, 1830)	+	+	wces
<i>Drino lota</i> (Meigen, 1824)	+	+	pat
<i>Drino vicina</i> (Zetterstedt, 1849)	+	+	wces
<i>Thelyconychia solivaga</i> (Rondani, 1861)		+	pat
<i>Amelibaea tultschensis</i> (Brauer & Bergenstamm, 1891)		+	? hm
<i>Huebneria affinis</i> (Fallén, 1810)	+	+	ess
<i>Tryphera lugubris</i> (Meigen, 1824)	+	+	wcp
<i>Carcelia</i> (<i>Carcelia</i>) <i>atricosta</i> Herting, 1961	+		des
<i>Carcelia</i> (<i>Carcelia</i>) <i>bombylans</i> Robineau-Desvoidy, 1830	+	+	des
<i>Carcelia</i> (<i>Carcelia</i>) <i>dubia</i> (Brauer & Bergenstamm, 1891)		+	nm

Table 1. Continued.

Taxa	Serbia	Bulgaria	Areas
<i>Carcelia (Carcelia) gnava</i> (Meigen, 1824)	+	+	des
<i>Carcelia (Carcelia) iliaca</i> (Ratzeburg, 1840)		+	cse
<i>Carcelia (Carcelia) laxifrons</i> Villeneuve, 1912		+	hes
<i>Carcelia (Carcelia) lucorum</i> (Meigen, 1824)	+	+	tp
<i>Carcelia (Carcelia) puberula</i> Mesnil, 1941	+		des
<i>Carcelia (Carcelia) rasa</i> (Macquart, 1849)	+	+	tp
<i>Carcelia (Carcelia) rasella</i> Baranov, 1931	+	+	des
<i>Carcelia (Euryclea) falenaria</i> (Rondani, 1859)	+	+	hm
<i>Carcelia (Euryclea) tibialis</i> (Robineau-Desvoidy, 1863)		+	dp
<i>Carcelina stackelbergi</i> (Mesnil, 1963)		+	e
<i>Senometopia confundens</i> (Rondani, 1859)	+	+	sess
<i>Senometopia excisa</i> (Fallén, 1820)	+		des
<i>Senometopia pollinosa</i> Mesnil, 1941	+		hes
<i>Senometopia separata</i> (Rondani, 1859)	+	+	des
<i>Senometopia susurrans</i> (Rondani, 1859)	+		cse
<i>Thecocarcelia acutangulata</i> (Macquart, 1850)	+	+	spat
<i>Thecocarcelia trichops</i> Herting, 1967	+		des
<i>Erycia fasciata</i> Villeneuve, 1924	+		wcp
<i>Erycia fatua</i> (Meigen, 1824)	+	+	wces
<i>Erycia festinans</i> (Meigen, 1824)		+	wces
<i>Xylotachina diluta</i> (Meigen, 1824)		+	e
<i>Alsomyia capillata</i> (Rondani, 1859)		+	hm
<i>Townsendiellomyia nidicola</i> (Townsend, 1908)	+	+	nmsws, h*
<i>Platymya antennata</i> (Brauer & Bergenstamm, 1891)		+	wp
<i>Platymya fimbriata</i> (Meigen, 1824)	+	+	tp, bm
<i>Eumea linearicornis</i> (Zetterstedt, 1844)	+	+	hes
<i>Eumea mitis</i> (Meigen, 1824)	+	+	hes
<i>Myxexoristops bicolor</i> (Villeneuve, 1908)	+		e
<i>Myxexoristops blondeli</i> (Robineau-Desvoidy, 1830)	+	+	e
<i>Myxexoristops stolidi</i> (Stein, 1924)		+	des
<i>Zenillia dolosa</i> (Meigen, 1824)		+	hes
<i>Zenillia libatrix</i> (Panzer, 1798)	+	+	hes
<i>Calozenillia tamara</i> (Portshinsky, 1884)		+	dp
<i>Clemelis pullata</i> (Meigen, 1824)	+	+	wcp
<i>Ceratochaetops triseta</i> (Villeneuve, 1922)	+		wcp
<i>Pales pavidata</i> (Meigen, 1824)	+	+	hp
<i>Pales pumicata</i> (Meigen, 1824)		+	nm
<i>Phryno vetula</i> (Meigen, 1824)		+	des
<i>Cyzenis albicans</i> (Fallén, 1810)	+		des
<i>Bothria frontosa</i> (Meigen, 1824)	+	+	hes
<i>Ceromasia rubrifrons</i> (Macquart, 1834)	+	+	hes

Table 1. Continued.

Taxa	Serbia	Bulgaria	Areas
<i>Allophorocera ferruginea</i> (Meigen, 1824)		+	hes
<i>Allophorocera pachystyla</i> (Macquart, 1850)		+	e
<i>Ocytata pallipes</i> (Fallén, 1820)	+	+	wp
<i>Erythrocerca nigripes</i> (Robineau-Desvoidy, 1830)	+	+	e
<i>Cadurgia casta</i> (Rondani, 1861)	+		nm
<i>Eurysthaea scutellaris</i> (Robineau-Desvoidy, 1848)	+	+	e
<i>Erynnia ocypterata</i> (Fallén, 1810)		+	wces
<i>Elodia ambulatoria</i> (Meigen, 1824)		+	wcp
<i>Elodia morio</i> (Fallén, 1820)	+	+	tp
<i>Sturmia bella</i> (Meigen, 1824)	+	+	po
<i>Blepharipa pratensis</i> (Meigen, 1824)	+	+	tp, h*
<i>Blepharipa schineri</i> (Mesnil, 1939)	+	+	hes
<i>Masicera pavoniae</i> (Robineau-Desvoidy, 1830)		+	wp
<i>Masicera silvatica</i> (Fallén, 1810)	+	+	e
<i>Masicera sphingivora</i> (Robineau-Desvoidy, 1830)	+	+	tp
<i>Prosopea nigricans</i> (Egger, 1861)	+	+	wcp
<i>Gaedia connexa</i> (Meigen, 1824)	+	+	e
<i>Gaedia distincta</i> Egger, 1861	+	+	ess
<i>Hebia flavipes</i> Robineau-Desvoidy, 1830		+	des
<i>Thelymorpha marmorata</i> (Fabricius, 1805)		+	wces
<i>Baumhaueria goniaeformis</i> (Meigen, 1824)	+	+	wp
<i>Baumhaueria microps</i> Mesnil, 1963	+		se
<i>Brachicheta strigata</i> (Meigen, 1824)	+		e
<i>Gonia atra</i> Meigen, 1826		+	mca
<i>Gonia bimaculata</i> Wiedemann, 1819	+	+	atm
<i>Gonia capitata</i> (De Geer, 1776)	+	+	wcp
<i>Gonia distinguenda</i> Herting, 1963	+		e
<i>Gonia divisa</i> Meigen, 1826	+		des
<i>Gonia ornata</i> Meigen, 1826	+	+	wcp
<i>Gonia picea</i> (Robineau-Desvoidy, 1830)	+	+	wcp
<i>Gonia vacua</i> Meigen, 1826	+		? e
<i>Onychogonia flaviceps</i> (Zetterstedt, 1838)		+	des
<i>Pseudogonia parisiaca</i> (Robineau-Desvoidy, 1851)	+	+	ess
<i>Pseudogonia rufifrons</i> (Wiedemann, 1830)	+	+	ppta
<i>Spallanzania hebes</i> (Fallén, 1820)	+	+	ho
<i>Spallanzania multisetosa</i> (Rondani, 1859)	+		e
Tachininae	70	115	
<i>Tachina (Tachina) grossa</i> (Linnaeus, 1758)	+	+	hes
<i>Tachina (Tachina) magna</i> (Giglio-Tos, 1890)		+	sess
<i>Tachina (Eudoromyia) casta</i> (Rondani, 1859)	+	+	nm
<i>Tachina (Eudoromyia) corsicana</i> (Villeneuve, 1931)		+	mca

Table 1. Continued.

Taxa	Serbia	Bulgaria	Areas
<i>Tachina (Eudoromyia) fera</i> (Linnaeus, 1761)	+	+	hp
<i>Tachina (Eudoromyia) magnicornis</i> (Zetterstedt, 1844)	+	+	hp
<i>Tachina (Eudoromyia) nupta</i> (Rondani, 1859)	+	+	tp
<i>Tachina (Servillia) lurida</i> (Fabricius, 1781)	+	+	wp
<i>Tachina (Servillia) ursina</i> Meigen, 1824	+		wes
<i>Tachina (Echinogaster) praeceps</i> Meigen, 1824	+	+	tp
<i>Schineria tergestina</i> Rondani, 1859		+	sess
<i>Nowickia (Nowickia) marklini</i> (Zetterstedt, 1838)		+	h
<i>Nowickia (Fabriciella) atripalpis</i> (Robineau-Desvoidy, 1863)	+	+	hes, bm
<i>Nowickia (Fabriciella) ferox</i> (Panzer, 1809)	+	+	wes
<i>Nowickia (Fabriciella) reducta</i> Mesnil, 1970	+		cse
<i>Nowickia (Fabriciella) rondanii</i> (Giglio-Tos, 1890)		+	sess
<i>Cnephaotachina danilevskyi</i> (Portshinsky, 1882)		+	mca
<i>Peleteria abdominalis</i> Robineau-Desvoidy, 1830		+	nm
<i>Peleteria ferina</i> (Zetterstedt, 1844)		+	hes
<i>Peleteria prompta</i> (Meigen, 1824)		+	e
<i>Peleteria rubescens</i> (Robineau-Desvoidy, 1830)	+	+	tp
<i>Peleteria ruficornis</i> (Macquart, 1835)	+	+	msws
<i>Peleteria varia</i> (Fabricius, 1794)	+	+	ppta
<i>Germaria ruficeps</i> (Fallén, 1820)	+	+	wcp
<i>Nemoraea pellucida</i> (Meigen, 1824)	+	+	tp
<i>Linnaemya (Linnaemya) comta</i> (Fallén, 1810)	+	+	ho
<i>Linnaemya (Linnaemya) vulpina</i> (Fallén, 1810)	+	+	tp
<i>Linnaemya (Bonellimyia) impudica</i> (Rondani, 1859)	+	+	cse
<i>Linnaemya (Bonellimyia) tessellans</i> (Robineau-Desvoidy, 1830)	+	+	hes
<i>Linnaemya (Ophina) haemorrhoidalis</i> (Fallén, 1810)		+	hes, bm
<i>Linnaemya (Ophina) helvetica</i> Herting, 1963	+	+	cse
<i>Linnaemya (Ophina) olsuffjevi</i> Zimin, 1954		+	hes
<i>Linnaemya (Ophina) perinealis</i> Pandellé, 1895		+	hes
<i>Linnaemya (Ophina) picta</i> (Meigen, 1824)	+	+	po
<i>Linnaemya (Ophina) rossica</i> Zimin, 1954	+	+	hes
<i>Linnaemya (Ophina) zachvatkini</i> , Zimin, 1954	+		? hes
<i>Linnaemya (Homoeonychia) frater</i> (Rondani, 1859)	+	+	? hm
<i>Linnaemya (Homoeonychia) lithosiophaga</i> (Rondani, 1859)	+	+	hm
<i>Gymnoglossa transsylvanica</i> Mik, 1898		+	des
<i>Chrysosomopsis aurata</i> (Fallén, 1820)	+	+	hes
<i>Lydina aenea</i> (Meigen, 1824)	+	+	ess
<i>Lypha dubia</i> (Fallén, 1810)		+	hes
<i>Petagnia subpetiolata</i> Rondani, 1859		+	? nm
<i>Ernestia argentifera</i> (Meigen, 1824)	+		cse
<i>Ernestia laevigata</i> (Meigen, 1838)		+	hes

Table 1. Continued.

Taxa	Serbia	Bulgaria	Areas
<i>Ernestia puparum</i> (Fabricius, 1794)	+	+	hes
<i>Ernestia rudis</i> (Fallén, 1810)	+	+	tp
<i>Eurithia anthophila</i> (Robineau-Desvoidy, 1830)	+	+	h
<i>Eurithia caesia</i> (Fallén, 1810)	+	+	hes
<i>Eurithia connivens</i> (Zetterstedt, 1844)	+		hes
<i>Eurithia consobrina</i> (Meigen, 1824)	+	+	hes
<i>Eurithia cristata</i> (Villeneuve, 1920)	+		se
<i>Eurithia gemina</i> (Mesnil, 1972)	+		e, mo
<i>Eurithia intermedia</i> (Zetterstedt, 1844)	+		wces
<i>Eurithia vivida</i> (Zetterstedt, 1838)	+		esca
<i>Hyalurgus lucidus</i> (Meigen, 1824)		+	wces, bm
<i>Gymnocheta viridis</i> (Fallén, 1810)		+	wces
<i>Zophomyia temula</i> (Scopoli, 1763)	+	+	tp
<i>Cleonice callida</i> (Meigen, 1824)		+	des
<i>Cleonice nitidiuscula</i> (Zetterstedt, 1859)		+	wes
<i>Loewia brevifrons</i> (Rondani, 1856)		+	nm
<i>Loewia phaeoptera</i> (Meigen, 1824)		+	e
<i>Loewia piligena</i> Mesnil, 1973		+	e
<i>Loewia setibarba</i> Egger, 1856	+	+	cse
<i>Loewia submetallica</i> (Macquart, 1855)		+	e
<i>Pseudopachystylum goniooides</i> (Zetterstedt, 1838)		+	hes
<i>Pelatachina tibialis</i> (Fallén, 1810)	+	+	hes
<i>Macquartia chalconota</i> (Meigen, 1824)	+	+	wes
<i>Macquartia dispar</i> (Fallén, 1820)	+	+	ess
<i>Macquartia grisea</i> (Fallén, 1810)	+	+	e
<i>Macquartia nudigena</i> Mesnil, 1972	+		des
<i>Macquartia praeifica</i> (Meigen, 1824)		+	hm
<i>Macquartia tenebricosa</i> (Meigen, 1824)	+	+	wcp
<i>Macquartia tessellum</i> (Meigen, 1824)	+	+	mca
<i>Macquartia viridana</i> Robineau-Desvoidy, 1863	+	+	e
<i>Macroprosopa atrata</i> (Fallén, 1810)		+	ess
<i>Triarthria setipennis</i> (Fallén, 1810)		+	wp
<i>Trichactia pictiventris</i> (Zetterstedt, 1855)	+		wp
<i>Neaera atra</i> Robineau-Desvoidy, 1850		+	nm
<i>Phytomyptera abnormis</i> (Stein, 1924)		+	se
<i>Phytomyptera cingulata</i> (Robineau-Desvoidy, 1830)		+	e
<i>Phytomyptera nigrina</i> (Meigen, 1824)		+	wcp
<i>Graphogaster brunnescens</i> Villeneuve, 1907		+	ess
<i>Graphogaster vestita</i> Rondani, 1868		+	hm
<i>Entomophaga exoleta</i> (Meigen, 1824)	+		e
<i>Ceromya dilecta</i> Herting, 1977		+	cse

Table 1. Continued.

Taxa	Serbia	Bulgaria	Areas
<i>Ceromya flavisetata</i> (Villeneuve, 1921)		+	e
<i>Actia crassicornis</i> (Meigen, 1824)	+	+	ess
<i>Actia infantula</i> (Zetterstedt, 1844)	+	+	wcp
<i>Actia lamia</i> (Meigen, 1838)		+	hes
<i>Actia nigroscutellata</i> Lundbeck, 1927		+	e
<i>Actia pilipennis</i> (Fallén, 1810)	+	+	hes
<i>Peribaea apicalis</i> Robineau-Desvoidy, 1863	+	+	wces
<i>Peribaea setinervis</i> (Thomson, 1869)	+		hes
<i>Peribaea tibialis</i> (Robineau-Desvoidy, 1851)	+	+	spat
<i>Ceranthia lichtwardtiana</i> (Villeneuve, 1931)		+	e
<i>Siphona collini</i> Mesnil, 1960	+	+	hes
<i>Siphona cristata</i> (Fabricius, 1805)		+	h
<i>Siphona flavifrons</i> Staeger, 1849	+	+	des, h*
<i>Siphona geniculata</i> (De Geer, 1776)	+	+	hes, h*
<i>Siphona hungarica</i> Andersen, 1984		+	csee
<i>Siphona maculata</i> Staeger, 1849		+	h
<i>Siphona pauciseta</i> Rondani, 1865		+	wces
<i>Siphona variata</i> Andersen, 1982		+	e
<i>Aphria latifrons</i> Villeneuve, 1908		+	mss
<i>Aphria longilingua</i> Rondani, 1861	+		ess
<i>Aphria longirostris</i> (Meigen, 1824)	+	+	wcp
<i>Aphria xyphias</i> Pandellé, 1896		+	hes
<i>Demoticus plebejus</i> (Fallén, 1810)	+	+	wes
<i>Bithia demotica</i> (Egger, 1861)	+	+	ess
<i>Bithia geniculata</i> (Zetterstedt, 1844)		+	wces
<i>Bithia glirina</i> (Rondani, 1861)		+	wes
<i>Bithia immaculata</i> Herting, 1971	+	+	? cse
<i>Bithia jacentkovskyi</i> (Villeneuve, 1937)		+	eca
<i>Bithia modesta</i> (Meigen, 1824)	+	+	hm
<i>Bithia spreta</i> (Meigen, 1824)		+	wes
<i>Leskia aurea</i> (Fallén, 1820)		+	hes
<i>Solieria fenestrata</i> (Meigen, 1824)	+	+	wes
<i>Solieria pacifica</i> (Meigen, 1824)	+	+	e
<i>Solieria vacua</i> (Rondani, 1861)		+	cse
<i>Mintho compressa</i> (Fabricius, 1787)		+	atm
<i>Mintho rufiventris</i> (Fallén, 1817)	+	+	tp
<i>Minthodes picta</i> (Zetterstedt, 1844)		+	e, bm
<i>Minthodes pictipennis</i> Brauer & Bergenstamm, 1889		+	em
<i>Palmonia hermonensis</i> Kugler, 1972		+	em
<i>Ziminia masiceraeformis</i> (Portshinsky, 1881)		+	emt
<i>Mesnilomyia longicornis</i> Kugler, 1972		+	em

Table 1. Continued.

Taxa	Serbia	Bulgaria	Areas
<i>Microphthalma europaea</i> Egger, 1860	+	+	? om
<i>Dexiosoma caninum</i> (Fabricius, 1781)		+	des
Dexiinae	36	61	
<i>Trixa caerulescens</i> Meigen, 1824		+	wes
<i>Trixa conspersa</i> (Harris, 1776)	+	+	wes
<i>Billaea adelpha</i> (Loew, 1873)	+	+	et
<i>Billaea fortis</i> (Rondani, 1862)		+	des
<i>Billaea irrorata</i> (Meigen, 1826)	+	+	e
<i>Billaea maritima</i> (Schiner, 1862)	+	+	hm
<i>Billaea pectinata</i> (Meigen, 1826)	+	+	mca
<i>Billaea steini</i> (Brauer & Bergenstamm, 1891)		+	des
<i>Billaea triangulifera</i> (Zetterstedt, 1844)	+	+	hes
<i>Dinera carinifrons</i> (Fallén, 1817)	+	+	hes
<i>Dinera ferina</i> (Fallén, 1817)	+	+	wes
<i>Dinera grisescens</i> (Fallén, 1817)	+	+	h
<i>Estheria bohemani</i> (Rondani, 1862)	+	+	e
<i>Estheria cristata</i> (Meigen, 1826)		+	e
<i>Estheria petiolata</i> (Bonsdorff, 1866)	+	+	wces
<i>Estheria picta</i> (Meigen, 1826)	+	+	wcp
<i>Dexia rustica</i> (Fabricius, 1775)	+	+	hes
<i>Prosenia siberita</i> (Fabricius, 1775)	+	+	hpta
<i>Zeuxia aberrans</i> (Loew, 1847)	+		mwca
<i>Zeuxia brevicornis</i> (Egger, 1860)		+	eca
<i>Zeuxia cinerea</i> Meigen, 1826	+	+	wp
<i>Zeuxia erythraea</i> (Egger, 1856)		+	nm
<i>Zeuxia tricolor</i> (Portshinsky, 1881)		+	nem
<i>Eriothrix apenninus</i> (Rondani, 1862)	+	+	wp
<i>Eriothrix argyreatus</i> (Meigen, 1824)	+	+	hes
<i>Eriothrix inflatus</i> Kolomiets, 1967		+	wes
<i>Eriothrix proluxa</i> (Meigen, 1824)	+	+	hes
<i>Eriothrix rufomaculatus</i> (De Geer, 1776)	+	+	tp
<i>Trafoia monticola</i> Brauer & Bergenstamm, 1893	+	+	e
<i>Campylocheta latigena</i> Mesnil, 1974		?	e
<i>Campylocheta praecox</i> (Meigen, 1824)	+		e
<i>Campylocheta similis</i> Ziegler & Shima, 1996		+	des
<i>Blepharomyia pagana</i> (Meigen, 1824)		+	des
<i>Blepharomyia piliceps</i> (Zetterstedt, 1859)		+	e, bm
<i>Peteina erinaceus</i> (Fabricius 1794)		+	wces
<i>Ramonda prunaria</i> (Rondani, 1861)		+	des
<i>Ramonda spathulata</i> (Fallén, 1820)		+	tp
<i>Periscepsia carbonaria</i> (Panzer, 1798)	+	+	ppt

Table 1. Continued.

Taxa	Serbia	Bulgaria	Areas
<i>Wagneria costata</i> (Fallén, 1815)		+	e
<i>Wagneria cunctans</i> (Meigen, 1824)		+	hm
<i>Wagneria gagatea</i> Robineau-Desvoidy, 1830	+	+	e
<i>Kirbya moerens</i> (Meigen, 1830)	+		cse
<i>Athrycia impressa</i> (Wulp, 1869)	+	+	ess
<i>Athrycia trepida</i> (Meigen, 1824)	+	+	tp
<i>Voria ruralis</i> (Fallén, 1810)	+	+	c
<i>Cyrtophleba ruricola</i> (Meigen, 1824)	+	+	tp
<i>Hyleorus elatus</i> (Meigen, 1838)		+	hes
<i>Klugia marginata</i> (Meigen, 1824)	+	+	des
<i>Plagiomima hilfi</i> (Strobl, 1902)	+		nem
<i>Phyllomya volvulus</i> (Fabricius, 1794)	+	+	hes
<i>Thelaira leucozona</i> (Panzer, 1809)	+	+	sess
<i>Thelaira nigripes</i> (Fabricius, 1794)	+	+	tp
<i>Thelaira solivaga</i> (Harris, 1780)		+	e
<i>Halidaya aurea</i> Egger, 1856		+	hes
<i>Stomina caliendrata</i> (Rondani, 1862)		+	mca
<i>Stomina iners</i> (Meigen, 1838)		+	hm
<i>Stomina tachinoides</i> (Fallén, 1817)	+	+	wcp
<i>Rhamphina pedemontana</i> (Meigen, 1824)	+	+	se, ? nm
<i>Dufouria chalybeata</i> (Meigen, 1824)	+	+	dp
<i>Dufouria nigrita</i> (Fallén, 1810)		+	wcp
<i>Dufouria occlusa</i> (Robineau-Desvoidy, 1863)		+	e
<i>Chetoptilia puella</i> (Rondani, 1862)		+	des
<i>Rondania dimidiata</i> (Meigen, 1824)		+	e, ? h
<i>Microsoma exiguum</i> (Meigen, 1824)		+	dp
<i>Freraea gagatea</i> Robineau-Desvoidy, 1830		+	wces
Phasiinae	38	74	
<i>Redtenbacheria insignis</i> Egger, 1861	+	+	dp
<i>Eliozeta helluo</i> (Fabricius, 1805)		+	tp
<i>Eliozeta pellucens</i> (Fallén, 1820)		+	des
<i>Clytiomya continua</i> (Panzer, 1798)	+	+	tp
<i>Clytiomya sola</i> (Rondani, 1861)		+	hm
<i>Ectophasia crassipennis</i> (Fabricius, 1794)	+	+	tp
<i>Ectophasia leucoptera</i> (Rondani, 1865)		+	nmt
<i>Ectophasia oblonga</i> (Robineau-Desvoidy, 1830)	+	+	wp
<i>Subclytia rotundiventris</i> (Fallén, 1820)		+	tp
<i>Gymnosoma clavatum</i> (Rohdendorf, 1947)	+	+	tp
<i>Gymnosoma costatum</i> (Panzer, 1800)	+	+	tp
<i>Gymnosoma desertorum</i> (Rohdendorf, 1947)	+	+	eecca
<i>Gymnosoma dolycoridis</i> Dupuis, 1961		+	ess

Table 1. Continued.

Taxa	Serbia	Bulgaria	Areas
<i>Gymnosoma inornatum</i> Zimin, 1966	+	+	tp
<i>Gymnosoma nitens</i> Meigen, 1824		+	esca
<i>Gymnosoma nudifrons</i> Herting, 1966	+	+	hes
<i>Gymnosoma rotundatum</i> (Linnaeus, 1758)	+	+	tp
<i>Gymnosoma rungsi</i> Mesnil, 1952		+	nmca
<i>Cistogaster globosa</i> (Fabricius, 1775)	+	+	ess
<i>Opesia cana</i> (Meigen, 1824)	+	+	ess
<i>Opesia grandis</i> (Egger, 1860)	+	+	hes
<i>Elomya lateralis</i> (Meigen, 1824)	+	+	tp
<i>Phasia (Phasia) aurigera</i> (Egger, 1860)	+	+	des
<i>Phasia (Phasia) aurulans</i> Meigen, 1824		+	h, ? hes
<i>Phasia (Phasia) hemiptera</i> (Fabricius, 1794)	+	+	hes
<i>Phasia (Phasia) obesa</i> (Fabricius, 1798)	+	+	tp
<i>Phasia (Phasia) subcoleoprata</i> (Linnaeus, 1767)		+	tp
<i>Phasia (Hyalomya) pandellei</i> (Dupuis, 1957)		+	cse
<i>Phasia (Hyalomya) pusilla</i> Meigen, 1824	+	+	tp
<i>Xysta holosericea</i> (Fabricius, 1805)	+	+	hm
<i>Catharosia pygmaea</i> (Fallén, 1815)		+	dp
<i>Litophasia hyalipennis</i> (Fallén, 1815)		+	e
<i>Strongygaster globula</i> (Meigen, 1824)		+	hes
<i>Dionaea aurifrons</i> (Meigen, 1824)	+	+	tp
<i>Eulabidogaster setifacies</i> (Rondani, 1861)		+	wp
<i>Leucostoma abbreviatum</i> Herting, 1971		+	hm
<i>Leucostoma anthracinum</i> (Meigen, 1824)		+	wces
<i>Leucostoma engeddense</i> Kugler, 1966		+	hm
<i>Leucostoma nudifacies</i> Tschorsnig, 1991		+	se
<i>Leucostoma simplex</i> (Fallén, 1815)	+	+	hes
<i>Leucostoma tetraptera</i> (Meigen, 1824)	+	+	wcp
<i>Leucostoma turonicum</i> Dupuis, 1964		+	cse
<i>Clairvillia biguttata</i> (Meigen, 1824)		+	dp
<i>Clairvillia pninae</i> Kugler, 1971		+	hm
<i>Labigastera forcipata</i> (Meigen, 1824)	+	+	wes
<i>Labigastera nitidula</i> (Meigen, 1824)		+	hm
<i>Labigastera pauciseta</i> (Rondani, 1861)		+	e, cse
<i>Weberia digramma</i> (Meigen, 1824)		+	mt
<i>Lophosia (Lophosia) fasciata</i> Meigen, 1824	+	+	des
<i>Cylindromyia (Exogaster) rufifrons</i> (Loew, 1844)		+	mwca
<i>Cylindromyia (Plesiocyptera) rubida</i> (Loew, 1854)		+	om
<i>Cylindromyia (Cylindromyia) bicolor</i> (Olivier, 1812)	+	+	mca
<i>Cylindromyia (Cylindromyia) brassicaria</i> (Fabricius, 1775)	+	+	hp
<i>Cylindromyia (Cylindromyia) brevicornis</i> (Loew, 1844)	+	+	des

Table 1. Continued.

Taxa	Serbia	Bulgaria	Areas
<i>Cylindromyia (Cylindromyia) pilipes</i> (Loew, 1844)	+	+	wcp
<i>Cylindromyia (Cylindromyia) xyloina</i> (Egger, 1860)		+	cse
<i>Cylindromyia (Ocypterula) pusilla</i> (Meigen, 1824)		+	hes
<i>Cylindromyia (Conopisoma) rufipes</i> (Meigen, 1824)	+	+	mca
<i>Cylindromyia (Dupuisia) crassa</i> (Loew, 1845)		+	mss
<i>Cylindromyia (Calocyptera) intermedia</i> (Meigen, 1824)	+	+	h
<i>Cylindromyia (Neocyptera) auriceps</i> (Meigen, 1838)	+	+	tp
<i>Cylindromyia (Neocyptera) hermonensis</i> Kugler, 1974		+	em
<i>Cylindromyia (Neocyptera) interrupta</i> (Meigen, 1824)	+	+	h
<i>Hemyda obscuripennis</i> (Meigen, 1824)	+	+	des
<i>Hemyda vittata</i> (Meigen, 1824)	+	+	hes
<i>Besseria anthophila</i> (Loew, 1871)		+	wcp
<i>Besseria dimidiata</i> (Zetterstedt, 1844)	+	+	e
<i>Besseria lateritia</i> (Meigen, 1824)		+	? mt
<i>Besseria melanura</i> (Meigen, 1824)		+	ess
<i>Besseria reflexa</i> Robineau-Desvoidy, 1830		+	cse
<i>Phania curvicauda</i> (Fallén, 1820)		+	e
<i>Phania funesta</i> (Meigen, 1824)	+	+	e
<i>Phania incrassata</i> Pandellé, 1894	+	+	cse
<i>Phania speculifrons</i> (Villeneuve, 1919)	+	+	cse
Total number of species: 465	288	409	

in North America form a complex of 17 species; of these, only *Townsendiellomyia nidicola* (Tow.) has a Mediterranean type of distribution (North Mediterranean and Southwest Siberian).

Species distributed only in the Palearctic but in more than one sub-region (Palearctic type). A total of 109 species (23.4%) from this group, combined in 11 zoogeographical categories, have been recorded in Serbia and Bulgaria. It includes 28.1% (81 species) of the Serbian and 25.2% (103 species) of the Bulgarian tachinid fauna. The character of the group is determined by trans-Palearctic (40 species, or 8.6%), West and Central Palearctic (24 species, or 5.2%), and West Palearctic (14 species, or 3.0%) species, which are the most numerous. The correlation of these categories is similar in the two countries and varies from 0.4 to 2.3% (Table 2). Nine species have a longitudinal disjunction of their ranges, which include parts of Siberia and Central Asia (Table 1). Some of these species are probably represented by rare populations that could be established pending more thorough investigations in the explored territories. The number of Holo-palearctic species is the same for each country (nine species). The trans-palearctic species *Platymyia fimbriata* (Meig.) has a boreo-montane distribution.

Table 2. Zoogeographical characteristics of the Serbian and Bulgarian Tachinidae (Diptera).

Zoogeographical categories	Total		Serbia		Bulgaria	
	number	%	number	%	number	%
Species distributed in Palearctic and beyond it	31	6.7	24	8.3	31	7.6
NORTHERN TYPE	23	4.9	18	6.2	23	5.6
Cosmopolitan	1	0.2	1	0.3	1	0.2
Holarctic-Paleotropical-Australian	1	0.2	1	0.3	1	0.2
Palaearctic-Paleotropical-Australian	2	0.4	2	0.7	2	0.5
Palaearctic-Paleotropical	1	0.2	1	0.3	1	0.2
Palaearctic-Afrotropical	2	0.4	1	0.3	2	0.5
Holarctic-Oriental	2	0.4	2	0.7	2	0.5
Palaearctic-Oriental	4	0.9	4	1.4	4	0.9
Holarctic	10 (7)	2.1	6 (7)	2.1	10 (7)	2.4
SOUTHERN TYPE	8	1.7	6	2.1	8	1.9
South Palaearctic-Paleotropical-Australian	1	0.2	1	0.3	1	0.2
South Palaearctic-Paleotropical	1	0.2	1	0.3	1	0.2
South Palaearctic-Afrotropical	2	0.4	2	0.7	2	0.5
Afrotropical-Mediterranean	2	0.4	1	0.3	2	0.5
Oriental-Mediterranean	2	0.4	1	0.3	2	0.5
Species with Palearctic distribution	434	93.3	264	91.7	378	92.4
PALEARCTIC TYPE	109	23.4	81	28.1	103	25.2
Holo-Palaearctic	9	1.9	9	3.1	9	2.2
Trans-Palaearctic	40	8.6	35	12.1	40	9.8
West and Central Palaearctic	24	5.2	18	6.2	22	5.4
West Palaearctic	14	3.0	8	2.8	13	3.2
Disjunct Palaearctic	9	1.9	3	1.0	9	2.2
South Palaearctic	1	0.2	1	0.3	1	0.2
Euro-Siberian-Central Asian	2	0.4	1	0.3	1	0.2
European-Central Asian	4	0.9	2	0.7	3	0.7
East European-Central Asian	1	0.2	1	0.3	1	0.2
European-West Central Asian	2	0.4	2	0.7	1	0.2
European-Turanian	3	0.6	1	0.3	3	0.7
EURO-SIBERIAN TYPE	256	55.0	157	54.5	214	52.3
Holo-Euro-Siberian	63	13.5	45	15.6	53	12.9
West and Central Euro-Siberian	23	4.9	12	4.2	20	4.9
West Euro-Siberian	15	3.2	9	3.1	14	3.4
Disjunct Euro-Siberian	49	10.5	31	10.8	38	9.3
European and South Siberian	21	4.5	13	4.5	19	4.6
South European and South Siberian	7	1.5	4	1.4	7	1.7
European	56	12.0	30	10.4	46	11.2
Central and South European	21	4.5	13	4.5	16	3.9
Central and Southeast European	1	0.2			1	0.2
MEDITERRANEAN TYPE	69	14.8	26	9.0	61	14.9
Mediterranean and South Siberian	2	0.4			2	0.5
Mediterranean and Southwest Siberian	1	0.2	1	0.3	1	0.2
Mediterranean-Central Asian	10	2.1	5	1.7	10	2.4
Mediterranean-West Central Asian	3	0.6	1	0.3	2	0.5
Mediterranean-Turanian	3	0.6	1	0.3	3	0.7
North Mediterranean-Central Asian	1	0.2			1	0.2
North Mediterranean-Turanian	4	0.9	2	0.7	4	0.9
North Mediterranean and Southwest Siberian	1	0.2	1	0.3	1	0.2
East Mediterranean-Turanian	1	0.2			1	0.2
Holo-Mediterranean	21	4.5	8	2.8	20	4.9
North Mediterranean	9	1.9	2	0.7	8	1.9
South European	6	1.3	3	1.0	3	0.7
East Mediterranean	4	0.9			4	0.9
Northeast Mediterranean	2	0.4	1	0.3	1	0.2
Balkan endemic	1	0.2	1	0.3		

Species distributed within one sub-region of the Palearctic. A total of 325 species (69.9%) with the Euro-Siberian and Mediterranean types of distribution belong to this group. The Mediterranean-Central Asian species are also included here according to many authors who combine the Mediterranean and Central Asian sub-regions. The species with a Mediterranean type of distribution are accepted in a general way and include elements (sub-Mediterranean, sub-Iranian, and Pontian), that could be considered separately as well (Gruev and Kusmanov, 1994).

EURO-SIBERIAN SPECIES number 256 (55.0%), of which the Holo-Euro-Siberian (63 species, or 13.5%), European (56 species, or 12.0%) and disjunct Euro-Siberian (49 species, or 10.5%) ones are the best represented. The last-named species has a longitudinal disjunction of its range between Europe and Siberia. The correlation of these categories is similar in the two countries and varies from 0.8 to 2.7%. The boreo-montane species *Admontia podomyia* B. & B., *Platymya fimbriata* (Meig.), *Nowickia atripalpis* (R.-D.), *Linnaemya haemorrhoidalis* (Fall.), *Hyalurgus lucidus* (Meig.), *Minthodes picta* (Zett.), and *Blepharomyia piliceps* (Zett.) have a latitudinal disjunction of their ranges. The species *A. podomyia*, *L. haemorrhoidalis*, and *B. piliceps* have also been established in the lower two vegetation belts (Hubenov, 1996). Finding of boreo-montane forms at a low altitude has been reported for other insect groups as well (Josifov, 1963, 1976; Georgiev and Hubenov, 2006). It is supposed that humid mountain valleys characterized by a cooler climate facilitated the migration of montane and boreo-montane species to lowlands in many regions. Seventy-eight species have European distribution only, of which 56 are widespread in Europe and 22 occur in its separate regions (Central and Southern Europe). The Euro-Siberian species belong to nine zoogeographical categories that include 54.5% (157 species) of the Serbian tachinids and 52.3% (214 species) of the Bulgarian ones.

MEDITERRANEAN SPECIES number 69 (14.8%), of which Holo-Mediterranean species (21 species, or 4.5%) are most numerous, followed by Mediterranean-Central Asian (10 species, or 2.1%) and North Mediterranean (nine species, or 1.9%) forms. This group divides into 15 subgroups with different origin, distribution, and ecological peculiarities. The number of Mediterranean forms in Serbia is smaller – 9.0% (26 species) than in Bulgaria – 15% (61 species). The share of these species in the Sandanski-Petrich Valley (the region with the strongest Mediterranean influence in Bulgaria) reaches 17% (Beschovski and Hubenov, 1986; Hubenov, 2004). There are no drastic differences between the Tachinidae faunas of Serbia and Bulgaria. The differences can be attributed to incomplete investigations of the two countries and the likelihood that rare forms have not been found yet in one or the other country. The endemic *Chetogena nigrofasciata* belongs to the group of Mediterranean forms reported by Strobl from Serbia and Greece. Balkan endemics are exceptional among the family Tachinidae. The species of this family have vast ranges, and the endemics are usually newly described taxa or rare species with unclear distribution.

CONCLUSION

A total of 465 species of the family Tachinidae have been established in Serbia and Bulgaria so far. They belong to 200 genera and four subfamilies. Of all tachinids

(600 species) of the Balkan countries, 288 species (48.0%) have been found in Serbia and 409 species (68.2%) in Bulgaria. The number of species in each of the two countries could reach to 480-500 species pending further investigations. The Tachinidae fauna can be divided into two groups: 1) species with the Mediterranean type of distribution – more thermophilic and distributed mainly in southern parts of the Palearctic (77 species, or 16.6%). Eight species of the southern type, distributed outside the Palearctic, could be also formally included in this group; and 2) species with Palearctic and Euro-Siberian distribution – more cold-resistant and widely distributed in the Palearctic (388 species, or 83.4%). Twenty-three species of the northern type, distributed outside Palearctic, can be formally related to this group. The zoogeographical character of the tachinid fauna is determined by the second group.

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