

Tachinidae (Diptera) species of Sakarya Province (Turkey), with 2 new records

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Abstract: This study was carried out to determinate the Tachinidae fauna of Sakarya Province in 2012 and 2013. Tachinids were collected in the region by sweeping with nets from various plants. As a result of this study, 7 genera and 8 species belonging to the subfamily of Exoristinae, 5 genera and 5 species belonging to the subfamily of Tachininae, 2 genera and 2 species belonging to the subfamily of Dexiinae, and 4 genera and 6 species belonging to the subfamily of Phasiinae were found. Two species among them, *Meigenia incana* (Fallen, 1810) and *Exorista civilis* (Rondani, 1859), were recorded for the first time in Turkey.

Key words: Tachinidae, fauna, new records, Sakarya, Turkey

1. Introduction

The family Tachinidae contains more than 8000 species (Ziegler, 1998). They are parasitoids of other arthropods, primarily insects, and play a significant role in regulating pest populations in agricultural and forestry areas (Stireman et al., 2006). The most common hosts of tachinids are larval Lepidoptera. In addition, they attack other insects from Heteroptera, Coleoptera, and Hymenoptera (Wood, 1987). Detailed works are needed to reveal the tachinid fauna of Turkey because this family has not been studied so far in many regions of Turkey (especially outside of the Black Sea and Central Anatolia regions). The aim of this study was to determine the tachinids of Sakarya Province.

2. Materials and methods

This study was performed in Sakarya Province in 2012 and 2013. All material was obtained by the first author by sweeping from crop, forest, weed, and ornamental plants during the vegetative period. The tachinids were identified by the second and third authors using the keys of Tschorsnig and Herting (1994) and Tschorsnig and Richter (1998). Nomenclature and arrangement of tachinids follows Herting and Dely-Draskovits (1993). The specimens were deposited at the Entomology Laboratory of Gaziosmanpaşa University, Agriculture Faculty, Plant Protection Department, Tokat, Turkey.

3. Results and discussion

Subfamily: Exoristinae

Tribe: Exoristini

Exorista civilis (Rondani, 1859)

Material examined: Sakarya: Adapazarı, 40°52'43"N, 30°28'38"E, 20 m, 09.VII.2013, 1♀.

Hosts in Turkey: Unknown.

Distribution in Turkey: This tachinid was recorded for the first time from Turkey.

Distribution in the world: Central and East Asia (Herting and Dely-Draskovits, 1993), Europe (Herting and Dely-Draskovits, 1993; Tschorsnig et al., 2004).

Exorista mimula (Meigen, 1824)

Material examined: Sakarya: Kaynarca, 40°58'34"N, 30°21'32"E, 88 m, 11.VII.2013, 1♀, 1♂.

Hosts in Turkey: Unknown.

Distribution in Turkey: Tokat (Kara and Alaoğlu, 2002).

Distribution in the world: East and West Asia (Herting, 1984), North Europe (Herting, 1984; Belshaw, 1993), East Europe (Draber-Monko et al., 1991; Hubenov, 1992), South Europe (Tschorsnig, 1992), West Europe (Tschorsnig et al., 2004).

Tribe: Blondeliini

Meigenia incana (Fallen, 1810)

Material examined: Sakarya: Karasu, 41°04'56"N, 30°44'11"E, 4 m, 22.V.2013, 1♂.

Hosts in Turkey: Unknown.

Distribution in Turkey: This tachinid was recorded for the first time from Turkey.

Distribution in the world: East, North, and West Europe, East Asia (Herting and Dely-Draskovits, 1993; Tschorsnig et al., 2004), South Europe (Tschorsnig et al., 2004).

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Meigenia simplex Tschorsnig & Herting, 1998

Material examined: Sakarya: Adapazarı, 40°48'21"N, 30°27'36"E, 13 m, 25.VI.2012, 1♀, Söğütlü, 40°53'15"N, 30°27'49"E, 17 m, 25.V.2013, 1♀.

Hosts in Turkey: *Chrysomela populi* (L.), *C. tremula* Fabr. (Col.: Chrysomelidae) (Zeki and Toros, 1990), *C. polita* L. (Kara and Atay, 2015).

Distribution in Turkey: Ankara (Tschorsnig and Herting, 1998), Sivas (Atay and Kara, 2014).

Distribution in the world: South Europe and West Europe (Tschorsnig et al., 2004).

Compsilura concinnata (Meigen, 1824)

Material examined: Sakarya: Kaynarca, 40°58'34"N, 30°21'12"E, 88 m, 11.VI.2013, 2♂♂.

Hosts in Turkey: *Euproctis* sp. (Tuatay et al., 1972), *E. chrysorrhoea* L. (Öncüer et al., 1977; Soydanbay, 1978; Eroğlu, 1995; Kara, 1998), *Leucoma salicis* L. (Doğanlar, 1982a; Kansu et al., 1986; Kılıç and Alaoğlu, 1996), *Malacosoma neustria* (L.), *Lymantria dispar* (L.) (Kansu et al., 1986), *Hypantiria cunea* Drury (Tuncer and Ecevit, 1996), *Parnassius apollo* L. (Kovancı et al., 1999), *Pieris brassicae* L. (Kara, 1998; Kaya and Kornoşor, 2008), *Parnassius apollo* L., *Yponomeuta padella* L. (Kara and Özdemir, 2000), *Thaumetopea pityocampa* (Oğurlu, 2000), *Autographa gamma* L. (Kara and Tschorsnig, 2003), *Parocneria terebinthi* Freyer (Kara and Alaoğlu, 2001), *Thaumetopea ispartaensis* (Avcı and Kara, 2002), *Pieris daplidice* L., *Heliothis armigera* (Hübner) (Kaya and Kornoşor, 2008), *Thaumetopoea solitaria* Freyer (Atay and Kara, 2014).

Distribution in Turkey: Ankara (Tuatay et al., 1972), Uşak, Denizli (Öncüer et al., 1977), Erzurum (Doğanlar, 1982a; Kılıç and Alaoğlu, 1996), Ankara, Kırşehir, Niğde (Kansu et al., 1986), Artvin, Erzurum, Gümüşhane, Trabzon (Eroğlu, 1995), Samsun (Tuncer and Ecevit, 1996), Tokat (Kara and Alaoğlu, 2001; Atay and Kara, 2014), Bursa (Kovancı et al., 1999), Eskişehir (Kara and Özdemir, 2000), Amasya (Kara, 2001b), Isparta (Avcı and Kara, 2002), Eskişehir (Aksu, 2005), Hatay (Kaya and Kornoşor, 2008), Afyonkarahisar, Burdur, Isparta (Avcı, 2009), Adana, Mersin (Akdağcık, 2010).

Distribution in the world: West Asia (Kugler, 1974), North America (Arnaud, 1978), East Asia (Zimin et al., 1988), East Europe (Draber-Monko et al., 1991; Hubenov, 1992), South Europe (Tschorsnig, 1992), North Europe (Belshaw, 1993), West Europe (Tschorsnig et al., 2004).

Tribe: Goniini

Pales pavida (Meigen, 1824)

Material examined: Sakarya: Karasu, 41°04'56"N, 30°44'11"E, 4 m, 22.V.2013, 1♂.

Hosts in Turkey: *Lymantria dispar* L. (Haeselbarth, 1983), *Malacosoma franconica* Esp. and *M. castrensis kirghisica* Stgr. (Doğanlar 1975, 1982a), *Hypantiria cunea*

(Drury) (Tuncer and Ecevit, 1996; Kara and Tschorsnig, 2003), *Aglais urticae* L., *Leucoma salicis* (L.) (Kara, 1998), *Yponomeuta* sp. (Kara and Özdemir, 2000), *Malacosoma neustria* (L.) (Kara and Tschorsnig, 2003), *Simyra dentinosa* Fr., *M. neustria* (L.) (Özbek and Çoruh, 2012; Atay and Kara, 2014).

Distribution in Turkey: Erzurum, Kars (Doğanlar, 1975; 1982a; Özbek and Çoruh, 2012), Kırklareli (Haeselbarth, 1983), Samsun (Tuncer and Ecevit, 1996), Tokat (Kara, 1998; Atay and Kara, 2014), Ankara (Kara and Özdemir, 2000), Amasya (Kara, 2001b), Afyonkarahisar, Burdur, Isparta (Avcı, 2009).

Distribution in the world: West Asia (Kugler, 1963), East Europe (Draber-Monko et al., 1991; Hubenov, 1992; Tschorsnig et al., 2004), South Europe (Tschorsnig, 1992; Tschorsnig et al., 2004), Central Europe (Roznosky and Vanhara, 1993), North Europe (Belshaw, 1993; Tschorsnig et al., 2004), West Europe (Tschorsnig et al., 2004).

Sturmia bella (Meigen, 1824)

Material examined: Sakarya: Adapazarı, 40°52'43"N, 30°28'38"E, 20 m, 09.VII.2013, 1♂.

Hosts in Turkey: *Aglais urticae* L. (Doğanlar, 1975; Kara, 1998), *Pieris brassicae* L. (Atak and Atak, 1984).

Distribution in Turkey: Erzurum (Doğanlar, 1975), Marmara Region (Atak and Atak, 1984), Tokat (Kara, 1998).

Distribution in the world: East Europe (Zimin et al., 1988; Herting and Dely-Draskovits, 1993), West Asia (Kugler, 1963; Herting and Dely-Draskovits, 1993), Central and East Asia, West Europe (Herting, 1984; Herting and Dely-Draskovits, 1993), South Europe (Zimin et al., 1988; Tschorsnig, 1992; Herting and Dely-Draskovits, 1993), North Europe (Tschorsnig et al., 2004).

Spallanzania hebes (Fallén, 1820)

Material examined: Sakarya: Kaynarca, 41°03'31"N, 30°16'17"E, 149 m, 23.VII.2012, 2♀♀, 1♂, Kaynarca, 40°58'34"N, 30°21'32"E, 88 m, 11.VII.2013, 2♀♀.

Hosts in Turkey: Unknown.

Distribution in Turkey: Erzurum (Doğanlar, 1982a).

Distribution in the world: Europe, West Asia (Tschorsnig et al., 2004), East and Central Asia (Richter, 2008).

Subfamily: Tachininae

Tribe: Tachinini

Tachina magnicornis (Zetterstedt, 1844)

Material examined: Sakarya: Söğütlü, 40°53'15"N, 30°27'49"E, 17 m, 25.V.2013, 2♂♂, Pamukova, 40°30'58"N, 30°09'54"E, 166 m, 26.V.2013, 1♀, 4♂♂, Adapazarı, 40°52'43"N, 30°28'38"E, 20 m, 09.VII.2013, 1♀, 1♂.

Hosts in Turkey: *Malacosoma castrensis* (Linnaeus) (Doğanlar, 1975), *Agrotis segetum* (Dennis & Schiffermüller) (Kavut et al., 1974), *Agrotis* sp. (Kara and Özdemir, 2000), *Helicoverpa armigera* (Hübner), *Spodoptera exigua* (Hübner) (Kara and Tschorsnig, 2003).

Distribution in Turkey: Balıkesir (Kavut et al., 1974), Bingöl, Hakkari, (Doğanlar, 1975), Tokat (Kara, 1999a), Ankara (Kara and Özdemir, 2000), Kastamonu (Korkmaz, 2007).

Distribution in the world: East and West Asia (Herting, 1984), Europe (Tschorsnig et al., 2004).

Peleteria rubescens (Robineau-Desvoidy, 1830)

Material examined: Sakarya: Söğütlü, 40°53'15"N, 30°27'49"E, 17 m, 25.V.2013, 1♂.

Hosts in Turkey: *Malacosoma castrensis* L. (Doğanlar, 1975), *Agrotis* sp. (Khan and Özer, 1984; Kansu et al., 1986; Kara and Özdemir, 2000).

Distribution in Turkey: Erzurum (Doğanlar, 1975), Tokat (Kara, 1999a), Ankara (Khan and Özer, 1984; Kansu et al., 1986; Kara and Özdemir, 2000), Zonguldak (Korkmaz, 2007).

Distribution in the world: East Asia (Herting, 1984), Europe (Tschorsnig et al., 2004).

Tribe: Nemoraeni

Nemoraea pellucida (Meigen, 1824)

Material examined: Sakarya: Kaynarca, 40°58'34"N, 30°21'12"E, 88 m, 11.VII.2013, 2♂♂.

Hosts in Turkey: *Hyphantria cunea* (Drury) (Kara and Tschorsnig, 2003).

Distribution in Turkey: Bingöl (Doğanlar, 1982b), Samsun (Tuncer and Ecevit, 1996; Sullivan et al., 2012), Sakarya (Tschorsnig, 2005).

Distribution in the world: North Africa (Herting and Dely-Draskovits, 1993), East Asia, North, South, and West Europe (Herting and Dely-Draskovits, 1993; Tschorsnig et al., 2004).

Tribe: Linnaemyini

Linnaemyia comta (Fallén, 1810)

Material examined: Sakarya: Adapazarı, 40°48'21"N, 30°27'36"E, 13 m, 25.VI.2012, 1♂, Adapazarı, 40°52'43"N, 30°28'38"E, 20 m, 09.VII.2013, 1♀, 1♂, Söğütlü, 40°53'15"N, 30°27'49"E, 17 m, 25.V.2013, 1♂, Kaynarca, 40°58'34"N, 30°21'12"E, 136 m, 11.VII.2013, 1♂.

Hosts in Turkey: *Agrotis ipsilon* (Hufnagel), *Bembecia ichneumoniformis* (Den. and Schiff.) (Kara and Tschorsnig, 2003).

Distribution in Turkey: Denizli (Kavut et al., 1974), Diyarbakır, Hakkari (Doğanlar, 1982b), Tokat (Kara, 1999a).

Distribution in the world: West Europe, Central and East Asia (Herting and Dely-Draskovits, 1993), Europe (Tschorsnig et al., 2004).

Tribe: Microphthalmini

Microphthalma europaea Egger, 1860

Material examined: Sakarya: Adapazarı, 40°52'43"N, 30°28'38"E, 20 m, 09.VII.2013, 1♀, 1♂.

Hosts in Turkey: *Polyphylla fullo* L. (Karagöz et al., 2011).

Distribution in Turkey: Aydın, Eskişehir, Diyarbakır (Karagöz et al., 2011).

Distribution in the world: East, South, and West Europe (Herting and Dely-Draskovits, 1993; Tschorsnig et al., 2004), North Europe, Central and West Asia (Herting and Dely-Draskovits, 1993).

Subfamily: Dexiinae

Tribe: Dexiini

Prosenia siberita (Fabricius, 1775)

Material examined: Sakarya: Karasu, 41°04'58"N, 30°44'11"E, 4 m, 22.V.2013, 1♀.

Hosts in Turkey: Unknown.

Distribution in Turkey: Manisa (Kara, 2001a).

Distribution in the world: Europe (Tschorsnig et al., 2004), East Europe, Central and East Asia (Richter, 2008).

Tribe: Voriini

Eriothrix rufomaculatus (De Geer, 1776)

Material examined: Sakarya: Hendek, 40°46'2"N, 30°42'44"E, 20 m, 06.VI.2013, 1♀.

Hosts in Turkey: Unknown.

Distribution in Turkey: Erzurum (Doğanlar, 1982b), Tokat (Kara, 1999b), Kastamonu, Bartın, Zonguldak (Korkmaz, 2007).

Distribution in the world: Central and West Asia (Tschorsnig and Herting, 1994), Europe (Tschorsnig et al., 2004).

Subfamily: Phasiinae

Tribe: Phasini

Clytiomya continua (Panzer, 1798)

Material examined: Sakarya: Adapazarı, 40°48'21"N, 30°27'36"E, 13 m, 25.VI.2013, 1♀.

Hosts in Turkey: *Dolycoris baccarum* (L.) (Karsavuran, 1986; Kara and Tschorsnig, 2003; Keçeci et al., 2007), *Holcostethus vernalis* (W.) (Kara and Alaoğlu, 1999), *Euryderma ornata* (L.) (Kara, 1998; Atay and Kara, 2014).

Distribution in Turkey: Erzurum (Doğanlar, 1982b), İzmir (Karsavuran, 1986), Tokat (Kara and Alaoğlu, 1999), Eskişehir (Aksu, 2005), Tokat (Atay and Kara, 2014).

Distribution in the world: West Asia (Kugler, 1963), East and Central Asia (Herting, 1984), East Europe (Draber-Monko et al., 1991; Hubenov, 1992; Tschorsnig et al., 2004), South Europe (Tschorsnig, 1992; Tschorsnig et al., 2004), West and North Europe (Tschorsnig et al., 2004).

Gymnosoma clavatum (Rohdendorf, 1947)

Material examined: Sakarya: Kaynarca, 41°03'31"N, 30°16'17"E, 149 m, 23.VI.2012, 1♀, 1♂.

Hosts in Turkey: *Ancyrosoma leucogrammes* (Gmelin), *Carpocoris* sp., *Dolycoris baccarum* (L.) (Kara and Tschorsnig, 2003), *Carpocoris mediterraneus* Tam. (Atay and Kara, 2014).

Distribution in Turkey: Erzurum (Doğanlar 1982b), İzmir (Karsavuran, 1986; Karsavuran and Kara, 2003; Tschorsnig, 2005), Eskişehir (Aksu, 2005), Tokat (Kara, 1998; Atay and Kara, 2014), Karabük (Korkmaz, 2007).

Distribution in the world: West Asia (Kugler, 1963; Kugler, 1974), North Europe, the Middle East, East Europe, Soviet Central Asia (Herting, 1984; Zimin et al., 1988), East Europe (Draber-Monko et al., 1991; Tschorsnig et al., 2004), South Europe (Tschorsnig, 1992; Tschorsnig et al., 2004), East Asia (O'Hara et al., 2009), West Europe (Tschorsnig et al., 2004).

Gymnosoma desertorum (Rohdendorf, 1947)

Material examined: Sakarya: Geyve, 40°30'10"N, 30°20'11"E, 112 m, 12.VI.2012, 1♀.

Hosts in Turkey: *Eurygaster integriceps* Put. (Lodos, 1986), *Aelia rostrata* Boh., *Dolycoris baccarum* (L.) (Kara and Tschorsnig, 2003), *Eurygaster maura* L. (Atay and Kara, 2014).

Distribution in Turkey: South and Central Anatolian Region (Lodos, 1986), Tokat (Kara and Alaoglu, 1999; Atay and Kara, 2014), Tekirdağ (Tschorsnig, 2005).

Distribution in the World: Central, East, and West Asia, East Europe (Herting and Dely-Draskovits, 1993; Tschorsnig et al., 2004).

Gymnosoma rotundata (Linnaeus, 1758)

Material examined: Sakarya: Geyve, 40°30'10"N, 30°20'11"E, 112 m, 12.VI.2012, 1♀.

Hosts in Turkey: *Palomena prasina* L. (Kurt, 1975), *Aelia rostrata* Boh. (Herting, 1983).

Distribution in Turkey: Eastern Black Sea Region (Kurt, 1975), Tokat (Kara, 1998), Karabük, Kastamonu, Zonguldak (Korkmaz, 2007).

Distribution in the world: West Asia (Kugler, 1963), East Asia, North Europe (Herting, 1984), East Europe (Zimin et al., 1988; Draber-Monko et al., 1991; Hubenov,

1992), South Europe (Tschorsnig, 1992), North Europe (Belshaw, 1993).

Tribe: Leucostomatini

Leucostoma abbreviatum Herting, 1971

Material examined: Sakarya: Geyve, 40°30'10"N, 30°20'11"E, 112 m, 12.VI.2012, 1♂.

Hosts in Turkey: Unknown.

Distribution in Turkey: Tokat (Kara and Alaoglu, 1999), Kastamonu (Korkmaz, 2007).

Distribution in the world: West Europe, West Asia (Herting, 1984), East, South, and West Europe (Tschorsnig et al., 2004).

Tribe: Cylindromyiini

Cylindromyia auriceps (Meigen, 1838)

Material examined: Sakarya: Kaynarca, 41°03'31"N, 30°16'17"E, 149 m, 23.VI.2013, 1♀, 1♂, Adapazarı, 40°48'21"N, 30°27'36"E, 13 m, 25.VI.2013, 1♀, 1♂.

Hosts in Turkey: *Aelia acuminata* (L.) (Kara and Tschorsnig, 2003).

Distribution in Turkey: Tokat (Kara and Alaoglu, 1999), Eskişehir (Aksu, 2005), Kastamonu, Zonguldak (Korkmaz, 2007).

Distribution in the world: North Africa, West Asia (Herting, 1984), East, North, South, and West Europe (Tschorsnig et al., 2004).

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