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The distribution of Euphorinae wasps (Hymenoptera: Braconidae) in Turkey, with phytogeographical notes

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Abstract: Sixty-three species belonging to 16 genera and 8 tribes collected from different ecosystems of Turkey between 1979 and 2007 were examined. Insects from 4 genera, *Streblocera* Westwood, *Chrysopophthorus* Goidanich, *Elasmosoma* Ruthe, and *Marshiella* Shaw, and the tribe Neoneurini Bengtsson were recorded for the first time in Turkey. Twenty-two species that had not previously been found in Turkey were observed in this study. Each of the 8 phytogeographical provinces in Turkey has a different Euphorinae faunal composition. In terms of the total number of species, the order of the phytogeographical provinces, from the most to the least amount of species, is as follows: Subeuxine, Euxine, Kseroeuxine, Iran, Mediterranean, Central Anatolian, Anatolian, and Mesopotamian.

Key words: Euphorinae, Braconidae, Hymenoptera, phytogeographical, Turkey

Türkiye'deki Euphorinae arıcıklarının (Hymenoptera: Braconidae) dağılımı ve fitocoğrafik olarak değerlendirilmesi

Özet: Bu çalışmada, 1979 ve 2007 yılları arasında Türkiye'nin farklı ekosistemlerinden toplanan 8 tribüs, 16 cinse ait 63 tür değerlendirildi. *Streblocera* Westwood, *Chrysopophthorus* Goidanich, *Elasmosoma* Ruthe, *Marshiella* Shaw cinsleri ve Neoneurini Bengtsson tribüsü Türkiye'den ilk kez kaydedildi. Daha önce Türkiye'den saptanmamış 22 tür bu çalışmada gözlemlendi. Türkiye'deki sekiz fitocoğrafik bölgenin her biri, farklı Euphorinae faunal kompozisyona sahiptir. Sahip oldukları toplam tür sayısına göre fitocoğrafik bölgelerin sıralaması, en çoktan en aza doğru şu şekildedir: Subeuxine, Euxine, Kseroeuxine, Iran, Mediterranean, Central Anatolian, Anatolian ve Mesopotamian.

Anahtar sözcükler: Euphorinae, Braconidae, Hymenoptera, fitocoğrafik, Türkiye

Introduction

Euphorinae Föerster, 1862 is a subfamily of the family Braconidae (order Hymenoptera) with 54 genera containing about 1113 described species, and is distributed all around the world. The subfamily Euphorinae includes parasitoid wasps that are morphologically and biologically very diverse. This subfamily is a cosmopolitan lineage of small parasitoid wasps that use the adult, nymphal, and larval stages of various insects as their hosts. They are solitary, rarely gregarious, and usually koinobiont endoparasitoids of several different orders of insects

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including the following, in order of frequency: Coleoptera (especially the families Chrysomelidae and Curculionidae), Hymenoptera, Lepidoptera, Neuroptera, Hemiptera, Psocoptera, and Orthoptera. Some species are potential biological control agents against harmful insects (Shaw, 2004; Yu et al., 2005).

Taxonomists disagree on how to classify the genera; Shaw (1985) recognised 9 tribes and favors recognition of the subfamily Meteorinae Cresson for the genus *Meteorus* Haliday. Only 4 tribes, Euphorini, Cosmophorini, Centistini, Meteorini, are recognised by van Achterberg (1993), while Yu et al. (2005) recognized 14 tribes (Centistini, Cosmophorini, Cryptoxilonini, Dinocampini, Euphorini, Helorimorphini, Meteorini, Myiocephalini, Neoneurini, Oncometeorini, Perilitini, Proclithrophorini, Syntretini, and Tainitermini).

The Anatolian peninsula (Asian Turkey, also known as Asia Minor) is the westernmost point of Asia, divided from Europe by the Bosphorus and Dardanelles straits. Thrace includes the westernmost part of Turkey on the European continent. Although Turkey's climate is temperate, the diverse nature of the landscape and mountain ranges extending in an east-west direction parallel to the north and south coasts result in significant differences in climatic conditions from one region to another. This mountain range includes one peak over 5000 m in altitude, 3 over 4000 m, and 129 peaks exceeding 3000 m. This irregular topographic structure creates a wide diversity of ecological conditions and species. The diversity in climatic and ecological conditions in Turkey has led to many speciation events in Anatolia and therefore a rich biodiversity (http://www.worldturkey.com/lang/eng/geography.php).

The knowledge of Euphorinae from Turkey is limited. The first information on the Euphorinae fauna of Turkey was given by Fahringer (1922). Until the present study, 41 species had been recorded from Turkey (Shenefelt, 1969; Papp, 1974, 1994; Kolarov, 1989; Achterberg and Haeselbarth 2003; Beyarslan et al., 2004; Koldas et al., 2007). Here, we add a few more species and discuss the distribution of others.

Material and methods

Adult Euphorinae were collected from various habitats and altitudes using sweep nets and light traps between 1979 and 2007 (Figure 1). For the terminology used in this paper and for the identification of the subfamily, see van Achterberg (1979, 1993, 1994), Shaw (1985), Tobias et al. (1986), Belokobylskij (1992, 2004), Goulet and Mason (2006). Some species were identified by Dr. Kees van Achterberg (Department of Zoology, Leiden Natural Museum, the Netherlands).

Genera and species were treated in alphabetical order in the subfamilies. All records were arranged in the following order: province (alphabetically ordered)-town-local place-geographic name, habitat, altitude, date of collection, and the number of male and female individuals. The name of the province from which a particular species was recorded for the first time was indicated with bold type. All the specimens studied were deposited in the Zoological Museum at Trakya University.

Here, we provide phytogeographical notes on Turkish species of Euphorinae and discuss the distribution of the Anatolian Euphorinae by phytogeographical province (Figure 2, Table 1) following the terminology developed by Zohary (1973). The provinces are: the *Euxine province*, which belongs to the Euro-Siberian phytoregion and covers the area along the northern part of Anatolia, as well as southeastern and eastern European Turkey; the *Subeuxine province*, which also belongs to the Euro-Siberian phytoregion and contains the Black Sea and southern Marmara regions below the east and west Black Sea mountains; the *Mediterranean province*, which includes Mediterranean Taurus, Antitaurus, and Aegean Anatolia up to Çanakkale province in the north, and to roughly 30° longitude in the east; *the Kseroeuxine province*, which belongs to the Irano-Turanian phytoregion and covers the Central Anatolian region, excluding the Iran steppe province; *the Iran steppe province*, which also belongs to the Irano-Turanian phytoregion and covers eastern Anatolia up to Erzurum province and Southern Anatolia, excluding Urfa and the Mardin provinces; *the Anatolian steppe province*, which belongs to the Irano-Turanian phytoregion and includes the easternmost part of Anatolia; *the Central Anatolian steppe province*, which belongs to the Irano-Turanian phytoregion and includes Ankara and Konya provinces in the middle of Kseroeuxine province; and *the Mesopotamian steppe province*, which includes Mesopotamia below southeastern Taurus.

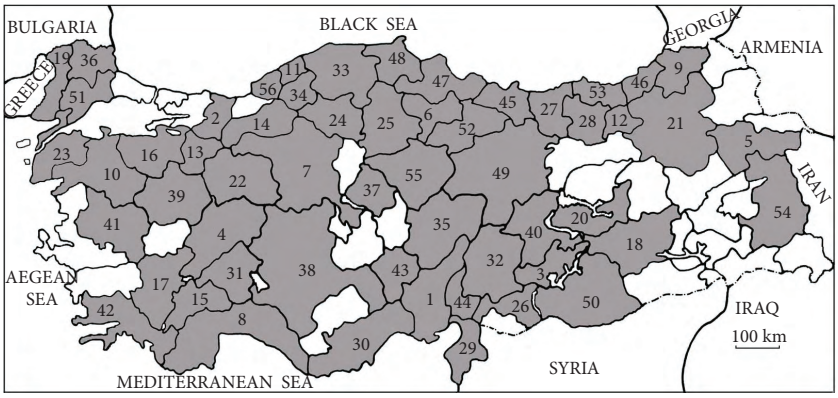


Figure 1. Collecting places of Euphorinae species in Turkey: 1– Adana, 2– Adapazarı, 3–Adıyaman, 4– Afyon, 5– Ağrı, 6– Amasya, 7– Ankara, 8– Antalya, 9– Artvin, 10– Balıkesir, 11– Bartın, 12– Bayburt, 13– Bilecik, 14– Bolu, 15– Burdur, 16– Bursa, 17– Denizli, 18– Diyarbakır, 19– Edirne, 20– Elazığ, 21– Erzurum, 22– Eskişehir, 23– Çanakkale, 24– Çankırı, 25– Çorum, 26– Gaziantep, 27– Giresun, 28– Gümüşhane, 29– Hatay, 30– İçel, 31– Isparta, 32– Kahramanmaraş, 33– Kastamonu, 34– Karabük, 35– Kayseri, 36– Kırklareli, 37– Kırşehir, 38– Konya, 39– Kütahya, 40– Malatya, 41– Manisa, 42– Muğla, 43– Niğde, 44– Osmaniye, 45– Ordu, 46– Rize, 47– Samsun, 48– Sinop, 49– Sivas, 50– Şanlıurfa, 51– Tekirdağ, 52– Tokat, 53– Trabzon, 54– Van, 55– Yozgat, 56– Zonguldak.

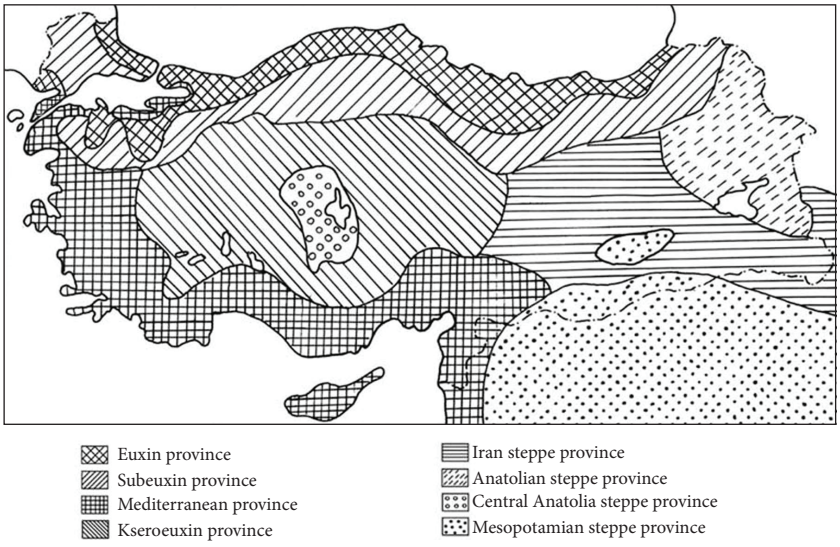


Figure 2. Phytogeographical provinces in Turkey (modified from Mayer and Aksoy, 1998).

Results

Tribe Centistini Capek, 1970

***Allurus lituratus* (Haliday, 1835)**

Material.- **Amasya**-Merzifon-Uzunağaç, mixed forest, 1600 m, 09.07.2003, 1♀; **Ankara**-Beypazarı-Akçakavak, crop field, 527 m, 08.06.2007, 1♂; **Diyarbakır**-Çınar-Şükürlü, pasture, 595 m, 06.05.2003, 1♀; **Elazığ**-Baskil-Topakent, crop field, 903 m, 03.06.2007, 2♀♀; **Samsun**-Havza-Mismiliağaç, pasture, 610 m, 02.07.2003, 1♀, 2♂♂; **Sivas**-Yıldızeli-Ekecik, crop field, 1152 m, 30.05.2007, 1♀; Ulaş-Yağdonduran, crop field, 1630 m, 01.06.2007, 1♀.

Table 1. Euphorinae of Turkey and their distribution according to phytogeographical provinces (EU: Euxine; SE: Subeuxine; MD: Mediterranean; KE: Kseroeuxine; IS: Iran steppe; AS: Anatolian steppe; CS: Central Anatolian steppe; MS: Mesopotamian steppe).

Species	EU	SE	MD	KE	IS	AS	CS	MS
Allurus lituratus	*	*		*	*		*	*
Allurus muricatus	*	*	*	*	*		*	
Centistes (*A.*) *ater*	*	*	*	*				
Centistes (*A.*) *collaris*	*							
Centistes (*C.*) *cuspidatus*	*	*	*	*	*			
Centistes (*C.*) *fuscipes*	*	*		*				
Dinocampus coccinellae	*	*	*	*	*			
Chrysopophthorus hungaricus		*						
Leiophron (*E.*) *pallidistigma*	*							
Peristenus digoneutis		*						
Peristenus facialis		*						
Peristenus grandiceps	*	*						
Peristenus nitidus	*							
Peristenus pallipes	*	*		*				
Peristenus picipes	*	*						
Peristenus relictus	*	*	*	*	*			
Peristenus rubricollis	*	*						
Wesmaelia petiolata		*	*	*	*			
Aridelus egregius		*						
Meteorus abdominator	*	*						
Meteorus affinis		*						
Meteorus consimilis				*				
Meteorus eadyi	*	*		*				
Meteorus filator	*	*			*			
Meteorus ictericus	*	*	*	*				
Meteorus lionotus	*	*						
Meteorus longicaudis		*		*				
Meteorus necator	*	*						
Meteorus obsoletus	*	*		*	*			
Meteorus pendulus			*					
Meteorus politutele	*		*					
Meteorus pulchricornis	*	*	*					
Meteorus rubens	*	*	*	*	*	*	*	*
Meteorus rufus	*	*	*	*	*			
Meteorus tabidus	*							
Meteorus versicolor	*	*	*	*	*	*		*
Meteorus vexator	*	*						
Zele albiditarsus		*						
Elasmosoma berolinense		*						
Perilitus (*M.*) *cerealium*					*			
Perilitus (*M.*) *foveolatus*	*	*	*					
Perilitus (*M.*) *aethiops*	*	*		*	*			
Perilitus (*M.*) *brevicollis*	*	*		*	*			
Perilitus (*M.*) *parcicornis*	*	*						
Perilitus (*M.*) *stelleri*	*	*						
Perilitus (*P.*) *falciger*			*					
Perilitus (*P.*) *rutilus*	*	*			*			
Perilitus (*T.*) *bicolor*	*	*	*		*			
Marshiella plumicornis				*				
Streblocera (*S.*) *fulviceps*		*						
Streblocera (*E.*) *macroscapus*					*			
Syntretus (*S.*) *daghestanicus*		*		*	*	*		
Syntretus (*S.*) *elegans*				*			*	
Syntretus (*S.*) *ocularis*		*						

Distribution in Turkey- Edirne.

World distribution - Nearctic, Oriental, Palaearctic.

***Allurus muricatus* (Haliday, 1833)**

Material.- **Afyon**-Emirdağ, pasture, 980 m, 01.06.2002, 1♀; **Amasya**-Taşova-Boraboy, *Populus* sp., 688 m, 29.06.2004, 1♀; -Taşova-Borabay lake, pine forest, 1066 m, 29.06.2004, 1♀; **Bilecik**-Ayvacık, pasture, 700 m, 09.07.1993, 1♀; -Pazaryeri, crop field, 700 m, 10.07.1993, 1♀; **Bursa**-Karacabey-Kulakpınar, crop field, 50 m, 12.07.1993, 1♀; **Çankırı**-Korgun, *Populus* sp., 898 m, 28.05.2007, 1♀; **Çorum**-Dodurga-Osmaniye, orchard, 1028 m, 28.06.2004, 1♀; Edirne-Hadımağa, pasture, 41 m, 28.05.1993, 1♀; **Elazığ**-Baskil-Canbeyler, pasture, 1116 m, 03.06.2007, 9♀♀, 1♂; -Cip Barajı, pasture, 1006 m, 04.06.2007, 1♀; -Baskil-Hacımustafa, orchard, 1436 m, 04.06.2007, 1♀; Keban-Altınyaka, *Populus* sp., 1242 m, 04.06.2007, 12♀♀; -Keban-Hamzikan, pasture, 1223 m, 04.06.2007, 1♀; **Denizli**-Tavas-Tekkeköy, orchord, 1000 m, 27.06.1998, 1♀; **Isparta**-Atabey, pasture, 1046 m, 25.05.2002, 1♀; -Yukarı Gökdere, pasture, 917 m, 07.06.2004, 1♀; Kırklareli-Erenler, vegetable garden, 290 m, 16.06.1987, 1♀, 1♂; -Demirköy, mixed forest, 330 m, 16.06.1987, 1♀; **Malatya**-Akçadağ-Darıca, crop field, 1540 m, 05.06.2007, 2♀♀; Akçadağ-Sarıhacı, orchard, 1367 m, 05.06.2007, 1♀; -Hekimhan, orchard, 1306 m, 01.06.2007, 1♀; -Doğanşehir-Polatdere, crop field, 1195 m, 02.06.2007, 1♀; **Ordu**-Akkuş-Yukarıdüğencili, pasture, 1340 m, 05.07.2003, 1♀; **Tokat**-Turhal-Üçyol, mixed forest, 1040 m, 07.07.2003, 1♀.

Distribution in Turkey- Edirne, Kırklareli.

World distribution- Palaearctic.

***Centistes* (*Ancylocentrus*) *ater* (Nees von Esenbeck, 1834)**

Material.- **Amasya**-Merzifon-Tavşan mountains-Esenköy yaylası, mixed forest, 1700 m, 09.07.2003, 1♀; -Taşova-Boraboy lake, pine forest, 1066 m, 29.06.2004, 4♂♂; **Bilecik**-Ayvacık, pasture, 700 m, 09.07.2003, 1♂; **Bursa**-İnegöl-Mezitli-Nebiyatağı, pasture, 1450 m, 11.07.1993, 1♀; **Çorum**-Dodurga-Yeniköy, *Quercus* sp., 1035 m, 26.06.2004, 1♂; **Gümüşhane**-Kelkit-Köycük, pasture, 1431 m, 02.07.2004, 1♂; **Isparta**-Gölcük, orchard, 1100 m., 13.7.1982, 1♂; **Sinop**-Kabalı, orchard, 70 m, 11.06.2002, 1♂; **Tokat**-Pazar-Ballıca, *Quercus* sp., 1020 m, 07.07.2003, 1♀, 1♂.

World distribution- Nearctic, Palaearctic.

New record for Turkey.

***Centistes* (*Ancylocentrus*) *collaris* (Thomson, 1895)**

Material.- **Ordu**-Gölköy, hazelnut garden, 1020 m, 04.07.2003, 1♀.

World distribution- Palaearctic.

New record for Turkey.

***Centistes* (*Centistes*) *cuspidatus* (Haliday, 1833)**

Material.- **Adıyaman**-Besni-Sofraz, pasture, 854 m, 18.10.2005, 1♂; **Bursa**-Karacabey-Cambazköy, pasture, 200 m, 12.07.1993, 1♂; **Elazığ**-Baskil-Canbeyler, pasture, 1116 m, 03.06.2007, 1♂; -Keban-Aydınlar, orchard, 985 m, 16.07.2007, 1♀; **Eskişehir**, *Populus* sp., 839 m, 07.07.2007, 1♀; Kırklareli-Babaeski-Alpullu, pasture, 80 m, 05.07.1992, 1♀; **Malatya**-Doğanşehir-Reşadiye, *Populus* sp., 1346 m, 02.06.2007, 4♀♀, 5♂♂; 14.07.2007, 3♀♀, 1♂; -Doğanşehir-Takaz, orchard, 1286 m, 02.06.2007, 3♂♂; **Niğde**-Sultanpınarı, orchard, 1629 m, 18.07.2007, 1♀; **Tekirdağ**-Malkara, pasture, 70 m, 23.05.1992, 1♂.

Distribution in Turkey- Kırklareli.

World distribution- Palaearctic.

***Centistes* (*Centistes*) *fuscipes* (Nees, 1834)**

Material.- **Amasya**-Yolyanı, crop field, 700 m, 30.06.2004, 1♂; -Taşova-Keçiyatağı, pine forest, 1250 m, 08.07.2003, 1♀; **Bilecik**-Ayvacık, pasture, 700 m, 09.07.1993, 1♀, 1♂; **Tokat**-Niksar-Ormanbeyli, crop field, 920 m, 06.07.2003, 1♀.

Distribution in Turkey- Edirne, Tekirdağ.

World distribution- Palaearctic.

***Pygostolus sticticus* (Fabricius, 1798)**

Distribution in Turkey- Turkey.

World distribution- Neotropical, Palaearctic.

Tribe Dinocampini Shaw, 1985

***Dinocampus coccinellae* (Schrank, 1802)**

Material.- **Amasya**-Merzifon-Tavşan mountains-Uzunağaç, mixed forest, 1600 m, 09.07.2003, 1♀; **Balıkesir**-Yakupköy, pine forest, 600 m, 17.09.1992, 2♀♀; **Bilecik**-Ayvacık, pasture, 700 m, 09.07.1993, 2♀♀; -Çavuşköy, crop field, 800 m, 09.07.1993, 1♀; **Bursa**-Karacabey-Cambazköy, pasture, 200 m, 12.07.1993, 1♀; -Karacabey-Kulakpınar, crop field, 50 m, 12.07.1993, 1♀; **Elazığ**-Baskil-Hacımustafa, orchard, 1436 m,16.07.2007, 2♀♀; Baskil-Topakent, crop field, 903 m, 03.06.2007, 4♀♀; **Kastamonu**-Daday-Ballıdağ, 01.07.2001, mixed forest, 1750 m, 1♀; **Kahramanmaraş**, pasture, 800 m, 25.02.2002, 2♀♀; 20.06.2002, 1♀; -Andıran, pasture, 750 m, 24.07.2003, 1♀; -Çitosan, pasture, 890 m, 23.03.2001, 2♀♀; -Göksun, pasture, 768 m, 21.06.2003, 1♀; **Kayseri**-Gömeç, vegetable garden, 1094 m, 14.09.2006, 1♀; -Yemliha, vegetable garden, 992 m, 15.09.2006, 2♀♀; -Pınarbaşı-Kızıldere, crop field, 1457 m, 06.06.2007, 1♀; **Malatya**-Çiftlik, orchard, 909 m, 03.06.2007, 1♀; -Doğanşehir-Reşadiye, *Populus* sp., 1346 m, 14.07.2007, 2♀♀; -Hekimhan, 01.06.2007, orchard, 1306 m, 1♀; -Sultansuyu Harası, orchard, 881 m, 14.07.2007, 3♀♀.

Distribution in Turkey- Edirne, Kırklareli, Tekirdağ.

World distribution- Australasian, Nearctic, Neotropical, Oceanic, Oriental, Palaearctic.

Tribe Euphorini Förster, 1862

***Chrysopophthorus hungaricus* (Kiss, 1927)**

Material.- **Balıkesir**-Havran, pasture, 147 m, 26.10.2005, 1♀.

World distribution- Palaearctic.

New record for Turkey.

***Leiophron* (*Euphorus*) *pallidistigma* Curtis, 1833**

Distribution in Turkey- Kırklareli.

World distribution- Palaearctic.

***Peristenus accinctus* (Haliday,1835)**

Distribution in Turkey- Turkey.

World distribution-Palaearctic.

***Peristenus adelphocoridis* Loan, 1979**

Distribution in Turkey- Turkey.

World distribution-Palaearctic.

***Peristenus digoneutis* Loan, 1973**

Distribution in Turkey- Edirne.

World distribution-Nearctic, Palaearctic.

***Peristenus facialis* (Thomson, 1892)**

Distribution in Turkey- Tekirdağ.

World distribution- Palaearctic.

***Peristenus grandiceps* (Thomson, 1892)**

Material.- Gümüşhane-Kelkit-Gürüz Mountain, pasture, 1871 m, 02.07.2004, 1♀, 1♂; **Tokat**-Niksar-Çamiçi, pine forest, 1120 m, 05.07.2003, 1♀.

Distribution in Turkey- Edirne, Kırklareli.

World distribution- Palaearctic.

***Peristenus nitidus* (Curtis, 1833)**

Distribution in Turkey- Kırklareli.

World distribution-Palaearctic.

***Peristenus pallipes* (Curtis, 1833)**

Material.- **Artvin**-Şavşat-Pınarlı, 30.06.2005, pasture, 1895 m, 1♀; -Sulanat, picea forest, 1650 m, 30.06.2005, 1♀; Yusufeli-Küplüce, vegetable garden, 847 m, 01.07.2005, 1♀; **Isparta**-Eğridir, orchard, 1035 m, 07.06.2004, 1♀; **Rize**-Çamlıhemşin-Ayder, mixed forest, 1260 m, 30.06.2005; **Trabzon**-Çaykara-Uzungöl, pine forest, 1260 m, 04.07.2004, 1♂.

Distribution in Turkey- Edirne, Kırklareli.

World distribution- Nearctic, Oriental, Palaearctic.

***Peristenus picipes* (Curtis, 1833)**

Distribution in Turkey- Edirne, Tekirdağ.

World distribution- Palaearctic.

***Peristenus relictus* (Ruthe, 1856)**

Material.- **Afyon**-İhsaniye-Yeniceköy, crep field, 950 m, 26.07.1997, 1♂; **Adapazarı**-Karasu, pasture, 50 m, 08.08.1993, 1♂; **Amasya**-Merzifon-Esenköy, mixed forest, 1700 m, 09.07.2003, 1♂; **Antalya**-Korkuteli, pasture, 245 m, 16.07.1982, 2♂♂; **Balıkesir**-Susurluk, pasture, 70 m, 14.07.1993, 1♂; **Bilecik**-Ayvacık, pasture, 700 m, 09.07.1993, 4♂♂; -Çavuşköy, pasture, 658 m, 10.07.1993, 1♀ 4♂♂; -Demirköy, pasture, 400 m, 17.07.1993, 1♂; -Pazaryeri, crop field, 10.07.1993, 700 m, 1♀, 1♂; **Bursa**-Karacabey-Cambazköy, pasture, 200 m, 12.07.1993,

1♂; -Keles-Baraklı, orchard, 1150 m, 13.07.1993, 1♂; Edirne-Büyükdöllük, crop field, 50 m, 20.06.1987, 1♀; -Süleoğlu, pasture, 54 m, 05.07.1990, 1♂; -Oğulpaşa, pasture, 55 m, 06.06.1992, 1♂; **Eskişehir**-Sündiken mountains-Asarlık, pine forest, 1676 m, 09.07.2007, 1♂; **İçel**-Erdemli-Güzeloluk, pasture, 80 m, 27.07.1990, 1♂; **Kahramanmaraş**-Göksun, pasture, 868 m, 25.07.1980, 1♂; **Kırklareli**-Lüleburgaz-Sarmısaklı farm, orchard, 65 m, 18.08.1991, 2♂♂; **Malatya**-Doğanşehir-Reşadiye, *Populus* sp., 1346 m, 02.06.2007, 1♀, 1♂; -Doğanşehir-Takaz, orchard, 1286m, 14.07.2007, 1♂; -Sultansuyu harası, orchard, 881 m, 14.07.2007, 2♂♂; Tekirdağ-Hayrabolu-Susuzmüsellim, crop field, 110 m, 03.08.1993, 1♀; -Malkara, pasture, 60 m, 23.05.1992, 1♀; **Yozgat**-Saraykent, pasture, 1255 m, 27.05.2002, 1♂.

Distribution in Turkey- Edirne, Tekirdağ.

World distribution-Palaearctic.

***Peristenus rubricollis* (Thomson, 1892)**

Material.- **Amasya**-Mezifon-Esenköy, mixed forest, 1700 m, 09.07.2003, 1♂; **Tekirdağ**-Malkara, clover field, 100 m, 23.05.1992, 1♀.

Distribution in Turkey- Edirne.

World distribution- Nearctic, Palaearctic.

***Wesmaelia petiolata* (Wollaston, 1858)**

Material.- **Adıyaman**-Atatürk Barajı, pasture, 650 m, 16.07.1985, 1♀; **Elazığ**-Baskiler-Canbeyler, pasture, 1116 m, 03.06.2007, 1♀; -Baskil-Hacımustafa, orchard, 1436 m, 08.08.1990, 1♂, 04.06.2007, 1♀; -Baskil-Topakent, crop field, 903 m, 03.06.2007, 1♀; -Keban-İbolar, pasture, 1243 m, 10.06.2007, 1♀; **Kahramanmaraş**-Gölbaşı, pasture, 867 m, 09.05.1985, 1♂; **Kayseri**-Bağpınar, crop field, 1097 m, 14.09.2006, 1♀; -Gömeç, vegetable garden, 1094 m,14.09.2006, 1♂; -Yemliha, vegetable garden, 992 m, 15.09.2006, 1♂; **Malatya**-Akçadağ-Darıca, crop field, 1540 m, 05.06.2007, 1♂; -Sultansuyu Harası, orchard, 881 m, 14.07.2007, 1♀.

Distribution in Turkey- Kırklareli.

World distribution- Nearctic, Neotropical, Oceanic, Oriental, Palaearctic.

Tribe Helorimorphini Schmiedeknecht, 1907

***Aridelus cameroni* (Szépligeti,1914)**

Distribution in Turkey- Turkey.

World distribution- Ethiopian, Palaearctic.

***Aridelus egregius* (Schmiedeknecht, 1907)**

Distribution in Turkey- Tekirdağ.

World distribution- Oriental, Palaearctic.

Tribe Meteorini Cresson, 1887

***Meteorus abdominator* (Nees von Esenbeck, 1811)**

Material.- **Adapazarı**-Sapanca-Atatürk Milli Parkı, pasture, 10 m, 27.06.2001, 1♂; **Amasya**-Göyüncek, pasture, 1230 m, 28.05.2002, 1♂; -Merzifon, pasture, 690 m, 04.07.2004, 1♂; **Artvin**-Yusufeli-Olgunlar, pasture, 1550 m, 02.07.2005, 1♀; **Gümüşhane**-Arzular, orchard, 1304 m, 07.08.2005, 2♂♂; -Kelkit-Yeniköy, orchard, 1474 m, 29.08.2005, 2♂♂; **Rize**-İkizdere, pasture, 1040 m, 31.08.2004, 1♂; -İkizdere-Tiron, mixed forest, 1344 m, 31.08.2004, 1♀, 1♂.

World distribution- Palaearctic.

New record for Turkey.

***Meteorus affinis* (Wesmael, 1835)**

Material.- **Çankırı**-Ilgaz-Derbent Motel, 10.08.2002, 1♀;

World distribution- Palaearctic.

New record for Turkey.

***Meteorus cespitator* (Thunberg,1824)**

Distribution in Turkey- Turkey.

World distribution- Oceanic, Palaearctic.

***Meteorus colon* (Haliday,1835)**

Distribution in Turkey- Turkey.

World distribution- Oriental, Palaearctic.

***Meteorus consimilis* (Nees,1834)**

Material.- **Isparta**-Gönen, pasture, 1023 m, 08.10.2002, 1♂.

World distribution- Palaearctic.

***Meteorus eadyi* Huddleston, 1980**

Material.- **Bolu**-Aladağ-Kökez , mixed forest, 1000 m, 27.08.2002 1♀; **Kastamonu**-İnebolu-Yakaboyu, mixed forest, 100 m, 10.06.2002 1♂; **Isparta**-Eğirdir, orchard, 1035 m, 12.07.1982, 1♂.

World distribution- Palaearctic.

New record for Turkey.

***Meteorus filator* (Haliday, 1835)**

Material.- **Artvin**-Yusufeli-Küplüce, 01.07.2005, vegetable garden, 847 m, 2♀♀; -Yusufeli-Sarıgöl, orchard, 842 m, 04.09.2004, 3♀♀; **Bursa**-Orhaneli-Nallılar, orchard, 650 m, 11.09.2002, 1♂; **Giresun**-Şebinkarahisar-Eğribel, pasture, 2045 m, 02.08.2005, 2♂♂; **Gümüşhane**-Kelkit-Yeniköy, orchard, 1474 m, 29.08.2004, 1♀; -Şiran-Yeşilbük, vegetable garden, 1434 m, 29.08.2004, 2♀♀; **Kastamonu**-İnebolu-Yakaboyu, mixed forest, 100 m, 10.06.2002, 2♀♀, 1♂; -Küre-Ersizlerdere-İpsinler, pasture, 1910 m, 12.06.2002, 1♀; **Malatya**-Doğanşehir-Reşadiye, *Populus* sp., 1346 m,14.07.2007, 1♀; **Rize**-Çamlıhemşin-Ayder Yaylası, mixed forest, 1260 m, 30.06.2005, 1♀; -İkizdere-Tiron, mixed forest, 1344 m, 31.08.2004 1♀; **Samsun**-Çamağzı, pasture, 150 m, 29.08.2003, 1♀; -Salıpazarı-Astepe, mixed forest, 600 m, 03.07.2003, 1♀; **Sinop**-Kabalı, pasture, 100 m, 11.06.2002, 1♂; **Trabzon**-Maçka-Hamsiköy, mixed forest, 1400 m, 05.08.2005, 1♂; -Maçka-Şolma Yaylası, *Abies* sp., 1677 m, 06.08.2005, 1♂; **Zonguldak**-Devrek-Davulga, mixed forest, 800 m, 29.06.2001, 1♀.

World distribution- Palaearctic.

New record for Turkey.

***Meteorus ictericus* (Nees von Esenbeck, 1811)**

Material.- **Artvin**-Şavşat-Sulanat, *Picea* sp., 1650 m, 30.06.2005, 1♀; **Samsun**-Çamağzı, pasture, 150 m, 29.08.2003 1♀; **Trabzon**-Maçka-Yeşiltepe-Gülin mountain, *Abies* sp., 1572 m, 06.08.2005, 1♀.

Distribution in Turkey- Adana, Afyon.

World distribution- Australasian, Nearctic, Oceanic, Oriental, Palaearctic.

***Meteorus jaculator* (Haliday, 1835)**

Distribution in Turkey- Turkey.

World distribution- Palaearctic.

***Meteorus lionotus* Thomson, 1895**

Material.- **Artvin**-Saçinka, *Picea* sp., 1331 m, 03.09.2004, 1♀, 1♂; -Şavşat-Karaköy, *Picea* sp., 1930 m, 30.06.2005, 1♂, 1♀; -Yusufeli-Sarıgöl, orchard, 842 m, 04.09.2004, 1♀; **Kastamonu**-İnebolu-Yakaboyu, mixed forest, 100 m, 10.06.2002, 1♀; **Rize**-İkizdere, pasture, 1040 m, 31.08.2004, 1♂; **Samsun**-Kavak-Boğaziçi, mixed forest, 380 m, 20.08.2003, 2♂♂; **Trabzon**-Çaykara-Uzungöl, pine forest, 1260 m, 04.07.2004, 1♀.

World distribution- Palaearctic.

New record for Turkey.

***Meteorus longicaudis* (Ratzeburg, 1848)**

Material.- **Burdur**-Merkez, pasture, 976 m, 07.08.1980, 1♂, 1♀; **Gümüşhane**-Kelkit-Yeniköy, orchard, 1474 m, 29.08.2004, 1♂; -Kelkit-Gürüz mountain, pasture, 1871 m, 08.08.2005 ♀; **Tokat**-Almus-Gümelönü, pasture, 800 m, 02.09.2003, 1♂.

World distribution- Palaearctic.

New record for Turkey.

***Meteorus necator* (Fabricius, 1777)**

Material.- **Artvin**-Saçinka, *Picea* sp., 1331 m, 03.09.2004, 1♀; -Şavşat-Karagöl, *Picea* sp., 1620 m, 30.06.2005, 2♀♀; -Şavşat-Karaköy, *Picea* sp., 1930 m, 30.06.2005, 6♀♀, 3♂♂; -Şavşat-Kirazlı, *Picea* sp., 1541 m, 30.06.2005, 1♀, 1♂; -Şavşat-Kirazlı-Çayırlar, *Picea* sp., 1631 m,30.06.2005, 4♀♀; -Şavşat-Sulanat, *Picea* sp., 1650 m, 30.06.2005, 1♀, 1♂; -Varlık, orchard, 673 m, 03.09.2004, ♂; -Yusufeli-Küplüce, vegetable garden, 847 m, 04.09.2004, 2♀♀; 01.07.2005, 1♀, 1♂; -Yusufeli-Sarıgöl, orchard, 842 m, 04.09.2004, 1♀; 2♂♂; **Rize**-Kalkandere, pasture, 80 m, 31.08.2004, ♀; -Ayder, mixed forest, 1260 m, 02.09.2004, 1♀; -İkizdere, pasture, 1040 m, 31.08.2004, 2♀♀; -Çamlıhemşin-Aşağışimşirli, mixed forest, 1090 m, 25.06.2005, 2♀♀; **Zonguldak**-Karadeniz Eğrelisi, hazelnut garden, 200 m, 03.09.2001, 1♀.

World distribution- Oceanic, Oriental, Palaearctic.

New record for Turkey.

***Meteorus oculatus* Ruthe, 1862**

Distribution in Turkey- Turkey.

World distribution- Palaearctic.

***Meteorus obsoletus* (Wesmael, 1835)**

Material.- **Malatya**-Doğanşehir-Polatdere, crop field, 1195 m, 02.06.2007, 1♂; **Ordu**-Korgan-Belalan, vegetable garden, 1040 m, 31.08.2003, 1♂; **Samsun**-Çamağzı, pasture, 150 m, 29.08.2003 ♂; -Salıpazarı-Astepe, mixed forest, 600 m, 03.07.2003, 2♀♀;

Sivas-Kangal, 13.06.2001, crop field, 1600 m, 2♀♀, 2♂♂; **Tokat**-Niksar, mixed forest, 1100 m, 17.05.2001 1♀.

World distribution- Palaearctic.

***Meteorus pendulus* (Müller, 1776)**

Distribution in Turkey- Adana.

World distribution- Oriental, Palaearctic.

***Meteorus politutele* Shenefelt, 1969**

Distribution in Turkey- Samsun, Yalova.

World distribution- Palaearctic: Turkey, Uzbekistan.

***Meteorus pulchricornis* (Wesmael, 1835)**

Material.- **Adana**-Yumurtalık, pasture, 50 m, 16.04.2007, 1♀; **Artvin**-Şavşat-Karaköy, *Picea* sp., 1930 m, 30.06.2005, 1♀, **Bartın**-Amasra, mixed forest, 20 m, 09.06.2002, 1♀; **Çanakkale**-Kazdağı, mixed forest, 750 m, 16.09.1992, 1♀; **Gümüşhane**-Kelkit-Yeniköy, orchard, 1474 m, 29.08.2004, 1♀; -Şiran-Karaşeyh, *Poplar* sp, 1450 m, 29.08.2004, 1♀, 3♂♂; -Şiran-Yeşilbük, vegetable garden, 1434 m, 9.08.2004, 1♀; **İçel**-Silifke, pasture, 78 m, 06.08.1984, 1♂; -İnebolu-Yakaboyu, mixed forest 100 m, 10.06.2002, 2♂♂; **Tekirdağ**-Karacaali, pasture, 120 m, 25.06.2003, 1♀.

Distribution in Turkey- Kırklareli, Muğla.

World distribution- Oceanic, Oriental, Palaearctic.

***Meteorus rubens* (Nees von Esenbeck, 1811)**

Material.- Adana-Seyhan-Çaputlu, pasture, 30 m, 08.08.1979, 3♀♀; -Yumurtalık, pasture, 50 m, 16.04.2007, 1♀; -Yüreğir-Doğankent, pasture, 50 m, 22.07.1996, ♀; Adapazarı-Karasu Harası, clover field, 50 m, 08.07.1993, 1♀; **Adıyaman**-Gölbaşı, pasture, 883 m, 14.07.1985, 1♀, 1♂; Afyon-Dinar-Kazanpınar, pasture, 1000 m, 28.06.1998, 1♀; **Amasya**-Kale, orchard, 600 m, 04.07.2004, 7♀♀; -Taşova-Boraboy lake, *Populus* sp., 688 m, 08.07.2003, 3♀♀; 29.06.2004, 1♂; -Merzifon, pasture, 690 m, 04.07.2004, ♂; -Merzifon-Karacadağ-Esenköy Yaylası, pine forest, 1538 m, 09.07.2003, 3♀, 3♂; -Tavşan mountains-Uzunağaç, mixed forest, 1600 m, 09.07.2003 2♂♂, 3♀♀; -Yolyanı, crop field, 700 m, 30.06.2004, 1♀; -Yıldızköy, pasture, 420 m, 29.06.2004, 1♀, Ankara-Nallıhan-Sobran, crop field, 600 m, 08.06.2007, 1♂; **Antalya**-Korkuteli, pasture, 130 m, 16.07.1982, 1♀; **Artvin**-Şavşat-Meşeli-Davzet, *Picea* sp., 1618 m, 30.06.2005, 1♀; -Şavşat-Karaköy, *Picea* sp., 1930 m, 30.06.2005, 1♀; -Yusufeli-Sarıgöl, orchard, 842 m, 04.09.2004, 3♀♀, 2♂♂; -Salkımlı, orchard, 745 m, 03.09.2004, 1♀; **Balıkesir**-Gönen-Tahirova, pine forest, 100 m, 15.07.1993, 1♀; **Bayburt**, vegetable garden, 1562 m, 07.08 2005, 3♀♀, 1♂; -Konursu, pasture, 1522 m, 30.08.2004, 1♂; **Bilecik**-Ayvacık, pasture, 700 m, 09.07.1993, 1♀; -Bahçesultan, mixed forest, 1000 m, 10.06.1993, 1♂; Bolu-Aladağ-Çepni Yaylası, mixed forest, 1470 m, 27.08.2002, 1♂; -Karacasu- Gölcük, mixed forest, 850 m, 26.08.2002, 1♀; Burdur, pasture, 976 m, 07.08.1980, 3♀♀; -Bucak, pasture, 867 m, 14.07.1982, 2♀♀; Bursa-İnegöl-Cerrah, pasture, 110 m, 10.07.1993, 1♀; -İnegöl-Mezitli, orchard, 120 m, 11.07.1993, 4♀♀; -Karacabey-Dev. Üretim Çiftliği, pasture, 30 m, 19.08.1984, 1♂; Çanakkale-Biga, orchard, 50 m, 16.07.1993, 1♀; -Gökçeada-TİGEM, pasture, 30 m, 05.06.1996, 1♂; Çorum-Hamamlıçay, clover field, 835 m, 28.06.2004, 1♂, 1♀; -Dodurga-Gücümen, pasture, 793 m, 28.06.2004, 3♀♀; -Dodurga-Osmaniye, orchard, 1023 m, 28.06.2004, 2♀♀; -Dodurga-Yeniköy, orchard, 1035 m, 28.06.2004, 2♀♀; -Osmancık, crop field, 435 m, 07.07.2004, 1♀, 2♂♂; Edirne-Binevler, pasture, 40 m, 17.08.1986, 1♀; -Havsa-Abalar, pasture, 50 m, 01.08.1992, 5♀♀, 8♂♂; -Lalapaşa, orchard, 65 m, 24.05.1982, 1♀; -Trakya Üniv. Ayşekadın Kampusu, pasture, 40 m, 12.06.1989, 1♂; -Trakya Üniv. Güllapoğlu Kampusu (light traps), 25.04.2001, 4♀♀; -Süleoğlu, 31.05.1980, 1♀; Elazığ-Baskil-Hacımustafa, orchard, 1436 m, 04.06.2007, 1♀; -Baskil-Topakent, crop field, 903 m, 03.06.2007, 1♀, 1♂; -Keban-Aydınlar, orchard, 985 m, 16.07.2007, 2♀♀; Erzurum, pasture, 1939 m, 17.07.1990, 1♀; Erzurum-Horasan, pasture, 1900 m, 21.07.1990, 2♂♂, 1♀; **Gaziantep**-Islahiye, orchard, 451 m, 23.07.1980, 2♀♀; **Giresun**-Alucra, pasture, 1550 m, 02.07.2004, 1♀; -Alucra-Gürbulak, vegetable garden, 1582 m, 29.08.2004, 1♀; -Duruoğlu, hazelnut garden, 86 m, 05.07.2004, 5♀♀; -Şebinkarahisar-Dereli, mixed forest, 1431 m, 02.08.2005, 1♀; -Şebinkarahisar-Eğribel, pasture, 2045 m, 02.08.2005, 1♀; Gümüşhane-Kelkit-Yeniköy, orchard, 1474 m, 29.08.2004, 1♀; -Şiran-Karaşeyh, *Poplar* sp, 1450 m, 29.08.2004, 1♀, 2♂♂; **Isparta**-Eğirdir, orchard, 1035

m, 12.07.1982, 7♂♂, 6♀♀; İçel-Erdemli, pasture, 78 m, 07.08.1988, 1♀, 2♂♂; -Gülnar, 02.08.1980, pasture, 76 m, 2♀♀; -Göksun, pasture, 868 m, 25.07.1980, 4♀♀; Kastamonu-Daday, pasture, 700 m, 29.08.2002, 1♀; Kayseri-Bünyan-Ekrek, crop field, 1424 m, 12.07.2007, 1♀, 1♂; Kırklareli-Dereköy, pasture, 500 m, 25.04.1985, 1♀; -Vize-Pabuçdere, pasture, 150 m, 08.05.1988, 1♀; -Yeniceköy, mixed forest, 700 m, 06.09.1988, 1♀; **Kırşehir**-Kaman, crop field, 1020 m, 10.07.2007, 1♂; -Özbağ, clover field, 1036 m, 16.09.2006, 2♀♀; **Konya**-Altınapa Barajı, pasture, 1280 m, 09.08.2006, 1♀; **Malatya**-Akçadağ-Anadolu Öğretmen Lisesi, pasture, 1015 m, 03.06.2007, 1♀, 1♂; -Akçadağ-Sarıhacı, orchard, 1367 m, 05.06.2007, 1♀; -Darende, orchard, 1203 m, 13.07.2007, 2♀♀; -Doğanşehir- Reşadiye, pasture, 1346 m, 02.06.2007, 1♂; -Doğanşehir-Polatdere, crop field, 1195 m, 02.06.2007, 18♀♀, 33♂♂; -Doğanşehir-Takaz, orchard, 1286 m, 02.06.2007, 1♀; -Sultansuyu Harası, 14.07.2007, orchard, 881 m, 2♀♀, 2♂♂; **Manisa**-Turgutlu, orchard, 150 m, 30.06.1998, 1♀; **Niğde**, pasture, 1120 m, 06.05.2002, 2♂♂; Ordu-Gölköy, hazelnut garden, 1020 m, 04.07.2003, ♀; -Mesudiye, crop field, 1177 m, 06.07.2004, 2♂♂; **Osmaniye**-Zorkun, pasture, 50 m, 24.07.1980, 1♀; **Rize**-Ayder yaylası, mixed forest, 1260 m, 02.09.2004, 1♀, 1♂; -Çamlıhemşin-Galerdüzü, mixedforest, 1570 m, 01.09.2004, 1♀; -İkizdere, pasture, 1040 m, 31.08.2004, 1♂; -İkizdere-Vanı, mixed forest, 1040 m, 31.08.2004, 1♂; -İkizdere-Tiron, mixed forest 1344 m, 31.08.2004, 2♂♂; **Samsun**-Çamlıyazı, vegetable garden, 550 m, 29.08.2003, 1♀, 1♂; -Havza-Mismiliağaç, pasture, 610 m, 02.07.2003, 1♀, 5♂♂; -Kavak-Boğaziçi, mixed forest, 380 m, 02.07.2003, 13♀♀; -Kocadağ-TRT İstasyonu, *Picea* sp., 1100 m, 29.08.2003, 1♂; -Salıpazarı-Soyuk, hazelnut garden, 650 m, 03.07.2003, 4♀♀; -Vezirköprü-Kızılcaören, Poplar and Willow, 959 m, 02.07.2003, 2♀♀; **Sivas**-Gürün-İncesu, pasture, 1470 m, 13.07.2007, 1♀, 1♂; -Koyulhisar, orchard, 694 m, 01.07.2004, 2♂♂; -Suşehri-Yaygınsöğüt, pature, 834 m, 20.08.2004, 1♀; -Ulaş-Yağdonduran, crop field, 1630 m, 01.06.2007, 1♀, 1♂; -Yıldızeli-Ekecik, crop field, 1152 m, 30.05.2007, 1♀; Tekirdağ-Şarköy, pasture, 120 m, 25.06.2003, 1♀; **Tokat**-Almus-Gümelönü, pasture, 770 m, 02.09.2003, 1♀; -Almus-Çilhane, orchard, 830 m, 02.09.2003, 1♀; -Kemalpaşa, orchard, 665 m, 30.06.2004, 7♀♀, 1♂; -Niksar-Çamiçi, 01.09.2003, pine forest, 1120 m, 1♀; -Pazar-Ballıca, *Quercus* sp., 1020 m, 07.07.2003, 1♀; -Taşlıçiftlik, orchard, 550 m, 06.07.2003, 2♀♀; -Turhal-Kalaycık, orchard, 570 m, 03.09.2003, 1♀; **Trabzon**-Akçaabat-Akat, hazelnut garden, 331 m, 04.08.2005, 1♂; -Çaykara-Uzungöl, pine forest, 1260m, 04.07.2004, 1♀; -Maçka-Sümela, *Picea* sp., 1073 m, 03.07.2004, 1♀; -Maçka-Şolma Yaylası, *Abies* sp., 1677 m, 05.08.2005, 1♀.

Distribution in Turkey- Adana, Adapazarı, Afyon, Ağrı, Ankara, Bolu, Bursa, Çanakkale, Çorum, Denizli, Edirne, Gümüşhane, İçel, Kahramanmaraş, Kastamonu, Kırklareli, Muğla, Sinop, Şanlıurfa, Tekirdağ, Van.

World distribution- Nearctic; Neotropical, Oriental, Palaearctic

***Meteorus rufus* (DeGeer, 1778)**

Material.- Adana-Feke-Efkeli, pasture, 540 m, 04.10.1979, 1♂; -Kozan, orchard, 96 m, 05.08.1980, 1♀; **Adıyaman**-Gölbaşı, pasture, 883 m, 14.07.1985, 1♀; **Bayburt**, vegetable garden, 1572 m, 07.08.2005, 1♀; **Bolu**-Aladağ-Çepni Yaylası mixed forest, 1470 m, 27.08.2002 1♀; **Hatay**-Habibi Neccar, pasture, 143 m, 15.04.2007, 1♀; -İskenderun, pasture, 15 m, 26.06.1980, 1♂; **Isparta**-Dere Mahallesi, orchard, 1010 m, 07.07.2004, 1♀; -Sav, pasture, 1030 m, 28.06.2004, 1♀; İçel-Erdemli, pasture, 78 m, 07.05.1980, 1♀, 1♂; -Güzeloluk, pasture, 80 m, 23.05.1984, 1♂; **Kayseri**-Gömeç, vegetable garden, 1094 m, 14.09.2006, 1♀, 3♂♂; -Bağpınar, crop field, 1097 m, 14.09.2006, 3♀♀.

Distribution in Turkey- Adana, İçel, Tekirdağ.

World distribution- Oriental, Palaearctic.

***Meteorus salicorniae* Schmiedeknecht, 1897**

Distribution in Turkey- Turkey.

World distribution- Palaearctic.

***Meteorus tabidus* (Wesmael, 1835)**

Material.- **Tokat**-Niksar-Çamiçi, pine forest, 1120 m, 05.07.2003, 1♀

World distribution- Palaearctic.

New record for Turkey.

***Meteorus versicolor* (Wesmael, 1835)**

Material.- Adana-Balcalı, pasture, 70 m, 25.05.1985, 1♀; -Seyhan-Çaputlu, pasture, 30 m,

08.08.1989, 5♀♀; -Yüreğir-Doğankent, pasture, 50 m, 22.07.1996, 1♀; **Adıyaman**-Karadağ, 15.07.1985, pasture 450 m, 1♀; **Amasya**-Gümüşhacıköy, crop field, 849 m, 07.07.2004, 1♂; **Edirne**-Binevler, pasture, 40 m, 01.01.1988, 1♀; **Hatay**-Hassa, pasture, 424 m, 28.06.1980, 1♀; -Reyhanlı, 29.06.1980, 2♀♀; **Elazığ**-Cip Barajı, pasture, 1006 m, 04.06.2007, 1♂; -Keban-Aydınlar, orchard, 985 m, 16.07.2007, 1♀; **İçel**-Erdemli, pasture, 78 m, 07.08.1988, 1♀; **Malatya**-Darende-Yazıköy, orchard, 1203 m, 05.06.2007, 1♂; -Doğanşehir-Polatdere, crop field, 1195 m, 02.06.2007, 15♀♀, 3♂♂; -Sultansuyu Harası, orchard, 881 m, 05.06.2007, 1♀; **Zonguldak**-Çaycuma-Kayıkçılar, vegetable garden, 20 m, 30.06.2001, 1♀.

Distribution in Turkey- Adana, Afyon, Aydın, Muğla, Tekirdağ, Van, Şanlıurfa.

World distribution- Nearctic, Oriental, Palaearctic.

***Meteorus vexator* (Haliday, 1835)**

Material.- **Bursa**-Orhaneli-Nallılar, orchard, 750 m, 11.09.2002, 1♂; **Gümüşhane**-Kelkit-Gürüz mountain, 02.07.2004, pasture, 1871 m, 1♀; **Karabük**-Safranbolu-İnceçay-Sarıçiçek mountain, mixed forest, 1000 m, 29.06.2001, 1♂; **Ordu**-Mesudiye, crop field, 1177 m, 06.77.2004, 1♂; **Samsun**-Salıpazarı-Derbentaltı, *Picea* sp., 970 m, 03.07.2003, 1♀.

World distribution- Palaearctic.

New record for Turkey.

***Zele albiditarsus* Curtis, 1832**

Material.- **Bolu**-Aladağ-Şerif Yüksel, mixed forest, 1550 m, 27.08.2002, 1♀.

World distribution- Nearctic, Neotropical, Oriental, Palaearctic.

Tribe Neoneurini Bengtsson, 1918

***Elasmosoma berolinense* Ruthe, 1858**

Material.- **Edirne**-Trakya Üniversitesi-Ayşekadın Kampüsü, pasture, 40 m, 30.08.1990, 1♂.

World distribution- Palaearctic.

New record for Turkey.

Tribe Perilitini Förster, 1862

***Perilitus* (*Microctonus*) *cerealium* Haliday, 1835**

Material.- **Adıyaman**-Altınşehir, pasture, 780 m, 21.04.2004, 1♀.

World distribution- Palaearctic.

New record for Turkey.

***Perilitus* (*Microctonus*) *foveolatus* Reinhard, 1862**

Material.- **Balıkesir**-Yakuplar, orchard, 550 m, 17.09.1982, 2♀♀; **Kahmaranmaraş**, pasture, 850 m, 25.02.2002, 1♀; -Çitosan, pasture, 890 m, 23.03.2001, 2♀♀; **Kastamonu**-Daday-Ballıdağ, mixed forest, 1750 m, 01.07.2001, 1♀.

World distribution- Palaearctic.

New record for Turkey.

***Perilitus* (*Microctonus*) *aethiops* Nees 1834**

Material.- **Adıyaman**-Altınşehir, pasture, 780 m, 21.04.2004, 1♀, 1♂; **Edirne**-Enez, pine forest, 20 m, 08.08.1991, 1♀; **Balıkesir**-Gönen-Gündoğan, pasture, 500 m, 15.07.1993, 1♂; **Bartın**-Amasra, mixed forest, 20 m, 27.05.2002, 1♀; **Bursa**-Orhaneli-Cirpi, orchard, 550 m, 13.07.1993, 1♂; **Elazığ**-Baskil-Canbeyler, pasture, 1116 m, 03.06.2007, 5♂♂; Baskil-Topakent, crop field, 903 m, 03.06.2007, 6♂♂; -Keban-Altınyaka, *Populus* sp., 1242 m, 04.06.2007, 1♀, 1♂; **Giresun**-Alucra, pasture, 1550 m, 02.07.2004, 1♀; -Dereli-Kümbet yaylası, *Abies* sp., 1747 m, 03.08.2005, 1♀; **Malatya**-Çiftlik, orchard, 909 m, 03.06.2007, 5♂♂; -Doğanşehir-Takaz, orchard, 1286 m, 02.06.2007, 1♀, 7♂♂, 26.07.2007, 2♂♂; **Sivas**-Ulaş-Yağdonduran, crop field, 1630 m, 01.06.2007, 1♀; **Trabzon**-Çaykara-Uzungöl, pine forest, 1260 m, 04.07.2004, 1♀, 6♂♂.

Distribution in Turkey- Kırklareli.

World distribution- Nearctic, Palaearctic.

***Perilitus* (*Microctonus*) *brevicollis* Haliday, 1835**

Material.- **Ankara**-Sincan, pasture, 950 m, 31.05.2007, 1♀, 1♂; **Edirne**-Hadımağa, pasture, 40 m, 23.07.1987, 1♀; **Elazığ**-Baskil-Hacımustafa, orchard, 1436 m, 04.06.2007, 3♀♀, 2♂♂; **Giresun**-Dereli-Kümbet yaylası, *Abies* sp., 1747 m, 05.07.2005, 1♀, 6♂♂, 03.08.2005, 1♂.

World distribution- Palaearctic.

New record for Turkey.

***Perilitus* (*Microctonus*) *parcicornis* (Ruthe, 1856)**

Material.- **Edirne**-Oğulpaşa, pasture, 55 m, 06.06.1992, 1♀.

Distribution in Turkey- Kırklareli.

World distribution- Palaearctic.

***Perilitus* (*Microctonus*) *stelleri* (Loan, 1972)**

Distribution in Turkey- Edirne, Kırklareli, Tekirdağ.

World distribution- Palaearctic.

***Perilitus* (*Perilitus*) *falciger* (Ruthe, 1856)**

Material.- **Antalya**-Karamanbeli, pasture, 1320 m, 29.05.2004, 1♀.

World distribution- Palaearctic.

New record for Turkey.

***Perilitus* (*Perilitus*) *rutilus* (Nees von Esenbeck, 1811)**

Material.- **Edirne**-Süleoğlu, pasture, 80 m, 05.07.1990, 1♀; **Balıkesir**-Manyas-Kuşcenneti, pasture, 15 m, 11.05.1991, 1♀; **Elazığ**-Cip Barajı, pasture, 1006 m, 04.06.2007, 2♀♀, 3♂♂; **Malatya**-Akçadağ-Sarıhacı, orchard, 1367 m, 05.06.2007, 1♀.

World distribution- Nearctic, Palaearctic.

New record for Turkey.

***Perilitus* (*Townesilitus*) *bicolor* (Wesmael, 1835)**

Material.- **Adıyaman**-Kahta-Hasancık, pasture, 724 m, 09.05.2005, 1♀; **Balıkesir**-Gönen, pasture, 500 m, 05.07.1993, 1♂; **Bursa**-Orhaneli-Cirpi, orchard, 550 m, 13.07.1993, 1♂; **Edirne**-Elçili, pasture, 53 m, 01.08.1992, 1♂; **Hatay**-Hassa, pasture, 424 m, 28.06.1980, 1♀; **Kastamonu**-Araç-Toprakcuma, crop field, 350 m, 13.06.2002, 1♀.

World distribution- Palaearctic.

New record for Turkey.

***Marshiella plumicornis* (Ruthe, 1856)**

Material.- **Eskişehir**, *Populus* sp., 839 m, 07.07.2007, 1♀.

World distribution- Palaearctic.

New record for Turkey.

***Streblocera* (*Streblocera*) *fulviceps* Westwood, 1833**

Material.- **Balıkesir**-Dursunbey-Saçayağı, pine forest, 500 m, 14.07.1993, 1♂.

World distribution- Palaearctic.

New record for Turkey.

***Streblocera* (*Eutanycerus*) *macroscapus* (Ruthe, 1856)**

Material.- **Malatya**-Akçadağ-Anadolu Öğretmen Lisesi, pastuere, 1015 m, 03.06.2007, 1♀; -Çiftlik, orchard, 909 m, 03.06.2007, 1♀; -Sultansuyu Harası, orchard, 881 m, 05.06.2007, 1♀.

World distribution- Palaearctic.

New record for Turkey.

Tribe Syntretini Shaw, 1985

***Syntretus* (*Syntretus*) *daghestanicus* Tobias, 1976**

Material.- **Artvin**-Borçka, 20.06.2000, 2♀♀; **Erzurum**-Pasinler-Çöğender, 13.07.1999, 1♂.

Distribution in Turkey-Sivas.

World distribution- Palaearctic.

***Syntretus* (*Syntretus*) *elegans* (Ruthe, 1856)**

Material.- Ankara-Avaçla, 31.05.2002, 1♂; **Kırşehir**-Hirfanlı Barajı, 28.04.2001, 1♀.

Distribution in Turkey- Ankara, Sivas.

World distribution- Palaearctic.

***Syntretus ocularis* Achterberg & Haeselbarth, 2003**

Distribution in Turkey- Bolu.

World distribution- Palaearctic.

Discussion

Three genera from the Perilitini tribe (genus *Streblocera* Westwood), the Euphorini tribe (genus *Chrysopophthorus* Goidanich), and the Neoneurini tribe (genus *Elasmosoma* Ruthe) are here recorded for the first time in Turkey. The tribe Neoneurini and the genus *Marshiella* are also recorded for the first time. Shaw (1985) considered *Marshiella* to have a Palaearctic distribution as a member of the genus Townestilini tribus, but Yu et al. did not consider it to be in any tribe in his 2005 catalog. However, *Marshiella* is closely related to the subgenus Townestilus. The 22 species of Euphorinae found increased the number of known Euphorinae in Turkey from 41 to 63.

From a systematic point of view, the Turkish euphorinfauna does not show special characteristics

and consists of species already known in the Palaearctic. Due to its geographical location between Europe and Asia, Turkey shares species distributed in both Europe and Asia. Species collected in the study have mostly been recorded only in Asia (50%, 27 species), while some were recorded only in Europe (16.6%, 9 species), and an intermediate number were recorded in both Europe and Asia (33.3%, 18 species).

The following were not found in this study and are rare species in Turkey: *Aridelus cameroni*, *Aridelus egregius, Leiophron* (*E.*) *pallidistigma, Meteorus cespitator*, *M. colon*, *M. jaculator*, *M. oculatus*, *M. pendulus, M. politutele, M. salicorniae*, *Perilitus* (*M.*) *stelleri, Peristenus accinctus*, *P. adelphocoridis*, *P. digoneutis, P. facialis, P. nitidus, P. picipes, Pygostolus sticticus,* and *Syntretus ocularis*. The widespread species *Meteorus rubens* was collected only using light traps at night, which suggested that this species is nocturnal.

The euphorine fauna is dominated by the tribe Meteorini (38% of the total number of species), particularly the genus *Meteorus*, and to a lesser extent the tribe Euphorini (20% of the total number of species). The number of species recorded in Turkey is much lower than that in European countries, where the euphorine fauna has been well documented. The 29-year survey improved our knowledge of the Turkish euphorinfauna. However, the survey should be continued, especially in non-investigated areas in Turkey. With further research, we believe that the records of the Turkish euphorinfauna will be increased substantially.

Twenty of the species found in this study have a wide range outside of the Palaearctic and all are Australasian, Nearctic, Ethiopian, Neotropical, Oceanic, and Oriental in distribution. Thus, these species were considered to be widespread species. The following 16 species have only been recorded at a single locality within Turkey: *Centistes* (*A.*) *collaris, Chrysopophthorus hungaricus, Leiphron* (*E.*) *pallidistigma, Peristenus digoneutis, P. facialis, P. nitidus, Aridelus egregius, Meteorus affinis, M. consimilis, M. pendulus, M. tabidus, Elasmosoma berolinense, Perilitus* (*M.*) *ceralium, P.* (*P.*) *falciger, Marshiella plumicornis,* and *Streblocera* (*S.*) *fulviceps*. These species cannot be considered to be common species in Turkey.

Euphorinae species were found in 8 phytogeographical provinces (Table 1). Considering the total number of species, the provinces, in order of increasing number of species, is as follows: Subeuxine, Euxine, Kseroeuxine, Iran, Mediterranean, Central Anatolian, Anatolian, and Mesopotamian. However, each of these phytogeographical provinces has specific features that need to be considered separately. The most diverse province is the Subeuxine province, with 42 species (77.7% of the total number of Turkish Euphorinae species) and the second most diverse province is Euxine, which has 35 species (64.8.8% of the total). This tribe is represented by 22 species in the Kseroeuxine provinces (44.7% of the total), 18 species in Iran (33.3% of the total), and 16 species in the Mediterranean (29.6% of the total). Anatolian, Central Anatolian, and the Mesopotamian steppe are species-poor compared to the other 5 provinces.

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