

Contributions to the Aphrophoridae and Cercopidae (Hemiptera: Auchenorrhyncha: Cicodomorpha) Fauna of Türkiye Along with Updated Checklist

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Abstract

In this study, undetermined material belonging to Aphrophoridae and Cercopidae families housed in the collection of the Lodos Entomological Museum (LEMT), İzmir, Türkiye was identified and new locality records for ten species of the Aphrophoridae family and six species of the Cercopidae family were given. In addition, the distributions of all species belonging to these two families in Türkiye were given as a list and shown with maps alongwith updated checklist.

Keywords

Aphrophoridae,
Cercopidae,
Türkiye,
LEMT,
New locality
records,
Updated checklist

Güncellenmiş Kontrol Listesi ile Birlikte Türkiye Aphrophoridae ve Cercopidae (Hemiptera: Auchenorrhyncha: Cicadomorpha) Faunasına Katkıları

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Özet

Bu çalışmada, Lodos Entomoloji Müzesi (LEMT, İzmir, Türkiye) koleksiyonunda yer alan ve daha önce teşhisi yapılmamış Aphrophoridae ve Cercopidae familyalarına ait materyaller incelenerek teşhis edilmiştir. Sonuç olarak, Aphrophoridae familyasına ait on tür ve Cercopidae familyasına ait altı tür için yeni lokalite kayıtları verilmiştir. Ayrıca, bu iki familyaya ait Türkiye'deki tüm türlerin güncellenmiş kontrol listesi hazırlanmış; türlerin Türkiye'deki dağılışı liste hâlinde sunulmuş ve dağılışı haritaları ile gösterilmiştir.

Anahtar kelimeler

Aphrophoridae,
Cercopidae,
Türkiye,
LEMT,
New locality
records,
Updated checklist

1. INTRODUCTION

The suborder Cicadomorpha among Hemiptera is a diverse group of varied sizes, which may reduce crop yield by feeding on plant fluid and weakening the terminal young branches [1]. The Cercopoidea superfamily (Hemiptera: Cicadomorpha) classified into five families as Cercopidae, Aphrophoridae, Clastopteridae, Machaerotidae and Epipygidae. The superfamily comprises of approximately 3000 species that have been described to date in worldwide. The species of the superfamily Cercopoidea known as spittlebugs because of producing a foamy mass during the nymphal periods of their development [2]. They are called froghoppers since the adults have jumping ability. They are called froghoppers since the adults have jumping ability. Some Cercopidae species have potential to cause significant damage to economically important plants. In particular, they cause harm in rice either through by feeding or as a vector of phytoplasmas [3]. Several species are known to cause significant damage to forage grasses and sugarcane by feeding [4].

Aphrophoridae spittlebugs are the most abundant and widespread xylem-sap feeder insects and they have been mentioned as pests with economic importance on rice, sugarcane, strawberry, alfalfa, perennial plants and some pasture plants etc. [5]. The first studies of this family in Türkiye are Fahringer [6], Dlabola [7] and Metcalf [8]. Lodos & Kalkandelen [9] evaluated the material collected from field and museum and listed four new records and species of this family from Türkiye. A limited number of local recordings were issued in later years. In Türkiye, research on Aphrophorid spittlebugs was focused on polymorphism, mainly on the meadow spittlebug *Philaenus spumarius* (Linnaeus, 1758) [10, 11, 12]. According to Önder et al. [13] Aphrophoridae fauna of Türkiye consist of 14 species belonging to six genera. This number has increased to 15 with new locality records and a new species reported from our country in subsequent studies [14].

The first records from Türkiye belonging to the Cercopidae family, which has 93 species in the Palearctic Region, were given by Fieber [15] and Fahringer [6]. Metcalf [16] listed 4 species from Türkiye. Lodos and Kalkandelen [9] prepared a checklist of Cercopidae family of Türkiye. Kartal et al. [17] conducted a taxonomic study on Cercopidae species in Samsun and its surroundings. Cercopidae fauna of Türkiye comprises of seven species: *Cercopis distincta* (Melichar, 1896), *C. intermedia* Kirschbaum, 1868, *C. sanguinolenta* (Scopoli, 1763), *C. septemmaculata* (Melichar, 1903), *C. vulnerata* Rossi, 1807, *Haematoloma dorsata* (Ahrens, 1812) and *Triecphorella geniculata* (Horvath, 1881) [9, 13, 18]. In the following years, new locality records, taxonomic evaluations and studies addressing intraspecific variations were carried out [19, 20, 21, 22, 23]. In this study, undetermined material belonging to Aphrophoridae and Cercopidae housed in the collection of the Lodos Entomological Museum (LEMT), Izmir, Türkiye was identified and new locality records for ten species of the

Aphrophoridae and six species of the Cercopidae families were given alongwith updated checklist.

2. MATERIAL AND METHOD

Most of the material have been collected within the research projects by the researchers of Department of Plant Protection, Faculty of Agriculture, University of Ege [24, 25, 26] between the years of 1966-2010. Rest of the material collected and given as a gift to the LEMT, Ege University, İzmir, Türkiye by researchers, students and amateurs. Material except *Poophilus costalis* was identified by the first author according to the relevant literature [43, 55, 56]. The distribution of all species belonging to these two families in Türkiye is shown on maps (Figs 1-23) and the provinces reported for the first time in this article are marked with an asterisk. The maps were created using the Adobe Photoshop Elements 9 photo editing application.

3. RESULTS

The species discussed in this study are given below in alphabetical order according to families.

3.1. Family: Aphrophoridae

Aphrophora alni (Fallén, 1805)

Distribution in the world: Austria, Belgium, Bosnia and Herzegovina, Britain, Bulgaria, Crete, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece Hungary, Ireland, Italy, Latvia, Lithuania, Macedonia, Malta, Moldova, the Netherlands, Norway, Poland, Portugal, Romania, Russia (Southern, northern and central parts in Europe), Sardinia, Sicily, Slovakia, Slovenia, Spain, Sweden, Switzerland, Yugoslavia, Near East, North Africa, West Palearctic [27].

Distribution in Türkiye: Adana, Afyonkarahisar, Ankara, Antalya, Artvin, Aydın, Balıkesir, Bitlis, Bolu, Çanakkale, Çorum, Diyarbakır, Erzincan, Erzurum, Giresun, İstanbul, İzmir, Kastamonu, Kayseri, Kırklareli, Konya, Kütahya, Manisa, Mardin, Muğla, Ordu, Rize, Samsun, Sinop, Tekirdağ, Trabzon, Yozgat [13, 28, 29].

Material examined: Adana: Tufanbeyli, 12.VII.1986 (2 ♂♂, 1 ♀);, *Salix* sp., weeds, (3 ♀♀); **Ankara:** Bala, 26.VI.1980 *Salix* sp. (1 ♂), Kızılcahamam, 12.VII.1979, *Malus domestica* (1 ♂); **Antalya:** Alanya, 26.V.1986, *Morus alba*, (1 ♂), Korkuteli, 25.IX.1980, (1 ♀) *Cupressus* sp. (1 ♀), Seki, 05.VI.1973, *Crataegus* sp. (2 ♀♀); **Artvin,** Borçka, 08.VIII.1985, weeds, (1 ♂), Murgul, 22.VIII.1973, weeds, (3 ♂); **Bartın:** Merkez, 31.V.1980, *Crataegus* sp. (2 ♂♂), Ulus, 09.V.1980, *Equisetum* sp. (2 ♂♂), Ulus, 09.V.1980, *Mentha* sp. (2 ♂♂); **Bolu:** Mudurnu, 14.VII.1979, *Malus domestica* (1 ♂); **Burdur:** Başmakçı Plateau, 07.VIII.1975, weeds (1 ♂); **Eskişehir:** Mahmudiye, 08.VII.1979, *Malus domestica* (2 ♂♂), Mahmudiye, 08.VII.1979, *Pinus* sp. (1 ♂); **Giresun:** Keşap, 02.IX.1973, weeds (3 ♂♂, 4 ♀♀); **Gümüşhane:** 10.VII.1978, *Echium* sp. (2 ♂♂), Torul, 10.VII.1978, weeds (1 ♂), Torul, 29.VIII.1971, *Alnus* sp.

(2 ♂♂), 14.VII.1982, weeds (1 ♂); **Isparta**: Eğirdir, 11.VI.1973, *Cupressus* sp. (1 ♂); **Kahramanmaraş**: Afşin, 23.VII.1984, *Rosa* sp. (1 ♂), Göksun, 22.VII.1984, *Cirsium* sp. (2 ♂♂), *Rubus* sp. (1 ♂), weeds (1 ♂); **Karabük**: Eskipazar, 13.VII.1979, *Malus domestica* (3 ♂♂), Safranbolu, 18.VII.1979, *Crataegus* sp. (2 ♂♂); **Karaman**: 02.VII.1980, *Salix* sp. (1 ♂); **Kastamonu**: Cide, 03.VI.1980, *Centaurea* sp. (2 ♂♂), İnebolu, 19.VII.1979, *Rubus* sp. (2 ♂♂), Taşköprü, 02.VIII.1979, *Pyrus communis* (2 ♂♂); **Kayseri**: Yahyalı, 29.VI.1980, *Salix* sp. (2 ♂♂); **Kırşehir**: 18.VIII.1979, weeds (2 ♂♂), Kaman, 25.VI.1980, *Rosa* sp. (1 ♂), Kaman, 25.VI.1980, weeds (1 ♂); **Konya**: Akşehir, 06.VII.1980, *Rubus* sp. (1 ♂), 06.VII.1980, *Salix* sp. (5 ♂♂), 06.VII.1980, *Tamarix* sp. (1 ♂), Bozkır, 05.VII.1980, *Salix* sp. (2 ♀♀); **Mersin**: Çamlıyayla, 10.VII.1986, weeds (1 ♂), Toroslar, Arslanköy, 08.VII.1986, *Cirsium* sp. (1 ♂); **Ordu**: Kumru, 13.VII.1978, weeds, (2 ♂♂); **Yozgat**: Çekerek, 07.VIII.1970, *Salix* sp. (2 ♂♂); **Zonguldak**: Çaycuma, 31.V.1980, *Fraxinus* sp. (1 ♂), Ereğli, 16.VII.1979, *Rubus* sp. (2 ♂♂). New locality records for Bartın, Burdur, Eskişehir, Gümüşhane, Isparta, Kahramanmaraş, Karabük, Karaman, Kastamonu, Kırşehir, Mersin and Zonguldak (Figure 1).

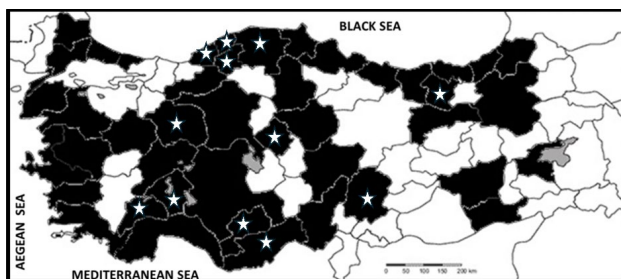


Figure 1. Distribution of *Aphrophora alni* (Fallén, 1805) in Türkiye.

Aphrophora corticea Germar, 1821

Distribution in the world: Albania, Austria, Belgium, Bulgaria, Czech Republic, Denmark, France, Germany, Italy, the Netherlands, Norway, Poland, Portugal, Russia, Slovakia, Spain, Sweden, Switzerland, Türkiye, Ukraine, Yugoslavia [13, 30].

Distribution in Türkiye: Afyonkarahisar, Ankara, Antalya, Aydın, Bilecik, Çanakkale, Isparta, Kütahya, Muğla, Tokat [13, 30].

Material examined: **Antalya**: Korkuteli, 25.IX.1980, *Cupressus* sp. (1 ♂); **Bilecik**: Söğüt, 25.VIII.1980, weeds (1 ♂), Söğüt, 20.VI.1981, *Juniperus* sp. (1 ♂), Söğüt, 20.VI.1981, *Pyrus elaeagnifolia*, (1 ♂); **Kahramanmaraş**: Göksun, 21.VII.1984, *Cedrus* sp. (10 ♂♂); **Karabük**: Eskipazar, 13.VII.1979, *Juniperus* sp. (1 ♀); **Kastamonu**: Araç, 18.VII.1979, *Juniperus* sp. (1 ♀), Araç, 18.VII.1979, *Pinus* sp. (2 ♀♀). New locality records for Kahramanmaraş, Karabük and Kastamonu. (Figure 2).

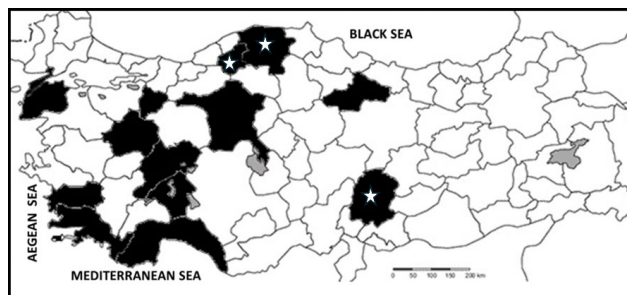


Figure 2. Distribution of *Aphrophora corticea* Germar, 1821 in Türkiye.

Aphrophora exoleta Horvath, 1901

Distribution in the world: Syria, Türkiye [6, 7].

Distribution in Türkiye: Karaman [53], without exact locality from Türkiye [13] (Figure 3).



Figure 3. Distribution of *Aphrophora exoleta* Horvath, 1901 in Türkiye.

Material examined: This is based on a record in the literature and the authors did not identify undetermined material of this species in the present study.

Aphrophora geruzei Tanyeri & Zeybekoglu, 2021

Distribution in the world: Türkiye [14]. Endemic.

Distribution in Türkiye: Kastamonu, Sinop [14] (Figure 4).

Material examined: This is based on a record in the literature and the authors did not identify undetermined material of this species in the present study.

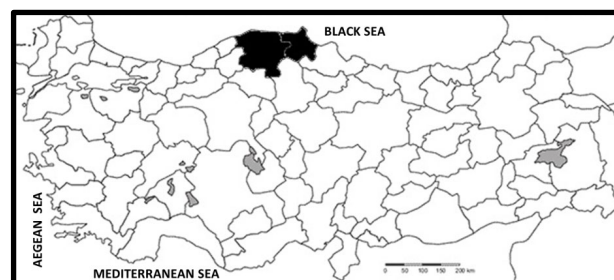


Figure 4. Distribution of *Aphrophora geruzei* Tanyeri & Zeybekoglu, 2021 in Türkiye.

Aphrophora salicina (Goeze, 1778)

Distribution in the world: Albania, Austria, Belgium, Britain, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Moldova, the Netherlands, North America, Norway, Poland, Portugal, Romania, Russia (Southern, northern and central parts in Europe), Sardinia,

Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, Vatican City, East Palearctic, Near East [27, 57].

Distribution in Türkiye: Balıkesir, Çanakkale, Elazığ, Giresun, Gümüşhane, Kastamonu, Kırklareli, Konya, Kütahya, Sinop [13, 28, 29, 30].

Material examined: **Ankara:** Kızılcahamam, 12.VII.1979, *Malus domestica* (1 ♀); **Ardahan:** Göle, 16.VII.1982, *Salix* sp. (1 ♀); **Çankırı:** Central province, 04.VIII.1979, weeds (1 ♂); **Gümüşhane:** Torul, 10.VII.1978, weeds (1 ♂); **Tokat:** Central province, 02.VII.1978, *Acacia* sp. (1 ♂); **Yozgat:** Sorgun, 08.VIII.1979, *Salix* sp. (2 ♂♂); **Zonguldak:** Çaycuma, 16.VII.1979, *Alnus glutinosa* (1 ♂♂). New locality records for Ankara, Ardahan, Çankırı, Tokat, Yozgat and Zonguldak (Figure 5).

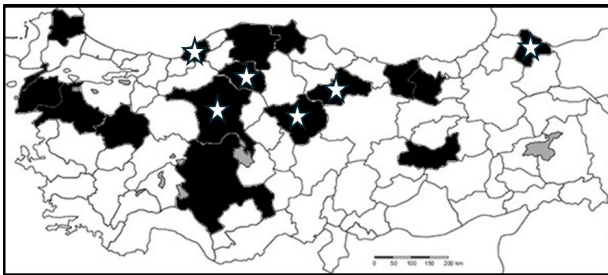


Figure 5. Distribution of *Aphrophora salicina* (Goeze, 1778) in Türkiye

Lepyronia coleoptrata (Linnaeus, 1758)

Distribution in the world: Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Macedonia, Moldova, the Netherlands, North America, Norway, Poland, Portugal, Romania, Russia (Southern, northern and central parts in Europe), Sardinia, Sicily, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, Yugoslavia, East Palearctic, Near East, North Africa [27, 57].

Distribution in Türkiye: Adana, Afyonkarahisar, Ankara, Antalya, Artvin, Aydın, Bilecik, Bursa, Çanakkale, Çankırı, Çorum, Diyarbakır, Edirne, Elazığ, Erzincan, Gümüşhane, İzmir, Kahramanmaraş, Kars, Kastamonu, Konya, Kütahya, Manisa, Mardin, Muğla, Muş, Sakarya, Samsun, Siirt, Sinop, Tokat [13, 17, 33, 34, 35, 37, 37].

Material examined: **Adana:** Karaisalı, 02.VI.1984, weeds, (1 ♂), Karataş, 02.VI.1984, poaceous plants, (3 ♂♂), Tufanbeyli, 05.VI.1984, weeds, (2 ♂♂), Tufanbeyli, 12.VII.1986, *Salix* sp. (1 ♀), Yumurtalık, 09.VI.1984, weeds, (3 ♂♂, 1 ♀); **Ankara:** Kızılcahamam, 12.VII.1979, *Populus* sp. (1 ♂); **Bolu:** Mudurnu, 14.VII.1979, weeds, (1 ♂, 2 ♀♀); **Eskişehir:** Mahmudiye, 06.VII.1979, *Medicago sativa*, (1 ♂); **Giresun:** Şebinkarahisar, 12.VII.1978, *Quercus* sp. (1 ♀); **Gümüşhane:** 10.VII.1978, *Echium* sp., (2 ♀♀), Şiran, 11.VII.1978, weeds, (2 ♀♀); **Hatay:** Altınözü, 10.VII.1984, weeds, (1 ♀), Dört Yol, 06.VII.1984, *Sideritis* sp., (1 ♀), Arsuz, 30.V.1985, *Centaurea solstitialis*, (1 ♀), İskenderun, 30.V.1985, weeds, (2 ♂♂, 1 ♀), Yayladağ, 01.VI.1985, weeds, (1 ♀); **Isparta:**

04.VI.1992, *Centaurea* sp., (1 ♀), Eğirdir, 02.VI.1982, weeds, (1 ♀), Eğirdir, 02.VI.1986, weeds, (2 ♂♂); **İzmir:** Çiğli, 31.VII.1986, *Alhagi* sp., (1 ♂); **Kahramanmaraş:** Göksun, 22.VII.1984, weeds, (3 ♂♂); Göksun, 14.VI.1985, weeds, (3 ♂♂); **Kayseri:** Yeşilhisar, 14.VIII.1979, weeds, (2 ♂♂); **Kırşehir:** Central province, 18.VIII.1979, weeds, (1 ♂); **Konya:** Akşehir, 06.VII.1980, *Rubus* sp., (1 ♂), Akşehir, 06.VII.1980, *Salix* sp., (1 ♂); **Mersin:** Çamlıyayla, 09.VII.1986, *Triticum aestivum*, (1 ♂), Çamlıyayla, 10.VII.1986, weeds, (6 ♂♂, 1 ♀), *Rubus* sp., (1 ♂), Erdemli, 07.VII.1986, weeds, (1 ♂), Tarsus, 09.VII.1986, weeds, (1 ♂), Toroslar, Arslanköy, 08.VII.1986, *Rumex* sp., (2 ♂♂), *Sideritis* sp. (2 ♂♂); **Nevşehir:** Avanos, 25.VI.1980, weeds, (1 ♂), Ürgüp, 15.VIII.1979, weeds, (1 ♂); **Osmaniye:** Gavur Mountain, 18.VII.1984, *Centaurea* sp., (1 ♂); **Siirt:** Şirvan, 16.VII.1975, *Oryza sativa* (1 ♂). New locality records for Bolu, Eskişehir, Giresun, Hatay, Isparta, Kayseri, Kırşehir, Mersin, Nevşehir and Osmaniye (Figure 6).

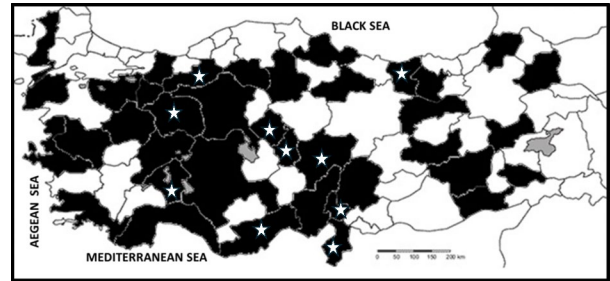


Figure 6. Distribution of *Lepyronia coleoptrata* (Linnaeus, 1758) in Türkiye.

Mesoptylus impictifrons (Horváth, 1911)

Distribution in the world: Egypt, Israel, Jordan, Lebanon, Türkiye [13, 30].

Distribution in Türkiye: Antalya, Hatay, İçel, Kahramanmaraş, Kayseri [9, 13, 12].

Material examined: **Antalya:** 08.VIII.1986, weeds, (1 ♂), Gündoğmuş, 26.V.1986, *Prunus dulcis*, (1 ♂); **Hatay:** Antakya, 09.VII.1984, *Olea europaea*, (1 ♂) weeds, (3 ♂♂), Belen, Soğukoluk, 07.VII.1984, *fabaceous plants*, (2 ♂♂), Defne, Harbiye, 09.VII.1984, *Diospyros kaki*, (1 ♀), Defne, Harbiye, 09.VII.1984, *Poterium* sp., (1 ♀), Defne, Harbiye, 09.VII.1984, weeds, (1 ♀), Defne, Harbiye, 09.VII.1984, *Juniperus communis*, (1 ♀), Hassa, 12.VII.1984, weeds, (1 ♀), Samandağ, 08.VII.1984, *Salvia* sp., (1 ♂), Samandağ, 27.IV.1986, *Laurus nobilis*, (1 ♂), Samandağ, 27.IV.1986, weeds, (1 ♂), Yayladağı, 09.VII.1984, *Laurus nobilis*, (2 ♂♂), Yayladağı, 09.VII.1984, *Quercus* sp., (2 ♂♂), Yayladağı, 09.VII.1984, *Rosa* sp., (1 ♂, 1 ♀), Yayladağı, 10.VII.1984, (2 ♂♂); **Mersin:** Çamlıyayla, 09.VII.1986, weeds, Gülnar, 28.V.1984, (7 ♂♂; 3 ♀♀), Gülnar, 04.VII.1984, *Phlomis* sp., (1 ♀), Mezitli, Fındıkpınarı, 07.VII.1986, *Rubus* sp., (2 ♂♂), Silifke, 29.V.1984, aerial collector, (1 ♂), Toroslar, Arslanköy, 08.VII.1986, *Quercus* sp., (2 ♂♂), *Rosa* sp., (2 ♂♂), Toroslar, Gözne, 31.V.1984, *Paliurus* sp., (2 ♂♂), *Sinapis* sp. (3 ♂♂), Toroslar, Gözne, 08.VII.1986, *Verbascum* sp., (1 ♂);

Osmaniye: Düziçi, 07.VI.1984, weeds, (2 ♂♂). New locality records for Mersin and Osmaniye (Figure 7).

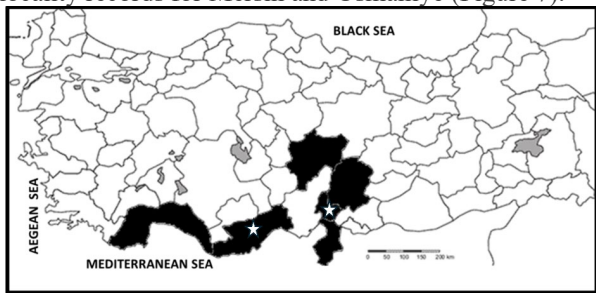


Figure 7. Distribution of *Mesoptylus impictifrons* (Horváth, 1911) in Türkiye.

Mesoptylus petrovi (Grigoriev, 1910)

Distribution in the world: Armenia, Azerbaijan, Georgia, Russia [30] Türkiye [9].

Distribution in Türkiye: Artvin, Trabzon [9] (Figure 8).

Material examined: This is based on a record in the literature and the authors did not identify undetermined material of this species in the present study.

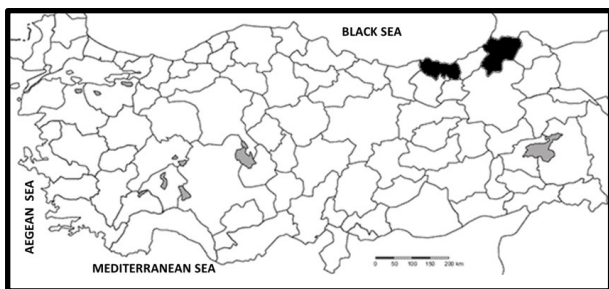


Figure 8. Distribution of *Mesoptylus petrovi* (Grigoriev, 1910) in Türkiye.

Neophilaenus albipennis (Fabricius, 1798)

Distribution in the world: Algeria, Austria, Belgium, Bohemia, Bulgaria, Czech Republic, Estonia, France, Germany, Hungary, Italy, Kazakhstan, Kyrgyzstan, Moravia, Poland, Romania, Russia, Slovakia, Tunisia, Ukraine, Yugoslavia [30], Türkiye [9].

Distribution in Türkiye: Afyonkarahisar, Ankara, Kastamonu, Kırklareli, Sinop [9, 34, 38] (Figure 9)

Material examined: This is based on a record in the literature and the authors did not identify undetermined material of this species in the present study.

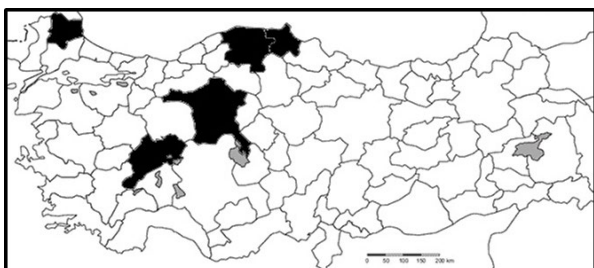


Figure 9. Distribution of *Neophilaenus albipennis* (Fabricius, 1798) in Türkiye.

Neophilaenus campestris (Fallén, 1805)

Distribution in the world: Austria, Bulgaria, Czech Republic, Estonia, France, Germany, Greece, Hungary, Italy, Poland, Romania, Sardinia, Slovakia, Slovenia, Switzerland, Ukraine, Yugoslavia, East Palearctic, North Africa [27].

Distribution in Türkiye: Adana, Adıyaman, Afyonkarahisar, Ankara, Antalya, Artvin, Bitlis, Bursa, Çanakkale, Eskişehir, Elazığ, Giresun, Hatay, İstanbul, İzmir, Kastamonu, Kırklareli, Konya, Kütahya, Manisa, Muğla, Nevşehir, Samsun, Sinop, Siirt, Trabzon, Van [9, 13, 29, 34, 35, 36, 39].

Material examined: **Adana:** Central province, 02.V.1985, weeds, (2 ♂♂); **Antalya:** Korkuteli, 25.VIII.1980, *Astragalus* sp., (3 ♂♂), Korkuteli, 25.IX.1980, *Cupressus* sp., (1 ♀), Korkuteli, 25.VIII.1980, weeds, (2 ♂♂); **Bartın:** Ulus, 29.V.1980, *Equisetum* sp., (1 ♂), Ulus, 29.V.1980, *Triticum aestivum*, (2 ♀♀); **Çorum:** Osmancık, 07.VI.1980, *Alkanna* sp., (2 ♀♀); **Düzce:** Akçakoca, 24.V.1980, weeds, (1 ♂); **Eskişehir:** Sarıcakaya, 08.VII.1979, weeds, (2 ♂♂); **Giresun:** Şebinkarahisar, 12.VII.1978, *Crataegus* sp., (2 ♂♂); **Hatay:** Belen, Soğukoluk, 30.V.1985, *Triticum aestivum*, (1 ♀) Yayladağı, 01.VI.1985, weeds, (1 ♂, 1 ♀); **İzmir:** Bornova, 04.V.1976, weeds, (2 ♂♂), Bornova, 24.V.1980, weeds, (1 ♂); **Karabük:** Central province, 29.V.1980, weeds, (2 ♂♂), Eskipazar, 13.VII.1979, *Juniperus* sp., (3 ♂♂), Eskipazar, 29.V.1980, *Matricaria chamomilla*, (1 ♀), Eskipazar, 29.V.1980, *Medicago sativa*, (2 ♂♂), Eskipazar, 29.V.1980, *Tamarix* sp., (1 ♀) Eskipazar, 29.V.1980, *Verbascum* sp., (2 ♀♀); **Karaman:** Bucakışla, 26.IV.1979, weeds, (2 ♀♀); **Kastamonu:** Cide, 03.VI.1980, *fabaceous plants*, (3 ♂♂), Cide, 03.VI.1980, *Laurus* sp., (2 ♂♂), Cide, 03.VI.1980, *poaceous plants*, (4 ♂♂) Cide, 04.VI.1980, *Rosa* sp., (1 ♀), Küre, 04.VI.1980, *Abies* sp., (2 ♀♀), Taşköprü, 05.VI.1980, *Quercus* sp., (3 ♀♀); **Kırklareli:** Vize, 07.VI.1972, weeds, (2 ♀♀) **Kırşehir:** Kaman, Hirfanlı, 25.VI.1980, *Peganum harmala*, (2 ♂♂); **Zonguldak:** Çaycuma, 31.V.1980, *Arundo donax*, (1 ♂), Çaycuma, 16.VII.1979, weeds, (3 ♂♂) Devrek, 25.V.1980, aerial collector, (2 ♂♂), Devrek, 29.V.1980, *Paliurus* sp., (2 ♂♂). New locality records for Bartın, Çorum, Düzce, Karabük, Karaman, Kastamonu, Kırşehir and Zonguldak (Figure 10).

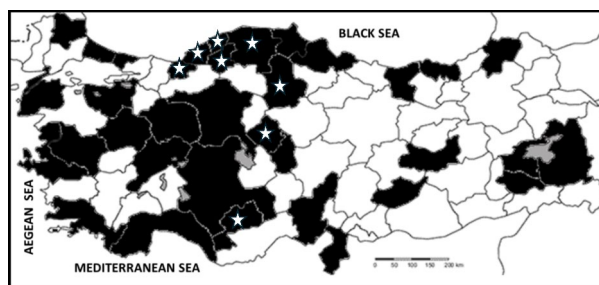


Figure 10. Distribution of *Neophilaenus campestris* (Fallén, 1805) in Türkiye.

Neophilaenus exclamationis (Thunberg, 1874)

Distribution in the world: Algeria, Norway, Denmark (without Greenland), Sweden, Finland, Estonia, Latvia,

Lithuania, Murmansk, Karelia, St. Petersburg and the Leningrad region [40, 57].

Distribution in Türkiye: This species was previously reported by Dilbaz from the Western Black Sea Region of Türkiye [40]. The examination of the specimens previously collected by the first author from Sinop and Kastamonu (Black Sea Region of Türkiye) and the opinions of foreign experts on the identification were evaluated together, it was understood that this species is not *Neophilaenus exclamationis* (Thunberg, 1874).

In order to avoid any incorrect reporting, it is thought that it would be appropriate to make a definitive decision regarding the existence of the species in Türkiye after more detailed studies are conducted in the region. Although it was reported from the Western Black Sea Region by Dilbaz [41], the existence of this species in Türkiye remains doubtful. For this reason, it is not included in the Aphrophoridae fauna of Türkiye.

Neophilaenus lineatus (Linnaeus, 1758)

Distribution in the world: Albania, Austria, Balearic Islands, Belgium, Britain, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Macedonia, Moldova, the Netherlands, Norway, Poland, Portugal, Romania, Russia (Southern, northern and central parts in Europe), Sardinia, Sicily, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, Yugoslavia, East Palearctic, Near East, Nearctic Region, North Africa [27].

Distribution in Türkiye: Afyonkarahisar, Ankara, Bursa, Erzincan, İstanbul, İzmir, Konya, Nevşehir, Sinop, Van [13, 28, 29].

Material examined: Adana: Pozantı, 01.VI.1984, weeds, (1 ♂), Pozantı, 01.VI.1984, weeds, (1 ♂); **Ankara:** Beypazarı, 10.VII.1979, weeds, (1 ♂) **Antalya:** 17.IV.1984, weeds, (1 ♂), Elmalı, 23.V.1986, *Prunus domestica*, (1 ♂), Elmalı, 23.V.1986, *Quercus* sp., (1 ♂), Elmalı, 23.V.1986, weeds, (3 ♂♂, 1 ♀), Gazipaşa, 25/01/1984, weeds, (1 ♀), Kaş, 22.V.1986, weeds, (1 ♀), Kaş, 22.V.1986, weeds, (1 ♂, 2 ♀♀), Korkuteli, 25.IX.1980, *Cupressus* sp., (1 ♂); **Artvin:** Borçka, 10.VIII.1985, weeds, (1 ♂); **Bartın:** Amasra, 01.VI.1980, poaceous plants, (1 ♂); **Burdur:** Söğüt, 20.VI.1981, *Pinus* sp., (1 ♂), Söğüt, 20.VI.1981, weeds, (1 ♂); **Hatay:** Samandağ, 27.IV.1986, *Centaurea* sp., (2 ♂♂), Samandağ, 27.IV.1986, *Laurus nobilis*, (1 ♂); **Kahramanmaraş:** Ahır Mountain, 19.VII.1984, *Pinus* sp., (1 ♂), Göksun, 22.VII.1984, weeds, (1 ♂); **Karabük:** 29.V.1980, on the ground, (2 ♂♂); **Kırşehir:** Central province, 18.VIII.1979, weeds, (1 ♂); **Mersin:** Çamlıyayla (Namrun), 01.VI.1984, poaceous plants, (1 ♂), Çamlıyayla (Namrun), 01.VI.1984, weeds, (1 ♂), Mezitli, Fındıkpınarı, 07.VII.1986, *Pinus* sp., (2 ♂♂, 1 ♂), Mezitli, Fındıkpınarı, 30.V.1984, weeds, (1 ♂), Toroslar, Arslanköy, 08.VII.1986, *Pinus* sp., (1 ♂), Toroslar, Gözne, 31.V.1984, weeds, (2 ♂♂, 2 ♀♀); **Muğla:** Saklıkent, 1860 m, 26.VII.1985, weeds, (9 ♂♂, 8 ♀♀); **Osmaniye:** Zorkun, 08.VI.1984, weeds, (1 ♂). New

locality records for Adana, Antalya, Artvin, Bartın, Burdur, Hatay, Kahramanmaraş, Karabük, Kırşehir, Mersin, Muğla and Osmaniye (Figure 11).

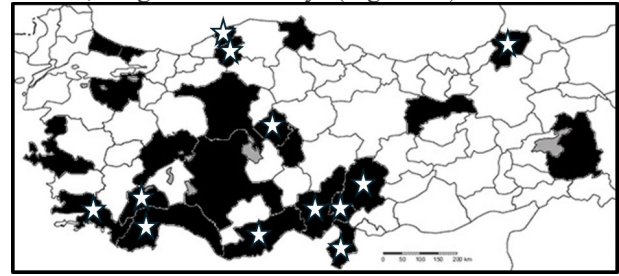


Figure 11. Distribution of *Neophilaenus lineatus* (Linnaeus, 1758) in Türkiye.

Neophilaenus minor (Kirschbaum, 1868)

Distribution: Albania, Austria, Belgium, Bohemia, Bulgaria, Czechoslovakia, Finland, France, Germany, Hungary, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moravia, the Netherlands, Poland, Portugal, Slovakia, Ukraine, Yugoslavia [30].

Distribution in Türkiye: Adana, Ankara, Antalya, Balıkesir, Konya, Sinop, Sivas [7, 13, 29, 31, 33, 34, 35, 36, 39]. (Figure 12).

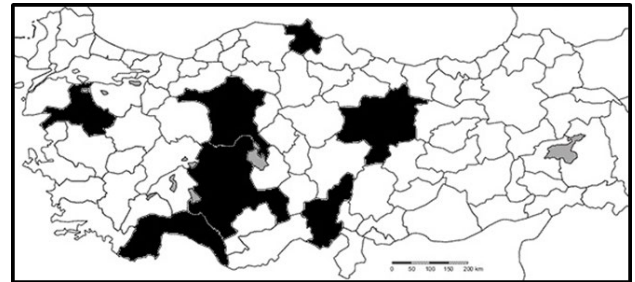


Figure 12. Distribution of *Neophilaenus minor* (Kirschbaum, 1868) in Türkiye

Material examined: This is based on a record in the literature and the authors did not identify undetermined material of this species in the present study.

Paraphilaenus notatus Mulsant & Rey, 1855

Distribution: Western and Southern Europe, Iran, Central Asia and Türkiye [5, 9, 43].

Distribution in Türkiye: Van, Elazığ [9, 32]. (Figure 13).

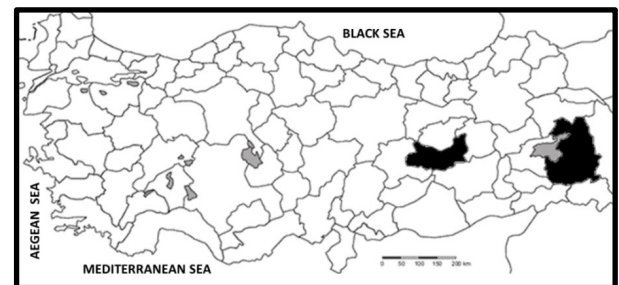


Figure 13. Distribution of *Paraphilaenus notatus* Mulsant & Rey, 1855 in Türkiye.

Material examined: This is based on a record in the literature and the authors did not identify undetermined material of this species in the present study.

***Philaenus signatus* Melichar, 1896**

Distribution in the world: Afghanistan, Albania, Cyprus, Greece, Iraq, Italy, Morocco, Spain, Türkiye, Yugoslavia [13].

Distribution in Türkiye: Adana, Antalya, İzmir, Muğla, Osmaniye [12, 13, 35, 44].

Material examined: Antalya: 12.IV.1984, *Pinus* sp., (2 ♂♂), 12.IV.1984, *Triticum aestivum*, (3 ♂♂), 17.V.1986, *Prunus dulcis*, (1 ♂), 18.V.1986, *Triticum aestivum*, (1 ♂), 18.V.1986, weeds, (2 ♀♀), Kaş, 21.V.1986, *Crataegus* sp., (1 ♂), Korkuteli, Güllük Mountain, 24.V.1986, weeds, (1 ♂), Serik, 19.IV.1984, *Nerium oleander*, (1 ♂); **Hatay:** Belen, Soğukoluk, 07.VII.1984, *Cistus* sp., (1 ♂), Belen, Soğukoluk, 07.VII.1984, *Pinus* sp., (1 ♂); **Kahramanmaraş:** Göksun, 22.VII.1984, *Rosa* sp., (1 ♂); **Manisa:** Gördes, 26.VII.1977, *Myrtus communis*, (1 ♂); **Mersin:** Çamlıyayla (Namrun), 01.VI.1984, weeds, (2 ♂♂), Gülnar, 28.V.1984, *Phloemis* sp., (1 ♂), Mezitli, Fındıkpınarı, 02.VII.1986, *Asphodelus* sp., (2 ♂♂), Mezitli, Fındıkpınarı, 02.VII.1986, weeds, (1 ♂), Mezitli, Fındıkpınarı, 07.VII.1986, *Pistacia* sp., (1 ♂), Mezitli, Fındıkpınarı, 07.VII.1986, weeds, (1 ♂); **Muğla:** Bodrum, 04.VI.1979, *Cupressus* sp., (1 ♂), Bodrum, 04.VI.1979, *Quercus* sp., (1 ♂); **Osmaniye:** Zorkun, 08.VI.1984, *Sinapis* sp., (1 ♂), 08.VI.1984, weeds, (1 ♂), Zorkun, 13.VII.1986, *Pinus* sp., (1 ♂), Zorkun, 21.V.1986, *Centaurea* sp., (1 ♂); **Rize:** Kaçkar Mountains, 22.VIII.1979, weeds, (2 ♂♂). New locality records for Hatay, Kahramanmaraş, Manisa, Mersin and Rize (Figure 14).

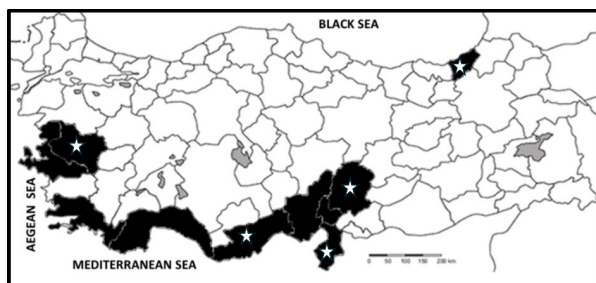


Figure 14. Distribution of *Philaenus signatus* Melichar, 1896 in Türkiye

***Philaenus spumarius* (Linnaeus, 1758)**

Distribution in the world: Albania, Austria, Azores Islands, Balearic Islands, Belgium, Bosnia and Herzegovina, Bulgaria, Canary Islands, Central Cyclades Islands, Channel Islands, Corsica, Crete, Croatia, Cyprus, Czech Republic, Denmark, Dodacanese Islands, Estonia, Finland, France, Germany, Gibraltar, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Macedonia, Malta, Moldova, the Netherlands, North Aegean Islands, Norway, Poland, Portugal, Romania, Russia (Southern, northern and central parts in Europe), Sardinia, Sicily, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, Yugoslavia, Afro-tropical Region, Australian Region, East Palearctic, Near East, Nearctic Region, Neotropical Region, North Africa, Oriental Region [27].

Distribution in Türkiye: Adana, Ağrı, Amasya, Ankara, Antalya, Artvin, Aydın, Balıkesir, Bilecik, Bitlis, Bolu, Bursa, Çanakkale, Elazığ, Erzincan, Erzurum, Eskişehir, Giresun, Gümüşhane, Hakkâri, Hatay, Iğdır, İstanbul, İzmir, Kahramanmaraş, Kars, Kastamonu, Kırklareli, Kocaeli, Konya, Kütahya, Malatya, Manisa, Mardin, Mersin, Muğla, Ordu, Rize, Samsun, Siirt, Sinop, Tekirdağ, Tokat, Trabzon, Tunceli, Van, the Eastern Black Sea Region [7, 9, 12, 13, 17, 31, 32, 34, 36, 36, 376, 39, 42, 45].

Material examined: Adana: Central province, 02.V.1988, weeds, (1 ♂); **Ağrı:** Hamur, 10.VIII.1974, weeds, (1 ♂); **Ankara:** Keçiören, Bağlum, 11.VII.1979, *Elaeagnus angustifolia*, (1 ♂), Kızılcahamam, 12.VII.1979, *Malus domestica*, (3 ♂♂), Kızılcahamam, 12.VII.1979, *Medicago sativa*, (1 ♂); **Antalya:** 13.IV.1984, *Vicia sativa*, (1 ♂), 17.V.1986, *Prunus dulcis*, (2 ♀♀), 18.V.1986, *Triticum aestivum*, (1 ♀), Alanya, 26.IV.1986, weeds, (3 ♀♀), Gazipaşa, 23.V.1984, weeds, (1 ♂), Gündoğmuş, 24.IV.1984, *Triticum aestivum*, (2 ♂♂), Korkuteli, Güllük Mountain, 24.V.1986, weeds, (1 ♂), Manavgat, Side, 22.IV.1984, *Vicia sativa*, (1 ♂), Serik, 19.IV.1984, *Nerium oleander*, (1 ♂); **Bartın:** Kurucasıle, 02.VI.1980, *Ammi* sp., (2 ♂♂), Amasra, 01.VI.1980, poaceous plants, (1 ♀), Central province, 31.V.1980, *Crataegus* sp., (2 ♀♀), Central province, 31.V.1980, *Prunus* sp., (1 ♂), Central province, 31.V.1980, *Sinapis* sp., (2 ♂♂, 5 ♀♀), Central province, 31.V.1980, *Triticum aestivum*, (12 ♂♂), Central province, 31.V.1980, *Ulmus* sp., (1 ♂), Central province, 31.V.1980, weeds, (1 ♀), Kurucasıle, 02.VI.1980, weeds, (5 ♂♂, 3 ♀♀), Ulus, 29.V.1980, aerial collector, (1 ♂), Ulus, 29.V.1980, *Equisetum* sp., (10 ♂♂), Ulus, 29.V.1980, *Quercus* sp., (1 ♂), Ulus, 29.V.1980, *Tamarix* sp., (5 ♀♀), Ulus, 29.V.1980, *Triticum aestivum*, (13 ♂♂, 37 ♀♀), Ulus, 29.V.1980, weeds, (1 ♀); **Bilecik:** Pazaryeri, 16.VII.1972, *Medicago sativa*, (1 ♀); **Bolu:** Mudurnu, 14.VII.1979, *Medicago sativa*, (1 ♀), Mudurnu, 14.VII.1979, weeds, (1 ♀); **Çanakkale:** Biga, 21.V.1973, *Pyrus elaeagnifolia*, (1 ♂); **Çankırı:** Central province, 04.VIII.1979, weeds, (1 ♂); **Düzce:** Akçakoca, 24.V.1980, *Anchusa* sp., (3 ♂♂), Akçakoca, 24.V.1980, *Anchusa* sp., (1 ♂); **Edirne:** Keşan, Erikli, 29.VII.1975, *Castanea sativa*, (1 ♂); **Gümüşhane:** 10.VII.1978, *Echium* sp., (5 ♂♂), Gümüşhane: 14.VII.1982, *Populus* sp., (2 ♂♂), Torul, 10.VII.1978, weeds, (8 ♂♂, 9 ♀♀); **Hatay:** Altınöz, 01.VI.1985, *Onopordum* sp., (1 ♂), Altınöz, 02.VI.1985, weeds, (1 ♂), Yayladağı, 01.VI.1985, weeds, (1 ♂), Hassa, Akbez, 26.IV.1980, weeds, (2 ♂♂), Samandağ, 27.IV.1988, *Centaurea* sp., (1 ♂); **İstanbul:** Silivri, 20.V.1982, *Triticum aestivum*, (1 ♂); **İzmir:** Bornova, 21.V.1980, weeds, (2 ♀♀), Güzelbahçe, 16.V.1974, weeds, (2 ♀♀); **Kahramanmaraş:** Central province, 11.VI.1985, *Medicago sativa*, (1 ♂, 2 ♀♀), 30.IV.1986, *Crataegus* sp., (1 ♂); **Karaman:** Central province, 02.VII.1980, weeds, (1 ♂); **Kastamonu:** Cide, 03.VI.1980, *Laurus* sp., (4 ♂♂), Cide, 03.VI.1980, *Myrtus* sp., (1 ♂, 3 ♀♀), Cide, 03.VI.1980, poaceous plants, (2 ♂♂, 6 ♀♀), Cide, 03.VI.1980, *Sideritis* sp., (3 ♂♂), Cide, 03.VI.1980, weeds, (1 ♀), İnebolu, 03.VI.1980, *labiate plants*, (3 ♂♂), İnebolu, 03.VI.1980, poaceous plants, (2 ♀♀), İnebolu, 03.VI.1980, *Sinapis* sp., (6 ♀♀), İnebolu,

03.VI.1980, *Vicia faba*, (1 ♂♂), Taşköprü, 05.VI.1980, weeds, (3 ♂♂); **Mersin:** Çamlıyayla (Namrun), 01.VI.1984, weeds, (2 ♂♂), Gülnar, 24.V.1984, *Styrax* sp., (1 ♀); **Zonguldak:** Çaycuma, 31.V.1980, *Rosa* sp. (1 ♀). New locality records for Bartın, Çankırı, Düzce, Edirne, Karaman and Zonguldak (Figure 15).

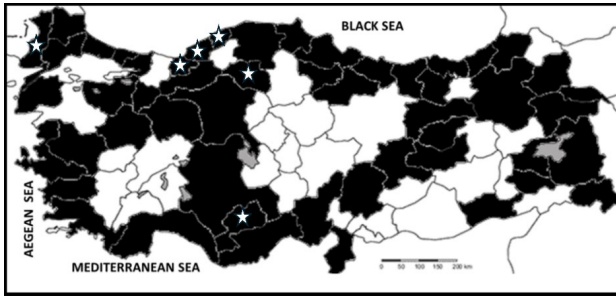


Figure 15. Distribution of *Philaenus spumarius* (Linnaeus, 1758) in Türkiye.

Poophilus costalis (Walker, 1851)

Syn.: *Poophilus nebulosus* (Lethierry, 1876)

Distribution in the world: Widely distributed across Asia from Iran to China and Korea, northwards reaches the deserts of Kazakhstan; also, found in almost all African countries [5].

Distribution in Türkiye: Mardin [18].

Material examined: **Balıkesir:** Erdek, 20.V.1973, *Olea europea*, (4 ♂♂) (as *Poophilus nebulosus*, det. Lodos & Kalkandelen); **Bartın:** Central province, 31.V.1980, *Sinapis* sp., (1 ♂) (as *Poophilus nebulosus*, det. Lodos & Kalkandelen); **Batman:** Hasankeyf, 16.VI.1976, weeds, (3 ♂♂) (as *Poophilus nebulosus*, det. Lodos & Kalkandelen); **Çanakkale:** Biga, 21.V.1973, *Vicia faba*, (3 ♂♂) (as *Poophilus nebulosus*, det. Lodos & Kalkandelen); **Hatay:** Yayladağı, 01.V.1985, weeds, (1 ♂) (as *Poophilus nebulosus*, det. Lodos & Kalkandelen); **İzmir:** Bornova, 03.VI.1983, weeds, (1 ♂) (as *Poophilus nebulosus*, det. Lodos & Kalkandelen); **Şırnak:** Cizre, 10.VI.1976, (2 ♂♂) (as *Poophilus nebulosus*, det. Lodos & Kalkandelen). New locality records for Balıkesir, Bartın, Batman, Çanakkale, Hatay, İzmir and Şırnak (Figure 16).

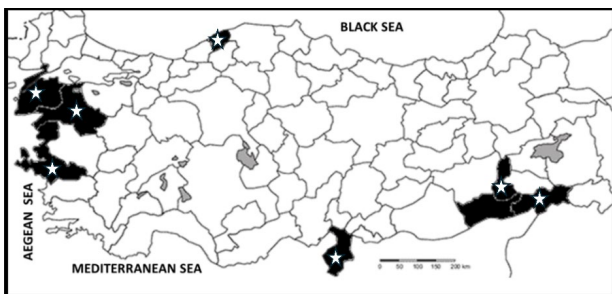


Figure 16. Distribution of *Poophilus costalis* (Walker, 1851) in Türkiye.

3.2. Family: Cercopidae

Cercopis distincta (Melichar, 1896)

Distribution in the world: Türkiye [13, 30]. Endemic.

Distribution in Türkiye: Hatay, Mersin [21, 22].

Material examined: **Adana:** Feke, 06.VI.1984, *Pinus* sp., (3 ♂♂), Feke, 04.V.1986, *Punica granatum*, (2 ♀♀); **Antalya:** Alanya, 27.V.1986, weeds, (1 ♂), Kaş, 22.V.1985, *Styrax* sp., (2 ♂♂); **Gaziantep:** 23.IV.1986, *Triticum aestivum*, (2 ♂♂); **Mersin:** 26.IV.1985, *Triticum aestivum*, (1 ♂), Toroslar, Gözne, 31.V.1984, *Rubus* sp. (2 ♂♂). New locality records for Adana, Antalya and Gaziantep (Figure 17).

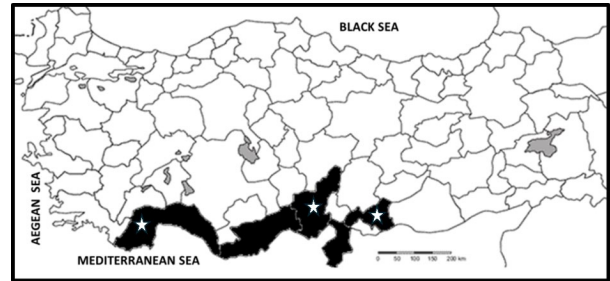


Figure 17. Distribution of *Cercopis distincta* (Melichar, 1896) in Türkiye.

Cercopis intermedia Kirschbaum, 1868

Distribution in the world: Albania, Algeria, Austria, Bulgaria, Czech Republic, France, Germany, Greece, Hungary, Iran, Israel, Italy, Lebanon, Morocco, Poland, Portugal, Romania, Russia, Slovakia, Spain, Syria, Switzerland, Türkiye, Yugoslavia, North Africa [13, 27].

Distribution in Türkiye: Adana, Adıyaman, Aksaray, Amasya, Ankara, Antalya, Artvin, Balıkesir, Bitlis, Çanakkale, Çorum, Diyarbakır, Elazığ, Eskişehir, Gaziantep, Giresun, Gümüşhane, Hakkâri, Hatay, Isparta, İstanbul, İzmir, Kahramanmaraş, Karaman, Kastamonu, Kayseri, Konya, Kırklareli, Kütahya, Mardin, Mersin, Niğde, Rize, Samsun, Siirt, Sinop, Şanlıurfa, Trabzon, Tokat, Uşak [9, 13, 20, 21, 22, 37, 39].

Material examined: **Adana:** 02.V.1985, *Avena* sp., (2 ♂♂), 03.V.1985, weeds, (2 ♂♂, 1 ♀), Feke, 04.V.1986, *Punica granatum*, (1 ♂), Tufanbeyli, 05.VI.1984, weeds, (1 ♂); **Antalya:** Central province, 11.IV.1984, *Hordeum vulgare*, (1 ♂), Kemer, 11.IV.1984, *Tamarix* sp., (1 ♂), Kumluca, 20.VI.1981, *Sorghum bicolor*, (1 ♂), Kumluca, 20.VI.1981, weeds, (1 ♂), Kumluca, Dereköy, 20.VI.1981, *Calluna vulgaris*, (1 ♂); **Artvin:** Ardanuç, 18.VI.1977, (1 ♂); **Bartın:** Amasra, 01.VI.1980, *Urtica* sp., (1 ♂), Kurucasıle, 02.VI.1980, *Rosa* sp., (2 ♂♂), Kurucasıle, 02.VI.1980, weeds, (1 ♀), Ulus, 29.V.1980, *Equisetum* sp., (2 ♂♂), Ulus, 29.V.1980, *Triticum aestivum*, (3 ♂♂); **Batman:** Central province, 08.V.1966, (1 ♂, 1 ♀); **Bolu:** Central province, 27.V.1980, *Triticum*

aestivum, (1 ♂), Mudurnu, 28.V.1980, aerial collector, (1 ♂), Mudurnu, 28.V.1980, poaceous plants, (2 ♂♂), Mudurnu, 28.V.1980, *Secale cereale*, (1 ♂) **Bursa**: Central province, 30.V.1971, *Juglans regia*, (1 ♂), Mustafakemalpaşa, 25.IV.1988, weeds, (4 ♂♂, 3 ♀♀), Uludağ, 19.V.1973, *Rubus* sp., (2 ♂♂); **Çanakkale**: Lapseki, 21.V.1973, *Malus domestica*, (1 ♂); **Diyarbakır**: Çermik, 14.VI.1972, weeds, (2 ♂♂) Çüngüş, 14.VI.1972, weeds, (3 ♂♂); **Erzurum**: Aşkale, 17.VII.1982, weeds, (1 ♂); **Gaziantep**: Nizip, 24.IV.1985, weeds, (1 ♂), Yavuzeli, 25.IV.1986, *Triticum aestivum*, (1 ♂), 23.IV.1986, *Triticum aestivum*, (2 ♂♂, 3 ♀♀), Nizip, 24.IV.1986, *Triticum aestivum*, (2 ♂♂), Oğuzeli, 24.IV.1986, poaceous plants, (1 ♀), Şahinbey, Burç, 23.IV.1986, *Pinus* sp., (1 ♀), Yavuzeli, 25.IV.1986, *Sinapis* sp., (2 ♀♀), Yavuzeli, 25.IV.1986, weeds, (1 ♀); **Gümüşhane**: Torul, Zigana, 08.VII.1978, weeds, (1 ♂); **Hakkâri**: Çukurca, 14.VI.1976, weeds, (1 ♂); **Hatay**: Altınözü, 27.IV.1986, aerial collector, (1 ♂); **Isparta**: Eğirdir, 02.VI.1992, weeds, (1 ♂); **İzmir**: Bornova, Ege University Campus, 17.V.2010, weeds, (1 ♂), Bergama, 14.V.1971, weeds, (2 ♂♂), Ödemiş, 24.IV.1973, *Medicago sativa*, (2 ♂♂), Ödemiş, 24.IV.1973, weeds, (1 ♂), Ödemiş, 24.IV.1975, weeds, (1 ♂), Ödemiş, Birgi, 14.V.1973, *Pyrus communis*, (1 ♂), Ödemiş, Bozdağ, 24.V.1978, *Astragalus* sp., (1 ♂); **Kahramanmaraş**: Afşin, 06.VI.1973, weeds, (1 ♂); **Karabük**: Eskipazar, 29.V.1980, *Medicago sativa*, (1 ♂), Eskipazar, 29.V.1980, weeds, (1 ♂); **Karaman**: Ermenek, 03.VII.1980, weeds, (1 ♂); **Kastamonu**: Central province, 04.VI.1980, *Rosa* sp., (1 ♂), Central province, 04.VI.1980, weeds, (2 ♂♂, 2 ♀♀), İnebolu, 03.VI.1980, *Rubus* sp., (1 ♂), Taşköprü, 05.VI.1980, (4 ♂♂), Taşköprü, 05.VI.1980, *Cannabis sativa*, (1 ♂, 3 ♀♀), Taşköprü, 05.VI.1980, (1 ♂), Taşköprü, 05.VI.1980, *Sinapis* sp., (1 ♂), Taşköprü, 05.VI.1980, weeds, (2 ♂♂); **Kırıkkale**: Central province, 04.IV.1979, *Quercus* sp., (1 ♀), Central province, 04.IV.1979, *Verbascum* sp., (1 ♀); **Manisa**: Demirci, 08.V.1973, weeds, (1 ♀), Sultan yaylası, 02.VI.1972, weeds, (1 ♂), Sultan yaylası, 16.V.1973, *Castanea sativa*, (1 ♂), Sultan yaylası, 16.V.1973, *Ferula* sp., (1 ♂); **Mersin**: Silifke, 22.IV.1985, *Pinus* sp., (1 ♂), 27.IV.1985, *Euryops pectinatus*, (1 ♂); **Muğla**: Köyceğiz, 18.V.1980, *Pinus* sp., (1 ♂); **Nevşehir**: Hacıbektaş, 26.VI.1980, weeds, (1 ♂); **Osmaniye**: Düziçi, 07.V.1985, *Cistus* sp., (4 ♂♂), Düziçi, 07.V.1985, *Triticum aestivum*, (2 ♂♂); **Samsun**: 25.IV.1974, weeds, (1 ♂, 3 ♀♀); **Sinop**: Durağan, Ayvacık, 14.V.1969, (1 ♂); **Zonguldak**: Devrek, 29.V.1980, *Fagus* sp., (3 ♂♂). New locality records for Bartın, Batman, Bolu, Bursa, Erzurum, Karabük, Kırıkkale, Manisa, Muğla, Nevşehir, Osmaniye and Zonguldak (Figure 18).

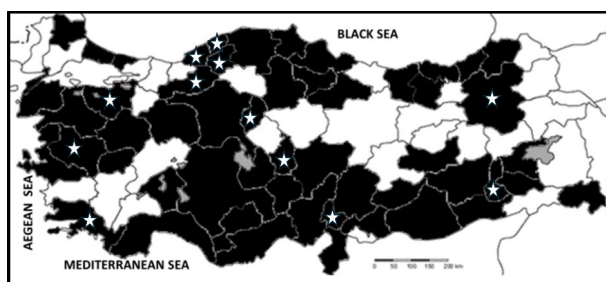


Figure 18. Distribution of *Cercopis intermedia* Kirschbaum, 1868 in Türkiye.

Cercopis sanguinolenta (Scopoli, 1763)

Distribution in the world: Albania, Austria, Azerbaijan, Belgium, Bohemia, Bulgaria, Czech Republic, France, Georgia, Germany, Greece, Hungary, Italy, Moldova, Moravia, Poland, Portugal, Romania, Russia, Slovakia, Spain, Switzerland, Türkiye, Ukraine, Yugoslavia [13, 30].

Distribution in Türkiye: Batman, Bursa, Çanakkale, Diyarbakır, Eskişehir, Gaziantep, Giresun, Hakkâri, İstanbul, İzmir, Kahramanmaraş, Kilis, Kocaeli, Manisa, Mardin, Mersin, Siirt, Şanlıurfa, Tokat [9, 22].

Material examined: **Gaziantep:** Araban, 25.IV.1986, weeds, (1 ♂) (Figure 19).

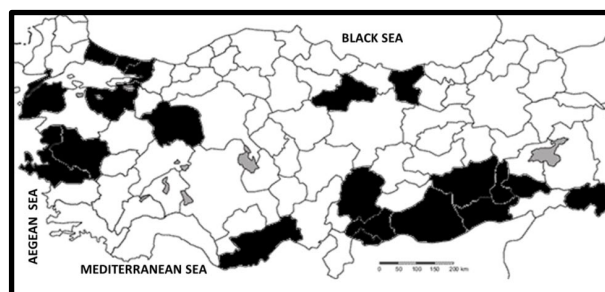


Figure 19. Distribution of *Cercopis sanguinolenta* (Scopoli, 1763) in Türkiye.

Cercopis septemmaculata (Melichar, 1903)

Distribution in the world: Israel, Jordan, Lebanon, Syria, Türkiye [30].

Distribution in Türkiye: Adana, İzmir, Hatay, Kastamonu, Mardin, Siirt [18, 21]. (Figure 20).

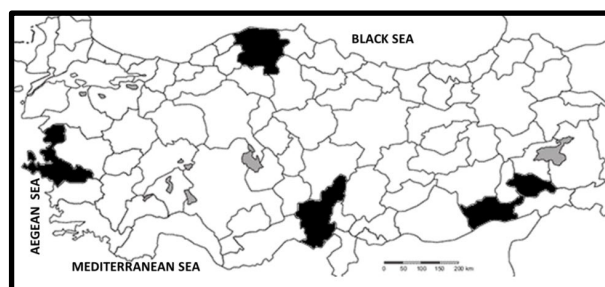


Figure 20. Distribution of *Cercopis septemmaculata* (Melichar, 1903) in Türkiye.

Material examined: This is based on a record in the literature and the authors did not identify undetermined material of this species in the present study.

Cercopis vulnerata Rossi, 1807

Distribution in the world: Albania, Austria, Belgium, Britain, Bulgaria, Croatia, Czech Republic, France, Germany, Greece, Hungary, Italy, Moldova, the Netherlands, Norway, Poland, Romania, Russia

(Southern, and central parts in Europe), Slovakia, Slovenia, Spain, Switzerland, Türkiye, Yugoslavia [13, 27].

Distribution in Türkiye: Antalya, Balıkesir, Bartın, Bursa, Eskişehir, Kastamonu, Kocaeli, Konya, Sakarya, Sinop [13, 20, 39, 46, 47].

Material: **Adana:** Tufanbeyli, 05.VI.1984, weeds, (1 ♂); **Bolu:** Mudurnu, 28.V.1980, poaceous plants, (1 ♂); **Düzce:** Akçakoca, 24.V.1980, *Anchusa* sp., (1 ♂), Akçakoca, 24.V.1980, *Onopordum* sp., (1 ♂), Akçakoca, 24.V.1980, *Rhodendron* sp., (1 ♂), Central province, 24.V.1980, *Crataegus* sp., (1 ♂); **İzmir:** Bornova, Ege University Campus, 10.V.2010, weeds, (1 ♂), Bornova, Evka 4, 18.IV.2010, weeds, (1 ♂), Narlıdere, Çatalkaya, 19.V.1971, asteraceous plants, (1 ♂); **Kastamonu:** Küre, 19.VII.1979, weeds, (1 ♂), Taşköprü, 08.VI.1980, (1 ♂); **Mersin:** Erdemli, Güzeloluk, 30.V.1984, *Euphorbia* sp., (1 ♂), Erdemli, Güzeloluk, 30.V.1984, *Onopordum* sp., (1 ♂), Erdemli, Güzeloluk, 30.V.1984, *Papaver rhoeas*, (1 ♂), Gülnar, 24.V.1984, *Styrax* sp., (1 ♀); **Osmaniye:** Zorkun, 08.VI.1984, weeds, (1 ♀); **Zonguldak:** Ereğli, 25.V.1980, *Rubus* sp., (1 ♀), Ereğli, 25.V.1980, *Triticum aestivum*, (1 ♀), Ereğli, 25.V.1980, weeds (2 ♂♂ 1 ♀). New locality records for Adana, Bolu, Düzce, İzmir, Mersin, Osmaniye and Zonguldak (Figure 21).

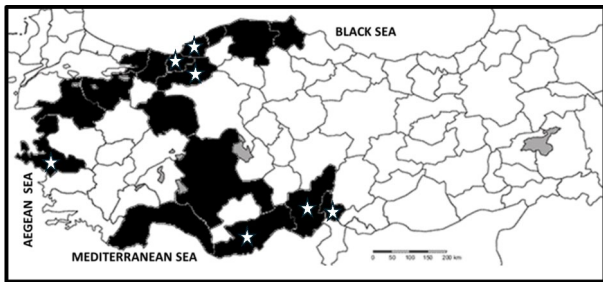


Figure 21. Distribution of *Cercopis vulnerata* Rossi, 1807 in Türkiye.

Haematoloma dorsatum (Ahrens, 1812)

Distribution in the world: Algeria, Belgium, Bulgaria, France, Germany, Greece, Italy, the Netherlands, Poland, Portugal, Spain, Switzerland, Türkiye, Yugoslavia [30].

Distribution in Türkiye: Balıkesir, Bursa, İstanbul, Kocaeli, Kütahya, Sakarya [13].

Material examined: **Antalya:** Central province, 07.III.1983, *Rumex* sp., (1 ♂); **Balıkesir:** Susurluk, 03.V.1980, weeds, (1 ♂); **Karabük:** Central province, 29.V.1980, *Prunus domestica*, (1 ♂); **Mersin:** Central province, 26.IV.1985, *Genista* sp., (4 ♂♂, 4 ♀♀), Tarsus, 28.IV.1985, weeds, (1 ♂), Toroslar, Cehennemderesi, 29.IV.1985, *Juniperus* sp., (1 ♂), Toroslar, Gözne, 26.IV.1985, *Genista* sp., (1 ♂); **Osmaniye:** Zorkun, 08.V.1985, weeds, (1 ♀). New locality records for Antalya, Karabük, Mersin and Osmaniye (Figure 22).

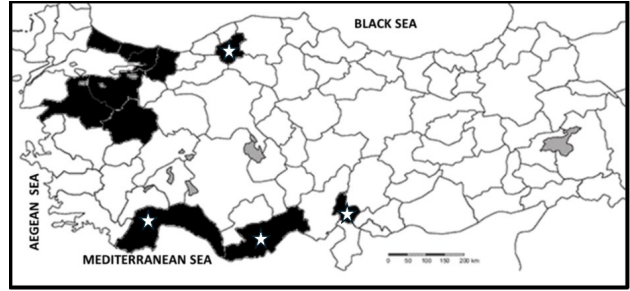


Figure 22. Distribution of *Haematoloma dorsatum* (Ahrens, 1812) in Türkiye.

Tricophorella geniculata (Horvath, 1881)

Distribution in the world: Greece, Türkiye, Yugoslavia, Near East [13, 27].

Distribution in Türkiye: Adana, Amasya, Antalya, Balıkesir, Hatay, Kahramanmaraş, Kastamonu, Konya, Mersin, Niğde, Osmaniye, Samsun, Sinop [13, 17, 35, 39, 47, 48].

Material examined: **Antalya:** 18.V.1986, *Rosa* sp. (1 ♀), Konyaaltı, Sinan, 19.V.1986, *Corylus avellana*, (1 ♀), Konyaaltı, Sinan, 19.V.1986, *Crataegus* sp., (4 ♂♂), Konyaaltı, Sinan, 19.V.1986, *Malus domestica*, (1 ♂), Konyaaltı, Sinan, 19.V.1986, *Rosa* sp., (1 ♂); **Kahramanmaraş:** Ahır Mountain, 01.V.1986, *Styrax* sp., (1 ♂); **Mersin:** Toroslar, Gözne, 26.IV.1985, *Genista* sp. (1 ♂) (Figure 23).

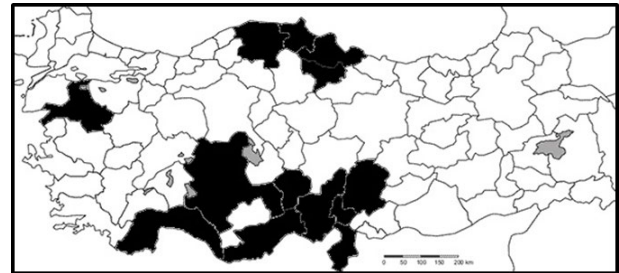


Figure 23. Distribution of *Tricophorella geniculata* (Horvath, 1881) in Türkiye.

4. DISCUSSION AND CONCLUSION

As a result of this study, a total of ten species belong to Aphrophoridae and six species belong to Cercopidae families were evaluated based on unidentified material in the collection of collection of Lodos Entomological Museum, Türkiye (LEMT). Those material have been collected between 1966-2010 from different parts of Türkiye. Among those *Aphrophora alni* (Fallén, 1805), *Lepyronia coleoprata* (Linnaeus, 1758), *Neophilaenus campestris* (Fallén, 1805), *Neophilaenus lineatus* (Linnaeus, 1758), *Philaenus spumarius* (Linnaeus, 1758) and *Cercopis intermedia* Kirschbaum, 1868 are richer species than others in the collection.

The list of species previously reported by Lodos & Kalkandelen [9, 18] and Önder et al. [13] and the species belonging to two families found in Türkiye in 2025 are given in Table 1.

Taxa	[9] [18]	[13]	Checklist (2025) (Current paper)
Aphrophoridae			
<i>Aphrophora alni</i> (Fallén, 1805)	+	+	+
<i>Aphrophora corticea</i> Germar, 1821	+	+	+
<i>Aphrophora exoleta</i> Horvath, 1901	+	+	+
<i>Aphrophora geruzei</i> Tanyeri & Zeybekoglu, 2021			+
<i>Aphrophora salicina</i> (Goeze, 1778)	+	+	+
<i>Lepyronia coleoptrata</i> (Linnaeus, 1758)	+	+	+
<i>Mesoptylus impictifrons</i> (Horváth, 1911)	+	+	+
<i>Mesoptylus petrovi</i> (Grigoriev, 1910)	+	+	+
<i>Neophilaenus albipennis</i> (Fabricius, 1798)	+	+	+
<i>Neophilaenus campestris</i> (Fallén, 1805)	+	+	+
<i>Neophilaenus lineatus</i> (Linnaeus, 1758)	+	+	+
<i>Neophilaenus minor</i> (Kirschbaum, 1868)	+	+	+
<i>Paraphilaenus notatus</i> (Mulsant et Rey, 1855)	+	+	+
<i>Philaenus signatus</i> Melichar, 1896	+	+	+
<i>Philaenus spumarius</i> (Linnaeus, 1758)	+	+	+
<i>Poophilus costalis</i> (Walker, 1851) [Syn.: <i>Poophilus nebulosus</i> (Lethierry, 1876)]	+		+
Cercopidae			
<i>Cercopis distincta</i> (Melichar, 1896)	+	+	+
<i>Cercopis intermedia</i> Kirschbaum, 1868	+	+	+
<i>Cercopis sanguinolenta</i> (Scopoli, 1763)	+	+	+
<i>Cercopis septemmaculata</i> (Melichar, 1903)	+		+
<i>Cercopis vulnerata</i> Rossi, 1807	+	+	+
<i>Haematoloma dorsatum</i> (Ahrens, 1812)	+	+	+
<i>Triecphorella geniculata</i> (Horvath, 1881)	+	+	+

Table 1. List of species belonging to Aphrophoridae and Cercopidae families (Hemiptera) according to different sources

Accordingly, the Aphrophoridae family consists of 16 species in Türkiye, and the unidentified material of six [*Aphrophora exoleta* Horvath, 1901, *Aphrophora geruzei* Tanyeri & Zeybekoglu, 2021, *Mesoptylus petrovi* (Grigoriev, 1910), *Neophilaenus albipennis* (Fabricius, 1798), *Neophilaenus minor* (Kirschbaum, 1868), *Paraphilaenus notatus* (Mulsant et Rey, 1855)] of them were not evaluated within the scope of this study. The Cercopidae family consists of seven species, and material related to one species [*Cercopis septemmaculata* (Melichar, 1903)] was not examined in this study. Among those two species, namely *Aphrophora geruzei* Tanyeri & Zeybekoglu, 2021 and *Cercopis distincta* (Melichar, 1896) are endemic to Türkiye. Many new locality records have been reported from Türkiye for all identified species except two [*Cercopis sanguinolenta* (Scopoli, 1763), *Triecphorella geniculata* (Horvath, 1881)]. Thus, the distribution areas of the species in Türkiye have been expanded and these areas for each species have been shown on maps (Figs 1-23). In recent years, more attention has been paid to the role of some species belonging to these two families, especially as vectors in the spread of plant diseases [49, 50, 51, 52, 53]. In this study, the functionality of museum collections is particularly emphasized. Museum collections often contain valuable specimens that have not yet been examined or identified, and their subsequent analysis by researchers can make significant contributions to regional faunas. Similarly, previous studies have shown that

specimens preserved in museums for long periods, when later evaluated, can provide new and valuable information about the regional fauna [58].

It is expected that our knowledge on this subject will further increase with future studies.

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