

## Preliminary list of Auchenorrhyncha with notes on distribution and importance of species in Turkey.

### VI. Families Cercopidae and Membracidae

N. Lodos\*

A. Kalkançelen\*\*

#### Summary

Cercopidae and Membracidae species found in Turkey to the end of 1979 are listed in present paper. The list includes twenty species belonging to nine genera of Cercopidae. From which four species: *Neophilaenus albipennis* (F.), *Paraphilaenus notatus* (M.R.), *Aphrophora corticea* Germ. and *Mesoptylus petrovi* (Grigoriev) are new records for Turkey. Four species of four genera from Membracidae are recorded from Turkey, which were previously reported.

#### Introduction

Most of the Turkish species of these two families were previously recorded by earlier authors. Fieber (1872) listed two species of Cercopidae and one Membracidae. Oshanin (1906 - 1908, 1912) also listed six cercopids and two membracids. Fahringer (1922) recorded eight species of cercopids and one membracid with their host plants. Dlabola (1957a) collected some specimens of six Cercopidae species and one Membracidae in his trip in Turkey. In his later works (1971a, b) he reported again two and one more species of these families respectively. Metcalf (1961, 1962), Metcalf and Wade (1965) listed totally 11 cercopids and 3 membracids from Turkey. Birkar-deşler (1970) studied the biology and control measures of *Cerasa bubalus* F., which it was recorded first time in this country (Edirne) in 1963. Ural et al.

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\* University of Ege, Faculty of Agriculture, Department of Entomology and Agricultural Zoology, Bornova, Izmir, Turkey.

\*\* Plant Protection Research Institute, Plant Protection Museum, Kalaba, Ankara, Turkey.

(1973) reported two cercopid species in Blacksea Coast Region on *Corylus avellana* in Turkey.

Cercopidae species generally live on Graminae and other herbs, on shrubs and trees. The most economically important species of this family in Turkey is *Philaenus spumarius* (L.) It is very widely distributed and found very abundantly. Especially its nymphs feed and cause weakening and malformations of host plants. Also this species reported to be the vectors some virus disease of plants. The other species in this family are not so economically important.

The species of Membracidae cause damage by inserting their eggs on branches of the trees. The most important species in Turkey in this family is *Cerasa bubalus* F. So far the other membracid species have not been observed to be so destructive on cultivated plants.

Some of the species were identified by Dr. Dlabola, of Prague, and others by the authors. The order of the genera and species, synonyms and general distribution of the species are given according to Nast (1972). The authors wish to express their thanks to Dr. Dlabola for his valuable contributions to this work.

Family Cercopidae Leach, 1815

*Cercopis distincta* (Melichar, 1896)

General Distribution : Probably endemic to Turkey.

Distribution in Turkey : Metcalf (1961) listed this species from Turkey according to Melichar (1896, 1901), Puton (1899), Nast (1933) and Lallemand (1949).

The authors have no representative of this species.

*Cercopis intermedia* Kirschbaum, 1868

Synonymy : *C. obliterata* Kbm., 1868; *Triecphora intermedia nigra* Royer, 1906; *T. intermedia simulans* Péneau, 1912; *Cercopis sanguinolenta intermedia bipunctata* Ribaut, 1946; *C. sanguinolenta intermedia quadrimaculata* Rib., 1946; *C. sanguinolenta intermedia sexmaculata* Rib., 1946.

General Distribution : Algeria, Bulgaria, France, ? Germany, Greece, Iran, Israel, Italy, Lebanon, Morocco, Portugal, Spain, Switzerland, Syria, Turkey, USSR.

**Distribution in Turkey :** Metcalf (1961) listed this species from Turkey according to Kirschbaum (1868), Nast (1933), Haupt (1935) and Lallemand (1949). Dlabola (1971b) recorded it from Çorum (Delice river-Sungurlu).

**Material examined :** Adıyaman (Besni), Amasya, Artvin (Arduç), Ankara (Çubuk, Lalahan, Kırıkkale), Bitlis (Reşadiye), Çanakkale (Ayvacık-Sazlı), Diyarbakır (Y. Konak), Elazığ, Eskişehir (Biçer, Sivrihisar), Gaziantep, Giresun (Görele, Kayadibi), Hakkari (Central province, Çukurca, Semdinli), Hatay (Antakya, İskenderun), Isparta, İzmir (Bozdağ), Kayseri (Talas, Yeşilhisar), Konya (Beyşehir, Kadınhanı), Kütahya, Kırklareli (Lüleburgaz), Mardin (Central province, Mazıdağı, Midyat, Ömerli), Maraş (Afşin), Niğde (Ihlara), Rize (Pazar), Samsun, Siirt (Aydınlı, Central province), Trabzon (Zigana), Urfa (Siverek), Uşak (Bölme) - Totally 170 specimens.

**Occurrence :** Common, sometimes in large numbers.

**Biological note :** Adults were collected from the beginning of May through the beginning of August, on various weeds, *Astragalus*, *Onopordon*, *Verbascum*, *Medicago sativa* and some trees such as *Pistacia vera*, *Prunus domestica*, *Acacia*, *Salix*, *Alnus*.

*Cercopis sanguinolenta* (Scopoli, 1763)

**Synonymy :** *C. mactata* Germ., 1821; *C. panzeri* Le Peletier et Serville, 1825; *C. distinguenda* Kbm., 1868; *Triecphora mactata basalis* Dominique, 1892; *T. mactata basalis* Mel., 1896 (primary homonym); *T. vulnerata quadripunctata* Sabransky, 1912; *T. sanguinolenta reducta* Mel., 1913; *T. mactata egestosa* Haupt, 1917.

**General Distribution :** Albania, Austria, Bulgaria, Czechoslovakia, France, Spain, Switzerland, Turkey, USSR., Yugoslavia.

**Distribution in Turkey :** Fieber (1872) and Oshanin (1906-1908, 1912) listed this species from Turkey. Fahringer (1922) reported it from Eskişehir, Kocaeli (Gebze), Maraş (Yarbaşı) and İstanbul (Belgrad forest and Pole-nezköy). Metcalf (1961) listed it from Turkey according to Walker (1851), Horvath (1901, 1918), Lallemand (1912), Gribodo (1920), Lindberg (1923) and Nast (1933), besides the above mentioned authors.

**Material examined :** Bursa (Uludağ), Çanakkale (Lapseki), Diyarbakır (Çermik, Çüngüş), Gaziantep (Central province, Kilis), Giresun (Bulancak), Hakkari, İzmir (Bergama), Manisa (Sultanyayla, Demirci), Mardin (Sultanşehmuz), Siirt (Central province, Batman), Tokat (Zile), Urfa-Totally 49 specimens.

Occurrence : Somewhat common, but in small numbers.

Biological note : Specimens were collected starting from late April through June, mostly on weeds, *Medicago sativa*, *Rubus fruticosus*, *Pyrus communis*, *Pyrus malus*, *Castanea vesca*.

*Cercopis vulnerata* Rossi, 1807

Synonymy : *Cicada sanguinea* Fourcroy, 1785 (primary homonym); *Cercopis vulnerata* Germar, 1821 (primary homonym); *Triecphora vulnerata helvetica* Mel., 1896; *Cercopis sanguinea nicolausi* Wagner, 1947.

General Distribution : Albania, Austria, Czechoslovakia, England, France, Germany, Greece, Hungary, Italy, Netherlands, Norway, Poland, Romania, Spain, Switzerland, USSR., Yugoslavia.

Distribution in Turkey : Metcalf (1961), listed this species from Turkey according to Kirschbaum (1868) and Horvath (1918).

Material examined : Bursa (Uludağ), Kocaeli (Kandıra), Sakarya (Hendek, Sapanca) - Totally 20 specimens.

Occurrence : Occasional but sometimes may found in large numbers.

Biological note : Specimens were collected in mid - May on *Rubus fruticosus*, *Crataegus* sp., *Prunus* sp., *Ulmus*, *Quercus*, *Linum usitatissimum*.

*Haematoloma dorsatum* (Ahrens, 1812)

Synonymy : *Cercopis quinquemaculata* Germ., 1821; *Triecphora dorsata lugens* Horvath, 1882.

General Distribution : Algeria, Belgium, France, Germany, Greece, Italy, Netherlands, Portugal, Spain, Switzerland, Turkey, Yugoslavia.

Distribution in Turkey : Metcalf (1961) listed it from Turkey according to Walker (1851) and Dohrn (1859).

Material examined : Balıkesir (Gönen), Bursa (Central province, Uludağ, İznik, Yenişehir), İstanbul (Yalova), Kocaeli (İzmit, Kandıra), Kütahya (Domaniç), Sakarya (Hendek) - Totally 50 specimens.

Occurrence : Occasional but sometimes in large numbers.

Biological note : Specimens were collected starting from late April through May, on various weeds, Leguminosae, *Linum usitatissimum*, *Quercus*, *Prunus*, *Populus*, *Crataegus*, *Rosa* sp.

*Triecphorella geniculata* (Horvath, 1881)

Synonymy : *Cercopis fasciata* Kbm., 1968 (Primary homonym); *C. (Triecphora) fasciata punctum* Lindberg, 1923; *Triecphorella kirschbaumi* Metcalf, 1955.

General Distribution : Israel, Lebanon, Syria, Turkey, Yugoslavia.

Distribution in Turkey : Fieber (1872) and Oshanin (1906 - 1908, 1912) listed this species from Turkey. Fahringer (1922) reported it from Konya, Adana, Maraş (Yarbaşı). Metcalf (1961) also listed it from Turkey according to Kirschbaum (1868), Puton (1875, 1886), Horvath (1901, 1918), Nast (1933) and Lallemand (1949) in addition to the above mentioned authors.

Authors have no representative of this species.

*Lepyronia coleoptrata* (Linneaus, 1758)

Synonymy : *Cercopis unifasciata* F., 1781; *C. angulata* F., 1794; *Lepyronia coleoptrata obscura* Mel., 1897; *L. coleoptrata clara* Lallemand, 1912.

General Distribution : Afghanistan, Albania, Algeria, Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, Finland, France, Germany, Greece, Hungary, Iraq, Italy, Mongolia, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, Syria, Turkey, USSR., Yugoslavia.

Distribution in Turkey : Oshanin (1912) listed this species from Turkey. Fahringer (1922) reported it from Adana and Maraş (Yarbaşı). Dlabola (1957 a) collected some specimens from Adana (Bürücek, Karataş), Ankara (Baraj, Beynam, Mogan) and Edirne. Metcalf (1962) also listed it from Turkey.

Material examined : Afyon (Sincanlı), Ankara (Çubuk, Çubuk Barajı, Eymir gölü, Mogan, Hasanoğlan, Şereflikoçhisar - Tuz gölü), Artvin (Fidanlık), Aydın (Kuşadası), Bilecik (Central province, Bozöyük), Bursa (Central province, Keles), Çanakkale (Çan, Gökçeada), Çankırı, Çorum (Central province, İskilip), Diyarbakır (Central province, Silvan), Edirne (Central province, Babaeski, İpsala), Erzincan, Gümüşhane (Kop, Şiran), İzmir (Ayrancılar, Bornova), Kars (Sarıkamış), Kütahya (Domanıç), Manisa (Akhisar), Mardin (Cizre), Muğla (Köyceğiz, Marmaris), Muş, Sakarya (Adapazarı - Sapanca), Siirt, Tokat (Zile) - Totally 116 specimens.

Occurrence : Common but sometimes in large numbers.

Biological note : Specimens were collected starting from late May, very abundant in July and to the end of August, mostly on various weeds in meadow, on *Juncus*, some on *Medicago sativa*, *Populus*, *Salix*. Dlabola (1961) stated that nymphs live on *Galium*, *Hypericum*, *Cirsium*, *Rumex* and other plants and adults on encountering on xerothermophile plants.

*Neophilaenus albipennis* (Fabricius, 1798)

General Distribution : Algeria, Austria, Bulgaria, Czechoslovakia, France, Germany, Hungary, Italy, Poland, Romania, Tunisia, USSR..

Distribution in Turkey : This species constitutes a new record for Turkey.

Material examined : Kırklareli (Demirköy, İğneada)-Only 2 specimens.

Occurrence : Very rare.

Biological note : Specimens were collected at the beginning of July, on weeds.

*Neophilaenus campestris* (Fallén, 1805)

Synonymy : *Aphrophora palvula* Vismara, 1877; *Philaenus campestris fasciatus* Ferrari, 1882; *Ph. campestris obsoletus* Ferr., 1882; *Ptyelus campestris bimaculata* Rey, 1894; *P. campestris brunnifrons* Rey, 1894.

General Distribution : Albania, Algeria, Austria, Belgium, Cyprus, Czechoslovakia, Denmark, England, France, Germany, Greece, Hungary, Ireland, Israel, Italy, Jordan, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Spain, S. Sweden, Tunisia, Turkey, USSR., Yugoslavia.

Distribution in Turkey : Fahringer (1922) reported this species from İstanbul (Polenezköy), Linnavuori (1965) collected two specimens in Adana (Pozantı) and Hatay (Yayladağ - Belen).

Material examined : Adıyaman (Nemrut), Afyon (Gazlıgöl), Ankara (Çubuk Baraj I), Artvin (Murgul, Seyitler), Bitlis, Bursa (Mudanya, Uludağ, Zeytinbağı), Çanakkale (Gökçeada, İntepe, Küçükkuyu), Eskişehir (Seyitgazi), Giresun, İzmir (Bergama, Bornova, Çeşme, Ilıca, Menemen, Torbalı, Sabuncubeli), Kırklareli (Vize), Kütahya (Central province, Tavşanlı), Manisa (Gölmarmara, Gördes, Kula), Muğla (Bodrum, Fethiye-Seki, Central province), Nevşehir (Central province - Bağcılık İst.), Samsun (Havza), Sinop (Boyabat), Siirt, Trabzon (Akçaabat, Arsin, Central province), Van (Tendürek dağı) - Totally 250 specimens.

Occurrence : Common and sometimes found in large numbers.

Biological note : Specimens were collected from late April through the beginning of October, mostly in June and July, on various weeds, *Juncus*, Graminae, some on *Rhododendron*, *Quercus*, *Ulmus*, *Pinus*, *Abies*, *Pyrus communis*, *Corylus avellana*, *Zea mays*, *Triticum* sp. and *Medicago sativa*. Fahringer (1922) stated that this species is abundant on forest meadows. Dlabola (1961) reported that it lives in sunny, dry and hot meadow biotope, very common in Mediterranean region, but less in other regions.

*Neophilaenus lineatus* (Linneaus, 1758)

Synonymy : *Cicada abbreviata* F., 1787; *Cercopis capitata* F., 1794; *Philaenus aterrimus* J. Sahlb., 1871; *Ph. pulchellus* J. Sahlb., 1871; *Ph. lineatus fusca* Haupt, 1912; *Ph. lineatus pallida* Haupt, 1917; *Ph. lineatus danicus* Wagner, 1935; *Neophilaenus lineatus fulva* Gyllensvard, 1965.

General Distribution : Albania, Algeria, Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, England, Finland, France, Germany, Hungary, Italy, Ireland, Mongolia, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweeden, Tunisia, Turkey, USSR., Yugoslavia; (Nearctic region).

Distribution in Turkey : Oshanin (1912) listed this species from Turkey. Fahringer (1922) reported it from Bursa (Uludağ) and İstanbul (Pole-nezköy). Dlabola (1957 a) collected some specimens in Ankara (Beynam and Mogan gölü). Metcalf (1962) listed it from Turkey according to Oshanin (1912) and Fahringer (1922).

Material examined : Ankara (Çubuk, Çubuk Baraj II, Eymir gölü, Mogan gölü, Hasanoglan), Erzincan (Refahiye - Dumanlı dağ), İzmir (Bozdağ), Nevşehir (Central province - Bağcılık İst.), Van (Başkale - Güzelsu, Elmalı), Afyon (Başmakçı yaylası) - Totally 45 specimens.

Occurence : Common but in small numbers.

Biological note : Specimens were collected starting from late June through July, August to beginning of October, mostly on meadow and Graminae weeds, *Phragmites* and on *Thuja* sp.. According to Fahringer (1922), this species lives in forest meadow, especially on *Trifolium armenicum*. Dlabola (1957 a) stated that it also lives on steppe vegetation besides moist meadow.

*Neophilaenus minor* (Kirschbaum, 1868)

General Distribution : Albania, Austria, Belgium, Bulgaria, Czechoslovakia, Finland, France, Germany, Hungary, Italy, Netherlands, Poland, Portugal, USSR., Yugoslavia, Turkey (Dlabola, 1957 a; Metcalf, 1962).

Distribution in Turkey : Metcalf (1962) listed this species from Turkey according to Horvath (1905), Oshanin (1910, 1912) and Lallemand (1912). Dlabola (1957 a) collected many specimens in Ankara (Beynam) and Konya (Kızilviran).

The authors have no representative of this species.

*Paraphilaenus notatus* (Mulsant et Rey, 1855)

Synonymy : *Neophilaenus notatus centroasiaticus* Dlabola, 1961.

General Distribution : France, USSR. (Altai Mts., Georgia, Kazakhstan, Kirghizia, s. Russia, Tadzhikistan, Ukraine, Uzbekistan).

Distribution in Turkey : This species constitutes a new record from Turkey.

Material examined : Van (Başkale - Güzelsu) - Only 2 specimens.

Occurrence : Very rare.

Biological note : Specimens were collected in late July on *Stipa*. Dlabola (1961) stated that the specimens were found on the weed at the border of fields at 1000 m altitude in Tadzhikistan. Emelyanov (1964) noted this species found on cereals in steppe biotope.

*Aphrophora alni* (Fallen, 1805)

Synonymy : *Cicada cincta* Thunberg, 1784, (Nomen oblitum); *Aphrophora alni fuscata* Haupt, 1925; *A. alni umbrina* Linn., 1950.

General Distribution : Albania, Algeria, Austria, Belgium, Bulgaria, China, Czechoslovakia, Denmark, England, Finland, Germany, Greece, Hungary, Ireland, Italy, Japan, Mongolia, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, Turkey, USSR., Yugoslavia.

Distribution in Turkey : Fahringer (1922) reported this species from İstanbul (Belgrad forest, Polenezköy), Konya (Ereğli) and Adana (Seyhan-Belemedik). Linnavuori (1965) collected one specimen on the road of Bolu (Akçakoca). Ural et al. (1973) recorded this species in Blacksea Coast Region.

Material examined : Ankara (Beypazarı, Çubuk, Eymir gölü), Artvin (Central province, Fidanlık, Hopa), Aydın (Kuşadası), Balıkesir (Edremit, Kepsut, Manyas), Bitlis (Tatvan), Çanakkale (Gökçeada), Çorum, Diyarbakır (Çermik), Erzincan (Central province - Çağlayan, Başköy, Refahiye),



Erzurum (Tufanç köyü, Central province), Giresun (Central province, Keşap, Şebinkarahisar), İstanbul (Yalova), İzmir (Bozdağ, Kozak, Yamanlar), Kayseri (Himmetdede, Pınarbaşı), Kırklareli (Central province, Pınarhisar, Lüleburgaz), Konya (Çumra), Kütahya (Central province, Domaniç), Mardin, Manisa (Soma), Muğla (Fethiye - Seki), Ordu (Ünye - Yılanlıkaya, Ünye, Kumru, Mesudiye, Perşembe), Rize (Ardeşen, Kaçkar dağı, Pazar), Samsun (Kavak), Sinop, Tekirdağ (Barbaros), Trabzon (Central province, Maçka), Yozgat (Çekerek), Afyon (Başmakçı yaylası), Artvin (Kabaca) - Totally 151 specimens.

Occurrence : Very common and found sometimes in large numbers.

Biological note : Specimens were collected from beginning of May in hot places, found abundant in July and August up to September. Host plants were very various, such as *Oryza sativa*, *Pisum sativum*, *Vitis vinifera*, *Corylus avellana*, *Cornus mas*, *Rubus fruticosus*, *Crataegus*, *Amygdalus communis*, *Juglans regia*, *Prunus domestica*, *P. avium*, *P. cerasus*, *Rosa* sp., *Cynodon vulgaris*, *Mespilus germanica*, *Salix*, *Populus*, *Alnus*, *Fagus silvatica*, *Ulmus*, *Urtica* sp., *Verbascum* sp.. Fahringer (1922) reported *Alnus incana* and *A. orientalis* as host plants of this species. According to Dlabola (1961), nymphs live on low vegetation, such as *Trifolium*, *Hypericum*, *Erigeron*, *Hieracium*, *Taraxacum* and the adults on forest trees and shrubs. Ural et al. (1973) recorded it on *Corylus avellana*.

*Aphrophora corticea* Germar, 1821

General Distribution : Albania, Austria, Belgium, Czechoslovakia, Denmark, France, Germany, Italy, Norway, Poland, Portugal, Spain, Sweden, Switzerland, USSR., Yugoslavia.

Distribution in Turkey : This species constitutes a new record for Turkey.

Material examined : Aydın (Samsun dağı), Bilecik, Çanakkale (Küçük-kuyu), Isparta (Eğridir), Kütahya (Domaniç), Muğla (Fethiye), Tokat (Almus), Afyon (Zafertepe) - Totally 17 specimens.

Occurrence : Not very common.

Biological note : Specimens were collected starting from late May through beginning of August, mostly on *Pinus* and some on *Cupressus*, *Quercus*, *Pyrus communis* and *Verbascum*.

*Aphrophora exoleta* Horvath, 1901

General Distribution : Turkey, Syria (Metcalf, 1962).

Distribution in Turkey : Oshanin (1906 - 1903, 1912) listed this species from Turkey. Metcalf (1962) also listed it from Turkey according to Horvath (1901, 1907) and Lallemand (1912) in addition to Oshanin.

The authors have no representative of this species.

*Aphrophora salicina* (Goeze, 1778)

Synonym : *Cicada spumaria salicis* De Geer, 1773 (invalid); *Aphrophora lacrymans* Eversmann, 1842; *A. grisea* Haupt, 1919 (primary homonym); *A. salicis unicolor* Haupt, 1919; *Omalophora salicis haupti* Metcalf, 1962.

General Distribution : Albania, Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, England, France, Germany, Hungary, Ireland, Italy, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, USSR., Yugoslavia.

Distribution in Turkey : Oshanin (1912) and Dlabola (1957 a) listed it from Turkey. So far it is known only from these literature and its existing locality in Turkey was not known definitely. The authors now are able to confirm the presence of this species in the Turkish fauna.

Material examined : Balıkesir (Kuşçenneti), Çanakkale (Eceabat), Giresun (Şebinkarahisar), Gümüşhane (Central province, Kelkit), Kırklareli (Türkgeldi), Kütahya - Totally 22 specimens.

Occurrence : Occasional.

Biological note : Specimens were collected from very late May through mid-July, on *Salix*, *Robinia pseudacacia*, *Rubus fruticosus* and on various weeds. Dlabola (1961) stated that nymphs and adults live on *Salix*. This species was reported mainly on *Salix* trees at the rate of 60 - 70 %, being destructive on young shoots and also observed some on *Populus* and *Fraxinus* in the Kuşçenneti National Park in 1981.

*Mesoptylus impictifrons* (Horvath, 1911)

Synonymy : *Philaenus impictifrons arcifer* Horv., 1911; *Ph. impictifrons seminiger* Horv., 1911; *Ph. impictifrons quinquemaculatus* Horv., 1911; *Ph. impictifrons vestitus* Horv., 1911; *Ph. impictifrons obscurus* Lind., 1923.

General Distribution : Egypt, Israel, Jordan, Lebanon, Syria, Turkey.

Distribution in Turkey : Fahringer (1922) reported this species from Kayseri and the varieties *arcifer* Horv. and *vestitus* Horv. from Maraş (Yarbaşı). Linnavuori (1965) collected two specimens from Hatay (Yayladağ).

Dlabola (1971 a) reported it from Antalya (Alanya, Gazipaşa), İçel (Anamur, Aydıncık, Ovacık).

Biological note : Linnavuori (1962) collected specimens on *Quercus calliprinos*, *Q. ithaburensis*, *Vitis vinifera* and from different herbs and bushes in Israel.

The authors have no representative of this species.

*Mesoptyelus petrovi* (Grigoriev, 1910)

Synonymy : *Lepyroniella caucasica* Mel., 1913; *Philaenus lutheri* Lind., 1923; *Ph. lutheri melanurus* Lind., 1923; *Ph. lutheri septemmaculata* Lind., 1923; *Lepyroniella petrovi lateralis* Kusn., 1933; *L. petrovi lineata* Kusn., 1933.

General Distribution : USSR. (Armenia, Azerbaijan, Georgia, s.Russia).

Distribution in Turkey : This species constitutes a new record for Turkey.

Material examined : Artvin, Trabzon (Zigana) - Totally 8 specimens.

Occurrence : Occasional.

Biological note : Specimens were collected in the first half of July, on weeds.

*Philaenus signatus* Melichar, 1896

General Distribution : Afghanistan, Albania, Cyprus, Greece, Iraq, Italy, Morocco, Spain, Turkey, Yugoslavia.

Distribution in Turkey : Dlabola (1957 a, b, 1971 a) reported this species from Adana (Gavur dağı and Nur dağı).

Material examined : İzmir, Muğla (Fethiye) - Only 3 specimens.

Occurrence : Extremely occasional.

Biological note : The specimens were collected in mid-May and late July. Dlabola (1957 b) stated that this is a xerothermophile species and have color variations.

*Philaenus spumarius* (Linnaeus, 1758)

Synonymy : *Cicada leucophthalma* L. 1758; *C. lateralis* L. 1758; *C. leucocephala* L. 1758, ..... etc.

Nast (1972) listed more than 50 synonyms of this species. This proves how it can be so different, especially in colours. In fact, it is an extremely

polymorphic species. There are so much and different colour polymorphism that it was attracted many scientists to work about it.

General Distribution : Afghanistan, Albania, Algeria, Austria, Azores, Belgium, Bulgaria, China (Kansu), Cyprus, Czechoslovakia, Denmark, England, Finland, France, Germany, Greece, Hungary, Iraq, Ireland, Italy, Japan (Hokkaido, Honshu), Mongolia, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Spain (also Balearic Is.), Sweeden, Switzerland, (?) Syria, Tunisia, Turkey, USSR., Yugoslavia; (Nearctic region).

Distribution in Turkey : Oshanin (1906 - 1908) listed this species from Turkey. Fahringer (1922) reported it from Eskişehir, İstanbul (Polenezköy) and Kocaeli (Gebze), Dlabola (1957 a) collected some specimens in Ankara (Beynam), Kocaeli (Mollafeneri) and Kayalıdağ. Bodenheimer (1958) reported it in Turkey according to Schimitschek (1937). Metcalf (1962) listed it from Turkey according to Horvath (1901), Oshanin (1906) and Fahringer (1922). Linnavuori (1965) collected a few specimens in Bolu (Akçakoca) and Kocaeli (İzmit). Ural et al. (1973) also recorded it in Northeastern part of Turkey.

Material examined : Ağrı (Hamur, Tahir geçidi), Amasya, Ankara (Çamkoru, Çubuk, Eymir gölü, Mogan gölü, Hasanoğlan, Karagöl), Artvin (Central province, Fidanlık, Kafkasar, Marsivan, Seyitler, Borçka, Murgul), Aydın (Germencik), Balıkesir (Erdek, Gönen), Bilecik (Pazaryeri), Bitlis (Tatvan), Bursa (Çamlık, Çınarcık, İznik, Mudanya, Orhaneli, Uludağ), Çanakkale (Abide, Biga, Gelibolu, Gökçeada, İntepe, Ezine), Elazığ (Gezin, Hazar), Erzincan (Bahçeliköy, Central province, Çağlayan, Dumanlıdağ, Demirpınar, Refahiye, Üzümlü), Erzurum (Tortum, Tufanç köyü), Giresun (Şebinkarahisar), Gümüşhane (Kelkit, Şiran, Central province), Hakkari İzmir (Balçova, Bornova, Dikili, Kozak, Bozdağ, Tire, Urla, Yamanlar), Kars (Başköy, Gaziler, Kağızman, Iğdır), Kırklareli (Pınarhisar, Vize), Kütahya, Kocaeli (İzmit, Değirmendere), Malatya, Manisa (Gördes, Kırkağaç, Gölarmara), Mardin (Nusaybin, Sultanşehmuz, Ömerli, Midyat, Mazıdağ), Muğla (Bodrum, Köyceğiz), Ordu (Kumru, Mesudiye, Perşembe, Ünye), Rize (Central province, Fener, Hayrat), Samsun (Central province, Bafra, Çarşamba, Dereköy), Siirt (Baykan), Sinop (Central province, Gerze, Mertoğlu), Tekirdağ (Şarköy, Saray, Central province), Trabzon (Akçaabat, Derecik, Central province, Sürmene, Kop, Zigana, Maçka), Tokat (Central province, Artova), Van (Çaldıran, Gürpınar, Edremit, Gevaş, Başkale, Elmali, Çatak, Erciş, Tendürek dağı, Akköprü, Beyüzümü, Başkale-Güzelsu) - Too many specimens.

Occurence : Very common and found sometimes in large numbers.

Biological note : Specimens were collected from the beginning of May through beginning of September, and the highest population was in July. This species is extremely polyphagous. The specimens were obtained on various host plants, mostly on Graminae weeds and cultivated Graminae, such as *Triticum* sp., *Oryza sativa*, *Avena sativa*, on moist meadows, *Trifolium* spp., *Medicago sativa*, *Onobrychis viciaefolia*, some on forest trees such as *Castanea sativa*, *Acacia*, *Crataegus*, *Rosa* spp., *Quercus*, *Salix*, *Populus*, *Ulmus*, *Fagus*, *Alnus*, *Cupressus* and *Pinus* and some specimens on fruit trees such as *Corylus avellana*, *Prunus domestica*, *P. amygdalus*, *P. persica*, *Pyrus communis*, *P. malus*, *Olea europea*, *Citrus* spp., *Vitis vinifera*. Fahringer (1922) reported it on *Melilothus* spp. Bodenheimer (1958) recorded it as a pest of forest trees, especially on *Robinia* and young *Pinus* trees. Ural et al. (1973) found it on *Corylus avellana*. It is also known to feed on *Pimpinella anisum*, *Daucus carota* and *Apium graveolens* in western Anatolia.

This is the most destructive species in this family. Nymphs feed on young branches and shoots and cause them to weaken, reduce the yield. By feeding extensively on alfalfa, the median shoot turns to rosette form, internodes become short and grains do not develop normally on Graminae. It is most destructive, especially in steppe and during April and May, if there is no rain. The toxic substances in saliva of nymphs cause malformations of plants. Also some plant viruses are transmitted by this insect, such as Pierce's virus, Lucerne dwarf and Peach yellow virus diseases (Ishihara, 1969).

Family Membracidae Rafinesque, 1815

*Oxyrhachis capaneri* Izzard, 1953

Synonymy : *O. delalandei* Fieber, 1876 (nec Fairmaire); *O. tarandus* Haupt, 1927 (Dlabola, 1965).

General Distribution : Egypt, Israel, Italy, Jordan, Morocco, Syria, Tunisia, Turkey, USSR. (Turkistan), Yugoslavia.

Distribution in Turkey : Fieber (1876) listed it from Turkey in Amasya under the name of *O. delalandei* Fieb. Metcalf and Wade (1965) also listed it from Turkey according to Löw (1883) and Melichar (1901) in addition to Fieber (1876).

The authors have no representative of this species.

*Gargara genistae* (Fabricius, 1775)

Synonymy : *Centrotus* (*Gargara*) *okinawanus* Mats., 1936.

General Distribution : Albania, Algeria, Austria, Belgium, Bulgaria, China (Kansu), Czechoslovakia, Denmark, England, France, Germany, Hungary, Iran, Italy, Japan, Korea, Netherlands, Norway, Poland, Portugal, Romania, Spain, Switzerland, Turkey, USSR., Yugoslavia; (Ethiopian, Nearctic and Oriental regions).

Distribution in Turkey : Dlabola (1957 a) collected some specimens in Ankara (Mogan). Metcalf and Wade (1965) listed it from Turkey according to Oshanin (1912).

Material examined : Ankara (Mogan gölü, Eymir gölü, Lalahan), Aydın (Kuşadası), Balıkesir (Dursunbey), Çorum (Bayat), Erzurum (Central province, Hasankale, Horasan, İspir - Serçeme deresi), İzmir (Bozdağ, Pamucak), Muğla (Bodrum, Köyceğiz) - Totally 38 specimens.

Occurrence : Somewhat common, but found in small numbers.

Biological note : Specimens were collected from beginning of June through end of August, mostly on weeds, some on *Quercus* and *Tamarix*. Fieber (1876) recorded it on *Genista tinctoria*. Dlabola (1957 a) stated that it is common on steppe vegetation. *Cytisus*, *Glycyrrhiza*, *Caragana* and other Leguminosae are given as host plants of this species by Emelyanov (1964).

*Centrotus cornutus* (Linnaeus, 1758)

Synonymy : *C. sicilius* Kbm., 1868; *C. gallicus* Kbm., 1868; *C. italicus* Kbm., *C. turcicus* Kbm., 1868; *C. abbreviatus* Kbm., 1868 (primary homonym); *C. cornutus depressus* Fieber, 1876; *C. cornutus obtusus* Fieb., 1876; *Campylocentrus rugosus* Buckton, 1903; *Centrotus cornutus kirschbaumi* Metcalf, 1955.

General Distribution : Albania, Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, England, Finland, France, Germany, Greece, Hungary, Italy, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Turkey, USSR., Yugoslavia.

Distribution in Turkey : Fieber (1872, 1876) listed and described two varieties of this species from İstanbul. Oshanin (1906 - 1908, 1912) listed it from Turkey. Fahringer (1922) reported it from Bilecik and İstanbul (Belgrad forest). Metcalf and Wade (1965) showed it from Turkey according to Fairmaire (1846), Puton (1875, 1886, 1899), Kirschbaum (1868), besides the above mentioned authors.

Material examined : Adapazarı (Hendek), Artvin (Hopa), Aydın (Karacasu), Bilecik (Bozüyük), Bursa (İznik, Mudanya, Uludağ), Çorum, Denizli, Erzincan (Başköy, 1200 m), Edirne (Keşan), Giresun (Görele), İzmir

(Kozak), Kocaeli (İzmit), Kütahya (Domaniç), Kırklareli (İğneada, Kıyıköy, Pınarhisar), Ordu (Ünye - Yılanlıkaya), Tekirdağ (Saray) - Totally 33 specimens.

Occurrence : Common but in small numbers.

Biological note : Specimens were collected from mid - May through August, on various trees, shrubs and some on Graminae weeds. *Rubus fruticosus*, *Rosa canina*, *Crataegus*, *Ulex europaeus*, *Rhododendron flavum*, *Populus*, *Quercus*, *Pinus*, *Juglans regia*, *Pyrus malus*, *P. communis*, *Medicago sativa* were recorded as host plants in the literature. *Corylus avellana*, *Epilobium* and *Carduus* are given as host plants of this species by Dlabola (1961).

<sup>e</sup>  
*Cerfisa bubalus* (Fabricius, 1794)

General Distribution : Albania, Bulgaria, France, Greece, Hungary, Italy, Romania, Spain, Switzerland, USSR., Yugoslavia; (Nearctic region).

Distribution in Turkey : This species was first found in Edrine in 1963 on eggplants by Dr. M. Çakıllar. Then it started to spread the whole areas in Thrace in orchards, especially having *Medicago sativa* underneath. At the moment it diffused largely in this country.

Material examined : Ankara (Çubuk), Artvin (Maradit), Balıkesir (Sursurluk), Edirne, Kırklareli (Pınarhisar, Lüleburgaz, Türkgeldi), Rize (Kaçkar dağı) - Totally 65 specimens.

Occurrence : Common especially in Northern parts of Anatolia and sometimes found in large numbers.

Biological note : Specimens were collected in July and August, on *Pyrus malus*, *Alnus*, *Medicago sativa* and other weeds. Emelyanov (1964) stated that this species is a common and serious pest of fruit trees and alfaalfa from North America to Europe. Birkardeşler (1970) recorded it on apple and peach trees and making damage especially in seedling plantations by inserting their eggs on 1 - 3 years old twigs. Adults feed on *Melilotus alba*.

## Özet

Türkiye Auchenorrhyncha türlerinin yayılışı ve önemlerine ait notlarla ön liste

### VI. Cercopidae ve Membracidae Familyaları

Bu makale Türkiye'de 1979 yılı sonuna kadar bulunan Cercopidae ve Membracidae türlerini kapsamaktadır. Cercopidae familyasından 9 cinse ait 20 tür tesbit edilmiştir. Bunlardan *Neophilaenus albipennis* (F.), *Paraphilaenus notatus* (M.R.), *Aphrophora corticae* Germ. ve *Mesoptylus petrovi* (Grigoriev) Türkiye için yeni kayıtlardır. Membracidae familyasından yurdumuzda daha önce bilinen 4 cinse ait 4 türden başka tesbit edilmemiştir. Her iki familyaya ait türlerin yurdumuzda bulunduğu yerlerle üzerinden toplandığı bitkiler hakkında etraflı bilgi verilmiştir.

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