

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

**IX. Family Cicadellidae: Iassinae, Penthiminae, Dorycephalinae,
Hecalinae and Aphrodinae.**

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Summary

This paper comprises list of 19 species of 8 genera from 5 subfamilies given above. By this faunistic study, 8 species, namely; *Batracomorphus signatus* Lind., *Iassus lanio* (L.) from Iassinae, *Dorycephalus baeri* Kouch. from Dorycephalinae and *Aphrodes albiger* (Germ.), *A. albifrons* (L.), *A. angulaticeps* Emel., *A. elongatus* (Leth.) and *A. flavostriatus* (Don.) found to be new records for Turkey. Distribution, abundance and plants of which the specimens were collected on for each species are given.

Introduction

10 species from the above groups were previously recorded by several authors. Oshanin (1908, 1912) listed four species, namely; *Penthimia nigra* (Goeze), *Paradorydium paradoxum* (H.S.), *Eupelix cuspidata* (F.) and *Aphrodes bicinctus* (Schrk.) from Turkey. Fahringer (1922) and Gadeau de Kerville (1930) reported *A. bicinctus* (Schrk.) with locality citations in Turkey. Metcalf (1962, 1963 a,b) listed 4 species according to the earlier authors. Dlabola (1957, 1971, 1981) collected specimens of 8 species : *B. irroratus* Lew.,

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I. scutellaris (Fieb.), *P. nigra* (Goeze), *P. paradoxum* (H.S.), *Eu. cuspidatus* (F.), *Hecalus glaucescens* (Fieb.), *A. bicinctus* (Schrk.), *A. bifasciatus* (L.) and *A. histrionicus* (F). belonging to these subfamilies, on his expeditions. Linnavuori (1965) collected only a few specimens of *I. scutellaris* (Fieb.) and *H. glaucescens* (Fieb) on his way through Turkey. Nast (1972) listed 6 species: *B. irroratus* Lew., *P. nigra* (Goeze), *P. paradoxum* (H.S.), *H. glaucescens* (Fieb.), *A. bicinctus* (Schrk.) and *A. nigrinus* (Kbm.) from Turkey. Ural et al. (1973) only recorded *A. bicinctus* (Schrk.) in hazelnut orchards in eastern Blacksea Coast region. By the present study, 7 newly recorded species added to the fauna of Turkish Auchenorrhyncha.

Aphrodes bicinctus (Schrk.), from the economical stand point is very important, by transmitting some plant diseases.

The other species of Aphrodinae recorded in Turkey are not reported to be economically important. They do not either from large populations to cause direct damage by feeding.

Synonyms, distribution of species in Palearctic region is taken from Nast (1972). In case of additional country is given with literature citation at the end.

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IASSINAE

Batracomorphus irroratus Lewis, 1834.

Synonymy : *Bythoscopus microcephalus* H.S., 1838; *Jassus punctulatus* Forel, 1858; *Macropsis punctuosus* Kbm., 1868; *M. verrucosa* Haupt, 1917.

General Distribution : Afghanistan, Albania, Austria, Belgium, Bulgaria, China, Czechoslovakia, Denmark, England, France, Germany, Greece, Hungary, Italy, Mongolia, Switzerland, Turkey, USSR., Yugoslavia.

Distribution in Turkey : Dlabola (1957, 1981), reported it from Adana (Gavur dağı), Ankara (Baraj, Beynam, Mogan Gölü), Bolu (Gerede-Bolu dağları 1200 m), Erzurum (Kandilli 1720 m), Nevşehir (Ürgüp) and Sivas (Gürün).

Material examined : Adıyaman, Ankara (Çubuk Barajı, Lalahan), Burdur, Diyarbakır, Kayseri (Erciyes, Yılanlıdağ), Nevşehir (Central province - Bağcılık İst., Gülşehir), Tekirdağ (Şarköy), Van (Kırkgeçit - Gürpınar) - Totally 125 specimens.

Occurrence : Common, and sometimes in large numbers.

Biological note : Specimens were collected starting from late May through October on steppe formations, such as *Euphorbia*, *Stipa*. Ribaut (1952) has given *Helianthum vulgare*; Emelyanov (1964) *Artemisia*, some Leguminosae such as *Astragalus arbuscula*, *Kochia prostrata*, *Camphorosma monsplicum* as host plants of this species.

Batracomorphus signatus Lindberg, 1923

Synonymy : *B. signata* v. *nigrum* Lind., 1923

General Distribution : Egypt, Israel, Libya (Ethiopian region); Iran (Dlabola, 1981).

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

Material examined : Adana, Elazığ (Palu), Kars (İğdır), Mardin (Midyat) - Totally 8 specimens.

Occurrence : Occasionally.

Biological note : Specimens were collected in mid - June and first half of August, some on weeds and light traps. Linnavuori (1971) recorded it on *Acacia* in Egypt and Israel. Dlabola (1981) on the undergrowth vegetation Graminae in *Citrus* and palm plantations in Iran.

Iassus lanio (Linnaeus, 1761)

Synonymy : *Cicada brunnea* F., 1794.

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

Distribution in Turkey : This is the first record of this species in Turkey.

Material examined : Bitlis, Bursa (Mudanya), Çankırı (Çerkes), Kayseri (Erciyeş, Hacılar, Pınarbaşı), Kırklareli, Uşak (Eşme) - Totally 13 specimens.

Occurrence : Somewhat common, but in small numbers.

Biological note : Specimens were collected in June through August on *Quercus*, as Ribaut (1952) and Emelyanov (1964) also stated.

Iassus scutellaris (Fieber 1868)

Synonymy : *Macropsis scutellaris purpurata* Horv., 1897.

General Distribution : Austria, Bulgaria, Czechoslovakia, France, Germany, Greece, Hungary, Italy, Netherlands, Poland, Romania, Spain, Turkey, USSR., Yugoslavia, Iran (Dlabola, 1981).

Distribution in Turkey : Dlabola (1957), collected one specimen in Ankara (Baraj), and Linnavuori (1935), one specimen near İzmit.

Material examined : Adıyaman (Kâhta), Ankara (Çubuk, Elmadağ, Kırıkkale, Kızılcahamam), Aydın (Söke), Çankırı (Çerkeş), İzmir (Ödemiş - Bozdağ, Selçuk) Kastamonu (Central province, Küre), Kayseri (Hacılar, Pınarbaşı), Muğla (Gökova), Nevşehir (Avanos, Gülşehir), Sivas (Koyulhisar), Tekirdağ, Tokat (Turhal), Yozgat (Sorgun) - Totally 97 specimens.

Occurrence : Common, but in small numbers.

Biological note : Specimens were collected from June through August, mainly on *Ulmus*; a few specimens also on *Populus*, *Salix* and *Quercus*.

PENTHIMINAE

Penthimia nigra (Goeze, 1778)

Synonymy : *Cicada aethyops* Schrank, 1781; *C. haemorrhoea* Schrk. 1781; *C. castanea* Gmelin, 1790; *C. biguttata* Gmelin, 1790 (Primary homonym); *Cercopis atra* F., 1794; *C. ruficollis* F., 1794; *Cicada thoracica* Panzer, 1799; *Cercopis sanguinollis* F., 1803; *Penthimia atra maculata* Mel., 1896; *P. nigra caucasica* Kusn., 1931; *P. nigra clavalis* Rib., 1952; *P. nigra fulva* Rib., 1952; *P. nigra maculipennis* Rib., 1952.

General Distribution : Albania, Austria, Belgium, Bulgaria, Czechoslovakia, France, Germany, Greece, Hungary, Italy, Japan (?Honsu), Netherlands, Poland, Portugal, Romania, Spain, Switzerland, Syria, Tunisia, Turkey, USSR., Yugoslavia, Iran (Dlabola, 1971).

Distribution in Turkey : Oshanin (1908, 1912) has listed this species from Turkey, without giving specific location. Metcalf (1962) also listed it from Turkey according to Oshanin (1908, 1912) and Kirschbaum (1868). Dlabola (1971) confirmed the presence of this species in Turkey by reporting it from Adana (Nurdağı) and Mersin (Mezitli).

Material examined : Adapazarı, Ankara (Elmadağ, Karagöl), Antalya (Korkuteli), Bilecik (Gölpazarı), Isparta (Eğridir), İzmir (Kemalpaşa), Nev-

şehir, Tekirdağ, Trabzon - Totally 16 specimens.

Occurrence : Occasionally

Biological note : Specimens were collected starting from late April, through May, June and July, on *Quercus*, *Platanus* and *Alnus*.

DORYCEPHALINAE

Dorycephalus baeri Kouchakewich, 1866

General Distribution : Austria, Czechoslovakia, Hungary, USSR.

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

Material examined : Ankara (Lalahan) - Only one specimen.

Occurrence : Very occasionally.

Biological note : This specimen was taken at the end of May in 1963, on *Stipa*, as Emelyanov (1964) also stated.

Paradorydium paradoxum (Herrich - Schaffer, 1837)

Synonymy : *Dorydium lanceolatum* Burm., 1839.

General Distribution : Algeria, Czechoslovakia, France, s. German F.R., Italy, Morocco, Portugal, Spain, Turkey, USSR., n. Yugoslavia.

Distribution in Turkey : Oshanin (1912) listed this species from Turkey. Later on Dlabola (1957) collected three specimens in Ankara (Baraj).

Material examined : Ankara (Çubuk Baraj II, Lalahan), Diyarbakır - Totally 11 specimens.

Occurrence : Occasionally.

Biological note : Specimens were collected starting from late June through mid-September, in steppe vegetation. Emelyanov (1964) has given Graminae, *Festuca sulcata* and *Stipa* sp. as host plants of this species.

Eupelix cuspidata (Fabricius, 1779)

Synonymy : *Cicada porrecta* Fourcroy, 1785; *C. depressa* F., 1803; *Eupelix fuliginosa* Le Peletier et Serville, 1825; *Eu. spathulata* Germ., 1838; *Eu. zelleri* Kbm., 1868; *Eu. depressa marginata* Sign., 1879; *Eu. depressa sinuta* Lind., 1948.

General Distribution : Albania, Algeria, Austria, Belgium, Bulgaria, Canary Is., Cyprus, England, France, Germany, Hungary, Iraq, Ireland, Israel, Italy, Mongolia, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, Syria, Tunisia, USSR., Yugoslavia, Greece, Iran, Turkey (Dlabola 1957, 1977, 1981).

Distribution in Turkey : Oshanin (1912) listed this species from Turkey. Dlabola (1957, 1981) collected material from Ankara (Beynam, Mogan gölü), Nevşehir (Ürgüp), Malatya (Balaban, Karahan geçidi), Maraş (Nurhak dağı) and Erzurum (Kandilli).

Material examined : Adıyaman (Kahta, Nemrut), Afyon (Sincanlı), Ankara (Çubuk, Eymir gölü, Central province), Artvin, Çanakkale (Gökçeada), Diyarbakır (Devegeçidi), Konya (Çarıklar), Malatya, Mardin (Cizre, Nusaybin, Yukarıkonak, Central province), Niğde (Çiftahan), Urfa (Ceylanpınar) - Totally 46 specimens.

Occurrence : Common, but in small numbers.

Biological note : Specimens were collected starting from late May through mid-October, on Graminae grasses. Lindberg (1948) reported it from *Cistus villosus*, machia and at the dry places in Cyprus. Dlabola (1977) stated that it is found on Gramineae grasses and sheltered under the bark of *Tamarix* and *Acacia* in autumn. Also the same author later (1981) collected some specimens from marshy places, dried areas of *Trifolium* and *Carex* and dried vegetation under *Eleagnus*.

HECALINAE

Hecalus glaucescens (Fieber, 1866)

Synonymy : *Parabolocratius sulcatus* Fieb., 1866; *P. aegyptiacus* Sign., 1876; *P. arenarius* Horv., 1897.

General Distribution : Afghanistan, Bulgaria, Cyprus, Czechoslovakia, Egypt, Hungary, Iran, Iraq, Israel, Italy, Jordan, Morocco, Turkey, USSR., Yugoslavia.

Distribution in Turkey : Dlabola (1957) collected some specimens in Adana (Kozan) and Linnavuori (1935), one specimen in Hatay (İskenderun).

Material examined : Adıyaman, Ankara (Çubuk), Malatya, Manisa (Salipli), Muğla (Fethiye), Siirt (Kurtalan) - Totally 16 specimens.

Occurrence : Occasionally.

Biological note : Specimens were collected on grasses at the beginning of May in warm places and generally in August in other places. Dlabola (1957, 1981) stated that this species is common in steppe vegetation, on *Artemisia* and in alfalfa fields.

APHRODINAE

Aphrodes albifrons (Linnaeus, 1758)

Synonymy : In the past several synonyms have been listed for this species. For synonyms see Nast (1972).

General Distribution : Exact distribution of this species is not yet known. Records of this species in n.America need confirmation. For other distributional areas in Palearctic, see Nast (l.c.).

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

Material examined : İzmir (Mordoğan). Only two specimens.

Occurrence : Very occasional.

Biological note : Specimens were taken on grasse near an almond tree. Information on its biology is not well known. Although it has been known as a vector of clover phyllody in Netherlands, this needs further confirmation.

Aphrodes albiger (Germar, 1821)

Synonymy : *Anoscopus kirschbaumi* Edw., 1920; *Aphrodes albiger nudus* Wagn., 1937; *A. albiger salinus* Wagn., 1937; *A. albiger deleta* Ribaut, 1952.

General Distribution : Austria, Czechoslovakia, England, France, Germany, Netherlands, Poland, USSR.

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

Material examined : Ankara (Eymir gölü) - Only one specimen.

Occurrence : Very occasionally.

Biological note : One specimen was taken on *Populus*, at the end of August, in humid places. Ribaut (1952) recorded it on *Salicornia*.

Aphrodes angusticeps Emelyanov, 1964

General Distribution : USSR. (s.Russia).

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

Material examined : Elazığ (Kinderis), Kütahya (Altıntaş) - Only 2 specimens.

Occurrence : Very occasional

Biological note : Specimens were collected in June on Gramineae grasses.

Aphrodes bicinctus (Schrank, 1776)

Synonymy : *Cicada striata* L., 1761 (Primary homonym); *Cercopis rustica* F., 1775 (Primary homonym). There are several synonyms for this species. For other synonyms see Nast (l.c.).

General Distribution : Afghanistan, Albania, Algeria, Austria, Bulgaria, Cyprus, Czechoslovakia, Denmark, England, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Maderia Archipelago, Mongolia, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, Syria, Tunisia, Turkey, USSR., Yugoslavia; (Nearctic region). Lebanon, Iran (Dlabola 1974, 1981).

Distribution in Turkey : Oshanin (1912) has listed this species under the name of *Acocephalus nervosus* Schrk. from Turkey. Fahringer (1922) reported it from Adana (Belemedik). Gadeau de Kerville (1939) recorded it from İzmir in May, 1912. Metcalf (1963 a) listed it from Turkey according to Oshanin (1912), Fahringer (1922) and Prohaska (1923). Dlabola (1957, 1981) collected specimens in Adana (Bürücek), Ankara (Beynam), Edirne, Niğde (Ulukışla) and near Sapanca lake. Ural et al. (1973) reported it also in Blacksea Coast region.

Material examined : Afyon (Sincanlı), Ankara (Çubuk, Karagöl, Eymir, Elmadağ, Lalahan), Antalya (Korkuteli), Bilecik (Central province, Pazar-yeri), Bursa (Uludağ), Çanakkale (Ezine, Gökçeada), Diyarbakır, Edirne, Elazığ (Düzönü, Kinderis), Erzincan (Başköy, Çağlayan, Üzümlü), Erzurum (Central province, Uzundere), Gaziantep (Nurgana), Gümüşhane (Central province, Zigana), Giresun (Şebinkarahisar), Hakkari (Uludere), İstanbul, İzmir (Bornova, Dikili, Ilıca, Mordoğan, Ödemiş - Bozdağ, Yamanlar), Kars (Sarıkamış), Kırklareli (Pınarhisar, Vize), Konya (Ereğli), Kütahya (Abide, Domanıç, Simav), Manisa (Akhisar, Central province, Kula), Muğla (Köyceğiz, Marmaris), Ordu (Mesudiye, Ünye), Rize (Central province, Kaçkar dağı), Sakarya (İzmit - Gölcük), Samsun (Central province, Çakallı, Kavak, Çarşamba, Gelemen, Vezirköprü), Sinop, Tekirdağ (Central province, Saray),

Tokat, Trabzon (Akçaabat), Uşak, Van (Beyüzümü), Zonguldak (Kurucasıle)
Totally 225 specimens.

Occurrence : Very common and found sometimes in large numbers.

Biological note : Specimens were collected starting from June, through mid-October, mostly in July. Specimens were mostly taken in moist places on *Medicago sativa*, *Trifolium* spp., *Vinca* sp. and other leguminosae plants and some on *Ulmus*, *Crataegus*, *Rosa canina*, *Corylus avellana*, *Cupressus*, *Rubus fruticosus*, *Humulus lupulus*, *Nerium oleander*, and *Populus*.

Chiykowski (1970) studied the biology of this species and concluded that first instars appeared in field at the end of May. There were five nymphal instars, males completed in about 38.5 and females in 41.3 days. Males survived about for four weeks and females at least eight weeks and some lived for up to 20 weeks. There was only one generation a year and winter passes in the egg stage and eggs deposited in the petioles of leaves or on soil. Nymphs were found on strawberry, *Trifolium pratense*, *T. hybridum*, *Plantago major*, *Taraxacum officinale*, *Capsella bursa pastoris*, *Erigeron canadensis* and *Brassica* sp.

This species is very important as the vector of stolbur, aster yellows and phyllody diseases as mentioned in the Introduction. Especially the transmission of stolbur disease is important economically in Turkey. The disease had been seen in Ankara, Bolu, Sakarya, Edirne, Kırklareli, İzmir, Afyon, Niğde, Kayseri, Erzurum, Trabzon and Nevşehir on tomato, potato and be destructive up to 40 - 80 %. It has been reported that this disease also affects tobacco, eggplant, pepper, sunflower, carrot, and weed *Convolvulus arvensis*, which acts as a source of disease (Valenta et al., 1961; Sahtiyancı, 1966; Kurçman, 1977). Since *A. bicinctus* (Schrk.) builds up large populations and distributed widely in this country, precautions should be taken against this pest to prevent the great loss of crops and spread of diseases.

Aphrodes bifasciatus (Linnaeus, 1758)

Synonymy : *Cicada trifasciata* De Geer, 1773; *C. tristriata* Gmel., 1790; *C. bifasciata spuria* Fall., 1806; *Jassus obliquus* Germ. 1821; *Acucephalus tricinctus* Curt., 1836; *Aphrodes bifasciatus simulans* Rib., 1952; *A. bifasciatus major* Duffield, 1963.

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

Distribution in Turkey : Dlabola (1957) collected one female specimen from Afyon (Kurudere - Emir dağı) and reported it under the name of *A. tricinctus* Curt.

Material examined : Ankara (Çubuk Baraj I). Only one specimen (female). The second record confirmed the presence of this species within the Turkish fauna.

Occurrence : Very occasional.

Aphrodes elongatus (Lethierry, 1876)

General Distribution : Czechoslovakia, Hungary, Italy, Romania, Syria, USSR., Yugoslavia.

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

Material examined : Van (Tendürek dağı), Kayseri (Erciyeş dağı) - Only two specimens.

Occurrence : Very occasional.

Biological note : The specimens were collected in the first half of August, one on a stone and the other on *Astragalus*.

Aphrodes flavostriatus (Donovan, 1799)

Synonymy : *Jassus rivularis* Germar, 1821.

General Distribution : Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, England, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Poland, Romania, Sweden, USSR., Yugoslavia; (Nearctic region).

Distribution in Turkey : This is the first record of this species in Turkey.

Material examined : Yozgat (Sorgun) - Only one male specimen.

Occurrence : Very occasional .

Biological note : The specimen was collected at the first half of August, on *Salix*. Ribaut (1952) stated that this species is found in humid places.

Aphrodes histrionicus (Fabricius, 1794)

Synonymy : *Acocephalus arenicola* Marshall, 1866.

General Distribution : Albania, Austria, Belgium, Cyprus, Czechoslovakia, Denmark, England, Finland, France, Germany, Greece, Hungary,

Ireland, Italy, Netherlands, Norway, Poland, Romania, Spain, Sweden, USSR., Iran, Turkey (Dlabola, 1971, 1981).

Distribution in Turkey : Dlabola (l.c.) reported one specimen in Bolu (Gerede).

Material examined : Çanakkale (Eceabat), Denizli (Pamukkale), Edirne Central province, Lalapaşa), İzmir (Mordoğan), Kırklareli (Pınarhisar), Sivas (Suşehri), Tokat (Turhal) - Totally 14 specimens.

Occurrence : Occasional.

Biological note : Specimens were collected starting from late May through mid-September, on *Ulmus*, *Salix* and weeds. Dlabola (l.c.) stated that it is an arboreal and mesophilous in habits.

Aphrodes nigrinus (Kirschbaum, 1868)

Synonymy : *A. tricincta integer* Wagner, 1937.

General Distribution : Algeria, Austria, Belgium, Bulgaria, Czechoslovakia, France, Germany, Italy, Poland, Portugal, Romania, Sweden, Switzerland, Turkey, USSR., Yugoslavia.

Distribution in Turkey : Although Nast (l.c.) listed Turkey as its founding country, the authors have no literature indicating presence of this species from Turkey, at their disposal. Now, the authors are able to confirm its presence in the Turkish fauna.

Material examined : Kars (Sarıkamış) - Only one male specimen.

Occurrence : Very occasional .

Biological note : The specimen was taken at the first half of July on *Pinus*.

Özet

Türkiye Auchenorrhyncha türlerinin yayılışı ve önemlerine ait notlarla ön listesi IX. Familya

Cicadellidae : Iassinae, Penthiminae, Dorycephalinae, Hecalinae and Aphrodinae

Bu makale, yukarıda isimleri verilen beş altfamilyadan sekiz cinse ait 19 türün listesini kapsamaktadır. Bu faunistik çalışma ile 8 tür: *Batrachomorphus signatus* Lind., *Iassus lanio* (L.), *Dorycephalus baeri* Kouch., *Aphrodes albiger* (Germ.), *A. angulaticeps* Emel., *A. albifrons* (L.), *A. elongatus* (Leth.) ve *A. flavostriatus* (Don.) Türkiye için yeni kayıtlardır. Her bir türün yayılışı, ekonomik önemi ve üzerinde toplandıkları bitkiler verilmiştir.

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