

## BIODIVERSITY AND ZOOGEOGRAPHY OF CICADOMORPHA (EXCL. DELTOCEPHALINAE) SPECIES FROM SOUTHWESTERN TURKEY (INSECTA: HEMIPTERA)

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**ABSTRACT:** In the present work, Cicadomorph species collected from Gevne valley and its surroundings located in southwestern Turkey were studied ecologically and zoogeographically. In the surveys, 36 species belonging to 28 genera of 5 families were identified. *Anaceratagallia venosa* (Fourcroy, 1785) *Iassus infectoriae* Abdul-Nour, 1998 and *Stegelytra albofasciata* Linnavuori, 1962 were recorded for the first time from Turkey. For the identified species in the study area, 14 corotypes of different zoogeographic regions were determined.

**KEY WORDS:** Cicadomorpha (excl. Deltocephalinae), biodiversity, zoogeography, southwestern Turkey

Faunistic records of this suborder from Turkey have been given by Demir (2008). Kemal & Koçak (2010, 2012), Tezcan et al. (2010, 2013), Demir & Demirsoy (2008, 2016), Önder et al. (2011), Dursun & Fent (2016) have given Cicadomorpha (excl. Deltocephalinae) records from Turkey in their works and identified some new species for the science. According to current literature, Turkey Cicadomorpha (excl. Deltocephalinae) fauna is represented with 241 species of 6 families.

Research area including Gevne valley and its surrounding area (including Geyik Mountain, Ak Mountain, Yıldız Mountain and Şeytan Mountain) are located in Southwest Turkey. It is in Antalya Part of the Mediterranean Region (Antalya Part: Burdur, Isparta, Antalya province) and the Konya Section of the Central Anatolian Region (Konya Part: Konya, Aksaray, Karaman provinces) and located on the north-eastern part of Antalya province and on the southwest part of Konya province. It lies between 31°30'-32°45' east latitudes and 37°30' -36°30' northern latitudes and is 409-2877 m above sea level.

The research area is included plant geography in Mediterranean in terms of phytogeographical aspect. According to Akman (1995), there are many communities of *Pinus brutia* forests and garrigue or maquis dominated by 1000 m, although the area has been destroyed by humans in many places. Sometimes *P. brutia* occurs over 1000 m. These plant formations are included in the Quercetalia ilicis order in the Quercetea ilicis class. Forests in 1500 m and above zone consist of *Cedrus libani*, *Abies cilicica*, *Pinus nigra* ssp. *pallasiana*, *Quercus infectoria* ssp. *boissieri*, *Q. libani*, *Juniperus excelsa*, and *J. drupacea*. These forest formations are included in the Quercetalia libani order of the Quercetea pubescentis class.

### MATERIALS AND METHODS

A field expedition was carried out in the study area from April to August of 2006, 2007 and 2008. Cicadomorph specimens were collected by swept net from

plants of the study area in daytime and then, were sampled with an aspirator. Additionally, sampling was conducted with an aspirator through the plants while specimens had been also collected on plants by hand capture. During the night, light trapping was used. The specimens from the trap were collected with an aspirator.

All the collected specimens were transferred into ethyl acetate jars and numbered on standard insect envelopes. The specimens were classified in the laboratory and prepared according to standard museum practice for identification. The location from which specimens were collected and the altitude from sea level as well as collection date were recorded together with the GPS coordinates.

The chorotype of the identified species was defined by using the following studies: Palearctic region lists by Nast (Nast 1972, 1982, 1987), Cicadomorpha section in the European fauna website (Hoch 2013).

## RESULTS

In this work, a total of 36 species belonging to 28 genera of five families as Cercopidae, Aphrophoridae, Cicadidae, Membracidae and Cicadellidae (excl. Deltocephalinae) were recorded from Gevne valley and its surrounding mountains (Southwestern Turkey).

A list of species is given as follows:

### Family Cercopidae

#### *Cercopis intermedia* Kirschbaum, 1868

**Material examined:** Antalya: Alanya, Gökbel Plateau, 36.41 N 32.19 E, 1758 m, 14.06.2007, 2♂♂3♀♀; Akseki, Bademlibeli, 37.23 N 31.42 E, 1450 m, 14.05.2006, 8♂♂; Akseki-Huğlu, 37.29 N 31.35 E, 1357 m, 13.05.2006, 2♂♂4♀♀; Konya: Hadim-Beyreli, 36.56 N 32.23 E, 1866 m, 13.06.2007, 9♂♂9♀♀; Seydişehir, Ufacık, 37.39 N 31.58 E, 1409 m, 13.05.2006 5♂♂9♀♀; Hadim, 14.05.2007, 1♀; Beyşehir-Akseki, 37.28 N 31.37 E, 1410 m, 11.06.2007, 2♀♀; Bozkır, Yalnızca, 37.08 N 32.15 E, 1460 M, 13.06.2007, 1♂; Hadim-Bozkır, 36.58 N 32.24 E, 1648 m, 12.06.2008, 4♀♀; Derebucak, 37.22 N 31.29 E, 1217 m, 20.05.2008, 1♂; Bozkır, 10.06.2007, 1♀; Gencek-Derebucak, 37.25 N 31.29 E, 1212 m, 20.05.2008, 1♂1♀; Seydişehir, Çavuş, 37.37 N 31.55 E, 1186 m, 13.05.2006, 13♂♂14♀♀; Seydişehir, Fasillar, 37.38 N 31.56 E, 1215 m, 13.05.2006, 15♂♂2♀♀, on herbaceous plants from all localities. **Chorotype:** Mediterranean.

#### *Triecphorella geniculata* (Horvath, 1881)

**Material examined:** Antalya: Akseki, Güzelsu, 36.55 N 31.48 E, 1020 m, 16.04.2007, 3♂♂3♀♀, on herbaceous plants; Akseki, Bademlibeli, 37.23 N 31.42 E, 1450 m, 14.05.2006, 10♂♂13♀♀; Akseki-Huğlu, 37.29 N 31.35 E, 1357 m, 13.05.2006, 3♀♀, on herbaceous plants; Konya: Seydişehir, Ufacık, 37.39 N 31.58 E, 1409 m, 13.05.2006, 1♂2♀♀, on Lamiaceae. **Chorotype:** Turano-Mediterranean (Turano-Balkan).

### Family Aphrophoridae

#### *Lepyronia coleoptrata* (Linnaeus, 1758)

**Material examined:** Antalya: Akseki-Gündoğmuş, 36.46 N 39.46 E, 460 m, 11.07.2007, 1♀, on maqius; Konya: Bozkır-Hadim, 37.06 N 32.18 E, 1372 m, 13.06.2007, 1♀, on herbaceous plants; Seydişehir, 37.22 N 31.52 E, 1124 m, 10.06.2007, 4♂♂4♀♀, on herbaceous plants; Seydişehir, Yenice, 37.31 N 31.45 E, 1202 m, 20.07.2006, 2♂♂2♀♀, on herbaceous plants; Seydişehir, 37.35 N 31.54 E, 1144 m, 13.05.2006, 1♀, on herbaceous plants; Derebucak, 37.22 N 31.29 E, 1222 m, 10.06.2008, 1♂, on herbacus. **Chorotype:** Palearctic.

***Neophilaenus campestris* (Fallen, 1805)**

**Material examined:** Antalya: Alanya, Karapınar-Sarımut, 36.36 N 32.24 E, 1097 m, 14.06.2007, 2♀♀; Akseki, Mahmutlu, 36.55 N 31.47 E, 1054 m, 19.05.2008, 1♂1♀; Alanya, Çayrası-Sarımut, 36.38 N 32.23 E, 1110 m, 11.06.2008, 3♂♂1♀; Akseki-Huğlu, 37.29 N 31.35 E, 1357 m, 13.05.2006, 2♂♂1♀; İbradı, 37.07 N 31.34 E, 1190 m, 10.06.2008, 8♂♂5♀♀; Gündoğmuş, 36.46 N 32.00 E, 627 m, 15.05.2006, 3♀♀; Konya: Seydişehir, 37.22 N 31.52 E, 1124 M, 10.06.2007, , 1♀; Beyreli, 36.49 N 32.23 E, 1524 m, 15.06.2007, 3♂♂; Huğlu, Bakaran, 37.24 N 31.40 E, 1232 m, 10.06.2008, 2♂♂; Dikmetaş, 36.36 N 32.25 E, 1109 m, 11.06.2008, 6♂♂7♀♀; Karapınar, 36.36 N 32.25 E, 1154 m, 14.06.2007, 2♂♂2♀♀; Seydişehir, Ufacık, 37.39 N 31.58 E, 1409 m, 13.05.2006, 10♂♂9♀♀; Derebucak, 37.22 N 31.29 E, 1222 m, 10.06.2008, 3♂♂7♀♀; Seydişehir, Ağılönü, 37.39 N 31.46 E, 1193 m, 13.05.2006, 1♂, on herbaceous plants from all localities. **Chorotype:** Palaearctic.

***Neophilaenus lineatus* (Linnaeus, 1758)**

**Material examined:** Konya: Seydişehir, Çavuş, 37.37 N 31.55 E, 1186 m, 13.05.2006, 7♂♂4♀♀, on herbaceous plants. **Chorotype:** W-Palaearctic + Nearctic.

***Neophilaenus minor* (Kirschbaum, 1868)**

**Material examined:** Antalya: Alanya, Sarımut, 36.37 N 32.23 E, 1113 m, 15.06.2007, 1♀, on herbaceous plants; Konya: Seydişehir, Tepearası, 37.29 N 31.408 E, 1522 m, 20.07.2006, 1♀, on herbaceous plants; Beyreli-Taşkent, 36.53 N 32.22 E, 1961 m, 17.07.2006, 1♀, on herbaceous plants; Seydişehir, Ağılönü, 37.39 N 31.46 E, 1193 m, 13.05.2006, 1♂, on herbaceous plants. **Chorotype:** European + E-Palaearctic.

***Aphrophora alni* (Fallen, 1805)**

**Material examined:** Antalya: Akseki-Gündoğmuş, 36.46 N 39.46 E, 460 m, 11.07.2007, 1♂, on maçius; Konya: Taşkent, 36.57 N 32.28 E, 1610 m, 19.07.2006, 1♂, on *Salix*; Seydişehir, Çavuş, 37.37 N 31.55 E, 1186 m, 13.05.2006, 1♂2♀♀, on herbaceous plants; Seydişehir, Fasıllar, 37.38 N 31.56 E, 1215 m, 13.05.2006, 1♀, on herbaceous plants. **Chorotype:** Palaearctic.

***Aphrophora corticea* Germar, 1821**

**Material examined:** Antalya: Akseki, Güçlüköy, 36.47 N 31.45 E, 473 m, 19.05.2008, 2♂♂2♀♀, on herbaceous plants under *Pinus*. **Chorotype:** European.

***Aphrophora salicina* (Goeze, 1778)**

**Material examined:** Konya: Seydişehir, Çavuş, 37.37 N 31.55 E, 1186 m, 13.05.2006, 7♂♂6♀♀, on herbaceous plants; Seydişehir, Fasıllar, 37.38 N 31.56 E, 1215 m, 13.05.2006, 8♂♂10♀♀, on herbaceous plants; Taşkent, 36.57 N 32.28 E, 1610 m, 19.07.2006, 7♂♂6♀♀, on *Salix*; Bozkır-Korualan, 37.01 N 32.194 E, 1315 m, 10.07.2007, 1♂1♀, on *Salix*; Beyreli-İshak, 36.49 N 32.23 E, 1508 m, 10.07.2007, 5♀♀, on *Salix*; Derebucak, 37.22 N 31.29 E, 1222 m, 10.06.2008, 9♂♂7♀♀, on herbaceous plants under *Salix*. **Chorotype:** W-Palaearctic.

***Mesoptylus impictifrons* (Horvath, 1911)**

**Material examined:** Antalya: İbradı-Akseki, 37.05 N 31.36 E, 984 m, 20.05.2008, 1♂, on herbaceous plants; Alanya, Gökbel Yaylası, 36.39 N 32.22 E, 1494 m, 09.07.2007, 2♂♂5♀♀, on herbaceous plants; Konya: Derebucak, 37.08 N 31.33 E, 1319 m, 10.06.2008, 1♂, on *Quercus*. **Chorotype:** E-Mediterranean.

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

**Material examined:** Antalya: Alanya, Karapınar-Sarımut, 36.36 N 32.24 E, 1097 m, 14.06.2007, 3♂♂7♀♀; Alanya, Gökbel Plateau, 36.41 N 32.19 E, 1758 m, 14.06.2007, 1♀; Akseki, Mahmutlu, 36.55 N 31.47 E, 1054 m, 19.05.2008, 1♀; Gündoğmuş, 36.47 N 31.45 E, 410 m, 22.04.2008, 2♂♂; İbradı, 37.05 N 31.36 E, 1008 m, 09.06.2008, 1♀; Alanya, Çayrası-Sarımut, 36.38 N 32.23 E, 1110 m, 11.06.2008, 1♂; Akseki-Huğlu, 37.29 N 31.35 E, 1357 m, 13.05.2006, 2♂♂1♀; Konya: Derebucak, 37.28 N 31.37 E, 1388 m, 12.06.2007, 1♂; Bozkır-Hadim, 37.06 N 32.18 E, 1372 m, 13.06.2007, 2♀♀; Dikmetaş, 36.35 N 32.26 E, 1142 m, 14.06.2007, 3♀♀; Seydişehir, Çavuş, 37.37 N 31.55 E, 1186 m, 13.05.2006, 1♀; Seydişehir, Ağılönü, 37.39 N 31.46 E, 1193 m, 13.05.2006, 1♂1♀; Bozkır-Akseki, Yalılıhöyük Yaylası, 37.13

N 32.00 E, 1736 m, 10.07.2007, 1♂; Dikmetaş, 36.36 N 32.25 E, 1109 m, 11.06.2008, 1♀; Karapınar, 36.36 N 32.25 E, 1154 m, 14.06.2007, 4♂♂6♀♀; Seydişehir, Fasillar, 37.38 N 31.56 E, 1215 m, 13.05.2006, 2♂♂; Seydişehir, Ufacık, 37.39 N 31.58 E, 1409 m, 13.05.2006, 31♂♂20♀♀; Seydişehir, Çavuş, 37.37 N 31.55 E, 1186 m, 13.05.2006, 3♂♂; Seydişehir, Ağılönü, 37.39 N 31.46 E, 1193 m, 13.05.2006, 2♂♂3♀♀; Derebucak, 37.08 N 31.33 E, 1319 m, 10.06.2008, 2♂♂1♀, on herbaceous plants from all localities. **Chorotype:** Cosmopolitan.

### Familia: Cicadidae

#### *Cicadatra adanai* Kartal, 1980

**Material examined:** Antalya: Akseki-Manavgat, 36.46 N 39.46 E, 460 m, 11.07.2007, 4♀♀, on maquis; Konya: Seydişehir, Fasillar, 37.38 N 31.56 E, 1215 m, 13.05.2006, 1♀, on herbaceous plants; Seydişehir, 37.35 N 31.54 E, 1144 m, 13.05.2006, 2♀♀, on herbaceous plants under *Malus*. **Chorotype:** Anatolian.

#### *Cicadatra hyalina* (Fabricius, 1798)

**Material examined:** Konya: Hadim-Bozkır, 36.58 N 32.24 E, 1648 m, 12.06.2008, 1♂, on herbaceous plants. **Chorotype:** Turano-Mediterranean (Turano-Balkan).

#### *Cicadatra persica* Kirkaldy, 1909

**Material examined:** Konya: Hadim-Bozkır, 36.58 N 32.24 E, 1648 m, 12.06.2008, 1♂, on herbaceous plants under *Pyrus* and *Prunus*. **Chorotype:** Turano-Mediterranean (Turano-Apenninian).

#### *Cicada permagna* (Haupt, 1917)

**Material examined:** Antalya: Akseki, 36.57 N 31.45 E, 681 m, 11.07.2007, 2♂♂, *Olea europaea*; Karapınar-Çayarası, 36.35 N 32.22 E, 1210 m, 18.07.2007, 5♂♂1♀, on *Pinus*. **Chorotype:** Anatolian.

#### *Lyristes plebejus* (Scopoli, 1763)

**Material examined:** Antalya: İbradı, 37.04 N 31.37 E, 920 m, 11.07.2007, 6♂♂2♀♀; Konya: Karapınar-Çayarası, 36.35 N 32.22 E, 1210 m, 18.07.2007, 1♀, on *Pinus*; Taşkent-Alanya, Gevne, 1298 m, 09.07.2007, 12♂♂3♀♀, on *Quercus*. **Chorotype:** European.

### Familia: Membracidae

#### *Centrotus cornutus* (Linnaeus, 1758)

**Material examined:** Antalya: Akseki, Murtiçi, 36.54 N 31.49 E, 977 m, 09.06.2008, 2♀♀, on *Spartium*; İbradı, 37.05 N 31.36 E, 1008 m, 09.06.2008, 1♀, on shrubs; Akseki, Güzelsu, 36.55 N 31.50 E, 1154 m, 09.06.2008, 1♀, on shrubs. **Chorotype:** European + E-Palaeartic.

### Familia: Cicadellidae

#### *Anaceratagallia venosa* (Fourcroy, 1785)

**Material examined:** Antalya: İbradı, 37.07 N 31.34 E, 1190 m, 10.06.2008, 1♀, on herbaceous plants; Konya: Hadim-Bozkır, 36.58 N 32.24 E, 1648 m, 12.06.2008, 2♀♀, on herbaceous plants; Derebucak, 37.22 N 31.29 E, 1222 m, 10.06.2008, 1♂, on herbaceous plants. **Chorotype:** Palaeartic. **New record for Turkey.**

#### *Dryodurgades anaticus* Dlabola, 1957

**Material examined:** Konya: Bozkır, Yalnızca, 37.08 N 32.15 E, 1460 m, 13.06.2007, 1♂, on herbaceous plants; Seydişehir, Ağılönü, 37.39 N 31.46 E, 1193 m, 13.05.2006, 1♂1♀, on herbaceous plants. **Chorotype:** Turano-Mediterranean (Balkano-Anatolian).

#### *Rhytidodus boluicus* Dlabola, 1970

**Material examined:** Konya: Huğlu, 37.28 N 31.37 E, 1404 m, 11.07.2007, 1♂1♀, on light trap; Taşkent-Alanya, Gevne, 1298 m, 09.07.2007, 1♀, on *Populus*. **Chorotype:** Anatolian.

***Tremulicerus fulgidus* (Fabricius 1775)**

**Material examined:** Antalya: Alanya, Sarımut, 1094 m, 09.07.2007, 1♂, on *Quercus*; Konya: Taşkent-Alanya, Gevne, 1298 m, 09.07.2007, 2♂♂3♀♀, on *Populus*; Seydişehir, Ağılönü, 37.39 N 31.46 E, 1193 m, 13.05.2006, 3♀♀, on herbaceous plants; Seydişehir, 37.35 N 31.54 E, 1144 m, 13.05.2006, 5♂♂5♀♀, on herbaceous plants under *Populus*; Seydişehir, Çavuş, 37.37 N 31.55 E, 1186 m, 13.05.2006, 2♂♂1♀, on herbaceous plants. **Chorotype:** W-Palaearctic.

***Batracomorphus signatus* Lindberg, 1923**

**Material examined:** Konya: Seydişehir-Akseki, 37.28 N 31.38 E, 1391 m, 20.07.2006, 2♀♀, on herbaceous plants. **Chorotype:** E-Mediterranean + Ethiopian.

***Iassus infectoriae* Abdul-Nour, 1998**

**Material examined:** Konya: Huğlu, 37.28 N 31.37 E, 1404 m, 11.07.2007, 2♂♂, on light trap. **Chorotype:** E-Mediterranean (Palaestino-Taurian). **New record for Turkey.**

***Iassus pseudocerris* Abdul-Nour, 1998**

**Material examined:** Antalya: Akseki-Gündoğmuş, 36.46 N 39.46 E, 460 m, 11.07.2007, 1♀, on maquis; Konya: Karapınar, 36.36 N 32.25 E, 1154 m, 12.08.2007, 1♀, on *Quercus*; Taşkent-Alanya, Gevne, 1298 m, 12.08.2007, 1♀, on *Quercus*. **Chorotype:** E-Mediterranean (Palaestino-Taurian).

***Penthimia nigra* (Goeze, 1778)**

**Material examined:** Antalya: Akseki, Murtiçi, 36.54 N 31.49 E, 977 m, 09.06.2008, 1♀, on *Spartium*; Akseki, Güzelsu, 36.47 N 31.45 E, 409 m, 22.04.2008, 1♀, on herbaceous plants; Konya: Huğlu, Bakaran, 37.24 N 31.40 E, 1232 m, 10.06.2008, 1♀, on herbaceous plants. **Chorotype:** European.

***Paradorydium paradoxum* (Herrich-Schaeffer, 1837)**

**Material examined:** Konya: Seydişehir, Yenice, 37.31 N 31.45 E, 1202 m, 20.07.2006, 1♀, on Poaceae. **Chorotype:** European + E-Palaearctic.

***Eupelix cuspidata* (Fabricius, 1779)**

**Material examined:** Antalya: Gündoğmuş, 36.46 N 32.00 E, 627 m, 15.05.2006, 1♂, on herbaceous plants; Akseki, Güzelsu, 36.47 N 31.45 E, 409 m, 22.04.2008, 1♂, on Poaceae; Konya: Beyreli, 36.49 N 32.23 E, 1524 m, 15.06.2007, 2♂♂, on herbaceous plants. **Chorotype:** W-Palaearctic.

***Hecalus glaucescens* (Fieber, 1866)**

**Material examined:** Konya: Seydişehir, Yenice, 37.31 N 31.45 E, 1202 m, 20.07.2006, 1♂, on herbaceous plants. **Chorotype:** Mediterranean + E-Palaearctic.

***Aphrodes makarovi* Zachvatkin, 1948**

**Material examined:** Antalya: Alanya, Karapınar-Sarımut, 36.36 N 32.24 E, 1097 m, 14.06.2007, 1♀, on herbaceous plants; Gündoğmuş, Senir, 36.49 N 31.57 E, 1013 m, 10.06.2007, 1♂1♀, on herbaceous plants; Konya: Seydişehir, 37.22 N 31.52 E, 1124 M, 10.06.2007, 2♂♂, on herbaceous plants; Huğlu, 37.28 N 31.37 E, 1404 m, 11.07.2007, 2♂♂, on light trap; Seydişehir, Ufacık, 37.39 N 31.58 E, 1409 m, 13.05.2006, 7♂♂2♀♀, on herbaceous plants. **Chorotype:** European.

***Planaphrodes elongatus* (Lethierry, 1876)**

**Material examined:** Konya: Derebucak, 37.22 N 31.29 E, 1222 m, 10.06.2008, 1♂, on herbaceous plants. **Chorotype:** Centralasiatic-European.

***Stegelytra albofasciata* Linnavuori, 1962**

**Material examined:** Antalya: Alanya, Sarımut, 36.38 N 32.23 E, 1114 m, 24.08.2006, 4♂♂4♀♀, on light trap; Konya: Karapınar, 36.36 N 32.25 E, 1154 m, 12.08.2007, 1♂, on *Quercus*. **Chorotype:** E-Mediterranean (Palaestino-Taurian). **New record for Turkey.**

***Alebra albostriella* (Fallen, 1826)**

**Material examined:** Antalya: Alanya, Sarımut, 1094 m, 09.07.2007, 1♀, on *Quercus*; Alanya, Sarımut, 36.38 N 32.23 E, 1114 m, 24.08.2006, 4♀♀, on light trap; Alanya, Sarımut, 36.37 N 32.23 E, 12.08.2007, 1♂, on *Quercus*. **Chorotype:** W-Paeartic + Nearctic.

***Micantulina (Mulsantina) stigmatipennis (Mulsant et Rey, 1855)***

**Material examined:** Antalya: Alanya, Sarımut, 36.38 N 32.23 E, 1114 m, 24.08.2006, 5♂♂, on light trap; Konya: Huğlu, 37.28 N 31.37 E, 1404 m, 11.07.2007, 1♂, on light trap.  
**Chorotype:** European.

***Empoasca decipiens Paoli, 1930***

**Material examined:** Antalya: Alanya, Sarımut, 36.38 N 32.23 E, 1114 m, 24.08.2006, 5♀♀, on light trap; Konya: Seydişehir, Fasıllar, 37.38 N 31.56 E, 1215 m, 13.05.2006, 1♂, on herbaceous plants; Taşkent, Afşar, Feslikan Yaylası, 36.51 N 32.31 E, 1726 m, 17.07.2006, 1♀, on herbaceous plants. **Chorotype:** Palaearctic + Afro-tropical.

***Eupteryx fahringeri Melichar, 1911***

**Material examined:** Antalya: Alanya, Sarımut, 36.38 N 32.23 E, 1114 m, 24.08.2006, 1♂, on light trap. **Chorotype:** Anatolian.

***Eupteryx gyaurdagicus Dlabola, 1957***

**Material examined:** Antalya: Akseki-Gündoğmuş, 36.46 N 39.46 E, 460 m, 11.07.2007, 1♀, on maquis; Akseki, Yarpuz, 37.13 N 31.55 E, 1615 m, 10.07.2007, 1♀, on *Mentha*; Konya: Bozkır-Akseki, Yalhöyük Plateau, 37.13 N 32.00 E, 1736 m, 10.07.2007, 1♂2♀♀, on *Mentha*; Seydişehir, Fasıllar, 37.38 N 31.56 E, 1215 m, 13.05.2006, 1♀, on herbaceous plants. **Chorotype:** E-Mediterranean.

**DISCUSSION**

In this study, 588 Cicadomorpha (excl. Deltocephalinae) specimens were collected and 36 species of 28 genera and 5 families were identified. Three species as *Anaceratagallia venosa* (Fourcroy, 1785), *Iassus infectoriae* Abdul-Nour, 1998 and *Stegelytra albofasciata* Linnavuori, 1962 were recorded for the first time from Turkey.

The chorotypes of the species were defined by considering the geographical distribution areas based on current literature data (Nast, 1972, 1982, 1987; Hoch, 2013).

Accordingly, 1 species placed into Mediterranean chorotype, 4 species into Turano-Mediterranean, 5 species into E-Mediterranean, 1 species into E-Mediterranean + Ethiopian, 1 species into Mediterranean + E-Palaearctic, 4 species into Anatolian, 4 species into palaearctic, 2 species into W-Palaearctic + Nearctic, 3 species into W-Palaearctic, 1 species into Palaearctic + Afro-tropical, 5 species into European, 3 species into European + E-Palaearctic, 1 species into Cosmopolitan and 1 species into Centralasiatic-European (Table 1).

Among these species, *Cicadatra adanai* Kartal, 1980, *Cicada permagna* (Haupt, 1917), *Rhytidodus boluicus* Dlabola, 1970 and *Eupteryx fahringeri* Melichar, 1911 have the Anatolian chorotype. Thus, 4 of 36 identified species are endemic.

Considering the distribution of the examined species in the 7 geographic regions of Turkey, 17 species (47.22 %) are distributed in Marmara Region, 15 (41.66 %) in Black Sea Region, 18 (50.00 %) in Aegean Region, 26 (72.22 %) in Central Anatolia Region, 29 (80.55 %) in Mediterranean Region, 18 (50.00 %) in East Anatolia, and 14 (38.88 %) in Southeastern Anatolia.

Furthermore, 26 (48.15%), 7 (12.96%), 13 (24.07%) and 8 species (14.81%) were collected from herbaceous plants, bushes and maquis, trees and light trap, respectively. Among these species *Rhytidodus boluicus* Dlabola, 1970, *Iassus infectoriae* Abdul-Nour, 1998, *Aphrodes makarovi* Zachvatkin, 1948, *Stegelytra albofasciata* Linnavuori, 1962, *Alebra albostriella* (Fallen, 1826), *Micantulina (Mulsantina) stigmatipennis* (Mulsant et Rey, 1855), *Empoasca decipiens* Paoli, 1930 and *Eupteryx fahringeri* Melichar, 1911 were collected with a light trap.

*Lepyronia coleoptrata* (Linnaeus, 1758), *Aphrophora alni* (Fallen, 1805), *Cicadatra adanai* Kartal, 1980, *Centrotus cornutus* (Linnaeus, 1758), *Iassus pseudocerris* Abdul-Nour, 1998, *Penthimia nigra* (Goeze, 1778) and *Eupteryx gyaurdagicus* Dlabola, 1957 were collected from maquis and bushes.

*Aphrophora alni* (Fallen, 1805), *Aphrophora corticea* Germar, 1821, *Aphrophora salicina* (Goeze, 1778), *Mesoptyelus impictifrons* (Horvath, 1911), *Cicadatra adanai* Kartal, 1980, *Cicadatra persica* Kirkaldy, 1909, *Cicada permagna* (Haupt, 1917), *Lyristes plebejus* (Scopoli, 1763), *Rhytidodus boluicus* Dlabola, 1970, *Tremulicerus fulgidus* (Fabricius 1775), *Iassus pseudocerris* Abdul-Nour, 1998, *Stegelytra albofasciata* Linnavuori, 1962 and *Alebra albostrilla* (Fallen, 1826) were collected from trees and woody plants.

The following species were collected from herbaceous plants by sweeping: *Cercopis intermedia* Kirschbaum, 1868, *Triecphorella geniculata* (Horvath, 1881), *Lepyronia coleoptrata* (Linnaeus, 1758), *Neophilaenus campestris* (Fallen, 1805), *Neophilaenus lineatus* (Linnaeus, 1758), *Neophilaenus minor* (Kirschbaum, 1868), *Aphrophora alni* (Fallen, 1805), *Aphrophora corticea* Germar, 1821, *Aphrophora salicina* (Goeze, 1778), *Mesoptyelus impictifrons* (Horvath, 1911), *Philaenus spumarius* (Linnaeus, 1758), *Cicadatra adanai* Kartal, 1980, *Cicadatra hyalina* (Fabricius, 1798), *Cicadatra persica* Kirkaldy, 1909, *Anaceratagallia venosa* (Fourcroy, 1785), *Dryodurgades anatolicus* Dlabola, 1957, *Tremulicerus fulgidus* (Fabricius 1775), *Batracomorphus signatus* Lindberg, 1923, *Penthimia nigra* (Goeze, 1778), *Paradorydium paradoxum* (Herrich-Schaeffer, 1837), *Eupelix cuspidata* (Fabricius, 1779), *Hecalus glaucescens* (Fieber, 1866), *Aphrodes makarovi* Zachvatkin, 1948, *Planaphrodes elongatus* (Lethierry, 1876), *Empoasca decipiens* Paoli, 1930 and *Eupteryx gyaurdagicus* Dlabola, 1957.

Since many regions in Turkey have not been studied in detail there is a lack of information about the fauna as well as the ecological and geographical distribution data. Similar studies are required to be performed in the future so as the insect biodiversity of Turkey to be accurately determined.

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Table 1. Chorotypes of Cicadomorpha (excl.Deltocephalinae) species in the research area.

<b>Chorotypes</b>	<b>Number of identified species</b>	<b>(%) species</b>
Mediterranean	1	7.14%
Turano-Mediterranean	4	28.57%
E-Mediterranean	5	35.71%
E-Mediterranean + Ethiopian	1	7.14 %
Mediterranean + E-Palaeartic	1	7.14 %
European	5	35.71%
European + E-Palaeartic	3	21.43%
Palaeartic	4	28.57%
W-Palaeartic	3	21.43%
Palaeartic + Afro-tropical	1	7.14 %
W-Paeartic + Nearctic	2	14.29%
Anatolian	4	28.57%
Centralasiatic-European	1	7.14 %
Cosmopolitan	1	7.14 %