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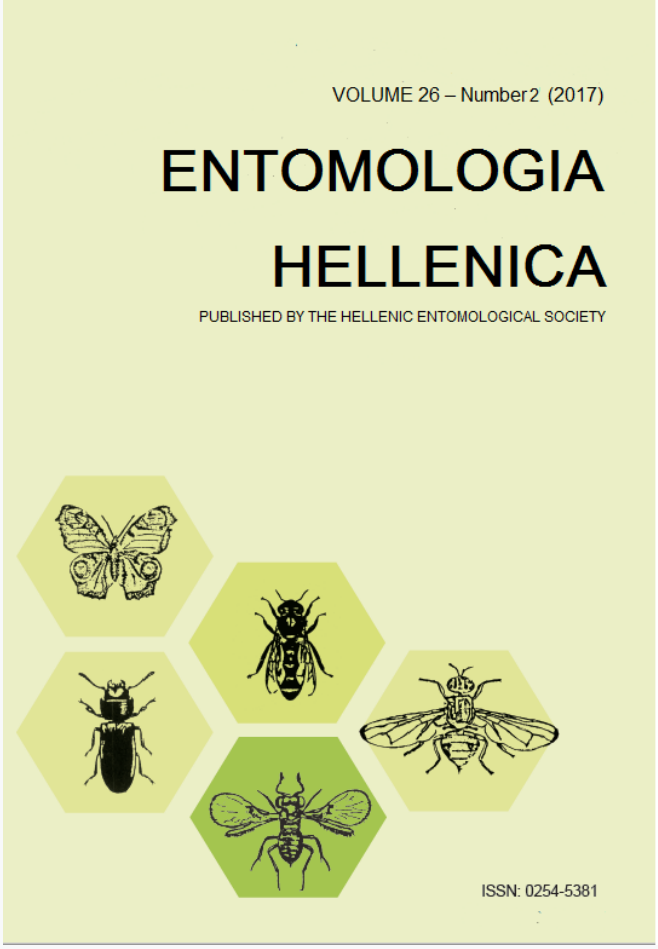

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Fulgoromorpha (Hemiptera) records from Southwestern Turkey

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ABSTRACT

In the present study Fulgoromorph species collected from Gevne Valley and the surroundings located in southwest of Turkey were evaluated faunistically, ecologically and zoogeographically. In the surveys 43 species were identified to belong to 27 genera and 9 families. Herein, new records for the Mediterranean (4 species) and Central Anatolia (5 species) regions are reported. The species identified in the study area belong to 14 different zoogeographical elements of endemism and the endemism ratio of the area is 23.3%. Issidae is the most dominant family in the area since 74.0% of the specimens collected belong to this family.

KEY WORDS: ecological assessment, endemism, faunistic assessment, zoogeographical assessment.

Introduction

Faunistic records from Turkey belonging to Fulguromorpha were previously given by Stål (1861), Bergevin (1918), Horvath (1905), Melichar (1914), Gnezdilov (2002, 2004), Gnezdilov and Mazzoni (2004), Gnezdilov and Drosopoulos (2005), Gnezdilov et al. (2004), Gnezdilov and Wilson (2007) and Demir (2008). In the following years, Gnezdilov (2008, 2010, 2011, 2016), Demir (2009), Demir and Demirsoy (2009), Kartal and Dursun (2009), Kartal and Miroğlu (2009), Kartal and Karavin (2010), Yılmaz et al. (2009), Önder et al. (2011), Koçak and Kemal (2012), Tezcan et al. (2013), Gnezdilov et al. (2014), Demirel and Hasbenli (2015), Asche (2015), Dursun and Fent (2016) gave Fulgoromorpha records from Turkey in their studies and identified species new to science.

According to the current literature, Turkey Fulgoromorpha fauna is represented by 219 species belonging to 12 families.

The surveyed area is located in the southwest part of Turkey including Gevne Valley and its surrounding area (including Geyik Mountain, Ak Mountain, Yıldız Mountain and Seytan Mountain). It is in Antalya of the Mediterranean Region (Antalya part: Burdur, Isparta, Antalya Province) and Konya part of the Central Anatolian Region (Konya part: Konya, Aksaray, Karaman provinces) and located in the northeastern part of Antalya province and on the southwestern part of Konya province. It lies between 31º 30'- 32º 45' east latitudes and 37º 30'- 36º 30'.

In the study area, a total of 86 species are known, 69 from Antalya and 18 from Konya

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(Demir 2008). Although the Fulgoromorpha suborder has a large number of species, the number of species in Turkey has not yet been sufficiently explored.

The aim of the current study was to increase our awareness of the Turkish Fulgoromorpha fauna. To achieve this, a detailed work has been carried out in a large area in the southwest part of Turkey.

Materials and Methods

A field expedition was carried out in the study area from April to August of 2006, 2007 and 2008. Planthopper 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 species identification was based on the keys of Zachvatkin (1946), Dlabola (1957, 1981), Linnavuori (1965), Asche (1982), Kartal (1986, 1987), Kalkandelen (1987-2000) and Gnezdilov et al. (2014). The chorotype of the identified species was defined by using the following studies: Palearctic region lists by Nast (Nast 1972, 1982, 1987), Fulgoromorpha section in the European fauna website (Hoch 2013) and Fulgoromorpha Lists on the Web (Bourgoin 2017).

Results and Discussion

Order: HEMIPTERA
Suborder: FULGOROMORPHA
Family: CIXIIDAE
Subfamily: CIXIINAE
Tribe: CIXIINI

***Cixius* (*Ceratocixius*) *simplex* (Herrich-Schaeffer, 1835)**
Material examined: Antalya: Alanya, Çayrası-Sarımut, 36.38 N, 32.23 E, 1110 m, 11.06.2008, 1♂, on *Tamarix*. **Chorotype:** European or W-Palaearctic.

***Tachycixius creticus* Dlabola, 1974**
Material examined: Konya: Bozkır, Yalnızca, 37.08 N, 32.15 E, 1460 m, 13.06.2007, 1♂ on herbaceous plants. **Chorotype:** E-Mediterranean (Aegean).

Tribe: PENTASTIRINI
Subtribe: PENTASTIRINA

***Eumecurus gyaurus* (Dlabola, 1957)**
Material examined: Antalya: Akseki-Gündoğmuş, 36.46 N, 39.46 E, 460 m, 11.07.2007, 1♀, on maquis. **Chorotype:** Anatolian.

***Pentastira superans* Logvinenko, 1976**
Material examined: Konya: Hadim-Bozkır, Korualan, 36.59 N, 32.21 E, 1489 m, 19.07.2006, 2♂, on *Quercus*. **Chorotype:** SW-Asiatic (Caucaso-Anatolian).

***Reptalus* (*Reptalus*) *melanochaetus* (Fieber, 1876) Material examined:** Antalya: Akseki-Gündoğmuş, 36.46 N, 39.46 E, 460 m, 11.07.2007, 1♂, on maquis. **Chorotype:** European.

***Reptalus oleae* Dlabola, 1987**
Material examined: Antalya: İbradı, 37.07 N, 31.34 E, 1190 m, 10.06.2008, 1♂1♀, on *Verbascum*; Konya: Beyreli-Taşkent, 36.53

N, 32.22 E, 1961 m, 17.07.2006, 1♂, on herbaceous plants. **Chorotype:** Anatolian.

***Reptalus* (*Reptalus*) *horridus* (Linnavuori, 1962)**

Material examined: Konya: Taşkent-Alanya, Gevne, 1298 m, 09.07.2007, 1♂, on *Quercus*; Taşkent, 36.57 N, 32.28 E, 1610 m, 19.07.2006, 1♂1♀ on *Quercus*; Seydişehir, Tepearası, 37.29 N, 31.408 E, 1522 m, 20.07.2006, 3♀ on *Quercus*. **Chorotype:** E-Mediterranean.

***Hyalesthes hani* Hoch, 1985**

Material examined: Antalya: Akseki, 36.57 N, 31.45 E, 681 m, 11.07.2007, 1♂1♀ on *Vitex agnus-castus*. **Chorotype:** E-Mediterranean (Palaestino-Taurian).

***Hyalesthes mlokosiewiczi* Signoret, 1879**

Material examined: Konya: Hadim-Bozkır, 36.58 N, 32.24 E, 1650 m, 12.06.2008, 2♀ on herbaceous plants. **Chorotype:** Turano-Mediterranean (Turano-Anatolian).

***Hyalesthes obsoletus* Signoret, 1865**

Material examined: Konya: Bozkır-Korualan, 37.01 N, 32.194 E, 1315 m, 10.07.2007, 9♂3♀ on herbaceous plants. **Chorotype:** Palaearctic.

Family: DELPHACIDAE
Subfamily: DELPHACINAE
Tribe: DELPHACINI

***Eurybregma nigrolineata* Scott, 1875**

Material examined: Konya: Hadim-Beyreli, 36.56 N, 32.23 E, 1866 m, 13.06.2007, 1♀; Derebucak, 37.22 N, 31.29 E, 1222 m, 10.06.2008, 1♀ on herbaceous plants. **Chorotype:** European.

***Laodelphax striatellus* (Fallen, 1826)**

Material examined: Konya: Taşkent, Afşar, Feslikan Yaylası, 36.51 N, 32.31 E, 1726 m, 17.07.2006, 1♀ on herbaceous; Afşar, Çamdibi, 36.53 N, 32.32 E, 1509 m, 17.07.2006, 1♀ on herbaceous; Bozkır-Korualan, 37.01 N, 32.194 E, 1315 m, 10.07.2007, 1♀ on herbaceous plants. **Chorotype:** Palaearctic + Afro-tropical + Oriental.

***Muirodelphax aubei* (Perris, 1857)**

Material examined: Konya: Seydişehir, Fasıllar, 37.38 N, 31.56 E, 1215 m, 13.05.2006, 1♀ on herbaceous **Chorotype:** Palaearctic.

***Toya propinqua* (Fieber, 1866)**

Material examined: Antalya: Alanya, Sarımut, 36.38 N, 32.23 E, 1114 m, 24.08.2006, 2♂4♀ on light trap. **Chorotype:** Holarctic + Ethiopian + Oriental or subcosmopolitan.

***Javasella* (*Javasella*) *dubia* (Kirschbaum, 1868) Material examined:** Antalya: Alanya, Sarımut, 36.38 N, 32.23 E, 1114 m, 24.08.2006, 1♂ on light trap. **Chorotype:** W-Palaearctic.

***Dicranotropis* (*Leimonodite*) *beckeri* Fieber 1866**

Material examined: Konya: Hadim-Beyreli, 36.56 N, 32.23 E, 1866 M, 13.06.2007, 1♀ on herbaceous. **Chorotype:** Palaearctic.

Family: MEENOPLIDAE

***Meenoplus albosignatus* Fieber, 1866**

Material examined: Antalya: Akseki-Gündoğmuş, 36.46 N, 39.46 E, 460 m, 11.07.2007, 1 ♀, on maqius; Konya: Seydişehir, Fasıllar, 37.38 N, 31.56 E, 1215 m, 13.05.2006, 2♂2♀. **Chorotype:** Turano-European (Ponto-Pannonian).

Family: DERBIDAE
Subfamily: CEDUSINAE
Tribe: CEDUSINI
Subtribe: CEDUSINA

***Malenia bosnica* (Horvath, 1907)**

Material examined: Konya: Huğlu, 37.28 N, 31.37 E, 1404 m, 11.07.2007, 2♂3♀, on light trap. **Chorotype:** Turano-European.

Family: ACHILIDAE
Subfamily: ACHILINAE
Tribe: ACHILINI
Subtribe: CIXIDIINA

***Cixidia* (*Epiptera*) *mersinica* (Dlabola, 1987)**
Material examined: Konya: Taşkent-Alanya, Gevne, 1298 m, 09.07.2007, 3♀ on *Quercus.* **Chorotype:** Anatolian.

Family: DICTYOPHARIDAE
Subfamily: DICTYOPHARINAE
Tribe: DICTYOPHARINI

***Callodictya krueperi* (Fieber, 1876)**
Material examined: Antalya: Akseki-Gündoğmuş, 36.46 N, 39.46 E, 460 M, 11.07.2007, 8♂8♀ on *Quercus*; Konya: Taşkent-Alanya, Gevne, 36.46 N, 32.27 E, 1482 m, 24.08.2006, 1♂ on *Quercus*. **Chorotype:** Turano-Mediterranean (Turano-E-Mediterranean).

***Dictyophara* (*Dictyophara*) *europaea* (Linnaeus, 1767)**
Material examined: Konya: Seydişehir, Yenice, 37.31 N, 31.45 E, 1202 m, 20.07.2006, 2♀ on herbaceous; 1♀; Bozkır-Korualan, 37.01 N, 32.194 E, 1315 m, 10.07.2007, 2♂3♀ on herbaceous; Taşkent, Afşar, Feslikan Yaylası, 36.51 N, 32.31 E, 1726 m, 17.07.2006, 1♀ on herbaceous plants. **Chorotype:** SW-Asiatic.

***Dictyophara* (*Dictyophara*) *lindbergi* Metcalf, 1955**
Material examined: Konya: Seydişehir, Yenice, 37.31 N, 31.45 E, 1202 m, 20.07.2006, 1♀ on herbaceous plants. **Chorotype:** S-European.

***Dictyophara* (*Euthremma*) *multireticulata* Mulsant et Rey, 1855**
Material examined: Konya: Karapınar, 36.36 N, 32.24 E, 1146 m, 09.07.2007, 1♀ on shrubs; Taşkent-Alanya, Gevne, 1298 m, 12.08.2007, 1♀ on *Quercus*. **Chorotype:** S-European + E-European.

Subfamily: ORGERIINAE
Tribe: RANISSINI

***Ranissus punctiger* (Horvath, 1905)**
Material examined: Konya: Huğlu, Bakaran, 37.24 N, 31.40 E, 1232 m, 10.06.2008, 1♂ on *Quercus*; Dikmetaş, 36.36 N, 32.25 E, 1109 m, 11.06.2008, 1♂ on herbaceous plants under *Quercus*. **Chorotype:** Anatolian.

***Nymphorgerius* (*Isocurus*) *cyprius* (Lindberg, 1948)**
Material examined: Konya: Taşkent, Afşar, Akçapınar, 36.52 N, 32.34 E, 1664 m, 18.07.2006, 4♂3♀ on light trap; Seydişehir, Fasıllar, 37.38 N, 31.56 E, 1215 m, 13.05.2006, 1♀ on herbaceous; Taşkent-Alanya, Gevne, 36.46 N, 32.27 E, 1482 m, 24.08.2006, 1♂ on *Quercus;* Karapınar, 36.36 N, 32.25 E, 1154 m, 12.08.2007, 1♀ on herbaceous plants. **Chorotype:** E-Mediterranean (Palaestino-Cyprioto-Taurian).

Family: TETTIGOMETRIDAE

***Tettigometra* (*Hystrigonia*) *hexaspina* Kolenati, 1857**
Material examined: Konya: Seydişehir, 37.24 N, 31.54 E, 1108 m, 12.06.2007, 3♂4♀on herbaceous plants. **Chorotype:** S-European + E-European.

***Tettigometra* (*Metroplaca*) *longicornis* (Signoret, 1866)**
Material examined: Antalya: Akseki, Cemerler, 36.57 N, 31.45 E, 717 m, 16.04.2007, 1♀ on herbaceous plants. **Chorotype:** Palaearctic.

***Tettigometra* (*Mitricephalus*) *leucophaea* (Preyssler 1792)**
Material examined: Antalya: Alanya, Gökbel Yaylası, 36.39 N, 32.22 E, 1494 m, 09.07.2007, 2♀; Konya: Taşkent-Alanya, Gevne, 36.46 N, 32.27 E, 1482 m, 24.08.2006, 1♂ on *Quercus*. **Chorotype:** Palaearctic.

***Tettigometra* (*Tettigometra*) *sulphurea* Mulsant et Rey, 1855**
Material examined: Konya: Seydişehir, Yenice, 37.31 N, 31.45 E, 1202 m, 20.07.2006, 1♀ on herbaceous plants. **Chorotype:** E-Palaearctic + Centralasitic-Europeo-Mediterranean.

***Tettigometra* (*Tettigometra*) *virescens* (Panzer, 1799)**
Material examined: Konya: Huğlu, 37.28 N, 31.37 E, 1404 m, 11.07.2007, 1♂2♀ on light trap. **Chorotype:** Palaearctic.

Family: ISSIDAE
Subfamily: ISSINAE
Tribe: ISSINI
Subtribe: ISSINA

***Mycterodus* (*Aegaeum*) *capitatus* Dlabola, 1982**
Material examined: Konya: Huğlu, Bakaran, 37.24 N, 31.40 E, 1232 m, 10.06.2008, 1♀ on *Quercus*; Derebucak, 37.08 N, 31.33 E, 1319 m, 10.06.2008, 1♂ on *Quercus*. **Chorotype:** Anatolian.

***Mycterodus (Aegaeum) lesbicum* Dlabola, 1980**
Material examined: Konya: Taşkent-Alanya, Gevne, 36.46 N, 32.27 E, 1482 m, 24.08.2006, 2♀ on *Quercus*; Karapınar, 36.36 N, 32.25 E, 1154 m, 12.08.2007, 1♀ on *Quercus*; Taşkent-Alanya, Gevne, 1298 m, 12.08.2007, 1♂4♀ on *Quercus*; Taşkent-Alanya, Gevne, 1298 m, 09.07.2007, 1♂ on *Quercus.* **Chorotype:** E-Mediterranean (Aegean).

***Mycterodus* (*Aegaeum*) *spinicordatus* Dlabola, 1983**
Material examined: Antalya: Akseki, Güzelsu, 36.54 N, 31.49 E, 970 m, 09.06.2008, 2♂ on *Spartium junceum.* **Chorotype:** Anatolian.

***Mycterodus* (*Aegaeum*) *tekneticus* Dlabola, 1982**
Material examined: Antalya: Gündoğmuş, 36.46 N, 32.00 E, 627 m, 15.05.2006, 1♂1♀ on *Arbutus andrachne.* **Chorotype:** Anatolian.

***Tshurtshurnella alanyana* Dlabola, 1982**
Material examined: Antalya: Akseki, Güzelsu, 36.47 N, 31.45 E, 409 m, 22.04.2008, 4♂3♀ on herbaceous; Konya: Huğlu, 37.28 N, 31.37 E, 1404 m, 11.07.2007, 1♂1♀ on light trap; Seydişehir, Ağılönü, 37.39 N, 31.46 E, 1193 m, 13.05.20062, 1♂ on herbaceous plants; Seydişehir, Fasıllar, 37.38 N, 31.56 E, 1215 m, 13.05.2006, 1♂1♀ on herbaceous plants. **Chorotype:** Anatolian.

***Tshurtshurnella campestre* (Lindberg, 1948)**
Material examined: Konya: Seydişehir, Yenice, 37.31 N, 31.45 E, 1202 m, 20.07.2006, 19♂17♀ on herbaceous; Seydişehir, Çavuş, 37.37 N, 31.55 E, 1186 m, 13.05.2006, 5♂ on herbaceous; Seydişehir, Yenice, 37.31 N, 31.45 E, 1202 m, 20.07.2006, 4♂1♀ on herbaceous plants; Taşkent, Afşar, Akçapınar, 36.52 N, 32.34 E, 1664 m, 18.07.2006, 2♂ on light trap; Seydişehir, Fasıllar, 37.38 N, 31.56 E, 1215 m, 13.05.20063, 1♂ on herbaceous plants. **Chorotype:** E-Mediterranean (Palaestino-Cyprioto-Taurian).

***Bubastia* (*Acrestia*) *suturalis* (Fieber, 1877)**
Material examined: Konya: Taşkent-Alanya, Gevne, 36.46 N, 32.27 E, 1482 m, 24.08.2006, 1♂ on *Quercus.* **Chorotype:** E-Mediterranean.

***Kervillea campanuliforme* (Dlabola, 1979)**
Material examined: Konya: Seydişehir, Fasıllar, 37.38 N, 31.56 E, 1215 m, 13.05.2006, 20♂25♀ on herbaceous; Seydişehir, Çavuş, 37.37 N, 31.55 E, 1186 m, 13.05.2006, 6♂13♀ on herbaceous; Seydişehir, Ufacık, 37.39 N, 31.58 E, 1409 m, 13.05.2006, 23♂22♀ on herbaceous plants; Seydişehir, 37.35 N, 31.54 E, 1144 m, 13.05.2006, 8♂8♀ on herbaceous plants. **Chorotype:** Anatolian.

***Kervillea beysehiricum* (Dlabola, 1983)**
Material examined: Konya: Beyreli-Taşkent, 36.53 N, 32.22 E, 1961 m, 17.07.2006, 5♂2♀ on herbaceous; Hadim-Bozkır, 36.58 N, 32.24 E, 1650 m, 12.06.2008, 4♂1♀ on herbaceous plants; Seydişehir, Ağılönü, 37.39 N, 31.46 E, 1193 m, 13.05.2006, 1♂ on herbaceous plants; Antalya: Akseki, Bademlibeli, 37.23 N, 31.42 E, 1450 m, 14.05.2006, 2♀ on herbaceous plants; Akseki-Huğlu, 37.29 N,

31.35 E, 1357 m, 13.05.2006, 1♂6♀ on herbaceous plants. **Chorotype:** Anatolian.

***Scorlupella montana* (Becker, 1865)**
Material examined: Konya: Seydişehir, Ufacık, 37.39 N, 31.58 E, 1409 m, 13.05.2006, 1♀ on herbaceous plants; Seydişehir, Ağılönü, 37.39 N, 31.46 E, 1193 m, 13.05.2006, 2♀ on herbaceous plants; Seydişehir, Fasıllar, 37.38 N, 31.56 E, 1215 m, 13.05.2006, 1♀ on herbaceous plants. **Chorotype:** Turano-European.

***Agalmatium bilobum* (Fieber, 1877)**
Material examined: Antalya: Gündoğmuş, Senir, 36.49 N, 31.57 E, 1013 m, 10.06.2007, 1♀; Akseki, 36.57 N, 31.45 E, 681 m, 11.07.2007, 1♂ on maquis+ herbaceous; Akseki-Huğlu, 37.29 N, 31.35 E, 1357 m, 13.05.2006, 3♂ on herbaceous plants; Akseki-Gündoğmuş, 36.46 N, 39.46 E, 460 m, 11.07.2007, 20♂17♀ on herbaceous plants; Alanya, Karapınar-Sarımut, 36.36 N, 32.24 E, 1097 m, 14.06.2007, 16♂8♀; Konya: Bozkır-Hadim, 37.06 N, 32.18 E, 1372 m, 13.06.2007, 1♀; Seydişehir, 37.35 N, 31.54 E, 1144 m, 13.05.2006, 34♂13♀ on herbaceous plants; Seydişehir, Ağılönü, 37.39 N, 31.46 E, 1193 m, 13.05.2006, 2♀ on herbaceous plants; Seydişehir, Yenice, 37.31 N, 31.45 E, 1202 m, 20.07.2006, 2♀ on herbaceous plants; Huğlu, 37.28 N, 31.37 E, 1404 m, 11.07.2007, 1♀ on light trap. **Chorotype:** W-Palaearctic.

***Agalmatium flavescens* (Oliver, 1791)**
Material examined: Konya: Seydişehir, Çavuş, 37.37 N, 31.55 E, 1186 m, 13.05.2006, 2♂ on herbaceous plants. **Chorotype:** Mediterranean.

Family: FLATIDAE
Subfamily: FLATINAE
Tribe: PHANTIINI

***Phantia subquadrata* (Herrich-Schaeffer, 1838)**
Material examined: Konya: Seydişehir, Yenice, 37.31 N, 31.45 E, 1202 m, 20.07.2006, 2♂5♀ on herbaceous plants; Seydişehir, Çavuş, 37.37 N, 31.55 E, 1186 m, 13.05.2006, 1♀ on herbaceous plants **Chorotype:** Turano-Mediterranean (Turano-Apenninian).

Faunistic evaluation

In this study, 470 Fulgoromorpa specimens were collected and 43 species were identified that belonged to 27 genera and 9 families. As a result, specimens belonging to 6 genera (22,2%) from each of Cixiidae, Delphacidae and Issidae families, 1 genus (3,7%) from Meenoplidae, Derbidae, Achilidae, Tettigometridae and Flatidae families and 4 genera (14,8%) from Dictyopharidae families were found (Table 1).

Considering the distribution of the total number of species by family, 10 species (23,3%) belonged to the family Cixiidae, 6 species (14,0%) to Delphacidae and Dictyopharidae, 1 species (2,3%) to Meenoplidae, Derbidae, Achilidae and Flatidae, 5 species (11.6%) to Tettigometridae and 12 species (27.9%) to Issidae family (Table 1).

Five species found in the Antalya province, 4 in the Mediterranean region, 27 in the Konya province and 5 in the Central Anatolian Region are new records. According to this, Fulgoromorpha fauna of Antalya province increased to 73 from 68 and Fulgoromorpha fauna of the Konya province from18 to 45 species.

Zoogeographical evaluation

The chorotypes of the species determined were defined by considering the geographical distribution areas based on current literature data (Nast 1972, 1982, 1987, Hoch 2013, Bourgoin 2017). Accordingly, 7 species were placed into the East-Mediterranean chorotype, 3 species into the Turano-Mediterranean, 1 species into the Mediterranean, 2 species into Southwestern-Asiatic, 10 species into the Anatolian, 6 species into the Palearctic, 3 species into the W-Palearctic, 1 species into the Palearctic + Afrotropical + Oriental, 1 species into the Holoarctic + Ethiopian + Oriental, 3 species into the Turano-

European, 2 species into the European, 1 species into the South-European, 2 species into the South-European + East-European and 1 species into the East-Palearctic + Centralasiatic + Europeo-Mediterranean.

TABLE 1: Distribution of Fulgoromorpha genera and species by family in the study area.

Family	Number of genera recorded (%)	Number of species identified (%)
Cixiidae	6 (22.2%)	10 (23.3%)
Delphacidae	6 (22.2%)	6 (14.0%)
Meenoplidae	1 (3.7%)	1 (2.3%)
Derbidae	1 (3.7%)	1 (2.3%)
Achilidae	1 (3.7%)	1 (2.3%)
Dictyopharidae	4 (14.8%)	6 (14.0%)
Tettigometridae	1 (3.7%)	5 (11.6%)
Issidae	6 (22.2%)	12 (27.9%)
Flatidae	1 (3.7%)	1 (2.3%)

Among these species, *E. gyaurus R. oleae*, *C. mersinica*, *R. anatolicus*, *M. spinicordatus*, *M. tekneticus*, *M. capitatus*, *T. alanyana*, *K. campanuliforme* and *K. beysehiricum* belong to the Anatolian chorotype. Thus, among the 43 identified species, 10 are endemic (Fig. 1).

Considering the distribution of the examined species in the 7 geographic regions of Turkey, 16 species (37.2%) are distributed in the Marmara region, 13 (30.2%) in the Black Sea region, 18 (41.9 %) in the Aegean region, 35 (81.4%) in Central Anatolia region, 35 (81.4%) in the Mediterranean region, 23 (53.5%) in East Anatolia, and 16 species (37.2%) in Southeastern Anatolia.

Ecological evaluation

The families Cixiidae, Delphacidae, Meenoplidae, Derbidae, Achilidae, Dictyopharidae, Tettigometridae, Issidae and Flatidae families are represented by 31(6.6%), 14 (3.0%), 5 (1.1%), 3 (0,6%), 41 (8.7%), 15 (3.2%), 348 (74.0%) and 8 individuals (1.7%), respectively. Issidae family had the greatest density of individuals in the study area (74.04%).

Two (4.7%), 12 (27.9%), 12 (27.9%), 25 (58.1%) and 8 (18.6%) of the species identified were collected during each month from April-August, respectively (Fig. 2).

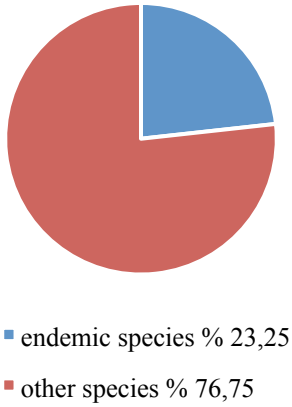

FIG. 1. Endemism ratio according to the total number of species identified in the study area.

Altitude above sea level of the study area is between 409-2.877m. Considering the vertical distribution of the species identified, 6 (13.6%), 5 (11.6%), 35 (81.4%), and 10

species (23.3%) were collected from between 0-500, 501-1,000, 1,001-1,500 and 1,501-2,000 m, respectively.

Furthermore, 23 (45.1%), 11 (21.6%), 9 (17.6%) and 8 species (15.7%) were collected from herbaceous plants, bushes and maquis, trees and light trap, respectively (Fig. 3). Among these species *T. propinqua*, *J. dubia*, *M. bosnica*, *N. cyprius*, *T. virescens*, *T. alanyana*, *T. campestre* and *A. Bilobum* were collected with a light trap.

Cixius simplex, H. hani, D. multireticulata, M. spinicordatus, E. gyaurus, R. melanochaetus, M. albosignatus and *M. tekneticus* were collected from maquis and bushes.

Pentastira superans, R. horridus, C. mersinica, C. krueperi, D. multireticulata, R. punctiger, N. cyprius, T. leucophaea, M. capitatus, M. lesbicum and *B. suturalis* were collected from trees and woody plants.

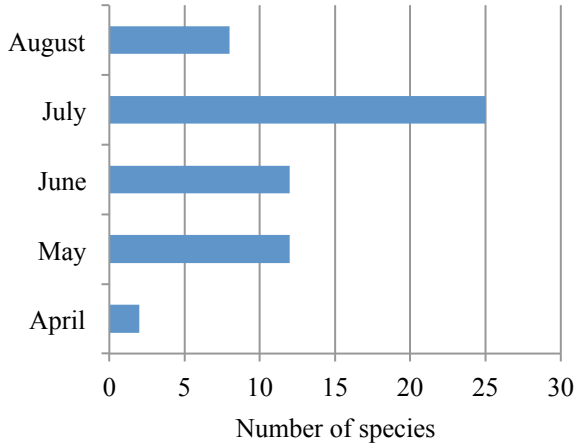

FIG. 2. Number of species determined in the study area per month.

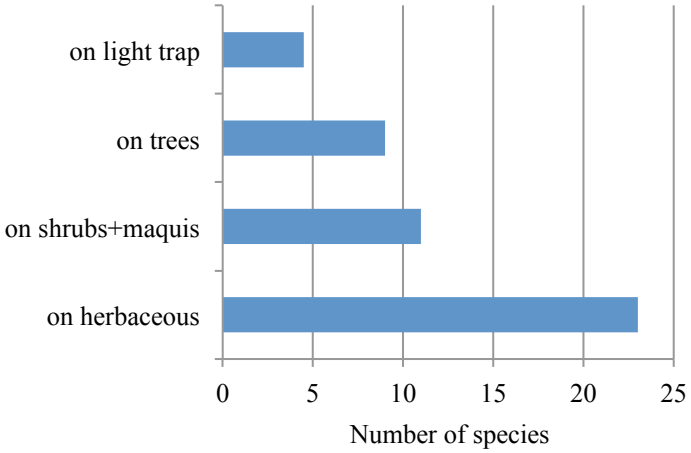

FIG. 3. Number of species collected with each sampling method used in the study.

following species were collected from herbaceous plants by sweeping: *T. creticus*, *R. oleae*, *H. mlokosiewiczi*, *H. obsoletus*, *E. nigrolineata*, *L. striatellus*, *M. aubei*, *D. beckeri*, *D. europaea*, *D. lindbergi*, *R. punctiger*, *N. cyprius*, *T. hexaspina*, *T. longicornis*, *T. sulphurea*, *T. alanyana*, *T. campestre*, *K. campanuliforme*, *K. beysehiricum*, *S. montana*, *A. bilobum*, *A. flavescens* and *P. subquadrata*.

To conclude, Turkish Fulgoromorpha fauna is represented by 219 species belonging to 12 families. 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 Fulgoromorpha fauna of Turkey to be accurately determined.

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Καταγραφή ειδών Fulgoromorpha (Hemiptera) στη Νοτιοδυτική Τουρκία

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ΠΕΡΙΛΗΨΗ

Στην παρούσα μελέτη, τα είδη Fulgoromorpha που συλλέχθηκαν από την κοιλάδα Gevne και σε περιοχές της νοτιοδυτικής Τουρκίας αξιολογήθηκαν από ταξινομικής, ζωογεωγραφικής και οικολογικής άποψης. Εντοπίστηκαν 43 είδη που ανήκουν σε 27 γένη και 9 οικογένειες. Στην παρούσα μελέτη παρουσιάζονται νέες καταγραφές για τις περιοχές της Μεσογείου (4 είδη) και της Κεντρικής Ανατολίας (5 είδη). Τα είδη που καταγράφηκαν ανήκουν σε 14 διαφορετικές ζωογεωγραφικές περιοχές και ο λόγος ενδημισμού της περιοχής είναι 23,3%. Η Issidae είναι η κυρίαρχη οικογένεια στην περιοχή καθώς το 74,0% των δειγμάτων ανήκουν σε αυτήν την οικογένεια.

