

## A study on the Cymidae, Blissidae, Artheneidae, Heterogastridae, Oxycarenidae, Berytidae and Piesmatidae (Hemiptera: Heteroptera: Lygaeoidea) fauna of Amasya Province, Türkiye

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**ABSTRACT:** This work aimed to determine the families Cymidae, Blissidae, Artheneidae, Heterogastridae, Oxycarenidae, Berytidae, and Piesmatidae in Amasya province. In result of the identification of the material collected revealed 22 species belonging to 16 genera of 7 families. All species are new records for the Amasya province and 9 species were recorded for the first time from the Black Sea region and 7 species were also new records for the central Black Sea region. Additionally, *Gampsocoris culicinus* Seidenstücker, 1948 (Berytidae), known from Anatolia so far only from Malatya, was recorded for the second time for Anatolia in our present study area.

**KEY WORDS:** Heteroptera, Lygaeoidea, new records, Amasya, Türkiye .

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## INTRODUCTION

The Heteroptera Latreille, 1810 with terrestrial, aquatic, and semiaquatic species is the most diverse suborder of Hemiptera, including approximately 45.000 species belonging to 24 superfamilies belonging to seven infraorder in the world, and in the Palaearctic region 1632 genera, and nearly 9365 described species (Henry, 2017; Péricart, 2001). Among these species, 1650 species are distributed in Türkiye (Önder et al., 2006; Dursun & Fent, 2015, 2017, 2022; Çerçi & Koçak, 2017, 2023). The superfamily Lygaeoidea Schilling, 1829 is known in the world with 4290 species belonging to 708 genera of 17 families (Henry, 2017). Among them, most 1000 species belonging to 242 genera of 14 families were mentioned from the Palaearctic region according to the available records so far (Péricart, 2001). All species are terrestrial of the superfamily Lygaeoidea and distributed in almost all habitats (Péricart, 2001).

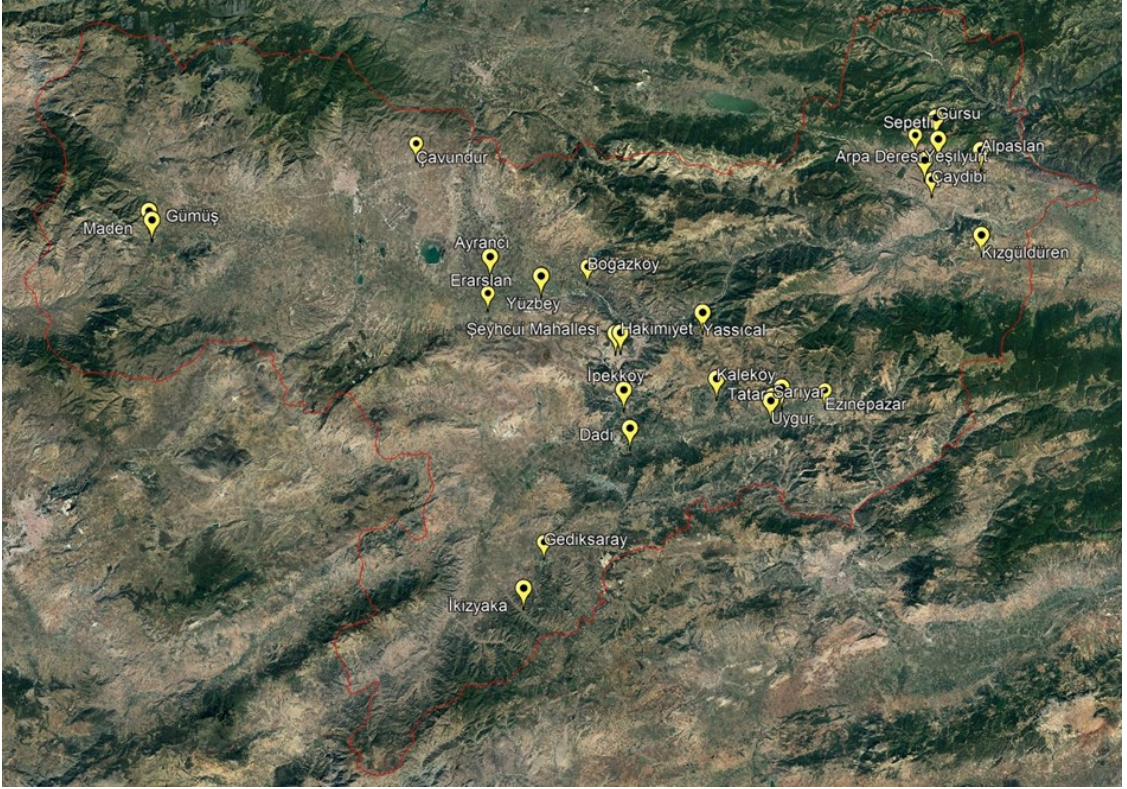
The subfamilies Cyminae, Blissinae, Artheneinae, Heterogastrinae, and Oxycareninae were within the family Lygaeidae but these polyphyletic subfamilies were elevated to family status by Henry (2017). The families Cymidae Baerensprung, 1860, Blissidae Stål, 1862, Artheneidae Stål, 1872, Heterogastridae Stål, 1872, Oxycarenidae Stål, 1862, Berytidae Fieber, 1851, and Piesmatidae Amyot & Serville, 1843 are small taxa in terms of the number of species. The family Piesmatidae includes 2 genera and 19 species in the Palaearctic region. Of those, 6 species belonging to 2 genera are distributed in Türkiye. All species are phytophagous and feeding especially on Caryophyllaceae and Chenopodiaceae (Heiss & Péricart, 2001). The other rather little family Berytidae includes 54 species belonging to 13 genera in the Palaearctic region. 19 species of 5 genera were mentioned from Türkiye (Péricart, 2001; Kment & Fent, 2012). Of those, the type localities of *Gampsocoris culicinus melitenus* Seidenstücker, 1965,

*Gampsocoris enslini* Seidenstücker, 1953 and *Neides brevipennis* Puton, 1895 are in Türkiye (Dursun & Fent, 2017). The Family Cymidae includes 5 genera and 22 species from Palaearctic region. In Türkiye, 7 species belonging to the 2 genera are mentioned. *Cymus turcicus* Matocq, 2000 belonging to the family Cymidae is an endemic species from Türkiye (Péricart, 2001). 8 genera and 56 species belonging to the Blissidae family are distributed in the Palaearctic region. In Türkiye, 7 species belonging to 3 genera are known. The Family Artheneidae includes 4 genera and 16 species from Palaearctic region. 8 species belonging to 2 genera are distributed in Türkiye. The Oxycarenidae is a relatively richer family in terms of the number of species compared to the others. 63 species belonging to 19 genera are known in the Palaearctic region. Of these, 9 genera and 15 species have been recorded from Türkiye. The family Heterogastridae includes 11 genera and 24 species from Palaearctic region. 5 species belonging to 2 genera are distributed in Türkiye (Péricart, 2001).

The discovery of the Heteroptera fauna of Amasya, which is an important province in the Central Black Sea Region, is important for the biodiversity of Türkiye. Amasya has different biotopes and microclimate areas with its mountains, plains, and valleys. It needs further studies on the Biodiversity of Lygaeoidea from Amasya. Therefore, this study aims to bring forth the Biodiversity of the families of Lygaeoidea fauna of Amasya.

## MATERIAL AND METHODS

This study was carried out with adult 182 males and 150 females collected from 29 different localities in Amasya province in the years 2020 to 2021 (Figure 1). The specimens were collected from under herbaceous vegetation and above ground with a sweep net and aspirator. All specimens were put in tubes in 70% ethanol and brought to the



**Figure 1.** The area of Cymidae, Blissidae, Artheneidae, Heterogastridae, Oxycarenidae, Berytidae and Piesmatidae study in Amasya (from google earth).

laboratory. In the laboratory, as in our previous studies, the specimens were softened in hot water (90°C-100°C) for preparation of the male genitalia which was used for further identifications. The specimens were prepared and identified using the relevant diagnostic was investigated under a stereomicroscope (Leica EZ4) and keys of Stichel (1960), and Péricart, 1999a, b). The material is deposited in the collection of Amasya University, Faculty of Science and Arts, Department of Biology (Amasya, Türkiye).

## RESULTS

### Hemiptera Linnaeus, 1758

### Heteroptera Latreille, 1810

### Cymidae Baerensprung, 1860

### Cyminae Baerensprung, 1860

### Tribus: Cymini Baerensprung, 1860

### Genus: *Cymus* Hahn, 1832

### *Cymus claviculus* (Fallen, 1807)

**Material examined: Amasya: Taşova:** Kızılgözü, 10.07.2020, 1♂, 3♀♀.

**Distribution in Türkiye:** Adana, Ankara, Antalya, Bartın, Bursa, Çankırı, Diyarbakır, Edirne, Hatay, İzmir, Karaman, Kahramanmaraş, Kocaeli, Konya, Mersin, Muğla, Zonguldak (Horváth, 1901; Gadeau de Kerville, 1939; Hoberlandt, 1956; Önder et al., 1981, 2006; Lodos et al., 1999; Péricart, 1999a; Çerçi & Koçak, 2023; Yazıcı et al., 2023).

### Distribution in Palearctic Region:

**Europe:** Albania, Andorra, Austria, Belgium, Bosnia Hercegovina, Bulgaria, Byelorussia, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Great Britain, Germany, Greece, Hungary, Ireland, Italy, Kazakhstan (European part), Kosovo, Latvia, Lithuania, Luxembourg, Macedonia, Moldavia, Montenegro, Netherlands, Norway, Poland, Portugal,

Romania, Russia (South European Part), Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye (European part), Ukraine **North Africa:** Algeria, Canary Islands, Morocco, Tunisia. **Asia:** Armenia, Azerbaijan, Cyprus, Georgia, Israel, Jordan Kazakhstan (Asian part), Kyrgyzstan, Mongolia, Russia (Eastern and Western Siberian Regions), Syria, Tajikistan, Türkiye (Asian part), Turkmenistan, Uzbekistan (Aukema, 2020).

### ***Cymus glandicolor* Hahn, 1832**

**Material examined: Amasya: Taşova:** 27.05.2021, Arpaderesi, 1♂.

**Distribution in Türkiye:** Adana, Afyonkarahisar, Ankara, Antalya, Bartın, Bursa, Hatay, İstanbul, Karaman, Kahramanmaraş, Kars, Kastamonu, Kocaeli, Kütahya, Kırşehir, Osmaniye, Yozgat, Zonguldak (Horváth, 1883, 1901, 1918; Kiritshenko, 1918; Lodos et al., 1999; Önder et al., 2006; Fent & Dursun, 2016; Çerçi & Koçak, 2023).

### **Distribution in Palaearctic Region:**

**Europe:** Albania, Andorra, Austria, Belgium, Bosnia Hercegovina, Bulgaria, Byelorussia, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Great Britain, Germany, Greece, Hungary, Ireland, Italy, Kosovo, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Moldavia, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russia (Northern, Southern and Central European Region), Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine.: Azerbaijan, China (North, Northeast, Southwest, Western Plateau), Georgia, Japan, Kazakhstan (Asian part), Korea, Kyrgyzstan, Mongolia, Russia (Far East, Eastern and Western Siberia Regions), Tajikistan, Türkiye (Asian part), Uzbekistan (Aukema, 2020).

### ***Cymus melanocephalus* Fieber, 1861**

**Material examined: Amasya: Suluova:** Eraslan, 29.06.2021, 1♂; **Taşova:** Kızgüldüren, 10.07.2020, 14♂♂, 15♀♀; 27.05.2021, Arpaderesi, 24♂♂, 27♀♀.

**Distribution in Türkiye:** Adana, Ankara, Antalya, Bartın, Bayburt, Bolu, Bursa,

Çanakkale, Diyarbakır, Edirne, Erzincan, Erzurum, Gaziantep, Hatay, İstanbul, İzmir, Karabük, Karaman, Kahramanmaraş, Kastamonu, Kayseri, Kocaeli, Konya, Konya, Kırşehir, Mersin, Muğla, Nevşehir, Nevşehir, Niğde, Ordu, Sinop, Sivas, Yozgat, Zonguldak (Horváth, 1883, 1901, 1918; Hoberlandt, 1956; Lodos et al. 1999; Önder et al. 2006; Matocq et al., 2014; Yazıcı et al. 2015; Fent & Dursun, 2016; Yence, 2019; Çerçi & Koçak, 2023).

### **Distribution in Palaearctic Region:**

**Europe:** Albania, Austria, Belgium, Bosnia Hercegovina, Bulgaria, Croatia, Czech Republic, Denmark, Finland, France, Great Britain, Germany, Greece, Hungary, Italy, Kosovo, Liechtenstein, Luxembourg, Macedonia, Moldavia, Montenegro, Netherlands, Poland, Portugal, Romania, Russia (Southern European Region), Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye (European part), Ukraine. **North Africa:** Algeria, Morocco, Tunisia. **Asia:** Armenia, Azerbaijan, Cyprus, Georgia, Iran, Iraq, Israel, Kyrgyzstan, Syria, Tajikistan, Türkiye (Asian part), Uzbekistan (Aukema, 2020).

### **Blissidae Stål, 1862**

#### **Blissinae Stål, 1862**

#### **Genus: *Dimorphopterus* Stål, 1872**

#### ***Dimorphopterus blissoides* (Barensprung, 1859)**

**Material examined: Amasya: Merzifon:** Çavundur, 06.09.2020, 2♂♂, 2♀♀.

**Distribution in Türkiye:** Mersin (Tarsus) (Péricart, 1999a); Elazığ (Çerçi et al., 2018).

### **Distribution in Palaearctic Region:**

**Europe:** Bosnia Hercegovina, Bulgaria, Croatia, Greece, Hungary, Italy, Macedonia, Moldavia, Romania, Russia (South European Region), Serbia, Slovenia, Ukraine. **Asia:** Armenia, Azerbaijan, Iraq, Israel, Türkiye (Asian part) (Aukema, 2020).

#### ***Dimorphopterus doriae* (Ferrari, 1874)**

**Material examined: Amasya: Center:**

Dadıköy, 21.04.2021, 1♀.

**Distribution in Türkiye:** Aksaray, Bolu, Izmir, Niğde, Tokat, Yalova (Péricart, 1999a; Önder et al., 2006).

**Distribution in Palaearctic Region:**  
**Europe:** Albania, Bosnia Hercegovina, Bulgaria, France, Greece, Hungary, Italy, Kazakhstan (European part), Kosovo, Macedonia, Moldavia, Montenegro, Romania, Russia (South European Region), Serbia, Slovakia, Ukraine. **Asia:** Armenia, Azerbaijan, Iran, Kazakhstan (Asian part), Syria, Türkiye (Asian part) (Aukema, 2020).

**Genus: Ischnodemus Fieber, 1837**

***Ischnodemus caspius* Jakovlev, 1871**

**Material examined: Amasya: Göynücek:** Gediksaray, 31.08.2020, 1♀.

**Distribution in Türkiye:** İzmir (Péricart, 1999a), Kahramanmaraş (Lodos et al., 1999).

**Distribution in Palaearctic Region:**  
**Europe:** Bulgaria, Croatia, Greece, Russia (Southern Europe region), Serbia, Ukraine. **North Africa:** Egypt. **Asia:** Afghanistan, Azerbaijan, Iran, Iraq, Israel, Kazakhstan (Asian part), Kuwait, Syria, Tajikistan, Türkiye (Asian part), Turkmenistan, Uzbekistan (Aukema, 2020).

**Artheneidae Stål, 1872**

**Artheneinae Stål, 1872**

**Tribus: Artheneini Stål, 1872**

**Genus: *Holcocranum* Fieber, 1860**

***Holcocranum saturejae* (Kolenati, 1845)**

**Material examined: Amasya: Center:** Kızgüldüren, 10.07.2020, 22♂♂, 17♀♀.

**Distribution in Türkiye:** Bursa, Edirne, Elazığ, Hatay, İzmir, Karaman, Kahramanmaraş, Kocaeli, Mersin (Önder et al., 1981, 1984; Çağatay, 1988; Péricart, 1999a; Lodos et al., 1999; Önder et al., 2006; Çerçi et al., 2018; Çerçi & Koçak, 2023).

**Distribution in Palaearctic Region:**  
**Europe:** Albania, Austria, Bulgaria,

Croatia, Czech Republic, France, Germany, Greece, Hungary, Italy, Kazakhstan (European part), Macedonia, Moldova, Montenegro, Netherlands, Romania, Russia (Southern European Region), Slovakia, Spain, Türkiye (European part), Ukraine. **North Africa:** Algeria, Egypt, Morocco, Tunisia. **Asia:** Azerbaijan, Israel, Jordan, Kyrgyzstan, Türkiye (Asian part), Turkmenistan. **Outside the Palaearctic:** North America, Tropical Africa (Chad, Ghana, Sudan and Tanzania) (Aukema, 2020).

**Heterogastridae Stål, 1872**

**Heterogastrinae Stål, 1872**

**Genus: *Heterogaster* Schilling, 1829**

***Heterogaster artemisiae* Schilling, 1829**

**Material examined: Amasya: Center:** Tatar, 19.05.2021, 1♀.

**Distribution in Türkiye:** Adana, Antalya, Düzce, Edirne, Erzurum, Hatay, Kahramanmaraş, Kastamonu, Mersin, Niğde, Osmaniye (Lodos et al., 1999; Önder et al., 2006; Yazıcı et al., 2015; Fent & Dursun, 2016; Yence, 2019).

**Distribution in Palaearctic Region:**  
**Europe:** Albania, Austria, Belgium, Bosnia-Hercegovina, Bulgaria, Croatia, Czech Republic, France, Germany, Great Britain, Greece, Hungary, Italy, Kosovo, Macedonia, Moldova, Montenegro, Poland, Portugal, Romania, Russia (Central and southern European region), Serbia, Slovakia, Slovenia, Spain, Switzerland, Türkiye (European part), Ukraine. **North Africa:** Algeria, Morocco, Tunisia. **Asia:** Armenia, Azerbaijan, China (Northwest region), Georgia, Iran, Kazakhstan (Asian part), Kyrgyzstan, Tajikistan, Türkiye (Asian part), Turkmenistan, Uzbekistan, (Aukema, 2020).

***Heterogaster urticae* (Fabricius, 1775)**

**Material examined: Amasya: Center:** Sarıyar, 19.05.2021, 1♂, 1♀.

**Distribution in Türkiye:** Adana, Aksaray, Ankara, Antalya, Artvin, Aydın,

Balıkesir, Bartın, Bayburt, Bilecik, Bolu, Bursa, Çankırı, Erzurum, Gaziantep, Hatay, İzmir, Karaman, Kahramanmaraş, Kars, Kayseri, Kırıkkale, Kütahya, Manisa, Mersin, Muğla, Nevşehir, Osmaniye, Samsun, Trabzon, Zonguldak (Horváth, 1883, 1905a; Hoberlandt, 1956; Lodos et al., 1978, 1999; Çağatay, 1989; Abacıgil et al., 2010; Yazıcı et al., 2015, 2023; Yazıcı, 2022; Çerçi & Koçak, 2023).

**Distribution in Palaearctic Region:** **Europe:** Albania, Andorra, Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Byelorussia, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine. **North Africa:** Algeria, Azores, Canary Islands, Egypt, Madeira, Morocco, Tunisia. **Asia:** Armenia, Azerbaijan, Cyprus, Georgia, Iran, Israel, Japan, Jordan, Kyrgyzstan, Lebanon, Russia (Western Siberia), Syria, Türkiye, Turkmenistan (Aukema, 2020).

### Genus: *Platyplax* Fieber, 1860

#### *Platyplax inermis* (Rambur, 1839)

**Material examined: Amasya: Center:** Boğazköy, 18.05.2020, 4♂♂, 4♀♀; **Gümüşhacıköy:** Gümüş, 07.09.2021, 1♂.

**Distribution in Türkiye:** Adana, Balıkesir, Bursa, Çanakkale, İzmir, Kastamonu, Kayseri, Mersin (Péricart, 1999a; Önder et al., 2006).

**Distribution in Palaearctic Region:** **Europe:** Albania, Bosnia-Herzegovina, Croatia, France, Greece, Italy, Macedonia, Montenegro, Portugal, Spain. **North Africa:** Algeria, Canary Islands, Libya, Morocco, Tunisia. **Asia:** Cyprus, Israel, Türkiye (Asian part), Yemen. **Outside the Palaearctic Region:** Ethiopia (Aukema, 2020).

### Oxycarenidae Stål, 1862

#### Oxycareninae Stål, 1862

### Genus: *Brachyplax* Fieber, 1860

#### *Brachyplax tenuis* (Mulsant & Rey, 1852)

**Material examined: Amasya: Center:** Kaleköy, 28.04.2021, 1♂; **Taşova:** Gürsu, 27.05.2021, 1♂, 1♀.

**Distribution in Türkiye:** Ankara, Edirne, Elazığ, Gaziantep, Hatay, İzmir, Karaman, Kastamonu, Kayseri, Mersin, Niğde (Horváth, 1901; Linnavuori, 1953; Hoberlandt, 1956; Lodos et al., 1999; Péricart, 1999b, 2001; Önder et al., 2006; Matocq et al., 2014; Çerçi & Koçak, 2023).

#### **Distribution in Palaearctic Region:**

**Europe:** Austria, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, France, Greece, Hungary, Italy, Macedonia, Malta, Montenegro, Portugal, Romania, Russia (Southern European Region), Serbia, Slovakia, Slovenia, Spain, Switzerland, Türkiye (European part), Ukraine. **North Africa:** Algeria, Egypt, Libya, Morocco, Tunisia.

**Asia:** Armenia, Azerbaijan, Cyprus, Georgia, Israel, Kazakhstan (Asian part), Kyrgyzstan, Syria, Tajikistan, Türkiye (Asian part), Turkmenistan, Uzbekistan (Aukema, 2020).

### Genus: *Macroplax* Fieber, 1860

#### *Macroplax fasciata* (Herrich-Schaeffer, 1835)

**Material examined: Amasya: Center:** Yassıçal, 28.04.2021, 1♂, 3♀♀; **Sarıyar,** 19.05.2021, 1♂, 1♀; **Taşova:** Çaydibi, 27.05.2021, 1♂; **Gümüşhacıköy:** Gümüş, 07.09.2021, 1♂.

**Distribution in Türkiye:** Adana, Afyonkarahisar, Ankara, Antalya, Artvin, Aydın, Balıkesir, Bilecik, Bursa, Çanakkale, Çorum, Denizli, Düzce, Edirne, Elazığ, Erzincan, Erzurum, Gaziantep, Hatay, Isparta, İstanbul, İzmir, Karaman, Kahramanmaraş, Karaman, Kayseri, Kırıkkale, Kırşehir, Konya, Kocaeli, Kütahya, Manisa, Mardin, Mersin, Muğla, Osmaniye, Sinop, Tekirdağ, Uşak, Zonguldak (Horváth, 1883, 1905b; Fahringer, 1922; Linnavuori, 1953; Hoberlandt, 1956;

Lodos et al., 1978, 1999; Çağatay, 1985; Fent & Japoshvili, 2012; Matocq et al., 2014; Yazıcı et al., 2015; Fent & Dursun, 2016; Çerçi & Koçak, 2023).

**Distribution in Palaearctic Region:** **Europe:** Albania, Andorra, Austria, Bosnia-Herzegovina, Bulgaria, Croatia, France, Germany, Great Britain (Jersey), Greece, Hungary, Italy, Macedonia, Malta, Moldova, Montenegro, Portugal, Romania, Russia (Southern European Region), Serbia, Slovakia, Slovenia, Spain, Switzerland, Türkiye (European part), Ukraine. **North Africa:** Algeria, Canary Islands, Libya, Morocco, Tunisia. **Asia:** Armenia, Azerbaijan, Cyprus, Georgia, Israel, Lebanon, Syria, Türkiye (Asian part) (Aukema, 2020).

**Genus: *Microplax* Fieber, 1860**

***Microplax albofasciata* (A. Costa, 1847)**

**Material examined: Amasya: Taşova:** Çaydibi, 27.05.2021, 1♀.

**Distribution in Türkiye:** Adana, Afyonkarahisar, Ankara, Antalya, Balıkesir, Bilecik, Bursa, Edirne, Gaziantep, İstanbul, Karaman, Kayseri, Kütahya, Mersin, Tekirdağ, Uşak (Horváth, 1883; Linnavuori, 1953; Hoberlandt, 1956; Péricart, 1999b; Lodos et al., 1999; Önder et al., 2006; Abacıgil et al., 2010; Çerçi & Koçak, 2023).

**Distribution in Palaearctic Region:** **Europe:** Albania, Andorra, Belgium?, Bosnia Herzegovina, Bulgaria, Croatia, Cyprus, France, Germany, Great Britain, Greece, Holland, Hungary, Italy, Macedonia, Montenegro, Slovenia, Portugal, Romania, Russia, Spain, Türkiye (European part), Ukraine, **Asia:** Syria, Israel, Türkiye (Asian part). **North Africa:** Algeria, Tunisia (Aukema, 2020).

***Microplax interrupta* (Fieber, 1837)**

**Material examined: Amasya: Center:** Yassıçal, 28.04.2021, 1♀; İpekköy, 16.05.2021, 2♂♂, 7♀♀; Ezinepazar, 19.05.2021, 4♂♂, 5♀♀; **Suluova:** Eraslan, 28.06.2021, 1♂.

**Distribution in Türkiye:** Adana, Ankara, Antalya, Diyarbakır, Edirne, Erzurum, Gaziantep, Hatay, Kahramanmaraş, Karabük, Karaman, Kayseri, Konya, Kırşehir, Mardin, Mersin (Linnavuori, 1953; Hoberlandt, 1956; Lodos et al., 1999; Önder et al., 2006; Matocq et al., 2014; Yazıcı et al., 2015; Fent & Dursun, 2016; Bolu, 2020; Çerçi & Koçak, 2023).

**Distribution in Palaearctic Region:** **Europe:** Albania, Andorra, Austria, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, France, Germany, Greece, Hungary, Italy, Kazakhstan (European part), Kosovo, Macedonia, Moldavia, Montenegro, Portugal, Romania, Russia (Southern European Part), Serbia, Slovakia, Slovenia!, Spain, Türkiye (European part), Ukraine. **North Africa:** Algeria, Canary Islands, Egypt, Madeira, Morocco, Tunisia. **Asia:** Armenia, Azerbaijan?, China (Northwest Region), Cyprus, Georgia, Iran, Iraq, Israel, Kazakhstan (Asian part), Kyrgyzstan, Lebanon, Mongolia, Syria, Tajikistan, Türkiye (Asian part), Turkmenistan, Uzbekistan. **Outside the Palaearctic:** India (Péricart, 2001).

**Genus: *Oxycarenus* Fieber, 1837**

**Subgenus: *Euoxycarenus* Samy, 1969**

***Oxycarenus pallens* (Herrich-Schäffer, 1850)**

**Material examined: Amasya: Center:** Sarıyar, 19.05.2021, 3♂♂, 1♀; Uygur, 19.05.2021, 1♂; Ezinepazar, 19.05.2021, 2♂♂, 1♀; Tatar, 19.05.2021, 1♀; İpekköy, 16.05.2021, 2♂♂, 1♀; Boğazköy, 28.06.2021, 6♂♂, 1♀; **Suluova:** Yüzbeyi, 28.06.2021, 2♂♂; Eraslan, 28.06.2021, 1♀; Ayrancı, 28.06.2021, 1♀; **Taşova:** Kızgüldüren, 10.07.2020, 1♂; Alpaslan, 27.05.2021, 2♀♀; Arpaderesi, 27.05.2021, 1♂, 1♀; Yeşilyurt, 27.05.2021, 1♂, 1♀; Gürsu, 1♂, 1♀; **Göynücek:** İkizyaka, 03.09.2021, 2♂♂, 1♀; **Gümüşhacıköy:** Gümüş, 29.08.2020, 1♀; 07.09.2021, 1♀.

**Distribution in Türkiye:** Adana, Ankara, Antalya, Balıkesir, Bayburt, Bolu, Burdur, Çankırı, Çorum, Diyarbakır, Edirne, Elazığ, Erzincan, Erzurum,

Gaziantep, Hatay, İzmir, Karabük, Karaman, Kahramanmaraş, Kastamonu, Kayseri, Kilis, Konya, Kırıkkale, Kırşehir, Mardin, Mersin, Muğla, Nevşehir, Niğde, Siirt, Sivas, Şanlıurfa, Van, Yozgat, Zonguldak (Linnavuori, 1953; Hoberlandt, 1956; Önder & Adıgüzel, 1979; Çağatay, 1985; Lodos et al., 1999; Önder et al., 2006; Abacıgil et al., 2010; Matocq & Özgen, 2010; Matocq et al., 2014; Yazıcı et al., 2015, 2023; Fent & Dursun, 2016; Bolu, 2020; Çerçi & Özgen, 2021; Yazıcı, 2022; Çerçi & Koçak, 2023).

**Distribution in Palaearctic Region:**

**Europe:** Albania, Austria, Bosnia-Hercegovina, Bulgaria, Croatia, Czech Republic, France, Germany, Greece, Hungary, Italy, Kazakhstan (European part), Macedonia, Moldavia, Montenegro Portugal, Romania, Russia (Central and Southern European Part), Slovakia, Slovenia, Spain, Switzerland, Türkiye (European part), Ukraine. **North Africa:** Algeria, Canary Islands, Egypt, Libya, Morocco, Tunisia. **Asia:** Afghanistan, Armenia, Azerbaijan, China, Cyprus, Georgia, Iran, Iraq, Israel, Jordan, Kazakhstan (Asian part), Kyrgyzstan, Lebanon, Mongolia, Syria, Tajikistan, Türkiye (Asian part), Turkmenistan, Uzbekistan, Yemen. **Outside the Palaearctic:** India, Sudan (Aukema, 2020).

**Subgenus: Oxycareus Fieber, 1837**

**Oxycareus hyalinipennis (A. Costa, 1843)**

**Material examined: Amasya: Center:** İpekköy, 16.05.2021, 1♀; Şeyhçui, 22.08.2021, 3♂♂, 6♀♀; Hakimiyet Park, 58♂♂, 24♀♀.

**Distribution in Türkiye:** Adana, Ankara, Antalya, Çanakkale, Çankırı, Hatay, İstanbul, İzmir, Karaman, Kastamonu, Kilis, Konya, Mersin, Niğde, Osmaniye, Sinop (Puton & Noualhier, 1895; Linnavuori, 1953; Hoberlandt, 1956; Çağatay, 1985; Péricart, 1999b; Lodos et al., 1999; Önder et al., 2006; Şerban, 2010; Yazıcı et al., 2015, 2023; Yazıcı, 2022; Çerçi & Koçak, 2023).

**Distribution in Palaearctic Region:**

**Europe:** Austria, Bosnia-Hercegovina, Bulgaria, Croatia, France, Greece, Italy, Malta, Portugal, Serbia, Slovakia, Spain. **North Africa:** Algeria, Canary Islands, Egypt, Libya, Morocco, Tunisia. **Asia:** Afghanistan, Armenia, Azerbaijan?, Cyprus, Iran, Iraq, Israel, Jordan, Lebanon, Saudi Arabia, Sinai Peninsula (Egypt), Syria, Türkiye (Asian part), Yemen. **Outside the Palaearctic:** Eastern Region, South America, Tropical and Southern Africa (Aukema, 2020).

**Berytidae Fieber, 1851**

**Berytinae Fieber, 1851**

**Tribus: Berytini Fieber, 1851**

**Genus: Apoplymus Fieber, 1859**

**Apoplymus pectoralis Fieber, 1859**

**Material examined: Amasya: Taşova:** 27.05.2021, Sepetli, 1♂; 07.09.2021, Gümüş, 1♂, 2♀♀.

**Distribution in Türkiye:** Balıkesir, İzmir (Önder et al., 2006; Dursun, 2016).

**Distribution in Palaearctic Region:**

**Europe:** Albania, Bulgaria, Croatia, France, Greece, Italy, Macedonia, Portugal, Romania, Serbia, Spain, Türkiye (European part), Ukraine. **North Africa:** Algeria, Morocco, Tunisia. **Asia:** Cyprus, Iran, Iraq, Israel, Lebanon, Syria, Türkiye (Asian part) (Aukema, 2020).

**Genus: Neides Latreille, 1802**

**Neides tipularius (Linnaeus, 1758)**

**Material examined: Amasya: Gümüşhacıköy:** 07.09.2021, Maden, 3♂♂.

**Distribution in Türkiye:** Ankara, Bingöl, Çankırı, Edirne, Elazığ, Kars, Kastamonu, Kayseri (Önder et al., 2006; Küçükbasmacı & Kıyak, 2015, Çerçi & Özgen, 2021).

**Distribution in Palaearctic Region:**

**Europe:** Albania, Austria, Belgium, Bosnia-Hercegovina, Bulgaria, Byelorussia, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Greece, Hungary, Ireland,



Italy, Kosovo, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Moldova, Netherlands, Norway, Poland, Portugal, Romania, Russia (South, Northern and Central European Region), Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye (European part), Ukraine. **Asia:** Armenia, Azerbaijan, Georgia, Iran, Iraq, Kazakhstan (Asian part), Russia (Western, Siberian Region), Türkiye (Asian part), Uzbekistan (Aukema, 2020).

**Tribus: Berytinini Southwood & Leston, 1959**

**Genus: Berytinus Kirkaldy, 1900**

**Subgenus: Lizinus Mulsant & Rey, 1870**

**Berytinus geniculatus (Horváth, 1885)**

**Material examined: Amasya: Merzifon:** 06.09.2020, Çavundur, 1♂, 1♀.

**Distribution in Türkiye:** İzmir, Kahramanmaraş (Önder et al., 2006; Kıyak, 2016).

**Distribution in Palaearctic Region: Europe:** Albania, Austria, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, France, Germany, Greece, Hungary, Italy, Macedonia, Moldova, Portugal, Romania, Russia (Southern European region), Serbia, Slovakia, Slovenia, Spain, Switzerland, Ukraine. **North Africa:** Algeria, Canary Islands, Libya, Morocco, Tunisia. **Asia:** Azerbaijan, Georgia, Iraq, Israel?, Türkiye (Asian part) (Aukema, 2020).

**Gampsocorinae Southwood & Leston, 1959**

**Tribus: Gampsocorini Southwood & Leston, 1959**

**Genus: Gampsocoris Fuss, 1852**

**Gampsocoris culicinus Seidenstücker, 1948**

**Material examined: Amasya: Göynücek:** 03.09.2021, İkizyaka, 1♂; **Gümüşhacıköy:** 07.09.2021, Gümüş, 2♂♂, 6♀♀.

**Distribution in Türkiye:** Edirne, Malatya (Seidenstücker, 1965; Kothe et al., 2004; Önder et al., 2006).

**Distribution in Palaearctic Region: Europe:** Albania, Austria, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, France, Germany, Greece, Hungary, Italy, Kosovo, Macedonia, Moldova, Romania, Russia (Southern European Region), Serbia, Slovakia, Slovenia, Spain, Switzerland, Ukraine. **North Africa:** Algeria, Morocco. **Asia:** Kazakhstan (Asian part), Kyrgyzstan, Russia (Western, East Siberian Region), Türkiye (Asian part) (Aukema, 2020).

**Metacanthinae Douglas & Scott, 1865**

**Tribus: Metacanthini Douglas & Scott, 1865**

**Genus: Metacanthus A. Costa, 1843**

**Subgenus: Metacanthus A. Costa, 1843**

**Metacanthus meridionalis (A. Costa, 1843)**

**Material examined: Amasya:** 28.06.2021, Boğazköy, 4♂♂, 4♀♀.

**Distribution in Türkiye:** Ankara, Balıkesir, Bursa, Bitlis, Hakkari, İzmir, Manisa, Mardin (Önder et al., 2006; Dursun, 2016).

**Distribution in Palaearctic Region: Europe:** Bulgaria, Croatia, France, Greece, Hungary, Italy, Kosovo, Macedonia, Portugal, Romania, Russia (Southern European Region), Serbia, Spain, Ukraine. **Asia:** Azerbaijan, Georgia, Iran, Iraq, Israel, Türkiye (Asian part), Yemen. (Aukema, 2020).

**Piesmatidae Amyot & Serville, 1843**

**Piesmatinae Amyot & Serville, 1843**

**Genus: Piesma Lepeletier & Serville, 1828**

**Piesma maculatum (Laporte, 1833)**

**Material examined: Amasya: Center:** Dadı, 21.04.2021, 2♂♂.

**Distribution in Türkiye:** Balıkesir, Çankırı, Erzurum (Yıldırım & Özbek, 1990; Abacıgil et al., 2010; Önder et al.,

2006; Yazıcı et al., 2023).

#### **Distribution in Palaearctic Region:**

**Europe:** Albania, Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Byelorussia, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Kazakhstan (European part), Kosovo, Latvia, Lithuania, Luxembourg, Macedonia, Malta, Moldavia, Netherlands, Norway, Poland, Portugal, Romania, Russia (South, Northern and Central European Region), Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine. **North Africa:** Algeria, Morocco, Tunisia. **Asia:** Armenia, Azerbaijan, China (North and Northeast Region), Georgia, Japan, Kazakhstan (Asian part), Korea, Kyrgyzstan, Mongolia, Russia (West, East and Far East Siberia Region), Türkiye (Asian part), Uzbekistan (Aukema, 2020).

#### **CONCLUSION AND DISCUSSION**

We examined in this study a total of 332 (182 males and 150 females) adult specimens.

As a result of the determination of the material collected in Amasya province, 3 species belonging to 1 genera of Cymidae, 3 species belonging to 2 genera of Blissidae, 1 species belonging to 1 genera of Artheneidae, 3 species belonging to 2 genera of Heterogastridae, 6 species belonging to 4 genera of Oxycarenidae, 5 species belonging to 5 genera of Berytidae and 1 species belonging to 1 genera of Piesmatidae families were recorded. All species are new records for the Amasya province.

In addition, among these species, *Dimorphopterus blissoides*, *Ischnodemus caspius*, *Holcocranum saturejae*, *Microplax albofasciata*, *Apophymus pectoralis*, *Berytinus geniculatus*, *Gampsocoris culicinus*, *Metacanthus meridionalis* and *Piesma maculatum* were recorded for the first time from the Black Sea Region and *Cymus clavicularis*, *Cymus glandicolor*, *Heterogaster artemisiae*, *Platyplax*

*inermis*, *Brachyplax tenuis*, *Microplax interrupta* and *Neides tipularius* were also new records for the Central Black Sea Region (Table 1).

*Dimorphopterus blissoides* a rarely distributed species, was until now only known from Mersin (Péricart, 1999a) in the Mediterranean Region and from Elazığ in east Anatolia (Çerçi et al., 2018) and *Ischnodemus caspius* from İzmir (Péricart, 1999a) in western Anatolia and from Kahramanmaraş in Mediterranean Region (Lodos et al., 1999), and *Apophymus pectoralis*, from Balıkesir and İzmir in western Anatolia (Önder et al., 2006; Dursun, 2016).

*Berytinus geniculatus* was recorded from Kahramanmaraş in the Mediterranean Region and İzmir in western Anatolia, *Gampsocoris culicinus* was recorded from Edirne in the Thrace Region and Malatya in the eastern Anatolia Region (Seidenstücker, 1965; Kothe et al., 2004; Önder et al., 2006; Kiyak, 2016).

In this study, these species were recorded for the third time. The northernmost limit of the distribution of these species in Türkiye was also given in this study.

It was known that among the identified species, *Platyplax inermis*, *Neides tipularius*, and *Metacanthus meridionalis* are rare species in Türkiye. In addition, it was determined that the population densities of all species except *Oxycarenus hyalipennis*, *Oxycarenus pallens*, *Cymus melanocephalus*, and *Holcocranum saturae* were quite low in the research area.

Yıldırım & Özbek (1990) stated that *Piesma maculatum* causes damage to sugar beet (*Beta vulgaris* (Linnaeus, 1758) (Chenopodiaceae)) in Türkiye.

There are many farmers engaged in sugar beet production in Amasya, and if the population density of *Piesma maculatum* increases, it would have the potential to cause serious damage to Amasya sugar beet fields. However, we were able to detect only two examples of this species in our study.

**Table 1.** List of Cymidae, Blissidae, Artheneidae, Heterogastridae, Oxycarenidae Berytidae and Piesmatidae species of Amasya province. (A: Amasya, C: Central Black Sea Region, B: Black Sea Region, N: Number of Localities detected, S: Specimens)

Nu	Family	Species	A	C	B	N	S
1		<i>Cymus clavicolus</i> (Fallen, 1807)		+		1 locality	1♂, 3♀♀
2	Cymidae Baerensprung, 1860	<i>Cymus glandicolor</i> Hahn, 1832		+		1 locality	1♂
3		<i>Cymus melanocephalus</i> Fieber, 1861		+		3 localities	39♂♂, 42♀♀
4		<i>Dimorphopterus blissoides</i> (Baerensprung, 1859)			+	1 locality	2♂♂, 2♀♀
5	Blissidae Stål, 1862	<i>Dimorphopterus doriae</i> (Ferrari, 1874)		+		1 locality	1♀
6		<i>Ischnodemus caspius</i> Jakovlev, 1871			+	1 locality	1♀
7	Artheneidae Stål, 1872	<i>Holcocranum saturejiae</i> (Kolenati, 1845)			+	1 locality	22♂♂, 17♀♀
8		<i>Heterogaster artemisiae</i> Schilling, 1829		+		1 locality	1♀
9	Heterogastridae Stål, 1872	<i>Heterogaster urticae</i> (Fabricius, 1775)		+		1 locality	1♂, 1♀
10		<i>Platyplax inermis</i> (Rambur, 1839)		+		2 localities	5♂♂, 4♀♀
11		<i>Brachyplax tenuis</i> (Mulsant & Rey, 1852)		+		2 localities	2♂♂, 1♀
12		<i>Macropfax fasciata</i> (Herrich-Schaeffer, 1835)		+		4 localities	4♂♂, 4♀♀
13	Oxycarenidae Stål, 1862	<i>Microplax albofasciata</i> (A. Costa, 1847)			+	1 locality	1♀
14		<i>Microplax interrupta</i> (Fieber, 1837)		+		4 localities	7♂♂, 13♀♀
15		<i>Oxycarenus pallens</i> (Herrich-Schäffer, 1850)		+		16 localities	22♂♂, 15♀♀
16		<i>Oxycarenus hyalinipennis</i> (A. Costa, 1843)		+		3 localities	61♂♂, 31♀♀
17		<i>Apolymsus pectoralis</i> Fieber, 1859			+	2 localities	2♂♂, 2♀♀
18		<i>Neides tipularius</i> (Linnaeus, 1758)		+		1 locality	3♂♂
19	Berytidae Fieber, 1851	<i>Berytinus geniculatus</i> (Horváth, 1885)			+	1 locality	1♂, 1♀
20		<i>Gampsocoris culicinus</i> Seidenstücker, 1948			+	2 localities	3♂♂, 6♀♀
21		<i>Metacanthus meridionalis</i> (A. Costa, 1843)			+	1 locality	4♂♂, 4♀♀
22	Piesmatidae Amyot & Serville, 1843	<i>Piesma maculatum</i> (Laporte, 1833)			+	1 locality	2♂♂

Regional studies are very important in revealing the fauna of a country. In this regard, the findings obtained in this study are important. The additional records obtained in this study also contribute to the biodiversity of the Cymidae, Blissidae, Artheneidae, Heterogastridae, Oxycarenidae, Berytidae, and Piesmatidae families in Amasya Province and its surroundings and the distribution data of the families in Türkiye.

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