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Original article (Orijinal araştırma)

A study on the Rhyparochromidae Amyot & Serville, 1843 (Hemiptera: Heteroptera) fauna of Amasya Province (Türkiye) with new records[1]

Yeni kayıtlarla Amasya ili (Türkiye) Rhyparochromidae Amyot & Serville, 1843 (Hemiptera: Heteroptera) faunası üzerine bir araştırma

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Abstract

In this study, 367 adults from the Rhyparocromidae (Hemiptera: Heteroptera) family were gathered between 2020 and 2021 from 51 various locations in the Amasya Province (Türkiye). After the specimens were identified, it was discovered that 40 species of the 22 genera that make up the Rhyparocromidae family had been reported. The findings have revealed that all species are new records for the Rhyparocromidae fauna of Amasya province. Among these, the species *Drymus ryeii* Douglas & Scott, 1865, is a new record for the Heteroptera fauna of Türkiye. Additionally, 17 species are new records for the Black Sea Region while 7 species are new records for the Central Black Sea Region. The species *Emblethis amplus* Seidenstücker, 1987, are given second locality from Türkiye. In addition to all of the previously provided data, the study included a chorotype analysis of Rhyparochromidae species and updated the distribution area of these species with new locality information. Rhyparochromidae species from Amasya have been categorized into 13 groups based on chorotype analysis.

Keywords: Chorotypes analysis, *Drymus ryeii*, new records, Rhyparochromidae, Türkiye

Öz

Bu çalışmada, 2020-2021 yılları arasında Amasya ilinde (Türkiye) 51 farklı lokaliteden Rhyparocromidae (Hemiptera: Heteroptera) familyasına ait 367 ergin toplanmıştır. Örneklerin teşhis edilmesi ile Rhyparocromidae familyasını oluşturan 22 cinse ait 40 tür kaydedilmiştir. Bulgular, tüm türlerin Amasya ili Rhyparocromidae faunası için yeni kayıt olduğunu göstermektedir. Bunlardan *Drymus ryeii* Douglas & Scott, 1865 taksonu Türkiye Heteroptera faunası için yeni kayıttır. Ayrıca, 17 tür Karadeniz Bölgesi için, 7 tür Orta Karadeniz Bölgesi için yeni kayıt olarak verilmiştir. *Emblethis amplus* Seidenstücker, 1987 türüne ait Türkiye'den ikinci lokalite kaydı verilmiştir. Çalışma, daha önceki verilere ek olarak Rhyparochromidae türlerinin korotip analizini de içermekte ve bu türlerin dağılım alanlarını yeni lokalite bilgileri ile güncellemektedir. Amasya'dan elde edilen Rhyparochromidae türleri korotip analizine dayalı olarak 13 gruba ayrılmıştır.

Anahtar sözcükler: Korotip analiz, *Drymus ryeii*, yeni kayıtlar, Rhyparochromidae, Türkiye

[1] This study was derivated from the MSc thesis of the first author.

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Introduction

Currently there are approximately 45 000 species of suborder Heteroptera (Hemiptera) in the world and 1632 genera comprising approximately 9 365 species of the Palaearctic region (Aukema et al., 2013; Henry, 2017). There are presently over 33 820 insect species reported to exist in Türkiye, according to Tezcan (2020). Of those, 1650 species belonging to suborder Heteroptera (Dursun & Fent, 2022; Çerçi & Koçak, 2023). According to these data, approximately 21% of the Heteroptera species found in the Palearctic region are distributed in Türkiye. Of these species, 239 species belonging to 23 families have type localities in Türkiye. Of those, 123 species are known to be endemic to the Turkish fauna (Önder et al., 2006; Dursun & Fent, 2015, 2017, 2018; Çerçi & Koçak, 2017, 2023).

One of the largest families within the superfamily Lygaeoidea (Heteroptera), the Rhyparochromidae Amyot & Serville, 1843, is distributed throughout the world. In the Palaearctic region, 573 species from 136 genera have been identified (Péricart, 2001). Of those, 125 species belonging 41 genera are distributed in Türkiye (Péricart, 2001; Çerçi & Koçak, 2023). The specimens of the Rhyparochromidae family are distributed especially in various reeds, swamps and wetlands (Péricart,1999a). Surface of body colors are commonly dark brown, chestnut or black. Red parts or light patterned colors are sometimes found in certain parts of the body. The pronotum has usually narrow or wide lamelliform lateral edges. Wing polymorphism is dominated by macropterism, except for Plinthisinae. Hemelytra are dotted, especially on the clavus. Most species of this family lay their eggs of the aphanoid type, arranged individually on various plant debris. Species of this family mostly live among plant debris. It is rarely found in living plants except nymphs. They feed on the juice of various seeds by piercing them from a first Instar (Péricart, 1999a).

The geographical distribution of animals and plants can be indicated model-wise by chorotypes. The Chorotypes are known a classification based on distribution modeling obtained from comparative analysis of the geographical distributions of higher taxa, genera and species (Vigna Taglianti et al., 1999). With the chorotype study, the place of origin of faunal elements in a region can be determined. The chorotype studies can provide a useful tool for biogeographical research in a region.

Different microclimatic conditions, rich relief with fertile plans and high mountains, and transitional position between Central Anatolia and the Black Sea regions are the reasons for the rich biodiversity of Amasya. There are not faunistic and taxonomic studies on the family Rhyparochromidae from Amasya Province (Türkiye). Giving new records for the family Rhyparochromidae fauna in Amasya, evaluating ecological and chorotype data for the species that have been recorded, and opening a new way for scientific and ecological studies in the region are the aims of this first study.

Materials and Methods

The research material consists of 367 adult specimens (167 males and 200 females) collected from 51 localities with several vegetation and habitats from Amasya in the years from 2020 to 2021 (Figure 1). The specimens were collected from herbaceous vegetation with a sweep net and under stones, plants and bark of trees with the forceps. Plants on which a specimen was captured were recorded. All samples were stored in the Entomology lab in capped tubes filled with 70% ethanol. To prepare the male genitalia (pygophore, paramere, and aedeagus), used for additional identifications, the specimens were softened in hot water (80 -100°C) in the laboratory. The species identification was done using the keys of Stichel (1960) and Péricart (1999a, b) under a stereomicroscope Leica EZ4. The Palearctic region distributions of the species are given by examining the Catalogue of Aukema (2018). The map was created using Google Earth Pro (Anonymous, 2023). The material is added to the Department of Biology's collection at Amasya University's Faculty of Science and Arts (Amasya, Türkiye).

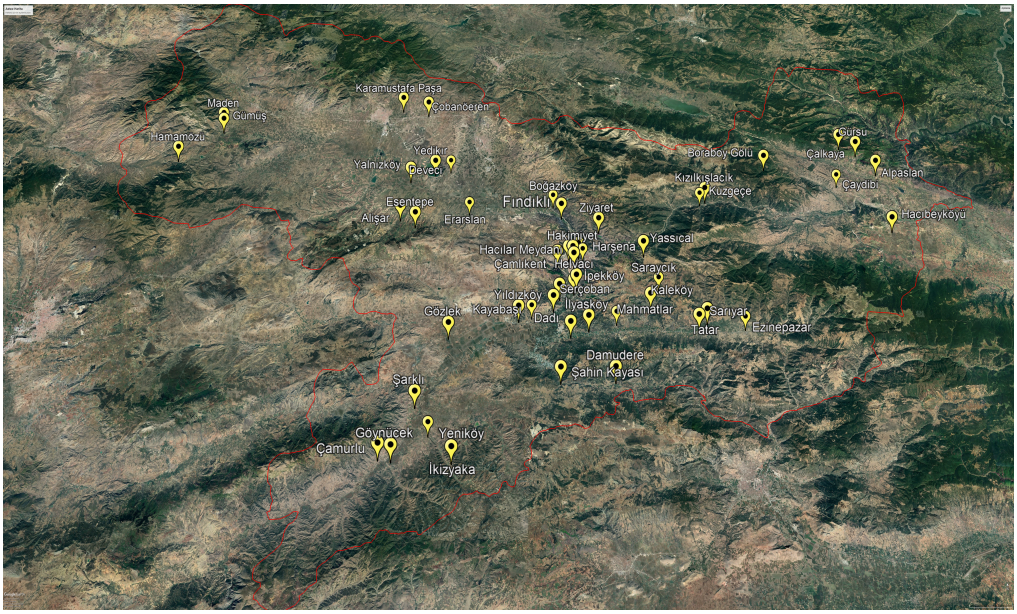

Figure 1. The study area in Amasya (Anonymous, 2023).

Research Results

Rhyparochromidae Amyot & Serville, 1843

Rhyparochrominae Amyot & Serville, 1843

Tribe: Drymini Stål, 1872

Genus: *Drymus* Fieber, 1860

Subgenus: *Sylvadrymus* Le Quesne, 1956

***Drymus ryeii* Douglas & Scott, 1865**

Material examined. **Amasya**: Dadıköy, 40°33'44"N 35°48'28"E, 521 m, 21.IV.2021, ♂.

Distribution in Türkiye. New record for the Heteroptera fauna of Türkiye.

Distribution in Palaearctic Region. **Europe**: Austria, Belgium, Bulgaria, Byelorussia, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Great Britain, Germany, Greece, Hungary, Ireland, Italy, Latvia, Liechtenstein, Luxembourg, Moldavia, Netherlands, Norway, Poland, Romania, Russia (Central European Territory, North European Territory, South European Territory), Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine. **Asia**: Georgia (?), Iran, Japan (?), Russia (East Siberia, West Siberia) (Aukema, 2018).

Note. The specimen was collected under leaf debris of *Pinus* sp., Chorotype: Sibero-European.

Redescription of male. Surface of body black and pitted (Figure 2a). Antennae black with short yellowish brown hairy. 1st antennal segment passing distal head. Lengths of antennae segments I-IV (mm): 0.48, 0.80, 0.53, 0.69 (Figure 2a). Rostrum blackish brown extends to middle coxae. Length of Proximal edge of Pronotum 1,6 mm. and median 1.00 mm. Hemelytra blackish brown, exocorium yellowish brown. Membrane smoky yellow, reaching apex of abdomen, membranous veins light, Connexivum and dorsum black. Pectus and ventral black. Lateral surface of venter yellow dense and short hairy. Femur black, distal part of fore femur with two small spines, tibia blackish brown with superficially short hairy, tarsus light brown. Paramere as in Figure (2b). Length: 4.6mm.

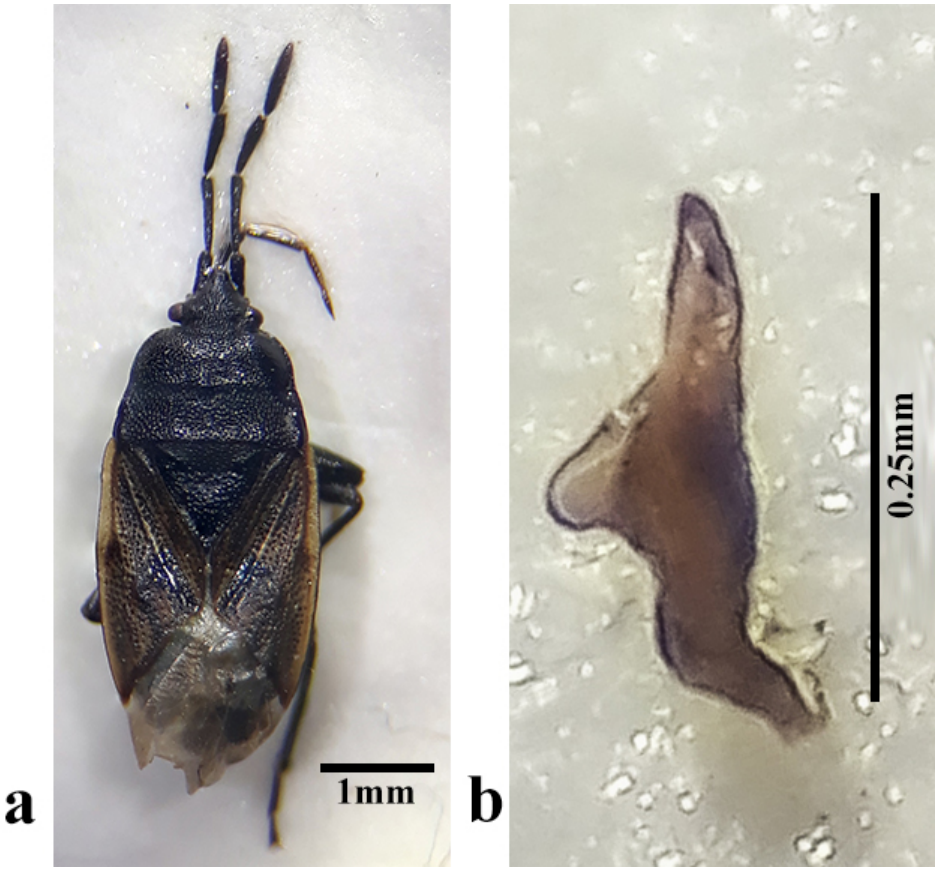

Figure 2. *Drymus ryeii* Douglas & Scott, 1865, a) Body (dorsal), b) Paramere.

Genus: *Eremocoris* Fieber, 1860

***Eremocoris fenestratus* (Herrich-Schaeffer, 1839)**

Material examined. **Amasya**: Çamlıkent, 31.VIII.2021, ♂, 2♀♀; Hacılar Meydanı, 21.VIII.2021, ♀; 03.IV.2021, ♂; Kırklar, 02.IX.2021, ♂, 2♀♀; İpekköy, 24.VIII.2021, ♂; Kızılkışlacık, 10.IX.2021, ♂, ♀; Göynücek: İkizyaka, 03.IX.2021, ♀.

Distribution in Türkiye. Adana, Ankara, Antalya, Bitlis, Burdur, Diyarbakır, Gaziantep, Hatay, Isparta, İzmir, Kahramanmaraş, Karaman, Kastamonu, Mersin, Muğla (Hoberlandt, 1956; Lodos et al., 1978, 1989; Önder et al., 1981, 2006; Péricart, 1999a; Fent & Japoshvili, 2012; Matocq et al., 2014; Küçükbasmacı & Kıyak, 2015; Çerçi & Koçak, 2023).

Note. This species is a new record for Central Black Sea Region. The specimens were collected under *Rosa canina* and *Junglans* sp., Chorotype: Sibero-European.

Genus: *Ischnocoris* Fieber, 1860

***Ischnocoris hemipterus* (Schilling, 1829)**

Material examined. Gümüşhacıköy: Gümüş, 07.IX.2021, ♀.

Distribution in Türkiye. Edirne, Kayseri (Péricart, 1999a; Fent & Okyar, 2022).

Note. This species is a new record for Black Sea Region. The specimen was collected from annual herbaceous plant, Chorotype: European.

Genus: *Scolopostethus* Fieber, 1860

***Scolopostethus affinis* (Schilling, 1829)**

Material examined. Taşova: Boraboy Gölü, 29.VIII.2021, ♀.

Distribution in Türkiye. Ankara, Antalya, Bolu, Çanakkale, Erzurum, Gaziantep, Hatay, İzmir, Karaman, Konya, Nevşehir, Ordu, Sinop, Sivas, Zonguldak (Puton & Noualhier, 1895; Hoberlandt, 1956; Lodos et al., 1978, 1989; Péricart, 1999a; Önder et al., 2006; Yazıcı et al., 2015; Çerçi & Koçak, 2023).

Note. This species is a new record for Amasya province. The specimen was collected under leaf debris of *Pinus* sp., Chorotype: Asiatic-European.

***Scolopostethus cognatus* Fieber, 1861**

Material examined. **Amasya:** Serçoban, 09.IX.2021, ♀.

Distribution in Türkiye. Adana, Antalya, Gaziantep, Hatay, Mersin (Önder et al., 2006).

Note. This species is a new record for Black Sea Region. The specimen was collected under leaf debris of *Pinus* sp., Chorotype: European-Mediterranean.

According to Aukema et al. (2013) and Aukema (2018) the occurrence in Anatolia needs to be confirmed. Therefore, the specimen was redescribed: Antennae segments thick, half the body length, 1st antennal segment wheat yellow, 2nd segment wheat yellow, distal brown, 3rd segment brown, the base of 4th segment brown, distal part wheat yellow. Laterally of pronotum wheat yellow. Wings and legs conform to Péricart's description (1999a). The mesopleura without tubercles. Total length of body 3.9 mm. This finding removes any doubt about the existence of *S. cognatus* species in Türkiye.

***Scolopostethus pictus* (Schilling, 1829)**

Material examined. Taşova: 29.VIII.2021, Boraboy, 3♀♀.

Distribution in Türkiye. Adana, Antalya, Balıkesir, Burdur, Bursa, Düzce, Hatay, İzmir, Kahramanmaraş, Karaman, Kocaeli, Mersin, Muş, Ordu, Osmaniye (Horváth, 1883, 1901; Puton & Noualhier, 1895; Lodos et al., 1978, 1989; Önder et al., 1983, 2006; Péricart, 1999a; Dursun & Fent, 2016; Çerçi & Koçak, 2023).

Note. This species is a new record for Amasya province. The specimen was collected under leaf debris of *Pinus* sp., Chorotype: European.

Tribe: Gonianotini Stål, 1872

Genus: *Aphanus* Laporte, 1833

***Aphanus rolandri* (Linnaeus, 1758)**

Material examined. **Amasya**: İpekköy, 11.IV.2021, 2♀♀; Dadıköy, 21.IV.2021, 7♂♂, 7♀♀; Yassıçal, 28.IV.2021, 2♂♂; Saraycık, 28.IV.2021, ♂; Kaleköy, 28.IV.2021, 2♀♀; Hacılar Meydanı, 21.VIII.2021, ♀; Hakimiyet, 12.IX.2021, ♀; İpekköy, 24.VIII.2021, ♀; Merzifon: Alişar, 20.VIII.2021, 3♂♂, 7♀♀; 14.IX.2021, Çobanören, ♂, ♀; Taşova: Çalkaya, 27.V.2021, ♀.

Distribution in Türkiye. Adana, Ankara, Antalya, Bolu, Balıkesir, Bingöl, Çorum, Elazığ, Kahramanmaraş, Karabük, Karaman, Kars, Kayseri, Kırşehir, Konya, Malatya, Mardin, Muğla, Niğde, Osmaniye, Samsun, Zonguldak (Horváth, 1901; Kiritshenko, 1918; Gadeau de Kerville, 1939; Çağatay, 1988; Péricart, 1999b; Lodos et al., 1989; Önder et al., 2006; Matocq et al., 2014; Yazıcı et al., 2015; Fent & Okyar, 2022; Çerçi & Koçak, 2023).

Note. This species is a new record for Amasya province. The specimens were collected under stone bottoms and leaf debris areas., Chorotype: West Palearctic.

Genus: *Emblethis* Fieber, 1860

***Emblethis amplus* Seidenstücker, 1987**

Material examined. **Amasya**: Ziyaret, 19.IV.2021, ♂.

Distribution in Türkiye. Malatya (Péricart, 1999b).

Distribution in Palaearctic Region. **Asia**: Iran, Iraq, Türkiye (Asian part), Turkmenistan (Péricart, 2001).

Note. This species is a new record for Black Sea Region. The specimen was collected under *Verbascum* sp., Chorotype: Turanian.

***Emblethis angustus* Montandon, 1890**

Material examined. **Amasya**: Ziyaret, 19.IV.2021, 2♂♂, 2♀♀; Yıldızköy, 25.VIII.2021, ♀; İlyasköy, 05.VII.2021, ♀; Suluova: Eraslan, 28.VI.2021, ♂; Taşova: Boraboy, 29.VIII.2021, ♂; Göynücek: Çamurlu, 03.IX.2021, ♀.

Distribution in Türkiye. Adana, Adıyaman, Ankara, Antalya, Çanakkale, Gaziantep, Hatay, Isparta, İzmir, Kahramanmaraş, Karaman, Kayseri, Konya, Manisa, Mersin, Muğla, Niğde, Siirt (Seidenstücker, 1963; Lodos et al., 1978, 1989; Önder et al., 2006; Matocq & Özgen, 2010; Çerçi & Koçak, 2023).

Note. This species is a new record for Black Sea Region. The specimens were collected under *Verbascum* sp., Chorotype: Turano-Mediterranean.

***Emblethis denticollis* Horváth, 1878**

Material examined. Göynücek: Şarklı, 03.IX.2021, ♂, ♀.

Distribution in Türkiye. Adana, Ankara, Antalya, Burdur, Çanakkale, Çorum, Edirne, Erzincan, Erzurum, Eskişehir, Gaziantep, Hatay, Kahramanmaraş, Karabük, Karaman, Kayseri, Kırşehir, Kilis, Konya, Mersin, Nevşehir, Niğde, Siirt, Yozgat (Puton & Noualhier, 1895; Horváth, 1905; Kiritshenko, 1924; Hoberlandt, 1956; Lodos et al., 1978, 1989; Önder et al., 1984, 2006; Özsaraç & Kıyak, 2001; Kıyak et al., 2004; Matocq & Özgen, 2010; Matocq et al., 2014; Yazıcı et al., 2015; Yence & Fent, 2023; Çerçi & Koçak, 2023).

Note. This species is a new record for Amasya province. The specimens were collected under *Verbascum* sp., Chorotype: Palearctic.

***Emblethis griseus* (Wolff, 1802)**

Material examined. **Amasya:** Tatar, 19.V.2021, ♂; İlyasköy, 05.VII.2021, ♀.

Distribution in Türkiye. Adana, Afyonkarahisar, Ankara, Antalya, Bursa, Çankırı, Denizli, Edirne, Elazığ, Erzurum, Hatay, Isparta, İzmir, Kahramanmaraş, Karabük, Kars, Kastamonu, Kayseri, Kırşehir, Mersin, Niğde, Osmaniye, Yozgat, Zonguldak (Seidenstücker, 1963; Lodos et al., 1989; Önder et al., 2006; Fent & Japoshvili, 2012; Küçükbasmacı & Kıyak, 2015; Yence & Fent, 2023).

Note. This species is a new record for Central Black Sea Region. The specimens were collected under *Verbascum* sp. and *Prunus* sp., Chorotype: West Palearctic.

***Emblethis latus* Seidenstücker, 1966**

Material examined. **Amasya**: Helvacı, 10.V.2020, 3♀♀; Sarıyar, 19.V.2021, ♀; Merzifon: Alişar, 20.VIII.2021, ♂, ♀; Taşova: Boraboy, 29.VIII.2021, ♂.

Distribution in Türkiye. Kars, Kayseri, Niğde (Seidenstücker, 1967, 1987; Yence & Fent, 2023).

Note. This species is a new record for Black Sea Region. The specimens were collected under *Verbascum* sp., Chorotype: Saharo-Turanian.

***Emblethis nox* Kiritshenko, 1912**

Material examined. **Amasya**: Ziyaret, 19.IV.2021, ♂; Gümüşhacıköy: Maden, 07.IX.2021, ♂.

Distribution in Türkiye. Kayseri, Niğde (Seidenstücker, 1987; Yence & Fent, 2023).

Note. This species is a new record for Black Sea Region. The specimens were collected under *Verbascum* sp., Chorotype: Turanian.

***Emblethis sabulosus* Seidenstücker, 1963**

Material examined. **Amasya**: Damudere, 08.VI.2021, ♀.

Distribution in Türkiye. İstanbul, Konya, Mersin (Önder et al., 2006).

Note. This species is a new record for Black Sea Region. The specimen was collected under *Verbascum* sp., Chorotype: Turanian.

***Emblethis setifer* Seidenstücker, 1966**

Material examined. **Amasya**: Tatar, 19.V.2021, ♂; Kırklar, 02.IX.2021, ♂; Merzifon: Alişar, 20.VIII.2021, ♂; Taşova: Çalkaya, 27.V.2021, ♂, ♀.

Distribution in Türkiye. Adana, Ankara, Gaziantep, Karaman, Kayseri, Konya, Malatya, Mardin, Niğde (Seidenstücker, 1966; Péricart, 1999b; Lodos et al., 1989; Önder et al., 2006; Matocq et al., 2014; Yence & Fent, 2023; Çerçi & Koçak, 2023).

Note. This species is a new record for Black Sea Region. The specimens were collected under *Verbascum* sp. Chorotype: Turanian.

***Emblethis verbasci* (Fabricius, 1803)**

Material examined. **Amasya**: Saraycık, 28.IV.2021, ♂.

Distribution in Türkiye. Adana, Afyonkarahisar, Aksaray Ankara, Artvin, Bolu, Bursa, Çankırı, Çorum, Diyarbakır, Düzce, Edirne, Hatay, Isparta, Kahramanmaraş, Karaman, Kayseri, Kırıkkale, Konya, Mardin, Nevşehir, Niğde (Horváth, 1883; Puton & Noulhier, 1895; Hoberlandt 1956; Önder & Adıgüzel, 1979; Lodos et al., 1989; Péricart, 1999b; Önder et al., 2006; Fent & Japoshvili, 2012; Matocq et al. 2014; Fent & Dursun, 2016; Çerçi & Koçak, 2023).

Note. This species is a new record for Amasya province. The specimen was collected under *Prunus* sp., Chorotype: West Palearctic.

Genus: *Ischnopeza* Fieber, 1860

***Ischnopeza hirticornis* (Herrich-Schaeffer, 1853)**

Material examined. Taşova: Çaydibi, 27.V.2021, ♂.

Distribution in Türkiye. Adana, Afyonkarahisar, Ankara, Antalya, Balıkesir, Bilecik, Çanakkale, Çorum, Edirne, Erzincan, Eskişehir, Hatay, Iğdır, Isparta, İzmir, Karaman, Kahramanmaraş, Kastamonu, Kırklareli, Kırıkkale, Konya, Manisa, Mersin, Osmaniye, Uşak (Horváth, 1901; Kiritshenko, 1924; Hoberlandt, 1956; Seidenstücker, 1963; Lodos et al., 1978, 1989; Kıyak & Akar, 2010; Fent & Japoshvili, 2012; Dursun & Fent, 2016; Çerçi et al., 2018, 2022; Çerçi & Koçak, 2023).

Note. This species is a new record for Amasya province. The specimen was collected under hay plant debris. Chorotype: Turano-Mediterranean.

Genus: *Neurocladus* Fieber, 1860

***Neurocladus brachiidens* (Dufour, 1851)**

Material examined. **Amasya**: Boğazköy, 17.IV.2020, ♂, 4♀♀; Ziyaret, 19.IV.2021 ♂, ♀; Gümüşhacıköy: Gümüş, 29.VIII.2020, 2♂♂, 6♀♀.

Distribution in Türkiye. Adana, Ankara, Diyarbakır, Elazığ, Hatay, Iğdır, Konya, İzmir, Malatya, Niğde (Puton & Noualhier, 1895; Hoberlandt, 1956; Péricart, 1999a; Lodos et al., 1989; Önder et al., 2006; Matocq et al., 2014; Yence & Fent, 2023; Çerçi et al., 2022; Çerçi & Koçak, 2023).

Note. This species is a new record for Black Sea Region. The specimens were collected under hay plant debris. Chorotype: Turano-Mediterranean.

Genus: *Trapezonotus* Fieber, 1860

Subgenus: *Trapezonotus* Fieber, 1860

***Trapezonotus dispar* Stål, 1872**

Material examined. **Amasya**: Boğazköy, 18.V.2020, ♂.

Distribution in Türkiye. Bursa, Edirne, Hatay (Péricart, 1999b; Önder et al., 2006).

Note. This species is a new record for Black Sea Region. The specimen was collected from annual herbaceous plant. Chorotype: European-Mediterranean.

Tribe: Lethaeini Stål, 1872

Genus: *Lethaeus* Dallas, 1852

***Lethaeus cribratissimus* (Stål, 1859)**

Material examined. **Amasya**: Harşena, 06.III.2020, Hacılar Meydanı, 2♂♂; 21.VIII.2021, 7♂♂, ♀; İpekköy, 24.VIII.2021, ♂, 3♀♀; Dadıköy, 24.VIII.2021, ♂; Kayabaşı, 25.VIII.2021, 3♂♂, 2♀♀; Çamlıkent, 31.VIII.2021, ♂, 2♀♀; Kırklar, 02.IX.2021, 3♂♂, ♀; Kızılkışlacık, 10.IX.2021, 2♂♂; Kuzgeçe, 10.IX.2021, ♂, 2♀♀; Gümüşhacıköy: Maden, 07.IX.2021, 2♂♂.

Distribution in Türkiye. Adana, Ankara, Antalya, Bursa, Çanakkale, Diyarbakır, Gaziantep, Hatay, Isparta, İstanbul, İzmir, Karaman, Kayseri, Kilis, Mersin, Muğla, Niğde, Sakarya, Sinop, Sivas, Tokat, Zonguldak (Horváth, 1883; 1901; 1905; Puton & Noualhier, 1895; Seabra, 1926; Lodos et al., 1978, 1989; Péricart, 1999a; Fent & Japoshvili, 2012; Matocq et al., 2014; Yence & Fent, 2023; Çerçi & Koçak, 2023).

Note. This species is a new record for Amasya province. The specimens were collected under *Verbascum* sp. And leaf debris of *Pinus* sp. and *Planatus* sp., Chorotype: East Mediterranean.

Tribe: Megalonotini J. A. Slater, 1957

Genus: *Lamprodema* Fieber, 1860

***Lamprodema maura* (Fabricius, 1803)**

Material examined. **Amasya**: Sarıyar, 19.V.2021, ♀ ; 22.VIII.2021, ♂ ; 23.VIII.2021, ♀ ; Gözlek, 03.IX.2021, ♀ ; Suluova : Deveci, 20.VIII.2021, 5♂♂, 5♀♀ ; Merzifon : Alişar, 20.VIII.2021, ♂, ♀ ; Gümüşhacıköy : Yeniköy, 03.IX.2021, 2♂♂, 3♀♀.

Distribution in Türkiye. Ankara, Ağrı, Antalya, Balıkesir, Bursa, Diyarbakır, Edirne, Erzincan Gaziantep, Hatay, İstanbul, İzmir, Kahramanmaraş, Karaman Kars, Kayseri, Kırşehir, Kocaeli, Konya, Sakarya, Siirt, Van (Puton & Noualhier, 1895; Horváth, 1901; Kiritshenko, 1918, 1924; Hoberlandt, 1956; Lodos et al. 1978, 1989; Önder & Adıgüzel, 1979; Önder et al., 1981, 1983, 1984, 2006; Çağatay, 1988; Péricart, 1999b; Matocq & Özgen, 2010; Çerçi et al. 2022; Çerçi & Koçak, 2023).

Note. This species is a new record for Black Sea Region. The specimens were collected under *Verbascum* sp. and leaf debris of *Pinus* sp. and *Planatus* sp., Chorotype: Turano-Mediterranean.

Genus: *Lasiocoris* Fieber, 1860

***Lasiocoris anomalus* (Kolenati, 1845)**

Material examined. Göynücek: Çamurlu, 03.IX.2021, ♂, 2♀♀.

Distribution in Türkiye. Adana, Ağrı, Ankara, Bursa, Diyarbakır, Elazığ, Erzurum, Gaziantep, Hakkari, Igdır, Karaman, Konya, Malatya, Niğde, Tokat, Van (Kiritshenko, 1918; Hoberlandt, 1956; Kıyak, 1990; Péricart, 1999b; Önder et al., 2006; Yazıcı et al., 2015; Özgen & Dioli, 2019; Çerçi & Koçak, 2023).

Note. This species is a new record for Amasya province. The specimens were collected under *Verbascum* sp., Chorotype: Turano-Mediterranean.

***Lasiocoris crassicornis* (Lucas, 1849)**

Material examined. **Amasya:** Saraycık, 08.IV.2021, ♂, ♀.

Distribution in Türkiye. Adana, Adıyaman, Ankara, Antalya, Bursa, Edirne, Elazığ, Hatay, İstanbul, İzmir, Karaman, Kahramanmaraş, Kayseri, Konya, Kütahya, Malatya, Van (Horváth, 1883; Puton & Noualhier, 1895; Linnavuori, 1953; Lodos et al., 1989; Kıyak, 1990; Péricart, 1999b; Önder et al., 2006; Çerçi & Özgen, 2021; Çerçi & Koçak, 2023).

Note. This species is a new record for Black Sea Region. The specimens were collected under *Verbascum* sp., Chorotype: Mediterranean.

Genus: *Megalonotus* Fieber, 1860

***Megalonotus sabulicola* (Thomson, 1870)**

Material examined. **Amasya:** Çamlıkent, 31.VIII.2021, ♀.

Distribution in Türkiye. Adana, Antalya, Gaziantep, Hatay, Kastamonu, Mersin (Önder et al., 2006; Küçükbasmacı & Kıyak, 2015).

Note. This species is a new record for Central Black Sea Region. The specimen was collected under *Verbascum* sp., Chorotype: Palaearctic.

***Megalonotus emarginatus* (Rey, 1888)**

Material examined. **Amasya**: 22.IV.2021, ♂; Kayabaşı, 25.VIII.2021, ♂, 2♀♀; Kızılkışlacık, 10.IX.2021, ♂.

Distribution in Türkiye. Adana, Antalya, Mersin (Önder et al., 2006).

Note. This species is a new record for Black Sea Region. The specimens were collected under *Verbascum* sp. and leaf debris of *Pinus* sp. and *Planatus* sp., Chorotype: Europeo-Mediterranean.

Tribe: Myodochini Blanchard, 1845

Genus: *Paromius* Fieber, 1860

***Paromius gracilis* (Rambur, 1839)**

Material examined. Taşova: Çaydibi, 27.V.2021, 2♂♂.

Distribution in Türkiye. Adana, Antalya, Aydın, Çanakkale, Denizli, Hatay, İzmir, Kahramanmaraş, Mersin, Tekirdağ (Önder et al., 2006).

Note. This species is a new record for Black Sea Region. The specimens were collected from annual herbaceous plants. Chorotype: Palaearctic.

Tribe: Plinthisini J. A. Slater & Sweet, 1961

Genus: *Plinthisus* Stephens, 1829

Subgenus: *Plinthisus* Stephens, 1829

***Plinthisus longicollis* Fieber, 1861**

Material examined. **Amasya:** Hacılar Meydanı, 21.VIII.2021, ♀; 10.IX.2021, ♂; Kuzgeçe, 24.VIII.2021, ♀; Dadıköy, 10.IX.2021, 2♂♂; Kızılkışlacık, 21.IV.2021, ♂; Şahinkayası, 21.IV.2021, ♀; Mahmatlar, 06.VII.2021, ♂, ♀; Merzifon: Esentepe, 20.VIII.2021, ♀; Taşova: Çaydibi, 05.VII.2021, ♂; Gümüşhacıköy: Maden, 07.IX.2021, 2♂♂, ♀.

Distribution in Türkiye. Adana, Afyonkarahisar, Ankara, Aydın, Bursa, Diyarbakır, Elazığ, Hatay, Isparta, Konya, Sinop (Horváth, 1901; Hoberlandt, 1956; Önder et al., 2006; Fent & Japoshvili, 2012; Matocq et al., 2014; Yazıcı et al., 2015; Fent & Dursun, 2016; Çerçi et al., 2018; Yence & Fent, 2023).

Note. This species is a new record for Amasya province. The specimens were collected under *Verbascum* sp. and leaf debris of *Pinus* sp., Chorotype: Turano-European-Mediterranean.

Tribe: Rhyparochromini Amyot & Serville, 1843

Genus: *Aellopus* Wolff, 1811

***Aellopus atratus* (Goeze, 1778)**

Material examined. Göynücek, 03.IX.2021, 4♂♂, ♀; Gümüşhacıköy: Maden, 07.IX.2021, ♂, 3♀♀.

Distribution in Türkiye. Adana, Afyonkarahisar, Ankara, Aydın, Bursa, Diyarbakır, Elazığ, Hatay, Isparta, Karaman, Kayseri, Konya, Niğde, Sinop, Tokat, (Puton & Noualhier, 1895; Horváth, 1897, 1901; Hoberlandt, 1956; Péricart, 1999b; Önder et al., 2006; Fent & Japoshvili, 2012; Matocq et al., 2014; Yazıcı et al., 2015; Dursun & Fent, 2016; Özgen et al., 2021; Çerçi & Koçak, 2023; Yence & Fent, 2023).

Note. This species is a new record for Amasya province. The specimens were collected under *Verbascum* sp., *Acanholimon* sp., *Astragalus* sp., Chorotype: West Palaearctic.

Genus: *Beosus* Amyot & Serville, 1843

***Beosus maritimus* (Scopoli, 1763)**

Material examined. **Amasya:** Sarıyar, 19.V.2021, ♂; Damudere, 08.VI.2020; ♂, ♀; Hamamözü: 07.IX.2021, ♂; Taşova: Boraboy, 29.VIII.2021, 2♂♂, ♀.

Distribution in Türkiye. Adana, Adıyaman, Ankara, Antalya, Bolu, Bursa, Çankırı, Diyarbakır, Düzce, Edirne, Elazığ, Erzurum, Gaziantep, Giresun, Hatay, Isparta, Kahramanmaraş, Karabük, Karaman, Kastamonu, Kayseri, Manisa, Mersin, Osmaniye, Van, Zonguldak (Horváth, 1883; Puton, 1892; Hoberlandt, 1956; Önder & Adıgüzel, 1979; Lodos et al., 1989; Önder et al., 2006; Fent & Japoshvili, 2012; Küçükbasmacı & Kıyak, 2015; Yazıcı et al., 2015; Kaçar & Dursun, 2022; Çerçi & Koçak, 2023; Yence & Fent, 2023).

Note. This species is a new record for Central Black Sea Region. The specimens were collected under plant debris and stones. Chorotype: West Palearctic.

***Beosus quadripunctatus* (Müller, 1766)**

Material examined. **Amasya**: Damudere, 08.VI.2020, ♂; Fındıklı, 15.VIII.2020, 2♂♂, 4♀♀; Dadıköy, 24.VIII.2021, ♀; Karasenir, 09.IX.2021, 2♂♂; Merzifon: Yalnızköy, 20.VIII.2021, ♀; Çobanören, 14.IX.2021, ♂; Göynücek: 03.IX.2021, ♂; Taşova: Boraboy, 29.VIII.2021, ♀.

Distribution in Türkiye. Adana, Afyonkarahisar, Ağrı, Ankara, Antalya, Artvin, Aydın, Balıkesir, Bartın, Bilecik, Bursa, Çanakkale, Çankırı, Çorum, Denizli, Diyarbakır, Düzce, Edirne, Elazığ, Erzurum, Eskişehir, Hatay, Iğdır, İstanbul, İzmir, Kahramanmaraş, Karabük, Karaman, Kars, Kastamonu, Kayseri, Kırklareli, Konya, Kütahya, Manisa, Mardin, Niğde, Osmaniye, Sakarya, Siirt, Sinop, Tekirdağ, Uşak Zonguldak (Horváth, 1883, 1918; Puton & Noulhier, 1895; Kiritshenko, 1918, 1924; Seabra, 1926; Hoberlandt, 1956; Linnavuori, 1965; Lodos et al., 1978, 1989; Önder & Adıgüzel, 1979; Önder et al., 1984; Matocq et al., 2014; Yazıcı et al., 2015; Fent & Dursun, 2016; Çerçi & Koçak, 2023; Yence & Fent, 2023).

Note. This species is a new record for Amasya province. The specimens were collected under plant debris and stones. Chorotype: West Palearctic.

Genus: *Graptopeltus* Stål, 1872

***Graptopeltus lynceus* (Fabricius, 1775)**

Material examined. Taşova: Çalkaya, 27.V.2021, 2♂♂, 3♀♀.

Distribution in Türkiye. Adana, Ankara, Bursa, Isparta, İstanbul, Kahramanmaraş, Muş, Niğde (Önder et al., 2006; Fent & Japhosvili, 2012; Fent & Dursun, 2016).

Note. This species is a new record for Central Black Sea Region. The specimens were collected under plant debris and stones. Chorotype: Turano-Europeo-Mediterranean.

Genus: *Peritrechus* Fieber, 1860

***Peritrechus geniculatus* (Hahn, 1832)**

Material examined. **Amasya**: Dadıköy, 21.IV.2021, ♀.

Distribution in Türkiye. Ankara, Kars, Kastamonu, Konya (Önder et al., 2006; Fent & Dursun 2016).

Note. This species is a new record for Central Black Sea Region. The specimen was collected under debris of *Pinus* sp. Chorotype: West Palearctic.

Genus: *Raglius* Stål, 1872

***Raglius alboacuminatus alboacuminatus* (Goeze, 1778)**

Material examined. **Amasya**: Kayabaşı, 25.VIII.2021, ♀; Gözlek, 03.IX.2021, 2♀♀; Taşova: Gürsu, 27.V.2021, ♀; Merzifon: Karamustafa Paşa, 14.IX.2021, ♀; Göynücek: Şarklı, 03.IX.2021, ♀; Gümüşhacıköy: Maden, 07.IX.2021; 2♂♂, ♀.

Distribution in Türkiye. Ankara, Balıkesir, Bolu, Düzce, Edirne, Erzincan, Eskişehir, Hatay, İstanbul, Kahramanmaraş, Karabük, Kastamonu, Kars, Kayseri (Lodos et al., 1989; Önder et al., 2006; Fent & Dursun, 2016; Yence & Fent, 2023).

Note. This species is a new record for Central Black Sea Region. The specimens were collected under *Acantholimon* sp., *Astragalus* sp. *Junglans* sp. and *Verbascum* sp., Chorotype: West Palearctic.

***Raglius confusus* (Reuter, 1886)**

Material examined. Gümüşhacıköy: Maden, 07.IX.2021, ♀.

Distribution in Türkiye. Ankara, Bingöl, Bursa, Hatay, İstanbul, Kars, Konya, Niğde (Puton & Noualhier, 1895; Kritshenko, 1918; Péricart, 1999b; Önder et al., 2006).

Note. This species is a new record for Black Sea Region. The specimen was collected under *Acantholimon* sp., Chorotype: Turano-European-Mediterranean.

***Raglius zarudnyi* (Jakovlev, 1905)**

Material examined. **Amasya**: Ziyaret, 19.IV.2021, ♂, 5♀♀; Sarıyar, 19.V.2021, ♀; Tatar, 19.V.2021, ♂; Yıldızköy, 25.VIII.2021, 3♀♀; Kayabaşı, 25.VIII.2021, ♂; Taşova: Alparslan, 27.V.2021, ♀.

Distribution in Türkiye. Ankara, Bursa, Niğde, Konya, Eskişehir, Tokat (Seidenstücker, 1957; Tuatay et al., 1972; Péricart, 1999b).

Note. This species is a new record for Amasya province. The specimens were collected under *Acantholimon* sp., *Astragalus* sp. and *Verbascum* sp., Chorotype: Turanian.

Genus: *Rhyparochromus* Hahn, 1826

***Rhyparochromus phoeniceus* (Rossi, 1794)**

Material examined. **Amasya:** Yassıçal, 28.IV.2021, 3♀♀; Saraycık, 28.IV.2021, ♀.

Distribution in Türkiye. Adana, Ankara, Bolu, Çankırı, Çorum, Diyarbakır, Edirne, Erzurum, Gaziantep, Hatay, Isparta, Kahramanmaraş, Karabük, Kayseri, Kırıkkale, Kütahya, Manisa, Mersin, Muş, Niğde, Zonguldak (Lodos et al., 1978, 1989; Hoberlandt, 1956; Kıyak, 1990; Önder et al., 2006; Kıyak & Akar, 2010; Fent & Dursun, 2016, Yence & Fent, 2023).

Note. This species is a new record for Amasya province. The specimens were collected under *Acantholimon* sp., *Astragalus* sp., Chorotype: European-Mediterranean.

***Rhyparochromus sanguineus* (Douglas & Scott, 1868)**

Material examined. Gümüşhacıköy: Maden, 07.IX.2021, 5♂♂, 6♀♀.

Distribution in Türkiye. Adana, Ankara, Bingöl, Diyarbakır, Erzincan, Erzurum, Elazığ, Eskişehir, Gaziantep, Hatay, Iğdır, Karaman, Kastamonu, Kayseri, Konya, Mardin, Niğde, Tokat, Tunceli (Horváth 1901; Gadeau de Kerville, 1939; Péricart, 1999b; Matocq et al., 2014; Yazıcı et al., 2015; Dursun & Fent 2016; Çerçi et al. 2022; Çerçi & Koçak, 2023).

Note. This species is a new record for Amasya province. The specimens were collected under *Acantholimon* sp., *Astragalus* sp. Chorotype: Turano-European.

***Rhyparochromus vulgaris* (Schilling, 1829)**

Material examined. **Amasya**: 21.VI.2021, 3♀♀; Merzifon: Karamustafa Paşa, 14.IX.2021, 30 ♂♂, 34 ♀♀; Gümüşhacıköy: Gümüş, 07.IX.2021, ♂; Taşova: Boraboy, 29.VIII.2021, 4 ♂♂, 10 ♀♀.

Distribution in Türkiye. Adana, Afyonkarahisar, Ankara, Aydın, Balıkesir, Bursa, Çanakkale, Denizli, Düzce, Edirne, Erzincan, Erzurum, Hatay, İzmir, Isparta, İzmir, Karaman, Kars, Kütahya, Manisa, Mersin, Muğla, Osmaniye, Tunceli, Uşak, Van (Horváth, 1883; Puton, 1892; Hoberlandt, 1956; Önder et al., 1983; 2006; Lodos et al., 1989; Fent & Japoshvili, 2012; Yazıcı et al., 2015; Dursun & Fent, 2016; Çerçi & Koçak, 2023).

Note. This species is a new record for Central Black Sea Region. The specimens were collected under the bark of *Juglans* sp., Chorotype: Turano-European.

Genus: *Xanthochilus* Stål, 1872

***Xanthochilus quadratus* (Fabricius, 1798)**

Material examined. **Amasya**: Boğazköy, 18.V.2020, ♀; Ziyaret, 19.IV.2021, ♂; Ezinepazar, 19.V.2021, ♀; Kızılkışlacık, 10.IX.2021, ♂, 3♀♀; Suluova: Yedikır, 07.IX.2021, ♂; Taşova: Hacıbeyköyü, 10.VII.2020, 2♀♀; Çaydibi, 27.V.2021, ♂; Gümüşhacıköy: Maden, 07.IX.2021, 3♂♂, 6♀♀.

Distribution in Türkiye. Ankara, Balıkesir, Bursa, Elazığ, Kastamonu, Konya, İstanbul, İzmir, Samsun (Çağatay, 1988; Péricart, 1999b; Önder et al., 2006; Fent & Dursun, 2016; Çerçi & Özgen, 2021).

Note. This species is a new record for Amasya province. The specimens were collected under *Astragalus* sp., Acantholimon sp., *Verbascum* sp. and debris of *Pinus* sp., Chorotype: West Palearctic.

***Xanthochilus saturnius* (Rossi, 1790)**

Material examined. **Amasya:** Ziyaret, 19.IV.2021, 3♂♂; Kızılkışlacık, 10.IX.2021, 2♂♂; Taşova: Çaydibi, 27.V.2021, ♀; Gümüşhacıköy: Maden, 07.IX.2021, 3♂♂; Göynücek: Şarklı, 03.IX.2021, ♂.

Distribution in Türkiye. Adana, Ankara, Antalya, Bursa, Diyarbakır, Elazığ, Erzurum, Gaziantep, Hatay, İzmir, Karaman, Kahramanmaraş, Mersin, Osmaniye, Siirt (Gadeau de Kerville, 1939; Wagner, 1959; Kıyak, 1990; Péricart, 1999b; Lodos et al., 1989; Kıyak & Akar, 2010; Matocq & Özgen, 2010; Yazıcı et al., 2015; Çerçi & Koçak, 2023).

Note. This species is a new record for Black Sea Region. The specimens were collected under *Astragalus* sp., *Acantholimon* sp., *Verbascum* sp. and leaf debris of *Pinus* sp., Chorotype: Turano-Europeo-Mediterranean.

Discussion

In this study, as a result of the identification of the 367 adult specimens collected from 51 different localities in around Amasya province between 2020 and 2021 revealed 6 species of the 4 genera belonging to tribus Drymini Stål, 1872, 13 species of the 5 genera belonging to tribus Gonianotini Stål, 1872, one species belonging to tribus Lethaenini Stål, 1872, 5 species of the 3 genera belonging to tribus Megalonotini J. A. Slater, 1957, one species belonging to tribus Myodochini Blanchard, 1845, one species belonging to tribus Plinthisini J. A. Slater & Sweet, 1961 and 13 species of the 7 genera belonging to tribus Rhyparochromini Amyot & Serville, 1843 of the Rhyparochromidae family were reported. All species are new records for the Rhyparocromidae fauna of Amasya province such as the species *Drymus ryeii* Douglas & Scott, 1865 for the Heteroptera fauna of Türkiye, 17 species for Black Sea Region and 7 species for Central Black Sea Region.

In addition, *Drymus ryeii*, is a new record for the Turkish Rhyparochromidae fauna. The species is recorded in the neighboring countries Bulgaria, Greece and Iran and it is, widely distributed in Europe. The presence of this species in Georgia, northwest neighbor of Türkiye, has not yet been clarified (Aukema, 2018). As a result of the identification of a male sample obtained from a single locality, it was determined that this species was also distributed in our country. In this study, the morphological features of the sample of the determined species were compared with the existing literature and the features that enable the diagnosis of the species were mentioned. In addition, Türkiye and Palearctic region distributions and chorotypes of the identified species were determined.

Among the species identified in the study area, *Ischnocoris hemipterus*, *Emblethis amplus*, *Emblethis latus*, *Emblethis nox*, *Emblethis sabulosus*, *Trapezonotus dispar*, *Lasiocoris crassicornis*, *Megalonotus emarginatus* and *Peritrechus geniculatus* are extremely rarely distributed species both in the research area and in Türkiye. *Emblethis amplus* was reported in Anatolia from Malatya by Péricart (1999b), but has not been found not in any other places so far. In the study, it was given a second locality from Amasya. The findings for these species in this study constitute the northernmost limit of the dispersion area and expand the distribution limits of the existing species in Türkiye.

The plants, as *Verbascum* sp., *Acantholimon* sp. and *Astragalus* sp. are very important for the family of Rhyparochromidae. In this study, the specimens *Aphanus rolandri*, *Drymus ryeii*, *Lethaeus cribratissimus* and the species belonging to the genera *Emblethis*, *Lasiocoris*, *Megalonotus*, *Rhyparochromus*, *Scolopostethus*, *Xanthochilus* has been found generally under *Verbascum* sp., *Acantholimon* sp., *Astragalus* sp., leaf debris of *Pinus* sp. and stones. According to our field studies, the population densities of Rhyparochromidae species are generally low. Therefore, it can be said that these species cannot seriously damage agricultural areas in Amasya.

According to the chorotypes analysis, Rhyparochromidae species from Amasya are divided into 13 categories: as West Palearctic (22,5%-9 spp.), Turano-Mediterranean (15%-6 spp.),Turanien (12,5%-5 spp.), Europeo-Mediterranean (10%-4 spp.), Turano-Europeo-Mediterranean (10%-4 spp.), Palearctic (7,5%-3 spp.), European (5%-2 spp.), Turano-European (5%-2 spp.), Sibero-European (2,5%-1 spp.), Asiatic-European (2,5%-1 spp.), Mediterranean (2,5%-1 spp.), East Mediterranean (2,5%-1 spp.), Saharo-Turanian (2,5%-1 spp.). According to this analysis, West Palearctic (22,5%) are a major group of Amasya, followed by Turano-Mediterranean. Sibero-European, Asiatic-European, Mediterranean, East Mediterranean, Saharo-Turanian represented by one species. These data show that richness of Faunae from Amasya. The fact that so many different chorotypes distributed in Amasya is related to the rich microclimate areas and flora of Amasya. Therefore, their richness of Rhyparochromidae in Amasya is not unexpected. This result can help future studies on ecology, biodiversity and plant protection about Heteroptera in Amasya and Türkiye.

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