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Range expansion of some Heteroptera species (Hemiptera) in Türkiye with a new record of *Chilacis typhae* (Perris, 1857)

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ABSTRACT: In this study, some of the Heteroptera specimens collected from Şanlıurfa and Tunceli provinces in 2024 were identified. As a result, *Chilacis typhae* (Perris, 1857) belonging to the Artheneidae family was determined to be a new record for the Turkish Heteroptera fauna and was redescribed. In addition, *Holcocranum saturejae* (Kolenati, 1845) (Artheneidae), *Aradus betulae* (Linnaeus, 1758) (Aradidae) and *Pasira basiptera* Stål, 1859 (Reduviidae), which are rarely distributed in Türkiye, and *Dictyla echii* (Schrank, 1782), *Geocoris arenarius* (Jakovlev, 1867) (Geocoridae) and *Ceraleptus obtusus* (Brullé, 1839) (Coreidae) a widespread species in Türkiye, were given for the first time from Tunceli, and *Stenozygum coloratum* (Klug, 1845) (Pentatomidae) was recorded for the second time from Şanlıurfa province.

KEYWORDS: Heteroptera, *Chilacis typhae,* new record, Şanlıurfa, Tunceli, habitats.

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INTRODUCTION

More than 45,000 species are known in 24 superfamilies within 7 infraorders of the suborder Heteroptera (Hemiptera), which has significant effects on plants, animals and humans in the world (Henry, 2017). As a result of studies conducted in the Palearctic region, it is known that 9365 species belonging to 1632 genera are distributed (Aukema et al., 2013). In Türkiye have been numerous studies of Heteroptera, as a result 1638 species have been listed (Çerçi et al., 2024; Yazıcı & Bal, 2025).

Studies have shown that the Heteroptera fauna of Türkiye is constantly changing (Önder et al., 2006; Çerçi, 2020, 2021, 2022a, b; Çerçi & Tezcan, 2020, 2021; Çerçi & Özgen 2021; Çerçi & Koçak, 2023; Aukema, 2023; Çerçi et al., 2024; Yazıcı & Bal, 2025). We know that new records have been added after the publication of catalogs and checklists of Heteroptera species distributed in Türkiye. As ecological conditions change, unless the transportation of insects and insect eggs on export and import products is prevented and unless the plant trade, especially ornamental plants, is controlled, and as with all living things, the distribution areas of Heteroptera species will inevitably expand. Therefore, the Heteroptera species list will increase as new studies are conducted. We know that it is quite difficult to understand whether the expansion of the distribution areas of living species is due to areal distribution or human influence (Ødegaard & Endrestøl, 2007). However, we can easily say that exotic species have expanded their distribution areas due to human factors.

Türkiye, with such a rich flora, harbors a rich fauna It is seen that the studies conducted in Türkiye are mostly carried out in the Western regions, and it is thought that the studies to be conducted in Eastern Anatolia and Eastern Black Sea regions will contribute much more to the Turkish Heteroptera fauna (Çerçi et al., 2024).

The aim of this study is to contribute to the Heteroptera fauna of Türkiye with the findings obtained.

MATERIAL AND METHODS

The study materials were obtained from localities with different vegetation and habitats located on the borders of Şanlıurfa and Tunceli, two provinces in the Eastern and Southeastern Regions of Türkiye in 2024. The specimens were collected from the trees and under herbaceous vegetation and above ground with a sweep net. *Chilacis typhae* and *Holcocranum saturejae* specimens were collected from *Typha angustifolia* (Fig. 1). The samples were softened in hot water (80°C-100°C) for 5-10 minutes and the genital organs were removed for use in diagnosis. In the identification of the samples, Stichel (1960, 1961), Çağatay (1988), Pėricart (1999), Davidová-Vilímová (2006) and Putshkov & Moulet (2009) were used. 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

Lygaeoidea Schilling, 1829

Artheneidae Stål, 1872

Artheneinae Stål, 1872

Genus: *Chilacis* Fieber, 1864

***Chilacis typhae* (Perris, 1857)**

=*Heterogaster typhae* Perris, 1857

= *Cymus herciniae* Meyer-Dür, 1862

≡ *Holcocranum megacephalum* Jakovlev, 1873 (Pėricart, 2001)

Material examined: **Tunceli:** Ovacık, Koyungölü (Fig. 1), 31.05.2024, 3♀♀, 4♂♂.

Figure 1. View from the locality in Ovacık district of Tunceli province, where insect sampling.

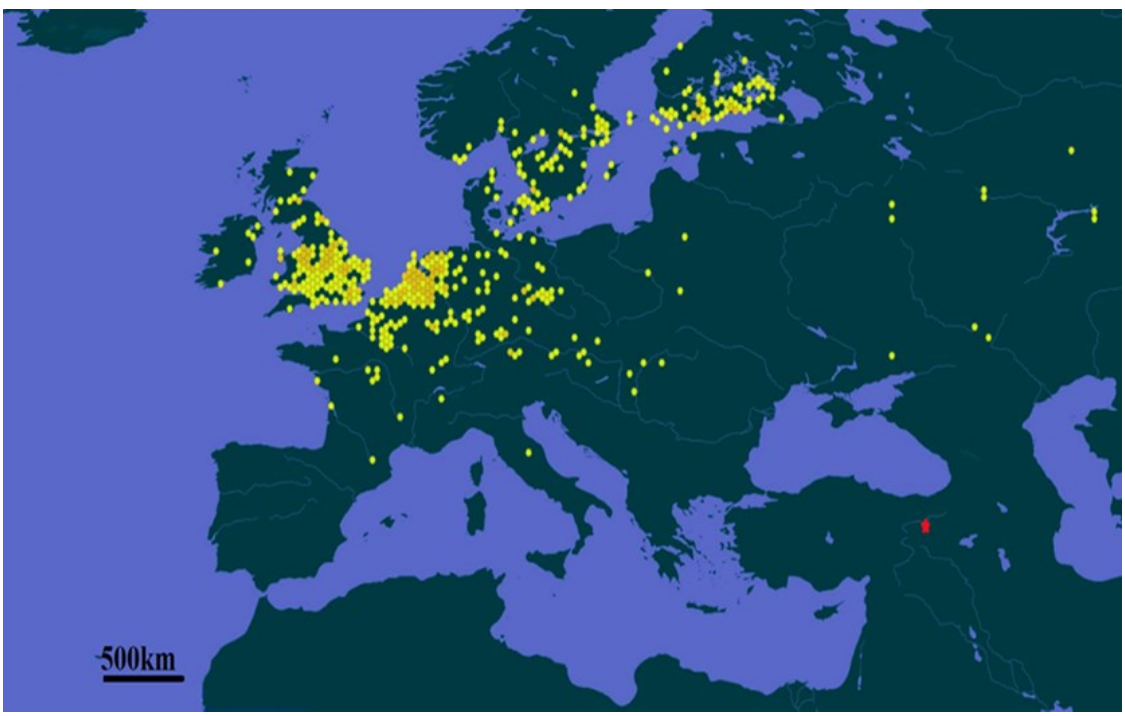

Figure 2. Palearctic distribution (yellow mark) and where samples were collected (red mark) (https://www.gbif.org/species/2007622)

Distribution in Türkiye: This study. The genus *Chilacis* Fieber, 1864 was first time identified in Türkiye with this species.

Distribution in Palearctic Region: Europe: Austria, Belgium, Bosnia Hercegovina, Bulgaria, Byelorussia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Hungary, Ireland, Italy, Latvia, Liechtenstein, Luxembourg, Moldavia, The Netherlands, Norway, Poland, Romania, Russia (Central European Territory, North European Territory, South European Territory), Slovakia, Slovenia, Sweden, Switzerland, Ukraine. **Asia:** Azerbaijan, Kazakhstan, Kirgizia, Uzbekistan. **Extralimital:** United States of America (Pėricart, 2001; Aukema et al., 2013; Ødegaard & Endrestøl, 2007**;** Gierlasiński & Fiedor, 2021) (Fig. 2).

Host Plant: *Typha angustifolia* L.

Redescription:

Macropterous. Oblong oval, glabrous, shiny, brownish yellow or darkened in places, dotted with blackish over the entire upperside (Fig. 3a). Head barely curved; buccules very short, visible only anteriorly (Fig. 4b); antennae robust, barely as long as the head and pronotum combined. Antennal segments I and II often completely or partly paler; segment I not reach the apex of the clypeus;(Length of antennal segments (0.25 mm, 0.48 mm, 0.30 mm, 0.45 mm) II only 0.8-0.9 times as long as the interocular distance, 1.92 times as long as I and 1.6 times as long as III; IV about as long as II (Fig. 3b). Furrows separating the juga from the clypeus shallow, not extending beyond the level of the anterior edge of the eyes (Fig. 3b). Eyes redlish brown, ocelli somewhat oval in shape (Figs. 3a,b, 4a,c). Rostrum blackish brown, reaching the middle of the mesosternum (Fig. 4b). Pronotum trapezoidal, 1.8-2.2 times as wide as long, narrowly bordered with pale on the sides and behind, callosities impunctate, poorly demarcated. The surface of pronotum ridged, but without longitudinal ribs, and densely punctured; lateral margins smooth (Figs. 3a,b, 4a,c). Scutellum densely punctured; scutellum equilateral triangular, apex of scutellum not rounded apically, with on each side a smooth pale band bordered externally by a line of dots. Corium triangular. Clavus, corium and exocorium densely punctured, lateral margin of exocorium smooth. Membranes translucent, brownish-yellow, veins present on the membranes, pass the distal part of the abdomen (Figs. 3a, 4a). Pleuras black, venter blackish brown, legs yellow, femur brownish yellow, pretarsus blackish brown (Figs. 3a,b, 4a,b,c). Paramere outer margin prominently flat, apically beak-shaped appendage. (Fig. 3c).

Measurements: Male 4,6 mm, female 5 mm.

Genus: *Holcocranum* Fieber, 1860

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

Material examined: Tunceli: Ovacık, Koyungölü, 31.05.2024, 5♀♀, 8♂♂.

Distribution in Türkiye: European Türkiye: Çanakkale, Edirne, İstanbul, Kırklareli, Tekirdağ (Önder et al., 1984, 2006; Fent & Aktaç, 2008; Fent & Dursun, 2024). **Asian Türkiye**: Bursa, Diyarbakır, Elazığ, Hatay, İzmir, Kahramanmaraş, Karaman, Kocaeli, Mersin, Sakarya (Seidenstücker, 1958; Çağatay, 1988; Lodos et al., 1999; Pėricart, 1999; Önder et al.,1981, 2006; Çerçi et al., 2018; Fent et al., 2022; Çerçi & Koçak, 2023; Eser & Dursun, 2023).

Host Plant: *Typha angustifolia* L.

Geocoridae Baerensprung, 1860

Genus: *Geocoris* Fallén 1814

***Geocoris arenarius* (Jakovlev, 1867)**

Material examined: Tunceli: Ovacık, Göze-Munzur, 31.05.2024, 1♀.

Distribution in Türkiye: Antalya, Denizli, Diyarbakır, Elazığ, Hatay, Kahramanmaraş, Karaman, Konya, Mersin (Önder & Adıgüzel, 1979; Çakır & Önder, 1990;

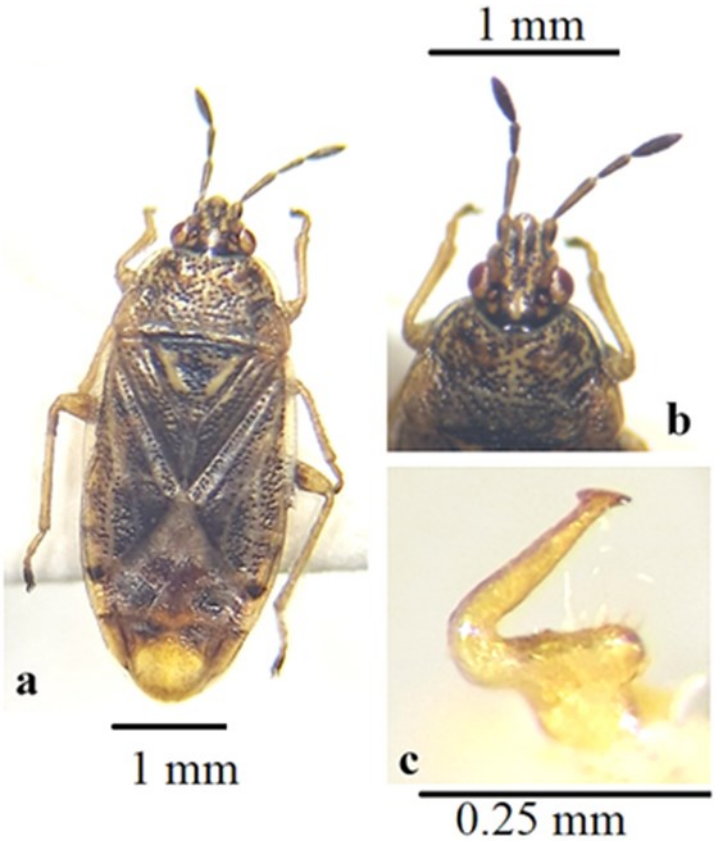

Figure 3. *Chilacis typhae* (Perris, 1857) (♂), a) Body (b) Head and pronotum (Dorsal view), c) Paramera.

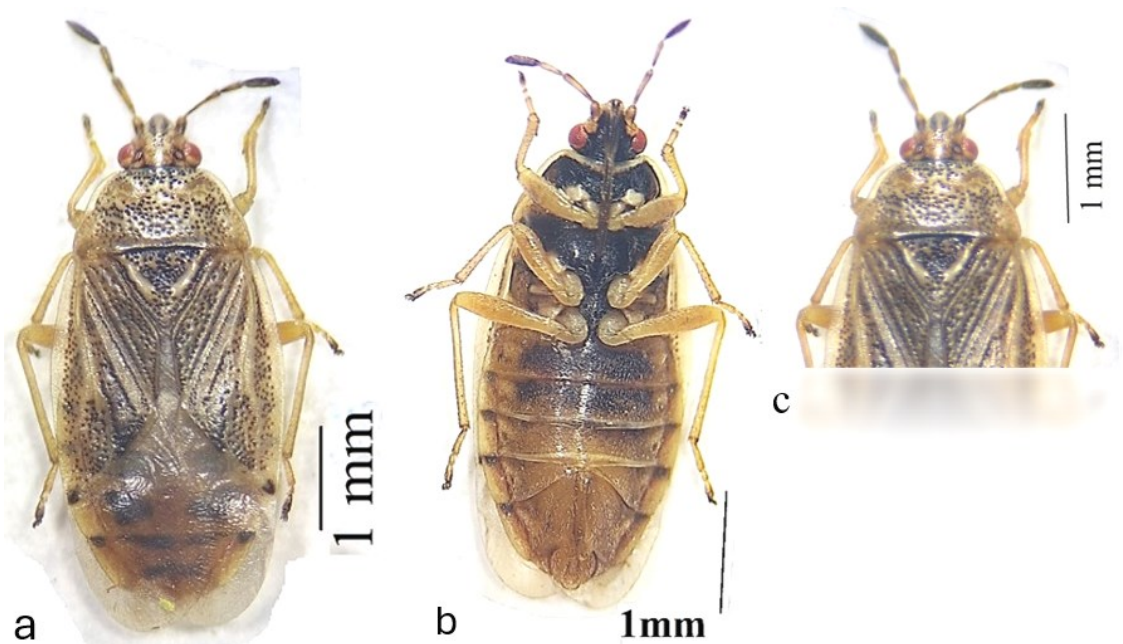

Figure 4. *Chilacis typhae* (Perris, 1857) (♀), a) Body (Dorsal view), b) Body (Ventral view), c) Head and pronotum (Dorsal view).

Kaya & Hıncal, 1991; Büyük & Özpınar, 1999; Lodos et al., 1999; Kaplan, 2007; Çerçi & Koçak, 2023).

Note: Fent & Dursun (2024) reported that the existence of this species in Türkiye needs to be confirmed. The findings in this study confirm the existence of the species in the country.

Aradidae Brullé, 1836

Aradinae Brullé, 1836

***Aradus (Aradus) betulae* (Linnaeus, 1758)**

Material examined: Tunceli: Ovacık, Göze-Munzur, 31.05.2024, 3♀♀, 2♂♂.

Distribution in Türkiye: Antalya, İzmir, Konya (Heiss & Önder, 1991)

Host Plant: This specimens were found under the bark of an *Eucalyptus* tree.

Pentatomidae Leach, 1815

Pentatominae Stål, 1864

***Stenozygum (Stenozygum) coloratum* (Klug, 1845)**

Material examined: Şanlıurfa: Old Halfeti, 22.11.2024, 1♀.

Distribution in Türkiye: Adana, Antalya, Hatay, Mersin, Şanlıurfa (Önder et al., 2006; Kaya, 2018; Sert & Özdemir, 2019; Candan et al., 2021).

Host Plant: This specimen was found under the bark of an *Eucalyptus* tree.

Tingidae Laporte, 1832

Tinginae Laporte, 1832

Genus: *Dictyla* Stål, 1874

***Dictyla echii* (Schrank, 1782)**

Material examined: Tunceli: Ovacık, Koyungölü, 31.05.2024, 2♀♀.

Distribution in Türkiye: Bayburt, Bursa, Diyarbakır, Düzce, Edirne, Elazığ, Erzincan, Erzurum, Giresun, Gümüşhane, İstanbul, Kastamonu, Kars, Kayseri, Kırklareli, Mardin, Rize, Tekirdağ, Tokat (Horváth, 1883; 1905; Kiritshenko, 1918, Fahringer, 1922; Seidenstücker, 1954; Hoberlandt, 1956; Linnavuori, 1965; Lodos & Önder, 1983; Péricart, 1983; Önder et al., 2006; Kıyak & Akar, 2010; Yıldırım et al. 2013; Maral et al., 2013; Matocq et al., 2014; Dursun & Fent, 2017; Yazıcı, 2022).

Coreidae Leach, 1815

Genus: *Ceraleptus* Costa, 1847

***Ceraleptus obtusus* (Brullé, 1839)**

Material examined: Tunceli: Pertek-Elecik, 02.06.2024, 1♀.

Distribution in Türkiye: Amasya, Ankara, Antalya, Bursa, Çankırı, Hatay, Isparta, İstanbul, İzmir, Karaman, Kırklareli, Konya, Samsun, Tokat (Puton & Noualhier, 1895; Moulet, 1995; Kıyak, 2000; Dursun & Fent, 2009; 2022; Dursun, 2011; Fent & Japoshvili, 2012; Zengin & Dursun, 2019; Çerçi & Koçak, 2023).

Reduviidae Latreille, 1807

Reduviinae Latreille, 1807

Genus: *Pasira* Stål, 1859

***Pasira basiptera* Stål, 1859**

Material examined: Tunceli: Pertek-Elecik, 02.06.2024, 1♀.

Distribution in Türkiye: Adana, Bursa, Gaziantep, İzmir (Horváth, 1883; Puton & Noualhier, 1895; Hoberlandt, 1956; Önder, 1980; Önder et al., 2006).

DISCUSSION

In this study, the research material consists of samples collected from different localities around Şanlıurfa and Tunceli province in 2024. As a result of the determination of the material collected from Tunceli province, *Chilacis typhae* (Perris, 1857) new records for Turkish Heteroptera fauna were given. Also, the genera *Chilacis* is a new record for the

Turkish fauna. *Chilachis typhae*, is distributed in a wide area, especially in Western and Northern Europe. Since it has also been distributed in our North Eastern neighbor Azerbaijan, it is an expected result that it has been found in our country. Our finding constitutes the most southerly limit of the distribution area of this species in the Palearctic region (Fig. 2).

Aradus (Aradus) betulae (Linnaeus, 1758), one of the species with rare distribution in our country, was first reported by Heiss & Önder (1991) from Antalya, İzmir and Konya. No other records of the species were found afterward. In this study, it was recorded for the first time from Eastern Anatolia and it is understood that the species expanded its distribution area eastwards.

Pasira basiptera Stål, 1859, a species with a rare distribution, was recorded for the first time in this study from Tunceli and Eastern Anatolia. The specimen of this species was probably caught while hunting on the ground. This study proves that the distribution area of this species extends to the Eastern Anatolia Region.

Geocoris arenarius (Jakovlev, 1867) and *Ceraleptus obtusus* (Brullé, 1839), which are common species in our country, were recorded for the first time in Tunceli and Eastern Anatolia in this study. The distribution areas of these species in our country also extend to the east.

The wide species *Dictyla echii* (Schrank, 1782) and *Holcocranum saturejae* (Kolenati, 1845) are new records for the Heteroptera faunae of Tunceli province.

Stenozygum (*Stenozygum*) *coloratum* (Klug, 1845), which was reported as an agricultural pest by Samra et al. (2015), usually causes damage to various crop plants including wild caper bush (*Capparis spinosa*) and *Maura* sp. (Capparaceae) and avocado. In the study conducted by Kaya (2018) in the alfalfa field, it was reported that this species caused damage to alfalfa. In this study, it was found under the bark of the trunk of the *Eucalyptus* tree. Considering the time it was found, this species probably uses the *Eucalyptus* tree as a wintering area. In this study, the second locality record of the species from the Şanlıurfa region is given. In a country like Türkiye, which is geographically located in an important place, the continuous increase in faunal elements is an expected result. It is known that some Heteroptera species are propagated through ornamental plants and exotic trees such as Eucalyptus. This study provided new records for Tunceli and the Eastern Anatolia Region. Moreover, with the discovery of *Chilacis typhae*, the total number of valid Heteroptera species in Türkiye increased to 1639.

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