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Research Article

Nemocoris fallenii Sahlberg, 1848 (Heteroptera: Coreidae), New for the Fauna of Turkey

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ABSTRACT: *Nemocoris fallenii* Sahlberg, 1848, a rarely collected Sibero-European species, is recorded from 1750 meter altitude in Ankara, for the first time from Turkey. Its distribution and ecology is summarized. Additionaly, chorotypes of Coreidae species recorded from Turkey, are analyzed.

KEYWORDS: *Nemocoris fallenii*, Coreidae, Turkey, new record

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INTRODUCTION

Heteroptera Latreille, 1810 is a suborder of Hemiptera Linnaeus, 1758 with more than 50.000 species described so far (Henry 2017). The Heteroptera fauna of Turkey is composed of more than 1500 species and the number keeps increasing (Tezcan 2020; Çerçi & Tezcan 2021). It is remarkably more diverse when compared to most of European countries and its neighbours (Aukema 2022). One of the reasons for this diversity is its geographical location between Mediterranean region, Europe and Asia. Accordingly, the Heteropteran fauna of Turkey contains many species of European, Mediterranean and Centralasiatic or Turanian origin. Particularly, European and Sibero -European elements make up about 13% of Heteroptera species in Turkey (Hoberlandt 1956). Moreover, the number of Heteroptera species with European origin in Turkey keeps growing with new records in the

last few years (Yazıcı *et al.* 2014; Çerçi & Koçak 2017; Çerçi *et al.* 2019; Çerçi 2020). The family Coreidae is composed of some 300 species in the Palearctic region (Aukema 2022). Recently, Dursun (2011) presented a checklist of Coreidae fauna of Turkey and listed 48 species. Since that publication, two more species of Coreidae were recorded from Turkey for the first time, increasing the total to 50 species (Yıldırım *et al.* 2011; Kment *et al.* 2013). With the first record of *Nemocoris fallenii* Sahlberg, 1828 from Turkey, the total number of Coreidae species of Turkey reaches to 51.

MATERIAL AND METHODS

The examined specimen was found drown in a pond incidentally by the author during trekking. The specimen was photographed with a Nikon D3300 DSLR camera combined with an 68 mm extension tube and a Lomo 3.7X 0.11 Microscope objective. The specimen is preserved in the private collection of the author. Map 1 was prepared using SimpleMappr (https://www.simplemappr.net/) and Map 2 was prepared on Google Earth Pro (Google Inc., USA). Distribution of species included in chorotype analysis was based on (Aukema 2022) and chorotypes are in accordence with (Vigna Taglianti *et al.* 1999).

RESULTS

Nemocoris fallenii Sahlberg, 1848

Material examined: Ankara, Kızılcahamam, Eğerlibaşköy, 1750 m, 23-04-2022, 1 female, B. Çerçi leg. & det.

Diagnosis: *Nemacoris fallenii* is a member of Pseudophoelini and species of some genera, e. g. *Ceraleptus* spp. and *Anoplocerus* spp., within this tribe look very similar and can be confused with each other easily. Kment *et al.* (2013) conveniently provided an identification key to distinguish all the Palearctic genera of this tribe. According to this identification key, *Nemocoris fallenii* is diagnosed by second and third antennal segments similar in length, posterior margin of pronotum and first antennal segment unarmed, antenniferous tubercules obtuse and metafemora with a single spine apically. However, strongly contrasted white line along the lateral margins of pronotum is an easily noticable and distinctive feature of this species (Figure 1).

Distribution: This species was originally described from Finland and later discovered from most of the continental Europe (Map 1) (Aukema 2022). It also extends to Azerbaijan, Siberia and several Central Asiatic countries in the Asian continent. Despite its widespread distribution, in the literature, it is repeatedly cited as a rarely collected species and regarded as extremely rare or strongly threatened in Germany (Kment *et al.* 2003; Simon *et al.* 2021; Bury & Mazepa 2022). This species had also been recorded from Sicily once, under the synonymous name *Aoplochilus marginatus,* one and a half century ago (Fieber 1861). It is not strictly a high altitude species and collected at sea level in southern Ukraine (Moulet 1995).

Ecology: It is a thermophilic species living on the ground beneath different Fabaceae species, e. g. *Cystus nigricans*, *Vicia hirsuta*, *Lathyrus* spp. and feeding on the seeds of these plants that are softened by acidic soil. Only during mating period between May and June, adults climb up plants and off-springs develop during July and August, again on the ground. The adults overwinter under grass and fallen leaves and become active as early as March (Seidenstücker 1954; Putshkov 1962; Moulet 1995).

Habitat: The adult female specimen examined in this paper was found trapped in a small pond at the altitude of 1750 m in Eğerlibaşköy, Kızılcahamam, north of Ankara province, in late April. The pond was located in a grassland bordered by a dense forest composed mainly of pine trees (*Pinus* sp.) (Map 2).

Map 1. Distribution of *Nemocoris fallenii* Sahlberg, 1848, based on previous literature and the new record from Turkey (red dot).

Map 2. Location of the collecting site of *Nemocoris fallenii* Sahlberg, 1848 in Turkey.

Chorological analysis of Coreidae fauna of Turkey

With the new species recorded in this paper, the total number of Coreidae species recorded from Turkey becomes 51. Chorological analysis of these species revealed that Coreidae fauna of Turkey is mainly composed of Mediterranean species (51%, 26 spp.). European and Turanian elements make up 18% (9 spp.) and 7% (4 spp.) of Coreidae fauna of Turkey, respectively. Rest of the species are divided into Sindian (6%, 3 spp.), Anatolo-Caucasian (6%, 3 spp.), Caucasian (4%, 2 spp.), Balkanian (2%, 1 sp.), Western Palaearctic (2%, 1 spp.), Palaearctic (2%, 1 spp.) and Subcosmopolitan (2%, 1 spp.) chorotypes. There are no endemic Coreidae species in Anatolia but 6 species (12%) with Balkanian, Caucasian or Caucaso-Anatolian chorotypes, are restricted to Anatolia and its close vicinity (Table 1).

Figure 1. Photograph of *Nemocoris fallenii* Sahlberg, 1848 from Ankara, Turkey (Scale bar 1 mm).

Table 1. Coreidae species of Turkey with chorotypes of each species. Anatolo-Caucasian (A-C),Balkanian (B), Caucasian (C,), European (Eu), Europeo-Mediterranean (Eu-M), Europeo-Turano-Mediterranean (Eu-T-M), Mediterranean (M), Palearctic (P), Saharo-Sindian (S-S), Sibero-European (Sb-E), Subcosmopolitan (Sc), Turano-Anatolian (T-A), Turano-East Mediterranean (T-EM), Turano-European (T-E), Turano-Mediterranean (T-M), Turano-Sindo-Mediterranean (T-S-M), Turano-Sindian (T-S), Turanian (Tr), West Palearctic (WP).

Mediterranean		**European**	
		Ceraleptus lividus Stein, 1858	Eu
Anoplocerus elevatus (Fieber, 1861)	T-M	*Coriomeris alpinus* (Horváth, 1895)	Eu
Anoplocerus luteus (Fieber, 1861)	T-M	*Spathocera laticornis* (Schilling, 1829)	Eu
Arenocoris waltlii (Herrich-Schaeffer, 1835)	T-M	*Nemocoris fallenii* Sahlberg, 1848	Sb-Eu
Centrocoris spiniger (Fabricius, 1781)	T-M	*Bathysolen nubilus* (Fallén, 1807)	Sb-Eu
Centrocoris variegatus Kolenati, 1845	T-M	*Coriomeris scabricornis scabricornis* (Panzer, 1805)	Sb-Eu
Ceraleptus obtusus (Brullé, 1839)	T-M	*Spathocera dalmanii* (Schilling, 1829)	Sb-Eu
Coriomeris hirticornis (Fabricius, 1794)	T-M	*Bothrostethus annulipes* (Herrich-Schaeffer, 1835)	T-Eu
Coriomeris vitticollis Reuter, 1900	T-M	*Gonocerus acuteangulatus* (Goeze, 1778)	T-Eu
Gonocerus juniperi Herrich-Schaeffer, 1839	T-M	**Turanian**	
Spathocera lobata (Herrich-Schaeffer, 1840)	T-M	*Ceraleptus sartus* Kiritshenko, 1912	Tr
Arenocoris intermedius (Jakovlev, 1883)	T-S-M	*Gonocerus patellatus* Kiritshenko, 1916	Tr
Phyllomorpha lacerata Herrich-Schaeffer,1835	T-EM	*Spathocera tenuicornis* Jakovlev, 1883	Tr
Coriomeris affinis (Herrich-Schaeffer, 1839)	M	*Coriomeris subglaber* Horváth, 1917	T-A
Gonocerus insidiator (Fabricius, 1787)	M	**Others**	
Haploprocta sulcicornis (Fabricius, 1794)	M	*Arenocoris latissimus* Seidenstücker, 1960	A-C
Loxocnemis dentator (Fabricius, 1794)	M	*Haploprocta umbrina* Jakovlev, 1883	A-C
Phyllomorpha laciniata (Villers, 1789)	M	*Urartucoris ermolenkoi* P.V. Putshkov, 1979	A-C
Plinachtus imitator (Reuter, 1891)	M	*Cercinthus griseus* (Fieber, 1861)	B
Prionotylus brevicornis (Mulsant & Rey, 1852)	M	*Coriomeris armeniacus* Tshernova, 1978	C
Strobilotoma typhaecornis (Fabricius, 1803)	M	*Coriomeris validicornis* Jakovlev, 1904	C
Enoplops disciger (Kolenati, 1845)	E-M	*Centrocoris volxemi* (Puton, 1878)	T-S
Spathocera tuberculata Horváth, 1882	E-M	*Coriomeris pallidus* Reuter, 1900	T-S
Arenocoris fallenii (Schilling, 1829)	Eu-M	*Centrocoris degener* (Puton, 1874)	S-S
Ceraleptus gracilicornis (Herrich-Schaeffer,1835)	Eu-M	*Coreus marginatus marginatus* (Linnaeus, 1758)	WP
Enoplops scapha (Fabricius, 1794)	Eu-M	*Syromastus rhombeus* (Linnaeus, 1767)	P
Coriomeris denticulatus (Scopoli, 1763)	Eu-T-M	*Leptoglossus occidentalis* Heidemann, 1910	Sc

Discussion

The western Blacksea subregion extending to Kızılcahamam is a well watered area and has a moist climate. Analysis of a small set of Heteroptera species recorded from this region by Hoberlandt (1956), revealed that about 40% of species recorded in this subregion had European or Sibero-European distribution. Hence, discovery of another Sibero-European species from this subregion is expected. Indeed, this new record highlights the possibility that there may be futher

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Heteropteran species of European origin distributing in Anatolia, especially Northern regions, that remain to be discovered. A potential candidate would be, *Ulmicola spinipes* (Fallén, 1807), another Pseudophloeini with typical Sibero-European distribution that has similar ecology with *N. fallenii* (Moulet 1995). Therefore, future studies conducted in the Northern part of Central Anatolian region, an area that is poorly studied, hold great potentials for discovery of new Heteroptera species for the fauna of Turkey.

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