

Additional Records for *Microvelia reticulata* and *Microvelia pygmae* (Hemiptera: Heteroptera: Veliidae), which are Rarely Distributed in Türkiye

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ABSTRACT: As a result of studies carried out in different freshwater habitats such as streams, lakes, ponds, dams and swamps in the Thrace Region between 2018 and 2020, additional locality records were given for two species of the genus *Microvelia* Westwood, 1834 with a limited distribution in Türkiye, *Microvelia reticulata* (Burmeister, 1835) and *Microvelia pygmae* (Dufour, 1833).

KEYWORDS: Rare species, *Microvelia reticulata*, *Microvelia pygmae*, locality records, Türkiye

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INTRODUCTION

The genus *Microvelia* Westwood, 1834 has 18 species belonging to 3 subgenera distributed in the Palearctic Region. *Microvelia* Westwood, 1834 has 6 species, *Pacificovelia* Andersen & Weir, 2003 has 2 species, that are known only from Japan, and *Picaultia* Distant, 1913 has 10 species (Aukema, 2018). *Microvelia reticulata* (Burmeister, 1835) belonging to the subgenus *Microvelia* and *Microvelia hozari* Hoberlandt, 1952 and *Microvelia pygmaea* (Dufour, 1833) belonging to the subgenus *Picaultia* were recorded in Türkiye (Fent et al., 2011). While all of these species are known from Anatolia, *M. reticulata* and *M. pygmaea* are also known from the Thrace Region (Kment & Jindra, 2005; Fent et al., 2011; Banbal & Fent, 2016). In this study, for these species which are limited to a few locality records in Anatolia and Thrace, additional locality records from the Thrace Region are given and information on the distribution of the species in Türkiye and the Palearctic region are presented.

MATERIALS AND METHODS

The research was carried out in all kinds of natural and artificial wetlands such as lakes, ponds, dams, rivers, streams, irrigation canals and their surroundings in the Thrace Region between 2018–2020 (Table 1, Figure 1). The specimens were collected, from the water surface and the waterside with nets and plankton scoop. The obtained samples were taken into tubes containing 70% alcohol. Rabitsch (2005) was used to identify the species.



Figure 1. The localities of *Microvelia reticulata* and *Microvelia pygmaea* in Thrace Region (Google Earth)

Table 1. Studied localities in Thrace Region, altitudes, coordinates and sampling dates

Loc No	Locality	Altitude	Coordinate	Sampling Date
1	Kırklareli-Lalapaşa -Doğanköy (small pond)	349m	41°57'01N 26°42'04E	07.06.2018
2	Edirne-Enez (Ömürkent Sitesi-stream)	7m	40°39' 55N 26° 04'57E	14.06.2018
3	Kırklareli-between Düzorman-Koruköy (pond)	451m	41°44'427N 27°20'30E	06.08.2018
4	Kırklareli-Demirköy (near Mert lake irrigation canal)	6m	41°51'565N 27°57'27E	08.08.2018
5	Kırklareli-Demirköy-İğneada (Yenimahalle stream)	13m	41°52'638N 27°56'40E	10.08.2018
6	Edirne- Oğulpaşa (stream)	84m	41°36'346N 26°25'12E	25.05.2019
7	İstanbul-Büyükçekmece lake	2m	41°7'259N 28°31'757E	29.06.2019
8	İstanbul-Silivri- Küçüksinekli (lake)	215m	41°13'665N 28°9'928E	04.07.2019
9	İstanbul-Silivri- Küçüksinekli (swamp)	217m	41°13'787N 28°10'596E	04.07.2019
10	Kırklareli-İnece stream	93m	41°41.267'N 27°4'785'E	07.07.2019
11	Kırklareli-Ürünü stream	115m	41°40.430'N 26°59'478'E	07.08.2019
12	Kırklareli-Kurudere (stream)	330m	41°43.079'N 27°33'257'E	07.08.2019
13	Edirne-Yeniköy (Dobraı stream)	57m	41°21'073N 26°44'786E	08.06.2020
14	Edirne-Uzunköprü-Kurtbey (stream)	35m	41°7'410N 26°33'742E	09.06.2020
15	Edirne-İpsala-İbriktepe (Sultanköy dam)	46m	41°1'809N 26°29'188E	09.06.2020
16	Edirne-Enez-Abdurrahim (stream)	24m	40°38'526N 26°15'715E	10.06.2020
17	Edirne-Uzunköprü-Çöpköy (stream)	75m	41°11'798N 26°50'811E	10.08.2020
18	Tekirdağ-Malkara-Doğanköy (stream)	194m	41°4'946N 26°50'985E	10.08.2020
19	Tekirdağ-Hayrabolu-Küçükkarakarlı village (Ana stream)	33m	41°19'809N 27°10'612E	11.08.2020
20	Tekirdağ-Muratlı-Yurtbekler village (Uzungöz stream)	84m	41°11'626N 27°18'174E	11.08.2020
21	Kırklareli-Lüleburgaz-Celaliye (Bağlar stream)	144m	41°34'115'N 27°21'009E	13.08.2020
22	Edirne-Kayapa village (stream)	110m	41°46'618N 26°40'924E	14.08.2020
23	Edirne-Lalapaşa bridge (stream)	132m	41°49'559N 26°43'415E	14.08.2020
24	Edirne-Lalapaşa-Süleymandanişment (pond)	340m	41°53'836N 26°54'464E	14.08.2020
25	Tekirdağ-Şarköy-Yayaköy (puddle)	318m	40°42'390N 27°11'763E	17.08.2020
26	Kırklareli-Vize-Balkaya village road (pond)	206m	41°35'944N 27°55'671E	18.08.2020
27	Kırklareli-Vize-Kıyıköy road (stream)	77m	41°37'255N 27°59'249E	18.08.2020
28	Kırklareli-Dereköy-Geçitağzı (Burgazcık stream)	504m	41°56'018N 27°20'360E	19.08.2020
29	Kırklareli-Çağlayık (stream)	298m	42°2'617N 27°19'731E	19.08.2020

RESULTS

Genus *Microvelia* Westwood, 1834

Subgenus *Microvelia* Westwood, 1834

***Microvelia (Microvelia) reticulata* (Burmeister, 1835)**

Material examined. Materyal: Edirne: Enez-Ömürkent Sitesi (stream), 14.06.2018, 1♂; Lalapaşa-Doğanköy (small pond), 07.06.2018, 1♂; Havsa-Oğulpaşa (stream), 25.05.2019, 1♂; **İstanbul:** Büyükçekmece Lake, 29.06.2019, 1♀; Silivri-Küçüksinekli (swamp), 04.07.2019, 1♀, 2♂♂; Küçüksinekli Lake, 04.07.2019, 1♂; **Kırklareli:** Center - İnce stream, 07.07.2019, 1♂; between Düzorman - Koruköy (pond), 06.08.2018, 1♀, 2♂♂; between Dereköy-Geçitağzı (Burgazcık stream), 19.08.2020, 1♂; Demirköy - İğneada (Yenimahalle stream), 10.08.2018 1♀; Vize-Balkaya village (pond), 18.08.2020, 12♀♀, 8♂♂; **Tekirdağ:** Hayrabolu - Küçükkarakarlı village (Ana stream), 11.08.2020, 1♂.

Distribution in Türkiye: European Türkiye: Edirne (Banbal & Fent, 2016). **Asian Türkiye:** Konya, Sivas (Kment & Jindra, 2005).

Distribution in Palearctic: Europe: Austria, Belgium, Bulgaria, Byelorussia, Croatia, Czech Republic, Denmark, European Kazakhstan, European Türkiye, Estonia, Finland, France, Great Britain, Germany, Greece, Hungary, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Moldavia, Netherlands, Norway, Poland, Portugal, Romania, Russia (CT NT ST), Serbia, Slovakia, Slovenia, Sweden, Switzerland, Ukraine. **Asia:** Armenia, Asian Kazakhstan, Asian Türkiye, China (NE NO), Georgia, Japan, Korea, Russia (ES FE WS), Tadzhikistan (Banbal & Fent, 2016; Aukema, 2018).

Subgenus *Picaultia* Distant, 1913***Microvelia (Picaultia) hozari* Hoberlandt, 1952**

Distribution in Türkiye: Asian Türkiye: Adana, Kilis, Mersin (Hoberlandt, 1952; Kment & Jindra, 2005; Önder et al., 2006).

Distribution in Palearctic: Asia: Asian Türkiye, Iran, Oman, Saudi Arabia, Yemen (Socotra) (Aukema, 2018).

***Microvelia (Picaultia) pygmaea* (Dufour, 1833)**

Material examined. Edirne: Center - Kayapa village (stream), 14.08.2020, 3 ♂♂; Enez - Abdurrahim village (stream), 10.06.2020, 1♂; İpsala - İbriktepe (Sultanköy dam), 09.06.2020, 1 ♀; Lalapaşa-Doğanköy (small pond), 07.06.2018 1 ♂; Lalapaşa bridge (stream), 14.08.2020, 2 ♀♀, 2 ♂♂; Süleymandanişment (pond), 14.08.2020, 1 ♀; Yeniköy (Dobralı stream), 08.06.2020, 1 ♀, 4 ♂♂; Uzunköprü-Kurtbey (stream), 09.06.2020, 7 ♀♀, 4 ♂♂; Çöpköy (stream), 10.08.2020, 29 ♀♀, 16 ♂♂; **Kırklareli:** Center - Çağlayık (stream), 19.08.2020, 1 ♀; Demirköy - Mert lake road (irrigation canal), 08.08.2018, 1 ♀; Ürünlü (stream), 07.08.2019, 1 ♀; Kurudere (stream), 07.08.2019, 5 ♀♀, 7 ♂♂; Lüleburgaz - Celaliye (Bağlar stream), 13.08.2020, 2 ♀♀, 1 ♂; Vize - Kiyıköy road (stream), 18.08.2020, 8 ♀♀, 6 ♂♂; **Tekirdağ:** Malkara-Doğanköy (stream), 10.08.2020, 2 ♀♀, 1 ♂; Muratlı - Yurtbekler village (Uzungöz stream), 11.08.2020, 2 ♀♀, 3 ♂♂; Şarköy-Yayaköy (puddle), 17.08.2020, 6 ♀♀, 17 ♂♂.

Distribution in Türkiye: European Türkiye: Edirne (Önder et al., 1984, 2006). **Asian Türkiye:** Adapazarı, Bursa, Çanakkale, Kırşehir, Konya, Sivas (Önder et al., 1981, 2006; Andersen, 1995; Fent et al., 2011).

Distribution in Palearctic: Europe: Albania, Austria, Belgium, Bosnia, Hercegovina, Bulgaria, Crete, Croatia, Czech, Republic, European Türkiye, France, Great Britain, Germany, Greece, Hungary, Ireland, Italy, Liechtenstein, Malta, Macedonia, Netherlands, Portugal, Serbia, Slovakia, Slovenia, Spain, Switzerland, Ukraine. **North Africa:** Algeria, Egypt, Madeira, Morocco, Tunisia. **Asia:** Azerbaijan,

Asian Türkiye, China? Cyprus, Iran? Israel? Kirgizia, Lebanon, Syria, Tadzhikistan, Turkmenistan, Uzbekistan (Aukema, 2018).

DISCUSSION

Microvelia reticulata, which was identified in freshwater areas in the Thrace Region between 2018 and 2020, was also identified in Anatolia by Kment & Jindra (2005), in Konya-Beyşehir (Beyşehir Lake), in Sivas-Demiryurt (Tödürge Lake), and in Lalapaşa (Vaysal Pond) and Meriç (Nasuhbey Pond) in Edirne Province in the Thrace Region by Banbal & Fent (2016). In this study, along with Edirne, it was identified in various localities in the provinces of İstanbul, Kırklareli, and Tekirdağ, thus expanding the known distribution limits of the species.

Although *Microvelia pygmae* was previously known from a few localities in Anatolia (Önder et al., 1981, 2006; Andersen, 1995; Fent et al., 2011), it has been identified only in the center of Edirne province, in the Thrace Region (Önder et al., 1984). In this study, it has been identified in the provinces of Kırklareli and Tekirdağ, along with many localities in Edirne province. These findings indicate that the species has a wider distribution than previously known.

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