New faunistic records of Chironomidae (Diptera: Insecta) from Iran

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Abstract
Ongoing investigation into Chironomidae specimens collected from the Sirwan River watershed in 2020 resulted in two new faunistic records for Iran, and new range extensions for the Palearctic region. Two species, Paramerina divisa (Walker, 1856) and Xenochironomus xenolabis (Kieffer, 1916) are diagnosed and reported for the first time from Iran. This contributes to establishing baseline data about the diversity and distribution of freshwater flora and fauna of this region.

Key words: Chironomidae, Iran, faunistic records, Palearctic, Middle East, Kurdistan.

INTRODUCTION
As part of an effort to acquire a baseline data on the diversity and distribution of the Kurdistan’s freshwater flora and fauna, Mohammadi et al. (2020) provided a detail taxonomic diagnoses and description of specie of Chironomidae from Sirwan River watershed, the largest watershed in the province. Further investigation into materials obtained during this study indicated the presence of two other species which are new faunistic records for Iran and are considered range extension for the Palearctic. In this paper we provide a detail taxonomic diagnoses and description of Paramerina divisa (Walker, 1856) and Xenochironomus xenolabis (Kieffer, 1916) from Iran for the first time.

MATERIAL AND METHODS
A detailed description of Sirwan River watershed is provided by Mohammadi et al. (2020). A detailed description of the sampling procedure is provided by Mohammadi et al. (2020). The immature specimens were slide-mounted following the procedures outlined in Epler (2001) for immatures. Voucher specimens of chironomid species described and diagnosed in this study have been deposited in the Entomology Collection of the Royal Ontario Museum, Toronto, Ontario, Canada.

Images of the larval and pupal Chironomidae were produced using an OMAX A3550U Camera mounted on AMScope compound microscope. Morphological terminology, abbreviations, and measurements follow those used by Sæther (1980) for immature stages of Chironomidae.
The primary species geographical records were obtained from Ashe and O'Connor (2009) with additional records obtained from various taxonomic literature related to genera and species described in this study.

RESULTS
Faunistic records
The following species are recorded for the first time in Iran and are considered range extension for the Palearctic region: *Paramerina divisa* (Walker, 1856) and *Xenochironomus xenolabis* (Kieffer, 1916).

Review of the species
Subfamily Tanypodinae
*Paramerina divisa* (Walker, 1856)
**FIGURE 2.** *Xenochironomus xenolabis* (Kieffer, 1916), A-D larva. Antenna (A); Labro-epipharyngeal region, arrow indicate the cluster of tick setae (B); Mandible (C); Mentum (D).

**Diagnosis-Pupa:** Thorax granular. Thoracic horn 277–281 (279) μm long with circular plastron plate, plastron plate about 1/3rd of the thoracic horn, atrium of thoracic horn thin-walled, joined with a short neck to the plastron plate, thoracic horn 4.3 x as long as wide (Fig. 1a). Tergite I with conspicuous scar (Fig. 1b). Tergite VII with 3 taeniae lateral setae, tergite VIII with 4 taeniae lateral setae, anal lobe 3 x as long as wide, anterior taeniae of anal lobe at 0.35 of lobe length (Fig. 1c).

**Remarks:** This species was described by Walker (1856) as *Chironomus divisus*. Adult male is described in key by Langton & Pinder (2007). The pupa is described by Langton & Visser (2003). The larva of this species is probably the *Paramerina* sp. described by Mohammadi et al. (2020) from the same watershed.
Mohammdi et al. (2020) noted at the time that their larva probably belongs to that of Paramerina cingulata (Walker, 1856).

**Subfamily Chironominae**

*Xenochironomus xenolabis* (Kieffer, 1916)

*Diagnosis-Larva:* Total length 7.6–8.3 (8.0) mm. Antenna 5 segmented, segments sequentially decrease in size, blade reaches the base of the 4<sup>th</sup> segment, LO sitting opposite at the base of 2<sup>nd</sup> segment (Fig. 2A), AR 1.1. Labro-epiharyngeal region with two lobes, each with cluster of tick setae or brush (Fig. 2B), SI-SIII simple, SIV well-developed. Mandible with a broad and dark apical tooth and 3 small inner teeth, setae subdentalis simple, setae interna consist of 4 branches, each consist of a stalk with cluster of setae (Fig. 2C). Mentum dark, ventromental plates light golden, mentum with trifid median tooth and 7 pair of lateral teeth; 1<sup>st</sup> lateral teeth stand much higher than remaining teeth, 2<sup>nd</sup> lateral teeth sits much lower; ventromental plates 1.2–1.3x the width of mentum, Vmp L/W = 2; setae submenta sits just below the mentum aligned with last lateral teeth (Fig. 2D). Posterior parapods and procercus longer than wide. Anal tubules present.

*Remarks:* Species was described by Kieffer (1921) as Chironomus xenolabis. Adult male is described in key by Langton & Pinder (2007). The pupa is described by Langton & Visser (2003). Partial characteristics of adult male and pupa are also provided by Roback (1962). The larva is described by Roback (1962), and by Epler (2001).

**DISCUSSION**

*Paramerina divisa* is a widespread Palearctic species reported from the lotic habitats of many north to southern European countries. It has also been reported from Northern Africa, in the Middle East from Lebanon, and in the Oriental regions of Japan (Ashe & O’connor, 2009). *Xenochironomus xenolabis* inhabits stagnant and flowing waters where larvae make silken tubes and inhabit the outer layer of the freshwater sponges (Roback 1962). The species has a Neotropical and Holarctic distribution (Fusar et al. 2013, Langton & Visser, 2003). In the Palearctic, it is widespread in Europe, reported from Middle East and occurs as far east as the Korean Peninsula and Japan. The new faunistic records from Iran are also the first record for their corresponding genera in the country, and they further extend the range of these chironomids in the Palearctic region.

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**LITERATURE CITED**


