

New records and a review of the Chironomidae (Diptera) of Kuwait and the United Arab Emirates

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The Chironomidae of the western Arabian Peninsula were reviewed with keys, collection sites, and minor descriptions of 53 species by Cranston (1989) and Cranston and Judd (1989), with additional records and new species described by Al-Houty (1997), Andersen and Mendes (2010), and Gilka (2009). Despite the large land area, the number of reported species is small, most likely because the land is extremely arid and freshwater habitats are rare. Kuwait and the United Arab Emirates are hot, dry, desert countries in the Arabian Peninsula and aquatic habitats are of great interest to people living in these desert countries. In Kuwait agricultural practices produce the majority of temporary aquatic habitats that support aquatic insects (Salit et al. 1996) as there are very few natural surface freshwater sources. The United Arab Emirates likewise has very little natural freshwater. We present new records and review the past publications to produce lists of Chironomidae for Kuwait and the United Arab Emirates.

The US Air Force maintains several military bases in Kuwait and the United Arab Emirates. These bases often treat wastewater and dispose of it in retention ponds handling over 600 000 litres of water per day. The ponds support extensive vegetation including several species of *Phragmites* and flowering Asteraceae. They produce thousands of mosquitoes and other aquatic Diptera. Base personnel survey for mosquitoes using miniature light traps and all of the insects trapped on bases are killed by freezing and shipped dry to the US Air Force School of Aerospace Medicine at Wright-Patterson AFB, OH for identification. Mosquitoes are the surveillance target and represent more than 99% of the total catch. Collection sites in Kuwait were at Ali Al Salem Air Base near Kuwait City at 29.36° N, 47.52° E, Ahmed Al Jaber Air Base near Kaba at 28.95° N, 47.79° E, and in the United Arab Emirates at Al Dhafra Air Base near Abu Dhabi at 24.26° N, 54.56° E. Chironomidae were stored for later study because they are not of immediate medical significance. Several species can be pests and to the untrained resemble mosquitoes. An assessment was made in May 2016 of possible predatory Diptera in the water treatment ponds and of the non-target organisms for pesticide treatments. All of the adult Chironomidae stored in collections from two bases in Kuwait and one from the United Arab Emirates were sorted and identified. Material that had been dried, and material that had been dried and then placed in alcohol, was less than satisfactory, with few specimens with antennae and all legs intact. Specimens were dissected (or re-assembled) and either mounted directly in Euparal or cleared in lactic acid and then mounted in Euparal. Keys and descriptions for species in the region were used for identification (Andersen and Mendes 2010, Cranston 1989, Cranston and Judd 1989, Ekrem 1999, 2001, Fittkau 1962, Freeman 1955, 1956, 1957, 1959, Gilka 2009, Saether 1990). Specimens are in the J.H. Epler Collection and will be deposited in the Florida State Collection of Arthropods.

Historic Records

Previously reported species by Al-Houty (1997), Cranston (1989), Cranston and Judd (1989), Andersen and Mendes (2010), and Gilka (2009) and these along with the new records are presented in Table 1.

Al-Houty (1997) listed three species for Kuwait, but it is extremely doubtful that *Chironomus dorsalis* occurs in Kuwait. She listed many taxonomists that identified the insects listed in the paper; among them was P.S. Cranston, the only midge specialist. Upon checking with Cranston, he could not recall any details but did not think that he would have identified *C. dorsalis* from Kuwait (Cranston pers. comm., 28.vii.2016). Thus we do not consider this species in our list. The other two species she listed have been recorded from Saudi Arabia (Cranston & Judd 1989) and are included here.

With the exception of *Polypedilum (Polypedilum) nubifer* and *Zavreliomyia vaillanti* from the United Arab Emirates, our records represent new country level reports. Based on published reports and our collections the known chironomid fauna of Kuwait contains seven species and the United Arab Emirates is represented by 31 species.

Two species identified in the collections represent undescribed species. There were not enough specimens and the condition of the material was not good enough to describe them. The *Cricotopus* sp. “Kuwait” is most similar to *Cricotopus flavozonatus* Freeman, 1953. *Cricotopus* larvae are usually associated with aquatic plants and algae, where they feed on plant material, algae and diatoms. The *Tanytarsus* sp. “UAE” was most similar to *Tanytarsus minutipalpus* Ekrem & Harrison, 1999. The genitalia of T. sp. “UAE” are very similar to those of *T. minutipalpus*, but the palps are basically normal. It has an AR of 1.36, scutal tubercle, wing with setae in cells r 4+5, m 1+2. *Tanytarsus* larvae are detritus/plant feeders. Further collections could produce enough material to describe these species.

New records

Kuwait

Ali Al Salem Air Base

Cricotopus sp. “Kuwait” 17 March 2016, 27 Feb. 2016

Chironomus calipterus 27 Feb. 2016

Chironomus pulcher 17 February 2014, 27 February 2016, 17 March 2016

Polypedilum (Polypedilum) nubifer 17 March 2016

Ahmed Al Jaber Air Base

Limnophyes natalensis 7-27 April 2016

Chironomus calipterus 7-27 April 2016

Polypedilum (Polypedilum) nubifer 7-27 April 2016

United Arab Emirates

Al Dhafra Air Base

Zavrelimyia vaillanti 23 February 2014

Polypedilum (Tripodura) aegyptium 23 February 2014

Polypedilum (Polypedilum) nubifer 23 February 2014

Tanytarsus sp. “UAE” 23 February 2014

Table 1: Checklist of historical records of Chironomidae reported in Kuwait and the United Arab Emirates (UAE) along with newly reported species from 2014-2016.

Species	Country	Reported by
Tanypodinae		
<i>Ablabesmyia (Ablabesmyia) longistyla</i> Fittkau, 1962	UAE	Andersen and Mendes (2010)
<i>Djalmabatista reidi</i> (Freeman, 1955)	UAE	Andersen and Mendes (2010)
<i>Procladius (Holotanypus) apicalis</i> (Kieffer, 1918)	UAE	Andersen and Mendes (2010)
<i>Procladius (Holotanypus) brevipetiolatus</i> (Goetghebuer, 1935)	Kuwait	Al-Houty (1997)
<i>Paramerina vaillanti</i> Fittkau, 1962	UAE	Andersen and Mendes (2010)
<i>Zavrelimyia vaillanti</i> (Fittkau, 1962)	UAE	This study

Orthoclaadiinae

<i>Bryophaenocladus clavatus</i> Andersen & Mendes, 2010	UAE	Andersen and Mendes (2010)
<i>Bryophaenocladus rostratus</i> Andersen & Mendes, 2010	UAE	Andersen and Mendes (2010)
<i>Cricotopus</i> sp. "Kuwait"	Kuwait	This study
<i>Limnophyes natalensis</i> (Kieffer, 1914)	Kuwait	This study
<i>Psectrocladius (Psectrocladius) limbatellus</i> (Holmgren, 1869)	UAE	Andersen and Mendes (2010)
<i>Pseudosmittia danconai</i> Marcuzzi, 1947	UAE	Andersen and Mendes (2010)
Chironominae		
<i>Baeotendipes ovazzai</i> (Freeman, 1957)	UAE	Andersen and Mendes (2010)
<i>Chironomu dorsalis</i> Meigen, 1818	Kuwait (Dubious record)	Al-Houty (1997)
<i>Chironomus calipterus</i> Kieffer, 1908	Kuwait, UAE	Cranston and Judd (1989), Andersen and Mendes (2010), This study
<i>Chironomus ovazzai</i> (Freeman, 1957)	UAE	Andersen and Mendes (2010)
<i>Chironomus pulcher</i> Wiedemann, 1930	Kuwait	This study
<i>Cladotanytarsus pseudomancus</i> (Goetghebuer, 1934)	UAE	Gilka (2009)
<i>Cladotanytarsus sagittifer</i> Gilka, 2009	UAE	Gilka (2009)
<i>Cryptochironomus rostratus</i> Kieffer, 1921	UAE	Andersen and Mendes (2010)
<i>Dicrotendipes gilkae</i> Andersen & Mendes, 2010	UAE	Andersen and Mendes (2010)
<i>Dicrotendipes pallidicornis</i> (Goetghebuer, 1934)	UAE	Andersen and Mendes (2010)
<i>Dicrotendipes peringueyanus</i> Kieffer, 1924	UAE	Andersen and Mendes (2010)
<i>Kiefferulus disparilis</i> (Goetghebuer, 1936)	UAE	Andersen and Mendes (2010)
<i>Microchironomus tener</i> (Kieffer, 1918)	UAE	Andersen and Mendes (2010)
<i>Paratanytarsus praecellens</i> Gilka, 2009	UAE	Gilka (2009)
<i>Paratendipes nudisquama</i> (Edwards, 1929)	UAE	Andersen and Mendes (2010)
<i>Polypedilum (Polypedilum) alticola</i> Kieffer, 1913	UAE	Andersen and Mendes (2010)
<i>Polypedilum (Polypedilum) nubifer</i> (Skuse, 1889)	Kuwait, UAE	Andersen and Mendes (2010), This study
<i>Polypedilum nubeculosum</i> (Meigen, 1804)	Kuwait	Al-Houty (1997)
<i>Polypedilum (Tripodura) aegyptium</i> Kieffer, 1925	UAE	This study
<i>Polypedilum (Tripodura) bifurcatum</i> Cranston, 1989	UAE	Andersen and Mendes (2010)
<i>Polypedilum (Tripodura) harteni</i> Andersen & Mendes, 2010	UAE	Andersen and Mendes (2010)

<i>Polypedilum (Tripodura) malickianum</i> Cranston, 1989	UAE	Andersen and Mendes (2010)
<i>Tanytarsus formosanus</i> Kieffer, 1912	UAE	Gilka (2009)
<i>Tanytarsus mcmillani</i> Freeman, 1958	UAE	Gilka (2009)
<i>Tanytarsus trifidus</i> Freeman, 1958	UAE	Gilka (2009)
<i>Tanytarsus</i> sp. "UAE"	UAE	This study
<i>Virgatanytarsus arduennensis</i> (Goetghebuer, 1922)	UAE	Gilka (2009)

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