

Distribution and habitats of the tiger beetle *Megacephala euphratica* in the Çukurova Delta, southern Turkey (Coleoptera: Cicindelidae)

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Abstract. The distribution of the tiger beetle *Megacephala euphratica euphratica* in Çukurova Delta is analyzed and new locality records within the delta are presented. The data indicated that the species is abundant and widely distributed, inhabiting mainly salt marsh habitats. Brief information about on the habitat is given and the possible distribution of the species along the Mediterranean coast of Turkey is discussed.

Kunzfassung. Die Verbreitung des Sandlaukäfers *Megacephala euphratica euphratica* im Çukurova-Delta wird analysiert und neue Fundorte werden vorgestellt. Die Daten zeigen, dass die Art häufig und weit verbreitet ist, und hauptsächlich Salzwiesen bewohnt. Eine kurze Beschreibung der Habitate wird gegeben und die mögliche Verbreitung an der türkischen Mittelmeerküste diskutiert.

Key words: Insecta, Turkey, Mediterranean coast, salt marshes, distribution, habitat.

Introduction

Most recently the distribution of *Megacephala euphratica euphratica* Latreille & Dejean, 1822 in Turkey has been given by CASSOLA (1999) and FRANZEN (2001). The species was first mentioned from Turkey by KORELL (1988), who found a pair of elytra in the Göksu Delta. During his visits to Turkey in 1996 and 1997, FRANZEN (2001) collected specimens from one location (Tuzla, Adana) in Çukurova Delta, in addition to some other localities as first reliable records from Turkey. The aim of the present work is to reveal the habitats and provide detailed distribution data of *M. e. euphratica* within the Çukurova Delta, which possess similarities with the other deltas in Turkey, which might provide insight about the distribution of the species in Turkey.

Methods

A first survey for *M. e. euphratica* within the delta was made in early 2001, before the end of April, in order to determine potential habitats. Sampling was then concentrated on these habitats by visiting the various sites at irregular intervals between May and August. During each sampling date, larval burrows were excavated for the presence of larva. The diameter of burrow openings was also measured to differentiate the instars. In addition, plant species present at the habitats were sampled for a vegetation analysis. Since the adults are active after sunset, they were collected during the night by at least two persons walking through the habitat with the aid of portable fluorescent light.

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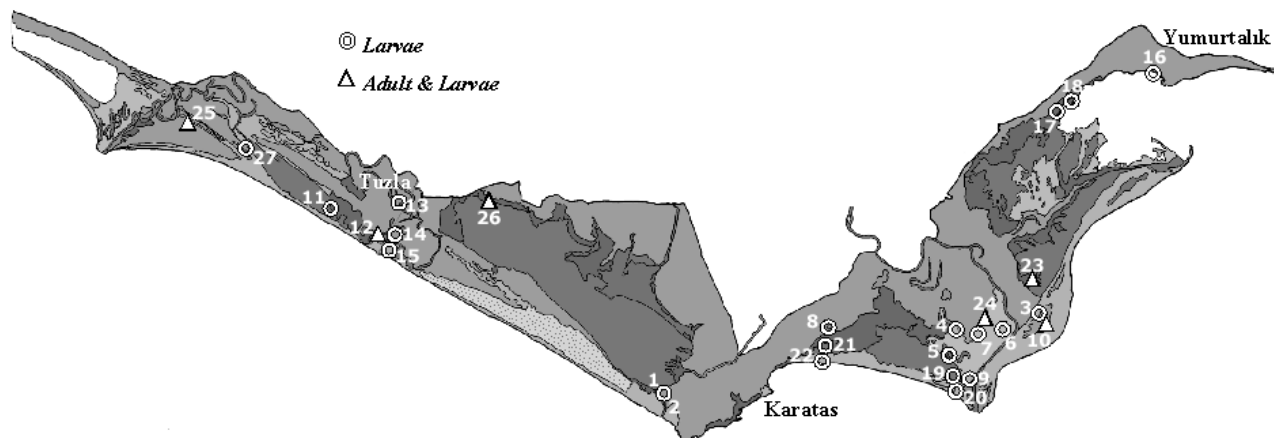


Fig. 1. Distribution of *Megacephala e. euphratica* in the Çukurova Delta, southern, Turkey (see Table 1 for the coordinates).

Results and discussion

The distribution of *M. e. euphratica*, sampling sites, dates and coordinates are given in Tab. 1 and Fig. 1. The species is very widely distributed in the delta and mainly present in all the salt marsh habitats that are entirely flooded for a long period of time. In those habitats, the annual plant species are *Salicornia europaea* and *Sueda maritima*, and with perennials of *Arthrocnemum fruticosum* and *A. glaucum*, *Halimione portulacoides*, *Halocnemum strobilaceum*, and *Limonium angustifolium* (Fig. 2). It was also found at low densities in salt meadow habitats that were partly flooded for a short time. Typical plant species there include *Juncus acutus*, *J. maritimus*, *J. gerardii*, *Hordeum murinum*, *Aeliophus littoralis*, *Plantago maritima*.

Typical larval burrows have an opening diameter of 2.8 ± 0.05 mm ($n = 77$), 4.7 ± 0.05 mm ($n = 68$), and 7.7 ± 0.06 mm ($n = 80$) for the 1st, 2nd, and 3rd instars, respectively. They are formed immediately after the retreat of the water table (Fig. 3). Although the burrows of all three larval instars were always present and were very common in their habitats, adults were only observed at certain localities (Tab. 1). This difference between the larval and adult density might be due to the different predation pressure. The exposed adults might be more vulnerable to predation as compared to well-protected larva in their burrows.

Despite the few records given in the literature (CASSOLA 1999, FRANZEN 2001), *M. e. euphratica* is very abundant and widely distributed in the Çukurova Delta, inhabiting mainly salt marsh habitats. The same distribution pattern has been noted in Göksu Delta (İçel province, unpubl. observ.), in the Orontes (Asi) River Delta (Hatay province), and in the Küçük Menderes and Gediz Deltas (İzmir province) (FRANZEN 2001). This indicates that the species is locally common with dense populations, as already mentioned by Franzen (2001), and it is almost certainly present in all the river deltas having similar salt marsh habitats along the Mediterranean coast of Turkey.



Fig. 2. Typical salt marsh habitat of *Megacephala e. euphratica* at the Yumurtalık Lagoon



Fig. 3. Third instar larval burrows of *Megacephala e. euphratica*

Tab. 1. Sampling sites, dates and coordinates of *Megacephala e. euphratica* in the Çukurova Delta.

Site No	Location	Date	Coordinates (UTM)	Larva	Adult
1	East bank of Karataş lagoon inlet	26.04.2001	36S 708436 4049729	+	
2	East bank of Karataş lagoon inlet	19.05.2001	36S 708436 4049729	+	
3	Kaldırım kışlak	20.05.2001	36S 733753 4057039	+	
4	Adalı village	21.05.2001	36S 728367 4056050	+	
5	Adalı village	21.05.2001	36S 727685 4054502	+	
6	Bank of Ceyhan river	22.05.2001	36S 730970 4056206	+	
7	Adalı village	22.05.2001	36S 729009 4056173	+	
8	Bebeli village to Ağyatan lake road	22.05.2001	36S 721581 4055773	+	
9	Adalı village	22.05.2001	36S 729195 4052419	+	
10	Kaldırım kışlak	25.05.2001	36S 733753 4057039	+	+
11	Tuzla camp site	14.06.2001	36S 685887 4061404	+	
12	Karagöçerler village–west side of drainage canal	14.06.2001	36S 688845 4059868	+	+
13	Akuvatur intersection	14.06.2001	36S 691744 4064653	+	
14	Akuvatur	14.06.2001	36S 690434 4059597	+	
15	Around Akuvatur fishery	14.06.2001	36S 690113 4059020	+	
16	Yumurtalık camp site	18.06.2001	36S 741595 4071873	+	
17	<i>Pinus halepensis</i> forest lagoon	18.06.2001	36S 733851 4069190	+	
18	<i>Pinus halepensis</i> salt marsh	18.06.2001	36S 735434 4070929	+	
19	Ağyatan lake – lagoon	18.06.2001	36S 727984 4052254	+	
20	Mouth of Ağyatan lake	18.06.2001	36S 727958 4051191	+	
21	West of Ağyatan lake	19.06.2001	36S 721460 4054240	+	
22	West of Ağyatan lake	19.06.2001	36S 721271 4053586	+	
23	Kaldırım village	24.06.2001	36S 731973 4058574	+	+
24	Adalı village	29.06.2001	36S 728953 4056253	+	+
25	Around Tabaklı–Aydınlar village road	30.06.2001	36S 674867 4067614	+	+
26	North-east of Akyatan lake	02.07.2001	36S 699216 4061338	+	+
27	North-east of Tuzla lagoon	02.08.2001	36S 681767 4065303	+	

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