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Additional records of the alien gastropod, *Ergalatax junionae* Houart, 2008 (Gastropoda: Muricidae), from the eastern Mediterranean

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Abstract

The alien muricid gastropod *Ergalatax junionae* Houart, 2008 has been known to inhabit the shallow waters of the eastern Mediterranean. The chronology of its recorded observations, beginning in eastern Turkey and proceeding to the south and west, suggests that it was first introduced to eastern Turkey via shipping, and was then spread in the Levantine Sea. The recent record from Greece indicates that its range of distribution is still expanding. Here we report local population densities and additional records of *E. junionae* from the eastern Mediterranean basin, including its first occurrence from the Turkish coast of the Aegean Sea.

Keywords: Mollusca; Gastropoda; Muricidae; *Ergalatax junionae*; Alien species; Eastern Mediterranean.

Introduction

Ergalatax junionae Houart, 2008 (Fig. 1) is one of the seven alien muricid gastropods hitherto recorded in the Mediterranean Sea (ZENETOS *et al.*, 2006, 2008a). This species has long been identified as *Ergalatax obscura* Houart, 1996, which is now considered a junior synonym of *Ergalatax martensi* (Schepman, 1892). It was recently given as replacement name for *Morula martensi* Dall, 1923, which is a junior sec-

ondary homonym of *E. martensi* (Schepman, 1892) by HOUART (2008).

Ergalatax junionae was first observed on the southeastern coast of Turkey in 1992 and reported as *Ergalatax martensi* (Dall, 1923) by ENGL (1995). The chronology of its introduction in the eastern Mediterranean is summarized in ZENETOS *et al.* (2008b). Additional records include the Lycian coast (YOKEŞ *et al.*, 2002); Syria (BITAR, 2005) and northern Cyprus (DELONGUEVILLE & SCAILLET, 2008).

The present paper aims to report additional records of *E. junionae* from the eastern Mediterranean basin, including its first occurrence from the Turkish coast of the Aegean Sea. In addition, population density data of the species at some locations where it forms aggregations are presented.

Materials and Methods

Specimens of *E. junionae* were collected at 13 different sites located on the southern coasts of Turkey, from the Bozburun Peninsula (SE Aegean Sea) to Yayladagi (northeastern Levant, close to the Turkish-Syrian border) between June 2002 and October 2008 (Fig. 2). Collection of the specimens was carried out by SCUBA and skin diving with the exception of the specimens from Beldibi (Gulf of Antalya), which were collected directly from the beach. Details of the collection are given in Table 1. In addition, at some locations where the species established dense populations, specimens were counted using a 1 m² quadrat. Collected specimens were preserved dry or in 70% ethanol and are stored in the Istanbul University Science Faculty Hydrobiology Museum, Turkey.

Results and Discussion

A total of 136 specimens collected from 13 different sites were examined (Table 1). All examined specimens agree quite well with the description and figures given by HOUART (2008, p. 102, 106; figures 2, 4, 15-16, 31-40). The largest specimen examined was 29.8 mm in length from Çevlik Harbor, Hatay. The specimen collected from Orhaniye Cove (Bozburun Peninsula, SE Aegean Sea) in June 2002 (Fig. 1A; Table 1) represents the first record of *E.*

junionae from the Turkish coast of the Aegean Sea. This is the northernmost occurrence of the species in the Mediterranean.

After its introduction, *E. junionae* became one of the most abundant molluscs in shallow hard-substrate habitats along the Mediterranean coast of Turkey. Long-term underwater observations have revealed that this species is likely to have a continuous distribution along the Turkish coast over which it forms local aggregations. Population densities were found to be 9 individuals per m² (ind.m⁻²) in Kaş (Antalya, 15.08.2004), 17 ind.m⁻² in Arsuz (Gulf of Iskenderun, 19.10.2006), 21 ind.m⁻² in Kalkan Cove (Antalya, 27.10.2006), and 10 ind.m⁻² in Kabak Cove (Fethiye, 04.10.2008).

BUZZURO & GREPPI (1996) found many live specimens of *E. junionae* under stones and on rocky bottoms at very shallow depths in Taşucu. Although they have reported alien species from Adrasan (southwestern Antalya) to Taşucu (Mersin), they recorded *E. junionae* (as *Ergalatax* sp.) only in Taşucu, at a time when the known range of its distribution in the Mediterranean had been restricted to Iskenderun and Mersin. Since its first sighting in 1992, a rapid expansion has been observed towards the western coasts of Turkey, and in 2002, very dense populations were recorded on southwestern coasts of Antalya, including Adrasan (YOKEŞ *et al.*, 2002). In the same year, individuals of this gastropod were collected from Lebanon (ZIBROWIUS & BITAR, 2003). Records from Israel came 12 years later, suggesting that the southward expansion has taken a longer time. ZENETOS *et al.* (2008b) suspected that shipping was the most probable mode of introduction into the Mediterranean for this species. If it was introduced to the eastern coast of Turkey first, the observed dis-

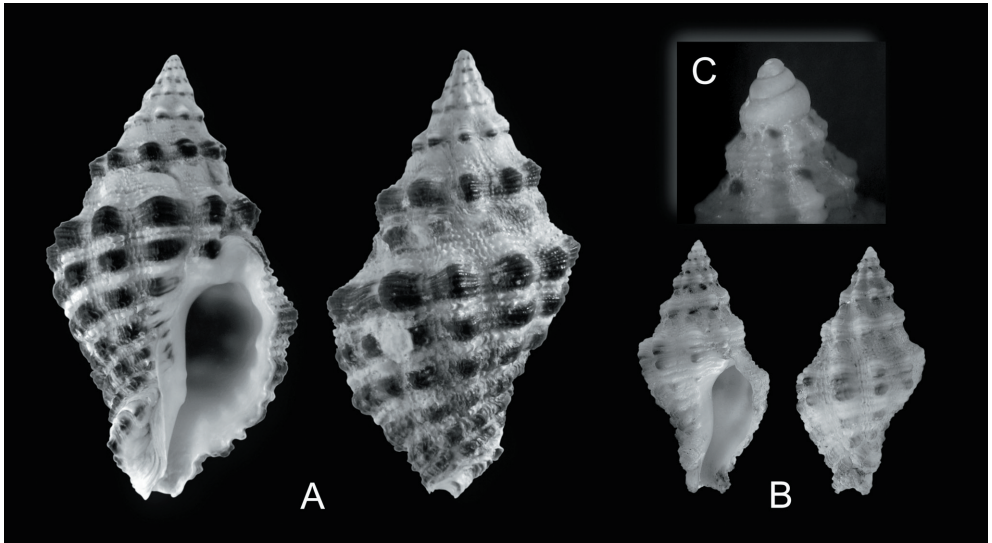


Fig. 1: *Ergalatax junionae* Houart, 2008. (A) specimen from Orhaniye Cove, actual length 23.7 mm; (B) juvenile specimen from Üçadalar, actual length 11.4 mm; (C) protoconch of the same specimen as B.



Fig. 2: Map showing the collection sites of *Ergalatax junionae*.

Table 1
Collection data of the specimens of *Ergalatax junionae*
(lv: live specimen, dd: dead specimen).

| Site no (Map Ref.) | Coordinates | Date of collection | Depth (m) | Description of biotope | Number of Specimens |
|-----------------------|----------------------------|-----------------------|-----------|---------------------------|---|
| 1 | 36° 45'46"N 28° 07'27"E | June 2002 | 3 | Rocky | 1 lv |
| 2 | 36° 27'33"N 29° 07'26"E | October 2008 | 2 | Rocky | 17 lv |
| 3 | 36° 13'29"N 29° 24'52"E | October 2006 | 3 | Rocky | 42 lv |
| 4 | 36° 11'22"N 29° 35'01"E | November 2008 | 11 | Stony | 5 lv |
| 5 | 36° 27'N 30° 33'E | August 2002 | 1 | Rocky | 2 dd |
| 6 | 36° 42'08"N 30° 34'28"E | April 2006 | On beach | - | 4 dd |
| 7 | 36° 11'15"N 33° 46'41"E | September 2007 | 3 | Sandy rubble | 6 lv |
| 8 | 36° 14'29"N 33° 48'24"E | September 2007 | 4 | Sandy rubble | 7 lv, 1 dd (occupied by a hermit crab) |
| 9 | 36° 28'09"N 35° 58'02"E | July 2008 | 3 | - | 1 dd (occupied by a hermit crab) |
| 10 | 36° 07'31"N 35° 54'49"E | October 2008 | 1 | Rocky | 30 lv |
| 11 | 36° 07'06"N 35° 55'19"E | October 2008 | 2 | Rocky | 13 lv |
| 12 | 36° 00'34"N 35° 58'48"E | July 2008 | 2 | - | 2 dd (occupied by hermit crabs) |
| 13 | 35° 57'06"N 35° 55'18"E | October 2008 | 2 | Rocky | 5 lv |

tribution pattern is in accordance with the surface current system of the eastern Mediterranean Sea. There is always a possibility

that the populations of Israel, Lebanon and Syria had not been noticed before the species was recorded in Turkey. However, in Novem-

ber 2005, an *E. junionae* population with a considerable density was observed and 10 specimens were collected from Shikmona Beach (Haifa, Israel) (M.B. YOKEŞ, unpublished data), suggesting that if it had arrived 12 years before, such a population would probably have been noticed much earlier. Thus, we agree that shipping is the most probable mode of introduction for *E. junionae*.

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