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SHORT COMMUNICATION

First record of the moon crab *Ashtoret lunaris* (Forskål 1775) from Turkish waters

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Abstract

The first record of the moon crab *Ashtoret lunaris* (Forskål 1775) is reported for the Turkish waters. Four specimens of *A. lunaris* were captured in Iskenderun Bay, Northeastern Mediterranean coast of Turkey at depth about 17m by gill net on 18 August 2015. The moon crab is the first non-native crab from the family Matutidae established in the Turkish coast.

Keywords: Moon crab, *Ashtoret lunaris*, first record, Turkish waters, lessepsian migrant

The Levantine upper shelf biota has an ever increasing component of Erythraean aliens (Galil 2012). The number of lessepsian species has increased especially during the last decade in Turkish marine waters (Özcan *et al.* 2010; Turan and Yaglioglu 2011; Yaglioglu *et al*. 2014).

Decapod crustaceans are well represented (Galil 2011): some penaeid and portunid species have established flourishing populations, highly prized and considered a boon to the Levantine fisheries (Galil 2007), while a few species are only known from a single record. The crab family Matutidae contains a distinctive group of predatory crabs with adaptions for swimming or digging. Often referred to as moon crabs, some 15 species placed in four genera are recognized from the family (Ng *et al.* 2008; De Grave *et al.* 2009; Davie 2014a, 2014b). Members of the family have a distinctive flattened dactyl on each of their walking legs, which are used for swimming and digging into soft sediments. The taxonomy of the superfamily Calappoidea, containing the families Matutidae and Calappidae, is contentious (Ng *et al.* 2008). The moon crab *Ashtoret lunaris* (Forskål 1775) is a common inhabitant of the surf zone of

tropical sandy shores in depth of 15-20 m. It has a widespread distribution which extends from the Red Sea to South Africa, Asia and Australia (Chhapgar 1957; Sankarankutty 1962; Guinot 1966; Vannini 1976). In the Great Barrier Reef region, Australia, *A. lunaris* is commonly found in the surf zone of sandy shore beaches on the mainland and some inshore islands (Perez 1986).

In the Mediterranean, a single specimen of *A. lunaris*, the only record of the Matutidae, was collected by a trawler in Haifa Bay at depth of 20 m in 1987 (Galil and Golani 1990). Although those sandy-silt bottoms are frequently trawled, no other specimens have been reported until now, and it was assumed that the population became extinct (Galil and Mendelson 2013). However, in this study, the first documentation of *A. lunaris* for the Turkish coastal waters of the Mediterranean and the second documentation for the Mediterranean is given.

Four female specimens of moon crab *A. lunaris* (Figure 1) were captured by commercial fishery (gillnet) on 18 August 2015 at a depth of 19 m in the coast of Iskenderun Bay (Cevlik; 36°06′N; 35°54′E) of the Northeastern Mediterranean part of Turkey (Figure 2).

Figure 1. One of the captured specimens of moon crab *Ashtoret lunaris*

The taxonomic identification of *A. lunaris* was made according to Ng *et al.* (2008). The specimens were preserved in 4% formaldehyde solution and deposited at the Museum of the Faculty of Marine Sciences and Technology, Iskenderun Technical University, Iskenderun-Hatay.

The specimens were identified as *Ashtoret lunaris* (Forskål 1775) with the diagnostic characteristics and color described by Galil and Clark (1994). In the

body of *A. lunaris,* there are surface of carapace minutely granulate, coarser granules laterally and around six dorsal tubercles, largest granules surrounding mesogastric tubercle. Front with straight lobes laterally and a slightly emarginate rostrum medially. Exognath and ischium of third maxilliped tuberculate. Anterolateral margins of carapace crenulate with five small tubercles followed by three large triangular tubercles, middle tubercle smallest. Lateral spine 0.2 carapace width. Posterolateral margin oblique, with granulate carina not quite reaching base of lateral spine. Tubercle at mid posterolateral margin strongly marked. Upper external surface of palm with two rows of granulate tubercles, proximal-most in lower row largest. Mid palm a five-lobed ridge, second and fourth lobes acuminate, second lobe largest. At lower proximal angle of palm conical tubercle. A row of molariform tubercles extending from lower proximal angle of palm to base of immobile finger. Lower margin with row of triangular tubercles terminating at base of dactylus, distalmost largest. A finely milled ridge on outer surface of dactylus in male, absent in female. Plastron coarsely granular. First male pleopod with pronounced angle between shaft and apical lobe. About the color of body, small red spots cover carapace, more crowded anteriorly. Propodus and dactylus of ambulatory legs marked with large red patches. Measurements were carried out to the nearest 0.1 mm by a caliper, and meristic counts were made.

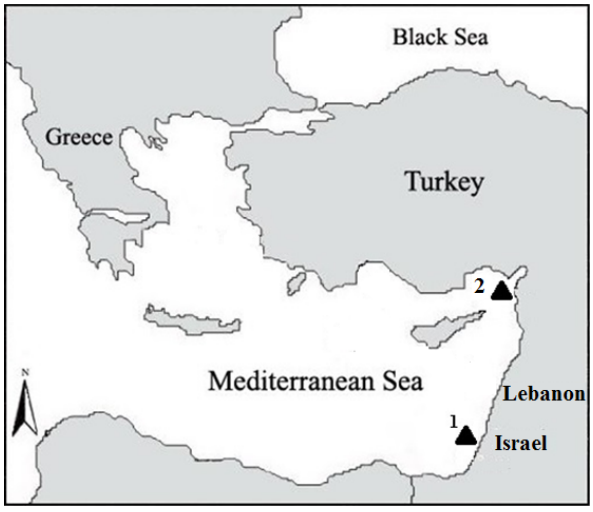

Figure 2. Sampling location (▲) of *Ashtoret lunaris*. The numbers is arranged according to the time of occurrence (1:Galil and Golani (1990), 2: present study)

Table 1. Measurements of *Ashtoret lunaris.* Standart errors are given in brackets.

Carapace Data	**Length (mm)**
Carapace width	44.69 (0.041)
Carapace length	27.50 (0.053)
Frontal width	18.97 (0.013)
Posterior width of carapace	9.19 (0.002)
Abdominal width	16.75 (0.05)
Abdominal length	22.53 (0.06)
Sternum width	6.45 (0.03)
Cheliped Data	**Length (mm)**
Propodus length	9.18 (0.02)
Propodus width	17.31(0.02)
Dactyl length	7.48 (0.04)
Merus length	7.63(0.02)
Number of lateral spine	5

Biological invasions of lessepsian species constitute a significant environmental problem at present. There is an increasing number of crabs and their settlement along Turkish coasts. The settlement of blue crab, *Callinectes sapidus*, in the Black Sea is a good indicator for their future extension (Yaglioglu *et al.* 2014). Major pathways for migration of non-native organisms in the marine realm are established through hull fouling and/or ballast water from ships. The maritime traffic along the coast of Turkey and in the Mediterranean Sea has been increasing in recent years. Indeed, maritime activities resulting from this kind of traffic make dominant route for biological invasions in the Mediterranean Sea (Galil *et al.* 2008). Due to the hydrographic features of the Levantine Sea, the southeastern coast of Turkey is more accessible to lessepsian species. Lessepsian species have reached to the Turkish coasts, under the influence northward effective current, following the Lebanon-Syrian coasts (Mater *et al.* 1995).

A. lunaris is reported here for the first time from the Turkish coastal waters of the Mediterranean. This occurrence may indicate settlement of the moon crab in Iskenderun Bay. Considering this species has now been found abundantly at the southeast coasts of Iskenderun Bay, it may have already established populations along the entire coast of the bay.

Ay yengeci *Ashtoret lunaris* (Forskål 1775)'in Türkiye denizlerinden ilk kaydı

Özet

Türkiye denizleri için, ay yengeci *Ashtoret lunaris*'in ilk kaydı 18 Ağustos 2015'te İskenderun Körfezi'nde yaklaşık 17 m derinlikte galsama ağıyla 4 örnek yakalanarak bu

çalışmada bildirilmiştir. Ay yengeci Türkiye denizlerinde Matutidae familyasından olan ve Akdeniz'e özgü olmayan bir türdür.

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