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Short Communication

Macrophthalmus graeffei A. Milne Edwards, 1873 (Crustacea: Brachyura: Macrophthalmidae): a new Indo-Pacific guest off Rhodes Island (SE Aegean Sea, Greece)

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Abstract

A new alien crab, the macrophthalmid *Macrophthalmus graeffei,* is reported from the western coastline of Rhodes Island. The species, of Indo-West Pacific origin, is known from muddy sediments up to about 80 m depth. In the Mediterranean, its presence has been observed along Levantine coasts as well as along the Turkish coast of the Aegean Sea. *Macrophthalmus graeffei* increases to twelve the number of alien brachyurans present in the Hellenic SE Aegean Sea, ten of them having Indo-Pacific origin.

Keywords: Alien crustaceans; Decapoda; Brachyura; Macrophthalmidae; *Macrophthalmus graeffei;* SE Aegean Sea.

Introduction

Macrophthalmus is a widely distributed genus of the family Macrophthalmidae, occurring in the Indian Ocean, the West and Central Pacific Ocean from South Africa, the Red Sea and the Arabian Gulf in the west to the Sea of Japan in the North, to Hawaii and the Tuamotu Archipelago in the east, and to Tasmania and New Zealand in the south (BARNES, 2010).

Macrophthalmus graeffei A. Milne Edwards, 1873, known from Samoa, New Caledonia, the Red Sea and the Arabian Gulf (Barnes, 2010) is the only species of the genus spreading into the eastern Mediterranean through the Suez Canal. It was first recorded from southern Turkey (ENZENROSS & ENZENROSS, 1995). Since then, the presence of *Macrophthalmus graeffei* has been recorded from Haifa Bay, Israel (KSIUNIN & GALIL, 2004), Lebanon

(LAKKIS & NOVEL-LAKKIS, 2005), Gökova Bay, the Aegean coast of Turkey (ATEŞ et al., 2007), and from the Bay of Iskenderun, SE Turkey (GALIL *et al.,* 2002, updated 2009).

Material and Methods

A single specimen of *M. graeffei* was collected on July 20, 2009, during a survey of the soft bottom benthic fauna along the coasts of Rhodes island (Station RA1, Gulf of Trianta: 36˚25.501N 28˚10.473E, Fig. 1) by means of a Ponar grab (0.045m^2 sampling surface). The specimen was found at 39.6 m depth, in sandy mud (sand 25.6%, silt 43.1%, clay 31.3%). The species is known to inhabit shallow muddy substrata along the Turkish coasts (ATEŞ *et al.,* 2006; ATEŞ & KATAĞAN 2008), as well as fine sand with little mud in the sublittoral (5-74 m) (GALIL *et al.,* 2002, updated 2009).

Results and Discussion

The observed specimen was a male with carapace length of 1.1 cm; it is now deposited in the Hellenic Centre for Marine Research collection, registration number C102 (Fig. 2).The species was identified following the latest identification keys produced by BARNES (2010), and fits quite well with the description given by BARNES (1971).

According to BARNES (2010), *M. graeffei* belongs to the *M. telescopicus* group, which is characterized by extremely elongate ocular peduncles, projecting beyond the lateral carapace margins and bearing a terminal projection (style, Fig. 3).

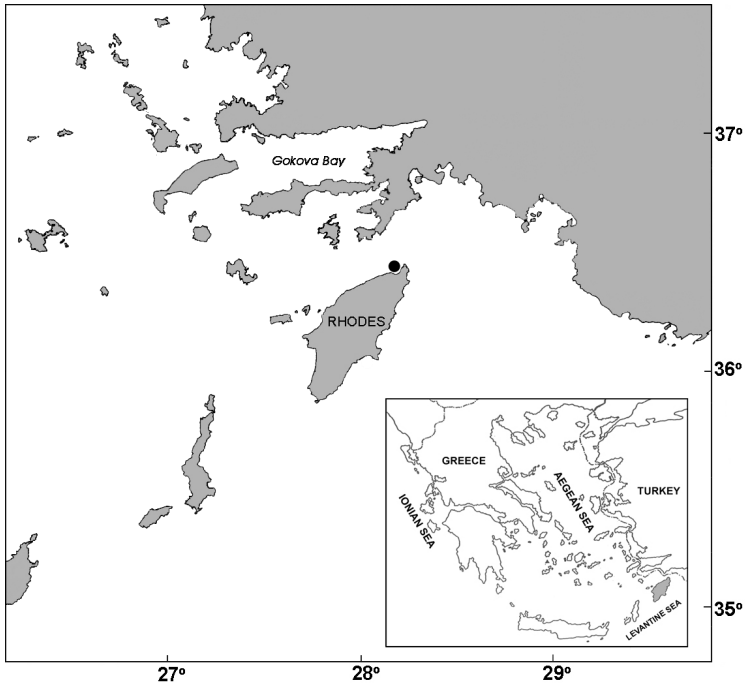

Fig. 1: Location of the sampling site.

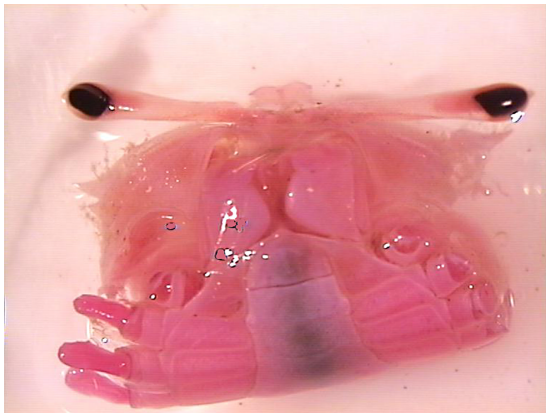

Fig. 2: *Macrophthalmus graeffei,* ventral view.

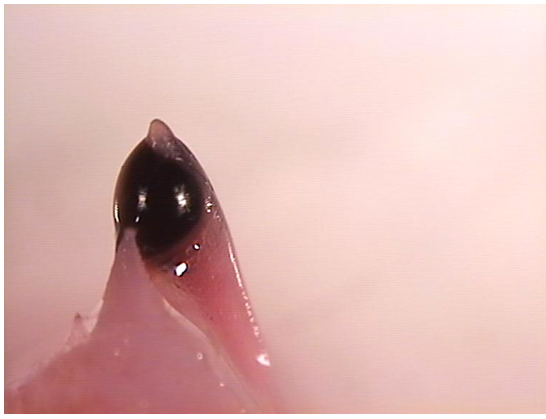

Fig. 3: Detail of style.

Fig. 4: Spiniform anterolateral teeth and orbital margin.

Front and carapace are relatively broad, the presence of three spiniform anterolateral teeth and lower orbital margin serrate (Fig. 4), inner surface of chela distally pilose, short fingers and undeflexed index are the additional features distinguishing the species.

To date, 12 alien brachyuran species (including the record of the Indo-Pacific *Macrophthalmus graeffei* reported here) have been identified along the coasts of Rhodes Island, 10 of Indo-Pacific and 2 of Atlantic origin (CORSINI-FOKA & PANCUCCI-PAPADOPOULOU, 2010), increasing the total number of alien species reported from Greek waters (ZENETOS *et al.,* 2009).

Of the ten Indo-Pacific crabs occurring in the southeastern Aegean waters after colonizing the eastern and northern Levantine coasts, half, namely *Charybdis longicollis* Leene, 1938, *Charybdis hellerii* (A. Milne Edwards, 1867), *Portunus pelagicus* (Linnaeus, 1758), *Myra subgranulata* Galil & Golani, 1990 and *Coleusia signata* (Paulson, 1875), have been signalled westwards from the Suez Canal, along the Egyptian coasts (GALIL, 2006), but no further westwards (GALIL *et al.,* 2002, updated 2009), with the exception of *P. pelagicus,* which occurs along the coasts of Sicily and up to the Northern Tyrrhenian Sea (CROCETTA, 2006).

In Hellenic waters, except for *Thalamita poissonii* [considered to have been introduced via the Suez Canal (GALIL *et al.,* 2002; GALIL, 2006) or a questionable alien (ZENETOS *et al.,* 2005)] first recorded in the Aegean Sea (the Peloponnisos and the Saronikos Gulf) as *Th. admete* (KALOPISSIS & KALOPISSIS, 1984) and subsequently in Crete (D'UDEKEM D'ACOZ, 1994), all the remaining Indo-Pacific alien brachyurans have been first recorded along the coasts of Rhodes. This testifies the importance of this section of the biogeographic 'Lessepsian province' (POR, 1990) as the main pathway for Lessepsian immigrants spreading within the Aegean and the Western Mediterranean Seas (PANCUCCI-PAPADOPOULOU *et al.,* 2005a, b; CORSINI-FOKA & ECONOMIDIS, 2007).

The spread of Indo-Pacific alien crabs towards the southern part of the Aegean Sea is limited to *Th. poissonii*, previously mentioned, while no records support their dispersion in the Central Aegean Sea. This indicates the existence of impediments in their colonization progress, such as, for example, the discontinuity of the substrate and/or the hydrological and physicochemical conditions, although there is a lack of scientific data available and the area needs examination. On the other hand, towards the north of this crucial area, *I. monodi* has been recorded from the North East Aegean Sea, at Saros Bay (ARTÜZ, 2007a) and *C. signata* from the Sea of Marmara (ARTÜZ, 2007b). It is probably due to their higher adaptability and ability to colonize different environments in a relatively short time, following the shallow coastline waters of the Anatolian continental shelf. However, the contribution of secondary introduction vectors is not to be underestimated in facilitating their so far spreading northwards.

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