

Research Article

Alien Crustacean Decapods from the Aegean Coast of Turkey

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Received: 22 July 2007 / Accepted: 14 August 2007

Abstract

Thirty of the 33 alien decapod crustacean species that have been reported off the Turkish Mediterranean coast are believed to have invaded the region via the Suez Canal, but only three of the species have been recorded along the Turkish Aegean coast. The marine biota of Gökova Bay, Datça Peninsula and Gulf of Fethiye, on the southern Aegean coast of Turkey, was studied by diving between 2002 and 2006. Of the eight Erythrean alien decapod species collected there, five constitute new records for the Aegean Sea and three are newly recorded from the Turkish coast of the Aegean Sea.

Key words: Alien species, Crustacea, Decapoda, Turkey, Aegean Sea, Mediterranean

Introduction

Since the opening of the Suez Canal in 1869, it has acted as a corridor and allowed the passage of 358 Indian Ocean and Red Sea species into the Mediterranean. Thirty of the 33 alien decapod species that have been reported off the Turkish Mediterranean coast (Çinar et al. 2006, Yokes and Galil 2006a, b, Ozcan et al. 2005) are believed to have entered the Mediterranean via the Suez Canal (<http://www.ciesm.org/atlas>). The general dispersal patterns of these species along the Levantine coast suggest that once in the Mediterranean, they are dispersed northwards by the prevailing inner shelf and wave-induced longshore currents, and then spread westwards with the Asia Minor Current (AMC) that runs along the southern Turkish coast. Although the majority of the Erythrean alien decapods are widely distributed along the Turkish Levantine

coastline, few have reached the Aegean Sea until the 1990s. In 1991 a shift in the source of the Eastern Mediterranean Deep Water to the southern Aegean Sea effected an increase in the inflow of the AMC into the southeastern Aegean through the Cretan Arc Straits (Yokes and Galil 2006a). The timing of the initiation of a significant increase in the number of Erythrean aliens along the southwestern Levantine and the southern Aegean coasts was positively correlated with the extensive inflow of the warm-water AMC (Galil and Kevrekidis 2002, Kumlu et al. 2002, Katagan et al. 2004, Ozcan et al. 2007, Galil 2008). To date, only three alien decapods have been reported from the Aegean coast of Turkey: *Marsupenaeus japonicus* (Bate, 1888) [intentional aquaculture introduction], and the Erythrean aliens *Alpheus audouini* Coutière, 1905, and *Macrophthalmus graeffei* A. Milne-Edwards, 1873 (Katagan et al. 2004; <http://www.ciesm.org/atlas>).

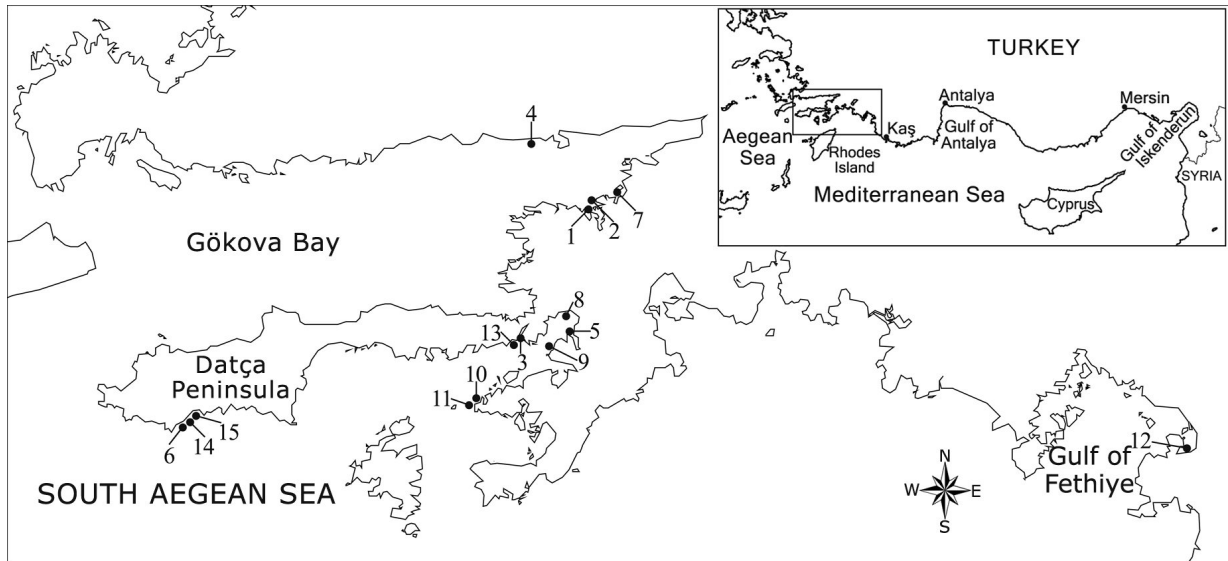


Figure 1. Map showing the study area.

The marine biota of Gökova Bay, Datça Peninsula and Gulf of Fethiye, on the southwestern coast of Turkey, was studied by diving between 2002 and 2006 (Figure 1). The specimens collected are deposited in the collections in Istanbul University, Institute of Marine Sciences and Management (IU-IMSM). Of the eight decapod crustaceans of Red Sea origin recorded here five constitute new records for the Aegean Sea and three for the Turkish coast of the Aegean Sea.

Results and Discussion

PENAEIDAE

Melicertus hathor (Burkenroad 1959)
(Figure 2A)

MATERIAL EXAMINED. – Karacasögüt, Gökova Bay, 36°56'35"N, 28°11'27"E, fine sand, 1 m depth, scuba diving, 26.VI.2006, 1 ♀ TL 125 mm, (IU-IMSM DBIEM-DEN/06/2).

REMARKS. – The species was first collected in the Mediterranean off Israel in 1997 (Galil 1999), and shortly thereafter in Yumurtalik bight (Kumlu et al. 2002), Kas (Yokes and Galil 2004) Antalya (Gokoglu and Kaya 2008), and recently in Gulf of Fethiye (Ozcan et al. 2007). This is the first record for *M. hathor* from the Aegean Sea.

MAJIDAE

Micippa thalia (Herbst 1803)
(Figure 2B)

MATERIAL EXAMINED. – Karacasögüt, Gökova Bay, 36°56'53"N, 28°11'41"E, coarse sand with gravel, 0.5 m depth, skin diving, 03.VII.2006, 1 ♂ CL 20 mm (IU-IMSM DBIEM-BRA/06/16).

REMARKS. – The species was first collected in the Mediterranean off Latakia, Syria, in 1993 (Hassan Hasan, pers.comm.), and later in Adana (Enzenross and Enzenross 1995) and Lebanon (Bitar and Zibrowius 1999 in Galil et al. 2002). This is the first record for *M. thalia* from the Aegean Sea and a significant range extension within Turkey.

PORTUNIDAE

Charybdis (Charybdis) hellerii (A. Milne-Edwards 1867) (Figure 2D)

MATERIAL EXAMINED. – Datça Peninsula, 36°47'01"N, 28°02'40"E, muddy sand, beneath a stone, 4 m depth, scuba diving, 23.VI.2003, 1 ♂ CL 52 mm (IU-IMSM DBIEM-BRA/03/21); Bördübed Cove, Gökova Bay, 37°01'17"N, 28°03'49"E, muddy sand, beneath a stone, 2 m depth, scuba diving, 24.VI.2005, 1 ♀ CL 22 mm (IU-IMSM DBIEM-BRA/05/22).

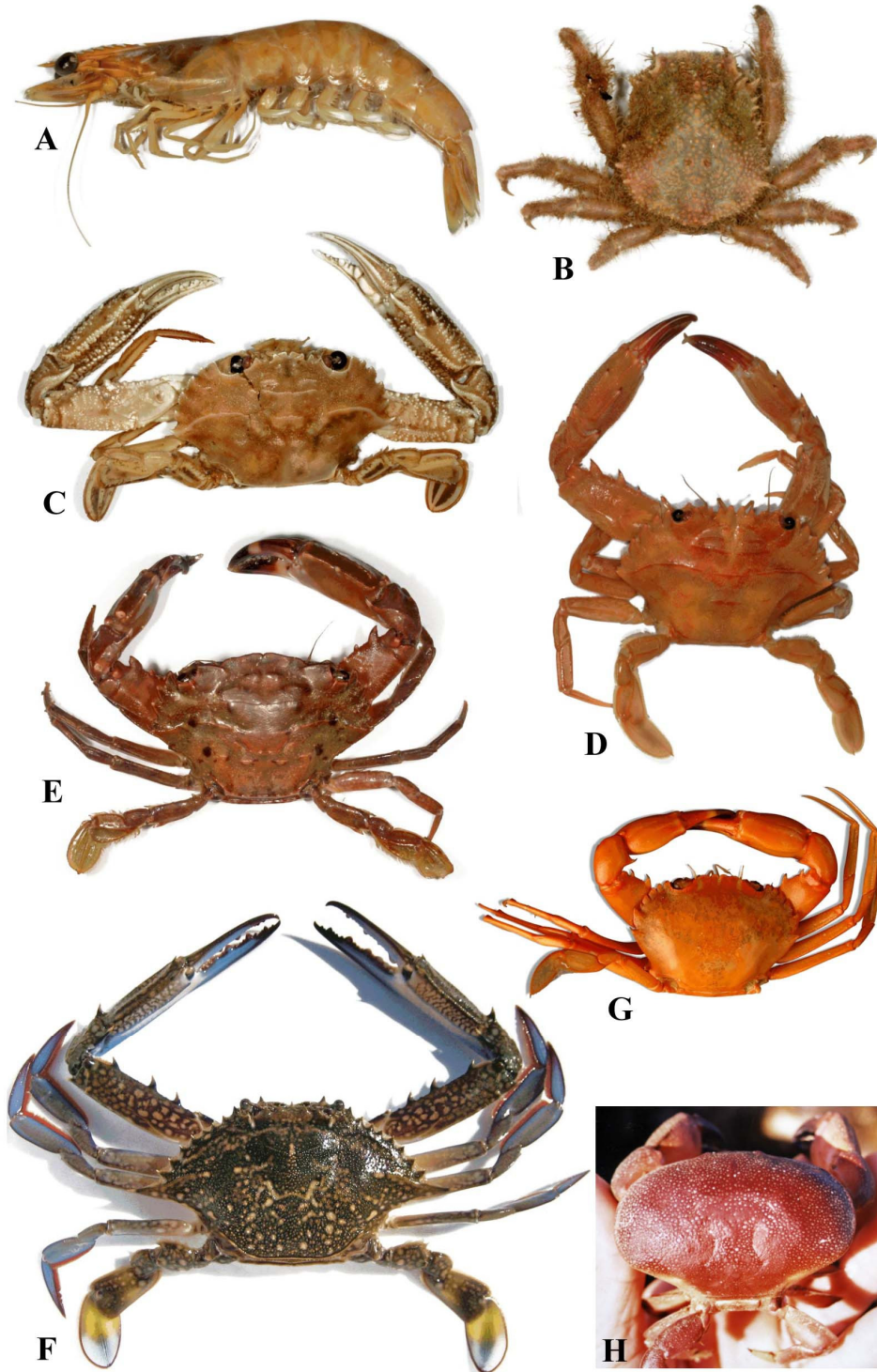


Figure 2. A, *Melicertus hathor* (Burkenroad 1959), ♀ Karacasögüt, Gökova Bay. B, *Micippa thalia* (Herbst 1803) ♂ Karacasögüt, Gökova Bay. C, *Charybdis (Goniohellenus) longicollis* Leene 1938 ♂ Orhaniye cove, Datça Peninsula. D, *Charybdis (Charybdis) hellerii* (A. Milne-Edwards 1867) ♂ Datça Peninsula. E, *Thalamita poissonii* (Audouin 1826) ♂ Karagözler, Gulf of Fethiye. F, *Portunus pelagicus* (Linnaeus 1758) ♂ Karacasögüt, Gökova Bay. G, *Carupa tenuipes* Dana 1851 ♂ Palamut Bükü, Datça Peninsula. H, *Atergatis roseus* (Rüppell 1830) specimen from Palamut Bükü, Datça Peninsula.

REMARKS. – The species is common in the SE Levantine Basin (Galil et al. 2002). The first Turkish record was collected in Iskenderun (Kocatas 1981). It has since been found off Mersin, Kas, and Göcek (Enzenross and Enzenross 1995, Yokes and Galil 2004, Ozcan et al. 2007). This is the first record for *C. hellerii* from the Aegean Sea.

Charybdis (Goniohellenus) longicollis Leene 1938 (Figure 2C)

MATERIAL EXAMINED. – Orhaniye cove, Datça Peninsula, 36°46'10"N, 28°07'29"E, muddy sand, beneath a stone, 10 m depth, scuba diving, 09.V.2002, 1 ♂ CL 38 mm (IU-IMSM DBIEM–BRA/02/23).

REMARKS. – The species is abundant in the Levantine Basin (Galil and Innocenti 1999). It was first recorded in 1959 off Mersin (Holthuis 1961), and nowadays is known from the entire Levantine coast of Turkey (Ozcan et al. 2007). In 1996 it was collected off Rhodes I. (Galil and Kevrekidis 2002). This is the first record for *C. longicollis* from the Turkish coast of the Aegean Sea.

Portunus pelagicus (Linnaeus 1758) (Figure 2F)

MATERIAL EXAMINED. – Palamut Bükü, Datça Peninsula, 36°40'36"N, 27°30'49"E, shore collected on a gravel beach, 12.VIII.2004, 1 ♀ CL 56 mm (IU-IMSM, undeposited yet); Karacasögüt, Gökova Bay, 36°56'26"N, 28°11'29"E, fine sand, 0.5 m depth, hand net, 26.VI.2006, 1 ♂ 61 mm, 1 ♀ CL 65 mm (IU-IMSM DBIEM–BRA/06/28).

REMARKS. – The species is commercially important in the Levantine Basin (Galil et al. 2002). It was first collected in 1898 off Port Said (Fox 1924), and in 1928 in the Gulf of Iskenderun (Gravel 1928). In 1991 it was collected off Rhodes I. (Corsini-Foka et al. 2004). This is the first record for *P. pelagicus* from the Turkish coast of the Aegean Sea and a significant range extension within Turkey.

Thalamita poissonii (Audouin 1826) (Figure 2E)

MATERIAL EXAMINED. – Çubucak, Datça Peninsula, 36°48'08"N, 28°07'00"E, among stones, 3 m depth, scuba diving, 04.V.2002, 1 ♂ CL 22 mm, (IU-IMSM DBIEM–BRA/02/29);

Orhaniye Cove, Datça Peninsula, 36°46'16"N, 28°07'26"E, among stones, 3 m depth, scuba diving, 07.V.2002, 1 ♂ CL 17 mm, (IU-IMSM DBIEM–BRA/02/30); Datça Peninsula, 36°41'01"N, 27°58'42"E, fine sand, in *Posidonia oceanica* bed, 12 m depth, 14.IX.2004, 1 ♀ CL 19 mm, (IU-IMSM DBIEM–BRA/04/31); Agil Cove, Datça Peninsula, 36°41'31"N, 27°58'28"E, among stones, 4 m depth, scuba diving, 26.VI.2004, 1 ♂ CL 9 mm, (IU-IMSM DBIEM–BRA/04/32); Karagözler, Gulf of Fethiye, 36°37'53"N, 29°05'35"E, among stones, 2 m depth, scuba diving, 27.II.2006, 1 ♂ CL 25 mm, (IU-IMSM DBIEM–BRA/06/33).

REMARKS. – The species was first collected in the Mediterranean off Bat Yam, Israel, in 1952 (Holthuis and Gottlieb 1958). The first record off the Turkish coast was collected in 1959 in Selimiye (Holthuis 1961), and recently it was recorded off Kas and Fethiye (Yokes and Galil 2006a, Ozgur and Öztürk 2007). The species spread further west – to Saronikos Gulf and to Crete (Kalopissis and Kalopissis 1984, d'Udekem d'Acoz 1994). This is the first record for *T. poissonii* from the Turkish coast of the Aegean Sea.

Carupa tenuipes Dana 1851 (Figure 2G)

MATERIAL EXAMINED. – Near Bencik Harbor, Datça Peninsula (SE Aegean Sea), 36°45'41"N, 28°01'02"E, rocky bottom, 22 m depth, scuba diving, 23.VI.2003, 1 ♂ CL 17 mm, (IU-IMSM DBIEM–BRA/03/19); Palamut Bükü, Datça Peninsula (SE Aegean Sea), 36°40'24"N, 27°30'36"E, 25 m depth, collected as by-catch in fishing net, 12.VIII.2004, 1 ♂ CL 23 mm, (IU-IMSM DBIEM–BRA/04/20).

REMARKS. – The species was first collected in the Mediterranean off Tel Aviv, Israel, in 2002 (Galil 2004). The first record off the Turkish coast was collected in 1996 off Kas Peninsula (Yokes and Galil 2004), and recently it was recorded between Iskenderun and Fethiye (Yokes and Galil 2006a). This is the first record for *C. tenuipes* from the Aegean Sea.

XANTHIDAE

Atergatis roseus (Rüppell 1830) (Figure 2H)

MATERIAL PHOTOGRAPHED. – Palamut Bükü, Datça Peninsula, 36°40'10"N, 27°30'11"E,

among rubble, 0.5 m depth, 1 specimen, 12.VIII.2004.

REMARKS. – The species was first collected in the Mediterranean off Tel Aviv, Israel, in 1961 (Lewinsohn and Holthuis 1964). The first record off the Turkish coast was collected in 1987 off Adana (Enzenross et al. 1990), and recently it was recorded off Konyaalti, Antalya (Yokes and Galil 2006a). This is the first record for *A. roseus* from the Aegean Sea and a significant range extension within Turkey.

Acknowledgements

We would like to thank M. İdil Öz, Umut Tural, Elif Murat, Ertugrul M. Koc, Sibel Zeki, Evrim Kalkan, Eren Savut and Ziya Çaylarbasi, who are all the members of OCEANOS Scientific Diving Team, for their kind assistance during the fieldworks. We would also like to thank Özkan Uzun for sampling.

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Supplementary material

The following supplementary material is available for this article:

Annex. Records of the alien decapods in the study area (Aegean coast of Turkey) in 2002-2006.

Annex. Records of the alien decapods in the study area (Aegean coast of Turkey) in 2002-2006.

Species	Site no (Map Ref.)	Record coordinates		Date of record	Depth (m)	Description of biotope	Number of specimens	Collector
		Latitude,°N	Longitude,°E					
<i>Melicertus hathor</i>	1	36°56'35"	28°11'27"	2006	1.0	fine sand	1	M. Baki Yokes
<i>Micippa thalia</i>	2	36°56'53"	28°11'41"	2006	0.5	coarse sand with gravel	1	Asli Aslan I. Noyan Yilmaz
<i>Charybdis hellerii</i>	3	36°47'01"	28°02'40"	2003	4.0	muddy sand	1	S. Ünsal Karhan
	4	37°01'17"	28°03'49"	2005	2.0	muddy sand	1	S. Ünsal Karhan
<i>Charybdis longicollis</i>	5	36°46'10"	28°07'29"	2002	10.0	muddy sand	1	I. Noyan Yilmaz
<i>Portunus pelagicus</i>	6	36°40'36"	27°30'49"	2004	on beach	gravel	1	Özkan Uzun
	7	36°56'26"	28°11'29"	2006	0.5	fine sand	2	M. Baki Yokes
	8	36°48'08"	28°07'00"	2002	3.0	stone	1	S. Ünsal Karhan
	9	36°46'16"	28°07'26"	2002	3.0	stone	1	Asli Aslan I. Noyan Yilmaz
<i>Thalamita poissonii</i>	10	36°41'01"	27°58'42"	2004	12	fine sand in <i>Posidonia</i> bed	1	S. Ünsal Karhan
	11	36°41'31"	27°58'28"	2004	4	stone	1	S. Ünsal Karhan
	12	36°37'53"	29°05'35"	2006	2	stone	1	S. Ünsal Karhan
<i>Carupa tenuipes</i>	13	36°45'41"	28°01'02"	2003	22	rocky	1	S. Ünsal Karhan
	14	36°40'24"	27°30'36"	2004	25	?	1	Özkan Uzun
<i>Atergatis roseus</i>	15	36°40'10"	27°30'11"	2004	0.5	rubble	1	Özkan Uzun