

## Notes on amphipods *Caprella andreae* Mayer, 1890 and *Podocerus chelonophilus* (Chevreux & Guerne, 1888) collected from the loggerhead sea turtle, *Caretta caretta*, off the Mediterranean and the Aegean coasts of Turkey

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**Abstract:** The present study reports the occurrence of 2 amphipod species, *Caprella andreae* Mayer, 1890 and *Podocerus chelonophilus* Chevreux & Guerne, 1888, that appeared on the carapace of the loggerhead turtle *Caretta caretta* (Linnaeus, 1758) in the eastern Mediterranean Sea (Levantine Sea). The amphipod specimens were found on a male *Caretta caretta* captured during experimental bottom studies conducted off Samandağ, Hatay (the Turkish Mediterranean coast) on 7 April 2007. In addition, *Caprella andreae* Mayer 1890 was collected from the nets of fish cages off the Seferihisar (Aegean Sea) coast (38°11'32"N, 26°38'07"E). *C. andreae* is a first report for the amphipod fauna in Turkish seas.

**Key words:** Amphipod, Crustacea, sea turtle, epibiont, eastern Aegean Sea, eastern Mediterranean Sea, Turkey

### Türkiye'nin Akdeniz ve Ege kıyılarında bir deniz kaplumbağasında rapor edilen amfipodlar, *Caprella andreae* Mayer, 1890 ve *Podocerus chelonophilus* (Chevreux & Guerne, 1888) üzerine notlar

**Özet:** Mevcut çalışma doğu Akdeniz'de (Levantin Denizi) dağılım gösteren iri deniz kaplumbağası, *Caretta caretta* (Linnaeus, 1758)'nin karapası üzerinde görülen iki amfipod türü, *Caprella andreae* Mayer, 1890; *Podocerus chelonophilus* Chevreux & Guerne, 1888'un varlığını rapor etmektedir. Amfipod bireyleri 07 Nisan 2007'de Samandağ, Hatay (Akdeniz'in Türkiye kıyıları) açıklarında yürütülen deneysel dip çalışması sırasında yakalanan *Caretta caretta* (Linnaeus, 1758)'nin üzerinden bulunmuştur. İlave olarak, amfipod, *Caprella andreae* Mayer 1890 Seferihisar (doğu Ege Denizi) (38°11'32"N, 26°38'07"E) kıyılarındaki balık kafeslerinin ağları üzerinden toplanmıştır. *C. andreae* Türkiye Denizleri amfipod faunası için yenidir.

**Anahtar sözcükler:** Amfipod, krustase, deniz kaplumbağası, epibiont, Ege Denizi, doğu Akdeniz, Turkey

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## Introduction

Marine turtles provide a suitable substrate for diverse communities of epibionts, primarily on the carapace (Bjorndal, 2003). The loggerhead turtle, *Caretta caretta* (Linnaeus, 1758), hosts the most diverse epizoan assemblages among marine turtles (Kitsos et al., 2005). Several studies have dealt with the species composition of epibiont communities on *C. caretta* in several localities in the Mediterranean Sea and the Atlantic Ocean (Caine, 1986; Frazier et al. 1992; Kitsos et al. 2005; Pfaller et al., 2006); however, there are apparently no records of epibionts from sea turtles off Turkish coasts. Herein we report the occurrence of 2 amphipod species typical of *C. caretta* in the Levantine Sea and eastern Aegean Sea.

## Materials and methods

The benthic biota of the Samandağ (Levantine Sea) and Seferihisar coasts (the eastern Aegean Sea) of Turkey were studied during 2006-2007. Off the Samandağ coast bottom trawling with a 22-mm codend mesh size was used during surveys conducted at depths between 10 and 25 m. The first sampling point (Figure 1a) was located off the Samandağ coast, Hatay (eastern Mediterranean Sea) at GPS coordinates 36°08'27"N, 35°53'35"E. The second sampling point (Figure 1b) was located off the Seferihisar coast of the Turkish Aegean Sea at GPS coordinates 38°11'32"N, 26°38'07"E. The collected materials were preserved in the Laboratory of Marine Biology of the University of Sinop, Turkey. Amphipods in the samples were identified to species level, based on descriptions by Ruffo (1993) and Krapp-Schickel (1993).

## Results

### SYSTEMATICS

PHYLUM ARTHROPODA  
 SUBPHYLUM CRUSTACEA  
 ORDER AMPHIPODA  
 FAMILY CAPRELLIDAE

GENUS: *Caprella* Lamarck, 1801  
*Caprella andreae* Mayer, 1890

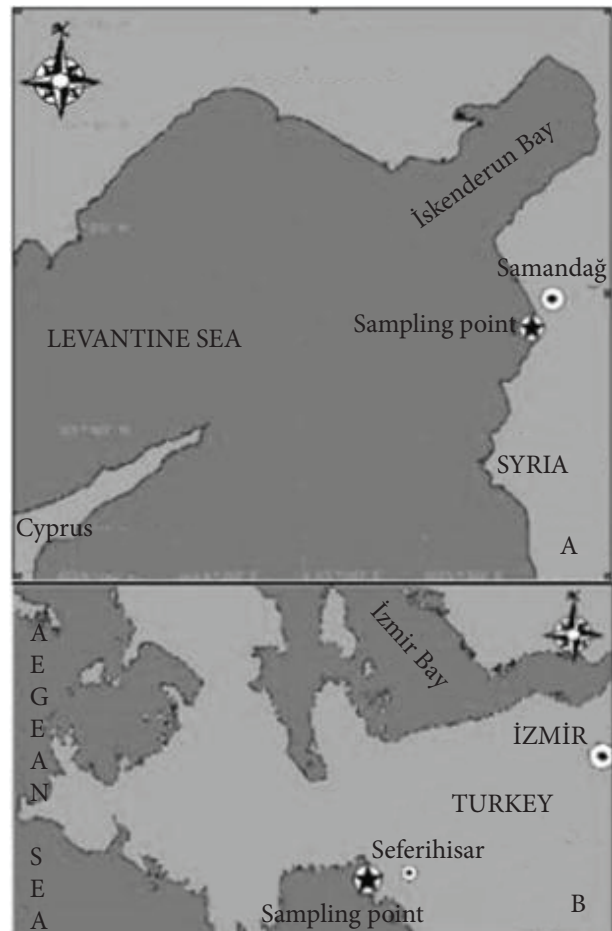


Figure 1 a and b. Sampling locations.

### Material examined.

Seventeen ♂♂ and 9 ♀♀. Mean ♂ length: 12 mm; mean ♀ length: 11.7 mm, coast of Samandağ (Hatay), eastern Mediterranean, Turkey, GPS coordinates 36°08'27"N, 35°53'35"E, depth: 16 m, sandy substrate with meadow, *Halophila stipulacea* (Forskål) Ascherson. The dorsal surface of the male loggerhead turtle (*C. caretta*) had a curved carapace length and width of 77 and 70 cm, respectively, 07.04.2007, bottom trawl. Fourteen ♂♂ and 4 ♀♀. Mean ♂ length: 11.2 mm; mean ♀ length: 11.2 mm, coast of Seferihisar (İzmir), Aegean Sea, Turkey, GPS coordinates 38°11'32"N, 26°38'07"E, on the nets of fish cages, 12.05.2007, picking by hand.

### Description (male)

Head rostrum short and triangular. Antenna I peduncle articles 1-2 enlarged. Antenna II peduncle

longer than antenna I peduncle, flagellum with long pectinate setae on ventral margin. Gills rounded (Figures 2 and 3a). Female antenna I peduncle not enlarged. Gnathopod I with weak carina, palm straight, with 2 spines proximally (Figure 3b). Gnathopod II inserted in the middle of pereonite II, basis carinate, palm proximal with a very prominent tooth, followed by a deep concavity, distally defined by a rounded process, dactyls short and wide, inner margin dentate (Figure 3c).

Ecology

Attached to floating objects on high sea: buoys, pieces of plants, wood, or pumice. Also found on the back of *C. caretta* and *Chelonia* (Krapp-Schickel, 1993).

General distribution

Atlantic Ocean, Pacific Ocean, and Mediterranean Sea.

PHYLUM ARTHROPODA  
 SUBPHYLUM CRUSTACEA  
 ORDER AMPHIPODA  
 FAMILY PODOCERIDAE  
 GENUS: *Podocerus* Leach, 1814

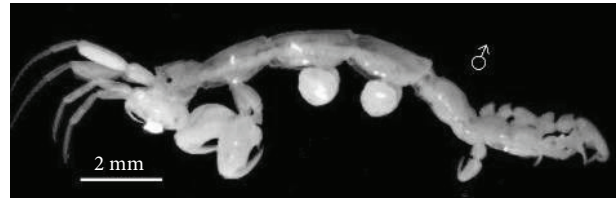


Figure 2. Lateral view of *Caprella andreae* (original).

*Podocerus chelonophilus* (Chevreux & de Guerne, 1888)

Material examined

Two ♂♂. Mean length: 4.5 mm, coast of Samandağ (Hatay), eastern Mediterranean, Turkey, GPS coordinates 36°08'27"N, 35°53'35"E, depth: 16 m, sandy substrate with meadow, *Halophila stipulacea* (Forskål) Ascherson, the dorsal surface of a male loggerhead turtle (*C. caretta*) 07.04.2007, bottom trawl.

Description (male)

Body smooth, very strong. Eyes large and round. Antenna II longer than antenna I. Antenna I peduncle art II longer than art III, flagellum of IV-VI arts slightly longer than peduncle art III. Antenna II strong, peduncle art IV longer than art IV. Antenna II



Figure 3. Appendages of a male *Caprella andreae* copied from Ruffo (ed.) 1993. a: Lateral view; b: gnathopod I; c: gnathopod II.

with few small setae (Figures 4 and 5a). Gnathopod I strong, carpus very large, propodus subpyriform, palmar margin smooth (Figure 5b). Gnathopod II much stronger than gnathopod I, propodus oval elongate, palmar margin setose with a broad truncated lobe close to dactyl's base, and a submedial triangular tooth (Figure 5c). Pereiopod V basis posterior margin convex (Figure 5d). Pereiopod VI basis posterior margin straight (Figure 5e). Uropod I-II inner ramus longer than outer, interior margin armed with numerous small, curved spines. Telson small and circular (Figure 5f).

#### Ecology

On turtles *C. caretta* and *Chelonia*, mostly under the tail and at base of the legs (Ruffo, 1993).

#### General distribution

Central Atlantic Ocean (Azores), Pacific Ocean, and Mediterranean Sea.

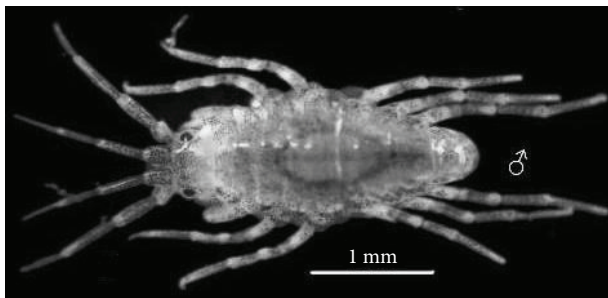


Figure 4. Dorsal view of *Podocerus chelonophilus* (original).

#### Discussion

At present, there is little information available about epibionts of sea turtles in Turkish seas. The present study reports 2 epibiont species found on a loggerhead sea turtle captured via bottom trawl. The first, *C. andreae*, belongs to a family of amphipods that are typical dwellers of many littoral biotopes, being particularly abundant in epibiotic fouling communities. Caprellids can firmly hold onto substrates using their last pereopods. Pleopods, which are used for swimming in other amphipods, are reduced in caprellids; therefore, although caprellids can swim, they are probably not very efficient swimmers. This suggests that caprellids may be

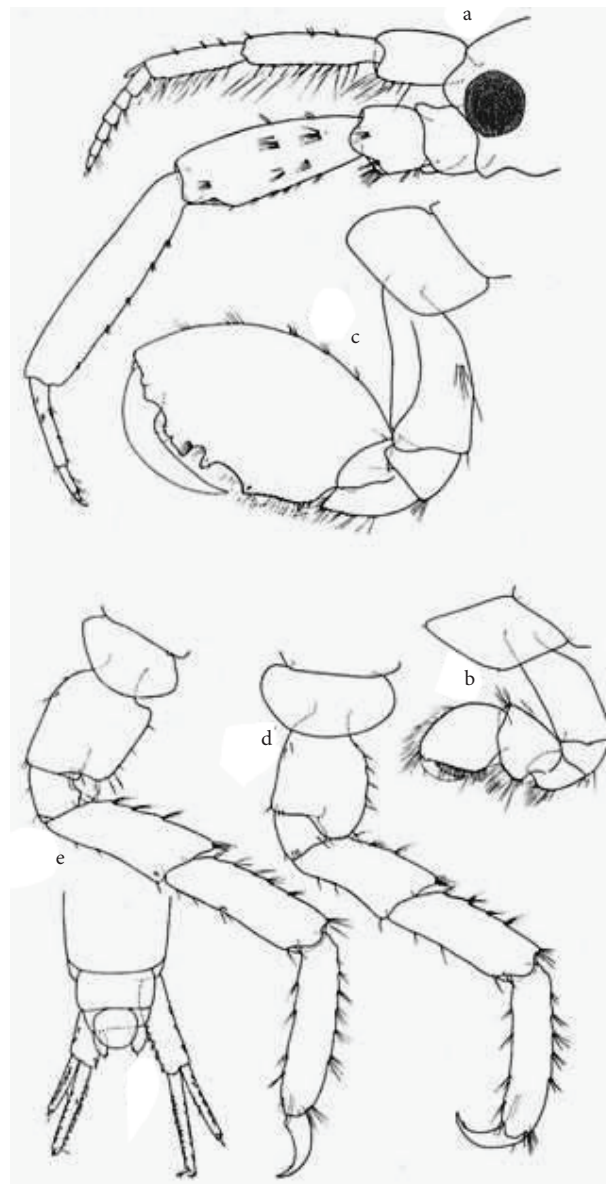


Figure 5. Appendages of a male *Podocerus chelonophilus* copied from Ruffo (ed.) 1993. a: Head; b: gnathopod I; c: gnathopod II; d: pereiopod IV; e: pereiopod VI; f: urosome and telson.

passively dispersed by clinging to floating materials rather than by active swimming (Thiel et al., 2003). Krapp-Schickel (1993) noted that *C. andreae* is attached to floating objects—buoys, pieces of plants, wood, or pumice—but can also be found on the carapace of *C. caretta* and *Chelonia mydas*. As an epibiont of *C. caretta*, *C. andreae* have been reported in the Mediterranean Sea (Gramentz 1988; Badillo et

al., 2003, 2007; Kitsos et al., 2005; Badillo, 2007), as well as in the Atlantic (Caine, 1986; Frick et al., 1998) and Pacific (Aoki and Kikuchi, 1995) oceans.

*P. chelonophilus* is considered a specialist epibiont of sea turtles observed on the carapace of turtles (Badillo et al., 2003; Badillo, 2007). Ruffo (1993) indicated that *P. chelonophilus* was found under the tail and on the base of the legs of turtles. Our study confirms that these amphipods also occur on the carapace surface of *C. caretta*. *P. chelonophilus* has

been reported in the Mediterranean Sea (Chevreux and De Guerne, 1888; Ruffo, 1993; Kitsos et al., 2005), as well as in the Atlantic (Thomas and Barnard, 1992; Moore, 1995; Frick et al., 1998) and Pacific (Baldinger, 2000) oceans.

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