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## New records of *Calappa tuerkayana* Pastore, 1995 (Brachyura, Calappidae) from the central Mediterranean

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*Two specimens of the uncommon calappid crab *Calappa tuerkayana* Pastore, 1995 are reported from the central Mediterranean. One juvenile individual was caught in a trawl net at about 105 m depth on a detritus bottom, and one adult male was caught in a trammel net at 50 m depth in a similar habitat. Details about carapace ornamentation and fresh color of the adult, which complement previous descriptions are provided. Family Calappidae includes four species in the Mediterranean Sea. *C. tuerkayana* has been recorded a few times from its known geographic range. These are the southernmost records to date.*

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**Key words:** Mediterranean, Strait of Sicily, Calappidae, distribution, morphology, coloration

### INTRODUCTION

Family Calappidae De Haan, 1883 (Crustacea, Decapoda, Brachyura) includes nine extant genera of which *Calappa* is the most numerous with 41 species (NG *et al.*, 2008). Their common name of shame-faced crabs derives from the habit of hiding their “face” behind the massive, high and flat chelipeds. The genus *Calappa* in the Mediterranean includes four species: *C. granulata* (L., 1758), *C. pelii* Herklots, 1851, *C. rosea* Jarocki, 1825 and *C. tuerkayana* Pastore, 1995. *Calappa granulata* is by far the most common and widely distributed in the group and has a limited commercial value in some

fisheries (HOLTHUIS, 1987). *Calappa pelii* is a west African species recorded a few times in the Mediterranean as an alien crab (PASTORE, 1995; GALIL *et al.*, 2002). *Calappa rosea* (= *C. rissoana* Pastore, 1995) was reported from the northern Ionian Sea (PASTORE, 1995; CAPEZZUTO *et al.*, 2010) and the Strait of Sicily (SPANÒ *et al.*, 2004). *C. tuerkayana* was described by PASTORE (1995) from specimens collected in 1988 and 1993 in the Gulf of Taranto (northern Ionian Sea) and was reported a few other times from the Mediterranean (Fig. 1): Balears Islands in 1983 (GARCIA, 2002, initially identified as *C. granulata*), southern Adriatic Sea in 1996-2000 (uncertain year) (UNGARO *et al.*, 2005), northern Ionian Sea in 1997-2006 (CAPEZZUTO *et al.*, 2010)

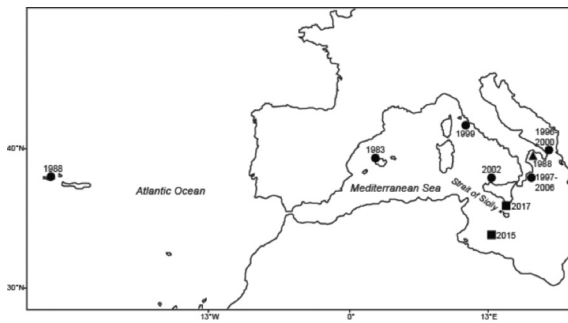


Fig. 1. Map with the locations of *Calappa tuerkayana* records. Dates indicate year of collection. Triangle: site of first published record. Squares: sites of present records

and Ustica Island, southern Tyrrhenian Sea in 2002 (PIPITONE & VACCARO, 2011). One other specimen possibly belonging to *C. tuerkayana* was collected along the Tuscany coast, northern Tyrrhenian Sea in 1999 (VIGNOLI *et al.*, 2004). D'UDEKEM D'ACQZ (2001) reported and described in detail a specimen collected in the Azores, central-northern Atlantic in 1988 and initially identified as *C. granulata*.

The present paper reports two records of *C. tuerkayana* from the northern and southern sides of the Strait of Sicily, which represent the southernmost records of the species in the Mediterranean.

## MATERIAL AND METHODS

### Specimen no. 1

Collection details: 12 October 2004 during a research trawl survey off western Libya (trawl haul midpoint: 34°20'60" N, 13°02'20" E). Habitat: coarse detritus bottom at the depth of about 105 m. The dominant accompanying invertebrate fauna present in the catch included *Stylocidaris affinis*, *Centrostephanus longispinus*, *Pagurus prideaux*, *Adamsia palliata* and *Neopycnodonte cochlear*. The brown seaweed *Zonaria tournefortii* was also present. The specimen was frozen on board, then preserved in 4% formalin and seawater solution.

The specimen is deposited in the Invertebrates collection at CNR-IAMC, Mazara del Vallo (Italy).

### Specimen no. 2

Collection details: 24 March 2017 in a commercial trammel net catch obtained off Marina di Ragusa, southeastern Sicily (36°43'33" N, 14°31'25" E). Habitat: coarse detritus bottom at the depth of 50 m. The accompanying invertebrate fauna included *Astrospartus mediterraneus*, *Derilambrus angulifrons*, *Pilumnus hirtellus* and a sponge (cf. *Ircinia* sp.). The specimen was photographed while fresh, then preserved in 4% formalin and seawater solution.

The specimen is deposited at the Civic Museum of Natural History, Comiso (Italy) with code MSNC 4559.

Both crabs were identified as *C. tuerkayana* with the aid of the descriptions provided by PASTORE (1995) and D'UDEKEM D'ACQZ (2001).

## RESULTS

### Specimen no. 1

The collected individual is a juvenile with 21.2 mm carapace width and 18.2 mm carapace length. The morphology corresponds to previously published descriptions (PASTORE, 1995; D'UDEKEM D'ACQZ, 2001).

### Specimen no. 2

The collected individual (Fig. 2) is an adult male with 47.5 mm carapace width and 39.1 mm carapace length. In addition to published descriptions, a few additions concerning the carapace ornamentation and the color of our specimen are provided.

Carapace margin, including rostrum and orbits, very finely granulated. First half of the antero-lateral margin with blunt, wide and very shallow teeth that resemble a slightly crenated profile. Second half bears a series of 7-8 acute teeth that gradually increase in size. Small granulations present on the entire carapace surface especially on the intestinal region, and on the outer surface of chelipeds. Ventral surface of the body and walking legs without granulations and perfectly smooth. Many intestinal granulations

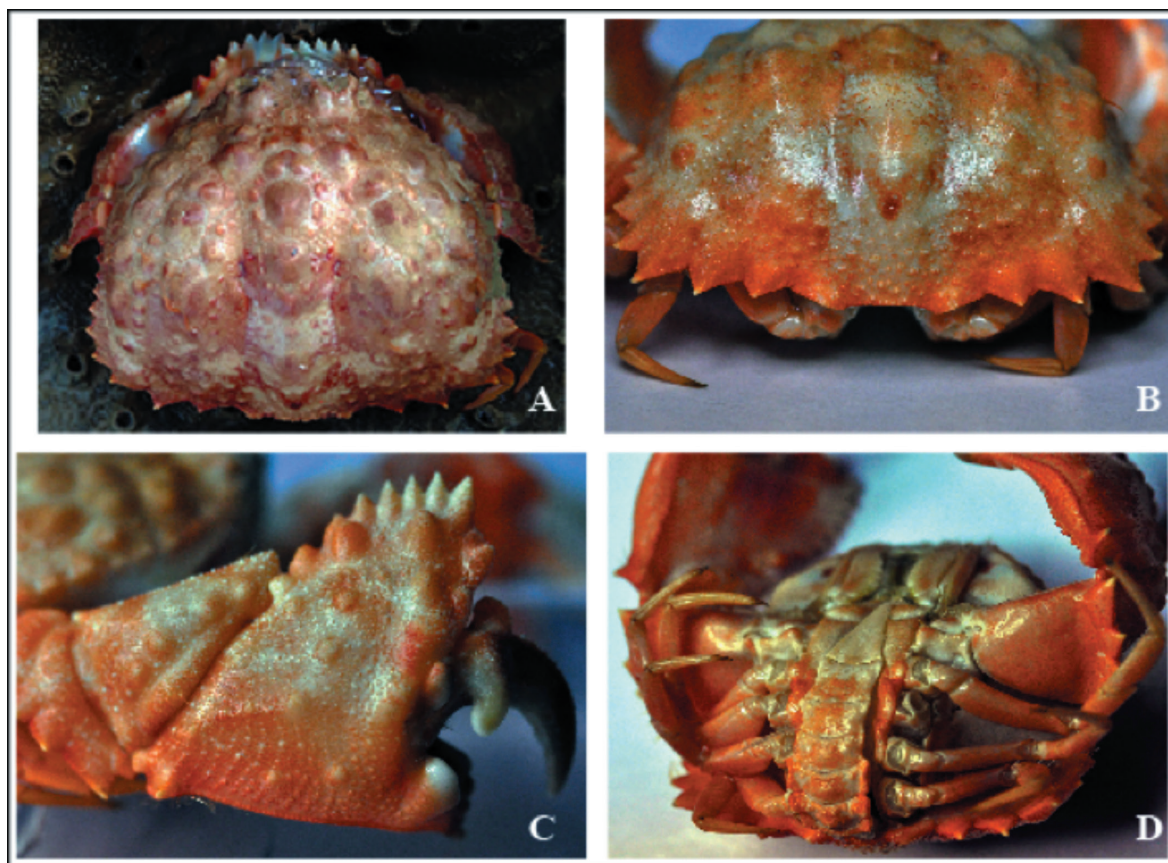


Fig. 2. *Calappa tuerkayana*, specimen no.2. A: dorsal view; B: posterior view of carapace; C: lateral view of right cheliped; D: ventral view. A: taken from fresh specimen; B, C and D: taken after 7 months of preservation in 4% formalin and seawater solution

are in groups of two, a few making groups of three.

General coloration of the fresh specimen rusty-brownish with paler areas in the meta-branchial, cardiac and intestinal regions. Inferior surface of the carapace whitish, with the exception of the postero-lateral expansions that are the same color of the dorsal surface. Small reddish spot in the middle of the intestinal region. Larger postero-lateral spines with yellow tip. White areas on the internal surface of chelipeds corresponding to the dentate crest and proximal region of the propodus and to the central region of the carpus.

## DISCUSSION

The genus *Calappa* found in the Strait of Sicily has included only two species so far: *C. granulata* and *C. rosea*. Both species live on

soft bottom habitats, the former being clearly eurybathic (HOLTHUIS, 1987). Even though the exact habitat of both species in the Strait of Sicily records is not known, they all come from trawlable bottoms deeper than 50 m, which in the study area are occupied to a large extent by mud or coarser sediment (GAROFALO *et al.*, 2004). *Calappa tuerkayana* has been recorded throughout its known range from depths of 50 m or less on sand, detritus and seagrass (*Posidonia oceanica*), with the exception of our specimen no. 1 and of a record from about 140 m from trawlable grounds in the northern Ionian Sea (Francesca Capezzuto, pers. comm.). The partial habitat overlap and the very similar morphology among Mediterranean calappid crabs could have led to misidentification in the past, which could also explain the rare and scattered records of *C. tuerkayana* and *C. rosea*. In fact the specimens of *C. tuerkayana* reported by D'UDEKEM D'ACQZ

(2001) and GARCIA (2002) were collected respectively in the same year and five years before those described by PASTORE (1995) and were initially identified as *C. granulata*.

Our specimens fit the previously published morphological descriptions. The availability of a fresh adult individual allowed us to add new details to the coloration of the species, helping to differentiate it from other Mediterranean calappid crabs.

As a final remark we wish to highlight the role of professional fishermen who, like in the case of specimen no. 2, often prove helpful in the knowledge of marine biodiversity.

## ACKNOWLEDGEMENTS

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## **Novi nalaz vrste *Calappa tuerkayana* Pastore, 1995 (Brachyura, Calappidae) u središnjem Sredozemlju**

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### **SAŽETAK**

Dvije jedinke raka *Calappa tuerkayana* Pastore, 1995 su pronađene u središnjem Sredozemlju. Jedan primjerak mlađi je uhvaćen povlačnom mrežom na otprilike 105 metara dubine na detritusnom dnu, dok je mužjak uhvaćen u mreži na dubini od 50 m u sličnom staništu. Detalji opisa oklopa i svježe boje odraslih primjeraka nadopunjuju prethodne opise. Obitelj Calappidae obuhvaća četiri vrste u Sredozemnom moru. Primjerci vrste *C. tuerkayana* zabilježeni su nekoliko puta u okviru poznatog geografskog raspona.

**Ključne riječi:** Sredozemlje, Sicilijanski tjesnac, Calappidae, distribucija, morfologija, obojenost