

**First record of the thalassinid *Callianassa truncata*
GIARD & BONNIER, 1890 in the Adriatic Sea
(Crustacea: Decapoda: Callianassidae)**

D. Abed-Navandi* & P. C. Dworschak**

Abstract

Several specimens of *Callianassa truncata* are reported from the Kvarner region where they were collected in water depths between 3 and 10 m in fine sand with a yabby pump. This is the first record of the species for the Adriatic Sea.

Key words: *Callianassa truncata*, Adriatic Sea, Decapoda, Crustacea

Zusammenfassung

Mehrere Exemplare des grabenden Krebses *Callianassa truncata* wurden im Kvarner in Feinsandböden in Wassertiefen zwischen 3 und 10 m mit Hilfe einer Saugpumpe gefangen. Dies ist der erste Fund dieser Art in der Adria.

Introduction

Callianassa truncata GIARD & BONNIER, 1890 is a widely distributed thalassinid species. It was first described from the Gulf of Naples (GIARD & BONNIER 1890), where it is quite abundant (CAROLI 1939, REVERBERI 1942a,b). DE SAINT LAURENT & BOŽIĆ (1976) mention that the distribution for this species covers the east Atlantic region from the Gascogne Gulf to Morocco, in the Mediterranean Naples and Melilla, and the Black Sea. Later, it was reported to be common in the Ionian and Aegean Sea (KOCATAŞ 1981, THESSALOU-LEGAKIS & ZENETOS 1985, THESSALOU-LEGAKI 1986, KOUKOURAS & al. 1992). According to DE SAINT LAURENT & BOŽIĆ (1976) the occurrence in the Black Sea given by DOLGOPOL'SKAYA (1969) and KOPYAKOVA & DOLGOPOL'SKAYA (1969) is doubtful, as only larvae have been described. GUŢU (1980) mentioned that *C. truncata* was not found recently ("disappeared") in the Romanian part of the Black Sea. In a survey of the decapod fauna along the Romanian coast of the Black Sea done between 1993 and 1994, no *C. truncata* were captured (PETRESCU & BALASESCU 1995). MIKASHAVIDZE (1981), however, reported this species from 15 to 40 m water depth along the shelf of the southeastern Black Sea. Dense sublittoral populations were recently reported for the Tyrrhenian Sea (ZIEBIS & al. 1996a,b) and from the Aegean Sea (D'UDEKEM D'ACQZ 1997; P. Dworschak pers. obs. 1996). ŠTEVČIĆ (1990, 1995) does not state this species in his check-list of Adriatic decapod crustaceans.

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A faunistic survey of sublittoral sandy bottoms in the Kvarner region of the Adriatic Sea revealed the thalassinid *Callianassa truncata* to be abundantly present. This is the first record of the species from the Adriatic Sea.

Material and Methods

The sampling site is situated on the east coast of the peninsula Istria (Northern Adriatic Sea), SW of Opatija, in the first bay SW of Rt Kolova (45°19'30"N, 14°17'52"E). In water depths between 3 and 10 m the bottom consists of a well sorted very fine sand (median diameter = 120 µm, 0.9% < 63 µm). The characteristic signs of a mound with two associated funnels nearby (ZIEBIS & al. 1996a) indicated the burrows of the Callianassidae. Conspicuous associated faunistic elements were the stomatopod *Platysquilla eusebia* (RISSO, 1827), the cephalopod *Octopus vulgaris* (LAMARCK, 1798), the eagle ray *Myliobatis aquila* (LINNAEUS, 1758) and the burrowing bivalves *Acanthocardium sp.*, *Solecurtus strigilatus* (LINNAEUS, 1758) and *Callista chione* (LINNAEUS, 1758). As a sampling device a yabbie pump (MANNING 1975) was used while snorkeling in July 1996. Animals were fixed in buffered seawater-formaldehyde and later transferred into 70% ethanol. The material is deposited in the Museum of Natural History in Vienna (NHMW). Measurements are given as carapace length (CL) in mm.

Results

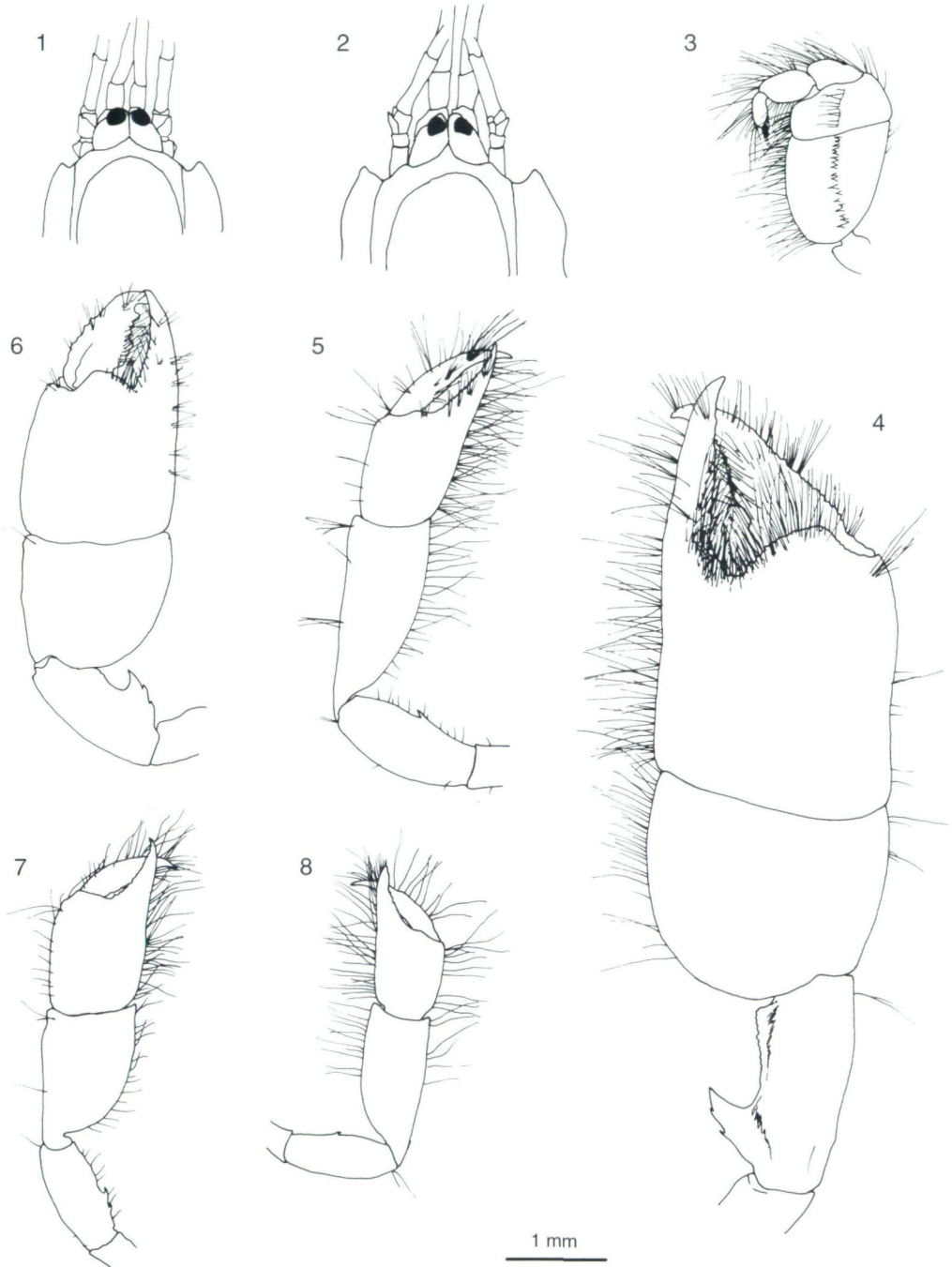
Material: 1 ♂ (CL 2.8), 2 ♀♀ (CL 2.7, 4.8), 2 ovigerous ♀♀ (CL 2.6, 2.8), Adria, Kvarner, 1st bay SW of Rt Kolova, 3-10 m, D. Abed-Navandi coll. July 1996, NHMW 14778 [1996 XX.1.]; 3 ♂♂ (CL 3.3 - 3.5), 1 ♀ with bopyrid (CL 4.9), Adria, Kvarner, 1st bay SW of Rt Kolova, 3-10 m, D. Abed-Navandi coll. July 1996, NHMW 14779 [1996 XX.2.]

Some minor differences of our specimens from previous descriptions (GIARD & BONNIER 1890, REVERBERI 1942b, DE SAINT LAURENT & BOŽIĆ 1976) are worthy of mention as they are related to size and/or sex.

The rostrum (Fig. 1) is triangular and within the males (Fig. 2) somewhat more slender and pointed and reaches the proximal third of the ocular peduncles. The round corneas are situated in the middle of the distal third of the ocular peduncles. The peduncles of the antennae and of the antennulae are about the same length.

The third maxilliped (Fig. 3) is operculiform. The ischium is longer than wide and subtrapezoidal. This character is described as trapezoidal in the animals of similar size examined by DE SAINT LAURENT & BOŽIĆ (1976). The merus is 2 to 3 times wider than long, a *crista dentata* is formed by a row of small teeth which extends along the center of the ischium and the merus.

The males show a variation in the shape of the major cheliped. In the largest male (Fig. 4) it is typically shaped with a wide meral hook, a slender dactylus with a row of granules on the inner edge, and brown, stiff, stout setae ("spazzola") between the fixed finger and the dactylus as described and figured in REVERBERI (1942b). In all other males these dense setae are missing. In one male (Fig. 6) the dactylus is wider with a crest near the articulation and one large tooth distally. The palm is longer or of the same length as the carpus. The minor cheliped is much smaller; instead of the meral hook only a small spine is present (Fig. 5). The palm is much shorter than the carpus.



Figs 1 - 9: *Callianassa truncata*. Dorsal view of the fronts of (1) a female (CL 2.8) and (2) a male (CL 3.5); (3) right third maxilliped; outer views of major (4) and minor (5) chelipeds of a male (CL 3.5) and (6) major cheliped of a male (CL 2.8), major (7) and minor (8) cheliped of a female (CL 2.8). Scale is 1 mm.

The females show somewhat differently shaped chelipeds (Fig. 7) which resemble that of minor male chelipeds. One or two small spine(s) are present in place of the meral hook. The heterochely is less developed than within the examined males; the major cheliped is only slightly larger than the minor one (Figs 7 and 8).

Two females were ovigerous; the smallest has a CL of 2.6 mm, which corresponds to a total length of 24 mm. The around 20 eyed eggs measure 725 x 500 µm.

One specimen (a female with CL 4.9) has a bopyrid parasite in the right gill chamber. The female parasite measures 3.5 mm in length without uropods and its brood pouch is full of sand grains and embryos. The dwarf male attached to the female is 1 mm long. The shape of the female first pleopod endopod is the same as that of *Ione vicina* BONNIER, 1900 as described and figured in BOURDON (1968: 94, Fig. 9)

Discussion

According to ŠTEVČIĆ (1990), the scientific investigation of the Callianassidae in the Northern Adriatic Sea started about 200 years ago with OLIVI (1792). From then on this group has continuously been treated and new records have consistently been added to the faunal inventory due to improved sampling techniques (see update in ŠTEVČIĆ 1995). Especially with burrowing species the use of the yabby pump has yielded a number of new records of even rare species formerly not known to occur in some regions - e.g. *Callianassa acanthura* CAROLI, 1946 in the Aegean Sea (TÜRKAY 1982) or *Calliax lobata* (DE GAILLANDE & LAGARDÈRE, 1966) in the Adriatic Sea (ŠTEVČIĆ 1985). Collecting with the yabby pump, however, was mainly done in the intertidal. *Callianassa truncata* was probably not found in the systematic faunal survey done in the Kvarner Region with the research vessel "Vila Velebita" (ZAVODNIK 1979, ŠTEVČIĆ 1979) as mainly deeper muddy bottoms were sampled during these cruises using a Petersen grab. Due to the long-lasting confusion with respect to the taxonomy of the Mediterranean Callianassidae, it is possible that in earlier surveys specimens of *C. truncata* were misidentified as *C. subterranea* (MONTAGU, 1808). For many years most of the Mediterranean Callianassidae were placed in the latter taxon. Later, they were probably considered to be juveniles of the species now treated under the name *C. tyrrhena* (PETAGNA, 1792). In a re-investigation of the collections in the NHMW harbouring the extensive material from the Adriatic on which the monographs of HELLER (1863) and PESTA (1918) are based, no *C. truncata* was detected (see DWORSCHAK 1992). It therefore seems likely that this species, rather than having been overlooked for such a long time, is undergoing a colonization process.

References

- BOURDON, R. 1968: Les Bopyridae des mers européennes. – Mémoires du Muséum National d'Histoire Naturelle, Nouvelle Série, Série A, Zoologie 50(2): 78-424.
- CAROLI, E. 1939: In difesa della *Callianassa truncata* GIARD & BONNIER. – Bollettino di Zoologia 10, 73-77.
- DOLGOPOL'SKAYA, M.A. 1969: Larvae of Decapods. Macrura and Anomura. – In: F.D. MORDUKHAY-BOLTOVSKOY (ed.): Identification key to Black Sea and Azov Sea. 2. Free living Invertebrates, Crustaceans. – Kiev, Akademija Nauk Ukrainskoi SSR, Institut Biologii Yuzhnykh Morey. Izdatel'stvo "Naukova Dumka", pp. 307-362. [In Russian].

- DWORSCHAK, P.C. 1992: The Thalassinidea in the Museum of Natural History, Vienna; with some remarks on the biology of the species. *Annalen des Naturhistorischen Museums in Wien* 93B, 189-238.
- GIARD, A. & BONNIER, J. 1890: Sur une espèce nouvelle de Callianasse du Golfe de Naples (*Callianassa truncata*). – *Bulletin Scientifique de la France et de la Belgique* 22, 362-366.
- GUȚU, M. 1980: Recent changes in the decapod fauna of the Romanian Black Sea littoral. – *Travaux du Museum d'Histoire Naturelle "Grigore Antipa"* 21, 103-109.
- HELLER, C. 1863: Die Crustaceen des südlichen Europa. Crustacea Podophthalmia. Mit einer Übersicht über die horizontale Verbreitung sämtlicher europäischer Arten. – Wilhelm Braumüller, Wien, 336 pp.
- KOBYAKOVA, S.I. & DOLGOPOL'SKAYA, M.A. 1969: Decapoda. – In: F.D. MORDUKHAY-BOLTOVSKOY (ed.): Identification key to Black Sea and Azov Sea. 2. Free living Invertebrates, Crustaceans. – Kiev, Akademija Nauk Ukrainskoi SSR, Institut Biologii Yuzhnykh Morey. Izdatel'stvo "Naukova Dumka", pp 270-306. [In Russian]
- KOCATAŞ, A. 1981: Liste préliminaire et repartition des Crustacés Décapodes des eaux Turques. – *Rapports et Procès-Verbeaux des Réunions Commission internationale pour l'Exploration scientifique de la Mer Méditerranée* 27, 161-162.
- KOUKOURAS, A., DOUNAS, C., TÜRKAY, M. & VOULTSIADOU-KOUKOURA, E. 1992: Decapod crustacean fauna of the Aegean Sea: new information, check list, affinities. – *Senckenbergiana maritima* 22, 217-244.
- MANNING, R.B. 1975: Two methods for collecting decapods in shallow waters. – *Crustaceana* 29: 317-319.
- MIKASHAVIDZE, E.V. 1981: New findings of some species of polychaetes, molluscs and crustaceans on the shelf of the south east Black Sea. – *Zoologicheskij Zhurnal* 60, 1415-1417.
- OLIVI, G. 1792: *Zoologia Adriatica ossia catalogo ragionato degli animali del Golfo e delle lagune di Venezia*; preceduto da una Dissertazione sulla storia fisica e naturale del Golfo; e accompagnato da Memorie, ed Osservazioni di fisica Storia naturale ed economia. – Bassano, 334 pp.
- PESTA, O. 1918: Die Decapodenfauna der Adria. Versuch einer Monographie. – Franz Deuticke, Leipzig und Wien, 500 pp.
- PETRESCU, I. & BALASESCU, A.-M. 1995: Contributions to the knowledge of decapod fauna (Crustacea) from the Romanian coast of the Black Sea. – *Travaux du Museum d'Histoire Naturelle "Grigore Antipa"* 35: 99-146
- REVERBERI, G. 1942a: Annotazione sulla *Parthenopea subterranea* KOSSMANN e sulla *Thompsonia mediterranea* CAROLI e dati sulle modificazioni dei caratteri sessuali prodotte dai parassiti sui loro ospiti. – *Pubblicazioni della Stazione Zoologica di Napoli* 19, 89-102.
- REVERBERI, G. 1942b: Sul significazione della "castrazione parassitaria". La trasformazione del sesso nei Crostacei parassitati da Bopyridi e da Rizocefali. – *Pubblicazioni della Stazione Zoologica di Napoli* 19, 225-316.
- SAINT-LAURENT, M. DE & BOŽIĆ, B. 1976: Diagnoses et tableau de détermination des Callianasses de l'Atlantique nord oriental et de Méditerranée (Crustacea, Decapoda, Callianassidae). – *Thalassia Jugoslavica* 8 (1972), 15-40.
- ŠTEVČIĆ, Z. 1979: Cruises of the research vessel "Vila Velebita" in the Kvarner region of the Adriatic Sea. XIX.Crustacea Decapoda. – *Thalassia Jugoslavica* 15, 279-287.
- ŠTEVČIĆ, Z. 1985: New and rarely reported species of decapod Crustacea from the Adriatic Sea. – *Rapports et Procès-Verbeaux des Réunions Commission internationale pour l'Exploration scientifique de la Mer Méditerranée* 29, 313-314.

- ŠTEVČIĆ, Z. 1990: Check-list of the Adriatic decapod Crustacea. – Acta Adriatica 31(1/2): 183-274.
- ŠTEVČIĆ, Z. 1995: Contribution to the faunistic list of Adriatic decapod Crustacea. – Natura Croatica 4(2): 113-115.
- THESSALOU-LEGAKI, M. & ZENETOS, A. 1985: Autecological studies on the Thalassinidea (Crustacea, Decapoda) of the Patras Gulf and Ionian Sea. – Rapports et Procès-Verbeaux des Réunions Commission international pour l'Exploration scientifique de la Mer Méditerranée 29, 309-312.
- THESSALOU-LEGAKIS, M. 1986: Preliminary data on the occurrence of Thalassinidea (Crustacea, Decapoda) in Greek waters. – Biologia Gallo-Hellenica 12, 181-187.
- TÜRKAY, M. 1982: On the occurrence of *Callianassa acanthura* CAROLI, 1946 in the Aegean Sea (Crustacea: Decapoda: Callianassidae). – Quaderni del Laboratorio di Tecnologia della Pesca 3(2-5): 225-226.
- UDEKEM D'ACQZ, C. D' 1997: Contribution a la connaissance des Crustacés Décapodes helléniques II: Penaeidea, Stenopodidea, Palinuridea, Homaridea, Thalassinidea, Anomura, et note sur les Stomatopodes. – Bios (Macedonia, Greece) 3 (1995): 51-77.
- ZAVODNIK, D. 1979: Cruises of the research vessel "Vila Velebita" in the Kvarner region of the Adriatic Sea. XXI. Benthic investigations. – Thalassia Jugoslavica 15: 313-350.
- ZIEBIS, W., FORSTER, S., HUETTEL, M. & JØRGENSEN, B.B. 1996a: Complex burrows of the mud shrimp *Callianassa truncata* and their geochemical impact in the sea bed. – Nature 382, 619-622.
- ZIEBIS, W., HUETTEL, M. & FORSTER, S. 1996b: Impact of biogenic sediment topography on oxygen fluxes in permeable seabeds. – Marine Ecology Progress Series 140, 227-237.

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