

**Confirmed record of the Thumbnail crab,
Thia scutellata (Fabricius, 1793), in the Gulf of Trieste
(northern Adriatic), based on the predator diet**

(Decapoda: Thiidae)

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Authors present a case of an unusual record of five specimens of the Thumbnail crab, *Thia scutellata*, found in the diet of two specimens of the Common eagle ray (*Myliobatis aquila*) from the Slovenian part of the Adriatic Sea. This report represents the first record of *T. scutellata* in the Slovenian waters and one of the few in the whole Adriatic and Mediterranean Sea.

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Introduction

Thia is a decapod crab genus that contains two species, *T. scutellata* (Fabricius, 1793) and *T. schubarti*, which is a recently described species from the west coast of Africa (d'Udekem d'Acoz 2024). *T. scutellata* can be found in the eastern Atlantic from Portugal to Norway and in the Mediterranean. It is a small digging crab that occupies coarse and medium sands and fine gravels under the influence of currents, from mediolittoral down to 110 m (Pérès & Picard 1964, d'Udekem d'Acoz 1999, Rees 2001, Türkay 2011, d'Udekem d'Acoz 2024). In the Slovenian part of the Adriatic Sea *T. scutellata* was not yet confirmed (see Manning & Števcic 1982) and according to Bacci et al. (2024) this species was not yet recorded in other Adriatic areas. On the other hand, the findings of the species from the Adriatic Sea were reported near Venice, Rovinj and Hvar (Pesta 1918, Vatova 1949, Števcic 1969, 1971, Marcuzzi 1972). In his checklist of Adriatic decapods Števcic (1990) considered *T. scutellata* as extremely rare species.

Herewith we report on remains of five specimens of the Thumbnail crab *Thia scutellata* (Fabricius, 1793), found in the diet of two specimens of the Common

eagle ray (*Myliobatis aquila*) (Linnaeus, 1758) from the Slovenian waters of the Gulf of Trieste (northern Adriatic Sea).

Material and methods

During the analysis of the diet of the Common eagle ray (*Myliobatis aquila*), remains of five specimens of the Thumbnail crab *Thia scutellata* were recorded. Despite fragmentation of the material, some distinct morphological features as described in d'Udekem d'Acoz (2024) were clearly evident and enabled the determination of the crab. Most characteristic was the only carapace found (Fig. 1), which had distinct features such as that it was as long as wide (slightly less than 2 cm) and smooth surfaced with strongly setose lateral margins (Fig. 2). The number of specimens were determined based on the number of right chelipeds. Remains of four specimens (Fig. 2) were detected in the diet of female eagle ray with disk width 725 mm and weight 7530 g and remains of one crab specimen in the stomach of a female with disk width 740 mm and weight 8520 g. Both specimens of eagle ray were caught at 24 October 2011 in the Slovenian part of the Gulf of Trieste on the transect 45°34.977' N, 13°35.601' E to 45°35.327' N, 13°34.259' E (Fig. 3). Crab remains were analysed using an OLYM-

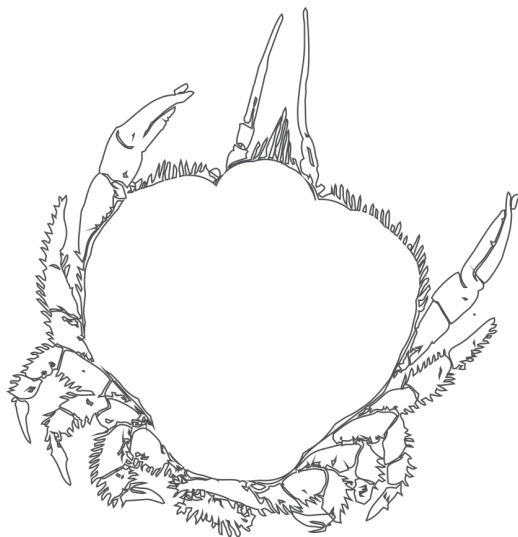


Fig. 1. Thumbnail crab *Thia scutellata* (drawing: B. Mavrič).

PUS-SZX16 microscope and photographed with the OLYMPUS-DP70 camera (OLYMPUS Optical CO.Ltd, Tokyo, Japan). The material is stored in the collection of the Marine Biology Station Piran NIB.

Results and discussion

Thumbnail crab is a rather less known crab species, and some authors are considering it as a very rare (Zariquiey Alvarez 1963, Štević 1990). The species occurs throughout the North Sea, the north-eastern

Atlantic down to Portugal and in the Mediterranean where it is known from the Alboran Sea (Raso 1984, Pubill et al. 2011) to the Levantine Basin (d'Udekem d'Acoz 1999). The main reason for its rare records lies in its size but even more in its specialization to specific habitat types (Monterroso et al. 2016) and the fact that it is difficult to detect with standard sampling methods (HELCOM 2013) and consequently might be more common than suspected so far. According to Rees (2001) it inhabits well sorted medium sand with fewer shell fragments while Pubill et al. (2011) share the opinion that *T. scutellata* characterized the assemblage CSS (Coarse Sand Shallow). Türkay (2011) stated that the proportion of finer sediment is the main factor, which determines the presence of the crabs more than the coarser fraction. According to this, the non-existence of data on *T. scutellata* from the Slovenian Sea is not so surprising as most of the sea bottom consists predominantly of silt and clay (Lipej et al. 2016). The areas under high current influences, where the sea bottom contains less pellicle fraction and is composed predominantly of fine sand and coarser detritic particles, can be found more offshore at the entrance of the Gulf of Trieste (Ogorelec et al. 1991) and are far less researched than shallower areas closer to the shores. These areas are also known for well-developed epibenthic community and represent an important feeding ground for many benthic feeders (Lipej et al. 2016), amongst them also eagle rays.

The eagle rays are known as continuous feeders, which seek their prey on the surface of the substrate or target fossorial prey under sediment surface (Walls & Dulvy 2021). The Common eagle ray used to be a common species in the northern Adriatic Sea, how-



Fig. 2. Remains of Thumbnail crab, *Thia scutellata*, in the diet of a Common eagle ray, *Myliobatis aquila*, (with a disk width 725 mm) from the southern part of the Gulf of Trieste. Outline on the right picture marked with number 1 is a remain of the carapace, outlines marked with number two display right chaele and those marked with 3 left chelipeds (photo: B. Mavrič).

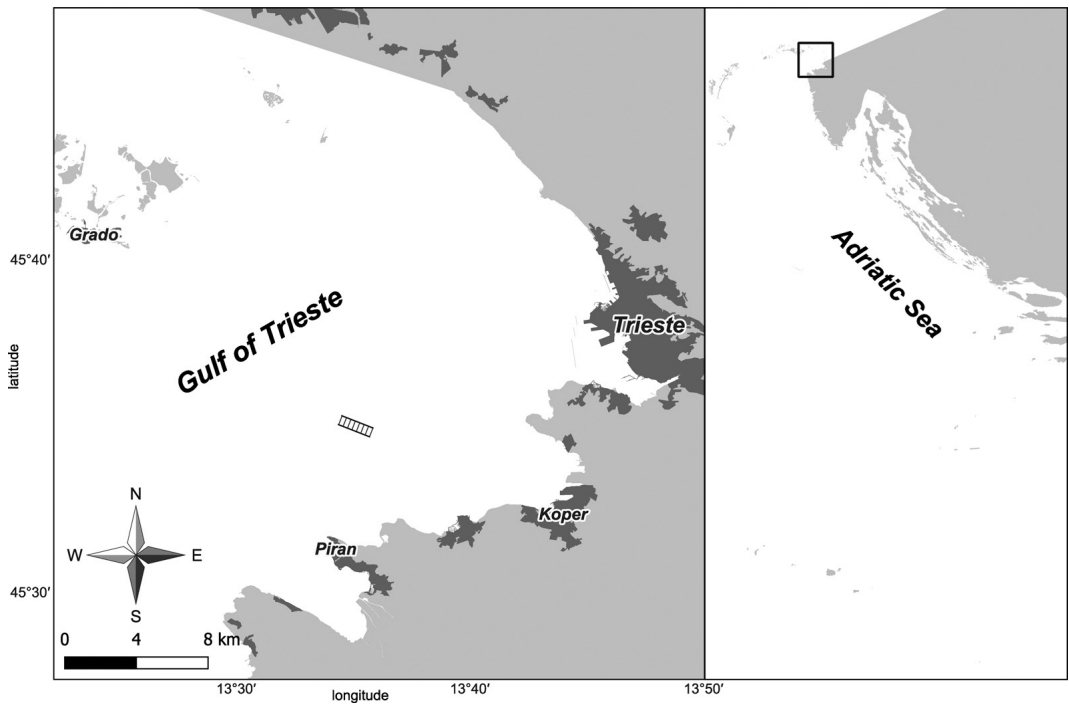


Fig. 3. The striped rectangle marks the area in the Gulf of Trieste where Common eagle rays containing Thumb-nail crabs were caught.

ever, during recent times its population is ongoing a drastic decline (Jabado et al. 2021). It is still regularly present in the Gulf of Trieste and is supposed to play a relevant role in the trophic web (Lipej et al. 2025). Previously, specimens of *T. scutellata* were already reported as prey species in some predators. Such was the case of the study done by Metzger (1871), who detected *Thia* on a regular basis in the diet of Haddock (*Melanogrammus aeglefinus*) in Germany. Since the diet analysis of the Common eagle ray showed that it is a predator specialized to prey molluscs (Lipej et al. 2025), particularly bivalves and gastropods, we can conclude that the occurrence of the thumbnail crab in its food is purely occasional. Nonetheless, such findings of less known species in the diet of the resident predators show that the diet studies of predators could be helpful also in collecting data on decapod diversity and monitoring the presence of other rare, endangered or less known prey species.

The records of *T. scutellata* reported here are the first documentations of the presence of the species in the Gulf of Trieste and in the Slovenian Sea and one among the few uptodate reported in the Adriatic and Mediterranean Sea. It is difficult to ascertain if the species is really rare or it is just an elusive one. This can only be concluded with focused research in the future.

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