

# OCCURRENCE AND DISTRIBUTION OF SOME STOMATOPOD CRUSTACEANS IN THE WESTERN MEDITERRANEAN

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*Occurrence and distribution of some stomatopod crustaceans in the western Mediterranean.*— Stomatopod crustaceans have been very little studied in the Mediterranean Sea. With the exception of *Squilla mantis*, the only common and abundant species, nine other stomatopods have been recorded so far in Mediterranean waters, all of them very scarcely. The occurrence of some of these species is recorded herein based mainly on data collected during fishery research surveys in the western Mediterranean. *Parasquilla ferussaci* is recorded for the first time from the Balearic Islands, being its first record in the Iberian Mediterranean waters. The second Mediterranean record of *Platysquilloides lillyae*, the sixth for the species, is based on a specimen collected off the Maresme region (Catalonia). New data on the distribution of *Rissoides pallidus* and *R. desmaresti* in the Catalano-Balearic Sea are provided.

**Key words:** *Parasquilla ferussaci*, *Platysquilloides lillyae*, *Rissoides pallidus*, *Rissoides desmaresti*, Stomatopoda, Western Mediterranean.

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## INTRODUCTION

A total of ten species of stomatopod crustaceans are known from Mediterranean waters (VALLADARES, 1988; FROGLIA & MANNING, 1989). Notwithstanding, this fauna has been little studied in the Mediterranean Sea and, indeed, in European waters. With the exception of the mantis shrimp *Squilla mantis* (Linnaeus), common in the muddy benthos near deltas of the Mediterranean (ABELLÓ & SARDÁ, 1989; ABELLÓ & MARTÍN, 1993), data on the occurrence and distribution of other stomatopod crustaceans in the western

Mediterranean (Catalano-Balearic) Sea (VALLADARES, 1987) are scarce.

The objective of the present paper is to record the occurrence of several little known species of stomatopods off the Balearic and Catalan coasts, providing new data on their distribution.

## MATERIAL AND METHODS

The material studied has been collected during several research surveys performed between the years 1991 and 1993 using different methodologies: trawl nets, dredges

and trammel nets. One specimen of *Rissoides desmaresti* was collected in 1983 and donated to the "Institut de Ciències del

Mar (CSIC)". The specimens studied have been deposited in the zoological collections of this institute in Barcelona.

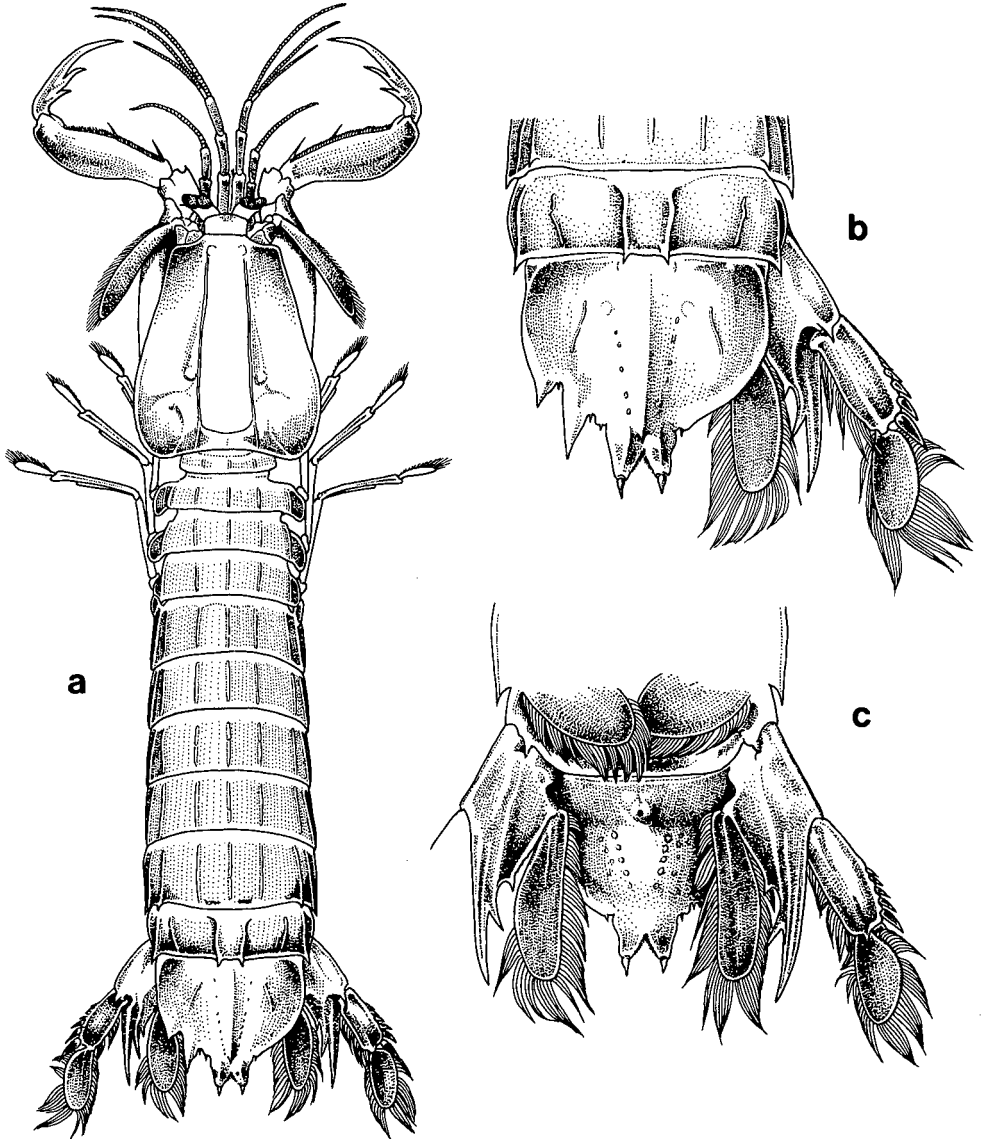


Fig. 1. *Parasquilla ferussaci* (Roux, 1830) ♂, total length 115 mm: a. Dorsal view; b. Sixth abdominal somite, telson and uropod (dorsal view); c. Sixth abdominal somite, uropod and telson (ventral view).

*Parasquilla ferussaci* (Roux, 1830) ♂, longitud total 115 mm: a. Visión dorsal; b. Sexto somito abdominal, telson y urópodo (visión dorsal); c. Sexto somito abdominal, urópodo y telson (visión ventral).

The carapace length measurements were determined excluding the rostral plate. Total lengths were based on the distance from the apex of the rostral plate to the end of the telson teeth.

## RESULTS AND DISCUSSION

### *Parasquilla ferussaci* (Roux, 1830)

Material examined: 1♂ 14 VIII 91; carapace length: 26.6 mm; total length: 115 mm; Es Castell, Menorca, Balearic Islands, 39° 50'N 4° 24'E; depth: 174 m; type of bottom: muddy sand; sampling gear: trammel net.

The specimen captured is an adult male (fig. 1) whose morphological characteristics agree with the description provided by MANNING (1977), with the exception of an abnormality in the telson: the lateral teeth of the right half of the telson are lacking, being the submedian tooth the only one present. The dorsal carina on the telson is present in both halves.

Distribution and habitat: Mediterranean Sea and the adjacent Atlantic Ocean south to the Guinea Gulf at depths between 174 and around 700 m. The Mediterranean records of the species until now are in Sicily, off the western coasts of Italy (Gulf of Naples and Porto Santo Stefano) and Nice (MANNING, 1962, 1977). The most recent record is that of ARENA & LI GRECI (1973), who found a specimen west of Sicily at a depth of 505-650 m. Previous Atlantic records include those of FIGUEIREDO (1962) off Sesimbra, Portugal at a depth of 252-550 m; two records in the Gulf of Guinea (MANNING, 1977); several off the Atlantic Moroccan coasts and Gulf of Cadis (MANNING, 1978; SARDÁ et al., 1982), as well as off Madeira (BISCOITO, 1985). The present specimen constitutes one of the shallowest records for

this species. The very few records of the species come from muddy or slightly sandy substrates (MANNING, 1978; SARDÁ et al., 1982), suggesting that the Mediterranean population is scarce, since these types of substrates are those worked most by the trawling fleets.

### *Platysquilloides lillyae* (Manning, 1977)

Material examined: 1♀ 22 IV 92; carapace length: 5.4 mm; total length: 30 mm; Masnou, Catalonia, 41° 27.8'N 2° 17.5'E; depth: 10 m; type of bottom: siliceous sand with shell debris; sampling gear: dredge.

The morphology of this specimen (fig. 2) widely agrees with the descriptions provided by MANNING (1977), HOLTHUIS (1984) and VALLADARES (1989). The occurrence of chromatophores on the body (fig. 2) agrees with the pattern described by HOLTHUIS (1984). It is the second individual known from the Mediterranean Sea (VALLADARES, 1989), the sixth known of the species, the smallest in size and the shallowest record of the species.

Distribution and habitat: Açores Islands in the eastern Atlantic (MANNING, 1977; HOLTHUIS, 1984) and Catalan coasts in the western Mediterranean (VALLADARES, 1989; this work). The species occupies a sublittoral habitat at depths comprised between 10 and 345 m. Its preferred habitat are sublittoral sandy bottoms.

### *Rissoides pallidus* (Giesbrecht, 1910)

Material examined: 1♂ 6 III 91; carapace length: 7.5 mm; total length: 35 mm; Vilanova, Catalonia, 41° 5'N 1° 45'E; depth: 110-247 m; type of bottom: terrigenous mud; sampling gear: trawl. 1♂ 20 X 91; carapa-

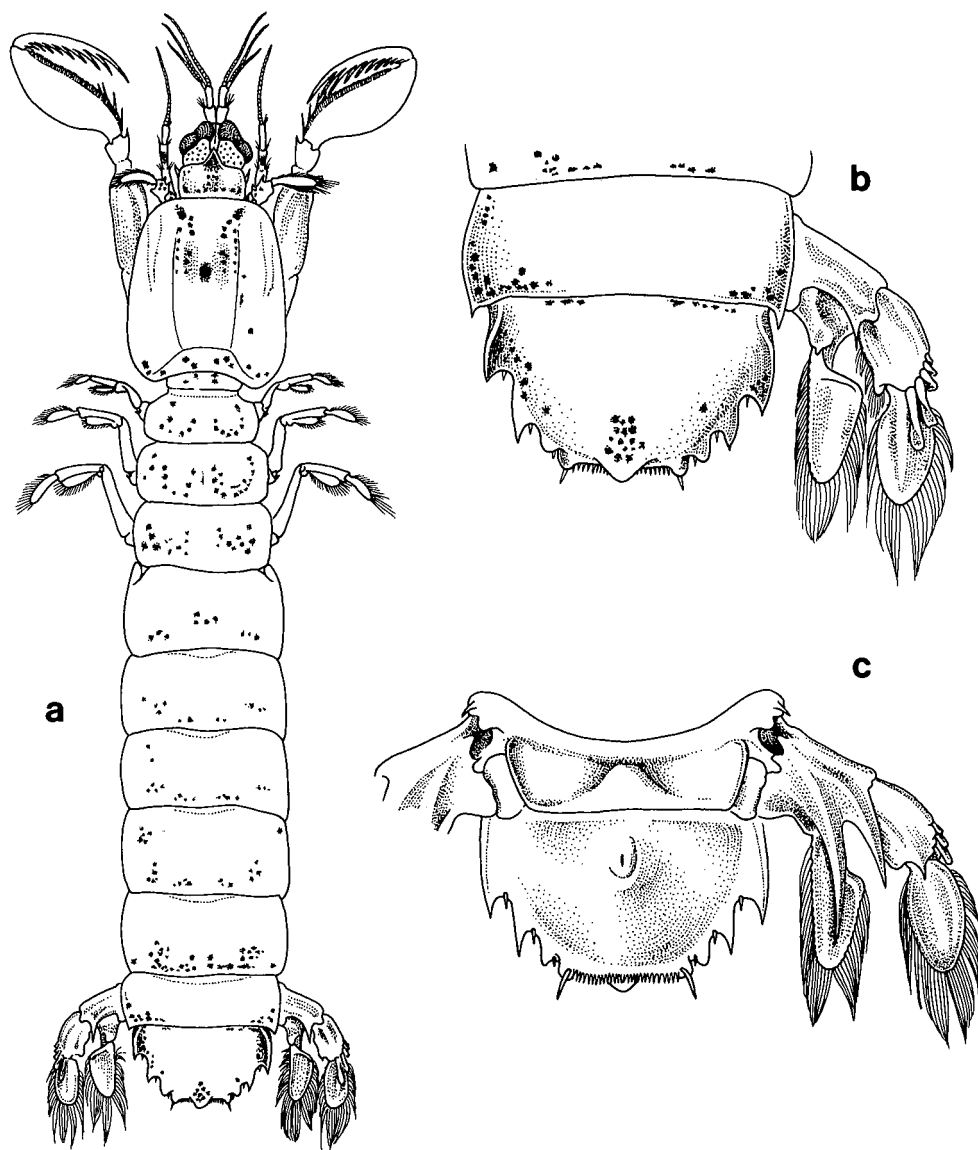


Fig. 2. *Platysquilloides lillyae* (Manning, 1977) ♀, 30 mm total length: a. Dorsal view; b. Sixth abdominal somite, telson and uropod (dorsal view); c. Sixth abdominal somite, uropod and telson (ventral view).

*Platysquilloides lillyae* (Manning, 1977) ♀, 30 mm longitud total: a. Visión dorsal; b. Sexto somito abdominal, telson y urópodo (visión dorsal); c. Sexto somito abdominal, urópodo y telson (visión ventral).

ce length: 14.7 mm; total length: 65 mm;  
Blanes, Catalonia, 41° 35'N 2° 48'E; depth:

110-113 m; type of bottom: terrigenous mud;  
sampling gear: trawl.

Distribution and habitat: Mediterranean Sea and eastern Atlantic from Morocco to Senegal (MANNING, 1977). In the Mediterranean, the confirmed records of this species are localised in the Gulf of Naples (GIESBRECHT, 1910), central Adriatic and Sicily (MANNING & FROGLIA, 1979), Catalan coasts (VALLADARES, 1987), Tyrrhenian Sea (DE RANIERI & MORI, 1991), Tunis (FOREST & GUINOT, 1956) and Israel (LEWINSOHN & MANNING, 1980). The two specimens studied herein represent the second record of the species in Iberian Mediterranean waters and confirm the occurrence of the species in this area. The muddy areas of the deep continental shelf and upper slope are the preferred habitat of this species.

#### *Rissoides desmaresti* (Risso, 1816)

Material examined: 1 ♂ 12 VIII 83; carapace length: 9.5 mm; total length: 40 mm; Sóller, Mallorca, Balearic Islands; depth: 20 m; type of bottom: muddy sand; sampling gear: trammel net. 1 ♂ 25 VIII 93; carapace length: 13.6 mm; total length: 56.5 mm; Sant Carles de la Ràpita, Catalonia; depth: 18 m; type of bottom: terrigenous mud; sampling gear: "rastell" beam trawl.

Distribution and habitat: Mediterranean and European Atlantic waters south of England and the North Sea (MANNING, 1977). It is known from Turkey and Israel in the eastern Mediterranean (KOCATAS, 1981; LEWINSOHN & MANNING, 1980). Madeira constitutes the southernmost record of the species (BISCOITO, 1985). No data are known on the occurrence of this species off western Africa. It occupies shallow coastal and sublittoral habitats to a depth of around 75-80 m. There are previous data on the occurrence of *R. desmaresti* in the Mediterranean waters of the Iberian

peninsula (BOLÍVAR, 1893; GIBERT I OLIVÉ, 1920; VALLADARES, 1987) and in the Balearic Islands (BARCELÓ Y COMBIS, 1875; FERRER I ALEDO, 1906; BOLÍVAR, 1916; BUEN, 1916). Some of the old deeper records attributed to this species may belong to *Rissoides pallidus*, a species quite similar in morphology with which it has sometimes been confused (MANNING & FROGLIA, 1979). The present record confirms the occurrence of this species in the Balearic Islands, an area from which *R. desmaresti* had not been recorded since 1916 (BOLÍVAR, 1916; BUEN, 1916). Muddy and muddy-sandy bottoms of the continental shelf are the preferred habitat of this species.

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#### RESUMEN

*Presencia y distribución de algunos crustáceos estomatópodos en el Mediterráneo occidental.*

Se aportan nuevos datos sobre la presencia y distribución de cuatro especies de estomatópodos en el Mediterráneo occidental.

*Parasquilla ferussaci* se cita por primera vez en las islas Baleares, hecho que constituye el primer hallazgo de esta especie en aguas mediterráneas ibéricas (fig. 1). El área de distribución de la especie comprende el Mediterráneo occidental y Atlántico adyacente desde el sur de Portugal hasta las costas de Angola.

Se efectúa la primera cita mediterránea de *Platysquilloides lillyae*, en base a un ejemplar capturado en las costas del Maresme (Cataluña) que constituye el sexto ejemplar conocido de esta especie (fig. 2). Esta especie es conocida hasta el momento solamente de las islas Azores y costas catalanas.

Se aportan nuevos datos sobre la distribución de *Rissoides pallidus* y *Rissoides desmaresti* en el mar catalano-balear en base a ejemplares capturados respectivamente en la plataforma continental profunda de la costa catalana y a un ejemplar capturado en la plataforma continental somera en la isla de Mallorca. El área de distribución de *R. pallidus* comprende el Mediterráneo y Atlántico oriental, entre Marruecos y Senegal, mientras que en el caso de *R. desmaresti*, su área de distribución comprende las aguas atlánticas europeas y Madeira.

## REFERENCES

- ABELLÓ, P. & MARTÍN, P., 1993. Fishery dynamics of the mantis shrimp *Squilla mantis* (Crustacea: Stomatopoda) population off the Ebro delta (Northwestern Mediterranean). *Fisheries Res.*, 16: 131-145.
- ABELLÓ, P. & SARDÁ, F., 1989. Some observations on the biology and fishery of *Squilla mantis* L. in the Catalan area (NW Mediterranean). In: *Biology of Stomatopods*: 229-239 (E. A. Ferrero, Ed.). Mucchi editore, Modena.
- ARENA, P. & LI GRECI, F., 1973. Indagine sulle condizioni faunistiche e sui rendimenti di pesca dei fondali batiali della Sicilia occidentale e della bordura settentrionale dei banchi della soglia Siculo-Tunisina. *Quad. Lab. Tecnol. Pesca Ancona*, 1: 157-201.
- BARCELÓ Y COMBIS, F., 1875. Apuntes para la fauna balear. Catálogo de los crustáceos marinos observados en las costas de las islas Baleares. *An. Soc. esp. Hist. Nat.*, 4: 59-68.
- BISCOITO, M. J., 1985. An account on the stomatopod crustaceans of Madeira. *Bol. Mus. Mun. Funchal*, 37(170): 158-174.
- BOLÍVAR, I., 1893. Lista de la colección de crustáceos de España y Portugal del Museo de Historia Natural de Madrid. *Act. Soc. Esp. Hist. Nat.*, 21: 124-141.
- 1916. Los crustáceos de las Baleares. *Bol. R. Soc. Esp. Hist. Nat.*, 16: 246-253.
- BUEN, O. DE, 1916. Los crustáceos de Baleares. *Bol. R. Soc. Esp. Hist. Nat.*, 16: 355-367.
- DE RANIERI, S. & MORI, M., 1991. Stomatopoda Squillidae collected in the northern Tyrrhenian Sea. *Crustaceana*, 60: 218-222.
- FERRER I ALEDO, J., 1906. Fauna de Menorca. *Revista de Menorca*, 1: 180-181.
- FIGUEIREDO, M. J., 1962. Un stomatopode nouveau pour la faune Portugaise et pour l'océan Atlantique, *Pseudosquilla ferussaci* (Roux). *Not. Estud. Inst. Biol. Marít. Lisboa*, 25: 5-9.
- FOREST, J. & GUINOY, D., 1956. Sur une collection de Crustacés Décapodes et Stomatopodes des mers tunisiennes. *Bull. Sta. Océanogr. Salammô*, 53: 24-43.
- FROGLIA, C. & MANNING, R. B., 1989. Checklist and key to adult mediterranean stomatopod Crustacea. In: *Biology of Stomatopods*: 265-273 (E. A. Ferrero, Ed.). Mucchi editore, Modena.
- GIBERT I OLIVÉ, A. M., 1920. Crustacis de Catalunya. *Treb. Inst. Cat. Hist. Nat.*, 5: 9-127.
- GIESBRECHT, W., 1910. Stomatopoda. *Fauna Flora Golf. Neapel*, 33: 1-239.
- HOLTHUIS, L. B., 1984. On some Crustacea Stomatopoda collected by the CANCAP expeditions in the waters of N.W. Africa and the Azores. *Zool. Meded.*, 58: 131-139.
- KOCATAS, A., 1981. Two new Stomatopod species for the Turkish fauna - *Nannosquilloides occultus* (Giesbrecht) and *Meiosquilla desmaresti* (Risso). *Crustaceana*, 40: 213-215.
- LEWINSOHN, C. & MANNING, R. B., 1980. Stomatopod Crustacea from the Eastern Mediterranean. *Smith. Contrib. Zool.*, 305:1-22.
- MANNING, R. B., 1962. A new species of *Parasquilla* (Stomatopoda) from the Gulf of Mexico, with a redescription of *Squilla ferussaci* Roux. *Crustaceana*, 3: 180-190.
- 1977. A monograph of the West African Stomatopoda Crustacea. *Atlantide Rep.*, 12: 25-181.
- 1978. Additional records for two eastern Atlantic stomatopod crustaceans. *Proc. Biol. Soc. Wash.*, 91: 450-452.
- MANNING, R. B. & FROGLIA, C., 1979. Description of a new *Allosquilla* with notes on other Adriatic Stomatopoda Crustacea. *Quad. Lab. Tecnol. Pesca*, 2: 177-190.
- SARDÁ, F., VALLADARES, F. J. & ABELLÓ, P., 1982. Crustáceos decápodos y estomatópodos capturados durante la campaña "Golfo de Cádiz 81". *Res. Exp. Cient. (Supl. Inv. Pesq.)*, 10: 89-100.
- VALLADARES, F. J., 1987. Presencia de *Rissoides pallidus* (Giesbrecht) y otros crustáceos estomatópodos en la costa mediterránea española. *Misc. Zool.*, 11: 373-377.

- 1988. Stomatopoda. In: *Bases para un curso práctico de Entomología*: 245-254 (Asociación española de Entomología, Ed.). Imprenta Juvenil S.A., Barcelona.
- 1989. The occurrence of *Platysquilloides lillyae* (Manning, 1977) on the Mediterranean coast of Spain. In: *Biology of Stomatopods*: 275-279 (E. A. Ferrero, Ed.). Mucchi editore, Modena.