Biodiversity Journal, 2013, 4 (2): 281-284

Further records of two uncommon Crustaceans in Italian seas: *Maja goltziana* D'Oliveira, 1888 (Decapoda Brachyura Majidae) and *Xaiva biguttata* (Risso, 1816) (Decapoda Brachyura Portunidae)

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ABSTRACT The presence of *Maja goltziana* D'Oliveira, 1888 (Decapoda Brachyura Majidae) is confirmed in the central Tyrrhenian Sea and in the Tuscan Archipelago. *Xaiva biguttata* (Risso, 1816) (Decapoda Brachyura Portunidae) is first recorded from the Western Sardinian coast and the Eastern Sicilian coast. The presence and spread of *M. goltziana* are considered a consequence of climatic changes. The presence of *X. biguttata* in Italian seas was probably underestimated, and its supposed rarity should be reassessed.

KEY WORDS *Maja goltziana*; *Xaiva biguttata*; Mediterranean Sea; new record; climatic changes.

Received 3.04.2013; accepted 9.06.2013; printed 30.06.2013

INTRODUCTION

Maja goltziana D'Oliveira, 1888 (Decapoda Brachyura Majidae) and *Xaiva biguttata* (Risso, 1816) (Decapoda Brachyura Portunidae) are two Crustaceans generally considered rare in the Italian seas. In this paper are reported some further records of these species, and their current status in the Italian seas is discussed.

ABBREVIATIONS. CC = F. Crocetta collection, Napoli, Italy; CD = D. Di Franco collection, Gravina, Catania, Italy; CL = J. Langeneck collection, Pisa, Italy.

Maja goltziana D'Oliveira, 1888

EXAMINED MATERIAL. One male specimen (Figs. 1, 2) (carapace length 49 mm; carapace width 42 mm, including rostral and longest lateral spines) found in a gillnet set near the coast of Elba Island (Ligurian Sea) at a depth of 40-50 m, May 2008 (CL). One male specimen (carapace length 98 mm; carapace width 76 mm, including rostral and longest lateral spines) trawled on deep circalittoral bottoms at La Maddalena Island, October 2010 (CC).

REMARKS. The first specimen is a subadult male; the similar *M. squinado* (Herbst, 1788) is fairly common in the collecting area. While adult specimens of each species can be easily distinguished, the difference between subadult specimens is thinner. A visible difference between the specimen of *M. goltziana* and a subadult of *M. squinado* is the central series of five large spines, which in *M. squinado* are much smaller and shaped as tubercles. However, a remarkable affinity with *M. squinado* consists in the absence of the strong antero-dorsal spine on the meri of the pereiopods, as it is de-

scribed by Holthuis & Gottlieb (1958). A comparison between the second right pereiopod of both species shows that the legs of *M. squinado* (Fig. 3) and of sub-adult specimen of *M. goltziana* (Fig. 4) are, in fact, more similar than the legs of this last one compared to the adult of *M. goltziana* (Fig. 5). The absence of the spine on the meri in young specimens has been confirmed by further observations on eastern Mediterranean specimens (Galil, pers. comm.), but this characteristic was not highlighted in literature so far; it is remarkable that the larger specimen, caught at La Maddalena Island, shows well developed spines on the pereiopods.

Xaiva biguttata (Risso, 1816)

EXAMINED MATERIAL. One male specimen (Fig. 6) (carapace length 8 mm; carapace width 7 mm) found stranded on the Is Arenas beach (Cuglieri, Western Sardinia) (CL) (August 2008). One male specimen (Fig. 7) (carapace length 9 mm; carapace width 9 mm) collected alive on shell grit at a depth of 1.7 m (Cannizzaro, Catania, July 2008, Eastern Sicily) (CD).

RESULTS AND DISCUSSION

M. goltziana is a widespread species, and it is considered quite common in the Eastern Atlantic Ocean (Manning & Holthuis, 1981; D'Udekem D'Acoz, 1999; Henriksen, 2009) and in the Eastern Mediterranean Sea (Holthuis & Gottlieb, 1958; Artüz, 2006; Lelli et al., 2008; Ateş et al., 2010). The first record of the species in the Mediterranean Sea dates back to the late 50's off the Israel coast (Holthuis & Gottlieb, 1958); in the Italian seas the species has been recorded first in the Ionian Sea (Pastore, 1983) and in the Sicilian Straight (Pipitone & Arculeo, 2003), while just recently it was recorded in the Adriatic Sea (Pallaoro & Dulcic, 2004), in the Tyrrhenian Sea (Soppelsa et al., 2005; Crocetta, 2007) and in the Ligurian Sea (Vignoli et al., 2004). Therefore, the new records do not widen the known distribution of the species; however, they confirm the presence of *M. goltziana* in the Western Tyrrhenian Sea and in the Ligurian Sea (Fig. 8).

M. goltziana is an eurybathic species with subtropical affinity, and has been first recorded in the warmest Mediterranean sectors; its spread in central and Northern Mediterranean Sea is considered as a consequence of climatic changes (Vignoli et al., 2004; Soppelsa et al., 2005). The species seems to have spread either geographically (in the Adriatic and Tyrrhenian Sea) and numerically (Lelli et al., 2007, recorded more than 50 specimens in Lebanese waters, whereas every previous record concerned at most two or three specimens). Therefore, the hypothesis of the climatic changes consequence appears to be persuasive.

X. biguttata is known in the Eastern Atlantic Ocean (Manning & Holthuis, 1981; D'Udekem D'Acoz, 1999; Vieira & Morato, 2001) and in the Mediterranean Sea, where it was recorded along the Spanish coast (García Raso & Jimènez Millán, 1981), in the Eastern Mediterranean Sea (Lewinsohn & Holthuis, 1986; Ateş et al., 2010) and along the Italian coasts (Pastore, 1977; Pipitone & Arculeo, 2003; Bedini, 2004). The Italian records refer to the southern Tyrrhenian Sea, (Pipitone & Arculeo, 2003) and the Ionian Sea (Pastore, 1977); recently Bedini recorded one subadult female (carapace length 7 mm; carapace width 6 mm) on the Tuscan coast on *Posidonia* meadow (Bedini, 2004 and pers. comm.). The species has never been officially reported from the western Sardinian coast before. The record from Cannizzaro (Catania) confirms the presence of the species in the Ionian Sea (Fig. 9). *X. biguttata* has been recorded throughout the Mediterranean Sea (Lewinsohn & Holthuis, 1986), but with quite a few specimens for each record; therefore, the species is generally considered rare in the Mediterranean Sea (García Raso & Jimènez Millán, 1981; Bedini, 2004), while it is considered more common in the Atlantic Ocean (Vieira & Morato, 2001). In the Mediterranean Sea the abundance of *X. biguttata* is probably higher than what is commonly considered; however, it is hard to find this species as fishing by-catch because of its littoral habitat and small size.

ACKNOWLEDGEMENTS

We wish to thank Prof. R. Bedini, Dr. V. Vignoli for providing data, and especially Dr. F. Crocetta for data and suggestions.

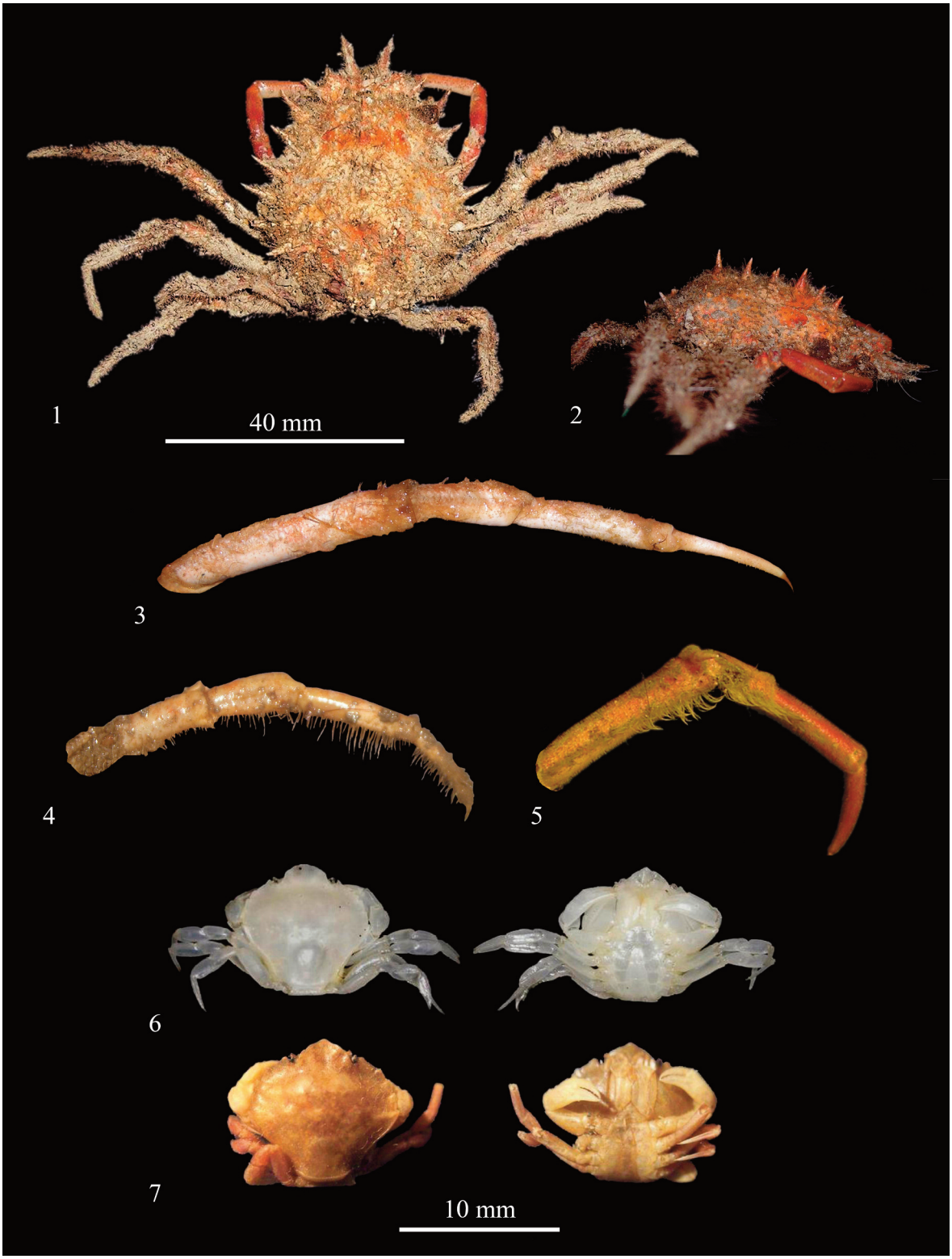

Figure 1. *Maja goltziana*, Rio Marina, Elba Island (Ligurian Sea). Figure 2. Idem, particular of the dorsal spines. Figure 3. Second right pereiopod of subadult *M. squinado*. Figure 4. Second right pereiopod of subadult *M. goltziana*. Figure 5. Second right pereiopod of *M. goltziana* (photo by courtesy of Dr. V. Vignoli). Figure 6. *Xaiva biguttata*, ecdysis from Western Sardinia, in frontal and ventral view. Figure 7. *X. biguttata*, specimen from Cannizzaro (Eastern Sicily), in frontal and ventral view.

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Figure 8. Map showing the known records of *Maja goltziana* in the Italian seas. The current record are represented by stars. 2: two specimens (Vignoli et al., 2003). 3: three specimens (Pallaoro & Dulcic, 2004).

Figure 9. Map showing the known records of *Xaiva biguttata* in Italian seas.The current records are represented by stars.

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