PAOLO GUIDETTI [1], SIMONA BUSSOTTI [1], MARCELO KOVAČIČ [2]

[1] Laboratory of Zoology and Marine Biology, DiSTeBA,
University of Lecce (Italy). e-mail: paolo.guidetti@unile.it
[2] Prirodoslovni muzej Rijeka, Lorenzov prolaz 1, HR-51000 Rijeka (Croatia)

FIRST RECORD OF THE LARGE-SCALED GOBY, *THOROGOBIUS MACROLEPIS* (PISCES, GOBIIDAE), IN ITALIAN SEAS

SUMMARY

The first record of the large-scaled goby, *Thorogobius macrolepis*, in Italian seas is here reported. This goby was observed in relatively deep waters (below 25 m depth) on coarse-organogenous sand patches within coralligenous formations in SE Apulia (southern Adriatic and Ionian Seas; density 0.1-1 ind. 100 m^{-2}) and at the Tremiti Archipelago (central Adriatic Sea; ~2 ind. 100 m^{-2}). These findings suggest that the distribution of *T. macrolepis* could be far wider in the Mediterranean than previously thought. The lack of previous records in the Italian waters is thus likely due to the scarcity of experts capable of identifying small gobids than to the actual rarity of the species in the past.

INTRODUCTION

Studies dealing with the geographical distribution of small gobies in the Mediterranean Sea greatly increased after ichthyologists started using routinely SCUBA. Small gobids, in fact, are often cryptobenthic species with no commercial value, often associated to habitats (such as marine caves or deep rocky substrates) where sampling with classical methods (e.g. nets; GUIDETTI and BUSSOTTI, 2003) is difficult. It has to be considered, moreover, that the identification of these fishes may be not easy and thus the distribution of small gobids (most records come from the western Mediterranean and the Adriatic Seas; KOVAČIČ, 1999, 2001; HERLER and KOVAČIČ, 2002; HERLER and PATZNER, 2002 and references therein) could reflect, to some extent, the distribution of specialists of this group, as observed for other marine taxa (GIANGRANDE and LICCIANO, 2004).

In this note, we report the first record of the large-scaled goby, *Thorogobius macrolepis* (KOLOMBATOVIČ, 1891), in the Italian seas, providing some

indications about habitat occupation and density in the central and southern Adriatic, and Ionian Seas.

MATERIALS AND METHODS

Thorogobius macrolepis (Fig. 1) was observed during visual census surveys carried out in several locations in the central and southern Adriatic, and Ionian Seas. Density was estimated by using visual census performed along 25 x 5 m transects and expressed as no. of individuals 100 m^{-2} (see HARMELIN-VIVIEN *et al.*, 1985). As we did not collect any specimen, identification was done *in situ* and from pictures, and was based on comparison of species with similar coloration (AHNELT and KOVAČIČ, 1997; ALBERTO *et al.*, 1999; KOVAČIČ and MILLER, 2000). The coloration patterns of *T. macrolepis* and *Gobius kolombatovici* were thus checked on specimens in the collection of Natural History Museum Rijeka (Croatia). From this perspective, it is worth noting that coloration may change due to preservation, but spots and other characters useful for identification remain unaltered. Depth and the characteristics of the benthic habitat were carefully annotated whenever a specimen of *T. macrolepis* was detected.

Fig. 1 - Specimen of *Thorogobius macrolepis* photogaphed *in situ* (photo by A. Terlizzi).

RESULTS AND DISCUSSION

Thorogobius macrolepis was recorded along the coast of south-eastern Apulia (southern Adriatic and Ionian Seas) and at the Tremiti Archipelago (central Adriatic Sea; Fig. 2). This goby was previously reported from France and Spain (i.e. Balearic Islands) (MILLER *et al.*, 1973; AHNELT and PATZNER, 1996; PATZNER, 1999), and the Croatian coast (eastern Adriatic Sea; KOLOMBATOVIČ, 1891; AHNELT and KOVAČIČ, 1997).

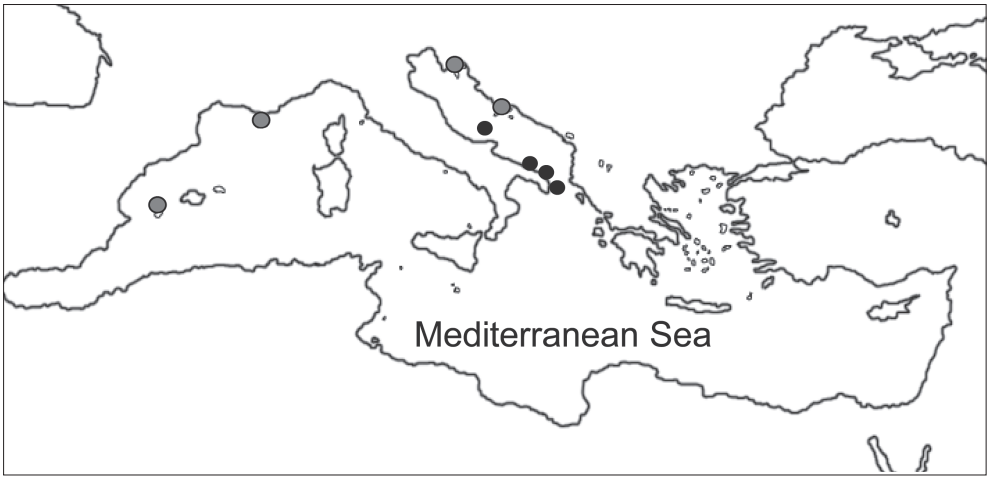

Fig. 2 - Map of literature records (grey circles) and the records reported in the present paper (black circles) of *Thorogobius macrolepis* in the Mediterranean Sea.

The careful analysis of colouration patterns lead us to consider as correct our identification of *T. macrolepis* on the basis of our underwater observations and from pictures. It has to be considered, in fact, that this species could be potentially confused with other two species of orange dotted gobies that are known among European marine gobies. The brown orange blotches and dots of the Atlantic species *Gobius gasteveni* clearly differs from light orange blotches and dots of Mediterranean species *G. kolombatovici* and *T. macrolepis*. In turn the latter differs from *G. kolombatovici* as it lacks black blotch in upper posterior corner of D1 and in shape of predorsal dots. The midline pair of predorsal dots of *T. macrolepis* (dots less than twice long than wide) are not longitudinally elongated as in *G. kolombatovici* (dots more than twice long than wide).

We observed *T. macrolepis* in deep waters (from about 25-30 m depth) on coarse, detritic sand at the basis of coralligenous formations. When approached by divers it escaped immediately into cavities and holes. In the Kvarner Gulf (Croatia; northern Adriatic Sea) this species is reported to live in similar habitats, but in a wider depth range (from about 6 to 40 m depth) than in Apulia, whereas in the Balearic Islands this goby has been observed at about 40 m depth on sand close to holes and small caves (ANHELT and KOVAČIČ, 1997; PATZNER, 1999).

Density of *T. macrolepis* was between 0.1 and 1 individuals 100 m^{-2} in south-eastern Apulia and about 2 ind. 100 m^{-2} at the Tremiti Archipelago. These values are lower than those reported by ANHELT and KOVAČIČ (1997) for the Kvarner Gulf. Due to its typical habitat and cryptic behaviour, however, it is likely that density of this goby was underestimated by using routine visual census surveys.

The fact that this goby is not reported in the species list of the Italian fish fauna updated in 2003 (www.faunaitalia.it), while it was observed with relatively high frequency and density in many locations along the south-eastern Apulian coast and the Tremiti Archipelago, suggests that this first record in the Italian seas is more likely to be due to the scarcity of experts capable of identifying small gobies than to its actual rarity. This issue has been already stressed with regard to other taxonomic groups of marine animals. GIANGRANDE and LICCIANO (2004), for instance, noted that the geographic distribution patterns of many polychaete species were strictly related to the distribution of the experts of this group, which once again emphasises the discrepancy between the urgent need for improving our understanding of biodiversity, and the persistent and continuous loss of expertise in taxonomy (TERLIZZI *et al.*, 2003).

The increasing number of records of *T. macrolepis* in the Mediterranean Sea, in conclusion, leads to conclude that small goby is likely to be far more common than currently thought.

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