

TOWARDS A CENSUS OF TORRE GUACETO MARINE RESERVE MALACODIVERSITY THROUGH NO-IMPACT METHODS

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Abstract

Methods with no impact on biocoenoses are being used in the Torre Guaceto Marine Reserve (Italy; south-western Adriatic Sea) to describe the biodiversity of its malacofauna. The results of a previous survey on death assemblages of stranded mollusc shells were complemented by data gathered by collection of washed ashore shells, underwater collection of empty shells, and underwater visual census. In this way 30 additional species (10 gastropods, 19 bivalves and 1 cephalopod) were recorded. The overall list of shelled molluscs presently includes 144 species: 96 gastropods, 46 bivalves, 1 scaphopod, and 1 cephalopod.

Keywords : *Adriatic Sea, Biodiversity, Marine Parks, Mollusca.*

Marine Reserves (MR) play an important role in the conservation of marine biodiversity. In order to observe possible changes in biodiversity it is necessary to monitor it through periodical surveys. Standard methods may be harmful to living organisms, hence methods have been developed to study marine biocoenoses that avoid harming biota, such as visual and photographic censuses [1]. In order to investigate the diversity of the malacofauna, one of the main components of the Mediterranean diversity [2], a no-impact method - examination of thanatomalacocoenoses - was tested in the Torre Guaceto MR (Italy, Brindisi province, SW Adriatic Sea). Such a method is based on fidelity, i.e. the manifold verified correspondence between the qualitative compositions of thanatocoenoses and nearby living malacocoenoses [3, 4]. The examination of mollusc shells found in death assemblages of a Torre Guaceto MR beach showed the presence of 114 different species: 86 gastropods, 27 bivalves, and 1 scaphopod [5]. Advantages and disadvantages of such a method have also been dealt with [6, 7]. Indeed, in the case of Torre Guaceto MR, some drawbacks of this technique to document the overall diversity of molluscs were apparent. An implied deficiency was the exclusion from the survey of all shell-less molluscs, which however are just a numerical minority (but photographic surveys of nudibranchs are underway.) An unforeseen and somewhat surprising weakness was the absence in the examined death assemblage samples of many shelled molluscs common in the MR, mainly medium- and large-sized species (from a few to many cm). But also certain micromolluscs were absent, e.g. all members of the Caecidae (Gastropoda: Neotaenioglossa). In fact, most shells belonged to small size species (<1 cm) and only a small fraction was from juveniles of larger species; overall mean size = 5.1 mm [5].

Tab. 1. List of additional shelled molluscs recorded in the Torre Guaceto Marine Reserve. S: shells collected from the beach or the sea floor; A: alive individuals observed underwater.

GASTROPODA	S	A
<i>Haliotis tuberculata</i> Linnaeus, 1758	x	x
<i>Bolma rugosa</i> (Linnaeus, 1767)	x	
<i>Vermetus triquetrus</i> Bivona, 1832	x	x
<i>Luria lurida</i> (Linnaeus, 1758)	x	x
<i>Natica hebraea</i> (Martyn, 1784)	x	
<i>Natica stercusmuscarum</i> (Gmelin, 1791)	x	
<i>Bolinus brandaris</i> (Linnaeus, 1758)	x	x
<i>Hexaplex trunculus</i> (Linnaeus, 1758)	x	x
<i>Stramonita haemastoma</i> (Linnaeus, 1766)	x	x
<i>Fasciolaria lignaria</i> (Linnaeus, 1758)		x
BIVALVIA		
<i>Solemya togata</i> (Poli, 1795)	x	
<i>Glycymeris insubrica</i> (Brocchi, 1814)	x	
<i>Lithophaga lithophaga</i> (Linnaeus, 1758)		x
<i>Pinna nobilis</i> Linnaeus, 1758	x	x
<i>Mimachlamys varia</i> (Linnaeus, 1758)	x	
<i>Pecten jacobaeus</i> (Linnaeus, 1758)	x	
<i>Spondylus gaederopus</i> Linnaeus, 1758		x
<i>Anomia ephippium</i> Linnaeus, 1758	x	
<i>Pododesmus patelliformis</i> (Linnaeus, 1761)	x	
<i>Limaria tuberculata</i> (Oliv., 1792)	x	
<i>Neopycnodonte cochlear</i> (Poli, 1795)	x	
<i>Loripes lacteus</i> (Linnaeus, 1758)	x	
<i>Tellina planata</i> Linnaeus, 1758	x	
<i>Gastrana fragilis</i> (Linnaeus, 1758)	x	
<i>Donax trunculus</i> Linnaeus, 1758	x	
<i>Callista chione</i> (Linnaeus, 1758)	x	
<i>Ruditapes decussatus</i> (Linnaeus, 1758)	x	
<i>Pholas dactylus</i> Linnaeus, 1758	x	
<i>Barnea candida</i> (Linnaeus, 1758)	x	
CEPHALOPODA		
<i>Sepia officinalis</i> Linnaeus, 1758	x	x

In order to improve the checklist of Torre Guaceto shelled molluscs with-

out breaching the no-impact guiding principle, additional data were gathered through the following actions: A) collection of washed-ashore shells during beach-combing; B) hand collection of empty shells on the sea floor during underwater surveys; C) underwater visual census.

In all, 30 species - 10 gastropods, 19 bivalves and 1 cephalopod - were recorded in addition to those already found during the death assemblage survey [5]. They are listed in Table 1.

The checklist of shelled molluscs recorded in the Torre Guaceto MR presently contains 144 species: 96 gastropods, 46 bivalves, 1 scaphopod, and 1 cephalopod. The species recorded correspond to about 22 and 58% respectively of the shelled gastropods and bivalves reported in the south-western Adriatic Sea in the Checklist of the Italian marine fauna [8, 9]. However, one should note that the latter checklist includes many deep-water species, whereas the Torre Guaceto list comprises only infralittoral molluscs.

References

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