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# Occurrence of the alien sea hare *Aplysia dactylomela* Rang, 1828 (Opisthobranchia, Aplysiidae) in Malta.

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**Abstract**

*The alien sea hare Aplysia dactylomela, which is already established in several localities in the central and eastern Mediterranean, is recorded for the first time from Malta on the basis of a specimen photographed at Cirkewwa (northern Malta). It is hypothesised that the occurrence of this species in Malta is a recent event and may be due to range expansion of the species.*

**Keywords:** Alien Mollusca; Opisthobranchia; Maltese Islands; Mediterranean distribution.

## Introduction

The sea hare *Aplysia dactylomela* has a worldwide distribution in tropical to warm temperate waters. The first Mediterranean record of this species was from the central Mediterranean island of Lampedusa where it was first observed in 2002 (TRAINITO, 2003). Since then the species has been recorded from eastern Sicily in 2003 (SCUDERI & RUSSO, 2005), Greece (many records since 2005; ZENETOS *et al.,* 2007), Croatia (TURK, 2006), Cyprus (COOKE, 2005, YOKES, 2005) and southern Turkey (CINAR *et al.* 2006, YOKES, 2006). There are further records from Sicily in 2006 (REITANO, 2006, GRECO, 2006) and 2008 (GRECO, 2008). This note reports the presence of *Aplysia dactylomela* in Malta.

## Methods

One individual was photographed close to the shore at Cirkewwa, north of the island of Malta, by underwater photographer Joseph Herbert on 17 July 2008. These images were sent to the author for identification. The animal depicted is clearly *Aplysia dactylomela* since it has all the gross morphological characteristics of this species, particularly the distinctive yellowish-brown ground coloration with dark rings and reticulations (Fig. 1).

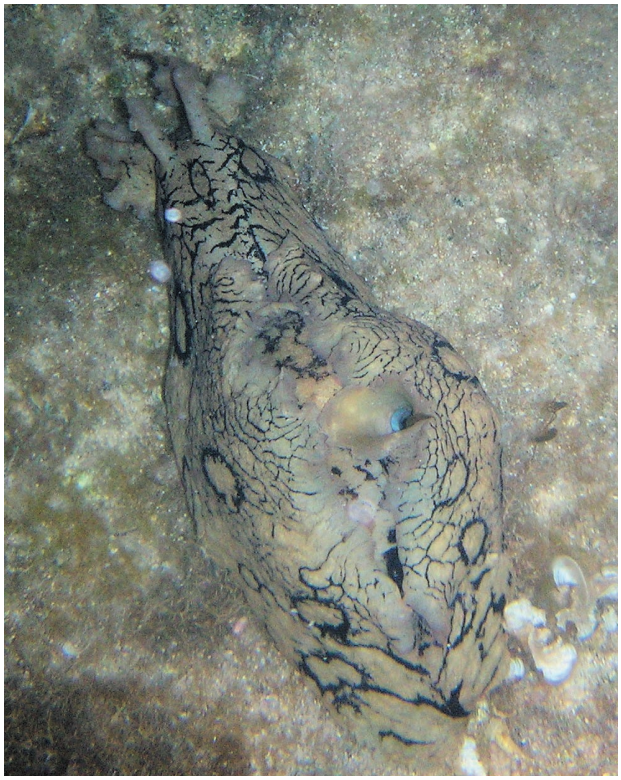

***Fig. 1:*** Underwater photograph of the specimen of *Aplysia dactylomela* from Cirkewwa, Malta, taken by Joseph Herbert on 17 July 2008 at a depth of 9m. The animal is about 30cm long. [© Joseph Herbert 2008].

## Results and Discussion

The specimen photographed, which was the only one spotted, occurred on a mixed bottom of sand and rock with algae, at 9 m depth, and had a length while moving of about 30 cm (Joseph Herbert, personal communication, 2008).

Cirkewwa is one of the most popular dive sites in the Maltese Islands and it is unlikely that such a large and distinctive animal would not have been noted had it occurred before, especially given its colour scheme which is very different from that of native anaspids. For the same reason, it is also unlikely that it would have gone unnoticed had it occurred elsewhere in the Maltese Islands, at least in shallow water, given the hundreds of snorkelers and divers that frequent practically all the accessible coastline of the islands. It is therefore very probable that this species is a recent immigrant to Malta.

Given that so far only one record of a single specimen exists, it is difficult to make any statement regarding its status, thus, employing the terminology of ZENETOS *et al.* (2006), for the moment this species must be regarded as 'casual' in Malta.

One can only speculate as to the mode of introduction. Cirkewwa is frequented by

pleasure craft and is close to the Malta-Gozo ferry route, but there are no ports or yacht marinas in the vicinity, and neither is the site close to international shipping lanes. While marine traffic may be the vector, this species could also have reached the Maltese islands by natural dispersal from the closest established populations, which seem to be those on the islands of Lampedusa and Sicily. It seems that there has been a recent expansion of the Sicilian population (GRECO, 2008), while the veliger of *Aplysia dactylomela* spends a sufficiently long time in the plankton (ca 30 days; SWITZER-DUNLAP, 1978) to allow transport to Malta from Sicilian populations or even those of the Pelagian islands, given the right sea surface currents. However, transport of larvae of any benthic animal between Sicily and Malta is not automatic since in general there is no mixing of water masses flowing past the two islands, but transport depends on occasional movement of surface water from Sicily to Malta due to meandering of the Atlantic Ionian Stream, or the currents set up by the Ionian Shelf Break Vortex, or those by wind-induced upwelling on the southern coast of Sicily (DRAGO & SORGENTE, in press). This may explain why, in spite of thriving populations of *Aplysia dactylomela* occurring in Sicily since at least 2003, it is only now that this species has reached Malta.

Although this is quite a common sea hare, its distribution in the Mediterranean is interesting, and still somewhat puzzling. It is common in the tropical Indian and Pacific Oceans and it is also quite well represented in the Caribbean and in Atlantic Islands along the west coast of Africa. What is surprising is that it had never been recorded from the Mediterranean until about 2002. Why did it take so long to get there and did the Mediterranean populations originate from immigrants from the Atlantic, or from the Red Sea through the Suez Canal (RUDMAN, 2008)?

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