

SHORT COMMUNICATION

New records of the giant ciliate *Zoothamnium niveum* (Protozoa, Peritrichia)

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Wirtz, P. 2008. New records of the giant ciliate *Zoothamnium niveum* (Protozoa, Peritrichia). *Arquipélago. Life and Marine Sciences* 25: 89-91.

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INTRODUCTION

Zoothamnium niveum (Hemprich & Ehrenberg, 1831) is a giant, colonial marine ciliate from sulfide-rich habitats. It is covered with chemoautotrophic sulfide-oxidizing bacteria that give a snow-white appearance to the animal. The feather-like colonies reach a size of up to 1.5 cm (Bauer-Nebelsick et al. 1996; Ott et al. 1998; Clamp & Williams 2006; Rinke et al. 2006, 2007). The species has been reported from rotting plant material in shallow water in the Red Sea, from Florida and the Caribbean, and from Corsica Island (western Mediterranean Sea). It is here reported from the eastern Atlantic, from the eastern Mediterranean Sea and from an additional site in the western Mediterranean Sea.

MATERIAL AND METHODS

All observations were performed SCUBA diving from shallow water down to 60 m depth. Animals were photographed *in situ*, collected and preserved in ethanol. Voucher specimens collected at the Giglio site described below, were deposited in the collection of the Bavarian State collection of Zoology, Munich, Germany (ZSM 20080136).

RESULTS

1) LANZAROTE ISLAND, CANARY ISLANDS, EASTERN ATLANTIC

In front of Puerto del Carmen (28°55'05"N - 13°39'36"W), on 20 April 1995, a large aggregation of *Zoothamnium niveum*, consisting of several hundred "feathers" was observed in 6 m depth. The aggregation grew on the three sides of a rocky depression (Fig. 1). Some loose plant material had aggregated in this depression but no special attention was paid to it at that time.

2) CYPRUS ISLAND, EASTERN MEDITERRANEAN

Zoothamnium niveum was encountered in a small cave in 6.5 m depth near Cabo Greco, south-eastern tip of Cyprus Island (34°57'45"N, 34°04'26"E), on 18 May 2002. The animals were growing on the rock wall of the cave close to cracks in the wall. No rotting plant material was seen anywhere near them. Specimens were sent to the university of Vienna, where the species identification was confirmed (Ott, pers. comm.)

3) GIGLIO ISLAND, WESTERN MEDITERRANEAN

A rotting tree trunk was encountered on sandy bottom in 30 m depth in the bay of Campese (42°22'01"N - 10°53'33"E) on 26 September 2007. *Zoothamnium niveum* was growing on it, close to the line where the wood touched the

sand. A sample attached to an empty *Torpedo* tube sticking out from the wood was collected and deposited in the Bavarian State collection of

Zoology in Munich, Germany. The water temperature at this site was not measured but was estimated to be no more than 19 degrees Celsius.

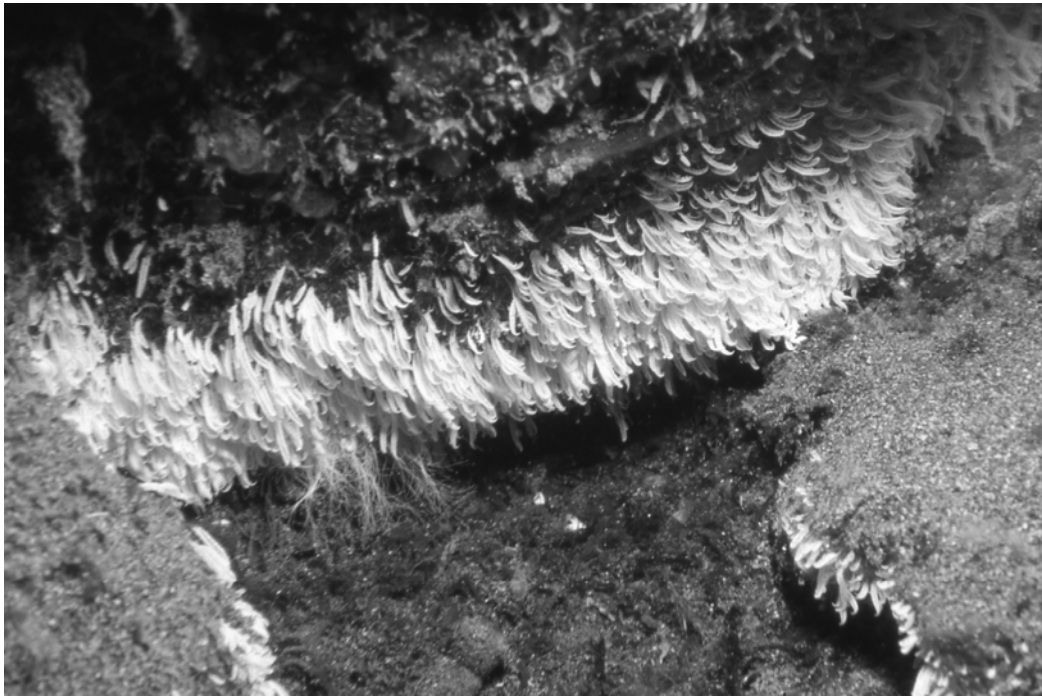


Fig. 1. Dense growth of *Zoothamnium niveum* at Lanzarote Island. Each of the feather-like structures is about 1 cm long.

DISCUSSION

At the Cyprus site, no rotting plant material was in evidence. It appears possible that sulfidic water seeped from the cracks of the cave wall where *Zoothamnium niveum* was growing but rotting plant material may have been present previously and may have somehow been swept away recently. The record in 30 m depth at the Giglio site is the deepest record of the species, which until now has been encountered in a depth range of 0.3 to 14.9 m (Ott et al. 1998; Rinke et al. 2007). The water temperature at this site is also the lowest recorded for *Z. niveum* growth.

As it is growing on short-lived substrates, the species probably is an r-strategist that has widespread and frequent propagules. Colonization by

Zoothamnium occurs through a “swarmer macrozoid” dispersal stage (Bauer-Nebelsick et al. 1996). Ott et al. 1998 wrote “the high growth rate, short life span and the extraordinary habitat locating abilities of the swarmer (M. Bright, J. Ott, unpubl. obs.) are consistent with the life style of a pioneer in gap dynamics”. This, together with the fact that the species has now been found at sites in the western Atlantic, the eastern Atlantic, the Mediterranean Sea, and the Red Sea, indicates that the species is probably common throughout (sub)tropical oceans of the world and has simply been overlooked in other areas until now.

ACKNOWLEDGEMENTS

I am grateful to Renee and Dea van Leeuwen at

Puerto del Carmen, Lanzarote, and to Hubert Böhm at Pernera, Cyprus, for their kind help. The Centro de Ciências do Mar (CCMAR) financed the trip to Cyprus Island.

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Accepted 17 June 2007.