

CAPRELLID (CRUSTACEA) – HOLOTHURIAN (ECHINODERMATA)
ASSOCIATIONS IN THE AZORES

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Caprellid - holothurian associations are described from the Azores, north-eastern Atlantic. *Caprella stella* and *Phtisica marina*, previously encountered with starfish at the island of Faial, Azores, were recorded in large groups (more than 20 animals) on *Holothuria tubulosa* at Monte da Guia, Faial Island, Azores. This is the first description of an association between caprellids and a holothurian

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Descreve-se para as águas açoreanas associações entre os caprelídeos *Caprella stella* e *Phtisica marina* (já encontrados em associação com estrelas-do-mar nos Açores) e o pepino-do-mar *Holothuria tubulosa*. Os caprelídeos foram encontrados em grandes grupos (mais que 20 indivíduos) na superfície do pepino-do-mar. Isto é o primeiro registo de uma associação entre caprelídeos e um pepino-do-mar.

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INTRODUCTION

Most species of caprellid amphipods live among algae, hydroids, sponges or bryozoans, but a considerable number has also been found to live in more specific associations with invertebrates such as gorgonians (cf. CAINE 1974, 1983, LEWBEL 1978, HIRAYAMA 1988), sea anemones (STROOBANTS 1969), large crustaceans (cf. O'BRIEN 1975, GRIFFITHS 1977, BALDINGER 1992) and echinoderms (see below).

Among echinoderms, most known associations are with starfish. Such associations have earlier been reviewed by MCCAIN (1968, 1979), VADER (1979), WIRTZ & VADER (1996). There are a few records of caprellids being found

on sea urchins and on a brittle star (references in WIRTZ & VADER 1996; VOLBEHR & RACHOR 1997). Apparently, no associations involving holothurians have as yet been reported.

MATERIAL AND METHODS

In July 1997, the author was SCUBA diving at Monte da Guia, near Horta, Faial Island, Azores. During these dives, caprellids were seen and photographed on a black holothurian. Two holothurians with caprellids visible on their upper surface were slowly lifted off the substratum and placed into a plastic bag. In the laboratory, the contents of the plastic bag were emptied into a white tray containing freshwater. The freshwater

had the effect of anaesthetising the holothurian and the caprellids. The caprellids dropped off the holothurian and were collected with a forceps and stored in 70 % alcohol. The holothurians were returned to seawater, where they recovered within a few minutes, and were later returned to the sea. One holothurian was sent to Dr. Claude Massin for identification.

RESULTS

Caprellids were seen on holothurians at depths between 15 and 30 m, the latter being the maximum depth searched. Large groups (at least 20 individuals) of white caprellids were seen on the upper surface of the sea-cucumber. A photograph of this association was published by WIRTZ (1998). The caprellids were identified as *Caprella stella* Krapp & Vader, 1998 and *Phtisica marina* Slabber, 1769 by Dr. T. Krapp-Schickel of the Museum Alexander Koenig in Bonn, Germany (KRAPP & VADER 1998). Reference specimens are deposited in the collection of the Museo Civico di Storia Naturale, Verona. The holothurian was identified as *Holothuria tubulosa* Gmelin, 1788 by Dr. C. Massin of the Institut Royal des Sciences Naturelles de Belgique in Brussels, Belgium.

DISCUSSION

The same two caprellid species have previously been found in association with the starfish *Ophidiaster ophidianus* and *Hacelia attenuata*, in the same area (WIRTZ & VADER 1996); the species called *Caprella acanthifera* s.l. in this paper has since been described as a new species, *Caprella stella* Krapp & Vader, 1998.

The large group sizes of the caprellids on their host suggest that these associations are not merely due to spurious encounters. As yet, no studies exist on host recognition and host selection by *Caprella stella* and *Phtisica marina*. The related species, *Caprella linearis* and *C. unica*, have been shown to be chemically attracted to their hosts and to show clear host

selection (PATTON 1968; PEATTIE & HOARE 1981).

When on the red starfish species *Ophidiaster ophidianus* and *Hacelia attenuata*, *Caprella stella* may feed by scraping mucus off the surface of their hosts, as suggested by the pinkish colour of the caprellids (WIRTZ & VADER 1996). Caprellids collected from black holothurians were greyish-white in colour.

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REFERENCES

- BALDINGER, A. J. 1992. Additional records of the bathyal caprellid, *Caprella unguina* Mayer, 1903 (Amphipoda) from the Central California coast. *Crustaceana* 63: 97-100.
- CAINE, E. A. 1974. Comparative functional morphology of feeding in three species of caprellids (Crustacea: Amphipoda) from the northwestern Florida Gulf coast. *Journal of Experimental Marine Biology and Ecology* 15: 81-96.
- CAINE, E. A. 1983. Community interactions of *Caprella penantis* Leach (Crustacea: Amphipoda) on sea whips. *Journal of Crustacean Biology* 3: 497-504.
- GRIFFITHS, C. L. 1977. Deep-sea amphipods from west of Cape Point, South Africa. *Annals of the South African Museum* 73: 93-104.
- HIRAYAMA, A. 1988. A ghost-shrimp with four-articulate fifth pereopods (Crustacea: Caprellidea: Phtisicidae) from Northwest Australia. *Zoological Science* 5: 1089-1093.
- KRAPP-SCHINCKEL, T. & W. VADER. 1998. What is and what is not, *Caprella acanthifera* Leach, 1814 (Amphipoda, Caprellidea) ? Part 1: the *acanthifera* group. *Journal of Natural History* 32: 949-967.

- LEWBEL, G. S. 1978. Sexual dimorphism and intraspecific aggression, and their relationship to sex ratios in *Caprella gorgonia* Laubitz & Lewbel (Crustacea: Amphipoda: Caprellidae). *Journal of Experimental Marine Biology and Ecology* 33: 133-151.
- MCCCAIN, J. C. 1968. The Caprellidea (Crustacea: Amphipoda) of the western North Atlantic. *Bulletin of the United States national Museum* 278: 1-147.
- O'BRIEN, F. X. 1975. *Caprella equilibra* Say, 1818, first report of its occurrence in Massachusetts and its association with the stomatopod *Squilla empusa* Say, 1818. *Crustaceana* 29: 220-221.
- PATTON, W. K. 1968. Feeding habits, behavior and host specificity of *Caprella grabhami*, an amphipod commensal with the starfish *Asterias forbesi*. *Biological Bulletin* 134: 148-153.
- PEATTIE, M. E. & R. HOARE. 1981. The sublittoral ecology of The Menai Strait. II. The sponge *Halichondria panicea* (Pallas) and its associated fauna. *Estuarine, Coastal and Shelf Science* 13: 621-635.
- STROOBANTS, G. 1969. Associations entre des anémones de mer (Anthozoaires) et une Crustacé Amphipode. *Les Naturalistes Belges* 50: 309-313.
- VADER, W. 1979. Associations between amphipods and echinoderms. *Astarte* 11 (1978): 123-135.
- VOLBEHR, U. & E. RACHOR. 1997. The association between the caprellid *Pariambus typicus* Krøyer (Crustacea, Amphipoda) and ophiuroids. *Hydrobiologia* 355: 71-76.
- WIRTZ, P. 1998. Die Reiter auf den Stachelhäutern. *Aquarium Heute* 1993 3:123
- WIRTZ, P. & W. VADER. 1996 A new caprellid-starfish association: *Caprella acanthifera* s.l. (Crustacea: Amphipoda) on *Ophidiaster ophidianus* and *Hacelia attenuata* from the Azores. *Arquipelago. Life and Marine Sciences* 14A: 17-22.

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