

*LATREUTES ANOPLONYX* KEMP, 1914 (CRUSTACEA: DECAPODA: HIPPOLYTIDAE), A JELLY-FISH ASSOCIATE NEW TO THE AUSTRALIAN FAUNA.

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ABSTRACT

This report records the presence of the hippolytid shrimp *Latreutes anoplonyx* Kemp in the Australian fauna, from the Northern Territory and Queensland, and confirms beyond doubt that the species is a genuine associate of scyphozoans.

Keywords: *Latreutes anoplonyx*, Crustacea, Caridea, Hippolytidae, new to Australian fauna, association with Scyphozoa confirmed.

INTRODUCTION

Few caridean shrimps have been reported as associates of scyphozoan coelenterates. One of the first observations of possible association was of the hippolytid shrimp *Latreutes anoplonyx* Kemp, noted by De Man (1929), but the basis of the observation was the discovery of a shrimp "in" a medusa, and not on the study of live shrimps and their host *in vivo*. The present observations appear to be the first of a live hippolytid shrimp in association with jelly-fish hosts.

DESCRIPTION

*Latreutes anoplonyx* Kemp, 1914

Restricted synonymy

*Latreutes anoplonyx* Kemp, 1914: 104-105, pl. 4, figs 3-5; - 1916: 369.

**Material.** 3 females (2 ovig.), Van Diemen Gulf, NT, 36 m, 6 June 1982, FV *Skelton*, NTM Cr.0000191. 22 spms (6 ovig. females), Cameron's Beach, Darwin, NT, 9 March 1978, coll. N.T. Fisheries, NTM Cr.0000191. 28 spms (21 ovig. females), Auckland Creek, Gladstone, Qld., 8 January 1982, coll. P. Saenger, NTM Cr.0002640. 16 spms (no ovig. females), Chambers Bay, Van Diemen Gulf, NT, May 1978, coll. J. Grice, NTM Cr.0007418. 1 male, 1 female, from inner part of Darwin Harbour, about 4.8 km from the wharfs, NT, coll. T. Heeger, 4 June 1993, NTM Cr.010640. 2 males, 2 females, 1 juv.,

mouth of Buffalo Creek, Darwin Harbour, NT, 12 March 1993, 0.75 m, coll. P.N. Alderslade, P. Horner and N. Smit, NTM Cr.0010531.

**Comparative description.** The specimens agree well with the descriptions provided by Kemp (1914, 1916) and Liu (1955), but appear to differ slightly from that figured by Hayashi and Miyake (1968b). The adult Darwin Harbour specimens have 12-14 small, acute, dorsal rostral teeth, with 9-10 similar ventral teeth (Fig. 1). The dentate dorsal margin is feebly concave and the ventral margin straight, with the rostral process appearing acute in lateral view. The proximal dorsal rostral tooth is of similar size to the rest of the series, in contrast to the material from the Amakusa Islands, in which it appears distinctly larger than the rest of the series. The rostrum also appears much deeper and less acute, with the distal dorsal border straight and not concave. In the specimens illustrated by Liu, the rostrum also appears much deeper than in the Australian specimens, and in his ovigerous female both dorsal and ventral margins appear distinctly convex. The dactyls of the ambulatory pereiopods are less strongly spinose than those illustrated by De Man (1929). The ventral margin of the corpus bears only two small spinules, instead of four as shown by De Man and described by Hayashi and Miyake (1968a), but also noted with two spinules (Hayashi and Miyake 1968b) for the fourth pereiopod. The unguis is cornified and only feebly distinct from the corpus.

**Measurements.** The largest adult female specimen from Darwin Harbour has a postorbital carapace length of 13.5 mm and a total body length of

27.0 mm. The largest specimens were from Gladstone, with a postorbital carapace length of 21.9 mm and a total body length of 47.0 mm.

**Colouration.** The colour pattern of the live shrimps (Fig. 2), not previously reported, closely matches that of the host scyphozoan and is clearly of a cryptic nature. The general colouration is a dull reddish brown. The distal half of the rostrum is a deeper red, with yellow dots proximally; the proximal half colourless. The carapace has a narrow transverse white bar on the anterior cardiac region, curving anteroventrally to fade out on the central branchiostegite. Anteriorly, the carapace is dark red dorsally, with large white spots; posteriorly the carapace is pale red, with scattered darker spots; extending, on to the lower branchiostegite. The abdominal segments are similarly coloured, each having a narrow transverse white bar extending onto the central or lower pleuron, with a narrow, dark red band posteriorly and a broader, paler area anteriorly; the posterior two-thirds of the sixth segment and the caudal fan are colourless. The proximal part of the rostrum, antennule and antenna, and the second to fifth pereopods are similarly colourless although the meri of the ambulatory pereopods are feebly spotted with red. The basipodites of the pleopods are similarly speckled with red. The basicerite, third

maxilliped and first pereopod are all reddish. The cornea is pallid. The colour pattern is less conspicuous in the smaller males.

**Hosts.** *Phyllorhiza punctata* von Lendenfelt, (Mastigiidae), and *Versuriga anadynomene* (Maas), (Versurigidae) [Coelenterata: Scyphozoa]. The associations with *Phyllorhiza* and *Versuriga* represent new host records.

**Behavior.** The Buffalo Creek shrimps were collected from two specimens of the jelly-fish host obtained by bucket from surface water over 0.75 m depth. The larger jelly-fish had a bell diameter of about 150 mm, and the shrimps were first seen swimming between hosts in the container. The inner Darwin Harbour specimens were collected from a surface swimming specimen of *Versuriga*, over water of uncertain depth. They were observed alive, moving actively around over the subumbrellar surface and rather lethargically over the tentacles.

**Distribution.** The species was first described by Kemp (1914) from specimens from Bombay, with subsequent specimens from Bombay and from off the coast of Myanmar, at a depth of 13-15m. Further records have been from Indonesia (De Man 1929), Tanjung Krawang, east of Jakarta, Java; (Holthuis 1947), Jakarta and off Panaroekan, eastern Java; China (Liu 1955),

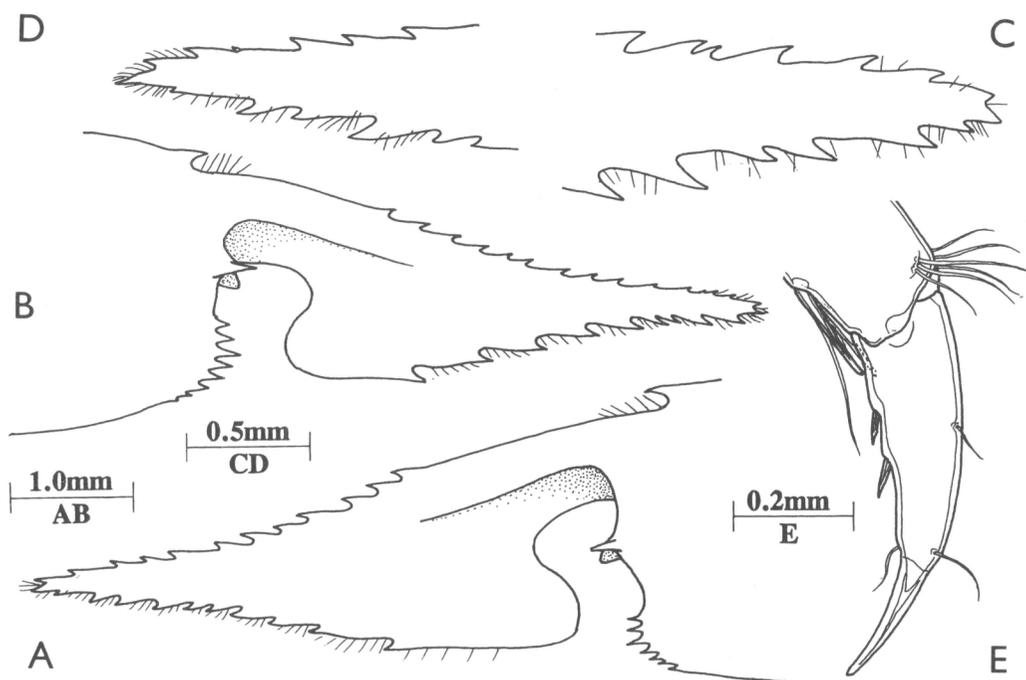


Fig. 1. *Latreutes anoplonyx* Kemp, Buffalo Creek, Darwin. Anterior carapace and rostrum. A, male; B, smaller female, tip of rostrum; C, larger female; D, male; E, dactyl of third pereopod, female.

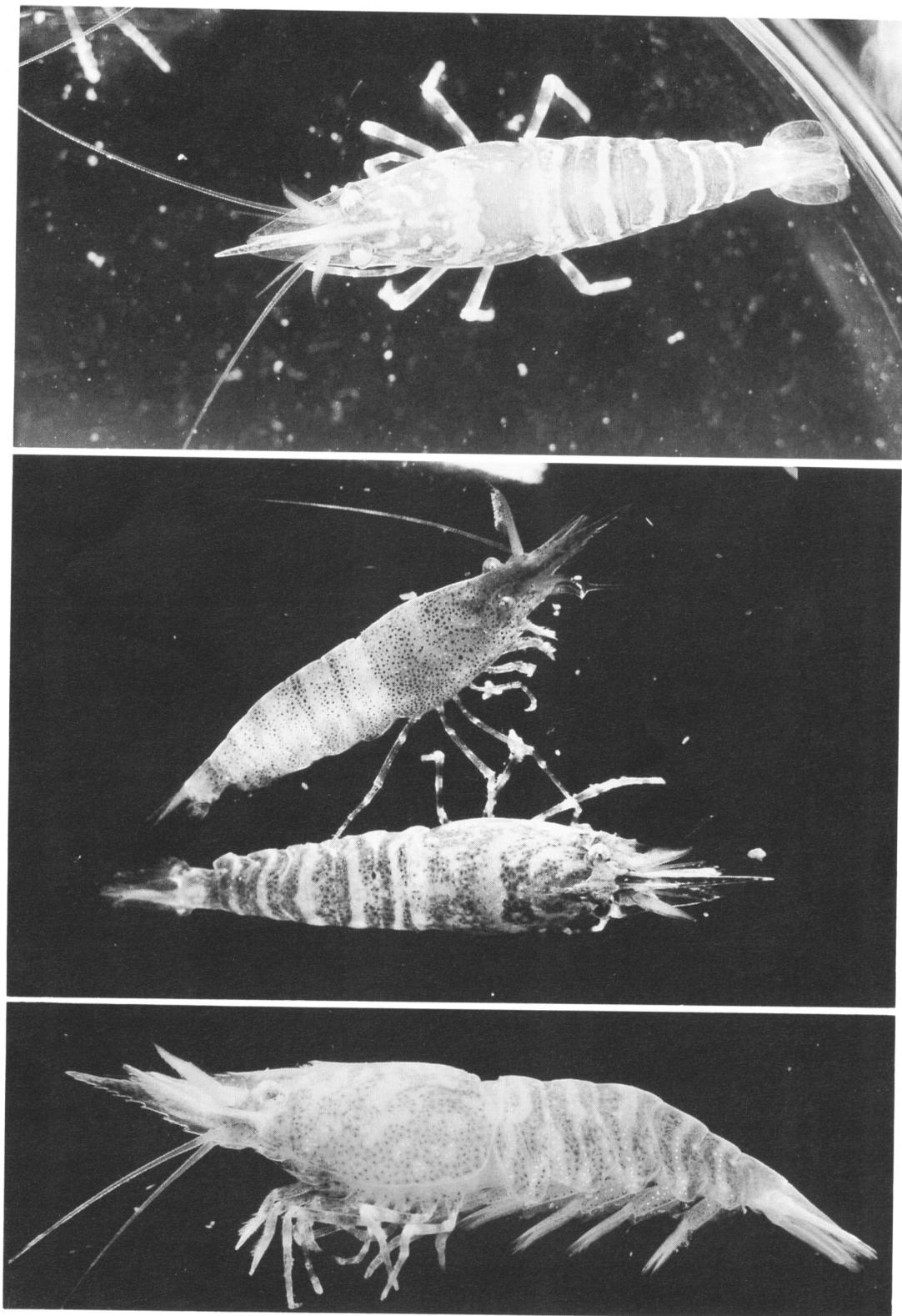


Fig. 2. *Latreutes anoplonyx* Kemp. A, female, Buffalo Creek, Darwin; B, male and female, Darwin Harbour; C, female, Darwin Harbour. Photographs by A. J. Bruce.

Liaoning, Hopei, Shantung and Kiangsu provinces; Singapore (Johnson 1961); Japan (Hayashi and Miyake 1968a), Tanabe Bay; ( Hayashi and Miyake 1968b), Amakusa Islands.

**Remarks.** The possible association of this species with scyphozoan hosts was first suggested by De Man (1929), whose specimens, three females, were found "in" a jelly-fish, a specimen of *Rhizostoma* (?). One of Holthuis' (1947) specimens was found in the subgenital cavity of *Acromitus flagellatus*. The specimens of Liu (1955) were associated with *Rhopilema esculenta*. Hayashi and Miyake (1968a) reported an association with *Mastigias papua*. Details of the collection of these specimens were not provided and it is likely that the material was obtained from trawl catches, with the possibility that the associations were accidental, the result of the shrimps and the jelly-fish sharing the same habitat. There appear to have been no observations on the shrimps in life. The specimens here described were collected by hand, with a bucket, in the course of a survey for shallow water toxic cubomedusae, and were immediately observed on the host. The colour pattern of the shrimps closely resembles that of the host animals, which are also heavily mottled with brown patches.

#### DISCUSSION

Associations between shrimps and jelly-fish are uncommon. Hayashi and Miyake (1968a) suggested that *Chlorotocella gracilis*, a pandalid shrimp, and *Latreutes mucronatus* were also jelly-fish associates. The real habitat of the former species seems rather uncertain although it is quite common in tropical waters. It is frequently found in numbers in association with *Periclimenes psamathe* De Man on gorgonian hosts, as well as in plankton samples taken at night. *Latreutes mucronatus* is a common shrimp in sea grass beds and is particularly likely to be collected when jelly-fish are sampled by trawl. Two pontonine shrimps have been reported as jelly-fish associates, both on the basis of direct underwater observation. *Periclimenes holthuisi* is frequently associated with the sedentary shallow water *Cassiopea* species (Bruce 1972). The only known specimen of *Periclimenes tonga* was also observed *in situ* on its unidentified host jelly-fish (Bruce 1989).

The specimens from FV *Skelton* were caught by trawl from water with a depth of 36.6 m, the greatest depth from which this species has been recorded. It is possible that, as few examples were obtained, these specimens may have been from a jelly-fish caught near to the water surface. The

other specimens were probably from shallow water and their larger numbers suggest that they were collected from the bottom.

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#### REFERENCES

- Bruce, A.J. 1972. An association between a pontoninid shrimp and a rhizostomatous scyphozoan. *Crustaceana* **23**(3): 300-302.
- Bruce, A.J. 1989. *Periclimenes tonga* sp. nov., a commensal shrimp associated with a scyphozoan host from Tonga (Crustacea: Decapoda: Palaemonidae). *Micronesica* **21**(1988): 23-32.
- Hayashi, K.-I., and Miyake, S. 1968a. Three caridean shrimps associated with a medusa from Tanabe Bay, Japan. *Publications from the Seto Marine Biological Laboratory* **16**: 11-19.
- Hayashi, K.-I., and Miyake, S. 1968b. Studies on the hippolytid shrimp fauna of Japan, V. Hippolytid fauna of the sea around the Amakusa Marine Biological Laboratory. *Ohmu, Occasional Papers of the Zoological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka, Japan* **1**(6): 1212-163.
- Holthuis, L.B. 1947. The Decapoda of the Siboga Expedition. X. The Hippolytidae and Rhynchocinetidae collected by the Siboga and Snellius Expeditions with remarks on other species. *Siboga Expedition Monograph* **39a**(8): 1-100.
- Johnson, D.S. 1961. Prawns of the Malacca Straits and Singapore waters. *Journal of the Marine Biological Association of India* **18**(1): 1-54.
- Kemp, S. 1914. Notes on Crustacea Decapoda in the Indian Museum. V. Hippolytidae. *Records of the Indian Museum* **10**: 81-129.
- Kemp, S. 1916. Notes on the Crustacea Decapoda in the Indian Museum. VII. Further notes on Hippolytidae. *Records of the Indian Museum* **12**: 385-405.
- Liu, J.Y. 1955. *Economic shrimps and prawns of northern China*. Marine Biological Institute, Academy of Sciences, Peking, pp.i-iii, 1-73, pls 1-24 (in Chinese).
- Man, J.G.de. 1929. On a small collection of Decapoda, one of which a *Crangon*, caught by the Danish Pacific Expedition at the Jolo Islands, is new to science. Papers from Dr.Th. Mortensen's Pacific Expedition 1914-1916. *Videnskabelige Meddelelser fra Dansk naturhistorisk Forening i København* **87**: 105-134.

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