J. mar. biol. Ass. India, 1985, 27 (1 & 2) : 158-162

'S.I. DOTY PHILIPPINE PROJECT 1967' COLLECTION OF CUMACEA IN THE SMITHSONIAN INSTITUTION, WASHINGTON*

A. RADHADEVI AND C. V. KURIAN**
Kerala Varma College, Trichur
** *School of Marine Sciences, Cochin*-682 016

ABSTRACT

The paper deals with 12 species of Cumacea obtained from 8 stations in the seas around Philippines. All the 49 specimens were obtained in benthic collections from mangrove and coral areas. The species belong to the family Nannastacidae and most of them have affinity with the fauna of the Gulf of Siam and Annam.

INTRODUCTION

THE PRESENT paper deals with the Cumacea obtained from Philippine Islands collected by 'SI-Doty Philippine Project' during 1967 and deposited in the Smithsonian Institution. The samples were benthic and the stations were located in the mangrove and coral areas (Fig. 1). Only one family-Nannastacidae is represented and the specimens come under the genera *Nannastacus*, *Cumella* and *Campylaspis*. All identified specimens are deposited in the Smithsonian Institution, Washington.

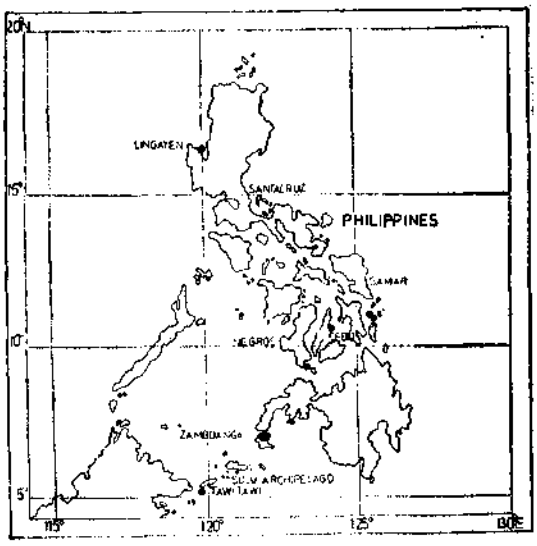

FIG. 1. The stations in the seas around Philippine Islands from where Cumacea specimens were collected.

The work was carried out in the Pelagic Fisheries Laboratory of CMFRI as part of the scheme on Cumacea sanctioned by the ICAR. The authors are thankful to the Director of CMFRI for providing necessary facilities for carrying out the investigation. Our thanks are due to Smithsonian Institution, Washington for arranging the supply of the above specimens for our study.

The following 12 species were present in the collection consists of 49 specimens.

FAMILY: *NANNASTACIDAE*

Schizotrema sordidum Calman
Nannastacus zimmeri Calman
Nannastacus gibbosus Calman
Nannastacus reptans Calman
Nannastacus minor Calman
Nannastacus tardus Calman
Nannastacus lepturus Calman

* Part of the Ph.D. thesis by A. Radhadevi, the CUniversity of ochin, Cochin.

Nannastacus subinflatus Hale
Nannastacus johnstoni Hale
Cumella hispida Calman
Campylaspis glabra Sars

Schizotrema sordidum Calman

Schizotrema sordidum, Calman, 1911, *Trans. Zool. Soc. London*, **18, 4**, pp. 341, 363, figs. 22-24. Stebbing, 1913, *Das Tierreich*, **39**, p. 167.

Locality : Philipines, Lat. 11° 05′N, Long. 125° 39′E, 10-9-1967 1♀ 1.3 mm.

Female : Carapace with scattered long hairs ; branchial siphons well marked. Free thoracic somites broad and lateral plates well defined. Peraeopods 3-5 slender. Peduncle of uropod short with four inner marginal spines and numerous spinules in between ; exopod one-seventh of endopod and terminal spine reaches nearly upto endopod.

Distribution : Gulf of Siam, depth 2 m.

Nannastacus zimmeri Calman

Nannastacus zimmeri, Calman, 1911, *Trans. Zool. Soc. London*, **18, 4**, pp. 341, 252, *figs.* 4. 15. Stebbing, 1913, *Das Tierreich*, **39**, p.169.

Locality : Philippines, Lat. 05° 05′N, Long. 119° 58′E, 23-9-1967, 1♂ 1.8 mm.

Male : Carapace granular ; pseudorostrum short ; peraeopods 1-4 with broad bases. Fifth peraeopod slender and its carpus not long as in the previous record of Calman, but longer than propodus or dactylus. Peduncle of uropod little shorter than telesonic somite ; endopod nearly thrice as long as peduncle and provided with seven inner marginal spines ; the space in between the spines highly serrated, exopod one-seventh of endopod and terminal spine long and reaches beyond three-fourths of endopod which bears no spines.

Distribution : Trincomali, Sri Lanka, surface.

Nannastacus gibbosus Calman

Nannastacus gibbosus, Calman, 1911, *Trans. Zool Soc. London* **18, 4**, pp. 355/356, Figs. 16-21. Kurian, 1954, *Rec. Indian Mus.* **52**, parts 2-4, p. 310, Gamo, 1963, *Sci. Rep. Yokoma Nat. Univ.*, Sec. 2, pp. 45-48, figs. 11, 12.

Locality : Phillippine Lat. 06° 56′N, Long. 112° 11′E, 19-9-1967, 9 ♀♀ (5 ovigerous) 1.6-1.9 mm ; Lat. 09° 14′N, Long. 123° 28′E, 28-9-1967, 2 ovigerous ♀♀ 2.3 mm ; Lat. 05° 05′ N, Long. 119° 58′E, 23-9-1967, 3 ♀♀ (1 ovi.) 1.6 mm ; Lat. 11° 01′N, Long. 125° 41′E, 11-9-1967, 1 ♀, Lat. 06° 53′13″N, Long. 122° 02′ 02″ E, 16-9-1967, 1 ovi. ♀, 1.8 mm.

Female : Pseudorostrum short ; antero-lateral margin of carapace deeply concave and provided with spines ; short hairs seen on the surface of the carapace. Peduncle of uropod little longer than telsonic somite; endopod more than twice as long as penduncle, with five inner marginal spines and a long terminal spine. Exopod one-eighth of endopod and terminal spine reaches three-fourths of endopod.

Distribution : Gulf of Siam, Madagascar, Andamans.

Nannastacus reptans Calman

Nannastacus reptnns, Calman, 1911, *Trans. Zool. Soc. London*, **18, 4**, pp. 356-357, figs. 22-28.

Locality : Philippines, Lat. 06° 52′ N, Long. 122° 04′ 22″ E, 18-9-1967, 2 ♀♀ 0.9-1 mm.

Female : Pseudorostral lobes long and turned upwards. Telsonic somite shorter than peduncle ; endopod of uropod twice the length of the peduncle and provided with four marginal spines ; exopod very short and its terminal spine reaches half the length of endopod without spine.

Distribution : Gulf of Siam.

Nannastacus minor Calman

Nannastacus minor, Calman, 1911, *Trans. Zool. Soc. London*, **18, 4**, pp. 341, 357, Figs. 1-3. Stebbing 1913, *Das Tierreich*, **39**, p. 171.

Locality : Philippines, Lat. 06° 52′ 00″ N, Long. 122° 04′ 22″E, 18-9-1967, 1 ♀ 0.8 mm ; Lat. 05° 05′N, Long. 119° 58′E, 23-9-1967, 2 ♀♀ (1 ovi.) 1.1-1.6 mm.

Ovigerous female : Closely resembles the type ; pseudorostrum short, lobes slightly upturned ; carapace granular. Peraeopods 1 & 2 with broad bases, 3rd, 4th, 5th peraeopods slender. Peduncle of uropod short ; endopod more than twice as long as peduncle, with four marginal spines ; terminal spine reaches nearly to the end of endopod exclud ng its terminal spine.

Distribution : Gulf of Siam.

Nannastacus tardus Calman

Nannastacus tardus, Calman, 1911, *Trans. Zool. Soc. London*, **18. 4**, pp. 359-360, figs. 4-11.

Locality : Philippines, Lat. 06° 56′N, Long. 122° 11′E, 19-9-1967, 1 ♀ (ovigerous) 1.7 mm.

Ovigerous female : Carapace broad, highly granular, lower edge of antero-lateral corner serrated. Basis of first peraeopod not long, propodus longer than carpus, basis of second peraeopod as long as the other segments combined together. The lateral plates of pedigerous somites and first four pleon somites provided with long hairs. Peduncle of uropod little shorter than telsonic somite ; its inner margin highly serrated ; endopod of uropod twice as long as peduncle, with four marginal spines, exopod very short.

Distribution : Gulf of Siam.

Nannastacus lepturus Calman

Nannastacus lepturus Calman, 1911, *Trans. Zool. Soc. London*, **18, 4**, pp. 341, 352, figs. 1-3. Stebbing, 1913, *Das Tierreich* **39**, p. 171.

Locality : Philippines, Lat. 06° 52′ 00″N, Long. 122° 04′ 22″E, 18-9-1967, 2 ♂♂ 1.1 & 1.7 mm.

Male : Pseudorostral lobes upturned. Uropod differs from the type description, peduncle less than twice as long as telsonic somite and not twice as endopod. Endopod with seven or eight spines on the inner margin, one-third of the endopod with a long terminal spine.

Distribution : Suez Canal.

Nannastacus subinflatus Hale

Nannastacus subinflatus, Hale, 1945, *Rec. S. Austral. Mus.* **8, 2**, pp. 162-165, figs. 12, 13.

Locality : Philippines, Lat. 11° 01′N, Long. 125° 41′E, 11-9-1967, a ovigerous ♀ 1.9 mm.

Female : Carapace oval and granulate, first three pedigerous somites concealed by the overhanging cehalothorax. Last pedigerous segment and first pleon segment provided with a pair of dorsal spines. Peduncle of uropod slightly longer than telsonic somite ; endopod more than twice as long as peduncle, with five inner marginal spines, exopod very short ; its terminal spine reaches three-fourths the endopod without spine.

Distribution : S. and W. Australia.

Nannastacus johnstoni Hale

Nannastacus johnstoni, Hale, 1945, *Rec. S. Austral. Mus.*, **8, 2**, pp. 165-168, figs. 14, 15. Kurian, 1954, *Rec. Indian Mus.* **52**, parts 2-4, p. 310.

Locality : Philippines, Lat. 10° 24′N, Long. 124° 00′E, 8-9-1967, 1 ♀ 1.7 mm ; Lat. 05° 05′N, Long. 119° 58′E, 23-9-1967, 11 ♀♀ (3 ovigerus) 1.9 mm ; Lat. 09° 18′N, Long. 123° 18′E, 30-9-67, 1 immature ♂ 1.1 mm ; Lat. 16° 22′N, Long. 120° 00′E, 4-9-1967, 2 ♀♀ 1.5, 1.6 mm.

Female : Closely resembles type description. Body transparant, antero-lateral margin of carapace concave. Uropod with endopod more than twice as long as peduncle, with three

inner marginal spines ; the space in between highly serrated; exopod one-eighth of endopod, reaches more than half the length of endopod without spine. *Immature male.* Difference is noticed only in the number of spines in the endopod, endopod with four spines and distal spine reaches three-fourths of endopod.

Distribution : New South Wales, Sydney, Queens land, Andamans.

Cumella hispida, Calman

Cumella hispida, Calman, 1911, *Trans. Zool. Soc. London*, **18**, **4**, pp. 341, 347, figs. 15-18. Stebbing, 1913, *Das Tierreich*, **39**, pp. 181-182. Hale, 1945, *S. Austral. Mus.*, **8**, **2**. p. 176, fig. 21.

Locality : Philippines, Lat. 06° 56′N, Long. 122° 11′ E, 19-9-1967, 1 ovigerous ♀ 2 mm ; Lat. 11° 05′N, Long. 125° 39′E, 10-9-1967, 1 ♀ 1.9 mm ; Lat. 05° 05′N Long. 119° 58′E, 23-9-1967, 2 ovigerous ♀♀ 1.3, 1.7 mm.

Ovigerous female : Cephalothorax granular, with cluster of thorns clubbed together just below the median eye on either side. There are two small median teeth in the front half of the carapace in some specimens as in the previous records. Carpus of fifth peraeopod longer than propodus, but not as long as basis or much longer than propodus as described by Calman. Peduncle of uropod short ; endopod longer than peduncle with two marginal spines ; exopod three-fourths the endopod.

Some of the ovigerous females examined show 3-24 eggs.

Distribution : Gulf of Siam.

Campylaspis glabra Sars

Campylaspis glabra, Sars, 1879, *Arch. Math. Naturvid Kristiania*, **4**, p. 77, figs. 44-47. Stebbing, 1913, *Das Tierreich*, **39**, pp. 191-192, fig. 128, Jones, 1974, *Bull. Br. Mus. nat. Hist. (Zool.), London*, **27**, **6**, pp. 252, 261.

Locality : Philippines, Lat. 05° 05′N, Long. 119° 58′E, 23-9-1967, 1 ♀ 1.7 mm.

Female : A faint dorso-median carina on the ovoid and granulate carapace. Merus, carpus and propodus of third maxilliped highly serrated on the inner margin as in the previous records, dectylus of second peraeopod twice as long as propodus, but slightly shorter or as long as the carpus and propodus combined together. Peduncle of uropod thrice as long as telsonic somite, without spines or serration ; endopod slightly longer than exopod, with three strong inner marginal spines and two unequal terminal spines, terminal spine of exopod longer than that of endopod.

Distribution : Mediterranean, N. of England, Norway, W. Africa.

Campylaspis minor Hale

Campylaspis minor, Hale, 1945, *Rec. S. Austral. Mus.* **8**, **2**, pp. 197-199, figs. 35-36, Kurian, 1957, *Bull. Centr, Res. Inst. Univ. Travancore (C)*, **2**, **1**, pp. 110-111.

Locality : Philippines, Lat. 06° 56′N, Long. 122° 11′E, 19-9-1967, 1 ♀ 1.4 mm.

Female : Closely agrees with type description. Carapace as wide as long and ovoid in shape with well marked lateral folds on the sides and with a faint reticulate pattern. Carapace agrees with the description of Kurian (1957). Peduncle of uropod twice as long as telsonic somite, with fine serration ; endopod of uropod with two marginal spines and two unequal terminal spines.

Distribution : Queensland - Moreton Bay, Trivandrum.

Conclusion

The Cumacea from the Philippine coasts in the present investigation are essentially benthic forms from a substratum of corals and mangrove vegetation. The Great Santacruz Island and Zamboanga where Cumacea are distributed in large numbers, are filled with algal masses, where as in Sacol Island, certain

parts of Zamboanga and Sulu Archipelago, the substratum is predominantly sandy with thin film of mud and rich growth of mangrove plants.

Only a single family Nannastacidae, is represented in the present collection and the representatives of the genera *Nannastacus* and *Cumella* dominate in number. It is interesting to note that the cumacean fauna of the Philippine coasts shows its closest affinity with the fauna of Gulf of Siam and Annam. Out of the twelve species dealt with, six had been recorded previously from Gulf of Siam and Vietnam Coast (Annam) and three had been from the Australian Coasts. *Nannastacus lepturus* and *N. subinflatus* were found to be new records in the Pacific Ocean.

References

CALMAN, W. T. 1911. On new or rare Crustacea of the order Cumacea from the collection of the Copenhagen Museum. Part II. The families Nannastacidae and Diastylidae. *Trans. Zool. Soc. London.* **18** (4) : 298-311.

GAMO, S. 1963. On the Cumacean Crustacea obtained from Amami-Oshima Island, Southern Japan, *Sci. Rep. Yokohama Nat. Univ.*, (Ser. 2), **10** : 29-60.

HALE, H. M. 1945. Australian Cumacea, No. 9. The family Nannastacidae. *Rec. S. Austral, Mus.*, **8** (2) : 145-218.

JONES, N. S. 1974. *Campylaspis* species (Crustacea : Cumacea) from the deep Atlantic. *Bull. Br. Mus. nat. Hist. (Zool.)*, **27** (6) : 249-300.

KURIAN, C. V. 1951. The Cumacea of Travancore. *Bull. Centr. Res. Inst. Univ. Travancore* (C), **2** (1) : 77-118.

——— 1954. Notes on Cumacea (Sympoda) in the Zoological Survey of India. *Rec. Indian Mus.*, **52** (2-4) : 275-312.

RADHADEVI, A. 1983. Ph. D. Thesis, Cochin University, Cochin.

SARS, G. O. 1879. Middelhavets Cumacer. *Arch. Math. Naturvid. Krisstiania*, **4** (2) : 1-126.

STEBBING, T. R. R. 1913. Cumacea 'Sympoda.' *Das Tierreich*, **39** : 1-210.