

FOUR SPECIES OF *CARIDINA* FROM TRAVANCORE, INCLUDING  
A NEW VARIETY

By R. S. Pillai\*

Department of Zoology, University College, Trivandrum

THIS paper deals with four shrimps of the genus *Caridina* collected from various parts of Travancore during the course of an investigation on the anatomy of *Caridina laevis* Heller, from 1954 to 1958. Of these, one is a new variety of *C. nilotica* (Roux) while the other three viz., *C. levis* Heller, *C. gracilirostris* de Man and *C. weberi* de Man var. *sumatrensis* de Man, have been reported by Natarajan (1942). These are briefly redescribed here since Natarajan had merely listed them.

SYSTEMATICS

1. *Caridina laevis* Heller

*Caridina laevis* de Man, 1892, p. 376.

*Caridina laevis* Ortmann, 1895, p. 404.

*Caridina laevis* Bouvier, 1904, p. 131.

*Caridina laevis* Kemp, 1918 b, p. 289.

*Locality and habitat*—Small ponds and fairly large brackish water lakes with plenty of vegetation in Trivandrum ; tanks and ponds in Kilikollur ; paddy fields of Ayiramthengu.

*Description*—Largest female 16.6 mm. Colour not specific. Rostrum bears 15 to 22 upper teeth of which 4 to 5 postorbital, 4 to 8 ventral teeth. Carpus of first pereopod 2.6 to 2.7 times as long as broad, its chela 2.3 to 2.6 times as long as broad, finger 1.3 to 1.4 times the length of the palm. Carpus of second pereopod 6.5 to 7.4 times and its chela 4 times as long as broad. Propodus of third leg 12.5 to 12.7 times as long as broad and 3.7 to 3.8 times the length of dactylus. Propodus of fifth pereopod 15.5 to 16.7 times as long as broad and 2.7 to 2.8 times the length of dactylus. Dactylus has 58 to 64 spinules. Eggs large, 0.87/0.55 mm. Maximum number observed is 46.

Pa 1/C	..	0.76 to 0.79
Pr P3/C	..	0.46 to 0.48
Pr P5/C	..	0.53 to 0.55
6 Sa/C	..	0.55 to 0.57
Digit P3/Pr P3	..	0.22 to 0.23
Digit P5/Pr P5	..	0.35

(C. Postorbital length of carapace; Digit. dactylus; P3 and P5. Pereiopods 3 and 5; Pr. propodus; Pa 1. preorbital length of the antennular peduncle; 6 Sa. dorsal length of sixth abdominal segment.)

\*Present address : Zoological Survey of India, 34 Chittaranjan Avenue, Calcutta-12.

*Remarks*—These characters agree with previous descriptions except in the number of spinules on the dactylus of the fifth pereopod. Bouvier (1925) gives it as 90 to 100 and de Man (1908 a) as 75 to 78. Its dactylus also appears to be shorter. *C. laevis* differs from *C. propinqua* de Man in body size, proportion between finger and palm of first cheliped, carpus and chela of second pereopod, propodus of third pereopod etc.

## 2. *Caridina gracilirostris* de Man

*Caridina gracilirostris* Nobili, 1900, p. 477.

*Caridina gracilirostris* Roux, 1904, p. 555.

*Caridina gracilirostris* Bouvier, 1905, p. 72.

*Caridina gracilirostris* Kemp, 1908 b, p. 282.

*Locality*—Veli lake.

*Description*—Largest female 34 mm. Colour pattern distinctive. 9 to 10 upper rostral teeth, one always subspical, 22 to 25 ventral teeth. Carpus of first cheliped 1.7 times and its chela 2.2 to 2.3 times as long as broad, finger 1.3 times as long as the palm. Carpus of second cheliped 4 times and its chela 2.8 times as long as broad. Propodus of third pereopod 10.4 times longer than broad and 4.7 to 4.9 times the length of dactylus. Propodus of fifth pereopod 18 times as long as broad and 3.9 times the length of dactylus. Dactylus with about 35 spinules. Eggs small 0.45-0.52/0.29-0.32 mm. and number from 250 to 300.

Pa 1/C	..	..	0.76 to 0.79
Pr P3/C	..	..	0.38 to 0.40
Pr P5/C	..	..	0.45 to 0.47
6 Sa/C	..	..	0.75 to 0.80
Digit P3/Pr P3	..	..	0.2 to 0.24
Digit P5/Pr P5	..	..	0.24 to 0.26

(Abbreviations as in *C. laevis*).

*Remarks*—Kemp (1918 b) states that they are comparatively rare forms. But during the months of May, June and July they are so abundant that a few dips with an ordinary butterfly net among the weeds would fetch more than a hundred specimens.

## 3. *Caridina weberi* de Man var. *sumatrensis* de Man

*Caridina weberi* var. *sumatrensis* Nobili, 1900, p. 476.

*Caridina weberi* var. *sumatrensis* Bouvier, 1905, p. 83.

*Caridina weberi* var. *sumatrensis* Kemp, 1918 a, p. 99.

*Locality and habitat*—Collected from the bottom of the Zoological garden pond, Trivandrum, with decomposing foliage and silt.

*Description*—When collected they were black in colour with white blotches on the well spread uropod. This colour was lost in the aquarium and they became translucent. Largest female 22 mm. 18 to 20 upper rostral teeth (24 in one specimen) of which 5 to 6 postorbital, 4 to 9 ventral teeth. Carpus of first cheliped and its chela 1.8 to 2 times as long as broad, finger 1.1 times as long as palm. Carpus of second

cheliped 6.7 times and its chela 3 times as long as broad. Propodus of third pereiopod 5 to 5.2 times longer than broad and 4.5 times the length of dactylus. Propodus of fifth pereiopod 11 to 13 times as long as broad and 4.6 to 4.9 times the length of dactylus. Dactylus has about 40 spinules. Eggs average 0.46/0.28 mm.

Pa 1/C	..	..	0.57 to 0.62
Pr P3/C	..	..	0.32 to 0.35
Pr P5/C	..	..	0.47 to 0.52
6 Sa/C	..	..	0.46 to 0.55
Digit P3/Pr P3	..	..	0.20 to 0.25
Digit P5/Pr P5	..	..	0.25 to 0.28

(Abbreviations as before).

*Remarks*—These forms are scarce and closely agree with description of var. *sumatrensis* by others. Largest female specimen obtained by Natarajan (1942) measured only 15.5 mm. These might have been immature ones as no ovigerous females were obtained.

#### 4. *Caridina nilotica* (Roux) var. *veliensis* var. nov.

*Locality*—6 specimens were taken from the Veli lake, Trivandrum, together with many specimens of *C. gracilirostris* in 1957.

*Description*—Colouration not distinctive. Females measure from 31 to 35 mm. Rostrum 6 to 8 mm. long, exceeds antennular peduncle by one-third of its length, tip slightly upturned as in *C. gracilirostris*, 16 to 18 proximal dorsal teeth of which 2 are postorbital, apical half unarmed except for one or two subapical teeth, ventral teeth about 12. Antennular peduncle extends beyond teeth-bearing zone, its second segment longer than the distal segment by one-third of its length. Carpus of first cheliped very slender, the proportion between its length and breadth 2.8, chela about 2.3 times as long as broad, finger 1.4 times as long as palm. Carpus of second cheliped longer and more slender being 6.4 times as long as broad, chela almost as long as that of first cheliped but more slender being 3 times as long as broad, finger only slightly longer (0.3) than the palm. Propodus of third pereiopod about 13 times as long as broad, proportion between its length and that of its dactylus 4.5, dactylus bears 9 spinules (inclusive of terminal claw). Propodus of fifth pereiopod more than 17 times as long as broad, proportion between its length and that of dactylus 3.6, dactylus bears about 48 to 49 spinules. Eggs very small, largest dimensions being 0.39/0.26 mm. Number of eggs very high ranging above 1000. Hind border of telson convex and ends in a short median spine-shaped prolongation, telsonic spines present some variations, their number including the lateral short pair ranges from 9 to 11, none prominently plumose, except for the lateral short pair, terminate more or less at the same level, a median spine present below apical prolongation. Outer uropod bears about 11 to 12 spines.

Pa1/C	..	..	0.86 to 0.91
Pr P3/C	..	..	0.52
Pr P5/C	..	..	0.56
6 Sa/C	..	..	0.65
Digit P3/Pr P3	..	..	0.22
Digit P5/Pr P5	..	..	0.27

(Abbreviations as before).

Type specimen is with the collections in the Department of Zoology, University College, Trivandrum.

*Remarks*—The form described here resembles two of the fourteen varieties described by Bouvier (1925) i.e. var. *bengalensis* de Man and var. *gracilipes* de Man. But it differs from var. *bengalensis* in size. Other major differences are in the proportion between, (i) the length and breadth of the carpus of the first and second pereiopods, (ii) the finger and palm of pereiopod 2 and (iii) the propodus and dactylus of pereiopod 3. The eggs are much smaller than in var. *bengalensis* and about the size in var. *gracilipes* with which the present form disagrees in all the abovementioned characters in addition to the proportion between (i) the length and breadth of the chela of pereiopod 2 and (ii) the length and breadth of the propodus of pereiopod 3. Natarajan (1942) has reported the occurrence of var. *gracilipes* in Travancore. Largest ovigerous female in his collection measured 24 mm. and was collected from central Travancore (Kuttanad). He has also stated that *C. nilotica* var. *gracilipes* is not found in the Veli lake because of the brackish nature of the water.

The literature referred to for the study of the systematics of *Caridina* are the works of de Man (1908 a, b), Bouvier (1905, '13, '25), Kemp (1913, 1918 a, b), Calman (1928), Gordon (1930), Natarajan (1942) and Barnard (1950).

#### KEY TO THE FOUR SPECIES OF *CARIDINA* OCCURRING IN TRAVANCORE

- A. Rostrum exceeding the antennular peduncle.
- B. Rostrum not exceeding the antennular peduncle.
  - A. 1. Upper rostral teeth not exceeding 11. Carpus of first cheliped not more than 2 times as long as broad, that of second less than 4.5. Line connecting tip of rostrum with its base cuts the long axis of the animal at the level of the hind end of carapace .. *Caridina gracilirostris* de Man.
  - A. 2. Upper rostral teeth exceeds 11. Carpus of cheliped 1 more than 2 times as long as broad, that of cheliped 2, 6 or more. Line joining tip and base of rostrum parallel to the long axis of the animal .. *C. nilotica* (Roux) var. *veliensis* var. nov.
  - 1. Proportion between length and breadth of carpus of first cheliped and that of its chela are both more than 2. That of propodus of third pereiopod more than 12. Its dactylus bears 8 to 9 spinules. Line joining tip and base of rostrum cuts the long axis of the body at the level of the front extremity of rostrum .. *C. laevis* Heller.

- B. 2. Proportions between length and breadth of carpus of first cheliped and its chela are both less than 2. That of propodus of third pereiopod less than 12. Its dactylus bears 5 to 6 spinules. Line joining tip and base of rostrum cuts the long axis of body in front of the antennular peduncle

.. *C. weberi* de Man var.  
*sumatrensis* de Man.

#### GENERAL REMARKS

Previous workers on the systematics of *Caridina* have pointed out the enormous range of variation within what is considered to be the same species collected from different localities at different times. The variations include the proportions of the different units of taxonomic importance and Barnard (1950) has remarked that the present taxonomy of the genus *Caridina* seems to suffer from too much 'finesse'. This fact has been noticed to hold good for the present forms also, especially those species occurring in the smaller bodies of water. For example, *C. laevis*, collected from ponds and ditches shows much more variation than *C. gracilirostris* collected from large lake. The taxonomic status is understood only when a large number of examples are studied.

#### SUMMARY

Four species of the genus *Caridina* have been collected and briefly described including a new variety from Travancore. These are *C. laevis*, *C. gracilirostris*, *C. weberi* var. *sumatrensis* and *C. nilotica* var. *veliensis* var. nov. A key has been presented for these.

#### ACKNOWLEDGEMENT

The author is extremely thankful to Dr. K. Bhaskaran Nair, Professor of Zoology, University College, Trivandrum, for his unfailing guidance. He thanks the Government of India for the award of a Research Scholarship. His thanks are also due to Dr. N. Krishna Pillai for his help in this work.

#### REFERENCES

- BARNARD, K. H. 1950. Descriptive catalogue of South African Crustacea. *Ann. S. Afr. Mus.*, 38 : 1-824.
- \*BOUVIER, E. L. 1905. Observations nouvelles sur les crevettes de la famille des Atyides. *Bull. Cent. de Fr. et Belg.*, 39 : 55-134.
- . 1913. The Percy Sladen Trust Expedition, XXVIII. Les Caridines des Seychelles. *Trans. Linn. Soc., London*, 15 : 447-472.
- . 1925. *Monographie des Atyides*. Encyclopedie Entomologiques IV. Paris.

- CALMAN, W. T. 1928. On prawns of the family Atyidae from Tanganyika. *Proc. Zool. Soc. London*, 737-741.
- GORDON, I. 1930. African Freshwater Prawns of the species *Caridina nilotica* with special reference to Nile Basin. *Ibid.*, 33-50.
- KEMP, S. 1913. Zoological results of the Abor Expedition. Crustacea Decapoda. *Rec. Indian Mus.*, 8 : 289-310.
- . 1918a. Fauna of the Inle Lake. Crustacea Decapoda of the Inle Lake Basin. *Ibid.*, 14 : 81-102.
- . 1918b. Zoological results of a tour in the Far East. Crustacea Decapoda and Stomatopoda. *Mem. Asiat. Soc. Bengal*, 6 : 221-297.
- DE MAN, J. G. 1908a. The Fauna of the brackish water ponds at Port Canning, Lower Bengal. *Rec. Indian Mus.*, 2 : 211-231.
- . 1908b. On *Caridina nilotica* and its varieties. *Ibid.*, 2 : 255-283.
- NATARAJAN, S. 1942. On the occurrence of *Caridina* in Travancore. *Curr. Sci., Bangalore*, 11 : 245.
- \*NOBELI, G. 1900. Decapodie Stomatopodi Indo-Malesi. *Ann. Mus. Civ. di storia Nat. di Genova*, 20 : 475-479.
- \*ORTMANN, A. E. 1895. A study of the systematics and geographical distribution of the decapod family Atyidae Kingsley. *Proc. Acad. Nat. Sci.*, 377-416.
- \*ROUX, J. 1904. Decapodes d'eau douce de Celebés (genres *Caridina* et *Potamon*). *Rev. Suisse de Zool.*, 12 : 539-572.

---

\*Not referred to in original