NEW SPECIES AND SUBSPECIES OF INDIAN FRESHWATER PRAWNS

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While studying the unnamed collections of the freshwater prawns of the genus *Palaemon* preserved in the Zoological Survey of India (Indian Museum), I have come across several new species and subspecies. Most of these have already been described by me[1] on earlier occasions and the present note contains brief descriptions of four more forms which seem to be new to science.

Family PALAEMONIDAE

Subfamily *PALAEMONINAE*

Palaemon assamensis, sp. nov.

Diagnosis.—Rostrum generally longer than the antennular peduncle, occasionally extending as far as the apex of the antennal scale, 0·5—0·8 as long as carapace, broadly triangular in profile, upper edge horizontal, apex acute; rostral formula 7-11/2-5 with usually three teeth on the carapace behind the orbital border.

Carapace with scattered, minute prickles.

Third maxillipeds not extending beyond the middle of the antennal scale.

First pair of peraeopods with chela slightly longer than half the carpus.

Second pair of peraeopods subequal, subcylindrical, not as thick as in *P. hendersoni*, $\frac{3}{4}$ to $\frac{4}{5}$ as long as body in adult males but never less than half the total length of body at any stage in both the sexes; merus always somewhat longer than carpus; carpus gradually thickened distally, generally more than thrice but never more than five times as long as its distal thickness; palm slightly broader than carpus, a little compressed, longer than carpus in males measuring more than 45 mm. and subequal to or shorter than the latter in young males and females; chela more than twice as long as carpus in adult males but may be less in females and young males; fingers slightly longer than palm, fluted, with velvety pubescence arranged along the grooves, females and young males with fluting and pubescence weaker, cutting edge non-gaping, with teething as in *P. hendersoni* but weaker.

[1] Tiwari, K. K., *Rec. Indian Mus.* XLV, pp. 329—331 and 333—345 (1949); *Ann. Mag. nat. Hist.* (12) V, pp. 27—32 (1952).

Largest male 70 mm. in total length, largest female 61·7 mm., egg-bearing females from 45 to 50 mm. generally.

Type-specimen.—Holotype, Male, No. C 3339/1, Zoological Survey of India, Calcutta.

Type locality.—Someswari River, near Siju, Garo Hills, Assam; Coll: D4s. S. W. Kemp and B. N. Chopra, March 1922.

Remarks.—This species belongs to the *hendersoni* group because of its longitudinally grooved fingers of the second pair of peraeopods. It has a very wide range of distribution in the Eastern Himalayan region, the Chota Nagpur Tract and the Satpuras in India and in Burma. It generally occurs in streams in hilly localities and does not seem to be present in plains. This species contains two distinct subspecies one of which appears to be restricted to the Satpura and Vindhya hills in Madhya Pradesh, while the other is widely distributed in the hilly parts of Eastern Nepal, West Bengal, Assam and in the Arakan and Pegu Yomas of Burma.

Palaemon assamensis assamensis, subsp. nominate

Rostrum 60 per cent to 80 per cent of carapace length, with dental formula 7-11/1-5 (usually 8-10/2-4); carpus of the second cheliped 3·5-4·0 times as long as its distal thickness, and subequal to, or longer than, palm in females and young males.

Distribution.—I have examined about five hunded males and females of this subspecies from Chota Nagpur Tract, Kharagpur Hills, Eastern Nepal, Bengal Duars and Terai, and Eastern Assam in India and from Arakan Yomas, Pegu Yomas, Mytkina District and neighbourhood of the Inlé Lake in Burma.

Palaemon assamensis peninsularis, subsp. nov.

Rostrum 50 per cent to 60 per cent of carapace length, rostral formula 6-10/2-5 (usually 7-9/2-3); second pair of chelipeds of a slightly stouter build than in *assamensis*; carpus 3·0—3·5 as long as its distal thickness; palm not shorter than carpus in any stage; largest male 60 mm., egg-bearing females 45-50 mm.

Type-specimen.—Holotype, Male, No. C-3341/1, Zoological Survey of India, Calcutta.

Type locality.—The Nerbudda River at Khetgaon (22·50 N., 81·20 E) Mandla District, Madhya Pradesh [Nerbudda Survey, Stn. 42].

Distribution.—I have examined several males and females of this subspecies from various localities in the Vindhya Pradesh west of the Rihand river and in the Satpura range along the left bank of the Narmada river upto Pachmarhi in the Mahadeo Hills.

Palaemon canarae, sp. nov.

Diagnosis.—Rostrum resembling that of *Palaemon lamarrei* in shape, extending beyond the apex of antennal scale by $\frac{1}{5}$ to $\frac{1}{3}$ of its length, rostral formula 6-10/4-6 (usually 79/4-6) with one or two teeth on the

carapace behind the orbital edge, arrangement of the upper teeth as in *P. lamarrei.*

Carapace smooth, shorter than the rostrum, the ratio of the length of the rostrum to carapace being $1\frac{1}{6}$ to $1\frac{1}{4}$.

First pair of peraeopods slender, about a third as long as the total length of the body ; carpus $\frac{1}{3}$ of the entire leg, and twice as long as the chela.

Second pair of peraeopods slender like the first pair, but longer being about half as long as the body ; carpus less than 33 per cent of entire leg, 10-11 times as long as its distal diameter ; chela about $\frac{2}{3}$ of the carpus : fingers $\frac{3}{4}$-$\frac{4}{5}$ as long as palm.

Appendix masculina in the second pleopod of the male short, not reaching the apex of the endopod, hairy.

Outer margin of the endopod of uropod without an accessory spine near the subapical tooth.

Females probably longer than the males, largest female 46 mm., egg-bearing females 36-46 mm., largest male—a damaged individual—being in the neighbourhood of 40 mm.

Type-specimen.—Holotype, Female (egg-bearing), No. C-3124/1, Zoological Survey of India.

Type locality.—Sitanadi River near Ghats, South Kanara (Madras).

Distribution.—South Kanara District of the Madras State.

Material examined.—Sitanadi River near Ghats, 8♀ (4 berried), 4♂, Coll. H. C. Wilson, 25-1-1916 ; Yenni Holi, near Karkal, 7♀ (2 berried), 1♂, Coll. H. C. Wilson 27-1-1916 ; Temple Tank Karkal, 8♀ (1 berried), 1♂, Coll. H. C. Wilson, 22-1-1916.

Remarks.—Palaemon canarae is very similar to *Palaemon lamarrei* in general appearance and the shape of its rostrum. The two can, however, be easily distinguished by the dentition of the lower edge of rostrum, and by the structure of appendix masculina in males. *P. lamarrei* is so far not known to occur in South Kanara.

Palaemon banjarae, sp. nov.

Diagnosis.—Rostrum subequal to carapace, extending as far as the apex of the antennal scale, lanceolate in profile, upper edge convex, apex pointed ; rostral formula 12-15/4-6 with two teeth on the carapace behind the orbital edge, teeth on the upper edge equal, equidistant.

Third maxilliped extending beyond the antennal peduncle by half its terminal joint.

First pair of peraeopods slender, about a third as long as the body, and one and a half times the carapace ; carpus twice as long as the chela.

Second pair of peraeopods longer than the first pair, slender, equal on two sides and in both the sexes, from half to two-thirds as long as the body ; carpus longer than merus, slightly thickened distally ; chela subequal to carpus in males, trifle longer than the latter in females ;

fingers about three-fifths as long as palm, their basal portion slightly hairy in female, cutting edges with two teeth on the mobile, and one on the immobile finger, near their bases.

Appendix masculina in males short, hairy.

Endopod of the uropod with a small, movable, accessory spine at the base of the large subapical tooth.

Females larger in size (38·7 mm.—43·5 mm.) than males (28·5 mm.—39·1 mm.). No egg-bearing females in the collection.

Type-specimen.—Holotype, Female without eggs, No. C-3343/1, Zoological Survey of India, Calcutta.

Type locality.—Banjar River off Aonrai Forest Village, Baihar Tehsil (Dist. Balaghat, M.P.).

Material examined.—7♂, 6♀ Coll.: K.K. Tiwari. 6-2-1954 from the above locality.

Remarks.—P. banjarae bears some resemblance to *P. kistnensis* which occurs plentifully in the type locality. The convex rostrum of *P. banjarae* is sufficient to distinguish it from the other.