

ZOOLOGY

PRELIMINARY DESCRIPTIONS OF TWELVE NEW SPECIES OF PALAEMONID PRAWNS FROM AMERICAN WATERS (CRUSTACEA DECAPODA)

BY

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During a study of the American Palaemoninae of the collections present in the U.S. National Museum, Washington, D.C., and the Rijksmuseum van Natuurlijke Historie, Leiden, Holland, for a revision of the American species of that subfamily, representatives of 12 species were found, which proved to be new to science. Of these species, like of most other American Palaemoninae, extensive descriptions and figures will be given in the above mentioned revision, which now is ready for the press.

In the Siboga monograph, which deals with the Palaemoninae, and which is now being printed, I have given a list of all the species of this group known to me. For completeness's sake I thought it advisable to include in this list also the new American species. As, however, it seems highly undesirable to me to use their names as nomina nuda, the following preliminary descriptions are given so as to validate these names.

The descriptions given in this paper are kept as concise as possible, since more extensive descriptions will be published later.

Macrobrachium inca nov. spec.

Adult male:

The rostrum is rather short and straight, reaching to the end of the antennular peduncle. The rostral formula is:

$$\frac{2-3 \quad 10-14}{2-4}.$$

The carapace is smooth, but covered with short hairs. No tubercles are present.

The second legs are unequal in size, but about equal in shape. The fingers of the larger leg are $\frac{3}{5}$ to $\frac{4}{5}$ of the length of the palm. They possess one large tooth on the cutting edge, with small denticles behind it. The palm generally is more than twice as long as high. The carpus is about $\frac{7}{9}$ of the length of the palm, about as long as the merus and about thrice as long as broad. All joints are covered with numerous club-like spinules. The palm and the basal part of the fingers are densely

pubescent, only the extreme dorsal part of the palm being naked. Carpus and merus too are pubescent, the merus is somewhat swollen. Small spinules are present on all the joints of the last three pairs of legs.

Distribution. The species is an inhabitant of fresh waters of N. Peru and Ecuador.

Type. The holotype is a male from Rio Mochè near Salavery, N. Peru. It is preserved in the U.S. National Museum.

Macrobrachium rathbunae nov. spec.

Adult male:

The rostrum is straight and rather high, reaching slightly beyond the end of the antennular peduncle. The rostral formula is:

$$\frac{1-2) 9-10}{3-6}.$$

The carapace is smooth, only bearing some hairs in the anterolateral region.

The second legs are equal in shape and subequal in size. The fingers are $1/2$ to $4/7$ as long as the palm. The fingers bear one large tooth on the cutting edge, behind which tooth there are some small denticles. The palm is about 5 to 6 times as long as high. The carpus is longer than the palm, but shorter than the chela, it is about 6 times as long as high, and $4/3$ to $5/4$ as long as the merus. All the joints are covered with small spinules. The fingers are entirely covered by a thick pubescence. No pubescence is present on the palm or any of the other joints. The last three pairs of legs have all the joints densely covered with spinules.

Distribution. The species lives in fresh water of the west coast of America from Panama to Ecuador.

Type. The holotype originates from Hog Creek Valley, San José Island, Archipiélago de las Perlas, Gulf of Panama. It is preserved in the U.S. National Museum.

Macrobrachium transandicum nov. spec.

Adult male:

The rostrum is high and straight, reaching to or slightly beyond the antennular peduncle. The rostral formula is:

$$\frac{5-7) 13-16}{3-4}.$$

The carapace is smooth.

The second legs are unequal in size but about equal in shape. The fingers each bear one large tooth on the cutting edge, which posteriorly as well as anteriorly of this tooth bears several smaller teeth. The fingers are about 0.7 times as long as the palm. The latter is about 4 times as long as high. The carpus is slightly shorter than the palm, being about

thrice as long as broad and $\frac{4}{3}$ as long as the merus. All joints bear numerous small spinules. The chela is naked (except for a short pubescence along the cutting edges like in most other species of this genus), but the carpus and merus are pubescent underneath.

The last three pairs of legs are covered with numerous small spinules.

Distribution. Fresh water of W. Colombia (Pacific slope).

Type. The holotype originates from the Rio Telembi near San Lorenzo, S.W. Colombia, it is preserved in the U.S. National Museum.

Macrobrachium occidentale nov. spec.

This species is very closely related to *Macrobrachium heterochirus* (WIEGMANN), of which it might be considered the representative in W. America. *M. occidentale* differs from *M. heterochirus* by having generally 5 or 6 teeth of the rostrum placed behind the orbit, these teeth occupying less than $\frac{1}{3}$ of the dorsal length of the carapace (rostrum excluded). The first legs of the present species have the carpus decidedly less than twice as long as the chela. The right and left second legs of the adult male are much more different in shape. The fingers of the larger leg are gaping and have the cutting edge provided with 5 to 8 denticles, which are placed almost up to the tip and are of almost equal size. The carpus is more robust than in *M. heterochirus*. The smaller second leg is less elongate than in *M. heterochirus*.

Distribution. The species is known from fresh waters of the west coast of Central America from Guatemala to S. Panama.

Type. The holotype originates from Rio de los Esclavos, just S. of Cuilapa, Guatemala. It is preserved in the U.S. National Museum.

Macrobrachium crenulatum nov. spec.

Adult male:

The rostrum is straight and reaches about the end of the antennular peduncle. The rostral formula is:

$$\frac{4-6}{3-4} \frac{11-14}{4} .$$

The carapace is smooth.

The second legs are strongly unequal in shape and size. The larger leg has the fingers about as long as the palm. The fingers generally are curved and gape. One large tooth is present in the proximal part of the cutting edge. Behind this tooth there are some small denticles. Anteriorly of the large tooth the cutting edge is crenulated. The palm is compressed, it is about twice as long as high. Longitudinal rows of strong spines are present on the outer surface and the lower margin of the palm, leaving an ill-defined smooth region in the middle. Both fingers are densely covered with small spinules which are not placed in distinct longitudinal

rows. Small spinules are present on the inner surface of the palm. There is no conspicuous pubescence on the outer surface of the palm, but the inner surface, especially in its ventral part, bears a long and dense pubescence. The carpus is twice as long as high and strongly narrowed near the base. It is shorter than the palm and also shorter than the merus. The merus is somewhat thickened in the middle. Longitudinal rows of spinules, but no pubescence, are visible on the carpus and merus. The smaller leg has the fingers about 1.5 times as long as the palm, they are gaping. There are some denticles in the proximal part of the cutting edges. The gap between the fingers is filled by stiff inwards directed setae. The carpus is longer than the palm and shorter than the merus. The spinulation is as in the large leg, but less strong.

The last three pairs of legs bear no spinules except those on the posterior margin of the propodus, while in the third and fourth legs there is a row on the posterior margin of the merus.

Distribution. The species inhabits fresh waters of the West Indies, Venezuela and E. Panama.

Type. The holotype originates from the Pejebobo River, E. Panama and is preserved in the U.S. National Museum.

Macrobrachium hancocki nov. spec.

This species is very closely related to the previous, from which it differs in a few small, but constant characters. In the first place the rostrum is shorter, usually not reaching beyond the middle of the last joint of the antennular peduncle. The carpus of the first leg is decidedly less than twice the length of the chela. The outer surface of the fixed finger of the second leg bears in the basal part a few spinules, arranged in only two or three rows, while in *M. crenulatum* very numerous, rather irregularly placed spinules are present there.

Distribution. The species lives in fresh water of W. America from Costa Rica to Colombia, Cocos Island and the Galápagos Archipelago.

Type. The holotype originates from Esparta, Rio Barranca, Costa Rica, and is preserved in the collection of the U.S. National Museum.

Remarks. This species and the previous have been recorded in literature by some authors as *Macrobrachium* (or *Palaemon*) *olfersii* (WIEGMANN), but certainly are distinct from that species.

Palaemon gladiator nov. spec.

A species of *Palaemon* which is very close to *Palaemon ritteri* Holmes, but differs from it by having the rostrum much more slender and ending in a narrow unarmed sword-like tip. Furthermore the sixth abdominal segment is much longer than in *P. ritteri*. The anterolateral spine of the basal segment of the antennular peduncle is much smaller, the free portion of the shorter ramus of the antennular flagellum is less than

twice as long as the fused portion (in *P. ritteri* it is much more than twice as long), the carpus of the second legs in the new species is longer than the palm, whereas it is shorter than the palm in *P. ritteri*. And finally the last three pereopods are more slender in the new form.

Distribution. The species is known from Clipperton Island and from the Galápagos Archipelago.

Type. The holotype originates from Academy Bay, Indefatigable Island, Galápagos Archipelago (Allan Hancock Expeditions). It is preserved in the collection of the U.S. National Museum.

***Palaemon peruanus* nov. spec.**

This new species is erected for the specimen identified with some doubt by RATHBUN (Proc. U.S. Nat. Mus., vol. 38, 1910, p. 561, pl. 53 fig. 1) with *Palaemon ritteri*. Like *Palaemon gladiator* it differs from *P. ritteri* by having the carpus of the second legs longer than the palm. The rostrum is shorter than that of *P. ritteri* and much shorter than that of *P. gladiator*, from which it differs furthermore by not ending in a slender sword-like tip. The anterior margin of the basal segment of the antennular peduncle is produced much farther forwards than in *P. ritteri*. In the shape of the sixth abdominal segment and the antennular flagellum it shows most resemblance to *P. ritteri*. The legs of this new species reach distinctly farther forwards than in either *P. ritteri* or *P. gladiator*.

Distribution. The species is only known from the holotype, which originates from salt creeks at La Palisada near Tumbes, N. Peru, and is preserved in the U.S. National Museum.

***Palaemon hancocki* nov. spec.**

This new species is very close to *Palaemon gracilis* (SMITH) but differs from that species by possessing 12 to 16 ventral teeth on the rostrum (*P. gracilis* 9–12), and by having the last joint of the third maxilliped shorter than the penultimate (it is as long as the penultimate in *P. gracilis*). In the new species the second legs are more slender than in *P. gracilis*, the fingers are shorter than the palm and the carpus is twice as long as the chela. Furthermore the species attains a much larger size than *P. gracilis* does.

Distribution. The species inhabits fresh water of Colombia and Ecuador.

Type. The holotype is a specimen from the Guayas River, Ecuador (Allan Hancock Expeditions). It is preserved in the U.S. National Museum.

***Palaemon schmitti* nov. spec.**

The present species strongly resembles *Palaemon tenuipes* (HENDERSON) from India and *Palaemon hastatus* Aurivillius from West Africa. It agrees with these two species and differs from all other species of *Palaemon*

by having the dactyli of the last three pairs of legs extremely long and slender, being distinctly longer than the propodus and carpus combined. *Palaemon schmitti* agrees with *Palaemon tenuipes* in almost all respects, the main difference being found in the rostral formula. This formula for *P. schmitti* runs as follows:

$$\frac{1-2) 3-5+1}{7-9}.$$

For *Palaemon tenuipes* the rostral formula is:

$$\frac{1-3) 4-6+1}{2-6}.$$

The rostral formula of *Palaemon hastatus* is:

$$\frac{1-3) 7-11+1}{3-6}.$$

Distribution. The species inhabits estuaries of large rivers in Surinam (= Dutch Guiana).

Type. The holotype originates from the mouth of the Surinam River near Resolutie, Dutch Guiana. It is preserved in the Rijksmuseum van Natuurlijke Historie at Leiden.

***Palaemonetes ivonicus* nov. spec.**

The rostrum is straight and reaches slightly beyond the antennular peduncle. The rostral formula is:

$$\frac{1) 6-10}{3}.$$

The teeth are placed rather regularly over the upper margin of the rostrum. The branchiostegal spine is placed much below the branchiostegal groove and is so far removed from the anterior margin of the carapace that its tip just falls short of that margin.

The anterior margin of the basal segment of the antennular peduncle is strongly produced forwards, it reaches to the end of the second segment. The free part of the shorter ramus of the upper antennular flagellum is twice as long as the fused part. The scaphocerite has the outer margin slightly convex, the final tooth is far overreached by the lamella.

The second pereopods have the fingers slightly shorter than the palm. The cutting edge of the dactylus bears two, that of the fixed finger one tooth. The carpus is 1.6 times as long as the chela and about 1.8 times as long as the merus.

Distribution. The species is only known from the 2 type specimens, which originate from Ivon at the Beni River, N. Bolivia. They are preserved in the U. S. National Museum.

***Palaemonetes schmitti* nov. spec.**

The rostrum is straight and very deep. It reaches slightly beyond the scaphocerite. The rostral formula runs as follows:

$$2) \frac{11-13}{2-4}.$$

The branchiostegal spine is placed on the anterior margin of the carapace just below the branchiostegal groove.

The anterior margin of the basal segment of the antennular peduncle is convex and reaches as far forwards as the anterolateral spine. The free part of the shorter ramus of the upper antennular flagellum is about twice as long as the fused portion. The scaphocerite has the outer margin straight or slightly concave. The final tooth reaches almost to the end of the lamella.

The second legs have the fingers 0.6 to 0.9 times as long as the palm. The cutting edge of the dactylus bears 2, that of the fixed finger 1 tooth. The carpus is about as long as the palm and $\frac{3}{4}$ of the length of the merus.

The species is closely related to *Palaemonetes vulgaris*, but may be distinguished by the much deeper rostrum, which has the upper margin straight and provided with more teeth (11 to 13 instead of 8 to 11). The telson of the present form is shorter and its legs are distinctly longer than in *P. vulgaris*.

Distribution. The species apparently is a marine form and up till now is found only in W. Panama.

Type. The holotype originates from the Upper Chamber, East side, Miraflores Locks, Panama Canal, and is preserved in the U.S. National Museum.