

TWO NEW SPECIES OF *NEOCALLICHRUS*
FROM THE CARIBBEAN SEA
(CRUSTACEA: DECAPODA: CALLIANASSIDAE)

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Abstract.—Two new shore species of *Neocallichirus* similar to *N. grandimanus* (Gibbes) are described, both differing from it in having a much longer carpus on the major cheliped. *Neocallichirus nickellae*, new species, from Tobago, has a distinctive triangular tooth on the cutting edge of the dactylus; the basal tooth on the dactylus is rectangular in *N. lemaitrei*, new species, from Colombia. A key to the western Atlantic species of *Neocallichirus* is presented.

Continuing studies of American callianassids (Manning & Heard 1986; Manning 1987, 1988, 1992; Manning & Felder 1986, 1991, 1992; Rodrigues & Manning 1992a, 1992b) have revealed the existence of two new shore (sensu Briggs 1961) species of *Neocallichirus* from the Caribbean, described here. Their descriptions are accompanied by a key to the four western Atlantic species of *Neocallichirus*. The diagnosis given below for each species will distinguish it from the other western Atlantic species of the genus.

The western Atlantic species of *Neocallichirus* can be divided into two groups based on the shape of the telson and the uropodal endopod. In one group the uropodal endopod is longer than broad and tapers distally, and the posterior margin of the telson is excavate, forming distinct posterolateral angles. That group includes *N. guara* (Rodrigues, 1971), *N. guassutinga* (Rodrigues, 1971), *N. mirim* (Rodrigues, 1971), and *N. trilobatus* (Biffar, 1970). A new genus will be recognized for these species (Manning & Lemaitre 1993), and they will not be considered in the accounts of the new species given below.

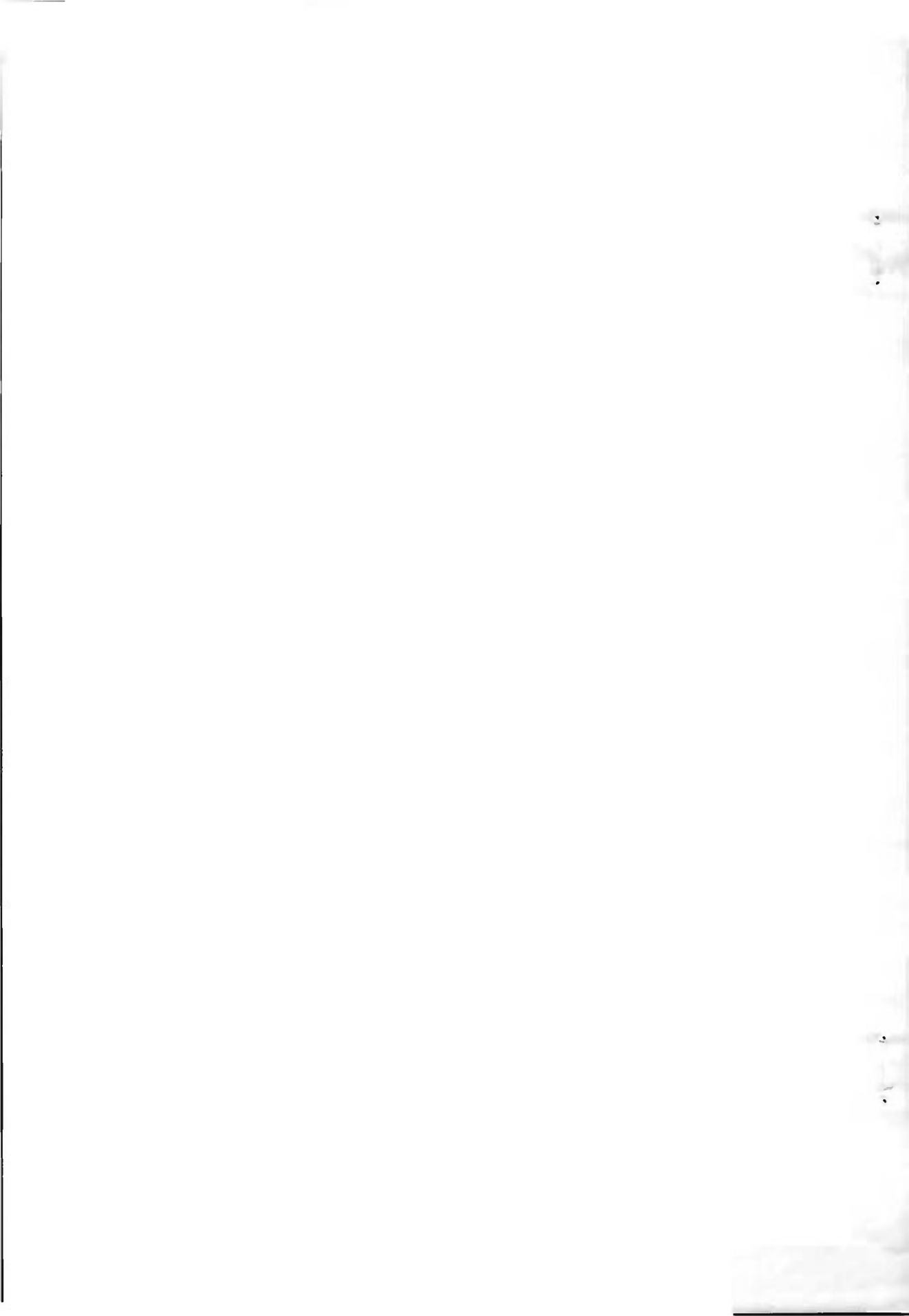
In the other group, which also includes the type species, *N. horneri* Sakai, 1988, from Australia, the uropodal endopod is broader than long and is flattened distally, and the

posterior margin of the telson is rounded; that margin may be slightly indented, but never so much as to form distinct posterolateral angles on the telson. The second group comprises the two new species named here and *N. grandimanus* and *N. rathbunae*.

In some of the species placed in *Neocallichirus* by Manning & Felder (1991) the propodus of Mxp3 is distally emarginate, i.e., there is an indentation on the opposable margin (see Fig. 1d). This is shown by Rodrigues (1971:fig. 67) for *N. guara* and appears to be characteristic of both species described here. The indentation is present in *N. trilobatus* but is less well marked or even absent in *N. grandimanus* (see Biffar 1971:fig. 5f, and Manning 1987:fig. 2e), *N. rathbunae* (see Manning & Heard 1986:fig. 1b), or *N. mirim* (see Rodrigues 1971:fig. 84). It is shown by Rodrigues (1971:fig. 48) but not by Biffar (1971:fig. 9f) for *N. guassutinga*, although both figures suggest that the opposable margin is irregular in each of those species.

All of the types have been deposited in the collections of the National Museum of Natural History, Smithsonian Institution, Washington, D.C. (USNM).

Abbreviations include: A1 (antennule or first antenna), A2 (antenna or second antenna), cl (postorbital carapace length, in mm), leg. (collector or collected by), m (me-



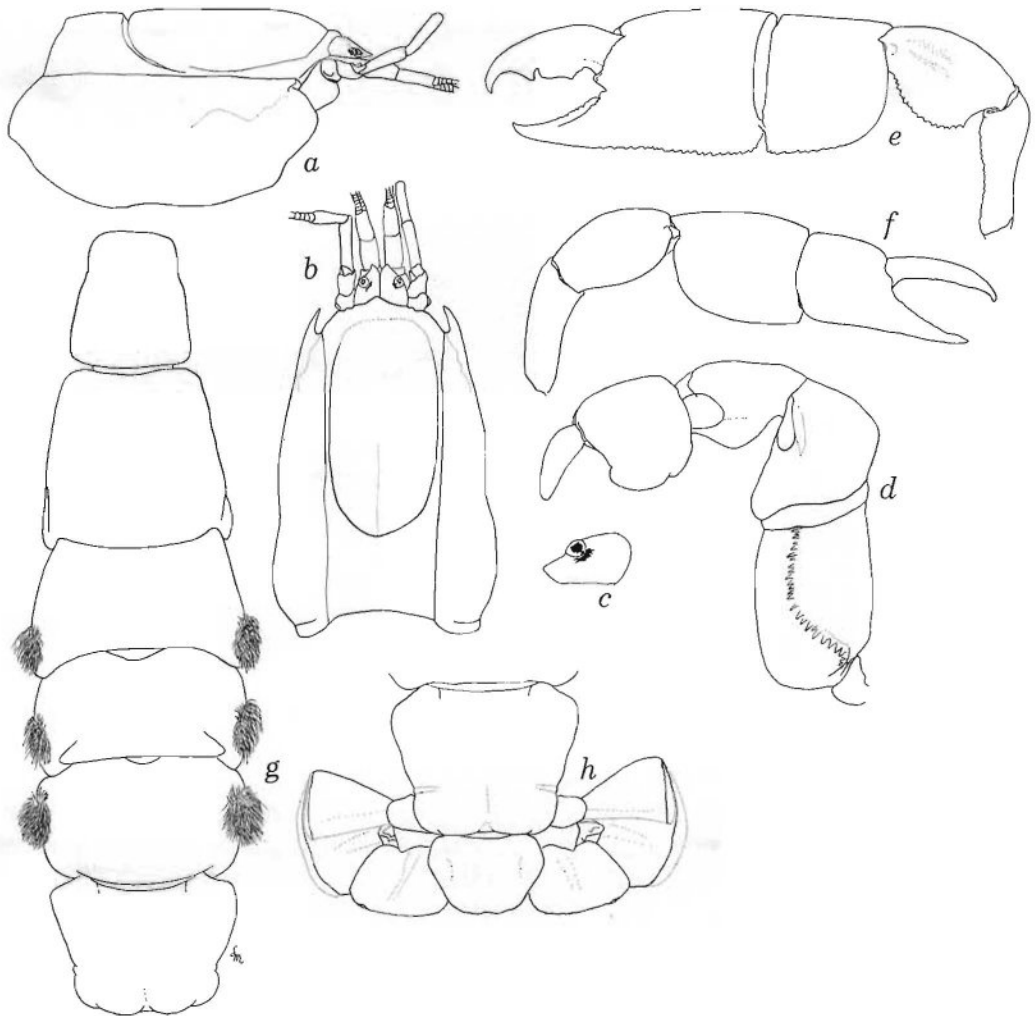


Fig. 1. *Neocallichirus lemaitrei*, new species, female paratype, USNM 256875, cl 18.5 mm, Isla de Barú. a, Carapace and frontal appendages, lateral view; b, Carapace and frontal appendages, dorsal view; c, Eye, lateral view; d, Mxp3, inner surface; e, Major P1, outer surface; f, Minor P1, outer surface; g, Abdomen; h, sixth abdominal somite, telson, and uropods, dorsal view.

ters), Man (mandible), Max1–2 (first and second maxillae), mm (millimeters), Mxp1–3 (first to third maxillipeds), P1–5 (first to fifth pereopods), Plp1–5 (first to fifth pleopods), tl (total length, measured on midline, in mm).

The measurement following the number of specimens is carapace length; in some cases total length also is given. Segments of appendages are measured dorsally.

Family Callianassidae Dana, 1852
 Subfamily Callichirinae
 Manning & Felder, 1991
 Genus *Neocallichirus* Sakai, 1988
Neocallichirus lemaitrei, new species
 Figs. 1–3

Material.—Colombia: Islas del Rosario (10°10'N, 75°46'W), Isla del Rosario, beach on south side, yabby pump, 17 Jul 1988,

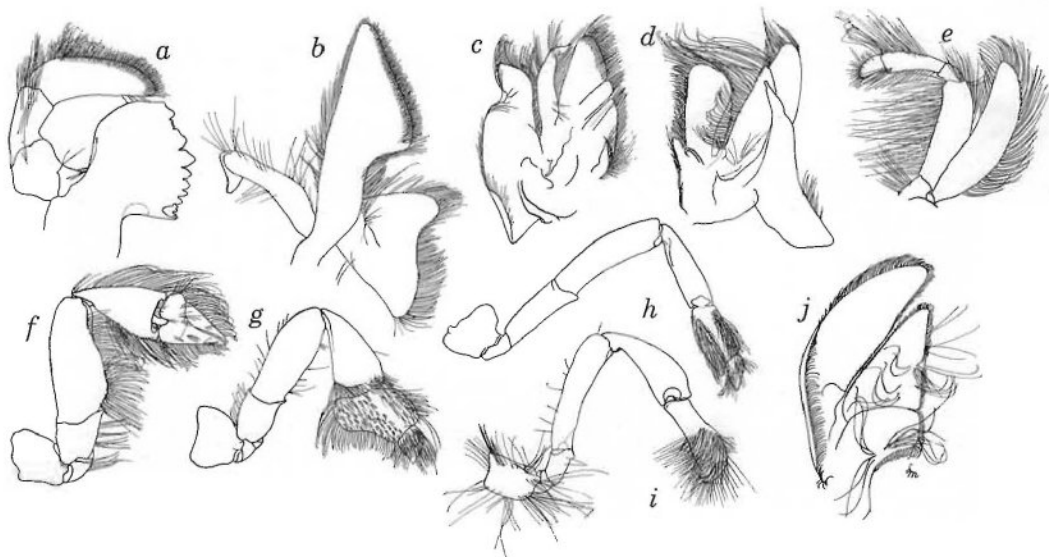


Fig. 2. *Neocallichirus lemaitrei*, new species, female paratype, cl 18.5 mm, USNM 256875, Isla de Barú. a, Man; b, Max1; c, Max2; d, Mxp1; e, Mxp2; f, P2; g, P3; h, P4; i, P5; j, Plp3.

leg. R. Lemaitre: 1 ♂ (11.6) (holotype, USNM 256876).

Isla de Barú [10°10'N, 75°36'W], Aug 1986, yabby pump, leg. R. Lemaitre: 1 ♂ (11.7), 1 ♀ (18.5; tl 76 mm) (paratypes, USNM 256875).—Isla de Barú, Ciénaga de Cholón, 0.5 m, yabby pump, 7 Aug 1988, leg. R. Lemaitre: 2 ♂ (8.9, 10.5), 5 non-ovigerous ♀ (12.4, 15.7, 17.6, 18.1, 18.4), 2 ovigerous ♀ (12.3, 15.4) (paratypes, USNM 256877).

Diagnosis.—Carapace with 3 unarmed anterior projections, all obtuse. Mxp3 with length and height of propodus subequal; opposable margin of propodus emarginate. Major P1 with merus lacking ventral spines, carpus shorter than palm, both with ventral serrations visible in outer view; dactylus with large rectangular tooth basally and smaller triangular tooth distal to it on cutting edge. Minor P1 with movable finger longer than palm. Uropodal exopod with dorsal plate shorter than ventral plate.

Description.—Carapace lengths of adults to more than 18 mm, total lengths to at least 76 mm.

Front with 3 anterior projections, all obtuse, median falling well short of cornea, laterals irregular, inconspicuous.

Eye with subterminal, hemispherical, darkly-pigmented cornea, situated laterally (pigment diffuse in some specimens); anterior margin of eye with distomesial angled projection; eyes overreaching end of first segment of A1 peduncle.

A1 peduncle shorter than A2 peduncle, with penultimate segment subequal to terminal segment. A2 peduncle with penultimate segment longer than terminal segment.

Mxp3 with ischium-merus subpediform; ischium with crista dentata on inner face; propodus with length and height subequal, opposable margin emarginate (ventral edge also emarginate in 1 specimen). Other mouthparts as illustrated (Fig. 2a–e). P1 unequal and dissimilar. Major P1 with dactylus slightly shorter than palm, curved ventrally, tip hooking over inner surface of fixed finger; cutting edge of dactylus with enlarged rectangular tooth basally and smaller triangular tooth about midlength in both

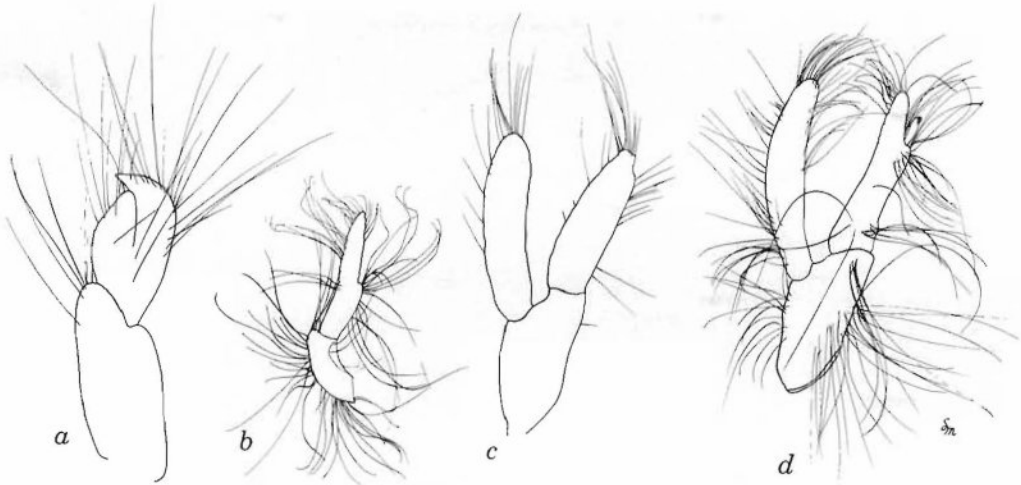


Fig. 3. *Neocallichirus lemaîtrei*, new species, male paratype, USNM 256875, cl 11.7 mm, Isla de Barú, a, Plp1; c, Plp2. Female paratype, USNM 256875, cl 18.5 mm. b, Plp1; d, Plp2.

sexes; cutting edge of fixed finger with a few low teeth proximally as well as a line of denticles proximal to cutting edge, visible in outer view; palm length and height subequal, ventral margin serrated to base of fixed finger, serrations visible in outer view; carpus shorter than propodus but at least $\frac{2}{3}$ as long, higher than long, ventral margin with distal $\frac{2}{3}$ serrated, serrations visible in outer view; merus narrower and longer than carpus, length about 1.5 times height, ventral margin evenly convex, serrated, lacking ventral spines.

Minor P1 with dactylus longer than palm, curved ventrally, unarmed, tip crossing inner side of unarmed fixed finger (denticulate in smaller specimens); gape hairy (omitted for clarity in Fig. 1f); palm slightly higher than long; carpus longer than propodus, longer than high; merus narrower than but as long as carpus, length less than twice height, smooth ventrally.

Other pereopods as figured (Fig. 2f-i). Plp1-3 as figured (Figs. 2j, 3).

Telson broader than long, subtrapezoidal, unarmed posteriorly, widest just posterior to base, posterior margin rounded, with at most a shallow median concavity.

Uropodal exopod with upper edge of dorsal plate, along its posterior margin, not as long as lower edge; endopod broader than long, widening posteriorly, posterior margin flattened.

Remarks.—*Neocallichirus lemaîtrei* differs from *N. rathbunae* in that the frontal projections of the carapace are unarmed, lacking apical spinules, and in having the dorsal plate of the uropodal exopod shorter than the ventral plate. *Neocallichirus lemaîtrei* is very similar to *N. grandimanus* (Gibbes, 1850), the most common western Atlantic species of the genus; Biffar (1971: 666, under *Callianassa branneri* Rathbun, 1900, a subjective junior synonym of *N. grandimanus*) noted that *N. grandimanus* was a wide-ranging species, common on the intertidal flats of southeastern Florida. *Neocallichirus lemaîtrei* differs from *N. grandimanus* in having a much longer carpus and a slenderer dactylus on the major cheliped; in *N. grandimanus* the carpus is less than half as long as the palm, whereas it is two-thirds as long in *N. lemaîtrei*. Further, the ventral margin of both carpus and propodus are strongly serrated ventrally in *N. lemaîtrei*, with the serrations visible in outer

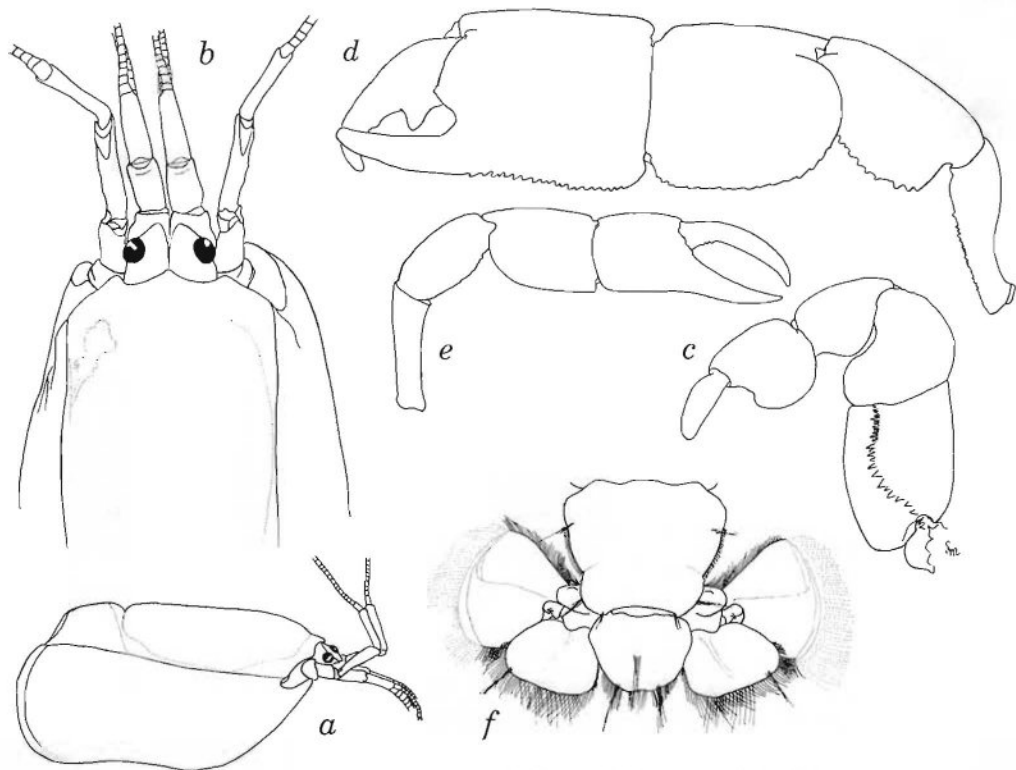


Fig. 4. *Neocallichirus nickellae*, new species, male holotype, USNM 256879, cl 15.2 mm, Tobago. a, Carapace and frontal appendages, lateral view; b, Anterior part of carapace and frontal appendages, dorsal view; c, Mxp3, inner surface; d, Major P1, outer surface; e, Minor P1, outer surface; f, Sixth abdominal somite, telson, and uropods, dorsal view.

view, and the carpus of the minor cheliped (P1) is longer than the palm. In *N. grandimanus* the carpus and propodus appear smooth ventrally in outer view and the carpus of the minor P1 is much longer than the palm. This new species also differs from *N. grandimanus* in having the opposable margin of the propodus of Mxp3 distinctly emarginate; the ventral margin of the propodus also is emarginate in some specimens.

All of the material of this species was collected in the Islas del Rosario, a coral reef archipelago situated southwest of Cartagena, Colombia. Their location is shown by Werding (1982:fig. 1).

Etymology.—The species is named for my colleague and friend, Rafael Lemaitre, who

collected the types and made his collections available for study, and who initiated studies on the callianassid fauna of the region (Lemaitre & Rodrigues 1991).

Neocallichirus nickellae, new species
Figs. 4–6

Material.—Republic of Trinidad and Tobago: Coral Garden, Buccoo Reef (11°11'N, 60°49'W), Tobago, 28 Jul 1989, leg. Lois Nickell: 2 ♂ (14.1, 15.2) (smaller ♂, tl 56 mm is paratype, USNM 256878; larger ♂, tl 58 mm, is holotype, USNM 256879).

Diagnosis.—Carapace with 3 unarmed anterior projections, all low, obtuse. Mxp3 with length and height of propodus sub-

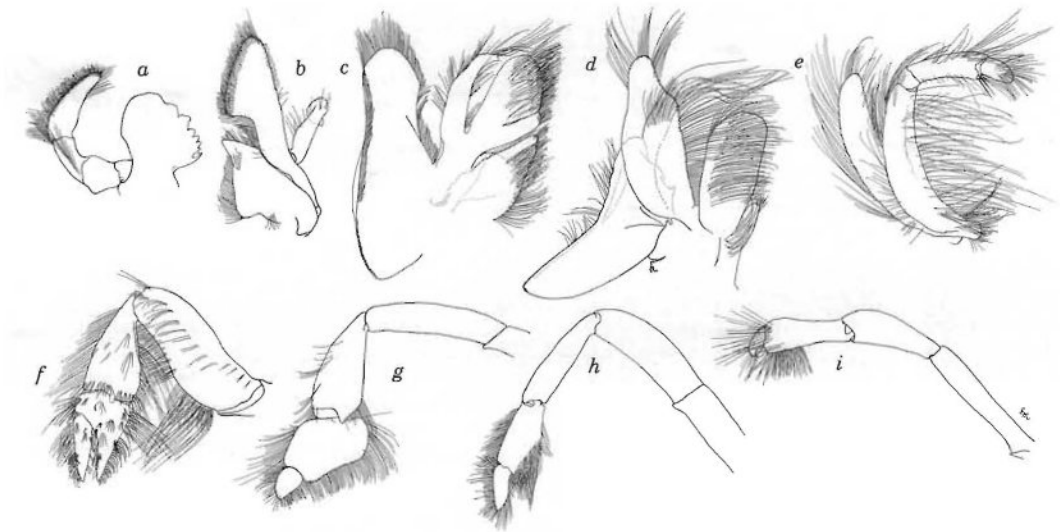


Fig. 5. *Neocallichirus nickellae*, new species, male holotype, USNM 256879, cl 15.2 mm, Tobago, appendages. a, Man; b, Max1; c, Max2; d, Mxp1; e, Mxp2; f, P2; g, P3; h, P4; i, P5.

equal; opposable margin of propodus emarginate. Major P1 with merus lacking ventral spines, carpus almost as long as palm, both with serrated ventral margins visible in outer view; dactylus with large, triangular tooth basally on cutting edge. Minor P1 with fingers much longer than palm. Uropodal exopod with dorsal plate shorter than ventral plate.

Description. — Carapace lengths of adults 14–15 mm; total lengths 56 and 58 mm.

Front with 3 anterior projections, all low and obtuse, median not extending to cornea.

Eye with subterminal, hemispherical, darkly-pigmented cornea, situated laterally; anterior margin of eye with distomesial angled projection; eyes falling short of end of first segment of A1 peduncle.

A1 peduncle shorter than A2 peduncle, with penultimate segment about $\frac{2}{3}$ as long as terminal segment. A2 peduncle with terminal segment about $\frac{2}{3}$ as long as penultimate segment.

Mxp3 with ischium-merus subpediform; ischium with crista dentata on inner face;

propodus with length and height subequal, opposable margin distinctly emarginate. Other mouthparts as illustrated (Fig. 5a–e).

P1 unequal and dissimilar. Major P1 with dactylus about as long as palm, curved ventrally, tip hooking over inner surface of fixed finger; cutting edge of dactylus with large, triangular basal tooth and smaller lobe about midlength; cutting edge of fixed finger unarmed; palm slightly longer than high, ventral margin serrated to base of fixed finger, serrations visible in outer view; carpus shorter than propodus, slightly longer than high, ventral margin serrated, serrations visible in outer view; merus narrower than but as long as carpus, length less than 2 times height, tapering distally, ventral margin serrate, lacking ventral spines.

Minor P1 with dactylus longer than palm, curved ventrally, unarmed but with a few denticles basally on cutting edge, tips crossing inner side of unarmed fixed finger; gape hairy (omitted for clarity in Fig. 4e); palm length and height subequal; carpus slightly longer than palm, longer than high (height equal to palm length), ventral margin

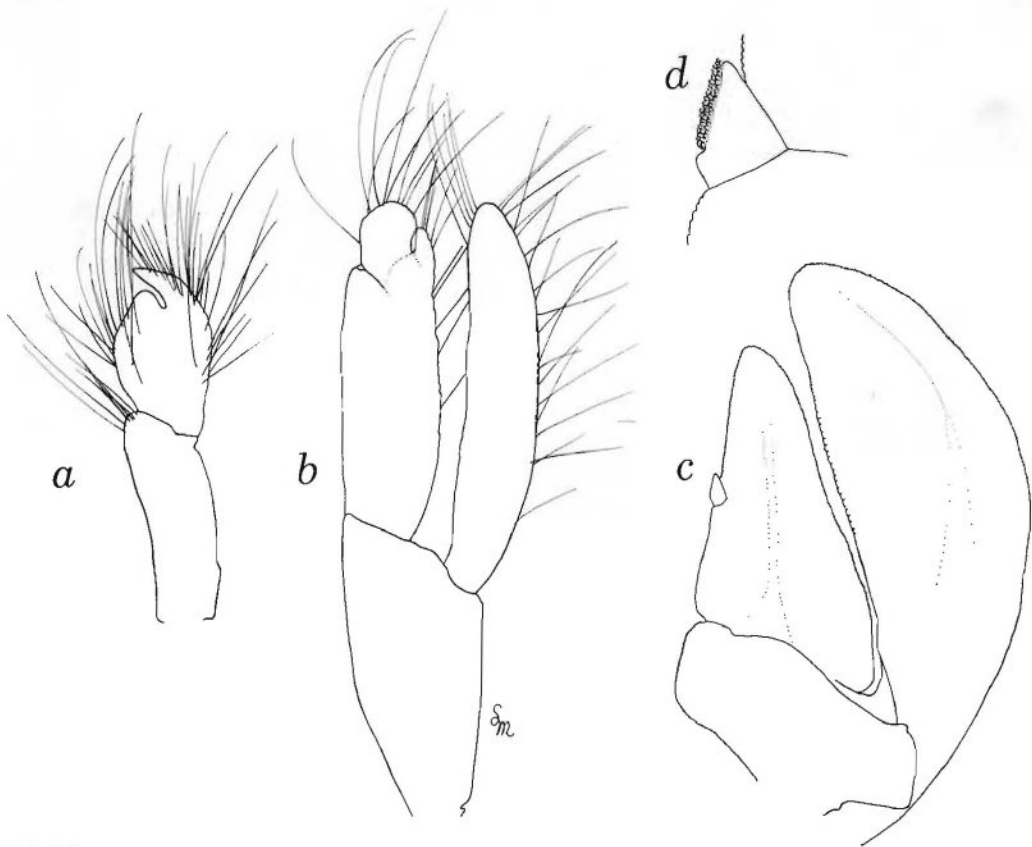


Fig. 6. *Neocallichirus nickellae*, new species, male holotype, USNM 256879, cl 15.2 mm, Tobago. a, Plp1; b, Plp2; c, Plp3; d, Appendix interna of Plp3.

smooth; merus narrower than but as long as carpus, length about twice height, ventral margin denticulate distally.

Other pereopods as figured (Fig. 5f-i). Plp1-3 as figured (Fig. 6).

Telson broader than long, subtrapezoidal, unarmed posteriorly, widest just posterior to base, posterior margin rounded, with at most a shallow median concavity.

Uropodal exopod with upper edge of dorsal plate, along its posterior margin, not as long as lower edge.

Remarks.—*Neocallichirus nickellae* resembles *N. lemaitrei* and differs from *N. grandimanus* in having the opposable margin of the propodus of Mxp3 indented or

notched and in having a much longer carpus on the major cheliped; in *N. nickellae* the carpus is almost as long as the palm, whereas it is less than half as long as the palm in *N. grandimanus* and two-thirds as long in *N. lemaitrei*. As in *N. lemaitrei*, the carpus and palm of the major cheliped are serrated ventrally, and these serrations are visible in outer view; the ventral surface of the carpus and palm of *N. grandimanus* appear smooth in outer view. The major chela of *N. nickellae* differs from that of both *N. lemaitrei* and *N. grandimanus* in having a large, triangular tooth on the cutting edge of the dactylus. Finally, *N. nickellae* differs from *N. rathbunae* in lacking sharp frontal projec-

tions and in having the dorsal plate of the uropodal endopod shorter than the ventral plate.

The western Atlantic species of *Neocallichirus* can be distinguished as follows:

Key to Western Atlantic Species of *Neocallichirus*

- 1. Frontal projections each armed with spinule. Upper plate of uropodal exopod as long as lower plate. Merus of major P1 with erect spines on ventral margin
N. rathbunae (Schmitt, 1935); southern Florida and Caribbean (Biffar 1971, Manning & Heard 1986)
- Frontal projections lacking anterior spinule. Upper plate of uropodal exopod shorter than lower plate. Merus of major P1 lacking erect spines on ventral margin 2
- 2. Carpus of major P1 less than half as long as propodus. Opposable margin of Mxp3 propodus usually lacking notch or indentation
N. grandimanus (Gibbes, 1850); Bermuda, southern Florida and Caribbean to Brazil (Biffar 1971).
- Carpus of major P1 more than half as long as propodus. Opposable margin of Mxp3 propodus with notch or indentation 3
- 3. Dactylus of major P1 with large, triangular tooth basally on cutting edge
 *N. nickellae*, new species; Tobago
- Dactylus of major cheliped with large, rectangular tooth basally on cutting edge.
 .. *N. lemaitrei*, new species; Caribbean coast of Colombia

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