

**A new species of *Corallichirus* Manning, 1992  
(Crustacea: Decapoda: Callianassidae) from Guam**

Brian Kensley

Department of Systematic Biology, National Museum of Natural History, Smithsonian Institution,  
Washington, D.C. 20560-0163, e-mail: kensley.brian@nmnh.si.edu

*Abstract.*—*Corallichirus bayeri*, new species is described from a male and female specimen from Guam. The species is characterized by eyes that reach anteriorly just beyond the slightly upturned rostrum, a strongly bipartite uropodal exopod, and a narrow distally acute uropodal endopod.

The marine fauna of Guam is being systematically investigated by staff of the University of Guam, as part of a program to build a comprehensive biodiversity database for the island. In the course of identifying thalassinidean decapods collected during this program, two specimens of callianassid ghost shrimps were encountered, which proved to be an undescribed species of the genus *Corallichirus* Manning, 1992.

Family Callianassidae Dana, 1852  
Genus *Corallichirus* Manning, 1992

*Corallichirus* Manning, 1992:571.—Poore, 1994:102.—Sakai, 1999:72.—Tudge, Poore, & Lemaitre, 2000:133, 134, 137.

*Corallichirus bayeri*, new species  
Figs. 1, 2

*Material examined.*—Holotype, USNM 310677, 1 post-ovigerous female, carapace length (post-orbital margin to posterior carapace margin) 7.0 mm, total length (tip of rostrum to tip of telson) 31 mm, Agat Bay, north of Alutom Island, Guam, among rocks, 3–6 m, coll. H. Conley & F. Schroeder, 4 Oct 2000. Paratype: USNM 310678, 1 male cl (excluding rostrum) 5.8 mm, tl 24 mm, Agat Bay, North of Alutom Island, Guam, among rocks, 2.5–6 m, coll. H. T. Conley, 29 Nov – 12 Dec 2000.

*Description.*—Post-ovigerous female: Carapace (Fig. 1A, B, C) with strong spi-

nose upturned rostrum; small anterolateral spinose process having decalcified region at base; strong well defined oval present; branchiostegite thin, transparent, but with calcified patch anterodorsally. Ratio of mid-dorsal lengths of abdominal somites and telson relative to somite 2, expressed as percentages of length of somite 2 (= 100%): 67, 100, 60, 50, 60, 100, 35; (somites 3–5 each with dense lateral cluster of setae. Telson (Fig. 1F) with broadly rounded posterior margin, middorsal length about 0.7 times basal width.

Eyestalks (Fig. 1B) contiguous along midline, somewhat flattened, barely overreaching rostral apex; well pigmented cornea hemispherical, situated distolaterally on eyestalk well short of apex. Antenna 1 peduncle (Fig. 1B) slightly less than 0.3 times carapace length, shorter by length of distal article than antenna 2 peduncle, bearing elongate ventrally-directed setae. Antenna 2 peduncle (Fig. 1B) article 4 cylindrical, longest, article 5 four-fifths length of article 4. Mandible, maxilla 1 and 2, and maxilliped 1 as in Fig. 2A–E. Maxilliped 2, (Fig. 2E) exopod strap-shaped, as long as merus; epipod digitiform. Maxilliped 3 (Fig. 2F), ischium with dentate crest on inner surface having 14 teeth, plus 5 separate proximal teeth; propodus subcircular; dactylus narrow, digitiform, slightly curved, less than 0.25 times width of propodus; exopod absent. Pereopod 1 chelipeds strongly dissim-

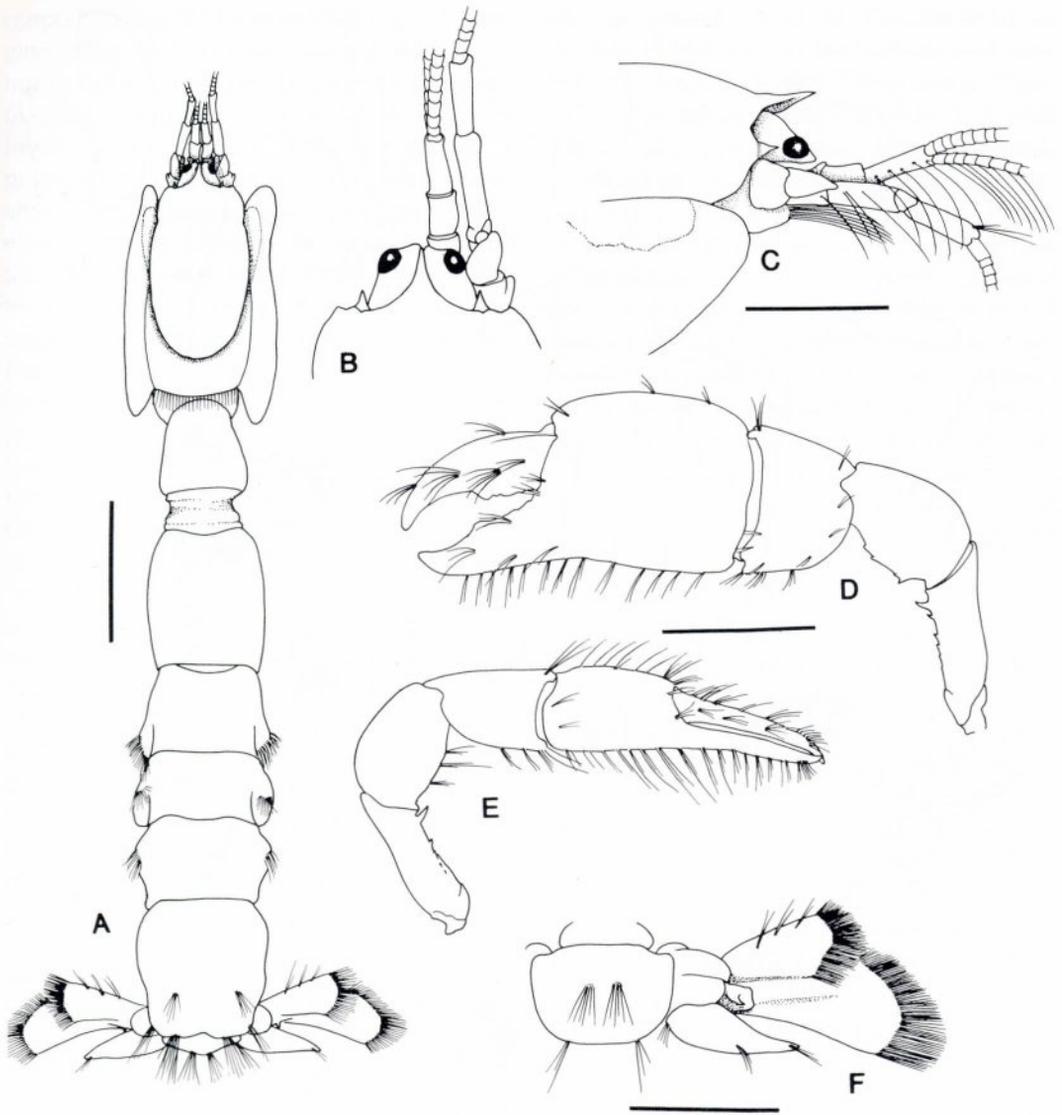


Fig. 1. *Corallichirus bayeri*, new species, holotype, USNM 310677: A, Whole animal in dorsal view, scale = 5 mm; B, Anterior carapace in dorsal view; C, Anterior carapace in lateral view, scale = 2 mm; D, Pereopod 1 larger cheliped; E, Pereopod 1 smaller cheliped, scale = 3 mm; F, Telson and right uropod, scale = 3 mm.

ilar in male and female; larger cheliped (Fig. 1D) with ischium about twice longer than distal width, with single strong distal tooth on lower margin, followed by 5 smaller teeth/serrations; merus width about 0.6 times greatest length, with upper margin unarmed, lower margin with single small proximal tooth and few tubercles; carpus widening distally, upper and lower margins

unarmed; fingers of chela about 0.66 times length of propodal palm, latter rectangular, only slightly longer than wide, upper and lower margins unarmed, lower margin bearing row of setal tufts; fixed finger and dactylus with low cusp at about midlength and few low tubercles proximally. Pereopod 1 smaller cheliped (Fig. 1E), ischium about 3 times longer than wide, single strong distal

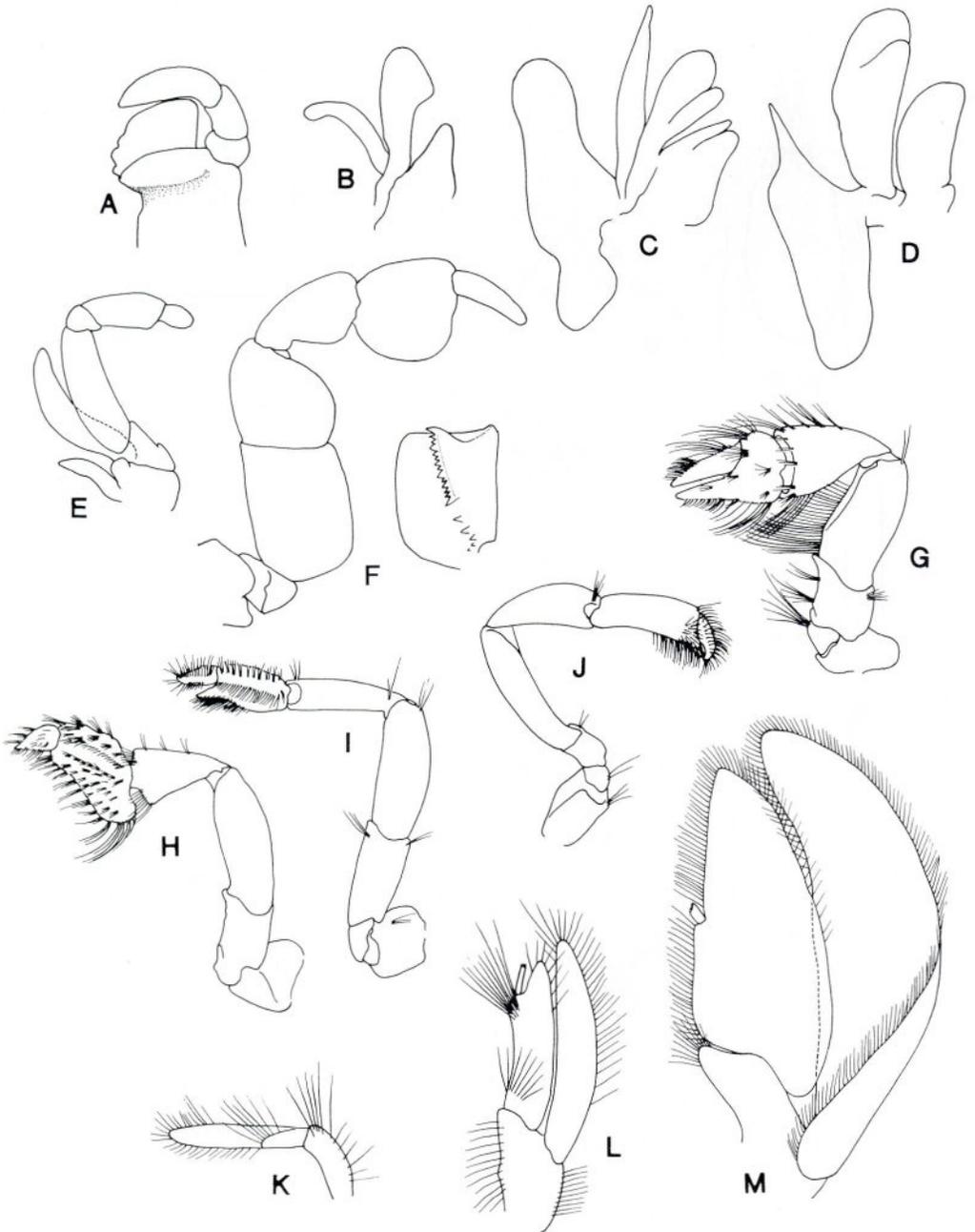


Fig. 2. *Corallichirus bayeri*, new species, holotype, USNM 310677: A, Mandible; B, Maxilla 1; C, Maxilla 2; D, Maxilliped 1; E, Maxilliped 2; F, Maxilliped 3, with inner surface of ischium; G, Pereopod 2; H, Pereopod 4; I, Pereopod 5; J, Pereopod 5; K, Pleopod 1; L, Pleopod 2; M, Pleopod 3.

tooth on lower margin, 4 or 5 smaller teeth/serrations proximally; merus width about 0.66 times of length, lower margin unarmed; carpus widened distally, margins

unarmed; chela with slender fingers slightly longer than propodal palm, cutting edges unarmed, lower margin of propodus and fixed finger bearing row of setal tufts. Pe-

reopod 2 (Fig. 2G) merus with row of elongate setae on lower margin; carpus widening distally, with tufts of setae along upper margin, clump of long setae distally on lower margin; fingers of chela longer than propodal palm. Pereopod 3 (Fig. 2H) merus about 3 times longer than wide; carpus widening distally, clumps of setae on distal margin; propodus twice longer than wide, with numerous tufts of setae; dactylus roughly triangular, apically acute, setose. Pereopod 4 (Fig. 2I) ischium about twice longer than wide; merus almost 3 times longer than wide; carpus slender, about 4 times longer than wide; propodus about twice longer than wide, with several rows of setae, and thumb-like projection on lower margin; dactylus reaching beyond propodal 'thumb', distally narrowed, setose. Pereopod 5 (Fig. 2J) merus about 4 times longer than wide; carpus about 3 times longer than wide; propodus distally densely setose, about 2.5 times longer than wide, with ventrodistal 'thumb'; dactylus curved, setose, meeting propodal thumb. Pleopod 1 (Fig. 2K) slender, of 2 setose articles, distal article with proximal curved ridge. Pleopod 2 (Fig. 2L) endopod shorter than exopod, with rounded distal setose 'bump' bearing slender appendix interna, latter falling short of apex of ramus; exopod lateral margin curved, about same width as endopod. Pleopod 3 (Fig. 2M), rami broad, bearing numerous marginal setae; endopod roughly triangular, with stubby appendix interna at about midlength of mesial margin; exopod curved around lateral margin of endopod, reaching proximally and distally beyond endopod. Uropodal endopod (Fig. 1F) basally broad, slightly curved, tapering distally to subacute apex, reaching to about midlength of exopod; latter strongly bipartite, lateral sublobe about half length of mesial sublobe, both fringed with dense band of stiff setae.

Male: Similar to female, especially in structure of pereopods, pleopods, and uropods.

*Remarks.*—The following features of the

present material lead to *Corallichirus* in Poore's (1994) key to the callianassid genera: Maxilliped 3 dactylus slender. Carapace with dorsal oval. Pleopods 3–5 with stubby appendix interna. Eyes flattened, subterminal on flattened eyestalk. Maxilliped 3 merus unarmed. Maxilliped 3 propodus oval. Abdomen without pattern of symmetrical grooves. Uropodal endopod not curved or strap-shaped. Maxilliped 3 without exopod. Antenna 1 peduncle not longer than antenna 2 peduncle. Rostral spine distinct, upturned; front trispinose. Cheliped carpus and propodus upper margin unarmed. Eye subglobular, distal, as wide as eyestalk. Abdominal somite 2 as long as somite 6. Carapace less than 10 mm.

Manning (1992) created the genus *Corallichirus* (type species *Corallianassa xutha* Manning, 1988) for those species formerly in *Corallianassa*, in which abdominal somite 2 was equal in length to abdominal somite 6. Tudge et al. (2000) list four species in *Corallichirus*, all of which resemble the present material to some degree, but differ from it in several features.

*Corallichirus hartmeyeri* (Schmitt, 1935), known from Jamaica and Ascension Island (see Manning & Chace 1990) has the eyes extending beyond the rostrum, unlike the present new species. In *C. hartmeyeri*, the smaller cheliped of pereopod 1 is not as slender, while the uropodal rami are shorter and broader, the endopod not pointed.

*Corallichirus placidus* (De Man, 1905), known from Seba and Laiwui, Indonesia, has the eyes reaching beyond the rostrum, the uropodal exopod less elongate than in the present new species, the uropodal endopod rounded and not distally pointed. The telson is more rectangular than in *C. bayeri*. The smaller cheliped of pereopod 1 is not as slender.

The type species, *Corallichirus xuthus* (Manning, 1988), from Baja California to the Galapagos Islands, has the eyes reaching beyond the rostrum, relatively shorter

uropodal rami, the uropodal endopod not distally pointed.

*Corallichirus tridentata* (von Martens, 1868) (see De Man 1928, Sakai 1970), known from Java, Indonesia, and Sri Lanka has the eyes reaching beyond the rostrum, while the eye shape differs, especially the cornea which is not subterminal as in *C. bayeri*. The antennular peduncle is distinctly longer than the antennal peduncle. Pleopod 2 is more slender, while the appendix interna of pleopods 3–5 is distinctly more slender than in *C. bayeri*. The uropodal endopod is rounded, not distally pointed, and while the uropodal exopod is clearly bipartite, it is not as elongate as in *C. bayeri*. The strong meral hook on the cheliped of pereopod 1 in *C. tridentata* does not agree with the other species of *Corallichirus*, and suggests that the species might better be placed in *Callichirus*. None of the descriptions of the species, however, refer to any sculpturing on the dorsum of the abdominal somites, a characteristic of *Callichirus*.

The very distinctive form of the uropods, with a strongly bipartite exopod and a narrow distally tapered endopod in *C. bayeri*, requires some comment. A very similar uropod is seen in species of at least three other callianassid lineages, viz. *Callianassa nakasonae* Sakai, 1967, *Callichirus intesi* de Saint Laurent & Le Leouff, 1979, and *Glypturus martensi* (Miers, 1884) (= *Callianassa haswelli* Poore & Griffin, 1979), suggesting that this suite of uropodal characters evolved at some basal level within the family Callianassidae, perhaps in response to living in the narrow spaces under rocks. All the genera in which this uropodal form appears are members of the admittedly paraphyletic Callichirinae, within which some species of *Corallichirus* and *Glypturus* do seem to form a clade (see Tudge et al. 2000:137).

Sakai (1999) regards *Corallichirus*, along with *Corallianassa* Manning, 1987, as synonyms of *Glypturus* Stimpson, 1866, but does not present a single unique advanced character that unites these three genera. As

a result, Sakai's definition of *Glypturus* does not appear to reflect a genuine monophyletic clade, and his synonymy is not regarded as useful.

*Etymology*.—The species is named for my colleague Dr. Frederick Bayer, as a small mark of thanks and appreciation for all his help with things taxonomic and biological over more than two decades.

#### Acknowledgments

I am grateful to Dr. Gustav Paulay (Florida Museum of Natural History) for making the present material available for study and to H. Conley and F. Schroeder who collected the material. I thank Drs Chris Tudge and Rafael Lemaitre (Department of Systematic Biology, National Museum of Natural History) for commenting on a draft of this paper.

#### Literature Cited

- Dana, J. D. 1852. *Conspectus crustaceorum quae in orbis terrarum circumnavigatione, Carol Wilkes e classe republicae foederatae duce, lexit e descripsit*.—Proceedings of the Academy of Natural Sciences, Philadelphia 6:6–28.
- Man, J. G. de. 1905. Diagnoses of new species of macrurus decapod Crustacea from the 'Siboga Expedition'.—Tijdschrift voor Nederlandse Dierkundige Vereeniging (2)9:587–614.
- . 1928. A contribution to the knowledge of twenty-two species and three varieties of the genus *Callianassa* Leach.—*Capita Zoologica* 2(6):1–56.
- Manning, R. B. 1987. Notes on Western Atlantic Callianassidae (Crustacea: Decapoda: Thalassinidea).—Proceedings of the Biological Society of Washington 100:386–401.
- . 1988. The status of *Callianassa hartmeyeri* Schmitt, 1935, with the description of *Callianassa xutha* from the west coast of America (Crustacea, Decapoda, Thalassinidea).—Proceedings of the Biological Society of Washington 101:883–889.
- . 1992. A new genus for *Corallianassa xutha* Manning (Crustacea: Decapoda: Callianassidae).—Proceedings of the Biological Society of Washington 105:571–574.
- , & F. A. Chace, Jr. 1990. Decapod and stomatopod Crustacea from Ascension Island, South Atlantic Ocean.—*Smithsonian Contributions to Zoology* 503:1–91.

- Martens, E. C. von. 1868. Über einige neue Crustaceen.—Monatsberichte der Königlich Preussische Akademie des Wissenschaften zu Berlin 1868:608–615.
- Miers, E. J. 1884. Crustacea. Pp. 178–322, 513–575 in Report on the zoological collections made in the Indo-Pacific Ocean during the voyage of H.M.S. Alert 1881–2. British Museum, London.
- Poore, G. C. B. 1994. A phylogeny of the families of Thalassinidea (Crustacea: Decapoda) with keys to families and genera.—Memoirs of the Museum of Victoria 54:79–120.
- , & D. J. G. Griffin. 1979. The Thalassinidea (Crustacea: Decapoda) of Australia.—Records of the Australian Museum 32:217–321.
- Saint Laurent, M. de, & P. Le Loeuff. 1979. Crustacés Décapodes Thalassinidea. I. Upogebiidae et Callianassidae.—Annales de l'Institut Océanographie 55:29–101.
- Sakai, K. 1967. Three new species of Thalassinidea (Decapoda, Crustacea) from Japan.—Researches on Crustacea, Tokyo 3:39–51.
- . 1970. Supplementary description of *Callianassa (Callichirus) tridentata* von Martens (Crustacea, Thalassinidea).—Publications of the Seto Marine Biological Laboratory 17(6):393–401.
- . 1999. Synopsis of the family Callianassidae, with keys to subfamilies, genera and species, and the description of new taxa (Crustacea: Decapoda: Thalassinidea).—Zoologische Verhandlungen 326:1–152.
- Schmitt, W. L. 1935. Mud shrimps of the Atlantic coast of North America.—Smithsonian Miscellaneous Collections 93(2):1–21.
- Stimpson, W. 1866. Descriptions of new genera and species of macrurous Crustacea from the coasts of North America.—Proceedings of the Chicago Academy of Sciences 1:46–48.
- Tudge, C. C., G. C. B. Poore, & R. Lemaitre. 2000. Preliminary phylogenetic analysis of generic relationships within the Callianassidae and Ctenocheilidae (Decapoda: Thalassinidea: Callianassoidea).—Journal of Crustacean Biology 20: 129–149.