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# THE TAXONOMIC STATUS OF *CALLIANASSA OCCIDENTALIS* BATE, 1888, AND *C. BATEI* BORRADAILE, 1903 (DECAPODA, CALLIANASSIDAE) [1])

BY

THOMAS A. BIFFAR

Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, Florida, 33149, U.S.A. [2])

In a volume of the Challenger Reports, Bate (1888) described a new species of *Callianassa*, *C. occidentalis*, based on a single cheliped. The species was not encountered again, and subsequent authors have reserved judgment on its status. In the same Challenger volume, Bate (1888) described a second new species, *Cheramus occidentalis*, based on a mutilated specimen lacking chelipeds taken in the same haul with the type of *Callianassa occidentalis*. This second species was not taken again, but Borradaile (1903) changed its name to *Callianassa batei* when he reduced *Cheramus* to a subgenus of *Callianassa*. Because both species are known from a single record, any additional material of either species would be most valuable for indicating the validity of both taxa.

Cruise P-6907 of the R/V "Pillsbury" included moderately deep trawling operations in the general area of Bate's station (off Sombrero Island). During sorting of the material from the cruise, Mr. Talbot Murray discovered a specimen of *Callianassa* which he kindly brought to my attention. Little examination was needed to recognize the characters ascribed to both *C. occidentalis* and *C. batei*. The identity could be further confirmed thanks to the efforts of Dr. Anthony Rice and Mr. R. W. Ingle, who compared the "Pillsbury" specimen with the types of Bate's taxa and found them to represent a single species. Since Bate's taxa are so poorly known and because there are nominal difficulties involved, it was felt that a redescription of the species should not await discovery of more material.

As noted above, we are dealing with a single species which is now found to have two names, *C. occidentalis* and *C. batei*. Under normal circumstances *C. batei* would be synonymized with *C. occidentalis*, but the latter name was preoccupied as noted by Borradaile (1903). It had been used previously by Stimpson (1856) for an eastern Pacific species now considered synonymous with *C. californiensis*

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[2]) Present address: Department of Biology, Old Dominion University, Norfolk, Virginia, 23508, U.S.A.

Dana. Obviously the taxa are not the same, and *C. occidentalis* Bate is a junior homonym. Therefore, according to Article 60 of the Code, the rejected homonym must be replaced by the oldest available synonym or by a new name. *Callianassa batei* would serve as the former were it not for the fact that it too is preoccupied. Woodward (1868) used the name *C. Batei* for a fossil taken on the Isle of Wight, and his illustration clearly refers to a different taxon. Since both *C. occidentalis* Bate and *C. batei* Borradaile are junior homonyms, the taxon requires a new name.

### **Callianassa profunda** new name (figs. 1, 2)

*Callianassa occidentalis* Bate, 1888: 29, pl. 2 fig. 2k; Borradaile, 1903: 548; Balss, 1925: 212; De Man, 1928a: 25; Schmitt, 1935: 3 [not *Callianassa occidentalis* Stimpson, 1856].
*Cheramus occidentalis* Bate, 1888: 32, pl. 2 fig 1 [not *Callianassa occidentalis* Stimpson, 1856].
*Callianassa batei* Borradaile, 1903: 546 [new name for *Cheramus occidentalis*]; De Man, 1928: 10, pl. 1 fig. 3; De Man, 1928a: 26; Schmitt, 1935: 5 [not *Callianassa batei* Woodward, 1868].

Material examined. — 1 ♂, 19 mm; off Sombrero Island, 18°29.3′N 63°24.6′W; "Pillsbury" Sta. 988; 686-724 m; 23 July 1969; USNM 139176.

Diagnosis. — Total length less than 20 mm. Eyestalks smoothly rounded laterally, length only 1.25 times width. Distal margin of antennular peduncle not reaching distal margin of fourth segment of antennal peduncle. Third maxilliped narrow, ischium with strong spinous crest, merus subquadrate, width of propodus 0.60 to 0.65 times width of merus. Chelipeds of first pereiopods subequal, dorsal margin of merus concave, ventral margin convex with spinous serrations. Propodus of third pereiopod with small rounded posterior lobe. Distal half of lateral margin of telson with two spinules, distal margin of telson with median acute projection.

Description. — Rostrum broken proximally in present material; spinous and reaching nearly to distal end of eyestalks according to Bate (1888). Lateral projections rounded, at lateral margin of eyestalks. Eyestalks shorter than first antennular segment, length 1.25 times width, lateral and distal margins broadly rounded, no distal projections; pigmented area irregular, central.

Third segment of antennular peduncle 2.2 times length of second segment. Fourth segment of antennal peduncle 1.55 times length of third antennular segment, 1.7 times length of fifth antennal segment. Antennal flagellum 4.25 times length of antennular. Scattered tufts of setae on segments of antennal and antennular peduncles.

Incisor process of mandible with seven rounded teeth ventrally, molar process subacute ventrally, remainder entire. First maxilla with narrow, distally-rounded basal endite, broadly rounded lobe on coxal endite. Endopod of second maxilla broad proximally, narrowing distally, slightly hooked at tip. Exopod of first maxilliped angular, rounded distally, basal endite elongate oval, epipod small, triangular, broadly rounded laterally, narrowly rounded distally. Segments of endopod of second maxilliped broad, strong, exopod shorter (0.86) than first segment of endopod. Third maxilliped narrow, length of merus and ischium

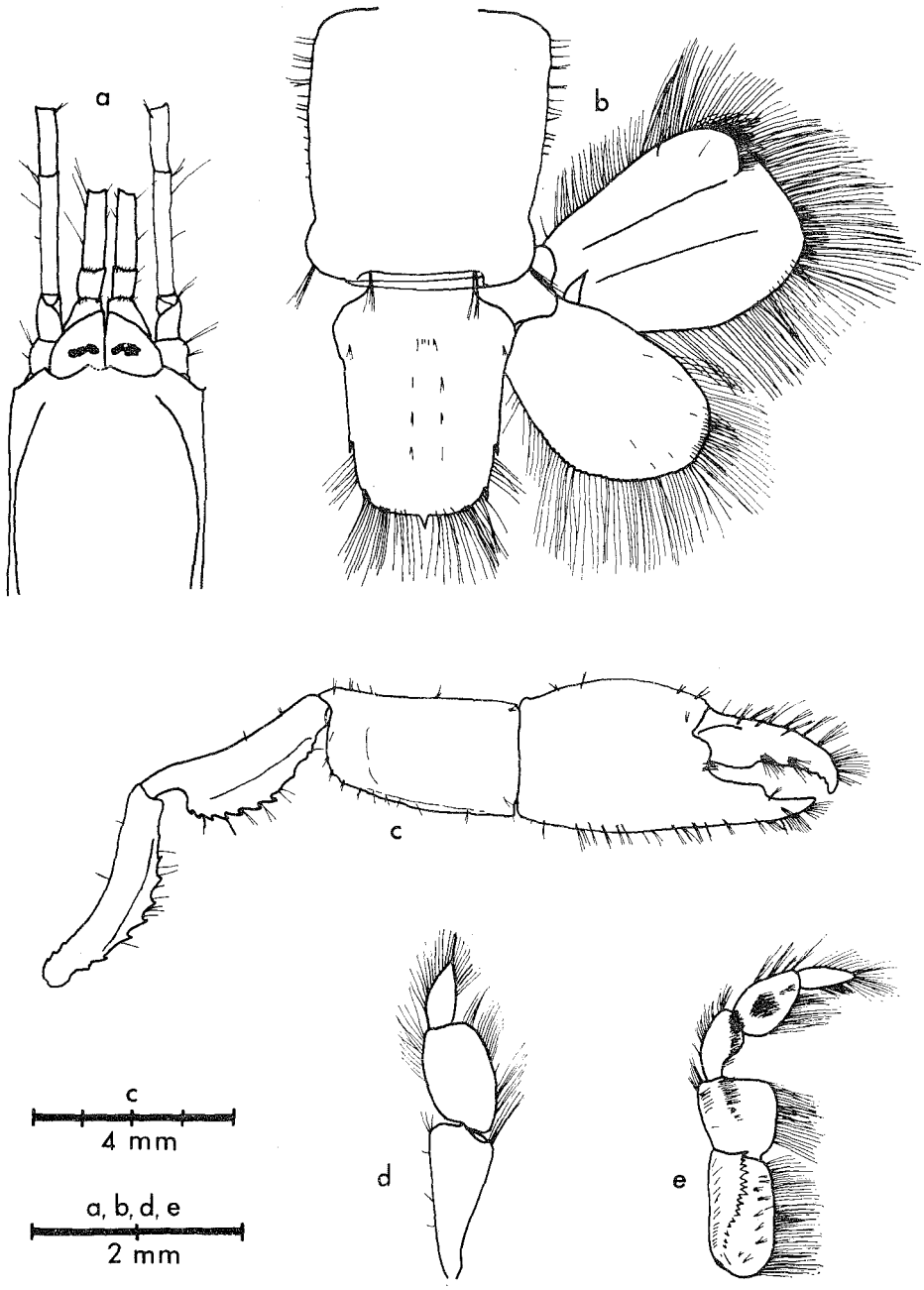


Fig. 1. *Callianassa profunda* new name. a, dorsum; b, tail fan; c, right cheliped; d, third pereiopod; e, third maxilliped.

combined 2.55 to 2.60 times width of merus, ischium with strong spinous crest on mesial surface containing 16 spines, merus subquadrate; propodus narrow, width 0.60 to 0.65 times width of merus; width of dactylus 0.43 times width of propodus.

First pereiopods subequal. Ischium of right cheliped with small serrations proximodorsally, large, separated, spinous serrations ventrally, dorsal margin concave. Merus narrow proximally, expanded into serrate ventral keel centrally, dorsal margin concave, length 3.0 times width. Carpus subrectangular, compressed ventrally and proximally, length 1.72 times width, 1.03 times length of merus, dorsal margin concave, ventral margin serrate proximally. Palm subquadrate, length 1.2 times width, 0.94 times length of carpus, dorsal and ventral margins convex, propodal finger subacute at tip, single broad triangular tooth centrally on cutting edge. Length of dactylus 0.72 times length of palm, cutting edge with rounded tooth proximally, remainder of edge with rounded serrations.

Left cheliped very similar in form to right. Proximodorsal serrations on ischium and ventral serrations on merus slightly stronger. Length of merus 3.27 times width. Length of carpus 1.79 times width, 0.97 times length of merus, shape as in right cheliped. Length of palm 1.23 times width, 0.91 times length of carpus, dorsal margin less rounded, propodal finger broader throughout, triangular central tooth on cutting edge. Length of dactylus 0.75 times length of palm, cutting edge as in right cheliped.

Chela of second pereiopod asymmetrical, propodal finger wider proximally. Propodus of third pereiopod with small rounded lobe posteriorly, length 1.66 times width. Fourth pereiopod simple. Fifth pereiopod chelate.

Two arthrobranchs on third maxilliped and first through fourth pereiopods, anterior gill on third maxilliped rudimentary, no gill on second maxilliped.

First pleopod uniramous, two-segmented, second segment blade-like. Second pleopod biramous, endopod blade-like, about 0.5 times length of blade-like exopod. Appendix interna of third through fifth pleopods finger-like with hooks distally.

Endopod of uropod rounded, length 1.52 times width, about as long as telson, fringed with plumose setae distally and mesially, short series of stronger setae set back from margin distolaterally. Exopod of uropod rounded, slightly longer than endopod, upper exopodal plate defined only by a single row of spinous setae along distal margin, distal margin of lower plate fringed with strong simple setae, plumose setae fringing lateral and mesial margins, no basal spine.

Telson long, length to tip of spine 1.4 times width, widest in anterior quarter, narrowing distally, distal half of lateral margins with two articulated spinules, distal margin with well developed median acute spine, margin fringed with plumose setae.

Color. — Unknown in fresh material. Preserved specimen with white chelipeds, body pale yellow.

Discussion. — Several of the remarks made by Bate (1888) require explanation.

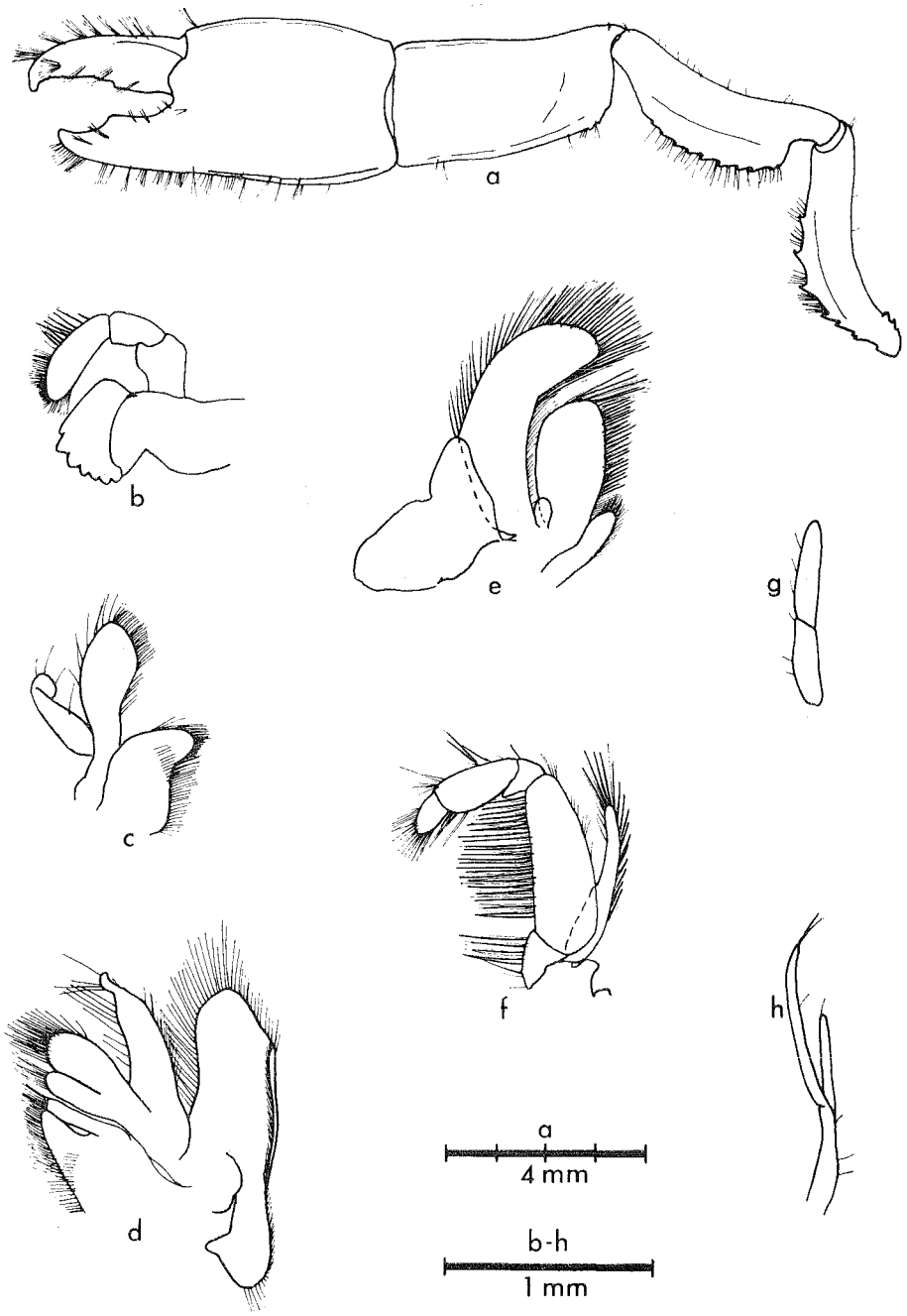


Fig. 2. *Callianassa profunda* new name. a, left cheliped; b, mandible; c, first maxilla; d, second maxilla; e, first maxilliped; f, second maxilliped; g, first pleopod; h, second pleopod.

He suggested that the two species he was describing might in fact be one, but he felt that the cheliped was too large to be carried by the specimen at hand. Had the chelipeds not been attached to the present material, it would not have been difficult to reach the same conclusion. The claw measured 20 mm when extended and thus is slightly larger than the total length of the animal. That the animal can carry such large claws is remarkable.

The branchial formula of the present specimen does not coincide with that given in Bate's description. It seems quite possible that the difference may have resulted from the mutilated condition of the original specimen, but present material has the second arthrobranch on the fourth pereiopod as well as a lamellate gill and a rudimentary one on the third maxilliped.

Bate appeared to place special emphasis on both the branchial formula and structure, and he made a detailed comparison of the structure displayed in *C. profunda* and *"Cheramus orientalis"* Bate. (The latter name is predated by *Callianassa orientalis* A. Milne Edwards (1860), but since again one is based on a claw and the other on a partial specimen, there is no telling at the moment if the two are conspecific or not). While the comparison which was made may be valid for whichever gills were used, similar variation could be described from a single animal by comparing a well developed posterior gill with a less well developed anterior gill. Such a pattern is fairly common in this group.

The present material would be difficult to identify by using De Man's key (1928a) because of confusion over the curvature of the distal margin of the telson and the relative lengths of the segments of the antennal peduncle. De Man had not seen the original specimen and had to rely on Calman's sketch (see De Man, 1928) for the telson character and Bate's illustration for the antennal peduncle. The distal margin of the telson is more easily interpreted as rounded than as concave and the length of the fifth antennal segment is 0.6 times the length of the fourth segment. Utilizing either of these characters in the key would not allow proper identification of the species, but it would be difficult to confuse *C. profunda* with any other described species. There are morphological similarities with *C. sibogae* De Man (shape of the telson, antennal peduncle, third maxilliped), *C. modesta* De Man (telson, third pereiopod), *C. propinqua* De Man (telson, antennae), and *C. intermedia* De Man (uropods, antennae), but none of these appear to be particularly closely related to *C. profunda.* In the western Atlantic, only *C. minima* Rathbun approaches *C. profunda* in its morphology, but this too is not a close relationship.

Etymology. — The new name for this species reflects the depth from which it has been collected. Thus far, it represents the deepest occurring species, exceeding all other records by 50-100 fathoms.

RÉSUMÉ

Un spécimen de Callianasse a été récolté en eau profonde au large de l'île Sombrero aux Antilles. Ce spécimen unique apparaît comme la seconde capture de deux espèces décrites par Bate (1888)

d'après des fragments de spécimens. Les noms proposés par Bate et, plus tard, par Borradaile (1903) étant pré-occupés, l'espèce doit être désignée sous le nouveau nom, *Callianassa profunda.* L'espèce est redécrite et illustrée d'après le nouveau matériel et les remarques des auteurs précédents relatives à cette forme sont revues.

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