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CHERAX NUCIFRAGA, A NEW SPECIES OF FRESHWATER CRAYFISH (CRUSTACEA: DECAPODA: PARASTACIDAE) FROM THE NORTHERN TERRITORY, AUSTRALIA.

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ABSTRACT

A new species of freshwater crayfish, *Cherax nucifraga*, from the Northern Territory, Australia, is described and illustrated. The species most closely resembles *C. barretti* Clark, and has affinities with the "*quadricarinatus*" species-group, characterised by an uncalcified patch on the propodus of the first chelipeds in large males.

KEYWORDS: Taxonomy, Crustacea, Parastacidae, *Cherax*, new species, northern Australia.

INTRODUCTION

The genus *Cherax* Erichson, is restricted to the Australian continental plate (Australia, southern New Guinea and islands on the continental shelf between the two land masses). In a revision of the New Guinea Parastacidae, Holthuis (1949) recorded 12 species from mainland New Guinea, Misool I. and the Aru Islands. Holthuis (1950) described two additional species from New Guinea.

Riek (1969) listed a further 27 species from mainland Australia, the Wessel Islands and Badu I. No new species have been described since the work of Riek (1969). It is interesting therefore, that a large undescribed species should exist in the Northern Territory only 100 km from Darwin.

The new species was noticed as I was sorting through unregistered crustacean collections in the Northern Territory Museum of Arts and Sciences. The distinctive chelipeds and rostrum immediately suggested that the specimen belonged to an undescribed species.

Abbreviations used in text: NT, Northern Territory; NTM, Northern Territory Museum of Arts and Sciences, Darwin; OCL, orbital carapace length; T, thoracic sternite, T5, thoracic sternite five etc.

SYSTEMATICS

Cherax nucifraga sp.nov.
(Figs 1-4)

Type material. HOLOTYPE - male (44.6 mm OCL), Palm Springs, near Channel Pt, Northern Territory, 13°11'S, 130°10.5'E, taken from barramundi (*Lates calcarifer*) stomach, 19 March 1983, coll. Nimrod Safaris, NTM CR007430.

Description. Rostrum triangular, dorsally flattened, ca. 1.8 times longer than broad, reaching joint between penultimate and terminal segments of antennular peduncle, lateral carinae feebly developed, terminating shortly after beginning of postorbital carinae, left carina bearing three blunt tubercles, the first ca. halfway along rostral margin, third close to tip; right rostral carina armed with two blunt tubercles positioned slightly forward of corresponding first and second tubercles on left carina, ventrolateral margins with long setae, acumen broken.

Eyes with cornea large, globular, well pigmented, eyestalks short and largely concealed by rostrum. Antennula of typical shape. Scaphocerite short, ca. 2.2 times longer than broad, clearly overreaching antennular peduncle and rostrum, broadest point ca. halfway along

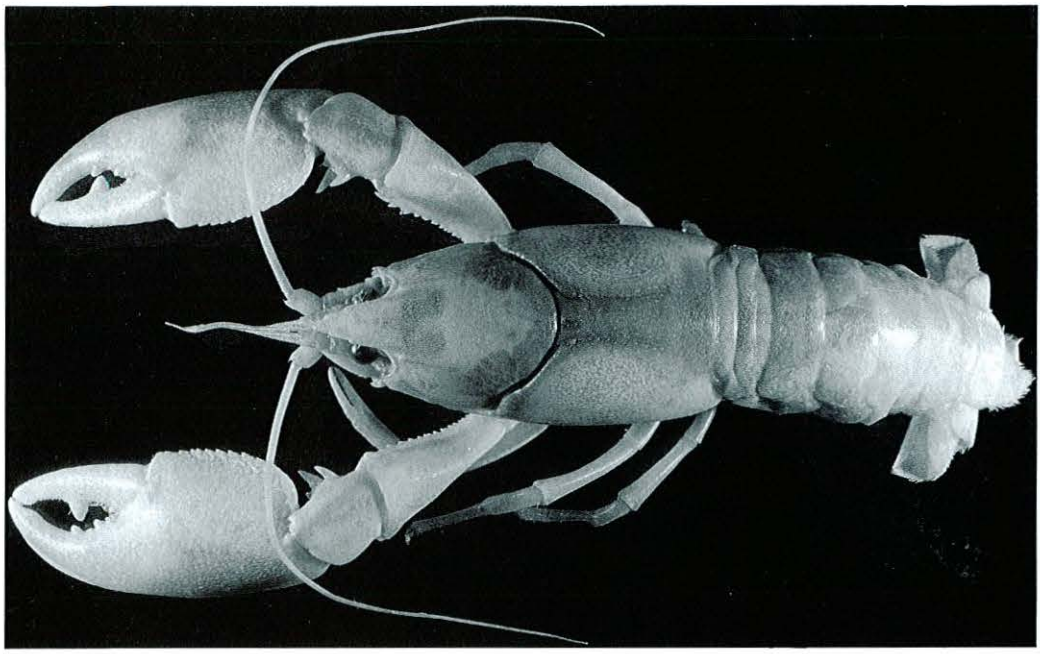

Fig.1.*Cherax nucifraga* sp.nov., holotype male, NTM Cr007430. Scale divisions in millimetres.

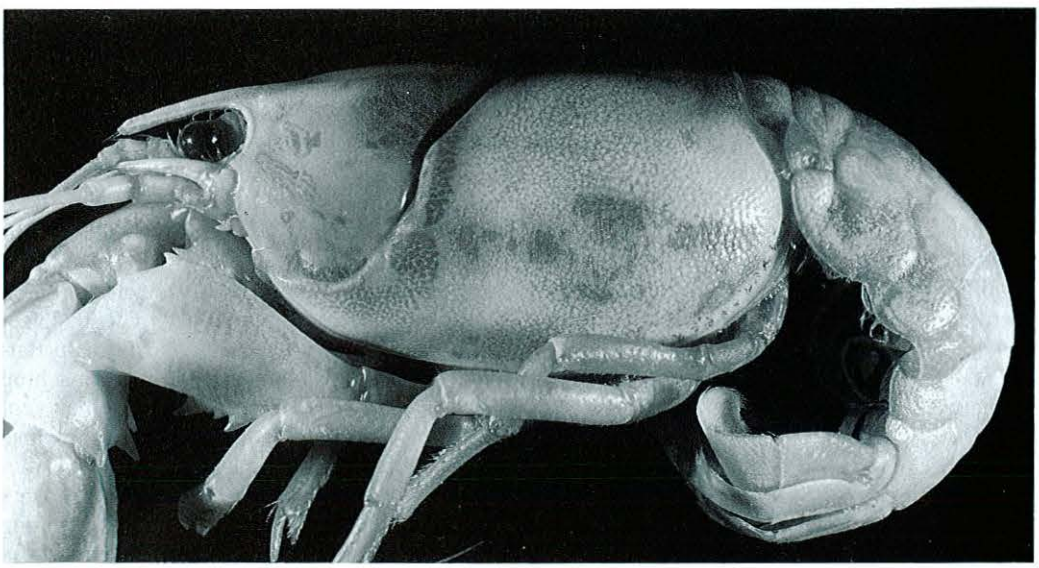

Fig.2.*Cherax nucifraga* sp.nov., holotype male, lateral view. Scale divisions in millimetres.

length, outer margin swollen, well calcified, terminating in a spine, lamina more or less triangular, poorly calcified and flexible. Antennal peduncle reaching end of scaphocerite, coxocerite armed with strong spine anterior to the excretory pore, basicerite with strong lateral spine.

Carapace punctate, orbital carapace length ca. twice carapace breadth and 1.6 times carapace depth, postorbital carinae well developed, ending with tubercle anteriorly, diverging posteriorly and ending at about half cephalon length; cephalon posterolateral margins with raised tuberculate region; branchiostegites inflated, armed with five large teeth along cervical groove, anterolateral regions tuberculate, branchiocardiac grooves distinct.

Epistome slightly concave with a number of tubercles posterolaterally. Mouthparts without special features. Branchial formula typical for genus (cf. Holthuis, 1949), with posterior arthrobranch of fourth leg reduced in size.

First chelipeds large, isomorphic, reaching beyond scaphocerite by half length of carpus, outer margin of chela strongly convex. Fingers strongly gaping, moveable finger bearing large molar tooth ca. halfway along cutting edge, smaller tooth proximally, separated by long setae, row of tubercles in distal half, base of moveable finger very broad. Fixed finger with two moderately large teeth and number of smaller teeth in proximal half, outer margin with well developed uncalcified patch ca. 0.7 times length of moveable finger. Palm broad, breadth ca. 0.9 times mesial length, mesial margin serrated. Carpus ca. 0.3 chela length, armed with four large spines, two mesial spines, anterior spine directed ventrally, posterior spine dorsally, two anteroventral spines, one placed below the condyle, second spine halfway to anterior mesial spine, anteromesial region with few moderately long setae. Merus of typical shape, ca. half chela length, dorsal carina armed with anteriorly directed spine followed by series of tubercles, inner anterodorsal margin bearing 2 or 3 tubercles, outer ventral carina with two large spines separated by smaller spine and with number of tubercles posteriorly, inner ventral carina bearing two large spines anteriorly followed by many tubercles along length, outer anteroventral angle with large spine near condyle. Ischiobasis deeply excavated at articulation point with coxa.

Second pereiopod with palm ca. equal in length to moveable finger, carpus slightly longer than palm, merus ca. equal to combined length of carpus and palm. Third pereiopods missing. Fourth right pereiopod subchelate (probably aberrant), left simple (as typical for the genus), propodus slightly more than twice length of dactylus, carpus ca. 3/4 length of propodus, merus ca. 1/6 longer than propodus. Fifth pereiopods simple, propodus almost three times longer than dactylus, carpus ca. 2/3 length of propodus, merus slightly shorter than propodus. Sternal keel sharp throughout length and armed with well developed spine on T5, lateral processes well separated medially on T7 and T8, setose, mesial surfaces concave, without conspicuous pores, T8 with a flat circular region medially between lateral processes.

Abdomen punctate, pleurae broadly rounded, second pleura with large, deep concavity, telson ca. 1.3 times longer than broad, uropods of typical shape.

Colouration. After seven years of storage in formalin no trace of colouration remains, apart from a slight reddish tinge to one of the uncalcified patches on the first chelipeds.

Etymology. Derived from the latin, *nux* (a nut) and *frango* (to break), and referring to the unusual form of the chelae, which resemble nutcrackers. The specific name is to be treated as a feminine noun in apposition.

Distribution. Only known from Palm Springs, NT. The type locality is in low lying, floodplain country very close to the sea.

Remarks. The present specimen, taken from the stomach of a barramundi, is remarkably complete and well preserved. There is evidence that the cuticle of the exoskeleton has broken down slightly. Possibly a number of setae have also been lost from areas such as the dorsomesial palm on the first chelipeds during ingestion and partial digestion by the fish. For this reason surface detail of the carapace and the distribution

Fig.3. *Cherax nucifraga* sp.nov., holotype male, cephalothorax, ventral view.

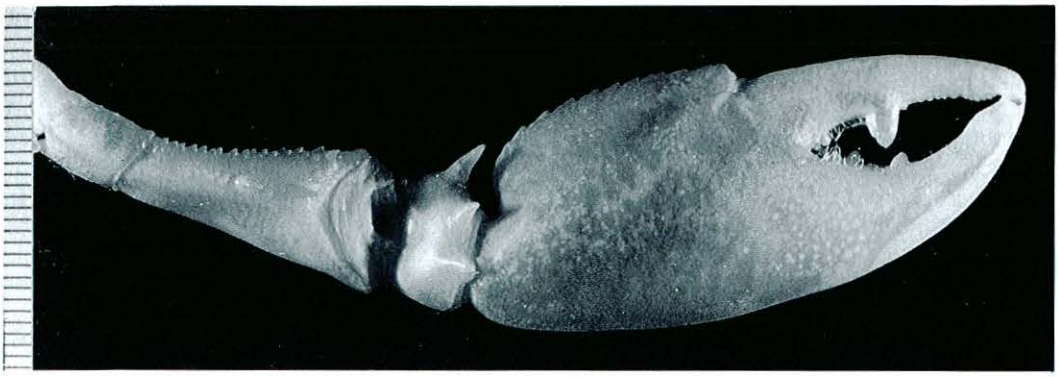

Fig.4. *Cherax nucifraga* sp.nov., holotype male, left cheliped, ventral view. Scale divisions in millimetres.

of setae on the chelipeds have not been emphasised in the description.

Cherax nucifraga is a very distinctive species of *Cherax*, and belongs to a species-complex characterised by an uncalcified patch on the propodus of the first chelipeds in large males and the presence of sharp, well-developed, carpal spines. This complex, which I have termed the "*quadricarinatus*" group (after the first described and most well known species), presently contains eight species, one of which is considered to consist of two subspecies, viz. - *C. quadricrinatus* (von Martens, 1868), *C. barretti* Clark, 1941, *C. rhynchotus* Riek, 1951, and *C. nucifraga* sp. nov. from northern Australia; *C. lorentzi lorentzi* J. Roux, 1911, *C. divergens* Holthuis, 1950 (characters to separate this species from *C. quadricarinatus* (von Martens) need to be defined) and *C. monticola* Holthuis, 1950, from southern New Guinea; *C. lorentzi aruanus* J. Roux, 1911, from the Aru Islands; and *C. misolicus* Holthuis, 1949, from Misool I.

The new species is easily distinguished from other members of the group by the widely gaping fingers on the first chelipeds and the large molar tooth on the moveable finger. In this regard the chelae are quite unlike the grasping/cutting claws typical of the genus and appear to be adapted more for crushing or cracking food items. Perhaps the peculiar chelae have developed specifically for predation on freshwater gastropods which are a favoured prey of other *Cherax* species (personal observation).

Cherax nucifraga most closely resembles *C. barretti* Clark, described from Wessel Is. (Marchinbar I.), off the northeastern NT. Unfortunately the only known specimen of *C. barretti* appears lost (cf. Riek 1969; Lew Ton and Poore 1987). Clark's (1941) description and figure agree with the present species in having tubercles on the lateral rostral carinae, rather than spines (the situation in other species of the "*quadricarinatus*" group). Although the present specimen is almost twice the size of that described by Clark (1941), there appear to be several strong differences between the two species which are unlikely to be related to size. The main differences are:

1. The cutting edges of the fingers of the first chelae bear only tubercles in *C. barretti* and lack the large molar tooth on the moveable finger. *Cherax barretti* also lacks a wide gape between the fingers.

2. A row of tubercles is present on the dorsal carpus of the first chelipeds in *C. barretti*.

3. The rostrum is much narrower at the base in *C. barretti* and the rostral carinae appear to end before the start of the postorbital carinae.

Cherax nucifraga sp.nov. is easily separated from *C. quadricarinatus* (von Martens), which occurs in the same region of the Northern Territory, by the distinctive rostrum, shorter and broader chelae, and the length of the rostral carinae which extend a considerable distance past the commencement of the postorbital carinae in the latter species (hence the four obvious carinae on the carapace from which the species derives its name).

Cherax bicarinatus (Gray, 1845), a species of uncertain taxonomic status (considered synonymous with *C. intermedius* Smith by Clark (1941); synonymous with *C. preissii* (Erichson) by Holthuis (1949); and a valid species by Riek (1949), although he believed the type series contained two specimens of *C. plebejus*) described from Port Essington, NT, does not appear to be closely related to the present species. The anteromesial, angular projection on the carpus of

the first chelipeds and the "three toothed at the top" rostrum are not typical of the "*quadricarinatus*" group.

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