

Cherax (Cherax) holthuisi, a new species of crayfish (Crustacea: Decapoda: Parastacidae) from the centre of the Vogelkop Peninsula in Irian Jaya (West New Guinea), Indonesia

C. Lukhaup & R. Pekny

Lukhaup, C. & R. Pekny. *Cherax (Cherax) holthuisi*, a new species of crayfish (Crustacea: Decapoda: Parastacidae) from the centre of the Vogelkop Peninsula in Irian Jaya (West New Guinea), Indonesia. Zool. Med. Leiden 80-1 (7), 10-iii.2006: 101-107, figs 1-4.— ISSN 0024-0672.

Christian Lukhaup, Gotenstr. 16, 71336 Bittenfeld, Germany (e-mail: Chris@crusta10.de).

Reinhard Pekny, Stixenlehen 8, 3345 Austria (e-mail: Reinhard@crusta10.de; homepage: www.crusta10.de).

Keywords: Crustacea; Decapoda, Parastacidae; *Cherax (Cherax) holthuisi*; new species; freshwater crayfish, Irian Jaya; Indonesia; West New Guinea.

A new species of crayfish, *Cherax (Cherax) holthuisi* spec. nov., is described and illustrated on the basis of nine specimens collected from Aitinjo Lake, Irian Jaya, Indonesia.

Introduction

More and more Crayfish species are introduced by wholesalers to the European and Japanese pet market. Some of these species are collected in Irian Jaya and come to Germany as well. These specimens were compared with crayfish from Irian Jaya stored in the Nationaal Natuurhistorisch Museum in Leiden, the Netherlands. These crayfish were described and reported upon by Holthuis in various publications (1949, 1956, 1968, 1982, 1986, and 1996). The result of this examination leads to the conclusion that some of the species are new to science. One of the newly introduced species was compared with nine specimens of an undescribed species collected by Dr M. Boeseman at the shorelines of the Aitinjo Lake, situated about 25 km southeast of Ajamaroe, in the Kais River Drainage in Western Irian Jaya, Indonesia in June 1952. These specimens perfectly match with this species introduced on the pet market.

The new species, *Cherax (Cherax) holthuisi*, is named for Dr L.B. Holthuis, honouring him for his numerous contributions to our knowledge of freshwater crayfish of the genus *Cherax*.

The new crayfish differs from all the other crayfish of this subgenus in the shape of its rostrum, the size of the eyes, the shape of chelae and also in the coloration. Furthermore, no other crayfish have been described from this region.

Abbreviations used: RMNH = Rijksmuseum van Natuurlijke Historie (= National Museum of Natural History, Leiden).

Cherax (Cherax) holthuisi spec. nov.

(figs 1-4)

Material examined.— Holotype male, RMNH D 51503: Indonesia, Western Irian Jaya, Kais River Drainage, at the shorelines of the Aitinjo Lake, situated about 25 km southeast of Ajamaroe; 13.vi.1952; bought from local people by M. Boeseman.— 4 male and 4 female paratypes RMNH D 51504: same data as holotype.

Description of male holotype.— Rostrum about 1.5 times as long as basal width, reaching to middle of ultimate segment of antennular peduncle and to base of ultimate segment of antennal peduncle; lateral carinae slightly elevated, extending posteriorly on carapace just beyond level of post-orbital spine, almost straight, with two indentations on each side in distal part, followed by several indistinct lobes proximally, no spines; ventrolateral margins straight, non-setose; dorsal surface flat, smooth, with short setae in distal part. Dorsal surface of carapace smooth, pitted; ventrolateral parts with scattered small tubercles; anterior margin strongly produced, rounded upper margin directed inward; post-orbital carinae long, sulcate, armed with single blunt post-orbital spine anteriorly, posteriorly fading, reaching beyond middle between tip of rostrum and cervical groove; cervical and branchiocardiac grooves distinct, non-setose.

The epistome broadly triangular, anteriorly becoming lance-shaped ending in acute distal tip; postero-lateral surface with small tubercles; central part smooth, excavate.

Dorsal surface of abdomen smooth, with scattered pits; pleura smooth more densely pitted in posterior half.

The eyes rather small; cornea globular, darkly pigmented, about as long as eyestalk; eyestalk slightly narrower than cornea.

Coxocerite of antennal peduncle with acute tooth anteriorly; basicerite with strong lateral spine; outer margin of scaphocerite slightly convex in the distal part, otherwise straight, distal tooth forward directed, reaching distinctly beyond lamella, almost reaching distal margin of ultimate segment of antennular peduncle; lamella semicircular becoming narrower in basal part; outer margin with broad, high, somewhat swollen, sharply defined ridge.

First legs of male equal in form, subequal in size, right cheliped largest, about as long as carapace. Chela 2.2–2.5 times as long as its height and 4.2–4.5 times as long as its depth (paratypes included), strongly compressed. Fingers shorter than palm, not gaping. Dactylus about same height throughout its length, slightly narrower in its distal third, distal tip a sharp, corneous, hooked tooth; cutting edge with rather small granular teeth over the full length, one tooth larger and more prominent at mid-length. Fixed fin-



Fig. 1, *Cherax (Cherax) holthuisi* spec. nov., holotype, length 91,2 mm, RMNH D 51503, habitus.

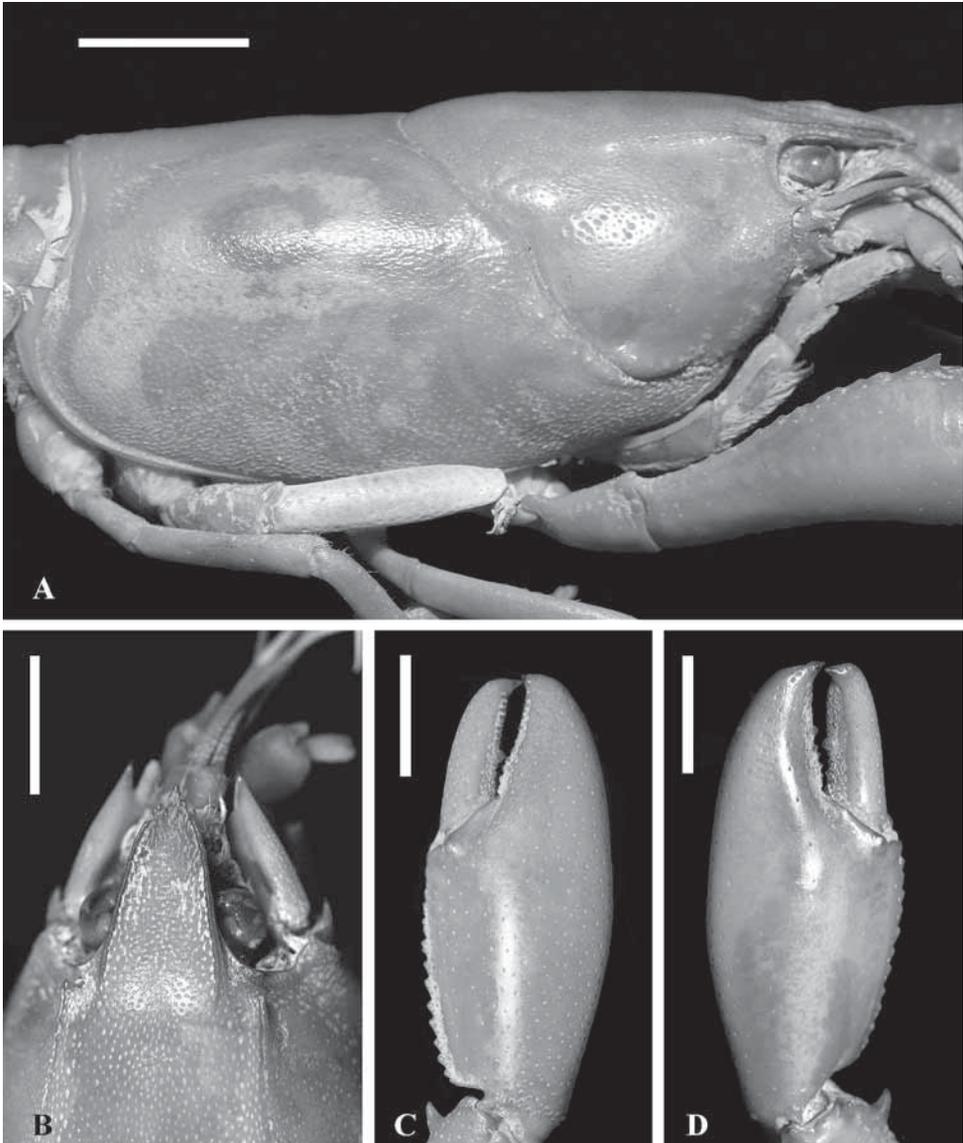


Fig. 2, *Cherax (Cherax) holthuisi* spec. nov., holotype, length 91,2 mm, RMNH D 51503. A, carapax, lateral aspect; B, rostrum, dorsal aspect; C, right first chela, dorsal aspect; D, same, ventral aspect. Scale bars: A = 5 mm; B = 3 mm; C, D = 10 mm.

ger triangular, gradually merging with palm, twice as high as dactylus at its base; tip and cutting edge as in dactylus. Palm more than 1.5 times as long as high, upper surface is practically smooth, slightly pitted, more densely pitted at margins; upper margin with dense row of rounded tubercles, flanked here and there by smaller granules; no hairy parts on chela except at cutting edges of fingers. Upper surface of carpus triangular, smooth, with one large tooth on inner margin flanked by some rounded tubercles; lower

inner surface with two blunt spines. Upper margin of merus with serrated carina in proximal 3/4, anteriormost tooth largest and most acute; between this tooth and distal end only some small granules present; outer surface of merus smooth; lower margin with inner row of granules and outer row with three distinctly large teeth.

Second leg reaching about to end of scaphocerite. Fingers about as long as palm, of same height. Carpus longer than palm. Merus about 1.5 times longer than carpus. Ischium about half as long as merus.

Third legs reaching farther than second. Fingers shorter than palm. Carpus slightly longer than palm, of about same length as ischium.

Fourth legs reaching slightly beyond base of chela of third legs. Dactylus ending in corneous tip. Propodus more than twice as long as dactylus and about 1.5 times as long as carpus; somewhat flattened and carrying many bristles on lower margin and row of 3-4 hairs on outer flank. Merus about as long as propodus.

Fifth legs similar to fourth, somewhat more slender.

Size.— The males examined have a carapax length between 37.1 and 42.2 mm, and a total length between 81.3 and 92.9 mm; the females have a carapax length between 37 and 39 mm and a total length between 81 and 85 mm.

	Carapax	Pleon	Total	Chelae height	Chelae length
Holotype male	42,20	49,00	91,20	15,70	38,75
Male 2	42,20	50,70	92,90	14,75	35,50
Male 3	38,00	44,40	82,40	14,70	32,80
Male 4	37,10	44,20	81,30	13,07	29,80
Male 5	37,90	43,80	81,70	14,01	32,45
Female 1	37,60	46,80	84,40	-	-
Female 2	38,80	44,10	82,90	-	-
Female 3	38,40	43,40	81,80	-	-
Female 4	38,30	46,90	85,20	-	-

Colour.— Pinkish to orange and sometimes pale yellow (M. Boeseman, pers. comm.).

Habitat.— A description of the habitat as provided by M. Boeseman in his publication on the fishes of Western New Guinea from 1963. He describes the Aitinjo Lake as "... a widened river, flowing southeast, with a length of 4 km and strongly varying width with a maximum of about 350 m. At the north-western, end the principal river widens to become a lake which consists of two parts separated by considerable rapids and small cataracts; at the south-eastern end the lake abruptly stops, but a subterranean connection with the Kais River is supposed to exist here. The mountains at most places closely surround the lake which has steep and rocky shores, almost perpendicular at some places but elsewhere allowing some wider marshy banks» and «..... the water is clear, pH about 6.5, flowing rather strongly only at the narrower parts of the lake, including the upper reaches. The bottom is rocky, at most places covered with sand, stones or large rocks, but muddy at some places. Both the aquatic and terrestrial vegetation are dense, at least where the stony substratum allows growth."

Systematic position.— The absence of decalcified areas on the lower margin of the chelae of the first pereopods in adult males shows that the new species belongs to the subgenus *Cherax*. The known New Guinean species of this subgenus so far number nine, all described by Holthuis (1949): *C. boschmai*, *C. buitendijkae*, *C. communis*, *C. longipes*, *C. murido*, *C. pallidus*, *C. paniaicus*, *C. papuanus*, *C. solus*. The new species can be distinguished from these species as follows:

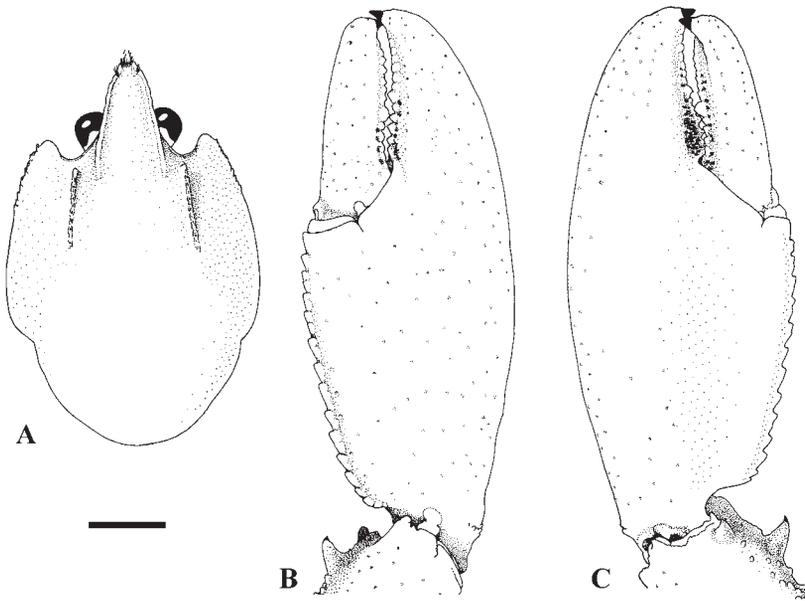


Fig. 3, *Cherax (Cherax) holthuisi* spec. nov., holotype, length 91,2 mm, RMNH D 51503. A, anterior part carapace, dorsal aspect; B, right first chela, dorsal aspect; C, same, ventral aspect. Scale bar: 5 mm.

Cherax holthuisi spec. nov. differs from *C. boschmai* in the shape of the rostrum and number of rostral teeth (5-7 in *C. boschmai*). The eyes are smaller in the new species and the shape of the chelae is quite different; in *C. boschmai* the chelae are more slender and the fingers are about 1.5 times longer than the palm.

The new species differs from *C. buitendijkae* in the shape of the rostrum and number of rostral teeth (4-6 in *C. buitendijkae*). The eyes are smaller in the new species and the shape of the chelae is quite different; in *C. buitendijkae* the chelae are more slender and the fingers are about 1.4-1.5 times longer than the palm.

It differs from *C. communis* in the shape of the rostrum and number of rostral teeth (5-7 in *C. communis*). The eyes are smaller in the new species. The shape of the chelae is similar, however *C. communis* carries a dense pile of setae on the cutting edges of the fingers and on the inner surface of the carpus.

It differs from *C. longipes* in the shape of the rostrum and number of rostral teeth (3-5 in *C. longipes*). The eyes are distinctly smaller in the new species and the shape of the chelae is different; in *C. longipes* the chelae are at least seven times as long as high and the legs are extremely long and slender. The carapax in *C. longipes* shows numerous tubercles while the carapax of the new species is smooth.

It differs from *C. murido* in the shape of the rostrum and number of rostral teeth (4-6 in *C. murido*). The eyes are large and globular in *C. murido*. The inner surface of the carpus carries a dense pile of setae. The carapax in *C. murido* is covered with tubercles while the carapax of the new species is smooth.

It differs from *C. pallidus* in the shape of the chelae, which are 6.5 to 8 times longer than broad in *C. pallidus*. In *C. pallidus* the fingers are 1.7 times longer than the palm,



Fig. 4, *Cherax (Cherax) holthuisi* spec. nov., ♂, specimens from the pet market, collected in the Aitinjo Region, Irian Yaya; orange and blue colour varieties.

extremely slender and having the tips crossing. The eyes are extremely large and globular. The carapax in *C. pallidus* is densely covered with tubercles while the carapax of the new species is smooth.

It differs from *C. paniaicus* in the shape of the rostrum and the number of rostral teeth (5-8 in *C. paniaicus*). In *C. paniaicus* the fingers are 1.5 times as long as the palm, the shape of the chelae is more slender, 3.5-4.0 times as long as broad.

It differs from *C. papuanus* in the shape of the rostrum: *C. papuanus* has two large distinct teeth followed by a horny tubercle near the apex. The chelae of *C. papuanus* have dense piles of setae along the cutting edges and on the outer surface of the palm close to the upper margin. *C. papuanus* occurs in interior Papua in Lake Kutubu at an altitude of 850 m.

It differs from *C. solus* in the shape of the rostrum and number of rostral teeth (3-4 in *C. solus*). The chelae of *C. solus* are more slender and the length of the fingers is about the same as that of the palm. The dorsal surface of the carapax behind the cervical groove in *C. solus* is covered with tubercles while it is smooth in the new species. The inner surface of the carpus carries of the large chela in *C. solus* a dense pile of setae. The eyes are bigger in *C. solus* than in the new species.

Acknowledgements

We wish to thank Dr Charles Fransen, Curator of Crustacea of the Nationaal Natuurhistorisch Museum Leiden, for preparing the drawings and for his support during our visits. Dr L.B. Holthuis is acknowledged for his help and for allowing us to describe this interesting material. We also would like to thank Dr M. Boeseman for his support and his helpful comments.

References

- Boeseman, M., 1963. Notes on the fishes of Western New Guinea.— Zoologische Mededelingen Leiden 38 (14): 221-242, figs 1-8, pls 1-8.
- Holthuis, L.B., 1949. Decapoda Macrura with a revision of the New Guinea Parastacidae.— Zoological results of the Dutch New Guinea Expedition 1939. No. 3. Nova Guinea (n. ser.) 5: 289-330, pls 2-9.
- Holthuis, L.B., 1956. Native fisheries of freshwater Crustacea in Netherlands New Guinea. Contributions to New Guinea Carcinology. I.— Nova Guinea (n. ser.) 7 (2): 123-137, figs 1-3, pls. 1-8.
- Holthuis, L.B., 1958. Freshwater Crayfish in Netherlands New Guinea Mountains.— South Pacific Commission Quarterly Bulletin 8 (2): 36-39, 7 figs.
- Holthuis, L.B., 1982. Freshwater Crustacea Decapoda of New Guinea. In: J.L. Gressitt (ed.), Biogeography and ecology of New Guinea, vol. 2.— Monographiae Biologicae 42: 603-619, figs 1-5.
- Holthuis, L.B., 1986. The freshwater crayfish of New Guinea.— Freshwater Crayfish 6: 48-58, figs 1-8.
- Holthuis, L.B., 1996. *Cherax (Astaconephrops) minor* new species, a parastacid from the mountains of Irian Jaya (W. New Guinea), Indonesia (Crustacea: Decapoda: Parastacidae).— Zoologische Mededelingen Leiden 70 (24): 361-366, figs 1-2.

Received: 24.v.2005

Accepted: 25.xi.2005

Edited: C.H.J.M. Fransen

