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BOUNTIANA, A NEW GENUS FOR *ERIPHIA NORFOLCENSIS* GRANT & MCCULLOCH, 1907 (CRUSTACEA: BRACHYURA: ERIPHIIDAE)

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Eriphia norfolcensis is separated from *Eriphia* sensu stricto and placed into a new genus *Bountiana*. The two genera differ in many features including carapace shape, eye size and shape; differentiation of efferent branchial openings; length of second antennular segment; length and disposition of basal antennal segment; conformation of gonopod 2; and distinctness of suture between male thoracic sternites 2 and 3. A lectotype is designated for *E. norfolcensis* Grant & McCulloch, 1907. □ *Brachyura, Eriphiidae, Eriphia, Norfolk Island, Lord Howe Island, Australia, new genus.*

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Eriphia Latreille, 1817 (type species *Cancer spinifrons* Herbst, 1785, a junior synonym of *Cancer verrucosus* Forskål, 1775) (Eriphiidae sensu Ng, 1998) currently contains seven species, viz. *E. verrucosa* (Forskål, 1775), *E. gonagra* (Fabricius, 1781), *E. sebana* (Shaw & Nodder, 1803), *E. smithii* MacLeay, 1838, *E. scabricula* Dana, 1852, *E. squamata* Stimpson, 1860, *E. granulosa* A. Milne Edwards, 1880, and *E. norfolcensis* Grant & McCulloch, 1907. *Eriphia verrucosa* is found in the Mediterranean, *E. gonagra* is known from the western Atlantic, and *E. squamata* is known only from the Pacific coast of tropical America. Three species, *Eriphia sebana*, *E. smithii* and *E. scabricula* all have wide Indo-West Pacific distributions. The remaining species, *Eriphia norfolcensis* is only known from Norfolk Island, Lord Howe Island and the coast of New South Wales. Examination of a series of specimens of *E. norfolcensis* shows that this species is aberrant within *Eriphia*, and more closely allied to *Globopilumnus* Balss, 1933. A new genus is here established for *E. norfolcensis*.

Measurements provided are of the carapace width and length respectively (including spines). G1 and G2 are abbreviations for male first and second gonopods respectively. Specimens are deposited in the Australian Museum (AM), Sydney, and Queensland Museum (QM), Brisbane.

ERIPHIIDAE Alcock, 1898

***Bountiana* gen. nov.**

TYPE SPECIES. *Eriphia norfolcensis* Grant & McCulloch, 1907, by monotypy.

ETYMOLOGY. Named after H.M.S. *Bounty*, in remembrance of the group of mutineers who lived undiscovered in the South Seas for so long. The ancestors of the mutineers were, many years later, moved from Pitcairn Island to Norfolk Island where their descendents live to this day.

DIAGNOSIS. Carapace transversely oval, strongly vaulted anteriorly; regions poorly defined. Front obliquely deflexed, with transverse ridge either side of notch. Anterolateral margin with three small, blunt, well separated, spines. Eyes relatively small with small corneas (see Fig. 3A). Efferent branchial openings not distinct, almost completely covered by third maxillipeds, endostomial ridges weak, not forming circular opening with epistome; antero-external margin of third maxillipeds rounded; third maxillipeds gaping. Second antennular segment very short, less than half length of basal segment. Basal antennal segment with outer distal lobule just touching front, and placed close to inner angle of orbit (Fig. 3A); orbit closed. Chelipeds asymmetrical. Fingers of chelipeds gaping. Ambulatory legs short, stout; dactyli very short. Gonopod 2 flagellum subequal in length to basal portion. Suture between male thoracic sternites 2 and 3 distinct.

REMARKS. The ovate, longitudinally strongly convex and bulging carapace of *Eriphia norfolcensis* immediately separates it from typical *Eriphia* species, which are hexagonal or transversely hexagonal, and only moderately convex. This alone is sufficient to necessitate the establishment of a new genus, *Bountiana*, for *Eriphia norfolcensis*. There are also, however,

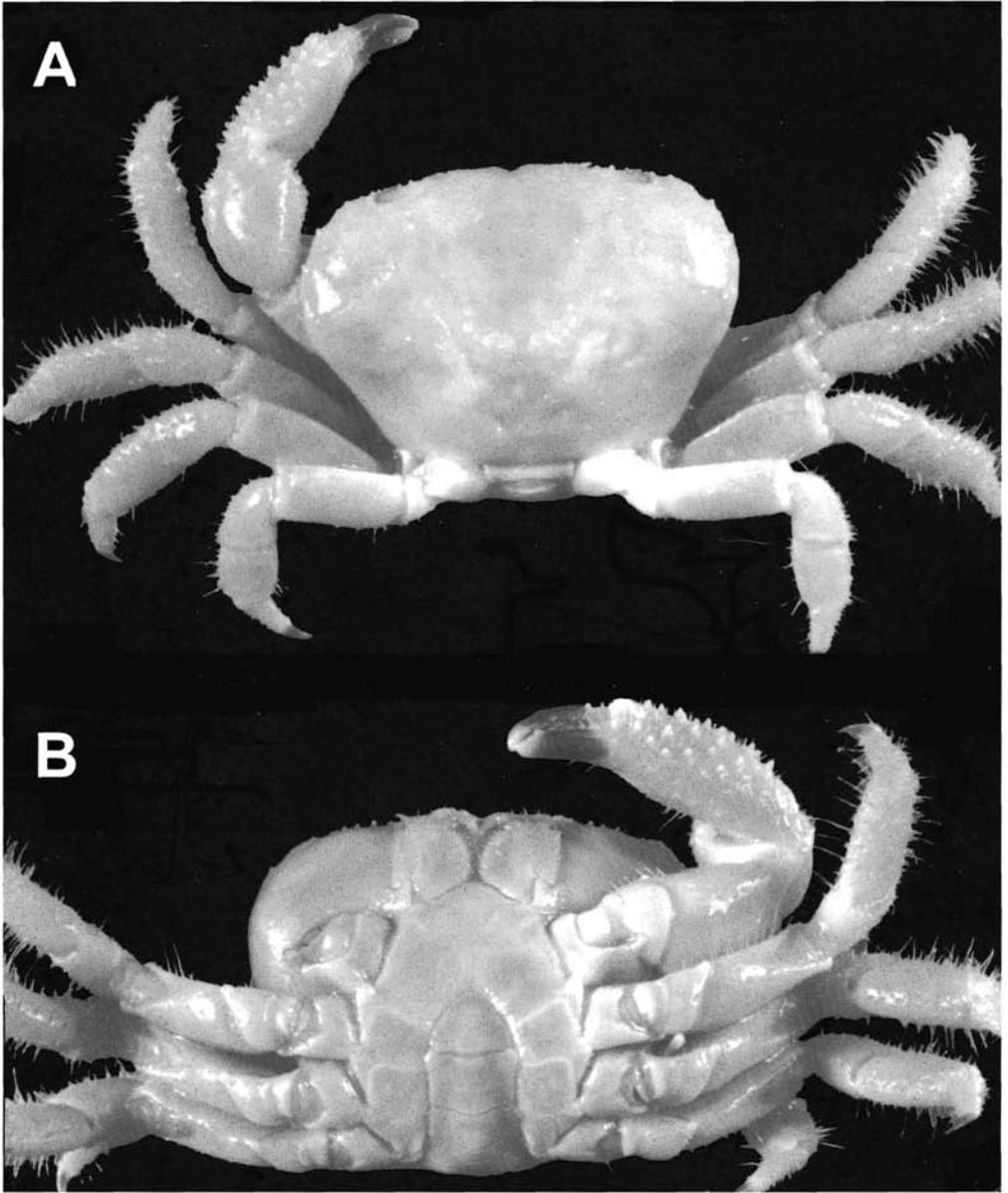


FIG. 1. *Bountiana norfolcensis* (Grant & McCulloch, 1907), lectotype male, 12.2 × 18.1mm, Norfolk Island; A, dorsal view; B, ventral view.

many other characters of generic significance and these are summarised in Table 1. All species of *Eriphia*, including the type species, *E. verrucosa* (Forskål, 1775), have been examined and taken into account when constructing Table 1; this material forms part of a separate revision of *Eriphia* by S.K. Koh & P.K.L. Ng (unpubl. data).

Bountiana norfolcensis is closer in general appearance to species of *Globopilumnus*, the only other genus within the Eriphiidae. It can be effectively separated from this genus because in *Globopilumnus* the supra- and infra-orbital angles do not meet, such that the antenna enters the orbit through an orbital hiatus.

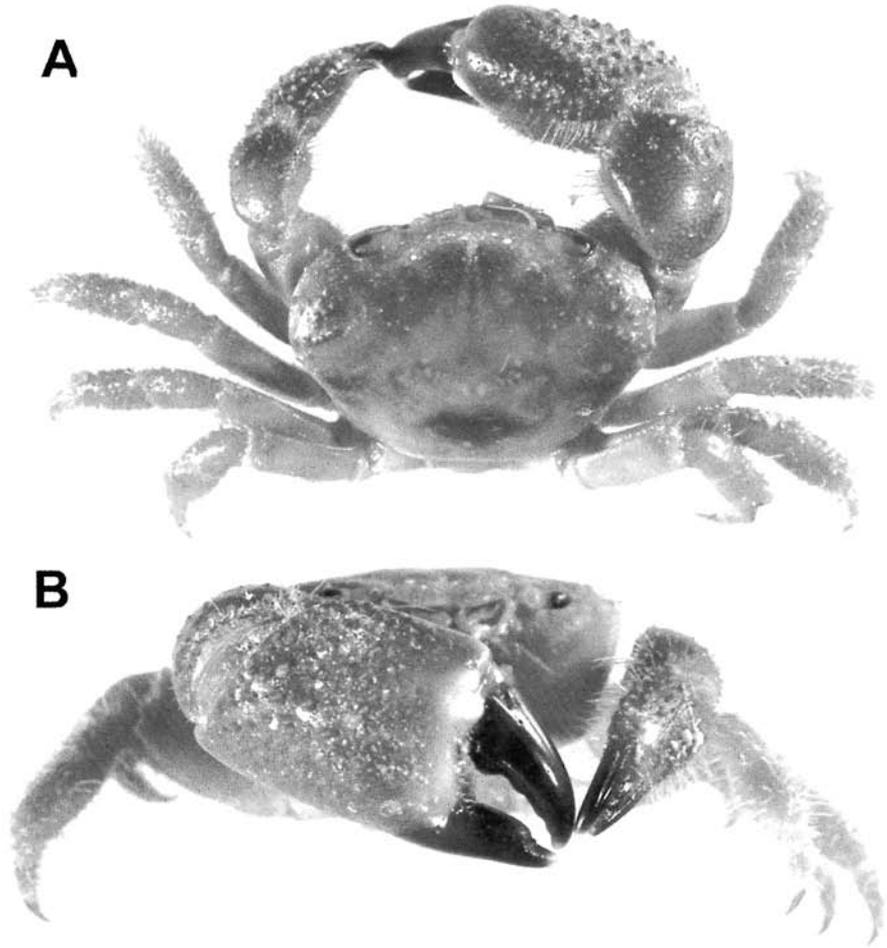


FIG. 2. *Bountiana norfolcensis* (Grant & McCulloch, 1907), female, 16.5 × 11.8mm, QMW24902, Norfolk Island; A, dorsal view; B, frontal view showing claws.

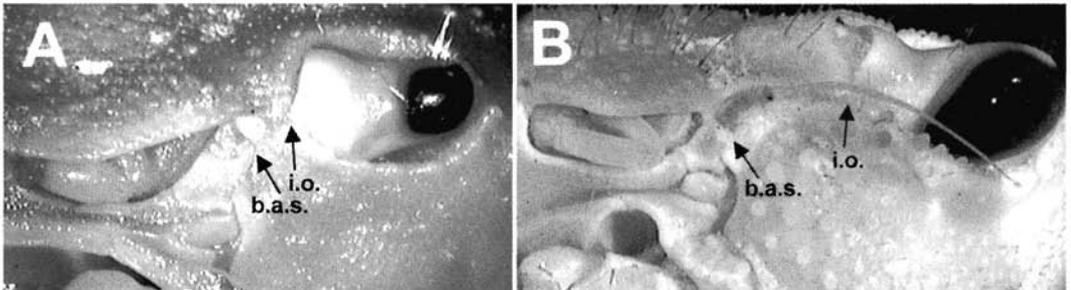


FIG. 3. Orbit and frontal regions; A, *Bountiana norfolcensis* (Grant & McCulloch, 1907), male, 16.3 × 11.2mm, QMW24902; B, *Eriphia scabricula* Dana, 1852, male, 19.3 × 13.3mm, QMW12117, Lady Elliot Island, SE Qld. (b.a.s. = basal antennal segment; i.o. = inner orbital angle).

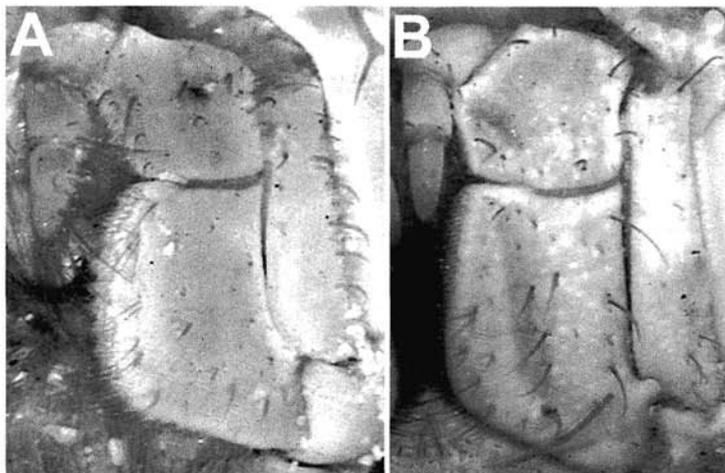


FIG. 4. Third maxillipeds; A, *Bountiana norfolcensis* (Grant & McCulloch, 1907), female, 16.5 × 11.8mm, QMW24902; B, *Eriphia scabricula* Dana, 1852, male, 19.3 × 13.3mm, QMW12117, Lady Elliot Island, SE Qld.

Bountiana norfolcensis
(Grant & McCulloch, 1907)
(Figs 1, 2, 3A, 4A, 5)

Eriphia norfolcensis Grant & McCulloch, 1907: 151, pl. 1; McNeil & Ward, 1930: 381; Holthuis, 1968: 218.
Pseudozius sp. Bennett, 1964: 67-68, figs 62-68, 132; Dell, 1968: 17-18; Guinot, 1968: 330-331.

MATERIAL. LECTOTYPE: AMG5827, ♂ (12.2 × 18.1mm), Norfolk I., Tasman Sea, 29°02.5'S 167°57'E, F.E. Grant. **PARALECTOTYPES:** AMG5827, ♀ (10.8 × 15.7mm), 1 juvenile (7.5 × 10.0mm), Norfolk I., Tasman Sea, 29°02.5'S 167°57'E, F.E. Grant. **OTHER MATERIAL:** AMP446, ♀, AMP448, ♀, AMP449, ♂, Lord Howe I., no other data. AMP4032, ♂ (7.6 × 11.0mm), ♀ (9.8 × 14.4mm), AMP5254, ♂ (10.0 × 14.6mm), 2♀ (10.7 × 15.6, 8.7 × 12.6mm), Lord Howe I., 31°33'S 159°05'E, E.A. Briggs. AMP5255, ♂,

2♀, AMP5256, 5♂, ♀, Lord Howe I., A.R. McCulloch. AMP10328, ♂, ♀, Lord Howe I., reef, April, 1932, A.A. Livingstone. AMP6285, ♂, AMP6842, ovig. ♀, AMP7889, ♀, Shell Harbour, NSW, 34°35' S, 150°53'E, 1923, G. McAndrew. AMP11285, ♂, Harbord, NSW, 33°47' S, 151°17'E, 24.11.1947, E. Pope. AMP17289, 2♀ (18.9 × 13.0; 10.9 × 7.8mm), 3♂ (9.3 × 6.7; 11.5 × 8.3; 18.2 × 12.4mm), Slaughter Bay, Norfolk I., under coral rubble and weed, outer reef crest, low tide, 21.03.1969, D.J. Griffin. QMW24902, 2♀ (16.5 × 11.8; 18.5 × 12.8mm), 2♂ (16.3 × 11.2; 18.3 × 12.6mm), same data as AMP17289.

DESCRIPTION. Carapace transversely ovate, strongly vaulted anteriorly; dorsal surface smooth except for scattering of low tubercles anterolaterally; regions poorly defined, gastric region weakly separated by grooves. Front with transverse ridge, deflexed downwards, slightly denticulated. Eyes relatively small with small corneas. Infraorbital margin with about eight denticles. Anterolateral margin armed with four widely separated, low tubercles. Second antennular segment very short, less than half length of basal segment. Antennae very short, not reaching orbital margin; basal antennal segment with outer distal lobule just touching front, and placed very close to inner angle of orbit. Third maxillipeds gaping medially; outer surfaces relatively smooth, pubescent with long stiff setae; merus irregularly pentagonal, slightly

TABLE 1. Differences between *Bountiana* gen. nov. and *Eriphia* Latreille, 1817.

	<i>Bountiana</i>	<i>Eriphia</i>
Carapace	strongly vaulted anteriorly	moderately convex to almost flat anteriorly
Eyes	relatively small with small corneas (see Fig. 3A)	large, corneas bulbous (see Fig. 3B)
Carapace shape	transversely oval	sub-hexagonal
Efferent branchial openings	not distinct, almost completely covered by third maxillipeds (Fig. 3A), endostomial ridges weak, not forming circular opening with epistome	very distinct, not covered by third maxillipeds (Fig. 3B), endostomial ridges strong, forming circular opening with epistome
Third maxillipeds	antero-external margin rounded (Fig. 4A)	antero-external margin sub-auriculiform (Fig. 4B)
Antennules	second segment very short, less than half length of basal segment (Fig. 3A)	second segment long, three-quarters or more length of basal segment (Fig. 3B)
Antennal position	basal antennal segment with outer distal lobule just touching front, and placed very close to inner angle of orbit (Fig. 3A)	basal antennal segment with outer distal lobule not touching front, and widely separated from inner angle of orbit (Fig. 3B)
Ambulatory dactylus	short and stout	long and slender
Gonopod 2	flagellum subequal in length to basal portion	flagellum distinctly shorter than basal portion
Male thoracic sternites	suture between sternites 2 & 3 distinct	suture between sternites 2 & 3 not discernible

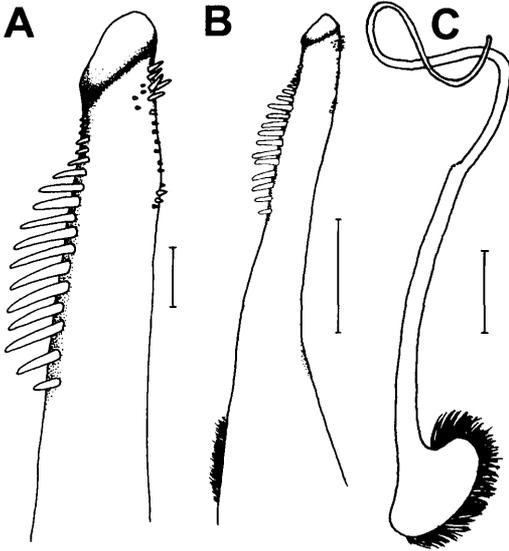


FIG. 5. *Bountiana norfolcensis* (Grant & McCulloch, 1907), lectotype male, 12.2 × 18.1 mm, AMG5827, Norfolk Island; A, enlargement of apex of gonopod 1; B, gonopod 1; C, gonopod 2.

notched at distal outer margin, antero-external margin rounded, not sub-auriculiform; with a few long, stiff setae. Efferent branchial openings not distinct, almost completely covered by third maxillipeds, endostomial ridges weak, not forming circular opening with epistome. Pterygostomial region smooth. Suborbital region relatively smooth.

Chelipeds markedly dimorphic; inner margins of all segments pubescent; distal end of merus pubescent, surfaces smooth. Distal blunt spine present at ventral surface of basis-ischium. Carpus with acute spine on median-inner margin, smaller one present ventrally; surfaces tuberculated anteriorly. Chelae relatively short, stout, with longitudinal rows of tubercles. Pubescence present on entire dorsal surface of palm, less dense on ventral surface. Small basal non-molariform tooth present on dactylus. Fingers of major chela strongly curved, closing with a prominent gape. Cutting edges of fingers of minor chela minutely denticulated. Female claws similar to male.

Ambulatory legs short, stout, smooth, both anterior and posterior margins with prominent long and short setae; merus with minute tubercles anteriorly.

Anterior male thoracic sternites smooth. Abdominal surfaces smooth. G1 short, stout,

broad at base tapering distally, terminating in broad tip; long stout spinules present on distal half of inner edge, longest medially; minute spinules on outer surfaces over distal third. G2 relatively long, slender; distal half forming curled flagellum.

REMARKS. Since Grant & McCulloch (1907) described the species from Norfolk Islands, there have been only two subsequent reports by McNeil & Ward (1930) and Holthuis (1968). McNeil & Ward (1930) added Lord Howe Island and New South Wales as localities for this species.

The *Pseudozius* sp. of Bennett (1964) from Campbell Island, south of New Zealand, is without doubt synonymous with *Bountiana norfolcensis*. This was first noted by Guinot (1968: 330) whilst reviewing *Pseudozius* and we concur with her conclusion. Furthermore, Dell (1968: 17) provided strong evidence that this species could not have come from Campbell Island, and must have been collected from an unknown locality elsewhere in the Pacific. This is based on the fact that it has not been recorded since, despite subsequent extensive collecting expeditions to the island. Also it was apparently collected during a trip by the government vessel *Hinemoa* whose captain, Mr J.A. Bollons, was notoriously inaccurate in recording where specimens were found.

Grant & McCulloch's (1907) original specimens (AMG5827) were examined and a lectotype male (12.2 × 18.1 mm) is here designated.

DISTRIBUTION. Norfolk Island, Lord Howe Island, and New South Wales, Australia.

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LITERATURE CITED

- BALSS, H. 1933a. Beiträge zur Kenntnis der Gattung *Pilumnus* (Crustacea Dekapoda) und verwandter Gattungen. *Capita Zoologica* 4(3): 1-47.
- BENNETT, E.W. 1964. The Marine Fauna of New Zealand: Crustacea Brachyura. New Zealand Oceanographic Institute Memoir No. 22. Bulletin. New Zealand Department of Scientific and Industrial Research 153: 1-120.
- DANA, J.D. 1852. Crustacea. United States Exploring Expedition during the years 1838, 1839, 1840, 1841, 1842 under the command of Charles

- Wilkes, U.S.N. Vol. 13: 1-685 (1852), 686-1618 (1853), Atlas (1855): 1-27.
- DELL, R.K. 1968. Notes on New Zealand crabs. Records of the Dominion Museum 6(3): 13-28.
- FABRICIUS, J.C. 1781. Species Insectorum exhibentes eorum Differentias, specificas, Synonyma auctorum, Loca natalia, Metamorphosia aedectis Observationibus, Descriptionibus, Vol. 2. (Hamburg & Kilonii).
- FORSKÅL, P. 1775. Descriptiones animalium avium, amphibiorum, piscium, insectorum, vermium; quae in itinere orientali observavit Petrus Forskål. (Hafniae). 1-19, I-XXXIV.
- GRANT, F.E. & MCCULLOCH, A.R. 1907. Decapod Crustacea from Norfolk Island. Proceedings of the Linnean Society of New South Wales 32(1): 151-6.
- GUINOT, D. 1968a. Recherches préliminaires sur les groupements naturels chez les Crustacés Décapodes Brachyours. VI. Les Carpilinae. Bulletin du Muséum National d'Histoire Naturelle, Paris Ser. 2, 40(2): 320-334.
- HOLTHUIS, L.B. 1968. Are there poisonous crabs? Crustaceana 15(2): 215-222.
- LATREILLE, P.A., 1817. Nouveau dictionnaire d'histoire naturelle, appliquée aux arts, à l'agriculture, à l'économie rurale et domestique, à la médecine, etc. Vol. 10.
- MACLEAY, W.S. 1838. On the Brachyurous Decapod Crustacea brought from the Cape by Dr Smith. Pp. 63-72. In Illustrations of the Annulosa of South Africa; being a portion of the objects of natural history collected during an expedition into the interior of South Africa, under the direction of Dr Andrew Smith, in the years 1834, 1835, and 1836; fitted out by 'The Cape of Good Hope Association for Exploring Central Africa'. Illustr. Zool. S. Africa Invest. (London).
- McNEILL, F.A. & WARD, M. 1930. Carcinological Notes. No.1. Records of the Australian Museum 17(9): 357-83.
- NG, P.K.L. 1998. Crabs. Pp. 1045-1155. In Carpenter, K.E. & Niem, V.H. (eds) FAO Species identification guide for fishery purposes. The living marine resources of the Western Central Pacific. Volume 2, Cephalopods, crustaceans, holothurians and sharks. (Food and Agriculture Organisation: Rome).
- SHAW, G. & NODDER, F.P. 1803. Vivarium Naturae, sive rerum naturalium, variae et vividae icones, ad ipsam naturam depictae et descriptae. Crustacea. Pls 589-612, unnumbered pages. In The naturalist's miscellany, or coloured figures of natural objects, drawn and described immediately from nature. (London).
- STIMPSON, W. 1860. Notes on North American Crustacea, in the Museum of the Smithsonian Institution. No. II. Annals of the Lyceum of Natural History of New York 7: 177-246 (49-118).