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Systematic Descriptions: Superfamily Pseudozioidea

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# PART R, REVISED, VOLUME 1, CHAPTER 8T20: SYSTEMATIC DESCRIPTIONS: SUPERFAMILY PSEUDOZIOIDEA

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Classification for Pseudozioidea follows NARUSE & NG (2014) and DAVIE, GUINOT, & NG (2015).

## Superfamily PSEUDOZIOIDEA Alcock, 1898

[*nom. transl.* ŠTEVČIČ, 2005, p. 61, *ex* Pseudozoida ALCOCK, 1898, p. 176]

Carapace usually ovate, wider than long, flattened, maximum carapace length approximately 65–75 percent maximum carapace width; regions moderately, poorly, or not defined, grooves defining cardiac and other gastric regions weakly developed, epigastric regions may be weakly developed but often indistinct; front nearly straight, bilobed, or weakly quadrilobed, axially notched, can be markedly deflexed, all lobes extending the same distance anteriorly, front approximately 30 percent maximum carapace width in most taxa; orbits shallow, ovoid, weakly rimmed; fronto-orbital width approximately half maximum carapace width in most taxa; anterolateral margin entire, with small spines at anterolateral corner, or lobed with shallow notches or fissures separating lobes; extending to approximately midlength or just anterior to it; posterolateral margin sinuous or nearly straight, angle of posterolateral to posterior margin 40–45°; posterior margins 30 percent to half maximum carapace but may be higher; all male pleonal somites free; male pleon sometimes not entirely occupying space between coxae of fifth pereopods; sternite 8 sometimes visible ventrally; fusion of the basis-ischium with

merus of major cheliped may be present, incomplete, remnants of suture visible; coxa appearing to articulate directly with merus; fingers of chelae black); sternites 1/2 fused, suture not visible; sternal suture 2/3 relatively deep; sternal suture 3/4 medially interrupted; sternite 4 wider than sternite 3; sternal sutures 4/5 and 5/6 incomplete, 6/7 and 7/8 complete; sternal locking mechanism on sternite 5; male pleon narrow; male gonopod 1 long, slender or moderately stout, usually with numerous short spines; male gonopod 2 short, straight, approximately 30 to 50 percent the length of gonopod 1, flagellum short to very short. [Emended from NG & WANG, 1994, p. 84; DAVIE, 2002, p. 202; NG & LIAO, 2002, p. 585; NARUSE & NG, 2014, p. 265; CROSNIER & GUINOT, 1969, p. 725; SCHWEITZER, 2003, p. 1112] *Eocene (Ypresian)–Holocene.*

## Family CHRISTMAPLACIDAE Naruse & Ng, 2014

[Christmaplacidae NARUSE & NG, 2014, p. 265]

Carapace rectangular, wider than long; regions poorly defined; front convex; orbits small; anterolateral margin distal to orbit broadly convex, followed by two anterolateral spines; posterolateral margin weakly convex, posterior margin wide, more than half maximum carapace width; sternite 4 wider than sternite 3, pleonal holding mechanism located axially on sternite 5; male pleon broad; male gonopod 1 slender, without spines; gonopod 2 approximately half length of gonopod 1; chelipeds stout;

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pereiopods slender, pereiopod 4 longest, pereiopod 2 shortest. [Emended from NARUSE & NG, 2014, p. 265.] *Holocene*.

**Christmaplax** NARUSE & NG, 2014, p. 270 [\**C. mirabilis*, p. 270, fig. 1–6; OD]. As for family. *Holocene*: Christmas Island, Australia.—FIG. 1, 1. \**C. mirabilis*, drawing of holotype QM W29223, *Holocene*, Australia, scale bar, 1 cm (new).

### Family PILUMNOIDIDAE Guinot & MacPherson, 1987

[*nom. transl.* TÜRKAY, 2001, p. 292, ex Pilumnoidinae GUINOT & MACPHERSON, 1987, p. 211]

Carapace hexagonal, with large granules anteriorly, regions moderately defined, especially anteriorly; fronto-orbital width approximately half maximum carapace width; sternite 3 wider than sternite 4; pleonal locking mechanism posterior or axial on sternite 5; male pleon very narrow; male gonopod 1 slender or stout, straight or weakly curved, with spines; gonopod 2 approximately 33 percent length of gonopod 1; chelae granular. [Emended from NARUSE & NG, 2014, p. 268.] *Holocene*.

**Pilumnoides** H. MILNE EDWARDS & LUCAS, 1843, p. 21 [\**Hepatus perlatus* POEPPIG, 1836, p. 135, pl. 4, 2; M, ICZN, Opinion 85, 1925]. As for family. *Holocene*: Atlantic Ocean, western Pacific Ocean.—FIG. 1, 2. \**P. perlatus*, USNM 60816, *Holocene*, Peru, scale bar, 1 cm (new).

### Family PLANOPILUMNIDAE Serène, 1984

[*nom. transl.* ŠTEVČIČ, 2005, p. 67, ex Planopilumninae SERÈNE, 1984, p. 11] [=Platycheloniini ŠTEVČIČ, 2005, p. 65]

Carapace rectangular or hexagonal, wider than long, regions well defined, with scattered granules or with scabrous inflations; front approximately 60 percent maximum carapace width; fronto-orbital width 80 percent maximum width; posterior width very wide compared to maximum carapace width; anterolateral margins with several spines; orbits with two fissures; sternite 4 much wider than sternite 3; pleonal locking mechanisms posterior on sternite 5; male pleon wide; male gonopod 1 wide, curved, with spines; gonopod 2 approximately half as long as gonopod 1; chelae stout, granular or eroded. [Emended from NG, 2010, p. 34; NARUSE & NG, 2014, p. 268.] *Holocene*.

**Planopilumnus** BALSS, 1933, p. 39 [\**Pilumnus spongiosus* NOBILI, 1905, p. 406; OD]. Carapace wider than long, rectangular; chelipeds granular. *Holocene*: Red Sea, eastern Africa.—FIG. 1, 3. \**P. spongiosus*, MNHN-IU-2014-10436, *Holocene*, Yemen, scale bar, 1 cm (photo by M. Mollaret, RECOLNAT (ANR-11-INBS-0004, MNHN)).

### Family PSEUDOZIIDAE Alcock, 1898

[*nom. transl.* NG & LIAO, 2002, p. 587, pro Pseudozioida ALCOCK, 1898, p. 176] [=Flindersoplacidae ŠTEVČIČ, 2005, p. 61]

Carapace usually ovate, wider than long, flattened, maximum carapace length approximately 65–75 percent maximum carapace width; regions moderately, poorly, or not defined, grooves defining cardiac and other gastric regions weakly developed, epigastric regions may be weakly developed but commonly indistinct; front nearly straight, bilobed, or weakly quadrilobed, axially notched, can be markedly deflexed, all lobes extending the same distance anteriorly, front approximately 30 percent maximum carapace width in most taxa; orbits shallow, ovoid, weakly rimmed; fronto-orbital width approximately half maximum carapace width in most taxa; anterolateral margin entire, with small spines at anterolateral corner, or lobed with shallow notches or fissures separating lobes; extending to approximately midlength or just anterior to it; posterolateral margin sinuous or nearly straight, angle of posterolateral to posterior margin 40–45 degrees; posterior margins 30 percent to half maximum carapace width; male pleon sometimes not entirely occupying space between coxae of fifth pereiopods; sternite 8 sometimes visible ventrally; fusion of the basis-ischium with merus of major cheliped sometimes present, incomplete, remnants of suture visible; coxa appearing to articulate directly with merus; fingers of chelae black; sternites 1/2 fused, suture not visible; sternal suture 2/3 relatively deep; sternal suture 3/4 medially interrupted; sternite 4 wider than sternite 3; sternal sutures 4/5 and 5/6 incomplete, 6/7 and 7/8 complete; sternal locking mechanism placed posteriorly on sternite 5; male pleon narrow; male gonopod 1 long, slender or moderately stout, usually with numerous short spines; male gonopod 2 short, straight, approximately 30–50 percent

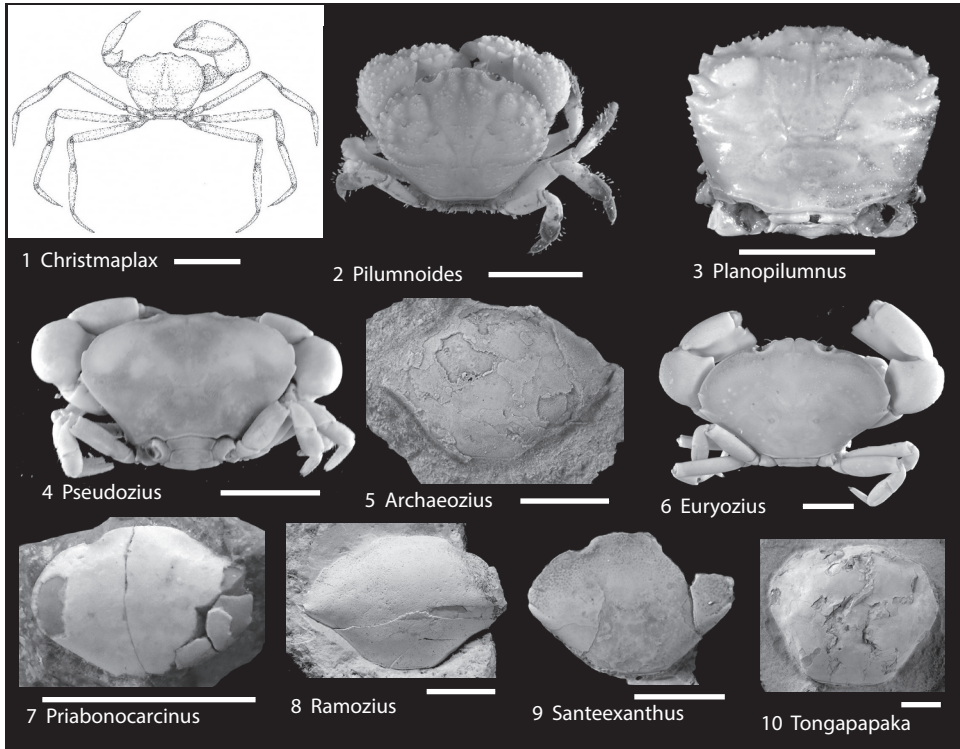


FIG. 1. Christmaplacidae, Pilumnoididae, Planopilumnidae, Pseudozidae (p. 2–4).

the length of gonopod 1, flagellum short to very short. [Emended from CROSNIER & GUINOT, 1969, p. 725; NG & WANG, 1994, p. 84; DAVIE, 2002, p. 202; NG & LIAO, 2002, p. 585; SCHWEITZER, 2003, p. 1112; NARUSE & NG, 2014, p. 268). *Eocene* (*Ypresian*)–*Holocene*.

**Pseudozius** DANA, 1851, p. 127 [\**P. planus* DANA, 1852, p. 233, SD WARD, 1933, p. 252; =*Panopeus caystrus* ADAMS & WHITE, 1849, p. 42, pl. 9,2; =*Pseudozius microphthalmus* STIMPSON, 1858, p. 32]. Carapace ovate, regions poorly defined; front nearly straight or weakly quadrilobed; orbits rimmed; anterolateral margins with three or so weak, blunt spines; posterolateral margins straight. *Pleistocene*: Taiwan. *Holocene*: Indo-Pacific Ocean.—FIG. 1,4. \**P. caystrus*, USNM 81735, Holocene, Mozambique, scale bar, 1 cm (new).

**Archaeozius** SCHWEITZER, 2003, p. 1115 [\**Carpilius occidentalis* SCHWEITZER, FELDMANN, TUCKER, & BERGLUND, 2000, p. 50, fig. 12; OD]. Carapace wider than long, length ~70% width, widest ~60% the distance posteriorly; carapace smooth, regions undefined; orbits shallow, weakly rimmed, fronto-orbital width ~45% maximum carapace width; anterolateral margins tightly convex, with two blunt protuberances near anterolateral corner; posterolateral margin nearly straight, at ~40°

angle to posterior margin; posterior margin nearly straight. *Eocene*: Washington, USA.—FIG. 1,5. \**A. occidentalis*, KSU D 386, cast of USNM PAL 508243, scale bar, 1 cm (new).

**Euryozius** MIERS, 1886, p. 142 [\**Xantho bouvieri* A. MILNE-EDWARDS, 1869, p. 377; M] [=*Gardineria* RATHBUN, 1911, p. 236 (type, *G. canora*, p. 236, pl. 119,7–8, OD)]. Carapace wider than long, ovate, length ~60% width, widest about half the distance posteriorly; front axially notched, otherwise weakly convex, about 30% carapace width; orbits shallow, fronto-orbital width ~50–60% maximum carapace width; anterolateral margins entire except for two small spines at anterolateral corner, last extending onto carapace as short ridge; carapace smooth, regions undefined. *Miocene* (*Burdigalian*): Japan. *Holocene*: east Atlantic Ocean, South Pacific Ocean.—FIG. 1,6. \**E. bouvieri*, USNM 1102467, Holocene, Ascension Island, scale bar, 1 cm (new).

**Priabonocarcinus** MÜLLER & COLLINS, 1991, p. 78 [\**P. gallicus*, p. 78, pl. 5,12,15,16; OD]. Carapace ovate, wider than long, length ~70% maximum width, widest about half the distance posteriorly on carapace; front downturned, broadly convex, axially notched; orbits rimmed; fronto-orbital width about half maximum carapace width; anterolateral margins nearly entire, with two small projections at anterolateral corner, last extending onto carapace as weak ridge; carapace smooth, regions undefined. *Eocene* (*Priabonian*): Hungary, Italy. *Oligocene*

- (*Rupelian*): Italy.—FIG. 1,7. \**P. gallicus*, holotype M91.180, Priabonian, Hungary, scale bar, 1 cm (new; photo by M. Hyžný, Comenius University, Bratislava, Slovakia).
- Ramozius** BESCHIN, BUSULINI, TESSIER, & ZORZIN, 2016, p. 141 [\**R. punctatus*, p. 141, pl. 18,6; OD]. Carapace transversely ovate, much wider than long, regions undefined; front broadly quadrilobed; orbits rimmed; anterolateral margin with three or so small spines, last spine extending onto carapace as broad keel; posterolateral margins concave, posterior margin about as wide as frontal margin. *Eocene* (*Ypresian*): Italy.—FIG. 1,8 \**R. punctatus*, VR 94448, scale bar, 1 cm (new; photo by A. Busulini, Museo di Storia naturale, Venezia, Italy).
- Santeexanthus** BLOW & MANNING, 1996, p. 23 [\**S. wardi*, p. 24, pl. 5,4; OD]. Carapace ovate, length ~70% width; front nearly straight, axially notched, ~30% maximum carapace width; orbits shallow, rimmed, fronto-orbital width ~65% maximum carapace width; anterolateral margin short, with at least two blunt spines near anterolateral corner, last extending onto carapace parallel to posterolateral margin; posterolateral margin longer than anterolateral margin, nearly straight. *Eocene* (*Lutetian*): Italy, USA (South Carolina). *Bartonian*: USA (South Carolina).—FIG. 1,9. \**S. wardi*, holotype USNM PAL 484575, Bartonian, South Carolina, USA, scale bar, 1 cm (new).
- Tongapapaka** FELDMANN, SCHWEITZER, & McLAUGHLIN, 2006, p. 422 [\**T. motunauensis*, p. 422, fig. 2 OD]. Carapace subcircular, wider than long, length ~85% maximum width; frontal margin with central notch, straight and beaded on either side of notch; small spine on inner orbital angle; anterolateral margin with three spines, first two sharp and triangular, last a blunt knob. *Miocene*: New Zealand.—FIG. 1,10. \**T. motunauensis*, holotype CM 2006, scale bar, 1 cm (new).
- Sir Edward Belcher, C.B., F.R.A.S., F.G.S., during the years 1843–1846. Reeve, Benham & Reeve. London. 66 p., pl. 7–13.
- Alcock, Alfred. 1898. Materials for a carcinological fauna of India, No. 3. The Brachyura Cyclometopa. Part I. The family Xanthidae. Journal of the Asiatic Society of Bengal 67 part 2 (1):67–233.
- Balss, Heinrich. 1933. Beiträge zur kenntnis der gattung *Pilumnus* (Crustacea Dekapoda) und verwandter gattungen. Capita Zoologica 4(3):3–47, pl. 1–7.
- Beschin, Claudio, Alessandra Busulini, Giuliano Tessier, & Roberto Zorzin. 2016. I crostacei associati a coralli nell'Eocene inferiore dell'area di Bolca (Verona e Vicenza, Italia nordorientale). Memorie del Museo Civico di Storia Naturale di Verona (series 2) Sezione Scienze della Terra 9.189 p.
- Blow, W. C., & R. B. Manning. 1996. Preliminary descriptions of 25 new decapod crustaceans from the Middle Eocene of the Carolinas, U.S.A. Tulane Studies in Geology and Paleontology 29(1):1–26, pl. 1–5.
- Crosnier, Alain, & Danièle Guinot. 1969. Un nouveau crabe oust-Africain, *Platychelonia planissimum* gen. nov., sp. nov. Bulletin du Muséum National d'Histoire Naturelle, Paris (2) 41(3):725–730.
- Dana, J. D. 1851. On the classification of the Cancroidea. American Journal of Science and Arts (series 2) 12:121–131.
- Dana, J. D. 1852. Parts I and II, Crustacea. U.S. Exploring Expedition during the Years 1838, 1839, 1840, 1841, 1842, under the Command of Charles Wilkes, U.S.N., 13. C. Sherman. Philadelphia. 1618 p., 1 map, 96 pl. (in separate folio atlas).
- Davie, P. J. F. 2002. Crustacea: Malacostraca: Eucarida (Part 2): Decapoda Anomura, Brachyura. In A. Wells & W. W. K. Houston, eds., Zoological Catalogue of Australia 19.3B. CSIRO Publishing, Melbourne. 641 p.
- Davie, P. J. F., Danièle Guinot, & P. K. L. Ng. 2015. Systematics and classification of Brachyura. In Peter Castro, P. J. F. Davie, Danièle Guinot, F. R. Schram, & J. C. von Vaupel Klein, eds., Treatise on Zoology: Anatomy, Taxonomy, Biology. The Crustacea, Vol. 9, Part C. Brill NV. Leiden. p. 1049–1130.
- Feldmann, R. M., C. E. Schweitzer, & Don McLaughlin. 2006. Additions to the records for decapod Crustacea from Motunau and Glenafic beaches, North Canterbury, New Zealand. New Zealand Journal of Geology and Geophysics 49:417–427.
- Guinot, Danièle, & Enrique MacPherson. 1987. Révision du genre *Pilumnoides* Lucas, 1844, avec description de quatre espèces nouvelles et création de Pilumnoidinae subfam. nov. (Crustacea Decapoda Brachyura). Bulletin du Muséum National d'Histoire Naturelle, Paris (4) 9 (A) (1):211–247.
- ICZN (International Commission on Zoological Nomenclature). 1925. Opinion 85. Ninety-eight generic names in Crustacea placed in the Official List of Generic Names. Smithsonian Miscellaneous Collections 73(3):13–18.
- Miers, E. J. 1886. Report on the Brachyura collected by H. M. S. Challenger during the years 1873–1876. In C. W. Thomson & J. Murray, eds., Report of the

## ABBREVIATIONS FOR MUSEUM REPOSITORIES

- CM: Canterbury Museum, Christchurch, New Zealand  
 KSU D: Decapod Comparative Collection, Department of Geology, Kent State University, Kent, Ohio, USA  
 M: Hungarian Natural History Museum, Budapest, Hungary  
 MNHN: Muséum National d'histoire naturelle, Paris, Crustacean Collection, France  
 QM: Queensland Museum, Brisbane, Australia  
 USNM: United States National Museum of Natural History, Smithsonian Institution, Washington, D.C., USA  
 VR: Museo di Storia naturale di Verona, Italy

## REFERENCES

- Adams, Arthur, & Adam White. 1849. Crustacea, Part II. In A. Adams, ed., The Zoology of the Voyage of H.M.S. Samarang; under the command of Captain

- Scientific Results of the Voyage of H. M. S. Challenger during the years 1873–1876 (Zoology). Johnson Reprints. New York. 362 p.
- Milne-Edwards, Alphonse. 1869. Description de quelques espèces nouvelles de Crustacés provenant du voyage de M. A. Bouvier aux îles du cap Vert. Decapods Brachyures. Revue et Magasin de Zoologie pure et appliquée 21:350–413.
- Milne Edwards, Henri, & Hippolyte Lucas. 1843. Crustacés. In A. d'Orbigny, ed., Voyage dans l'Amérique méridionale (le Brésil, la république orientale de l'Uruguay, la république Argentine, la Patagonie, la république du Chili, la république de Bolivie, la république du Pérou), exécutée pendant les années 1826, 1827, 1828, 1829, 1830, 1831, 1832 et 1833. Vol. 6 (1). P. Bertrand. Paris. p. 1–37, pl. 1–17.
- Müller, Pál, & J. S. H. Collins. 1991. Late Eocene coral-associated decapods (Crustacea) from Hungary. Contributions to Tertiary and Quaternary Geology 28(2–3):47–92, pl. 1–8.
- Naruse, Tohru, & P. K. L. Ng. 2014. A new family, genus and species of cavernicolous crab (Crustacea: Decapoda: Brachyura: Pseudozioidea) from Christmas Island, Australia. Raffles Bulletin of Zoology Supplement 30:263–273.
- Ng, P. K. L. 2010. On the Planopilumnidae Serène, 1984 (Crustacea: Brachyura: Pseudozioidea), with diagnoses of two new pilumnoid genera for species previously assigned to *Planopilumnus* Balss, 1933. Zootaxa 2392:33–61.
- Ng, P. K. L., & L. M. Liao. 2002. On a new species of *Euryozius* Miers, 1886 (Crustacea: Decapoda: Brachyura: Pseudoziidae) from the Philippines, with notes on the taxonomy of the genus. Proceedings of the Biological Society of Washington 115:585–593.
- Ng, P. K. L., & C. H. Wang. 1994. Notes on the enigmatic genus *Pseudozius* Dana, 1851 (Crustacea, Decapoda, Brachyura). Journal of the Taiwan Museum 47:83–99.
- Nobili, Giuseppe. 1905. Diagnose préliminaires de 34 espèces et variétés nouvelles et de 2 genres nouveaux de Décapodes de la Mer Rouge. Bulletin du Muséum d'Histoire Naturelle, Paris 11(6):393–411.
- Poeppig, Eduard. 1836. Crustacea Chilensia nova aut minus nota descripsit. Archiv für Naturgeschichte 2(1):133–145.
- Rathbun, M. J. 1911. No. XI. Marine Brachyura. In The Percy Sladen Trust Expedition to the Indian in 1905, under the leadership of J. Stanley Gardiner, Volume 3. Transactions of the Linnean Society of London (series 2) (Zoology) 12(2):191–261, pl. 15–20.
- Schweitzer, C. E. 2003. Utility of proxy characters for classification of fossils: An example from the fossil Xanthoidea (Crustacea: Decapoda: Brachyura). Journal of Paleontology 77:1107–1128.
- Schweitzer, C. E., R. M. Feldmann, A. B. Tucker, & R. E. Berglund. 2000. Eocene decapod crustaceans from Pulali Point, Washington. Annals of Carnegie Museum 69:23–67.
- Serène, Raoul. 1984. Xanthoidea, Xanthidae et Trapeziidae: Crustacés Décapodes Brachyours de l'Océan Indien Occidental et de la Mer Rouge. Faune Tropicale 24. Editions de l'ORSTOM, Institut Français de Recherche Scientifique pour le Développement en Coopération. Paris. 349 p., 48 pl.
- Števičić, Zdravko. 2005. The reclassification of brachyuran crabs (Crustacea: Decapoda: Brachyura). Natura Croatica 14 (supplement) (1):1–159.
- Stimpson, William. 1858. Prodromus descriptionis animalium evertibratorum, quae in Expeditione ad Oceanum Pacificum Septentrionalem, a Republica Federata missa, Cadwaladaro Ringgold et Johanne Rodgers Ducibus, observavit et descripsit. Pars IV. Crustacea Cancroidea et Corystoidea. Proceedings of the Academy of Natural Sciences of Philadelphia 10:29–37.
- Türkay, Michael. 2001. Decapoda. In M. J. Costello, C. S. Emblow, & R. White, eds., European Register of Marine Species. A checklist of the marine species in Europe and a bibliography of guides to their identification. Patrimoines Naturels. Vol. 50. Muséum National d'Histoire Naturelle & Service du Patrimoine Naturel. Paris. p. 284–292.
- Ward, Melbourne. 1933. The true crabs of the Capricorn Group, Queensland (Class Crustacea, Order Decapoda Brachyura). Part 1. Xanthidae. Australian Zoologist 7(4):237–255.