ISSN 0738-9388

Volume: 49 THE FESTIVUS ISSUE 3

A new *Domiporta* species (Gastropoda, Mitridae) from tropical Queensland

Stephen J. Maxwell[1], Aart M. Dekkers[2], David P. Berchauer[3] & Bradley C. Congdon[1,4]

[1] College of Science and Engineering, James Cook University, Cairns Qld 4870 stephen.maxwell@my.jcu.edu.au; [2] Koewijzend 12B, 1695 CG Blokker, The Netherlands; [3] 25461 Barents Street, Laguna Hills, California 92653; [4]Centre for Tropical Environmental and Sustainability Sciences, James Cook University, Cairns Qld 4870.

ABSTRACT A new species of Mitridae, *Domiporta valdacantamessae*, is described from Dingo Beach, Queensland, Australia. The shell shows similarities with other Queensland *Domiporta* species: *D. carnicolor* Reeve, 1844, *D. filiaris* Linnaeus, 1771, *D. gloriola* Lamarck, 1811, *D. granatina* Cernohorsky, 1970 and *D. praestantissima* Röding 1798, however the new species can be differentiated based on the clathrate micro-sculpture. At present, this species is only known from Queensland, Australia.

KEY WORDS Prosobranchia, Mitridae, *Domiporta*, *Domiporta valdacantamessae*, new species, taxonomy, Queensland, Australia

INTRODUCTION

The Mitridae are a family of shells that arose in the middle-Cretaceous (Turner, 2007). Despite the families popularity with collectors, the correct identification of species within this group often posed problems. One consequence of this identification malaise is that unidentified species with similarities to existing named taxa are often lumped together with the named species. The new species described herein is a classic example of this practice. It was only recently uncovered by the first author while assisting with the resorting of a large Queensland shell collection impacted by flooding during cyclone Debbie in April 2017. The owner of the collection had given the new species a nickname based on general appearance and similarity as a means of personal convenience. This discovery also illustrates the value of well-curated private collections as a source for identifying new species, a fact often overlooked by some professional taxonomists who focus solely on large institutional collections.

There have been numerous monographs on the family Mitridae published over the last thirty years which have resulted in some considerable taxonomic debate on the higher internal resolution of the mitre complex (Pechar *et al*., no date; Robin and Martin, 2004). Until a further major revision is undertaken, the classic arrangements (Cernohorsky, 1991) are followed herein.

All Dingo Beach, Queensland, Australia examples of the new species were collected by Valda Cantamessa over a thirty year period. Samples from other locations were obtained by Mrs. Cantamessa from private collections as they were broken up and sold over the last two decades. There are no literary records for the new species in the major compendiums of South

ISSN 0738-9388

Pacific Mollusca (Cernohorsky, 1978; Hinton, 1972, 1977, 1977a; Wilson, 1994).

Abbreviations

AMD: Collection of Aart Dekkers, Blokker, The Netherlands
BMNH: British Museum of Natural History, London, England
DB: Collection of David P. Berschauer, Laguna Hills, California, USA
QM: Queensland Museum, Brisbane, Australia
VC: Collection of Valda Cantamessa, Proserpine, Australia
L: Length of shell
W: Width of shell at the shoulder

SYSTEMATICS

Family: Mitridae Swainson, 1831
Subfamily: Imbricariinae Troschel, 1867
Genus: *Domiporta* Cernohorsky, 1970
Type species *Voluta filiaris* Linné, 1771
(= *Domiporta filiaris* Linné, 1771)

Domiporta valdacantamessae
Maxwell, Dekkers, Berschauer & Congdon, new species
(Figure 1, Images A-D; Figure 2, Images A-C)

Type Material:
Holotype: Dingo Beach, Queensland, W 11.1 mm, L 38.2 mm, collected 1995 at low tide on sand (QM No. MO85779).
Paratypes: Dingo Beach, Queensland, W 11.1 mm, L 35.8 mm (VC); Dingo Beach, Queensland, W 10.3 mm, L 32.1 mm (VC); Dingo Beach, Queensland, W 10.9 mm, L 34.8 mm (VC); Dingo Beach, Queensland, W 10.0 mm, L 29.5 mm, (AMD); Dingo Beach, Queensland, W 8.4 mm, L 26.1 mm, (AMD); Dingo Beach, Queensland, W 9.3 mm, L 31.6 mm, (DB).
Secondary Non-designated Material: Dingo Beach, Queensland (x 31 VC: L 21.0 – 38.0 mm); Hope Island, Queensland (x 3 VC: L 21.1-22.5 mm); Langford Reef, Queensland (x 3 VC: L 11.9 - 35.1 mm) Michaelmas Cay, Cairns (x 2 VC: L 19.7 - 21.9 mm).

Synonymy: *Subcancilla shikamai* (Habe 1980), Jarrett 2011, p. 117, fig. 433.

Type Locality: Dingo Beach, Queensland, Australia.

Description: The shell is elongate-fusiform and moderate in size. The protoconch comprises four smooth, white, glossy conical whorls. The teleoconch has eight whorls. The immediate post-nuclear whorls are clathrate with four evenly spaced distinct spiral cords, with one partially obscured by the subsequent whorl close to the suture; thus forming rows of distinctive raised rectangular blocks that are separated by clear grooves that are wider axially. On latter whorls there are four nodulated spiral cords with broad concave clathrate interspaces, which on magnification, consist of four glossy rows of axial oblong blocks; the middle two being distinctive. The body whorl is half the length of the shell. The number of spiral cords varies from 12-14 and all are crenulated. The cordal interspaces are clathrate with four rows of nodules the third of which is enlarged. The spire whorls are rather straight, and the body whorl is slightly concaved. All whorls bear an angulate yet rounded shoulder, which is adjacent to a slightly raised spiral rib just under the suture. There are spiral cords that start close to the sutures, which are somewhat indented. All of the specimens examined are whitish in colour, except one specimen in which the base colour is yellowish.

Range and Habitat: Currently known from central and northern Queensland. While *Domiporta valdacantamessae*, n. sp., can be found in sand associated with coral on the outer reef systems, it is most commonly associated with inter-tidal sand and sandy-mud. It is found year round but is most prolific during the late spring to early summer period.

Etymology: This species is named in honour of Valda Cantamessa who provided self-collected specimens to enable the production of this manuscript. Mrs. Cantamessa is well-known and respected in malacological circles in Queensland, Australia, and is an active member of the Keppel Bay, Townsville and Cairns Shell Clubs where she actively exhibits and judges at the annual exhibitions.

DISCUSSION

The north Queensland coast is relatively rich in *Domiporta* species with at least five previously described species known; all of which can be readily distinguished from *D. valdacantamessae* by structural and morphological differences (Cernohorsky, 1991). All previous species share habitat affinities with *D. valdacantamessae.* However only *D. praestantissima* Röding, 1798 and *D. filiaris* Linnaeus, 1771 have similarities in shell morphology. Structural differences between these two taxa and the new species are listed in Table 1.

Domiporta valdacantamessae has been often confused with *D. praestantissima* but is clearly distinguished by the inter-cordal microstructure on the dorsal body whorl, the new species having four rows of nodules while *D. praestantissima* has variable numbers of inter-cordal nodules that increase basally. Furthermore, the whorls of *D. praestantissima* are a little more convex and inflated than the new species (Figure 1: Image E).

The shape of the whorls of *D. filiaris* are much more ovate with a spire that is not as extended as that of *D. valdacantamessae*. Furthermore, the clathrate microstructure of *D. filiaris* is much more regular with uniform nodules in the spiral cordal interspaces. *D. valdacantamessae* also differs in that the third row of the body whorl interspaces is larger than the other three (Figure 1: Image F).

While there are structural differences in micro-sulpture, the rose coloured protoconch of *D. carnicolor* Reeve, 1844 clearly demarcates it from *D. valdacantamessae* which is always white (Figure 2: Image E). However, there is a marked similarity between *D. valdacantamessae* and the designated lectotype illustrated in Cernohorsky which is missing its protoconch, indicating that a larger revision of the *Domiporta*, which is outside the scope of this paper, maybe needed (Cernohorsky, 1991, Plate 85 fig, 1.2). Similarly, the micro-sculpture and irregular dashed patterns of *D. granatina* Cernohorsky, 1970 and *D. gloriola* Lamarck, 1811 make these species readily discernible from *D. valdacantamessae* (Figure 2: Images D and F).

One similar mitre that also occurs sympatrically with *D. valdacantamessae*, is *Neocanilla circula* Kiener, 1838, and can be readily distinguished from *D. valdacantamessae* by the more enlarged spiral cords, and the lack of clathrate microsculpture (Figure 1: Image G).

D. valdacantamessae has also been misidentified as *Subcancilla shikamai* Habe, 1980 (Jarrett, 2011), however that species has a brown protoconch, has only two spiral cords on the teleoconch and lacks the inflated whorls of *D. valdacantamessae*.

ISSN 0738-9388

Feature / Name	*D. valdacantamessae*	*D. filiaris*	*D. praestantissima*
Protoconch	White Smooth Conical 3-3.5 whorls	White Smooth Conical 4 whorls	White Smooth Conical 3.2-4 whorls
Teleoconch	White to yellow	White	White-creamy white
Teleoconch spiral cords	White to reddish-brown 4 cords	Reddish-brown 3-5 cords	Reddish-brown to golden brown 3-4 cords
Teleoconch spiral interspaces	Concave Clathrate 4 rows of spiral oblong blocks two raised centrally.	Concave Clathrate Six rows of oblong blocks uniform in size.	Concave Clathrate 4-6 rows of oblong nodules uniform in size increasing in number basally.
Body whorl	Body whorl near two thirds the length of shell.	Body whorl is near or more than two thirds the length of shell.	The body whorl nearly two thirds the length of shell.
Body whorl spiral cords	12-14 dorsal crenulated cords	10-12 dorsal crenulated cords	10-12 dorsal crenulated cords
Body whorl spiral interspaces	Clathrate 4 rows of nodules the third row is preeminent and may or may not have nodules coloured in the initial interspaces.	Clathrate 4 rows of uniform in size nodules,	Clathrate 4-6 rows of nodules uniform in size increasing in number basally. Some interspaces may have one row of nodules coloured the same as the spiral cords.
Whorls	Moderately straight and body whorl little convex with a rounded yet angulate shoulder.	Inflated and convex with a distinctly rounded yet angulate shoulder.	Convex and not inflated with no distinctive shoulder.
Sutures	Incised	Incised	Not incised

Table 1: Comparative features of sympatric Dingo Beach species of *Domiporata*.

ACKNOWLEDGEMENTS

The authors thank Valda Cantamessa, of Proserpine, for access to her collection and for providing the type material. A great thanks to Trevor and Marguerite Young, of the town of Cannonvale, Queensland, Australia, for their valuable comments on the manuscript and directions to overlooked reference material. The authors also thank Richard Salisbury for provision of the lectotype images of *D. carnicolor*. Furthermore, the authors are most grateful to Dr. Edward Petuch, Florida for taking the time to examine the manuscript prior to submission. We thank Darryl Potter from the Queensland Museum for his assistance in registering the holotype at short notice.

REFERENCES

Cernohorsky, W.O. 1978. Tropical Pacific Marine Shells. Pacific Publications, Sydney.

Cernohorsky, W.O. 1991. Mitridae of the World, part 2, The subfamily Mitrinae concluded and subfamilies Imbricariinae and Cylindromitrinae. Monographs of Marine Mollusca, 4, 1-164.

Hinton, A.G. 1972. Shells of New Guinea and the Central Indo-Pacific. Robert Brown and Associates, Port Moresby.

Hinton, A.G. 1977. Guide to Australian Shells. Robert Brown and Associates, Port Moresby.

Hinton, A.G. 1977a. Guide to Shells of Papua New Guinea. Robert Brown and Associates, Port Moresby.

Jarrett, A.J. 2011. Marine Shells of the Whitsunday Coast and Islands. Alan Jarrett, Whisundays.

Pechar, P., C. Prior, and B. Parkinson. No date. Mitre Shells from the Pacific and Indian Oceans. Robert Brown and Associates, Bathurst.

Robin, A. and J.C. Martin. 2004. Mitridae Costellariidae. Xenophora, Paris.

Turner, H. 2007. Six new species of Mitridae from the Indian and Pacific Oceans, with remarks on *Mitra abacopora* Melvill, 1888 (Neogastropoda: Muricoidea). Contributions to Natural History, 10, 1-39.

Wilson, B.R. 1994. Australian Marine Shells, Prosobranch Gastropods, part 2 (Neogastropoda). Odyssey Publishing, Kallaroo.

ISSN 0738-9388

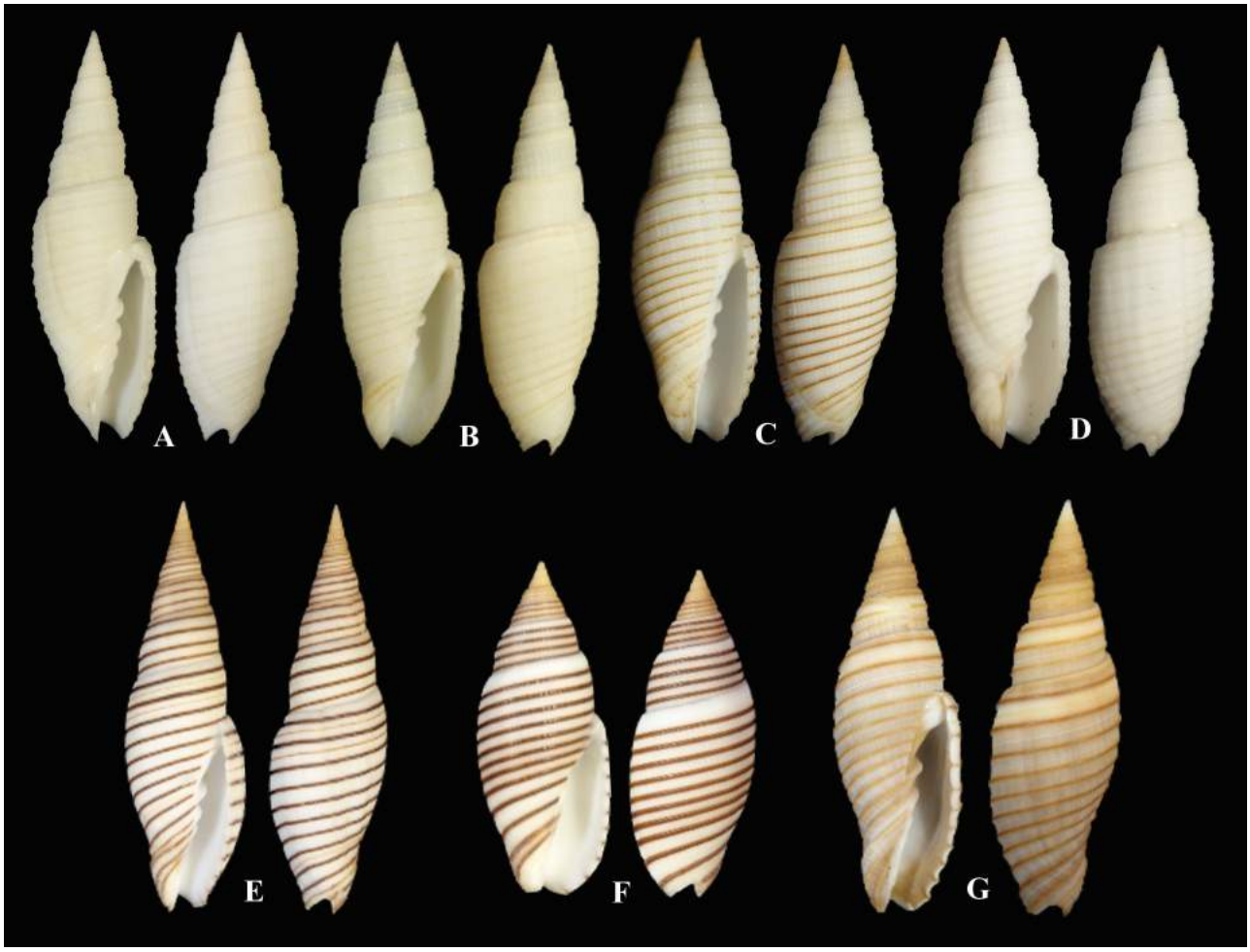

Figure 1. Comparison of *Domiporta valdacantamessa* n.sp. to related species. Images A-G.
A. *Domiporta valdacantamessae* new sp., Dingo Beach, Queensland, W 11.1 mm, L 38.2 mm, Holotype (QM MO85779).
B. *Domiporta valdacantamessae* new sp., Dingo Beach, Queensland, W 11.1 mm, L 35.8 mm, Paratype 1 (VC). C. *Domiporta valdacantamessae* new sp., Dingo Beach, Queensland, W 10.3 mm, L 32.1 mm, Paratype 2 (VC). D. *Domiporta valdacantamessae* new sp., Dingo Beach, Queensland, W 10.9 mm, L 34.8 mm, Paratype 3 (VC). E. *Domiporta praestantissima* Röding 1798, Dingo Beach, Queensland, 45.5 mm (VC). F. *Domiporta filiaris* Linné 1771, Dingo Beach, Queensland, 27.0 mm (VC). G. *Neocancilla circula* Kiener 1838, Dingo Beach, Queensland, 36.8mm (VC).

ISSN 0738-9388

Figure 2. Comparison of *Domiporta valdacantamessa* n.sp. to related species. Images A-F.
A. *Domiporta valdacantamessae* new sp., Dingo Beach, Queensland, W 10.0 mm, L 29.5 mm, Paratype 4 (AMD). B. *Domiporta valdacantamessae* new sp., Dingo Beach, Queensland, W 8.4 mm, L 26.1 mm, Paratype 5 (AMD). C. *Domiporta valdacantamessae* new sp., Dingo Beach, Queensland, W 9.3 mm, L 31.6 mm, Paratype 6 (DB). D. *Domiporta granatina* Cernohorsky 1970, Bohol Island, Philippines 55.5 mm (VC). E. *Domiporta carnicolor* Reeve 1844, Philippines, Lectotype 30.2 mm (BMNH No.1899). F. *Domiporta gloriola* Lamarck 1811, Sulu Island, Philippines, 48.5 mm (VC).