

## A new species of the genus *Notovoluta* Cotton, 1946 (Gastropoda: Volutidae) from Northwestern Australia

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**ABSTRACT.** A new species of Volutidae Rafinesque, 1815, *Notovoluta kalotinae* sp. nov. is described from the deep water off the northern coast of Western Australia.

### INTRODUCTION

For thirty years, the northern part of the Australian west coast continental shelf has proved to be an important area of endemism. This zone forms a vast quadrilateral area delimited by North West Cape – Rowleys Shoals – Scott Reefs and the off-shore of the Kimberley Coast. Many experimental or commercial dredgings in this area have led to the discovery of five endemic Volutidae species inhabiting this range: *Livonia joerinkensi* (Poppe, 1987), *L. limpusi* Bail, 1999, *Amoria (Amoria) simoneae* Bail & Limpus, 2003, *Notovoluta norwestralis* Bail & Limpus, 2003 and *Amoria (Amoria) hansenae* Morrison, 2012.

Probably sharing the same location but with an uncertain northern extension in the Arafura Sea, *Amoria (Amoria) kawamurai* Habe, 1975 and *A. (Amoria) rinkensi* Poppe, 1986 must be added. Recently, a trawler, testing his nets on the way out to the scampi grounds, brought up several specimens of a new species of *Notovoluta*, here described.

*Notovoluta kalotinae* sp. nov.  
Figs 1A-I; 2G-H

### SYSTEMATICS

Family **Volutidae** Rafinesque, 1815  
Subfamily **Amoriinae** Gray, 1857  
Tribe **Notovolutini** Bail & Poppe, 2001  
Genus ***Notovoluta*** Cotton, 1946

#### Supraspecific consideration

The Tribe Notovolutini Bail & Poppe, 2001 is restricted to Australian waters, featuring moderately thick, elongate fusiform shells, a large protoconch with whorls regularly coiled around the axis of the shell and consisting of two or three dome-shaped

whorls with a central nucleus, a shiny surface and an elliptical aperture with mostly four strong columellar plaits. No operculum.

It consists of two genera:

- *Volutoconus* Crosse, 1871. Type species: *Voluta coniformis* Cox, 1871.

Radula uniserial with tricuspid teeth, with a fang-like profile. Protoconch conical with a calcarella, sometimes ribbed.

- *Notovoluta* Cotton, 1946. Type species: *Voluta kreuslerae* Angas, 1865.

Radula uniserial with tricuspid teeth, the central cusp projecting. Protoconch rounded.

The genus *Notovoluta* is defined by other stable characters: solid shells of various size, elongate-fusiform; protoconch smooth, multispiral, dome-shaped; siphonal notch shallow; fasciole distinct; four or five strong columellar plaits; pattern of triangular markings.

**Type Material.** Holotype: Museum and Art Gallery of the Northern Territory P.54960. Length 74.4 mm, width 27.2 mm (Fig. 1A-C).

Paratype 1 in A. Limpus collection. Length 74.3 mm, width 29.4 mm (Fig. 1D-E).

Paratype 2 in P. Bail collection. Length 69.0 mm, width 26.5 mm (Fig. 1F-G).

**Other material.** One specimen in M. Zografakis collection. Length 81.2 mm, width 31.0 mm (Fig. 1H-I).

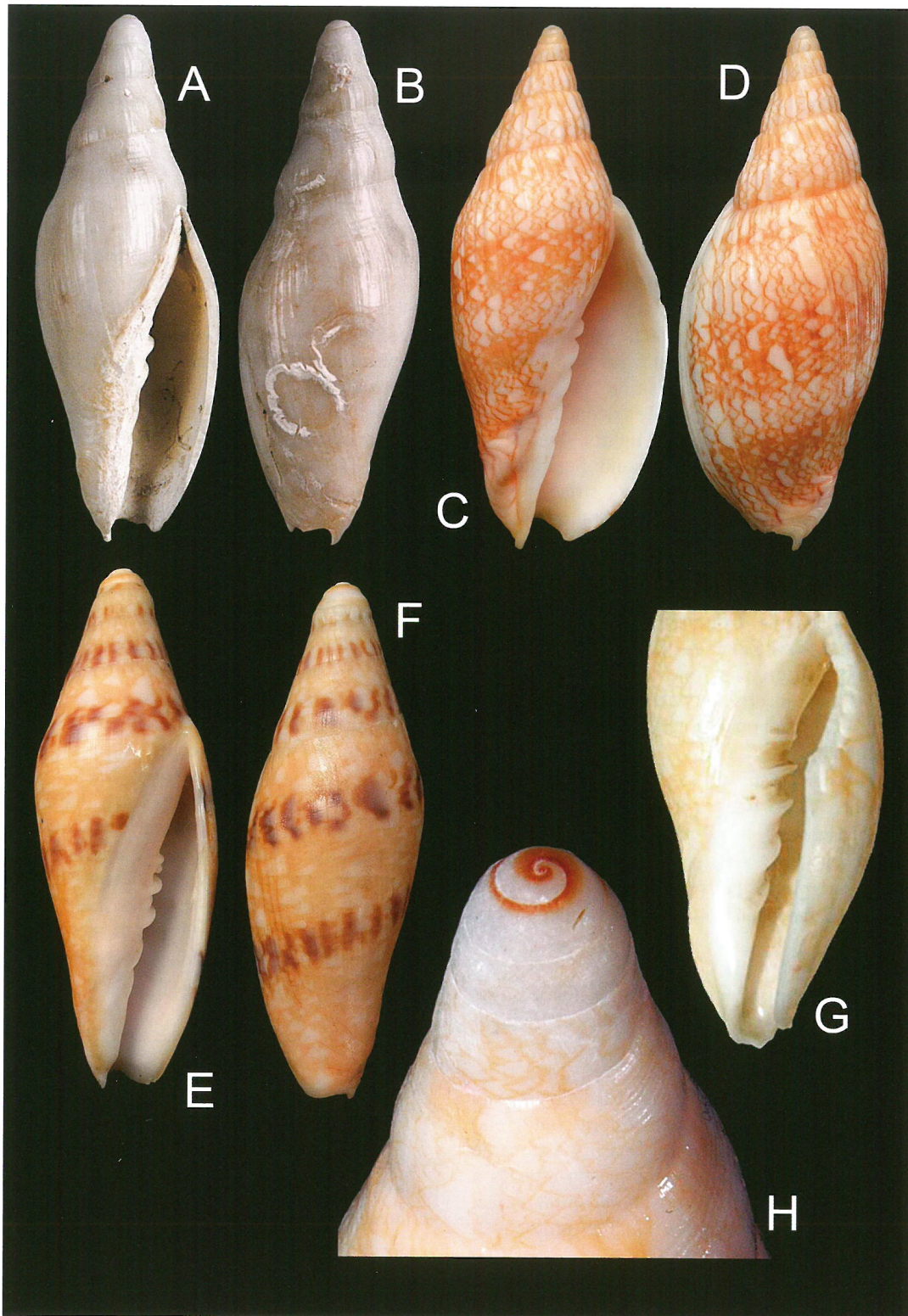
**Type Locality.** Off Northwest Broome, Western Australia, in 120 m during a trawl test. Exact location not precise.

**Range.** So far, this species has been found only in a restricted location of the northwestern continental



**Figure 1.** *Notovoluta kalotinae* sp. nov. Off Northwest Broome, Western Australia

**A-C.** Holotype Museum and Art Gallery of the Northern Territory, Darwin, P.54960, 74.3mm; **D-E.** Paratype 1: **A.** Limpus coll., 96.0 mm; **F-G.** Paratype 2: P. Bail coll., 69.0 mm; **H-I.** Other specimen: M. Zografakis coll., 97.5 mm.



**Figure 2**

**A-B.** *Notovoluta norwestralis*. North West Shelf, in 250 m. Holotype Western Australian Museum S141182, 58.3 mm.

**C-D.** *Notovoluta gerondiosi*. Off Shark Bay in 320 m, Western Australia, P. Bail collection, 83.8 mm; **E-F.** *Notovoluta gardneri*. Off Hixson Cay, Queensland in 220 m. P. Bail collection, 74.7 mm;

**G-H.** *Notovoluta kalotinae* sp. nov. Holotype;

**G.** Columellar plait; **H.** Protoconch and spiral sculpture.

shelf of Western Australia. Due to the lack of exploration in this area, a more extended range can only be conjectured.

**Habitat.** All known specimens have been trawled at a depth of 120 m. Fishermen reported a bottom substrate of sandy rubble.

**Description.** Shell solid, of moderate size (70–80 mm), with slightly bulbous body whorl and tapered spire.

Protoconch smooth, large (average diameter of 6 mm), papilliform, of three whorls. Apex of protoconch white, marked with a brown blotch which extends, progressively thinning, along suture up to beginning of teleoconch (Fig. 2H). Transition protoconch / teleoconch gradual and smooth. Teleoconch of four shiny moderately convex whorls, slightly shouldered by light concave narrow subsutural band. Sculpture of faint irregularly spaced revolving striae, more conspicuous on subsutural zone, extending attenuated to the body whorl (Fig. 2H). Absence of axial sculpture. Suture appressed. Aperture high, narrow, forming average of 60 % of total shell length. Outer lip beveled and simple. Columella straight, with five oblique plaits, posterior one weakest. On three of the four examined specimens, one fine inconspicuous intermediary plait inserts between second and third plaits (Fig. 2G). Siphonal notch deep and narrow. Fasciole distinct.

Background color cream with a pattern of close, fine, zigzag, axial beige lines forming open tent-like markings, crossed by three narrow spiral bands of darker blotches, light on subsutural portion, more pronounced on middle body whorl and on anterior part. Coloration faded on holotype but typical pattern preserved.

**Discussion.** This new species can be compared first with the other large species of the genus *Notovoluta* inhabiting the West Australian waters:

*Notovoluta norwestralis* Bail & Limpus, 2003 (Fig. 2A-B), trawled dead in the vicinity of Rowley Shoals is the other inhabitant of the northwestern continental shelf. It is the most similar by sharing the same medium-sized fusiform shape, same brown blotch on protoconch and presence of subsutural spiral striae. The differences are constant: a smaller protoconch

(average diameter 4.6 mm), shorter spire less tapered, faint axial ribs on the two first teleoconch whorls, spiral striae restricted to the subsutural zone only, pattern finer and denser when visible.

*Notovoluta gerondiosi* Bail & Limpus, 2005 (Fig. 2C-D), from west off North-West Cape presents some similarities of shape and pattern but differs by having a thicker shell of slightly larger size (80-100 mm), smaller protoconch (average diameter 4.9 mm) with brown blotch reduced to the embryonic whorl only, strong axial ribs on the spire, absence of spiral striae, tent-like pattern slightly more open with two constantly broad spiral bands of blotches.

No confusion is possible with the other large western *Notovoluta* species: *Notovoluta baconi* Wilson, 1972, *N. capricornea* (Wilson, 1972), *N. pseudolirata* (Tate, 1888) are drastically different in shape and pattern.

In the northeast Australian waters, *Notovoluta gardneri* Darragh, 1983 (Fig. 2E-F) is different with its large rounded protoconch (average diameter 7-8 mm), shorter spire, more tapered anterior and a coarser tent pattern with two narrow spiral rows of black dashes on the last whorl.

**Remarks.** The range of this new species is unknown but similarity to other members of the genus and their wide ranges leads to reasonable expectation that this species will also be found over a wider range. This chance discovery brings the number of western *Notovoluta* to seven species, one of them still undescribed. With *Notovoluta kreuslerae* (Angas, 1865), *N. verconis* (Tate, 1892) and *N. occidua* Cotton, 1946 being the only species inhabiting the southern part of the continent, the dissymmetry with the only two known eastern species *Notovoluta gardneri* and *N. hoskensis* Poppe, 1992, very remote in the distribution of the genus, as well as the lack of species in the northern waters can be pointed out without explanation.

**Etymology.** Named after the daughter of Michael Zografakis, Kalotina.

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