

**Revision and Description of New *Piperamarginella* Species  
(Gastropoda:Marginellidae:*Marginella*), from the Eastern Cape,  
South Africa – Part 1**

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**ABSTRACT** Three new species in the subgenus *Piperamarginella*, genus *Marginella* from the Eastern Cape, South Africa, are described. The study originated when material, all identified as *M. (P.) monozona* W.H. Turton, 1932, turned out to be four different species. The following new species are described: *M. (P.) buffaloensis* n. sp., *M. (P.) lindaswartae* n. sp. and *M. (P.) gonubiensis* n. sp.

**KEYWORDS** Marginellidae, *Marginella*, *Piperamarginella*, *M. (P.) buffaloensis*, *M. (P.) lindaswartae*, *M. (P.) gonubiensis*, Eastern Cape, South Africa

## INTRODUCTION

Recent study on the *Piperamarginella* revealed several new species over the last couple of years. Material from different collections were studied, mostly material that was previously identified as *Marginella (Piperamarginella) monozona* W.H. Turton, 1932 that revealed some interesting shells. All the material studied consists of shells that are relatively large in size for the subgenus. The shells within this group are very similar and share many morphological characteristics that make them *Piperamarginella* (Veldsman 2017, 2019). The coloration is at first glance very similar, but with closer investigation there are many differences between the three new species described here and existing species such as *M. (P.) monozona* and other close relatives *M. (P.) obliqua* S.G. Veldsman, R. Aiken & J.H. Veldsman, 2014 and *M. (P.) scitula* W.H. Turton, 1932. Many collectors might even have these shells wrongly identified in their collections as *M. (P.) piperata* Hinds, 1844 that's already discussed in detail in several previous articles (Aiken 2019, Veldsman *et al.* 2014, Veldsman 2022). The shells of the new

species, like most other *Piperamarginella* species, are found along the beaches of the Eastern Cape, South Africa (Figure 1), dived live at shallow depths and in very rare cases dredged down to 80 m.

## METHODOLOGY

*Marginella* species within the same subgenus share several taxonomic characters, such as the type and size of labial denticles, posterior notch presence and callus on columella. Other shell morphological features are used here to differentiate species from each other, including but not limited to, the shoulder shape and width, general shape of the shell, spire height and characteristics, aperture shape and width, shape of the labrum, plicae markings, and body-whorl coloration.

Material from the Institute for Marine and Environmental Science's (IMES) Collection (previously known as the Veldsman Collection) were studied along with material from the Linda Swart Collection, Anton Groenewald Collection, Alet Potgieter Collection, and ex collections of



**Figure 1.** Locality map indicating the main localities along the Eastern Cape, South Africa, where the three new species occur.

Media Evans, Mrs. Eastwood, J. Scheepers, D. & M. Meyer, Val van der Walt, and Laurie Smith (now part of the IMES Collection).

Shells were measured with a pair of digital calipers (RS Pro Electronic Digital Caliper 150 mm / 6", South Africa). To ensure precision, each measurement was taken in triplicate. All the type material of the new species and other material studied were photographed by S.G. Veldsman.

## SYSTEMATICS

Phylum Mollusca Linnaeus, 1758  
 Class Gastropoda Cuvier, 1795  
 Subclass Caenogastropoda Cox, 1960  
 Order Neogastropoda Wenz, 1938  
 Superfamily Volutoidae Rafinesque, 1815  
 Family Marginellidae Fleming, 1828  
 Genus *Marginella* Lamarck, 1799  
 Subgenus *Piperamarginella* S.G. Veldsman, 2017

*Marginella (Piperamarginella) buffaloensis*  
S.G.Veldsman n. sp.  
(Figure 2:1-5)

**Description.** The shell is moderately large (16-20 mm), fusiform sub-oval shaped, shoulder rounded. Moderately thick to thin labrum, smooth and off-white background color with dark brown markings on top, no developed posterior notch or labial denticles. Spire moderately high, spire whorls convex and rounded. Moderately wide protoconch, light grey color. Columella bends inwards in center with four thick continuous plications on anterior side, which take up half the length of the aperture, off-white color. Callus covering all the plicae, no callus on inside of columella. Aperture narrow and lip straight, off-white color. Background of the body whorl off-white to creamy colored, with very fine brown speckled pattern. A light-colored band in the center around the body whorl. The last third towards the base of the shell has a slightly darker coloration on top and aperture side. A red-brown marking is visible between last two plicae. The shoulder has a thin band presented as alternating white and black short lines. The spire dark brown to dark grey colored with fine markings in thin spiraling lines.

**Distribution.** Type locality of *M. (P.) buffaloensis* n. sp. is dived live at 2m, East London, Eastern Cape, South Africa. Specimens were mainly beach collected, dived live, and dredged down to 40m, Eastern Cape, South Africa.

**Type Material.** The type material of the holotype and paratypes of *M. (P.) buffaloensis* are as follows:

Holotype: 20.37 x 11.36 mm (Figure 2.1); East London, dived live at 2m; 1987; Coll. Natal Museum South Africa (NMSA), ID No: P2651/T4622 (Donated by S.G. Veldsman - IMES).

- Paratype 1: 18.98 x 11.17 mm (Figure 2.2), Gonubie (12km north-east of East London), beach collected, 1974, IMES Coll.
- Paratype 2: 18.53 x 10.58 mm (Figure 2.3), East London, dredged 40m, IMES Coll.
- Paratype 3: 17.10 x 10.05 mm, East London, beach collected, 1974, IMES Coll.
- Paratype 4: 18.24 x 10.21 mm (Figure 2.4), East London, dived live at 15m, IMES Coll.
- Paratype 5: 18.90 x 11.04 mm, Jeffreys Bay, beach collected, IMES Coll.
- Paratype 6: 18.65 x 10.18 mm; Jeffreys Bay, beach collected, 1967, IMES Coll.
- Paratype 7: 19.55 x 11.52 mm (Figure 2.5), East London, beach collected, IMES Coll.
- Paratype 8: 18.00 x 10.23 mm, Jeffreys Bay, beach collected, 1987, IMES Coll.
- Paratype 9: 17.12 x 9.46 mm, East London, beach collected, L. Swart Coll.
- Paratype 10: 17.38 x 10.10 mm, East London, beach collected, IMES Coll.
- Paratypes 11-39: 16.85 to 20.44 mm, beach collected at Jeffreys Bay, Port Alfred, East London, Gonubie, Broomstick (East London area), and Xora River Mouth, from the IMES Coll., A. Groenewald Coll. and L. Swart Coll.

**Etymology.** The species is described after the Buffalo River, home to the Buffalo Harbor and Port of East London, Eastern Cape, South Africa.

*Marginella (Piperamarginella) lindaswartae*  
S.G.Veldsman n. sp.  
(Figure 2:6-10)

**Description.** The shell is moderately large (16 - 19 mm in length), elongate-fusiform shaped, shoulder rounded. Moderately thick to thick labrum, smooth and off-white background color with dark brown markings on top, no developed posterior notch or labial denticles. Spire high, spire whorls convex and slightly stepped. Moderately wide protoconch, light grey color. Columella straight, slightly bent inwards in center with four thick continuous plications on anterior side, which take up half the length of the aperture, off-white color. Callus covering all the plicae, no callus on inside of columella. Aperture narrow and slightly bend lip, off-white color. Background of the body whorl off-white to creamy colored, with very fine brown speckled pattern forming thin lines, speckles range from light to dark grey and dark cream color. A light-colored band barely visible below shoulder around body whorl, and another light-colored band in the center around the body whorl. The last third towards the base of the shell the same as above. A very small light pinkish marking on last plicae. The shoulder has a thin band presented as alternating white and black markings. The spire light grey to a darker cream color with fine markings in thin spiraling lines.

**Distribution.** Type locality of *M. (P.) lindaswartae* n. sp. is beached collected, Jeffreys Bay, Eastern Cape, South Africa. Specimens were mainly beach collected, Eastern Cape, South Africa.

**Type Material.** The type material of the holotype and paratypes of *M. (P.) lindaswartae* are as follows:

Holotype: 17.67 x 9.74 mm (Figure 2.6), Jeffreys Bay, beach collected, 1987, Coll. Natal Museum South Africa (NMSA), ID No:

P2652/T4623 (Donated by L. Swart).

Paratype 1: 16.87 x 9.24 mm (Figure 2.7), Jeffreys Bay, beach collected, 1989, L. Swart Coll.

Paratype 2: 18.15 x 9.66 mm (Figure 2.8), Jeffreys Bay, beach collected, 1993, IMES Coll.

Paratype 3: 17.48 x 9.61 mm (Figure 2.9), Jeffreys Bay, beach collected, 1987, IMES Coll.

Paratype 4: 16.80 x 9.36 mm (Figure 2.10), Xora River Mouth, beach collected, IMES Coll.

Paratype 5: 16.54 x 8.84 mm, Jeffreys Bay, beach collected, 1986, IMES Coll.

Paratype 6: 17.72 x 9.77 mm, Jeffreys Bay, beach collected, 1987, IMES Coll.

Paratype 7: 17.93 x 9.87 mm, East London, beach collected, L. Swart Coll.

Paratype 8: 17.13 x 9.22 mm, Jeffreys Bay, beach collected, 1989, L. Swart Coll.

Paratype 9: 16.11 x 8.57 mm, Jeffreys Bay, beach collected, 1986, IMES Coll.

Paratype 10: 16.27 x 8.89 mm, East London, beach collected, IMES Coll.

Paratypes 11-17: 16.49 to 18.84 mm, beach collected at Jeffreys Bay, Port Alfred, East London, and Xora River Mouth from the IMES Coll. and L. Swart Coll.

**Etymology.** The species is described for Linda Swart, shell collector, artist and longtime friend of the Veldsmans. A vast number of specimens used in this paper were supplied by Linda Swart for study.

*Marginella (Piperamarginella) gonubiensis*

S.G.Veldsman n. sp.

(Figure 3:1-5)

**Description.** The shell is moderately large (18-21 mm in length), fusiform sub-oval shaped, shoulder semi-sharp-rounded. Moderately thick labrum, smooth and off-white background color with dark brown markings on top, no developed posterior notch or labial denticles. Spire high, spire whorls convex and slightly stepped. Moderately wide protoconch, light grey color. Columella relatively straight with four thick continuous plications on anterior side, which take up half the length of the aperture, off-white color. Callus covering all the plicae, no callus on inside of columella. Aperture moderately wide and lip straight, off-white color. Background of the body whorl off-white to creamy colored, with very fine brown speckled pattern, consistent in thin bands around the body whorl. A light-colored band in the center around the body whorl, visible on aperture side, and almost non-existent on top. The last third towards the base of the shell has a slightly darker coloration on top but hardly noticeable. A greyish marking is visible between the last two plicae in fresh specimens. The shoulder has a thin band presented as alternating light and dark cream markings. The spire light colored like the body whorl, slightly darker color in some specimens with fine markings in thin spiraling lines.

**Distribution.** Type locality of *M. (P.) gonubiensis* n. sp. is beach collected, Gonubie (12km north-east of East London), Eastern Cape, South Africa. Specimens were mainly beach collected, and dove live, Eastern Cape, South Africa.

**Type Material.** The type material of the holotype and paratypes of *M. (P.) gonubiensis* are as follows:

Holotype: 20.76 x 11.67 mm (Figure 3.1),  
Gonubie (12km north-east of

East London), beach collected, 1974, Coll. Natal Museum South Africa (NMSA), ID No: P2653/T4624 (Donated by S.G. Veldsman - IMES). Ex. Paratype 2 of *M. (P.) obliqua*.

Paratype 1: 19.36 x 10.78 mm (Figure 3.2), north of Gonubie, beach collected, IMES Coll.

Paratype 2: 19.47 x 10.77 mm (Figure 3.3), Gonubie, beach collected, 1974, IMES Coll.

Paratype 3: 19.53 x 10.94 mm (Figure 3.4), Jeffreys Bay, beach collected, IMES Coll.

Paratype 4: 19.24 x 11.14 mm (Figure 3.5), East London, beach collected, L. Swart Coll.

Paratype 5: 19.42 x 10.75 mm, Gonubie, beach collected, IMES Coll.

Paratype 6: 19.18 x 10.55 mm, East London, dived 20m, 2010, IMES Coll.

Paratype 7: 18.92 x 10.59 mm, East London, beach collected, IMES Coll.

Paratype 8: 19.32 x 10.76 mm, Broomstick (East London area), beach collected, L. Swart Coll.

Paratype 9: 18.13 x 10.42 mm, Xora River Mouth, beach collected, IMES Coll.

Paratype 10: 18.60 x 10.38 mm, East London, beach collected, 2002, IMES Coll.

Paratypes 11-30: 17.32 to 21.17 mm, beach collected at Jeffreys Bay, Morgans Bay, Broomstick, East London, and Xora River Mouth from the IMES Coll. and L. Swart Coll.

**Etymology.** The species is described after the sea-side town Gonubie, at the mouth of the Gqunube River, 12km north-east of East London, Eastern Cape, South Africa.

## DISCUSSION

All three new species along with the closest congeners in this subgenus *Piperamarginella* share most shell morphological characteristics, and all of them are on average the same size. They however differ in general shape and coloration. *Marginella (P.) buffaloensis*, *M. (P.) gonubiensis*, *M. (P.) monozona* and *M. (P.) scitula* are fusiform sub-oval shaped; *M. (P.) buffaloensis* has a moderately high spire, spire whorls convex and rounded, *M. (P.) gonubiensis* has a high spire, and the spire whorls convex and slightly stepped, whereas *M. (P.) monozona* has a shorter spire, with convex spire whorls that are rounded. *Marginella (P.) lindaswartae* has a high spire with convex spire whorls that are slightly stepped, but the main difference is that the species is elongate-fusiform in shape, thus slender than the other species discussed here. *Marginella (P.) obliqua*

is a rounder, oblique shaped with a short spire. Refer to Table 1 and 2 for detailed comparison.

*Marginella (P.) piperata* is fusiform-oval in shape, with a moderately high spire, moderately stepped and convex spire whorls, and the most characteristic is the body whorl that is wide at posterior side, rounded to the center, angling in, and narrowing towards anterior side, ending with a sharp angle near the anterior side, and no marking on plicae, thus very different from all the species discussed here. *Marginella (P.) piperata* has no noticeable markings on plicae, and the coloration on the body-whorl consists of a relatively fine pattern, presented as a peppery pattern on worn shells, and presented as thin spiraling lines in fresh shells, consisting alternating light cream, dark brown and light-brown/pinkish markings. No broad bands around the body whorl visible.

	<i>M. (P.) buffaloensis</i> (Figure 2:1-5)	<i>M. (P.) gonubiensis</i> (Figure 3:1-5)	<i>M. (P.) lindaswartae</i> (Figure 2:6-10)
<b>General shape</b>	Fusiform sub-oval	Fusiform sub-oval	Elongate-fusiform
<b>Spire</b>	Moderately high spire, whorls convex and rounded	High spire, whorls convex and slightly stepped	High spire with convex whorls that are slightly stepped
<b>Columella and aperture</b>	The columella is bending inwards in center with a narrow aperture and straight lip	The columella is relatively straight, aperture moderately wide and lip straight	The columella is straight and slightly bending inwards at the center, the aperture is narrow, and the lip is slightly bending (rounded)
<b>Plicae markings</b>	Red-brown marking visible between last two plicae	Greyish marking visible between the last two plicae in fresh specimens, otherwise eroded away	Very small light pinkish marking on last plicae
<b>Body-whorl pattern</b>	Very fine brown speckled pattern, light-colored band in the center around the body whorl. The last third towards the base of the shell have a slightly darker coloration on dorsal side and aperture side	Very fine brown speckled pattern, consistent in thin bands around the body whorl, with a light-colored band in the center around the body whorl, visible on aperture side, and almost non-existent on dorsal side. The last third towards the base of the shell have a slightly darker coloration on dorsal side, but it is hardly noticeable	Very fine brown speckled pattern forming thin lines, speckles range from light to dark grey and dark cream color, with a light-colored band barely visible below shoulder around body whorl, and another light-colored band in the center around the body whorl. The last third towards the base of the shell the same as above

**Table 1.** Comparison between *M. (P.) buffaloensis*, *M. (P.) gonubiensis* and *M. (P.) lindaswartae*.

	<i>M. (P.) monozona</i> (Figure 3:6-8)	<i>M. (P.) scitula</i> (Figure 3:11-12)	<i>M. (P.) obliqua</i> (Figure 3:9-10)
<b>General shape</b>	Fusiform sub-oval	Fusiform sub-oval	Fusiform-oval-oblique
<b>Spire</b>	Short spire, with convex spire whorls that are rounded	Moderately high spire, moderately stepped and convex spire whorls	Low spire, rounded convex spire whorls
<b>Columella and aperture</b>	The columella curve slightly in at the center, has a wide aperture and lip slightly bend	The columella is slightly bending at the center, has a moderately wide aperture and straight to slightly bending lip	The columella is slightly bending at the center, has a moderately wide aperture and straight lip
<b>Plicae coloration</b>	No noticeable markings on plicae	Cream to yellowish markings on last two plicae	Small pinkish marking on last plicae
<b>Body-whorl coloration and pattern</b>	First two thirds of body whorl consisting of extremely fine pattern of light cream to light grey coloration, followed by a thin off-white line around the body whorl, followed by a broad darker colored (brown and grey spots) band around the body whorl that almost extends to the end at the anterior side, with tip of anterior side light colored. The coloration gives the impression of a mono-zone of dark coloration	Light cream to yellowish background. Coloration of bands are as follow: a thin prominent band (cream to yellowish) below shoulder, followed by a darker broad patterned band, followed by a thin prominent band (cream to yellowish), followed by broad dark patterned band ending at anterior side	Background color of the body whorl off-white, light grey to light cream, always pinkish on the dorsal side, whereas the ventral side shows little evidence of bands and the pinkish coloration, only brown spots scattered across the body. Several bands parallel to the shoulder on the dorsal side visible: a thin light-colored band on the shoulder, followed by a broader dark brown band, followed by a lighter colored thin band, followed by a broad dark band, ending with a light-colored band at the anterior end

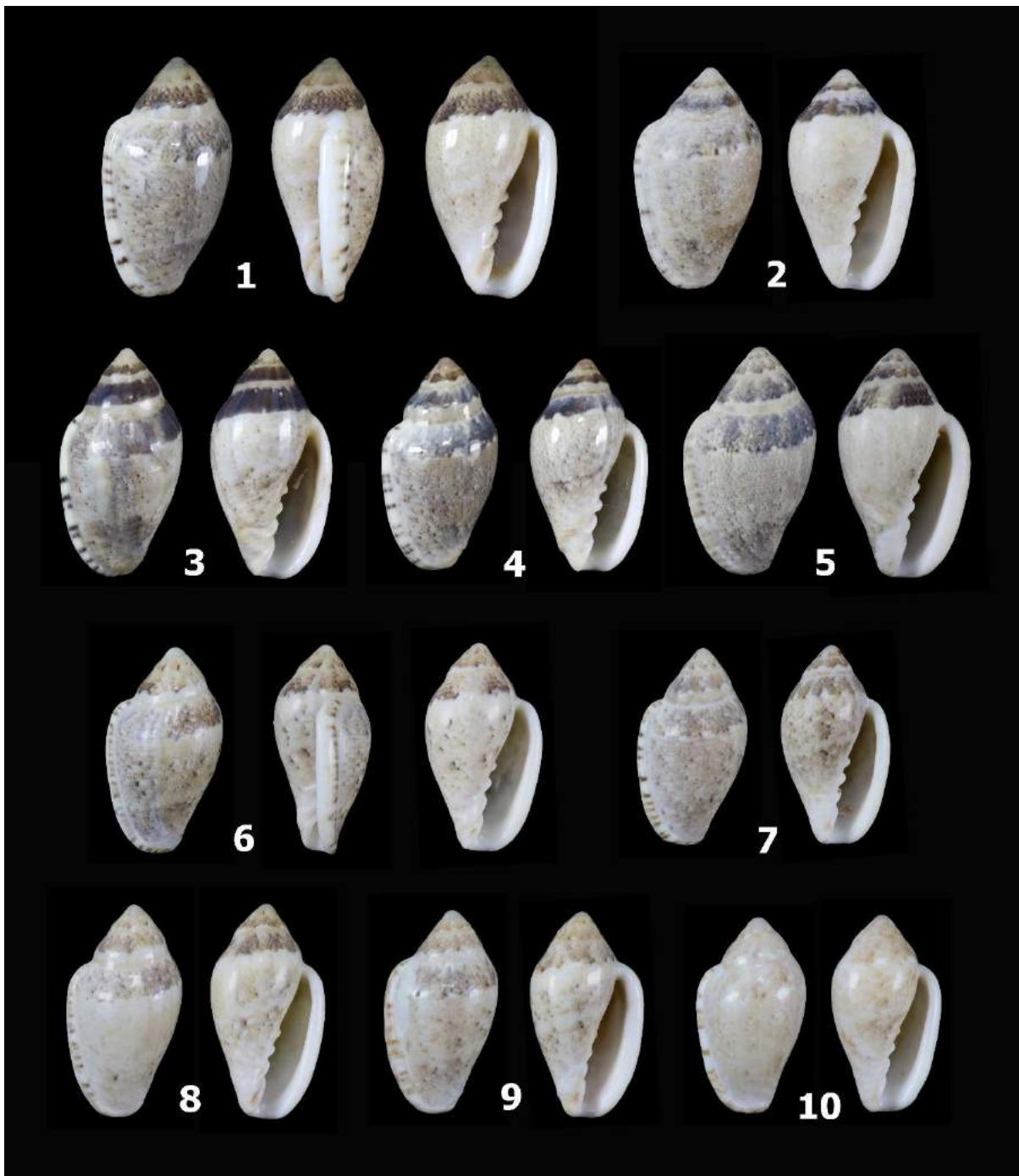
**Table 2.** Comparison between *M. (P.) monozona*, *M. (P.) scitula* and *M. (P.) obliqua*.

## ACKNOWLEDGEMENTS

The authors thank Sulize Veldsman for proof reading and support during development of this paper, and Vellies (J.H.) Veldsman for his input and proofreading. A special thanks to Linda Swart, Alet Potgieter and Anton Groenewald for providing material used in this study. Mary (Nelisiwe) Manukuza from the Natal Museum, South Africa (NMSA) is thanked for providing the holotype numbers.

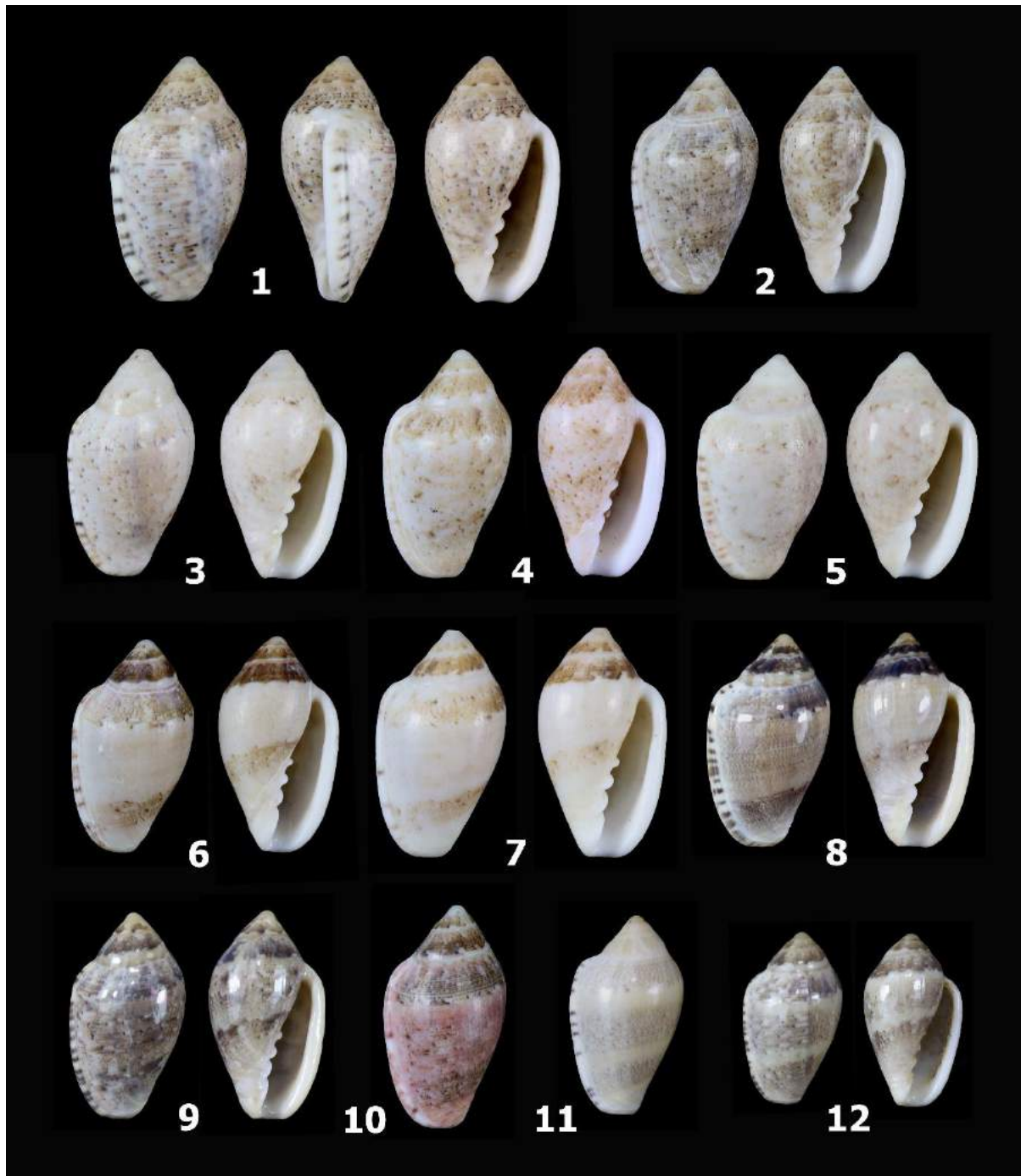
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- Cite as:**  
**Veldsman, S.G. 2024.** Revision and Description of New *Piperamarginella* Species (Gastropoda:Marginellidae: *Marginella*), from the Eastern Cape, South Africa – Part 1. *Festivus* 56(1):9-17. <http://doi:10.54173/F5619>



**Figure 2:** 1-5. *M. (P.) buffaloensis* 1. Holotype: 20.37 x 11.36 mm, East London, dived live at 2m, Coll. NMSA (P2651/T4622). 2. Paratype 1: 18.98 x 11.17 mm, Gonubie, beach collected, Coll. IMES. 3. Paratype 2: 18.53 x 10.58 mm, East London, dredged 40m, Coll. IMES. 4. Paratype 4: 18.24 x 10.21 mm, East London, dived live at 15m, Coll. IMES. 5. Paratype 7: 19.55 x 11.52 mm, East London, beach collected, Coll. IMES. 6-10. *M. (P.) lindaswartae* 6. Holotype: 17.67 x 9.74 mm, Jeffreys Bay, beach collected, Coll. NMSA (P2652/T4623). 7. Paratype 1: 16.87 x 9.24 mm, Jeffreys Bay, beach collected, Coll. L. Swart. 8. Paratype 2: 18.15 x 9.66 mm, Jeffreys Bay, beach collected, Coll. IMES. 9. Paratype 3: 17.48 x 9.61 mm, Jeffreys Bay, beach collected, Coll. IMES. 10. Paratype 4: 16.80 x 9.36 mm, Xora River Mouth, beach collected, Coll. IMES.





**Figure 3:** 1-5. *M. (P.) gonubiensis* 1. Holotype: 20.76 x 11.67 mm, Gonubie, beach collected, Coll. NMSA (P2653/T4624). 2. Paratype 1: 19.36 x 10.78 mm, north of Gonubie, beach collected, Coll. IMES. 3. Paratype 2: 19.47 x 10.77 mm, Gonubie, beach collected, Coll. IMES. 4. Paratype 3: 19.53 x 10.94 mm, Jeffreys Bay, beach collected, Coll. IMES. 5. Paratype 4: 19.24 x 11.14 mm, East London, beach collected, Coll. IMES. 6-8. *M. (P.) monozona* 6. 18.31 x 10.63 mm, East London, beach collected, Coll. L. Swart. 7. 19.53 x 11.12 mm, Jeffreys Bay, beach collected, Coll. IMES. 8. 18.31 x 10.80 mm, East London, dived 25m, Coll. IMES. 9-10. *M. (P.) obliqua* 9. 17.18 x 9.95 mm, Jeffreys Bay, dredged 75m, Coll. IMES. 10. 19.06 x 10.54 mm, Xora River Mouth, beach collected, Coll. IMES. 11-12. *M. (P.) scitula* 11. 17.23 x 9.74 mm, Jeffreys Bay, beach collected, Coll. IMES. 12. 14.78 x 8.57 mm, Algoa Bay, dredged 40m, Coll. IMES.