Crassispira pseudocarbonaria: a new turrid from the Gulf of Guinea

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Keywords: GASTROPODA, TURRIDAE, *Crassispira*, Gulf of Guinea, West Africa, new species.

Abstract: A new turrid species from the Gulf of Guinea is described. The shell has already been known for more than twenty years, but confused with *Crassispira carbonaria* (Reeve, 1844) by several authors.

Abbreviations:

FN: Private collection of Frank Nolf, Oostende, Belgium
JV: Private collection of Johan Verstraeten, Oostende, Belgium
MNHN: Muséum national d'Histoire naturelle, Paris, France

Introduction: Bernard (1984) mentioned *Crassispira carbonaria* (Reeve, 1843) as a species from Gabon. However, only the third specimen in a series of three illustrated ones refers to that species. The other two figures do not match the original description and the figure by Reeve (1843). In many collections, this species was also labelled as *C. carbonaria*. Fernandes et al. (1995) remarked this mistake and they identified and illustrated the divergent form as *Crassispira* sp. They even supposed the shell figured by Nicklès (1950) could be that species. Fernandes et al. (1995) were very cautious and hesitated to definitively describe it as a new species, especially as they thought that two different forms occurred in the West African waters: one group from Gabon and a second group from Senegal. Shells of both groups should differ from each other by general outline and the relation between the length of the shell (LC) and the radular tooth size (DR). Shells from Senegal should look more elongated, while those from Gabon are stouter. The ratio LC/DR is about 100 for the Gabonese specimens and about 170 for the Senegalese specimens. Fernandes et al. (1995) correctly argued that the latter are similar to the larger shells of *C. carbonaria* (Reeve, 1843) and that the Gabonese shells have an affinity with *C. consociata* (E.A. Smith, 1877).

Material and methods: This study is based upon the shells found in the collections of the MNHN and the private collections of Johan Verstraeten and the author.

Type material:

Holotype: Coco Beach, Port Gentil, Gabon. At 1-50 m (sic). MNHN. 26.03 mm. (Pl. I, Figs 3-4).

Paratypes:

1. 27.79 mm (JV). Plage Sogara, Libreville, Gabon. Depth: 4 m. (Pl. III, Figs 11-12).
2. 28.54 mm (FN). Libreville, Gabon. At 60 km offshore. Dredged at a depth of 35 m.
3. 24.25 mm (FN). Port Gentil, Gabon. At a depth of 25 m.
4. 27.04 mm (FN). Port Gentil, Gabon.
5. 23.28 mm (MNHN). Trois Rivières, Port Gentil, Gabon. On sandbar, at a depth of 5 m. 0° 38.5' S. / 8° 43.4' E. (Pl. I, Figs 1-2).
6. 22.29 mm (MNHN). Coco Beach, Port Gentil, Gabon. At 1-50 m (sic). (Pl. II, Figs 5-6).
7. 25.60 mm (MNHN). Coco Beach, Port Gentil, Gabon. At 1-50 m (sic). (Pl. II, Figs 7-8).
8. 24.66 mm (MNHN). Rep. of São Tomé & Príncipe, Gulf of Guinea. '*Calypso 1956*'-expedition. At a depth of 5 m. (Pl. III, Figs 9-10).

Locus typicus: Gabon, West Africa.

Description: Solid sturdy shell, decollated, with 4-5 spiral whorls. Each whorl is provided with 6-7 broad, strong axial ribs, interrupted between the suture and the shoulder. These ribs are crossed by spiral threads, present on the axial protuberances and also in the interspaces, 4-5 on the first whorls and about 12 on the body whorl, followed by about 8 very diffuse and narrow threads on the lower part of the last whorl. The suture is undulant, close to the previous whorl, with a spiral collar over the subsutural band. The aperture is elongate, with its outer edge free and serrated. The inner lip is free at the base. There is a stromboid notch close to the siphonal canal, which is quite broad and slightly incurved. The anal sinus is deep, U-shaped, a little narrower with a strong columellar nodule. The colour is greyish or olive-green, with clearer zones at the base and a yellowish white subsutural band.

The aperture is bluish and the shoulder is lighter coloured in some specimens. The spiral threads are clearer and whitish. The radular teeth were not examined but according to Fernandes et al. (1995) they are wider in the upper third, with an angulation and a rounded prominence.

Etymology: The name is derived from the similarity of the new species to *Crassispira carbonaria* (Reeve, 1843).

Habitat: On sandy bottom at a depth of 5-50 m.

Geographic range: Gabon, São Tomé & Príncipe.

Measurements: From 22 to 28 mm.

Discussion: As already stated in the introduction this new species can be compared with *C. carbonaria*. Both species were confused with each other in the past (Bernard, 1984; Fernandes et al., 1995). The latter authors argue that two groups can be distinguished within the samples of the new species, one from Senegal (Pl. IV, Figs 13-16; Pl. V, Figs 17-20) with a LC/DR ratio of 170 and a second group of specimens from Gabon (Pl. I, Figs 1-4; Pl. II, Figs 5-8; Pl. III, Figs 9-12) with a LC/DR of about 100. However, after studying the samples in the MNHN it appears that the radula of only two Senegalese specimens were examined, as the third live collected specimen still contained both animal and operculum. Considering the fact that only two measurements were available for comparison and that use of the LC/DR ratio is not at all the ultimate method to identify species it should be noted that these data were too limited. So it was plain that more specimens were needed to solve this problem.
After studying the samples in the collection of the MNHN, we are convinced that some aberrant Senegalese specimens (Pl. IV, Figs 13-16; Pl. V, Figs 17-20) belong to *C. carbonaria* as they share the same general appearance, being more elongated and turreted. Some unique specimens (Pl. IV, Figs 15-16 of this paper; Fernandes et al., Fig. 11) are olive-green approaching the typical colour of the new species from Gabon. This characteristic is misleading because outline and structure of these shells are similar to those of other *C. carbonaria* specimens from Senegal and nearby countries.
Crassispira sp. nov. is sturdier and stouter than *C. carbonaria*, which is more elongate. Its last whorl is broader at the shoulder and the subsutural ridge is sharper and more prominent. The axial ribs are obsolete compared to the diffuse ribs in *C. carbonaria*. The spiral threads are also broader. They are numerous and continue on the ribs, without nodules at the crossing-points. The columella and the outer lip are both bluish white, in *C. carbonaria* the aperture is bluish and the columella is brown.

The new species can be distinguished from similar species in West Africa:
- *C. carbonaria* (Reeve, 1843) (Pl. VI, Figs 21-24; Pl. VII, Figs 25-28; Pl. VIII, Figs 29-32; Pl. IX, Figs 33-36) with 7-10 strong axial ribs on the body whorl, crossed by diffuse spiral threads frequently nodulous on the ribs, especially at the base. Nodules usually white coloured. Smooth subsutural depression limited below by the shoulder. Colour dark brown to blackish, lighter on the ribs. Some specimens are greyish or yellowish brown, exceptionally creamy.
- *C. callosa* (Valenciennes, 1840) (Pl. XI, Figs 43-49). A much larger shell (30-45 mm), with a prominent number of axial ribs in the first whorls, but the sculpture is attenuated and reticulated in the body whorl. The colour is dark brown to olive-brown, almost black in small specimens. Brown periostracum.
- *C. funebralis* Fernandes, Rolán & Otero-Schmitt, 1995 (Pl. XII, Figs 50-55). In general the shell is more solid and broader. Shell with 4-5 teleoconch whorls. Sculpture of about 11 oblique axial ribs on first whorl, increasing to 14-15 on the body whorl, with nodules on the shoulder. The spiral sculpture is attenuated in most shells and only evident on the base and sometimes on the shoulder. The suture is evident, with a broad subsutural depressed margin. The colour is deep black, even on the outer and columellar lips, bluish white in the inner part of the aperture. The nodules on the shoulder are lighter, sometimes whitish.
- *C. oliva* Fernandes, Rolán & Otero-Schmitt, 1995 (Pl. XIII, Figs 56-61). This is a very solid shell with a smooth and rather glossy surface. It has an olive-green colour and a yellowish subsutural band. The aperture is white, partially bluish violet. It lives from the Congo Republic to Angola.
- *C. consociata* (E.A. Smith, 1877) (Pl. XIV, Figs 62-67). A much smaller shell (20-30 mm), with about 6-7 axial ribs on the last whorl. It is light olive-brown to cream coloured, with a bluish white aperture.

Conclusion: As specimens from Senegal, Guinea-Bissau and the Republic of Guinea in the collection of the MNHN share the characteristics of *C. carbonaria* in most aspects it can be concluded that the 'Senegal'-group of *Crassispira* sp. (Pl. IV, Figs 13-16; Pl. V, Figs 17-20) is not a form of *Crassispira pseudocarbonaria*, but a variety of *C. carbonaria*

(Pl. VI, Figs 21-24; Pl. VII, Figs 25-28; Pl. VIII, Figs 29-32; Pl. IX, Figs 33-36).
The area between Gabon and the Islands of São Tomé & Príncipe can be considered as type locality as no more specimens of the new species were localised or made available from other countries in West Africa. The geographic distribution seems to be limited to this part of the Gulf of Guinea. The new species shows a lot of differences compared to similar species of *Crassispira.*

Acknowledgements: Many thanks go to Philippe Bouchet and Virginie Héros (Paris, France) for kindly loaning the samples of turrid shells from the MNHN. Johan Verstraeten (Oostende, Belgium) carefully controlled the text and David Monsecour (Aarschot, Belgium) improved the English manuscript.

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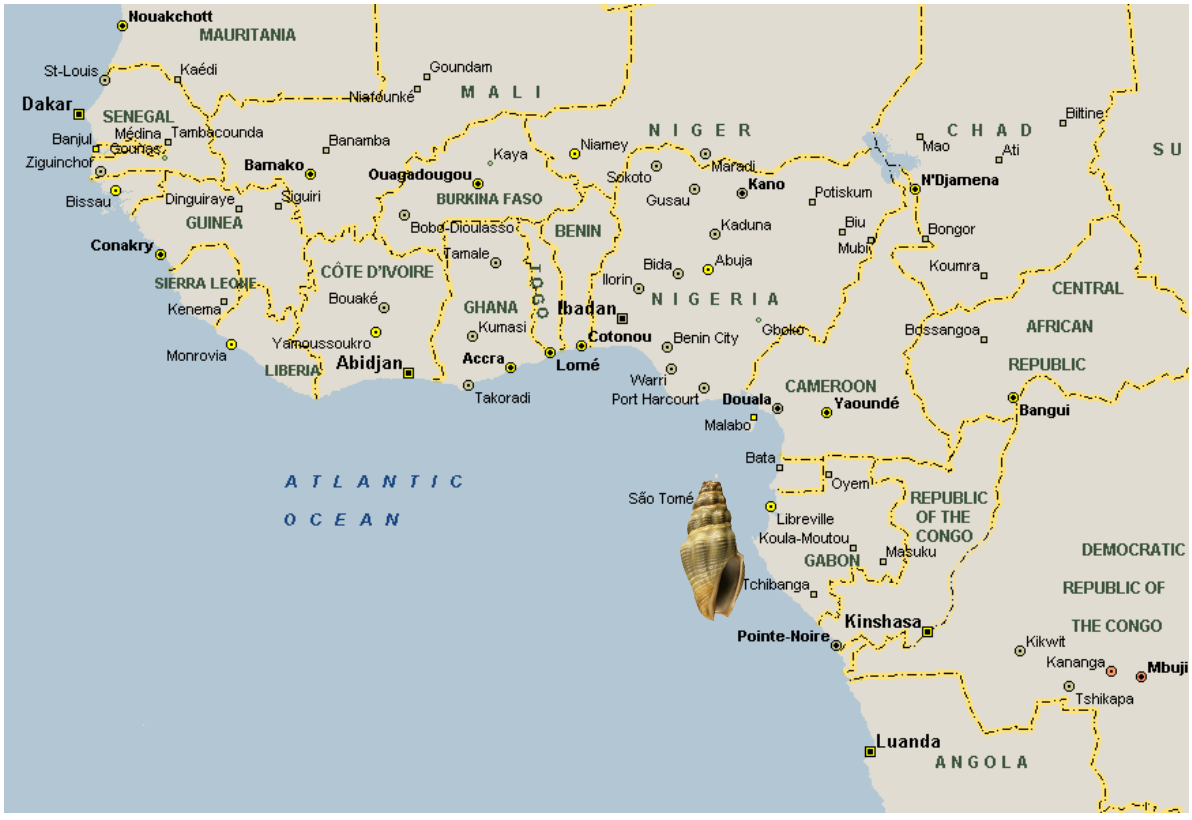

Geographic distribution of *Crassispira pseudocarbonaria*

Plate I. Figs 1-4: *Crassispira pseudocarbonaria*. Trois Rivières, Port Gentil, Gabon. 0° 38.5' S. / 8° 43.4' E. On sandbar, at a depth of 5 m. MNHN; 1-2: Paratype 4. 23.28 mm; 3-4: Holotype. 26.03 mm.

Plate II. Figs 5-8: *Crassispira pseudocarbonaria*. Coco Beach, Port Gentil, Gabon. At a depth of 1-50 m (sic). MNHN; 5-6: Paratype 5. 22.29 mm; 7-8: Paratype 6. 25.60 mm.

Plate III. Figs 9-12: *Crassispira pseudocarbonaria*; 9-10: Republic of São Tomé & Príncipe. '*Calypso-1956*'-expedition. Dredged at a depth of 5 m. MNHN. Paratype 7. 24.66 mm; 11-12: Plage Sogara, Libreville, Gabon. At a depth of 4 m. JV. Paratype 1. 27.79 mm.

Plate IV. Figs 13-16: *Crassispira carbonaria* (Reeve, 1843); 13-14: Gorée, Senegal. Dredged at a depth of 15-25 m. MNHN. 35.82 mm; 15-16: Diembéring, South Casamance, Senegal. 12° 30.4' N./ 17° 16' W. Dredged by "*Louis Sauger*" at a depth of 21 m. 27 March 1988. MNHN. 34.10 mm.

Plate V. Figs 17-20: *Crassispira carbonaria* (Reeve, 1843); 17-18: Dredged at a depth of 50 m, off Dakar, Senegal. MNHN. 28.77 mm; 19-20: Bissagos Islands, between Soga and Rouban, Guinea-Bissau. Collected by "*Mission L. Gain*" at St. 1023. 1913. MNHN. 28.39 mm.

Plate VI. Figs 21-24: *Crassispira carbonaria* (Reeve, 1843). North Casamance, Senegal. 12° 46' N. / 17° 12' W. Dredged in sand, at a depth of 22 m. 28 March 1988. FN; 21-22: 19.83 mm; 23-24: 26.09 mm.

Plate VII. Figs 25-28: *Crassispira carbonaria* (Reeve, 1843). North Casamance, Senegal. 12° 46' N. / 17° 12' W. Dredged in sand, at a depth of 22 m. 28 March 1988. FN; 25-26: 26.18 mm; 27-28: 34.92 mm.

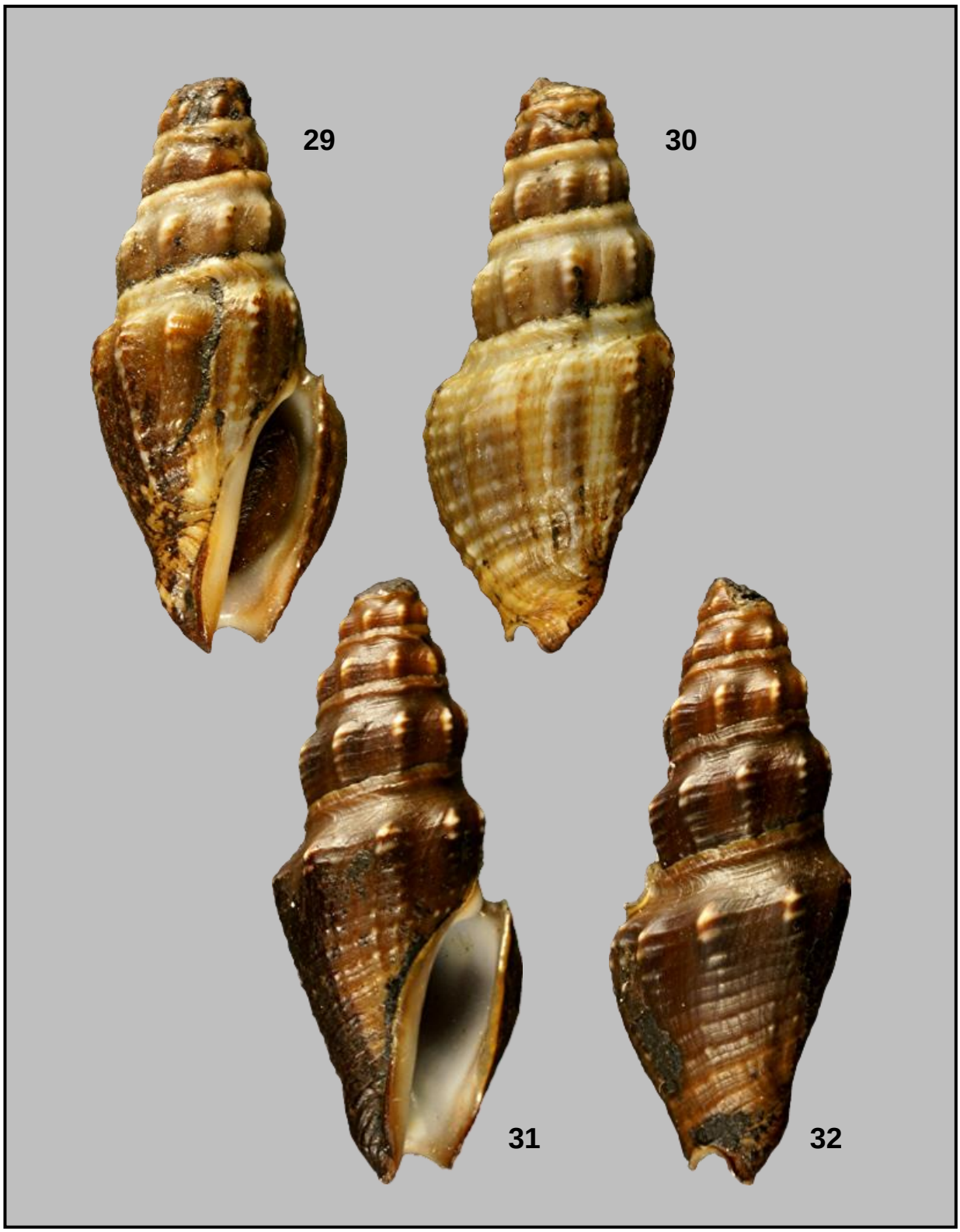

Plate VIII. Figs 29-32: *Crassispira carbonaria* (Reeve, 1843). ORSTOM Beach, Pointe Noire, Congo-Brazzaville. Dredged in muddy sand. December 1985. FN; 29-30: 23.08 mm; 31-32: 24.76 mm.

Plate IX. Figs 33-36: *Crassispira carbonaria* (Reeve, 1843). ORSTOM Beach, Pointe Noire, Congo-Brazzaville. Dredged in muddy sand. December 1985. FN; 33-34: 24.73 mm; 35-36: 27.33 mm.

Plate X. Figs 37-40: *Crassispira monilecosta* Fernandes, Rolán & Otero-Schmitt, 1995. Farol dos Lagostas, North Angola. Dredged on rocky bottom at a depth of 15 m. 20 April 1995. FN; 37-38: 22.76 mm; 39-40: 24.12 mm;
Figs 41-42: *Crassispira bernardi* Fernandes, Rolán & Otero-Schmitt, 1995. ORSTOM Beach, Pointe Noire, Congo-Brazzaville. Dredged in sand and gravel among shell grit at a depth of 4 m. December 1985. FN. 22.06 mm.

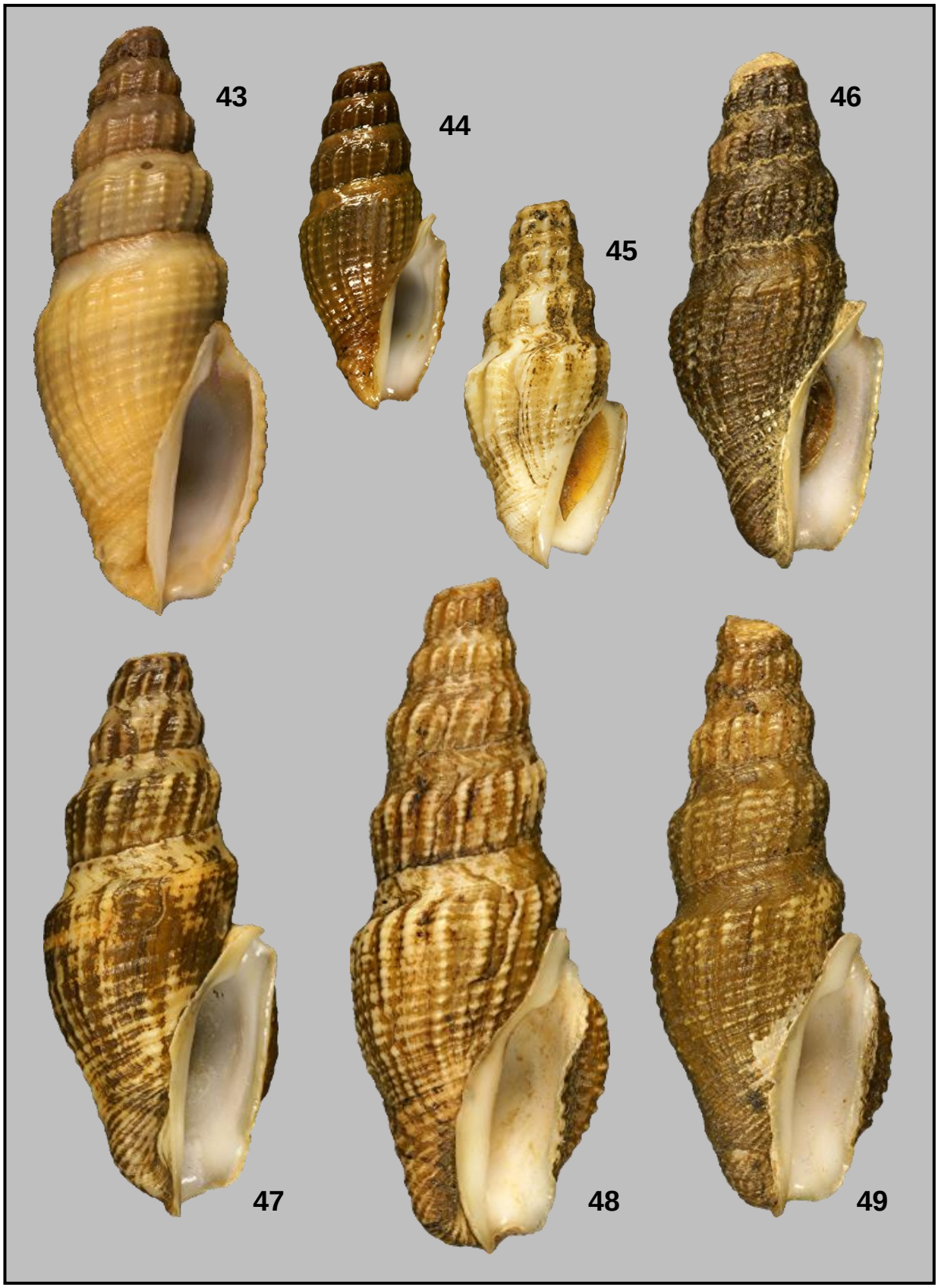

Plate XI. Figs 43-49: *Crassispira callosa* (Valenciennes, 1840); 43: Cacuaco Bay, Angola. Trawled by fishermen. FN. 42.97 mm; 44: Libreville, Gabon. Dredged by shrimper at a depth of 20-60 m. 2000. JV. 23.36 mm; 45-49: Bay of Gorée, Senegal. Dredged at a depth of 8 m. July 1977. FN; 45: 25.64 mm; 46: 36.84 mm; 47: 41.06 mm; 48: 50.84 mm; 49: 45.34 mm.

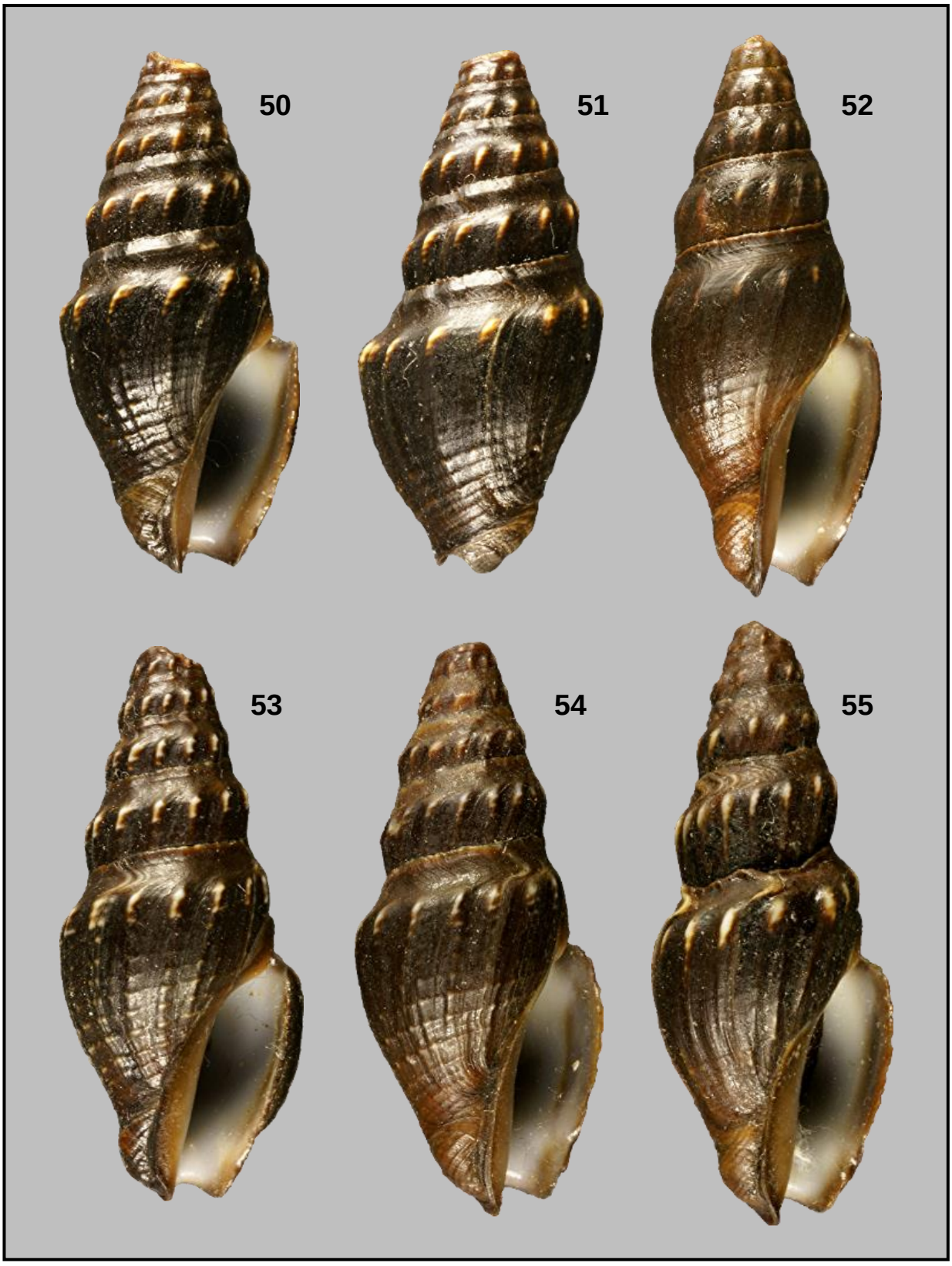

Plate XII. Figs 50-55: *Crassispira funebralis* Fernandes, Rolán & Otero-Schmitt, 1995. FN; 50-52: South of Luanda, Angola. Dredged in mud, at a depth of 35 m. 1994; 50-51: 28.01 mm; 52: 32.58 mm; 53-55: Barra do Dande, Prov. Bengo, Angola. On infralittoral rocks; 53: 31.51 mm; 54: 33.61 mm; 55: 34.10 mm.

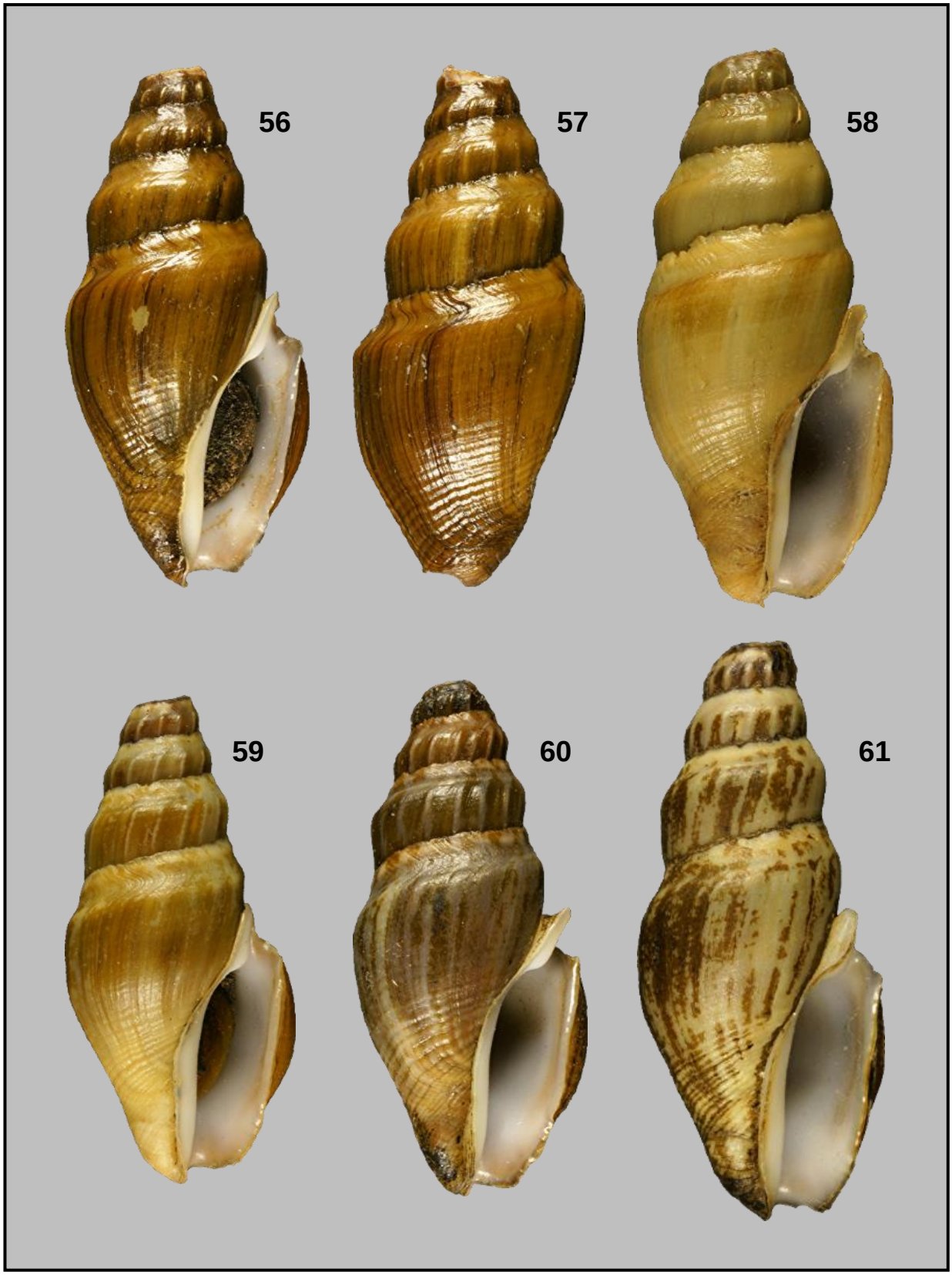

Plate XIII. Figs 56-61: *Crassispira oliva* Fernandes, Rolán & Otero-Schmitt, 1995. FN; 56-58: Cacuaco, North of Luanda, Angola. Between rocks at low tide. March 1982; 56-57: 34.21 mm; 58: 37.20 mm; 59-61: ORSTOM Beach, Pointe Noire, Congo-Brazzaville. Dredged in sand at a depth of 6 m. 1985; 59: 32.78 mm; 60: 34.30 mm; 61: 36.52 mm.

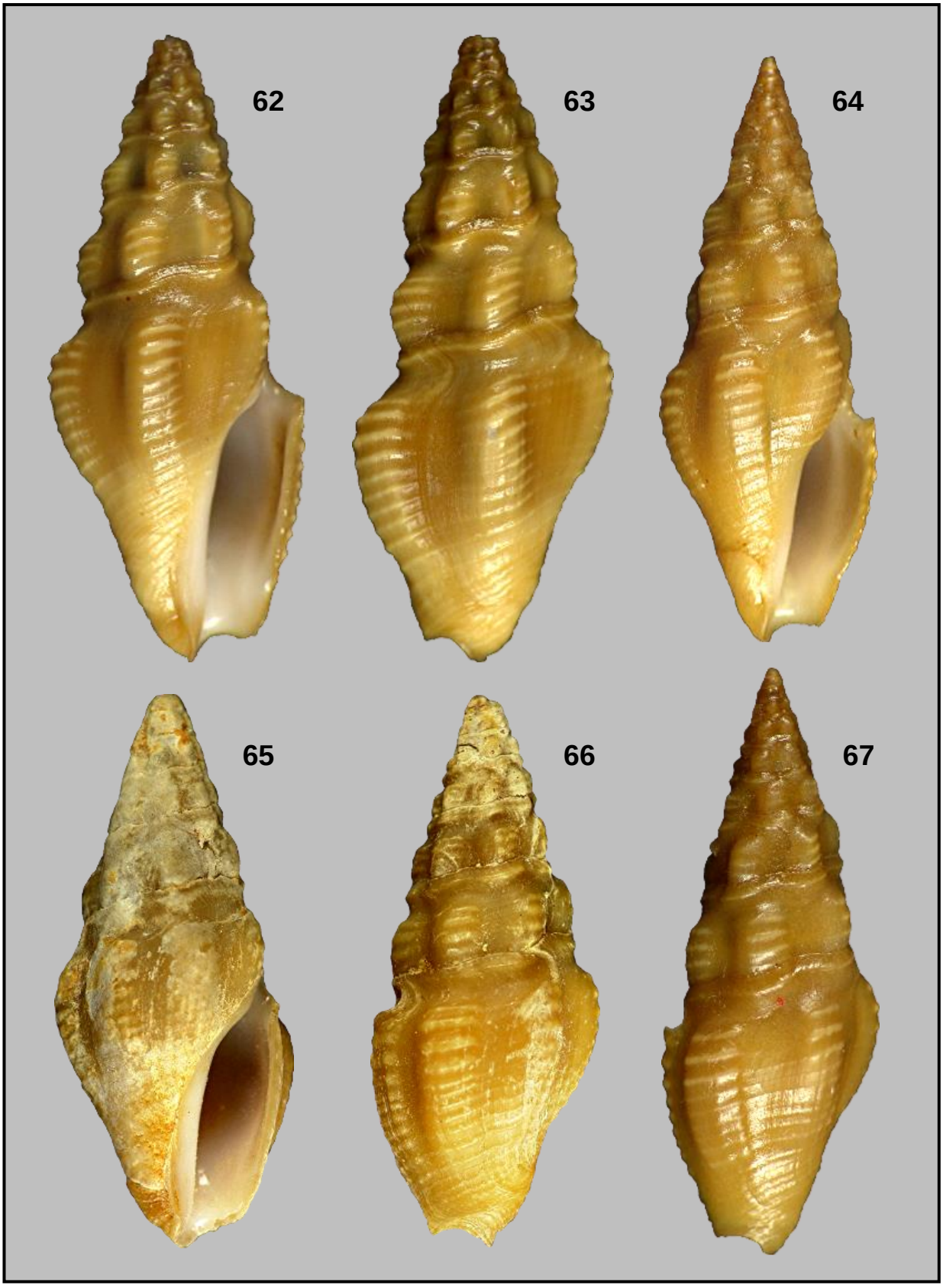

Plate XIV. Figs 62-67: *Crassispira consociata* (E.A Smith, 1877). FN; 62-63: Off Libreville, Gabon. Dredged 60 km offshore at a depth of 30 m. 1978. 24.51 mm; 64-65: Hann, Senegal. Trawled by fishermen. 1992. 18.88 mm; 66-67: Off Luanda, Angola. Dredged at a depth of 40 m. March 1982. 22.04 mm.

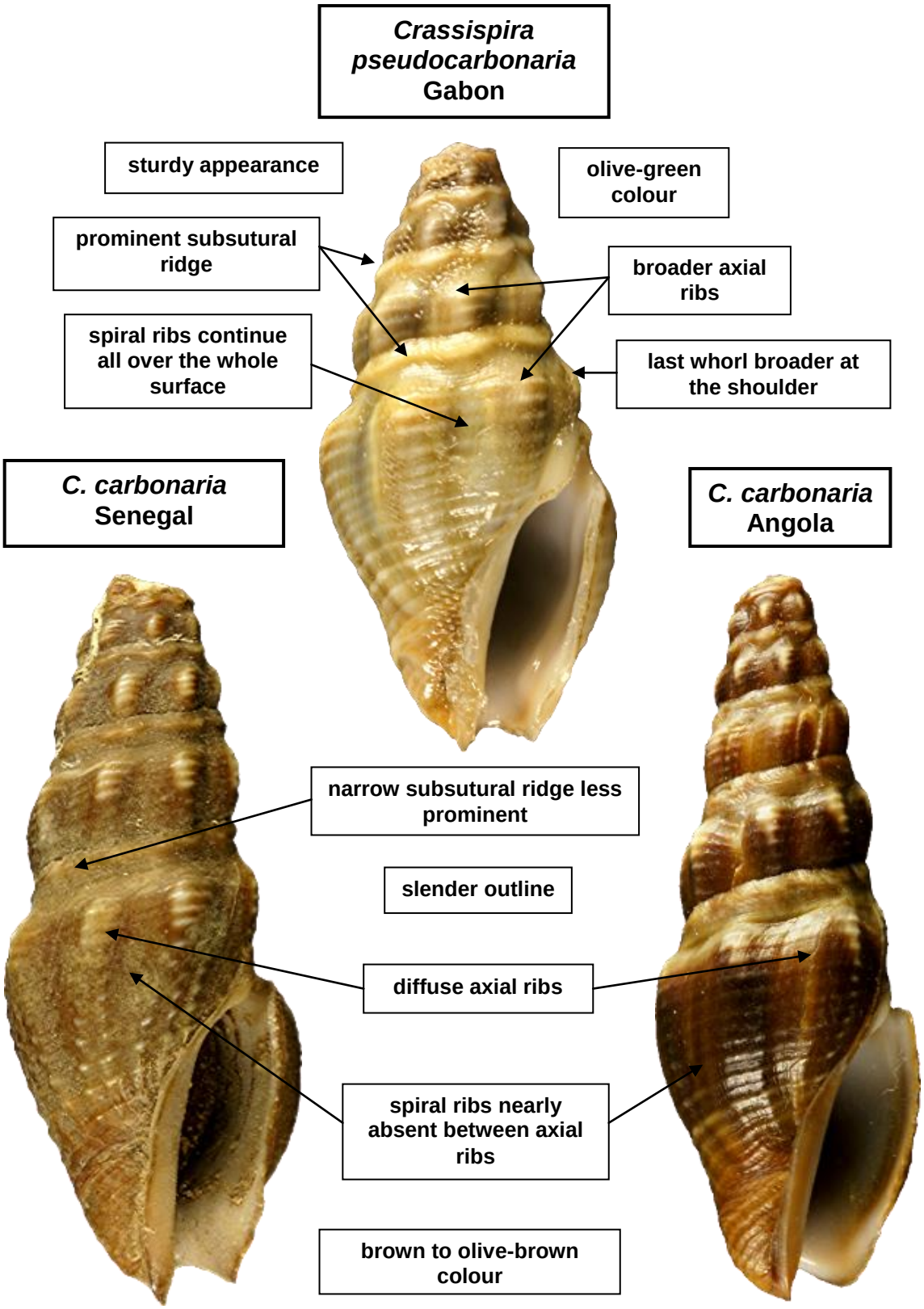

Plate XV. Comparison between *C. pseudocarbonaria* and *C. carbonaria*

About the true identity of '*Pleurotoma*' *saulcydianum* Recluz, 1851 and *Drillia idalinae* Bernard & Nicolay, 1984 (Mollusca: Gastropoda: Drilliidae)

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Keywords: MOLLUSCA, *Crassispira*, *Drillia*, *Mazatlania*, *Pleurotoma saulcydianum*, *Drillia idalinae*, West Africa.

Abstract: In a former paper a specimen of *Mazatlania cosentini* from Sierra Leone was erroneously identified as *Drillia saulcydianum*. Finally, the holotype of *Pleurotoma saulcydianum* Recluz, 1851 was recovered but no other similar specimens among thousands of specimens in the genera *Clavus*, *Pleurotoma*, *Drillia*, *and Clavatula* could be detected in the collections of the MNHN. In this paper *P. saulcydianum* is compared with specimens of *Drillia idalinae* Bernard & Nicolay, 1984 from Senegal and different localities in the Gulf of Guinea. There are indications for attributing '*P. saulcydianum*' to the genus *Crassispira*.

Abbreviations:
FN: Private collection of Frank Nolf
MNHN: Muséum national d'Histoire naturelle, Paris, France

Material and methods: This study was made possible after studying samples in the collections of the author and the MNHN (Paris, France).

The status of *Pleurotoma saulcydianum*

In 'First report and illustration of the mysterious *Drillia saulcydianum* (Recluz, 1851) (Mollusca: Gastropoda: Drilliidae) in recent literature' (Nolf, 2008) a specimen of *Mazatlania cosentini* (Philippi, 1836) was erroneously identified as *Drillia saulcydianum* (Recluz, 1851). This was a premature decision due to the lack of sufficient specimens of both species and chiefly influenced by the misleading original figure, which does not match the type completely.
The problem resulted from the comparison with the figures by Recluz (1851) and Tryon (1884), which look more like a *Mazatlania* than a *Drillia* (Pl. 1, Figs 2-3 in this paper). Especially the figure by Recluz (1851) is different from the type as it represents a slenderer shell with a columbellid outline. However, an extreme comparison with for instance *M. cosentini* should be avoided as the latter is a glossy and porcellaneous shell with a marked siphonal fasciole, bordered by a ridge. It appears that these illustrations do not represent the type itself very well.
Thanks to the efforts of Virginie Héros (MNHN) the holotype was recovered as part of the collection of Petit. However, apart from the holotype no more specimens were found in the extended collections of the MNHN. This species seems to be rather unique in form and pattern.
Both type and figure by Recluz are rather different compared to each other. The aperture in *D. saulcydianum* is oval wide and not narrowed as in typical *Drillia*. The black blotch on the stromboid notch, which is very clear in the figure, was not found in the type specimen. Of course, the question could arise if the specimen designated as type in the MNHN is really the shell of Recluz, especially as this author mentioned only one known specimen. However, the size of the type (20.4 mm) comes very close to the '21 mm' mentioned by Recluz and the original labels were also present in the box ('coll. Petit', 'Collection H. Fischer'). As to the real position of *Pleurotoma saulcydianum* Recluz, 1851 no definitive opinion could be made up to now.

Diagnosis based on the original text in Latin and French by Recluz (1851)

Shell nearly fusiform and turriculated, ornamented with tuberculated axial ribs, being particularly robust and flexuous in the last whorl. These ribs are crossed by many regular incised spiral threads. Spire with about ten whorls. Body whorl ventricose, as large as the spire. Siphonal canal very short, excavated at the base. Aperture oval in outline, whitish, with parts of the central band showing through as a few blotches. Parietal wall on the inner lip reflected, extending upwards and ending in a depressed columellar nodule. Outer lip with a broad but shallow notch below the suture.
Colour: Yellowish white with a reddish brown band at the base of each whorl, becoming a broad zone in the middle of the body whorl.

Recluz mentions '*only one specimen*', known from '*Senegal*' as locus typicus.
Tryon (1884) described '*Drillia saulcydiana* Recluz' (plate 11, p.91) as a form of *D. umbilicata* Gray, 1838 (plate 11, fig. 82; plate 30, fig. 78) '*possessing a broad indistinct central band of light chestnut*'. Apparently he owned several specimens as he wrote '*the shells are adult, although not so large as the type*'. As already stated (Nolf, 2008) *D. saulcydianum* and *D. umbilicata* are two different species. *D. umbilicata* has a strongly tuberculate shoulder with the broad sinus in the outer lip produced upwards. The parietal wall of the inner lip is thickened below and forms a false umbilicus with the axis. The chestnut band in the middle of the body whorl is restricted to pinkish brown blotches only visible on the distinct longitudinal folds.

Comparison between *Pleurotoma saulcydianum* and *Drillia idalinae*

P. saulcydianum seems to be rather unique among the different turrids found on the coasts of West Africa. Besides the fact that it is a difficult shell to obtain, it has a special outline not found in any other turrid. At first glance a similarity with *Drillia idalinae* Bernard & Nicolay, 1984 could be supposed but specimens from different areas are always larger, heavier and sturdier. The colouration in the latter is constant and different from *P. saulcydianum*. Moreover, the oval outline of the aperture of *P. saulcydianum* is quite different (see Table I for more different characteristics) and rather suggests a relationship to some species in the genus *Crassispira*, like *C. laevisulcata* (von Maltzan, 1883), *C. pini* Fernandes, Rolán & Otero-Schmitt, 1995 and *C. sacerdotalis* Rolán & Fernandes, 1992. On the other hand it lacks the usual decollation found in most species of *Crassispira* from West Africa. Provisionally, a placement in the genus *Crassispira* should be the most appropriate choice at present pending a complete revision of the genera *Crassispira* and *Drillia*.

Conclusion: In spite of the recovery of the type specimen of *P. saulcydianum* no definite opinion can be made about the real genus it belongs to. As long as no more specimens of this species turn up the problem remains unsolved. There is a certain affinity with *Drillia idalinae*, but a lot of differences prevent the conclusion that both are the same species. The general outline of the shell, especially the oval aperture, seems to indicate that the present species has provisionally to be recognized as a *Crassispira*.

Acknowledgements: First of all I wish to thank Dr. Philippe Bouchet and Virginie Héros (Paris, France) for all the efforts to recover the type specimen of *Pleurotoma saulcydianum* in the collection Petit in the MNHN, making it available for study and photography. David Monsecour (Aarschot, Belgium) kindly revised the English text and Johan Verstraeten (Oostende, Belgium) was a critical reader of this paper. Peter Stahlsmith (Germany) supplied some opinions. Finally Sandro Gori (Livorno, Italy) was so kind as to provide additional specimens of *Drillia idalinae.*

characteristics	*P. saulcydianum*	*D. idalinae*
structure	rounded ribs; slender shell	strong ribs with sharper shoulders; inflated body whorl; heavy, sturdy shell
number of ribs on body whorl	9	generally 11
aperture	oval in outline; siphonal canal broad	strong stromboid notch; aperture diverging upwards; siphonal canal narrow; pink fasciole
pattern	brown band in middle of body whorl	pink band on lower part of last whorl; often with brown spots between tranversal ribs

Table I: Comparison between *P. saulcydianum* and *Drillia idalinae*

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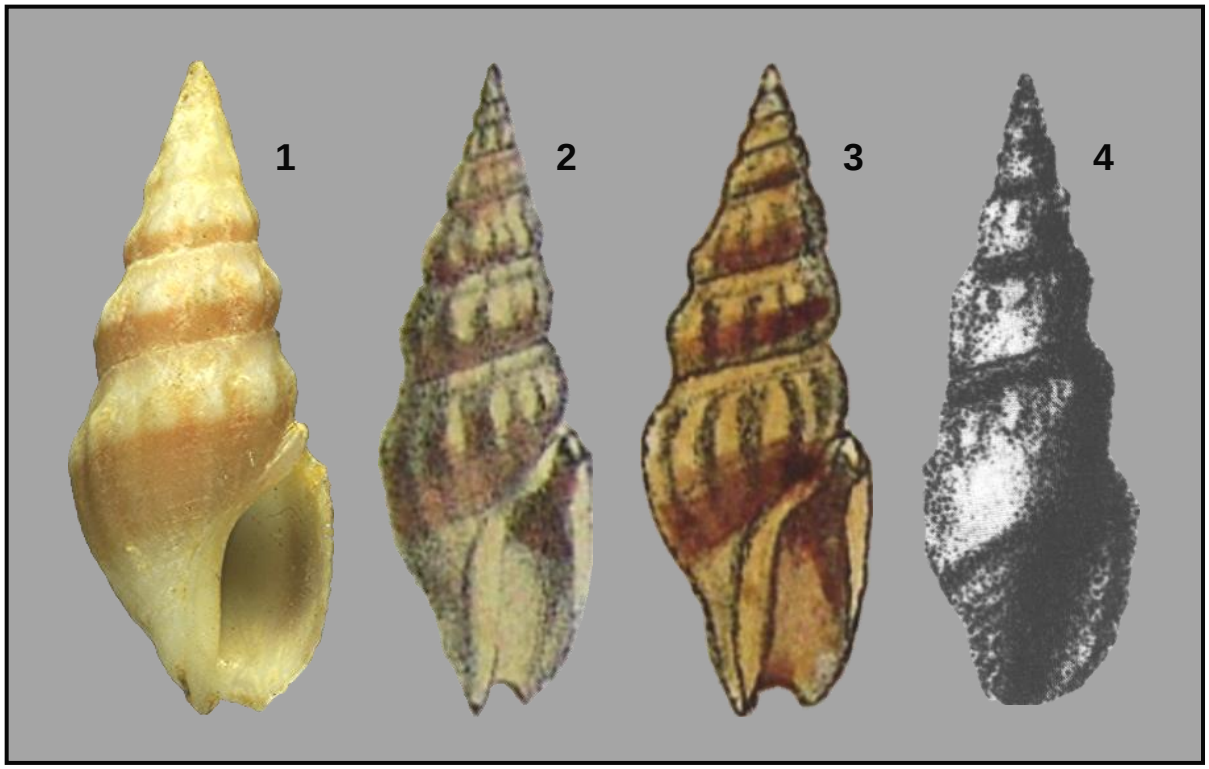

Plate I. Figs 1-3: *'Pleurotoma' saulcydianum.* Recluz, 1851; 1: Senegal. 20.43 mm. Holotype (Coll. Petit. MNHN); 2: Plate 6, fig. 6 in Recluz (1851); 3: Plate 11, fig. 91 in Tryon (1884); Fig. 4: *Mazatlania cosentini* (Philippi, 1836): copy of Philippi's figure 29: 17 mm.

Labels present with the type of *Pleurotoma saulcydianum*

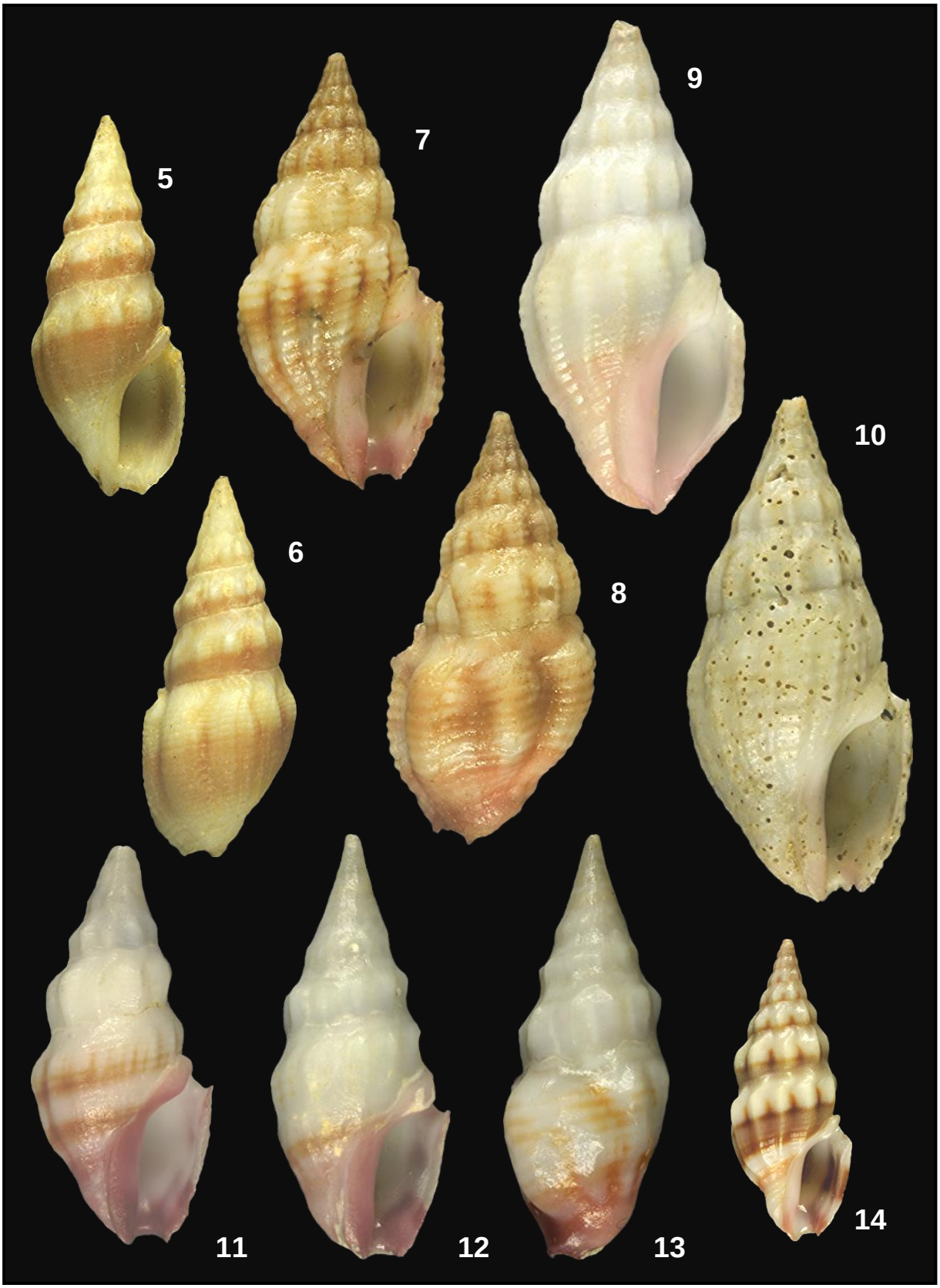

Plate II. Figs 5-6: *'Pleurotoma' saulcydianum.* Recluz, 1851. Senegal. 20.43 mm. Holotype (Coll. Petit. MNHN); Figs 7-13: *Drillia idalinae* Bernard & Nicolay, 1984. FN; 7-8: Off Miamia Bay, Takoradi, Ghana. On rock. Dredged at a depth of 37 m. August 2004. 24.83 mm; 9-10: Senegal. FN; 9: 27.81 mm; 10: 28.75 mm; 11-13: Kia Reef, NW São Tomé. By night diving at a depth of 20 m. September 2008; 11: 21.77 mm; 12-13: 23.01 mm. Fig. 14: *Drillia ghyooti* Nolf, 2008. Off Lagoa Azul, NW São Tomé. Collected under rocks, at night. Dived at a depth of 30 m. September 2008. 14.39 mm. Paratype 5. FN.

About the presence of *Mazatlania cosentini* (Mollusca: Gastropoda: Columbellidae) in Sierra Leone, with a note on the synonymy of *M. fulgurata*

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Keywords: MOLLUSCA, COLUMBELLIDAE, *Mazatlania*, Sierra Leone, West Africa.

Abstract: After recovering the holotype of *Pleurotoma saulcydianum* Recluz, 1851 in the MNHN, it was clear that the shell from Sierra Leone, figured in *Neptunea,* 7(2): 1-5, does not belong to that species, but was in fact a specimen of *Mazatlania cosentini* (Philippi, 1836). The misidentification resulted from the fact that no recent specimens of *P. saulcydianum* have been found in the past hundred years, neither figured nor described in recent literature. Moreover, the original figure turned out not to match completely the type. After a second specimen turned up from the same area (Sierra Leone), the presence of the genus *Mazatlania* in West Africa seems likely. Comments are given on the synonymy of both *M. cosentini* and *M. fulgurata*.

Abbreviations:
FN: Private collection of Frank Nolf
MNHN: Muséum national d'Histoire naturelle, Paris, France
USNM: National Museum of Natural History, Smithsonian Institution, Washington, USA
ZMB: Museum für Naturkunde, Berlin

Material and methods: This study was based upon samples in the collections of the authors and the MNHN (Paris, France).

The occurrence of the genus *Mazatlania* in West Africa

Mazatlania cosentini (Philippi, 1836) (Pl. I; Pl. II, Figs 1-8; Pl. III, Figs 9-14).

Terebra cosentini Philippi, 1836
Type locality: Naples, Italy (in error)
Type material. Lectotype – designation by Monsecour & Köhler (2006) – ZMB 11.481 (old label states "*Terebra cosentini* Ph. / Neapel/ Philippi"; size 13 x 4.7 mm).

Buccinum aciculatum Lamarck, 1822 [non *B. aciculatum* (Gmelin, 1791)]
Terebra cosentini Philippi, 1836
Buccinum pulchellum Calcara, 1845 [non B. pulchellum de Blainville, 1829, nec Dujardin, 1837]
Terebra nodosoplicata Dunker, 1853 (described from an unknown locality and not figured).

This species is better known as *Mazatlania aciculata* (Lamarck, 1822) but as Lamarck's taxon described as *Buccinum aciculatum* is preoccupied by *Buccinum aciculatum* Gmelin, 1791 it becomes invalid. *Mazatlania cosentini* (Philippi, 1836) was the first valid name to be used, though the type in the ZMB does not match the figured specimen of Philippi's description, but as no other material was currently known to exist a lectotype was designated by Monsecour & Köhler (2006) to represent this taxon. Bouchet & Gofas (1983) argued that *M. cosentini* is an amfiamerican columbellid and stated that *Mazatlania hesperia* Pilsbry & Lowe, 1932 (fide Radwin, 1968) from the East Pacific coast is a synonym. They follow the opinion of Radwin (1978) that *M. cosentini* occurs on both sides of Central America: from southeast Florida to Venezuela, Costa Rica and from Guadelupe Island and Magdalena Bay, Baja California, W. Mexico to Zorritos, Peru. The same scientists are very critical and conspicuous about samples of this shell from the Mediterranean Sea, labeled 'Sicily' or 'Mediterranean'. Bouchet & Gofas (1983) found no specimens with accurate locality data and these shells '*always seem to originate from exchanges and/or from 19th century collections*'. After the first find of a crabbed specimen of *M. cosentini* (Nolf, 2008) (erroneously mentioned as a specimen of *Pleurotoma saulcydianum*; Pl. II, Figs 1-2) a second specimen, live caught but without operculum, turned up from Sierra Leone (Plate II, Figs 3-4).

We are conscious that locality data like *'Sierra Leone. Dredged at a depth of 33 m. 1990*' or '*off Freetown, Sierra Leone. From local fishermen. 1992*' are not accurate enough, so we have to wait until more samples are collected from different West African countries before definitively deciding if this is really a further range extension for *M. cosentini*.

Description: This rather large shell (15-25 mm) is turreted, and has a glossy surface. The spire is high and the whorls are shouldered, convex and with a moderately deep suture. The body whorl is wide and takes up half of the total shell length. The aperture is broad and the outer lip is not thickened, non-denticulate on its inner surface.
The siphonal canal is short and slightly bent, with a marked siphonal fasciole. The sculpture consists of two spiral rows of spinose nodes, the lower one usually stronger. The colour is very variable, usually creamy white or yellowish with a spiral band of brownish purple or with small brown flammulations or zigzag lines throughout the brown or bluish grey and glossy surface.
This species is also very variable regarding size, sculpture and colour pattern, which in the past resulted in nomenclatural confusion and the creation of a lot of synonyms. Moreover, specimens of *M. fulgurata* / *M. hesperia* from the eastern Pacific were probably often mistaken for *M. cosentini*.

Range: From southeastern Florida to Venezuela and Limón, Costa Rica. The presence in the Mediterranean is questionable. The present paper mentions two specimens from Sierra Leone (West Africa). Radwin (1978) states that this species is also found from Guadelupe Island and Magdalena Bay, Baja California, Mexico to Zorritos, Peru. Although several authors like Radwin (1978) and Bouchet & Gofas (1983) think that *M. cosentini* is an amfiamerican species, we have never seen specimens of *M. cosentini* from the West Coasts of America, and neither specimens of *M. fulgurata* from the Caribbean and Panamic Provinces.

The identity of *Mazatlania fulgurata* (Philippi, 1846) (Pl. I; Pl. IV, Figs 15-24; Pl. V, Figs 25-36) and its relationship to *M. cosentini*.

Mazatlania hesperia Pilsbry & Lowe, 1932
Terebra moolenbeeki Aubrey, 1995
Radwin placed the eastern Pacific *M. hesperia* Pilsbry & Lowe, 1932 among the synonyms of *M. aciculata* (= *M. cosentini*).

Description: Terebriform shell small to moderate in size (8-15 mm) with a high, acute spire. Whorls slightly convex with a shallow suture. Body whorl short and less than half the total length of the shell. Aperture broad. Outer lip not thickened, non-denticulate on its inner surface. Columella short and smooth with a noticeable fasciole. Sculpture consists of weak axial riblets crossed by submicroscopic spiral grooves.
Colour is yellowish white with a faint spiral band of purplish brown and rust-brown flammulations.
As in *M. cosentini*, the shell in this species is very variable with regard to size, sculpture and colour pattern.
This shell is similar to *M. cosentini* of the West Indies, but it is much slenderer and narrower. It has spiral striation throughout the last three or four whorls, stronger at the base, and the siphonal fasciole is bordered by a sharp, dark brown ridge. The axial ribs (9-12 on the last whorl) are rather prominent at the periphery but not tuberculate, gradually diminishing to the suture. The colour is faint buff, with a dull, livid brown band (sometimes interrupted) between periphery and suture, followed by a zone without markings. The basal part of the whorls is ornamented with more or less interrupted zigzag lines of chestnut brown. The surface of the shell is dull and never as glossy as in *M. cosentini*. Specimens always constantly differ from *M. cosentini*.

Discussion: We agree with McLean (1998) in not considering *M. hesperia* as a synonym of *M. aciculata* (now known as *M. cosentini*), but we disagree when he supposes this species to be '*the more strongly ribbed species in the Panamic Province*'. He continues: *'… no Panamic specimens are close to be as nodulous as figured by Radwin (1978, fig. 24) or Bouchet & Gofas (1983, fig. 2) for the Caribbean species now known as* cosentini'. It is clear from the figures in Plate I, IV and V that *M. hesperia* is a usually flammulated and only a more swollen and stronger ribbed form of *M. fulgurate.* So it has to be considered as a synonym of the latter.

Range: Eastern Pacific - Cape San Lucas and Bahía Bacochibampo (Mexico), Panama, Ecuador and south to Punta Sal (Peru); the following localities are questionable: western Atlantic – Samaná Bay, Dominican Republic and Vera Cruz, Mexico to Colón, Panamá (Radwin, 1978). The same author argues that populations should occur in scattered localities throughout the Caribbean, but McLean (1998) doubts if *M. cosentini* and *M. fulgurata* are really amfiamerican as he writes '*whether Caribbean specimens identified by Radwin under the Panamic name* fulgurata *should be so identified is not clear to me and merits further consideration.*

There are no slender taxa now in synonymy of M. fulgurata *with a Caribbean type locality*.'
We too doubt if specimens of *M. fulgurata* occur in the Caribbean Sea and on the other hand if *M. cosentini* really lives in the Panamic Province.

Conclusion: After the discovery of two specimens of *Mazatlania cosentini* off the coast of Sierra Leone, we can suppose the genus *Mazatlania* is present in West Africa. When more specimens turn up in the future this could support an extension of the geographic range of *M. cosentini* to both the West and the East Atlantic area.
M. cosentini and *M. fulgurata* are two distinct species. *M. hesperia* is a junior synonym of the latter. *M. cosentini* has a broader shell, much glossier and ornamented with two rows of tubercles on the higher part of the whorls, one in the subsutural zone and the second one at the shoulder. *M. fulgurata* is very slender and constantly less glossy, incised by numerous spiral grooves.
We agree with McLean to be very suspicious about records of *M. cosentini* in the eastern Pacific and *M. fulgurata* in the West Indies or eastern Atlantic waters. We doubt if both species are really amfiamerican.

Acknowledgements: First of all we would like to thank Dr. Philippe Bouchet (MNHN, Paris, France) for drawing our attention to the erroneous designation of the *Mazatlania* specimen from Sierra Leone as *Pleurotoma saulcydianum* in a previous paper. Johan Verstraeten (Oostende, Belgium) and David Monsecour (Aarschot, Belgium) were so kind as to correct and revise the text. Peter Stahlsmith (Germany) supplied some useful ideas.

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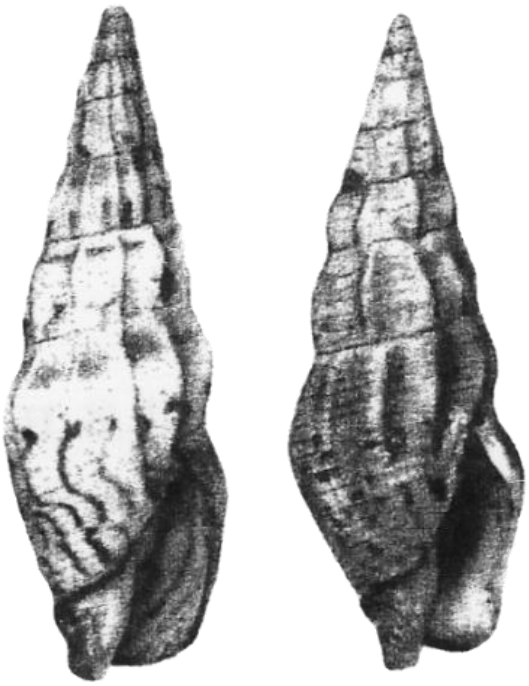
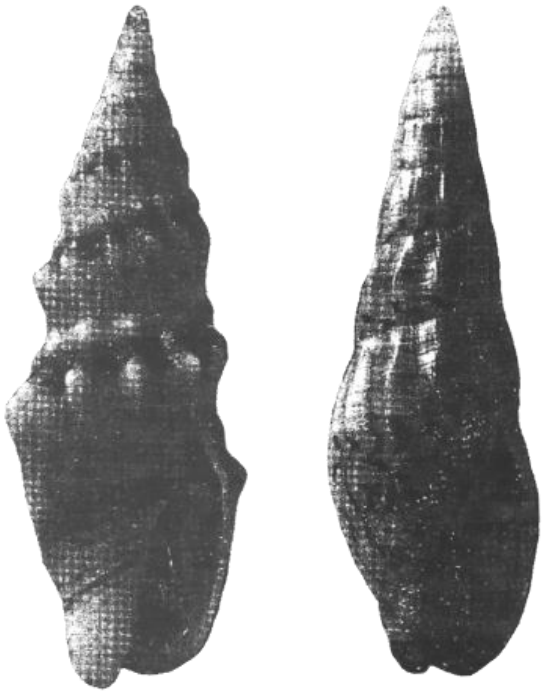
Tucker, J.K., 2004. Catalog of Recent and fossil turrids (Mollusca). *Zootaxa*, 682. Auckland. 1295 pp.

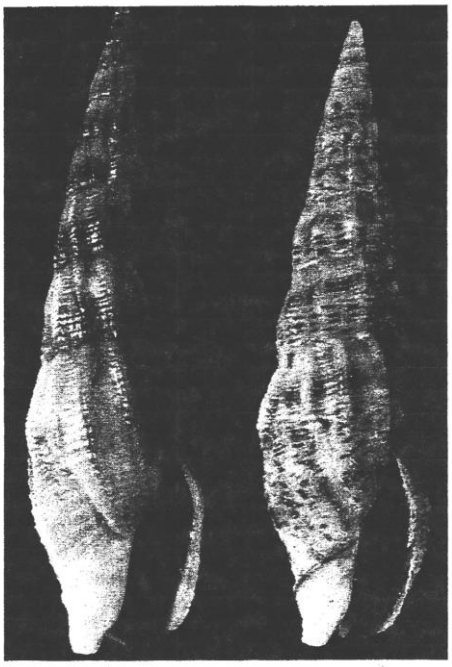
***Mazatlania cosentini* (Philippi, 1836)**
copy of Philippi's figure 29: 17 mm.



***Mazatlania hesperia* Pilsbry & Lowe, 1932**
Plate 1, Figs 8 & 9



***Mazatlania aciculata* (Lamarck, 1822 [= *M. cosentini* (Philippi, 1836)] (left)**
***Mazatlania fulgurata* (Philippi, 1846) (right)**
(Radwin, 1978)



Figures 1-2 (l-r). *Mazatlania fulgurata* (Philippi, 1846). (1) Holotype of *Terebra moolenbeeki* Aubrey, 1995, Zoological Museum, Amsterdam, cat. no. 3.95.011, Playa Nancite, Santa Rosa, Guanacaste Province, Costa Rica. Length 22.7 mm. (2) LACM 10512, Playa Miramar, Bahía Santiago, Colima, Mexico. Length 22.6 mm.

***Terebra moolenbeeki* Aubrey, 1995 (l)**
[= *fulgurata* (Philippi, 1846)]
(McLean,1998)
***Mazatlania fulgurata* (Philippi, 1846) (r)**

Plate I: Types and figures of *Mazatlania* sp. from literature

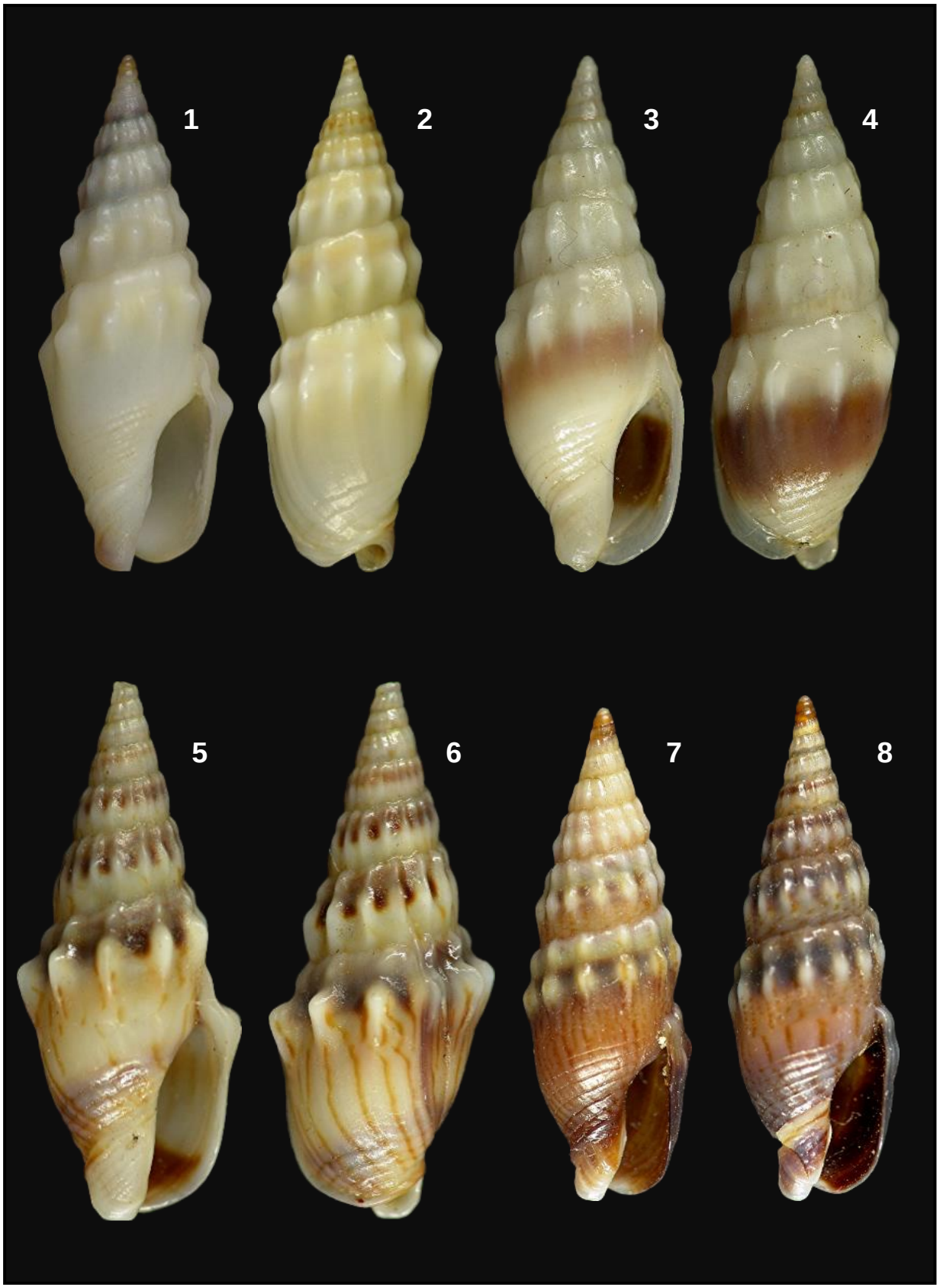


Plate II. Figs 1-8: *Mazatlania cosentini* Philippi, 1836. FN; 1-2: Sierra Leone, West Africa. Dredged at a depth of 33 m. 1990. 15.34 mm; 3-4: off Freetown, Sierra Leone. From local fishermen. 1992.15.46 mm; 5-6: Cartagena de Indias, Columbia, Caribbean Sea. 16.26 mm; 7-8: Grande Anse, Martinique, Lesser Antilles. In sand. From scuba diver. 1999; 7: 13.54 mm; 8: 14.23 mm.

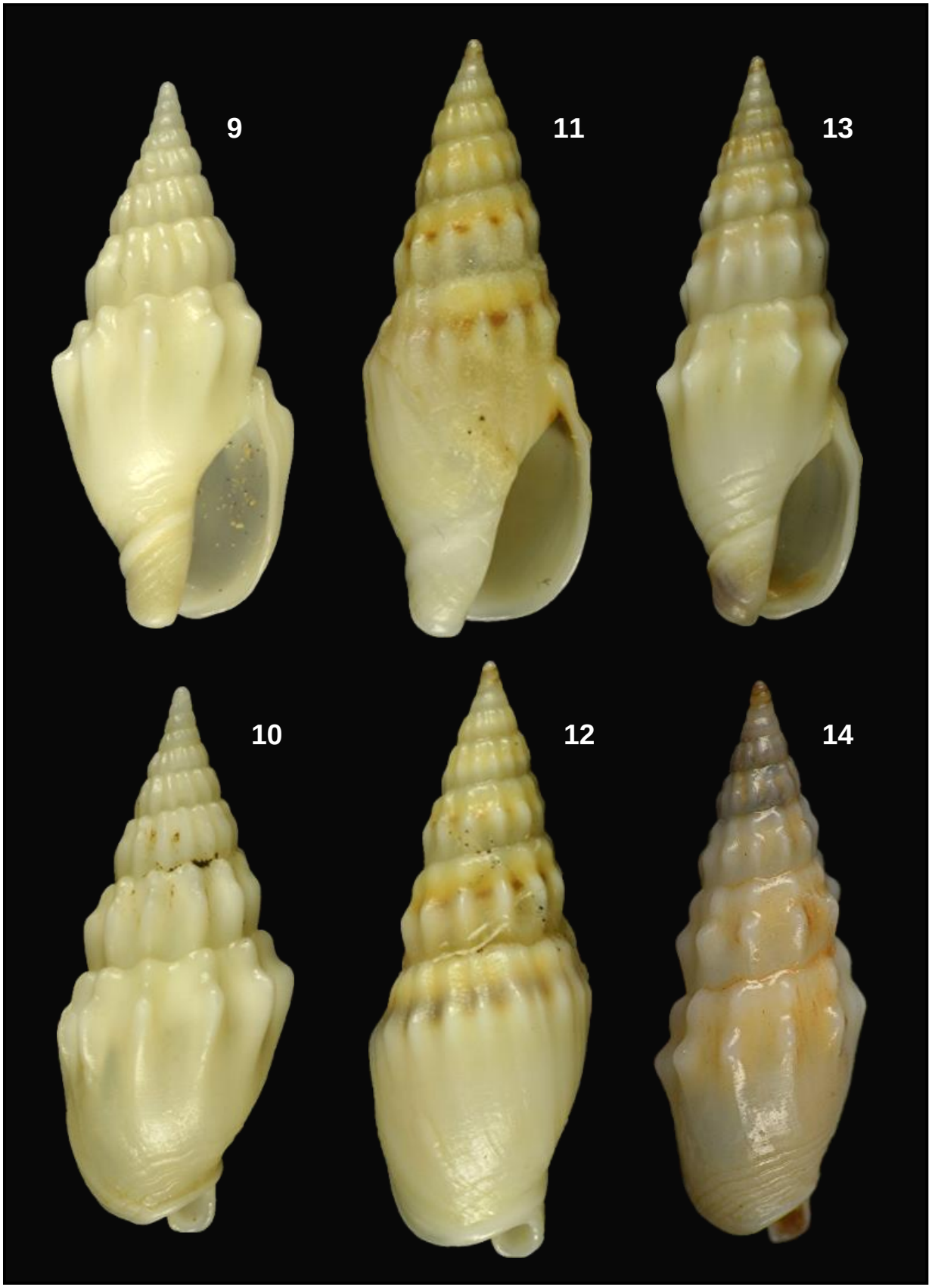


Plate III. Figs 9-14: *Mazatlania cosentini* (Philippi, 1836). FN; 9-10: San Blas Island, Panama, Caribbean Sea. Dived at a depth of 6 m. 18.70 mm; 11-14: Isla Escudo de Veraguas, Panama, Caribbean Sea. In sand. Dived at a depth of 10-12 m. November 2003; 11-12: 19.74 mm; 13-14: 19.21 mm.

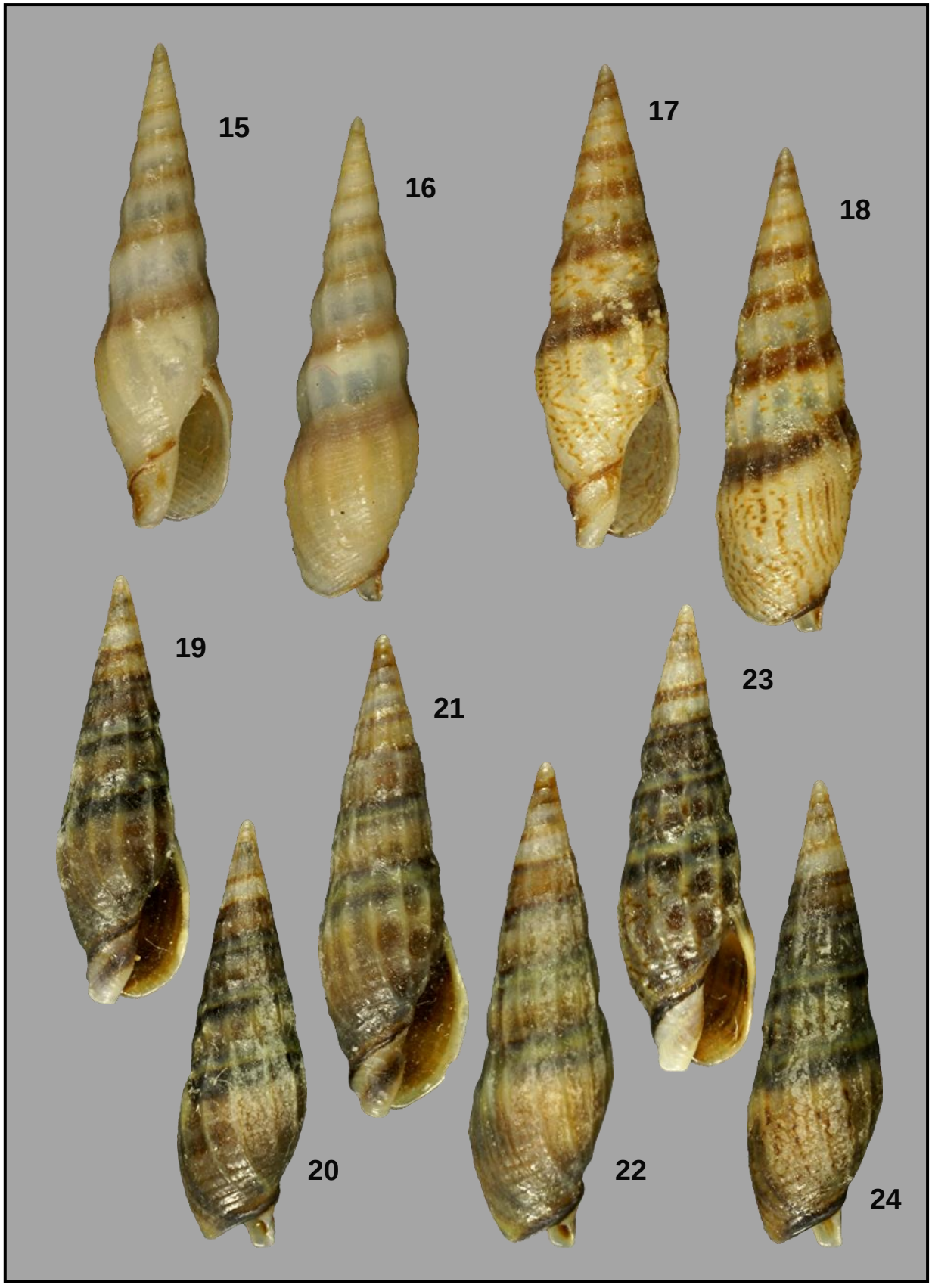


Plate IV. Figs 15-24: *Mazatlania fulgurata* (Philippi, 1846). FN; 15-18: Los Angeles Bay, Jalisco, W. Mexico. Dredged in mud, at a depth of 13 m; 15-16: 18.07 mm; 17-18: 18.00 mm; 19-24: Gobernadora Island, Cebaco, W. Panama. In surf zone. May 1997; 19-20: 14.10 mm; 21-22: 15.28 mm; 23-24: 15.11 mm.

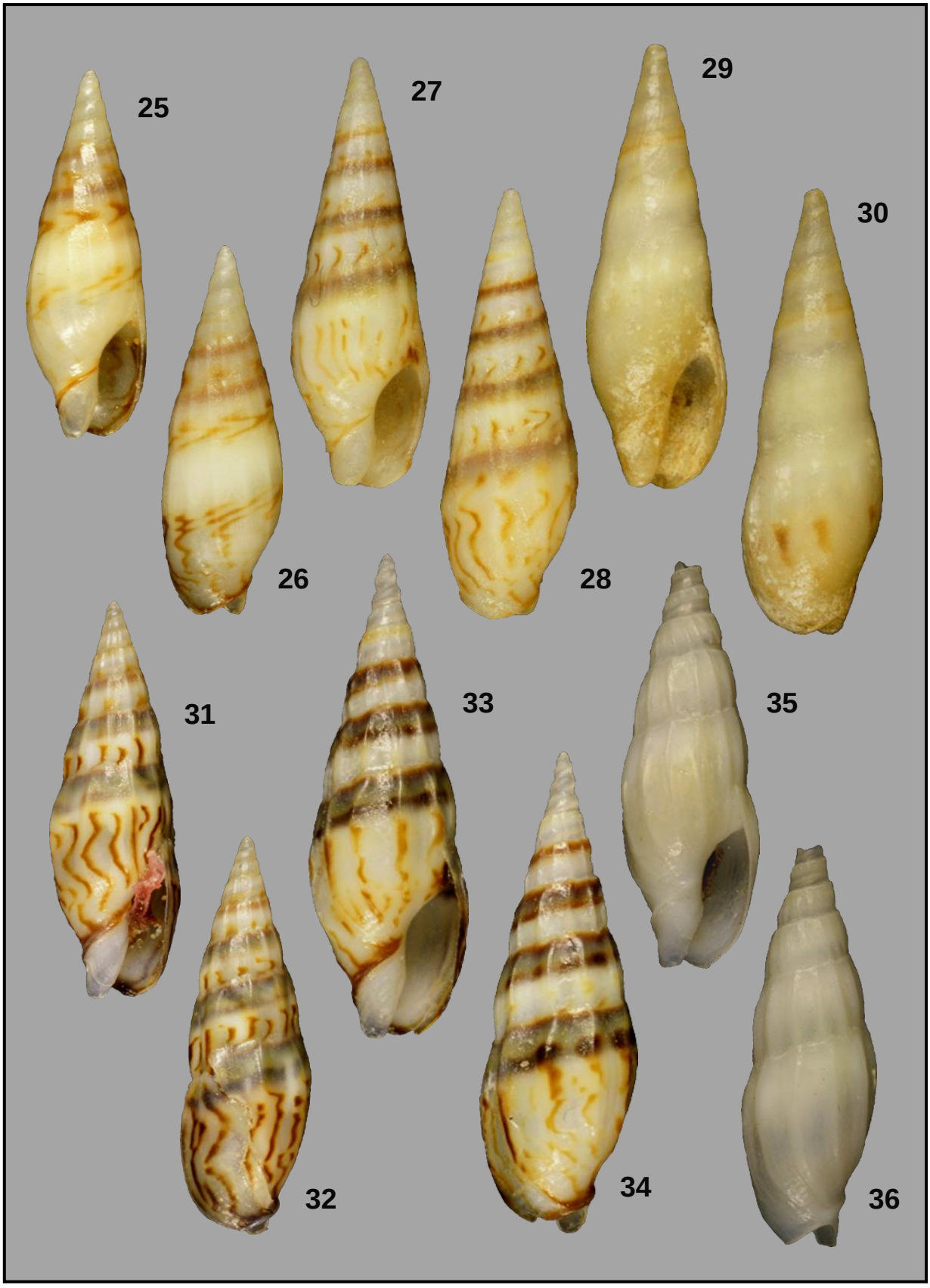


Plate V. Figs 25-36: *Mazatlania fulgurata* (Philippi, 1846). FN; 25-30: Mazatlan, Sinaloa, W. Mexico. In sand at low tide. December 1971; 25-26: 11.02 mm; 27-28: 12.78 mm; 29-30: 13.36 mm; 31-36: Off Valdivia, Guayas, Ecuador. On beach, intertidally. 20 July 2004; 31-32: 12.35 mm; 33-34: 14.18 mm; 35-36: 13.40 mm.