ZOOLOGISCHE MEDEDELINGEN

UITGEGEVEN DOOR HET

RIJKSMUSEUM VAN NATUURLIJKE HISTORIE TE LEIDEN

(MINISTERIE VAN CULTUUR, RECREATIE EN MAATSCHAPPELIJK WERK)

Deel 45 no. 15 15 maart 1971

FURTHER NOTES ON BRAZILIAN CONIDAE

by

JEAN-JACQUES VAN MOL, BERNARD TURSCH

Laboratoire de Zoologie, Université Libre de Bruxelles, Belgium

and

MARC KEMPF

Laboratorio de Ciencias do Mar, Universidade Federal de Pernambuco, Recife, Brazil

With 4 text-figures and one plate

Since the publication of a survey of brazilian Conidae (Van Moll et al., 1967) new extensive dredgings effected by one of us (M.K.) along considerable portions of the Brazilian coast have brought a rich material allowing us to add to the previous work and to correct certain opinions therein expressed.

Conus testudinarius Hwass, 1792

Conus testudinarius Hwass (see Kohn, 1968, for nomenclature) has been dredged off the mouth of the Amazon (1°10.7'N 46°32.5'W, 100 m deep, calcareous algal gravelly sand and organogenous material. — 2 dead specimens) and off the coast of Ceará (2°13.5'S 40°43.5'W, 53 m deep, calcareous algal sandy gravel. — 1 living juvenile; 2°25.3'S 40°50.5'W, 24 m deep, littoral gravelly sand. — 1 dead juvenile) (see map, fig. 1). The southernmost previous record in the West Atlantic was Venezuela (Clench, 1942). The present record constitutes the first for Brazil.

Conus selenae Van Mol, Tursch & Kempf, 1967

We had the opportunity of examining important series of live-collected specimens of the two forms that in an earlier publication (Van Mol, Tursch & Kempf, 1967) we had described as two new species *Conus selenae* and *Conus yemanjae,* of which we at that time had only a few specimens at our disposal. It has become obvious that intermediate forms do exist between what should now be considered as two variation extremes of a single species, for which we will keep the name *Conus selenae.* The radulae

of different forms of this variable species have been examined, which has led to the conclusion that the radula (fig. 2) in all its characters is exactly identical in all the forms of this species. Therefore the name *Conus yemanjae* Van Mol, Tursch & Kempf, 1967 must be considered a synonym of *Conus selenae* Van Mol, Tursch & Kempf, 1967.

The distribution (see map, fig. 1) and the ecology of *Conus selenae* could

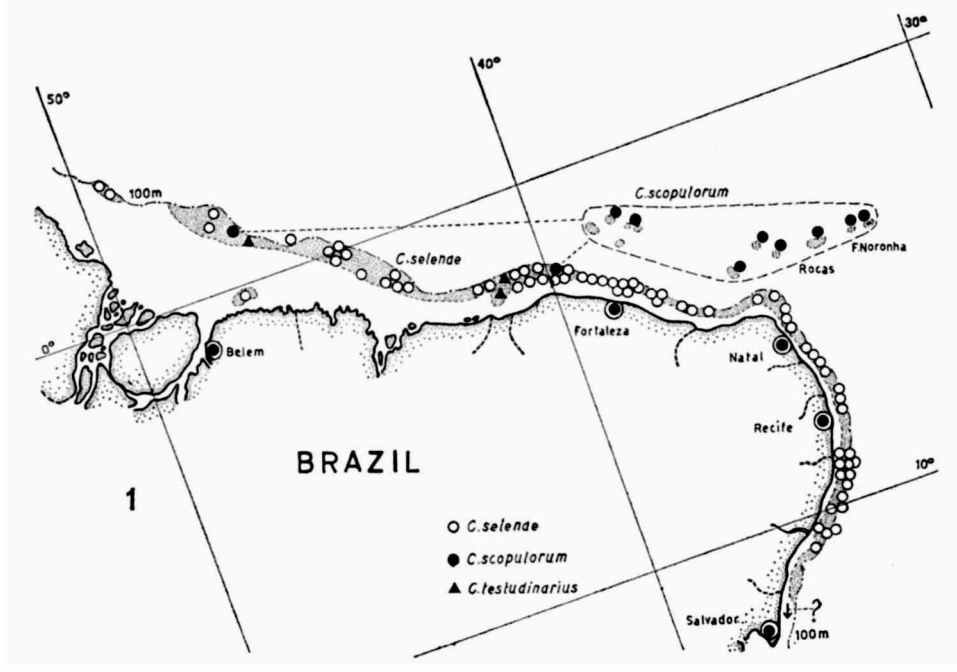


Fig. 1. Distribution on the Brazilian coast of the three species of *Conus* mentioned in the text.

be precised. It is a rather common species, characteristic of the low horizon of calcareous algae of the continental shelf (dotted area on map), below a depth of 35 to 40 m. The highest rate of frequency is between 50 to 70 m of depth. The northern limit of distribution as known at present is in the Cape Orange area (4°43'N 50°28'W). Towards the south, the limits of its distribution have not been precised, the southernmost record is off the mouth of Rio São Francisco.

Conus scopulorum nov. spec. (figs. 3-6)

The new dredgings have also brought up several live-collected specimens of the species that in 1967 we had referred to as *Conus dominicanus* Hwass; our previous material consisted of dead shells only. Examination of the

radulae and of the early whorls of perfect specimens shows constant differences with typical *Conus dominicanus* and with *Conus aurantius* Hwass from Aruba [1]). The importance of these differences requests a specific status for the brazilian shells.

Types. — Holotype and one juvenile paratype in Rijksmuseum van Natuurlijke Historie, Leiden, Moll. alc. nos. 8728 and 8729, respectively. Two

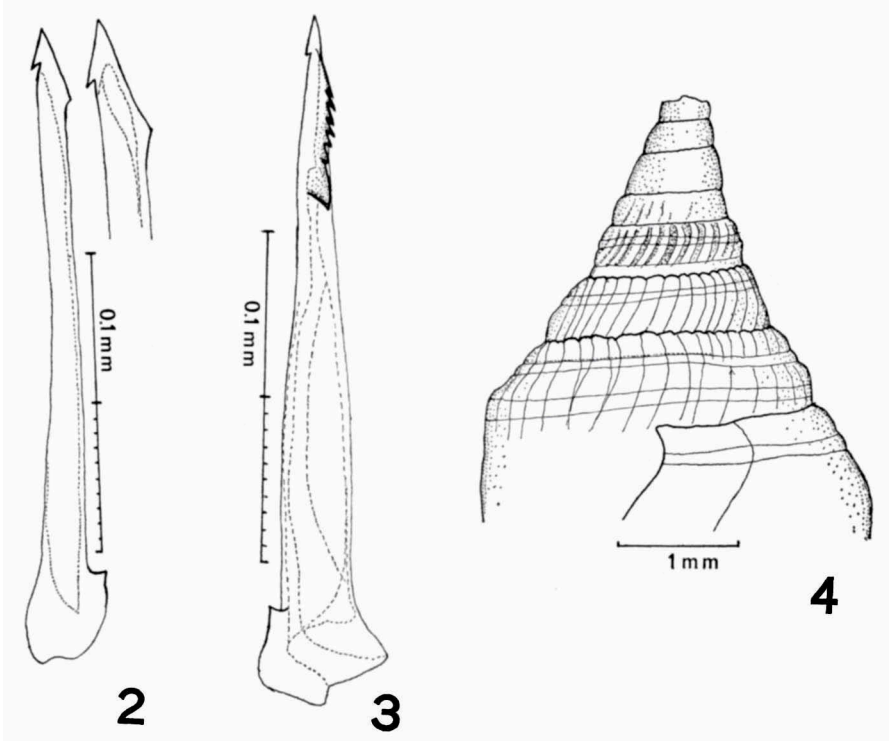


Fig. 2. *Conus selenae* Van Mol, Tursch & Kempf, radular tooth.
Fig. 3, 4. *Conus scopulorum* nov. sp. 3, radular tooth; 4, first whorls of the shell.

paratypes (adult and juvenile) in the Muséum National d'Histoire Naturelle of Paris; and one paratype in Museu Nacional de Rio de Janeiro. Type locality: Fernando de Noronha, Brazil, in 90 m.

Description. — The spire is acuminate, concave, sometimes slightly tilted.

The protoconch has 3 or more white conical nuclear whorls.

The first two postnuclear whorls of the teleoconch have numerous axial opisthocline arched cords on the sutural ramp. These are incised by two fine spiral grooves that may persist until the last volutions. Shoulder inconspi-

[1]) We wish to thank Mr. C. de Jong of Curaçao for kindly sending us specimens of the latter species.

cuous, becoming apparent only on the third postnuclear whorl. The sutural ramp is then ornated with numerous arched collabral riblets becoming less apparent around the seventh whorl and leaving only very fine dense growth lines on the last volutions. The sides of the whorls present a series of large axial, rounded, low cords. Around the seventh whorl, the shoulder becomes again inconspicuous and is marked by regularly spaced round bosses just above the suture. The suture is narrow, irregular.

The shoulder of the body whorl is rounded, tuberculate. The profile is convex, the surface shining. The sculpturation consists of a series of weak, rounded spiral grooves near the base, diminishing in importance towards the shoulder. The aperture is narrow, parallel.

Colour. — The background is white. Two large irregular orange to brown bands are present. The median and basal white zones are marked with irregular minute vertical brown dashes, often axially arranged. The spiral articulate lines of alternating white and brown dashes are superimposed upon the two main color bands. The spire has a white apex and the last whorls are marked with irregular dark brown blotches and axial lines. The small specimens are white. The periostracum is yellowish, translucent.

An operculum is present.

The radula (fig. 3) has 0.41 mm teeth for a 26.5 mm shell.

The measurements are the following (in mm):

	height of shell	width of shell	length of shell	number of whorls	locality		
Holotype	21	9.5	6.5	9+	3°53'S	32°37.2'W,	60-90 m
Paratypes	26.5	12.5	9	11+	3°53'S	32°37.2'W,	60-90 m
	24	11	8	8+	3°28'S	35°6.5'W,	61 m
	14	6.3	4	9+1?	3°58'S	35°56'W,	72 m
	10	4	3	8	1°35'S	38°7'W,	51-54 m

Distribution and ecology (see distribution map, fig. 1). — *Conus scopulorum* seems to be restricted to a narrow area including the banks of Ceará and the islands of Rocas and Fernando de Noronha. Its bathymetric distribution is from 47 to 120 m with a maximum frequency between 50 and 70 m. It seems to be characteristic of a calcareous algal gravely bottom.

The list of stations with the number of specimens collected is as follows:

Off Fernando de Noronha, 3°50.7'S 32°23.1'W, 65 m (1 live, 2 dead specimens); 3°53'S 32°37.2'W, 60-90 m (2 live, 11 dead specimens).

Off Atoll das Rocas, 3°49.6'S 33°49.2'W, 53 m (1 live specimen).

Banks off Natal State, 3°49'S 34°45'W, 55-75 m (4 dead specimens); 3°28'S 35°6.5'W, 61 m (5 live, 24 dead specimens), 3°59.5'S 35°53 7'W, 73-140 m (5 dead specimens); 3°58'S 35°56'W, 72 m (4 live, 1 dead specimens).

Banks off Fortaleza State, 1°57'S 37°46'W, 81 m (1 live, 2 dead specimens); 1°56'S 37°51'W, 47-49 m (1 live, 1 dead specimen); 1°35'S 38°07'W, 51-54 m (3 live, 5 dead specimens).

Continental shelf of Fortaleza State, 2°39'S 39°46'W, 17 m, littoral gravelly sand (1 dead juvenile).

Continental shelf of Belem, 1°33'N 46°49'W, 100-120 m, on calcareous algal gravel and organogenous material (1 live specimen).

Conus scopulorum seems to be an endemic of the offshore banks and islands, nevertheless there are two records from the continental shelf. These latter two records are exceptional cases in regard to the number of prospected stations in this area. They could be the result of accidental larval transport by the currents.

Affinities. — This species is distinguished from *Conus dominicanus* Hwass and *Conus aurantius* Hwass by its greater number of nuclear whorls, its constant postnuclear microsculpture, its smaller size and the structure of its radula presenting one strong tooth at the blade, whereas *C. dominicanus* and *C. aurantius* have three terminal teeth. Although this species could well be one of the numerous forms of the old *C. cedonulli* we have not found any description or illustration fully consistent with its characteristics.

The name *C. scopulorum* derives from the latin *scopulus* meaning submerged rock, reef.

Remarks. — It is remarkable that *Conus selenae* and *Conus scopulorum,* which are not taxonomically closely related, seem to have the same ecological requirements. However, *C. selenae* has never been collected on the offshore reef where *C. scopulorum* predominates, whereas *C. brasiliensis, C. daucus, C. jaspideus* and *C. regius* are more or less common in the whole area, but much less so than the first two mentioned. The frequency of *C. scopulorum* in the dredgings off the banks and reefs off Ceará and Natal is shown by the fact that of the 28 dredgings executed there, 16 contained *Conus* species, and in 14 of these *C. scopulorum* was represented (with 21 living and 56 dead specimens). On the continental shelf between Natal and Cape Orange 227 dredging were made on bottoms other than muddy ones; 109 of these dredgings produced *Conus* species, but in only two of these *C. scopulorum* was represented (1 live and 1 dead animal).

Acknowledgements. — The authors wish to express their gratitude to the following Brazilian institutions for enabling M. Kempf to make his extensive collections: Conselho Nacional de Pesquisas, Diretoria de Hidrografia e Navigação and Superintendencia para o Desenvolvimento do NE.

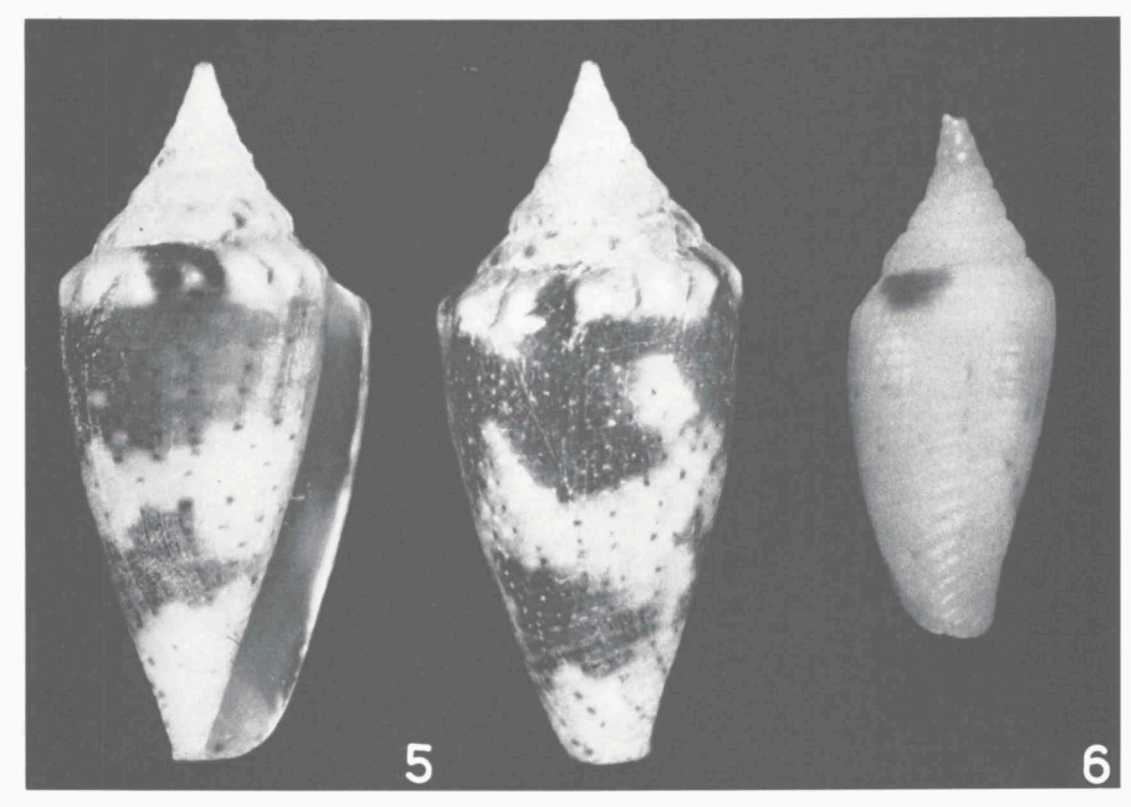
BIBLIOGRAPHY

CLENCH, W. J., 1942. The genus Conus in the Western Atlantic. — Johnsonia, 1 (6) : 1-40.

KEMPF, M. & H. R. MATTHEWS, 1968. Marine mollusks from north and northeast Brazil. 1. — Preliminary list. — Arq. Est. Biol. Univ. Fed. Ceará, 8 (1) : 87-94.

KOHN, A. J., 1968. Type specimens and identity of the described species of Conus. IV. The species described by Hwass, Bruguière and Olivi in 1792. -- Journ. Linn. Soc. London, (Zool.) 47 : 431-503.

VAN MOL, J. J., B. TURSCH & M. KEMPF, 1967. Les Conidae du Brésil. — Ann. Inst. Océanogr. Monaco, 45 : 233-255, fig. 1-17, pl. 1-6.



Conus scopulorum nov. sp. Fig. 5, holotype (high: 21 mm); 6, juvenile paratype (high: 10 mm). (Photopgraphs by H. Diserens).