

# CONIDAE from Angola (Western Africa)

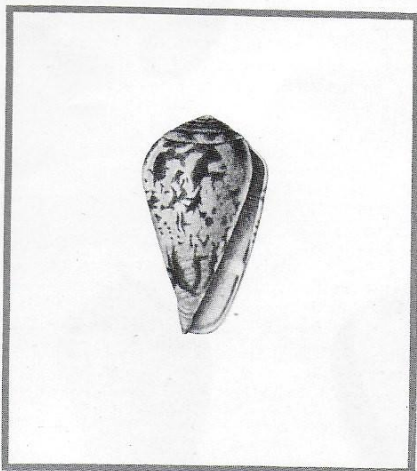
Parte I

Dieter Röckel  
Francisco Fernandes

The knowledge of the West African *Conus* fauna is still very limited. There are three sub-provinces with mainly endemic populations: Senegal, Cape Verde and Angola. Only one species, *Conus ermineus* BORN, 1778, occurs outside of West Africa as well in the West Atlantic region. Only four other species are not restricted to one of the three sub-provinces: *Conus guinaicus* Hwass, 1792 lives in Senegal and in Angola (not in Cape Verde), *Conus tabidus* REEVE, 1844 in all three sub-provinces, *Conus pulcher* LIGHTFOOT, 1786 in Senegal and Angola (not in Cape Verde) and *Conus genuanus* LINNAEUS, 1758 in all three areas. It seems too possible (but still has to be confirmed) that the Angolan *Conus aemulus* REEVE, 1844 is also found in Northwest Africa.

Best known are the endemics from Senegal, although a lot of taxonomic problems have to be cleared up. The confusing number and appearance of the Cape Verde populations is becoming easier to survey now, but with respect to Angola we know next to nothing. A little material is available for both collectors and scientists, and even the type specimens of species originated from Angola are partially missing.

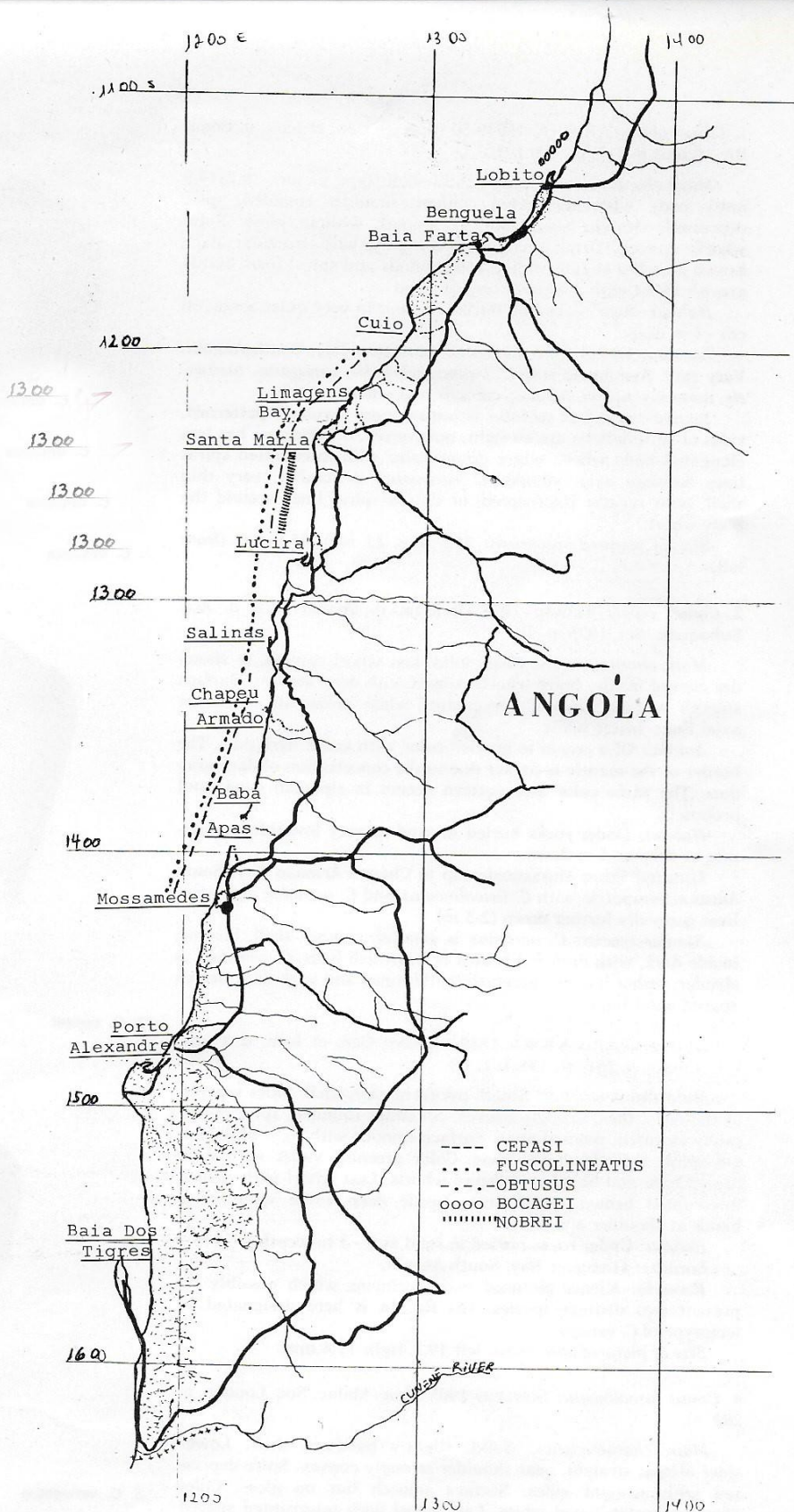
For the first time after many years two



*Conus obtusus* KIENER (Plate 109 n. 3, 26.5 mm.)



*Conus variegatus* KIENER (p. 261, f. 1,1a)



Portuguese turned towards the Angolan Conidae: Paes da Franca in the fifties and H.F. Trovão during the last six years. They described a small number of new species from Angola. But, although these descriptions were very detailed and comprehensive, they were not accepted generally. Other authors, faced with these new species, designated them as junior synonyms of *C. bulbis*, *variegatus/africanus* or of *C. aemulus* — unfortunately without the necessary discussions of the substantiated views and arguments of Trovão.

On the basis of extensive material, collected personally by Francisco Fernandes during the last ten years from the whole Angola coast, together with very exact observations on the habitat and the locality, we will try to revise to knowledge of the Angolan *Conus* species. This will be done by a series of color pictures with all necessary comments, concerning specimens of valid species or varieties of species existing in the range of Angola. The order of the species and pictures presentend is at random.



1. *Conus obtusus* KIENER, 18949-50 (Spécies Gén. et Icon. d. Coqu. Viv., *Conus* p. 317, pl. 109 f. 3).

**Main characteristics:** Small solid shell (type picture 26,7x14,8 mm), body whorl elongated conical, shoulder rounded, spire depressed, straight sides. Surface smooth without gloss. Spire whorls convex. Ground color bluish gray with irregular dark brown blotches or interrupted spiral bands and spiral lines. Inside greyish violet with a whitish central band.

**Habitat:** Near rocks half buried in sand in very quiet zones, 50 cm - 1 m deep.

**Locality:** Found from Lucira to Limagens Bay, South Angola. Very rare. Sympatric with *C. bulbus*, *zebroides*, *variegatus*, *lucirensis*, *naranjus*, *nobrei*, *tabidus*, *carnalis* and others.

**Similar species:** *C. aemulus* is larger, more regularly patterned, sides of spire whorls are straight, not convex. *C. africanus* has less elongated body whorl, white groundcolor with interrupted spiral lines between axial streaks. *C. variegatus* is smaller, very thin shell, with regular interrupted, or dotted spiral lines around the body whorl.

**Size of pictured specimens:** 31,5 mm, 23 mm, 28,5 mm (from left).



1. *C. obtusus*

2. *Conus cepasi* TROVAO, 1975 (Boletim d. Centro Port. d. Act. Subaquat., Set. 1975, p. 3).

**Main characteristics:** Shell solid, last whorl conical, at shoulder curved inside. Spire whorls convex with deep sutures. Surface smooth without gloss. Color creamy white yellowish — orange axial lines. Inside white.

**Animal:** Of a cream to greyish color with small dark dots. The border of the mantle is darker due to the concentration of dark gray dots. The same color and pattern occurs in siphonal canal and proboscis.

**Habitat:** Under rocks buried in sand at very low tide, sometimes as deep as 1 m down.

**Locality:** From Mossamedes up to Chapeu Armado Bay, South ANGOLA. Sympatric with *C. fuscolineatus* and *C. carnalis*; the latter lives generally further down (2-5 m).

**Similar species:** *C. naranjus* is smaller, thinner shell, biconic, inside dark, with dark red brown or brownish lines. *C. zebroides* is slender, rather biconic, greenish white toned and with dark brown spaced axial lines.



2. *C. cepasi*

3. *Conus variegatus* KIENER 1849 (Spécies Gén. et Icon. d. Coqu. Viv., *Conus*, p. 261, pl. 196, f. 1, 1<sup>a</sup>).

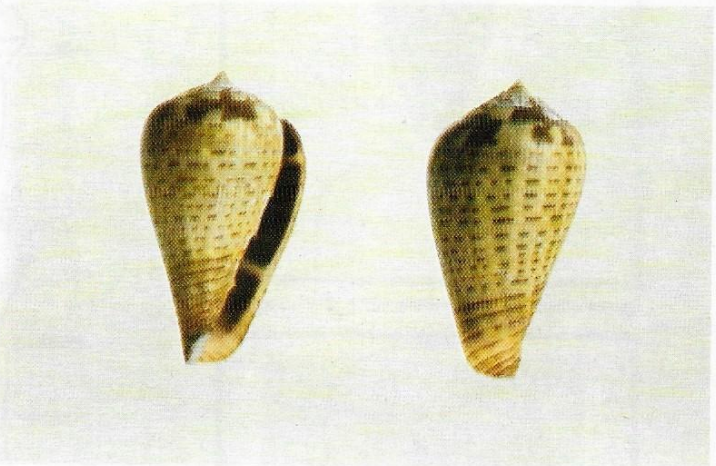
**Main characteristics:** Small, pyriform, thin shell. Sides tapered to the base, then strongly convex. Shoulder rounded, spire moderately elevated, pointed apex. Surface smooth with light gloss and 6-8 spiral threads at the base. Color greenish violet with dark brown base and blotches on spire whorls. Last whorl with spaced interrupted brown spiral lines. Inside deep violet with white bands at shoulder and center.

**Habitat:** Under rocks buried in sand at 2 - 3 m. depth.

**Locality:** Limagens Bay, South Angola.

**Remarks:** Kiener pictured two specimens which possibly represent two distinct species. His fig. 1a is here designated as lectotype of *C. variegatus*.

**Size of pictured specimens:** left 19,3, right 19,4 mm.



3. *C. variegatus*

4. *Conus fuscolineatus* SOWERBY 1905 (Proc. Malac. Soc. London, 6, 282, 6).

**Main characteristics:** Solid, slightly pyriform shell. Lower sides almost straight, near shoulder strongly convex. Spire depressed with straight sides. Surface smooth but no gloss. Color greenish brown toned white. Last whorl with interrupted spaced spiral lines of dark brown, changing at center in to 1 - 2 dotted lines. Inside deep violet.

**Habitat:** Under rocks, half buried in sand, 2 - 3 m. deep.

**Locality:** Mossamedes Bay up to Limangens Bay, South Angola. (Type locality: Sierra Leone).

**Similar species:** *C. variegatus* has thinner shell and is smaller and more slender; its pattern is regular. *C. lucirensis* is white inside without greenish tone.

**Size of pictured specimens:** 26,3 mm, 19,5 mm, 22,8 mm (from left).

5. *Conus nobrei* TROVAO, 1975 (Boletim d. Centro Port. d. Act. Subaquat., Set. 1975, p. 5).

**Main characteristics:** Very small, solid shell. Sides of last whorl convex, shoulder rounded or roundly angled, spire depressed with convex spire whorls. Surface smooth with low gloss, few spiral threads at base. Color brown with white dotted spiral lines, dots merging sometimes in axial dashes. Inside dark violet with narrow white bands at shoulder and center.

**Animal:** Of pink color whit small dots. Border of the mantle like the body, proboscis and siphonal canal a little darker.

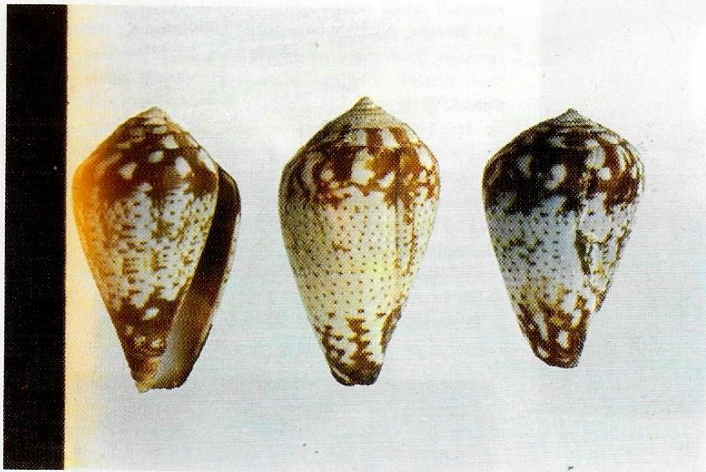
**Habitat:** In rock crevices buried in sand inside them. Sometimes under small rocks in big hole of stones with sand. 1 - 3 m deep.



4. *fuscilineatus*



5. *nobrei*



6. *bocagei*

*Locality:* Since Lucira Bay up to Santa Maria Bay.

*Similar species:* Closest to *C. nobrei* is *C. aplustre* REEVE, 1843 from New South Wales, Australia, which is larger in size and with glossy surface.

*Size of pictured specimens:* 15,1 mm, 13,8 mm, 14,8 mm (from left).

6. *Conus bocagei* TROVAO, 1978 (Centro Port. d. Act. Subaqu., Ser. IV, N. 4, p. 17, pl. 1, fig. 2).

*Main characteristics:* Small, solid, biconic shell. Sides gently convex, shoulder roundly angled spire elevated with straight sides.

Surface smooth without gloss. Color white bluish with dark brown blotches at base, shoulder and spire. Between shoulder and base spiral lines with very fine dots. Inside violet toned with a darker spot in the depths.

*Habitat:* Buried in sand at 1 - 2 m deep near rocks or in rock crevices.

*Locality:* Only found in Lobito Bay.

*Similar species:* *C. variegatus* has more depressed, concave sided spire, inside deep violet. *C. obtusus* with more elongated last whorl and depressed spire.

*Size of pictured specimens:* 19,5 mm, 20 mm, 17,5 mm (from left).

(To be cont'd)

## American Shell Dealers Associate

Informal discussions over the past year about the future of the specimen seashell business have led a group of leading U.S. dealers to form the AMERICAN SHELL DEALERS ASSOCIATION, Inc.

The organization has 21 charter members. Its purposes are to promote interest in shell collecting as a hobby, establish a code of ethics and minimum business standards for shell dealers and exchange information about mutual problems, including delinquent accounts.

Membership in the AMERICAN SHELL DEALERS ASSOCIATION is open to all U.S. shell dealers who advertise in recognized conchological publications or are registered licensed to conduct a shell business locally.

Officers of the new organization are: PRESIDENT/Robert Morrison, The Morrison Galleries; VICE-PRESIDENT/Richard Kurz, Richard Kurz Specimen Shells; SECRETARY/Dorothy Janowsky, Mal de Mer Enterprise; TREASURER/Richard Goldberg, Worldwide Specimen Shells.

The organization already publishes an information letter for members. A.S.D.A. has developed a logotype which members will be able to display in their shops or use on letterheads and in advertisements.

Dealers, in addition to the officers who are charter members of the organization are: Kirk Anders (Shells of the Seas); Frank Cabral (Cypraea Nut Hut); Phillip Clover; Robert Foster & Charles Glass (The Abbey Specimen Shells); Marty & Ronnie Gill (Shamron Shells); Ruth Greenberg (Tidepool Gallery); Morton Hahn; Thomas Honker; Veronica Johns (Seashells Unlimited); Robert Lipe (The Shell Gallery); Walter Robertson (London Associates Shells); Edward T. Schelling; Carol Skoglund (Panamic Specimen Shells); Chris Takahashi (Hawaiian Specimens); M.E. Young (The Shell Cabinet).

Dealers interested in information about the AMERICAN SHELL DEALERS ASSOCIATION, should write: Dorothy Janowsky, Corresponding Secretary, 946 Ralph Ave., Brooklyn, New York, 11236.



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## Part. II

7. *Conus zebroides* Kiener, 1845 (Species Gén. et Icon. d. coqu. Viv., p. 257, pl. 105, f.5)  
= *Conus angolensis* Paes da Franca, 1957

**Essential characteristics:** Moderately heavy, medium sized, conical, spire whorls convex. Spire moderately elevated, sides of spire slightly convex. Surface smooth but not glossy. Colour (milky or greenish white. Covered from apex to base with strong brown or blackish axial lines sometimes branching out near shoulder. Inside white or slightly violet toned.

**Animal:** Colour creamy-grey with black dots and small blotches. Proboscis dark due to many black dots. Periostracum yellow and transparent.

**Habitat:** 1 - 2 m deep buried in fine sand under rocks. Generally found in pairs of the same size.

**Locality:** From Luciras till Lobito and probably more to the North. Sympatric with *C. bulbus*, *C. naranjus*, *C. lucirensis*, *C. fuscolineatus*, *C. guttatus*, *C. tabidus*, *C. carnalis* and *C. bocagei*. Uncommon.

**Similar species:** *C. bulbus* is smaller and rather pyriform. Axial lines, if present, irregular and not continuous.

**Size of pictured specimens:** from left 36,5 mm, 31 mm, 39,5 mm.

8. *Conus aemulus* Reeve, 1844 (Conchologia Iconica, 1 Conus): Pl. 46, sp. 256).

= *Conus unifasciatus* Kiener, 1854

**Essential characteristics:** Conical, light shell of medium size. Sides of body whorl straight, slightly rounded near shoulder. Shoulder roundly angulated, spire moderately elevated with straight sides. Spire whorls smooth. Surface smooth and dull, few spiral cords near the base. Ground color bluish white with small interrupted light-dark spiral lines. Irregular dark brown dots scattered on the body whorl, mostly axially arranged. Inner lip white edged, then deep violet with small light at shoulder and center, margining into white.

**Animal:** Colour pinkish grey to pinkish with black dots. In the light colour forms of shells the animal is more grey, in the dark forms the animal is more pinkish. Periostracum grey-yellowish to yellow and transparent.

**Habitat:** At low tide buried in sand in seaweed areas. Found only in calm waters and sometimes near rocks or on rocks. Under rocks only when laying eggs.

**Locality:** Only Luanda area (Mussulo Bay, Samba Bay, Luanda Bay and Cacuaco Bay). Sympatric in rock areas with *C. tabidus*.

**Similar species:** *C. hybridus* is much slender, more glossy, with smaller brown dots on the surface. Spire whorls with 3 or 4 deeply incised grooves. *C. obtusus* (see Nr. 1) has smaller and thicker shell, with more rounded shoulder and irregular pattern.

**Size of pictured specimens:** 41 mm, 33, 5 mm, 38 mm, 44 mm.

9. *Conus albuquerquei* Trovão, 1978 (Centro Port. de Act. Subaqu., Ser. IV, N. 4, pl. 1, fig. 1).

**Essential characteristics:** Very small, conical shell. Sides of body whorl straight, shoulder rounded. Spire low. Surface smooth with good gloss, 6 - 8 spiral grooves at base. Spire whorls smooth. Color blackish with scattered white dots at subshoulder area and axial white streaks at midbody, forming a light spiral band. At midbody also some spiral rows of brownish dots.

**Animal:** Colour reddish with black dots. Periostracum cream-yellowish, transparent.

**Habitat:** Buried in sand from low tide as deep as 3 m. under large rocks.

**Locality:** From Mossamedes (Praia das Conchas) up to Santa Maria Bay. Sympatric with *C. fuscolineatus*, *C. zebroides*, *C. carnalis* and *C. ermineus*. Uncommon to rare.



Fig. 7 *C. zebroides*

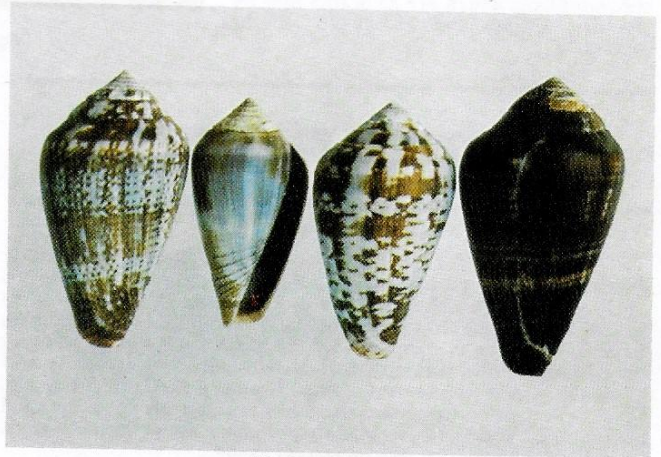


Fig. 8 *C. aemulus*



Fig. 9 *C. albuquerquei*

**Similar species:** *C. lugubris* is larger with edged shoulder.

**Size of pictured specimens:** 16 mm, 17 mm.

10. *Conus tabidus* Reeve, 1844 (Conchologia Iconica, 1 (Conus): Pl. 44, sp. 243 = *Conus griseus* Kiener, 1845.

**Essential characteristics:** Solid conical shell of medium size. Sides of body whorl straight convex near shoulder. Shoulder slightly edged or narrowly rounded. Spire low. Body whorl covered with numerous fine axial and spiral threads. Dull finish. Colour creamy white, often with brownish toned zones or flammules. Inside white.

**Animal:** Color salmon red. Periostracum dark brown opaque with hairs.

**Habitat:** Shallow water, but found also in 50 m. depths. Generally under rocks or in rock crevices.



Fig. 10 *C. tabidus*

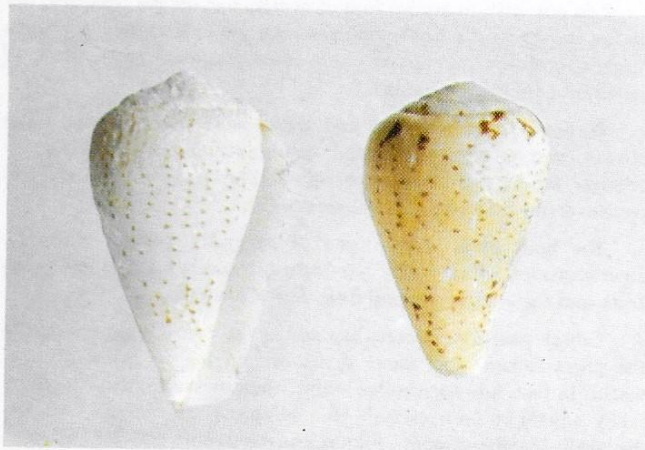


Fig. 11 *C. guttatus*



Fig. 12 *C. bulbus*

**Locality:** From South Angola (Limagens Bay) up till Cabinda. It is known from Senegal and Cape Verde also. Uncommon in Angola. Sympatric with *C. bulbus*, *C. zebroides*, *C. naranjus*, *C. carnalis*, *C. ermineus* and *C. bocagei*.

**Similar species:** *C. carnalis* is orange to violet coloured, grooved on spire whorls. *C. ambiguus* has sharply edged shoulder and brown spots on spire. *C. dealbatus* has elevated spire, concave spire sides and attenuated base.

**Size of pictured specimens:** 24 mm, 25 mm, 34 mm.

11. *Conus guttatus* Kiener 1845 (Species Gén. et Icon. d. Coqu. Viv., *Conus* p. 249, pl. 105, fig. 4)  
non *Conus guttatus* Röding, 1798.

**Essential characteristics:** Heavy pyriform shell. Sides of body whorl attenuated near base, upper widely convex. Shoulder rounded, spire low. Surface smooth and dull, at base 6 - 8 spiral ribs.

Color white with spaced spiral rows of small brown dots, sometimes shining. Inside matt white.

**Animal:** Colour reddish with black dots. Periostracum with two layers: upper side dull and gray-brown, lower side glossy and yellow-brown.

**Habitat:** Buried in sand, at 2 - 3 m. under rocks.

**Locality:** Found only in Limagens Bay, South Angola. Very rare. Sympatric with *C. zebroides*, *C. lucirensis*, *C. carnalis*, *C. tabidus*, *C. ermineus*, *C. fuscolineatus*, *C. naranjus* and *C. obtusus*.

**Similar species:** *C. africanus* and *C. variegatus* are dark inside, *C. bulbus* is very distinct in shape and pattern.

**Size of pictured specimens:** 30 mm, 33 mm.

12. *Conus bulbus* Reeve 1843 (Conchologia Iconica, 1 (Conus): Pl. 30, sp. 169).

= *Conus musivus* Trovão, 1975

= *Conus tevesi* Trovão, 1978 (= Nov. Nom. for *C. musivus*).

**Essential characteristics:** Small, light, pyriform or conical shell. Sides of body whorl nearly straight, upper part, including shoulder, rounded. Spire low or moderately elevated with straight or concave sides. Surface smooth but not glossy. Near base some spiral grooves. Ground colour milky white with dark brown axial streaks (typical), merging often in spiral rows of dashes and dots. *Conus tevesi* is an individual form of *C. bulbus*. Inside white, juvenile specimens sometimes with violet hue.

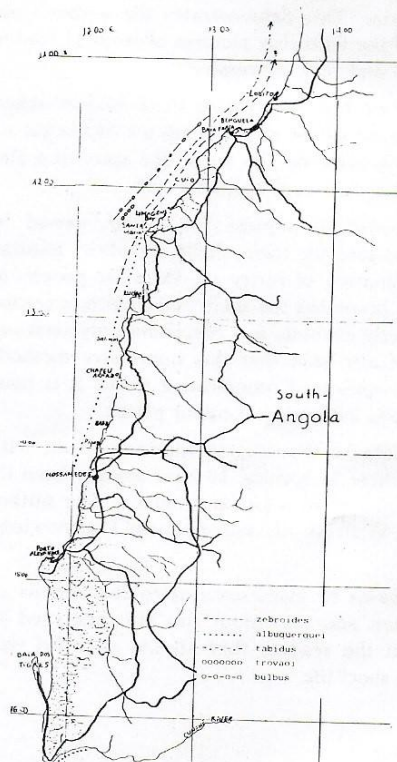
**Animal:** Colour dark creamy with black dots. Periostracum yellow and transparent.

**Habitat:** Low tide to 2 m down on rocks in small crevices. They live in colonies with more than 12 specimens.

**Locality:** From Caota (South Angola) up to Santa Maria Bay in the North. Sympatric with *C. zebroides*, *C. naranjus*, *C. africanus*, *C. lucirensis*, *C. tabidus*, *C. ermineus*, *C. obtusus*, *C. fuscolineatus*, *C. guttatus*, *C. albuquerqui* and *C. pulcher*. Common.

**Similar species:** *C. africanus* is violet inside with irregular dashes and short spiral lines on the surface. *C. lucirensis* uniformly dark at shoulder and base, with very regular brown spiral lines in between.

**Size of pictured specimens:** 20 mm, 18 mm, 22 mm, 22,5 mm.  
(to be cont'd)



## CONIDAE from Angola

(Western Africa)

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Francisco Fernandes

**Authors' note:** The authors have been asked as to their intention for this presentation of the Angolan Conidae. Is it a scientific revision or a survey for collectors?

First of all the authors wish to show all species of Conidae living in Angola, described up to date. This kind of summarizing schedule seems to be helpful for both scientists and collectors. The actual great confusion on the identity of the Angolan Conidae is primarily caused by the lack of knowledge of the morphological appearance, the variability and the exact locality of these populations.

In the authors' opinion, it is of considerable advantage for Conus collectors to become acquainted with specimens fitting the types or type figures of all described Angolan Conidae. When, in the authors' opinion, specific names are junior synonyms, they are put after the valid name. In some cases, the authors have no convincing evidence for the validity or not of a given name. In order to avoid rushing to conclusions they left doubtful names unchanged. Further scientific studies may bring more clarity to this matter.

### Part III

13. *Conus africanus* Kiener, 1845 (Species Gèn. et Icon. d. coqu viv., Conus, p.260, pl. 104, fig. 2)

**Essential characteristics:** Small, light, conical shell. Upper part including shoulder rounded. Spire moderately elevated with straight sides. Spire whorls convex. Surface smooth, but no gloss. Near base some spiral cords. Ground color milky white. Dark brown, irregular spots, in particular near base and shoulder, in between spiral threads with brown dashes and dots. Aperture white with purple hue deep inside.

**Animal:** Color cream pinkish with black dots. Periostracum yellowish and translucent.

**Habitat:** From very low tide level till 2 m down near rocks half buried in sand or in rock crevices.

**Locality:** From Baia Farta up Lucira Bay. Typical shells were collected in Ponta das Vacas, Baia Farta, but there are closely related shells as far as Lucira Bay. Uncommon.

Sympatric with *C. bulbus*, *C. naranjus* and *C. zebroides*.

**Similar species:** *C. bulbus* with axial streaks, without spiral lines; *C. fuscolineatus* with continuous spiral lines, sometimes interrupted, but not in dashes. Inside violet.

**Size of pictured specimens:** 22,9 mm, 22,0 mm, 24,6 mm.

14. *Conus carnalis* Sowerby, 1879 (Proceed. Zool. Soc. London, 1878: 796, pl. 48, fig. 2).

**Essential characteristics:** Moderately heavy; medium sized, conical shell. Sides of body whorl straight, shoulder roundly angled. Spire moderately elevated with almost straight sides, spire whorls concave. Surface smooth and glossy. Pale violet to flesh colour. Inside slightly violet toned.

**Animal:** Color salmon red. Periostracum dark brown, thick and opaque.

**Habitat:** From 2 m to 15 m depth rocks, attached to the rock.

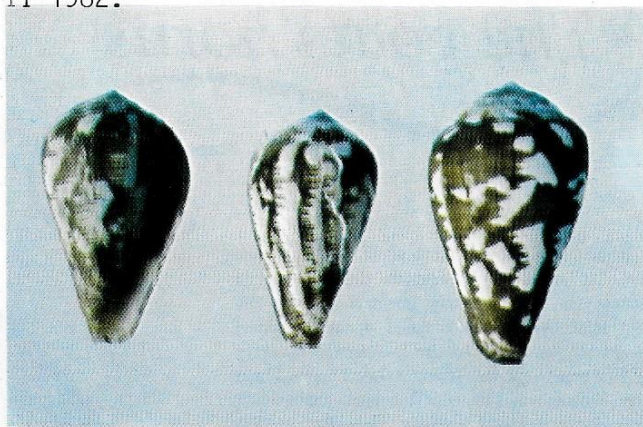
**Locality:** From South Benguela to Mossamedes. Rare. Sympatric with *C. ermineus*, *C. pulcher*, *C. variegatus* and *C. fuscolineatus*.

**Similar species:** *C. tabidus* with dull surface and with flat - instead of concave - spire whorls. *C. ambiguus* with sharply angled shoulder and brown dots on the spire whorls.

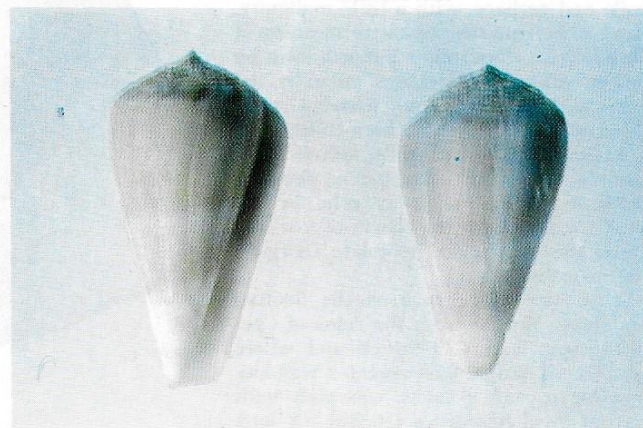
**Size of pictured specimens:** 35 mm, 32 mm.

15. *Conus dealbatus* A. Adams, 1854 (Proceed. Zool. Soc. (London), 1853: 117).

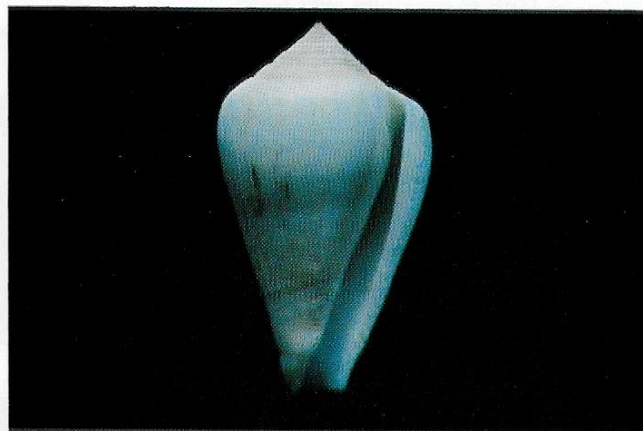
**Essential characteristics:** Moderately heavy, medium sized, biconical shell. The upper sides strongly convex, shortly tapered to the base. Shoulder weakly edged, spire elevated with straight sides. Some spiral incisions near the base, otherwise smooth, but no gloss. Color white.



*C. africanus*



*C. carnalis*



*C. dealbatus*

**Animal:** Color reddish cream with small black dots. Periostracum yellowish brown, opaque.

**Habitat:** In calm water at two meters depth under rocks buried in fine sand.

**Locality:** Only N. Mossamedes Bay in Saco Mar area. V. rare. Sympatric with *C. fuscolineatus*.

**Similar species:** The surface structure reminds us of *C. tabidus*, but the shape is quite distinct from any other Westafrican cone.

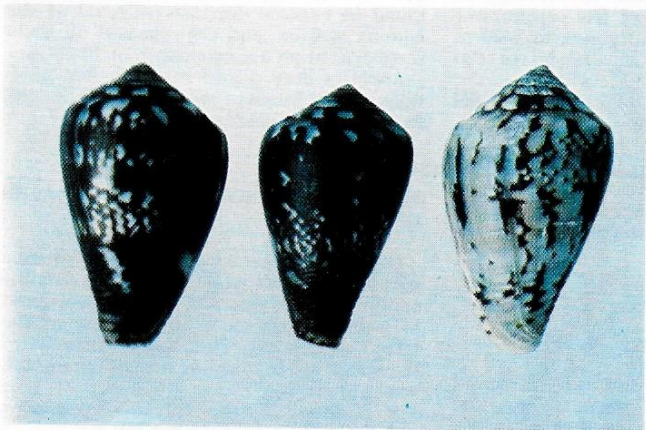
**Size of the pictured specimen:** 33 mm.

16. *Conus naranjus* Trovao, 1975 (Boletim d. Centro Port. d. Act. Subaquat, Dec. 1975: 12-15).

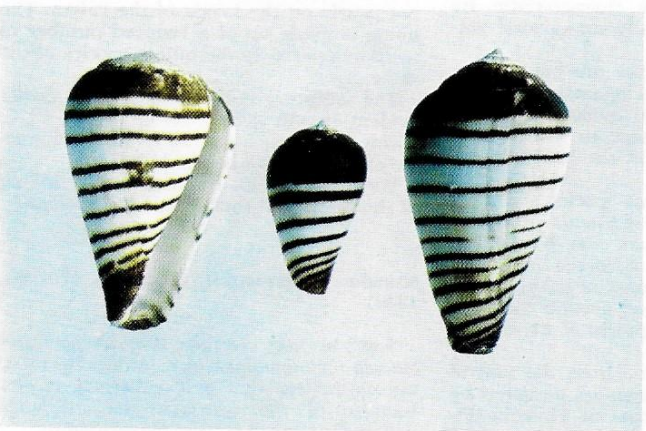
**Essential characteristics:** Small, pyriform shell, light in weight. Sides of last whorl straight, near the shoulder strongly convex. Spire moderately elevated, spire sides concave, spire whorls convex superiorly. Surface smooth and glossy with some



C. naranjus



C. lucubris



C. chytreus

weak spiral cords near the base. Color orange to dark brown with numerous very fine axial lines in orange or dark brown. Base violet brown. Inside white or violet toned.

**Animal:** Color pinkish red with black dots. Periostracum yellow and translucent.

**Habitat:** In calm waters under rocks buried in fine sand with shell residues at very low tide to 1 m depth. Generally they are found alone but three times groups between 9-18 specimens were found around *Holuturia* sp.

**Locality:** From Lobito Bay (loc. typ.) south to Lucira Bay. Rare. Sympatric with *C. bulbus*, *C. zebroides*, *C. obtusus*, *C. africanus* and *C. tabidus*.

**Similar species:** *C. cepasi* is larger in size with a thicker shell and more spaced axial lines. *C. zebroides* with larger and heavier shell, distinct in colour and pattern.

**Size of pictured specimens:** 19,9 mm (probably a variety of *C. naranjus*), 20 mm (typical), 19,5 mm (dark form).

17. *Conus lugubris* Reeve, 1849 (*Conchologia Iconica*, 1 (Suppl.): Pl 9, sp. 279).

**Essential characteristics:** Moderately heavy, solid, conical shell. Sides of body whorl almost straight, then convex at sub-shoulder area. Shoulder edged, spire elevated with slightly concave sides. Surface smooth with a good gloss. Near the base about 10 spiral incisions. Color bluish white with dark reddish brown axial streaks and spots, sometimes additional axial zig-zag lines. Light spiral band in the upper and lower third. Inside dark brown violet with two white bands near shoulder and at midbody.

**Animal:** Color cream pinkish, mantle border dark pinkish and covered with dark dots. Siphon and proboscis blackish color. Periostracum cream and translucent.

**Habitat:** At very low tide down to the surf zone sometimes buried in sand between rocks, or in rock crevices.

**Locality:** From Santiago Beach (30 km North Luanda) to the mouth of Dande River. Rare. Sympatric with *C. ermineus* and *C. tabidus*.

**Similar species:** Distinct from *C. bulbus*, *C. fuscolineatus*, *C. africanus* and *C. naranjus* by its edged shoulder and the solid shell. *C. aemulus* has larger and lighter shell and different pattern.

**Size of pictured specimens:** 25,5 mm, 24,9 mm, 25,7 mm.

18. *Conus chytreus* Melvill, 1883 (in Tryon, Manual, of Conch., 6 (1): 17, pl. 27, fig. 1) = *Conus lucirensis* Paes da Franca, 1957

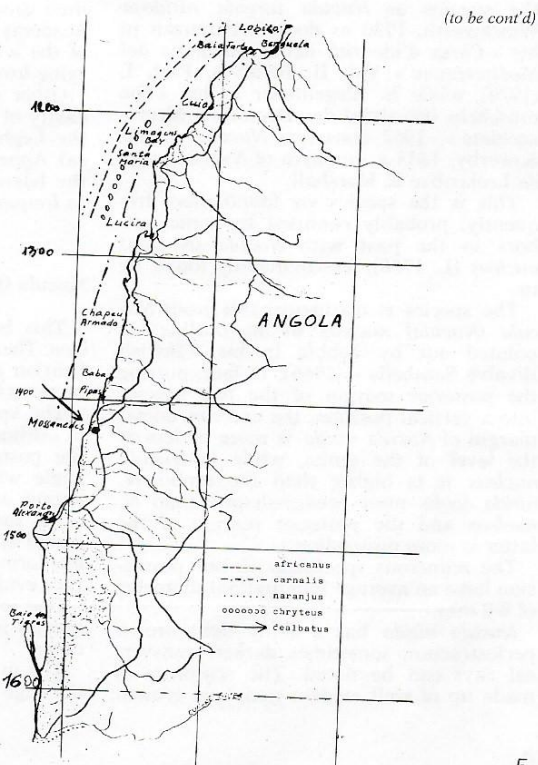
**Essential characteristics:** Moderately heavy, small conical shell. The upper part of the body whorl including shoulder is convex, sides tapered near the base. Spire more or less elevated, spire whorls convex superiorly, sides of spire straight or slightly convex. Surface smooth but no gloss. Ground colour white; base, shoulder and spire uniformly dark brown. 8 to 12 spaced spiral lines of dark around the body whorl. Inside white.

**Animal:** Color pinkish cream with black dots. Periostracum yellow and translucent.

**Locality:** From Lucira Bay up to North till Limagens Bay. Uncommon. Sympatric with *C. carnalis*, *C. fuscolineatus*, *C. guttatus*, *C. zebroides* and *C. ermineus*.

**Similar Species:** *C. africanus* and *C. fuscolineatus* alternate white and brown at spire, the spiral lines or dashes are narrow and not spaced. *C. bulbus* lacks the spiral lines and is alternating brown and white at spire too.

**Size of pictured specimens:** 25,3 mm, 17 mm 28 mm





# CONE SHELLS FROM ANGOLA

For various reasons, it was not possible to publish earlier this fourth and last part of the work by D. Röckel and F. Fernandes on the Cones from Angola. We wish to remind you that the previous parts were published in the Nov/Dec. 1981, Jan./Feb. 1982 and Mar./Apr. 1982 issues.

19) **Conus olivaceus** Kiener, 1845 (Species Gén. et Icon. d. coqu. viv., Conus p. 359, pl. 111, fig. 3).

**Essential characteristics:** Moderately heavy, conical to pyriform shell of medium size (40-50 mm). Sides of last whorl tapered near the base, convex, above shoulder rounded, spire weakly elevated. The earlier whorls raised. Spire whorls slightly convex with smooth surface. Last whorl smooth except for some spiral striae near the base; slightly glossy, Colour light olive green with lighter bands at center and near shoulder. Inside deep violet.

**Animal:** Color pinkish with dark spots and dots.

**Habitat:** 1-3 m, depth, buried in sand under large rocks or half buried near them in quiet zones without wave movement.

**Locality:** Found only in Limangens Bay. Sympatric with *C. zebroides*, *naranjus*, *ermineus*, *carnalis*, *variegatus* and *fuscolineatus*.

**Size of figured specimens:** 35 mm, 33 mm, 42,5 mm.

20) **Conus pulcher** Lightfoot, 1786 (Catalogue Portland Museum: 179).

**Essential characteristics:** No significant differences with the **pulcher** populations of the African mainland up to Senegal.

**Animal:** Colour cream with chocolate brown spots. Proboscis dark brown.

**Habitat:** From low tide to 15 m depth or even more. In sand, generally half buried.

**Locality:** From Mossamedes Bay to the North.

Not illustrated.

21) **C.sp.**

**Essential characteristics:** Small, slightly pyriform shell. Rounded shoulder, spire moderately elevated. Surface smooth but without gloss. Ground colour creamish white, brownish-orange at shoulder and base. Last whorl covered with spiral lines, composed of small orange-brown dots, Spire whorls with thin axial lines. Inside white.

**Animal:** colour reddish with dark dots and spots.

**Habitat:** 1-3 m, depth, under rocks half buried in sand.

**Locality:** Limagens Bay. Sympatric with *C. obtusus*, *variegatus*, *olivaceus* and *C. sp.*

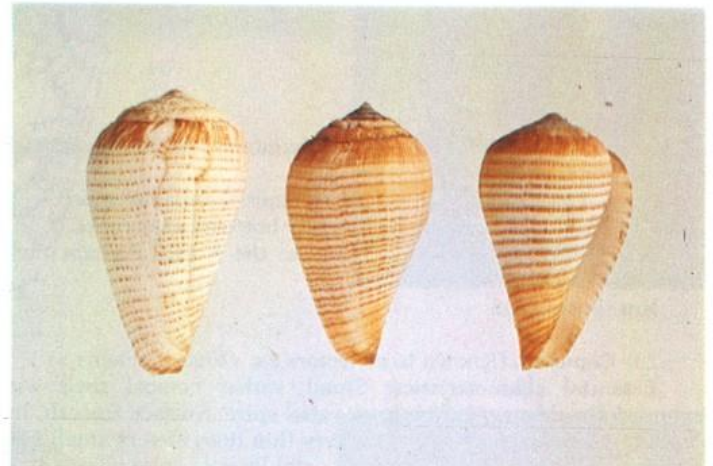
**Size of figured specimens:** 24 mm, 21,5 mm, 20,5 mm.

22) **Conus genuanus** Linnaeus, 1758 (Syst. nat. p. Regna Tria Naturae, ed. 10, 1:714).

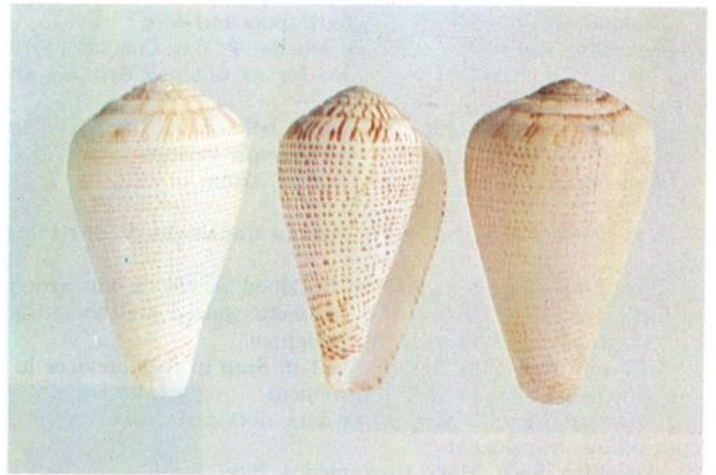
**Essential characteristics:** No significant differences with the



19. *C. olivaceus*

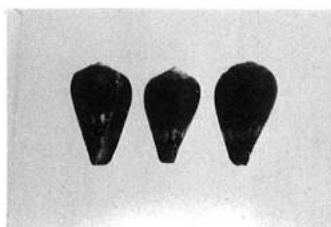


21. *C. sp.*

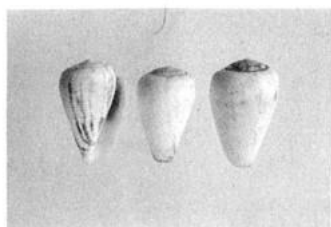


23. *C. lineopunctatus*

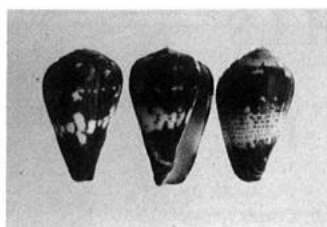




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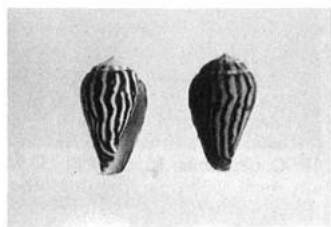
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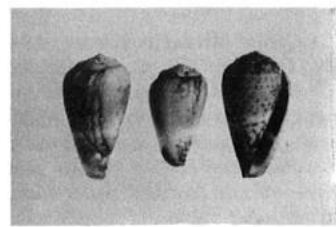
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32



33

*genuanus* populations of the African mainland and the Cape Verde Islands.

**Habitat:** from low tide to 60 m depth — maybe more — in sand-mud bottoms, sometimes in sandy bottoms near rocks.

**Locality:** from Santa Maria Bay to the North. Perhaps more south too).

Not illustrated.

23) *Conus* sp. (Known to collectors as: « *lineopunctatus* »)

**Essential characteristics:** Small, rather conical shell with rounded shoulder and slightly elevated spire. Surface smooth, but without gloss. Colour white with very thin lines of very small light brown dots. Some darker irregular axial lines at spire whorls.

**Habitat:** at very low tide generally in rock crevices buried in sand. Sometimes attached under rocks.

**Animal:** Colour pinkish with dark spots and dots.

**Locality:** Known from Praia Amelia, P. das Conchas, Pipas Bay, Baba Bay, towards North, as far as Chalpeu Armado and probably S. Nicolau.

**Similar species:** Like sp. No. 21 belongs to the *C. bulbosus* complex. Not clear if valid species or a simple variety.

**Specimens figured:** 31,5 mm, 30mm, 32mm.

24) *Conus fuscolineatus* var. (see La Conchiglia N. 152-153 p. 4/5).

**Essential characteristics:** As described in No. 4, but ground colour creamish-white, spiral lines more spaced and sometimes disappear, colour of lines and spots lighter.

**Habitat:** from very low tide to 1 m deep in rock crevices in a very quiet zone, without wave movement.

**Animal:** Colour pinkish with dark dots and spots. Periostracum yellow, translucent.

**Locality:** Saco Mar, Mossamedes Bay. Sympatric with *C. dealbatus* and *Conus* sp.

Specimens figured: mm 19,5, 30, 31,5.

25) *Conus* sp.

**Essential characteristics:** Similar to *C. cepasi* (No. 2, La Conchiglia N. 152-153, p. 4), but more slender and of creamish-white colour. Some are pure yellow.

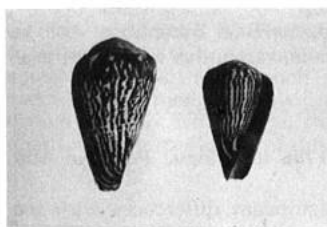
**Habitat:** At very low tide zone buried in sand under large rocks or buried in rock crevices in zones with strong wave movement. Generally found in tidepools with sand and rocks inside.

**Animal:** Colour reddish with dark dots and spots. Periostracum cream and translucent.

**Locality:** Chapeu Armado, Pipas Bay. Sympatric with dwarf *cepasi* and *fuscolineatus*.

**Specimens figured:** 25,5 mm, 27mm.

**Summary:** As the authors mentioned previously (see La Conchiglia N. 156-157, p. 4) this presentation of Conidae from Angola



34



35

accordance with the respective species as they are described originally.

It is probable that some species described from Angola are not valid. On the other hand also species unnamed up to date exist. A lot of work has to be done to clear up all unsolved questions — and the authors intend to do this work in the future. In the meantime each collector has to decide for himself about the validity of a given name.

In order to give an idea of the wealth of different morphological views of Angolan Conidae the authors add some illustrations showing the representatives of *Conus* populations which could be varieties of known species as well as valid species still unnamed. This is only a small sample of the specimens available.

26) 21,5 mm, 21mm, 23,5mm. Chapeu Armado

27) 24,5, 22mm, 24,5 mm Praia d. Conchas

28) 31mm, 33mm, 32mm. Lucira Bay

29) 22,5mm, 22,5mm, 24mm. Mossamedes

30) 31mm, 24mm, 26mm. Benguela.

31) 21mm, 20,5mm. Limagens (Not *C. zebroides!*)

32) 23mm, 22mm, Santa Maria.

33) 22,5mm, 18mm, 23mm, Santa Maria.

34) 27mm, 21mm, Santa Maria

35) 33mm, 23mm, 30mm, (left & center: S. Maria, right Limagens). These are forms of *C. guttatus* (see n. 11 of this series).

**Correction:** In the preface of Part I the authors stated the existence of *C. guinaicus* Hwass in Angola. In fact this species was never recorded in this area.

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