THE CONE COLLECTOR

#24A April 2014

THE CONE COLLECTOR

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On the Cover
***Conus episcopatus* from Maritius. Photo by Eric Le Court de Bilot**

Note from the Editor

Dear friends,

In our last issue we included the first part of a larger work by David Touitou and other authors, under the generic title Cone Snails Regional Iconographies. This first part was about the Cones from Mauritius and Mayotte.

Unfortunately, after publication, David spotted a number of mistakes that needed to be corrected.

It would be rather awkward to make the appropriate changes in the text of TCC # 24, since having two different versions of that issue would probably cause some confusion. So, we decided prepare a Supplement with the corrected articles, which we have labeled TCC # 24A.

I do apologize to the authors for all the confusion involuntarily created. We try our best but sometimes we are so eager to publish a new issue that we just have our guard down for some moments – enough to allow errors to creep in!

In the meantime, issue # 25 is already well advanced and will hopefully be published in the near future. I am happy to inform that David's articles will be continued with new geographical areas being covered. Surely something to look forward to!

Until then, very best wishes,

António Monteiro

Conidae from Mauritius

Eric Le Court de Billot & David Touitou

Thanks for their help to : Felix Lorenz, Loïc Limpalaer, Giancarlo Paganelli, Paul Kersten, Antonio Monteiro, Manuel Tenorio, Bruno Mathé, John K Tucker.

All shells displayed in this article come from Mauritius and come from the collection of Eric Le Court de Billot, except for *Conus julii* kindly shot by Bruno & Paul Mathé.

A. "The *Conus textile* complex"

Here is the list of taxa studied in this work:

Conus textile, Linnaeus 1758
Conus archiepiscopus Hwass in Bruguière, 1792
Conus verriculum Reeve 1843
Conus textile f. scriptus, Sowerby II, 1858
(==> *Conus textile vaulberti*, Lorenz, 2012)
Conus textile f. euetrios var. cyanosus Lauer, Rossiniana 1987
Conus textile vaulberti, Lorenz, 2012

Mauritius offers, like other Indian Ocean localities, surprising variations of *Conus* (*Cylinder*) *textile*, Linnaeus, 1758. Many very different patterns may force collectors to search for specific name of species, forms and/or variations. We have shown these specimens to many expert collectors and malacologists. Actually no real consenus have been established. So we had to make a choice. We will update this page whenever new descriptions will be published. The actual idea is that many localities from Indian ocean offers the species named : *Conus archiepiscopus* Hwass in Bruguière, 1792. This shell is very variable in shape and pattern, and may vary a lot in colors showing sometime real beautiful bleuish specimens.

In the R.K.K. (*Manual of the Living CONIDAE*,1995), the authors mentionned : "*C. archiepiscopus*: Known from different localities within the Indian Ocean. We consider it a form of *C. textile* very similar to form *eutrios*."

Conus archiepiscopus with eggs

Recently (2012), Dr. Lorenz have isolated the St Brandon population and described as *Conus* (*Cylinder*) *textile vaulberti*, Lorenz, 2012. Some specialist think that it shall be treated as a species level (*Conus vaulberti*). This shell was earlier known as *Conus textile f. scriptus*, Sowerby II, 1858.

Some specimens have been also described by Reeve as *Conus verriculum* Reeve 1843. Actually (2013) we choose to illustrate 3 different shells:

St Brandon population of *Conus textile vaulberti*, Lorenz, 2012 (replace the older name *Conus textile f. scriptus*, Sowerby II, 1858)

Conus archiepiscopus Hwass in Bruguière, 1792 and its bleuish variation *Conus archiepiscopus var. cyanosus* Lauer, Rossiniana 1987

Conus archiepiscopus f. verriculum Reeve 1843

[Plate 1]

(*) Dr Felix Lorenz recommend to use "*C. textile*" for this specimen: "I am not sure if that pale slender thing should also be called *archiepiscopus*. I'd call that Indian Ocean *textile*. You probably go more by shape, whereas I tend to follow color pattern. I once had a phD candidate who did DNA on *Conus* and he found that the color pattern much better reflects relationships than shape." He is citing Dr. Christian Melaun (2008), "Phylogenetische und toxinologische Untersuchungen an *Conidae* (*Mollusca*: *Gastropoda*) unter besonderer Berücksichtigung west-atlantischer Vertreter der Gattung *Conus* [Phylogenetic and toxinologic examination of *Conidae* (*Mollusca*: *Gastropoda*) with special consideration of western atlantic members of the genus *Conus*]", 308 pp, *Inaugural Dissertation Justus-Liebig Universität Giessen*, Germany.

Discussion about the locally know variation of *Conus archiepiscopus* / *Conus texile*: *Conus archiepiscopus f. verriculum* (known as *Conus texile f. verriculum*) by David Touitou.

Many collectors are pretty sure this to be a real subspecies or form of *Conus archiepiscopus* / *Conus texile*. Personnally, with my field experience, I would better recommand to name it as a local variation, due to a variation of feeding habits or due to a variation of habitat. Well, in the *Conus textile* group, *Conus textile* and related species such as *Conus canonicus* may often reveal such patterns worldwide. Let me show you several examples:

[Plate 2]

B. Other species

[Plates 3-6]

C. Data on habitat, size, rarity & forms (By Eric Le Court de Billot)

Rarity: VC (Very Common) C (common)
UC (Uncommon) R (Rare) VR (Very Rare) E (Exceptionnal)
Depth: IT (Intertidal 0-5m) SW (Shallow water 5-10m) MDW (Moderately Deep water 10-30m) DW (Deep Water 30m-60m) VDW (Very Deep Water 60-100m) DR (Dredged >100m) F(Only found in Fishes stomach)

Size: average adult size, in mm (millimeters)

Habitat: L (Lagoon) R (Reef) LP (Lagoon Pinnacles) OL (Outer Slope) S (Shore reef)

Areas: SANDY-LIVE CORAL-CORAL DEBRIS-ROCKY-WEEDY-MUDDY-HARD REEF

Name	Size	Rarity	Depth	Habitat/Areas	Comments
capitaneus	40/80	C	IT	L/Coral debris/Weedy	
catus	25/40	C	IT	L/Coral debris	Very often between 0 and 1m
chaldaeus	20/35	VC	IT	L/Coral debris/Weedy	
circumactus	30/65	R	IT to MDW	OL/Coral debris/Muddy	Only small one live at 30 m
coffeae	21/33	VR	IT	L	Three dead
coronatus	20/33	C	IT	L/Coral debris/Weedy	
aureus	30/48	VR	DW	OL	Only three dead
distans	40/110	C	IT/MDW	OL/Coral debris/Muddy	Small deep, big ones shallow water
ebraeus	20/50	C	IT	L/Coral debris/Weedy	
episcopatus	50/80	UC	IT	L/Coral debris/Sandy	
flavidus	30/50	C	IT	L/Coral debris/Weedy	
frigidus	30/65	C	IT	L/Coral debris/Weedy	
geographus	80/140	UC	IT	OL/Coral debris/Muddy	
glans	22/30	R	IT	L	Three dead
leehmani	80/108	VR	IT	L/Sandy/Rocky	
legatus	27/55	VR	MDW	OL/Coral debris	
gubernator	35, 40	E	IT	L/Sandy/Coral debris	Only two small live
imperialis compactus	51	E	IT	R/Coral debris Only one live	
fuscatus	30/65	C	IT	L/Coral debris/Weedy	
janus	50/70	UC	MDW/DW	OL/Sandy	
lecourtorum	10/16	VR	IT	L	Only dead
leopardus	60/160	C	IT	L/Sandy/Weedy	
litoglyphus	30/63	UC	IT/SW	L/OL/Rocky/Muddy	
litteratus	50/110	UC	IT	OL/Sandy	
lividus	35/70	VC	IT	L/Coral debris	
maldivus	45/75	UC	IT	L/Sandy/Weedy	
miles	35/60	C	IT/MDW	L/OL/Coral debris	
miliaris	20/35	C	IT	L/Coral debris	
moreleti	25/45	R	IT/MDW	OL/Rocky/Muddy	
namocanus	35/85	UC	IT	L/Muddy/Weedy	
nanus	12/20	C	IT	OL/Rocky/Muddy	
nussatella	40/70	C	IT	L/Coral debris	
obscurus	25/35	R	IT	OL/Coral debris	
parvatus	12/22	VC	IT	L/Coral debris	
paulucciae	75	VR	MDW	OL	Only one dead
pennaceus episcopus	30/60	C	IT	L/Sandy/Rocky	
pennaceus episcopus	45/55	UC	IT	L/Sandy/Rocky	(Rodrigues)
pennaceus rubiginosus	35/55	VR	IT	L/Muddy/Coral debris	
pertusus	27/45	UC	MDW	OL/Rocky/Weedy	
pulicarius	35/60	UC	IT	L/Sandy	
quercinus	30/90	VC	IT	L/Sandt/Weedy	

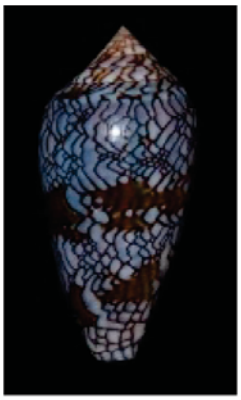
Name	Size	Rarity	Depth	Habitat/Areas	Comments
rattus	30/60	C	IT	L/R/Rocky/Weedy	Most of the time on top of coral
retifer	25/42	VR	MDW	OL/Coral debris	
sanguinolentus	25/60	C	IT	L/Coral debris	
sponsalis	15/24	VC	IT	L/Coral debris	Often shallow water
striatellus	32/62	R	IT to MDW	OL/Coral debris/Muddy	Just small one live at 30 m
striatus	50/95	C	IT to MDW	L/OL/Coral debris	
tenuistriatus	20/40	R	IT	L/Coral debris	
terebra	30/80	UC	IT	L/Coral debris	
tessulatus	30/65	VC	IT/MDW	L/OL/Sandy/Weedy	Small deep, big ones shallow water
timorensis	30/45	R	IT	L/Coral debris/Sandy	St Brandon
tulipa	50/80	C	IT	L/Coral debris	
varius	25/45	UC	IT	L/Coral debris	
vaulberti	40/65	R	IT	L/Coral debris/Sandy	St Brandon only
vexillum	45/135	UC	IT	OL/Coral debris	
violaceous	45/65	R	IT	L/Coral debris	
virgo	40/130	C	IT	L/Sandy/Weedy	
zeylanicus	25/55	R	IT	L/Sandy/Weedy	
textile verriculum	35/73	C	IT	L/Sandy/Rocky	
archiepiscopus	35/55	R	IT	L/Coral debris	
textile textile	40/75	VC	IT	L/Coral debris	
omaria convolutus	40/60	VR	IT	L/Sandy/Rocky	

Plate 1

C. archiepiscopus

C. archiepiscopus

C. archiepiscopus f. *cyanosus*



C. archiepiscopus f. *cyanosus*

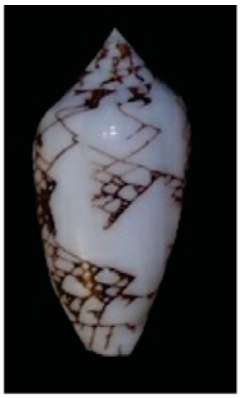
C. archiepiscopus

C. archiepiscopus

C. archiepiscopus (*)

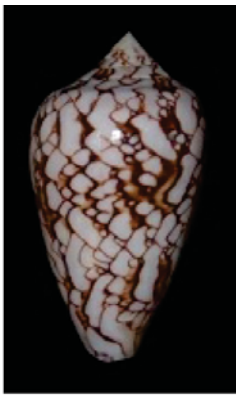
C. textile vaulberti (St Brandon island)

C. textile vaulberti (St Brandon island)



C. textile vaulberti (St Brandon island)

C. archiepiscopus f. *verriculum*



C. archiepiscopus f. *verriculum*

Plate 2

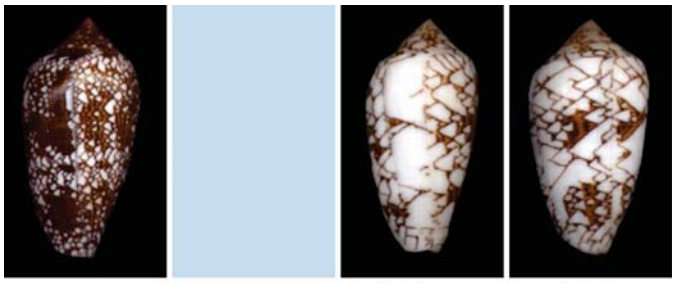
Mauritius island : ***Conus archiepiscopus***

C. archiepiscopus | Variation | Variation

St Brandon island : ***Conus textile vaulberti***

C. textile vaulberti | Variation | Variation

French Polynesia (Pacific Ocean) : ***Conus textile textile***

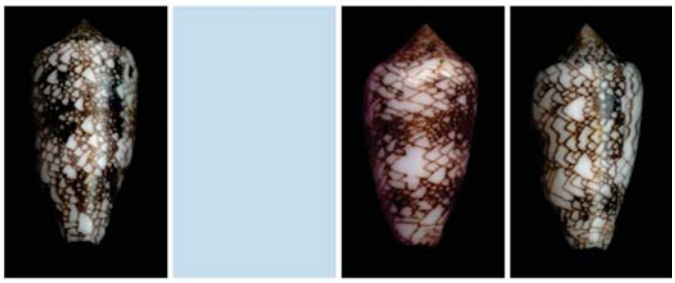


C. textile textile (Moorea) | Variation (Tuamotu : Hao Atoll) | Variation (Tuamotu : Hao Atoll)

French Polynesia (Pacific Ocean) : ***Conus canonicus***

C. canonicus (Tuamotu : Makemo Atoll) | Variation (Tuamotu : Makemo Atoll)

Seychelles (Indian Ocean) : ***Conus canonicus***



C. canonicus | *Variation* | Variation

Plate 3

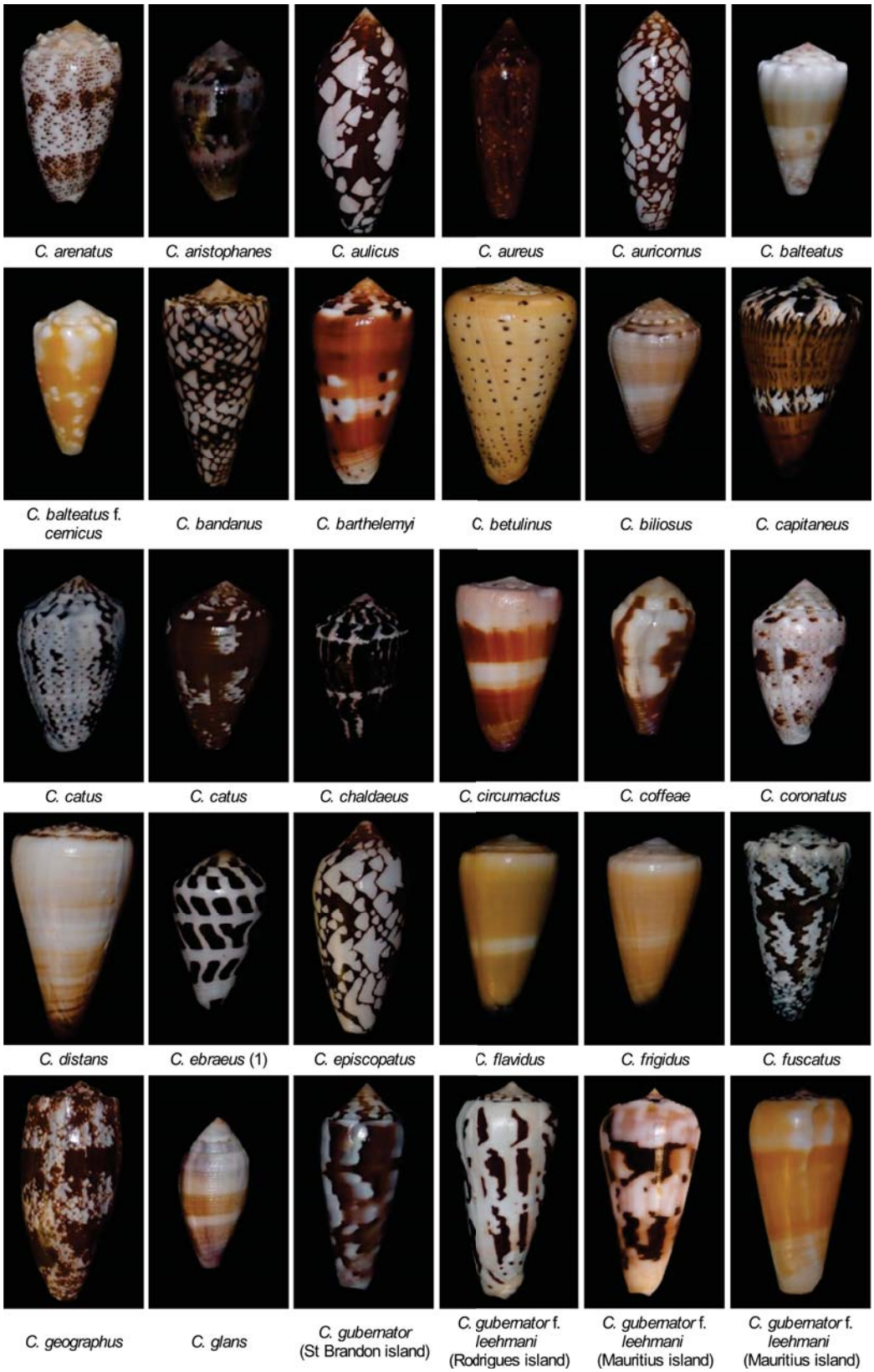
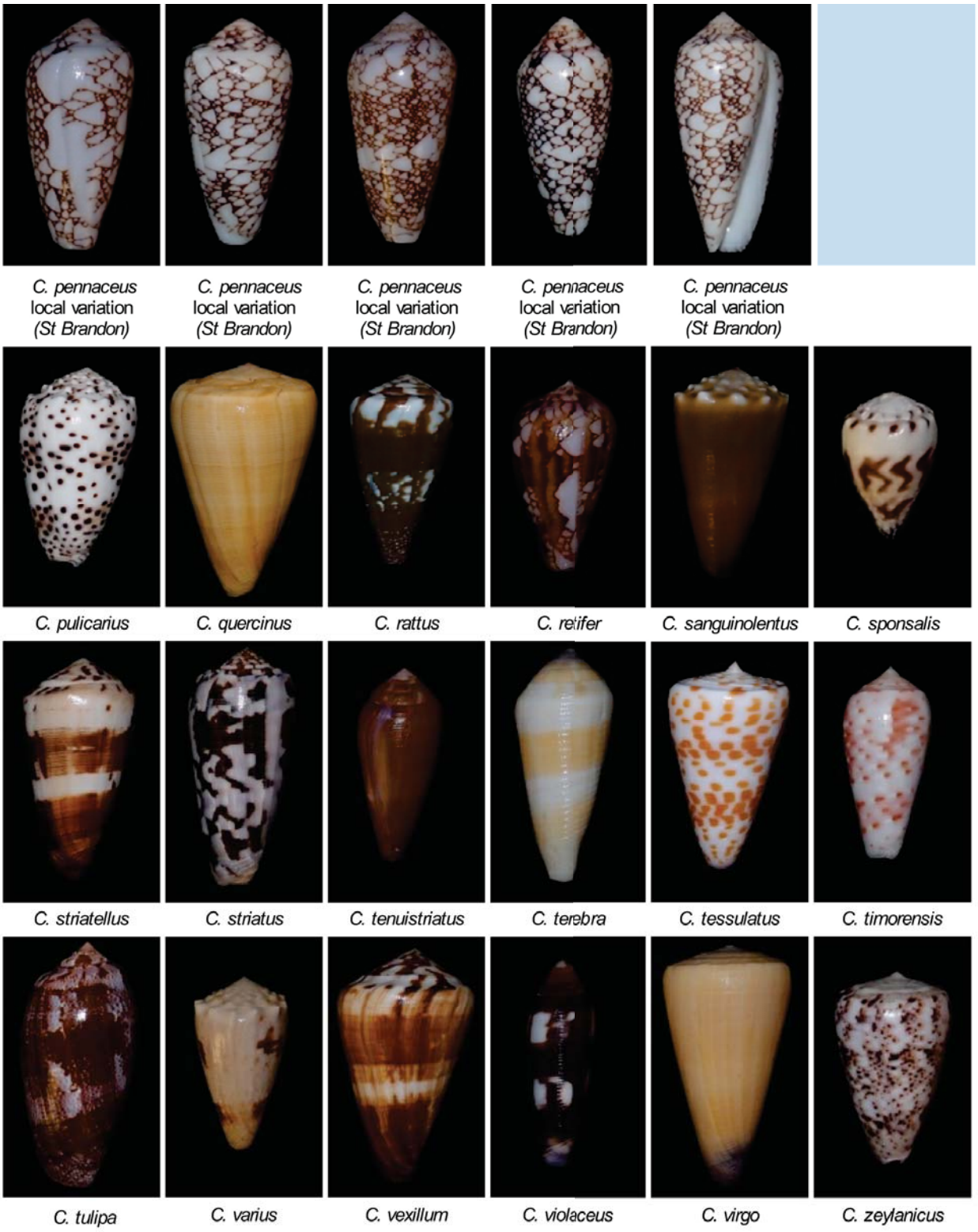

C. arenatus
C. aristophanes
C. aulicus
C. aureus
C. auricomus
C. balteatus
C. balteatus f. cernicus
C. bandanus
C. barthelemyi
C. betulinus
C. biliosus
C. capitaneus
C. catus
C. catus
C. chaldaeus
C. circumactus
C. coffeae
C. coronatus
C. distans
C. ebraeus (1)
C. episcopatus
C. flavidus
C. frigidus
C. fuscatus
C. geographus
C. glans
C. gubernator (St Brandon island)
C. gubernator f. leehmani (Rodrigues island)
C. gubernator f. leehmani (Mauritius island)
C. gubernator f. leehmani (Mauritius island)

Plate 4


C. janus
C. julii
C. julii
C. imperialis f. compactus
C. lecourtorum (St Brandon)
C. legatus
C. leopardus
C. litoglyphus
C. litteratus
C. lividus
C. maldivus
C. maldivus
C. maldivus
C. maldivus
C. miles
C. miliaris
C. moreleti
C. namocanus
C. nanus
C. nussatella
C. obscurus
C. paulucciae
C. parvatus
C. pertusus
C. pertusus
C. pennaceus f. rubiginosus
C. pennaceus f. rubiginosus
C. pennaceus f. rubiginosus
C. pennaceus episcopus
C. pennaceus episcopus

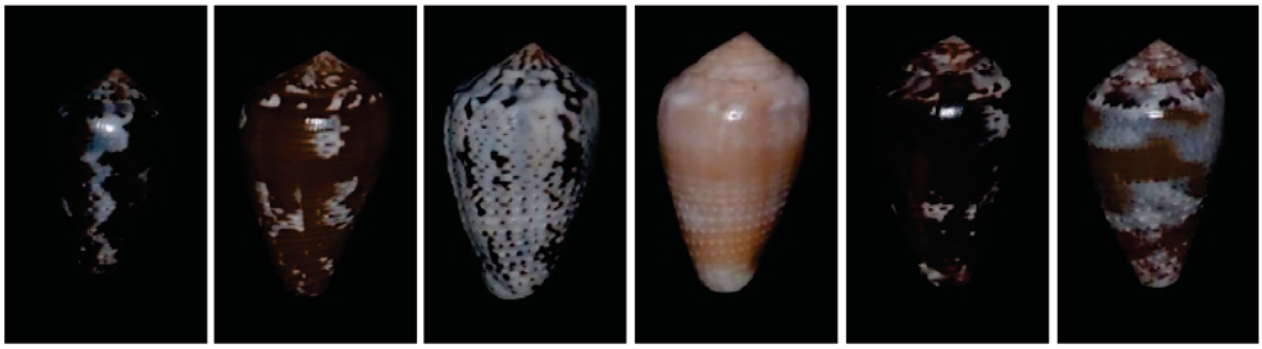
Plate 5



(1) *Conus ebraeus* have now a know criptic specie named as *Conus judaeus* and is very difficult to distinguish without radular studies. The specimen shown could be related to both species.

Plate 6

Variations of *Conus catus* from Mauritius : as usual this is a very variable species. It would have taken too much cases to display all local variations. Here are some of the variations you may find there :



C. catus *C. catus* *C. catus* *C. catus* *C. catus* *C. catus*

D. Some species from Agalega Island found by Eric Le Court de Billot

C. arenatus *C. catus* *C. coronatus* *C. ebraeus* *C. gubernator* f. *leehmani* *C. imperialis*

C. miliaris *C. parvatus* *C. pulicarius* *C. rattus* *C. sponsalis* *C. tenuistriatus*

Conus archiepiscopus with eggs

Conus archiepiscopus with eggs

Conus aulicus

Conus catus with eggs

Conus catus with eggs

Conus chaldeus with eggs

Conus episcopatus

Conus fuscatus with eggs

Conus gubernator

Conus litoglyphus

Conus namocanus

Conus pennaceus rubiginosus

Conus pertusus

Conus timorensis

Conus violaceus

Conus violaceus

Conidae from Mayotte

Norbert Verneau, Matthias Deuss
& David Touitou

Much more information may be found in the recent book *Mollusques de Mayotte*, by Matthias Deuss, George Richard & Norbert Verneau (2013).

A. Iconography (PLATE 2)

All shells displayed in this article come from Mayotte and were found by the authors, except *Conus barthelemyi* from Jean-Pierre Arnaud.

B. Data on Habitat, Size, Rarity & Forms (By Norbert Verneau) (PLATE 1)

Rarity: VC (Very Common) C (common) UC (Uncommon) R (Rare) VR (Very Rare) E (Exceptionnal)
Depth: IT (Intertidal 0-5m) SW (Shallow water 5-10m) MDW (Moderately Deep water 10-30m) DW (Deep Water 30m-60m) VDW (Very Deep Water 60-100m) DR (Dredged >100m) F (Only found in Fishes stomach)
Size: average adult size, in mm (millimeters)
Habitat: L (Lagoon) R (Reef) LP (Lagoon Pinnacles) OL (Outer Slope) S (Shore reef)
Areas: SANDY-LIVE CORAL-CORAL DEBRIS-ROCKY-WEEDY-MUDDY-HARD REEF

The work has been made by Norbert Verneau, photos of live animals are also by Norbert.

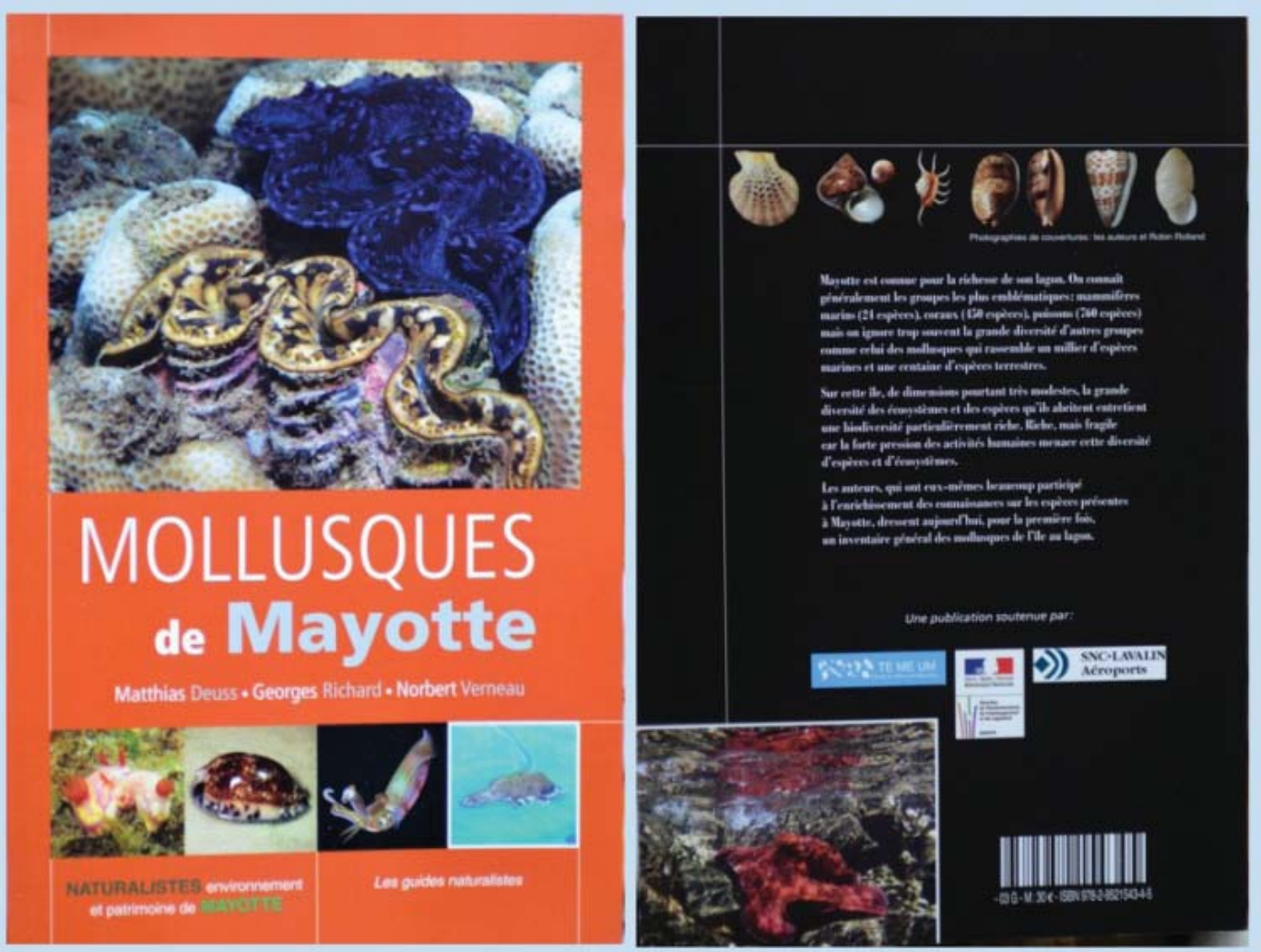


Plate 1

Name	Size	Rarity	Depth	Habitat/Areas	Comments
achatinus	60	VR	SW	LR/Sandy	Only one
acutangulus	21	E	MDW	OL/Sandy	Only two, dead
archiepiscopus	50/54	E	Unkown	Unknown	
arenatus bizona	30/52	VC	IT/SW	L/Sandy, weedy	
aristophanes	20/28	UC	IT	R, SR/Rocky, hard reef	
augur	50/82	UC	IT	L/Sandy, weedy	
aulicus	53/101	VR	IT/SW	R/Sandy	
auricomus	30/35	VR	SW	R/Sandy	
balteatus	29	VR	IT	R/Coral Debris	
bandanus	20/70	UC	IT/SW	L, R/Sandy, weedy	
barthelemyi	55	E	DW	OL/Sandy	Only one, live
betulinus	35/100	C	IT	L,R/Sandy, muddy	
canonicus	30/60	C	IT/SW/MDW	L,R,SR/Sandy, coral debris	
capitaneus	36/63	C	IT/SW/MDW	L,R,SR,LP,OL/Life coral, cor debris, hard reef	
catus	25/35	UC	IT/SW	L,R,SR/Sandy, coral debris	
ceylanensis	10/20	VC	IT	R,SR/Live coral, rocky, hard reef	
chaldaeus	25/33	UC	IT	R,SR/Rocky	
connectens	40/50	R	IT/SW	L,R,SR/Sandy, coral debris	
consors	25/71	VR	IT	L/Sandy, muddy	
convolutus	40/55	R	IT	L,SR/Sandy, weedy	
corallinus	18/24	VR	SW/MDW/DW	R,OL	
coronatus	20/33	VC	IT	R,SR/Rocky, hard reef	
cylindraceus	24	R	IT	R	
distans	30/82	C	IT/SW/MDW	R,SR,LP/Live coral, coral debris, hard reef	
ebraeus	5/39	VC	IT	R,SR/Rocky, hard reef	
episcopatus	30/70	UC	IT	L,R,SR/Sandy, coral debris	
figulinus	48	E	Unknown	Unknown	Only one, dead
flavidus	30/52	VC	IT/SW	L,R,SR/Sandy, weedy, rocky	
frigidus	40/42	R	IT/SW	L,SR/Sandy, weedy, rocky	
fuscatus	20/64	C	IT/SW	L,R,SR/Coral debris, sandy weedy, hard reef	
geographus	62/107	R	IT	L,R,SR/Sandy, live coral	
gubernator	48/57	VR	IT	R/Sandy	
imperialis compactus	60/75	R	SW/MDW	L/Sandy, weedy	
judaeus	5/33	C	IT	R,SR/Rocky, hard reef	
legatus	35/40	E	MDW/DW	OL/Sandy	
leopardus	50/144	VC	IT/SW/MDW	L,SR,R/Sandy, muddy, weedy	
litteratus	35/48	C	IT/SW/MDW	L,R,SR,OL/Coral debris, live coral, hard reef	
litoglyphus	50/90	C	IT/SW	L,R,SR/Sandy, weedy	
lividus	28/50	VC	IT/SW/MDW	L,SR,R,LP/Sandy, coral debris, muddy, weedy, hard reef, rocky	
maldivus	35/70	C	IT/SW	L,R,SR/Sandy, coral debris, muddy, weedy	
miles	30/63	C	IT/SW	R,SR/Live coral, coral debris, hard reef	

Name	Size	Rarity	Depth	Habitat/Areas	Comments
miliaris	18/32	VC	IT/SW	L,R,SR/Rocky, hard reef	
mitratus	20/28	VR	IT	R/Sandy	
moreleti	30/36	UC	IT	L,SR/Coral debris, sandy, weedy, hard reef	
muriculatus	30	E	IT/SW	L/Sandy	
namocanus	25/51	C	IT/SW	L,SR/Coral debris, muddy	
nanus	10/21	VC	IT/SW/MDW	L,SR,R/Coral debris, live coral, hard reef	
nucleus	22	E	SW	OL/Sandy	
nussatella	30/58	UC	IT/W	L,R,SR/Coral debris	
obscurus	29/32	VR	SW	R,SR/Coral debris, live coral, hard reef	
parvatus	10/23	VC	IT	L,R,SR/Rocky, hard reef	
parvulus	30	E	SW	R/Hard reef	
paulucciae	40/53	VR	IT		
pennaceus	50	E	Unknown	Unknown	
pertusus	20/47	R	MDW/DW	OL/Coral debris, live coral	
pulicarius	12/36	VR	SW/MDW	L/Sandy	
quercinus	30/80	C	IT/SW/MDW	L/Sandy, muddy	
rattus	30/41	C	IT/SW/MDW	L,R,SR/Coral debris, live coral, hard reef	
retifer	29/35	E	IT	R/Unknown	
sanguinolentus	40/54	UC	IT/SW	L,R,SR/Sandy, muddy, weedy	
sponsalis	5/21	UC	IT	L,R,SR/Muddy, rocky	
striatellus	20/57	C	IT/SW/MDW	L,R,SR,OL/Coral debris, live coral, hard reef	
striatus	26/76	VC	IT/SW	L,R,SR/Sandy, muddy	
sugillatus	20/35	C	IT/SW	L,R,SR/Sandy, muddy, weedy	
tenuistriatus	20/35	VR	IT/SW	R,SR/Coral debris	
terebra	45/68	UC	IT/SW/MDW	R,SR/Coral debris, hard reef	
tessulatus	20/59	VC	IT/SW/MDW	L/Sandy, muddy	
tulipa	20/58	UC	IT	L,R,SR/Sandy, muddy	
varius	16/38	C	IT/SW	L,R,SR/Sandy, muddy, weedy, coral debris	
vexillum	16/96	C	IT/MDW	R,SR,LP/Live coral, sandy	
violaceus	39/58	R	IT/SW/MDW	R,SR/Coral debris	
virgo	50/84	VC	IT/SW/MDW	L,R,SR/Sandy, muddy, weedy	
zeylanicus	15/32	UC	IT/SW	L,R/Sandy	
sp. aff. sapphirostoma	17/18	E	IT	SR,LP/Coral debris	

Plate 2


C. achatinus


C. acutangulus


C. archiepiscopus


C. arenatus


C. aristophanes

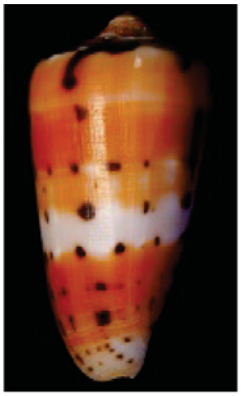

C. augur


C. aulicus


C. auricomus

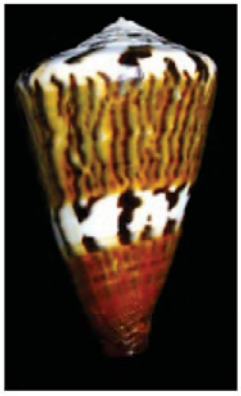

C. balteatus


C. bandanus


C. barthelemyi


C. betulinus

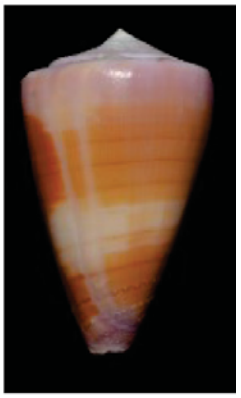

C. canonicus


C. capitaneus


C. catus


C. ceylanensis


C. chaldeus


C. circumactus


C. consors

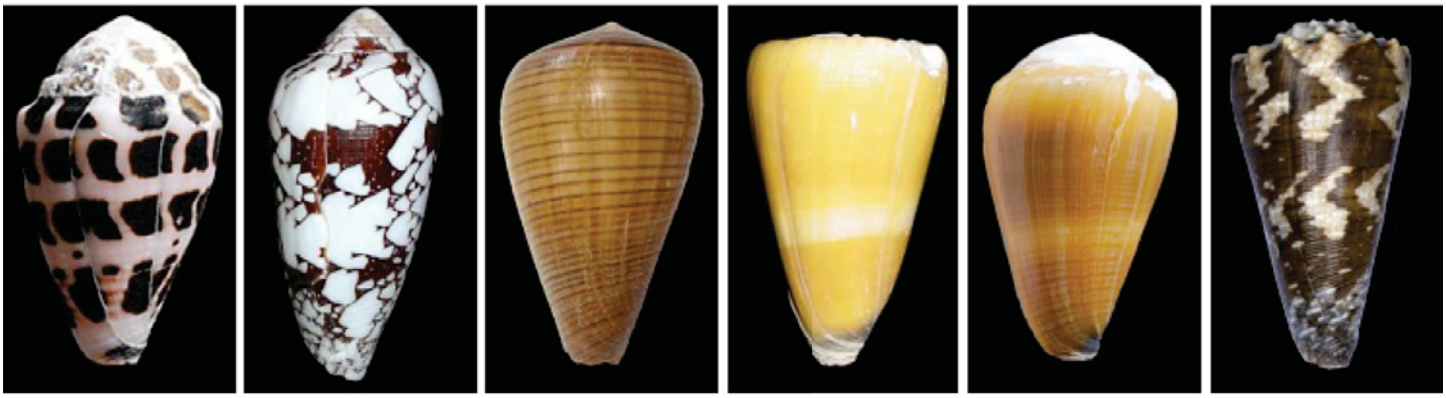

C. convolutus


C. corallinus


C. coronatus

C. cylindraceus

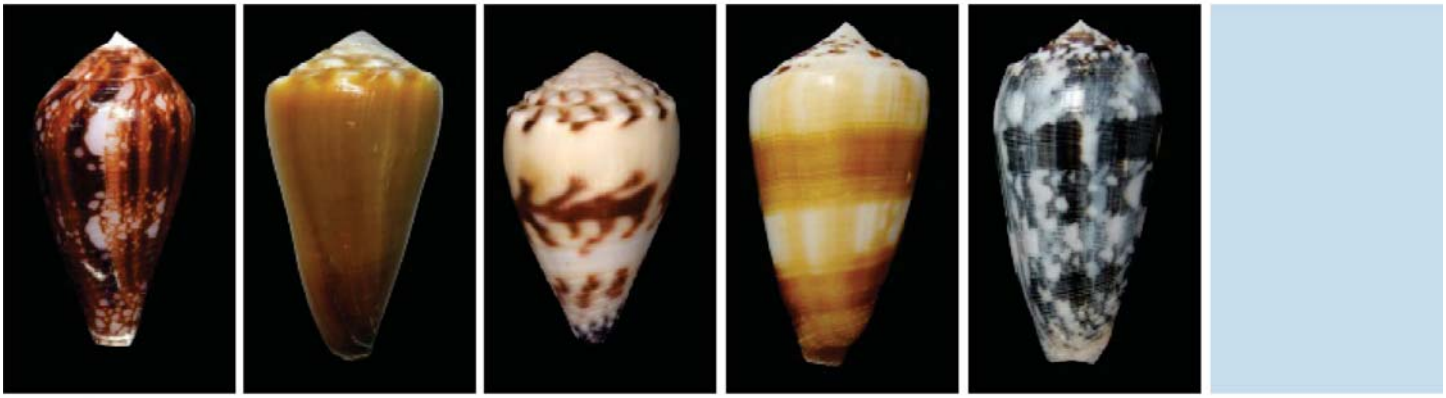

C. distans



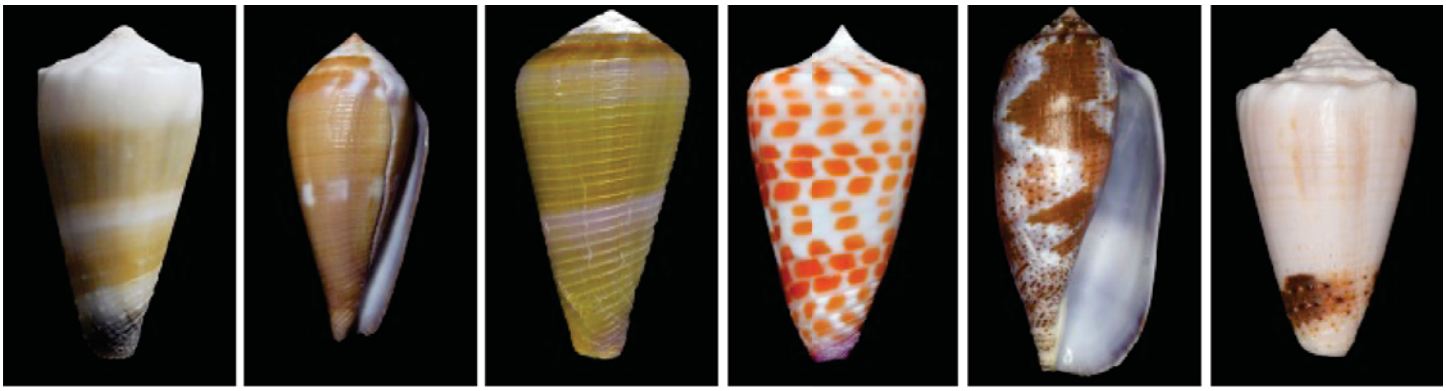
C. ebraeus | C. episcopatus | C. figulinus | C. flavidus | C. frigidus | C. fuscatus

C. geographus | C. gubernator | C. imperialis | C. judaeus | C. legatus | C. leopardus

C. litteratus | C. litoglyphus | C. lividus | C. maldivus | C. miles | C. miliaris



C. retifer | C. sanguinolentus | C. sponsalis | C. striatellus | C. striatus



C. sugillatus *C. tenuistriatus* *C. terebra* *C. tessulatus* *C. tulipa* *C. varius*

C. vexillum *C. violaceus* *C. virgo* *C. zeylanicus* *C. sp. aff. sapphirostoma*

(1) Comment from John K Tucker : The specimen that you identify as *C. sp. aff. sapphirostoma*, looks like *Pionoconus atimovatae* Bozzetti, 2012. Described from Madagascar. Bozzetti's specimen is probably a juvenile *P. achatinus*. Yours could be an *achatinus* or even possibly a juvenile *P. barthelemyi*. I attach an image of the *atimovatae* holotype. The specimen in 21.4 mm long.

Photo credit : Mr Bozzetti.

EDIT(05/january/2014): John K Tucker is right, Norbert have found this month another small shell that should be a young *Corus achatinus* and makes the link between our *C. sp. aff. sapphirostoma*. See image below :

Conus betulinus

Conus consors

Conus convolutus

Conus geographus

Conus maldivus

Conus striatellus

Conus paulucciae

Conus paulucciae

Conus zeylanicus

We hope to see your article in the next TCC!