



*THE
CONE
COLLECTOR*

#27 August 2015



THE
CONE
COLLECTOR

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On the Cover

Trovaconus venulatus (Hwass
in Bruguière, 1792) with egg
capsules. BoaVista Island,
Cape Verde Islands
Photo by Carlos Afonso (2009)

*Note from
the Editor*

Dear friends,

It has been rather a long time since the publication of the last issue of The Cone Collector. Sometimes, a pause is needed before things get going full power ahead again. I trust that you will find the wait worthwhile, as we present you a new issue of TCC, packed with news and articles of interest to Cone collectors.

The Who's Who section this time presents us Remy Devorsine, a very active collector and a good friend.

You will find articles by some of the usual culprits and a large number of notes, photos and nice articles. On the sad side, we were forced to include in this issue an obituary section, which is of course something we never really want to do.

You will also notice a vast change in format in the New Publications section, which is now a more direct interface to a number of Internet sites and services.

Last but not least, there is some confirmation of the locality chosen for the 4th International Cone Meeting, to be held next place. Read all about it!

I must of course thank all the authors who prepared articles for this number of TCC and once again congratulate my good friend André Poremski for the outstanding graphic presentation of our magazine.

I hope that you will all enjoy it.

António Monteiro

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Who's Who in Cones

Remy Devorsine

I am Remy DEVORSINE, retired, cone collector.

I was born in New Caledonia in 1953 where I lived until 1985. In 1985 I had the opportunity to migrate to Australia so I did!

My interest for Sea Shells began when I was a kid mainly at the beginning for cypraea because they were shiny I guess! My interest for conus came later when one of the locals got a fatal sting from a *Conus geographus*... A deadly shell! How intriguing that was for a kid. My passion for cones was born.

Today my collection contain close to 2600 specimens, my criteria for a shell must be its beauty and quality first, rarity and size not a priority criteria.

I presently live in New South Wales on the Central Coast in a place call Avoca Beach. I am a member of the Sydney Shell Club.

My favourite cone in my collection is *Conus goudeyi* (below).



Obituary

Dieter Röckel (1922-2015)

We must sadly inform of the recent passing away of Dr. Dieter Röckel, a well-known German malacologist and Cone specialist.

He authored a very large number of papers, in different publications and also two important books:

Cone Shells from Cape Verde Islands – a difficult puzzle (with Emilio Rolán and António Monteiro)(1980, private publication, 156 pp., 8 colour plates)

Manual of the Living Conidae. Vol. 1: Indo-Pacific Region (with Werner Korn and Alan J. Kohn)(1995, Verlag C. Hemmen, Germany. 517 pp., 84 colour plates)

Dieter described several Cone species and his name was honoured in *Africonus roeckeli* (Rolán, 1980) and *Bathyconus dieteri* (Moolenbeek, Zandbergen & Bouchet, 2008).



Graham Delano Saunders (1944-2015)

Another good old friend has left us recently.

Graham Saunders was one of the pioneers of the modern study of Cape Verde Cones and as a result of his contributions to the knowledge of the local fauna, *Africonus grahami* (Röckel, von Cosel & Burnay, 1980) was named after him.

He was well known in British malacological circles and in 1979 published the *Spotter's Guide to Shells* (Mayflower Books, NY. 64 pp, 200 color illus.).



Intruders on a Plate

Manuel J. Tenorio

Some time ago I received with joy my copy of the recent Alan Kohn's book "*Conus*" of the *Southeastern United States and Caribbean*. A much needed source of information about cone snails of the Caribbean region, even when one may disagree in some aspects with the treatment given to the different taxa covered by the book. I was happily browsing the beautifully illustrated plates of the book when something caught my attention. It was the presence of a couple of odd specimens represented in Plate 15 of the book (page 101, see http://press.princeton.edu/birds/kohn/c_puncticulatus640b.png), which shows individuals of the taxon *Perplexiconus puncticulatus columba* (Hwass in Bruguière, 1792) and the lectotype of *Conus mauritianus* Hwass in Bruguière, 1792 (considered a synonym of *P. puncticulatus*).

The individuals pictured in figures 9 to 11, and 12 to 14 looked very strange to me. Certainly, they did not look as typical *P. puncticulatus columba*. Looking at the caption, the two specimens had registration numbers from the Muséum Nationale d'Histoire Naturelle (MNHN, Paris). I went immediately to the MNHN online database (excellent research tool!: <https://science.mnhn.fr/institution/mnhn/collection/im/search/>) and searched for the specimens in question with no success.

Apparently, the two specimens were not databased. I contacted Alan Kohn on the subject. He immediately sent me a kind reply regarding the story of the specimens. Those specimens, and all the information about them, came from Mr. Rudo von Cosel, from MNHN. They were in his possession in the MNHN, and he provided Alan with accurate locality data which were included in the caption for the plate. Both specimens were collected dead off French Guyana by the research vessel "Antéa" in 1999 at a depth of 70 m. The specimen pictured in Kohn(2014), Pl. 15, figs. 9-11 was collected in a shrimp trawl, and the one pictured in the same plate, figs. 12-14, in a small dredge.

All this information suggests that the locality data were very reliable. Knowing this information, I contacted

then the staff at MNHN. Virginie Héros and Nico Puillandre were, as always, very helpful, and with the information provided they were able to locate the specimens in question. When I went to Paris in March this year for attending the International Shell Show, I visited the MNHN Malacology Department. I was finally able to examine in my hand the alleged specimens of *P. puncticulatus columba*. Furthermore, Dr. Manuel Caballer took excellent photos of the specimens, which illustrate the present article (Figs. 1A-C, 2A-C).

Upon examination, I immediately confirmed my suspects about the likely misidentification. The shells lacked the typical anterior notch present in individuals of genus *Perplexiconus* Tucker & Tenorio, 2009. On the other hand, the reasonably well-preserved paucispiral protoconch was very large and flattened (Figs. 1C, 2C), very different from the small pointed paucispiral protoconch characteristic of *Perplexiconus* species. Furthermore, the strong spiral cords present on the sutural ramp of these specimens did not match any known *Perplexiconus*, which may exhibit arcuate radial threads on the sutural ramp, but with cords always absent (Tucker & Tenorio, 2009). The locality where these specimens were collected (off French Guyana) was off the expected range for *P. puncticulatus columba*, as it was also the depth (70 m), although we must bear in mind that the specimens were found dead.

A re-examination of the conchological features of these specimens took me finally to identify them as individuals of *Artemidiconus selenae* (Van Mol, Tursch & Kempf, 1967), a taxon usually associated with the Northern Brazilian cone fauna. According to the original description, *A. selenae* measures between 10 and 20 mm. Most specimens in collections come from Ceará state, Brazil. The two specimens in consideration measure 20 and 16 mm in length respectively, so they can be considered larger than average. In fact one of them is close to the World Record Size of 22 mm for the species. Plotting on the map the corresponding

coordinates off French Guyana for these specimens, we can see that this finding actually represents a range extension for the taxon *A. selenae*, and the first record for the species out of Brazil as far as I know, although we must remember that the specimens were collected dead. The unusually large size of these specimens as well as the locality made possible their misidentification as *Perplexiconus puncticulatus columba*. It is very likely that these individuals are representatives of an extreme northern population of *A. selenae*, which possibly attains shell sizes larger than average (i.e. “giant” *selenae*). The pattern of these shells is sparse, but consistent with the variability expected for *A. selenae*.

The alternative would be to consider these specimens as representatives of a new, yet undescribed *Artemidiconus* species. However the limited amount of material available and the lack of live-collected specimens prevents the realisation of more thorough studies to provide support for this hypothesis. If the MNHN continues carrying out dredgings along the coast of French Guyana (like during the recent survey GUYANE 2014 aboard the vessel “Hermano Gines”), it is likely that sooner or later living individuals of this remarkable population of *A. selenae* will show up. If so, fresh material will be available for molecular work, and many questions about the taxonomic status of genus *Artemidiconus* da Motta, 1991 might be answered.

Acknowledgements

I would like to thank Dr. Alan Kohn for his availability and all the information kindly provided about the issue of the specimens on plate 14 of his book; to the staff of the Malacology Department at the MNHN-Paris: Nico Puillandre, Virginie Héros and Rudo von Cosel for their invaluable and continuing assistance with my research on this and other projects; very special thanks to Dr. Manuel Caballer for taking the excellent photographs which illustrate the present article, with the support of project E-RECOLNAT: ANR-11-INBS-0004, MNHN.





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Captions

Fig. 1. MNHN IM-2009-13014, 19.65 mm, off French Guyana, 5°06.3'N, 51°43.7'W, 70 m depth. (A) ventral view. (B) dorsal view. (C) close-up of the spire.

Fig. 2. MNHN IM-2009-13015, 16.10 mm, off French Guyana, 5°06.3'N, 51°10.7'W, 70 m depth. (A) ventral view. (B) dorsal view. (C) close-up of the spire.

Photos: Manuel Caballer, MNHN

On the Description of New Taxa

António Monteiro, Emilio Rolán, Manuel J. Tenorio, Carlos Afonso, Gonçalo D. Rosa

The natural world around us being an extremely complex system, it is little wonder that mankind has long strived to see some order in it, in view of a better understand of its complex relationships, especially since evolution has been widely accepted as the dynamic process conducive to biodiversity. But even much before that, systematics aimed at describing and naming living organisms, in order to form a clear picture of the structure of life on our planet. Identifying separate biological units – eventually providing keys for their diagnosis – studying their distribution and naming the defined units in a hierarchical system is the goal of taxonomy.

Obviously, many different ways of achieving such objective could be devised and it was soon apparent that a universally accepted method and a clearly established set of rules for classification would be required to make the whole system coherent and stable. As is well known, this was achieved through the efforts of the Swedish scholar Carl Linnaeus (1707-1708), his binomial nomenclature for animals having been widely accepted since the publication of the 10th edition of his *Systema Naturae*, in 1758.



Carl Linnaeus (1707-1708)

The rules for the naming of animals are consigned in the International Code of Zoological Nomenclature, the first edition of which dates back to 1961. The present version of the Code, in use since the year 2000, is actually the 4th edition; some of its latest amendments – and it should be noticed that successive amendments may be introduced without the actual publishing of a new edition of the Code – refer to the acceptance of electronic publications for taxonomic purposes.

Although the rules established by the ICZN are often quite detailed and strict, the type of publication allowed for consideration under such rules is somewhat surprisingly vague.

The criteria of acceptance are specified in Article 8 of the Code. In a nutshell, the publication “must be issued for the purpose of providing a public and permanent scientific record” (8.1.1.), “must be obtainable [...] free of charge or by purchase” (8.1.2.) and “must have been produced in an edition containing simultaneously obtainable copies by a method that assures numerous identical and durable copies [8.1.3.1.] or widely accessible electronic copies with fixed content and layout [8.1.3.2.]”.

Some provisions that could perhaps be expected to appear are notoriously absent from the list of requirements. There is absolutely no restriction when it comes to language used (it would obviously be considered discriminatory to allow only a specified number of possibilities) or to physical format (meaning that anything from book form to loose-leaf or even card format counts); there is no minimum number of published copies established and no rules as to its minimum distribution (should a minimum number of copies have to be deposited in scientific institutions, to ensure ease of future access? and which institutions would be acceptable for that purpose?). The whole thing means that any one of us may privately produce a magazine, have it printed or electronically produced, put a symbolic price of one cent on it and use it to validly

introduce new taxonomical names that henceforward will have to be taken into consideration and affect the whole scientific community. It does seem a little too easy, but there you have it!

It should be noted that under Article 8.2. of the Code, magazines have the possibility of publishing a disclaimer, specifying that it should not be considered for purposes of zoological nomenclature, and some have indeed used this possibility, prescinding the right to be considered for nomenclatural purposes. Many, however, do not.

Some feel that there should be stricter rules defining exactly which publications should be considered as acceptable for the inclusion of articles with universally binding taxonomic changes, although it would certainly be a difficult and ticklish task to make a list of such publications. It has been occasionally suggested that only refereed magazines should be allowed, and that would apparently be a step in the right direction, but one that the ICZN simply has not taken and does not appear to be inclined to take.

As it is, the vast array of publications on any one subject – namely within the field of Malacology that mostly concerns us here – appearing throughout the world includes a variety of different standards, from arid scientific journals issued by learned societies or universities, to amateur commercial newsletters, all of which may carry taxonomic information and modification.

At the same time, Malacology has a particular feature that does separate it from most (although obviously not all) other branches of Zoology: the fact that along the centuries mollusks' shells have been widely collected by amateurs(2).

Shells are among Nature's most stunning and spectacular creations and have always captured Man's attention for their aesthetic value. Since immemorial

times, shells – just like birds' feathers, for instance – have been used as human adornments and the intertwining of human activity and the world of mollusks is multiple, complex and ancestral. Not surprisingly, shells became one of the most widely spread subjects for amateur naturalists, competing in popularity with insects, rocks and other themes. Moreover, a collection of shells is easier to curate than, say, a collection of butterflies, which obviously also contributes to the attraction that shell collections have always had for those inclined to the study of natural objects.

Along the years, important collections were amassed by a variety of conchologists, many of them amateur ones. Some of those collections are duly preserved in the most important museums and have been studied by eminent scholars and biologists. As the interest in shells and shell collecting grew – particularly after the 17th century, when exotic specimens collected in remote regions began to be supplied to European naturalists – a third class of shell-people emerged, that of shell dealers, a class that soon included famous names such as Lovell Augustus Reeve (1814-1865).



Lovell Augustus Reeve (1814-1865)

This tripartite situation remains in the present time, the handling and study of mollusks and their shells being shared by professional biologists, amateur shell collectors and shell specimens dealers. Moreover, these three categories are certainly not disjunct, as collectors are known to sell their surplus specimens in the open market – especially in recent times, with the help of international auction websites – whereas some shell dealers actually have academic degrees in Biology, and so forth.

What is more, advanced collectors and experienced shell dealers often amass a large amount of information of the utmost importance to science and for scientists to work upon. It has always been so and the symbiosis between the three groups has always proved fruitful. Collectors who spend a lifetime combing their local beaches (or forests, if terrestrial mollusks are concerned), or diving along the shore of their homelands end up with a vast knowledge that could hardly be gathered during a field trip by a team of biologists, no matter how intensive their searched might be, and this of course is particular true for collectors living at or having access to remote locations such as small islands or archipelagos in the middle of the ocean. Also, shell dealers will obviously be interested in diversifying their offer of specimens; hence they will develop an intense activity of travelling, diving and hiring help for the obtainment of unusual shells – the rarest the better! –, which will make their clients' happiness.

Some of these advanced collectors and dealers are occasionally inclined to write about their finds and as their – often self-taught – knowledge grows, the importance of their papers equally mounts and many of them are quickly considered as true experts within their field of interest by the whole malacological community. As a result, many instances of collaboration between amateurs and professional biologists can be found in modern malacological literature, to the benefit of all interested parties.

Naturally, things are quite different today from what they were in the late 18th century, when the likes of Linnaeus, Gmelin, Hwass and many others began their pioneering work towards the present-day understanding of Malacology. Thinking about the description of new species alone, the probability of getting them right was quite high then, simply because so little was known at the time! As a matter of fact, after the Linnaeus's initial efforts to put names on all the species he had at his disposal, most new material brought from trips to faraway places would be certain to include novelties, specimens clearly belonging to never-before-seen species, begging to be properly named, classified and ranged amidst their kith and kin. As time went by, the number of known species – even concentrating on mollusks alone – grew to staggering figures, making it harder and harder for any researcher to actually know them all in sufficient detail to be able to ascertain that some recent sample could actually be distinguished from all previously described taxa. Specialization was of the essence, as in almost every scientific domain, and the time when one person was able to know practically all there is to know within a given scientific field – be it Physics, Mathematics or Malacology – is clearly way behind us.

Accompanying this renewed exigency, the study of molluscan populations and the identification and description of new species has become more and more sophisticated. In past times, the differences in the morphology of the shell were often considered sufficient to establish specific separation, a criterion that was perfectly acceptable, notwithstanding some exaggeration that led to the creation of vast synonymies, like in the case of *Lautoconus ventricosus* (Gmelin, 1791), whose extreme variability was not recognized by successive researchers (the Venetian naturalist Giovanni Domenico Nardo (1802-1877) alone named a dozen such variations). More recently, however, the number of strikingly different animals is much more reduced, although exceptions can be pointed out,

such as *Graphiconus primus* (Röckel & Korn, 1990) or *Cylinder glorioceanus* (Poppe & Tagaro, 2009), which are distinct enough to warrant description as new species from a severely limited number of specimens. But this is certainly not the case, generally speaking.

Lautoconus ventricosus (Gmelin, 1791)

Lectotype representative (Kohn) figure in Kammerer, 1786, pl. 6, fig. 3

West African Cones, especially Angolan and Cape Verdean ones, provide fine examples of the evolution in the methods used for the study of samples that have proved necessary to establish relationships between look-alikes, eventually arriving at the separation and description of new taxa.

One of the first Angolan Cones to be described was *Varioconus bulbus* (Reeve, 1843). Reeve based his new species on four specimens collected at “Cabenda” [an obvious error for “Cabinda”] and described it in the following terms: “Shell rather stoutly turbinated, solid, rounded at the upper part; white, longitudinally streaked with brown, streaks irregular, obliquely waved, spreading into each other at top and bottom; spire short, apex pointed.” What could be simpler? At the time, there was of course no danger of confusion with any other taxon. Later, the very same Reeve would describe *V. aemulus* and *Monteiroconus ambiguus*, which could not be mistaken for *V. bulbus*, nor for one another, and Kiener would proceed to describe *V. africanus*, *V. variegatus* and *V. zebroides*. All strikingly distinct.

Then, in mid-20th century, a number of shell collecting trips to Angola brought to the attention of malacologists – Portuguese malacologists mainly – a large number of samples of local Cones. These samples were studied by Herculano Trovão (1923-2001) who undertook their study, ending up with a number of new species. In his papers, Trovão included extensive detailed descriptions of the shell, periostracum, operculum and the living animal, selected a holotype and an often large number

of paratypes, and systematically included a minute description of the morphology of the radular teeth for each new taxon. In later instances, not only radular morphology but also the format of egg capsules was taken into consideration.

Much the same happens with Cape Verdean species. If we compare the very first descriptions of endemic species, beginning with Hwass’s *Trovaconus venulatus*, in 1792, followed by *Africonus cuneolus* (Reeve, 1843), *T. trochulus* (Reeve, 1844), *A. crotchii* (Reeve, 1849), *A. lugubris* (Reeve, 1849), *T. ateralbus* (Kiener, 1845) and *A. irregularis* (G.B. Sowerby II, 1858), with the descriptions made for instance by Röckel, Rolán & Monteiro in 1980, or by Rolán in several papers published along the 1980s, again we find the same differences that were pointed out for the Angolan species: from a very short description of the shell alone (and we must remember that back in the 18th and 19th centuries it was common to have nothing but empty shells on which to substantiate any studies at all) we pass to a more advanced stage when radular teeth morphology, living animal features and also geographical distribution are used as a basis for the proposal of each new taxon.

A little over twenty years after, further advancements in the study have been introduced in the description of new taxa from exactly the same areas. Recent papers by Manuel Tenorio, Carlos Afonso and others have resorted to a vast paraphernalia of modern techniques to reach the published conclusions. Such techniques go far beyond the morphology of both shell and radular teeth – albeit these are still of great importance, obviously – to employ statistical morphometric analysis, and even DNA sequencing and phylogeny. Only through the use of such fine methods can the proposals of new species be duly founded, in a field that has already been studied in depth and whose difficulties are well known. It was not in vain that Röckel, Rolán & Monteiro added to their 1980 book *Cone Shells from Cape Verde Islands* the subtitle “A difficult puzzle”. Puzzling the

whole Cone fauna of Cape Verde is indeed, not only because of the wide intraspecific variability of many species, but also in view of their often very restricted range.

Cones have bloomed in the seas of the Cape Verde Islands, diversifying into an unusually large number of distinct species. The reasons for that have been partially examined by a number of authors who have tried to establish the patterns of colonization of the islands by the ancestors of present-day Cones as well as their phylogenetic relationships, based on the most modern available methods. It is generally understood that the Cape Verde Islands show us a true cross-section in the dynamic process of evolution, as relatively small populations get isolated – thanks also to the ascertained direct development of their larvae – in reduced and often abutting distribution areas, ending up by developing differentiating characteristics that convert many such populations into separate species.

This of course means that after so much having been published on the Cape Verdean Cone fauna, a great care should be applied in the proposal of new taxa for the area, a care similar to what has been exemplified in the recent papers signed by Tenorio, Afonso, Cunha and Rolán.

As an aside, it should be stressed that the term “proposal” has been deliberately used more than once above. In fact, Science not being a static subject – much less a dogmatic domain – the naming of a new taxon is no more than a thesis brought before the judgment of the authors’ peers, for their perusal and eventual agreement. Such concordance will be all the more obtainable if the original proposal is grounded on solid evidence, obeys clearly defined criteria and uses firmly established and widely accepted methodologies.

Our point is that in the 21st century it is certainly not adequate – not to say acceptable – to have new taxa proposed on the basis of rather short descriptions of

external shell morphology only. These are clearly insufficient grounds on which to build a coherent argument to support the validity of the named species. To put it bluntly, the well-known, widely acknowledged difficulties of the subject would thus be entirely bypassed and such descriptions can be compared only with 18th or 19th century similar efforts; quite poor and actually unsatisfactory.

The problems raised obviously have nothing to do with the validity or otherwise of species proposed as new, based on poor concrete evidence, as of course a species will be valid or not, regardless of the accuracy of its description. The point we wish to stress here refers solely to the desirable formal quality of papers in which new taxa are proposed. Authors should understand that describing a new species is actually a strenuous job and involves a serious intellectual responsibility, since authors of new species should be prepared to support the validity of such and the need to separate them from other previously known ones. It is definitely not enough to publish new names and leave to others the task of proving them right or wrong.

Insufficient information, the use of different methods or criteria, even conceptual differences from one author to another will always cause disagreement between experts and something that constitutes a valid species to someone will possibly be no more than a mere form of some previously known one to somebody else. But how is one to make up one’s mind when no adequate information is provided in the first place?

It is the responsibility of authors to champion their theses and proposals, even by anticipating and refuting opposite opinions and possibilities. It is surely not good science to simply avoid discussion by omitting any arguments and leave to others the effort of proving that one’s views are correct or showing not to be so.

If we can be so candid, it is easy to come up with a large number of new names for possibly distinct taxa.

Fish-eating Habits of *C. adamsonii* and *C. gauguini* Unveiled

Sébastien Dutertre

Any one of us would be able to name at least two dozen new Angolan or Cape Verdean Cones, based on shell pattern only, and no one would be any the wiser. With any luck, some of the names thus more or less randomly introduced would end up corresponding to valid species anyway. Unfortunately, no useful purpose would be served by such a procedure and it would certainly be a poor help towards our understanding of the natural world around us.

It is much to be desired that future authors definitely upgrade the standards of their work, for the benefit of all. The puzzle is difficult enough as it is, so there is really no need to aggravate things with poor quality studies that will only shed confusion and overshadow the continuous serious efforts made by others.

Notes

(1) – On the same issues, the reader should also read Alan J. Kohn's views here: <http://biology.burke.washington.edu/conus/information/descriptions.php>

(2) – By “amateurs” we mean all those who do not work professionally in the area of Malacology, rather pursuing shell collecting as a hobby.

Conus adamsonii and *Conus gauguini* are elusive cones from French Polynesia, the type locality being the Marquesas Islands. These two beautiful cones are some of the most sought after shells among collectors, and are best known for fetching more than just decent prices on the shell market. The subtle shell patterns and vivid colors likely contribute to their fame, but rarity, as defined by the remote location and their inhospitable preferred habitat (between 20-50 m deep among rubble and coral debris, where strong currents occur) is obviously the main contributing factor. As for all rare species, it is not surprising that the biology of these cones has remained largely uninvestigated to date. *Conus adamsonii* belongs to the *Textilia* group, together with *C. bullatus*, a well-known fish-hunter. *Conus gauguini* is classified in the *Pionoconus* group, among which are found some of the most famous piscivorous species, including *C. striatus* and *C. catus*. Therefore, piscivory was highly suspected for both *C. adamsonii* and *C. gauguini*.

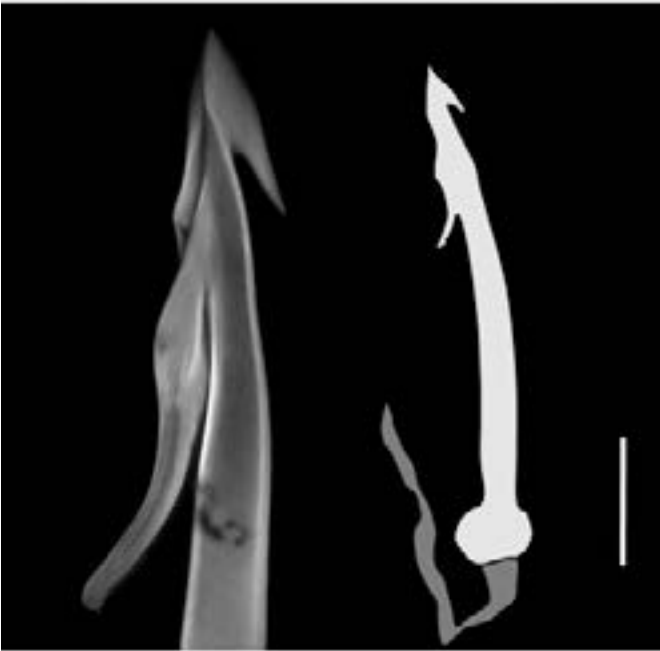
Radula morphology is usually a good indicator for the type of diet, with piscivorous cones of the *Textilia* and *Pionoconus* having evolved remarkable structures reminiscent of mini harpoons to both inject potent venom and hold on a struggling prey. Unfortunately, representation of these radula are absent from the excellent book written by Tucker & Tenorio, *Systematic classification of recent and fossil Conoidean gastropods*. Therefore and for the first time here, I illustrate the radula of *C. adamsonii* and *C. gauguini* based on microscopic images, which indicate unambiguously that they feed on fish. As it can be seen in figure 1, the accessory process (“hook”) is well-developed, a typical feature also found in the radula of other *Textilia* and *Pionoconus* species.

Figure 1: Top panels show live specimens of *C. adamsonii* and *C. gauguini* (photos courtesy of Xavier Curvat). The tip of the radula of each species is shown on the middle panels. The entire tooth of *C. gauguini* is shown on the bottom panel. Microscopic images

Conus adamsonii



Conus gauguini



List of Participants in the 3rd International Cone Meeting

courtesy of John Griffin. Horizontal bar indicates 1 mm.

Finally, famous Marquesas diver and shell collector Xavier Curvat, known as “Pipapo”, provided a definite proof for the skeptic in the form of a photograph showing a small fish that was regurgitated by a freshly collected *Conus adamsonii*...end of story!



In the last issue of TCC, I published a detailed report on the 3rd International Cone Meeting, held last year in Madrid. In this report I included a list of participants. Now, all errors and mistakes are greatly to be regretted, but some are clearly more vexing than others and one such has crept into that list: for some reason, the name of Marguerite Young was omitted!!

I am so sorry about that most silly omission and must rectify the register here: Marguerite was in fact an active participant and paying attendee, not merely accompanying her husband Trevor!

We do know that Marguerite is has a keen interest in shells and particularly in Cones and the presence and participation of both she and Trevor was most appreciated. Personally, I think of the Young couple as good friends and I hope to see both again in our next reunion – which will take place in Brussels next year, as already announced.

Renewed apologies to both.

António Monteiro

Conus regius From Martinique: A Magnificent and Very Variable Species

David Touitou

Following António's announcement that he was looking for articles for a new issue of TCC, I propose to take a new look at a very beautiful species from the Caribbean: *Conus regius* Gmelin, 1791.

Taxons Studied

Conus (Stephanoconus) regius Gmelin, 1791

Conus (Stephanoconus) citrinus Gmelin, 1791 syn.

Conus (Stephanoconus) regius Gmelin, 1791

Introduction

I was fortunate to have the opportunity of living for two years (2000-2002) on that very beautiful Caribbean island: Martinique. At the time I collected mainly cowries, but it must be said that in Martinique there is only a limited number of cowry species, which caused me to switch into the unbelievable world of CONIDAE...which I have never left again!

Conus regius: habitat, feeding, size and divers information

Naturally, I began by collecting those species that can be found snorkeling, which included the striking *Conus regius*! Even though the species is globally common in Martinique, it is not all that easy to find beautiful specimens; that is of course often the case. The species is not uniformly present around the island and it is in fact the leeward coast (Caribbean Sea) that possesses a higher number of populations.

Conus regius feeds on marine worms, including the severely urticant fireworm (Hermodice carunculata)!

Pictures are available at my website:

http://www.seashell-collector.com/articles/general_articles/page_conus-regius-conus-dominicanus-feedings-habits.html

Nowadays it is well known that colour variations, including the yellow one (called *citrinus*) are due to feeding habits, and for that reason a single species is recognized. Back then, I had sent away a few samples of soft parts to help verifying whether or not molecular analysis would confirm that idea, and it turned out to be so. It should also be noticed that the adult living animal shows a constant colour.

It is mainly a nocturnal species, but it is not rare to find it moving around already in the evening. When it is not active, it is easily camouflaged near rocks; it can also burrow underneath them, if the sediment allows it. Although it can be found at greater depths, it is mainly found down to 10 m deep.

The specimens belonging to the *citrinus* variation are sometimes found in colonies, but most of the time they live together with the more classical specimens, which is only to be expected, given that a single species is present.

Medium size for fully grown specimens in Martinique is of about 45-55 mm. Nevertheless, the largest specimen I have found is 67.4 mm long.

Infinite pattern variation for *Conus regius*

What is most surprising when one collects this species is its variability. It is nigh impossible to find two identical specimens! Just for fun, we can indeed split the species into several different variations, although there is no scientific basis whatsoever in what follows!

- 1 – The yellow variation (*citrinus*)
 - 1.a – yellow variation
 - 1.b – orange variations
 - 1.c – dark orange (almost brown) variation

Within this *citrinus* grouping we can find:

- either an uniform colouration or a gradual change of

hue
- presence or absence of a pattern (brown blotches of very variable size)
- presence or absence of dark lines

2 – The dark variation (the dark brown blotches cover the entire shell)

3 – The light variation (the whitish background colour is dominant: only a few brown blotches or none at all)

4 - The semi-citrinus (one part yellow, the other more classical)

5 – The pinkish and bluish-violet ones (whose colour depth fades with time)

Figures

The *citrinus* variation

Fig 1 – yellow variation, uniform colour

Fig 2 – yellow variation, multihued

Fig 3 – yellow variation, with pattern

Fig 4 – yellow variation, with lines

Fig 5 – orange patternless variations

Figs 6 & 7 – dark orange, almost brown variation

Some specimens actually show a mixture of all previous features and sometimes they are granulated!

Fig 8

The dark variation (the dark brown blotches cover the entire shell)

Fig 9

The light variation (the whitish background colour is dominant; only a few or even no brown blotches)

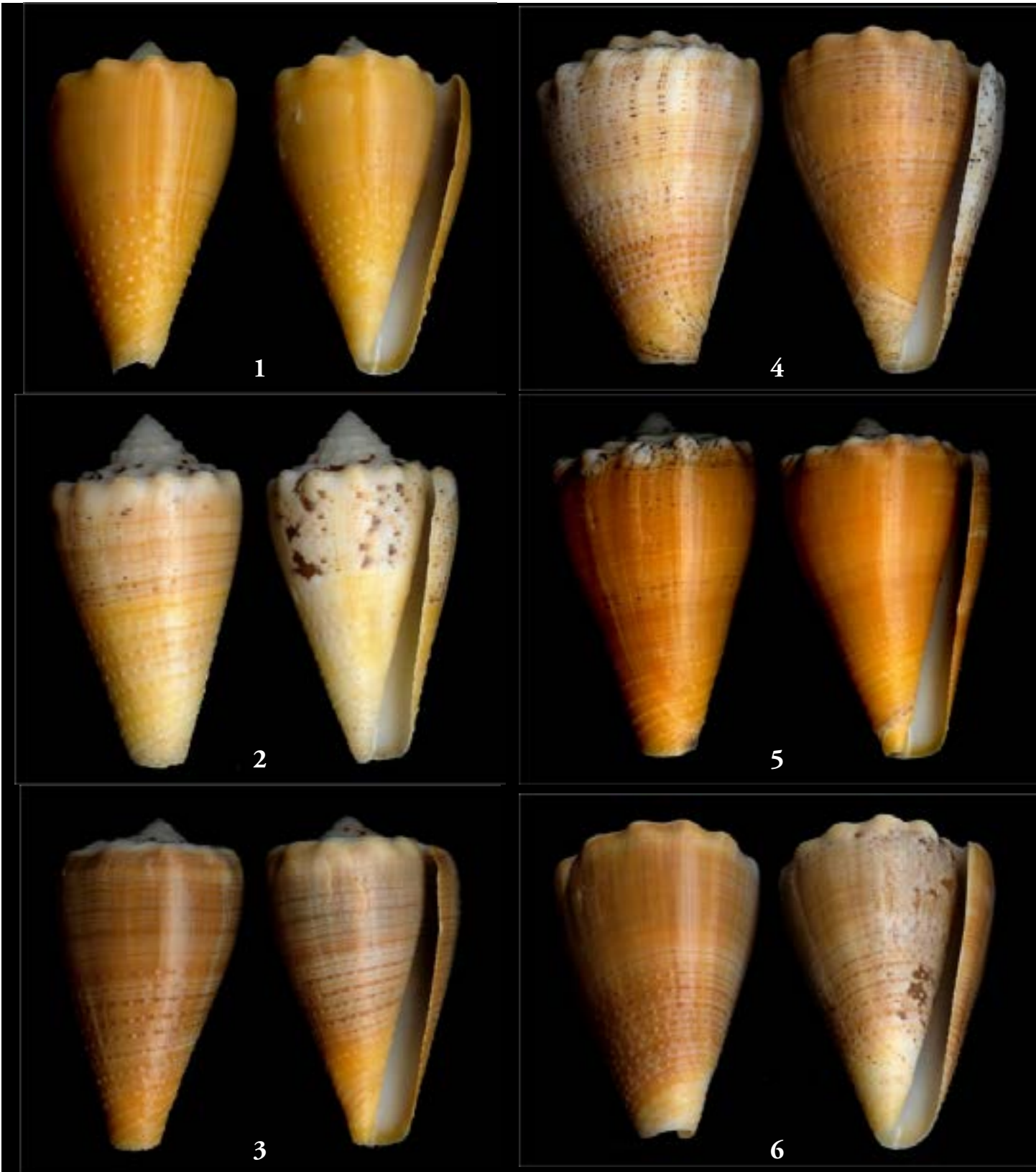
Fig 10

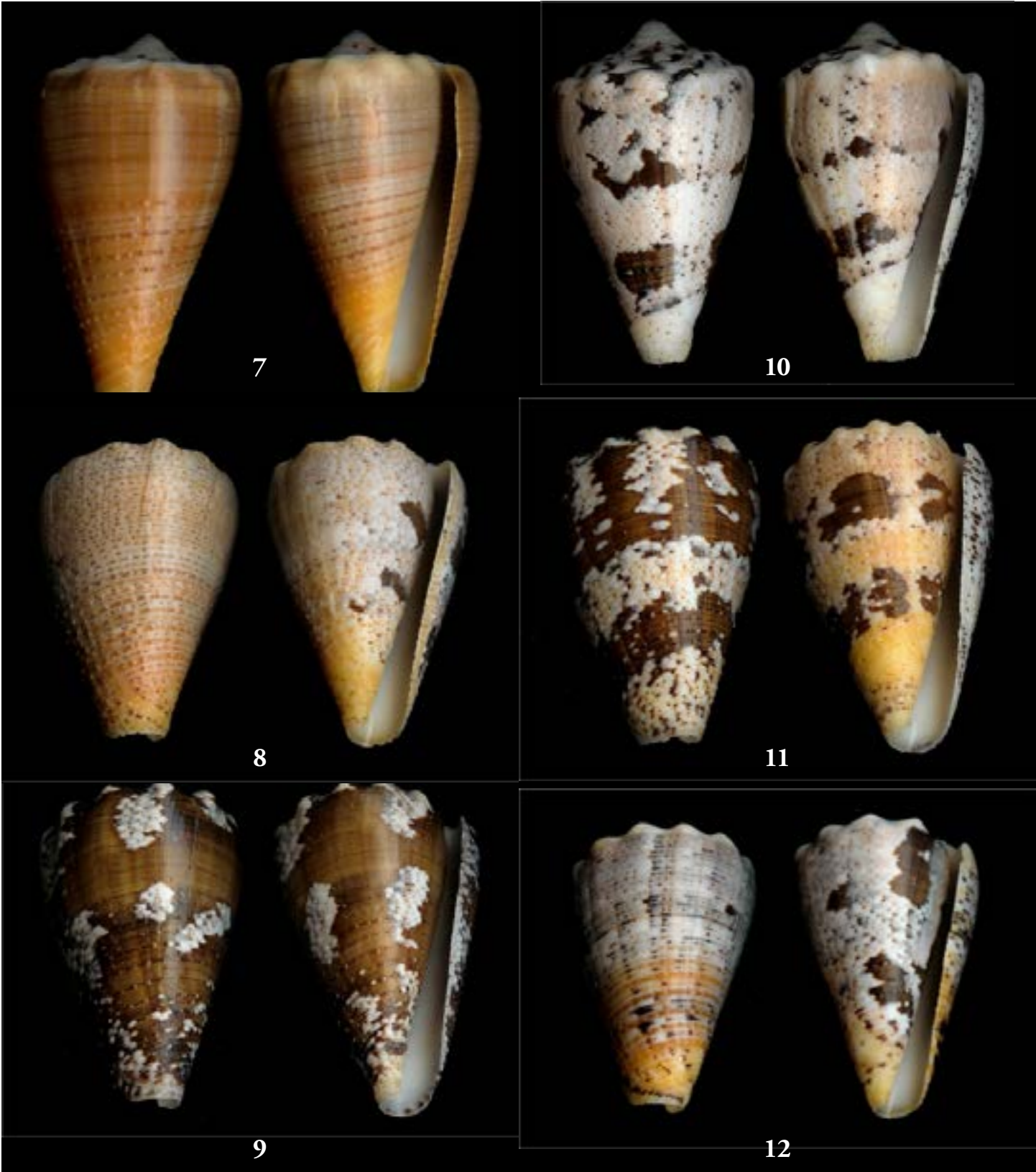
The semi-*citrinus* (one part yellow, the other more classical)

Fig 11

The pinkish and bluish-violet ones (colour depth fades with time)

Figs 12





A Note on *Pionoconus gauguini*

Fabrice Prugnaud

It is with the outmost pleasure that, taking advantage of a break from a busy professional life, I discovered *The Cone Collector* on my way to Madagascar for a 2 weeks holidays diving for cones and other shells. I have collected and acquired shells since 1984 as my father took us to Tahiti for 2 years.

As I was reading issue 15 an Article on *Pionoconus gauguini* I remembered an old cone that was given to my father Alain in 1985 or 86 in Tahiti by one of our Marquesan friend, together with two other *gauguini*. The information at the time was, I believe, "they are rare and endemic".

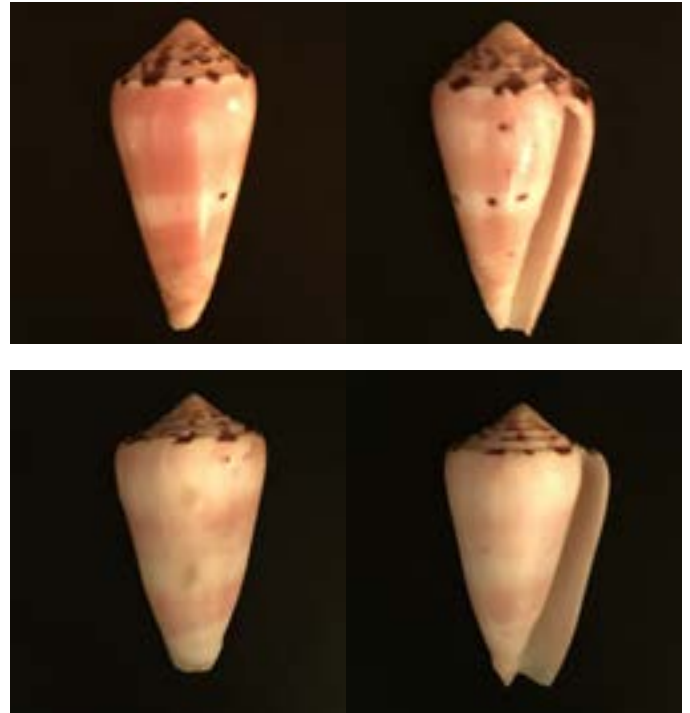
As I came back home after a fruitful hunt, I decided to check that shell again. It was very pale, the apex was covered with calcium and the aperture was dirty. The shell looked so old that we decided to leave it in a box with the "non-honorable shells".

During the last 3 days I used bleach and water and actually all means I had to take the calcium off the top (mostly dental tolls under a magnifier).

After quite some work, the beauty was revealed. Nothing of a Gem: the lip is broken; the shell has suffered and shows some growth lines. But it is a beauty to my eyes as I did not believe that it was a *gauguini* but an old abandoned shell found on a beach 30 years ago. Measuring 69 mm, it now resides on my top drawer, where it belongs.

A great thank you to Günther Herndl and to TCC for bringing that shell back to my attention and allowing a full cleaning deserved a long time ago. This one is pink yes but it's alive again because of your great work.

I have joined picture of one of the other *gauguini* given at the time, a juvenile, I believe, 44 mm long.



New Publications

In previous numbers of TCC we endeavored to list and illustrate type specimens of recently described Cone taxa.

However, the publication of Tucker & Tenorio's *Illustrated Catalog of the Living Cone Shells*, in 2013, brought along a few changes, since the book was accompanied by the creation of a website (<http://www.conecatalogupdate.com>) in which much information can be gathered.

In particular, this website has a section titled “New Species”, consisting of “New species described after the publication of the book” and in which the authors propose to “summarize all the information on the new species, subspecies and names appeared in the literature after the publication of the book. The records will available for download in the same format as in the book in the “Revisions” section of the site.”

This, together with Paul Kersten's Checklist, readily available through TCC's own website (www.theconecollector.com) will provide our readers with all information and illustrations about newly described species. Both sites are updated regularly.

This means that it has become rather superfluous to repeat the same information on the pages of our bulletin and from now on I will simply list recent publications – with thorough indication of the new taxa described – and include reviews whenever appropriate.

1) The case for *Conus conco* Puillandre et al, 2014

Back in 2014, the bulletin *Molecular Phylogenetics and Evolution* 80 (pp. 186–192) published a “short communication” with the title “When everything converges: Integrative taxonomy with shell, DNA and venom data reveals *Conus conco*, a new species of cone snails (*Gastropoda: Conoidea*)”, signed by Nicolas Puillandre, Reto Stöcklin, Philippe Favreau, Estelle Bianchi, Frédéric Perret, Audrey Rivasseau, Loïc

Limpalaër, Eric Monnier and Philippe Bouchet, giving the new taxon the distinction of bearing the largest number of authors for a Cone snail.

Because the description was not included in the printed version of the article, thus failing to meet the criteria for availability of the name established by the International Code of Zoological Nomenclature (ICNZ), the description was finally published in January 2015, thus establishing the new name.

C. conco (which, in Tucker & Tenorio's generic arrangement should be placed in the genus *Lividoconus*) comes from the Marquesas Islands and the holotype is deposited in the Muséum National d'Histoire Naturelle, in Paris, France. It belongs to the *C. lividus* species complex, having diverged from the latter some three million years ago.

The specific name “conco”, a noun in apposition, refers to the European “Conco” project (“Applied venomics of the cone snail species *Conus consors* for the accelerated, cheaper, safer and more ethical production of innovative biomedical drugs”).

2) Recent articles in *Malacologia*

The Italian magazine *Malacologia* is published by the Museo Malacologico Piceno, at Cupra Marittima and regularly publishes descriptions of new taxa. When it comes to Cones, the following have been proposed:

Malacologia # 85 included the article “*Graphiconus indomaris* (*Gastropoda: Prosobranchia: Conidae: Puncticuliinae*) a new species from Central Indian Ocean”, by Luigi Bozzetti.

The specimens now described as a distinct species have been circulating for a while as an Indian form of *G. australis* Holten, 1802, with which it is compared. The type locality for *G. indomaris* Lozzetti, 2014 is Kollam, Kerala, Southern India and the holotype is deposited

in the Muséum National d'Histoire Naturelle, Paris, France. The name “indomaris” refers to the Indian Ocean.

In *Malacologia* # 86 we find a new article by Tiziano Cossignani and Ramiro Fiadeiro, who describe three new species from the Cape Verde Islands. The title of the article is “Tre Nuovi Coni da Capo Verde” and the following taxa are introduced:

Africonus nelsonandradoi Cossignani & Fiadeiro, 2015
The holotype is kept at the Museo Malacologico Piceno and the type location is Calhetinha (NE), Sal Island. The species is named after Nelson Andrade, the brother of José Geraldo Évora (a.k.a. Zinho), a well-known Cape Verdean diver.

Africonus pedrofiadeiroi Cossignani & Fiadeiro, 2015
The holotype is kept at the Museo Malacologico Piceno and the type location is actually not very clear, because under the title “Type locality and distribution” the article reads “Boavista and Curral Velho (S) – Islet of Galeão, Boa Vista”. The species is named after Pedro Fiadeiro, the son of the second author.

Africonus damioi Cossignani & Fiadeiro, 2015
The holotype is kept at the Museo Malacologico Piceno and the type location is actually not very clear, because under the title “Type locality and distribution” the article reads “Boa Vista, in the Derrubado area (3 bays), Antónia Bay and Água Doce Bay in the north of Boavista”. The species is named after Abílio Damião, a friend of the second author.

The same two authors described yet another two species from Cape Verde in an article titled “Due Nuovi Coni da Capo Verde”. The new taxa are:

Africonus minimus Cossignani & Fiadeiro, 2015
The holotype is kept at the Museo Malacologico Piceno and the type location is between Monte Grande Beach and Ponta do Linguincho, Sal Island.

The name of the species refers to its small size (usually under 10 mm).

Africonus roquensis Cossignani & Fiadeiro, 2015
The holotype is kept at the Museo Malacologico Piceno and the type location is Ponta do Roque, Boa Vista Island. The species is named after the type locality.

3) South African news

In the German magazine *Conchylia* #45(1-2), Felix Lorenz published the article “*Conus (Sciteconus) algoensis norpothi* n. ssp., a New Subspecies from Cape Agulhas, South Africa (*Gastropoda: Conidae*)”.

The holotype of the new subspecies remains in the Muséum National d'Histoire Naturelle, Paris, France, and the type location is given as “a "solid reef" near Dyer Island, Cape Agulhas”, in South Africa, at a depth of 23-32 metres. The name of the new taxon honors Dr. Rainer Norpoth, of Münster, Germany, a friend of the author and enthusiastic Cone collector.

4) Naming a Brazilian Cone

Volume 47, Issue of the well-known publication *The Festivus* included the article “Description of a New Species from the Brazilian Province: *Dalliconus edpetuchi*”, by Éric Monnier, Loïc Limpalaër, Christophe Roux and David P. Berschauer.

The new taxon is obviously named after Dr. Edward Petuch, “in recognition of his decades of field work, many discoveries and major contributions in Malacology throughout the Caribbean and Brazil.”

The type locality is off Cabo de Santa Marta Grande, Santa Catarina State, Brazil, in depths of 300 to 400 m. The holotype is deposited in the Muséum National d'Histoire Naturelle, Paris, France.

Besides proposing the new taxon, the same article

includes a thorough revision of the genus *Dalliconus*.

5) *Xenophora Taxonomy*

Xenophora Taxonomy is a still young but already prestigious magazine, published by the Association Française de Conchyliologie, is mainly dedicated to Cones.

Its issue number 6 includes two articles of interest for Cone collectors.

The first of them is by Manuel J. Tenorio and its title is “A new *Profundiconus* from Northern New Caledonia: *Profundiconus zardoyai* sp. nov. (*Gastropoda, Conilithidae*)”.

The holotype is in the Muséum National d’Histoire Naturelle, Paris, France and the type locality for the newly described species is Grand Passage, North New Caledonia (18°57’S, 163°25’E, 325-330 m).

The species is named after Prof. Rafael Zardoya, from the Museo Nacional de Ciencias Naturales – Consejo Superior de Investigaciones Científicas, Madrid, Spain, “a reputed specialist in phylogeny and evolution with interests in molluscs, and particularly in cones”, as well as a friend of the author.

The second article “*Malagasyconus* (*Gastropoda: Conidae*), a new genus from Southern Madagascar”, is by Eric Monnier and Manuel J. Tenorio.

The type species for the new genus *Malagasyconus* is *M. lozeti* (Richard, 1980); it has a single congener, namely *M. bonfigliolii* Bozzetti, 2010.

The name *Malagasyconus* honours the “very large island [of Madagascar] with its high level of endemism”: Malagasy refers to the nationality of citizens from Madagascar in their national language.

On the other hand, the seventh issue of *Xenophora Taxonomy*, is mainly dedicated to Cones.

First (pp. 3-14) we have the article “Notes on *Profundiconus smirna* (Bartsch & Rehder, 1943) with description of a new species: *Profundiconus smirnoides* sp. nov. (*Gastropoda, Conilithidae*)”, by Manuel J. Tenorio.

The holotype of the new species is deposited in the Muséum National d’Histoire Naturelle, Paris, France and the type locality is off Île des Pins, southern New Caledonia (22°55.5’S, 167°17.1’E, 480-500 m). The name of the new taxon alludes to its resemblance to *P. smirna*.

Then (pp. 15-26) we have “Revision of the *Kioconus caillaudi* complex. Description of two new endemic *Kioconus* (*Gastropoda, Conidae*): *K. hoarawai* n. sp., from La Réunion and *K. malcolmi* n. sp., from the Red Sea”, authored by Eric Monnier and Loïc Limpalaër.

The holotypes of both new species are deposited in the Muséum National d’Histoire Naturelle, Paris, France. The type locality for *K. hoarawai* Monnier & Limpalaër, 2015 is off Sainte-Suzanne, North of La Réunion Island (20°52’S, 55°38’E, 110 m) and the species is named after the late Guy Hoarau, a friend of the authors and shell collector who supplied specimens for study.

On the other hand, the type locality for *K. malcolmi* Monnier & Limpalaër, 2015 is indicated as South Tower Reef, near Jeddah, Saudi Arabia, on the East coast of the Red Sea. The species is named after our good friend Gavin Malcolm, a regular collaborator in many TCC projects.

Lastly (pp. 27-34) the article “Additional information on *Lividiconus conco* (Puillandre, Stöcklin, Favreau, Bianchi, Perret, Rivasseau, Limpalaër, Monnier, Bouchet, 2015) a new endemic cone from the Marquesas Islands” presents a re-description of the

recently described species, including information that complements the original description.

6) The colours of fossils

The electronic publication PLOS One (PLOS = Public Library of Science) recently published an article by Jonathan R. Hendricks, under the title “Glowing Seashells: Diversity of Fossilized Coloration Patterns on Coral Reef-Associated Cone Snail (*Gastropoda: Conidae*) Shells from the Neogene of the Dominican Republic”.

From the Abstract we learn that “The biology of modern *Conidae* [...] has been intensively studied, but the fossil record of the clade remains poorly understood [...]. Here, ultraviolet light is used to reveal and characterize the original shell coloration patterns of 28 species of cone snails from three Neogene coral reef-associated deposits from the Cibao Valley, northern Dominican Republic. These fossils [...] range in age from about 6.6-4.8 Ma. Comparison of the revealed coloration patterns with those of extant species allow the taxa to be assigned to three genera of cone snails (*Profundiconus*, *Conasprella*, and *Conus*) and at least nine subgenera.

Thirteen members of these phylogenetically diverse reef faunas are described as new species. [...] Finally, most of the 28 species can be assigned to modern clades and thus have important implications for understanding the biogeographic and temporal histories of these clades in tropical America.”

The species presented as new are:

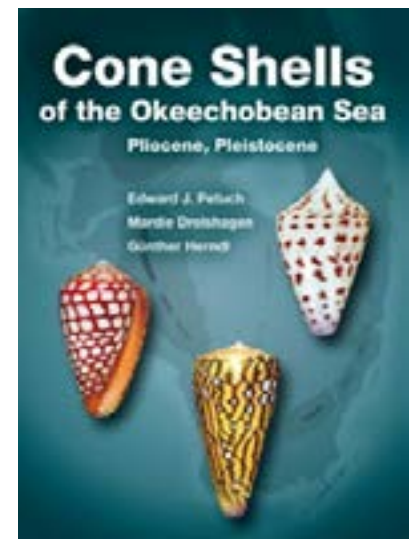
- Profundiconus?* *hennigi*
- Conasprella (Ximeniconus) ageri*
- Conus anningae*
- Conus lyelli*
- Conus (Atlanticonus?) franklinae*
- Conus (Stephanoconus) gouldi*

- Conus (Stephanoconus) bellacoensis*
- Conus (Ductoconus) cashi*
- Conus (Dauciconus) garrisoni*
- Conus (Dauciconus?) zambaensis*
- Conus (Spuriconus?) kaesleri*
- Conus (Spuriconus?) lombardii*
- Conus (Lautoconus?) carlottae*

7) An important book on fossil Cones

Fascinating as living Cone species obviously are, fossil examples are not less interesting and a good knowledge of them can shed vital light on many aspects of evolution and biogeography. So, we welcome the recently published volume *Cone Shells of the Okeechobean Sea, Pliocene, Pleistocene*, written by Edward J. Petuch, Mardie Drolshagen & Günther Herndl. The book is 179 pages long, with 30 colour plates and numerous figures.

The work capacity of my good friend Ed Petuch is well known, as along the years he has been publishing a large number of papers and books in the fields of Zoogeography, Systematics and Paleontology. This new book, for which I had both the honour and the pleasure of writing a Foreword, is in fact a much enhanced and more extensive version of a previous work.



In all, 103 fossil species of Cones are re-described and illustrated in 30 coloured plates of the highest quality. The periods in which the divers species lived are shown

in useful and clear diagrams. Two new genera are introduced: *Herndliconus* and *Tequestaconus*.

Photos of specimens of the type species for each genus are also presented and, contrary to the former poorer version of the book, the shells on each plate are presented at the same scale, which allows for an easier comparison between related species. Such information is extremely valuable when it comes to fossil species, since classification and the separation of species must per force rely only on external morphological characteristics.

The second author did the excellent photographs that illustrate the book throughout, while my good friend Günther Herndl took care of page setting and of the entire production. In particular, Günther thought that it would be useful for readers to have the chance of seeing the specimens exactly as they look when found in the original sediments, before dehydration makes them lose that initial appearance; so, using the most modern technical means, he went to the trouble of correcting the colours and shine for each individual illustration. The results are truly breathtaking.

This book is indicated as the first in a series that will eventually cover the other families found in the same region and that culminates the intense field research and study undertaken by Ed Petuch for several decades.

As such, it will certainly become mandatory for the library of whoever has an interest in fossil Cones from southern Florida.



8) *European Journal of Taxonomy*

The *European Journal of Taxonomy* (www.europeanjournaloftaxonomy.eu) is a peer-reviewed international journal in descriptive taxonomy that is published and funded by a consortium of European Natural History institutions. Its content is fully electronic and Open Access.

Issue 129 (July 2015) consisted of the article “*Conus hughmorrisoni*, a new species of cone snail from New Ireland, Papua New Guinea (*Gastropoda: Conidae*)”, by Felix Lorenz and Nicolas Puillandre.

The new species comes from the vicinity of Kavieng, New Ireland, Papua New Guinea and is compared to *Conus (Phasmoconus) exiguus* Lamarck, 1810, from New Caledonia, and *Conus (Strategoconus) hanshassi* (Lorenz & Barbier, 2012), from the Philippines.

The new species is named after Hugh Morrison from Perth, Western Australia, a well-known malacologist, shell dealer and scuba diver. The holotype is deposited in the Muséum National d’Histoire Naturelle, Paris, France.

A Spectacular Christmas Tree

Every Christmas a huge number of greeting cards are exchanged amongst friends and family.

Some such cards are simply purchased in the usual places and sent along, but some have a more personal touch.

Last Christmas, the most spectacular we got came from Serge Rolland and we thought that everybody would enjoy taking a look. So, here it is for your delectation.



This is the Place to Live

Our friend Robert Eason has sent this photo along. It was obtained on a road in Milan, Michigan, U.S.A.

I am sure any of us would really like to live there. Just imagine the fun when the address was used in a parcel full of beautiful specimens!





The 4th International Cone Meeting

As you will all remember, at a certain point we had two different possibilities for the location of the 4th International Cone Meeting, namely Mazatlán, Mexico and Brussels, Belgium; so we issued a survey to find out the preferences of the members of the Cone Community – as we have been called.

Obviously the two locations were widely separated and presented different appeals for those residing in different parts of the world. It was a tight and difficult decision but, all things considered, we had to opt for Brussels. I do hope that all those who actually voted for Mazatlán will still be with us in Belgium!

The 4th International Cone Meeting will thus take place in the weekend of

1-2 October 2016

and we are happy to announce that we do have the support of the wonderful Royal Belgian Institute of Natural Sciences, house of many important shell collections, amongst which Philippe Dautzenberg's, which runs into several million specimens and is in fact one of the largest in the world; the museum is also famous for the Bernissart Iguanodons fossils found in the late 19th century and on display there.

We do thank Prof. Thierry Backeljau, of the museum's directorate, as well as other museum staff, for the welcoming of our meeting.

The Organizing Commission for the 4th International Cone Meeting includes Manuel Jimenez Tenorio and Bill Fenzan, as always; Manolo in particular will be in charge of the program, on which more in due time. Local organization is ensured by Yves Terryn, with the help of Marc Keppens; and finally the commission also has the invaluable contribution of Lucy Muehleisen. With such a highly qualified team, we are sure to get everything going smoothly, for the enjoyment of all.

I do hope to see as many of you as possible in Brussels next year and I am certain that this 4th meeting will be every bit as successful as the previous ones. Apart from the meetings themselves, all the places we have visited so far present many attractions for visitors and tourists – something that is especially relevant for those accompanying participants but not actually attending our sessions – and the Belgian capital of course is no exception to that rule. There is something for everyone and every condition to guarantee a wonderful extended weekend.

I will of course be forwarding further information as it becomes available, so just stay tuned!

António M.

Volunteer Required

Volunteer required to take over as

Webmaster for the Cone Collector website

For a number of years André Poremski has acted as production manager of the magazine *The Cone Collector* and also as webmaster for the administration, updating, integration of new material and communication with the contributors.

We would like a volunteer with some experience of website management to join the team with a view to taking over as webmaster. Someone who has developed their own website would be typical of the skill level required.

The role would include

- a. Working with steering committee of Bill Fenzan, Manuel Tenorio and António Monteiro to suggest and review new ideas.
- b. Redesigning, creating, managing the homepages which link the various sections.
- c. Encouraging community members to submit new content and integrating any new sections.
- d. Loading any updates to current sections (about 20 per year) and ensuring website backups.

Each of the current sections has an editor and a production manager who are responsible for creating the updated pages for their section. The page updates are prepared and tested in Dropbox by the production manager, ready for the webmaster to synchronise the folders.

The objective of the website is to provide high quality material for all levels of cone collector, to encourage community sharing of knowledge and to attract more interest in cones from other collectors who visit the website.

One of the advantages is that the webmaster is at the centre of the flow of information of new developments in the world of cones.

It is intended that the website will remain a source of knowledge based content and that commercial activities will not be supported.

If you are interested in exploring this opportunity further then please contact António Monteiro.

Errata

Two of our friends detected mistakes in articles published in our last number

First, David Tuitou told us that on page 66 one must read "*Conus ermineus*" under the thumbs instead of "*Conus daucus*".

Secondly, Andrea Nappo stated that his article has two other authors beside himself, namely Sergio Loi and Donatella Pulisci, to both of whom our sincere apologies for omitting their names.

**We hope to see
your article in
the next TCC!**

