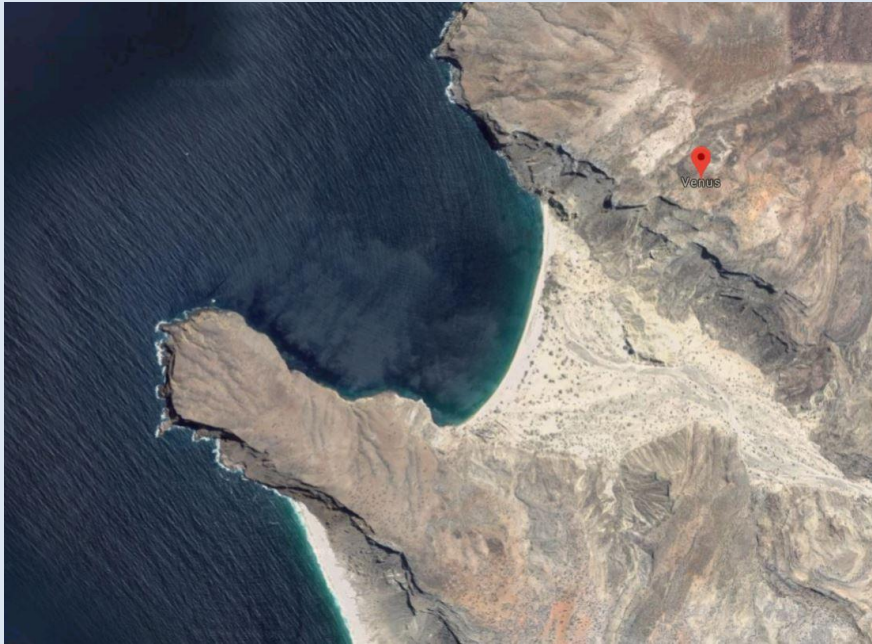


Collecting at Limagens



Limagens Bay



Among the species reported from Limagens Bay in Rolán & Röckel, 2001 are *C. carnalis*, *C. chytreus*, *C. lineopunctatus*, *C. micropunctatus*, *C. musivus*, *C. naranjus*, *C. trovaii*, *C. variegatus* and *C. zebroides*. The authors also suggest the presence of *C. bulbus* in small numbers.

In 2018, *C. eusebioi* was described by Christfried Schönherr from this locality.

Limagens Bay is the type locality for *C. eusebioi*, *C. naranjus* and *C. trovaii*.

Conus carnalis Sowerby, 1879



C. carnalis
Limagens 47mm GM



C. carnalis
Limagens 41mm GM



Specimens with typical colour and form are found here.

Conus chytreus Tryon, 1884



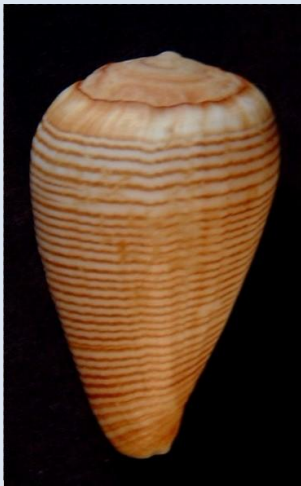
C. chytreus
Limagens 27mm RR2000



C. chytreus
Limagens 23mm GM

Typical specimens are found with widely spaced spiral brown lines on white. The aperture is white.

Conus eusebioi Schonherr, 2018



C. eusebioi
Limagens 28mm GM



C. eusebioi
Limagens 28mm GM



C. eusebioi
Limagens 28mm GM

Limagens is the type locality for *C. eusebioi*.

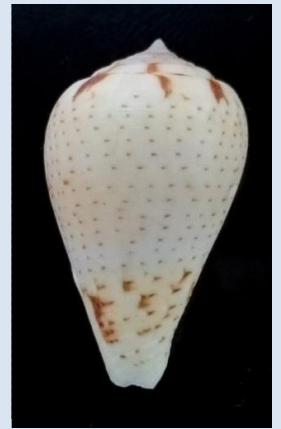
Conus lineopunctatus Kaicher, 1977



Limagens 26mm CS



Limagens 23mm CS



Limagens 25mm CS



Limagens 23mm CS



Limagens 23mm CS



Limagens 24mm CS

Specimens of *C. lineopunctatus* from Limagens have a pattern of well spaced dots and short dashes and a distinctive pyriform shape.

***Conus micropunctatus* Rolán & Röckel, 2000**



Limagens 27mm CS



Limagens 25mm CS



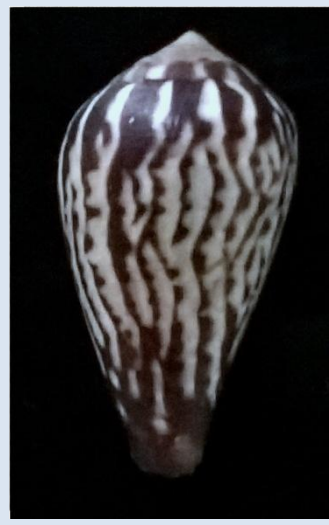
Limagens 25mm CS

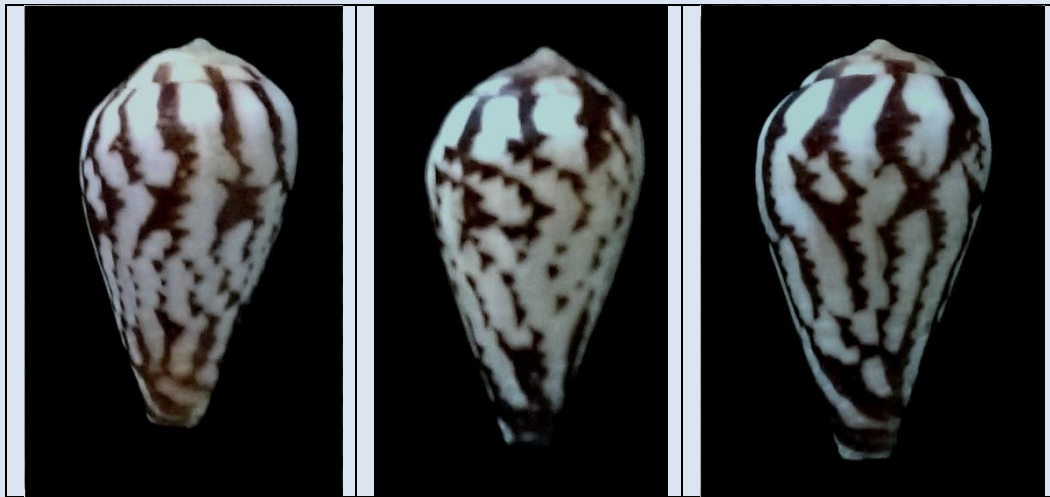
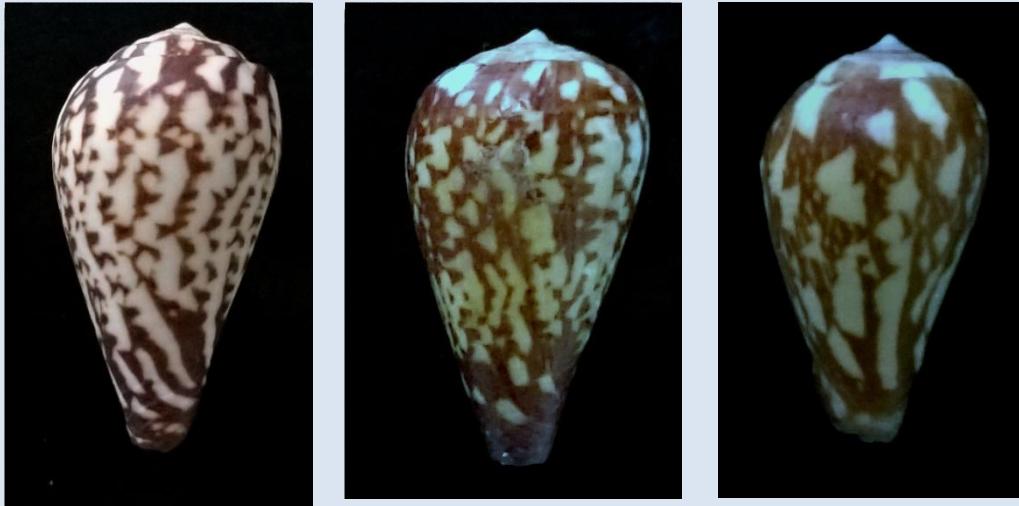
Specimens are found similar in shape and pattern to typical specimen but as their shape broadens and the dots and hairlines on shoulder become more solid and wider spaced, then it becomes more difficult to separate specimens from *C. lineopunctatus*.

***Conus musivus*= *Conus alexandrinus* Kaicher, 1977**

Limagens where *C. musivus* is quite common is near to the northern boundary of its distribution range. The species has a very similar radula and pattern to *C. bulbis*; the pattern is irregular with tented areas and axial brown streaks and chevrons/arrowheads.

All specimens from Limagens 15-19mm Coll. CS





While many of the specimens can be easily separated from *C. bulbus* by their pattern, those with a pattern dominated by white axial flammules are much more difficult to interpret.

***Conus naranjus* Trovão, 1975**

The type locality of *C. naranjus* was indicated by a set of erroneous coordinates. In 2000, Rolán & Röckel designated the type locality as Limagens based on one of the coordinates, although the specimens which they reviewed were from Santa Maria Bay.



Paratype2 Santa Maria



C. naranjus Limagens 20mm
GM

Specimens are quite similar to *C. tenuilineatus* from Limagens(see below) but patterns are distinctly orange. The 20mm specimen has the strong basal grooves and pattern of spiral rows of dashes but lacks the wavy axial lines.

***Conus tenuilineatus* Rolán & Röckel, 2000**

Conus tenuilineatus is not recorded from Limagens in RR 2001 but is recorded from bays to the north and south.

Recent specimens would appear to match the paratype in the Rolán collection in USC. The paratype has a pattern on the ventral side, similar to that of the holotype and a dorsal side with a pattern of large spiral dots and wavy axial lines. These specimens would be difficult to separate from *C naranjus*/*C. cepasi*. Several of the Röckel paratypes in SMNS Stuttgart have a similar spiral pattern.



Paratype Rolán coll. USC

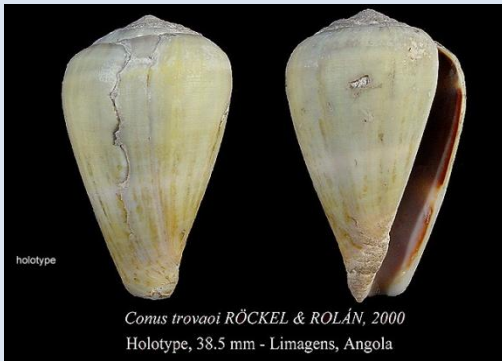


Limagens 30mm CS



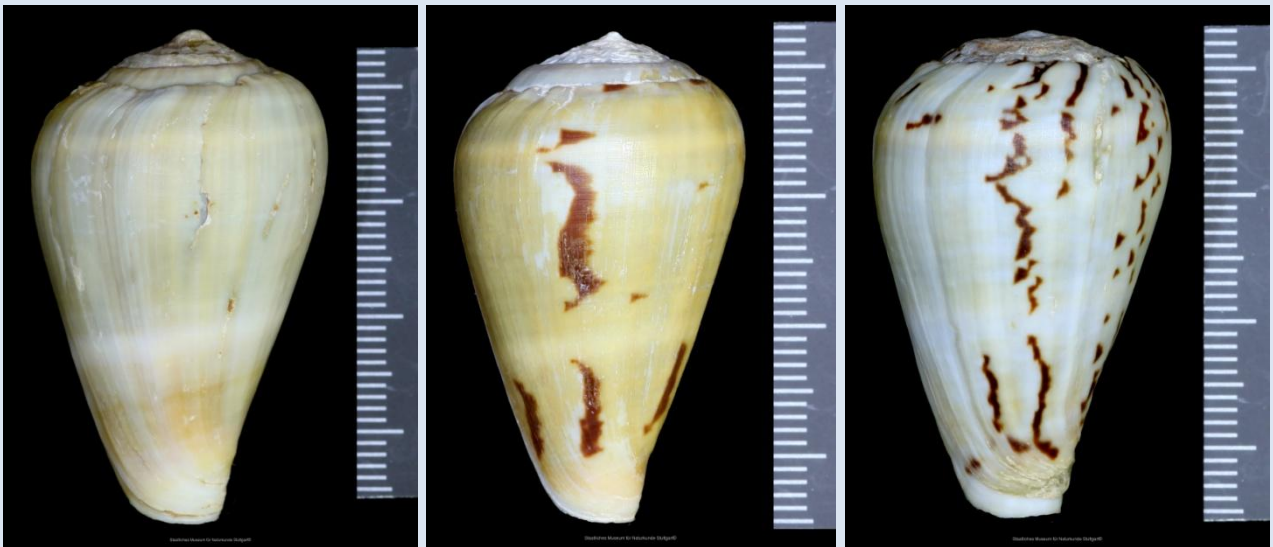
Limagens 20mm GM

Conus trovai Rolán & Röckel, 2000



Limagens is the type locality for *C. trovai*

Paratypes in Röckel collection illustrate variations in specimens from Limagens.



Paratypes Röckel collection SMNS

These large specimens circa 40mm illustrate the variation in pattern; similar specimens can be found today at Limagens



Limagens 28mm CS



Limagens 22mm CS



Limagens 24mm CS



Limagens 27mm CS



Limagens 27mm CS



Other specimens show more extreme forms. The left specimen could be interpreted as *C. zebroides* with a periostracum intact. It has a thin spiral line at shoulder but not at the middle. Label comments within Röckel's collection indicate that he suspected some hybridisation with *C. zebroides*.



This set of specimens from Limagens 16mm to 26mm illustrate the pattern changes with growth.

Conus variegatus Kiener, 1845

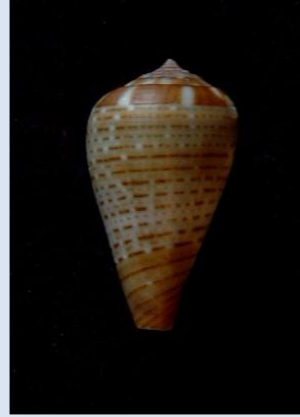
The type of *C. variegatus* is a lectotype figure in Kiener, 1845. Rolán & Röckel designated the type locality as Santa Maria but they had many specimens from Limagens in their study set. The specimen below from the Chris Schönherr collection is a good match to the figure and description with slight difference in pattern on the shoulder. Its aperture shows the typical pattern of purple with two white bands.



Lectotype figure



Limagens Fernandes 1982



Limagens 18mm CS



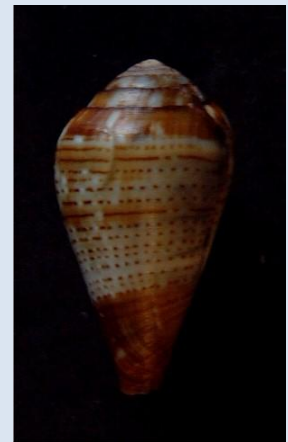
Limagens 22mm CS



23mm



21mm



22mm

These more mature specimens would be interpreted as *C. variegatus*. The bluish ground colour has developed, the spiral pattern varies from brown dots to strong dashes; the spire becomes raised and the areas of brown vary in colour.



Limagens 30mm CS



29mm



27mm

In larger specimens, the areas of brown become more dominant; the blue ground colour is intensified and often there is a thin white spiral band below the middle.



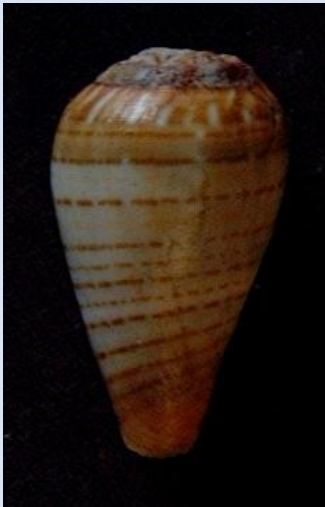
Limagens 25mm CS



Limagens 23mm CS

C. variegatus not only varies in colour pattern but also in form. The 25mm specimen demonstrates an obese form which contrasts with a narrow form(23mm)

As in many of the localities, there are specimens at Limagens with a spiral pattern, often attributed to *C. variegatus*. Such specimens with an affinity to *C. variegatus*, are deceiving.



1. Limagens 20mm CS



2. Limagens 19mm CS

Specimen 1 shows many of the features of typical *C. variegatus* but with more continuous and widely spaced spiral lines; it has a purple aperture so would not be interpreted as *C. chytreus* which has a white aperture. Specimen 2 has a pattern which is almost typical for *C. chytreus* but has a blue tinge to its background and corresponding large purple blotch in the aperture.



3 Limagens 24/18mm

Specimens 3/4 have a pattern of a whitish/blue ground colour with long broken brown spiral lines and large areas of brown. Specimen 5 has lost any blue tinge to the ground colour.



5. Limagens 21mm CS



6. Limagens 22mm CS

This specimen looks like a form of *C. variegatus* with a pattern of spiral rows of small squares and wavy axial threads. It is beginning to show some of the characteristics found in *C. tenuilineatus* from the locality.

Conus species.

Spiral patterns

Many of the specimens found at Limagens are not easily assignable to currently recognised species. Some are found as individual specimens and some as repetitive forms which one day, may be considered as potential new species.



A. Limagens 19m CS



B. Limagens 20mm CS

Specimens(A&B) have some of the characteristics of *C. fuscolineatus* which is not recorded from Limagens.



C. Limagens 26mm CS



D. Limagens 21mm



E. Limagens 24mm

Specimen C has affinity to *C. variegatus*; specimen D has elements of *C. franciscoi*/*C. negroides*(not recorded from Limagens); specimen E has the bluish base colour of *C. variegatus* and the axial streaks of *C. franciscoi*.



F. Limagens 22mm CS



G. Limagens 19mm



H Limagens 23mm

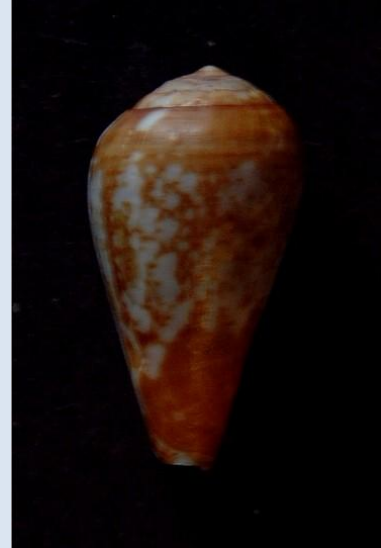
These three specimens with some elements of the pattern of *C. variegatus*, possibly its form *obtusus* but also, some features of *C. musivus*.



Limagens 21mm CS



20mm



25mm

These are unusual blue specimens with patterns comprising elements of *C. musivus*/ *C. bulbosus*.

Species...Spotted specimens.



A large number of these spotted specimens were found recently, mainly sized from 14-16mm. An identity to be considered would be juvenile *C. lineopunctatus* or possibly *C. musivus*.



Species 22mm CS.



Juvenile *lineopunctatus*
Limagens 16mm



Juvenile *micropunctatus*
Limagens 15mm

Larger specimens at 22mm were found in smaller numbers. Specimens of juvenile *C. lineopunctatus* and *C. micropunctatus* from Limagens have already developed their adult pattern at a similar size.



Species 22mm *C. musivus* 18mm CS *C. aff musivus* 20mm
 The specimens are most similar to *C. musivus/C. alexandrinus* from Limagens so may be a morph form of that species.

Other specimens found at Limagens show unusual patterns of spiral dashes and dots.



1. Limagens 24mm CS 2. Limagens 21mm CS 3. Limagens 18mm CS
 Specimen 1 is found at several localities with various identities having been proposed(e.g. *C. musivus/C. lineopunctatus*). Specimen 2 has affinity to *C. lineopunctatus* but has an unusual banded pattern. Specimen 3 has affinity to *C. lobitensis*.

Conus zebroides.



No adult specimens available. Juveniles would be difficult to separate from *C. musivus/C. bulbus*
