

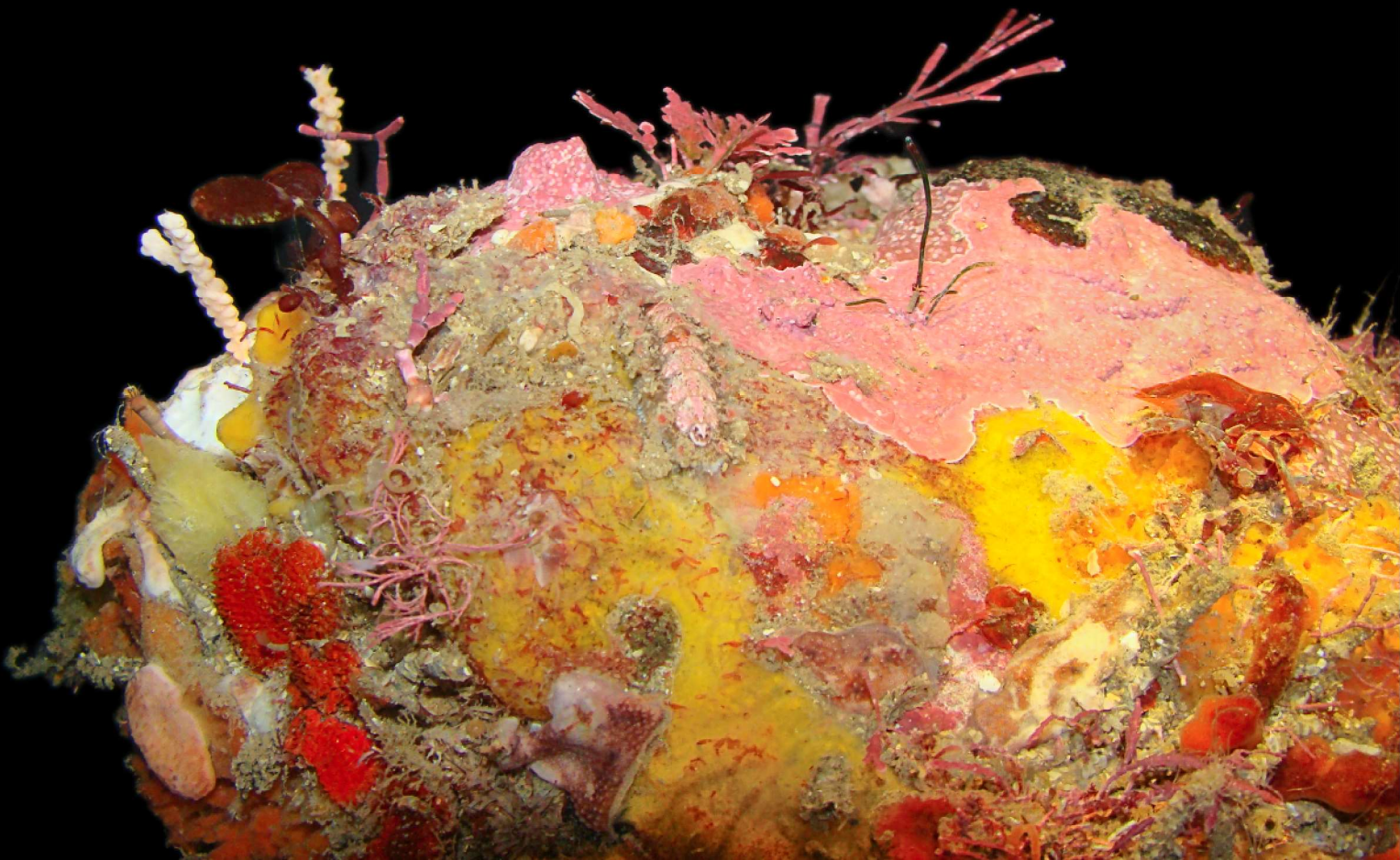
the Strandloper

BULLETIN OF THE SHELL COLLECTORS SA



Strandloper 298 2020

Acanthochitona variegata (Nierstrasz, 1906) with its cryptic colouration



Shell Collectors SA

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FRONT PAGE

Acanthochitona variegata
exquisitely camouflaged
Image: Renee Els

OPPOSITE PAGE

Fishermen at sunset, Bazarauto island
Mozambique
Photo: Ken Brown

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On The Variegata Trail - finding a Cryptic South African Chiton Beauty - *Acanthochitona variegata* (Nierstrasz, 1906)

By Mike Els, photography by Renée Els

In the early 1990s on a free week afternoon from my studies I was alone collecting Chitons using Scuba a short distance south of Simonstown harbour in roughly 6m of cool water on a sandy flat reef. *Ischnochiton oniscus* in their myriad of colours and patterns were abundant beneath the thin layer of sand covering the reef, with *Hyalina capensis* common in the sand, together with occasional *Marginella rosea*, light pink at this locality.

One of the tiny Chitons I collected was a golden-brown *Acanthochiton* species of approximately 8mm which I did not recognize. I exchanged it with a local shell dealer expecting to receive an identification later, but never heard of it again.

Years later in the early 2000's just east of the present Coega harbour, I found a similar specimen beneath a rock in 1m of turbulent intertidal water. This specimen was larger than the False Bay specimen and was a rather drab tan-brown in colour. Identification remained a problem.

Circa 2008 I was snorkeling for patellas along Marine Drive in Port Elizabeth. I returned home with 6 large *Patella barbara*, all densely covered with coralline seaweed interspersed with sponges and other growth, all of which had a base of compact sand filling the grooves between the ridges on the shells. Whilst cleaning off the encrusting growth on one, I encountered yet another of the enigmatic *Acanthochiton*s, brown-green and amazingly camouflaged between the dense encrustations. The patellas were collected exposed on rocks at 1,5m in a high-energy wave zone, indicating that the dense encrustations and shell grooves provided sufficient protection from the turbulent water to allow the little chiton to happily live on the patella.

Renée and I both now had our curiosity thoroughly piqued. Although the true identification of the False Bay specimen shall be forever unknown to us, these *Acanthochitona* species were not illustrated in any of the recent popular South African conchological literature, but a specimen identified as

Figure 1: *Acanthochitona variegata* Nierstrasz 1906, not in its true habitat



Acanthochitona variegata Nierstrasz 1906 was illustrated in *Chitons of the World - An illustrated synopsis of recent Polyplacophora*, by F.J Slieker.

Thus motivated we embarked on a search for more specimens. We found them to be widespread and locally common in certain areas with suitable habitat (as is the case with most mollusks). Their ideal habitat is on rocks lying in clean sand, often in wave-washed turbulent areas, usually close to the low tide mark. They do not enjoy exposure to dry air/desiccation or pools that are heated to any significant degree by the sun. Cleaner sand is preferred. Sub-tidally I have collected them down to 12m under rocks on a sandy turbulent bottom with scattered rocks. Few other species seem to be able to survive in such an unfriendly environment except for the ubiquitous *Ischnochiton oniscus* (Krauss, 1848).

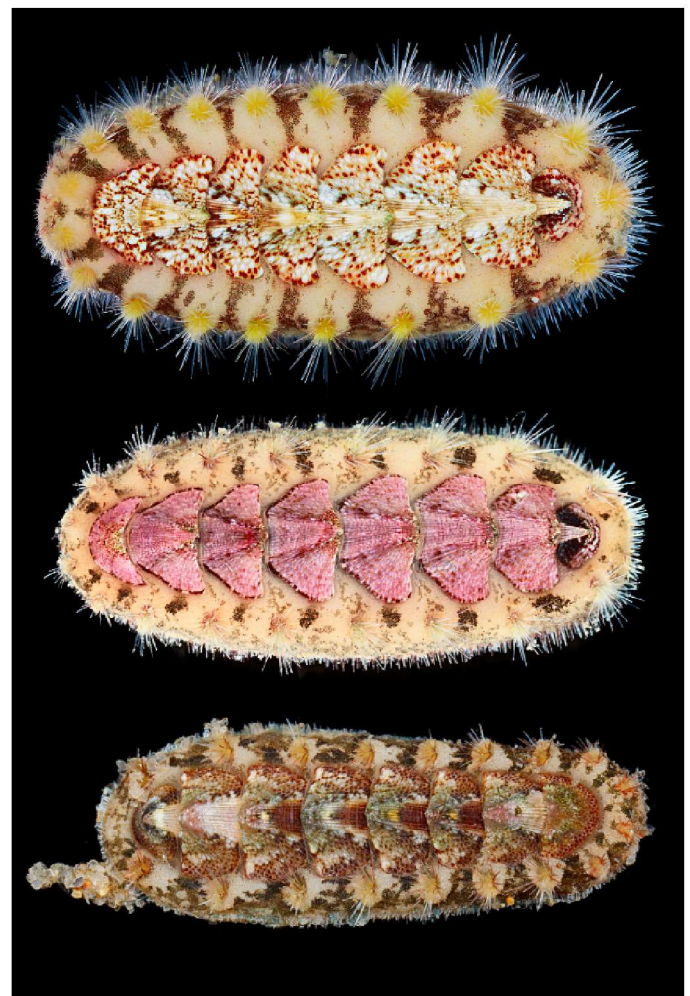


Figure 2: Colour variation in *Acanthochitona variegata*

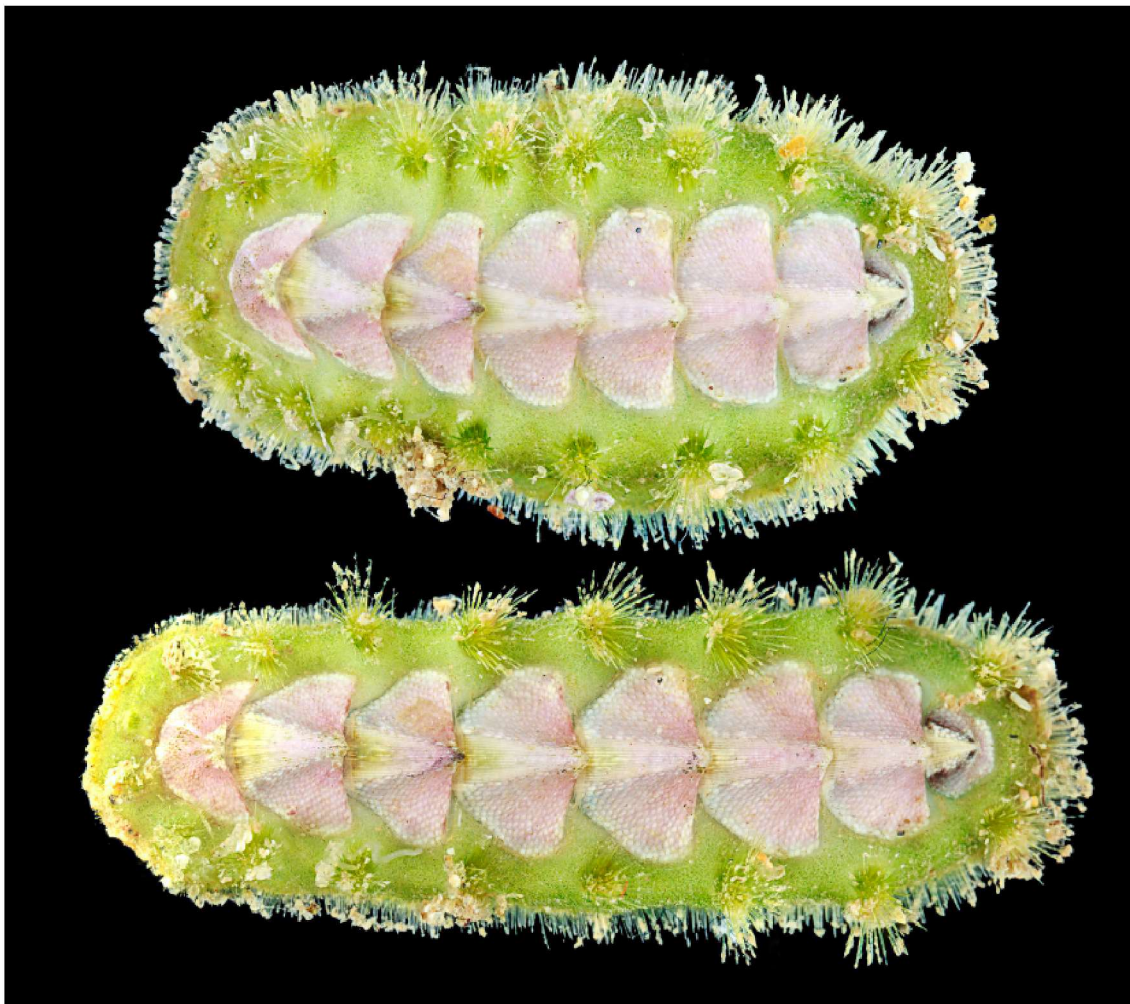
We found the species to be not uncommon in certain areas, but most surprising was that their palette of colours can rival any of our other South African Chitons - lime green, rose red, all shades of pink, near-fluorescent orange, yellow, all shades of brown, violet, shades of purple - the combinations are stunning. Even the bundles of spicules vary in colour.

However, as is the case in some families which exhibit highly irregular sculpture such as *Murex* and *Spondylus*, the multiple spicules serve a dual purpose - both in defense (although, unlike *A. garnoti*, they are harmless to human skin), and in forming highly efficient traps for sand and detritus which often completely



Figure 3: *Acanthochitona variegata* in natural habitat between coralline algae

Figure 4: *Acanthochitona variegata* with lime-green girdle, in contracted and expanded forms below. The lime green girdle is a colour seldom seen in South African mollusks; although it can be seen in *Chaetopleura umgaziana*, and frequently in *Tricolia* spp.



obscures the little chitons – an excellent disguise from predators. A brief splash of seawater will bring out their beauty by washing off the poorly-adherent debris and silt.

They are also relatively flexible and can fold themselves in and around sharp angles on their rocky substrate or insinuate themselves into irregular nooks, cracks and crannies. They are not strongly adherent to the substrate (in comparison to most other local species) and a gentle probe with a blunt knife allows them to be easily lifted off.

In a bucket of fresh sea water, they can move fairly rapidly (for a chiton). This is a distinct advantage in their preferred turbulent habitat. They enjoy small rocks in turbulent, wave-washed areas, usually partly embedded in sand, just above, or at, the rock-sand junction. In rough seas or changing currents, the sand may shift within hours. Any species that cannot move fairly rapidly may be deeply buried. Their mobility is therefore most likely an evolutionary trait allowing them to flourish in this unforgiving ecological niche.

There are 3 species in South African waters:

- A. garnoti*
- A. jegotenuis*
- A. variegata*

A. jegotenuis is a Mozambican chiton that reaches northern Kwazulu-Natal

All occur inter-tidally.

The general characteristics of *Aconthochitona* are:

- A relatively large portion of each valve is buried in the girdle
- 18 tufts (or pores) of spicules: 4 around the head valve, the rest at the sides of each suture

Figure 5: *A. garnoti* tail valve on the left with blue-green articulamentum. *A. variegata* tail valve on the right

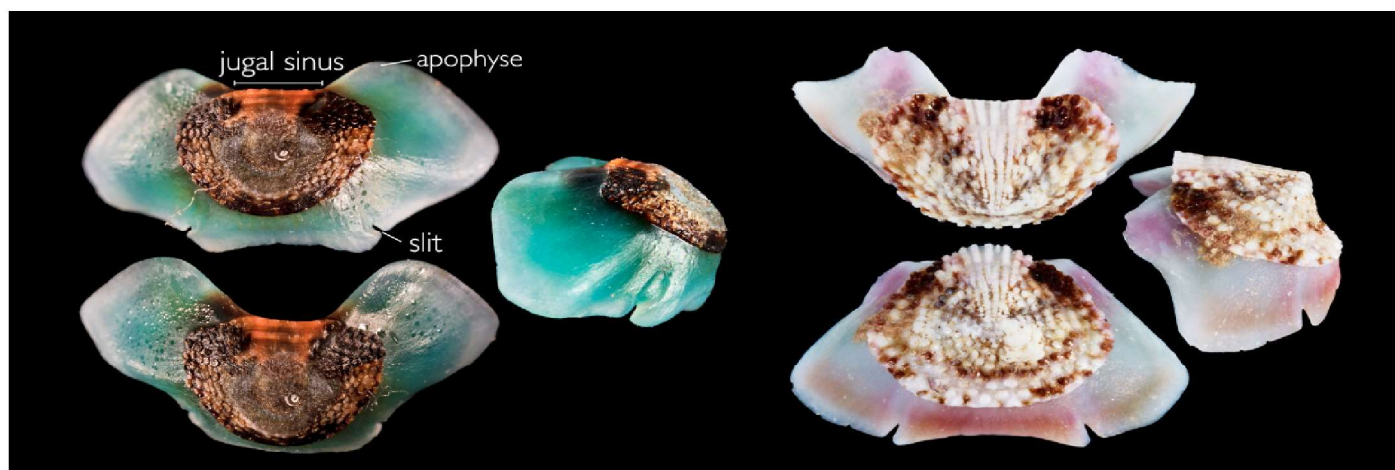


Figure 6 *A. variegata* tail valve

	<i>A garnoti</i>	<i>A jugotenuis</i>	<i>A variegata</i>
Size	30-40mm	23-30mm	Holotype 6x2.5mm. 14-20 mm
Elevation	Lowest (depressed) valves beaked when not eroded.	intermediate	Highest, valves beaked
Valve Granules	Oval,	Round, flat-topped to slightly concave	Oval to round, pierced
Tail valve	Wider than long	Slightly longer than wide	Is as long as it is wide
Mucro	More posterior	Slightly posterior	Slightly posterior
Posterior slope		convex	concave
Inside of valves	Deep blue-green always central purple-brown spot	Light blueish green to milk-white	Pink
Girdle spines	Straight	Curved, 0.4-0.5mm long	Straight
Girdle tuft spines	Straight, >2mm	Curved 1.6-2mm long	Straight 0.65mm long
Behaviour		Walks openly in rock pools at night, often exposed in air.	Discrete and camouflaged, always in water



Figure 7 *A. garnoti* tail valve

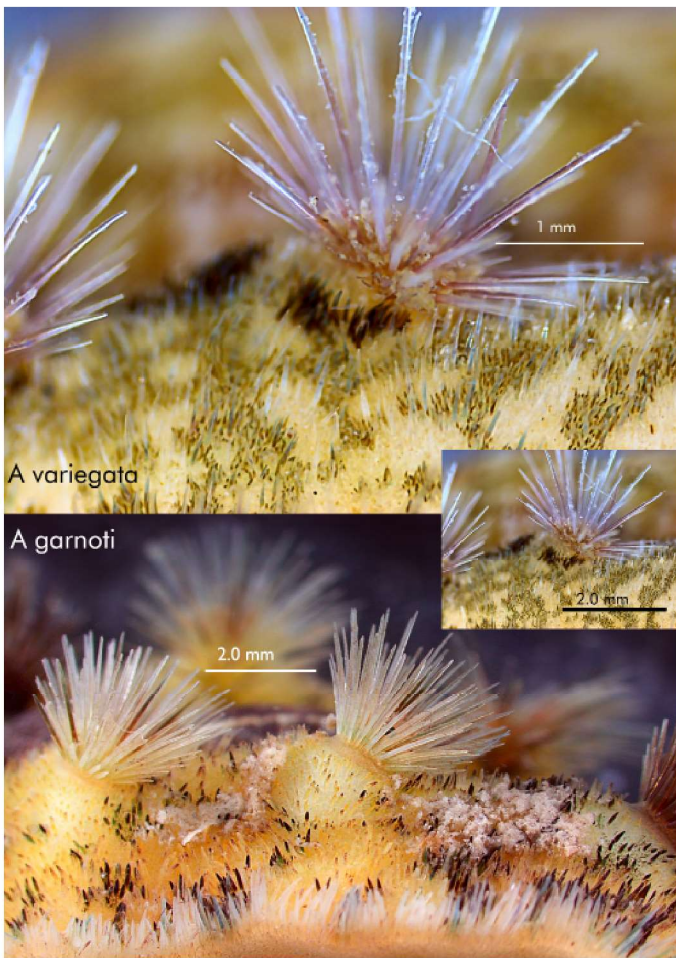


Figure 7: Bristles : Comparison between *A. variegata* and *A. garnoti*. Smaller insert is to scale with *A. garnoti*

We have observed a group of this species in a small container of clear water. After several hours 2 specimens were observed releasing gametes. One individual released white sperm and the other numerous tiny eggs (see accompanying images).

Chitons are either cupulous (free-spawning – as *A. variegata* shows) or non-cupulous (brooding - such as *Chiton nigrovirens*). The cupules on the hull of the egg focus sperm to specific areas of the egg surface for fertilization.

This behavior has previously been documented in gastropod species in containers following collection (see prior discussion on malacological forum Conch-L) and we have also observed mass spawning in an aquarium by 6 *Conus eucoronatus* approximately 48 hours after collection from 96m. This may be a response to stress experienced by the organisms or may be due to unknown chemoreceptor stimuli experienced by a group of the same species placed in a confined small body of water.

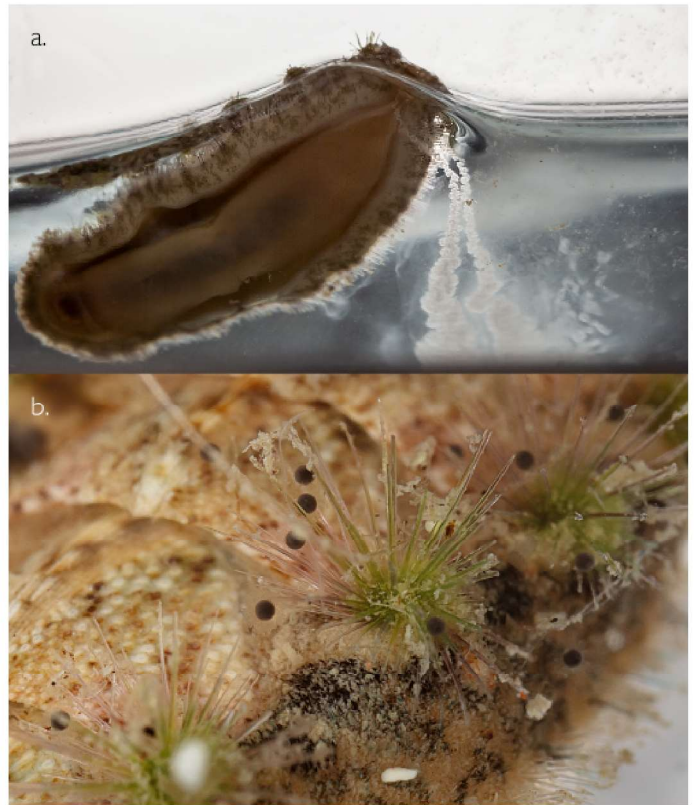


Figure 9: a. *A. variegata* releasing sperm from gonadophore. Figure 9: b. Eggs noted in the bristles of another *A. variegata*

Figure 9: SEM photo of the hull cupules on an egg of *Mopalia muscosa*. Courtesy of Prof Buckland-Nicks from St. Francis Xavier University, Nova Scotia, Canada

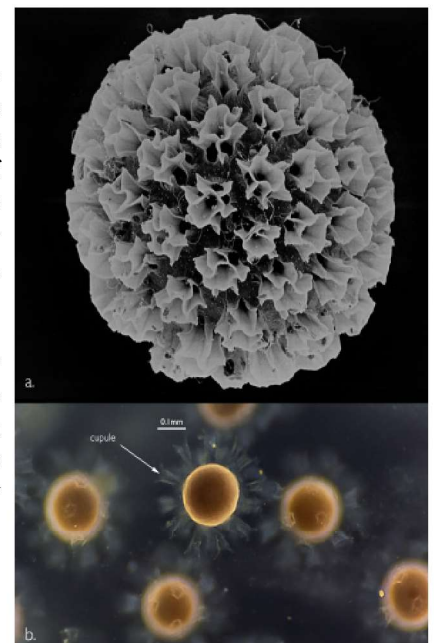


Figure 10b. Under our stereoscopic microscope we got the impression that *A. variegata* eggs may look possibly slightly like Fig 10a

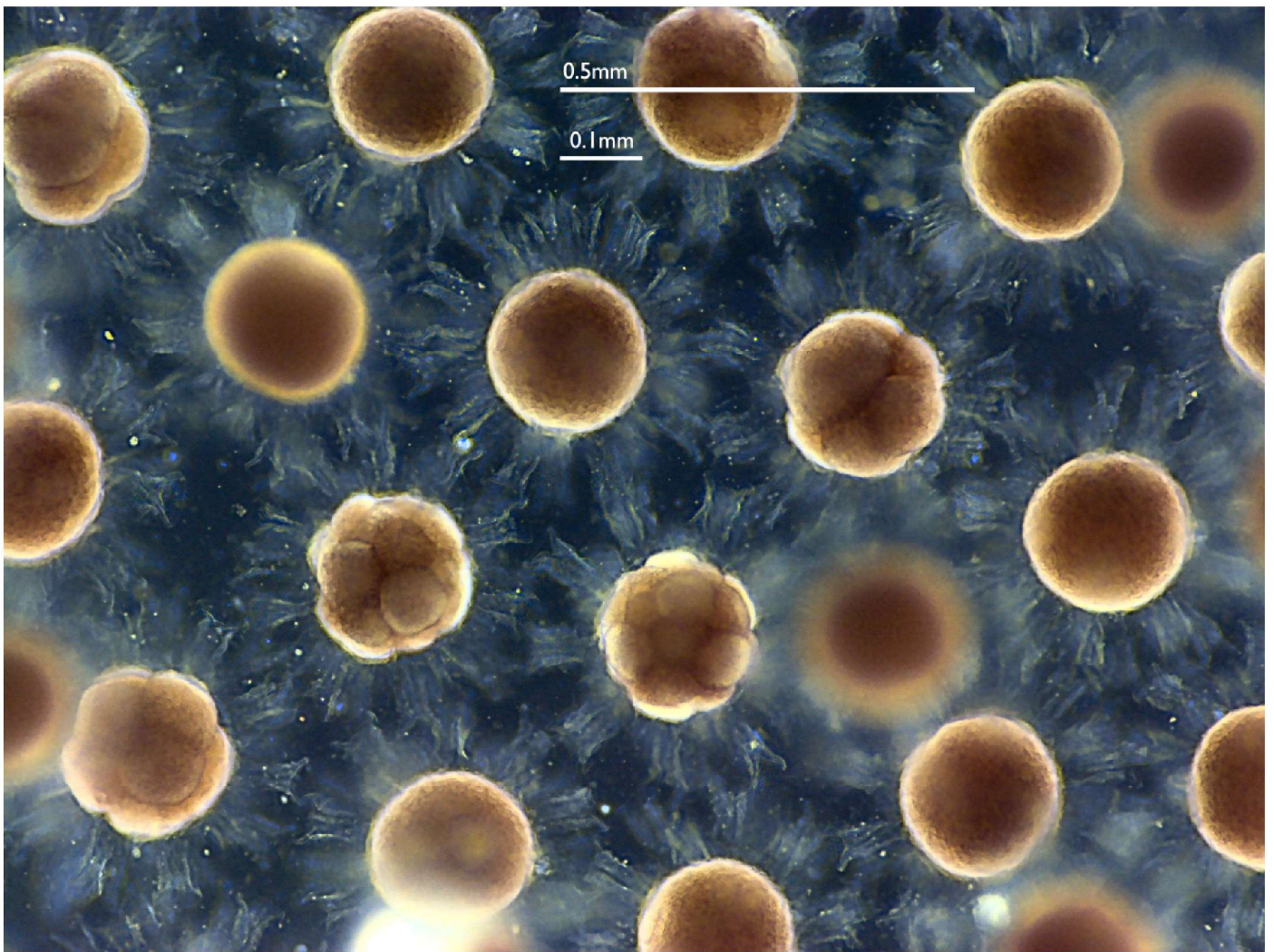


Figure 11. Cell division in eggs of *A. variegata* shortly after fertilization. Note varying stages of development

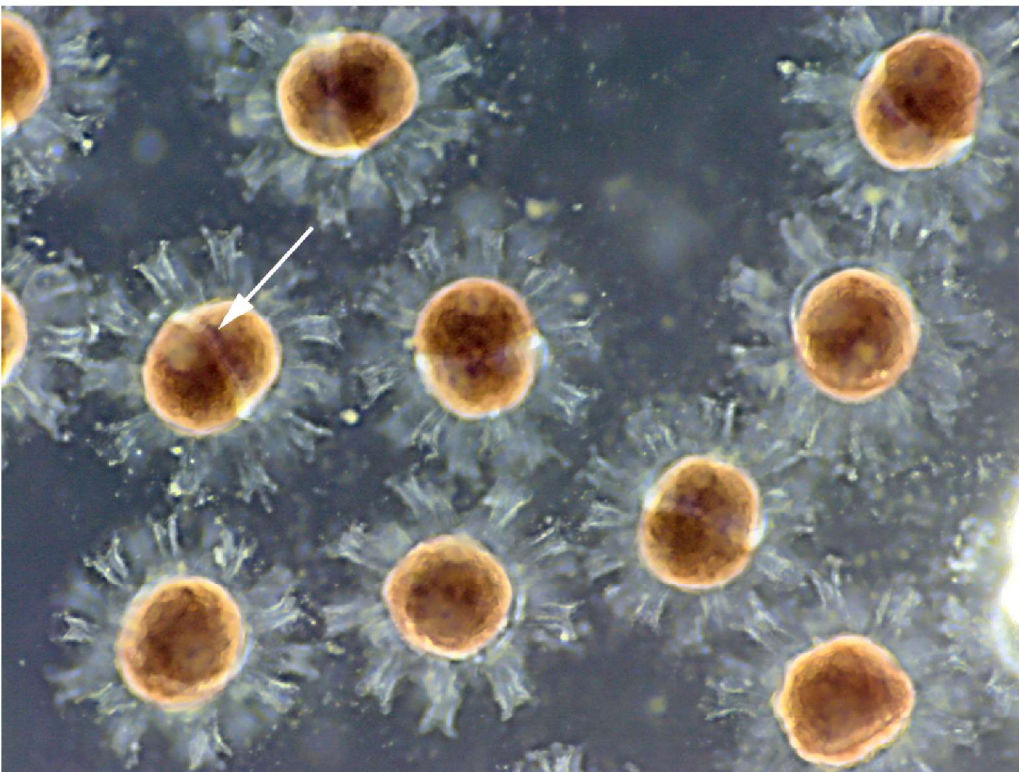


Figure 12: Apparent trochophore larvae in the early stages of development of *A. variegata*. Arrow points to ciliary band starting to develop.

Shortly after the above observations, microscopic evaluation revealed that egg fertilization had occurred, and cell division was taking place. Following photography, we returned the water with eggs to a gully in an area with known healthy populations and wished them well on their journeys.

The range of this little Chiton, based on our experience, is therefore from Algoa Bay (Marine Drive) in the south-west until at least Cintsa, East London, in the north-east. In Slieker the type locality is given as Natal. Nierstrasz described the holotype from a single 6x2.5mm specimen from Natal. He was not sure of the exact location and documented it as either from the “beach at Illovo” or from “Isipingo”. We are unsure of the identity of the *Acanthochitona* specimen we collected in False Bay but a more southern range extension from the above is to be expected (Slieker specimen listed as from False Bay although photograph does not permit accurate identification). An eastern range extension is also to be expected given the holotype locality.

As with most Chiton species, the living specimens show their brilliant colours best. The colour is enhanced by studio lighting during photography. Preserving *A. variegata* with their spines undamaged is in itself a problem. So if you find this beautiful but seldom-illustrated small species, admire them in the sunlight, gently touch them (their bristles are not very hard or irritant) and gently replace their rock in exactly the same position it was found, so that you may again admire them on your next visit.

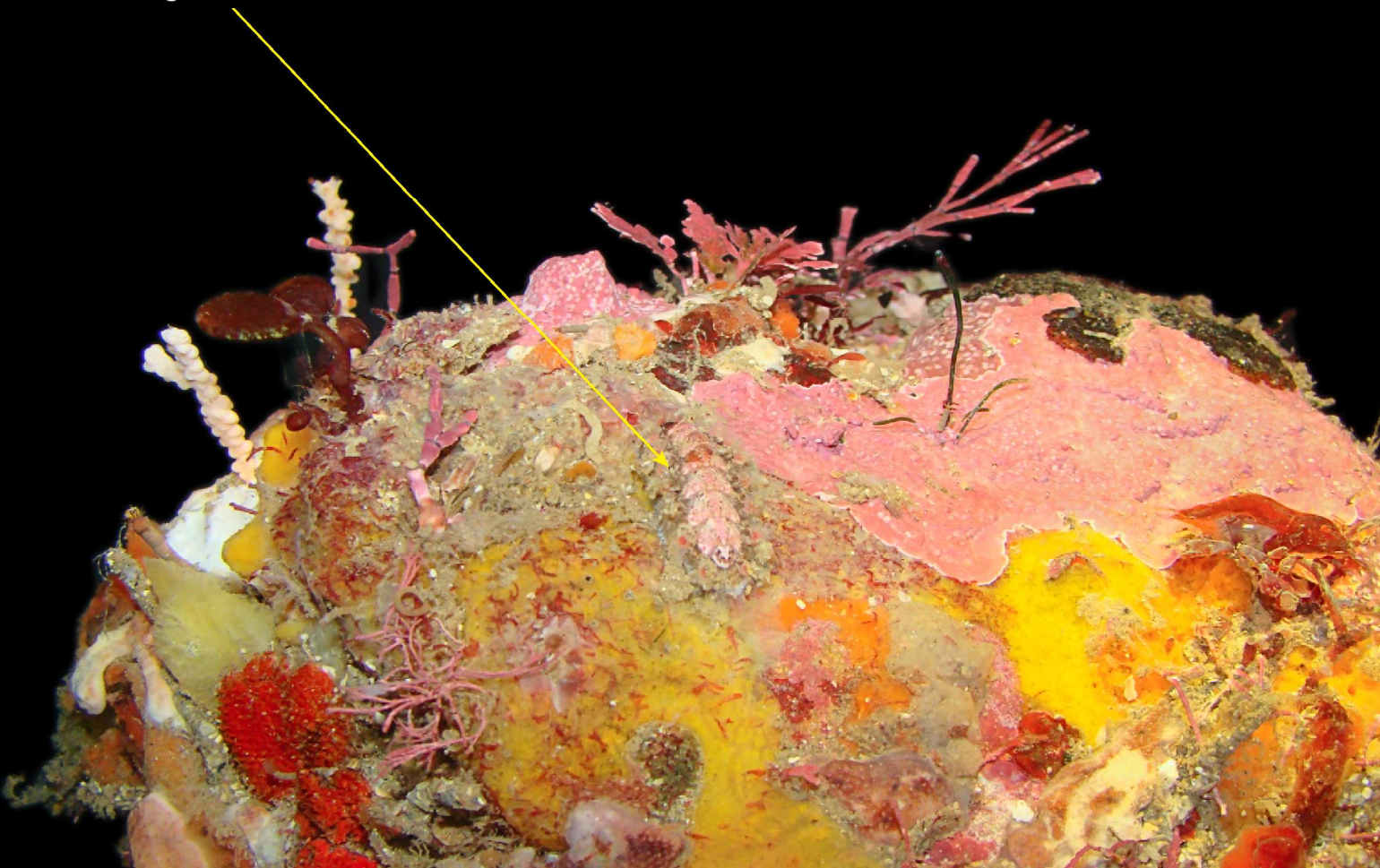
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A. variegata perfectly
camouflaged



A long way from Home

By Alan Seccombe

There are many reasons why you find a shell where you find it. The most common reason is that it is an indigenous resident of the shores, and forms part of the ecosystem of the area, and has done for many years as reported by naturalists and scientists over the years.

Most marine molluscs, like other living things, will have a generally accepted distribution. Some are very widely distributed, for example, certain cone shells are found throughout the Indian and Pacific oceans (Indo-Pacific region) others are restricted to much smaller areas, sometimes to the areas around single oceanic islands, or Island groups. Very few species are common to the Indo Pacific region and the Atlantic due to the continental land masses that split the worlds' oceans, but notable exceptions include the pelagic snails and species such as *Ranella olearium* (Linne, 1758), and *Cymatium pathenopeum* (Salis Marschlins, 1793).

From time to time, new localities become available to species such as those that manage to "migrate" through the Panama and Suez Canals. A number of Molluscan species have found their way from the Red Sea to the Mediterranean, so called Lessepsian migrants. *Strombus conomurex persicus* (Swainson, 1822) and *Cypraea Naria turdus* (Lamarck, 1810) and *Cypraea Purpuradusta gracilis* (Gaskoin, 1849) are Red Sea species now relatively common in the eastern Mediterranean.

The ability of a species to extend its distribution range depends upon many factors, including the form and duration of their larval stages and their ability to adapt to different habitats, including water temperatures, salinity and of course their food or host organism.

However, there are other factors why you may find a shell on a beach unexpectedly. Ships carrying cargoes of money cowries from the Indian Ocean to West Africa have foundered on the Cape Coast and money cowries (*Cypraea Monetaria annulus* (Linne, 1758 and *Cypraea Monetaria moneta* (Linne, 1758), have washed ashore on the Cape Coast, although not occurring naturally in the cold cape waters. In certain places, weddings occur on beaches, and rather than use shells from the local seas, shells are bought from shops, often sourced from completely different countries, to use as wedding décor or as gifts. These shells often find themselves thrown into the waves, only to be washed up on to the shore later on and found by some unsuspecting collector.

Well-meaning people may throw unwanted shells, often from dead relatives or from old collections made in their youths, back into the sea believing that they are better there than in the trash. Again, this can lead to some unexpected finds on the beach.

I found several Nautilus shells washed up on the beach in

the Seychelles (one of the uninhabited islands). Nautilus do not naturally occur anywhere close to the Seychelles, however. I assume that when they die the gas chambers within the shell allows them to float and to be distributed by the oceans' currents eventually to wash up a long way away from where the animal actually lived.

Molluscan larvae can also be dispersed by human action such as in ship ballast, to be discharged into a location a long way from their original place of "birth". Molluscan species can also be introduced by humans to an area. Usually these are linked to edible species. One such species, *Mytilus galloprovincialis* Lamarck, 1819, has been so successful that it is now replacing the indigenous mussel species. A number of the oyster family, including the *Crassostrea angulata* Swainson, 1818 and *Crassostrea gigas* Thunberg, 1793, have been introduced and are farmed commercially. The oyster drill, *Bedevapaivae* (Cross, 1864) was introduced to the Buffalo river, East London, where it still exists but has not spread far from the original introduction site.

Shell collectors, especially those with regional interests such as those specializing in molluscs that occur in South African waters, are very keen to obtain species that have for one reason or another found their way into South African waters and lived there. Accordingly, cargo, wedding and throw away shells are not of interest. Unfortunately, unscrupulous shell dealers, keen to make a sale, may indicate a species as having been found in South Africa. Several South African collectors/dealers in particular are known to have been duping collectors for many years with false locality details. If one collector specifically is to be believed, Park Rynie tidal swimming pool on the South Coast of KwaZulu Natal must have a "transportation portal" linking it to the Philippines as a plethora of species have apparently been found there (and no-where else in South Africa), and which would more usually be found in the Philippines. It is therefore sometimes difficult to authenticate whether a species has/does occur in South African waters.

It is relatively easy to understand that a mollusc more commonly found in Southern Mozambique could extend its range to Northern Natal. Examples of these are *Callipara duponti* (Weaver, 1968), which has been found in Sodwana, and *Conus gubernator*, also found off Sodwana.



Conomurex luhuanus

However, there are a number of species that have been validly recorded from South African waters that are not known to exist in any locations close to South Africa.

For example, a population of *Conomurex luhuanus* (Linne, 1758) once existed in Durban Bay, but is now probably extinct. The closest localities for *Conomurex luhuanus* (Linne, 1758) are Thailand and Western Australia.



Thais Stramonita haemostoma

A couple of specimens of *Thais Stramonita haemostoma* (Linne, 1767)(a very widely distributed Atlantic species) have been found living in Durban harbour. There is also a reliable record of *Cypraea walkeri*(Gray, 1832) from Richards Bay Harbour. Odd specimens have also been found in Mozambique and the Seychelles, but it is a common species in the Philippines.



Cypraea walkeri



Thais sacellum

Cypraea Purpuradusta gracilis (Gaskoin, 1849) and *Thais sacellum* (Gmelin, 1791), Red Sea and Northern Indian Ocean species, have recently been recorded in South African waters. *Thais sacellum* is now relatively common in certain areas of Kwazulu Natal. Interestingly, both these species are also Lessepsian migrants.

A Turrid species, *Clavus albotuberculatus* , Schepman,1889 mainly known from the Philippines, was recently dived off Natal South Coast.



Clavus albotuberculatus

A Turrid species, *Clavus albotuberculatus* , Schepman,1889 mainly known from the Philippines, was recently dived off Natal South Coast.

A rare cone species, *Conus polongimarumai*,Kosuge, 1980 which occurs sporadically in the Philippines and New Caledonia, was dredged in 100m off Natal South Coast. I received both of these species with the animal still in the shell and saw photos of the living animal which is a good indication that these were indeed found in South African waters.



Conus polongimarumai *Strombus Canarium erythrinus*

A *Strombus Canarium erythrinus* (Dillwyn, 1817) was recently found intertidally at Margate in the very south of KwaZulu Natal. It was not collected alive, but was fresh dead with hermit crab, these occur commonly in Northern Mozambique, but rarely found in South Africa.

I am sure that there are other species that have or will make the journey to South African waters in future, either temporarily or become part of the established fauna of the region.

Whether we will be lucky enough to encounter those that don't form a viable population or a transient one, cannot be known.

Shelling in KZN: Pre-lockdown Fun

By Andre P. Meredith, 2 April 2020

I was fortunate to have had the opportunity to spend ten days at the coast in sunny KwaZulu-Natal with my family, just before the inevitable Coronavirus lockdown was announced by President Cyril Ramaphosa in March 2020. In fact, my family and I arrived back in Gauteng on the afternoon of Monday 23rd March 2020, mere hours before the announcement was made and only four days before all inter-provincial travel was banned.

So it was indeed a blessing that we still had the opportunity to embark on vacation without any limitations or other barriers to fun. This was appreciated by our kids all the more, being afforded much-needed freedom before experiencing the restrictions of a lockdown.

Our vacation started on the KZN South Coast at St Michaels-on-Sea. This little town lies between Uvongo and Shelly Beach – in fact, it's so small that it is impossible to know where these three towns start and end; they all seem to flow into each other, only the beach-heads and individual swimming beaches creating natural borders.

Our home for the next the six days was Clover Bay, which sits right on the banks of the Mhlanga river and a stone's throw from the beach. We opted for unit number 2, which is beautifully furnished and has a lovely view over the main swimming beach area. The fish and chips takeaway just next to comes highly recommend!



Clover Bay 2 looking to St Michaels

Although shelling remains one of my main priorities whilst down at the coast, being a family vacation, lots of time is also spent on the beach just relaxing and staring at the ocean from under the shade of the gazebo, soaking up the laughter of the kids as they build sand castles and frolic in the shallow waves, and taking short excursions into the waves to cool down. And no beach holiday is complete without ice cream from the tuck shop or toasted ham & cheese sandwiches and “slap chips” from the takeaway next to the beach. Nothing wrong with any of this!

Our time in St Michaels did not deliver much from a shelling

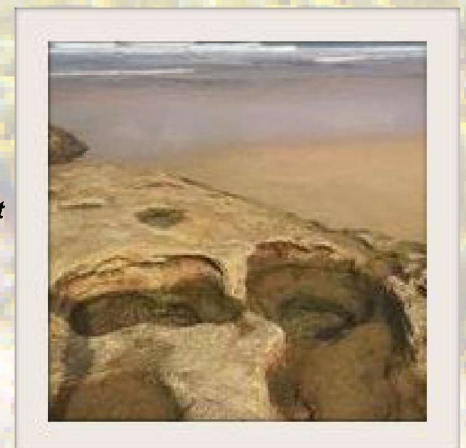
perspective, though – with the exception of a few lovely items from Roy's new shell shop inside the book store in Shelly Beach. I must commend him for the beautifully adorned store-front and the clever way in which the shells have been strategically placed amongst books (for the wife), and a legion of plush toys (for the kids) – so in the end no one walks out empty-handed. But, from a natural perspective I did not collect much.

The kids enjoyed their rock pool finds (which I always admire), but even the tidal pool area in Shelly Beach did not deliver much this time around. I did not even see any *Monetaria annulus* in the pool – a fairly common sight up to a year ago. Lots of crabbed and dead shells littered the sandy pool floor, but nothing noteworthy to collect. I found a large, dead *Ovatipsa chinensis* amongst the rocks to the right of the pool – but my wife found a real gem: a beautiful fresh dead *Naria erosa* wedged in under one of the rocks. It was the only noteworthy find on the South Coast, and it is now displayed proudly in my collection.

The views and sunsets, however, did not disappoint, as is evident from these photos.



Sunset at St Michaels



Rock pools at St Michaels

I cannot wrap-up the South Coast without an honourable mention of Park Rynie. It would be criminal (in my humble opinion) to drive all the way to KZN and not visit the famous shelling spot.

So we did! We stopped over at the big Park Rynie tidal pool on our way from St Michaels to Ballito for the second half of our vacation.



**Park Rynie
tidal pool**



Ballito Bay with Thompson's Bay in foreground

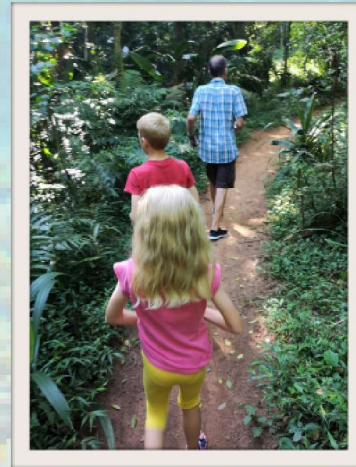
Unfortunately the tide was against me and upon arriving it was already about two hours past low tide (which wasn't very low to start off with...), so I was not able to spend quality time amongst the large boulders and rocky ledges to the left of the tidal pool: most of this was fully submerged by that time. So I donned my second skin suit and dived into the tidal pool instead. I can report that the pool is quite healthy, and not as sand-filled as it was in March 2019. The numbers of live shells seem to have improved, with a notable increase in the *Monetaria annulus* population - they were everywhere! Fish, coral, urchins and crabs were around in good numbers, and all-in-all the pool seemed to be in good shape.

I had planned to go to the natural snorkelling spots closer to the Caravan Park in the south of Park Rynie, but I think it would have been superfluous, given the state of the tide at the time. I did not collect too much myself (I took three live *Monetaria annulus*, and found one fresh dead *Melicerona felina*, plus a few dead cones in the tidal pool) - but the family always become avid shell collectors in an instant when arriving at Park Rynie.

My wife found another dead *Naria erosa* (she seems to have an eye for them...) and the kids collected bucket-loads of shells, mostly dead or crabbed, but they had fun nonetheless!

We left Park Rynie after an hour of fun and drove up north to Thompson's Bay, Ballito where, upon arrival, we checked

into Santorini. I can highly recommend any of the holiday flats in this coastal estate - all are well-furnished, most have air conditioning and full DSTV bouquets (for rainy days), and all the flats seem to have spectacular views over Ballito Bay.



Waterberry Forest Trail

There are swimming pools and little pathways for the kids (and adults) to play in - and tenants have an electronic key-card with estate-only access to the Thompson's Bay and Santorini beaches.

Shelling in this area is always particularly good, but more on this a little later. Before I get into the shells, I need to mention that no trip to Ballito would be complete without a visit to Waterberry Coffee Shop. If you're a cheese cake fanatic you had better stay away, because your wallet will be empty and your bathroom scale may start complaining - depending on how many times you visit!

It's a good thing there's a lovely forest trail right in Waterberry's back yard - completely enclosed and safe for the kids to traverse, looking for land snails and the family of "duikers" hiding in there somewhere... All this while the adults relax with a cappuccino and slice of cake. My kind of holiday.

Getting back to shells, looking for specimens along the North Coast is one of the highlights of a trip to this area for me. I've become accustomed to having marked success at finding nice shells at Ballito, and I was hoping for the same during this trip. And once again, Thompson's Bay did not disappoint!

First I should explain where I usually go looking for shells in this area. I think many shellers are not too familiar with Thompson's Bay as a shelling spot, but it can be a treasure trove, if you know where (and when) to go.

The big tidal pool at Thompson's used to be a fairly good spot to at least view shells (the tidal pools are actually prohibited shell-collecting and fishing areas...). Previous trips have always given me the opportunity to view many live *Canarium mutabilis*, *Conomurex decorus*, *Montaria annulus* and even some Ranellidae species. This trip did not deliver much in this regard; about one third of the pool was filled with a large, green algal cloud, making it difficult to see, and while the coral and other marine life

(including five or six beautiful blue parrotfish) seemed to thrive, the shells remained strangely obscure. I spent most of the time snorkelling in the tidal pool only admiring the fish and other sea life (which is fantastic, too), but my chances at finding anything other than a few *Monetaria annulus* or crabbed odds and ends was pretty much zero.

The natural rocky areas in the sea next to the adjacent Secret Beach was, however, another story altogether. This area has become my favourite shell hunting ground on each trip for the past three to four years running. And each time it delivers more surprises! I am a cowrie-man at heart, so I spent most of my time looking for the elusive shiny gems. The KZN North Coast is host to a good number of the Indo-Pacific Cypraea species – many found only at shallow diving depth. But certain species can be found at snorkelling depth, or may even sit completely exposed on rocks at low tide. The Thompson's Bay area is one such place.

Of course, it does help to visit the area during periods of low tide, when many of the usually submerged rock ledges and corals (containing shells) are exposed or shallow enough to snorkel. Spring Low tides are the ultimate shelling opportunities; in March 2019 I was fortunate to have been in this area during such an event, and this gave me the opportunity to simply walk up to rocks and peer under ledges that, even during a regular low tide, would have been difficult to access.

To get to the best shelling spots at Thompson's Bay, you need to first go through the "Hole in the Wall." Next to the Thompson's Bay tidal pool, at the upper end closest the ocean, is a narrow-ish natural hole in the rock face, with a walkway leading to a lovely small beach known to the locals as the "Secret Beach" or "Hidden Beach".



Hidden Beach with its rockpools and gullies at low tide

It is not a swimming beach by any means, and contains only a tiny spot of sand compared to the surrounding beaches, but the rocks and gullies running into the sea from it are host to all sorts of treasures – if the tide is right and you're prepared to get your feet (and everything else...) wet.

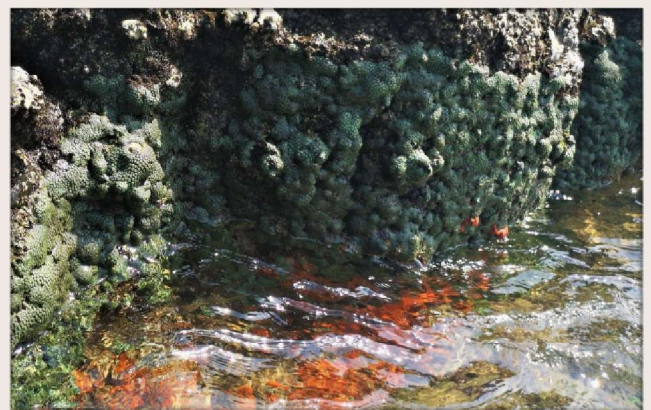


Chiton in a rock pool at Hidden Beach

We arrived in the area very close to a New Moon, and the tide kept falling each day making venturing into the shallows easier each day. The pictures following are indicative of some of the sights during low tide in the area – lots of exposed soft green coral, shells and bivalves sitting atop exposed rocks, crabs scurrying about everywhere and shimmering rock pools filled with coral, small fish and hermit crabs. Many of the live shells sit partially hidden inside the soft green coral banks, and it takes a keen and patient eye to spot them.



Rockpools at Hidden Beach



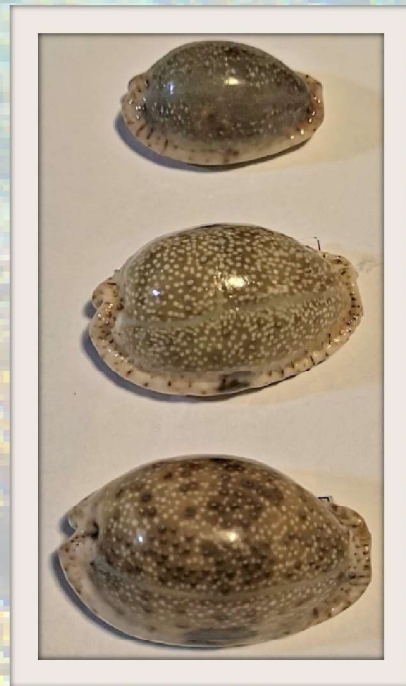
Two days before heading back to Pretoria I found my first three Ballito cowries – a fresh dead *Naria erosa*, a live (slightly juvenile) *Mauritia arabica immanis* and a lovely live *Monetaria caputserpentis*.

The following day – while the tide was at its lowest – I made the “finds of the trip”: two more live *caputserpetis*, another live and fully-mature *arabica immanis*, and – oh boy – a beautiful, live adult *Lyncina vitellus*. The *vitellus* was my last find of the trip, on my way out to the beach. I peered in under a shallow ledge very close to the beach (still exposed by the low tide), and there it was, sitting right in the back.

All-in-all, a great time with satisfying results.

I should add that, unlike previous years, all my finds were made in really shallow areas, very close to the shore. My wife also found (more like, stumbled upon...) a splendid live *arabica immanis*, just sitting there on the side of a rock, about 10m from the beach. Admittedly, the tide was quite low at the time, but it was still fascinating how close these often elusive shells were to the shoreline.

The following pictures showcase some of the Cypraeidae found on our journey, most of them found on the North Coast.



Cowries found: *arabica immanis*, *caputserpentis*, *erosa*, *helvola*, *felina*, *chinensis*, *vitellus* and *annulus*



An overview of some South African Patellidae

by Anton Groenewald

Patellas are one of the most successful families of gastropods that inhabit our rocky shore line. They are able to withstand many environmental challenges, both natural and man made; however over-collecting, pollution and habitat disturbance have left certain areas barren, with no hope of recovery.

Oceanic temperature changes may have a profound effect on the growth of limpet species. Research has shown that species inhabiting higher latitudes grow at a slower rate, achieving larger sizes, and having a longer lifespan than limpets from lower latitudes.



Helcion concolor (F. Krauss, 1848) with beautiful ribbing

Glenmore, Kwazulu Natal

All limpets are herbivorous grazers. They spend their lives scraping the rocky substrate with their radula, feeding on microbial biofilms which are comprised of cyanobacteria and microalgae, including diatoms, spores and other propagules of macro algae. Limpets are considered to some extent to be semi-sessile organisms.

They undertake small movements in the area surrounding their usual fixation site. This behaviour is referred to as homing, and can often be observed through the scar that remains in the rocky substrate, where the limpet settles.

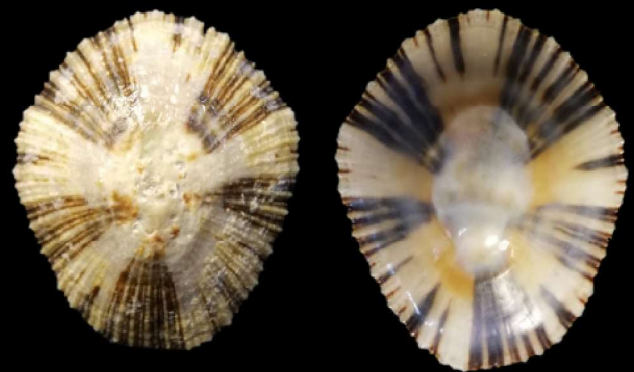
Helcion

P D de Montfort, 1810

The genus *Helcion* is represented by four species restricted to Southern Africa.

Helcion concolor

(F. Krauss, 1848)



Port Edward, Kwazulu Natal

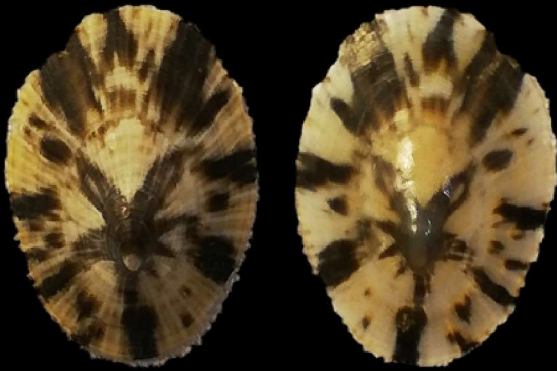
Helcion concolor is commonly known as the variable limpet is found in abundance from Algoa Bay, up all along the southern East Coast of South Africa, and is non-territorial. The dorsal side is often overgrown by algae and other plant matter, which make them somewhat unattractive. The continuous rolling of dead shells in the surf make them appear much more attractive than the live specimens. Shell size: 30—60 mm.



Port Edward, Kwazulu Natal

Helcion dunkeri

(F. Krauss, 1848)



Paternoster, Western cape

Helcion dunkeri live in colonies in shallow water and in rock pools underneath rocks. The size of the shell ranges from 10 mm, which is more or less the average size, to a maximum size of up to 25 mm.



Marina Martinique, Jeffreys Bay

They are found along the Western Cape Coast from Namibia to Southern Kwazulu Natal. Specimens from the North Western Cape are darker than those found in the South Atlantic, and Eastern Cape.

On closer inspection shells show tiny green spots on their outer surface, and colours can vary from pink to yellow.

The true beauty of *Helcion dunkeri* is only appreciated once magnified— in my personal opinion.

Helcion pectunculus

(J.F. Gmelin, 1791)

Helcion pectunculus, also known as the Prickly Limpet, ranges from Namibia to Southern Kwazulu-Natal. The shell is deep, averaging in size from 17–30 mm, and can be found in rock crevices at low tide. Live specimens are decorated with small black scaly spines, covering the ribs of the shell. In dead collected specimens, as seen below, the black spines are absent, showing beautiful colours and patterns.



J

Jeffrey's Bay, Eastern Cape

The body temperatures of *Helcion pectunculus* never exceeds the temperatures of the rock surface on which it lives. Allometric growth allows the shell to increase in height faster than in length.



Kommetjie, Western Cape

Helcion pruinosus

(F. Krauss, 1848)

Helcion pruinosus is similar to *Helcion pectunculus* but it is not as high, and does not have spines, being rather smooth. It is light brown in colour with axial darker brown to black rays. Tiny blue-green dots can be observed in younger and less-eroded shells.



Saunders Rocks, Western Cape

Distribution ranges from the north-western Cape coast to Eastern Transkei. The live shells are often found on exposed wet rocks or shallow rock pools at low tide. Average shell size: 25—30 mm.



Milton Pool, Seapont, Western Cape

Cymbula

H. Adams & A. Adams, 1854

The Genus *Cymbula* is represented by 9 species of which 6 species are restricted to Southern Africa.

Cymbula compressa

(C. Linnaeus, 1758)

This giant limpet is predominantly found on kelp which grows off-shore all along the Namibian and Western Cape coast as far as False Bay.



Port Nolloth, North-Western Cape

Cymbula compressa is oblong and high, with compressed sides in mature specimens. Juvenile specimens are flat as the sides are not yet compressed. Average size: 100 - 130 mm, and can be found beached on almost every beach in the Western Cape province.



Semi-juvenile *Cymbula compressa*
Doringbaai, North-Western Cape

Cymbula granatina

(C. Linnaeus, 1758)

The Granite Limpet is found in abundance all over the Western Cape coast. They inhabit rocky areas in the mid-tidal zone, and can be seen at low tide clinging to the sides of rocks. *Cymbula granatina* grows up to 90 mm in size. This fast growing species occurs all along the West Coast from Namibia southwards to False Bay.



Port Nolloth, North-Western Cape

Live and freshly-dead specimens exhibit a uniform colour and shape. Worn shells, such as the specimen below still make a very interesting shell to collect due to their polished posterior sides. The interior of the shell loses its black margins from over-exposure to the sun.



St. Helena Bay, Western Cape

Cymbula miniata

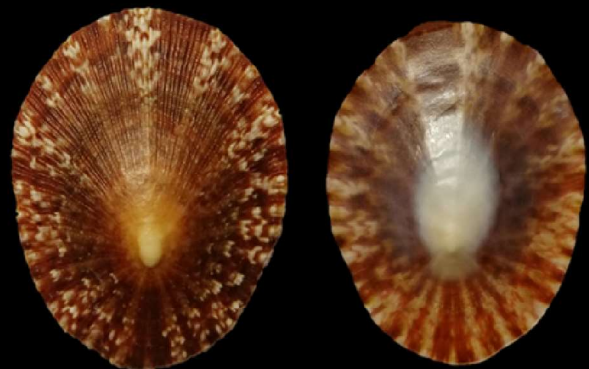
(I. von Born, 1778)

Patterned streaks of all shades of pinks and browns make this perhaps the most colourful species in this genus.



Strand, Western Cape

Cymbula miniata ranges from Namibia to Southern Transkei. The shell varies from 30 - 80 mm in size. The interior of the adult shell is off-white with the posterior streaks showing through.



Jeffreys Bay, Eastern Cape

Cymbula miniata can easily be misidentified for a juvenile *Cymbula sanguinans*.

Cymbula oculus

(I. von Born, 1778)

The Goats Eye Limpet is similar in shape to *Cymbula granatina*, but differs in colour, externally and interiorly. The shell is also not that high, and has a unmistakable thick brown central callus.



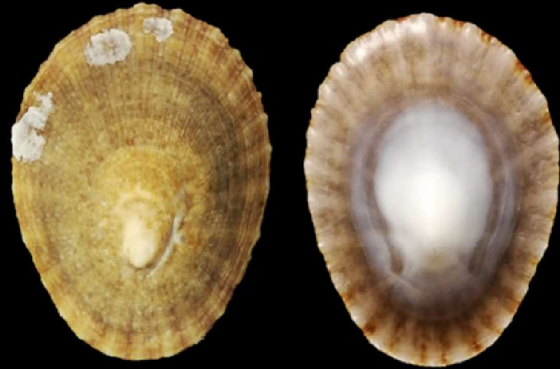
Mosselbay, Western Cape

Cymbula oculus ranges from the western Transkei, southwards and as far as St Helena Bay in the West Coast (Koch 1949; Branch 1971).

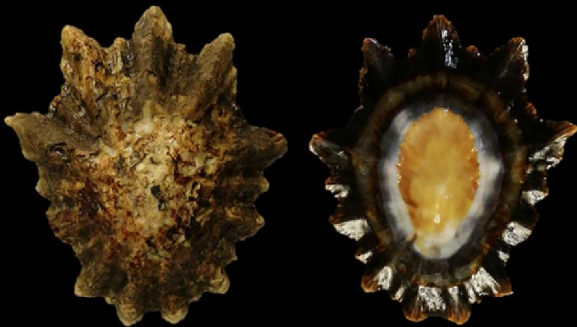
Cymbula safiana

(J. Lamark, 1819)

Cymbula safiana is probably the rarest of all the species in this genus in South African waters, occurring mostly on north-western African Coast, and Namibia. However, in South Africa specimens have been collected as far as St Helena Bay, on the West Coast. *Cymbula miniata* from the West Coast may be mistaken for *Cymbula safiana*, as the shell of *C. miniata* is also thick and dull in colour.



Swakopmund, Namibia



Begha Beach, Eastern Cape



Doringbaai, North-Western Cape

The average size is 90 mm. The maximum size seldom ever exceeds 110 mm.

Cymbula oculus is a protandric hermaphrodite, changing sex from male to female after one year. This species is found throughout the eulittoral zone (intertidal or mid-shore area)

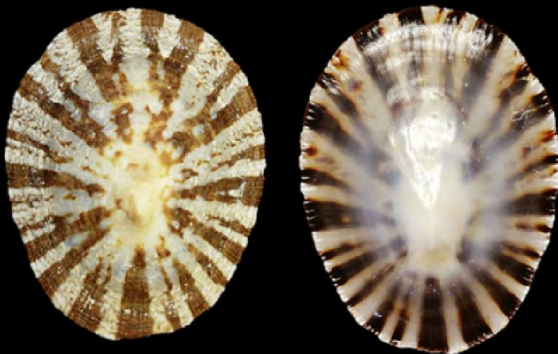
Average shell size ranges from 70 - 115 mm.

It is questionable whether *C. nigra* is a synonym for *C. safianus*, or that *C. nigra* extends upwards from Angola, or that *C. safianus* extends downwards towards South Africa...



Xora, Southern Transkei

Shell size is variable. Juveniles from as small as 10 mm are a common sight on the Wild Coast of the Transkei. Maximum size is up to 100 mm, such as in the image above. Larger specimens have been recorded from East London.



Port Edward, Southern Kwazulu Natal

A participative project

By now, members will have received a request from SCSA for an update on coastal shelling localities, together with maps and supplemental photographs.

This information will then be made available to members. Our ethic of preserving our rich conchological heritage will always remain foremost, and it is anticipated that this project will prove a valuable distribution tool to amateurs and researchers alike. Should you not have received our circular, please contact our Secretary.

Feedback on Future Meetings and AGM

The impact on the world, and on each of us, of the Covid 19 virus, has been enormous. It is our heartfelt hope that all our members, and indeed all readers and their families, have managed to stay safe and well in this insecure time, and will continue to do so.

The prognosis from medical experts is that, regrettably, the darkest days are still ahead of us, and that the destructive peak of the contagion will only be reached by September this year in South Africa.

This stark reality will require fortitude and courage by all of us, and an inability to plan effectively for the future. Meetings of local branches of the Society are on hold at the moment, and the Annual General Meeting planned for June will need to be postponed until at least October or later. We will keep you posted of developments as soon as we can.

We wish all of you safety and strength.. physically, mentally and financially. One solace of course is the delight your passion in conchology can bring.. take this time to relook at your collection, admire, catalogue, research, investigate, allow your hobby to lighten your way....

Until we can meet again

Ken