

Why study one Genus of molluscs from one area? Such a topic would prove limited and brief. The opposite happens to be true in this case. The topography of the Western Atlantic has created many sub-regions and pockets that have, in turn, given rise to today's exciting Conidae.

To make this book enjoyable and useful to the collector I've strived for a balance between text and photographs. This book is written for collectors. Shell collecting happens to be a hobby that marries science and beauty. As I have advanced with my collection, my desire to find out more has grown. The diverse cones of the Western Atlantic have provided me a continuing source of fascination for many years. The scope of these shells range from the ultra-rare to the abundant. Similarly, the color and patterns of some *Conus complexes* are nothing short of amazing.

Please enjoy this book. I have had great pleasure in preparing it.

Happy Collecting,

Matthew H. Grote



FOREWORD

It is the aim of this book to discuss the living *Conus species* known from the Western Atlantic. This area includes both the subtropic Carolinian Province and the tropical Caribbean Province. The northern borders of this area include the coast of North Carolina out to Bermuda. They further extend southward to include the Gulf of Mexico and the Caribbean Sea. Cones can be found as far south as northern Argentina, so this represents the southern limit. To the delight of collectors many new cones have been recently describe. These new cones are the result of exploring and collecting previously under-observed areas.

The greatest concentration of species occurs within the warmer regions of the Western Atlantic. These favorable conditions support a diversity of species. This number decreases in the farther reaches of the Atlantic. Many of these isolated species grow to large sizes. Examples are *Conus mindanus bermudensis* in Bermuda and *Conus mazei macgintyi* from southern Brazil. These larger cones may owe their size to a lower metabolic rate.

Conus ermineus, a Western Atlantic species, also occurs on Africa's West Coast. Likewise, many cognate species are found in the Panamic Province. This phenomenon exists because the land-mass of Central America was once open. With the formation of the Isthmus of Panama, this common gap was slowly closed. These separated twins have now been on their own for thousands of years. Many of these cognate species remain strikingly similar. I will discuss the individual examples later in the text.

It is easier to understand the difficult species of the Western Atlantic if you understand the concept of a complex. In conchological terms, a complex is a group of shells that share common physical attributes. The most prominent species or progenitor supplies the name of the complex, i.e., "the *Conus daucus* complex". The complex members consist of sub-species and full species. Time and geographical isolation makes inherent changes in any living population. The major cone completes of the Western Atlantic are: *Conus cedonulli*, *Conus daucus*, *Conus spurius*, *Conus cardinalis*, *Conus mindanus*, (+ *Conus jaspideus*), and *Conus clerii*. Of course, several other completes occur, however, these have fewer members. *Conus mazei* and *Conus anabathrum* are among the minor complete.

THE CONUS OF THE WESTERN ATLANTIC

The *Conus cedonulli* complex

Conus cedonulli Linne, 1767

Conus cedonulli (black color variety), *holemani* Nowell-Usticke, 1968

Conus cedonulli (patternless variety), *caledonicus* Hwass, 1792

Conus cedonulli insularis Gmelin, 1791

Conus cedonulli dominicanus Hwass, 1792

Conus mappa Lightfoot, 1786

Conus mappa trinitarius Hwass, 1792

Conus granarius Kiener, 1845

Conus granarius (form *sanctaemarthae*), Vink, 1977

Conus granarius (form *panamicus*), Petuch, 1990

Conus aurantius Hwass, 1792

Conus pseudaurantius Vink and von Cosel, 1985

Conus curassaviensis Hwass, 1792

Conus duffyi Petuch, 1992

Conus scopulorum Van Mol, Tursch, and Kempf, 1971

Conus harlandi Petuch, 1987

Conus scopulorum and *Conus harlandi* may not be members of this complex. Their range is well beyond that of the other members of this complex. They are included here because of their physical characteristics. They may prove to be highly endemic or isolated populations. Likewise, there are many synonyms and pattern names that I have chosen not to discuss.

The *Conus cedonulli* complex is generally confined to the lower Caribbean. It is absent north of St. Lucia. Many polymorphic forms exist. The level of speciation in this complex ranges from color forms and "named" patterns to full species. The divisions in this complex are not always clear. Many intergrades occur. The most important data therefore in the locale. A name can be added later. Many collectors insist on having names. Such cones can be labeled as *Conus species*, or not labeled at all. Remember- man creates names to organize and explain the objects around him. The cones themselves have no knowledge of these names. They have existed for thousands of years, simply living out their life cycles.

Typical *Conus cedonulli* is found off the West Coast of St. Vincent and the neighboring Young Island. It is generally taken by SCUBA at about 20 to 30 meters. Most specimens sold are between 45 and 55 mm. Fresh specimens can be chestnut brown, olive, or black. A few unusual color forms have been found. *Conus cedonulli* is a rare shell. It is usually collected by divers looking specifically for it. The patterning of *Conus cedonulli* is comprised of horizontal rows of white, gray or violet dots. In addition to dots are odd shaped patches and delicate reticulations that may be sparse to saturate. Patterning tends to be denser in the mid-body area,



Figure 1.

Typical *Conus cedonulli* taken from the West Coast of St. Vincent at 30 meters by SCUBA.

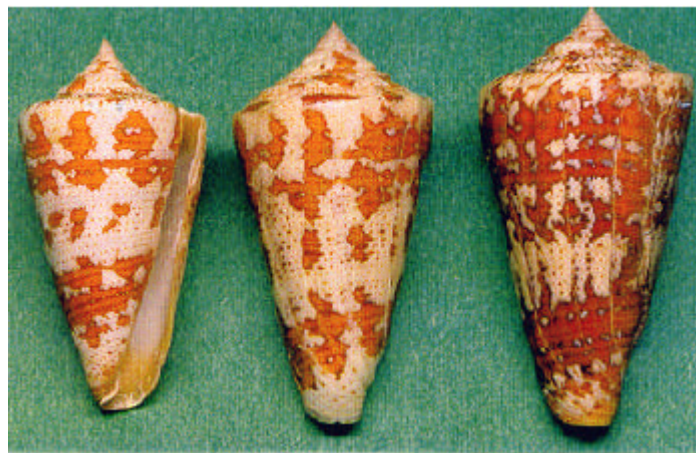


Conus cedonulli, taken at 30 meters, St. Vincent



Top Row: #1 - #3 *Conus cedonulli* that show a tendency towards caledonicus. Also on the top row is a cluster of *Conus cedonulli* egg capsules. Bottom Row, #1 *Conus cedonulli* caledonicus, #2 and #3 *Conus cedonulli* holemani. (All above from St. Vincent).

The two other major divisions of *Conus cedonulli* are *Conus cedonulli insularis* and *Conus cedonulli dominicanus*. *Conus cedonulli insularis* is found off Barbados and northern St. Lucia. The background color of this form is broken into isolated patches. The Barbados form is from deep water. It is large (60+ mm), with straight sides. This form has a sharp spire. The St. Lucia shell is bulkier with rounded edges.



Conus cedonulli insularis dredged off western Barbados at 150 to 170 meters.

Conus cedonulli dominicanus ranges from Bequia in the north to Grenada in the south. Some Bequian shells are identical to St. Vincent *Conus cedonulli*. This island may represent a range extension where both co-exist. Most *Conus cedonulli dominicanus* are bulky shells with rounded shoulders. They generally have more white than typical *Conus cedonulli*. Many color forms exist, including blues and oranges. This form slightly varies as you go south through its range. Collecting trips to Bequia and the Mustique area have yielded many gorgeous shells. This cone is usually taken from 10 to 30 meters.



Figure 5

Conus cedonulli dominicanus, SCUBA taken at 30 meters off Bequia, Grenadines.



Figure 6

Top Row: *Conus cedonulli dominicanus*, Bequia. Bottom Row: *Conus cedonulli dominicanus*, #1 Palm Island, #2 and #3 Carriacou #4 Union.



Figure #7

Conus cedonulli dominicanus

Top Row: #1 - #4 Mustique, Grenadines. Bottom
Row: #1 Mustique, #2 Union, #3 & #4 Mustique

Conus mappa

Conus mappa is both an island and continental shelf member of the *Conus cedonulli* complex. It ranges from Trinidad and Tobago to the islands off the northern coast of Venezuela.

Conus mappa is a beautiful solid shell with background colors that range from brown to yellow to lavender. Fresh specimens have a purple mouth. The pattern consists of lines of dots interspersed with dotted clouds. The spire is sharp. The normal size for this species is between 45 and 65 mm.

The form *Conus mappa trinitarius* is slightly different. It has more than one color on the body whorl. It is found on Isla Margarita and some of the neighboring islands.

Conus granarius

Conus granarius lives along the continental shelf area of Venezuela, Columbia and Panama. A characteristic this form and typical *Conus mappa* share is the "internal restriction" of the columella. This is a build-up of nacre that can be viewed by looking at the anterior canal. *Conus granarius* has straight sides and an elevated spire. The patterning can be greatly reduced or quite rich. This species can get quite large, with some examples exceeding 70 mm.

A form that occurs off Santa Marta, Columbia, *Conus granarius sanctaemarthae*, is similar to typical *Conus granarius*, but tends to be more gray.

Further west to Panama we find *Conus granarius panamicus*. This shell is a smaller, more delicate form of *Conus granarius*.

A cognate species exists on the western coast of Panama. This cone, *Conus archon* Broderip, 1833, is very similar to both *Conus granarius* and typical *Conus cedonulli*. *Conus archon* is relatively more common than *Conus cedonulli*. It is commonly dredged in large numbers.



Figure 8 - *Conus mappa/granarius* types

Top Row: #1 *Conus mappa trinitarius*, Isla Margarita, Venezuela, #2 and #3 *Conus mappa*, Tobago, #4 *Conus granarius sanctaemarthae*, Columbia. Bottom Row: #1 -#3 *Conus granarius*, Venezuela, #4 *Conus granarius panamicus*, eastern Panama.

Conus aurantius

Conus aurantius is a solid departure from *Conus cedonulli*. It is however related and has some intermediate forms. Typical *Conus aurantius* occurs on both Bonaire and Curaçao. The Bonaire form is typically golden, where the Curaçao one is dark brown to black. Other colors, mostly brown, do exist. All color forms have areas of white interspersed with the ground color. There are a few related species. These include *Conus curassaviensis* on Aruba, *Conus duffyi* on Los Roques, *Conus pseudaurantius* from the lower Grenadines and Grenada, and a recently collected species from the outer banks of Honduras and Nicaragua. This small *Conus aurantius* type has a distinct noded spire.

The many small island groupings along the northern coast of Venezuela are the habitats of *Conus aurantius* types. Some of these appear to intergrade with *Conus mappa*.

Two other species that may be related to the *Conus cedonulli* complex are *Conus scopulorum* from Fernando de Noronha, Brazil, and *Conus harlandi*, a newly describe species from the bay islands of Honduras. These two cones live beyond the range of other complex members. They may, nevertheless, be related.



Figure #9 - *Conus aurantius* types

Top Row: #1 *Conus cf. aurantius*, Miskitos Cay, Nicaragua, #2 *Conus aurantius*, Bonaire, #3 *Conus aurantius*, Curaçao, #4 *Conus aurantius* Bonaire, #5 *Conus aurantius*, Curaçao. Bottom Row: #1, *Conus duffyi*, Los Roques, #2 *Conus duffyi* (black form), Los Roques, #3 and #4 *Conus pseudaurantius*, Grenada, #5 and #6 *Conus curassaviensis*, Aruba.

The *Conus spurius* complex

Conus spurius Gmelin, 1791

Conus spurius atlanticus Clench, 1942

Conus spurius aureofasciatus Rehder and Abbott, 1951

Conus spurius arubaensis Nowell-Usticke, 1968

Conus spurius ochraceus Lamarck, 1810

Conus lorenzianus Dillwyn, 1817

Conus phlogopus Tomlin, 1937

Conus spurius, and its many forms, range through most of the Caribbean. It is absent south of Martinique, but re-appears as *Conus spurius arubaensis* off Venezuela. Forms also exist in the Gulf of Mexico and the southern Carolinian Province.

This large species has been popular with collectors, but has become scarce in recent years. Generally thought of as a common shell, large well marked specimens are seldom taken.

There are two major divisions of *Conus spurius*. Typical *Conus spurius* has flammules and maculations arranged above and below the mid-body area. This pattern form ranges from 40 to 70 mm. It is usually found in the Greater and Lesser Antilles. Colors of this cone range from orange to black. Most specimens have brown markings.

The other principal pattern division of *Conus spurius* is *Conus spurius atlanticus*. This form has its pattern arranged in parallel bands. This form does not have the tendency to form large patches of color, as seen in typical *Conus spurius*. This form is often larger than typical *Conus spurius*. Some examples have the tendency to form their markings into solid bands. This variation does occur in many populations of *Conus spurius*. This patterning is different, however, from the rare *Conus spurius aureofasciatus*.

Conus spurius aureofasciatus is an actual population that occurs in deep water from off southwest Florida to the Yucatan. Its pattern consists of pale to bright yellow bands. This shell also has broad shoulders and a rounded spire. This cone is rarely taken today, and must usually be obtained from older collections.

Western Atlantic Cones

Spectacular *Conus spurius* have been recently taken off the outer banks of eastern Honduras. This area is located in the open sea. Beautiful examples with nearly black, heavily saturated patterns have been found. Also in this area lobster fishermen have taken nearly solidly colored *Conus spurius*. These shells range from bright orange to black. They have been placed with *Conus spurius ochraceus*, which is best considered as a pattern variety. In addition, very large *Conus spurius* have been taken off Misteriosa Bank. These range from 80 to 90 mm. The world record size for this cone is over 100 mm.

A common form of *Conus spurius* that occurs off Honduras to Columbia is *Conus lorenzianus*. This shell is dredged by local fishermen in great numbers. In appearance it is thinner and more pointed than typical *Conus spurius*, and its pattern is finer. The body whorl has raised ridges.

Another morph of *Conus spurius* occurs off the northern coast of South America. This shell is *Conus spurius arubaensis*, a solid cone with a milky background and large dark maculations.

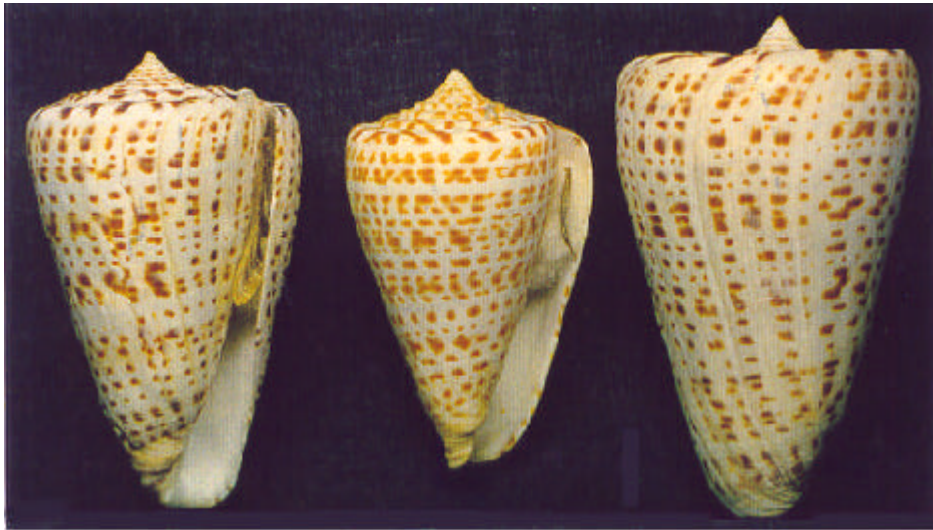
Likewise, *Conus phlogopus* can be found on the continental shelf of this area. This cone is similar to *Conus lorenzianus*, but has a smooth body whorl.



Figure 10

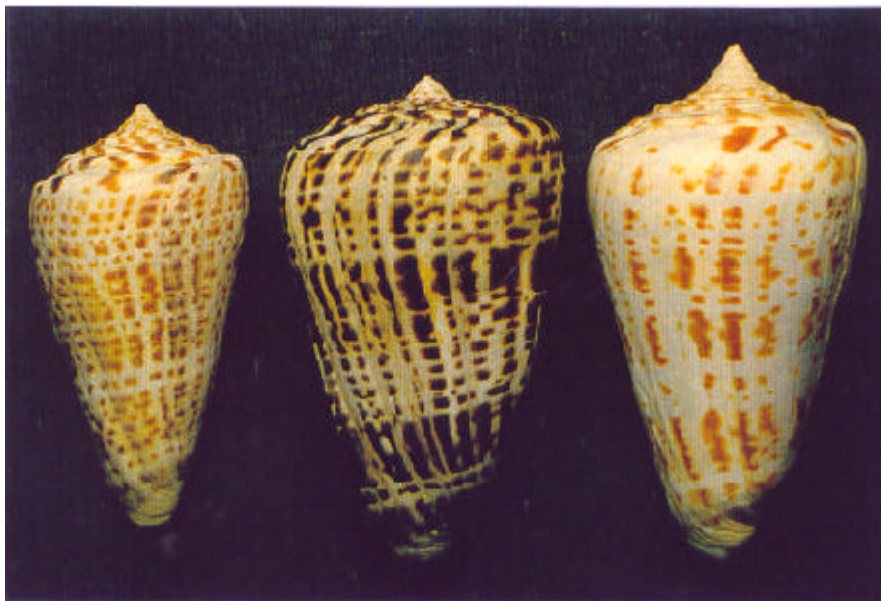
Conus spurius

Top Row: #1 Dominican Republic, #2 and #3 Jamaica. Bottom Row: #1 Turks and Caicos, #2 and #3 Martinique.



Conus spurius atlanticus

#1 Key West, #2 Sanibel Island, #3 Key West.



Conus spurius atlanticus

#1 Off Yucatan, #2 Off Misteriosa Bank, #3 Key West.

Western Atlantic Cones



#1 *Conus spurius*, Rosalind Bank, #2 and #3 *Conus spurius atlanticus*, off Key West, #4 *Conus spurius aureofasciatus*, off Key West.



(Left) *Conus spurius atlanticus*, Sanibel Island, Florida.



(Right) *Conus spurius*, brown specimen taken off Rosalind Bank, Honduras.



(2) *Conus spurius* taken off Rosalind Bank, Honduras. (The second specimen is a dorsal view of the shell seen on the bottom of page 14).



(3) *Conus spurius* also from Rosalind Bank, Honduras.



Conus spurius types

Top Row: #1 *Conus lorenzianus*, off Honduras, #2 *Conus phlogopus*, off Columbia, #3 *Conus spurius arubaensis*, Isla Margarita, Venezuela, #4 *Conus spurius*, off the Yucatan. Bottom Row: #1 -#4 *Conus spurius*, (dwarf population), Utila, #5 *Conus spurius ochraceus*, off Rosalind Bank, #6 *Conus lorenzianus*, off Columbia.

The *Conus daucus* complex

Conus daucus Hwass, 1792

Conus daucus (yellow variety), *luteus* Sowerby, 1833

Conus daucus (small pink form), *croceus* Sowerby, 1833

Conus riosi Petuch, 1986

Conus boui daMotta, 1988

Conus norai daMotta and G. Raybaudi, 1992

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Conus daucus (small pink form), *croceus* Sowerby, 1833

Conus boui daMotta, 1988

Conus norai daMotta and G. Raybaudi, 1992

Conus riosi Petuch, 1986

Note: Although the *Conus daucus*-complex is very large, I have chosen to break it into smaller, more closely related factions. The first faction, presented here, contains shells that I feel form the basis of the complex. The following sections will include *Conus sanderi*, the *Conus amphiurgus* complex, the *Conus beddomei* complex, and *Conus attenuatus*. In addition, there are quite a few species that fall under the blanket of *Conus daucus*. Among these are *Conus kalafuti*, *Conus flavescens* and *Conus sunderlandi*.

Conus daucus can be found from Florida to Brazil. This cone remains constant throughout its range. Its shape and beautiful orange coloration earned it the "carrot cone" name. Some specimens have a lighter mid-body band. *Conus daucus* may also have rows of fine dots across the body whorl. A yellow form with pink protoconch is called *Conus daucus luteus*. Another named form is *Conus daucus croceus* of Martinique. This cone is pink and smaller than normal *Conus daucus*. Typical *Conus daucus* can approach 70 mm.

Certain islands have a profusion of color and pattern forms of *Conus daucus*. The Dominican Republic has shells that range from brown to green to red. Martinique has both typical *Conus daucus* and many other related forms. Three beautiful variants are *Conus boui*, *Conus norai* and *Conus riosi*.

According to diver Bruno Besse, typical *Conus daucus*, along with *Conus boui* and *Conus norai*, has a thick periostracum with rows of hairy extensions. In comparison, *Conus riosi* has a thin smooth periostracum. He also states that *Conus boui* is either yellow or orange with axial markings. In contrast, *Conus norai* is more colorful, with colors ranging from orange to purple with many phases in between. *Conus norai* has a rich spire pattern, in addition to many rows of fine dashes on the body whorl. Normal size for *Conus boui* and *Conus norai* is between 35 and 45 mm. *Conus riosi* can be larger, some examples exceeding 60 mm.

Western Atlantic Cones

Lozet pictures *Conus riosi* as *Conus species* #193 in Shells of the Antilles. This cone is a deep red with white clouding that may be at the mid-body, the base and at the shoulder.



Conus daucus

#1 Guadeloupe #2 Bahamas, #3 Martinique.



Conus daucus color forms

Top Row: #1 and #2 Grenada, #3- #5 (*luteus*) form, #3 Florida, #4 Turks and Caicos, #5 Roatan. Bottom Row #1 Dominican Republic, #2 Panama, #3 Martinique (*croceus*) form.



Conus daucus types from Martinique

Top Row: #1 - #3 *Conus boui*. #4 *Conus riosi*. Bottom Row: (4) color phases of *Conus norai*.

The unique *Conus* fauna of Barbados

Conus sanderi Wils and Moolenbeek, 1979

Conus hunti Wils and Moolenbeek, 1979

Conus knudseni Sander, 1982

Conus sorenseni Sander, 1982

Conus species #1 cf *Conus sanderi*

Conus species #2 cf *Conus goajira* (mentioned later)

Conus carioca Petuch, 1987

Barbados has an interesting deep water *Conus* fauna. Some of these cones can be placed in the *Conus daucus* complex. One of these cones is the highly marked *Conus sanderi*. An orange cone with a beautiful pattern of clouds and flammules. *Conus sanderi* lives at a 200 meter depth off the West Coast of Barbados. It also extends southward to Brazil where examples are quite large. This Brazilian shell, recently named *Conus carioca*, has reddish tones in its pattern. Barbadian *Conus sanderi* are usually under 30 mm. The Brazilian form can exceed 50 mm. The related *Conus sorenseni* has a reduced pattern mainly consistent of central squares.

Western Atlantic Cones

A few other *Conus daucus* types exist on Barbados. These must be classified as *Conus species* at this time. *Conus species* #1 is a golden shell. It is very daucus-like in shape, with a highly marked body whorl. It is larger yet lighter than *Conus sanderi*. Similarly, *Conus species* #2 appears to be in the *Conus daucus* complex. This 53 mm cone has a peach background with red flammules. It approaches the recently named *Conus goajira*, dredged off Columbia.

The 2 other cones that are dredged with the above shells are not in the *Conus daucus* complex. The first is *Conus hunti*. This small cone is marked with brown flammules and banding. The base color of this shell is bluish. It is probably related to *Conus villepini*. The second shell is *Conus knudseni*. This is a pale yellow cone with white banding.



Barbadian *Conus*

Top Row: #1 - #5 *Conus sanderi*, #6 *Conus species* #1. left: #1 - #3 *Conus sorenseni*, #3 is a paratype. Bottom Row at left: #1 *Conus hunti*, #2 *Conus knudseni*, a paratype. Bottom Central. Row: (3) pattern varieties of *Conus sanderi*. Large cone at right: *Conus species* #2 cf *Conus goajira*.

(2) *Conus carioca*
from Brazil
This shell is the southern form of
Conus sanderi.



The *Conus ampliurgus* complex

Conus ampliurgus Dell, 1889

Conus goajira Petuch, 1992

Conus vikingorum Petuch (new species)

Conus poulsoni Petuch (new species)

Conus ampliurgus is a deep water cone that is associated with the continental shelf of the Carolinian Province of the United States. This cone, however, has been collected at other Caribbean locales.

Two ecological variants seem to exist. The first is the larger rough form, which may be older examples. This form is usually scarred and thickened. The other form is more delicate and is often taken by SCUBA. Both forms can be very colorful. Colors range from tan to orange to red. Some collectors prefer to use the name *Conus juliae* Clench, 1942. The name *Conus ampliurgus* supersedes it, however.

Conus ampliurgus differs from *Conus daucus* in a few respects. The first is overall shape. *Conus ampliurgus* has rounded sides and a more elevated spire. The spire is also marked with light and dark areas. Some examples have dark flammules. Normal size is from 40 to 60 mm.



Florida examples of *Conus ampliurgus*

Western Atlantic Cones

A few new *Conus* have been recently describe from dredgings off the north coast of Columbia. They are similar in the respect that they seem to be in the *Conus daucus* complex.

The first is *Conus goajira*. This cone is dredged off the Guajira Peninsula. *Conus goajira* demonstrates a very exciting range of color phases. Beautiful reds, blues, oranges and pinks have been collected. Most examples have a light mid-body area with sparse to heavy axial markings.

Conus vikingorum and *Conus poulsoni* are similar to *Conus goajira*. Fewer examples of these 2 species have reached collectors.



Conus goajira, from off the Guajira Peninsula

(Right) *Conus vikingorum*
off the Guajira Peninsula



The *Conus beddomei* complex

Note: These three cones are presented here because they fall under the *Conus daucus* complex in a broad sense. The older and more correct name for this "sub-complex" is *Conus archetypus* Crosse, 1865. Like other species, the more popular names are used. This is a poor practice, but it is often difficult if not impossible to change names that have been used for years. On the other hand, this name transition has proved successful for some species. If shell collectors are willing to accept a more correct or older name, it will gain prominence

Conus beddomei Sowerby, 1911

Conus couderti Bernardi, 1860

Conus brasiliensis Clench, 1942



Conus beddomei types

Top Row: #1 *Conus beddomei*, Mustique, #2 and #3 show a tendency towards the "couderti" pattern. (#2 Carriacou, #3 Mustique), #4 *Conus couderti*, St. Vincent, #5 *Conus couderti*, Carriacou, #6- #8 *Conus couderti*, Mustique. Bottom Row: #1 and #2 *Conus beddomei*, Mustique, #3- #7 *Conus brasiliensis*, Guaripari, Brazil.

Western Atlantic Cones

It is best to accept *Conus beddomei* as the central cone in this trio. It is a brown shell with a mid-body band. It ranges from 20 to 35 mm. It may have some pattern on the body whorl. The spire has alternating light and dark segments. *Conus couderti* of the southern Grenadines would best be acknowledged as a pattern variety of *Conus beddomei*. In this shell the mid-body band seems to explode into free-form zigzags that extend from the shoulder to the anterior canal. The final member of this trio is *Conus brasiliensis*. This cone is a shallow water endemic found along the coast of Brazil. *Conus brasiliensis* demonstrates a wide range of colors and patterns.

Conus attenuatus Reeve, 1849

Conus penchaszadehi Petuch, 1986

Conus attenuatus is a small slim cone. Normal size for this species is between 15 and 25 mm. It is closely related to *Conus daucus*. Typical *Conus attenuatus* is white with orange banding. Other forms and colors do exist. The second major pattern is white flammules against a colored background. These colors are usually a shade of orange, but some red and violet ones have been found.

Conus attenuatus was a onetime rarity, although only uncommon today. A recently named cone from off the northern coast of South America superficially resembles *Conus attenuatus*. This shell is the deep water *Conus penchaszadehi*.

Conus flavescens Sowerby, 1834

Conus caribbeus Clench, 1942

The variable *Conus flavescens* is usually taken by SCUBA off Florida and the Bahamas. Patterns range from solid dark colors to lighter shades. There are also flammulated shells and ones with clouding. It is necessary to have a large series of this cone to become familiar with the realm of its variability.

The rare *Conus caribbeus* is similar to *Conus flavescens*. There are not too many examples known, so it is misunderstood. On one hand this shell seems to be related to *Conus daucus*. It does show some characteristics of *Conus flavescens*, however. It is normally a gold color with small white markings randomly placed over the body whorl. Most examples are around 25 mm.



Top Row: #1 - #3 *Conus flavescens*, off East Florida, #4 and #6 *Conus flavescens*, Bahamas. Bottom Row: #1 *Conus caribbeaus*, South Florida, #2 *Conus penchaszadehi*, Columbia, #4- #6 *Conus attenuatus*, Bahamas.

The extended *Conus daucus* complex

Note: The following two groups of cones fall under the *Conus daucus* complex in a broad sense. The first group contains larger shells. The second, smaller ones. The relationship of the shells within these groups is disparate. They are arranged this way for convenience.

Group #1

Conus patae Abbott, 1971

Conus binghamae Petuch, 1987

Conus glicksteini Petuch, 1987

Conus lindae Petuch, 1987

Conus flamingo Petuch, 1980

Conus sunderlandi Petuch, 1987

Conus harlandi Petuch, 1987

Western Atlantic Cones

The first two cones in this group are *Conus patae* and *Conus binghamae*. *Conus patae* is a rare shell that can be found by SCUBA or dredging. Its combination of color, pattern and texture make it unique among the *Conus daucus* complex. Examples can be yellow, orange, red or even violet. The body whorl is textured and may have flammules. *Conus patae* usually ranges from 20 to 25 mm.

A recently named shell, *Conus binghamae*, may be related to *Conus patae*. It is taken off East Florida at dredgable depths. It is generally smaller than typical *Conus patae*. Its most prominent feature is a red mid-body band.

The next three cones may be an extension of *Conus ampliurgus*. These are *Conus lindae*, *Conus glicksteini*, and *Conus flamingo*. These deep water cones are rare and known from only a few examples. *Conus lindae* is a pink cone with a broad shoulder. It has a sparse horizontal pattern. *Conus glicksteini* has an orange base color with straight sides. It has a denser pattern than *Conus lindae*. *Conus flamingo* is salmon colored with a pattern of white flammules. Its anterior canal is elongated.

The other two cones I'm including in this group are *Conus sunderlandi* and *Conus harlandi*. Both of these shells occur off the Bay Islands of Honduras. *Conus sunderlandi* is a white shell with rows of closely placed golden markings arranged above and below the mid-body area. *Conus harlandi*, which I mentioned earlier in the text, may prove to be a member of the *Conus cedonulli* complex. This cone has bands of very fine brown reticulations. Both *Conus sunderlandi* and *Conus harlandi*, usually range from 25 to 40 mm.



Top Row: #1 and #2 *Conus binghamae*, Florida, #3- #6 *Conus patae*, #3 Florida, #4 Jamaica, #5 and #6 Bahamas. Bottom Row: #1 *Conus flamingo*, Florida, #2 *Conus glicksteini*, Florida, #3 *Conus lindae*, Florida, #4 *Conus harlandi*, Utila, #5 *Conus sunderlandi*, Utila.

Western Atlantic Cones

Group #2

Conus kalafuti daMotta, 1987

Conus flammeacolor. Petuch, 1993

Conus magnottei Petuch, 1987

Conus eversoni Petuch, 1987

Conus kirkandersi Petuch, 1987

Conus species #3

Conus species #4

Conus chinchorroensis Petuch, new species

Conus sahlbergi daMotta and Harland, 1986

This second group of cones contains smaller members of the extended *Conus daucus* complex. Many of these occur in the western Caribbean. The first four are from the Bay Islands and Outer Banks of Honduras. These are *Conus kalafuti*, *Conus flammeacolor*, *Conus magnottei* and *Conus eversoni*.

Conus kalafuti is a small, beautiful shell that has a ground color of gold, brown or even rose. It has a mid-body band that sometimes extends into flammules. According to Ted Kalafut, this cone has diurnal habits, during the day, but is still hard to find. Among the reasons for this are its small size (10-15 mm), its sometimes turbulent habitat, and that it is often buried.

The recently describes *Conus flammeacolor* is very close to *Conus kalafuti*. Both cones have several color phases. *Conus flammeacolor*, however, tends to have brighter colors. Among these are red, pink, gold and brown. This cone tends to be larger, with some examples reaching 20 mm. It is dredged off the Rosalind Bank at 35 to 45 meters. This cone can have a marked mid-body band or can be solidly colored. Its spire can be heavily marked or without markings. Likewise, the protoconch can be pink or white.

Conus magnottei ranges from pale violet to purple. It also can be solidly colored or with dark markings. Some examples have white clouding or flammules. This cone ranges from 10 to 15 mm.

Conus eversoni appears to be *Conus daucus* in miniature. It is a small orange shell, much more delicate than typical *Conus daucus*.

Western Atlantic Cones

The second set of shells in Group #2 are found along the Yucatan Peninsula. They may form a complex within themselves. If this is true it would be called the *Conus kirkandersi* complex. These shells are small and broad. *Conus kirkandersi* is white with gold to brown clouding. This cone can be solidly colored. Another distinguishing trait of *Conus kirkandersi* is its low terraced spire.

This terraced spire can also be seen in *Conus species #3*. This cone is very similar to *Conus kirkandersi* in form. The major difference lies in *Conus species #3*'s pattern. This cone is white with sparse to heavy dark brown flammules. It is found off Cozumel, Mexico.

Also from this area is *Conus species #4*. This shell, close to *Conus kirkandersi* in form, is also close to *Conus flammeacolor* in color. This vari-colored cone was recovered on Cozumel after Hurricane Gilbert in 1989. Thought it was beach collected, it shows a beautiful array of pastel colors.

Two other small *Conus daucus* types that I'm including here, are not related to *Conus kirkandersi*. The first is *Conus sahlbergi*. This cone, usually under 20 mm, is found in the Bahamas. Typical coloration of this shell is orange with a purple protoconch. The second cone is the tiny *Conus chinchorroensis*. This shell is found off the southern Yucatan Peninsula. This shell is small, around 10 mm, is beige with an indistinct mid-body band.



Top Row: *Conus kalafuti*, Roatan. Middle Row: *Conus kalafuti*, Roatan.
Bottom Row: #1 *Conus kalafuti*, Roatan, #2 and #3 *Conus magnottei*, #4 *Conus eversoni*, Utila, #5- #7 *Conus sahlbergi*, Bahamas.



Top Row: #1 and #2 *Conus kirkandersi*, Cozumel, Mexico, #3- #6 *Conus species #3*. Middle Row: #1 and #2 *Conus chinchorroensis*, Yucatan, #3- #7 *Conus species #4*, Cozumel. Bottom Row: *Conus species #4*, Cozumel.



Conus flammeacolor

A series of 10 dredged off the Rosalind Bank at 35 to 45 meters.

Deep Water *Conus*

In this section I'm presenting many different deep water species. Deep water cones have a tendency to be less colorful than their shallow water counterparts. Many of them have an attenuated body whorl. Several cone species occur in shallow and deep water. The ones presented here occur primarily in deep water. These depths range from 30 to 300 meters. Some deep water cones are rescued from the dredge spoils of commercial fishermen. Others come from scientific dredgings or collectors that have organized such trips.

The *Conus mazei* complex

Conus mazei Deshayes, 1874

Conus mazei macgintyi Pilsbry, 1955

Conus rainesae McGinty, 1953

Conus pacei Petuch, 1987

Conus kremerorum Petuch, 1988

Conus mazei is a beautiful and delicate shell. It ranges from off the southeastern United States to southern Brazil. Its deep water habitat has made this shell rare in collections.

Conus mazei is a white cone with brown squares arranged in rows. Its spire is patterned with a single row of dark marks. Normal size is between 30 and 60 mm. Giant examples exceeding 75 mm have been taken off Brazil. *Conus mazei* may not possess an operculum. It is thought that this shell may have a vestigial operculum when young. Apparently shedding it in adulthood.

There are a few forms and varieties of *Conus mazei*. The typical form has a more or less smooth body whorl. In comparison, the form *Conus mazei macgintyi* has a ridged texture on the body whorl. In addition, its pattern is less distinct.

A small form of *Conus mazei* occurs off the Yucatan Peninsula. This cone, *Conus rainesae*, is generally under 25 mm.

Two newly describe cones are probably in the *Conus mazei* complex. The first is *Conus pacei*. This shell seems to be a white (patternless) variety. It is dredged in the Bahamas. Likewise, *Conus kremerorum* may prove to be a minor pattern variety of *Conus mazei*. This Barbadian cone is small with a very fine dot pattern.



Conus mazei types

Top Row: *Conus rainesae*, Yucatan. Bottom Row: #1 *Conus mazei macgintyi*, SW Florida, #2 *Conus mazei*, Barbados, #3 *Conus mazei*, off Key West, #4 *Conus mazei macgintyi*, off Sao Paulo, Brazil, #5 and #6 *Conus mazei*, Barbados, #7 *Conus mazei macgintyi*, SW Florida, #8 and #9 *Conus mazei macgintyi*, Sao Paulo, Brazil.

Conus armiger Crosse, 1858

Conus armiger bajanensis Nowell-Usticke, 1968

Another beautiful cone from deep water is *Conus armiger*. This cone is white with dark markings between rows of raised pustules. *Conus armiger* is spindle shaped with a pointed spire. Its anterior canal is elongated.

Two other names are occasionally used for *Conus armiger*. These are *Conus clarki* Rehder and Abbott, 1951, and *Conus frisbeyae* Clench and Pulley, 1952. These junior synonyms do fall into the variations seen in typical *Conus armiger*.

A southern sub-species does exist for *Conus armiger*. This shell is *Conus armiger bajanensis*. This form replaces the raised pustules with ridges. It follows typical *Conus armiger* in other physical respects. *Conus guyanensis* Van Mol, 1973, would best be placed with *Conus armiger bajanensis*.

Western Atlantic Cones

Some forms of *Conus austini* do approach *Conus armiger* in basic form. These shells have raised vertical ridges, or the spindle shape.

Typical size for *Conus armiger* is between 25 and 40 mm.

Conus sennottorum Rehder and Abbott, 1951

Conus sennottorum is dredged along the northern coast and outer banks of the Yucatan Peninsula. This cone is rarely collected today, so specimens are usually available only from old collections.

Conus sennottorum has a distinct pyriform, (pear shape), shape. Other characteristics include a neatly tabulated spire, incised lines at the base and a glossy pearly sheen on the body whorl. This is a white cone with either lines of dots or vague flammules. *Conus sennottorum* reaches a size between 25 and 40 mm.

A Panamic cognate does exist for this shell. This is the equally rare *Conus kerstichi* Walls, 1978.



Top Row: #1 *Conus armiger*, East Mexico, #2 and #3 *Conus armiger*, south of Louisiana, #4 *Conus armiger bajanensis*, Columbia, #5 and #6 *Conus armiger bajanensis*, Guyana. Bottom Row: #1 - #5 *Conus sennottorum*, off the north coast of the Yucatan.

Western Atlantic Cones

Conus villepinii Fischer and Bernardi, 1857

Conus perprotractus Petuch, 1987

Conus villepinii is a large white cone with two to three rows of brown markings. Its mid-body band is usually free of any coloration.

Contributing to *Conus villepinii's* beautiful form is its long, tapering body whorl. Other qualities include a high spire and a seeming resistance to scarring.

Small specimens of *Conus villepinii* with more brown in their pattern occur off the Lesser Antilles. *Conus perprotractus* is similar with three rows of randomly shaped markings.

The Panamic cognate of *Conus villepinii* could be *Conus poormani* Berry, 1968 or *Conus virgatus* Reeve, 1849.



Conus villepinii

Three large examples, (70 mm, 76 mm and 78 mm) dredged off SW Florida.



Top Row: #1 -#4 *Conus villepini*, Barbados. Bottom Row: #1 -#3 *Conus villepini*, off SW Florida, #4 *Conus perprotractus*, Barbados.

Conus stimpsoni Dall, 1907

Conus stimpsoni can be a beautiful shell. With yellow end white banding and a graceful form, it is a simple cone. This shell, however, is subject to growth scars and breaks. *Conus stimpsoni* may have occasional dark flammules. This cone also has incised grooves that run horizontally on the body whorl. Normal size for this species is between 35 and 50 mm. *Conus demarcoi* may represent a possible hybrid between *Conus stimpsoni* and *Conus sennottorum*. This shell has little standing among collectors. The example I'm showing here is from off the Yucatan Peninsula. It has the basic form of *Conus sennottorum*, With the yellow banding of *Conus stimpsoni*.



Conus stimpsoni

Top Row: #1 - #4 dredged of SW Florida. Bottom Row: #1 off Jacksonville, Florida, -#2 and #3 off SW Florida, #4 off Yucatan.

The *Conus atractus* complex

Conus atractus Tomlin, 1937

Conus austini Rehder and Abbott, 1951

Conus finkli Petuch, 1987

Conus kevani Petuch, 1987

Conus leekremeri Petuch, 1987

Conus venezuelanus 1989

The *Conus atractus* complex consists mainly of white shells from deep water. Some of these cones have various degrees of brown markings. Speciation among this group is tentative, since there are marked and unmarked shells in the same populations.

The Panamic cognate for this complex is *Conus arcuatus* Broderip and Sowerby, 1829.

Western Atlantic Cones

Conus attractus is a large white cone with some examples reaching 75 mm. This shell characteristically has straight sides. Some individuals have brown banding.

In life this shell has a dense periostracum, which makes it appear quite dark. The operculum of *Conus attractus* is very small. This cone also has raised ridges that revolve around horizontally around the body whorl.

This shell is usually dredged by commercial fishermen.

Conus attractus has a few forms and related species. The first of these is *Conus austini*. This cone's sides are more rounded than typical *Conus attractus*. In addition, *Conus austini* can have raised vertical ridges that make it appear similar to *Conus armiger*.

The range of *Conus attractus* and *Conus austini* do overlap. *Conus attractus* is usually taken off Brazil and the northern coast of South America. *Conus austini* can be found from the southwest United States to the northern coast of South America. It seems to live along the continental shelf regions. It may be absent on most islands.

The four Petuch named cones I'm placing here may not be strict members of this complex. The first is *Conus finkli*. This cone is very similar to *Conus austini*. Its major difference is that it has centrally placed dark markings in the mid-body area. Otherwise, it is sub-specific to *Conus austini*. *Conus kevani* and *Conus venezuelanus* are small white cones, best placed within this complex. *Conus lekremeri* is similar in basic form with other complex members, but has a smooth body whorl.



#1 *Conus attractus*, Brazil, #2 *Conus attractus*, Brazil, (with periostracum),
#3 *Conus austini*, Off Key West, Florida.



Top Row: #1 *Conus austini*, off Key West, #2 and #3 *Conus austini*, off Columbia, Bottom Row: #1 *Conus austini*, off Yucatan, #2 and #3 (diagonal) *Conus austini*, off Louisiana, #4 *Conus finkli*, off Venezuela.

Conus tristensis Petuch, 1987

Conus brunneobandatus Petuch, 1992

A full species that could be confused with *Conus attractus* is *Conus tristensis*. This cone is white with sparse markings arranged in two bands. Some individuals are uniformly white. Other examples have peach or violet colored bands. *Conus tristensis* is a thick shell with a wide shoulder that tapers quickly to the base. It is usually dredged from Columbia to Guyana. A related species, often collected with this shell is *Conus brunneobandatus*. This shell is generally darker than *Conus tristensis*. It has a heavily ridged body whorl with light to saturate dark banding.



Top Row: #1 - #5 *Conus tristensis*, off Guyana. Bottom Row: #1 *Conus tristensis*, off Columbia, #2- #4 *Conus brunneobandatus*, off Guyana.

Conus garciai daMotta, 1982

Conus garciai occurs off the East Coast of Honduras in deep water. It is usually dredged by commercial fishermen. Forms of this cone extend southward to Panama. This shell can be quite large, even to 75 mm.

Conus garciai was once placed with *Conus spurius*. This is easy to see as it has an affinity to *Conus lorenzianus*. It is better considered closer to cones like *Conus attractus*.

Conus garciai is hard to obtain in gem condition since it must face the rigors of dredging. The surface of this cone is textured with raised ridges. Its color patterning can range from yellow to dark brown.



Conus garciai

Three color forms dredged off Honduras, East Coast.

The extended *Conus garciai* complex

Conus ernesti Petuch, 1990

Conus portobeloensis Petuch, 1990

Conus rosemaryae Petuch, 1990

Conus mediamericus Petuch, (new species)

This group of shells may represent a diverse southern population of *Conus garciai*. Both *Conus ernesti* and *Conus portobeloensis* occur off the East Coast of Panama. *Conus portobeloensis* has a fine horizontal dash pattern. This cone also has a violet mouth, often seen in typical *Conus garciai*. *Conus ernesti* is similar, but has a smoother body whorl and less elongated form.

Conus rosemaryae approaches *Conus sennottorum* in form. Differs mainly in pattern. Specimens can have sparse to saturated dashes and flammules.

Conus mediamericus is a small delicate species that has characteristics of both *Conus garciai* and *Conus sennottorum*.



Top Row: #1 *Conus gibsonsmithorum*, Columbia, #2- #4 *Conus portobeloensis*, East Panama, #5 *Conus ernesti*, East Panama, #6 *Conus rosemaryae*, East Panama, #7 *Conus* species (cf *Conus sennottorum*), off Yucatan. Middle Row: #1 and #2 *Conus mediamericus*, Utila, #3 *Conus paulae*, Columbia, #4 *Conus aureopunctatus*, Columbia, #5 *Conus velaensis*, Columbia, #6 and #7 *Conus gibsonsmithorum*, Columbia. Bottom Row: #1 and #2 *Conus bayeri*, off East Panama.

The following group of cones is a sampling of the many new species named by Edward Petuch. There are many such shells, and a collector would be lucky to have them all. Along with other workers, Petuch has been very active in researching and describing new species. The fact that so many new species have emerged over the past ten years is quite astounding.

Conus gibsonsmithorum Petuch, 1986

Conus paulae Petuch 1986

Conus aureopunctatus Petuch, 1987

Conus bayeri Petuch, 1987

Conus velaensis Petuch, 1993

Conus delessertii and *Conus centurio*

Conus delessertii Recluz, 1843

Conus centurio Born, 1780

Conus centurio antillensis Sander, 1982

Conus delessertii and *Conus centurio* do not represent a single species complex, but rather a northern and southern endemism. Their relationship is geographically controlled. *Conus delessertii* occurs off the southeast United States, and in the Gulf of Mexico. *Conus centurio* can be found in the Caribbean and along the continental shelf of South America. Both are large shells, and have examples measuring over 100 mm.

Conus delessertii is a favorite collector's item. It has a lightly confusing past in that it was renamed *Conus sozoni* Bartsch, 1939. Many collectors still call it "Sozon's Cone". *Conus delessertii* was also a one time rarity. Today it is common through dredging. Gem quality specimens are another matter. Collectors usually have to settle for a rough lip or growth scars. High quality smaller specimens have been taken by SCUBA.

Conus delessertii is a beautiful shell with orange banding. also in the pattern are rows of dark brown dashes and flammules. Fresh specimens have a pale pink mouth. The spire of this cone can be elevated or low.

Conus centurio is a rare cone that is opportunistically collected from shrimp trawlers or dredgers. Large specimens have been taken on the continental shelf of South America. Smaller ones occur on the islands of the Lesser Antilles. These have a tendency of being more colorful and delicate.

Conus centurio can be white with dark flammules or have golden bands with the same dark markings. A rare form of this shell occurs off Barbados. This shell is *Conus centurio antillensis*. This cone is large with a milky background. It also has large dark flammules.



Conus delessertii

#1 off Pensacola, #2 and #3 off Cape Canaveral.



#1 *Conus centurio*, Guyana, #2 *Conus centurio*, off
Columbia, #3 *Conus centurio antillensis*, Barbados



#1 and #2 *Conus centurio*, Barbados with periostracum and operculum, #3 *Conus centurio*, off Columbia.

Conus lightbourni Petuch, 1986

Conus lightbourni is a rare cone trapped off Bermuda. Comes from extremely deep water and is understandably rare in collections. It is usually collected with equally rare *Pleurotomarias* and other seldom seen species.

This cone is not actually close to any other known Western Atlantic species, but does have an affinity to *Conus sanderi*, from deep water off of Barbados, (page 20). Few examples are known, and this shell may prove to be the rarest *Conus* in the Western Atlantic area. This shell is not illustrated here, but can be seen in *New Caribbean Molluscan Fauna*, by Edward Petuch.

Common *Conus* species

Note: This next section includes many of the more common *Conus species* seen in the Western Atlantic. Many of these shells are familiar, even to non-cone collectors. Among these are *Conus ermineus*, *Conus regius*, and *Conus jaspideus*. Most are from shallow water, and are often abundant. A few have rare or deep water forms in their ranks.

Conus ermineus Born, 1780

Conus ermineus is a large cone that ranges through the Western Atlantic and over to West Africa. Many pattern varieties exist for *Conus ermineus*. Since these patterns can occur in any populations, I've chosen just to use the name *Conus ermineus*. The shells can be heavily patterned to patternless. Albino shells with a golden pattern are occasionally taken. *Conus ermineus* has a full periostracum that is quite attractive. It is advisable to have shells from the same lot with and without periostracum. This way you can satisfy your curiosity about the pattern and still have a cone in its natural state. *Conus ermineus* usually has a pattern above and below the mid-body band. This can be white "tents" on a colored base or blocks or flammules of color.

Conus purpurascens Sowerby, 1833, is this cone's Panamic cognate. This cone is very similar to typical *Conus ermineus*, but has a strong purple coloration.



Conus ermineus

#1 Carriacou, #2 Trinidad.



Conus ermineus

Taken off Isla Margarita, with periostracum



Conus ermineus

#1 Curaçao, #2 Dominican Republic, #3 Florida, an albino example taken off Key West.

***Conus regius* Gmelin, 1791**

Conus regius citrinus Gmelin, 1791

Conus regius (white form)

Conus regius is a far ranging cone. It can be found from Florida to Brazil. Giant examples of this cone can be found in the Grenadines. These have measured in excess of 75 mm. The typical size for this cone is between 45 to 65 mm.

The pattern of typical *Conus regius* consists of brown and violet maculations over a white background. The orange form, *Conus regius citrinus*, is found in most populations of this shell. This cone can be solid orange or intermediate to typical *Conus regius*. This intermediate form can be orange with dark markings or have both patterns varying among the growth cycles. I feel an additional color form should be acknowledged. This is the white form with very sparse markings.

Since *Conus regius* is found in shallow water, specimens are usually live taken with an operculum. Like *Conus spurius*, *Conus regius* has a large operculum.

The Panamic cognate of this shell is *Conus bartschi* Hanna and Strong, 1949. This cone is more delicate and rarer than *Conus regius*.



Conus regius

#1 Brazil, #2 Florida, #3 St. Vincent.

Western Atlantic Cones



(Top) *Conus regius citrinus*, #1 St.Vincent, #2 Bonaire, #3 Curaçao.



(Middle) Intermediate *Conus regius*, #1 Bonaire, #2 Florida.

(Bottom) White *Conus regius*, #1 and #2 Curaçao, #3 St. Vincent.



The *Conus mindanus* complex

Conus mindanus Hwass, 1792

Conus mindanus bermudensis Clench, 1942

Conus mindanus bermudensis lymani Clench, 1942

Conus mindanus agassizii Dall, 1889

Conus pusio Hwass, 1792

Conus vanhyningi Rehder, 1944

Conus mindanus is one of the few Western Atlantic cones that ranges from Bermuda to the continental shelf of the southern United States, throughout the Caribbean and finally to Brazil. Within this range, there are a few sub-species and many color forms.

Starting in Bermuda there is the large endemic *Conus mindanus bermudensis*. This Bermuda cone can exceed 60 mm. At this size the shell is heavy and thickened. The color of this form is very similar to the pink sands of the Bermuda beaches. The pattern consists of pale blocks of orange over a pink ground.

Moving to the East Coast of Florida, we find another form of *Conus mindanus bermudensis*. This shell is *Conus mindanus bermudensis lymani*. This cone is also large. Its pattern consists of red maculations with fine horizontal lines of dots.

Located from off Florida to the southern Caribbean is the deep water form of *Conus mindanus*. This cone, *Conus mindanus agassizii*, has a heightened spire and a slimmer profile. Examples taken off Barbados show colors of peach and orange.



#1 *Conus mindanus bermudensis lymani*, East Florida, #2 *Conus mindanus bermudensis*, Bermuda, #3 *Conus mindanus agassizii* Barbados, #4 *Conus mindanus agassizii*, Brazil.

Typical *Conus mindanus* ranges from the southeastern coast of the United States to as far south as Brazil. Normal size for this cone is between 20 and 40 mm. Many color forms exist. These are usually in the pastel range. Among these are red, orange, yellow, and even bluish shells. Dark brown ones occur off Brazil. The body whorl of *Conus mindanus* can be smooth or pustulated. The protoconch is usually pink. Its spire is domed. *Conus mindanus* also has incised lines at the base of the body whorl.

Conus pusio from the Grenadines may be a small form of *Conus mindanus*. *Conus pusio* has scattered dark markings over a white base. Also in the pattern are lines of dots, often seen in typical *Conus mindanus*. This form superficially resembles *Conus puncticulatus*.

A full species that has links to both *Conus mindanus* and *Conus jaspideus* is *Conus vanhyningi*. This cone can be yellow, pink or with bright red maculations. This cone has straight sides and a pointed spire. The protoconch is white.

The *Conus mindanus* complex and the *Conus jaspideus* complex are related. Intergrades exist, but *Conus jaspideus* is generally smaller, with a slimmer silhouette.



Top Row: #1 Dominican Republic, #3- #7 Martinique. Bottom Row: #1 and #2 Belize, #3- #5 East Panama, #6 Brazil, #7 Puerto Rico.



Top Row: #1 *Conus mindanus*, Brazil, (same specimen as #6, Bottom Row page 56), #2- #4 *Conus pusio*, St. Vincent. Bottom Row: #1 - #4 *Conus vanhyningi*, off East Florida,

The *Conus jaspideus* complex

Conus jaspideus Gmelin, 1791.

Conus jaspideus verrucosus Hwass, 1792

Conus jaspideus stearnsii Conrad, 1869

Conus anaglypticus Crosse, 1865

Conus acutimarginatus Sowerby, 1866

Conus jaspideus is probably the most common cone in the Western Atlantic. It is usually collected in large numbers. It is therefore easy to have large sample lots of this cone in your collection.

Conus jaspideus lives in shallow water. It forms homogeneous populations. Since these populations are so large, a wide range of body textures and patterns exist. In this light it is futile to have multiple form names. The names I'm using are established within the hobby and are readily understood. Among these varying characteristics are incised lines, pustules, patterns and form.

Western Atlantic Cones

Populations in the Bahamas and elsewhere in the Caribbean consistently have pustules. This form is called *Conus jaspideus verrucosus*. This cone is usually a shade of white, yellow or pink. Darker examples have been found in the southern Caribbean.

Conus jaspideus stearnsii is a western Florida form of *Conus jaspideus*. It is slimmer, more angular, and with an overall gray appearance.

A recently re-discovered species, *Conus anaglypticus*, may be related to *Conus jaspideus*. This small colorful cone is quite thick and has a squarish body whorl. *Conus acutimarginatus*, like *Conus anaglypticus*, is small. This cone is marked with various flammules.

Typical size for *Conus jaspideus* is between 10 and 25 mm.



Conus jaspideus

Top Row: #1 and #2 Florida, #3 Dominican Republic, #4 Florida, #5 Roatan.

Bottom Row: #1 Bahamas, #2 Florida, #3 Bequia, #4 Utila, #5 Bahamas.

Western Atlantic Cones



Top Row: #1 - #4 *Conus jaspideus verrucosus*, Bahamas, #5 *Conus jaspideus verrucosus*, Columbia, #6 *Conus acutimarginatus*, Roatan.



#1 *Conus jaspideus stearnsii*, West Florida, #2- #4 *Conus anaglypticus*, Puerto Rico.

***Conus mus* Hwass, 1792**

Conus mus, like *Conus jaspideus*, is a common shallow water cone. *Conus mus* is a gray shell with occasional dark markings. The surface of this shell is textured. It ranges from 20 to 50 mm.



all above specimens from southern Florida.

Western Atlantic Cones

Conus puncticulatus Hwass, 1792

Conus puncticulatus columba Hwass, 1792

Conus puncticulatus is a small cone with rows of small dark squares. This cone also has a notched anterior canal that readily separates it from other species. *Conus puncticulatus* has light and dark forms. The patternless form of this shell is called *Conus puncticulatus columba*. This form can be white or even bluish.

The Panamic cognate of this cone is *Conus perplexus* Sowerby, 1857. This shell is generally larger than typical. *Conus puncticulatus*.

Conus puncticulatus

Top Row: #1 Florida, #2 Venezuela, #3
Martinique. Bottom Row #1 and #2 (form)
columba,
Bahamas, #3 Grenada.



The *Conus floridanus* complex

Conus floridanus Gabb, 1869

Conus floridanus floridensis Sowerby, 1870

Conus floridanus burryae Clench, 1942

Conus floridanus patglicksteinae Petuch, 1987

Conus floridanus yucatanus Petuch, (new species)

Western Atlantic Cones

Conus floridanus and its forms range from the southeastern United States to the Yucatan Peninsula. It is a common shallow water cone, popular with collectors.

Typical *Conus floridanus* has a pale yellow pattern of dashes. This cone also has an elevated spire and straight sides. Specimens usually measure 30 to 40 mm.

The form *Conus floridanus floridensis* has a darker, more defined pattern. This form also grows larger- some exceeding 50 mm. This form is common on Marco Island, Florida. Another form is *Conus floridanus burryae*, This cone has the dash pattern replaced by a solid base of color.

Conus floridanus yucatanus is a newly described form of this cone. It is somewhat squatter in appearance than typical *Conus floridanus*. Its markings do follow the dash pattern seen in other forms.

The final form of *Conus floridanus* is *Conus floridanus patglicksteinae*. This is a deep water Florida cone with some violet coloration. It is understandably rare.



#1 *Conus floridanus floridensis*, Marco Island, Florida, #2 *Conus floridanus*, SW Florida, #3 *Conus floridanus burryae*, Key West, Florida, #4 *Conus floridanus yucatanus*, Yucatan.

The *Conus clerii* complex

Conus clerii Reeve, 1844

Conus clenchi Martins, 1942

Conus latifasciatus Sowerby, 1858

Conus tostesi Petuch, 1986

Conus carioca Petuch, 1986 (see *Conus sanderi*, page 27)

Brazil has a unique endemic *Conus fauna* headed by *Conus clerii*. This cone forms the basis of the complex. *Conus clerii* is a white shell with dark markings arranged in horizontal bands. Also in the pattern are random flammules. This cone has straight sides and a rounded apex. It is commonly dredged in great numbers off mid to southern Brazil.

The related *Conus clenchi* is smaller and more delicate. This shell has a sharper lip with more developed flammules. It is much rarer than *Conus clerii*, so therefore is uncommon in collections.

Conus latifasciatus seems very close to typical *Conus clerii*. It differs by having its pattern and flammules a golden color. A newly described member of this complex, *Conus tostesi*, has areas of vague banding at the shoulder, midbody and base. It also has the dash pattern, although finer. It is one of the smallest members of this complex.



#1 *Conus clerii*, Brazil, #2 *Conus latifasciatus*, Brazil, #3 *Conus tostesi*, Brazil.

In this final section, I will discuss the ubiquitous *Conus cardinalis* complex. The below listing represents cones in this complex that are seen in the hobby today. The *Conus cardinalis* complex is constantly under scrutiny and revision. New species in this complex are describes with a regular frequency.

The *Conus cardinalis* complex

Conus cardinalis Hwass, 1792

Conus speciosissimus Reeve, 1848

Conus inconstans E.A. Smith, 1877

Conus jucundus Sowerby, 1887

Conus exquisitus Sowerby, 1887

Conus mayaguensis Nowell-Usticke, 1968

Conus arangoi Sarasua, 1977

Conus kulkulcan Petuch, 1980

Conus columbianus Petuch, 1987

Conus harasewychi Petuch, 1987

Conus hilli Petuch, 1990

Conus richardbinghami Petuch, 1992

Conus glenni Petuch, 1992

Conus caysalensis Raybaudi and Prati, 1994

Conus ritae Petuch., (new species)

Conus rosalindensis Petuch, (new species)

Typical *Conus cardinalis* is a beautiful cone that ranges through the coral regions of the Caribbean. It is a small shell, rarely exceeding 40 mm. It colors range from bright red to orange to shades of yellow. It has a characteristic mid-body band of light and dark areas. The body whorl can be smooth to granulated.



Top Row: #1 *Conus cardinalis*, Bahamas #2 and #3 *Conus cardinalis*, Dominican Republic, #4 *Conus cardinalis*, Utila, #5 *Conus cardinalis*, Dominican Republic. Bottom Row: #1 *Conus cardinalis*, Haiti, #2 *Conus cardinalis*, Utila, #3- #6 *Conus speciosissimus*, Bahamas.

Many other cones fall under the *Conus cardinalis* complex. Some are so close to this shell that they may prove to be geographical forms. One such shell is *Conus kulkulkan*, This cone is found off the bay islands of Honduras. It is centered on Roatan. *Conus kulkulkan* has an almost endless array of color forms. Examples are red, orange, brown, green, yellow and even blue. It follows typical *Conus cardinalis* in form. Some specimens have dark markings covering the body whorl.

Like some other molluscs, the male of *Conus kulkulkan* is smaller than the female. The male is also thicker, with less intense coloration.

The new *Conus rosalingensis* appears to be a form of *Conus kulkulkan*. This cone is more angular with a smoother body whorl. Another similarity is the presence of fine vertical lines on the spire and the shoulder.

An orange form of *Conus kulkulkan* is found on the neighboring Guanaja.



Conus kulkulcan

Top Row: #1 Guanaja Island, #2- #7 Roatan Island. Bottom Row: #1 - #7 Roatan Island, (#5- #7 male specimens)



#1 and #2 *Conus rosalingensis*, Rosalind Bank, #3- #5 *Conus ritae*, Rosalind Bank.

Like *Conus kulkulcan*, *Conus jucundus* has many color forms. This shell was formerly known as *Conus abbotti*. *Conus jucundus* was found to be the more correct name. *Conus jucundus* lives in relatively shallow water. Its habitat is the base of coral heads. *Conus jucundus* can be solidly colored or heavily patterned. A form of this cone exists off the Dominican Republic. This shell is black and white with some purple tones. Currently being called *Conus mayaguensis*. This name, however, applies to a cone from the western coast of Puerto Rico.

The Bahamas have quite a few *Conus cardinalis* complex members. Among these is the beautiful *Conus richardbinghami*. This cone is a rich red with bands of white clouds. It has a flat spire and straight sides.

Western Atlantic Cones

Also from the Bahamas is *Conus speciosissimus*. It is a small cone with shades of orange, green and it is very similar to *Conus cardinalis* in form. Likewise, *Conus inconstans* of the Bahamas is a small orange cone with physical characteristics of *Conus cardinalis*.

Conus mayaguensis of western Puerto Rico may be a member of the *Conus cardinalis* complex. It is a red or orange shell with a coronated spire. This cone may also be related to *Conus ampliurgus* in some capacity.

A rare cone that falls into the *Conus cardinalis* complex in a general sense is *Conus arangoi*. This cone is a light orange with two or three rows of dark markings. Its anterior canal is slightly lengthened. Some examples have measured close to 50 mm.



Top Row: #1 and #2 *Conus mayaguensis*, Bahamas, #4 cf *Conus arangoi*, Roatan, #5 *Conus cardinalis*, Dominican Republic, #6 and #7 cf *Conus cardinalis*, Bahamas. Bottom Row: #1 and #2 *Conus caysalensis*, Bahamas, #3 and #4 *Conus exquisitus*, Dominican Republic, #5 *Conus richardbinghami*., Bahamas, #6 *Conus glenni*, Panama, #7 *Conus inconstans*, Bahamas, #8 *Conus columbianus*, Columbia.

Two obscure shells that are tentatively placed with *Conus cardinalis* are *Conus columbianus* and *Conus harasewychi*. *Conus columbianus* is a pale pink cone with a sparse pattern. *Conus harasewychi* is a small dense cone, found off the coast of Florida.

Conus jucundus

Top Row: #1 - #4 Bahamas. Middle Row: #1 - #3 Bahamas. Bottom Row #1 and #2 Dominican Republic. #3 Bahamas.



A re-discovered and a recently described cone may prove to be members of the *Conus cardinalis* complex. The first is the rediscovered *Conus exquisitus* of the Dominican Republic. This cone is small, its maximum being 20 mm. Its pattern is a mix of red and white clouding. The second cone is the recently described *Conus caysalensis* of Cay Sal, Bahamas. Similar to *Conus exquisitus*, it has a red and white pattern. Its red coloration tends to be darker.

Off Panama are two species in the *Conus cardinalis* complex. These are *Conus glenni* and *Conus hilli*. Both are small, rare cones, and are seldom seen in collections. *Conus glenni* can be red to lavender. It has a rounded shoulder, like *Conus granulatus*, *Conus hilli* is a purple cone. It follows the basic form of *Conus cardinalis*.

The *Conus magellanicus* complex

Conus magellanicus Hwass, 1792

Conus explorator Vink, 1990

Conus hennequini Petuch, 1992

Western Atlantic Cones

The *Conus magellanicus* complex is an extension of the *Conus cardinalis* complex. These cones are generally smaller than typical *Conus cardinalis*. They tend to be dense shells. *Conus magellanicus* from Guadeloupe has many color forms. These can range from tan to red to green. These colors appear on the body whorl in clouds, flammules, or even solidly. This cone has a characteristic coronated spire along with a dotted mid-body area.

The related *Conus explorator* is a beautiful black and white cone. It is found along the northern coast of Jamaica. It is very similar to *Conus magellanicus* in respect to form and pattern.

A pale cone that was recently named may be a member of this complex. This shell is *Conus hennequini* of Martinique. This cone has a whitish background with slightly darker markings.

Normal size for *Conus magellanicus* is between 10 and 25 mm.



Top Row. #1 - #3 *Conus magellanicus*, Guadeloupe, #4 *Conus explorator*, Jamaica. Bottom Row: #1 - #4 *Conus magellanicus*, Guadeloupe.



(left) *Conus hennequini*, Martinique.

Other Small Cones

Conus selenae Van Mol, Tursch, and Kempf, 1967

Conus hieroglyphus Duclos, 1883

Conus havanensis Aguayo and Farfante, 1947

Western Atlantic Cones

I'm placing these three cones together due to their physicality. They are small and have a textured body whorl. Their exact relationship may not be clear.

Conus selenae is a small Brazilian endemic. It is tan to orange with rows of pustules. In between each pustule is a dark dot. The body whorl is rounded and quickly descends to the anterior canal. This rare shell can also have a smooth body whorl.

Conus hieroglyphus is an Aruban endemic. Its black and white markings make it similar to *Conus explorator*. It is actually closer to *Conus selenae*, however. This shell is hard to find in gem condition, as it is prone to erosion and breaks.

Conus havenensis is another small species that is found in the Bahamas. It is a thick shell with rows of fine dots. Its sides are straight, with a coronated shoulder.



Top Row: #1 and #2 *Conus hieroglyphus*, Aruba.
Middle Row: #1 *Conus selenae*, Brazil, #2 *Conus havenensis*, Bahamas. Bottom: cf *Conus selenae*, Roatan.

Conus granulatus Linne, 1758

Conus granulatus is a beautiful rare cone that ranges through the Caribbean. This cone has the popular name of the "Glory of the Atlantic". This name is the counterpart to the famed "Glory of the Seas", of the western Pacific. This cone, *Conus gloriamaris* Chemnitz, 1777, was a one time great rarity.

Western Atlantic Cones

Conus granulatus often lives under piles of coral rubble. For this reason it is hard to collect live. Dead and beach specimens do occur, but these are a pale shadow of a live taken one. Fresh specimens are bright red to pink with a mid-body area of white and black markings. The southern form of this cone has pairs of raised ridges over the body whorl. The spire is rounded with a yellow protoconch.

The size range of *Conus granulatus* can be small (30 mm), to quite large (60 mm) These may reflect different population sizes, as the animal is mature within these parameters. Large gem examples demand a premium over the smaller ones.

Conus granulatus doesn't belong to any multi-member complex, but is closest to the *Conus cardinalis* complex. If you are at a loss as to where to place *Conus granulatus* in your collection, your *Conus cardinalis* drawer would be a good place.



Conus granulatus

#1 Roatan, #2 Mustique, #3 Barbados.