recent Fasciolariidae

Descriptions

Vorwort

Diese Zusammenstellung ergänzt die hervorragenden Abbildungen in „*Recent Fasciolariidae*“ von Mallard, D. & Robin, A., 2017, und die umfassende Literaturzusammenstellung „*Catalogue of the Marine Gastropod Family Fasciolariidae. Fossil and Recent. A Guide to the "Fusidae"*“ von Snyder, M. A., 2022, um die Original- und Wiederbeschreibungen und weiterer Informationen, soweit sie verfügbar waren. Damit soll in Zweifelsfällen die Bestimmung erleichtert werden.

Die Anordnung folgt der Systematik von WoRMS. Nicht englischsprachige Originalbeschreibungen wurden mit Unterstützung des Google-Translators übersetzt und in (…) gesetzt, dabei entstandene Fehler möge man mir verzeihen. Notwendige Ergänzungen sind in […]. Auf den üblichen Literaturanhang wird wegen dessen Umfang bewusst verzichtet und stattdessen auf den Katalog von Snyder verwiesen.

Die heutzutage den *Buccinoidea* zugehörigen *Dolicholatiridae* wurden mit aufgenommen, da sie in älteren Werken den *Fasciolariidae* zugeordnet wurden.

Möge es dem nützen, der es gebraucht!

Foreword

This survey supplements the excellent illustrations in “*Recent Fasciolariidae*” by Mallard, D. & Robin, A., 2017, and the comprehensive literature compilation “*Catalogue of the Marine Gastropod Family Fasciolariidae. Fossil and Recent. A Guide to the "Fusidae"*" by Snyder, M. A., 2022, with the original descriptions and redescriptions where they were available. This is intended to make determination easier in cases of doubt.

The arrangement follows the system given in WoRMS. Original descriptions that were not in English were translated using Google Translator and placed in (…), please forgive me for any errors that occurred. Necessary additions are in […]. The usual literature appendix is deliberately omitted due to its size and instead reference is made to Snyder's catalogue.

The *Dolicholatiridae*, which today belong to the *Buccinoidea*, were included because they were assigned to the *Fasciolariidae* in older works.

May it benefit whoever uses it!

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recent **Fasciolariidae** Gray, 1853

Type genus: *Fasciolaria* Lamarck, 1799

Description: Mantle enclosed; siphon and canal of shell straight; shell with plaits on the front of the pillar; central tooth narrow, small; lateral teeth very broad, linear, with many equal teeth.

Redescription: Shells of this type are fusiform (narrow abapically and adapically), with a moderately elevated spire, an abapically excavated (or constricted) last whorl (that is, the lateral profile of the abapical sector of the whorl is concave outward), axial sculpture that is strongest on the adapical or central sectors of the last whorl, and finer spiral sculpture of cords and threads. The outer lip comprises three distinct sectors corresponding to sectors of the last whorl. These are the adapical (or subsutural) sinus, corresponding to the spirally threaded or corded subsutural ramp; the planar or downwardly convex central sector, extending from the shoulder angulation to a cord marking the adapical end of the basal constriction; and the abapical sinus above the adapical end of the siphonal canal, corresponding to the basal constriction and siphonal canal.

Variable features in this general plan are the presence or absence of sculpture on the inner (adaxial) side of the outer lip, presence or absence of a parietal rib or tooth at the adapical end of the inner lip, presence or absence of basal (abapical) columellar folds, degree of expression of outer-lip sinuses, length of the siphonal canal, prominence of the siphonal fasciole (spiral trace of the notch at the abapical end of the siphonal canal), presence or absent of an umbilical slit, expression of axial and spiral sculpture, and degree of modification of the outer lip at adulthood. Most species conforming to this general theme are classified in the Buccinidae, Fasciolariidae, Melongenidae, and Turbinellidae. Most members of the Fasciolariidae have a lirate outer lip, a more or less distinct subsutural sinus, a columella with two or more folds above (adapical to) the siphonal canal, and an indeterminate (unmodified) outer lip in the adult shell.

Size: 10-600 mm.

Range: worldwide tropical to temperate waters

Remarks: original spelling *Fasciolariadae*

Subfamily Fasciolariinae Gray, 1853

Synonyms: *Latiridae* Iredale, 1929

Type genus: *Fasciolaria* Lamarck, 1799

Description: as *Fasciolariadae*: Mantle enclosed; siphon and canal of shell straight; shell with plaits on the front of the pillar; central tooth narrow, small; lateral teeth very broad, linear, with many equal teeth.

Redescription: Shell fusiform; outer lip usually medially convex, without adapical sinus; outer-lip edge usually with paired crenulations; inner lip adherent, abapically bearing two columellar folds and a more prominent fold at entrance of siphonal canal; adaxial margin of siphonal canal often erect; siphonal process parallel to axis of coiling. The operculum ovate acute, nucleus apical.

Size: medium-sized to extremely large

Range: worldwide tropical to temperate waters

Remarks: as family *Fasciolariadae*

The *Fasciolariinae* are morphologically similar to the fasciolariid subfamily *Peristerniinae*. Both groups are characterized by the presence of abapical columellar folds, an entrance fold to the siphonal canal situated immediately anterior to the columellar folds, and a (usually) crenulated, simple outer lip that is usually lirate on its inner (adaxial) side. These lirae are present in fully formed shells. However, mature individuals in *Triplofusus* are often smooth on the inner side of the outer lip, and all *Africolaria* lack such lirae. Internal lirae are created late in the shell depositional process, and a shell with an apparently complete lip (as evidenced by a relatively thick edge) may not yet have deposited its full complement of lirae. Nevertheless, the *Fasciolariinae* are relatively homogeneous in shell features. All *Fasciolariinae* have an adherent inner lip that merges imperceptibly into the shell exterior. The outer lip lacks an adapical sinus in all genera except some members of *Australaria*, a feature present in all *Peristerniinae* except some species of *Hemipolygona*. No fasciolariine has developed denticles on the inner side of the outer lip, features that are well-developed in several peristerniine genera including *Peristernia*, *Turrilatirus*, and *Latirus*, among others. The siphonal process of *Fasciolariinae* is always parallel to the axis of

coiling, not deviated either dorsally or to the side as in some *Peristerniinae*. Although the *Fasciolariinae* and most *Peristerniinae* are characterized by the presence of abapical columellar folds, there are important differences in the magnitude and orientation of the folds. The folds in *Fasciolariinae* are elongate and very oblique and this character unites the species of the subfamily.

Besides the extremely large size of several fasciolariines, especially in *Triplofusus*, but also in *Fasciolaria*, *Pleuroploca* and the extinct genus *Pliculofusus †*, the *Fasciolariinae* have evolved 3 character states that are otherwise unknown in the *Fasciolariidae*. These are:

- an externally glazed shell (in the extinct genus *Liochlamys †*), indicating envelopment by the mantle or foot
- the extreme development of the entrance fold to the siphonal canal into a keel-like feature, as seen in the genera *Australaria* and *Filifusus*
- the presence of distinct folds along the adaxial margin of the siphonal canal abapical to the entrance fold, as seen in adults of *Pleuroploca*, *Pliculofusus* and *Terebraspira*.

Africolaria Snyder, Vermeij & Lyons, 2012

Type species: *Fasciolaria rutila* Watson, 1882

Description: Shell of medium size for subfamily, narrowly fusiform, lightweight, with large cylindrical to bulbous protoconchs, convex whorls and high spires; teleoconch sculpture of very fine spiral threads and short axial ribs, the latter absent in some specimens and highly developed in others; outer lip convex, without crenulations on edge, inner side smooth, lacking lirae; junction of outer lip with penultimate whorl lacking adapical notch; parietal ridge rounded to keel-like; columellar folds weak, entrance fold to siphonal canal developed to prominent and keel-like; inner side of siphonal canal without abapical folds. The periostracum of *Africolaria* species is greenish to pale yellow, very thin, and rather fragile.

Size: 3 species to 118, 140 and 196 mm

Range: South Africa

Remarks: In a review of what is called the *Fasciolaria lugubris* group, it was suggested that the temperate-water South African fasciolariine species agree in teleoconch and radular characters with the genus *Fasciolaria* in its broadest sense, but the species are distinguished from all others by their extremely large and bulbous protoconchs with basal diameters as great as 3-5 mm.

Species of *Lugubrilaria* are distinguished from those of *Africolaria* by the lirate sculpture on the inner side of the outer lip, the paired series of cords and threads on the shell outer surface, and the resultant crenulations where cords and grooves meet on the outer lip. *Lugubrilaria* shells also have tough, relatively thick and dark periostracum which commonly persists on adult shells.

Africolaria differs from other fasciolariine genera in that the outer lip is not crenulated and the inner side of the outer lip is smooth, lacking lirae. Lighter shell weight, surface sculpture of fine spiral threads of uniform size, lack of paired surface spiral bands, relatively long siphonal processes and very thin periostracum also distinguish *Africolaria*, in various combinations, from all other fasciolariine genera. Reduced spiral sculpture also occurs in *Fasciolaria*, but spiral threads in *Africolaria* persist over the entire exterior shell surface, whereas in the American *Fasciolaria* parts of the body whorl may be devoid of spiral sculpture; axial ribs, usually present and sometimes prominent in *Africolaria*, are also absent in *Fasciolaria*.

Kilburnia resembles *Africolaria* in often having a keel-like entrance fold to the siphonal canal, but it differs in having a convex, crenulated outer lip, a lirate inner side of the outer lip, and a more nodose axial sculpture.

Africolaria rutila (R. B. Watson, 1882)

Description: Shell long, narrow, fusiform, not ribbed, finely spiralled, with a high, narrow spire of rounded whorls, a blunt mamillary apex, a contracted rounded base, prolonged into along, lop-sided, slightly reversed snout. Sculpture: Longitudinals: there are none but small, rude lines of growth. Spirals: there are very many small, rounded, pretty equal threads parted by shallow rounded furrows of about their own breadth; on the snout these threads are feebler, sharper, and more remote. Colour white under a thin, brown, smooth, persistent epidermis; the inside of the mouth is tinged with buff, which is deeper on the inner lip than elsewhere.

Spire very high, narrow, conical, but a little bent. Apex consists of 1 to 2, large, mamillary, but cylindrical whorls. Whorls 8 in all, high, narrow, of rapid increase, convex, rounded, contracted below as well as above, where they slightly lap up on the preceding whorl; the last whorl is larger than all the rest, is slightly tumid, rounded on the base, which is contracted, especially on the left, and is produced into a very long, narrow, lop-sided bent, and slightly reversed snout. Suture deep, but very open.

Mouth oval, direct, pointed above, prolonged into a long, oblique, narrow, open, twisted canal, which is a good deal reverted in front. Outer lip narrow, blunt, very finely crenulated on the edge; it is very regularly arched, and not at all patulous till it approaches the canal, where it is increasingly patulous to the point; in this part of its course its curve is concave. Inner lip: there is a diffuse white callus above; its whole curve is concave to the edge of the canal, where it is obliquely truncate, sharp, and twisted; its edge in front is extremely narrow and sharp; there are 2 slight, oblique, white teeth close to the pillar-edge. Operculum oval, with a pointed, almost claw-like apex; it is thinnish, horny, sharp-edged, strongly marked with lines of growth on its outer face, and having on its inner face a broad, flat, glossy swelling along its outer margin.

Redescription: Shell spindle-shaped, spire and aperture of similar length; whorls evenly rounded; sculptured by fine spiral threads; siphonal canal of moderate length; inner lip with one spiral columella pleat at start of siphonal canal, occasionally a second one adjacent to this; parietal region with an indistinct, in-running, spiral ridge just below insertion of outer lip; interior of outer lip smooth; tip of spire slightly bulbous when not damaged or worn. Whitish with a thin, pale horn-coloured or orange-brown periostracum, often eroded on spire. Animal yellowish-white to pale yellow.

Size: up to 175 mm; height 100 mm, width 36 mm, penultimate whorl height 17.5 mm; aperture height 55 mm, width 19.5 mm

Range: South Africa and northward to S Namibia

Remarks: This is an exceptional form, having the apex of a *Fusinus* (a feature shared by *Australaria coronata*), and having a long, thin, bent canal and no longitudinal ribs or tubercles, features which, though present in some species (as, for instance, *Fasciolaria tulipa* and *Triplofusus papillosus*), are uncommon, especially united. It is also peculiar from the slimness of its form and the thinness of its shell.

A. wattersae, also from the Agulhas Bank, has distinct nodules at the shoulder and a longer siphonal canal.

See also comparative remarks for *A. thersites* and *Fasciolaria tephrina*. For comparison with *Lugubrilaria seccombei* see there.

Africolaria thersites (Reeve, 1847)

Description: *T. testa fusiformi, basi gracili, elongata, anfractibus transversim subtilissime et creberrime corrugato-striatis, turberculis prominentibus peculiariter elongatis concentrice armatis; eburnea, epidermide tenui flavicante induta.*

Shell fusiform, slender and elongated at the base, whorls transversely very finely and closely striated in a wrinkled manner, concentrically armed with prominent peculiarly elongated tubercles; ivory-white, covered with a thin yellowish epidermis.

Redescription: Shell spindle-shaped, spire 1/2 to 2/3 total length of aperture; whorls usually with strong, widely spaced axial ribs (strongest at shoulder), but sculpture variable and some specimens with virtually no ribs on later whorls; spiral sculpture of very fine threads; siphonal canal of moderate length; inner lip with a strong spiral columella pleat at start of siphonal canal, a second weaker one just above this; a third narrow, in-running, spiral ridge in parietal region, below insertion of outer lip; interior of outer lip smooth; tip of spire slightly bulbous when not damaged or worn. Shell white with a thin, pale horn-brown periostracum, often eroded on spire.

Size: up to 100 mm

Range: South Africa, endemic (China in orig. description)

Remarks: Smooth specimens resemble *A. rutila*, but that species attains a larger size, has weaker columella pleats and an indistinct parietal spiral ridge. The spire is also proportionately longer in *A. rutila*, almost equalling the length of the aperture.

Africolaria wattersae (Kilburn, 1974)

Description: Medium-sized, narrowly fusiform, aperture and siphonal canal together slightly longer than spire; aperture elliptical, greatest width in middle; canal well demarcated, subequal in length to aperture; rostrum slender, slightly curved. Labrum thin, only feebly plicate internally; labium with a moderately thick, adnate callus, which bears a strong parietal ridge and 2 rather weak basal pleats (with a suggestion of a third one posteriorly). Periphery median on early whorls, slightly above middle on later ones.

Apical whorls unfortunately corroded, but all teleoconch whorls apparently covered by thin, close-set spiral lirae, increasing from about 16 on the 2nd whorl to about 35 on the penultimate one; these lirae are alternately weaker and stronger, and are rendered rugose by growth lines; they cross the axial sculpture and extend nearly to the tip of the rostrum. On the second whorl (and probably the first) are 9 low, rounded, suture to suture axial swellings; from about the 4th whorl these begin to evanesce towards the sutures, remaining as rounded peripheral nodules; body whorl with 10 conspicuous, rounded, rather fold-like knobs, giving this whorl (to a lesser extent this also applies to the spire whorls) a shouldered appearance. Teleoconch whorls 6 1/2. Protoconch bulbous, apparently similar to that of *A. rutila*; diameter 3,7 mm.

Colour uniform buff. Holotype heavily stained with an orange mineral deposit. Operculum resembling that of *A. rutila*, but narrower and darker brown, almost black.

Size: 100-160 (140) mm; length 125.5 mm, width 44.4 mm

Range: South Africa

Remarks: *A. wattersae* closely resembles *A. rutila* from the Atlantic Cape shelf and from off Cape Point, in general shape and proportions and in the overall fine spiral sculpture; *A. rutila*, however, entirely lacks the conspicuous shoulder nodules of *A. wattersae,* and has a shorter rostrum.

The Western Cape *Lugubrilaria lugubris* also lacks these nodules, has coarser spiral sculpture and a much shorter rostrum, and is markedly broader.

Kilburnia scholvieni is a much larger, broader species, with pinched-in rostrum, and less regular spiral sculpture; shoulder nodules, when present, are transversely, not axially, elongated.

Aurantilaria Snyder, Vermeij & Lyons, 2012

Type species: *Aurantilaria aurantiaca* (Lamarck, 1816)

Description: Shell medium-sized to large for subfamily; shell broadly fusiform, with relatively high spire; when fully expressed, sculpture of up to five rows of 10 or more abaxially pointing nodes; other spiral sculpture of prominent cords; outer lip edge weakly convex and angled at periphery, with paired black crenulations, the termini of paired black lines on the spire and body whorl; internal lirae on adaxial side of outer lip mostly smooth, but some discontinuous toward anterior; junction of outer lip with penultimate whorl often without notch; parietal ridge prominent, rounded; entrance fold to siphonal canal prominent, rounded, more strongly expressed than the 2 columellar folds; folds abapical to entrance fold absent.

Size: maximum length of type and largest species 211 mm

Range: SE Caribbean and Brazil

Remarks: In its multiple rows of nodes and black paired crenulations, *Aurantilaria* resembles the Indo-West Pacific genus *Pleuroploca*, but it differs from that genus by lacking folds abapical to the entrance fold and by having a consistently higher spire.

Aurantilaria differs from the American genus *Granolaria* by having a higher spire, abaxially rather than adapically pointing nodes, and by usually having discontinuous internal lirae. Shells of living *Aurantilaria* have paired black spiral lines and terminal crenulations, which are lacking in *Granolaria*, and may have more than one spiral row of nodes, a state not seen in any species of *Granolaria*.

Species of *Triplofusus* resemble *Aurantilaria* in having a high spire, but lack the parietal ridge of *Aurantilaria* and have a planar rather than convex outer lip. The outer lip of *Triplofusus* lacks the terminal crenulations of *Aurantilaria* and is either smooth on its inner side or has smooth internal lirae.

Fusilaria differs from *Aurantilaria* by having spiral cords neither prominent nor nodular, and by having a sharply edged parietal ridge.

Aurantilaria differs from *Filifusus* by having fewer, coarsely beaded lirae, a rounded instead of keel-like parietal ridge, and a rounded rather than keel-like entrance fold to the siphonal canal.

Aurantilaria aurantiaca (Lamarck, 1816)

Synonyms: *Fasciolaria aurantiaca f. brunnea* Strebel, 1911, *Fasciolaria aurantiaca var. purpura* Kobelt, 1875

Description: not given, only illustrated

Redescription: Shell large, turnip-shaped, with 7 whorls. Spire angle 45-50°. Sculptured with blunt nodes on angular shoulder. Early whorls with 10 nodules. Body whorl with 4 rows of nodulose spiral cords (10-12 nodes per row). Background buff orange with dark brown spiral lines in pairs and irregular white blotches. Aperture white. Operculum unguiculate, dark brown.

Size: 80-150 mm; length 99.5 mm; 120 x 62 mm

Range: Grenada, Saint Vincent and the Grenadines, Brazil, Caribbean, French Guiana, Suriname

Australaria Snyder, Vermeij & Lyons, 2012

Type species: *Australaria australasia* (Perry, 1811)

Description: Shell small to medium-sized for subfamily, high-spired, fusiform; axial sculpture of short, narrow, sharply rounded ribs, forming one or more rows of nodes at intersections with spiral cords; shoulder angulation often sharp, keel-like in some species; outer lip weakly convex, with paired crenulations at its edge, its inner side with short smooth lirae; adapical notch absent; entrance fold to siphonal canal prominent, often keel-like, much more strongly expressed than the very weak columellar folds; abapical folds on inner edge of siphonal canal absent; parietal ridge prominent, rounded.

Size: largest species to 190 mm

Range: Australia

Remarks: Recent specimens vary in the strength and number of spiral cords, but all have at most a single row of nodes at the shoulder angulation. In some specimens of the typical form of *A. australasia* from South Australia and Victoria, nodes are entirely absent, and the shoulder angulation is rounded.

The South African *Kilburnia* cannot be unambiguously separated from *Australaria* on shell characters.

Species of *Pleuroploca* in the Indo-West Pacific and of the South African genus *Kilburnia* can have 2 widely separated spiral rows of nodes, unlike the 4 to 5 rows concentrated on the upper sector of the body whorl in fossil species of *Australaria*.

Australaria differs from *Fusilaria* in several ways, but in others is quite similar. The lirae on the inner side of the outer lip are short and smooth. The most anterior fold of the siphonal canal is much more firmly expressed than the 2 columellar folds.

Australaria australasia (Perry, 1811)

Description: Shell of an olive green; the mouth of a dark brown, rounded; spire rounded, streaked within.

Redescription: The shell is large, with prominent nodules on the shoulders and a dark brown periostracum, and varies considerably in outline, from narrow to broad, between sites.

Size: 80-150 mm

Range: S Australia

Remarks: *Leucozonia granulilabris* differs from *A. australasia* by having more numerous spiral cords and threads, more distinctly granular as compared to discontinuous lirae, and an adapically keeled siphonal canal.

compare to *A. coronata*

Australaria bakeri (Gatliff & Gabriel, 1912)

Description: (described as variety of *A. australasia*) The chief points in which this variety differs from the forms usually found are: The spire is more elongate, the longitudinal plications are pronounced, the spiral sculpture is stronger, comprising strong riblets with from 2 to 4 well-defined intermediate threads. The interior is white. There is a whitish encircling band at the periphery, which is plainly seen on the young shells on all of the whorls, the rest of the shell being coloured light reddish-brown, with a brownish-yellow epidermis. The test of the varietal type is very solid.

Size: 80-100 mm; heigth 93 mm, width 41 mm

Range: S Australia

Remarks: *A. bakeri*, distributed from New South Wales to Eastern Victoria, shows similar colour and pattern to *Filifusus manuelae*, it differs in the wider shape and in the greater average size (150 mm vs. 105 mm).

Australaria coronata (Lamarck, 1822)

Synonyms: *Fasciolaria antonii* Récluz, 1844

Description: *F. testa fusiformi, ventricosà, transversîm sulcata, infernè ferrugineâ, supernè cinereo-virente; anfractibus medio tuberculato-nodosis; ultimo superne tuberculis eminentioribus coronato; labro intùs laevi.*

(Shell fusiform, ventricose, transversely furrowed, at the bottom ferruginous, above gray-green; the whorls are tuberculate-nodous in the middle; the last whorl is crowned above with more prominent tubercles; inner lip smooth.)

Redescription: Shell fusiform, attenuated at its extremities, swollen in the middle; the spire is conical, pointed, composed of 7 or 8 convex whorls, a little depressed at their upper part, and provided in the middle with a row of tubercles which become subpliciform at the base; the folds are more noticeable on the upper whorls, and often disappear towards the end of the last whorl. The surface of the shell is entirely covered with narrow transverse furrows, very close to each other, a little rough, and between which there are obsolete striae.

The aperture is oval, angular at its upper part, hollowed out like a gutter, ending in a mediocre channel; it is tawny white; the straight edge is very thin, slightly furrowed inside; the columella is subcylindraceous; it bears 3 folds, of which the lower is the largest and most projecting; it is accompanied by a very thin left border.

The coloration of the shell appears constant; under a strong adherent brown epidermis, it is of a greenish ash; the base is ferruginous.

Size: length 121.8 mm

Range: Australia

Remarks: *A. coronata* may be sharply angled and coronated at the shoulder, but grades into the round-shouldered *A. australasia*. Both have angled and coronated early spire whorls, the adult only showing to which variant the form belongs.

A. coronata seems to be similar in shape to *Pleuroploca trapezium*, but mainly distinguished by its furrows.

A. eucla is readily separated from *A. coronata* in being more elongate, keeled, white in colour and of more delicate structure.

Australaria eucla (Cotton, 1953)

Description: Shell elongate, fusiform of 7 whorls excluding the protoconch of 2 smooth glassy, slightly pulliform whorls; spire whorls trapezoidal, with a sharp central keel, concave above, slightly convex below where they are embraced by the suture; the keel has plicate tubercles from which long, basal axial costae extend, gradually fading out at the sutures, 11 in the body and penultimate whorl; axials crossed by spiral lirae equidistant except over the base where they become more oblique and distant; aperture elongate oval, outer lip crenulate throughout, numerous close spiral striae within; columella smooth. 3 oblique plaits; periostracum thin, greyish; aperture and shell white.

Size: height 143 mm, width 55 mm

Range: W Australia

Remarks: The species is readily separated from *A. coronata* in being more elongate, keeled, white in colour and of more delicate structure.

Australaria fusiformis (Kiener, 1840)

Description: *F. testa elongatà, fusiformi, bruneo-rubescente, transversim sulcatâ; interstitiis transversim et longitudinaliter striatis; aperturà oblongà, fulvo-albidâ; labro dextro crenato, intùs sulcato; columellà triplicatà.*

Coquille allongée, assez étroite, atténuée à ses extrémités; la spire est conique, pointue, composée de huit tours médiocrement convexes 3 le premier est mamelonné, les trois ou quatre suivants sont munis de côtes peu saillantes, qui disparaissent vers la base; le dernier tour est renflé dans son milieu, légèrement déprimé en dessus; il se termine en un canal étroit et peu prolongé; toute la surface de la coquille est couverte de petits sillons transverses, rangés à distances égales, et entre lesquels on distingue de fines stries, traversées par d'autres stries longitudinales fort multipliées, qui sont produites par les accroissements.

L'ouverture est oblongue, d'un blanc mêlé de lauve; la columeile est contournée dans sa longueur, garnie de trois plis obliques égaux entre eux; elle est accompagnée d'un bord gauche mince et appliqué, qui offre à sa partie supérieure deux rides, dont la première est assez grosse; le bord droit est mince, finement crénelé et sillonné en dedans. La couleur de cette coquille est d'un brun rougeàtre.

(Shell elongate, fusiform, brown-reddish, transversely furrowed; interstices transversely and longitudinally striated; aperture oblong, yellow-white; right lip crenate, furrowed inside; triplicate columnella.

Shell elongated, quite narrow, attenuated at its extremities; the spire is conical, pointed, composed of 8 moderately convex whorls, the first 3 are wavy, the following 3 or 4 are provided with slightly protruding ribs, which disappear towards the base; the last whorl is swollen in its middle, slightly depressed above; it ends in a narrow and not very prolonged channel; the whole surface of the shell is covered with small transverse furrows, arranged at equal distances, and between which one distinguishes fine streaks, crossed by other strongly multiplied longitudinal striae, which are produced by the increments.

The aperture is oblong, white mixed with fawn; the columella is twisted in its length, with 3 oblique folds equal to each other; it is accompanied by a thin, applied left edge, which has two wrinkles on its upper part, the first of which is rather large; the straight edge is thin, finely crenellated and furrowed within. The color of the shell is a reddish brown.)

Size: 33.8 mm

Range: S Australia

Remarks: *Lugubrilaria badia* is most closely related to *A. fusiformis*, but can be distinguished easily by the crowded and irregular stripes and the shorter, broader, somewhat left-curving canal.

Australaria tenuitesta Snyder, Vermeij & Lyons, 2012

Description: Shell elongate, fusiform, with high spire and long siphonal process, of moderate size for genus; protoconch elongate, large, maximum diameter 3.5 mm; teleoconch of seven sharply angulate whorls separated by adpressed sutures; spire whorls marked by central peripheral keel; abapical and adapical sectors of spire whorls strongly sloping; spiral keel bearing ten to twelve sharp, spirally elongate, axially compressed nodules; adapical sector of spire whorls initially with five fine sharp spiral threads, increasing to twelve on penultimate and body whorls; abapical sector of spire whorls initially with three spirals, increasing to eight on penultimate whorl; body whorl with keel bearing twelve to fifteen nodules; below the keel a much weaker angulation coincides with the continuation of the suture line; spiral sculpture abapical to the spiral keel consists of about twenty fine but sharp threads on convex part of whorl, and another twenty on constriction and siphonal process, weakening abapically; outer lip thin, sharp, crenulations reduced or absent; inner side of outer lip with twenty very fine continuous lirae; parietal ridge rounded and very weak; entrance fold to siphonal canal rounded to almost keel-like; immediately adapical to it are one or two very weak columellar folds. Shell color white or straw to pale orange or pale lilac, sometimes with patches of brown near peripheral nodes, less commonly with faint brown and white bands encircling spire and body whorl. Operculum brown, obliquely tapered anteriorly, with fine concentric growth increments on outer surface.

Size: to 141.1 mm

Range: Australia, central Queensland southward to central New South Wales; Papua New Guinea?

Remarks: This distinctive northern offshore species of *Australaria* differs from congeners by its sharply angled whorls, peripheral keel bearing 10-15 spirally elongate nodules, and the fine but sharp spiral sculpture. Apertural folds are very weakly developed. The shell is notably thin, elongate, and high-spired.

Cinctura Hollister, 1957

Synonyms: *Cinctura (Hollisteria)* Petuch & Berschauer, 2020

Type species: *Cinctura hunteria* (Perry, 1811)

Description: Shell of medium size, fusiform, the whorls convex, the spire extended. Suture simple. A prominent spiral ridge emerges from the aperture in front of the suture and extends across the parietal wall to the margin of the callus.

Redescription: Shell of small to moderate size, broadly fusiform, slender to relatively globose, solid; protoconch with or without axial riblets on final whorl; teleoconch surface generally smooth except for occasional faint spiral incisions and very low axial ribs on first 1-3 whorls and transverse spiral cords on base and siphonal process; distinct, uninterrupted spiral bands, usually black, on all whorls, bands on body whorl varying in number from 4 to as many as 14, depending on species; outer lip medially convex, its edge sometimes bearing thickened nodes representing termini of spiral bands, its inner side with fine smooth lirae; adapical flexure absent in outer lip; parietal ridge at adapical end of aperture absent in earliest (early to mid-Pliocene) material, present and often prominent in all late-Pliocene to Recent species; entrance fold more prominent than columellar folds, rounded; no folds abapical to entrance fold.

Size: 2 largest living species to 131 and 140 mm

Range: Cape Hatteras southward to Florida and westward to Mobile Bay

Remarks: *Cinctura* differs from *Fasciolaria*, in that the latter has no pre-sutural rib on the parietal wall.

Fusilaria differs from *Cinctura* by having axial sculpture on early whorls and body whorl, spiral cords on all whorls except upper part of body whorl, and some beaded lirae on inner side of outer lip. It also has a larger size.

Cinctura branhamae branhamae (Rehder & Abbott, 1951)

Synonyms: *Fasciolaria distans branhamae* Rehder & Abbott, 1951, *Fasciolaria lilium branhamae* Rehder & Abbott, 1951

Description: Resembling the typical *C. lilium* (= *Fasciolaria distans*), but differing in having its siphonal canal 2 to 3 times as long and proportionately more slender. The first whorl of the protoconch is smooth, and is followed by 3/4 of a whorl with about 15 small but distinct axial riblets. This is followed by 3/4 of the first portnuclear whorl with about 5 indistinct spiral threads; the remainder of the postnuclear whorls are smooth except for microscopic growth lines. In distans these nuclear axial riblets are nearly obsolete or entirely absent.

Color of shell similar to that in distans but with an orange-brown siphonal canal. There are 9 to 12 distinct solid, spiral lines of dark purple-brown on the body whorl, with the lower 2 or 3 on the upper third of the siphonal canal. In distans there are 5 to 7 major lines, occasionally with 1 or 2 additional very weak lines, and they do not extend down on the siphonal canal.

Redescription: The shell is the largest in the genus, and is thin and fragile with a distinctive elongated, slender, and fusiform shape. The body whorl is inflated and the spire is highly elevated, almost equal in length to the body whorl. The constriction at the body whorl-siphonal canal juncture is very well developed. The siphonal canal is proportionally very long and narrow, almost tubular in shape. This Campeche Bank endemic species has the longest and best-developed siphonal canal of the entire genus Cinctura. The protoconch is proportionally large and rounded. The postnuclear and early whorls are ornamented with numerous small, thin, closely-packed vertical ribs, which are, in turn, overlaid with 6 strong spiral threads. The aperture is proportionally very wide and open, oval in shape.

It has generally a pale salmon-orange color with scattered thin, longitudinal, slightly darker salmon-orange flammules. This base color is overlaid with 10 or 11 evenly-spaced, thin dark brown bands. The siphonal canal is colored a darker orange or orange-tan.

Size: length 126 mm, width 52 mm

Range: Gulf of Mexico, from Port Isabel, Texas, southward to the Bay of Campeche

Remarks: The spiral threads on the siphonal canal in *C. b. branhamae* are quite weak or obsolete, while in *C. hunteria* they are pronounced. An 8-whorled *C. b. branhamae* reached a length of 125 mm, while *C. hunteria*, with the same number of whorls, range from 70 to 90 mm.

The differentiating characters of *C. b. branhamae* that separate it from *C. lilium* are the axial riblets on the second whorl of the protoconch, and no axial costae on the postnuclear whorls; it has a longer canal, is generally larger, and has more and stronger spiral lines.

C. t. tortugana has noticeably shorter siphonal canal and lack the inflated body whorl and conspicuous constriction at the body whorl-siphonal canal juncture that typifies true *C. b. branhamae*.

C. branhamae has an axially sculptured nucleus and elongate siphon like *Fasciolaria bullisi*, but differs in color, strength and number of bands, possession of a strongly-defined presutural ridge, and in having a more globose body whorl.

For differences with *C. b. morganae* see there.

Cinctura branhamae morganae Petuch & Berschauer, 2020

Description: Shell large for genus but small for subgenus *Hollisteria* [unvalid], thin and fragile, elongated, fusiform, with high protracted spire; constriction at body whorl-siphonal canal juncture very well developed, producing proportionally long, narrow siphonal canal; base shell color dark salmon-orange or pale lavendertan with darker salmon-tan or brownish-purple elongated longitudinal flammules; base color overlaid with 12-15 thin, evenly-spaced, dark brown bands; occasional specimens with thin brown bands extending onto siphonal canal; specimens may also have finer secondary brown bands present between pairs of larger bands; aperture proportionally large, oval in shape; presutural parietal cord poorly developed, thin and blade-like; 2 folds at anterior end of columella equal in size, proportionally large and prominent; postnuclear and early whorls sculpted with numerous prominent, thin, closely-packed vertical ribs, which are, in turn, overlaid with 6 strong spiral threads; constriction at body whorl-siphonal canal juncture very deep and abrupt; pre-sutural parietal cord proportionally very small, thin, and poorly-developed.

Size: length 71.2 mm, width 30.5 mm

Range: Yucatan Channel

Remarks: This deep water subspecies from the eastern Yucatan Escarpment differs from the shallower water Campeche Bank nominate subspecies in being a smaller, less elongated shell with a noticeably lower and less protracted spire. *C. b. morganae* also differs from *C. b. branhamae* in being a more darkly-colored shell, with darker salmontan or brownish-purple flammules, and in having more numerous and proportionally wider dark spiral bands. The nominate subspecies has 10 or 11 dark spiral bands on the body whorl, while the *C. b. morganae* generally has between 12 and 15 bands on the body whorl. Some specimens of *C. b. morganae* also have fine secondary bands present between pairs of primary bands and also fine bands on the siphonal canal.

Cinctura connori Petuch & Berschauer, 2020

Synonyms: *Cinctura lilium connori* Petuch & Berschauer, 2020

Description: Shell of average size for genus, elongated, with rounded whorls and sloping shoulders; spire elevated, protracted, more than two-thirds total body length; siphonal canal proportionally long, well-developed, with only a slight stricture at the body whorl-siphonal canal juncture; shell color pale orange-white or salmon overlaid with numerous irregular, narrow, longitudinal dark orange-tan or orangered flammules; longitudinal flammules best developed along subsutural area and around mid-body; flammule pattern overlaid with 8-12

thin, regularly-spaced dark brown lines; thinner and less-developed secondary lines frequently present between pairs of primary lines; siphonal canal dark orange or orange-tan with 1-4 dark brown thin lines, ornamented with 4-7 raised spiral cords; aperture proportionally small, oval in shape; early post-nuclear whorls of spire heavily sculptured with 14-16 large, sharply angles knobs.

Size: length 72.5 mm, width 31.4 mm

Range: Yucatan Channel, Mexico

Remarks: *C. connori* has a much more elongated and fusiform shell than *C. lilium*, with a more slender and less-inflated body whorl. It is also a much more colorful shell, exhibiting shades of bright red and dark orange. The principal difference between the two species is seen in the structure and development of the knobbed sculpture on the early whorls. In *C. lilium*, the spire knobs are proportionally smaller and have more sloping and rounded edges, while the spire knobs of *C. connori* are proportionally larger, fewer in number, and have sharper and more angled edges.

Cinctura hunteria hunteria (Perry, 1811)

Synonyms: *Fasciolaria lilium hunteria* (G. Perry, 1811), *Fasciolaria lilium tortugana* Hollister, 1957

Description: Shell of a blue and purple color, richly marbled and striped with white and black, forming in the whole a rich and lively appearance; the mouth blue.

Redescription: The shell is fusiform, stout, wdth extended spire and smooth, convex whorls. The nucleus is smooth, globose, caplike, of about one and a half whorls. The suture is simple. There is no spiral sculpture except for oblique threads on the back of the canal, and no axial sculpture except very fine growth lines.

The aperture is oblique, ovate, pale blue-white within, and finely lirate. The columella in arcuate. There are three oblique plications just above the entrance to the canal, the middle one most prominent and the posterior one nearly obsolete. There is a glaze over the parietal wall, and a strong ridge emerges just in front of the suture and extends to the edge of the glaze. The canal is short, oblique. The operculum is unguiculate.

The color is ivory overlaid with longitudinal flammules of mauve. There are distant spiral lines of maroon, six primary ones on the body whorl and two on each of the earlier whorls.

Size: 50-86 mm

Range: (orig. New South Wales) from Cape Hatteras south and westward to Mobile Bay

Remarks: *C. h. hunteria* differs from *C. lilium* in that it has no axial or spiral sculpture on the protoconch or postnuclear whorls. It generally has 2 dark brown spiral lines on the penultimate whorl, while *C. lilium* usually has 3. The apex is also more blunt.

The spiral threads on the siphonal canal in *C. b. branhamae* are quite weak or obsolete, while in *C. hunteria* they are pronounced. An 8-whorled *C. b. branhamae* reached a length of 125 mm, while *C. hunteria*, with the same number of whorls, range from 70 to 90 mm.

C. hunteria differs from *Fasciolaria hollisteri* in having a spiral ridge across the parietal wall to the margin of the glaze, and in having the whorls entirely smooth near the suture as does *C. branhamae.*

For differences with *C. h. apalachee*, C. *keatonorum* and *Fasciolaria bullisi* see there.

Cinctura hunteria apalachee Petuch & Berschauer, 2020

Description: Shell of average size for genus and same size as nominate subspecies, stocky, with pyriform shape and very inflated body whorl; spire proportionally low, subpyramidal, with indented sutures and slightly convex sides; siphonal canal proportionally short, truncated, and broad, ornamented with 6 to 10 large, prominent cords, with few smaller secondary cords being present on some individuals; base color pale salmon-orange or cream-white, overlaid with numerous irregular, narrow, longitudinal dark orange-tan or salmon-orange elongated flammules which are best developed along subsutural area and around mid-body; base color pattern overlaid with 6 to 9 thin, prominent, regularly-spaced dark brown lines; smaller secondary lines often present between primary lines, producing pattern consisting of 9 to 14 lines on body whorl; aperture proportionally large, open, oval shaped; anterior end of columella with 2 large rib-like folds, with the posteriomost fold being largest in size; postnuclear and early whorls smooth and unsculptured; protoconch smooth, rounded, domelike.

Size: length 67.4 mm, width 33.1 mm

Range: St. Joseph Bay and Port St. Joe, Gulf County, Florida westward to Mobile Bay, Alabama

Remarks: This subspecies of *C. hunteria* primarily differs from the nominate subspecies in having a narrower, more slender spire with distinctly less-inflated early whorls*. C. h. apalachee* also differs from the nominate subspecies in consistently having a much lighter shell color, being dominated by shades of salmon-orange,

reddish-tan, or pale orange-tan, and lacking the dark khaki-green color seen on typical *C. h. hunteria*. The banding pattern is also different on the two subspecies, with the nominate subspecies typically having 5 or 6 dark bands on the body whorl and with *C. h. apalachee* typically having 6 to 8 dark bands, and sometimes with as many as 14.

Cinctura keatonorum Petuch, 2013

Synonyms: *Cinctura hunteria keatonorum* Petuch, 2013

Description: Shell of average size for species, elongated, with rounded whorls and sloping shoulder; spire elevated, protracted; siphonal canal short, open; shell color pale salmon-white to yellowish-cream with numerous irregular, narrow, longitudinal salmon-orange or orange-tan flammules; flammules best developed along subsutural area and around midbody; base color pattern overlaid with 6 thin, regularly spaced dark brown lines; thinner and less developed secondary lines frequently present between primary lines; siphonal canal darker orange-tan or salmon-orange; aperture oval, with white interior; parietal area with pale salmon-orange glaze.

Size: length 92 mm (incomplete, protoconch missing), width 43 mm

Range: from Cape Hatteras, North Carolina, south to the Cape Canaveral area of Florida

Remarks: This offshore, deep-water species differs from the shallow water, intertidal *C. h. hunteria* in having consistently a more slender and elongated shell with proportionally higher spires; in being colored pale salmon-orange with darker salmon-orange and orange-tan longitudinal flammules, and in having salmon-orange parietal areas and siphonal canals. The widespread shallow water *C. h. hunteria* is always a more inflated, stockier shell and is most frequently colored a dark khaki-green mixed with brown and dark orange-tan.

Cinctura lilium (Fischer von Waldheim, 1807)

Synonyms: *Fasciolaria distans* Lamarck, 1822

Description: *Elle est blanche, et couverte de lignes transversales, rares, brunes. Buccinum rostratum ponderosum laeve lineis raris rufis circumdatum.*

(It is white, and covered with transverse, rare, brown lines. Siphonal canal thick, smooth, surrounded by rare red lines.)

Redescription: The shell is large for the genus, elongated and fusiform, with rounded spire whorls. The body whorl is moderately inflated, with rounded, convex sides. The spire is elevated and protracted, almost the same length as the body whorl. The anterior end of the columella is ornamented with two large, prominent rib-like folds, with the posteriormost fold being the largest.

The base color of the shell is a pale grayish-white or salmon-gray overlaid with numerous irregular, narrow, longitudinal dark gray or dark orange-tan elongated flammules. The flammules are best developed along the subsutural area and around the mid-body. This base color pattern is overlaid with 8-10 thin, prominent, regularly-spaced thin dark brown bands, with 2 or 3 bands extending onto the siphonal canal. In some specimens, thin, less-developed secondary lines are sometimes present between the primary lines. The parietal area characteristically has a white glaze.

The siphonal canal is proportionally very long and narrow, being wider at the juncture with the body whorl and tapering to the anterior tip. The canal is ornamented with 7 or 8 large low cords with 2-3 very fine threads being present between each pair of large cords. The anteriormost siphonal cords are generally smaller and less developed than the posterior cords.

The postnuclear whorls are ornamented with 7 to 9 large rounded knobs, with the larger knobs being distinctly angled. The sloping subsutural area that is posterior to the postnuclear knobs are ornamented with 3 large cords.

Size: 70-120 mm

Range: from the western side of the Mississippi River Delta south to off the coast of Tabasco State, Mexico

Remarks: Juveniles and smaller specimens have proportionally shorter siphonal canals, similar in length to those seen on *C. keatonorum* and *C. tortugana*.

Full adult and large specimens will often have proportionally longer siphonal canals, approximating the long, narrow canal seen on *C. b. branhamae.* The differentiating characters of *C. b. branhamae* that separate it from *C. lilium*

are the axial riblets on the second whorl of the protoconch, and no axial costae on the postnuclear whorls; it has a longer canal, is generally larger, and has more and stronger spiral lines.

C. h. hunteria differs from *C. lilium* in that it has no axial or spiral sculpture on the protoconch or postnuclear whorls. It generally has 2 dark brown spiral lines on the penultimate whorl, while *C. lilium* usually has 3. The apex is also more blunt.

C. t. tortugana differs from *C. lilium* in being a smaller, more slender species with a much shorter and less developed siphonal canal and also in being a much more colorful shell, ornamented with conspicuous bright orange or orange-red flammules. The early whorl structure of *C. lilium* also differs from that of the western Florida *C. t. tortugana* in having larger, more prominent, and better developed angled knobs on the early postnuclear whorls.

Fasciolaria tulipa is larger than the allied *C. lilium*, with which it has been sometimes confounded, and is always somewhat sculptured below the suture, while *C. lilium* is not.

For differences with *C. connori* see there.

Cinctura tortugana tortugana (Hollister, 1957)

Synonyms: *Fasciolaria (Cinctura) lilium tortugana* Hollister, 1957

Description: This shell is one with the same general outline and with the same apical sculpture as *C. lilium*. There are 6 primary spiral lines on the body whorl and two each on the three preceding whorls, these lines being heavier than on *C. lilium* and nearly black. The flammules are a bright terra cotta red against a creamy white background, and are wider, giving the shell a blotched appearance. The flammules are sparse between the first and second, and the fourth and fifth spiral lines, thus forming two light spiral bands around the body. On the columella, there are three oblique plications, the middle one and the groove behind it strong, the posterior one nearly obsolete. In other respects the shell resembles *C. lilium.*

Size: length 98 mm, width 43 mm, angle of spire 47°

Range: Dry Tortugas, W and SW Florida

Remarks: *C. t. tortugana* differs from the Texan Subprovince *C. lilium* in being a smaller, more slender species with a much shorter and less developed siphonal canal and also in being a much more colorful shell, ornamented with conspicuous bright orange or orange-red flammules. The early whorl structure of the Texan and eastern Mexico *C. lilium* also differs from that of the western Florida *C. t. tortugana* in having larger, more prominent, and better developed angled knobs on the early postnuclear whorls.

C. t. tortugana has noticeably shorter siphonal canal and lack the inflated body whorl and conspicuous constriction at the body whorl-siphonal canal juncture that typifies true *C. b. branhamae*.

For differences with the subspecies *C. t. foxi* and *C. t. traciae* see there.

Cinctura tortugana foxi Petuch & Berschauer, 2022

Description: Shell of average size for genus, same as nominate subspecies, thickened and heavy, elongated and fusiform, with rounded whorls and distinctly sloping subsutural area; body whorl moderately inflated, with rounded sides; spire elevated and protracted, almost same length as body whorl; anterior end of columellar area ornamented with two large, prominent rib-like folds, with posteriormost fold being largest and bestdeveloped; posterior end of columellar area with single large cord that extends beyond edge of lip; dark orange on the parietal callus; shell base color dark cream-white overlaid with very numerous, densely-packed dark reddish-brown longitudinal flammules, which are bestdeveloped along subsutural area, around shell mid-body, and on siphonal canal; red-brown and cream base color overlaid with 5-6 thin, evenly-spaced thin dark blackish brown bands, with many specimens having thinner secondary bands between the prominent main bands; some specimens have as many as 12 distinct bands; siphonal canal proportionally short, dark brown or blackish-brown in color, ornamented with 8-9 very strong, prominent spiral cords; anteriormost tip of dark brown siphonal canal colored deep orange-tan; protoconch and early whorls pale orange in color; early whorls proportionally narrow, ornamented with 4-5 very shallow spiral grooves and poorly-developed undulating ribs; aperture oval in shape with white interior; columellar area with large orange patches.

Size: 70-87 mm; length 79 mm, width 47 mm

Range: Ten Thousand Islands, Florida

Remarks: *C. t. foxi* differs from the nominate subspecies in having a more slender shell with less-inflated whorls and straighter sides. The colors of the two subspecies differ greatly, with the nominate subspecies being marked with color patches of bright orange, yellow-orange, or vivid orange-red and a white parietal callus, while *foxi* typically exhibits only amorphous patches of deep reddish-brown, a dark orange parietal callus, and with little variability in color. The early whorls of *C. t. foxi* are also proportionally narrower than those of the nominate subspecies, being more slender and in having less-inflated whorls. The postnuclear whorls of the nominate subspecies are sculptured with 5-6 deeply incised spiral sulci and 8-10 low, rounded knobs while those of the subspecies foxi are much smoother, being only slightly ornamented with faint spiral grooves and a few nearly-obsolete, low knobs.

Cinctura tortugana traciae Petuch & Berschauer, 2020

Description: Shell is of average size for genus, thickened and heavy, elongated and fusiform, with rounded whorls and distinctly sloping subsutural area; body whorl moderately inflated, with slightly rounded sides; spire elevated and protracted, almost same length as body whorl; The anterior end of columella ornamented with two large, prominent rib-like folds, with posteriormost fold being largest; shell base color pale salmon-orange or cream-white overlaid with numerous irregular, narrow, longitudinal bright blood red flammules which are best developed along subsutural area and around mid-body; often fusing into nearly solid blood red bands; red color pattern overlaid with 7 thin, prominent, regularly-spaced dark brown lines; thin, less-developed secondary lines sometimes present between pairs of primary lines, especially along anterior end of body whorl; siphonal canal proportionally short, narrow, with dark reddish-brown anterior tip, ornamented with 7 large raised cords; anteriormost siphonal cords are generally smaller than posterior cords; postnuclear whorls ornamented with 5-6 deeply incised spiral sulci and 8-10 proportionally large, well-developed, sharply-angled knobs.

Size: length 72.3 mm, width 31.5 mm

Range: Yucatan Channel

Remarks: *C. tortugana traciae* differs from the western Florida nominate subspecies in being a smaller, heavier, and more slender shell with a less inflated body whorl and narrower spire whorls. *C. tortugana traciae* is also a much more colorful shell, usually exhibiting bright blood-red flammules and wide broken red bands as opposed to the orange and pale reddish-orange flammules seen on *C. t. tortugana*. The primary difference between the two subspecies is seen in the structure of the early whorls. In *C. t. tortugana*, the postnuclear whorls are low and rounded while those of *C. t. traciae* are large, prominent, and sharply-angled.

Fasciolaria Lamarck, 1799

Synonyms: *Ioeranea* Rafinesque, 1815

Type species: *Fasciolaria tulipa* (Linnaeus, 1758)

Description: *Coq. subfusiforme, canaliculée à sa base, sans bourelet, et ayant sur la columelle deux, ou trois plis égaux, très-obliques*.

(Shell subfusiform, canalised at its base, without beads, columella with 2 or 3 equal, very oblique folds.)

Redescription: Shell medium to very large, broadly fusiform, usually rather thin; protoconch of a little less than two whorls, the first globose, smooth, caplike, the second smooth or with distinct or faint axial riblets on final whorl; teleoconch sculpture usually predominantly of low to obsolete spiral cords which are strongest on the basal constriction and sutural ramp and may be absent on the central sector of the body whorl (however, some shells with rugose cords over entire teleoconch); axial sculpture, when present, consisting of weak rounded ribs on early teleoconch whorls; shell surface ornamented with many intact or interrupted spiral bands.

Aperture oval, columella arcuate, glazed, with three oblique plications near the canal; outer lip medially convex, its edge often with strong, sometimes paired crenulations representing termini of spiral bands, its inner side with fine smooth lirae; shallow notch or simple flexure, caused by flexure in sutural ramp, present near junction of outer lip and penultimate whorl; parietal ridge at adapical end of aperture absent; entrance fold more prominent than columellar folds, rounded; no folds abapical to entrance fold. The canal open, usually twisted, no umbilicus.

Operculum corneous, unguiculate, nucleus at the pointed anterior end; unattached at the margin. Periostracum light or dark brown, smooth.

Size: 2 largest living species to 275 and 278 mm

Range: Cape Hatteras south to the Caribbean and SW Florida

Remarks: *Fasciolaria* is a western Atlantic genus with rather thin shells in which the sculpture is reduced relative to that of most other *Fasciolariinae*.

Cinctura differs from *Fasciolaria*, in that the latter has no pre-sutural rib on the parietal wall.

Fusilaria differs from *Fasciolaria* by having axial sculpture on early whorls and body whorl, discontinuous or beaded lirae on inner side of outer lip, a prominent sharply edged parietal ridge, and sharp columellar folds.

The *Peristerniinae* have columellar folds, but these are usually more transverse, are situated higher on the columella, and the shells are much smaller than *Fasciolaria*.

For comparison with *Africolaria and Glaphyrina* see there.

Fasciolaria bittneri Petuch & Berschauer, 2023

Description: Shell of average size for genus, fusiform, heavy and thickened, with elevated spire; shoulder of body whorl rounded, sloping; shoulders of spire whorls distinctly angled and stepped, subcarinate, especially on first 4 postnuclear whorls; first 3 postnuclear whorls ornamented with 10-12 prominent rounded and elongated knobs per whorl, producing distinct undulating appearance on shoulder angles; body whorl smooth and highly polished, ornamented with 4 low, rounded cords along subsutural area; subsutural cords prominent only on body whorl and becoming obsolete on first 4 postnuclear whorls; first 3 postnuclear whorls devoid of subsutural cords; aperture proportionally large, oval, having interior ornamented with very numerous fine, closely-packed cords, colored white to pale orange; columella with 3 large blade-like teeth, with anteriormost being the largest and best-developed; columellar callous and folds orange in color; siphonal canal proportionally short, narrow, ornamented with 12-14 large, prominent, raised, evenly-spaced coarse spiral cords; base color of body whorl varying from white to deep red-orange to chestnut brown, overlaid with 3 wide bands of large amorphous patches of dark red, brown, or black, one around shoulder and subsutural area, one around mid-body, and one around base of body whorl near siphonal canal juncture; white base color with wide red patches is most frequently-encountered color form; spire whorl color, regardless of body whorl color, always deep orange-red on first 4 whorls; base color of body whorl heavily overlaid with 18-20 dark brown, solid, narrow, evenly-spaced lines, many of which break up into series of dashes and small rectangular checkers on most individuals; areas between subsutural cords of body whorl shoulder and between individual cords of siphonal canal marked with single, very dark brown, prominent band, producing characteristic and conspicuous striped appearance; protoconch smooth, rounded, dome-like, composed of one and one-half whorls, colored bright yellow-orange.

Size: length 115.1 mm, width 53.4 mm; generally between 100 and 120 mm in length

Range: Florida, Dry Tortugas

Remarks: *F. bittneri* is variable in color and morphologically-closest to *F. tulipa* with the smooth body whorl and banded color pattern that is seen on most *F. tulipa*. *F. bittneri* differs *from F. tulipa* in having a proportionally shorter and broader siphonal canal that is more heavily ornamented with prominent large raised cords over the entire length, by having a conspicuous alternating light and dark striped pattern on the entire siphonal canal, in consistently having bright orange early whorls regardless of the main teleoconch color, and in having a wider and better-developed siphonal and parietal callus which is often orange in color, and in having sharply-angled and shouldered early whorls that are ornamented with distinct rounded knobs, producing coronated postnuclear whorls.

For comparison with *F. haleyi* and *F. ixchel* see there.

Fasciolaria bullisi Lyons, 1972

Description: Shell thin, fusiform, slender; length/width ratio of the 3 unbroken specimens increasing with shell length from 2.62 to 2.87; largest specimen with nearly 8 whorls including nucleus; background color pale yellow with large patches of deeper yellow and orange. Embryonic whorls 1 3/4, first smooth except for two faint

spiral threads on lower end (on unworn specimen), final 3/4 whorl with 16-18 moderately strong axial riblets. First post-embryonic whorl with five incised, equidistant spiral lines, replaced by five thin brown bands on later whorls. Large specimens with 10-12 primary brown bands and 6-9 secondary bands on body whorl. Aperture ovo-elongate; outer lip thin, simple, finely lirate within. Columella straight to arcuate, with two shallow, oblique anterior plicae; siphonal canal long, slender, oblique, of a rich amber, deepening to brown at tip. Operculum thick, corneous, ovo-elongate, attenuated obliquely at anterior end. Periostracum on dried specimens tan, very thin.

Size: length 134.1 mm, width 46.8 mm

Range: NW Florido to Yucatan

Remarks: Primary and secondary banding of later whorls of *F. bullisi* is weak, often interrupted like that of *F. tulipa*, but unlike the strongly expressed bands of *Cinctura* species.

F. bullisi looks like an elongate small *F. tulipa*, but lacks all subsutural sculpture. It also has 3/4 of a whorl of protoconch ribs.

Compared to *F. guyanensis F. bullisi* has a large, strongly ribbed protoconch and rather slender teleoconch with a nearly smooth sutural ramp.

Distinct axial riblets on the last embryonic whorl readily separate *F. bullisi* from *Cinctura hunteria*, which lacks such sculpture. However, *F. bullisi* has the longer spire and more slender outline of certain *Cinctura* and, like the latter, lacks the incised spiral lines found on later whorls of *F. tulipa*. Also, like *Cinctura*, *F. bullisi* bears only traces of the rough, presutural wrinkles of *F. tulipa*.

Cinctura branhamae has an axially sculptured nucleus and elongate siphon like *F. bullisi*, but differs in color, strength and number of bands, possession of a strongly-defined presutural ridge, and in having a more globose body whorl.

Fasciolaria delicatissima E. F. García, Lyons & Snyder, 2016

Description: Shell large, fusiform, semi-glossy, with swollen, rounded whorls and uncommonly thin walls. Protoconch white, large, height approximately 3.5 to 4 mm, smooth, with 1 whorl; first half of whorl rounded, second half swollen; protoconch axis not deviating from that of teleoconch. Teleoconch with 7 rounded whorls,first 2 whorls shouldered to periphery, then straight; remaining whorls progressively more convex, body whorl swollen, globose. Suture deep, bordered anteriorly by a strong cord wrinkled by minute axial threads. Axial sculpture of numerous microscopic threads showing at start of teleoconch, approximately 30 on first whorl and 60 on second whorl; axial swelling appearing at periphery of second whorl, developing some 16 low nodes; nodes disappearing on later whorls; minute axial threads continuing on surface of shell through last whorl, becoming stronger on siphonal canal.

Spiral sculpture subtly developing at beginning of first whorl, approximately 8 strong threads showing on second whorl, 5 threads on shoulder, which will become strong cords on later whorls; 3 threads below periphery disappearing on later whorls; spiral threads on early whorls creating a somewhat reticulate sculpture as they cross axial elements; 2 adapical threads strongest, wrinkled by axial elements. Siphonal canal straight or rather sinuous, long, approximately 30 to 35% of shell length. Aperture widely oval, with many faint interior lirae best detected by rubbing a fingernail or pin across the surface; width approximately 20% of shell length. Parietal wall smooth, without callus; columella with 2 strong, oblique anterior plications, posterior one somewhat bifurcate; plications inconspicuously continuing as 2 or 3 long axial elements in different degrees of strength along dorsal side of siphonal canal. Outer lip thin, with 5 denticles at posterior end reflecting terminations of pre-sutural cords. Shell color offwhite with uneven penciled-like brown spiral lines that terminate at beginning of siphonal canal and that show through to inside aperture; columellar area and siphonal canal light tan, canal with sporadic dark brown blotches in mature specimens.

Size: up to 280 mm in length, 105 mm wide

Range: Caribbean Sea, Colombia

Remarks: *F. delicatissima* can he differentiated from most congeners by its unusually thin walls, its color markings and its paucispiral protoconch.

F. delicatissima has been confused with *F. tephrina*. *F. delicatissima* shares with *F. tephrina* the large, capacious shell, the paucispiral protoconch, the deep-water habitat and relative geographic proximity. However, *F. tephrina*

has a protoconch that deviates from the main axis, whereas the *F. delicatissima* lacks that character; its protoconch is differently shaped, with a less convex first half of the whorl and a more bulbous second half. This difference is possibly what causes the protoconch of *F. tephrina* to be “deviated.” Early teleoconch whorls of *F. delicatissima* are differently sculptured, with more spiral elements and more numerous (16 vs. 10), weaker axial elements than those of *F. tephrina*. The shell surface of *F. delicatissima* is covered with minute axial threads evident under low magnification, its parietal area lacks an enameled wall, and the lirae inside its aperture are determined by tact; they are visually undetected. The 2 plications of *F. tephrina* are limited to the columella, but those of *F. delicatissima* continue as ridges over the siphonal canal. The shell of *F. delicatissima* is much thinner than that of *F. tephrina*.

Compared to *F. guyanensis F. delicatissima* has a well-ribbed protoconch and a much thinner shell with distinctive multilineate markings. Both slope-dwelling species (*F. tephrina* and *F. delicatissima)* have more swollen whorls with markedly constricted sutures and more elongate siphonal processes than any of the shelf-dwelling species.

Fasciolaria gatliffi (Chapman, 1922) †

Description: Shell of medium size, turrited, and with a short canal. Spire elevated, apical angle 36°, longer than the body whorl, consisting of 6 turns besides the protoconch. Suture deeply impressed, whorls rounded, subangulate below the middle, with costate varices often becoming lamellose or scaly, about 10 on body whorl. Costae crossed by fine rounded spiral threads, about 10 on the penultimate whorl, and 26 on the body whorl with even finer intermediate ones; one on the angulation much thicker and prominent. The entire surface crossed with fine varical lines passing over the spiral and coarser threads. Aperture roundly pyriform, with a nearly straight canal. Inner lip having a thin callus and a single columellar fold about midway in the aperture; outer lip thin, smooth. Protoconch small, consisting of 1 1/2 turns, the initial portion obtuse.

Size: length 26 mm, width 14 mm

Range: Austalia, Victoria

Remarks: Originally descibed as fossil, recent questionable.

Fasciolaria guyanensis Lyons & Snyder, 2016

Description: Shell large, outline sub-bullate, with tall spire, swollen body whorl, and moderately long, slender siphonal process. Protoconch of about 2 globose whorls, usually smooth but occasionally with few vestigial axial riblets near junction with teleoconch. Teleoconch with about 7 broadly convex whorls constricted at suture, with conspicuous anterior sutural ramp; first whorl bearing many microscopic spiral threads increasing by intercalation but fading in strength anteriorly, usually absent on later whorls; sutural ramp flexed, with spiral cords appearing by third whorl; ramp of later whorls channeled by 3-5 rounded cords separated by shallow grooves; body whorl inflated, sub-globose, usually smooth (but see remarks), marked with spiral lines and bands, most interrupted but some complete on final 1/2 whorl, lines continuing onto base but disappearing on slender siphonal process. Aperture sub-ovate, constricted posteriorly; outer lip arcuate, slightly flexed at intersection with sutural ramp, forming shallow sinus at junction with parietal shield; edge of outer lip bearing small blackish-brown or orange-brown denticles representing termini of spiral bands of body whorl; inside of outer lip with many (> 50) fine emergent lirae extending nearly to lip edge; parietal shield adherent, thin, glazed, sometimes with faint callus but no node near posterior end of aperture; columella concave, with 3 oblique folds (including entrance fold) near junction with siphonal process. Siphonal process straight, canted slightly left of long axis, smooth within, with thin outer lip; inner lip slightly sinuous, glazed by extension of parietal shield, tip truncate. Operculum typical of genus, leaf-like, rounded posteriorly, tapered to point anteriorly, with terminal nucleus. Shell background color salmon pink, with 3 bands of irregular red, dark tan or orange-brown blotches encircling anterior, middle and posterior portions of body whorl; single similar bands of irregular blotches on posterior portions of spire whorls; protoconch tan or light caramel brown; shell interior white.

Size: to ~250 mm

Range: Guyana, Suriname, Guyane and NE Brazil

Remarks: *F. guyanensis* is distinguished from similar congeners *F. tulipa* and *F. hollisteri †* by an enlarged protoconch lacking axial riblets. Riblets on protoconchs sometimes become worn and difficult to discern, but the absence of riblets was consistent, even fresh postembryonic shells. The protoconch of *F. hollisteri †* is ribbed, too, and unworn protoconchs of *F. tulipa* always bear distinct riblets. In addition to protoconch size and morphology, *F.*

guyanensis can be distinguished from its geographically nearest congener, *F. hollisteri †*, by differences in morphology and sculpture of the sutural ramp. The sutural ramp of *F. hollisteri †* is canaliculate, with a prominent thickened collar crossed by numerous closely-spaced axial threads, whereas *F. guyanensis* has a less pronounced collar formed by two raised spiral cords. Some specimens of *F. guyanensis* have a few inconspicuous cords next to the suture but not crossing the two prominent cords making up the collar. The resultant inflection in the shell's outer lip is deeper and more pronounced in *F. hollisteri †* than in *F. guyanensis*. The shell of *F. hollisteri †* is also more squat and bulbous than that of *F. guyanensis*, and larger spiral lines on the body whorl of *F. hollisteri †* are often more pronounced and entire rather than weak and interrupted as on *F. guyanensis*. *F. hollisteri †* subtends a spire angle of (about) 61°; *F. guyanenis* subtends a more acute angle of 51°-56°. Morphology and markings of *F. guyanensis* more resemble those of *F. hollisteri †* and *F. tulipa* than they do other congeners.

F. bullisi from off northeastern Mexico and western Florida has a large, strongly ribbed protoconch and rather slender teleoconch with a nearly smooth sutural ramp.

F. tephrina from the upper continental slope off Honduras has a smooth protoconch like *F. guyanensis*, but its teleoconch differs from that of *F. guyanensis* by lacking color markings.

F. delicatissima from the upper slope off Nicaragua has a well-ribbed protoconch and a much thinner shell with distinctive multilineate markings. Both slope-dwelling species (*F. tephrina* and *F. delicatissima)* have more swollen whorls with markedly constricted sutures and more elongate siphonal processes than any of the shelf-dwelling species.

Orange and tan specimens of *F. petuchi* could be confused with the closely-related *F. guyanensis*. That species differs from *F. petuchi* in being a more slender and elongated shell with a higher, more protracted spire and proportionally-longer siphonal canal.

Fasciolaria haleyi Berschauer & Petuch, 2023

Description: Shell large for genus, thick and heavy, broadly fusiform and ovate, with high elevated spire; body whorl greatly inflated, rotund, with distinctly angled shoulder; spire whorls with more prominently-angled shoulders, becoming more obviously acute on earlier whorls; protoconch rounded and dome-like, orangebrown or reddish-brown in color, with postnuclear and early whorls being ornamented with 10-12 low, elongated ribs; ribs of early whorls crossed by 5 thin spiral cords, producing faint cancellate appearance; siphonal canal proportionally short and stubby, only 2/3 length of spire; body whorl smooth and polished, without raised cords; siphonal canal ornamented with 12-15 large, prominent, rounded cords; sutures of spire whorls indented and minutely canaliculate; subsutural area of body whorl and spire whorls distinctly sloping, producing wide adherent band or subsutural collar; entire subsutural band sculpted with 3 shallowlyincised spiral grooves; shell base color white or white with pale blue infusions, overlaid with 3 wide bands of amorphous and widely-scattered patches of dark brown, reddish-brown, or bright orange-red; color patches, in turn, overlaid with 20-25 thin, evenly-separated dark chocolatebrown spiral bands; smaller, thinner subsidiary bands sometimes present between pair of primary bands; dark bands variable in thickness, being thicker in some areas and thinner in others and often breaking apart to form elongated dashes; dark bands terminating in small denticals at edge of lip forming serrated appearance; siphonal canal dark red or brown, overlaid with white cords; aperture wide and flaring, broadly oval, corresponding to inflated body whorl; columella pale orange in color, with 2 large, prominent recurved plicae; interior of aperture color varying from white to pale orange; inner edge of lip ornamented with numerous very fine, thread-like ridges.

Size: length 145.6 mm, width 73.9 mm; averaging 145 mm in length as adults

Range: E Yucatan Peninsula, Mexico

Remarks: *F. haleyi* has 3 known color forms: solid red, red with ivory markings, and dark brown with ivory markings.

Of the 4 known species of *Fasciolaria* (sensu stricto) living in the Gulf of Mexico, *F. haleyi* most closely resembles the Floridian *F. bittneri* but differs in having a much larger and more inflated shell, with the Yucatan species being roughly 1/3 wider across the mid-body than its Floridian congener. The siphonal canal of *F. haleyi* is also proportionally much shorter and truncated, being only 1/2 the length of *F. bittneri*. The sloping band of the subsutural collar on *F. haleyi* is also proportionally much wider and more prominent than that of *F. bittneri*, as well as being much more indented at the shouldercollar juncture. Both shells are smooth and polished, lacking any strong cords on the body whorl, a shell character that is prominent on the closely-related *F. tulipa*. The dark color

bands on *F. haleyi* are also proportionally thicker and less discretelydefined than those on *F. bittneri* and *F. tulipa*, and have a smeared appearance.

The early whorls of the 3 shallow water Gulf of Mexico species differ substantially and can be used to differentiate the individual taxa. Both *F. bittneri* and *F. haleyi* have distinctive angled early whorls, while those of *F. tulipa* are rounded. The most striking shell character seen on the Yucatan and Florida endemic species is seen in the very sharply-angled postnuclear whorls, which are heavily ornamented with prominent knobs and ribs. On *F. bittneri*, the knobs of the early whorls are the best-developed of the 2 species, resembling those seen on peristerniine fasciolariids such as *Leucozonia* or *Polygona*. The postnuclear knobs of *F. haleyi* are not as well-developed as those of its Floridian congener and are lower and more rounded and are overlaid with numerous small spiral cords, producing a cancellate appearance. The prominent sutural collar of spiral cords that is so prominent on *F. tulipa* is completely absent on both *F. bittneri* and *F. haleyi*. This absence of strong subsutural cords is also seen in the deep-water *F. bullisi*.

Fasciolaria hollisteri Weisbord, 1962 †

Synonyms: *Fasciolaria tulipa hollisteri* Weisbord, 1962

Description: Shell large, generally ovate in outline, the angle of spire around 61°, the apex obtuse. Whorls about 8 including the nucleus. Nucleus hyaline, consisting of 1 1/2 whorls, the initial small and appressed, the last rapidly expanding, merging insensibly into the conch which is procelaneous. Postnuclear whorls convex, the body whorl well rounded. Sutures canaliculate, somewhat gaping. Around the summit of the whorls there is a slight thickening or collar at the suture, the collar rendered rugose or crenate by fine axial grooves and numerous growth striae. Below the sutural collar is another strong spiral fillet, this about half as wide as the collar and separated from it by a deep groove, the fillet in turn separated from the shoulder area by another prominent groove. Remaining area of body marked with faint spiral bands between fine shallow grooves, these markings much closer together on the base than they are on the shoulder and on the convexity. Surface covered with longitudinal sinuous growth striae, the striae building up into incrementals on the back of the anterior canal.

Aperture proper ovate, lined with about 82 closely spaced subequal lirae, the lirae terminating irregularly but abruptly some distance from the edge of the outer lip. Between the termini of the lirae and the rim of the outer lip the apertural margin is mooth. Outer lip thin, the inner margin along the rim bearing about 29 denticles which project into points above the rim, the denticles extending from the posterior outlet to the entrance of the siphonal canal. The denticles of the lip and the lirae of the aperture are brownish, the interspaces more or less whitish. Columella arcuate, the base with three low oblique folds, the middle one of which is the most elevated, the lowest one the broadest and forming the margin of the pillar, the uppermost one the feeblest. Siphonal canal of moderate length, wide, curved a little upward anteriorly, the extremity shallowly notched. Labium with a glaze of tan enamel extending from the pillar to above the parietal wall, the margin of the glaze neatly and clearly defined from the egg-white surface of the whorl, the glaze encircling the base of each preceding whorl, becoming less and less wide above the suture until, near the tip of the spire, the glaze is entirely concealed by the suture. Posterior outlet marked by a subtriangular arch, the groove of the posterior stiphon margined below by a broad low ridge of callus which does not extend across the parietal wall. It is this ridge across the parietal wall which distinguishes the subgenus Cinctura from the subgenus *Fasciolaria* on which the ridge is wanting.

Size: length 158 mm, max. width 74 mm, length of aperture and canal 104.5 mm, width of siphonal canal at anterior end 9 mm

Range: Venezuela

Remarks: Originally descibed as fossil. The Pliocene *F. hollisteri †* is now known to be the common ancestor of the living *F. petuchi* and *F. guyanensis*. See also remarks under *F. petuchi.*

F. hollisteri † closely resembles the well-known *F. tulipa* but differs from that in being stouter and in having canaliculate rather than tight sutures.

Cinctura hunteria differs from *F. hollisteri †* in having a spiral ridge across the parietal wall to the margin of the glaze, and in having the whorls entirely smooth near the suture as does *Cinctura branhamae.*

For differences with *F. guyanensis* see there.

Fasciolaria ixchel Petuch & Berschauer, 2024

Description: Shell very large for genus, superficially resembling genotype *F. tulipa* in general outline, color pattern, and shell sculpture; fusiform and ovate, with high elevated spire; protoconch large, inflated, smooth, dome-shaped and rounded, consisting of 1 1/2 whorls, gold to light brown in color; shoulders of spire whorls distinctly angled and stepped, subcarinate, especially on first 4 postnuclear whorls; teloconch ornamented with numerous fine vertical cords; subsequent postnuclear whorls ornamented with 10-12 prominent elongated knobs per whorl, producing distinct undulating appearance on shoulder angles crossed by 5 thin spiral cords, producing faint cancellate appearance; sutures of spire whorls strongly indented; body whorl smooth and highly polished, ornamented with 4 to 5 low, prominent rounded cords along subsutural area; suture distinct and sharply incised; siphonal canal proportionally short approximately two-thirds length of spire; body whorl smooth and polished, without raised cords; siphonal canal ornamented with 20-25 large, prominent, rounded cords; shell base color white or cream-white, overlaid with 3 wide bands of amorphous and widely-scattered patches of dark brown, reddish-brown, gold-tan, or grayish-blue; color patches, in turn, overlaid with 25-30 thin, evenly-separated dark chocolate-brown to black spiral bands; smaller, thinner subsidiary bands occasionally present between pair of primary bands; dark brown bands variable in thickness, being thicker in some areas and thinner in other; dark bands terminating in small dark brown denticals at edge of lip forming serrated appearance; aperture narrow and elongated-oval in shape; columella white to pale orange in color, with 2 large, prominent recurved plicae; interior of aperture color varying from white to pale orange; inner edge of lip ornamented with numerous very fine, thread-like ridges.

Size: length 185.0 mm, width 85.4 mm; generally between 175 and 220 mm in length

Range: Yucatan Peninsula, Mexico

Remarks: While superficially similar in appearance, *F. bittneri* and *F. tulipa* are readily distinguished by the shape, ornamentation and sculpture of their postnuclear whorls. The well known *F. tulipa* has smooth and gently sloping postnuclear whorls with a corded postnuclear area, and *F. ixchel* by comparison is strongly ornamented with 10-12 prominent elongated knobs per whorl, crossed by 5 thin spiral cords.

The shape, sculpture and ornamentation of *F. ixchel* is closest to *F. bittneri*, which has sharply-angled and shouldered early whorls that are ornamented with distinct rounded knobs, producing coronated postnuclear whorls. *F. ixchel* differs from *F. bittneri* in that it has more strongly ornamented postnuclear whorls which bear 10-12 prominent elongated knobs per whorl, crossed by 5 thin spiral cords, which produces a faint cancellate appearance, strongly indented spire whorl sutures, and distinctly angled and stepped spire whorls. Additionally, *F. bittneri* has a red protoconch and early whorls, and adult specimens of *F. bittneri* rarely exceed 120 mm in length, whereas *F. ixchel* has a brown protoconch and early whorls and is substantially larger measuring between 175 to 220 mm in length.

Fasciolaria petuchi Crabos & Queiroz, 2023

Description: Shell of average size for genus, thin, fusiform, elevated, with subscalariform spire whorls; body whorl greatly inflated, globose, with rounded shoulder and sides; body whorl smooth, devoid of any spiral sculpture; suture of spire whorls and body whorl marked with one or two wide, strong, spiral cords; smaller secondary cord sometimes present anterior to the main sutural cord, producing a distinctive sutural collar; aperture wide, flaring, oval in shape; curved columella ornamented with two proportionally large, porcellaneous white, fold-like plicae, with the anterior plication very well developed, roughly 4 times the length of smaller posterior columellar plication; siphonal canal proportionally large, narrow, roughly 1/3 of shell length; protoconch proportionally large, rounded, dome-like, composed of 1 ½ whorls; shell base color variable, ranging from pale blue-gray to pale tan to deep orange (as in holotype); base color overlaid with variable number of thin, evenlyspaced spiral brown lines, varying in number from 16 to 20; siphonal canal devoid of spiral lines; interior of lip ornamented with numerous very fine, closely-packed raised cords; fine cords extend into interior of aperture, becoming obsolete deeper within aperture.

Size: length 106.5 mm, width 49 mm

Range: Venezuela

Remarks: For the past 46 years, this brightly colored and distinctive Venezuelan fasciolariid has been referred to as "*Fasciolaria hollisteri*", a Venezuelan Pliocene fossil. When the fossil *F. hollisteri* and the living *F. petuchi* are compared, *F. petuchi* can be seen to be a more inflated shell with a more rotund body whorl and a proportionally-lower and less protracted spire. The principal difference between the two species is seen in the structure and form

of the columellar plications, which are much larger and better-developed on the living *F. petuchi* than they are on the fossil *F. hollisteri*.

Orange and tan specimens of *F. petuchi* could also be confused with the closely-related *F. guyanensis*. That species differs from *F. petuchi* in being a more slender and elongated shell with a higher, more protracted spire and proportionally-longer siphonal canal.

Fasciolaria tephrina de Souza, 2002

Synonyms: *Neptunea laevigata* Link, 1807

Description: Shell large, fusiform, spire high. Surface somewhat glossy, ashen white in color, marked with axial growth lines, sculptured by 4 or 5 spiral grooves on concave area just anterior to suture. Protoconch large (approximately 5.5 mm in height), paucispiral, deviated, rounded with 1 whorl. Teleoconch with 7 highly convex whorls, early whorls with obsolete wide ribs (10 on first whorl) and 4 spiral cords, gradually fading, disappearing at 4th whorl; very faint spiral grooves appearing on the final third of body whorl. Aperture slightly prosocline posteriorly, otherwise orthocline, rounded, wide, internally glossy with cream colored enamel; outer wall with numerous, thin, weak lirae; outer lip unthickened with 6 weak, posteriorly set denticles. Parietal wall smooth; columella with 2 moderately strong, oblique plications, not apparent at aperture; anteriormost plication blending with the inner lip of siphonal canal. Siphonal canal very long (24.6 % of total shell length), open, slightly sinuous.

Size: length 187.4 mm, width 73.8 mm

Range: SW Caribbean, off Honduras, Nicaragua and northern Colombian isl.

Remarks: *F. tephrina* is distinguishable from its west Atlantic congeners by its ashen white color, highly convex whorls, long thin siphonal canal, and large deviated protoconch. The large deviated protoconch (i. e. the protoconch coiling axis forms roughly a right angle with that of the teleoconch) is not typical of other West Atlantic species, but this type of protoconch is also present in the African *Africolaria rutila*. *A. rutila* is distinguishable from *F. tephrina* by its slender shape, spiral sculpture formed by numerous shallow grooves, short siphonal canal (approximately 16 % of total shell length), lack of denticles on the external lip, and low but distinct callus on parietal wall.

F. tephrina, was collected in the same area as *Fusilaria garciai*; although thin, the shell of *F. garciai* is strong. *Fasciolaria tephrina* apparently occurs in two color forms: finely banded and splotched.

F. tephrina has a smooth protoconch like *F. guyanensis*, but its teleoconch differs from that of *F. guyanensis* by lacking color markings.

F. tephrina is related to *F. tulipa* but stepped with a bent, prominent protoconch.

For differences with *F. delicatissima* see there.

Fasciolaria tulipa (Linnaeus, 1758)

Synonyms: *Neptunea laevigata* Link, 1807

Description: *M. testa ventricosa oblonga laevi, anfractibus rotundatis, apertura laevi, cauda patula striata.*

(Shell potbellied, oblong, smooth; whorls rounded, aperture smooth, canal striated.)

Redescription: Shell with about 9 somewhat rounded whorls, with a deep, well-defined suture, with irregular, impressed growth lines and revolving sculpture. This sculpture may consist of rather sharp, close ridges of various sizes, separated by concave furrows, or the surface may be scarcely marked by narrow, widely spaced grooves; the sculpture is stronger just below.the suture, where it always becomes slightly nodulous, and on the base of the shell; spire of moderate height; aperture elongate-oval, the outer lip lirate within and marked on its inner edge with dark lines, which are often elevated into slight ridges and end in toothlike projections; canal of moderate length, slightly reflexed, open; columella incurved, with two or three folds below. Operculum thick, heavy.

The color pattern is variable. It is sometimes ash colored, overlaid with irregular, dull-brown markings and blotches, which may be disposed in faint wide bands. In other specimens the ground is nearly white, with blotches and cloudings of pale chocolate, salmon, or reddish, the revolving furrows being marked with darker color.

Size: length 150 mm, width 65 mm

Range: North Carolina through Florida to Texas, and Caribbean to Brazil

Remarks: As in the case of the *Strombus pugilis*, the more southeastern the locality the more pale the salmon coloration which characterizes the shell. The specimens living in brackish water are more strongly sculptured, duller colored, and rougher than those found living on open beaches, and are probably worthy of a varietal name.

The species is larger than the allied *C. lilium*, with which it has been sometimes confounded, and is always somewhat sculptured below the suture, while *C. lilium* is not.

F. bullisi looks like an elongate small *F. tulipa*, but lacks all subsutural sculpture. It also has 3/4 of a whorl of protoconch ribs.

F. tephrina is related to *F. tulipa* but stepped with a bent, prominent protoconch.

F. hollisteri † is the southern Caribbean species which looks like *F. tulipa* but but differs from that in being stouter and in having canaliculate rather than tight sutures.

For differences with *F. bittneri, F. haleyi, F. ixchel* and *F. guyanensis* see there.

Filifusus Snyder, Vermeij & Lyons, 2012

Type species: *Filifusus filamentosus* (Röding, 1798)

Description: Shell medium-sized for subfamily, elongate, fusiform, with high spire and long siphonal process; teleoconch sculpture of broad, short, rounded axial ribs forming nodes (sometimes absent) at shoulder angulation, and many relatively sharp spiral cords, often black and paired; outer lip with sharp, closely spaced, paired crenulations, sharpest on the sinus just abapical to the convex sector; inner side of outer lip with numerous fine slender lirae, usually straight but occasionally interrupted near abapical end; junction of outer lip with penultimate whorl without adapical notch; parietal ridge present; two columellar folds weak; entrance fold to siphonal canal sharp, keel-like; inner side of siphonal canal smooth, without abapical folds.

Size: largest species to about 193 mm

Range: Indo-West Pacific

Remarks: The most distinctive features of the genus are the very numerous lirae on the inner side of the outer lip (up to 50 in *F. filamentosus*), and the sharp, keel-like entrance fold to the siphonal canal.

Filifusus differs from *Pleuroploca*, another Indo-West Pacific genus, in having a more slender, fusiform shell with more numerous, sharper spiral cords, more numerous lirae, a much more prominent entrance fold, and by lacking abapical folds along the inner side of the siphonal canal.

Aurantilaria differs from *Filifusus* by having fewer, coarsely beaded lirae, a rounded instead of keel-like parietal ridge, and a rounded rather than keel-like entrance fold to the siphonal canal.

Filifusus altimasta (Iredale, 1930)

Description: Shell broadly fusiform, spire as long as aperture, body-whorl 2/3 the length of the shell, mouth oval, canal of medium length, open. Colour brownish yellow' almost hidden with dark brown, mouth fleshy buff. Sculpture consisting of spiral threads, more or less obsolete on middle of body-whorl and developed as lirae on earlier whorls. Longitudinal noduling obsolete though faint indications are suggested on the juvenile whorls. Last whorl sub-shouldered, lirse more pronounced near the suture and basally round the canal. Mouth oval, outer lip thick but not varicose, inside closely lined wth fine entering ridges. Columella with 3 plicae low down, the anterior one much larger than the other two; inner lip as a thin glaze only, a short ridge present near posterior angle.

Size: length 96 mm, breadth 36 mm

Range: Queensland, E Australia

Remarks: This appears to be the coastal representative of the coral living *F. filamentosus*.

Filifusus ferrugineus (Kuroda & Habe, 1960)

Synonyms: *Fusinus perplexus ferrugineus* (Kuroda & Habe, 1960), *Fusus inconstans var. minor* Lischke, 1869

Description: Shell small for the genus, rounded fusiform, light and strong. Protoconch small, glossy with 1.5-2 unsculptured whorls. Teleoconch of 9 well-inflated whorls, sutures impressed. Spiral sculpture of numerous sharp, well-defined cords; cords evenly spaced on upper whorl, less so below suture line on body whorl, with occasional major-minor pairs and interstitial spiral threads, Cords often finely decussate, especially on lower body whorl and neck. Occasional emphasis of outermost cord at periphery, with row of raised knobs persisting onto bady whorl. Numerous strong axial waves present on first 5-6 whorls; approximately 14 per whorl, with troughs of roughly corresponding breadth. Waves become redundant by penultimate and body whorls, which lack axial sculpture, but may persist in the form of knobs. Very numerous, very fine axial growth lines present over entire teleoconch, giving fine cancellate appearance. Aperture roundly ovate or occasionally slightly quadrate, with notch at terminus of suture. Adult specimens with slightly produced parietal shield, but pronounced subsequent resorbtion of parietal area evident in many. Columellar margin of siphonal canal detached in adults, but often only in uppermost third. Siphonal canal wide, with occasional slight constriction immediately below aperture and flaring in distal portion. Interior of aperture and canal smooth and glossy, with spiral grooves on labral surface of aperture corresponding in position to exterior cords.

Protoconch and entire teleoconch reddish brown with scattered axial bars and flammules of deeper color; darker brown and/or purple staining usually present, especially on distal portion of columella process. Spiral cords usually darker brown than base color. Labral margin of aperture often stained dark brown or purple, as well as margins and distal portion of siphonal canal. Periostracum light brown, of typical lamellar construction with broadly spaced, pointed tubular spines. Operculum typical for genus, brown, chitinous, leaf-shaped with nucleus at distal terminus.

Size: average 91.3 mm (n = 13)

Range: Japan

Remarks: This name is proposed for the so-called *Fusus minor* (Dunker) whose name is preoccupied. Perhaps the most distinctive character separating *F. ferrugineus* from the others, however, is its coloration. The shell of *F. ferrugineus* is invariably mid- to dark brown overall, with distinctive purple tinges present especially on the outer face of the neck. The periostracum of *F. ferrugineus* differs from that of the other species from the NW Pacific in bearing widely spaced erect thorns that are tubular in cross-section and sharply pointed, in contrast to the normal curved shape.

Resembling *F. perplexus* and *F. forceps*, but shell smaller with more inflated whorls, low nodules and mid- to dark brown color. The shape of the aperture is in consequence roundly ovate. Where peripheral sculpture is present, it takes the form of a row of knobs that are superficial to the rounded whorl profile, rather than forming a produced angle in the labral margin as in *F. perplexus*. Both the spiral cords and axial ribs tend to be finer and more numerous. The dentition on the labral margin of the aperture is reduced in comparison with the other species examined here, and the siphonal canal is consistently broader. Most *F. perplexus* retain at least some axial sculpture on the adult body whorl, in contrast to typical *F. ferrugineus*.

F. ferrugineus has about the same adult size as *F. flavicomus,* but differs by the lighter and thinner shell, the usually more convex, rounded whorls, the weaker, less prominent carina at periphery, the sharper spiral sculpture, the weaker axial ribs and the larger number of axial ribs on all whorls.

For comparison with *F. juliabrownae* see there.

Filifusus filamentosus (Röding, 1798)

Synonyms: *Neptunea cincta* Link, 1807

Description: not given

Redescription: Narrowly fusiform, siphonal canal long and straight, whorls rounded, sometimes slightly shouldered, sculptured by numerous thin spiral ribs, aperture finely lirate, columella with three strong folds at the base, parietal nodule weak. Colour light to dark brown with a dense pattern of light brown or cream spiral lines, cream patches between the shoulder nodules, interior orange or cream, columella orange with cream folds.

Size: 75-190 mm

Range: Indian and W Pacific Oceans

Remarks: *Lugubrilaria badia* is most closely related to *F. filamentosus*, but can be distinguished easily by the crowded and irregular stripes and the shorter, broader, somewhat left-curving canal.

F. inermis shows most resemblance to *F. filamentosus*, but is easily distinguished by the following differences: it is thicker, more bulbous, the whorls are more convex, not angled in the middle, and have no tubercles, so the right edge of the mouth is perfect arcuate, and the brown spiral stripes are not so deeply furrowed, so it is smoother.

F. filamentosus has more prominent tubercles at the shoulder, stronger spiral sculpture occupying the whole surface, a more developed siphonal canal and bigger size than *F. manuelae* (120 mm vs. 105 mm).

Similar to *Pleuroploca trapezium*, but with a much taller spire and longer siphonal canal.

F. filamentosus differs from *Leucozonia granulilabris* by attaining a larger size (often well over 100 mm), by having more numerous granular lirae (up to 50 as compared to 23 in *L. granulilabris*), by generally being more nodose at the shoulder angulation, and by having 3 instead of 2 columellar folds. In *F. filamentosus*, the adapical-most columellar fold is, however, very weak. The adapical edge of the siphonal canal is keeled in *L. granulilabris* but not in *F. filamentosus*. The spire is higher and the siphonal canal is longer in *F. filamentosus* than in *L. granulilabris*.

Filifusus glaber (Dunker, 1882)

Synonyms: *Fasciolaria glabra* Dunker, 1882

Description: *Testa gracilis fusiformis glabra, anfractibus incluso nucleo laevigato submamillari denis, superne cavatis, nodorum serie media cinctis, supremis transversim sulcatis instructa; color luteus, maculis et strigis longitudinalibus lineisque fuscis transversis variegatus; columella inferne biplicata luteo-aurantia; peristoma sulcatum eodem modo tinctum; labrum crenatum; rostrum leviter costatum; epidermis cornea nitida laevis et tenuis, sed firma.*

(Shell slender fusiform, glabrous; 10 whorls, including the smooth submammillated apex, concave above, in the middle surrounded by a series of nodes, provided with uppermost transverse furrows; color yellow, variegated with spots and longitudinal striations and transverse brown lines; columella below with 2 folds, yellow-orange; peristome furrowed in the same way; lip crenate; siphonal canal slightly ribbed; corneous epidermis smooth, thin, but firm.)

Size: 75 mm

Range: S Japan

Remarks: *F. glaber* differs from *Pleuroploca audouini*, to which it is in some respects analogous, especially in its much smaller and more slender form, with thinner nodes towards the vanishing lip, and also with a bifold columella.

F. manuelae is similar with *F. glaber*, but differs in having subangulate shoulder, more inflated teleoconch whorl, more developed axial sculpture, and smaller average size (70 mm vs. 105 mm).

Leucozonia granulilabris may also be compared to the similar *Filifusus glaber*.

Filifusus inermis (Jonas, 1846)

Description: *Fasc. testa fusiformi-turrita, medio subventricosa, cinereo-rufa, lineis fuscis geminis transversim sulcato-striata; anfractibus 9 convexis, ultimo obsoletissime plicata; cauda recta spira breviore; apertura oblongo-ovata, intus hepatica aurantio tenuissime striata, labro tenui, denticulato, dentibus geminis lineis externis respondentibus; columella cylindracea, fusca, basi triplicata, plicis albis, infima maxima.*

(Shell fusiform-turreted, subventral in the middle, greyish-rufous, transversely grooved-striated with twin brown lines; with 9 convex whorls, the last most obsoletely folded; a straight siphonal canal with a shorter spire; aperture oblong-ovate, inside hepatic orange, very thinly striated, lip thin, denticulate, with twin teeth corresponding to external lines; columella cylindrical, brown, base with 3, white folds, the lowest largest.)

Size: length 105 mm, width 43 mm

Range: Red Sea and Indian Ocean

Remarks: This species shows most resemblance to *F. filamentosus*, but is easily distinguished by the following differences: it is thicker, more bulbous, the whorls are more convex, not angled in the middle, and have no tubercles, so the right edge of the mouth is perfect arcuate, and the brown spiral stripes are not so deeply furrowed, so it is smoother.

Pleuroploca lischkeana resembles mostly *F. inermis*, but is easily distinguishable by its larger size, the much more bulbous whorls, the relatively shorter spire, the slightly knotty and somewhat blunt-edged last whorl, and by the thicker, non-white colored folds.

Filifusus manuelae (Bozzetti, 2008)

Description: Shell medium sized with respect to genus, fusiform broad and massive. Protoconch paucispiral, made up of 2 smooth and globose whorls, teleoconch of 8 convex whorls, evident after the 3rd whorl a straight or slightly concave subsutural ramp. Axial sculpture consisting of 10 rounded ribs per whorl, covering the total coil height on the first 4 whorls, after vanishing or becoming shorter, subangulate and confined to the shoulder; very feeble and fit incremental striae, irregularly spaced, between axial ribs. Spiral sculpture of 10 rounded cords on the subsutural ramp made wavy by the axials, the adapical one marginating the suture.

About 20 spiral cords, adapical one larger, on the basal area and siphonal canal; suture incised, irregularly undulated, aperture elliptical, axially elongate, gently joining the siphonal canal, with a moderately deep “V”-shaped anal sinus, separated from the labium by a rounded spiral denticle followed by 2 or 3 minor ones. Inside of aperture densely lyrate on the outer lip side, lyrae not reaching the labrum and prosecuting to the interior, secondary lyrations odd present starting more inside; a fine micro-lyration in the interspaces of primary and secondary ones.

Columella is uniformly concave, smooth except for 3 oblique plicae at the base, the lower one stronger and prosecuting as an elongated pad to the left edge of the siphonal canal. Columellar and parietal calluses moderately developed and adherent. Siphonal canal open, moderately long, straight, slightly oblique to the left, barely notched at the base, operculum claw shaped slightly twisted, with terminal nucleus, filling the aperture. Protoconch translucid, whitish, first 2 teleoconch whorls whitish, rest of teleoconch uniformly brown stained, interspaces between spiral cords covered by darker brown spiral lines also present where the spirals lack. Inside of mouth and siphonal canal, columellar and parietal calluses beige, the internal edge of outer lip shows a similar colour and pattern of the external surface, while the primary and secondary lyrations are orange-brown coloured; the base of the siphonal canal interiorly dark brown. Periostracum brown, operculum dark brown.

Size: 80.5-152 mm

Range: S Madagascar, India

Remarks: *F. filamentosus* has more prominent tubercles at the shoulder, stronger spiral sculpture occupying the whole surface, a more developed siphonal canal and bigger size than *F. manuelae* (120 mm vs. 105 mm).

F. manuelae is more similar with congener Japanese species *F. glaber*, but differs in having subangulate shoulder, more inflated teleoconch whorl, more developed axial sculpture, and smaller average size (70 mm vs. 105 mm).

Kilburnia heynemanni f. strebeli, a South African species, shows similar colour and pattern to *F. manuelae*, it differs in the rhomboidal shape, in the more pronounced tubercles at the shoulder, in the lack of internal lyrations and in the greater average size (140 mm vs. 105 mm).

Australaria bakeri, distributed from New South Wales to Eastern Victoria, shows similar colour and pattern to *F. manuelae*, it differs in the wider shape and in the greater average size (150 mm vs. 105 mm).

Fusilaria Snyder, 2013

Type species: *Fusilaria garciai* Snyder, 2013

Description: Adult shell moderately large for subfamily, with large protoconch and high spire. Axial sculpture of low ribs forming nodes on peripheral keel adapical to the axial midpoint of each whorl. Spiral sculpture of numerous low, fine cords. 2 or 3 prominent columellar folds present at entrance to siphonal canal with as many as four weaker folds adapically, not always visible from outside. Siphonal canal somewhat twisted. Parietal ridge prominent with sharp edge. Inner side of outer lip with fine lirae, both continuous and interrupted (beaded).

Size: moderately large for subfamily

Range: Caribbean

Remarks: *Aurantilaria* is principally a Brazilian species but ranges northward to the Grenadines with fossil records in Florida and the Dominican Republic. *Fusilaria* differs by having spiral cords neither prominent nor nodular, and by having a sharply edged parietal ridge.

Cinctura is principally found in the western Gulf of Mexico but occurs across the Yucatan Platform as far south as Cancun. *Fusilaria* differs by having axial sculpture on early whorls and body whorl, spiral cords on all whorls except upper part of body whorl, and some beaded lirae on inner side of outer lip. It also has a larger size.

Fusilaria differs from *Fasciolaria* by having axial sculpture on early whorls and body whorl, discontinuous or beaded lirae on inner side of outer lip, a prominent sharply edged parietal ridge, and sharp columellar folds.

Granolaria has 2 recent species in tropical eastern Pacific but only fossil members in Caribbean region. *Fusilaria* differs by having a high spire, some beaded lirae on inner side of outer lip, and a sharply edged parietal ridge.

Pliculofusus contains only fossil members from the late Oligocene to Pleistocene of the Atlantic sector of the southeastern United States. *Fusilaria* differs by having axial ribs that are not prominent, a relatively much longer canal, a thinner shell, spirally elongate nodes, and 2 or 3 rather than 4 columellar folds.

Triplofusus is principally from the southeastern United States and Gulf of Mexico, barely intruding in Caribbean southward to Cozumel; Neogene record of genus at Punta Cavil an, northern Venezuela. *Fusilaria* differs by having a very thin, lightweight shell, spiral cords that are not prominent, and some beaded lirae on inner side of outer lip.

Kilbumia has a larger protoconch (up to 5 mm) and short, smooth lirae on the inner side of the outer lip. The entrance fold to the siphonal canal is much more strongly expressed than the 2 columellar folds.

Australaria differs in several ways, but in others is quite similar. The lirae on the inner side of the outer lip are short and smooth. The most anterior fold of the siphonal canal is much more firmly expressed than the 2 columellar folds.

Fusilaria garciai Snyder, 2013

Description: Shell moderately large for subfamily, elongate, fusiform, with high spire and long siphonal process. Protoconch large, maximum diameter 3 mm, height 2.5-3.0 mm, with two bulbous cream-colored whorls, additional quarter whorl with sharp thin unornamented axial riblets, joining teleoconch smoothly. Teleoconch of 6-7 angulate whorls separated by suture, overlaid by spiral cords at the base of the whorl, with spiral keel connecting 11-12 spirally elongate, axially compressed nodules; with half whorl of wider unornamented ribs, extremely short, rounded axial ribs extending adapically from nodes on later whorls, weakening abapically; fine, very low spiral cords on all early whorls, evanescent on upper part of body whorl, with a few similar cords at end of siphonal process, oblique to process axis; about 19 cords below keel and 18 above on penultimate whorl. Outer lip thin and damaged in all examined material; inner side of outer lip with about 60 lirae, a mix of continuous, discontinuous, and beaded, stopping short of the lip by about 3 mm; abapical lirae stronger and more coarsely beaded. Anterior-most fold to siphonal canal keel-like, with one or two additional similar folds adapical to it. In some specimens as many as four additional weak folds present, some not visible from outside. Shell color ivory with peach overtones; nodes lighter on peripheral keel with light pumpkin splotch on both sides (axially) of node, with pale orange-brown axial color stripes emanating from the nodes adapically and abapically on the body whorl.

Size: 119.5-183.0 mm; length 161.7 mm

Range: W Caribbean Sea, Honduras

Remarks: *Fasciolaria tephrina*, was collected in the same area; although thin, the shell of *F. garciai* is strong. *Fasciolaria tephrina* apparently occurs in two color forms: finely banded and splotched.

Granolaria Snyder, Vermeij & Lyons, 2012

Type species: *Granolaria salmo* (W. Wood, 1828)

Description: Shell medium-sized for subfamily, relatively low-spired, with a long, weakly notched siphonal process; teleoconch whorls with fewer than ten short axial ribs, forming nodes at shoulder angulation that point adapically; spiral sculpture of fine, axially roughened cords; outer lip almost planar, its edge with well expressed, paired crenulations, its inner side with smooth lirae; junction of outer lip with penultimate whorl lacking adapical notch; parietal ridge prominent, rounded; two columellar folds more weakly expressed than the rounded entrance fold to the siphonal canal; abapical folds on inner side of siphonal canal absent.

Size: two living species to 150 and 203 mm

Range: tropical America

Remarks: *Granolaria* comprises tropical American fasciolariines of moderate size (maximum length slightly greater than 200 mm) characterized by a long siphonal process, a well-expressed, rounded parietal ridge, generally smooth and prominent lirae on the inner side of the outer lip, a round entrance fold to the siphonal canal, and the absence of folds on the inner edge of the siphonal canal abapical to the entrance fold.

In shell characters it most closely resembles the genus *Pleuroploca*, which differs from *Granolaria* by the presence of folds on the inner edge of the siphonal canal. Moreover, in most species of *Granolaria*, the lip shows little or no convexity.

Granolaria differs from *Triplofusus* by the presence of a distinct parietal ridge and by having a lower spire, and from the fossil *Pliculofusus* by a much lower spire, finer spiral sculpture, and the absence of folds on the inner edge of the siphonal canal.

Fusilaria differs from *Granolaria* by having a high spire, some beaded lirae on inner side of outer lip, and a sharply edged parietal ridge.

Aurantilaria differs from *Granolaria* by having a higher spire, abaxially rather than adapically pointing nodes, and by usually having discontinuous internal lirae. Shells of living *Aurantilaria* have paired black spiral lines and terminal crenulations, which are lacking in *Granolaria*, and may have more than one spiral row of nodes, a state not seen in any species of *Granolaria*.

Granolaria salmo (Wood, 1828)

Synonyms: *Granolaria granosa* (Broderip, 1832)

Description: not given, only illustrated

Redescription: Solid, heavy, turnip-shaped, with a single row of blunt nodes or spines on the angular shoulder. Aperture, parietal wall glazed in orange or yellowish, outer lip with a characteristic thickening. 3 small oblique plica at the base of the columella. Periostracum either smoothish or minutely pustuled (form *granosa*).

Size: about 115-125 mm

Range: W Mexico to Peru

Remarks: For comparison with *G. valenciennesii* see there.

Granolaria salmo f. granosa (Broderip, 1832)

Synonyms: according to WoRMS synonym to *Granolaria salmo* (Wood, 1828)

Description: *Fasc. testa fusiformi, tuberculifera, luteo-albida, transversim striata; anfractibus suturam versus subangulatis, duobus ultimis praecipue tuberculiferis, tuberculis magnis, distantibus; columella lutea triplicata; apertura transversim striata, albida, marginem versus sublutea; labro denticulato; epidermide fusca, granosa.*

(Shell fusiform, tubercular, yellowish-white, transversely striated; whorls towards the suture subangular, the last two whorls particularly tubercular, with large, distant tubercles; columella yellow with 3 folds; aperture transversely striated, whitish, towards the margin subluteal; lip toothed; epidermis brown, granular.)

Size: length 103 mm, width 46.9 mm

Range: Panama

Remarks: The shell at first sight resembles *Pyrula vespertilio*, but differs from it in many other points (such as the mamillary termination of the spire) besides the generic character of plaits on the pillar.

Granolaria valenciennesii (Kiener, 1840)

Description: *F. testa pyriformi, apice acuminatâ, obsolète transversaliter tuberculatâ, transversim striatâ, albido-fulvâ vel aurantiacâ; spirâ brevi, conicâ; anfractibus supernè depressis; ultimo globuloso, sùb laevi; caudà gracili; aperturâ ovato-subangustâ; basi attenuatâ; columellà triplicatà; labro tenui, simplici.*

Coquille allongée, pyriforme, renflée dans le milieu, atténuée et prolongée à la base; la spire est courte, conique, mamelonnée au sommet, composée de sept tours déprimés au-dessus, réunis par une suture légèrement enfoncée et rugueuse; on remarque sur les tours supérieurs, au-dessus de cette suture, une série de tubercules noduleux, qui disparaissent presque complètement sur les tours suivants; le dernier tour est

subglobuleux, lisse dans presque toute son étendue, excepté au sommet, où il présente quelques stries transverses; le canal de la base est garni de sillons obscurs et obliques; il est traversé par des accroissements multipliés. L'ouverture est oblongue, blanche à l'intérieur; le bord droit est mince, tranchant, un peu anguleux à son sommet; la columelle est arrondie, concave dans le milieu, chargée de trois plis obliques, dont l'inférieur est le plus saillant; le bord gauche est mince, largement étalé, formant à sa partie supérieure un sillon décurrent. La coloration de cette espèce est d'un jaune orangé, quelquefois d'un blanc mêlé de fauve.

(Shell elongated, pyriform, swollen in the middle, attenuated and prolonged at the base; the spire is short, conical, hilly at the top, composed of 7 depressed whorls above, united by a slightly sunken and rough suture; one notices on the upper whorls, above this suture, a series of nodular tubercles, which disappear almost completely on the following whorls; the last whorl is subglobose, smooth in almost all its extent, except at the top, where it presents some transverse striae; the basal canal is lined with dark oblique furrows; it is traversed by multiplied increments.

The aperture is oblong, white inside; the straight edge is thin, sharp, a little angular at its top; the columella is rounded, concave in the middle, covered with 3 oblique folds, of which the lower one is the most prominent; the left edge is thin, widely spreading, forming a decurrent furrow at its upper part. The coloration of this species is orange-yellow, sometimes white mixed with fawn.)

Size: 106 mm

Range: Mexico, Acapulco

Remarks: It is distinguished from *G. salmo* in having thinner, smoother periostracum that shows axial growth lines, and reduced or absent spiral sculpture; in having the outer lip thinner, particularly in juvenile stages; the anterior canal proportionately slimmer; and the protoconch usually broader. In adult shells the denticles on the outer lip tend to be evenly spaced in *G. valenciennesii* and paired in *G. salmo*; denticles usually are not present in juvenile *G. valenciennesii*, but they often are present in juvenile *G. salmo*. With the periostracum removed, the shell of *G. valenciennesii* is usually off-white, often with scattered brown markings, particularly on the spire, whereas that of *G. salmo* generally is ocher to brown, often with numerous darker brown occasionally geminate spiral lines. The periostracum of *G. valenciennesii* tends to wear off in axial patches, while that of *G. salmo* tends to wear off in spirally oriented sections. The degree of development of axial sculpture does not distinguish these species; both have knobbed and smooth-shouldered varieties in the same geographic region, although smooth-shouldered specimens are more common in *G. valenciennesii*.

Kilburnia Snyder, Vermeij & Lyons, 2012

Type species: *Kilburnia heynemanni* (Dunker, 1876)

Description: Shell moderately large for subfamily, with large protoconch and high spire; axial sculpture of short ribs on upper part of body whorl, forming 2 rows of nodes on each of the last 3 whorls; spiral cords low, rounded; outer lip convex, its edge with paired crenulations, its inner side bearing very short smooth lirae; adapical notch absent; parietal ridge prominent, rounded; entrance fold to siphonal canal prominent, keellike, much more strongly expressed than the 2 columellar folds; folds on inner edge of siphonal canal absent.

Size: largest species to 237 mm

Range: South Africa

Remarks: *Kilburnia* resembles *Africolaria* in often having a keel-like entrance fold to the siphonal canal, but it differs in having a convex, crenulated outer lip, a lirate inner side of the outer lip, and a more nodose axial sculpture.

Kilburnia cannot be unambiguously separated from the Australian *Australaria* on shell characters.

Species in *Africofusus* closely resemble *Kilburnia*. *Africofusus* differs primarily in lacking the columellar folds that characterize members of the *Fasciolariinae*.

Kilbumia has a larger protoconch (up to 5 mm) than *Fusilaria* and short, smooth lirae on the inner side of the outer lip. The entrance fold to the siphonal canal is much more strongly expressed than the 2 columellar folds.

For differences with *Lugubrilaria* see there.

Kilburnia dunkeri (Strebel, 1911)

Synonyms: according to WoRMS synonym to *Kilburnia heynemanni* (Dunker, 1876)

Description: *Die knopfartig und etwas schief aufsitzenden ersten 1 1/2 Windungen sind verkalkt, dann beginnen Spiralreifen und mit Anfang der 3. Windung, eine deutliche wulstige Kante, auf der sich aber die Spiralreifen fortsetzen. Mit 2 1/2 Windungen tritt die bräunlichgelbe Cuticula auf, die dunklere, unregelmäßig verteilte Streifung in der Anwuchsrichtung zeigt. Die Grundfarbe scheint, nach dem Innern und dem Spindelbelag zu urteilen, fleischfarbig zu sein. Der Aufbau der Windungen zeigt eine hohe, schwach eingebogene Abdachung von der Naht ab zur Kante, die anfangs ganz dicht der Naht der folgenden Windung aufliegt, später sich etwas weiter von ihr entfernt, so daß noch einer der Hauptspiralreifen unter der Kante fast frei wird.*

Die Skulptur besteht aus unregelmäßigen Anwuchsstreifen, und daneben sind auch ziemlich breite Falten dadurch angedeutet, daß die Naht leichte Ausbuchtungen, und die Kante sehr leichte Anschwellungen zeigt. Von Spiralreifen befinden sich auf der Abdachung fünf, zwischen die sich, allmählich deutlicher werdend, feinere Reifen schieben. Die Kante ist, wie schon gesagt, anfangs wulstig mit darüber laufenden Reifen, dann wird sie durch 2 Spiralreifen gebildet, die durch eine seichte Furche getrennt sind. Unterhalb der Kante wechseln schwache und stärkere Reifen ab, erstere sind nur schwach ausgeprägt, letztere mit kantigem Scheitel. Nach dem Schnabel zu werden letztere abgerundeter, schmäler und weitläufiger gereiht, auch die Zwischenreifen werden schmäler, aber deutlicher. Der Mundrand ist der äußeren Skulptur entsprechend gefurcht, doch gehen die Furchen nicht sehr weit ins Innere. Übrigens erkennt man stellenweise unter der Lupe und besonders nahe dem Schnabel, zu jeder Seite der Zwischenreifen, noch je einen schwach ausgeprägten weiteren schmalen Reifen. Die Spindel hat 3 deutliche Falten, von denen die untere ziemlich kräftig und weiß ist. Oben tritt der Anfang des verdickten, rein weiß erscheinenden Reifens heraus, der sich dann stark ausgeprägt ins Innere zieht.

(The button-like and somewhat crooked first 1 1/2 whorls are calcified, then spiral tires begin and at the beginning of the 3rd whorl a clear bulging edge, on which the spiral tires continue. The brownish-yellow cuticle appears after 2 1/2 whorls, showing darker, irregularly distributed striations in the direction of growth. The ground color appears to be flesh colored judging by the interior and the spindle coating. The structure of the whorls shows a high, slightly inflected slope from the suture to the edge, which initially lies very close to the suture of the following whorl, later moving away from it a little further, so that one of the main spiral tire under the edge is almost free.

The sculpture consists of irregular growth striae, and fairly wide folds are also indicated by the fact that the suture shows slight bulges and the edge shows very slight swellings. There are 5 spiral tires on the incline, between which finer tires slide, gradually becoming clearer. The edge, as already said, is initially beaded with tires running over it, then it is formed by 2 spiral tires separated by a shallow furrow. Below the edge weak and stronger tires alternate, the former are only weakly pronounced, the latter with an angular crest. After the beak, the latter become more rounded, narrower and more spacious, the intermediate rims also become narrower, but clearer. The edge of the mouth is furrowed in accordance with the outer sculpture, but the furrows do not go very far inwards. Incidentally, under the magnifying glass and particularly near the beak, on each side of the intermediate rims, one can see another weakly pronounced, narrow rim. The columella has 3 distinct folds, the lower one being fairly strong and white. At the top, the beginning of the thickened, purely white appearing tire emerges, which then pulls strongly into the interior.)

Size: 41.5 mm x 19.3 mm

Range: E South Africa

Remarks: There is a certain resemblance to the deep-sea form of *K. heynemanni*, especially in the structure of the whorls, only the knobs are missing, and the spiral sculpture is far more continuous and sharper.

Kilburnia emmae R. Aiken & Seccombe, 2019

Description: Shell fusiform, with high spire and long siphonal canal; small for the genus; protoconch papilliform. Teleoconch whorls 6, shouldered; shoulder slope broad, concave, summit adpressed to preceding whorl; sutures shallow. Axial sculpture of very low, rounded folds. Spiral sculpture of rather strong, rounded ridges bearing prominent nodules, 2 rows on spire whorls, last whorl with 10 to 11. Nodules strongest on shoulder ridge, becoming smaller anteriorly, ca. 11 on last whorl. Spiral interspaces and shoulder slope with smooth microscopic spiral treads, middle one often stronger than the rest. Aperture oval; outer lip thick, pinched in anteriorly, with sharp crenulated edge. Labral teeth, often arranged in pairs, formed by thin lirae reaching deep into interior of shell. Siphonal canal narrow, open, entrance fold prominent, keel-like. Columella evenly concave, with 1 columellar fold; parietal ridge prominent.

Shell colour dull, dirty white; nodules dark brown with white interspaces; shoulder slope with faint, intermittent spiral streaks of brown; protoconch, columella and aperture white. Periostracum brown, smooth and thin, shell pattern visible underneath. Operculum oval-elongate, tapered bluntly anteriorly, dark brown and lighter around the edges, outer surface smooth with numerous growth increments arranged in concentric arcs.

Size: 55-64 mm; heigth 56.29 mm, width 24.16 mm

Range: Eastern Cape Province, South Africa

Remarks: *K. emmae* is similar in general shape to *K. heynemanni*, but considerably smaller (45 mm to 65 mm compared to greater than 80 mm) less strongly shouldered, the spiral ridges on the last whorl are relatively much stronger than those on *K. heynemanni* and the nodules are not only restricted to the shoulder ridge of each whorl, but occur on all ridges. Furthermore, the labral teeth of *K. emmae* are relatively stronger, the protoconch much larger and the nodules are dark brown instead of pale brown to cream in *K. heynemanni*.

Africofusus adamsii is superficially remarkably similar to *K. emmae*, but on closer inspection can readily be separated from the latter. The spire tapers to a fine point with a relatively small protoconch. The shell is much wider, the siphonal canal slender but longer, usually 33 to 40 percent of the shell length. It has no parietal ridge nor columellar folds, however, a false umbilicus is present. The operculum is thin and yellow/orange-brown. Although the specimens studied were in the same size range as *K. emmae*, generally speaking *A. adamsii* is a much larger shell and occurs at much greater depths.

Juvenile *K. scholvieni* also appear similar primarily due to the dark shoulder knobs and protoconch. However, the *K. emmae* can be distinguished by the more strongly ribbed and patterned body whorl, and shorter, straight siphonal canal, which is white ventrally. Like *Africofusus adamsii, K. scholvieni* in its adult form is a substantially larger shell and occurs at much greater depths.

Kilburnia heynemanni (Dunker, 1876)

Synonyms: *Fasciolaria dunkeri* Strebel, 1912, *Fasciolaria lugubris heynemanni* Dunker, 1876, *Fasciolaria strebeli* Fulton, 1930

Description: *Testa crassa unicolor rubra, anfractibus 8-9 angulatis, in angulo nodiferis instructa, ultimus spira duplo longior, spiraliter late planeque costatus et liratus, superne cavatus, in carina obtusangula nodis crassis, distantibus 9 coronatus; apertura ovato-oblonga alba; labrum internum lacteum laevissimum; columella alba cylindracea, superne costa crassa munita, inferne triplicata, rostrum subrectum.*

Shell clumsily spindle-shaped, solid, consisting of 8-9 whorls; they are separated by a distinct, irregular suture, angular, somewhat dented over the edge, on the same with a row of knots, which lie on the upper whorls close to the suture; on the upper whorls only a fine striation in the direction of the growth lines is noticeable; the last, which is more than twice the length of the spire, shows a number of broad and flat spiral ribs below the edge, which disappear again on the siphonal canal, and has 9 blunt, rounded knobs on the edge.

Aperture rounded ovate, canal narrow and shorter than the aperture, palate smooth, columella with thin but distinct coating, above with a strong lamella, below with 3 folds, the lowest of which is the strongest and spread widely on the almost straight siphonal canal; edge of aperture unfortunately badly damaged. Coloring uniform brown-red, aperture and columella milky-white.

Redescription: Shell large, broadly spindle-shaped, spire about half total length of aperture; whorls with distinct shoulder bearing strong, widely-spaced nodules; body whorl smooth or spirally ridged; inner lip expanded at base of siphonal canal to form a strong fold, with one to two weaker pleats above this; parietal region with a crisp in-running ridge just below insertion of outer lip; outer lip not sharply drawn in at its base; interior of outer lip smooth. Specimens from shallow water are smaller and have a crenulate outer lip. Cream to pale orange-brown, with a darker yellowish-brown to dark brown periostracum.

Size: up to 135 mm; length 82 mm, width 42 mm, length of aperture 55 mm

Range: Natal, S-Africa

Remarks: The resemblance to *Pleuroploca purpurea* is only in colour.

K. scholvieni has previously been confused with *K. heynemanni*. The lower spire, nonbicarinate early whorls, gradually tapering rostrum, slightly smaller protoconch and generally smaller size readily distinguish *K. heynemanni*. *K. scholvieni* is larger (length up to 220 mm), has weaker shoulder nodules, a narrower siphonal canal and a higher spire.

Nodular specimens of *Africofusus ocelliferus* lack pleats on the columella, usually possess a distinct false umbilicus and have a longer, narrower siphonal canal. In addition, in *A. ocelliferus* the nodules are browner than the remaining shell.

K. emmae is similar in general shape to *K. heynemanni*, but considerably smaller (45 mm to 65 mm compared to greater than 80 mm) less strongly shouldered, the spiral ridges on the last whorl are relatively much stronger than those on *K. heynemanni* and the nodules are not only restricted to the shoulder ridge of each whorl, but occur on all ridges. Furthermore, the labral teeth of *K. emmae* are relatively stronger, the protoconch much larger and the nodules are dark brown instead of pale brown to cream in *K. heynemanni*.

K. heynemanni is much broader in form than *K. strebeli*, and is readily separated by its prominent thick spiral cords, whereas *K. strebeli* is practically smooth.

Kilburnia scholvieni (Strebel, 1912)

Synonyms: *Fasciolaria agulhasensis* Tomlin, 1932, *Fasciolaria alfredensis* Bartsch, 1915

Description: *Das Gehäuse ist bedeutend größer als K. heynemanni, scheint aber nur wenig langsamer an Breite der Windungen zuzunehmen, denn die größere Höhe wird hauptsächlich durch die bedeutsamere Abweichung bedingt, daß bei gleicher Höhe der Abdachung, von den obersten erhaltenen Windungen ab, unterhalb der Kante noch 2 Spiralreifen am Gewinde über der Naht liegen. Die Grundfarbe ist die gleiche, nur ist die Cuticula braun, nicht schwärzlich, das Innere und die Spindelpartie weichen ebenfalls nicht ab. Die Skulptur zeigt als einzige Abweichung, daß 10 anstatt 8 Höcker auf der Kante stehen, und zwar schon auf den oberen Windungen, und daß diese Höcker mehr Anschwellungen des groben Spiralreifens als vorspringende Höcker sind, und daß auch noch der zweite grobe Reifen, wenn auch schwächer, diese Anschwellungen zeigt. Eine weitere Abweichung, die besonders deutlich an dem kleineren Stück ohne Cuticula hervortritt, wovon aber auch das größere noch Spuren erkennen läßt, besteht in dem Vorhandensein von ziemlich scharfen Furchen in den Zwischenräumen der Spiralreifen, bzw. es sind daselbst noch sehr flache, durch Furchen getrennte Reifen vorhanden, die an der unteren Hälfte des Schnabels in verstärktem Maße bei beiden Stücken die alleinige Spiralskulptur bilden, was bei der typischen K. heynemanni ganz fehlt.*

(The shell is considerably larger than *K. heynemanni*, but appears to increase in breadth of whorls only a little more slowly, because the greater height is chiefly due to the more significant variation that, for the same height of the slope, from the uppermost extant whorls, below the edge there are still 2 spiral ridges on the whorl over the suture. The basic color is the same, only the periostracum is brown, not blackish, the interior and the columella also do not differ. The only difference that the sculpture shows is that there are 10 instead of 8 knobs on the edge, already on the upper whorls, and that these knobs are more protuberances of the coarse spiral ridge than projecting knobs, and that the second rough ridge too, albeit weaker, showing these swellings. Another deviation, which is particularly evident in the smaller piece without a cuticle, but of which traces can also be seen in the larger one, consists in the presence of fairly sharp furrows in the spaces between the spiral ridges, or there are still ridges separated by very shallow furrows, which are forming to a greater extent the sole spiral sculpture on the lower half of the siphonal canal in both specimens, which is entirely absent in the typical *K. heynemanni*.)

Redescription: Shell very large, spindle-shaped; spire high, about three quarters total length of aperture; whorls rounded, but often with a weak shoulder bearing low nodules; sculpture of fine spiral threads, some specimens with occasional stronger cords; outer lip sharply drawn in at its base to form a relatively slender siphonal canal; inner lip with strong fold at base of siphonal canal with one to two weak columella pleats above this; parietal region with rounded, in-running ridge just below insertion of outer lip; interior of outer lip mostly smooth, but mature specimens often with subterminal row of denticles behind somewhat flaring outer lip. Whitish to pale buff or orange brown, nodules often darker brown; periostracum olive-brown to dark brown.

Fusiform, spire longer than aperture (exclusive of the siphonal canal); siphonal canal slightly shorter than aperture (sometimes as little as 2/3 of its length); rostrum conspicuous, typically straight but often distorted, parallel-sided, labrum strongly curved, sharply drawn in at base of rostrum; columella callus usually thick, edge often slightly free, especially basally; parietal ridge strong, columella folds three, rarely with traces of a 4th; labrum internally with a series of weak pleats, sometimes strong enough to form conspicuous crenations on edge of lip.

Early whorls with a twin peripheral ridge crossing a series of low axial folds; both ridges may become obsolete on adult whorls, but usually the posterior one remains prominent, and typically may form a series of conspicuous transversely elongated nodules, numbering 10-11 on body whorl; in other specimens these nodules become obsolete (agulhasensis). The whole surface is covered by fine spiral lirae of irregular strength, with an occasional lira markedly stronger than the others, but there is some variation in this respect; the lirae become obsolete on the base and rostrum. Teleoconch whorls 8 1/2.

Colour cream, buff or biscuit colour, aperture and columella white, sometimes rimmed with buff or grey-brown; periostracum thin, close, smooth, olivaceous-brown.

Size: up to 220 mm; 153.0 x 66.2 mm

Range: Agulhas Bank, S-Africa

Remarks: *K. scholvieni* differs from both *Lugubrilaria lugubris* and *K. heynemanni* in its more fusiform shape and more conspicuously rostrate, parallel-sided siphonal canal, this being sharply set off from the rest of the aperture, in its larger size (20-23 cm), in the slightly larger protoconch (diameter 3,5-5,1 mm instead of 3,0-4,0 mm) and in the early whorls being bicarinate just below the middle.

L. lugubris also differs in the presence of strong spiral lirae on the rostrum and base, these being feeble or obsolete in *K. scholvieni*.

K. heynemanni has a shorter spire and its outer lip is not so sharply drawn in prior to the siphonal canal. It never attains as large a size as *K. scholvieni*.

K. scholvieni is a much larger, broader species than *Africolaria wattersae*, with pinched-in rostrum, and less regular spiral sculpture; shoulder nodules, when present, are transversely, not axially, elongated.

Juvenile *K. scholvieni* appear similar to *K. emmae* primarily due to the dark shoulder knobs and protoconch. However, the *K. emmae* can be distinguished by the more strongly ribbed and patterned body whorl, and shorter, straight siphonal canal, which is white ventrally. Like *Africofusus adamsii, K. scholvieni* in its adult form is a substantially larger shell and occurs at much greater depths.

Kilburnia scholvieni f. agulhasensis (Tomlin, 1932)

Description: It is a large solid shell, with traces of a brownish periostracum, 8 (remaining) whorls, columella much arched, and a long canal some 7 mm broad. The whorls are regularly sculptured with spiral ridges which vary a good deal in breadth and strength; as a rule the stronger and weaker spirals are alternate, but at times two weaker ones come together; there is a particularly strong peripheral ridge on the body-whorl, and an equally strong one 7 mm above, which becomes an obtuse central keel on the upper whorls. Aperture elliptical in shape.

Size: length 178 mm, width 80 mm

Range: Agulhas Bank, S-Africa

Remarks: It differs from *F. scholvieni* especially in the shape of the aperture and in the character of the spiral sculpture. In general appearance it is not unlike some specimens of *Hemifusus morio*, but that shell, of course, has not the columellar plaits that distinguish a *Fasciolaria*.

Kilburnia scholvieni f. alfredensis (Bartsch, 1915)

Description: Shell of medium size, fusiform, externally light brown, internally bluish-white. Nuclear whorls decollated. Post-nuclear whorls marked by a strongly tuberculated median ridge between the sutures. Tubercles, 11 on each whorl, narrow and elongated, having their long axis parallel with the spiral sculpture. The space between the tuberculated ridge and the summit is concave and is marked by many slender raised threads, while that between the insertion of the columella and the tuberculated ridge is marked by about 10 depressed, unequally broad, spiral bands, which, like the spaces between them, are very finely, spirally lirate; rostrum spirally lirate.

The axial sculpture consists of rather coarse incremental lines. Aperture spoon-shaped; posterior angle acute; columella triplicate; anterior fold very strong and acute; spiral cord on the parietal wall slender.

Size: length 133 mm, diameter 55 mm

Range: Port Alfred, S-Africa

Kilburnia strebeli (Fulton, 1930)

Synonyms: according to WoRMS synonym to *Kilburnia heynemanni* (Dunker, 1876)

Description: Shell, form as figured; colour, nucleus (1 1/2 whorls) whitisch, other whorls medium reddish brown, partly covered by a darker brown periostracum; interior and columella cream-white; whorls, 6 1/2 strongly noduled; on the upper whorls can be seen (under the lens) numerous very faint spiral cords, on the last whorl these cords are so little raised that to the neked eye they appear to be coloured lines on a flat surface; peristome rather thin, serrated at margin and edged with brown colour. The channel at junction of upper part of columella and peristome is rather deep, with a very strong entering plait at left side of channel; there are 2 not very conspicuous spiral plaits at lower part of columella.

Size: length 69 mm, width 29 mm

Range: Natal, S-Africa

Remarks: *K. heynemanni* is much broader in form, and is readily separated by its prominent thick spiral cords, whereas *K. strebeli* is practically smooth.

Pleuroploca lyonsi differs from *K. heynemanni f. strebeli*, in the less angulate shoulder, feebler spiral sculpture, presence of spiral lines inside the aperture, parietal and columellar calluses colouration brown-lilac vs. white.

K. heynemanni f. strebeli shows similar colour and pattern to *Filifusus manuelae*, it differs in the rhomboidal shape, in the more pronounced tubercles at the shoulder, in the lack of internal lyrations and in the greater average size (140 mm vs. 105 mm).

Latirus Montfort, 1810

Synonyms: *Eolatirus* Bellardi, 1884 †, *Latyrus* P. P. Carpenter, 1857, *Plesiolatirus* Bellardi, 1884 †

Type species: *Latirus aurantiacus* Montfort, 1810 accepted as *Latirus gibbulus* (Gmelin, 1791)

Description: *Coquille libre, univalve, a spire turriculee ou fusiforme; bouche allongee; columelle avec impression de plis, tranchante vers l'ombilic; levre exterieure tranchante; base canaliculee, ombiliquee.*

(Shell free, univalve, with turriculate or fusiform spire; aperture elongated; columella with impression of folds, sharp towards the umbilicus; sharp outer lip; base canaliculated, umbilicated.)

Redescription: Shell medium to large in size, fusiform, basally constricted; whorls of teleoconch shouldered; last teleoconch whorl typically with 2 spiral rows of nodes, one at shoulder angulation, the other at central cord, the 2 rows connected by rounded axial ribs; outer lip of adult minutely reflected, its edge with paired crenations on central sector; adapical and abapical sectors of outer lip concave; inner side of outer lip with beaded lirae or rarely smooth, none of the lirae enlarged to form denticles; inner lip with three or four oblique abapical folds, and in the adult a parietal nodule at adapical end; pseudoumbilicus usually present.

Size: maximum height 50 mm to 113 mm

Range: Indo-West Pacific

Remarks: *Latirus* resembles *Hemipolygona* in having nodes on at least 2 spiral cords on the last whorl, and beaded lirae on the inner side of the outer lip. It differs consistently from *Hemipolygona* in having a distinct abapical and adapical sinus on the outer lip. In *Hemipolygona*, the lip is almost planar and the sinuses are either absent or extremely poorly developed.

Latirus differs from *Dentifusus* by the absence of a labral tooth, by usually having columellar folds, and consistently by having axial ribs on all whorls. As here restricted, *Latirus* is an essentially Indo-West Pacific genus.

The genus *Latirus* differs from *Crassibougia* by having 3-4 oblique abapical columellar folds, a usually thinner outer lip without a broad varix at the transition to the siphonal canal, a smaller protoconch and a shorter siphonal canal.

Bullockus is distinguished from *Latirus* by having shells with angulate whorls bearing distinct spiral cords and subovate apertures.

Polygona differs from *Latirus* in lacking nodes where axial ribs intersect spiral cords except at the shoulder angulation.

Leucozonia is similar in shell characters to *Latirus*. They have relatively thick, short-spired shells with a relatively short siphonal canal, and beaded lirae on the inner side of the outer lip. *Latirus* differs from typical *Leucozonia* by lacking a labral tooth, and from toothless species of *Leucozonia* by having a strongly convex instead of a planar outer lip. *Latirus* has a tendency to form an umbilical slit, a feature not seen in *Latirolagena* or *Leucozonia*.

Glaphyrina is very close to *Latirus.* The *Latirus* group seems separable as a subfamily, the radula having fewer cusps on the laterals and the operculum being roughly ovate, with only a small muscle impression.

Latirus abnormis G. B. Sowerby III, 1894

Synonyms: *Latirus imbricatus* G. B. Sowerby III, 1902

Description: *Testa elongato-fusiformis, crassa, utrinque acuminata, umbilicata, castanea; spira turrita, acuta, sutura irregularis; anfractus 6-7, leviter convexi, nodis conspicuis rotundatis armati; spiraliter sub-obsolete lirati; anfractus ultimus superne leviter concavus, obtuse bi-angulatus, ad angulum superum valde nodosus, ad angulum inferum nodis laevigatis munitus, inferne leviter concavus, in cauda breviuscula desinens; apertura oblonga; columella rectiuscula, albo-callosa, glabra, haud plicata; canalis latiusculus, mediocriter longus.*

(Shell elongate-fusiform, thick, pointed on both sides, umbilicated, chestnut; spire towered, sharp, suture irregular; 6-7 whorls, slightly convex, armed with visible rounded nodes; spirally sub-obsolete lyrae; the last whorl slightly concave above, obtusely bi-angled, at the upper corner very knotty, at the lower corner secured by smooth knots, slightly concave below, ending in a short canal; aperture oblong; columella straight, white-callous, glabrous, not folded; canal wide, moderately long.)

Size: length 57 mm, width 23 mm

Range: Natal, South Africa

Remarks: This species, though evidently a *Latirus*, shows no signs of the columellar folds supposed to be characteristic of that genus. In this respect, however, it does not stand alone, the same being observed with regard to *L. gibbulus* and *Viridifusus maximus* from the Cape de Verde Islands.

compare to *L. rufus* and *L. singularis*

Latirus acuminatus (Kiener, 1840)

Description: *T. testa fusiformi, utrinquè attenuatà, in medio subventricosà, fulvà aut rufà; anfractibus convexiusculis costis septem crassis, latis; basi caudà, sub-elongatâ; aperturà ovatâ; columellà triplicatà; labro tenui, simplici.*

(Shell fusiform, attenuated on both sides, subventrical in the middle, yellow or rufous; whorls convex with 7 thick, broad ribs; base channeled, sub-elongate; aperture ovate; columella triplicate; lip thin and simple.)

Shell elongated, fusiform, attenuated at its extremities, swollen in the middle; the spire is conical, very pointed, composed of 10 or 12 convex whorls and provided with 7 longitudinal ribs more projecting in their middle; these ribs sometimes continue from whorl to whorl; the last whorl is as long as the rest of the spire; the whole surface of the shell is adorned with a large number of transverse striae; the ribs are suddenly interrupted towards the middle of the length of the last whorl which is prolonged at the base in a straight channel, rather slender and presenting some large decurrent furrows. The aperture is oblong, elongated, narrow, white inside; the columella is straight, cylindrical, provided with 4 small folds: those in the middle are a little larger than the others; it is accompanied by a not very thick left edge, applied in all its extent; the straight edge is thin, arched in its length; the color of this shell is fawn or a dark reddish brown.

Size: 47.4 mm

Range: India, Philippines?

Remarks: An approximations to *Pustulatirus eppi* is *L. acuminatus* of which it can easily be differentiated by its small size, and other reasons.

Pustulatirus hemphilli bears considerable resemblance to *L. acuminatus*, but is more slender in outline, the concentric ribbing appears to be less evenly arranged and it possesses a well developed siphonal fasciole.

Latirus alboapicatus E. A. Smith, 1902

Description: *Testa fusiformis, rufescens, ad apicem alba, infra medium anfractus ultimi zona pallida cincta; spira elongata, subturrita, ad apicem papillata; anfractus 7 1/2, supremi duo laeves, rotundati, tertius costis longitudinalibus circiter 12 instructus, caeteri supra leviter concavi, declives, infra nodose costati, transversim spiraliter lirati, ultimus costis circiter 8 inferne evanescentibus instructus, infra medium contractus; apertura ovata, antice in canalem obliquum recurvum producta, intus rufescens; columella callo crassiusculo reflexo induta, prope labrum tuberculo parvo minuta.*

(Shell fusiform, reddish, white at the apex, surrounded by a pale zone below the middle of the last whorl; spire elongate, subtruncate, papillate at the apex; 7 1/2 whorls, the last 2 smooth, rounded, the third furnished with about 12 longitudinal ribs, the others slightly concave above, sloping, knotted ribs below, spirally twisted transversely, the last furnished with approximately 8 evanescent ribs, contracted below the middle; aperture oval, anteriorly

produced into an obliquely recurved canal, reddening within; columella with a thick reflexed callus, with a small tubercle near the lip.)

The white apex which contrasts very strikingly with the rest of the shell is bluntly mammillated and large for the size of the shell. The costae on the lower whorls are nodose and are not produced above to the suture, beneath which the whorls are a little concave. The reflexed columellar callus forms a slight umbilical fissure anteriorly.

Size: length 28 mm, width 12 mm; length of aperture with canal 14 mm, width of aperture 5 mm

Range: Durban, South Africa

Latirus amplustre (Dillwyn, 1817)

Description: Shell with dark blue, yellow, and white bands, and a transverse tuberculated keel near the margins of the whorls; beak short and straight, and the pillar three plaited. Shell prettily variegated with transverse stripes of different colours; the beak is short, straight, and obtuse; the inside is white, with the inner margin of the outer lip striped with blue.

Redescription: Shell thick, heavy, of moderate size for genus, of about 10 whorls, with short, rapidly expanding spire, undulant periphery, and body whorl tapered to short, broad siphonal process. Protoconch worn or absent on all shells examined, apparently of about 2 whorls. Teleoconch with about 7 low, wide whorls on spire, each whorl with peripheral cord near shallow suture, cord rendered undulant by about 7 low axial ribs; 2 -4 lesser spiral cords of various sizes on sutural ramp and between periphery and anterior suture; body whorl widest at periphery, more than half total shell length; large cord separating body whorl from base absent, junction of body whorl with base and short siphonal canal hardly discernible, whorl tapered to blunt anterior tip; large peripheral spiral cord rendered undulant by crossing broad ribs, followed by about 15 lesser cords of various sizes on anterior body whorl and siphonal process, some rather thin and other nearly as stout as peripheral cord. Aperture rather narrow, subtriangular; outer lip angled at periphery, somewhat sinuous anteriorly, inside edge marked with bars corresponding to stripes on outside of whorl; about 20 low, straight lirae emerging from within, not reaching lip edge; inner lip narrow, pariétal shield hardly developed, with emergent rib forming callus at posterior junction with outer lip, curving anteriorly to prominent entrance fold; columella with about 5 or 6 plicae of various strengths including entrance fold; siphonal canal canted left, with straight, smooth inner edge; pseudo-umbilicus absent. Exterior shell color dark brown, nearly black, spiral cords white, generally narrower than brown interspaces; interior white except for dark brown and white bars on upper inside edge of outer lip. Operculum reniform, dark brown to black, with anterior terminal nucléus and many concentric growth lines.

Size: to 78.7 mm; length about 56 mm, width 31 mm

Range: orig. NW America; Central Pacific

Remarks: *L. ornatus* can be distinguished from *L. amplustre* by its lighter-weight shell of smaller maximum size (55.3 vs. 78.7 mm si) and its possession of a prominent undulant cord between the body whorl and base, producing a subquadrate rather than subtriangular aperture. The harlequin pattern of *L. ornatus* may also distinguish the species from *L. amplustre*, whose stripes are almost always brown and white, but orange and yellow may fade on dead shells of *L. ornatus*, and the dark and light bands that persist may resemble those of *L. amplustre*.

External colors, markings, and general shapes of *L. poppei* and *L. amplustre* shells are so different that comparison of their figures seems all that is necessary to distinguish them.

Sculpture and colour pattern of *L. tigroides* resemble that of *L. amplustre*, but shape is much more fusiform.

For comparison with *L. vexillulum* see there.

Latirus andamanicus E. A. Smith, 1894

Description: *Testa fusiformis, albida, epidermide tenui pallide olivacea induta; anfractus 11, supremi tres (nucleus) albi politi convexi, caeteri convexiusculi, sed infra suturam leviter concavi, costis longitudinalibus circiter 8 (in anfractibus ult. et penult. plus minus obsoletis) instructi, liris tribus supra costas nodosis cincti, striisque filiformibus undique ornati, ultimus inferne longe et recte rostratus; apertura alba, cum rostro longit. totius 1/2 paulo superans; columella leviter arcuata, plicis duabus obliquis parum conspicuis instructa; canalis fere rectus, angustus, elongatus, ad extremitatem vix recurvus.*

(Shell fusiform, whitish, covered with a thin pale olive epidermis; 11 whorls, the last 3 (apex) polished white and convex, the rest convex, but slightly concave below the suture, with about 8 longitudinal ribs (in the ultimate and penultimate whorl more or less obsolete), surrounded by 3 knotted lyrae above the ribs, and decorated with filiform stripes on all sides, the last one far and rightly pointed below; the aperture is white, with a long siphonal canal slightly exceeding 1/2 of the total shell length; the columella is slightly arched, with two little oblique folds; canal almost straight, narrow, elongate, barely curved at the extremity.)

The longitudinal costae are more prominent upon the upper portion of the spire, and become almost obsolete upon the body-whorl. The outer lip is very thin in the shells examined, but it is likely to become somewhat thickened in more adult specimens, and probably would develop a few internal lirae.

Size: length 50 mm, width 12 mm; length of aperture with canal 27 mm, width of aperture 5.5 mm

Range: Andaman Isl.

Latirus anosyanus Bozzetti, 2018

Description: see page 376

Size: 28.39-44.18mm; holotype 38.52 x 18.25 mm

Range: SE Madagascar

Latirus barclayi (Reeve, 1847)

Synonyms: *Latirus polygonus barclayi* (Reeve, 1847)

Description: *Turb.testa fusiformi,anfractibus liris acutis subdistantibus spiraliter cingulatis, superne concavis, deinde ventricosis et longitudinaliter plicato-costatis, costis latissimis, ad angulum compresso-tuberculatis; aperturae fauce striata; alba, aurantio-rufo fasciata et saturatiore lineata.*

Shell fusiform, whorls spirally encircled with sharp rather distant ridges, concave round the upper part, then ventricose and longitudinally plicately ribbed, ribs very broad, compressly tubercled at the angle; interior of the aperture striated; white, banded with pale orange-red and lineated here and there with the same colour of a darker tint.

Size: 30-65 mm

Range: Mauritius

Remarks: It is a white shell, encircled with broad pale rufous-orange bands and interrupted reddish lines, ventricose in the middle, broadly tubercularly ribbed and sharply spirally ridged throughout.

For comparison with *L. philberti* see there.

Latirus belcheri (Reeve, 1847)

Description: *Turb. testa fusiformi, spira subturrita, anfractibus transversim subtiliter striatis, superne concavis, medio ventricosis, serie duplici tuberculorum, deinde serie unica nodulorum cinctis; aperturae fauce striata; alba, maculis flammisque nigris conspicue picta, epidermide lutea induta.*

Shell fusiform, spire somewhat turreted, whorls transversely finely striated, concave round the upper part, ventricose in the middle, encircled with a duplicate series of tubercles, then with a row of nodules; interior of the aperture striated; white, conspicuously painted with black flames and blotches, covered with a yellow epidermis.

Redescription: Shell of moderate size for genus, broadly fusiform, solid, with prominent, node-like ribs on spire, short, broad axial ribs on body whorl, and distinctive color pattern. Apices slightly or considerably wom on all shells; protoconch evidently small, of about 2 rapidly expanding whorls, with pointed tip. Teleoconch of about 6 rapidly expanding whorls; whorls of spire wider than long, with expansive, fiat sutural ramp and 7-8 broad, acute nodes that occupy anterior quarter of whorls and form periphery; body whorl with 7-8 broad axial ribs marked by pointed nodes at periphery and anteriorly at junction with base, peripheral nodes more prominent; anterior terminus of body whorl marked by low, undulant light-colored cord emergent from upper (posterior) end of aperture, resembling those on shells of some Leucozonia species; base and siphonal process short, broad; whorls and base covered with numerous fine spiral threads.

Aperture subquadrate; outer lip with strong posterior angle at periphery of body whorl and lesser angle at intersection with anterior undulant cord; interior of outer lip with about 11 straight, emergent lirae terminating before lip edge, posterior lirae entire, those in anterior half more often broken into dots and dashes; inner lip adhèrent, arcuate, marked by 3-4 prominent plicae near anterior end of columella and node-like prominence on pariétal wall at posterior sinus; siphonal canal short, rather straight, usually bordered at interior edge by pseudo-umbilicus, hardly developed except on largest shells.

First 3 whorls of apex pink on all shells; background color of teleoconch creamy white to yellowish orange; sutural ramps strongly marked by broad, axially aligned, slightly wavy brown to black bands, as many as 20 axial bands on ramp of body whorl; peripheral nodes and ribs crossed by 3 contiguous, narrow, uninterrupted bands, each ~1 mm wide: a posterior white band at periphery, another white band slightly anterior to it, and a dark brown band between them; ribs and intercostal spaces on body whorl marked with broad, irregular blotches generally correspondent to axial bands of sutural ramp; after interruption by anterior white or yellowish undulant spiral cord, blotches continue onto base where they are crossed by 2-3 narrow, white or yellow transverse spiral bands; interior of aperture white. Operculum blackish-brown, thick, ovo-elongate, rather narrow, with many fine, concentrically arcuate growth incréments radiating from sharply tapered anterior tip.

Size: 28.0-56.5 mm (average 39.2 mm); 49.7 mm

Range: orig. Cargados Garajos, Mauritius (doubtful); S Japan, N Marianas Isl., Philippines?

Remarks: The color pattern of irregular axial bands on the sutural ramp and brown and white spiral cords at the periphery is distinctive and séparâtes shells of this species from those of all congeners.

For comparison with *L. philberti* see there.

Latirus carpentariensis Hedley, 1912

Synonyms: according to WoRMS synonym to *Fusolatirus paetelianus* (Kobelt, 1874); *Latirus paetelianus var. carpentariensis* Hedley, 1912

Description: Shell slender, fusiform, canal long. Colour uniform ochraceous. Whorls 9, including a smooth 2-whorled protoconch. Ribs broadly undulating, alternate vertically, vanishing on base and towards the suture. Both ribs and interstices over-run by low spirals of which there are 10 on the penultimate and about 30 on the last whorl. Within the outer lip there are 12 revolving raised threads which fail to reach the edge.

Size: length 34 mm, breadth 14 mm

Range: Gulf of Carpentaria, N Australia

Remarks: From *Fusolatirus paetelianus* it appears to differ in colour and by having the same number of whorls in 3/4 the size.

Latirus castaneus (Gray, 1839)

Description: Shell ovate, fusiform, solid, red brown, closely spirally striated; spire nearly as long as the mouth; whorls rounded, slightly plaited, and subnodose behind. Mouth ovate; throat yellow, grooved; pillar lip yellow, with 3 moderate plaits in front.

Size: 38 mm

Range: Pacific Ocean

Remarks: This shell is somewhat like a small variety of *Peristernia crocea*, but the plaits on the pillar are larger, and the throat and lips are differently coloured.

An approximations to *Pustulatirus eppi* is *L. castaneus* of which it can easily be differentiated by its small size, and other reasons.

Latirus constrictus (Koch, 1845)

Description: *F. testa elongato-fusiformi, aurantio-fulva, concolore; anfr. valde convexis, superne marginatis, inferne constrictis; costis elevatis undatis superne evanescentibus, lineisque elevatis transversis squamulosis; cauda abrupta, crassiuscula, umbilicala: apertura orbiculari-ovata, canalem vix aequante; faucibus intus sulcatis.*

(Shell elongate-fusiform, orange-yellow, homochromatic; very convex whorls, margined above, constricted below; raised wavy ribs disappearing above, and raised transverse scaly lines; siphonal canal abrupt, thick, umbilicated; aperture orbicular-ovate, barely as long as the canal; grooved inside the aperture.)

Size: 35-60 mm; length 42 mm, width 20 mm

Range: Philippines

Remarks: There also appears to be some resemblance of *Fusolatirus elsiae* to *L. constrictus,* but this is reddish-brown in colour, with stronger spiral threads, and different proportions to *Fusolatirus elsiae*.

Fusolatirus formosior is very similar to *L. constrictus*, which, however, has a broader, more truncate siphonal rostrum, 9 or 10 ribs (instead of 6 or 7) and is reddish-brown in coloration.

Fusolatirus pearsoni has often been confused with *L. constrictus*, which is generally larger (up to 58.1 mm), has a shorter siphonal canal, weak or obsolete columellar folds, and an uniform orange to orange-brown coloration.

For comparison with *Fusolatirus bruijnii* see there.

compare to *Fusolatirus paetelianus*

Latirus deynzerorum Emerson & Sage, 1990

Description: Shell solid, fusiformly elongate, whorls angularly rounded, axially ribbed and crossed by conspicuous spiral lirae forming small prickle-like protusions medially on varices, siphonal canal narrowly elongated and recurved, outer lip thin, edge of labrum lirate.

Protoconch glossy, smooth, consisting of 1 1/2 embryonic whorls; postnuclear whorls 6 to 6 1/2 in number, with 8-9 widely spaced, rounded axial ribs, crossed by about 14 strong spiral cords on the body whorl posterior to the siphonal canal. Suture partially obscured by fluted axial riblets. Dorsal surface of siphonal canal with 2 prominent spiral ridges and numerous lesser intervening lirae. Aperture widely ovate, outer lip with weak lirations; columella smooth, with inner margin raised to form a thin detached edge anteriorly, extending to near the terminal end of the narrow, recurved siphonal canal; siphonal fasciole well-formed and strongly corded.

Protoconch light tan; base color of shell orange buff, early whorls of spire grayish brown, subsequent whorls with broken bands of brown forming prominent blotches; some specimens weakly blotched or entirely lacking blotches; fasciole stained dark brown above and within the groove; aperture pinkish white.

Size: 39.6 x 17.3 mm

Range: Philippines

Remarks: A medium-size latirid, ornamented with prickled varices.

Shell somewhat resembles *L. maculatus* from the Indo-Pacific. It differs from *L. maculatus* in having a larger, more angular shell, with a much longer and more recurved siphonal canal and by distinctive sculptural characters and color patterns.

Peristernia cremnochione, a smaller species attaining 24 mm in length, from Mauritius, more closely resembles *L. deynzerorum* in the outline and color pattern of the shell. *P. cremnochione*, however, lacks a siphonal fasciole, and has a short, straight siphonal canal, characteristic of *Peristernia*.

Latirus elegans A. Adams, 1855

Description: *L. testa fusiformi, albida, spira aperturam aequante; anfractibus convexiusculis, longitudinaliter plicatis, plicis validis, rotundis, transversim liratis, interstitiis clathratis; apertura ovali, columella triplicata, canali subproducto, labro intus sulcato.*

(Shell fusiform, whitish, spire as long as aperture; whorls convex, longitudinally plicated; folds strong, rounded, transversely lirate, interstices neatly clathrate; aperture oval, columella triplicated, canal somewhat produced, inner lip grooved.)

This is an elegant fusiform species, of a white colour, with rounded plicate whorls, neatly clathrate in the interstices.

Size: to 40 mm

Range: not given

Remarks: uncertain (use in recent literature not established)

Latirus fallax (Kobelt, 1874)

Description: *Testa ovato-turrita, basi in canalem brevem, subrecurvum terminata; anfractus octo sutura conspicua sejuncti, transversim plicato-costati, spiraliter distincte lirati, liris in anfractibus superioribus 3, in ultimo 7 numero, super costas magis conspicuis, interstitiis creberrime striatis; apertura parva, labro simplici, fauce lirato: columella arcuata, superne lamella dentiformi munita, inferne subquadriplicata. Fulvescente-fusca, interstitiis obscurioribus, non iridescens; apertura rufescente-albida.*

(Shell ovate-turreted, the base ending in a short, subcurved canal; the 8 whorls are separated by visible sutures, transversely folded-ribbed, spirally distinctly twisted, lirae in the upper whorls 3, in the last whorl 7; on the more visible ribs, the interstices are very thickly striated; aperture small, lirated; lip simple; columella arched, columella plate above with denticles, below with 4 weak plicae. Yellowish-brown, with darker interstices, not iridescent; aperture reddish-white.)

Size: 20-45 mm; length 45 mm, width 23 mm, length of aperture with canal 20 mm

Range: orig. not given; probably Polynesia

Remarks: The whorls of *L. fallax* are somewhat more curved, the suture is therefore clearer, the spiral lines are narrower and sharper, the aperture is more sharply ribbed inside and the spindle folds are more obliquely than in *Turrilatirus iris* [= *Peristernia prismatica*]. The coloring is quite different, intense brown-yellow, darker in the spaces between the transverse folds and partly also in those of the spiral ribs; the aperture is reddish-white, while in *T. iris* it is always liver-brown.

Latirus fenestratus (Anton, 1838)

Description: *Schale fususförmig, 8 absetzende Windungen, letzte Windung breit, oben eben, etwas grösser als die übrigen zusammen; Windungen quergefurcht mit grossen stumpfen in Längsrippen übergehenden Tuberkeln, über jede Tuberkel zwei schwache Querreifen herübergehend, die auch in den Zwischenfurchen fortgesetzt sind, auf der letzten Windung 8 Tuberkeln; weiss, Zwischenfurchen braun; Kanal kurz; Spindel 3 flache Falten; Mündung oval, weiss, gestreift; Nabel verschlossen.*

(Shell fusiform, 8 separate whorls, last whorl broad, flat above, somewhat larger than the rest together; whorls transversely furrowed with large blunt tubercles merging into longitudinal ribs, over each tubercle two weak transverse ribs, which are also continued in the intermediate furrows, 8 tubercles on the last whorl; white, intermediate furrows brown; canal short; spindle with 3 flat folds; aperture oval, white, striped; umbilicus closed.)

Size: length 51.9 mm, width 24.8 mm

Range: not given

Remarks: nomen dubium

Latirus filamentosus (Kobelt, 1874)

Description: *Testa turbinata, spira elongata, obtusiuscula, anfractibus 8 (?) plicato-nodatis, liris spiralibus parum elevatis cingulatis, stria unica elevata interveniente; apertura tertiam testae partem vix aequans, fauce interrupte lirato, columella quadriplicata. Fusco-lutea, interstitiis et cauda obscurioribus, liris striisque spiralibus castaneis.*

(Shell turbinate, spire elongate, obtuse, with 8 (?) fold-knotted whorls, girdled by slightly elevated spiral lirae, a single raised stria intervening; the aperture barely equaling 1/3 of the shell length, with interrupted lirae; columella with 4 folds. Brownish-yellow, with darker interstices and siphonal canal, chestnut lirae and spiral stripes.)

Variety: One specimen has the spiral ribs scarcely darker than the ground colour, another, on the other hand, is uniformly dark brown and, apart from the sculpture, resembles the shape entirely of *Leucozonia nassa* (= *Turbinella angularis var. riiseana*).

Size: length 40 mm, width 23 mm, length of aperture 21 mm

Range: St. Jan Isl. (St. John), West Indies

Remarks: The shell is quite different from that of *Polygona brevicaudata*, much clumsier, the constriction at the sutures much less, the spire less acute, the sculpture much less developed, the tubercles flatter and shorter, the spiral ribs flatter and less projecting on the tubercles mostly rubbed off. On the other hand the color is exactly the same, both have the darker siphonal canal, the chestnut-brown spiral ribs with fine brown lines in between.

compare with *Pustulatirus praestantior*

Latirus filmerae (G. B. Sowerby III, 1900)

Description: *Testa acuminata, solidiuscula, antice alba, postice fusca, spira pyramidalis, acutiuscula; anfractus 8, convexi, obtusissime angulati, costis paucis latiusculis vix elevatis instructi; sutura callosa; anfractus ultimus supra leviter concavus, in medio convexus, infra contractus, brevissime rostratus; apertura latiuscula, intus laevis; columella antice recurva, postice rectiuscula.*

(Shell pointed, solid, anteriorly white, posteriorly brown, spire pyramidal, acute; 8 whorls, convex, very obtusely angled, with a few wide ribs barely elevated; suture callous; the last whorl slightly concave above, convex in the middle, narrowed below, very shortly rostrated; aperture wide, inside smooth; columella anteriorly recurved, posteriorly straight.)

A shell of very striking aspect; the spire and upper half of the body-whorl being brown, the coloration terminating abruptly and evenly, leaving the lower half of the body-whorl pure white.

Size: length 33 mm, width 14 mm

Range: Pondoland, South Africa

Latirus gibbulus (Gmelin, 1791)

Synonyms: *Fusus filosus* Lamarck, 1816, *Fusus tapetepersicum* Röding, 1798, *Latirus aurantiacus* Montfort, 1810, *Murex aurantia* Perry, 1811, *Neptunea ecaudata* Link, 1807

Description: *M. testa turrita aurantia: spira obtusa; anfractibus distantibus longitudinaliter costatis transversim flexuose striatis, cauda brevi.*

(Shell turreted, orange; spire obtuse; whorls with distant longitudinal ribs, transversely flexuously striated, siphonal canal short.)

Size: 50-110 mm

Range: Indo-West Pacific

Remarks: In *L. gibbulus*, which seems to be the nearest ally to *Viridifusus maximus*, the plaits are only visible in the younger specimens.

Latirus granatus (Koch, 1845)

Description: *F. testa parva, elongato-fusiformi, albida, verrucis fusco-ferrugineis concatenatis per series transversas et longitudinales dispositis ornata; anfr. convexis, ultimo spiram aequante; apertura ovalo-oblonga, alba, labio intus quinquedentato; canali brevi, subrecurvo.*

Das Gehäuse hat nämlich überaus regelmässig gestellte, dunkel rothbraune Warzen oder Höcker auf weissem Grunde; dieselben entstehen, indem Querrippen und Längsrippen einander kreuzen und in den Durchschnittspunklen sich erheben , in den Zwischenräumen aber kaum hervortreten. Der Querrippen zählt man drei auf den obern Windungen, 9 bis 10 auf der letzten. Auf dieser sind die Warzen der vierten und fünften Querrippe kleiner, so dass eine Art helleren Bandes entsteht , was auf der Figur nicht deutlich ist. Die Windungen erscheinen ziemlich stark gewölbt, die letzte ist kaum so lang wie das Gewinde und endet mit einem kurzen, ziemlich dicken, etwas genabelten Schwanz. Die Mündung ist milchweiss, länglich eirund, etwas länger als der Kanal; die Aussenlippe hat innen 5 Zähne, und die Innenlippe am untern Theil ehe sie in den Kanal übergeht zwei Höckerchen, die leicht übersehen werden können.

(Shell small, elongate-fusiform, whitish, decorated with brownish-rusty knobs chained together in transverse and longitudinal series; whorls convex, finally equaling the spire; aperture oval-oblong, white, inner lip with 5 teeth; canal short, subcurved.

The shell has dark reddish-brown knobs on a white background that are extremely regular; they arise when transverse and longitudinal ribs cross one another and rise at the points of intersection, but scarcely stand out in the interstices. There are 3 transverse ribs on the upper whorls, 9-10 on the last whorl. On this, the knobs of the fourth and fifth transverse rib are smaller, resulting in a kind of lighter band. The whorls appear rather convex; the

last is scarcely as long as the spire, and terminates in a short, rather thick, somewhat umbilicated siphonal canal. The aperture is milky-white, oblong ovoid, somewhat longer than the canal; the outer lip has 5 teeth inside, and the inner lip has 2 protuberances at the lower part before merging into the canal, which can easily be overlooked.)

Size: length 10.2 mm, width 4.5 mm

Range: not given

Remarks: A delicate little species reminiscent of *Chauvetia lefebvrii* (= *Buccinum folineae)* in sculpture and coloration.

Latirus hesterae Melvill, 1811

Description: *L. testa fusiformi, paullum attenuata, solidula, late stramineo-ochracea, ad suturas et infra peripheriam ad basin ultimi anfractus castaneo brunnea, anfractibus 7-8, quorum apicales 1 1/2 laeves, nitidi, brunnei, caeteris apud suturas multum impressis, ventricosis, longitudinaliter crassicostatis, costis paucis, ultimum ad anfractum sex, spiraliter undique inaequiliratis, liris majoribus cum minoribus alternantibus, apertura ovata, intus pallide straminea, labro paullum incrassato et effuso, margine columellari obscurissime triplicata, canali lato, prolongato, recurvirostri.*

(Shell fusiform, slightly attenuated, solid, broadly straw-ochreous, chestnut brown at the sutures and below the periphery at the base of the last whorl, 7-8 whorls, the apical 1 1/2 of which are smooth, shiny, brown, the rest are much impressed at the sutures, ventricose, longitudinally thick, with a few ribs, 6 on the last whorl, spirally unequally lirated, larger and smaller lirae alternating, aperture ovate, inside pale straw, lip a little thickened and effused, columellar margin very darkly triplicated, canal wide, elongated, recurved.)

Size: length 24 mm, width 11 mm

Range: Mauritius

Remarks: uncertain

An elegant, brightly coloured species, nearly allied to *Peristernia melanorhynca*, but differing in its much more attenuate contour, and enhanced sutural impression, the whorls on that account shewing greater ventricosity. The ribs are more numerous too, 8 on the body whorl of *P. melanorhynca*, which is almost black tipped at the base, while in *L. hesterae* the coloration is a warm chestnut brown.

Peristernia moltenii is sometimes confused with *L. hesterae*, a species with a wide Indo-Pacific distribution; the differences between the 2 taxa are evident: compared to L. hesterae, *P. moltenii* has a less slender profile with less developed whorls, uniform pinkish-beige color against light brown with a dark band at the suture and on the siphonal canal, inside the aperture uniform purple vs whitish with brown bands reflecting the exterior design and a larger size, 31.6-37.6 mm vs 20-30 mm.

Latirus lignosus (Gmelin, 1791)

Description: *M. testa albida: spira obtusa; anfractibus subcoronatis tuberculis rugosis inaequalibus, cauda transversim striata.*

(Shell white, spire obtuse; whorls slightly coronated with uneven, wrinkled tubercles, siphonal canal transversely striated.)

Size: 38 mm

Range: not given

Latirus maculatus (Reeve, 1847)

Synonyms: *Latirus concinnus* Tapparone Canefri, 1881

Description: *Turb. testa fusiformi-turbinata, canali breviuscula, leviter recurva, anfractibus rotundatis, longitudinaliter costatis, striis elevatis undique creberrime cingulatis, apertura parva; albida, maculis rubidis irregulariter tincta et variegata.*

Shell fusiformly turbinated, canal rather short, slightly recurved, whorls rounded, longitudinally ribbed, very closely encircled throughout with raised striae, aperture small; whitish, irregularly stained and variegated with red blotches.

Size: 15-30 mm

Range: Indo-W-Pacific

Remarks: A rather solid shell, tessellated in a manner with dull red.

L. deynzerorum somewhat resembles *L. maculatus*. It differs from *L. maculatus* in having a larger, more angular shell, with a much longer and more recurved siphonal canal and by distinctive sculptural characters and color patterns.

Latirus mannophorus (Melvill, 1891)

Description: *P. testa subfusiformi, ochracea, anfractibus septem, angulatis, longitudinaliter regulariter costatis, costis transversim liratis, liris infra suturas duabus, ultimo anfractu tribus, nitide moniliformibus et albotuberculatis, apertura ovata, labro simplici, columella triplicata.*

(Shell subfusiform, ochreous; 7 whorls, angled, longitudinally regularly ribbed, ribs transversely lirate, 2 lirae below the sutures, 3 at the last whorl, neatly moniliform and tuberculate with white knobs; aperture ovate, lip simple, columella triplicate.)

Size: length 20 mm, width 8 mm

Range: Madagascar

Remarks: Though allied to *Peristernia hilaris*, this little shell is, in several particulars, quite different. The transverse lirae are not so close nor so deeply sulcated between, and the first lirae below the sutures are more irregularly beaded with necklace-like nodules, and the mouth is more ovate.

Latirus marrowi Lyons & Snyder, 2015

Description: Shells of moderate size for genus, broadly fusiform, with about 9 whorls bearing strong, sharply-angled axial ribs and prominent spiral cords; color pattern of contrasting dark brown patches and white lines. Protoconch of about 1.5 smooth whorls. Teleoconch with 8 or 9 broader than high axial ribs extending from suture to suture, generally aligned from whorl to whorl; ribs initially low on concave sutural ramp, then ascending abruptly to sharp points near anterior suture; ribs and interspaces crossed by 2 large primary spiral cords, one at periphery connecting points at apices of ribs, the other slightly weaker and located between peripheral cord and anterior suture; ramp and ribs also bearing 8 or 9 inconspicuous secondary cords; body whorl with sides slanted inward toward long axis between peripheral cords and additional undulant primary cord anteriorly at intersection with base; ribs diminishing in strength as base tapers rapidly to siphonal process; siphonal process rather short with straight sides, bluntly rounded at anterior tip, with dorsal surface crossed by large and small transverse cords. Aperture subquadrate, with narrow, sharply incised sinus at posterior end; outer lip thin, biangulate, with sinus-like channels at termini of anterior and posterior primary cords of body whorl; lip edge crenulated by termini of secondary cords of dorsum, sometimes rendered denticulate by extensions of secondary cords, inside edge marked with light and dark spots and bars created by termini of cords and interspaces of body whorl; inner surface of lip with about 20 emergent lirae increasing in strength anteriorly, posterior-most lirae thin, sometimes bifurcate; pariétal shield smooth, adhèrent, arcuate; columella smooth, marked only by 2 faint fold-like swellings near base; siphonal canal straight, smooth within; outer edge vaguely crenulated by termini of dorsal cords; inner edge produced by extension of pariétal shield, straight, elevated, lamellate, forming long, narrow pseudo-umbilicus that extends to anterior tip. Shell apex light tan or pink; teleoconch exterior white, less commonly yellow, with dark brown patches on axial ribs and extending to anterior tip; primary cords of spire, body whorl and base white, dividing ribs and base into sériés of dark brown patches; secondary cords also occasionally white, further interrupting continuity of brown patches; intercostal areas usually white, especially at whorl periphery; shell interior always pure white. Operculum typical of genus, black, drop-shaped, broadly rounded posteriorly, canted left and tapered to point at anterior terminal nucléus; outer face with numerous indistinct concentric growth incréments; inner face occupied by prominent attachment scar, bordered by thick callus on outer edge.

Size: to 81.5 mm

Range: NW to NE Australia

Remarks: Shells of *L. marrowi* do resemble those of *L. philberti* but differ by having a spire that is relatively taller, shifting the location of its body whorl doser to the anterior end of the shell; sides of the body whorl of *L. philberti* are nearly parallel, whereas those of *L. marrowi* are more reflexed inwardly toward the long axis anteriorly; the large cord separating the body whorl from the base is less undulant on *L. marrowi* than on *L. philberti*, and spiral lines

seldom cross the conspicuous dark markings on axial ribs of *L. marrowi*, and when they do occur they do not subdivide the dark areas into neat elongate rectangles as similar lines always do on *L. philberti*.

Western Australian shells do resemble those of *L. polygonus*. However, the body whorl of *L. polygonus*, like that of *L. philberti*, has nearly parallel sides, not sloping and compressed abapically toward the long axis as in *L. marrowi*. Unlike *L. marrowi* or *L. philberti*, the anterior cord that séparâtes the body whorl from the base of *L. polygonus* is reduced in strength and interrupted, not entire as on the other two species. The 2 large cords on spire whorls of *L. marrowi* tend to rest almost directly on the anterior suture, whereas corresponding cords of *L. polygonus* are separated from that suture by a greater amount of exposed rib. Likewise, sutural ramps on spire whorls of *L. marrowi* form a relatively tall, flattened collar that extends to the next posterior suture, whereas the ramp on corresponding whorls of *L. polygonus* are occupied by broad ribs that extend to the preceding suture.

Latirus maxwelli Pilsbry, 1939 †

Description: The shell is solid, openly umbilicate, fusiform, the spire tapering regularly, the periphery (viewed in front) being a little above the middle of the length. Anteriorly it is somewhat cylindric and terminates bluntly, with a prominent, rounded siphonal fasciole around the deep umbilicus. Sculpture of moderately prominent axial folds (nearly 9 on each whorl), weak near the suture and vanishing at the basal contraction of the last whorl. Over all a sharply developed sculpture of strong spiral cords alternating with threads except in the subsutural zone, where the cords are smaller and subequal. On the cylindroid anterior part there are about four somewhat larger cords with interstitial threads. The racquet-shaped aperture is strongly lirate within, the lirae about 12, arranged in pairs, the lower pair short, hardly entering. There is a strong ridge on the parietal wall near the posterior angle of aperture, and four columellar folds, the lowest one short, not entering.

Size: length 64 mm, width 27.3 mm, length of aperture 33.5 mm

Range: Florida, Caloosahatchee, early Pliocene

Remarks: It is most nearly related to the recent *Hemipolygona carinifera* and *Hemipolygona mcgintyi*, but differs conspicuously by the profuse development of spiral sculpture and the weaker axial folds.

Latirus meli Bozzetti, 2014

Description: *Specie dalla conchiglia di piccole dimensioneper il sottogenere di appartenenza, fusiforme, slanciata, spira alta dal profilo diritto, protoconca erosa non analizzabile, teleoconca formata da 6-7 giri convessi, sutura incisa, rampa suturale concava, limitata al terzo superiore del giro. Scultura assiale costituita da 6 ampi e prominenti tuberculi per giro, verticalmente allungati, maggiormente sviluppati alla spalla, estesi fino alla base sull'ultimo giro, presenti fitte e sottili strie di crescita, piu evidenti sulla rampa suturale. Scultura spirale costituita da 13-15 corde sui giri di teleoconca e 10-11 sul canale sifonale, una corda piu sviluppata alla base separa l'ultimo giro dal canale sifonale. Apertura ellittica, internamente lirata sul lato labiale, labbro esterno convesso, espanso alla spalla, con bordo lievemente denticolato ed affilato, labbro interno concavo, percorso da 3 deboli pliche all'estremita basale, con callosita che prosegue, come lieve inductura sul canale sifonale. Seno posteriore moderatamente sviluppato, a forma di "V" rovesciata, delimitato sul lato columellare da una plica spirale che percorre internamente la fauce. Canale sifonale corto, aperto, diritto, lievemente piegato a sinistra, incavato alla base, ombelico appena accenato. Colore marrone scuro, leggermente piu chiaro sui tuberculi. Peristoma e interno della fauce viola scuro. Operculo corneo di colore bruno, a forma di artiglio, moderatamente ritorto, con nucleo terminale.*

(Shell size small for the subgenus, fusiform, slender; spire high with a straight profile, protoconch eroded, teleoconch formed by 6-7 convex whorls, incised suture, concave sutural ramp, limited to the upper third of the whorl. Axial sculpture consisting of 6 large and prominent tubercles per whorl, vertically elongated, more developed at the shoulder, extended to the base on the last whorl, dense and thin growth streaks are present, more evident on the sutural ramp. Spiral sculpture made up of 13-15 striae on the teleoconch whorls and 10-11 on the siphonal canal, a more developed striae at the base separates the last whorl from the siphonal canal. Aperture elliptical, internally slanted on the labial side, external lip convex, expanded at the shoulder, with slightly denticulate and sharp edge, internal lip concave, crossed by 3 weak folds at the basal end, with callus that continues, as a slight induction, on the siphonal canal. Posterior sinus moderately developed, in the shape of an inverted "V", delimited on the columellar side by a spiral fold that runs internally through the aperture. Siphonal canal short, open, straight, slightly bent to the left, hollow at the base, navel just outlined. Color dark brown, slightly paler on the tubercles. Peristome and aperture interior dark purple. Horny operculum brown, claw-shaped, moderately twisted, with terminal nucleus.)

Size: up to 29 mm; 24.5 x 9.1 mm

Range: SW Madagascar

Remarks: *L. meli* differs from *Benimakia lanceolata* for the less slender profile, stronger spiral sculpture, less developed siphonal canal in relation to the shell height, darker and less contrasted color and for the smaller dimensions, 23.2-29 mm versus 30-60 mm.

L. meli is distinguished from *Nodolatirus nodatus* by the less slender profile, less pronounced tubercles, stronger spiral sculpture, siphonal canal less developed in relation to the shell height, absence of strong spiral folds on the siphonal canal, darker color and smaller size, 23.2-29 mm versus 35-100 mm.

L. meli is distinguished from *Fractolatirus normalis* by the more developed and less axially elongated tubercles, the siphonal canal longer in relation to the shell height and with a clearer separation from the base, external coloration more or less uniform dark brown against light beige with dense darker spiral lines and for the internal coloration, dark purple versus whitish / light beige.

Latirus minutisquamosus (Reeve, 1848)

Description: *Fus. testa subelongato-fusiformi, canali breviuscula, anfractibus rotundis, longitudinaliter rude plicato-costatis, spiraliter subtiliter crebriliratis, liris undique minute squamatis; fuscescente-alba.*

Shell somewhat elongately fusiform, canal rather short, whorls round, longitudinally rudely plicately ribbed, spirally finely ridged, ridges minutely scaled throughout; brownish white.

Size: upto 18.75 mm

Range: not given

Remarks: The sculpture of this species is truly exquisite, the entire surface being elaborately carved with rows of minute scales.

Latirus modestus (Philippi, 1844)

Description: *F. testa fusiformi, fulva, concolore, striis elevatis, transversis, regularibus, costisque undulatis sculpta; anfractibus ad suturam depressis; cauda recta, crassa, umbilicata.*

(Shell fusiform, yellow, unicolored, with raised, transverse and regular striae, and wavy ribs (10 per whorl); whorls (8-9) at the suture depressed; siphonal canal straight, thick, umbilicated.)

Size: length 47 mm, width 21.8 mm

Range: Pacific Mexico to Panama

Latirus nassoides (Reeve, 1847)

Description: *Turb. testa subfusiformi-ovata, anfractibus rotundatis longitudinaliter conspicue costatis, liris subtilibus creberrime funiculatis; rufescente-fusca, zonula alba medio cingulata, apice rosacea, columella pallide rosacea.*

Shell somewhat fusiformly-ovate, whorls rounded, longitudinally conspicuously ribbed, very closely corded throughout with fine ridges; light reddish brown, encircled round the middle with a white zone, apex pink, columella pale pink.

Size: 20-40 mm

Range: Philippines, S India, Sri Lanka

Remarks: compare with *L. anosyanus*, *Fusolatirus pagodaeformis* and *Peristernia pulchella*

Latirus niger Odhner, 1917

Description: Shell turreted, of a dark brown colour, with a deep-violet aperture; canal produced (more than half the aperture in length). Sculpture of about 8 very broad and sliglitly elevated longitudinal swellings, crossed by coarse spiral cords (4 on the penultimate whorl); the second one below the suture feebler than the rest; a much fainter interjacent thread in each interstice; about 15 cords on the last whorl, to the base of the canal, and some additional ones on its back. The interstices densely strigated longitudinally. Canal half-closed. Columella with 3 plications. Outer lip inwardly with 7 distant riblets and beneath them 3 narrower ones.

Size: height 15 mm, width 5.3 mm, length of aperture 4.5 mm without, and 7 mm with the canal

Range: Australia

Latirus ornatus Lyons & Snyder, 2015

Description: Shell small for genus, approximately twice as long as wide, with about 8 whorls ornamented with bands of up to 5 colors. Protoconch of adult shells invariably eroded, of about 2 whorls tapering to pointed tip. Teleoconch about 6 whorls, each wider than high; spire rather slender, initially with straight sides; beginning at about whorl 3, sutural ramp become somewhat concave and anterior parts of whorls become swollen by about 9 or 10 low, undulant, node-like axial ribs that abut anterior suture; spiral sculpture of 2 or 3 low cords on ramp, followed anteriorly by larger peripheral cord and another between periphery and anterior suture; body whorl much wider than spire, with about 5 low cords on ramp, each separated from the next by single threads; large undulant cord at periphery, followed by an adjacent large cord, a band of 4 smaller cords with faint threads in interspaces, and a prominent undulant cord at junction with base; dorsum of base bearing 2-4 cords and threads of various sizes; tapering rapidly to short, stout siphonal process with truncated tip; dorsum of siphon with 4 or 5 large and small oblique, transverse cords. Aperture subquadrate, with narrow posterior sinus at junction with pariétal shield; outer lip biangulate, with sinus-like projections at termini of large cords of body whorl, lip edge crenulated by termini of small cords that sometimes project beyond edge as denticles; inside of lip bearing 10-14 thin lirae; lirae usually intact posteriorly but sometimes interrupted near junction with siphon; pariétal shield concave, with small node adjacent to posterior sinus; columella with 4 low, rounded anterior folds, occasionally with a fifth fold posterior to others; basal fold at junction with siphon sometimes obscure; siphonal canal short, straight, smooth within, with outer edge crenulated by cords of dorsum; inner edge smooth, formed by extension of pariétal shield, folded axially to partially cover chink-like pseudo- umbilicus. Shell apex pink; teleoconch with spiral bands of brown, black, orange, yellow and white; largest cords usually white; smaller cords on ramp, body whorl, base and siphon white, orange or yellow; cord interspaces and threads usually dark brown or black, sometimes interrupted with white spots; interior white except where cords terminate at edge of outer lip. Operculum black, drop-shaped, filling aperture, broadly rounded posteriorly, canted toward axis and tapered to anterior nucléus; outer face bearing numerous concentric growth incréments; inner face with attachment scar containing raised concentric ridges; scar bordered by thick callus most developed on outer edge.

Size: to 55.3 x 27.5 mm

Range: Queensland, Australia; Papua-New Guinea

Remarks: *L. ornatus* differs from *L. pictus* by its more slender spire with convex sides and prominent white peripheral cords. Yellow cords with dark brown interspaces of *L. pictus* are crossed by white axial lines that subdivide the sutural ramp, body whorl and base into rectangles of unequal size, whereas shell markings on *L. ornatus* consist principally of spiral bands of various sizes and colors. The basal entrance fold is usually the smallest of 4 or 5 columellar folds on *L. ornatus*, rather than the largest as in *L. pictus*, and 1 or 2 fold-like swellings may occur along the inner lip of the siphon of large specimens of *L. pictus*, a feature so far unique among western Pacific *Peristerniinae*.

L. ornatus can be distinguished from *L. amplustre* by its lighter-weight shell of smaller maximum size (55.3 vs. 78.7 mm si) and its possession of a prominent undulant cord between the body whorl and base, producing a subquadrate rather than subtriangular aperture. The harlequin pattern of *L. ornatus* may also distinguish the species from *L. amplustre*, whose stripes are almost always brown and white, but orange and yellow may fade on dead shells of *L. ornatus*, and the dark and light bands that persist may resemble those of *L. amplustre*.

Latirus philberti (Récluz, 1844)

Synonyms: *Turbinella candelabrum* Reeve, 1847

Description: *Testa fusiformi, rufo-fusca, longitudinaliter latè et obtuse novem costata, lineis elevatis albis, aequidistantibus cincta; anfractibus octonis, supra compresso-planis declivis et in medio carinis albis alternatim tuberculalis; infimo ventricoso bicarinato; spira conica, obtusata; cauda cingulata, cingulis 2-3 majoribus; columella obsolète biplicata, basi umbilicata; labro bicarinato, crenulis castaneis notato.*

(Shell fusiform, rufous-brown, 9 longitudinal wide and obtuse ribs, surrounded with equidistant raised white lines; 6 whorls, above compressed-flat sloping and in the middle a white keel alternately tubercular; below ventricose bicarinate; spire conical, obtuse; siphonal canal girdled, with 2-3 larger cords; columella obsoletely bifolded, base umbilicated; lip bicarinated, marked with chestnut crests.)

Redescription: Shell large for genus, solid, whorls subtabulate, strongly compressed at suture and bearing prominent axial ribs and spiral cords, 2 cords at periphery and single cord at base much larger than others; markings dominated by many wider-than-long brown rectangles on white and/or yellowish or orange background. Protoconch rather tall, of about 2 smooth whorls, terminating abruptly. Teleconch of about 8 whorls, each with a rather fiat sutural ramp and broadly rounded axial ribs; suture appressed, undulating in coneert with axial ribs and intercostal areas; whorls of spire with 8-9 ribs crossed by smooth spiral cords as follows: 2-3 small cords on sutural ramp of early whorls, increasing by intercalation to about 7 cords on ramp of body whorl; ribs elevated, node-like, reduced to broadly triangular points at periphery, which is marked by single strong spiral cord, bordered anteriorly by single smaller cord, followed by another large cord, then by 0-4 smaller cords in space between large cord and anterior suture; body whorl subquadrate, strongly shouldered, with 2 strong cords at periphery and single, markedly undulant cord at anterior end, and with as many as 10 axial ribs; ribs weaker on sutural ramp, stronger and separated by rather deep intercostal spaces between peripheral and anterior undulant cords; 5-6 smaller cords Crossing tops of ribs between larger cords; base contracting quickly, crossed by about 6 cords of various sizes; siphonal process rather long, with straight sides and transversely tapered tip, surface bearing about 12 transverse cords of various sizes, 3 or 4 usually more prominent than others.

Aperture subquadrate, with narrow posterior sinus; outer lip strongly angled at junctions with peripheral and undulant cords, lip edge nearly straight between angles, edge crenulated by termini of smaller cords and interspaces of body whorl, with deeper, wider sinuses at angles; inside of outer lip with as many as 20 thin, straight, uninterrupted emergent lirae that terminate before lip edge; inner lip straight and adhèrent anteriorly, arcuate and sometimes detached posteriorly on larger shells, with low swelling on pariétal wall at posterior sinus and 1 or 2 low, oblique, nearly obsolète plicae near anterior end of columella; siphonal canal rather long, narrow, with straight edges, elevated inner edge adjacent to prominent elongate pseudo-umbilicus. Protoconch and first 1-2 whorls of teleoconch pink in fresh material, fading to white in older shells; spire and body whorl white, overlain by broad streaks of rich brown, which is dominant color on ramp, axial ribs, base and siphonal process; brown areas crossed by small white, orange, or lighter brown spiral cords, dividing larger areas into smaller, wider-than-long, spirally aligned brown rectangles; largest (peripheral and undulant) cords usually bright white but occasionally orange or yellow; intercostal areas usually with prominent patches of white; edge of outer lip and outer edge of siphonal canal with many dark brown spots, often paired, and sometimes extended beyond plane of lip as denticles, representing extensions of grooves between smaller spiral cords of body whorl; interior of pseudo-umbilicus dark brown, nearly black at tip; shell interior entirely white. A few shells almost entirely yellow-orange outside, white within. Operculum black, thick, solid, elongate, distally rounded, tapering and curving toward anterior tip with terminal nucléus; outer surface bearing many incised concentric growth incréments. Periostracum transparent, tan, smooth, very thin.

Size: to about 108.3 mm; length 56 mm

Range: W Pacific Océan

Remarks: The combination of spire whorls deeply compressed at sutures, the pattern of multiple, widely elongate rectangular brown markings, the prominently undulant anterior cord on the body whorl, and the relatively long, narrow, straight-sided siphonal process distinguish shells of *L. philberti* from those of all its nearest congeners, which include *L. barclayi, L. belcheri, L. pictus* and *L. polygonus*. The largest known specimen of *L. belcheri* is 56.5 mm. *L. philberti* attains about 108.3 mm and is exceeded in size only by *L. barclayi* (111.4 mm) and *L. polygonus* (117.6 mm).

An orange and white shell, with relatively subdued spiral cords and with few or no brown markings distinguish *L. barclayi* from *L. philberti*.

Shells of *L. polygonus* have less constricted spire whorls and less elevated axial ribs crossed by generally weaker spiral cords; apices of the ribs are usually rounded, seldom acute, and never produced as blunt, triangular peripheral spines; the siphonal process of *L. polygonus* is relatively shorter and wider, and the anterior cord on the body whorl may be undulant, as on *L. philberti*, but it is seldom as well developed and generally has fewer ondulations, a conséquence of fewer axial ribs on the body whorl. Western Pacific shells of *L. polygonus* are usually yellow, with a few relatively narrow, irregular brown streaks on the sutural ramp continuing onto the axial ribs, and with more prominent brown patches on ribs of the body whorl; the widely rectangular brown markings on the sutural ramp and ribs of *L. philberti* are absent or represented only by a few brown spots on *L. polygonus*. Denticles on the outer lip of *L. philberti* are blackish brown and the color is visible inside the aperture, whereas the aperture of *L. polygonus* has an orange-brown margin and the denticles are of the same color.

For comparison with *L. marrowi* and *Peristernia incerta* see there.

Latirus philippinensis Snyder, 2003

Description: Shell medium size for genus, fusiform, thin and elongate. Siphonal canal long, recurved. Smooth whitish protoconch, paucispiral of 1 1/4 whorls, teleoconch 9 whorls. Axial sculpture of teleoconch with prominent rounded ribs, 10 on body whorl, decreasing in number toward apex. Six spiral cords on first five whorls of teleoconch. On sixth whorl five additional weak cords between six strong cords, sixteen on penultimate whorl and numerous cords on body whorl continuing up full length of siphonal canal. Axial lines crossing cords cut surface into small squares. Suture slightly depressed. 3 strong folds on columella, one more prominent than others. Aperture narrow and long, parietal shield glossy, overlaying body of shell, attached lip thin, weakly dentate, shiny within. Shell white with apical portion of early whorls brownish with additional central brown color band on body whorl, stripe visible inside lip on labral margin.

Size: 45 mm to 55 mm

Range: Balut Isl., Philippines

Remarks: *L. philippinensis* is similar in size and shape to *Benimakia lanceolata* from the tropical Indo-Pacific but *B. lanceolata* has fewer axial ribs, a purple aperture and a straight canal.

It somewhat resembles *Fusolatirus elsiae* from South Africa but that species is not so elongate and is colored with axial brown streaks along the ribs rather than brown spiral bands.

L. philippinensis is similar in shape to *Granulifusus discrepans* from Japan, and occasionally collected in tangle nets in the Philippine Islands, but *P. discrepans* grows much longer (to 87.5 mm), has very faint brown color bands, less prominent axial ribs on later whorls, and a straight canal.

L. philippinensis may be compared to *Crassibougia clausicaudata* from South Africa, but this latter species lacks the prominent brown color bands, has a very small aperture with a peculiar thickened lip, and has a long, straight almost closed siphonal canal.

Latirus pictus (Reeve, 1847)

Description: *Turb. testa, ovato-fusiformi, medio ventricosa, anfractibus transversim sulcatis, longitudinaliter obtuse plicato-costatis, superne concavis, deinde tuberculis compressis, quorum supremis majoribus cingulatis; aperturae fauce striata; alba, maculis numerosis nigricante-fuscis, lineisque transversis coccineis et luteis pulcherrime picta, columella fusco-rosacea.*

Shell ovately fusiform, ventricose in the middle, whorls transversely grooved, longitudinally obtusely plicately ribbed, concave round the upper part, then encircled with rows of compressed tubercles of which the uppermost are the largest; interior of the aperture striated; white, with numerous blackish-brown spots, very beautifully painted with scarlet tinged and yellow lines, columella brownish-pink.

Redescription: Shell rather stout, small for genus with broad spire and about 8 flat-sided whorls bearing low, broad axial ribs and low spiral cords. Protoconch eroded on all shells examined, evidently of about 2 smooth whorls tapering to sharp tip. Teleoconch of about 6 whorls separated from each other by shallow, nearly indistinguishable suture; whorls of spire much wider than high, with straight sides and sparse, thin spiral cords separated by single fine threads on sutural ramp; peripheral cord much stronger than others, abutting suture anteriorly; sutural ramp of body whorl shallowly concave, with 6 spiral cords of varying strengths, each separated from others by 1 or 2 threads; peripheral cord wide, elevated, undulant, separated into 11 or 12 nodes by broad axial ribs which extend to base; space anterior to peripheral cord with 3 or 4 smaller cords separated from base by another large undulant cord; about 3 spiral cords on base and 5 transverse cords on short, wide siphonal process. Aperture subquadrate, outer lip broadly angled at junction with termini of 2 large cords of body whorl; inside of outer lip with thin, emergent lirae generally correspondent to cords and interspaces of external surface, inside edge marked with light and dark spots and bars created by termini of cords and interspaces; lirae usually entire but sometimes interrupted; inner lip narrow, adhèrent, with prominent node-like posterior callus at terminus of large external cord; columella bearing 4 or 5 well-formed plicae including entrance fold; siphonal canal short, wide, with straight inner edge bordering chink-like pseudo-umbilicus, outer edge weakly crenulated by termini of external cords. Shell exterior with largest cords white; irregular axial streaks extending length of shell also white; smaller cords on ramp and body whorl yellow, interspaces between cords brown, presenting appearance of wide brown rectangles bordered top and bottom with yellow and on both sides by white; shell interior peach, light pink or white. Operculum reniform, dark brown, with terminal nucléus and numerous concentric growth lines.

Size: to 49.8 mm

Range: Fiji Isl.

Remarks: *L. ornatus* differs from *L. pictus* by its more slender spire with convex sides and prominent white peripheral cords. Yellow cords with dark brown interspaces of *L. pictus* are crossed by white axial lines that subdivide the sutural ramp, body whorl and base into rectangles of unequal size, whereas shell markings on *L. ornatus* consist principally of spiral bands of various sizes and colors. The basal entrance fold is usually the smallest of 4 or 5 columellar folds on *L. ornatus*, rather than the largest as in *L. pictus*, and 1 or 2 fold-like swellings may occur along the inner lip of the siphon of large specimens of *L. pictus*, a feature so far unique among western Pacific *Peristerniinae*.

For comparison with *L. philberti* and *L. poppei* see there.

Latirus polygonus (Gmelin, 1791)

Description: *M. testa subventricosa undulatim tuberculata striata sulcataque obtuse multangula atra: apertura ovali, cauda brevi.*

(Shell subventricose wavy, tuberculate, striated and furrowed, obtusely multi-angled, black: aperture oval, siphonal canal short.)

Redescription: High spired shell, up to 7 cm, with angular nodules on spiral ridges; lip with fine teeth and ridges. Colour cream to pale with darker markings, or dark brown. Interior white.

Size: 87.5 mm

Range: Indian Ocean, Philippines

Remarks: *L. polygonus* has a thick shell and no umbilicus in comparison with *L. stenomphalus*.

L. tigroides has previously been confused with *L. polygonus*. It differs from *L. polygonus* in its non-biangulate body whorl, practically obsolete sculpture and almost continuous black spiral bands.

L. vischii differs from *L. polygonus* due to the more slender spire, the more developed siphonal canal, height/width 2.35 against 2.04, smaller dimensions, average height 62 mm against 75 mm, less developed axial sculpture, the darker and more uniform colour; in *L. vischii* the dark spots/spiral bands are absent, but always present with variable intensity in *L. polygonus*.

For comparison with *L. marrowi* and *L. philberti* see there.

Polygona concentrica is perfectly distinct from *L. polygonus*, though similar in general aspect; the canal is shorter, the ridges, with which it is forcibly corded throughout, are equal, more distant from each other, and more elevated in the interstices between the ribs, which are closer. The shell has, moreover, a transparent orange-red hue, which is somewhat characteristic.

The coloring of *Hemipolygona amaliae* is reminiscent of some forms of *L. polygonus*.

Latirus poppei Lyons & Snyder, 2015

Description: Shell small for genus, with broad spire, about 8 whorls bearing node-like axial ribs and low, broad spiral cords. Protoconch of adults invariably eroded, evidently of about 2 smooth whorls tapering to sharp tip. Teleoconch of about 6 whorls, each much wider than high, with concave sutural ranrp and 8 or 9 prominent, node-like ribs abutting anterior suture; ramp of spire whorls crossed by 5 or 6 low, broad spiral cords of various sizes, cords separated from each other by narrow incisions or grooves; peripheral cord atop ribs and 2 cords between periphery and next suture most prominent; peripheral cord often shaping nodes to blunt points; body whorl nearly as long as spire, ornamented like spire whorls but with about 8 cords on ramp, large cord at periphery and another just anterior, followed by 3 or 4 smaller cords and then by a band of prominent nodes at intersection with base; base tapered to very short siphonal process; base and siphon bearing transverse cords with narrow interspaces and 2 larger cords adjacent to blunt tip. Aperture subquadrate, with narrow posterior sinus at intersection with pariétal wall; outer lip biangulate, crenulated by termini of smaller cords from dorsum of body whorl, with more prominent, sinus-like corners at termini of larger cords; inside of outer lip with about 14 to 18 fine ribs posteriorly, becoming interrupted as dashes or pustules near junction with siphon; pariétal shield adhèrent, concave, with prominent node adjacent to posterior sinus; columella with 4 prominent folds; basal fold oblique, others nearly perpendicular to axis of columella; siphon short, straight, smooth within; outer edge crenulated by termini of cords from dorsum; inner lip formed by extension of pariétal shield, lip folded axially to completely or partially cover

pseudo-umbilicus. Shell apex pink; nodular ribs, large cords, tip of siphon and shell interior white; sutural ramps, band of low cords on body whorl, base, and interspaces between nodes orange or dark yellow; white areas on dorsum of some shells replaced by orange; grooves (incisions) between spiral cords dark brown, usually appearing as interrupted lines but intact on some shells. Operculum black, drop-shaped, broadly rounded posteriorly and tapered anteriorly to terminal nucléus; outer surface bearing many close- packed growth incréments; inner surface with prominent attachment scar bearing evenly spaced concentric incréments; scar surrounded by smooth callus, especially thick on outer edge.

Size: to 48.1 x 28.4 mm

Range: Philippines, Japan, Vietnam, Thailand

Remarks: *L. poppei* differs from *L. pictus* by its larger, rounder peripheral nodes, its less undulant peripheral cords, and by having the principal colors orange and yellow rather than brown or black on the spire, body whorl and base; orange, yellow, and occasionally white cords of *L. poppei* are separated from each other by narrow dark brown grooves, a feature absent in *L. pictus*.

External colors, markings, and general shapes of *L. poppei* and *L. amplustre* shells are so different that comparison of their figures seems all that is necessary to distinguish them.

Shells of *Turrilatirus lautus* are much smaller than *L. poppei* (maximum about 23 mm), bulloid in shape, and have nearly straight sides, a shallow suture, and prominent spiral cords separated by distinct grooves; the cords and background color are orange and white or sometimes red and the grooves are brown.

Latirus pulleini Verco, 1895

Description: Shell elongately-fusiform, moderately thick. Whorls 8; nucleus absent from all the specimens (8). Spire elongated, whorls regularly convex, with spiral lirae (on the penultimate 6 primary, and 4 smaller intermediate in the anterior part), acute, about 1/3 as wide as the interspaces, crossing over inconspicuous longitudinal rounded costellae (15 on penultimate whorl), as wide as the intervals. Sublenticular longitudinal incremental striae not crossing the lirae. Suture distinct, slightly marginate. Last whorl regularly convex, with about 22 acute spiral lirae, and 8 interstitial striae gradually becoming stouter anteriorly until they are as valid as the lirae; obsolete longitudinal curved costellae above the periphery, becoming gradually less conspicuous until they disappear, remaining longest close to the suture; near the aperture in a large example they reappear.

Aperture obliquely-elongately-oval, descending into the canal, pinched into a tiny furrow posteriorly by the marginate suture. Outer lip simple, slightly sinuous, thin, finely crenated, obsoletely lirate internally. Columella subarcuate, subconvex at the beginning of the canal; only a trace of callus, except anterior to the varix of the notch where it is subconcavely reflected, and forms a minute rimate umbilicus. The spiral lirae are almost quite obliterated at the inner lip, and 3 subraised thread-like plicae are visible deeper in the throat, equal and equidistant, and with the same obliquity as the spiral lirae, the highest at the centre of the aperture; sometimes a fourth exists close below them. Canal nearly as long as the aperture, subconcave lengthwise along its left border, in the same sinistral oblique line as the aperture, wide, open, scarcely notched. Ornament, curved longitudinal rust-brown streaks on the summit of the costae, sometimes broken into dots on the spiral lirae; at irregular distances on the body-whorl, and slightly sigmoid; crowded into a rusty area on the varix of the notch.

Size: length 51.5 mm, width 19.5 mm; length of aperture 15.5 mm, width 6.5 mm; length of canal 11 mm

Range: W Australia

Remarks: *L. walkeri,* also from W Australia, approaches it, but that shell is smaller, length 25 mm, more solid, costae about half as numerous and more valid, suture not marginate, aperture with a distinct continuous inner lip, a thick everted or bevelled outer lip, and a more abrupt origin of the canal from the aperture.

Latirus purpuroides (Lesson, 1842)

Description: *Coquille à faciès de pourpre ricinule, mais sa columelle porte trois varices distinctes et transversales. Elle est ovalaire-ventrue, à spire conique, aiguë, a tours à peine distincts, couverts de grosses côtes obliques, espacées, séparées par des sillons creux et traversés par deux ligues régulières transversales, ayant d'espace en espace des côtes plus saillantes formant des éminences sur les grosses côtes. L'ouverture est étroite, allongée, à bord droit mince, épaissi et renflé en dedans et garni de six dents saillantes. La columelle est élargie et décollée du bord de la fente ombilicale. La coquille est grisâtre en dehors, blanc mat dans la bouche. Le canal est contourné.*

(Shell with *Ricinula (= Drupa)*-like purple facies, but its columella bears 3 distinct and transverse varicose varices. It is oval-bellied, with a conical spire, acute, with barely distinct whorls, covered with large oblique ribs, spaced apart, separated by hollow furrows and crossed by 2 regular transverse lines, having from space to space more projecting ribs forming eminences on the large ribs. The aperture is narrow, elongated, with a thin straight edge, thickened and swollen within, with 6 projecting teeth. The columella is enlarged and detached from the edge of the umbilical slot. The shell is greyish outside, dull white in the aperture. The canal is sinuous.)

Size: “South Sea”

Range: Gambier Isl., French Polynesia

Latirus rhodostoma (A. Adams, 1855)

Description: *R. testa fusiformi-turrita, umbilicata, spira acuminata, rutila, albo-fasciata, anfractibus convexiusculis, longitudinaliter plicatis, transversim liratis, liris squamulis asperulatis, suturis canaliculatis, anfractu ultimo antice coarctato, regione umbilicali carina spirali circumcincta; apertura ovali, intus carnicolore, canali producta, recurvata.*

(Shell fusiform-turreted, umbilicate, spire pointed, red, white-banded, with convex whorls, longitudinally folded, transversely lirated, lirae with rough scales, sutures canaliculated, last whorl constricted anteriorly, umbilical region surrounded by a spiral carina; aperture oval, inside flesh-colored, canal produced, recurved.)

Size: 20-40 mm

Range: orig. China; Red Sea, Somalia

Remarks: A handsomely coloured species, with a delicate pink aperture and channelled suture, partaking somewhat of the characters of *Rhizochilus*.

Latirus rousi G. B. Sowerby III, 1886

Description: *Testa turrita; spira acutiuscula; anfractus 9, leviter convexi, longitudinaliter plicati, liris numerosis confertis planulatis atro-fuscis (interstitiis fulvis) cingulati; anfractus ultimus convexus, ad basin contractus; apertura ovato breviuscula, intus lyrata; canalis brevis recurva.*

(Shell turrited; spire sharp; 9 whorls, slightly convex, longitudinally folded, surrounded by numerous flat, dark-brown (yellow interstices) lirae; the last whorl convex, contracted at the base; aperture ovate and short, lirated inside; a short curved canal.)

Size: length 30 mm, width 10 mm

Range: South Africa

Remarks: Differing from *Dolicholatirus bairstowi* in the shortness of the canal, and in the spiral ridges being dark brown, flattened and broader than the interstices, which are light fulvous brown.

Latirus rufus (Reeve, 1848)

Description: *Fus. testa oblongo-fusiformi, spira turrita, anfractibus superne declivibus, medio angulatis et plicato-nodosis, nodis prominulis, liris parvis decussatis; ustulato-rufa, intus alba.*

Shell oblong-fusiform, spire turreted, whorls slanting round the upper part, angulated and plicately noduled in the middle, nodules prominent, crossed with small ridges; burnt red colour, interior white.

Size: to ?60 mm

Range: Philippines

Remarks: The ridges which may be supposed to encircle this species appear on the tubercles, but are obsolete in the interstices.

Sometimes mixed up with *Fusus rufus* Hombron & Jacquinot, 1848 (=*Pareuthria fuscata* (Bruguière, 1789).

compare to *L. abnormis*

Latirus rugosissimus (Locard, 1897)

Description: *Coquille de taille assez grande, d'un galbe fusiforme peu ventru, un peu obtus à ses deux extrémités, à peine plus développé en dessus qu'en dessous. Spire assez haute, composée de 8 à 9 tours à croissance un peu lente en diamètre, assez rapide en hauteur; dernier tour égal, à sa naissance, à un peu moins des deux tiers de la hauteur totale, à profil, du côté opposé au labre, d'abord arrrondi, puis bien atténué dans le bas, terminé par un canal assez gros mais un peu court, très légèrement incliné latéralement. Suture linéaire très ondulée, assez confuse. Sommet petit, obtus, mamelonné, lisse.*

Ouverture étroitement piriforme, allongée, rétrécie dans le bas et faiblement arquée par suite delà courbure du canal, inscrite dans un plan légèrement incliné. Péristome subcontinu; bord externe fortement épaissi en dehors par la dernière côte longitudinale, muni dans le haut d'une encoche pleurotomoïdale assez accusée, finement et nettement plissé à l'intérieur, à profil latéral bien arrondi dans le haut, bien atténué dans le bas vers le canal, denticulé dans son profil, au prolongement des plis internes, non projete en avant; bord columellaire fortement arqué en forme de S, se terminant dans la partie inférieure en pointe, accompagné dans le haut d'un callum peu large mais bien accusé, orné dans le bas de 4 à 5 plis réguliers, décroissants, obliques et profonds, mais peu marqués.

Test solide, épais, orné de côtes longitudinales, de cordons décurrents et de stries d'accroissement: côtes longitudinales au nombre de 8 sur l'avant-dornier tour, très fortes, bien arrondies, bien saillantes, réparties sur toute la hauteur des tours, un peu obliques, laissant entre elles des espaces intercostaux de même valeur; cordons décurrents étroits, saillants, l'éguliers, peu rapprochés, continus sur tous les tours, plus espacés sur le canal, avec les espaces intermédiaires garnis de cordons beaucoup plus petits, un peu irréguliers; stries d'accroissement longitudinales assez fines, ondulées-flexueuses, formant parleur intersection avec les petits cordons décurrents une sorte de fin réseau réticulé. Coloration d'un roux un peu clair, avec l'intérieur blanc brillant.

(Shell of fairly large size, with a slightly rounded fusiform curve, a little obtuse at both ends, barely more developed above than below. Fairly high spire, composed of 8 to 9 whorls growing a little slowly in diameter, fairly rapid in height; last whorl equal, at its origin, to a little less than 2/3 of the total height, in profile, on the side opposite the labrum, first rounded, then well attenuated below, terminating in a rather large but slightly short, very slightly inclined laterally. Very wavy linear suture, quite confused. Summit small, obtuse, hilly, smooth.

Aperture narrowly pear-shaped, elongated, narrowed at the base and slightly arched as a result of the curvature of the canal, inscribed in a slightly inclined plane. Subcontinuous peristome; external lip strongly thickened on the outside by the last longitudinal rib, provided at the top with a fairly pronounced pleurotomoidal notch, finely and clearly pleated on the inside, with a well-rounded lateral profile at the top, well attenuated at the bottom towards the canal, denticulated in its profile, at the extension of the internal folds, not projecting forward; strongly arched columellar edge in the shape of an S, ending in the lower part in a point, accompanied at the top by a not very wide but well marked callum, adorned at the bottom with 4 to 5 regular, decreasing, oblique and deep folds, but little marked.

Shell solid, thick, adorned with longitudinal ribs, decurrent cords and growth streaks; 8 longitudinal ribs on the penultimate whorl, very strong, well rounded, well projecting, distributed over the entire height of the whorls, a little oblique, leaving between them intercostal spaces of the same size; narrow, salient decurrent cordons, the regular ones, not very close together, continuous on all the whorls, more spaced out on the canal, with the intermediate spaces lined with much smaller, slightly irregular cordons; fairly fine, wavy-flexuous longitudinal growth streaks, forming at their intersection with the small decurrent cords a sort of fine reticulated network. Colour slightly pale red, with a shiny white interior.)

Size: length 28 mm, width 11 mm

Range: Madeira, N Canaries

Remarks: *L. rugosissimus* is remarkable for its mode of ornamentation. The shell, due to the double network of thick ribs and its numerous decurrent cords which are so particularly prominent, is completely rough.

L. rugosissimus with almost identical protoconch to *Amiantofusus amiantus*, differs considerably in teleoconch morphology.

Latirus singularis G. B. Sowerby III, 1903

Synonyms: *Latirus cingularis* G.B. III Sowerby, 1903

Description: *Testa elongato-fusiformis, fusca, solidula; spira elato-pyramidata;anfractus 6, convexi, spiraliter lirati, longitudinaliter striato-laminati, primi 2 laeves, sequentes 3 longitudinaliter plicato-costati, penultimus angulatus, supra angulum leviter concavus, infra convexiusculus; sutura angustissime canaliculata; anfractus ultimus 2/3 longitudinis testae superans, angulata, supra angulum concavo depressa, infra leviter convexus, infra medium concavo attenuatus, ad basim late rostratus; umbilicus fere claudens; apertura oblonga, intus pallide lutescens, glabra; peristoma acutum, postice angulatum; columella leviter arcuata, laevis, infra medium obtusissime angulata, haud plicata; canalis latiusculus.*

(Shell elongate-fusiform, brown, solid; spire elato-pyramidata; 6 convex whorls, spirally lirated, longitudinally striated-laminated, the first 2 whorls smooth, the following 3 longitudinally folded-ribbed, the penultimate angled,

slightly concave above the angle, convex below; suture very narrowly channeled; the last whorl exceeding 2/3 of the length of the shell, angled, concave above the angle, slightly convex below, concave attenuated below the middle, at the base broadly beaked; umbilicus almost closed; aperture oblong, pale shiny inside, glabrous; peristome acute, posteriorly angled; columella slightly arched, smooth, obtusely angled below the middle, not folded; wide canal.)

Size: length 70 mm, width 27 mm

Range: not given; ?Florida

Remarks: compare to *L. abnormis*

Latirus spinosus (Philippi, 1845)

Description: *T. testa parva, ovato-fusiformi, acuta, transversim striata; anfractibus costulatis; superioribus medio serie unica nodorum acutorum, ultimo seriebus duabus vel tribus nodorum armato; apertura spiram aequante; plicis columellae obsoletis.*

Es sind auf jeder Windung etwa 10 Rippen, die in der Mitte der obern Windungen eine Reihe zusammengedrückter, durch Kiele verbundener, spitzer Knoten haben. Die letzte Windung hat zwei solcher Knotenreihen, und unterhalb noch mehrere erhabene Quergürtel, die zum Theil auch knotig sind. Die Farbe ist weiss mit drei braunen Querbinden, von denen die oberste, auf den obern Windungen allein sichtbare, an die Nath gränzt und oft verloschen ist; die zweite liegt unmittelbar unter der zweiten Knotenreihe. Die Mündung ist violett; die Aussenlippe ist innen gefurcht, die Innenlippe hat 3 schwache Fältchen.

(Shell small, ovate-fusiform, acute, transversely striated; whorls ribbed; the upper whorls with a single row of sharp knobs in the middle, the last armed with rows of 2 or 3 knobs; aperture as long as the spire; columella with obsolete folds.

There are about 10 ribs on each whorl, in the middle of the upper whorls a series of compressed, pointed knobs connected by keels. The last whorl has 2 rows of knobs of this kind, and below it there are several raised transverse belts, some of which are also knotty. The color is white with 3 brown transverse bands, of which the uppermost, the only visible on the upper whorls, is attached to the suture and often obliterated; the second is immediately below the second row of nodes. The aperture is purple inside; the outer lip is furrowed on the inside, the inner lip has 3 faint wrinkles.)

Size: length 26 mm, width 18 mm

Range: China

Remarks: In prominence of keels *Peristernia incerta* remembers *L.. spinosus*, which is however quite different in most other respects.

Latirus spirorbulus (Menke, 1829)

Description: *Testa fusiformi-cylindracea, apice decollata et consolidata, anfractu ultimo longitudinaliter plicato, transversim striato, albo, rufo maculato, superioribus laevibus, carneis; cauda breviuscula, recta.*

(Shell fusiform-cylindrical, apex broken and connected, longitudinally folded at the last whorl, transversely striated, white, spotted with red, upper smooth, fleshy; siphonal canal short, straight.)

Size: 13.5 mm

Range: not known

Latirus stenomphalus Habe & Kosuge, 1966

Synonyms: according to WoRMS synonym to *Nodolatirus recurvirostrus* (Schubert & J. A. Wagner, 1829)

Description: (from Japanese: Shell medium-sized, hard, long-spindled, high spire, 9 inner and outer spiral whorls, each whorl slightly swollen, apex of fetal shell smooth, other spiral layers yellowish brown, strongly nodular, there are 7 longitudinal ribs on each whorl, slightly twisted posteriorly and arranged to the spiral whorl below. 3 yellowish-white spiral ribs become stronger above the longitudinal ribs, and intercostal ribs may occur between them, on the longitudinal ribs chestnut stained between the spiral ribs. Spiral ribs weak above shoulder, almost smooth and shiny. The body whorl is large and high, occupying 3 cm of the shell height; above the thick nodular longitudinal ribs, 4 helical ribs are evident, the rim is rounded, but it narrows strongly at the base of the shell and becomes the

canal, the columella is wide and large, with spiral ribs; umbilicus distinct between the straight axial lip. The aperture is egg-orange and ovoid with an elongated canal groove; the outer lip is rounded and curved, the margin is notched with spiral ribs. There are 2 weak folds on the axial lip, which disappear in adults.)

Size: height 74.5 mm, breadth 29.2 mm

Range: China, Japan, Philippines

Remarks: This is Kira's *Latirus recurvirostris* in his "Illustrations of Shells of Japan in colour" (pl. 30, fig. 16). The shell differs evidently from the real *Nodolatirus recurvirostra* in having the fatter shell and 7 nodules on the whorls compared to 6. Chestnut spots between the spiral ribs are evident, and the umbilicus is visible, does not open significantly outwards and is narrow.

The closely allied species *L. polygonus* has a thick shell and no umbilicus.

Latirus strangei A. Adams, 1855

Description: *L. testa fusiformi, umbilicata, flavida, spira aperturam aequante, anfractibus longitudinaliter plicatis et lineis transversis, elevatis, subnodulosis cincta, suturis impressis; anfractu ultimo antice coarctato; apertura ovali, columella antice plicata, canali mediocri, labro intus lirato.*

(Shell fusiform, umbilicate, yellowish, spire as high as aperture, whorls longitudinally folded and surrounded with transverse, raised, subnodular lines, sutures impressed; last whorl narrowed in front; aperture oval, columella folded anteriorly, canal moderate, the inner lip is lirated.)

This species is of a pale yellow colour, ornamented with transverse red-brown lines, and with the canal moderate and turned to the left. Some varieties are straw-coloured without the lines, and tinged with blackish-violet at the fore part.

Size: 30 mm

Range: New South Wales, Australia, Fiji

Remarks: *Latirus strangei* seems to be the closest to *Fusolatirus kandai*, but it is short, small and solid, and the canal is shorter, too. The fact that the umbilicus of *F. kandai* is extremely conspicuous can also be said to be a major difference.

Latirus tenuistriatus (G. B. Sowerby II, 1880)

Description: *Testa parva, angusta, striata, solida, alba, versus apicem subaurea; spira subturrita, anfractibus 6, brevibus, superne angulatis, longitudinaliter medio usque ad angulum superiorem rotundo-plicatis.*

(Shell small, narrow, striated, solid, white, towards the apex light golden; spire somewhat turreted; 6 whorls, short, angled above, from the middle up to the shoulder with longitudinally rounded folds.)

Size: 2.5 cm

Range: E Africa

Remarks: The place of this species is next to *Aeneator fontainei (= Fusus alternatus)*.

Very similar to *Nodopelagia brazieri* but aperture white.

Latirus tigroides Kilburn, 1975

Description: Fusiform, aperture about 1.5 x spire, whorls shouldered, shoulder-slope concave, periphery at or just below mid-whorl; siphonal rostrum subequal in length to rest of aperture, straight, slightly oblique, gently tapering, fasciole strong but rounded, pseudo-umbilicus a narrow slot. Teleoconch whorls about 7, apex eroded in type material, but 1st whorl with about 9 low, wide, suture to suture axial ribs, crossed by fine spiral striae, with a shallow concavity above the middle. On the 2nd whorl this concavity becomes deeper and the ribs become obsolete below the suture; basally the ribs are crossed by two strong cords which increase in strength on subsequent whorls, where they render the periphery biangulate; on the 6th whorl these cords begin to weaken and the basal one has degenerated by the 7th. Axial ribs form gently undulating swellings in apical view, and on the last whorl are reduced to mere shoulder nodules, eight or nine in number. The last whorl shows traces of scarcely

elevated spiral cords, becoming somewhat more distinct on the siphonal rostrum. Up to the 6th whorl fine spiral striae are present above the periphery. Protoconch eroded in types, maximum diameter about 1.2 mm. Colour ochraceous-buff, rendered darker by the transparent periostracum, and marked by brownish-black spiral stripes and dashes; on the early whorls these mark-ings consist of a series of axial blotches, corresponding to the low axial ribs and interrupted by the twin spiral cords; with growth these blotches intrude on to the rib intervals and tend to merge laterally to form more or less continuous spiral bands and stripes, although irregular blotches still appear on the shoulder slope; aperture white.

Size: 71,1 x 29,7 mm (lip broken); 42,4 x 20,2 mm; 39,3 x 18,9 mm

Range: Natal and Pondoland, South Africa

Remarks: *L. tigroides* has previously been confused with *L. polygonus*, a variable Indo-West Pacific species. It differs from *L. polygonus* in its non-biangulate body whorl, practically obsolete sculpture and almost continuous black spiral bands.

Sculpture and colour pattern resemble that of *L. amplustre*, but shape is much more fusiform.

L. vischii distinguishes from *L. tigroides* by the more slender spire, the greater dimensions, average height 62 mm against 38 mm, the stronger sculpture, especially the spirals are almost absent in *L. tigroides*, due to the absence of the dark spiral bands, typical of *L. tigroides*, and it should be noted that the northern distribution of the latter does not appear to exceed Richards Bay, southern Zululand.

Hemipolygona amaliae has decidedly stronger sculpture, a longer siphonal canal and a yellowish-brown aperture.

Latirus troscheli Löbbecke, 1882

Description: *Testa fusiformis spira turrita, solida, sat ponderosa, cauda subelongata, recurva, saturate aurantia, unicolor, vestigiis epidermidis brunneae hic illic obtecta; anfractus (apice decollato) persistentes 6, sutura profunda undulata, inferne subcanaliculata discreti, angulati, ad angulum serie tuberculorum compressorum distantium, interdum carina junctorum muniti, super angulum impressi, laevigati vel liris raris obsoletis sculpti; ultimus ad initium caudae subito contractus, inde biangulatus, nodulis usque ad angulum inferiorem decurrentibus munitus ibique liris distinctioribus cingulatus, cauda fere laevi. Apertura angulato-ovata, canalis longitudinem vix superans, columella callo crasso appresso porcellaneo supra tuberculifero obtecta, infra obscure biplicata; canalis sat angustus, leviter recurvus, fauces laeves.*

(Shell spindle-shaped with a turreted spire, solid, quite heavy, the siphonal canal is elongated, curved, saturated orange, unicolored, covered here and there with traces of brown epidermis; 6 whorls persistent (broken apex), suture deep and wavy, below discretely slightly canalised, angulate, at the shoulder a series of distant, compressed tubercles, sometimes the keel is strengthened on the knobs, impressed above the shoulder, smoothed, or carved with rare obsolete lirae; the latter are suddenly contracted at the beginning of the siphonal canal, thence biangulated, fortified with nodules running down to the lower corner, and there with distinct spiral lirae, the siphonal canal almost smooth. Aperture angled-ovate, scarcely exceeding the length of the canal, the columella covered with a thick appressed porcelain callus above, obscurely folded below; the canal is narrow, slightly curved, the aperture is smooth.)

Size: length 65 mm, width 29 mm, length of aperture with canal 35 mm

Range: Philippines

Latirus unifasciatus (W. Wood, 1828)

Synonyms: according to WoRMS synonym to *Tarantinaea lignaria* (Linnaeus, 1758)

Description: not given; white-banded

Latirus vexillulum (Reeve, 1842)

Description: *Turb. testa trigono-turbinata, alba, lineis caeruleis, et interdum roseis, vivide cingulata, anfractibus subtrigonis, in medio valde tuberculatis; columella triplicata, plicis parvis; canali brevissimo nigerrimo-tincto.*

(Shell trigono-turbinate, white, with blue and sometimes pink lines, vividly girdled, with subtrigonal whorls, strongly tuberculated in the middle; columella triplicate, small folds; a very short black- tinged canal.)

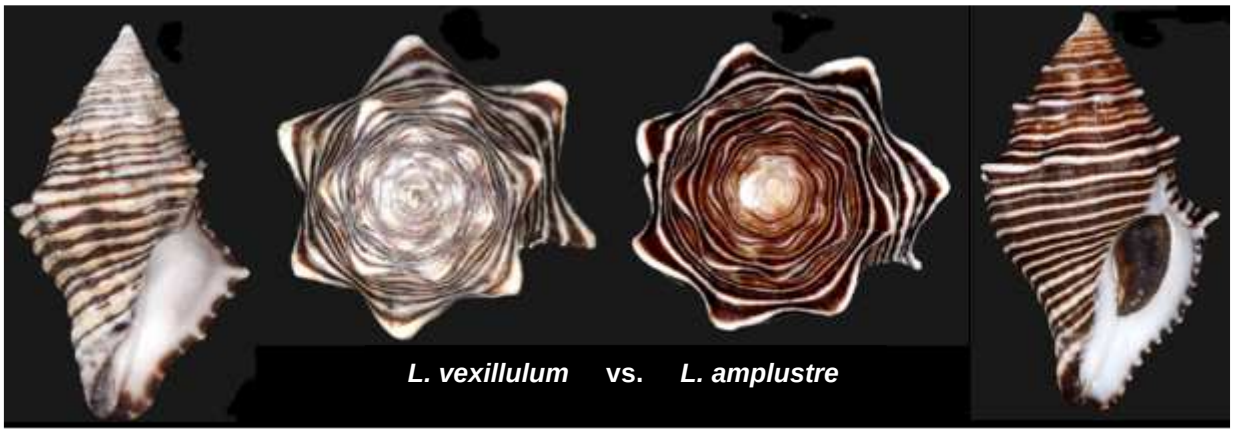
Redescription: Shell small for genus, moderately heavy, biconic, with 9 whorls. Protoconch whorls about 2, eroded or broken on all specimens examined. Teleoconch of about 7 rapidly expanding whorls, those of spire much wider than tall, with spiral cords of various hues and 6-7 axial ribs expressed as broad nodes with sharply pointed apices at periphery; whorls of spire with 2-3 rounded, flattened cords posterior to single peripheral cord; 2 similar cords between periphery and anterior suture; all cords separated by interspaces narrower than cords; body whorl strongly angled by sharply pointed peripheral ribs; 3 spiral cords of sutural ramp and their interspaces increase in strength toward periphery; 1, 2 or 3 cords at or anterior to periphery larger than others; 4-6 slightly smaller cords with corresponding interspaces extend across remainder of body whorl and continue as 2-3 similar cords on short, broad siphonal process; interspaces sometimes contain additional thin, weak cords or threads. Aperture relatively narrow, subovate; outer lip with prominent posterior angle forming sinus at junction with periphery of body whorl; cords and interspaces of exterior show through lip edge as dark and light bars on all specimens, inside of outer lip bear 6-7 low, simple lirae; inner lip adherent, narrow, with well-developed callus forming sinus at junction with outer lip; columella with 4-5 small but distinct plicae including entrance fold; siphonal canal short, wide, canted left, with straight sides and no evidence of pseudo-umbilicus. Shell exterior marked with white, light blue and yellow cords in various combinations; interspaces between cords dark brown or black; shell interior white except where cords and interspaces show through at edge of outer lip.

Size: to about 50 mm; length 44 mm, width 25 mm

Range: Kiribati, central Pacific

Remarks: This beautiful shell, which approximates to the *L. amplustre*, is vividly lined across with very deep blue, and between every two blue lines is a pink one, presenting an almost artificial contrast of colour.

Comparing large specimens of *L. vexillulum* to *L. amplustre* of similar size, the former have 7 strong ribs raised to points at the periphery of the spire and body whorl, whereas the latter has about 8 lower, more rounded ribs. Except for the large, undulant peripheral cord, spiral cords on the ramp, body whorl and base of the body whorl of L. amplustre are all of nearly similar size. In contrast, the large peripheral cord of *L. vexillulum* is flanked by single, slightly smaller cords, and remaining cords between the peripheral cord and the anterior tip are fewer (usually 7-8) but relatively larger and more robust than the 13-14 cords of *L. amplustre*. The largest cords of *L. vexillulum* are generally white or yellow but may bear single orange threads at their apices, whereas cords of *L. amplustre* are white or alternating white and yellowish brown. Emergent lirae are simple on the inside of the outer lip of *L. vexillulum*. Those in *L. amplustre* are simple for about the posterior 80 % of the aperture length, with strong lirae interspersed with a single threadlike weak lira. As they advance toward the neck, the interspersed weak lirae become evanescent and the remaining strong lirae become discontinuous, either dashed or beaded.



Latirus vischii Bozzetti, 2008

Description: *Specie dalla conchiglia di medio-grandi dimensioni per il genere di appartenenza, altezza massima 64.90 mm, fusiforme-biconica, slanciata, spira alta dal profilo diretto protoconca parzialmente mancante, visibile 1 giro residuo dal profilo convesso, liscio, teleoconca formata da 8 giri, concavi in corrispondenza della rampa subsuturale, carenati alla spalla. Scultura assiale costituita da ampi e prominenti tubercoli verticalmente allungati, maggiormente sviluppati alla spalla, estesi fino alla base sull'ultimo giro, 8 tubercoli sui primi giri, 9 sugli ultimi, presenti fitte strie di crescita, piu evidenti alla base e sul canale sifonale. Scultura spirale costituita da corde principali e secondarie, piu o meno ondulate per effetto dei tubercoli assiale: 3 sulla rampa subsuturale, 3 sulla spalla, la prima e la terza delle quali si ingrossano all'incrocio con i tubercoli assiali dando loro enfasi, un'ulteriore corda al di sotto della spalla sui giri di spira, 16 sotto la spalla dell'ultimo giro comprendendo il canale sifonale. Alla base dell'ultimo giro una corda, analogamente alle 2 corde periferiche, si ingrossa sui tubercoli assiali delimitandoli inferiormente. Sutura non profonda, irregolarmente ondulata, marginata dalla prima corda spirale.*

Apertura ellittica, internamente lirata sul lato labiale, labbro esterno convesso, esspanso alla spalla, con bordo lievemente denticolato ed affilato, labbro interno concavo, percorso da 3 deboli pliche all'estremita basale, conevidente callosita che prosegue sul canale sifonale. Seno posteriore moderatamente sviluppparo, a forma di "V", dilimitato da callosita sia columellare che labiale. Canale sifonale sviluppparo, aperto, diritto,lievemente piegato a sinistra, incavato alla base, percorso da rilevate pliche spirali ondulate, l'ultima anteriormente, particolarmente sviluppata circoscrive un ombelico moderatamente aperto.

Colore marrone scuro, leggermente piu chiaro sulle corde spirali, le 2 corde periferiche e la corda basale sull'ultimo giro, in corrispondenza della loro espansione sui tubercoli bruno scuro negli spazi intercordali. Presente sul bordo interno del labbro esterno una banda verticale costituita da macchiette biancastre e marroncine sul lato aperturale, marroncino uniforme sul lato interno; interno del apertura grigiastro con bande verticali piu scure in corrispondenza dei tubercoli esterni. Apice biancastro, columella grigia posteriormente, marroncina sul canale sifonale. Operculo corneo di colore bruno, a forma di artiglio, moderatamente ritorto, con nucleo terminale.

(Species with medium-large shell for the genus to which it belongs, maximum height 64.90 mm, fusiform-biconical, slender, spire high with direct protoconch profile partially missing, visible 1 residual whorl with convex profile, smooth, teleoconch formed by 8 whorls, concave at the subsutural ramp, keeled at the shoulder. Axial sculpture made up of large and prominent vertically elongated tubercles, more developed at the shoulder, extended to the base on the last whorl, 8 tubercles on the first whorls, 9 on the last, dense growth striae present, more evident at the base and on the siphonal canal. Spiral sculpture of primary and secondary cords, more or less wavy due to the effect of the axial tubercles: 3 on the subsutural ramp, 3 on the shoulder, the first and third of which thickened at the intersection with the axial tubercles giving them accent, a further cord below shoulder on the spire whorls, 16 below shoulder of last whorl including siphonal canal. At the base of the last whorl a cord, similarly to the 2 peripheral cords, enlarges on the axial tubercles delimiting them inferiorly. Not deep, irregularly wavy suture, bordered by the first spiral cord.

Aperture elliptical, internally lirated on the labial side, external lip convex, expanded at the shoulder, with slightly denticulate and sharp edge, internal lip concave, crossed by 3 weak folds at the basal end, with evident callosity that continues on the siphonal canal. Posterior sinus moderately developed, "V" shaped, limited by both columellar and labial callosities. Siphonal canal developed, open, straight, slightly bent to the left, hollow at the base, crossed by raised wavy spiral folds, the last one at the front, particularly developed, circumscribes a moderately open umbilicus.

Color dark brown, slightly lighter on the spiral cords, the 2 peripheral cords and the basal cord on the last whorl, in correspondence with their expansion on the dark brown tubercles in the intercordal spaces. On the inner edge of the outer lip a vertical band is present consisting of whitish and brownish specks on the aperture side, uniform brownish on the inner side; interior of aperture greyish with darker vertical bands corresponding to the outer tubercles. Apex whitish, columella gray posteriorly, brownish on the siphonal canal. Horny operculum brown, claw-shaped, moderately twisted, with terminal nucleus.)

Size: 50-65 mm

Range: SE Madagascar

Remarks: *L. vischii* distinguishes from *L. tigroides* by the more slender spire, the greater dimensions, average height 62 mm against 38 mm, the stronger sculpture, especially the spirals are almost absent in *L. tigroides*, due to the absence of the dark spiral bands, typical of *L. tigroides*, and it should be noted that the northern distribution of the latter does not appear to exceed Richards Bay, southern Zululand.

L. vischii differs from *L. polygonus* due to the more slender spire, the more developed siphonal canal, height/width 2.35 against 2.04, smaller dimensions, average height 62 mm against 75 mm, less developed axial sculpture, the darker and more uniform colour; in *L. vischii* the dark spots/spiral bands are absent, but always present with variable intensity in *L. polygonus*.

Latirus walkeri Melvill, 1895

Description: *L. testa pyramidata, attenuata, solidiuscula, cinerea, apice acuto, anfractibus septem, longitudinaliter crassicostatis, undique transversim crebrerrime rugosostriatis, apertura oblonga, canali apud basim producta, recurvirostri, columella vix plicata.*

(Shell pyramidal, thin, solid, gray, with a sharp apex, 7 whorls, longitudinally thickend, very thick rugose spiral striae, aperture oblong, canal produced at the base, recurved, columella barely folded.)

Size: length 25 mm, width 8 mm

Range: W Australia

Remarks: *L. walkeri* approaches *L. pulleini*, but that shell is smaller, length 25 mm, more solid, costae about half as numerous and more valid, suture not marginate, aperture with a distinct continuous inner lip, a thick everted or bevelled outer lip, and a more abrupt origin of the canal from the aperture.

Latirus williamlyonsi Petuch & Sargent, 2011

Description: not available

Size: 40-50 mm; 46 mm

Range: Florida Keys, Gulf of Mexico

Latirus xantochrous (Tapparone-Canefri, 1881)

Description: *F. testa minuta, elongato-fusiformi, gracili, laevigata, per longitudinem costata et spiraliter tenui-cingulata, utrinque attenuata, undique aurantiaca, spira turrita, acuta. Anfractus novem, convexiusculi, sutura undulata sejuncti, costis decem rotundatis in anfractu penultimo, 12 in ultimo ad basim evanidis praediti; cinguli spirales aequidistantes, tantum ad suturam propinquiores. Apertura oblonga cum canali breviusculo, obliquo, spiram haud aequans; columella excavata, canali obliquo, fauce laevigata.*

Ce joli petit Fuseau est allongé, turriculé, grêle, avec le bout de la spire pointu, de couleur orange rougeâtre pâle, uniforme. Sa surface, qui est lisse, est ornée de côtes longitudinales arrondies et séparées par des interstices très étroits; en même temps, elle est parcourue par des petits cordons transversaux également espacés entre eux, sauf les deux ou trois voisins de la suture, dans la partie supérieure des tours, qui sont plus serrés ; ces côtes sont au nombre de dix dans l'avant-dernier tour et de douze dans le dernier, à la base duquel on les voit s'effacer. L'ouverture est oblongue et bien plus courte que la spire, avec la columelle très peu courbée, le canal un peu tourné' à gauche et en arrière, la gorge lisse et de la même couleur que le reste de la coquille.

(This pretty little shell is minute, elongate-fusiform, slender, smooth, longitudinally ribbed and spirally with thin lirae, tapering on both sides, orange on all sides, spire turreted, sharp. 9 whorls, convex, separated by a wavy suture, 10 rounded ribs in the penultimate whorl, 12 in the last one, disappearing at the base; spiral lines equidistant, only closer to the suture. Aperture oblong with a short canal, oblique, not equal to the spire; columella excavated, canal oblique, aperture smoothed.

Shell elongated, turriculated, slender, with the end of the spire pointed, of a pale reddish-orange color, uniform. Its surface, which is smooth, is adorned with rounded longitudinal ribs separated by very narrow interstices; at the same time, it is traversed by small transverse cords equally spaced between them, except the 2 or 3 neighbors of the suture, in the upper part of the whorls, which are more densely packed; these ribs are 10 in number in the penultimate whorl and 12 in the last, at the base they disappear. The aperture is oblong and much shorter than the spire, with the columella very slightly curved, the canal slightly turned to the left and backwards, the throat smooth and of the same color as the rest of the shell.)

Size: length 11.5 mm, width 4 mm

Range: Mauritius

Lugubrilaria Snyder, Vermeij & Lyons, 2012

Type species: *Lugubrilaria lugubris* (A. Adams & Reeve, 1847)

Description: Shell of medium size for subfamily, broadly to narrowly fusiform, with cylindrical protoconchs, convex whorls and moderate to high spires; teleoconch sculpture of coarse to fine spiral cords and threads and low axial ribs, latter being absent in one species; outer lip convex; (usually) paired lirae on inside of outer lip correspond to paired spiral threads and grooves on outer surface of body whorl, inner lirae and outer threads and grooves intersecting to form (usually) bifid denticles on crenulated edge of outer lip; parietal ridge elevated, keellike, prominent, sometimes accompanied by 1-3 smaller parallel ridges; columellar folds weak, entrance fold to siphonal canal weakly to rather strongly developed, keellike; inner side of siphonal canal without abapical folds.

Size: 3 species to 101,110 and 179 mm

Range: SW Africa

Remarks: Among other characters, *Lugubrilaria* shells lack the row of welldeveloped nodes on the shoulder that characterize all species of *Kilburnia*; the entire surface of *Lugubrilaria* shells is covered with densely packed coarse to fine spiral cords and threads, whereas the surface of *Kilburnia* shells has relatively few low, broad spiral ridges

which may be virtually obsolete in some populations. The outer lip of *Kilburnia* has a marked angle at the periphery, a consequence of the peripheral nodes, but the outer lip of Lugubrilaria is only slightly inflected by the corresponding peripheral cord, and even that cord is often absent.

Species of *Lugubrilaria* are distinguished from those of *Africolaria* by the lirate sculpture on the inner side of the outer lip, the paired series of cords and threads on the shell outer surface, and the resultant crenulations where cords and grooves meet on the outer lip. *Lugubrilaria* shells also have tough, relatively thick and dark periostracum which commonly persists on adult shells.

Species in *Africofusus* closely resemble *Lugubrilaria*. *Africofusus* differs primarily in lacking the columellar folds that characterize members of the *Fasciolariinae*.

Lugubrilaria badia (F. Krauss, 1848)

Description: *F. testa ovato-fusiformi, badia, transvirsim irregulariter striata; anfractibus 8 convexis, ad suturam depressis, medio subangulatis, ultimo ventricoso; apertura ovata, livida; labro crenato, intus sulcato; columella triplicata; canali brevi, subrecurvo.*

Alle Umgänge sind oben eingedrückt und unterhalb der Sutur ungestreift; die ersten sind abgerieben, die beiden vorletzten in der Mitte etwas kantig und haben sogar schwache Andeutungen von Längsrippen wie bei Fusus mandarinus; der letzte ist bis zum Ende des Kanals mit vielen erhabenen, schmalen, etwas scharfen und unregelmässigen Streifen versehen, die durch die mehr oder weniger deutlichen Anwachsstreifen durchkreuzt sind; die zwischen den Streifen liegenden Furchen spitzen sich in der Tiefe zu. Die Aussenlippe ist ziemlich dick und mit häufig paarweise gestellten Kerben besetzt, die sich als hellere Streifen auf dem schmutzig-bräunlichen, ins Violette schimmernden Grunde bis in die Tiefe der Mündung fortsetzen. Die Mündung hat oben eine Rinne und daneben auf der Spindelseite eine starke weissliche Falte. Die Spindel hat 3 Falten, von welchen sich die unterste als eine starke erhabene Leiste schief nach links bis ans Ende des Kanals fortsetzt; der Spindelrand ist sehr dünn und überall verwachsen.

(Shell ovate-fusiform, chestnut-brown, transversely irregularly striated; with 8 convex whorls, depressed at the suture, subangular in the middle, the last whorl belly; aperture oval, bluish; lip crenate, furrowed inside; columella triplicate; canal short, subcurved.

All whorls are depressed above and unstriated below the suture; the first are eroded, the two penultimate somewhat angular in the middle and even have faint indications of longitudinal ribs as in *P. mandarinus*; the last, up to the end of the canal, is provided with many raised, narrow, somewhat sharp and irregular streaks, crossed by more or less distinct growth streaks; the furrows lying between the stripes taper in the depth. The outer lip is quite thick and has notches, often in pairs, which continue as lighter stripes on the dirty-brownish, violet-shimmering base deep into the aperture. The aperture has a groove at the top and a strong whitish fold next to it on the side of the columella. The columella has 3 folds, the lowest of which continues obliquely to the left as a strong raised ledge to the end of the canal; the columella margin is very thin and fused everywhere.)

Size: height 78 mm, width 36 mm

Range: S-Africa

Remarks: This species, at a glimpse, bears an extraordinary resemblance to *Penion mandarinus*, and is most closely related to *Australaria fusiformis* and to *Filifusus filamentosus*, but can be distinguished easily from both by the crowded and irregular stripes and the shorter, broader, somewhat left-curving canal.

Lugubrilaria lugubris (A. Adams & Reeve, 1847)

Description: *Fasc. testa fusiformi, transversim irregulariter sulcata, anfractibus superne angulato-declivibus, leviter concavis, ad unguium, obtuse carinatis, apiceni versus obsolete nodatis; columella subexcavata, lira callosa superne munita; carneo-fuscescente, epidermide olivaceo-fusca induta.*

Shell fusiform, transversely irregularly grooved, whorls angularly slanting and slightly concave round the upper part, keeled at the angle, obsoletely noduled towards the apex; columella somewhat excavated, furnished at the upper part with a strong callous ridge; fleshy-brown, covered with a dark olive-brown epidermis.

Size: 45-130 mm

Range: Cape of Good Hope, S-Africa

Remarks: In young specimens the interior is of a chesnut-brown colour and the upper portion of the whorls less angulated.

Lugubrilaria lugubris lacks the conspicuous shoulder nodules of *Africolaria wattersae*, has coarser spiral sculpture and a much shorter rostrum, and is markedly broader.

For comparison with *Kilburnia scholvieni* and *L. seccombei* see there.

Lugubrilaria seccombei Lyons, 2012

Description: Shell large for the genus, fusiform, with tall, slender spire, convex whorls, slender siphonal process, and sculpture of spiral cords and threads. Protoconch of about 2 large, brown whorls, first 1 1/2 whorls smooth, final half of second whorl with several low axial riblets. Teleoconch of about 7 low, convex whorls, separated by shallow, nearly straight suture; first whorl with 5 thin spiral cords, increasing by intercalation to 7 or 8 cords separated by thin spiral threads on whorl 2; intercalation on later whorls rapidly produces an arrangement of large (l) and small (s) cords and fine threads (t), each separated from the next by a shallow interspace or groove and arranged in series of l-t-s-t-l; several such series on each spire whorl and up to 25 series on body whorl; base constricted, siphonal process moderately short, straight, with series of cords and threads continuing to blunt tip. Aperture oval-elongate, constricted adapically by prominent parietal ridge; outer lip convex, inside marked with low, irregular, often paired lirae that extend outward to form bifid pairs of denticles along lip edge; inner lip adherent throughout, parietal ridge prominent, rounded, extending to edge of shield, flanked abapically by as many as 3 additional parallel ridges of diminishing size; columella arcuate, with 2 or 3 low abapical plicae bounded by prominent keel-like entrance fold; siphonal canal straight, smooth, considerably thickened along inner edge in larger shells. Shell color dull grayish white to tan or light brown, cords usually lighter colored than threads and interspaces, producing appearance of series of paired brown bands separated by lighter-colored cords; aperture white, often stained with light brown or yellowish-brown. Periostracum darkly olivaceus, texture parchment-like, smooth but rather thick, adherent. Operculum oval-elongate, brownish black, tapered bluntly anteriorly, with proximal terminal nucleus, outer surface rather smooth but with numerous growth increments arranged in concentric arcs; underside with thick, smooth callus, broader anteriorly.

Size: up to 179.3 mm

Range: False Bay, South Africa, to S Namibia

Remarks: *L. seccombei* shares with *L. lugubris* the interior lirae that extend outward to form crenulations, usually paired, along the outer lip; the occasional occurrence of additional lesser ridges parallel to the parietal ridge; and the series of large and small spiral cords and threads that create the appearance of brown paired bands on the external shell surface when the periostracum is removed; periostraca and opercula of the two species are also very similar. However, the species differ markedly in other characters. Shells of *L. seccombei* attain much greater size (largest 179.3 mm, versus 110.0 mm for the largest *L. lugubris* examined); in fact, the smallest immature shell of *L. seccombei* was 97.8 mm, only 12.2 mm smaller than the largest *L. lugubris*. Protoconchs of both species consist of about 2 whorls, but the protoconch of *L. seccombei* is about 4 times larger by volume than that of L. lugubris. The spire of *L. seccombei* is relatively taller and more slender than that of *L. lugubris*, and the shell surface of *L. seccombei* is relatively smooth, lacking the low axial ribs and having a less prominent peripheral cord and peripheral flexure (angulation) than those that characterize adult *L. lugubris*. Internally, the entrance fold at the end of the columella is sharper and more keel-like on *L. seccombei* than on *L. lugubris*.

Although the shells appear superficially similar, shells of *Africolaria rutila* lack crenulations on the edge and corresponding lirae on the inner side of the outer lip; spiral sculpture of the shell surface of *A. rutila* consists of closely packed, evenly sized threads, unlike the variously sized cords and threads of *L. seccombei*; the suture of *A. rutila* is more compressed, with correspondingly rounder whorls than *L. seccombei*; and *A. rutila* lives in depths of 150-500 m, whereas the depth range of *L. seccombei* (10-50 m) is much shallower.

Another species that could be mistaken for *L. seccombei* is *Africofusus cinnamomeus*, which also lives in shallow subtidal depths from the Cape of Good Hope northward to southern Namibia. *A. cinnamomeus* attains a size of at least 135 mm and, like *L. seccombei*, has an elongate shell with a tall spire, conspicuous suture, and dark, dense periostracum. However, the prominent columellar folds on *L. seccombei* easily distinguish that species from *A. cinnamomeus*, which lacks such folds.

Pleuroploca P. Fischer, 1884

Type species: *Pleuroploca trapezium* (Linnaeus, 1758)

Description: *Coquille ornée de côtes noduleuses et carénée plus ou moins en arriére.*

(Shell adorned with nodular ribs and more or less streamlined at the back.)

Redescription: Shell small to large, heavy, broadly fusiform, with relatively low spire; teleoconch sculpture of short, rounded axial ribs, sometimes forming large tubercles at shoulder angulation, with sometimes a second row at the abapical termination of the axial ribs, and low, broad, rounded spiral cords; outer lip nearly planar, with widely separated, paired crenulations; inner side of outer lip with or without weak, smooth lirae; junction of outer lip with penultimate whorl not forming adapical notch; parietal ridge prominent, rounded, sometimes a few inner-lip ridges immediately abapical to it; two columellar folds weaker than the rounded entrance fold to the siphonal canal; abapical to the entrance fold in adults are 4 small, distinctive folds along adaxial side of siphonal canal.

Size: largest species to 287 mm

Range: Indo-West Pacific

Remarks: Comparative remarks with other genera are given under *Granolaria, Aurantilaria* and *Filifusus*. Species of *Pleuroploca* have notably heavy shells, often with large tubercles but sometimes with no tubercles at all.

Pleuroploca is the genus which most closely resembles the *Tarantinaea*, but has the interior colored chrome, the canal longer and curved, has a different aspect as a whole, and is not umbilicate like the *Tarantinaea*.

Pleuroploca abbasi Thach, 2021

Description: Shell large for the genus, fusiform-ovate, thick and robust. Spire moderately tall and stepped, sutures deep. Shell width 51 % of height, ornamentation consists of fine, widely spaced and red-brown spiral lines. Body whorl much higher than spire and occupying 78.7 % of shell height, periphery angulate with 6 conspicuous and widely-spaced knobs. Sculpture with many closely-spaced axial ribs that are crossed by 2-3 oblique, elevated spiral ridges at base of body whorl. Aperture elongate-ovate, wide and occupying 67 % of shell height with many fine, brownish spiral lirae inside, outer lip moderately thick, crenulated by presence of many thick denticles. Posterior canal narrow and pointed, parietal wall broad, highly calloused and well defined. Columella with 2 strong folds, followed by some weaker and shorter folds. Base of body whorl strongly excavated, siphonal canal widely open. Color whitish under thick, straw-colored periostracum.

Size: 136.4-142.2 mm; length 142.2 mm, width 72.8 mm

Range: SW Java, Indonesia

Remarks: *P. abbasi* differs mainly from *P. effendyi* in

- taller spire with concave sides
- much longer siphonal canal
- spirally elongate (not rounded) shoulder knobs
- presence of oblique grooves crossing axial ribs at base of body whorl
- more elongate aperture that is oriented to another direction
- parietal wall less calloused and much longer
- red spiral lines more conspicuous
- posterior canal having different shape.

P. trapezium is distinguished from *P. abbasi* mainly by

- stepped spire with lateral sides parallel to shell axis
- more constricted sutures
- shoulder knobs not spirally elongate
- aperture wider and not oblique
- parietal wall purple (not whitish) and more calloused
- red spiral lines more conspicuous and double at base of body whorl
- denticles at inner margin of outer lip purple (not whitish) and more regularly-spaced
- different apical view
- different color.

Pleuroploca audouini (Jonas, 1846)

Synonyms: *Pleuroploca trapezium audouini* (Jonas, 1846)

Description: *Fasc. testa fusiformi, medio ventricosa, laeviuscula, sub epidermide luteo-fusca et tenera, inferne alba superne rubra, transversim rubra laxe et obsolete lineata; anfractibus novem convexis, medio nodosis, ultimo superne nodifero: nodis obtusis; cauda longiuscula, subreflexa; apertura oblongo-ovata, intus aurantio tenuissime striata, marginem versus alba, labro tenui, exiliter denticulato, columella cylindracea, colore hepatica, basi triplicata.*

(Shell fusiform, in the middle pot-bellied, quite smooth, under the epidermis yellow-brown and delicate, white below, red above, loosely and obsoletely transversely lined with red; 9 convex whorls, knotty in the middle, the last whorl knotted above with blunt knobs; siphonal canal long, subreflexed; aperture oblong-ovate, very thinly striated orange inside, towards edge white, lip thin, slightly denticulate, columella cylindrical, liver-colored, base triplicate.)

Size: 100-210 mm

Range: Red Sea, Japan, Philippines

Remarks: Typical *P. trapezium* from the western Pacific has 2 rows of tubercles, whereas *P. audouini* usually has the lower row of nodes weak to obsolete.

Filifusus glaber differs from *P. audouini*, to which it is in some respects analogous, especially in its much smaller and more slender form, with thinner nodes towards the vanishing lip, and also with a bifold columella.

Pleuroploca clava (Jonas, 1846)

Synonyms: *Fasciolaria persica* Reeve, 1847

Description: *Fasc. testa subfusiformi-clavata, ventricosissima, crassa, ponderosa, nodosa, alba, rubro variegata, filis fuscis transversim impresso-striata; anfractibus octo medio angulatis, tuberculis magnis compressis in angulo coronatis; ultimo superne angulato et coronato, infra angulum seriebus tribus nodorum obtusorum armato; sutura undulata, crispa; cauda spira: subaequali, oblique funiculata, recta, inferne subrecurva; apertura oblongo-ovata, intus hepatica, aurantio tenuissime striata, labro crasso, dentato; dentibus striis externis respondentibus; columella cylindracea, hepatica, basi triplicata. Long. 5, lat. 3 poll*

(Shell subfusiform-fastened, very ventricose, thick, heavy, knotty, white, variegated with red, brown threads transversely impressed-striated; with 8 whorls angled in the middle, crowned with large compressed tubercles in the corner; the last angled and crowned above, armed below the angle with a series of 3 obtuse knobs; suture wavy, curly; siphonal canal subequal, obliquely cordate, straight, inferno subcurved; aperture oblong-ovate, inside liver-colored, very thinly striated with orange, lip thick, toothed; the teeth correspond to the external striae; columella cylindrical, hepatic, base triplicate.)

Size: length 137.5 mm, width 78 mm

Range: N Indian Ocean and NW Indonesia

Remarks: *P. clava* has prominent tubercles on the shoulder angulation and resembles a very colorful, low spired *P. trapezium*.

Pleuroploca effendyi Dharma, 2021

Description: not available

Size: 130 mm

Range: E Java, Indonesia

Remarks: *P. effendyi* has a different outline compared to other species in the genus. Basically, it ha a globosely-fusiform shell with a short conical spire, a wide and short siphonal canal, knobs or blunt tubercles on the shoulder, and a dark brown periostracum.

For comparison with *P. abbasi* see there.

Pleuroploca lischkeana (Dunker, 1863)

Description: *Testa fusiformis, turrita, ventriosa, ponderosa, flavo-albida, lineis binis vel geminatis fuscis undique cincta, epidermide corneo-rufa laevi et firma vestita; anfractus 9 convexi sutura haud profunda sejuncti, ultimus media obsoletissime biangulatus et subnodosus; spira*

acuminata tertiam tantummodo cochleae longitudinem occupans; cauda recta transversim plicata spira paullo brevior; apertura oblongo-ovata, intus albida, rufo lividoque variegata lineisque elevatis vel costulis fuscis parallelis sed interruptis ornata; labrum dentibus geminatis fuscis lineis externis respondentibus ornatum; columella hepatica basi plicis crassis tribus instructa, infima maxima, sequens minor, suprema minima.

(The shell is fusiform, turreted, bellied, heavy, yellow-white, surrounded on all sides by double or twin brown lines, covered with a smooth and firm corneous-rufous epidermis; 9 convex whorls not deeply separated by the suture, the last whorl moderate obsoletely biangulated and subnodous; the pointed spire occupying only a third of the total length; the straight siphonal canal is transversely folded and a little shorter than the spire; the aperture is oblong-ovate, inside white, variegated and ornamented with rufous and livid raised lines or parallel but interrupted brown ribs; the lip is decorated with twin brown teeth corresponding to the external lines; the liver-colored columella is has 3 thick folds at the base, the lowest the largest, the next smaller, the upper smallest.)

Size: length 150 mm, width 70 mm

Range: Japan

Remarks: *P. lischkeana* resembles mostly *Filifusus inermis*, but is easily distinguishable by its larger size, the much more bulbous whorls, the relatively shorter spire, the slightly knotty and somewhat blunt-edged last whorl, and by the thicker, non-white colored folds.

Typical *P. trapezium* has 2 rows of tubercles, whereas *P. lischkeana* usually has the lower row of nodes weak to obsolete.

Pleuroploca lyonsi Bozzetti, 2008

Description: Shell big sized with respect to its genus, broadly fusiform and massive. Teleoconch of 7-8 whorls, concave above the shoulder, convex below. Sculpture consisting of 8-10 rounded, prominent knobs per whorl on the shoulder, serrated incremental striae, spiral micro-cordlets and spiral cords, thicker and more evident on the subsutural area and siphonal canal. Suture incised, aperture ellyptical, axially elongate, gently joining the siphonal canal, with a moderately deep “V”-shaped anal sinus which bears a spiral, callous plica starting at the left side and prosecuting in the interior. Outer lip and siphonal canal with denticulate edge, denticles corresponding to the external spiral pattern; inside of aperture densely lyrate on the outer lip side, lyrations discontinuous, starting 8-10 mm inside the labrum, evaneshing after 10-30 mm.

Columella uniformly concave, smooth exept for 2 oblique plicae at the base, the lower one prosecuting as an elongated pad to the left edge of siphonal canal. Columellar and parietal calluses moderately developed and adherent, the parietal one stronger at the posterior side. Siphonal canal open, long, straight slightly bent to the left, barely notched at the base; operculum claw shaped, slightly twisted, with terminal nucleus, filling the aperture.

Background of orange-beige colour with spiral pattern of brown stripes, often coupled. Inside of mouth whitish with brownish-lilac vertical bands, siphonal canal, columellar and parietal calluses brown with lilac nuance, inside lyration and denticles brown, periostracum brown, operculum dark brown.

Size: 136.7-171.3 mm

Range: S Madagascar

Remarks: *P. lyonsi* differs from *Kilburnia heynemanni f. strebeli*, in the less angulate shoulder, feebler spiral sculpture, presence of spiral lines inside the aperture, parietal and columellar calluses colouration brown-lilac vs. white.

P. lyonsi differs from *P. trapezium* on the less produced peripheral tubercles, more gradual joint from aperture to siphonal canal, feebler spiral sculpture, less developed internal lyrations, feebler spiral pattern, parietal and columellar calluses lighter coloured and operculum colouration, dark brown vs. brown.

Pleuroploca ponderosa (Jonas, 1850)

Description: *F. testa maxima ponderosa, fusiformi, medio ventricosa, laeviuscula, sub epidermide crassa lutea carnea inferne transversim fusco-lineata; anfractibus 9 paullo infra medium nodoso-spinosis, ultimo superne nodifero nodis magnis productis patentibus; cauda breviuscula recta; apertura oblongo-ovata, intus fusco-striata; labro denticulato; columella cylindracea, colore hepatica, basi triplicata.*

This species is the heaviest and largest of the genus. It is fusiform, bulbous in the middle, covered with a thick brown-yellow epidermis, beneath it flesh-red in the upper part, whitish inferior with brown transverses, like the species to which it most closely resembles. The 9 whorls have a little below the middle, the last one above the

middle, a row of knobs, about 6 to 8 in number, which stand out straight on the last whorl, very elongated and almost thorn-like, but blunt at the top. The aperture is oblong-ovoid and shows raised brown transverse lines inside. The edge of the outer lip is serrated. The columella is cylindrical, pale liver-colored, with 3 folds at the base.

Size: 120-230 mm

Range: Indian Ocean

Remarks: *P. ponderosa* is much less bulbous than *P. trapezium,* the siphonal canal is shorter and thicker than in *P. trapezium*.

Pleuroploca purpurea (Jonas, 1849)

Description: *F. testa fusiformi, rubra, unicolore, laeviuscula; anfractibus 8-9, medio angulatis, tuberculis obtusis circa 9-10 coronatis; ultimo spiram subsuperante, superne angulato et coronato, angulo nodisque minus prominentibus; apertura oblongo-ovata, alba; labro intus laevi; columella basi triplicata; cauda recta inferne subrecurva.*

The shell is faintly striated, and the 8 to 9 whorls are angular and nodular as usual, but becoming duller and weaker on the last whorl. The last whorl gradually merges into the straight siphonal canal. The aperture is elongated ovate, white; the outer lip is smooth on the inside; the columella has a transverse fold at the top, and 3 oblique folds at the bottom, where it merges into the canal. The canal is only slightly shorter than the columella.

Size: length 97 mm, width 45 mm, aperture 56 mm

Range: South Africa

Remarks: This species is very distinguished and should hardly be confused with any other species, especially not with *Lugubrilaria lugubris*, also from South Africa.

The resemblance of *Kilburnia heynemanni* to *P. purpurea* is only in colour.

Pleuroploca trapezium (Linnaeus, 1758)

Synonyms: *Fasciolaria trapezium f. intermedia* Kobelt, 1875, *Fasciolaria trapezium f. paeteli* Strebel, 1911

Description: *M. testa oblonga obtuse angulata, anfractibus subnodosis, apertura dentata, cauda breviore recta.*

(Shell oblong, obtusely angled, whorls moderate nodose, aperture toothed, siphonal canal short and straight.)

Redescription: Unmistakable large, elongated, solid and heavy shell. Shoulders of body and upper whorls with thick, blunt nodules. Surface often with fine brown, spiral lines. Colour golden brown, aperture pale.

Size: 80-170 mm, up to 200 mm

Range: Indonesia, Indo-Pacific

Remarks: Typical *P. trapezium* from the western Pacific has 2 rows of tubercles, whereas the Indian-Ocean *P. audouini* and the Japanese *P. lischkeana* usually have the lower row of nodes weak to obsolete.

P. clava has prominent tubercles on the shoulder angulation and resembles a very colorful, low spired *P. trapezium*.

P. lyonsi differs from *P. trapezium* on the less produced peripheral tubercles, more gradual joint from aperture to siphonal canal, feebler spiral sculpture, less developed internal lyrations, feebler spiral pattern, parietal and columellar calluses lighter coloured and operculum colouration, dark brown vs. brown.

P. ponderosa is much less bulbous than *P. trapezium,* the siphonal canal is shorter and thicker than in *P. trapezium*.

For comparison with *P. abbasi* see there.

Australaria coronata seems to be similar in shape to *P. trapezium*, but mainly distinguished by its furrows.

*Filifusus filamentosus is s*imilar to *Pleuroploca trapezium*, but with a much taller spire and longer siphonal canal.

Polygona Schumacher, 1817

Synonyms: *Plicatella* Swainson, 1837

Type species: *Polygona fusiformis* Schumacher, 1817 accepted as *Polygona infundibulum* (Gmelin, 1791)

Description: *Apertura ovali-oblonga; labium externum undulatum; columella recta, plicis tribus obliquis aequàlibus; rostro recto, canali intègro.*

(Aperture oval-oblong; outer lip wavy; columella straight, with 3 equal oblique folds; siphonal canal straight, canal complete.)

Redescription: Adult shell small to large, fusiform, basally constricted, spire high but usually equal to or shorter than aperture plus canal, siphonal protuberance long; axial sculpture of last whorl consisting of low, broad, rounded ribs; spiral sculpture varying from obsolete to strong, high cords, forming nodes only when intersecting axial ribs at shoulder angulation (if present); outer lip planar to medially convex, with weak adapical sinus and weak or absent abapical sinus; edge of adult outer lip minutely reflected, with paired crenations on central sector; adaxial side of outer lip with smooth or beaded lirae, which in some species (including the type) form a slightly enlarged abapical denticle deeply recessed in aperture; inner lip with two or three folds, and in the adult an adapical parietal nodule; pseudoumbilicus usually present.

Size: maximum length 30 to 100 mm

Range: tropical Atlantic and eastern Pacific

Remarks: Shells of *Polygona* have prominent, near-perpendicular columellar plicae and sutures bordered with spiral cords, wrinkles, axial lamellae, or often all three.

Polygona differs from *Latirus* and *Hemipolygona* in lacking nodes where axial ribs intersect spiral cords except at the shoulder angulation.

Turrilatirus resembles *Polygona* in having broad axial ribs lacking nodes, abapical denticles deeply recessed on the outer lip and lirae that are smooth as in the type species of *Polygona*, but it differs from *Polygona* in having a high spire and consistently short siphonal protuberance, and in usually lacking a pseudoumbilicus.

The anterior location and low, oblique shape of the columellar plicae distinguish species of *Lightbournus* from species of *Polygona*, whose columellar plicae are generally stronger, aligned more nearly perpendicular, and situated higher on the columella.

compare with *Bullockus*

Polygona abbotti (Snyder, 2003)

Description: Shell medium size for genus, fusiform. Siphonal canal short, straight, angled at approximately 22° from axis of aperture, colored brown to blackish-brown. Smooth, cream-colored, bulbous protoconch of about 1 whorl and teleoconch of 8-9 whorls. Sculpture of teleoconch with 10-11 prominent rounded white to cream-colored axial ribs with dark brown interstices, converging above ribs on body whorl to color canal dark brown. Numerous reddish-brown spiral cords crossing axial ribs; some specimens with a single white band circling from anal canal around body whorl to approximate center of lip; band may follow suture between penultimate and body whorl and then becomes evanescent. At suture, ribs terminate with a brown band above. Columella with 2 prominent plicae and an additional smaller plica at beginning of canal. Aperture narrowly elongate, lirate with thick weakly dentate lip; sometimes bright yellow within when freshly collected. Umbilicus open only on large specimens.

Size: length from 45.9 mm to 52.1 mm

Range: SW Caribbean

Remarks: The unusual coloration and numerous axial ribs are an immediate distinguishing characteristic.

The closest species morphologically is *P. angulata*, which has an elongate form, from Cuba and South America. *P. angulata* has just 7-8 axial ribs on each whorl compared to 10-11 in *P. abbotti* and has an orange to orange-brown background with lighter longitudinal cords; the color is uniform throughout whereas in *P. abbotti* is brown with lighter often whitish ribs.

Polygona anapetes (Woodring, 1964) †

Description: Of medium size, slender, widely umbilicate; whorls slightly constricted in sutural area. Protoconch not preserved. Axial ribs wide; 7 on body whorl. 4 primary spiral cords on penult whorl; 7 on inflated part of body whorl. 3 secondary spiral threads on constricted sutural area; tertiary threads between them and between primary cords. Pillar sculptured with six widely spaced spiral cords and weak secondary threads. Columellar lip bearing four low folds and, near the edge, three low swellings or short ridges. Fossil.

Size: height (incomplete) 50.7 mm, diameter 21 mm

Range: S Caribbean

Remarks: described as fossil; recent?

Hemipolygona mcgintyi from SE Florida is more inflated and its periphery is angulated.

Polygona angulata (Röding, 1798)

Synonyms: *Latirus cymatias* Schwengel, 1940

Description: not available

Redescription: Shell small to large. Spire usually more than half the length of the shell, but sometimes less. Whorls 9-10; protoconch consisting of 2 whorls. Aperture oval to squarish and greater in length than the short siphonal canal. Axial sculpture of 7-8 squarish ribs which often are more pronounced just below the shoulder of the whorl. Numerous fine growth lines usually very conspicuous at the suture. Spiral sculpture of 8-10 heavy cords, 4-5 showing on the upper whorls, interspaced with secondary, and sometimes tertiary, threads. Columella with 3 folds and a weaker one below. Outer lip crenulated, the indentations corresponding to the spiral sculpture. Within the lip 7-12 lirae run into the aperture.

Fasciole present. Anal canal partially developed. Color light cream-orange to brown. Spiral cords and threads reddish brown or at times the color of the shell. Shell occasionally banded with light reddish brown. Periostracum very thin, light brown.

Size: up to 76.5 mm in length and 34 mm in greatest diameter

Range: SE Florida, S Caribbean

Remarks: This relatively common species exhibits more intraspecific variation than other Latirus.

The closest species morphologically to *P. abbotti* is *P. angulata*, which has an elongate form. *P. angulata* has just 7-8 axial ribs on each whorl compared to 10-11 in *P. abbotti* and has an orange to orange-brown background with lighter longitudinal cords; the color is uniform throughout whereas in *P. abbotti* is brown with lighter often whitish ribs.

P. martini appears to be most closely related to the highly variable *P. angulata*. Specimens of *P. angulata* from the Swan Islands, and a specimen from the northern coast of South America are superficially similar to *P. martini*. The coloration is similar but the shape and sculpture are completely typical of *P. angulata* and thus readily distinguishable from *P. martini*. *P. angulata* has 7-9 axial ribs, about half the number of *P. martini*. The spiral cords on *P. angulata* are weaker than those of *P. martini*. The typical coloration is also quite different. In a dark brown specimen of *P. angulata*, the raised cords and that portion of the whorl near the suture are dark brown, in areas between cords where there is fine ornamentation, the shell is light cocoa-tan to orange-brown. Generally, *P. angulata* is a more elongated shell with the spire usually more than half the length of the shell.

P. nemata can possibly only be confused with some forms of *P. angulata*. The latter species usually can be differentiated easily by its stronger spiral cords, often with intermediate secondary cords which are usually brown in color. In addition, the axial ribs tend to be somewhat round. In *P. nemata* the spiral cords are fine and more numerous, lack color, and the axial ribs are more squarish in outline.

P. paulae is most similar to the widespread Caribbean *P. angulata* but differs in having much broader, more inflated whorls; in having more indented sutures on the spire whorls; in having a much more stepped, scalariform spire; in having fewer, much coarser, and more prominent spiral cords; and in having a proportionally much larger and more flaring aperture.

P. bayeri is similar to *P. angulatus*, but differs in being a more elongated, fusiform shell with a proportionally much longer siphonal canal, in having more rounded, non-angeled whorls, in having a bright yellow-orange shell color, and in having a highly excerted, projecting, mammilate protoconch.

P. devyanae differs from *P. angulata* in being more elongate and in having a finer sculpture.

P. lactea is differing to *P. angulata* in the length and shape of the anterior siphonal canal, which is much shorter in *P. angulata*, and in the inner lip, which has 3 teeth in *P. angulata*. It also differs from *P. angulata* in that the shell has a more pronounced light brown color over the spiral cords.

P. angulata differs in shape and color from *Hemipolygona beckyae.*

Polygona bayeri (Petuch, 2001)

Description: Shell of average size for genus, elongated, fusiform, with high, elevated spire; shoulder rounded, only slightly angled; suture indented, producing rounded spire whorls; whorls with 6 large, rounded, undulating varices; body whorl encircled by 12 large, coarse spiral cords; smaller secondary cord present between each pair of primary cords; spire whorls encircled by 6 primary cords and 4 secondary cords; spiral cord bordering suture fimbriated with small scales that correspond to shell growth increments; siphonal canal proportionally large and protracted; pseudoumbilicus large, prominent, open; siphonal canal encircled by 8 large spiral cords; aperture large, oval; parietal shield narrow, poorly-developed, adherent; columella with 6 plications, with middle 3 being largest and most prominent; interior of aperture with 10 large cords; protoconch proportionally very large, smooth, mammilate, projecting, composed of 2 1/2 whorls; base shell color uniform bright yellow-orange; spiral cords colored pale cream-white; interior of aperture pale yellow-orange; periostracum thick, smooth, dark brown.

Size: length 39 mm, width 18 mm

Range: Brazil

Remarks: *P. bayeri* is most similar to the common and widespread Caribbean *P. angulatus*, but differs in being a more elongated, fusiform shell with a proportionally much longer siphonal canal, in having more rounded, non-angeled whorls, in having a bright yellow-orange shell color, and in having a highly excerted, projecting, mammilate protoconch.

Polygona bernadensis (Bullock, 1974)

Description: Shell small to medium in size. Spire slightly greater than half the length of the shell. Aperture oval to squarish and as long or slightly longer than the moderately long siphonal canal. Whorls 9. Axial sculpture of 7 broad ribs which are slightly more pronounced on the shoulder of the whorl. Spiral sculpture of about 8 cords with occasional secondary cords between; 4-5 cords show on the upper whorls, and a number of cords, some stronger than others, are prominent on the siphonal canal. Columella with 3 folds with a weaker fold above and below these. Outer lip crenulate due to the spiral sculpture; within the lip 6-9 lirae run into the aperture. Periostracum thin, light brown. Shell light cream-orange, including the spiral cords. Aperture slightly lighter in color.

Size: up to 44.2 mm in length and 16.5 mm in greatest diameter

Range: Barbados, Lesser Antilles

Remarks: When compared with other West Indian *Polygona*, *P. bernadensis* appears most similar to *P. infundibulum*, but differs by being relatively stouter, having broader axial ribs, and lacking the brown coloration on the stronger spiral cords.

Pustulatirus praestantior from West Mexico is closely related, but its spiral sculpture is not as strong, especially on the body whorl.

P. bernadensis differs from *Pustulatirus ogum* in lacking the 3 prominent cords on the siphonal canal, by having much stronger spiral cords, lighter color, and a much more angled shoulder, a planar instead of a convex outer lip, lacking a labral tooth, and having a distinct false umbilicus.

P. bernadensis is uniformly light-cream-orange, a color that sets its apart from *Hemipolygona beckyae.*

compare to *P. lactea*

Polygona brevicaudata (Reeve, 1847)

Description: *Turb. testa elongato-turbinata, canali brevi, spira elongata, anfractibus rotundatis, fortiter plicato-nodatis, superne juxta suturas peculiariter longitudinaliter plicato-striatis, liris conspicuis regularibtis cingulatis, interstitiis excavatis, stria unica elevata interveniente; albida, fusco tincta, liris striisque vivide castaneis.*

Shell elongately turbinated somewhat fusifom, canal short, spire elongated, whorls rounded, strongly plicately noduled, peculiarly longitudinally plicately striated round the upper part, next the sutures, encircled with conspicuous regular ridges, the interstices between which are excavated and have a single raised stria intervening; whitish, stained with brown, ridges and striae rich chesnut-brown.

Redescription: Shell with about 10 somewhat rounded whorls; spire elevated; whorls with about 8 strong, rounded, nodulous, longitudinal ribs; surface covered with numerous, sharp, revolving ridges, and in the interstices of these there are smaller revolving ridges and lira; aperture round-elliptic, the outer lip lirate within; canal rather short, recurved; columella with 3 or 4 plaits. Color reddish brown; revolving ridges darker.

Size: 25-40 mm; length 40 mm, diameter 18 mm

Range: Lower Florida Keys, W Indies, Caribbean

Remarks: A very characteristic sharply corded species, having somewhat the form of the *Turrilatirus turritus* but not the colour.

Shells of *Bullockus guesti* have been confused with *P. brevicaudata*. Although their shells are similar in general profile, in sculpture of the axial ribs, and particularly in having orange-brown spiral cords, *P. brevicaudata* can be distinguished by having distinct, well-developed, near-perpendicular plicae on its columella and rugose wrinkles, often overlain by fine axial lamellae, just anterior to its suture.

The shell of *Latirus filamentosus* is quite different from that of *P. brevicaudata*, much clumsier, the constriction at the sutures much less, the spire less acute, the sculpture much less developed, the tubercles flatter and shorter, the spiral ribs flatter and less projecting on the tubercles mostly rubbed off. On the other hand the color is exactly the same, both have the darker siphonal canal, the chestnut-brown spiral ribs with fine brown lines in between.

compare to *Lightbournus russjenseni*

Polygona concentrica (Reeve, 1847)

Description: *Turb. testa angusto-fusiformi, spira acute turrita, liris elevatis, subdistantibus undique funiculata, costis concentricis solidis latiusculis confertis, canali subelongato; aperturae fauce lirata, liris interruptis subdistantibus; rufo-aurantia, epidermide pellucido-fusca induta, apertura lutescente.*

Shell narrow-fusiform, spire sharply turreted, corded throughout with rather broad close-set concentric ribs, canal a little elongated; interior of the aperture ridged, ridges interrupted and rather distant; reddish orange, covered with a transparent brown epidermis, aperture yellowish.

Size: 35-55 mm

Range: St. Elena, West Columbia; E Pacific

Remarks: Perfectly distinct *Latirus polygonus*, though similar in general aspect; the canal is shorter, the ridges, with which it is forcibly corded throughout, are equal, more distant from each other, and more elevated in the interstices between the ribs, which are closer. The shell has, moreover, a transparent orange-red hue, which is somewhat characteristic.

P. socorroensis differs from *P. concentrica* in that the whorls are angulated at the shoulder and in that no spiral sculpture is present on the whorls posterior to the angulation.

compare with *Pustulatirus praestantior*

Polygona devyanae (Rios, Costa & Calvo, 1994)

Description: Shell fusiform, solid and imperforate. Spire high (3/7 of total shell length), acute, spire angle about 45°. Protoconch mamilliform, smooth, with 1.5-2 whorls. Teleoconch with 5 strongly convex whorls, axially and spirally sculptured. Suture deep. Colour dirty white, some specimens brown. Periostracum inconspicuous. Shell surface with strong axial ribs, 10-11 on last whorl, crossed by spiral lines, 22-23 on body whorl. Aperture oval

(length/width = 1.5), white internally. Aperture length almost the same as the spire presenting 8-10 lirae. Operculum chitinous, yellow, with basal nucleus, closing completely the aperture. Siphonal canal short and arched up to the left. Pariental region smooth. Outer lip thin. Columella curved with no plicae.

Size: length up to 35 mm, width 15 mm; 36.3 mm

Range: S Brazil

Remarks: *P. devyanae* differs
- from all others in Brazilian waters in having an arched siphonal canal.
- from *Pustulatirus ogum* by the absence of large nodules.
- from *Polygona angulata* in being more elongate and in having a finer sculpture.
- from *Pustulatirus virginensis* by the colour and different sculpture.
- from *Polygona lactea* by the general morphology and by the colour.

P. devyanae does not reach the size of *P. infundibulum*.

Compared to *Hemipolyg. beckyae, P. devyanae* has a distinctive curved siphonal canal and grows to just 35 mm.

Polygona filosa (Schubert & J. A. Wagner, 1829)

Synonyms: *Fusus elegans* Gray, 1838

Description: *Turbinella testa fusiformi-turrita, longitudinaliter turgido-plicata, alba; costellis transversis, filiformibus, castaneis cincta; cauda perforata, recta; columella plicis obsoletis.*

(Shell fusiform-turreted, with 10 strong convex whorls; longitudinally turgid-folded, white; transverse chestnut brown ribs; aperture oval, white; canal furrowed, straight; 5 obsolete columella folds.)

Size: 50.2 mm x 22.6 mm

Range: West Africa

Polygona infundibulum (Gmelin, 1791)

Synonyms: *Polygona fusiformis* Schumacher, 1817

Description: *M. testa umbilicata undulatim nodosa, striis elevatis fuscis varia, umbilico infundibuliformi columella biplicata.*

(The umbilicated shell is wavy and knotty, with various raised brown stripes, columella bifurcated with a funnel-shaped umbilicus.)

Redescription: Shell elongate-fusiform, with about eleven whorls; spire elevated; whorls somewhat rounded, sculptured, with 6 or 7 strong, nodulous, rounded, longitudinal ridges. On the upper whorls there are 4 or 5 strong, revolving ridges, and rarely a revolving thread in the interstices. Aperture long, ovate; outer lip strongly lirate within; parietal wall heavily callous, the callus sometimes being raised into a sharp lip; columellar plaits 4; canal long, narrow. At the base of the shell there is a false umbilicus. Color reddish brown, the revolving ridges darker.

Size: 100 mm; length 65 mm, diameter 23 mm

Range: Florida to Brazil

Remarks: *Pustulatirus virginensis* resemles *P. infundibulum* in shape, but differs in being smaller, in having white axial ribs in the early whorls, in having 4-5 spiral cords crossing the ribs (instead of 3 distinct, sharp, brown ones), and in having a strong tooth at the lower outer corner of the aperture. The spiral ribs in *P. virginensis* are usually obsolet between the ribs, and, in some specimens, may be weak on the axial ribs of the last whorl.

Compared with other West Indian *Polygona*, *P. bernadensis* appears most similar to *P. infundibulum*, but differs by being relatively stouter, having broader axial ribs, and lacking the brown coloration on the stronger spiral cords.

By having widely spaced prominent brown spiral cords, *P. paulae* resembles *P. infundibulum* but differs in being a less elongated, much stockier, and more inflated shell with a lower spire.

P. devyanae does not reach the size of *P. infundibulum*.

Hemipolygona beckyae differs in shape and color from *P. infundibulum*

Polygona jucunda (McGinty, 1940)

Description: Shell fusiform, whorls 7 (apex lost), solid, with spire longer than the aperture, umbilicus slightly open; sculpture of rounded axial folds, about 7 in number on the last whorl, weak at suture and on the base; spiral threads on the shoulder and stronger cords below, the upper-most and those on the base alternating with smaller threads. Aperture elongate, lirae in the throat about 8. There are 4 columellar folds, about equal, and a strong ridge on the parietal wall near the posterior angle of the aperture. (fossil)

Size: height 43.8 mm, width 19 mm

Range: S Florida

Remarks: *P. jucunda* can be most easily distinguished from *Latirus maxwelli†* by the smaller size, the more slender shell, surface sculpture and the only slightly open umbilicus.

The presence of 2 well developed cords on the earlier whorls suggests the recent *Hemipolygona mcgintyi*.

Polygona lactea (Matthews-Cascon, Matthews & Rocha, 1991)

Description: *Concha espessa, alongada, de coloração branca leitosa em toda extensão, sem maculações. Protoconcha opaca, de cor branca, pequena, mamiliforme, com 2 voltas lisas, de sutura marcada e separação da teleoconcha bem definida, persistentes nos exemplares adultos. Teleoconcha com 7 voltas de sutura marcada e irregular, em função de elevações axiais. Espira alongada com ângulo de 35°, medindo, em vista dorsal, quase 50 % do comprimento da teleoconcha. Teleoconcha ornamentada por 7 elevações axiais, extremamente pronunciadas, presentes em todas as voltas, progressivamente mais acentuadas anteriormente. Ornamentação espiral de cordões lisos acentuados, equidistantes, porém, com 3 mais próximos entre si junto às suturas, contínuos entre as elevações axiais; com 17 cordões na volta corporal e com finíssimas e numerosas linhas de crescimento, menos conspicuas, sobre os cordões espirais. Abertura ovóide, com estreito fino calo columelar aderido, que se estende por todo o canal sifonal anterior. Lábio interno com 2 pequenos dentes columelares que se prolongam pelo interior da abertura, não atingindo a margem externa do calo columelar. Lábio externo fino, crenulado pela ornamentação espiral. Interior da abertura com pequenas linhas correspondentes aos espaços entre os cordões espirais. Canal sifonal anterior muito longo e estreito, levemente dirigido para a face dorsal. Fasciolo pouco conspicuo. Canal sifonal posterior raso e aberto, demarcado por um dente na porção posterior da columela.*

(Shell thick, elongated, milky white throughout, without stains. Opaque, white, small, mammiliform protoconch, with 2 smooth whorls, marked suture and well-defined separation from the teleoconch, persistent in adult specimens. Teleoconcha with 7 whorls of marked and irregular suture, due to axial elevations. Elongated spire with an angle of 35°, measuring, in dorsal view, almost 50% of the length of the teleoconch. Teleoconch decorated with 7 axial elevations, extremely pronounced, present on all sides, progressively more accentuated anteriorly. Spiral ornamentation of accentuated smooth cords, equidistant, however, with 3 closest to each other next to the sutures, continuous between the axial elevations; with 17 cords around the body and with very thin and numerous growth lines, less conspicuous, on the spiral cords.

Aperture ovoid, with a narrow, thin columellar callus attached, which extends throughout the anterior siphonal canal. Internal lip with 2 small columellar teeth that extend inside the aperture, not reaching the external margin of the columellar callus. Outer lip thin, crenulated by spiral ornamentation. Inside the aperture with small lines corresponding to the spaces between the spiral cords. Anterior siphonal canal very long and narrow, slightly directed towards the dorsal surface. Fasciole little conspicuous. Shallow and open posterior siphonal canal, demarcated by a tooth in the posterior portion of the columella.)

Size: length 27 mm, width 11 mm; to 32 mm

Range: N Brazil

Remarks: *P. lactea* is, among the recent species, closest to *P. angulata*, differing in the length and shape of the anterior siphonal canal, which is much shorter in *P. angulata*, and in the inner lip, which has 3 teeth in *P. angulata*. It also differs from *P. angulata* in that the shell has a more pronounced light brown color over the spiral cords.

P. lactea resembles some specimens of *P. bernadensis* from French Guiana. Protoconch and teleoconch morphologies of the shells resemble those of *P. bernadensis* but the protoconchs are slightly smaller and the revolving cords of the spire are narrower than those of the latter species; many cords of *P. lactea* are separated by single, finer threads in their interspaces. The net effect is of a shell that more resembles the original figures of *P. lactea* than they do shells of *P. bernadensis*.

P. devyanae differs from *P. lactea* by the general morphology and by the colour.

Compared to *Hemipolygona beckyae, P. lactea* is glossy-white and grows to just 32 mm.

Polygona martini (Snyder, 1988)

Description: Shell heavy, small to medium in size, somewhat squat, with spire nearly 1/3 length of shell; profile inflated, with 8-9 whorls; protoconch of 1 1/2 whorl, smooth, bulbous, translucent pale orange-brown in color; aperture oval to squarish, greater in length than siphonal canal; anal canal weakly developed; axial sculpture of 13-16 prominent ribs, crossed by numerous, pronounced spiral cords with grooves between; cords alternately larger and smaller, first 2 on body whorl about equal in thickness, forming ridge and deep suture; approximately 45 cords on body whorl running onto anterior end of siphonal canal, 25 cords on the penultimate whorl, with every fifth cord somewhat stronger than others; spiral cords darkish orange-brown turning to dark brown between axial ribs; grooves between cords light caramel brown with yellow cast; shell appears dark orange-brown, with lighter axial ribs; columella with 3-4 distinct plicae; teeth translucent, shiny, white; outer lip crenulated, with indentations corresponding to spiral sculpture; smooth portion of inner lip extending approximately to opposing side of the first axial rib, followed anteriorly by 14-16 irregular white lirae on inside of body whorl; operculum yellow-brown in color, chitinous, nearly filling aperture.

Size: length 21.7-38.4 mm

Range: Honduras

Remarks: *P. martini* appears to be most closely related to the highly variable *P. angulata*. Specimens of *P. angulata* from the Swan Islands, and a specimen from the northern coast of South America are superficially similar to *P. martini*. The coloration is similar but the shape and sculpture are completely typical of *P. angulata* and thus readily distinguishable from *P. martini*. *P. angulata* has 7-9 axial ribs, about half the number of *P. martini*. The spiral cords on *P. angulata* are weaker than those of *P. martini*. The typical coloration is also quite different. In a dark brown specimen of *P. angulata*, the raised cords and that portion of the whorl near the suture are dark brown, in areas between cords where there is fine ornamentation, the shell is light cocoa-tan to orange-brown. Generally, *P. angulata* is a more elongated shell with the spire usually more than half the length of the shell.

Possible confusion could also occur with *Leucozonia nassa* which is somewhat similar in profile and coloration. This shell lacks the strong axial sculpture of *P. martini*, and has a thick, black-brown operculum. A characteristic narrow white band at the base, commonly terminating in a small spine on the outer lip, serves to distinguish *L. nassa* from *P. martini*.

Finally, confusion might arise with *P. vermeiji*. *P. vermeiji* has less pronounced surface sculpture, is distinctlv orangish in color, and has a caramel-orange colored inner lip, whereas the inner lip in *P. martini* is yellowish brown. The roughly even spiral cords in *P. vermeiji* are more pronounced with every other cord being white in color.

Polygona nemata (Woodring, 1928)

Description: Shell medium-sized, stout, whorls closely appressed at suture. Anterior canal moderately long and narrow, oblique. Columella bearing 3 low folds and an indistinct fourth one. Sculpture consisting of swollen axial ribs ending rather abruptly some distance from suture, and of strong closely spaced spiral threads of about equal strength, except on pillar. Near the suture the threads are farther apart than elsewhere, and lamellar growth wrinkles adjoin the suture. fossil

Redescription: Shell moderately large. Spire usually about half the length of the shell, but sometimes less. Whorls 10, including 1 1/2 whorls of the protoconch, which is often broken off or eroded. Aperture oval and larger than the rather short siphonal canal. Axial sculpture of 8-11 ribs. Numerous fine growth lines are present. Spiral sculpture of many cords, usually of even thickness, but occasionally showing some secondary cords. In the region below the shoulder and on the body whorl of some specimens, the crossing of the growth lines and the spiral cords gives the shell a cancellate appearance. Columellar folds 4, with the lower 2 partially fused. Outer lip minutely crenulate with the formation of small teeth arranged in pairs. Within the lip 10-14 irregular lirae run into the aperture, the anterior one thickened and corresponding to the most anterior columellar fold and appearing to almost close the apertural entrance to the siphonal canal. Fasciole well developed; pseudoumbilicus slit-like. Anal canal well defined.

Shell light cream-orange to almost white with light orange on the siphonal canal, and occasionally partially banded with reddish brown. Early whorls Sayal brown. Aperture yellowish white; columella light orange. Periostracum thin and light greenish brown.

Size: length 60.4 mm, diameter 23 mm

Range: †Jamaica, Florida, Cuba

Remarks: This finely sculptured species is not similar to any living or Tertiary Caribbean or Panamic species. It remotely resembles *Latirus protractus* †, a species from the upper Oligocene Byram marl of Mississippi, but is larger and stouter, and has more distinctly appressed whorls and finer sculpture.

P. nemata can possibly only be confused with some forms of *P. angulata*. The latter species usually can be differentiated easily by its stronger spiral cords, often with intermediate secondary cords which are usually brown in color. In addition, the axial ribs tend to be somewhat round. In *P. nemata* the spiral cords are fine and more numerous, lack color, and the axial ribs are more squarish in outline.

Polygona paulae Petuch, 2013

Description: Shell of average size for genus, with rounded, inflated whorls; spire high, protracted, distinctly stepped, of equal size to body whorl; shoulder rounded; body and spire with 8 large, highly raised, thickened varices per whorl; body whorl ornamented with 14 large, prominent, raised spiral cords; entire shell ornamented with numerous thin, raised, longitudinal squamous growth lines, giving shell scaly appearance; suture bordered with 2 very thin spiral cords; siphonal canal proportionally long, narrow, ornamented with 3 large spiral cords and several smaller secondary spiral cords; aperture proportionally large, flaring, oval; edge of outer lip with 13-14 large beaded riblike teeth; columella with small, thin parietal shield; parietal shield adherent, ornamented with 4 large teeth on anterior half; narrow and deep pseudoumbilicus present at anterior end of columellar area; shell color rich orange-brown, with spiral cords being darker brown; anterior tip and sutural area dark brown; interior of aperture light orange.

Size: length 48 mm, width 25 mm

Range: Bahamas

Remarks: *P. paulae* is most similar to the widespread Caribbean *P. angulata* but differs in having much broader, more inflated whorls; in having more indented sutures on the spire whorls; in having a much more stepped, scalariform spire; in having fewer, much coarser, and more prominent spiral cords; and in having a proportionally much larger and more flaring aperture.

By having widely spaced prominent brown spiral cords, *P. paulae* also resembles the widespread Caribbean *P. infundibulum* but differs in being a less elongated, much stockier, and more inflated shell with a lower spire.

Polygona socorroensis (Hertlein & A. M. Strong, 1951)

Description: Shell turreted, yellowish-white covered with an orange-brown periostracum; nucleus very small, eroded, forming a sharp point to the spire; normal whorls 8, regularly increasing in size, shoulder subangulate above which they are slightly concave and below which they are broadly rounded; axial sculpture consists of 9 rounded ribs, strong over the lower half of the whorls, faint over the slightly concave upper half, fading out on the base, in addition to the ribs there are strong lines of growth over the entire surface; spiral sculpture on the spire consists of 2 equal raised cords on the lower half of the whorls which are strong on top of the axial ribs but faint in the interspaces, on the last whorl these are followed by 4 equally strong and equally spaced similar cords with 3 more widely spaced cords on the canal, occasionally a fine spiral thread occurs between the major spiral cords on the canal; aperture narrow, showing broken lines of small ridges deep within, canal narrow, open, about equal in length to the aperture, the edge of the outer lip finely serrated by the ends of the spiral cords; a siphonal fasciole is present, columella with 3 sharp plaits at the lower end.

Size: length 39 mm, maximum diameter 17 mm

Range: W Mexico, W Central America

Remarks: *P. socorroensis* bears a slight resemblance to *Leucozonia cerata* but it differs from that species in the more slender form, longer canal, less strongly tuberculate shoulder and in lacking the well developed fine, concentric, secondary spiral threads.

It also differs from *P. concentrica* in that the whorls are angulated at the shoulder and in that no spiral sculpture is present on the whorls posterior to the angulation.

P. vermeiji is morphologically closer to the Panamic *P. socorroensis*, which is also endemic to off-shore island groups.

Polygona tumens (Carpenter, 1856)

Description: *L. testa "L. gracili" simillima, sed costis maxime tumentibus, attingentibus, sulcis spiralibus crebris ornata; plicis columellaribus iii. quarta obsoleta.*

(Shell very similar to *Pustulatirus praestantior* (= *Latirus gracilis*), but the ribs are especially swollen, touching, and often decorated with spiral grooves; folds of columellar 3/4 obsolete.)

Size: length 69.5 mm, length of spire 39.25 mm, width 36 mm; spire angle 50°

Range: Gulf of Panama

Remarks: In *Pustulatirus praestantior* the spiral lines are few and raised, in *P. tumens* numerous and impressed.

Polygona vermeiji (Petuch, 1986)

Description: Shell fusiform in outline, spire protracted; siphonal canal short for genus; adults with 8 whorls; sculpture consisting of 8-10 large spiral cords with finer threads in between; whorls with 8-9 prominent axial ribs; shoulder sharply angled, producing faint knob at posterior end of each rib; columella with 3 large plications; outer lip with numerous lirae; lirae extending into aperture; siphon slightly umbilicate; shell uniformly deep orange colored; interior of aperture white; periostracum and operculum dark brown.

Size: length 25 mm, width 13 mm

Range: Fernando de Noronha, N Brazil

Remarks: *P. vermeiji* somewhat resembles a stumpier version of the Abrolhos Islands endemic *Pustulatirus ogum*, but differs in having a much shorter siphonal canal and more angled shoulder. In these last two characters, *P. vermeiji* resembles a small *Leucozonia* species. *P. vermeiji* is a true [*Latirus*], however, in that it lacks the tooth on the outer lip and the color banding of that fasciolariid genus.

Interestingly enough, *P. vermeiji* is morphologically closer to the Panamic *P. socorroensis*, which is also endemic to off-shore island groups.

Confusion might arise from *P. martini* with *P. vermeiji*. *P. vermeiji* has less pronounced surface sculpture, is distinctlv orangish in color, and has a caramel-orange colored inner lip, whereas the inner lip in *P. martini* is yellowish brown. The roughly even spiral cords in *P. vermeiji* are more pronounced with every other cord being white in color.

Compared to *Hemipolygona beckyae P. vermeiji* is very small with a short stumpy canal, growing to just 26 mm.

Triplofusus Olsson & Harbison, 1953

Type species: *Triplofusus giganteus* (Kiener, 1840)

Description: not available

Redescription: Shell large to very large (two living species), high-spired; teleoconch sculpture of broad axial ribs, sometimes forming nodes at shoulder angulation, and spiral cords, which are sharp and prominent in subadults but often broad and rounded in adults; outer lip almost planar, its inner side smooth or with smooth lirae which may be rather prominent in subadult shells, its junction with penultimate whorl lacking adapical notch; two columellar folds less prominent than the rounded entrance fold to the siphonal canal; abapical folds on adaxial side of siphonal canal absent.

Size: to 400 and 600 mm

Range: from the SE United States and Gulf of Mexico, barely intruding in Caribbean southward to Cozumel

Remarks: described as fossil

Although most characters of the two living species of *Triplofusus* are similar, the eastern Pacific *T. princeps* is distinctive in having a plicate operculum. The only other fasciolariine with a somewhat plicate operculum is *Aurantilaria aurantiaca*, but in that species the ridges and grooves are much less expressed.

Species of *Triplofusus* resemble *Aurantilaria* in having a high spire, but lack the parietal ridge of *Aurantilaria* and have a planar rather than convex outer lip. The outer lip of *Triplofusus* lacks the terminal crenulations of *Aurantilaria* and is either smooth on its inner side or has smooth internal lirae.

Granolaria differs from *Triplofusus* by the presence of a distinct parietal ridge and by having a lower spire, and from *Pliculofusus* by a much lower spire, finer spiral sculpture, and the absence of folds on the inner edge of the siphonal canal.

Fusilaria differs from *Triplofusus* by having a very thin, lightweight shell, spiral cords that are not prominent, and some beaded lirae on inner side of outer lip.

A comparison can be done with the similar fossil genus *Pliculofusus †*.

Triplofusus giganteus (Kiener, 1840)

Synonyms: *Fasciolaria papillosa f. elongata* Strebel, 1911, *Fasciolaria papillosa f. reevei* Jonas, 1850, *Fasciolaria papillosa juvenis* Strebel, 1911, *Fasciolaria reevei* Jonas, 1850

Description: *F. testa maximâ, fusiformi, ponderosâ, spadiceo-aurantiacâ, epiderme bruneâ, transversîm costis convexiusculis, subundatis, frequentibus cinctà; anfractibus supernè depressis, tuberculis proeminentibus coronatis; ultimo ventricoso; aperturâ ovatâ, dilatatâ, aurantiacâ; labro dextro sinuoso; columellâ triplicatâ.*

Coquille très-grande, épaisse, fusiforme, ayant la spire allongée, tiirbinée, pointue au sommet; elle est composée de neuf ou dix tours assez larges, dont la surface est partagée en deux parties presque égales par un angle qui est formé d'une rangée de tubercules; la partie de la surface qui s'étend de la suture à l'angle tubercule est légèrement aplatie; le dernier tour est très-ventru; il se termine en un canal subcjlindracé, épais, creusé en une gouttière profonde; les tubercules de ce tour sont élevés, fort épais et comme pinces latéralement. La surface de la coquille est cerclée par un grand nombre de côtes à peine convexes et légèrement onduleuses, qui paraissent égales entre elles; une de ces côtes traverse le sommet des tubercules, et se continue dans leurs intervalles.

L'ouverture est fort grande, ovale, dilatée à sa partie supérieure, d'une belle couleur orangée; la columelle est épaisse, revêtue d'un bord gauche mince, peu développé et appliqué dans toute son étendue, elle est pourvue de trois plis très-obliques; le bord droit est mince, sinueux, garni, vers l'angle supérieur, d'une gouttière décurrente peu profonde. Cette coquille est recouverte d'un épiderme d'un brun foncé, très-adhérent et un peu plus clair sur les premiers tours: sous cette enveloppe elle est de couleur chamois.

(Shell very large, thick, fusiform, having the spire elongated, turbinate, pointed at the top; it is composed of 9 or 10 fairly wide whorls, the surface of which is divided into 2 almost equal parts by an angle which is formed by a row of tubercles; the part of the surface which extends from the suture to the tubercle angle is slightly flattened; the last whorl is very pot-bellied; it terminates in a thick subcylindrical channel, hollowed out in a deep gutter; the tubercles of this whorl are raised, very thick and laterally compressed. The surface of the shell is encircled by a large number of slightly convex and slightly undulating ribs, which appear equal to each other; one of these ribs crosses the top of the tubercles, and is continuous in their intervals.

The aperture is very large, oval, dilated at its upper part, of a beautiful orange color; the columella is thick with a thin left edge, little developed and applied in all its extent, it has 3 very oblique folds; the right edge is thin, sinuous, trimmed, towards the upper angle with a shallow decurrent gutter. The shell is covered with an epidermis of a dark brown, very adherent and a little lighter on the first whorls; under the periostracum it is of a yellowish-brown color.)

Redescription: Shell very large, solid, fusiform, with about 10 whorls; spire well elevated, pointed; growth lines strong and irregular; the surface is covered with a series of more or less strongly developed, rounded, revolving ribs, and between these there are fainter ones; near the center of the whorls there is a row of large nodules, which are somewhat distantly spaced and which fade out on the body whorl; aperture ovate-oblong, the outer lip more or less ridged within; canal long, open, and slightly recurved; columella incurved, furnished with 3 folds below. The surface is salmon or chamois colored, and is covered with a strong, reddish-brown epidermis, which cracks and peels off when the shell is dry. The aperture varies from dirty straw color to deep salmon or reddish.

Size: 325 mm; length 400-610 mm; width 17.5-25 mm

Range: North Carolina through Florida to Texas and Gulf of Mexico to Yucatán

Remarks: This is one of the largest of the Gastropods, being excelled in size only by the *Syrinx aruanus* of Australia. The species varies much in the development of the tubercles, in some cases being almost destitute of them, and in others they are very strong and scarcely diminish in size on the last whorl.

T. giganteus varies much in the development of the tubercles, in some cases being almost destitute of them, and in others they are very strong and scarcely diminish in size on the last whorl. It differs from the *T. princeps* of the Pacific coast by the smooth external surface of its operculum.

Triplofusus princeps (G. B. Sowerby I, 1825)

Synonyms: *Fasciolaria acutispira* Strebel, 1911

Description: *F. testa fusiformi, aurantiaca, anfractibus 7 superioribus nodulosis, sulcatis, ultimo ventricoso, sulcis validis, distantibus; apertura transverse et interrupte rufo-lineata; operculo bifariam sulcato, radiato.*

(Shell fusiform, orange, with 7 nodular upper whorls, furrowed, the last whorl ventricose, furrows strong, distant; aperture transversely and interruptedly red-lined; operculum bifurcate, radiated.)

The shell is covered with a dark brown epidermis.

Redescription: Large fusiform shell, elongated, with a very long spire, and a little obtuse at the top, composed of 9 rather broad whorls, moderately convex, united by a slightly sunken suture; these whorls are subcarnated towards their middle; the hull is formed of a row of nodular tubercles; the last whorl is longer than the rest of the spire; it is pot-bellied and extends into a deep, moderately elongated canal; the whole shell is furrowed across; the furrows are regular, projecting, subrough, rounded, distant from each other; they are larger on the tubercles, and very oblique on the back of the basal canal; the longitudinal streaks of growth are on this shell very visible and very multiplied.

The aperture is oblong, of a beautiful orange-yellow; the straight edge is quite thin, crenellated along its entire length; the left border, much thicker, is narrow and applied to the columella, which is rounded, almost straight, with 3 oblique folds; the upper one is barely visible. Under a dark brown epidermis, the shell is light fawn.

Size: length 200 mm, width 81.25 mm

Range: W Mexico to Peru

Remarks: *T. princeps* is always more fusiform than *T. gigantea*, and has less developed tubercles.

Fusininae Wrigley, 1927

Synonyms: *Cyrtulidae* MacDonald, 1869, *Fusinae* Swainson, 1840

Type genus: *Fusinus* Rafinesque, 1815

Description: described as fossil *Fusinidae †* (not available)

of *Fusinae*: Shells generally fusiform and slender; the base elongated; the spire lengthened and acute; pillar smooth; outer lip thin.

Redescription: The inner (adaxial) edge of the siphonal canal is not separated by a groove from the columellar side of the shell; protoconch paucispiral.

Size: small to very large

Range: tropical and temperate world oceans

Africofusus Vermeij & Snyder, 2018

Type species: *Africofusus ocelliferus* (Lamarck, 1816)

Description: Shell broadly fusiform (length to diameter ratio 1.8 : 2.4); siphonal canal widely open (5 mm or more), often dorsally curving; spiral sculpture consisting of widely spaced rounded cords; axial sculpture variable, can form nodes or tubercles at single enlarged shoulder cord or keel when well expressed; basal constriction of last whorl gradual; siphonal process usually short (canal length to shell length ratio 0.32 : 0.37); aperture large; outer lip smooth or with very short lirae on inner side.

Size: not given

Range: South Africa

Remarks: Species in this group closely resemble the South African fasciolariine genera *Kilburnia*, and *Lugubrilaria*. *Africofusus* differs from these taxa primarily in lacking the columellar folds that characterize members of the *Fasciolariinae*.

In its indistinct lirae and its widely spaced rounded cords, *Callifusus* resembles *Africofusus*.

The genus *Enigmofusus* is perhaps most similar to *Africofusus*. It differs from that temperate genus by having a longer siphonal protuberance that is more abruptly set off from the main part of the last whorl. The cords of *Enigmofusus* are more sharply rounded and the shell is more elongate. Nevertheless, it is possible that *Africofusus* is derived from a tropical lineage whose members would be assigned to *Enigmofusus.*

Callifusus differs from *Africofusus* by having a longer siphonal process, a narrower siphonal canal opening, and having the aperture adapically rounded instead of angulate.

Africofusus adamsii (Kobelt, 1880)

Synonyms: *Fusinus ocellifer f. adamsii* (Kobelt, 1880), *Fusus ventricosus* H. Adams, 1870

Description: *F. testa fusiformi, solidula, longitudinaliter rugose striata, costis obtusis inaequalibus, ad peripheriam majoribus, versus apicem fusco-nodosis cincta, flavido-alba; anfr. 8 convexis, prope suturam excavatis; apertura ovata; labro simplici, intus subsulcato; labio calloso, intus nodulis elongatis instructo, antice libero, late expanso, umbilicum falsum formante; rostro breviusculo, recurvato; canali aperto, sinuoso.*

(Shell fusiform, solid, longitudinally wrinkled, and surrounded by obtuse, unequal spiral ribs, which are thicker on the periphery and bear brownish nodes towards the top, monochromatic yellowish-white. 8 convex whorls, excavated near the suture; aperture ovate, with a simple lip, indistinctly furrowed inside; the columella has a calloused plate, lined inside with elongated nodules, anteriorly free, widely expanded, forming a false umbilicus; with a short, recurved siphonal canal with an open, winding canal.)

Size: length 130 mm, width 60 mm

Range: Agulhas-Bank, South Africa

Remarks: *A. adamsii* is superficially remarkably similar to *Kilburnia emmae*, but on closer inspection can readily be separated from the latter. The spire tapers to a fine point with a relatively small protoconch. The shell is much wider, the siphonal canal slender but longer, usually 33 to 40 percent of the shell length. It has no parietal ridge nor

columellar folds, however, a false umbilicus is present. The operculum is thin and yellow/orange-brown. Although the specimens studied were in the same size range as *K. emmae*, generally speaking *A. adamsii* is a much larger shell and occurs at much greater depths.

Africofusus africanus (G. B. Sowerby III, 1897)

Synonyms: *Fusus kowiensis* W. H. Turton, 1932

Description: *Testa elongato-pyriformis, albida, fusco suffusa, flammis conspicuis fuscis longitudinaliter picta; spira breviter conica, gradata; apice ? (fracto); anfractus spiraliter confertim sulcati, angulati, ad angulum nodulis parum elevatis muniti; anfractus ultimus supra angulum planato declivis, infra convexiusculus, in cauda longiuscula desinens, ubique densissime longitudinaliter striatus, spiraliter liratus, liris numerosis, laevigatis, parum elevatis; apertura oblongo-ovata; canalis longus, mediocriter latus, rectus; columella leviter incurvata; labrum tenue.*

(Shell elongate-pyriform, whitish, suffused with brown, painted longitudinally with conspicuous brown flames; spire shortly conical, graduated; apex broken; the whorls are spirally furrowed, angled, and protected at the corner by little elevated nodules; the last whorl slopes flat above the angle, convex below, ending in a long canal, everywhere very densely longitudinally striated, spirally twisted, with numerous, smooth, slightly raised lirae; aperture oblong-ovate; canal long, moderately wide, straight; columella slightly curved; lip thin.)

Size: length 32 mm, width 16 mm

Range: Port Elizabeth, South Africa

Remarks: It is certainly distinct from the dextral form of *Neptunea contraria* [= *Fusus perversus*]. The longitudinal flames are rather broad, distant and irregularly waved on the back of the shell, not (as in *F. carica*) marking the periods of growth.

Africofusus cinnamomeus (Reeve, 1847)

Description: *Fus. testa fusiformi, tenuicula, anfractibus subventricosis rotundatis, liris alternatim latiusculis, obsolete verrucosis, cingulatis; cinnamomeo-fusca.*

Shell fusiform, rather thin, whorls rather ventricose, rounded, encircled with obsoletely warty ridges, alternately wider; cinnamon-brown.

Size: 70 mm

Range: South Africa

Remarks: The colour of this specimen is peculiar, an uniform cinnamon-brown, though it cannot be estimated of value as a specific character.

Allied to *A. ocelliferus* from which it is distinguished by the light rounded growth of the whorls and less acuminated spire.

For comparison with *Lugubrilaria seccombei* see there.

Africofusus ocelliferus (Lamarck, 1816)

Synonyms: *Cominella prolongata* E. A. Smith, 1899, *Fusus crenulatus* G. B. Sowerby II, 1880, *Fusus rudolphi* Dunker, 1871, *Fusus verruculatus* Lamarck, 1822

Description: *Testa fusiformis, subventricosa, tenuiuscula, spira et canali mediocribus; anfractus 9-10 regulariter crescentes, sutura profunda, sed haut canaliculata discreti, infra suturam concavo-declives, liris latis planis cingulati, lira minore intercedente, lira angulari verrucosa, praecipue in anfractibus spirae. Apertura elongato-ovata, superne acuminata, inferne in canalem rectiusculum, leviter ad sinistram flexum desinens, columella vix callosa, labro tenui, faucibus geminatim liratis. Albida, aurantio-fusco strigata et maculata, verrucis conspicue aurantio-fuscis, apertura albida.*

(The shell is fusiform, subventral, thin, with a medium-sized spire and canal; 9-10 regularly growing whorls, suture deep, distinctly canaliculate, below the suture concave-sloping; wide flat lirae, smaller intervening lirae, angular lirae verrucous, especially in the spire whorls. Aperture elongate-ovate, pointed at the top, ending in a straight canal, slightly bent to the left, columella barely callous, lip thin, with double lirae. White, streaked and spotted with orange-brown, knobs conspicuously orange-brown, aperture white.)

Redescription: Shell narrowly to broadly spindle-shaped; spire 1/2 to 3/4 total length of aperture; siphonal canal long and slender (up to 1/3 total shell length), often somewhat curved; sculpture of coarse, flattened spiral ridges, but strength of sculpture very variable; some specimens with a distinct shoulder bearing rounded nodules; a deep false umbilicus commonly present beside base of siphon in mature specimens; inner lip lacking columella pleats; interior of outer lip smooth. Shell whitish; spiral ridges frequently spotted or mottled with brown, shoulder when present usually with darker brown spots, particularly on nodules; periostracum horny-brown, somewhat velvety, frequently flaking off.

Size: 35-170 mm

Range: W to S KwaZulu-Natal, South Africa

Remarks: Lack of columella pleats on the inner lip and presence of a false umbilicus distinguish this species from similarly large species of *Africolaria* and *Kilburnia*.

Nodular specimens of *A. ocelliferus* lack pleats on the columella, usually possess a distinct false umbilicus and have a longer, narrower siphonal canal than *Kilburnia heynemanni*. In addition, in *A. ocelliferus* the nodules are browner than the remaining shell.

A. cinnamomeus is allied to *A. ocelliferus* from which it is distinguished by the light rounded growth of the whorls and less acuminated spire.

The profile of the whorls of *Fusinus africanae* is evenly convex, without the bicarinate periphery of juvenile *A. ocelliferus*.

Chryseofusus bonaespei resembles *A. ocelliferus*, but *C. bonaespei* is smaller and more slender, has a longer spire and lacks brown pigmentation in the shell itself.

Enigmofusus nicki has been confused with *A. ocelliferus*. This latter species has a shorter siphonal canal and attached parietal shield. Although its coloration is similar to *E. nicki*, the sculpture is much weaker and the species lacks the axial knobs present on the early whorls of *E. nicki*. The large protoconch of *E. nicki* suggests a localized habitat.

Africofusus robustior (G. B. Sowerby II, 1880)

Description: *Testa quam F. ocelliferus crassior, brevior, magis ventricosa, magis angulata, liris majoribus, magis distantibus, verrucis castaneo pictis, apertura intus rude lirata, margine duplicatim dentato, canali latiori nonnunquam umbilicato.*

(The shell is thicker than *A. ocelliferus*, shorter, more ventricose, more angular, with larger, more distant lirae, chestnut-colored warts, the aperture is rudely slit inside, the margin is doubly toothed, and the wider canal is sometimes umbilicated.)

Size: 60-110 mm

Range: South Africa

Remarks: compare to *A. ocelliferus*

Amiantofusus Fraussen, Kantor & Hadorn, 2007

Type species: *Amiantofusus amiantus* (Dall, 1889)

Description: Shell small to médium, white, yellowish, pale brown to orange-brown, fusiform, slender, with high spire and rather short siphonal canal. Protoconch multispiral, pointed, with 3-3 1/2 whorls. First whorls smooth, glossy. Last whorl with fine but strong, semilunar, axial riblets and with 1, occasionally 2, fine suprasutural spiral cord(s). Teleoconch whorls ornamented with spiral cords, weak or invisible in the axial interspaces, forming well developed knobs on the axial ribs. Their number increasing from 2 (occasionally 3) on the first whorl to 4-6 on penultimate whorl. Most species develop secondary spiral cords.

Aperture ovate to narrow, more or less pinched at both ends. Outer lip simple, usually thin. Columella smooth, callus thin. Outer lip and columella usually with one or more internal knobs or lirae (fully adult spécimens), adapical columellar knob occasionally strong. Most spécimens (subadult) without internal knobs or lirae inside outer lip. Siphonal canal short, broad, open. Operculum corneus, thin, pale brown, rather small, elongate, nucleus terminal.

Size: small to medium

Range: amfi-Atlantic; W Atlantic: N Caribbean, E Atlantic: around Azores

Remarks: *Amiantofusus* is characterized by the multispiral protoconch, with semilunar axial ribs and 1, occasionally 2, suprasutural spiral cords, in combination with strong axial sculpture and short siphonal canal. Subadult spécimens are more common than full adults. The shape of adult shells can differ considerably by a proportionally larger aperture and shorter siphonal canal.

The présence of a protoconch with peculiar semilunar axial ribs in combination with one or more suprasutural spiral cords is shared with the East Atlantic fasciolariid species "*Latirus*" nigosissimus (Locard, 1897) and buccinid *Antillophos* species.

Species of the deep-water subgenus *Chryseofusus* have a short siphonal canal too, but differ by the smooth paucispiral protoconch and the higher number of spiral cords.

Species accommodated in the buccinid deep-water genus *Manaria* may have a similar shape but differ by the smooth paucispiral protoconch, by a usually higher number of primary spiral cords but lower number of secondary spiral cords and by the weaker axial ribs.

Species of the turbinellid genus *Metzgeria* differ by the présence of columellar folds.

Amiantofusus amiantus (Dall, 1889)

Synonyms: *Fusus grimaldii* Dautzenberg & H. Fischer, 1896, *Fusus grimaldii var. major* Locard, 1897, *Meyeria decorata* Locard, 1897, *Meyeria decorata var. ecaudata* Locard, 1897

Description: Shell pure white, with a straw-colored nucleus, 10-whorled. Spire rather acute, whorls obliquely smoothed off in front of the sutures. Nucleus 4-whorled, above smooth, below sculptured with semilunar transverse ripples and a basal carina; spiral sculpture of very fine spiral threads, lightly decussated by wavy lines of growth; there are also 2 strong threads near the periphery, 1 lower which is obscured by the suture, and on the last whorl 3, more anterior, beside the usual spiral sculpture of the canal; these strong threads become much more prominent, stronger, and sharply keeled, as they pass over the transverse riblets; transverse sculpture of 8 rounded ribs, which appear near the periphery and extend over it on to the base; they are crossed by the spiral sculpture; suture appressed, wavy; the absence of ribs near the suture and the flattening of the shell there give this species a somewhat Pleurotomoid aspect, but there is no notch; canal moderate, strongly twisted; aperture smooth within, edges sharp, simple.

Redescription: Shell slender, rather small, variable in shape, consisting of 10 angulated whorls, spire acute, pure white. Protoconch straw-coloured, 3 1/2 whorls; upper part smooth, below sculptured with semilunar axial riblets and a basal carina. Diameter: 0.8 mm.

About 8 rounded, rather strong axial ribs per whod, which are most prominent at the periphery; they terminate below the upper suture on latter whorls. 3 strong spiral cords, the lowermost one is lying in the lower suture, the 2 central ones giving the whorls a bicarinate appearance with a flat almost unsculptured shoulder. These strong cords become more prominent and sharper where they pass over the axial ribs. Many very fine intercalated spiral threads between the 3 strong cords crossed by fine growth lines. Aperture nearly round, smooth within, with sharp lips. Siphonal canal short, strongly twisted.

Size: up to 24.5 mm; max. length of shell 17 mm; of last whorl 10.3 mm; of aperture and canal 8.0 mm; max. width of shell 6.6 mm

Range: Gulf of Mexico; amfi-Atlantic, N Caribbean, off Cuba, E Atlantic on the seamounts and slopes of the Azores and Madeira

Remarks: The nucleus of this little shell is peculiar. *A. amiantus* is characterized by the fusinid shape but with short siphonal canal, in combination with a multispiral protoconch and the présence of peculiar semilunar axial ribs on the lower protoconch whorl. *A. amiantus* displays considérable variability in shape. Subadult spécimens have a smaller aperture in combination with a longer siphonal canal. Adult spécimens hâve a wider outer lip and shorter siphonal canal, the shape of the base looks more rounded. The spiral and axial sculpture is rather constant.

A. amiantus is similar to *A. pacificus* in sculpture but differs in having a higher spire and a more knobbed sculpture.

F. bocagei differs by the protoconch (finer and lesser curved axial ribs. broader interspaces, the absence of subsutural spiral cords), the longer siphonal canal, the absence of a thick lip and the higher number of primary spiral cords (3 on the spire, up to 9 on the body whorl).

Latirus rugosissimus, an E Atlantic species with almost identical protoconch, differs considerably in teleoconch morphology.

compare to *Fusinus thompsoni*

Amiantofusus borbonicus Fraussen, Kantor & Hadorn, 2007

Description: Shell small, fusiform, slender with high spire and short siphonal canal. Colour white. Protoconch white, multispiral, 3 1/2 whorls, diameter 0.9 mm. First whorls smooth, glossy. Last 1 to 1 1/4 whorl covered with numerous axial riblets and ornamented with suprasutural spiral cord, last 1/4 to 1/6 part becoming slightly narrower with stronger axial riblets. Teleoconch consisting of 5 1/2 whorls. First teleoconch whorl with 2 primary spiral cords, weak in interspaces, strong on axial ribs, forming well developed knobs. From second whorl on an additional third primary spiral cord appears suprasuturally, becoming as strong as other cords from third whorl on. Occasionally a weak, hardly visible, secondary spiral cord présent from third whorl on. Penultimate whorl with 3 or 4 primary spiral cords, 1-4 weak secondary spiral cords between each pair of primary cords. Body whorl with 14-16 spiral cords, of which 6 on whorl with 1 or 3 (rarely 2) secondary spiral cords, and 8-10 broad, low spiral cords on siphonal canal. First whorls with 9-11 strong axial ribs, running from suture to suture. Interspaces broad. Body whorl with 12 or 13 axial ribs. Aperture semi-ovate. Columella gently curved. Outer lip thin, edge sharp. Siphonal canal short.

Size: 12 mm (subadult)

Range: Reunion

Remarks: Although *A. borbonicus* is only known from subadult spécimens, it is already possible to distinguish this species from *A. cartilago*. The morphological différences in species of *Amiantofusus* are more manifest on the upper whorls. For différences with *A. cartilago* see the comparison under that species.

A. sebalis differs by the more slender shape, the présence of a subsutural concavity and the différent spiral sculpture (2 primary cords only, the occasional visible third cord being suprasutural instead of being on the subsutural slope).

Amiantofusus candoris Fraussen, Kantor & Hadorn, 2007

Synonyms: according to WoRMS synonym to *A. sebalis* Fraussen, Kantor & Hadorn, 2007

Description: Shell white, semi-transparent, fusiform, smooth and glossy, slender with high spire and short siphonal canal. Protoconch yellowish, top decollate in ail spécimens, about 2 3/4 whorls remaining, diameter 1.0 mm.

Whorls eroded, numerous fine axial riblets visible on penultimate whorl. Last 1/2 whorl covered with 10 axial riblets with broad interspaces and ornamented with fine suprasutural spiral cord. Teleoconch consisting of 8 3/4 whorls. Upper spire whorls with 2 weak primary spiral cords, weak on axial ribs, almost invisible in interspaces, with broad straight subsutural slope. Abapical spiral cord becoming weaker from fourth whorl on, almost indistinguishable from secondary spiral cords on fifth or sixth whorl. Suture wavy on upper spire whorls, straight on penultimate and body whorl. From third whorl on some weak, smooth secondary spiral cords appearing between both primary spiral cords and on subsutural slope. On later whorls their number increasing up to 25, fine, evenly spaced spiral cords. Body whorl with numerous fine, weak spiral cords. First whorls with 9 strong axial ribs, running from suture to suture. Interspaces broad. From second whorl on with 8 axial ribs. Axial ribs gradually becoming weaker near both sutures, fifth and sixth whorl with a sharp axial knob on periphery.

Aperture semi-ovate. Outer lip slightly curved outwards. Columella smooth, gently curved. Siphonal canal short, narrow.

Size: up to 29.0 mm

Range: Chesterfield Isl., New Caledonia

Remarks: *A. candoris* is characterized by the slender, thin, semi-transparent shell with 2 primary spiral cords on the upper whorl of which the abapical one is gradually becoming weaker, and with fine, smooth, evenly spaced secondary spiral cords.

A. sebalis is similar in spiral sculpture (2 primary cords on the upper spire whorls, many secondary cords) but differs by the secondary spiral cords which are fine and well distinguishable from the primary cords even where the primary cords are fading, the présence of axial ribs on the penultimate whorl, the (almost) smooth body whorl, the smaller protoconch with narrower last whorl and by the smaller size.

A. maestratii differs in having a solid shell, a broader shape with shorter spire, smooth spiral interspaces and a white protoconch with more axial riblets.

A. pacificus differs in having a more pronounced spiral sculpture in combination with a broader shape.

Amiantofusus cartilago Fraussen, Kantor & Hadorn, 2007

Description: Shell of médium size, thick, solid, fusiform, slender with high spire and short siphonal canal. White. Protoconch decollate in all studied spécimens except holotype (about 1 1/3 remaining whorls), white, covered with small, rather straight axial riblets, and omamented with suprasutural spiral cord.

Teleoconch consisting of 8 1/2 whorls. First teleoconch whorl with 2 primary spiral cords, weak in interspaces, strong on axial ribs, forming well developed knobs, a weak subsutural cord présent. Penultimate whorl with 4 primary spiral cords, 3 weak secondary spiral cords between each pair of primary cords. Body whorl with 7 or 8 primary spiral cords, each interspace with 3 or 4 secondary spiral cords, and about 12 broad, low spiral cords on siphonal canal. First whorls with 9-11 strong axial ribs, running from suture to suture. Interspaces broad. Penultimate whorl with 10-12 axial ribs, body whorl with 9 or 10 ribs. Paratype 3 with slightly deformed shape, last whorls without axial sculpture.

Aperture semi-ovate. Columella gently curved. Outer lip thin, edge sharp. Siphonal canal short.

Size: up to 35.6 mm

Range: Mozambique Channel

Remarks: *A. cartilago* is characterized by a bigger last protoconch whorl (instead of becoming narrower), a larger and solid shell, and the présence of a weak subsutural cord on the flrst 3 teleoconch whorls.

Buccinid species assigned to the genus *Manaria* (type species: *Manaria thurstoni*, India) look rather similar to *A. cartilago* but differ by the spiral sculpture consisting of a higher number of primary spiral cords but a lower number of secondary cords, and by the axial sculpture consisting of stronger ribs but lesser developed knobs on the spiral cords.

Vermeijius retiarius looks similar but differs by the broader spire, the stronger spiral sculpture, and the protoconch without axial riblets.

A. borbonicus differs by the more narrow last protoconch whorl, the absence of the weak subsutural cord on the first 3 whorls, and the shape of the spire which is slightly broader.

Amiantofusus gloriabundus Fraussen, Kantor & Hadorn, 2007

Description: Shell large, semi-transparent, fusiform, slender with high spire and short siphonal canal. White. Sculpture fine, spire with reticulate appearance. Protoconch white, multispiral, with 3 1/3 to 3 1/2 whorls, diameter 0.9 mm. First whorls smooth, glossy. Last 1 to 1 1/3 whorl covered with numerous rather straight (or occasionally curved at abapical end) axial riblets and ornamented with suprasutural spiral cord, last 1/6 part becoming slightly narrower with stronger axial riblets. Teleoconch consisting of 8 3/4 convex whorls (holotype).

First teleoconch whorl with 3 primary spiral cords, 2 adapical ones strong, abapical one weaker but becoming as strong as others on fourth whorl. Interspaces broad, ornamented with many fine, well pronounced axial growth lines. An additional fourth primary spiral cord appears subsuturaly from fourth whorl on. Secondary spiral cords visible from third whorl on, 1 between each pair of primary cords, their number increasing to 3 on body whorl. Body whorl with 10 primary spiral cords, 3 weak secondary spiral cords between each pair of primary, and a number of broad, flat cords on siphonal canal.

First whorls with 10 narrow axial ribs, running from suture to suture. Interspaces broad. Penultimate whorl with 17 weak axial ribs, body whorl with 20 ribs. Aperture ovate, outer lip with thick varix, columella smooth, callus thin. Siphonal canal short.

Size: up to 34.9 mm

Range: Field Bank (Vitiaz Zone north of Fiji Basin)

Remarks: *A. gloriabundus* is characterized by the large semi-transparent shell with a reticulate appearance on the spire and a large number of weak axial ribs on the two last whorls.

A. pacificus form E, the "Vitiaz form", which is also found at Field Bank (North Fiji Basin), differs by the more pronounced spiral sculpture with 3 primary spiral cords (instead of 4), stronger secondary spiral cords, and a lower number of axial ribs.

A. pacificus, A. sebalis, A. candoris, A. maestratii, A. borbonicus and *A. cartilago* differ by the lower number of axial ribs on the penultimate and body whorl.

Fusinus thielei differs in having a strongly twisted columella. a lower number of axial ribs and a longer siphonal canal.

For comparison with A. granulus see there.

Amiantofusus granulus S.-Q. Zhang, Fraussen & S.-P. Zhang, 2022

Description: Shell fusiform, relatively thick, white or yellowish in color. Protoconch and upper teleoconch whorls lost, with only last four whorls remaining. Suture thin, shallow. Teleoconch whorls convex, subsutural area slightly constricted. Axial sculpture of thin, regularly spaced ribs, numbering 19 and 21 on penultimate and the last whorl, respectively. Spiral sculpture with numerous prominent cords of different strength, primary ones forming small, rounded granules on the axial ribs. Both axial and spiral sculptures becoming weak on the shell base. Aperture large, ovate, inner surface white, outer lip sharped; columellar lip weakly callused, anterior part slightly curved. Siphonal canal relatively long, semitubular.

Operculum semitransparent, pale brown, very thin, elongate-oval, with terminal nucleus.

Size: length 33.7 mm or 32.8 mm (text difference)

Range: Magellan and Caroline Seamounts

Remarks: *A. granulus* is characterized by its large shell sculptured with broad but weak spiral cords separated by fine interspaces and thin, regularly spaced axial ribs and numerous, small, rounded granules on the axial ribs.

Within the genus, only one species, *A. gloriabundus*, has similar granules on the axial ribs. However, the latter can be clearly separated from *A. granulus* in having a slightly broader shell (a width/height ratio of the last whorl of 0.72 instead of 0.64) with a more convex outline of the last whorl, the much more developed spiral cords separated by well-defined interspaces and the weaker axial ribs that are slightly lower in number (17 on penultimate and 20 on the last whorl vs. 19 on penultimate and 21 on the last whorl).

Amiantofusus maestratii Fraussen, Kantor & Hadorn, 2007

Description: Shell white to pale yellow-brown, fusiform, rather smooth and glossy, slender with high spire and short siphonal canal. Protoconch white, top decollate in all spécimens, last whorl eroded, about 3 whorls by estimation, diameter 1.2 mm. Last whorl covered with more than 20 axial riblets and ornamented with suprasutural spiral cord. Teleoconch consisting of 7 or 8 whorls. All whorls with 2 weak primary spiral cords, weak on axial ribs, almost invisible in interspaces, with broad straight subsutural slope. Suture wavy, slightly shouldered, incision rather deep. From fourth whorl on a weak secondary spiral cord appearing between both primary spiral cords. On fifth whorl their number increasing up to 3-5 between primary cords, 2 or 3 additional secondary spiral cords between abapical cord and suture, and numerous on subsutural slope. Body whorl with numerous spiral cords, about 7 primary cords slightly stronger only. First whorls with 10 strong axial ribs, running from suture to suture. Second whorl to body whorl with 8-10 ribs. Interspaces broad.

Aperture semi-ovate. Outer lip slightly thickened. Paratype with weak adapical columellar denticle. Siphonal canal short.

Size: up to 28.9 mm

Range: S and E New Caledonia Slope

Remarks: *A. maestratii* is characterized by the heavy shell with 2 primary spiral cords resulting in a shape dominated by 2 rows of knobs.

A. sebalis is similar in spiral sculpture (2 primary cords, many secondary cords) but differs by the smaller size, the thinner shell, the more elongate spire and the (almost) smooth body whorl.

A. candoris differs by the thin shell, the slender shape with higher spire, and the présence of secondary spiral cords.

A. pacificus differs in having a more pronounced spiral sculpture in combination with a broader shape.

Amiantofusus pacificus Fraussen, Kantor & Hadorn, 2007

Description: Shell of médium size, fusiform, slender with high spire and short siphonal canal. Axial sculpture dominant on all whorls. Suture rather deep. Colour ranging from white to orange. Protoconch multispiral consisting of about 3 whorls, shape conical, colour yellow or pale orange. Diameter 0.9 mm. Tip eroded. First whorls smooth, glossy. Last 1 to 1 1/4 whorl covered with numerous axial riblets, at first fine, slightly curved, dense, gradually becoming broader, stronger and more curved at abapical end. Omamented with suprasutural spiral cord.

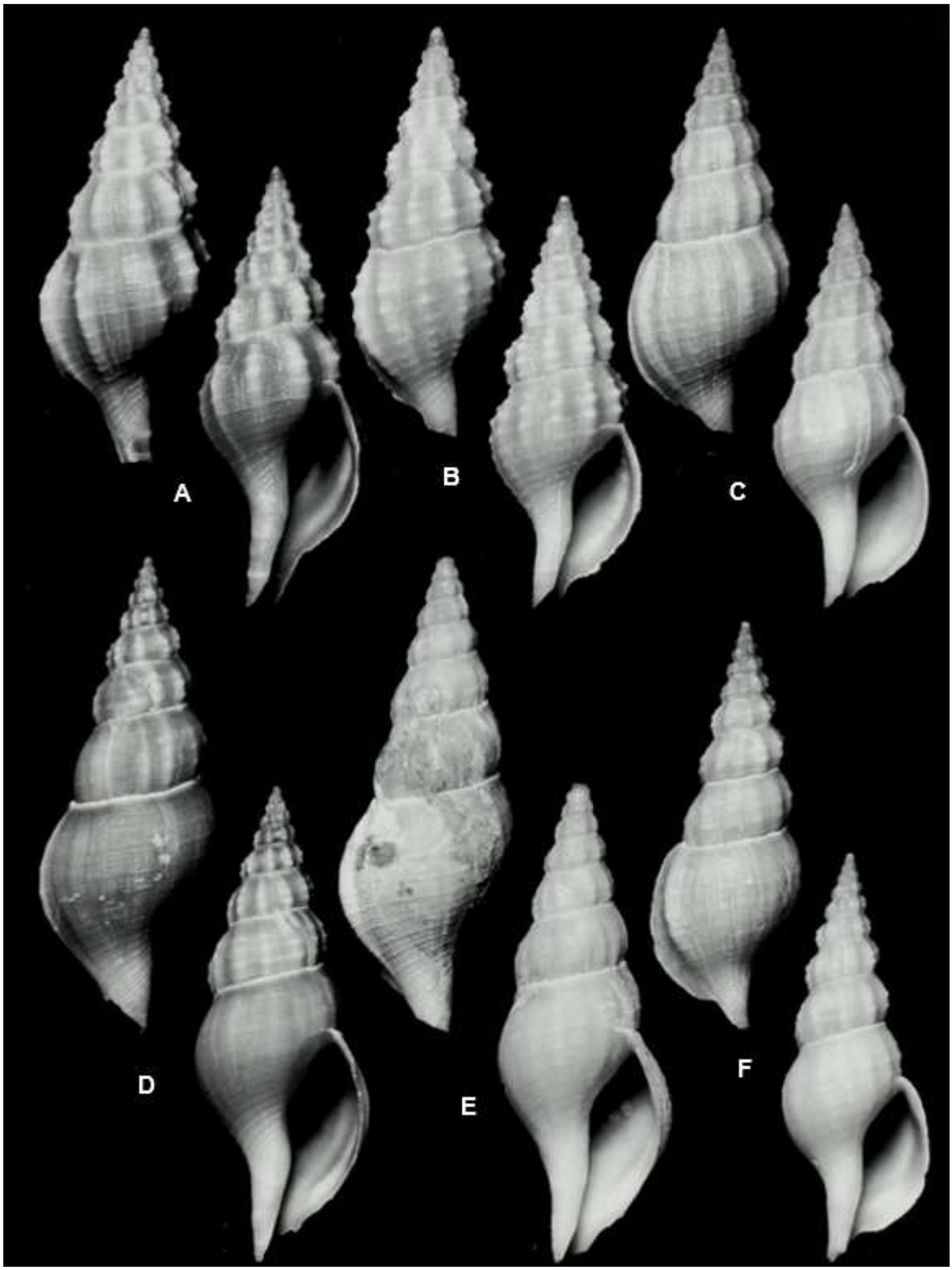
Teleoconch consisting of 7 1/4 convex whorls. First teleoconch whorl with 2 sharp primary spiral cords and 1 additional, fine, subsutural cord. Second whorl with a fourth spiral cord partly concealed under lower suture. Third whorl with 3 primary cords, adapical one finer, and 1 additional, fine, subsutural cord. Interspaces broad, ornamented with many fine, axial growth lines. Primary spiral cords gradually becoming lower, interspaces with additional fine secondary spiral cords. Penultimate whorl with 4 strong, convex primary spiral cords, interspaces with 3-5 fine secondary spiral cords, in addition 4 or 5 fine subsutural spiral cords.

Body whorl with 9 or 10 primary spiral cords, 3-5, occasionally 6, secondary spiral cords between each adapical pair of primary cords. 1-4 fine secondary spiral cords between each abapical pair of primary cords. Siphonal canal with some broad spiral cords, occasionally alternating strong and fine. All whorls with 8 or 9 sharp axial ribs, running from suture to suture. Interspaces twice as broad.

Aperture semi-ovate. Outer lip with 8 internal lirae and thick labral varix. Columella with about 9 knobs, 5 abapical and 2 adapical ones strong. Callus thin. Siphonal canal short, broad, open. Periostracum thin, rather velvety, grey-brown. Operculum completely transparent, light yellow, very thin, elongate-oval, with terminal nucleus, nucleus eroded. Growth lines very thin, inconspicuous, and numerous. Operculum attached along short oval area (about 1/2 of operculum length) to opercular pad.

A. pacificus exhibits a strong degree of, mostly géographic indicated, variability:

- Form A, the "Norfolk Ridge form", is rather small and usually has a slightly larger siphonal canal, the colour ranges from pale orange to bright orange. This form lives on the southwestern part of Norfolk Ridge at 500-780 m.
- Form B, the "Loyalty Ridge form", is smaller and paler, has sharper knobs on the axial ribs, has usually a higher number of secondary spiral cords (4 or 5). This form lives on Loyalty Ridge.
- Form C, the "solid form", has a slightly thicker shell, giving the spécimens a solid appearance. The primary spiral cords and the axial sculpture gradually become weaker on the penultimate whorl and the body whorl has a smooth appearance. The colour is pale orange to white. This form lives on southern New Caledonia slope and the northern part of Norfolk Ridge (where it is connected and gradually mixing with form A in the south), on the northern part of Loyalty Ridge (where it is connected and gradually mixing with form B) and in the north-western area of the range (southern Coral Sea and off Nouméa).
- Form D, the "smooth form", has a body whorl without any axial sculpture. The spécimens from northern New Caledonia (off Entrecasteaux Reef) are small, the spécimens from southern New Caledonia and off Tonga usually are exceptionally large for the species.
- Form E, the "Vitiaz form", has a thick and solid shell with big axial ribs and strong secondary spiral cords, in combination with a weaker subsutural cord. The protoconch is slightly shorter (1.0 mm high, diameter 0.9 mm), usually with many, slightly straighter axial riblets. This form lives on the banks of the Vitiaz Zone in north Fiji Basin. The single spécimen from off Taiwan is much similar.
- Form F, represented by a single spécimen from Introuvable Bank on the eastern part of Norfolk Ridge, has a slightly larger protoconch, and the primary cords appear earlier and are well visible (the third spiral cord already on the first whorl, the fourth spiral cords on the third whorl).



Size: about 26 mm, occasionally up to 43.6 mm

Range: from Taiwan, via N Fiji Basin to northern and S New Caledonia, S Coral Sea, Vanuatu and Tonga

Remarks: *A. amiantus* is similar in sculpture but differs in having a higher spire and a more knobbed sculpture.

A. pacificus differs from *A. candoris* in having a more pronounced spiral sculpture in combination with a broader shape.

A. pacificus form E, the "Vitiaz form", differs from *A. gloriabundus* by the more pronounced spiral sculpture with 3 primary spiral cords (instead of 4), stronger secondary spiral cords, and a lower number of axial ribs.

A. pacificus differs *A. maestratii* from in having a more pronounced spiral sculpture in combination with a broader shape.

A. pacificus differs from *A. sebalis* in having a more obvious sculpture, a broader shape with shorter siphonal canal in combination with a larger adult size.

In general, the shell shape of *A. tchangsii* is similar to that of *A. pacificus*. The latter species has a remarkable degree of variability, and six forms were mentioned. Nonetheless, all the forms have strong axial ribs and spiral cords, which are clearly different from those of *A. tchangsii*.

Fusinus thielei is similar in sculpture and may look similar to spécimens from northern Fiji Basin, but differs in having a broader shape and a subsutural concavity which is slightly deeper. The spiral sculpture is slightly sharper.

Amiantofusus sebalis Fraussen, Kantor & Hadorn, 2007

Synonyms: *Amiantofusus candoris* Fraussen, Kantor & Hadorn, 2007

Description: Shell small, fusiform, slender with high spire and short siphonal canal. Shape of whorls varying from angulate (axial ribs présent) to convex (no axial ribs) with weak, concave subsutural slope. White. Protoconch multispiral, white to yellow-brown, 3 1/3 to 3 1/2 whorls. First whorls smooth, glossy. Last 1 to 1 1/4 whorl covered with numerous axial riblets and omamented with 1 suprasutural spiral cord, last 1/4 to 1/6 part becoming slightly narrower with stronger axial riblets.

About 7 1/4 teleoconch whorls, all with 2 primary spiral cords, weak or invisible in axial interspaces, more developed on axial ribs, forming weak or strong knobs. Occasionally an additional third primary spiral cord suprasuturally visible. Secondary spiral cords weak or absent, when visible 3 or 4 between primary cords, about 8 on subsutural slope, numerous on body whorl. First whorls with 10 or 11 axial ribs, running from suture to suture. Interspaces broad. Body whorl with 0-12 ribs.

Aperture semi-ovate, narrow, pinched at both ends. Lip thin. Columella smooth, callus thin. Siphonal canal moderately short.

Size: up to 26.4 mm

Range: Coral Sea (Nova Bank, Mellish Reef, Chesterfield Plateau), E New Caledonia (Loyalty Basin) and Vanuatu

Remarks: *A. sebalis* is characterized by its small size, its slender shape with 2 primary spiral cords and fine secondary spiral cords.

A. pacificus differs in having a more obvious sculpture, a broader shape with shorter siphonal canal in combination with a larger adult size.

For différences with *A. maestratii, A. candoris*, and *A. borbonicus* see the comparison under these species.

Amiantofusus tchangsii S.-Q. Zhang, Fraussen & S.-P. Zhang, 2022

Description: Shell fusiform, relatively thick, white or yellowish in color. Protoconch and upper teleoconch whorls lost, with only last four or five whorls remaining. Suture thin, shallow. Teleoconch whorls convex, subsutural area slightly constricted. Axial ribs thin and sharp, widely spaced, numbering 16-17 on penultimate whorl, becoming reduced and almost absent on the ventral and dorsal sides of the last whorl. Spire whorls with two weak primary spiral cords, forming spiny nodules on the axial ribs. Secondary spiral cords numerous, densely spaced. Aperture large, ovate, inner surface whitish, outer lip sharped; columellar lip weakly callused, anterior part slightly curved. Siphonal canal relatively long, semitubular.

Operculum semitransparent, light yellow, very thin, ovate, with terminal nucleus.

Size: length 30.6 mm, up to 40.6 mm

Range: Caroline Seamounts

Remarks: In general, the shell shape of *A. tchangsii* is similar to that of *A. pacificus*. The latter species has a remarkable degree of variability, and six forms were mentioned. Nonetheless, all the forms have strong axial ribs and spiral cords, which are clearly different from those of *A. tchangsii*.

A. tchangsii has a similar appearance in sculpture to *A. species 2* Fraussen et al., 2007, which is known from a single shell from Vanuatu. That shell has 3 to 4 primary spiral cords along the spire whorls instead of 2 and has a slender shape.

Angulofusus Fedosov & Kantor, 2012

Type species: *Angulofusus nedae* Fedosov & Kantor, 2012

Description: Shell small, fusiform, with high spire. Whorls strongly angulated, with distinct shoulder at mid-height. Suture distinct. Sculpture consists of broadly spaced, strong, sharp axial ribs and regularly spaced spiral cords intercalated with fine spiral rows of small dense tubercules. Siphonal canal well defined, sometimes recurved abaxially. Aperture narrow oval, outer lip thickened and turned inward. Inner lip reflected; columella with 3-4 low folds. Distinct subsutural rounded anal sinus delimited from aperture by strong denticle, formed by callus on parietal region of aperture. Operculum corneous, elongated with terminal nucleus shifted adaxially.

Size: length around 9-10 mm

Range: Indo-Pacific

Remarks: *Angulofusus* is very similar in anatomy to species of the genus *Amiantofusus.*

Angulofusus nedae Fedosov & Kantor, 2012

Description: Shell fusiform to turriform in larger specimens. Protoconch orthoconoid, of 3 white convex whorls, two initial whorls smooth, the third whorl with fine opisthocyrt widely spaced axial ribs progressively more pronounced towards teleoconch. Protoconch/ teleoconch transition abruptly marked by appearance of definite spiral sculpture. Teleoconch of 5.5 to 7 (holotype) whorls, strongly angulated at periphery starting from 3rd. Suture distinct. Besides numerous growth lines axial sculpture of strong, sharp, axial ribs (7 per whorl, slightly shifting in position from whorl to whorl), separated by deep concave interspaces. Spiral sculpture of 4-6 narrow, evenly spaced spiral cords on spire whorls, which form minute nodules when intersecting spiral ribs. Interspaces between spiral cords sculptured by dense rows of spirally arranged tubercles, up to 6 between adjacent spiral cords. Body whorl with 4 spiral cords on shoulder slope, a 5th one marking shoulder, followed by 5 cords on shell base.

Siphonal canal distinct, sculptured with strong spiral cords similar to those on shell base. Siphonal canal notably recurved backward; fasciole indistinct. Aperture reversed drop-shaped, outer lip rounded, slightly thickened and turned inwards. Inside outer lip with 4-6 fine spiral lirae. Inner lip reflected, arched, extending downwards to form a margin on siphonal canal, brown. Columella with 3-4 folds. Adapical side of aperture wide, at conjunction of outer lip and body whorl with a strong denticle which delimits a wide and relatively deep rounded anal sinus, present in adults at growth termination.

Background colour brown, with crests of axial ribs and spiral cords off-white. Tip of siphonal canal white. Operculum corneous, elongated with terminal nucleus shifted adaxially. Background colour red-brown with vague longitudinal lighter strips.

Size: 8-11 mm; breadth / length 0.43 in larger to 0.47 in smaller specimens; aperture length / shell length 0.38 to 0.46

Range: Central Philippines, New Caledonia, Vanuatu, Fiji, Wallis and Futuna

Remarks: *A. nedae* conchologically resembles members of conoidean family *Clathurellidae* in general outline, shape of outer lip and presence of distinct anal sinus of a similar shape. However, *Clathurellidae* usually have rounded whorls outline and spiral sculpture dominating over axial. Apart from that *Clathurellidae* have different protoconchs, lack operculum and never have a reflected inner lip.

A. nedae somewhat resembles *Vermeijius wallacei* in having angulated whorls and in general shell sculpture; however *A. nedae* has a distinctive anal sinus, wider interspaced axial ribs and a shorter siphonal canal.

Apertifusus Vermeij & Snyder, 2018

Type species: *Apertifusus meyeri* (Dunker, 1869)

Description: Shell moderately to very elongate (length to diameter ratio 2.9 : 4.0) with moderately to very long, broadly open siphonal canal (canal length to shell length ratio 0.28 : 0.40, opening 4 mm wide); canal tip flaring; whorls rounded in profile; spiral sculpture consisting of high angular widely separated cords, often with a strong secondary cord in interspaces, roughened by growth lines; axial sculpture consisting of low broad rounded ribs, often obsolete on last whorl, not forming nodes or tubercles; aperture relatively large, adapically rounded; outer lip

with weak, often short smooth lirae on inner side; inner lip adherent or very weakly erect, its adapical end with weak parietal ridge.

Size: large

Range: tropical Atlantic

Remarks: *Apertifusus* differs from most other tropical genera except *Aristofusus* in having rounded whorls without nodes or tubercles.

It differs from *Aristofusus*, *Lyonsifusus* and *Fusinus* by having relatively poorly expressed, short lirae. The axial ribs of *Aristofusus* and *Lyonsifusus* are much broader and smoother, and the siphonal canal in those genera is more narrowly open.

Apertifusus caparti (Adam & Knudsen, 1955)

Synonyms: *Apertifusus maritzaallaryae* (Cossignani & Allary, 2019)

Description: *Coquille très allongée. Spire un peu plus petite que la moitié de la hauteur totale, composée de nombreux tours (jusqu à environ 12), très convexes, augmentant régulièrement. Suture très profonde. Sculpture composée de côtes longi tudinales et de côtes spirales; les premières bien développées, surtout sur les premiers tours, à l'exception des deux tours embryonnaires, lisses. Les côtes longitudinales, dont le nombre atteint environ 18 au dernier tour, deviennent moins nettes vers le péristome et disparaissent sur la base des tours. Sur les premiers tours sculptés la costulation spirale est très forte, de grosses côtes alternant avec une côte plus faible. Plus loin, il y a 1 à 2 (parfois 3 à 4) fins cordons entre les grosses côtes, dont il y a 6 à 8 sur les derniers tours. En dessous de la suture se trouvent environ 6 fins cordons spiraux. Le canal siphonal est très long, atteignant à peu près le tiers de la longueur de la coquille. Il est parfois un peu oblique et irrégulier dans son contour. La sculpture des tours continue sur le canal siphonal, dans une même alternance de fortes côtes et de cordons plus fins. Les côtes longitudinales disparaissent sur le canal et il ne reste que des stries de croissance qui croisent les côtes spirales.*

L'ouverture, ovalaire et allongée, est prolongée à sa base par le long canal siphonal. Le péristome est droit, la callosité columellaire réfléchie et généralement complètement appliquée contre la columelle, mais parfois légèrement élevée le long du canal siphonal. L'intérieur du bord externe de l'ouverture montre environ 18 côtes, peu développées, qui se poursuivent à l'intérieur.

La coquille présente une teinte brun-grisâtre, plus brunâtre vers l'extrémité basale du sipho. Chez les jeunes spécimens en bon état de conservation, le périostracum est pourvu de petites écailles pointues, placées sur les côtes et cordons spiraux.

L'opercule, corné, assez épais, ovalaire allongé, pointu dans sa partie inférieure, est arrondi du côté supérieur. Le nucléus se trouve situé presqu'à l'extrémité basale, du côté extérieur.

(Very elongated shell. Spire a little smaller than half the total height, composed of numerous whorls (up to about 12), very convex, steadily increasing. Very deep suture. Sculpture composed of longitudinal ribs and spiral ribs; the first well developed, especially on the first whorls, with the exception of the two embryonic whorls, smooth. The longitudinal ribs, the number of which reaches about 18 at the last whorl, become less distinct towards the peristome and disappear on the base of the whorls. On the first sculpted whorls the spiral costulation is very strong, large ribs alternating with a weaker rib. Further away, there are 1 to 2 (sometimes 3 to 4) fine cords between the thick ribs, of which there are 6 to 8 on the last whorl. Below the suture are about 6 thin spiral cords. The siphonal canal is very long, reaching about a third of the length of the shell. It is sometimes a little oblique and irregular in its outline. The sculpture of the whorls continues on the siphonal canal, in the same alternation of strong ribs and finer cords. The longitudinal ribs disappear over the canal and only growth streaks remain which intersect the spiral ribs.

The aperture, oval and elongated, is extended at its base by the long siphonal canal. The peristome is straight, the columellar callus reflected and usually fully applied against the columella, but sometimes slightly elevated along the siphonal canal. The inside of the outer edge of the aperture shows about 18 ribs, poorly developed, which continue inside.

The shell has a greyish-brown hue, more brownish towards the basal end of the sipho. In young specimens in good condition, the periostracum is provided with small pointed scales, placed on the ribs and spiral cords.

The operculum, horny, quite thick, elongated oval, pointed in its lower part, is rounded on the upper side. The nucleus is located almost at the basal extremity, on the exterior side.)

Redescription:

- moderately large to very large: from 25 to 220 mm;
- protoconch: 2 1/4-2 1/2 whorls, first whorls smooth, the last one with numerous axial ribs;
- 11-12 rounded teleoconch whorls;
- axial ribs from suture to suture;
- about 18 axial regularly spaced ribs on the body whorl;

- distinct primary spiral cords alternating with thinner nearly visible secondary threads;
- white oval aperture;
- outer lip provided with pairs of teeth when the spiral cords meet the lower part of the mouth edge;
- siphonal canal straight or slightly sinuous;
- colour white, smaller specimens often tinged with red-brown between or on the axial ribs, especially in the early stages of growth;
- periostracum flaky, olive brown and wrinkled with tiny sharp scales;
- operculum: relatively thin, less oval than in *A. meyeri*.

Size: 80-263 mm, maximum length 370 mm

Range: West Africa (Gabon-Angola)

Remarks: Comparative table with differences between *Apertifusus* and *Ariefusus* species from Gabonese and Angolan waters:

	Apertifusus caparti	***Apertifusus hubrechti***	***Apertifusus meyeri***	***Ariefusus rutilus***
Locality	Gabon, Congo, northern Angola	middle Angola	from Sierra Leone to southern Gabon	Gabon
Depth	45-230 m	100 m	20-100 m	35-50 m
Size	25-220 mm	40-105 mm	175-370 mm	100-200 mm
Teleoconch whorls	11-12, very rounded	8-9, rounded but flattened in upper part of whorls	10-12, first whorls very angular, later whorls partly loosened	10, all whorls very angular, axial sculpture
Sutures	not deeply incised	rather indistinct	deeply incised	very deeply incised
Spiral cords	primary cords, separated by one thinner secondary thread	each primary cord followed by two thin secondary threads	primary cords, separated by none or one thinner secondary thread	thin spiral cords, evenly spaced
Axial cords	18 regularly spaced spiral ribs on body whorl	14-17 on body whorl, disappearing in later stage	18-25; slightly granulous, dominant in first whorls, diminishing afterwards	17 sharply rounded ribs with elongate nods at periphery on last whorl
Siphonal canal	straight or slightly sinuous	straight	large, elongate, straight or slightly distorted	very long, straight, slightly sinuous at end
Aperture	ovoid, nearly circular	ovoid	narrow, elongate	large, nearly circular
Periostracum	flaky, wrinkled	very thin, resistant	flaky, wrinkled	?
Colour	white; axial ribs or interstices in juvenile specimens sometimes brown coloured	completely white	white; first teleoconch whorls brown	creamy white with rusty brown axial ribs

It is a species of the genus *Fusus*, characterized by its large size, its long siphonal canal, its convex whorls, without keel on the periphery, and its sculpture composed of large longitudinal ribs and a spiral ornamentation composed of large ribs generally alternating with 1 to 2 spiral cords.

The most similar species is *Fusinus perplexus* from the Japanese region. *A. caparti*, however, is more slender, with a deeper suture, and lacks the concave subsutural band. Moreover, *A. caparti* is never angular at the periphery. In some specimens of *F. perplexus* there are more or less the same number of longitudinal ribs, but in this species the periphery is then angular. The spiral sculpture of *A. caparti* is finer and the main ribs are tighter, more numerous. On the other hand, the fine spiral cords are more numerous in *F. perplexus*, up to 6 between 2 spiral ribs. Finally, the scales of the periostracum are more pointed in this species.

Aristofusus excavatus (= F. eucosmius), coming from the West Indies, resembles *A. caparti* quite well, especially in its general shape and the large sculpture of the test. The longitudinal ribs are a little less wide in *Aristofusus excavatus*, but the same number. The large spiral ribs are a little less strong, but the spiral cords, located between the spiral ribs, are barely developed and less numerous. The last whorl, more strongly rounded at the base, is distinctly separated from the siphonal canal. The same is true for the aperture, which is more rounded and clearly delimited against the siphonal canal. The columellar edge of the peristome rises in free edge and is not applied against the shell as it is in *A. caparti*. The relatively longer siphonal canal shows the narrower longitudinal slit. Contrary to the original description, the inside of the peristome of the examined specimen is not smooth. Corresponding to the interstices of the spiral ribs, there are 10 pairs of fine lamellae.

A. caparti (45-220 mm) is smaller than *A. meyeri* (175-370 mm) and has:

- less numerous and somewhat shorter and broader whorls;
- less deeply incised sutures on the upper whorls;
- a larger number of axial ribs and spiral cords per whorl;
- axial ribs always reaching from suture to suture on all whorls, except on the body whorl;
- alternating strong and thinner spiral cords.

Differences with *Ariefusus rutilus*: larger shell, different colouration, rounded whorls, much larger number of axial ribs and different protoconch sculpture.

Apertifusus frenguellii (Carcelles, 1953)

Description: *Conchilla fusiforma, oval; espira alargada compuesta por 7 1/2 anfractos; la protoconcha es simple con 2 1/4 vueltas; la superficie lisa ensu comienzo, tiene despues una estriacion axial; bacia la mitad del ultimo anfracto nepionico comienza la estriacion del resto de la conchilla, estas estrias espirales estan formadas por delgados cordones (6-7 en los anfractos medianos) y en el espacio comprendido entre ellos, tiene otras muy finas estrias igualmente espirales que cruzansobre las varices costeladas axiales en numero de 10-12, en cada vuelta, perdiendose hacia la mitad del anfracto basal; esta combinacion de cordones y varices forman una escultura de aspecto semireticular, con ondulacion bien marcada de las espirales, en especial en los anfractos medianos los cordones se hacen oblicuos y en los comienzos de la zona sifonal y en la parte inferior del mismo, estos son lisos por delante y debilmente estriados detras; la banda sutural es bien visible y levemente canaliculada; el peristoma es de forma suboval, con el borde palatal plegado, plegamiento este, que corresponde a la terminacion de los cordones externos de la escultura y a los espacios deprimidos entre ellos; en la parte interna del labio, existen pequenas manchas marron rojizas que se extienden desde el angulo superior hasta casi la terminacion del sifon; el borde columelar es algo arqueado, la longitud del canal sifonal que es estrecho y arqueado hacia el costado izquierdo, corresponde a 1/3 del total de la conchilla; el color externo es amarillento palido con la extremidad del canal sifonal, blanca; interiormente es de color rosado palido; el operculo unguiculado y subtriangular, de coloracion amarillenta.*

(Shell fusiform, oval; elongated spire composed of 7 1/2 whorls; the protoconch is simple with 2 1/4 whorls; the smooth surface in its beginning, has later an axial striation; towards the middle of the last nepionic whorl the striation of the rest of the shell begins, these spiral striations are formed by thin cords (6-7 in medium whorls) and in the space between them, there are other very fine equally spiral striations that cross over the ribbed axial varices, 10-12 in number, in each whorl, disappearing towards the middle of the basal whorl; this combination of cords and varices form a sculpture with a semireticular appearance, with a well-marked undulation of the spirals, especially in the medium whorls, the cords become oblique and at the beginning of the siphonal area and in the lower part of it, these are smooth in front and weakly striated behind; the sutural band is well visible and slightly canaliculated; the peristome is suboval in shape, with a folded edge of the aperture, this folding, which corresponds to the termination of the external cords of the sculpture and the depressed spaces between them; on the inside of the lip, there are small reddish-brown spots that extend from the upper corner to almost the end of the siphon; the columellar edge is somewhat arched, the length of the siphonal canal, which is narrow and arched towards the left side, corresponds to 1/3 of the total shell; the external color is pale yellowish with the tip of the siphonal canal white; inside it is pale pink; the operculum is unguiculate and subtriangular, yellowish.)

Size: 44.5 mm x 18.8 mm

Range: SE Brasil

Remarks: In *A. frenguellii* the varices are less accentuated than in *Latirus rugatus* †; the aperture of *A. frenguellii* is rather oval, whereas in *L. rugatus* somewhat rounded; the siphonal canal of *A. frenguellii* is narrow and short, in *L. rugatus*, short and wide.

It differs from *Propefusus australis (= Fusus aureus)*, in that the last basal whorl does not have such large ribs, the precedence of this form is not known.

It has some resemblance to *Latirus (Polygona) fusiformis* † from the Santo Domingo Tertiary, but *A. frenguellii* does not have the varices of that species.

Chryseofusus graciliformis from Japan is somewhat similar to *A. frenguellii*, but differs by having an arched siphonal canal, while in *A. frenguellii* it is almost straight.

Of the known Brazilian *Fusinus* species, *Fusinus mariaodeteae* is similar to *A. frenguelli*. Both species have very rounded shoulders and a sculpture pattern of intersecting strong spiral cords and narrow longitudinal ribs and both are colored a pale cream-white of pale yellow. *F. mariaodeteae* differs, however, in being a much smaller, stockier, and less elongated species with a proportionately lower spire and much shorter siphonal canal. The spiral cords on *F. frenguelli* are also much larger and more pronounced, and have more numerous smaller cords and threads between each set of main ribs. The larger *A. frenguelli* also prefers shallow water, normally being collected in 20-50 m depths, while *F. mariaodeteae* is a more offshore animal, preferring depths of 100-150 m.

Young specimens of *A. frenguellii* could be confused with *Hemipolygona beckyae*. The axial ribs of *A. frenguellii* are more numerous and its coloration ranges from uniform white to pale orange.

For comparison with *Fusinus lightbourni* see there.

Apertifusus hubrechti Nolf, 2023

Description: Shell small, moderately large, with 8-9 whorls. Protoconch with 1 1/2 smooth whorls. Whorls rounded, but flattened in their upper parts. Distinct clear sutures, but not deeply incised.

Axial cords run in line from one whorl to the next, with 14-17 cords on the body whorl, distinct in the first teleoconch whorls, but becoming flattened and disappearing in a later stage. Many spiral cords run over all the whorls, consisting of primary cords separated from each other by two secondary fine spiral threads. Siphonal canal straight, sometimes slightly sinuous at its end. Aperture ovoid, white coloured within.

Colour white, without any trace of brown coloured axial ribs or interstices.

Periostracum very thin, resistant and coloured yellowish olive.

Size: length 102 mm

Range: Angola

Remarks: *A. hubrechti* has compared to *A. caparti*:

- a different microsculpture: each spiral cord alternates with 2 thinner secondary spiral threads in contrast with *A. caparti*, which has stronger spiral cords alternating with only one secondary cord;
- axial ribs which are much less distinct in contrast with *A. caparti* which has prominent cords separated by deeper interstices;
- less rounded whorls, flattened in the upper part;
- less incised sutures;
- a straighter siphonal canal.
- a paler and more resistant periostracum;
- a white colour, while the juvenile stage of the shells in *A. caparti* is brown coloured, or sometimes only rusty brown on the axial or between the axial ribs.

A. meyeri and *Ariefusus rutilus* are larger shells which are different by the presence of sharply rounded prominent ribs forming axially elongate nodes at the periphery of the whorls. Both are brown coloured in early stages (*A. meyeri*) or over the whole surface of the whorls (*A. rutilus*).

Apertifusus josei (Hadorn & Rogers, 2000)

Description: Shell elegant, very slender, elongate fusiform, of moderate size, light in weight, subtranslucent, consisting of about 10 extremely convex, always unkeeled whorls, which have a distinct concaviry in front of the suture. Suture straight, strongly constricted. Protoconch available but eroded, greyish, rather large, consisting of about 1 1/2 whorls, no sculpture visible due to the eroded surface. Diameter 1.0 mm.

Probably about 9-10 strong narrow axial ribs on first two postnuclear whorls (eroded in holotype) reaching from suture to suture. 10-11 axial ribs on third and fourth whorl. Beginning with the third whorl the axial ribs withdraw first from lower suture, later also somewhat from upper suture, and fade gradually out on the fourth or fifth whorl. Interspaces between axial ribs narrow, about half as wide as the ribs themselves. Latter whorls without any axial sculpture except of fine growth lines. Probably about 3-4 strong spiral cords on first postnuclear whorls (eroded). Beginning with the second postnuclear whorl two additional spiral cords appear above the lower suture, and 3-4 weaker ones in the subsutural concavity. Starting with the third whorl fine spiral threads appear between all spiral cords. On latter whorls the number of spiral threads increases by intercalation. The regularly spaced

spiral cords and the large number of intercalated fine close-set threads crossed by numerous

growth lines giving the surface of the shell the texture of linen.

Aperture rounded ovate, rather narrow, white-coloured, with a thin, smooth, glossy and adherent parietal callus. Outer lip thin, simple, with numerous fine internal lirae. Siphonal canal conspicuously long (about 2/5 of shell length), slender, straight, slightly double flexed, tapered. Outer side sculptured with strong spiral cords and 7-3 intercalated fine spiral threads. The spiral sculpture is somewhat stronger than on body whorl, but fade out towards the tip of the siphonal canal. Uniformly white-coloured.

Size: 75-98 mm

Range: Florida

Remarks: The outline of *A. josei* strongly resembles the very large *A. meyeri* from West Africa. *A. josei* looks like a miniature *A. meyeri* at first sight. *A. josei* differs from *A. meyeri* by having a much smaller adult shell, by less numerous whorls and by having less numerous axially ribbed whorls, by narrower, more numerous axial ribs on upper whorls, by the smaller interspaces between axial ribs, by the clearly finer spiral sculpture, by somewhat more numerous spiral cords and threads on latter whorls, and finally by having a uniformly white-coloured, delicate shell.

Apertifusus meyeri (Dunker, 1869)

Description: *Testa magna, gracillima, tota nivea, anfractibus 10-12 valde convexis, superne paullo cavatis, sutura profunda sejunctis, fortiter nodoso-plicatis, transversim crasse acuteque costatis instructa; costae transversae impares, costulis incrementi obsoletis decussatae; anfractus ultimus 3/5 totius testae aequans; rostrum longissimum latiusculum, antice attenuatum; canalis late apertus; apertura oblonga; labrum intus sulcatum.*

Das Gehäuse ist gross, schlank, ziemlich dickschalig, einfarbig weiß und mit 10 bis 12 sehr convexen Windungen versehen , die durch eine tiefe Naht getrennt und unter derselben etwas ausgeschweift sind. Die oberen Umgänge tragen starke knotenartige Längsfalten, die nach unten hin allmälig schwächer werden und auf der letzten Windung ganz verschwinden. Erhabene scharfe Querrippen mit feineren dazwischen liegenden Rippchen umgeben das ganze Gehäuse, dessen Länge an vorliegendem Exemplare 170 mm misst, doch dürfte dieselbe an 180 mm betragen haben, da die Spitze verletzt ist. Der Rüssel ist breit und lang, vorn verschmälert, der Kanal ziemlich breit.

(Shell large, slender, rather thick-shelled, monochromatic white, and provided with 10 to 12 very convex whorls, separated by a deep suture, and somewhat flared below it; last whorl equaling 3/5 of the entire shell. The upper whorls bear strong knot-like longitudinal folds, gradually weakening downwards and on the last whorl completely disappearing. Raised, sharp transverse ribs with finer ribs in between surround the entire shell. The siphonal canal is broad and long, narrowed in front, the canal is fairly broad open; aperture oblong; lip furrowed inside.)

Redescription:

- large, heavy shell, the largest *Apertifusus* species in W African waters (175-370 mm);
- protoconch: 1 1/2 whorls, last whorl sculptured with numerous very fine indistinct axial riblets;
- 10-12 convex whorls, separated by deep sutures;
- axial ribs slightly granulose, very dominant in the first teleoconch whorls, less distinct and even nearly disappearing from the 9th whorl;
- 18-25 axial ribs (on last whorl) crossed by many parallel spiral cords;
- siphonal canal large and elongate, straight or slightly distorted;

- aperture narrow, elongate;
- colour white, first teleoconch whorls brown coloured;
- periostracum very flaky, olive-brown and wrinkled;
- operculum relatively thick, solid, oblong and slender.

Size: length 176 mm, width max. 46 mm, aperture 98 mm

Range: orig. not given; from Sierra Leone to Angola

Remarks: *A. meyeri* is probably the closest to *Fusinus colus (=F. longicauda)*, but its whorls are somewhat bulged under the suture, the nodular longitudinal folds and the transverse ribs are raised and sharper, the siphonal canal is much wider; nor can the shell be called thin.

The outline of *A. josei* strongly resembles the very large *A. meyeri* from West Africa. *A. josei* looks like a miniature *A. meyeri* at first sight. *A. josei* differs from *A. meyeri* by having a much smaller adult shell, by less numerous whorls and by having less numerous axially ribbed whorls, by narrower, more numerous axial ribs on upper whorls, by the smaller interspaces between axial ribs, by the clearly finer spiral sculpture, by somewhat more numerous spiral cords and threads on latter whorls, and finally by having a uniformly white-coloured, delicate shell.

A. meyeri differs from *Ariefusus rutilus* by the much larger shell, the completely different protoconch and the different axial and spiral sculpture. The whorls of *A. rutilus* are angular and deeply incised to the sutures. The first teleoconch whorls of the juvenile and subadult stage of many specimens are rather similar in both species.

For comparison with *Callifusus irregularis* see there.

Aptyxis Troschel, 1868

Type species: *Aptyxis syracusana* (Linnaeus, 1758)

Description: *Es fehlen die Falten an der Spindel. Die Richtung des Kanals weicht unter einem stumpfen Winkel von der Richtung der Spindel ab, so dass auch hier die Stelle deutlich hervortritt, wo bei den Fasciolarien die unterste und stärkste Falte liegt; ja man kann sagen, dass diese eine Falte vorhanden ist, sie zieht sich als ein stumpfer Wulst schräg um die Spindel herum.*

(The folds on the columella are missing. The direction of the canal deviates at an obtuse angle from the direction of the columella, so that here, too, the place where the lowest and strongest fold lies in the *Fasciolaria* clearly stands out; yes, one can say that this one fold is present, it runs obliquely around the columella as a blunt bulge.)

Size: medium

Range: Mediterranean

Remarks: For comparison with *Hesperaptyxis* see there.

Aptyxis boettgeri (Maltzan, 1884)

Description: *Testa rimata, valde elongata, dilute carnea, spira acuta, canali modico, subangusto, partim recurvo, basi cristam obtusam striatam efficiente. Anfr. 9 convexi, vix angulati, aetate provecta ad suturas undulatas constricti. Costae transversales 9-10 rectae strictaeque, compresso-varicosae, et costulae longitudinales 5-7 primariae sub zona suturali obsoletius sculpta testam ornant. Inter costulas prirnarias singulae tenuiores exstant, canalis costulis rudioribus sculptus. Costae transversales costulis longitudinalibus decussatae mucronatae scabraeque. Apertura ovalis, utrimque subacuminata, margine columellari reflexo, dextro intus striis acutis crenulato.*

(Shell grooved, very elongated, slightly fleshy, spire acute, canal small, sub-narrow, partly recurved, base with an efficient blunt striated crest. 9 convex whorls, hardly angled, with advanced age constricted to wavy sutures. 9-10 straight and narrow transverse ribs, compressed-varicose, and 5-7 longitudinal primary ribs under the sutural zone more obsoletely sculpted decorate the shell. Among the prirnary ribs there are individual thinner ones, sculpted by the rougher ribs. The transverse ribs are decussated by the longitudinal ribs and are scabrous. Aperture oval, a little pointed on both sides, columellar margin reflexed, on the right inside with sharp ridges.)

Size: 25-43 mm; length 33 mm, width 13 mm; length of aperture with canal 18 mm, width of aperture 5.5 mm

Range: Senegal

Remarks: *A. boettgeri* differs from *Fusinus tenerifensis* by its larger size (up to 45 mm), by having usually slightly carinated whorls, by axial ribs which are formed like an elongated reversed 'S', by the wider interspaces between

the axial ribs, by a longer and less curved siphonal canal, and finally by not having a white band below the periphery.

A. boettgeri is larger and has intercalated ribs present between the spiral cords, and there are differences in the protoconch sculpture and the peristome with respect to *Pseudofusus rosamariae*.

Aptyxis syracusana (Linnaeus, 1758)

Synonyms: *Aptysis syracusanus var. fasciolarioides* (Monterosato, 1878), *Aptyxis syracusanus var. abbreviata* Coen, 1933, *Fusinus syracusanus var. rissoianus* (Locard, 1892), *Fusinus syracusanus var. rubra* Scacchi, 1836, *Fusus rissoianus* Locard, 1891, *Fusus syracusanus var. umbilicata* Coen, 1922, *Murex fortis* Risso, 1826

Description: *M. testa oblonga, anfractibus striatis plicatis tuberculoso-carinatis, apertura edentula, cauda brevi.*

(Shell oblong, whorls tubercular-carinate striated, aperture edentulous, canal short.)

Rediscription: Shell of medium size, opaque, robust but not heavy, fusiform, elongated and turriculate with 9 spiral whorls. Protoconch smooth, mammillated, composed of 1.25 whorls, ca. 516 µm in diameter, with small apical nucleus, 218 µm in diameter. Axial ribbing dense and regularly spaced, 13-14 in number on the last whorl, convex, evident and uniformly milky white in colour on the first whorls of the spire. In the median part of the whorls, a keel divides the whorl in two halves; the adapical part forms a sharp angle with the keel up to the suture, which is clear and evident but not canaliculate; in this part of the whorl, the axial ribs are barely traced, obscuring the suture, whereas they are evident and prominent in the lower half of the whorl. The whorls bear 7-8 spiral cords alternating with rather evident intermediate cords. Simple, thick, internally striated lip. Corneous oval operculum. Siphonal canal straight, short and robust, slightly arcuate, open, reddish brown in colour. Aperture wide, suboval, with columellar callus growing thicker towards siphonal canal. Columella without folds. Periostracum silky and persistent. Particular chromatic ornamentation on last whorl, consisting of irregular brown and white bands.

Size: size up to 60 mm or more

Range: Mediterranean Sea, Canary Isl.

Remarks: A characteristic separating *A. syracusana* from the other species of the genus is the presence, albeit not constant, of a trace of false umbilicus. This feature is found in large specimens from the Aegean Sea. No other species of *Fusinus* in the Mediterranean Sea have this characteristic.

Pseudofusus pulchellus differs from *A. syracusana* in height and color and in fewer ribs and rounded whorls.

Pseudofusus rostratus can also be confused with *A. syracusana*, which has alternating light and dark bands, while the shell coloration of *P. rostratus* is uniform.

Araiofusus Callomon & Snyder, 2017

Type species: *Araiofusus araios* Callomon & M. A. Snyder, 2017

Description: Species in this genus have a moderately large, slender shell with rounded whorls and a moderately long rostrum that is usually recurved and sometimes undulating (being longer than in *Barbarofusus* and *Harfordia* but shorter than in *Fusinus*). In adult specimens the final part of the body whorl can be noticeably constricted in diameter, whence the genus name. The columellar margin of the aperture does not have a raised edge except around the entrance to the canal in adult specimens.

Size: moderately large

Range: NE Pacific

Remarks: compare to *Callifusus*

Araiofusus araios Callomon & Snyder, 2017

Description: Shell moderately large for subfamily, 7-9 whorls with adpressed suture and subsutural band; rostrum of medium length. Rate of whorl expansion progressively declining in first 3-5 whorls, giving distinctive blunted appearance. Protoconch worn in all material examined; two whorls with first larger than second; coiling axis of protoconch displaced from axis of teleoconch. Where protoconch absent, shell sealed with domed septum. Early

whorls with about 10 rounded axial ribs, very weak or absent on last two whorls. 4-5 major spiral cords on early whorls; secondary cords arising in interspaces and strengthening so that final whorl is covered by numerous cords of irregular strength and spacing. Posterior third of columellar margin resorbed; middle third with detached edge in adults; rim absent from distal third of canal. Rostrum slightly to strongly recurved, canal equally open over entire length. Interior shell wall bears paired lirae not corresponding in position to spiral cords; lirae terminate well before margin of aperture. Lip slightly crenellate at terminus of spiral cords; outer shell layer visible through thinned inner layer at margin in mature specimens. Operculum typical of family, leafshaped with terminal nucleus. Periostracum thin, greenish-brown, with coarse, wellspaced lamellae bearing ragged flanges in interstices of spiral cords.

Adult shells uniformly white to palest tan; most immature specimens bear light orange to brown spiral cords with coloration often interrupted by axial ribs; colored cords persist in some adults, including holotype.

Size: to 115 mm; 102.0 mm

Range: California to Baja California Sur, Mexico

Remarks: It resembles its closest congener *A. eueides* in the noticeable constriction in the diameter of the body whorl when compared to that which the growth algorithm would otherwise produce. However, the spire of *A. araios* is not straight-sided but somewhat domed in the early part; the spiral cords are coarser than those in *A. eueides*, and the latter does not show coloration of the cords at any stage of growth.

A. araios has previously been identified as *Barbarofusus barbarensis †* from which it is easily distinguished. For comparison with *A. colpoicus* see there.

Araiofusus colpoicus (Dall, 1915)

Description: At a length of 66 mm it has 8 whorls without counting the eroded nucleus; 3 of the spirals near the periphery are more conspicuous than the rest; at the end of the penultimate whorl there are 6 major and 6 minor spirals which pass over the ribs without becoming nodulous. The canal is conspicuously tortuous.

Redescription: Shell of medium size for subfamily, 6-7 inflated whorls with adpressed suture; rostrum of medium length, slightly to strongly recurved. Protoconch eroded in all material examined; of ca. 2 whorls, second whorl of smaller diameter than first. Teleoconch sculpture of 7-8 slender axial ribs per whorl; ribs widely spaced and aligned vertically. 4 major spiral cords between sutures on teleoconch with intercalated minor cords; major cords narrow, not forming lobes in crossing axial ribs. Pattern of cords persists over entire rostrum, gradually weakening distally. Columellar margin resorbed in juveniles; in adults, bears slight raised edge in middle third of length. Labral margin thin and crenellate at termini of major cords.

Shell pale cream overall; major cords distinctly colored, golden yellow on early whorls, becoming medium to dark brown. Coloration of cords persists across labral margin of aperture. Occasional light brown axial bands on body whorl. Operculum typical for genus, leaf-shaped with terminal nucleus.

Size: length 66 mm, aperture and canal together 36 mm, maximum diameter 18 mm

Range: Gulf of California and Pacific coast of Baja California

Remarks: *A. colpoicus* is distinctive, with apical whorls compressed, button-like, presumably a reference to the constricted second protoconch whorl.

A. colpoicus resembles *Barbarofusus barbarensis †*, when the latter is about 60 mm long, but differs by having 13 instead of 11 axial ribs, which are narrower and with wider interspaces while the revolving threads are sharper and more conspicuously alternated.

A. colpoicus compared with both *A. araios* and *A. eueides*, it has narrower and more widely spaced axial ribs that are roughly aligned vertically and a smaller number of major spiral cords, which are often colored and which form distinctive broad carinae in crossing the axial ribs.

Araiofusus eueides Callomon & Snyder, 2017

Description: Shell slender fusiform, medium size, 9 smoothly rounded whorls, suture slightly adpressed. Protoconch worn or absent in all material examined; 2-2.5 whorls, axis of coiling at angle to that of teleoconch. Teleoconch bears 9-10 rounded, indistinct axial ribs per whorl, weakening in last half of penultimate whorl and

becoming obsolete on body whorl. Spiral sculpture of numerous fine narrow raised cords, intercalary weaker spiral cords on early whorls becoming stronger by penultimate whorl.

Columellar margin resorbed in all but one specimen that bears finished edge in central third of margin. Interior of aperture bears numerous fine spiral lirae with pointed termini; lirae terminate uniformly well before labral margin; outer lip thin and crenellate, with delicate dentition at terminus of spiral cords. Canal broad, open over entire length.

Periostracum of medium thickness for family with dense axial lamellae. Lamellae develop ragged flanges in interspaces of spiral cords that bear sparse needle-like tufts. Operculum typical of genus, leaf-shaped with terminal nucleus; light brown. Shell pure white; some specimens bear pale brown spiral cords that cross over the axial ribs.

Size: to ca. 110 mm; 108.8 mm

Range: California to Baja California

Remarks: *A. eueides* is visually similar to *Goniofusus turris*, which is distributed from the Gulf of California to Ecuador. It can be distinguished by its simple protoconch, smaller adult size (*G. turris* can exceed 190 mm), thinner shell, short, recurved canal and lack of a peripheral keel.

From *A. araios* it can be distinguished by its thinner, lighter shell with a straight-sided spire and its finer and more numerous spiral cords, which continue over the axial ribs. The periostracum bears distinct though sparse tufts, which have not been observed in *A. araios*, and its thickness may reflect a colder habitat as in many boreal buccinid genera.

For comparison with *A. colpoicus* see there.

Ariefusus Vermeij & M. A. Snyder, 2018

Type species: *Ariefusus rutilus* (Nicolay & Berthelot, 1996)

Description: Shell elongate fusiform (length to diameter ratio 2.4 : 3.1) with a long straight tapering siphonal canal (canal length to shell length ratio 0.30 : 0.41) that is very narrowly open (less than 2 mm); axial sculpture consisting of very high, sharply rounded ribs forming axially elongate nodes at periphery; spiral sculpture consisting of fine cords not expanded into nodules where crossing ribs below pe riphery and not roughened by growth lines; aperture small, ovate, adapically rounded; outer lip edge abapically slightly convex; inner side of outer lip with smooth lirae; inner lip adherent, its adapcial end with obsolete parietal ridge.

Size: not given

Range: W Africa

Remarks: *Ariefusus* bears some resemblance to the Indo-Westpacific fasciolariine genus *Nodolatirus*. Similarities include the elongate fusiform shape, high round axial ribs, weak rounded spiral cords arid the tendency to form high peripheral nodes. *Nodolatirus* differs, however, by having a much shorter, broader siphonal process adorned with several very prominent spiral cords and by the presence of 4 or 5 weak columellar folds. The spiral cords in *Nodolatirus* are fewer and more differentiated in size than in *Ariefusus*, and there is a pseudoumbilicus in *Nodolatirus* but not in *Ariefusus*.

Ariefusus rutilus (Nicolay & Berthelot, 1996)

Description: *Conchiglia fusiforme allungata tipica del genere, abbastanza robusta. Protoconca mammilliforme composta da 2 giri lisci. Teleoconca di una decina di giri rigonfi, bombati, regolarmente svolti e fortemente scolpiti sia in senso assiale sia in quello spirale. La scultura assiale, che prevale nettamente su quella spirala, é costituita da forti costole arrotondate, prominenti, regolarmente distribuite su ogni giro e alte quanto il giro stesso, in numero di circa 14 sull'ultimo giro. Gli intervalli fra le coste sono leggermente piu grandi delle coste stesse. Le coste sono abbastanza allineate su quelle del giro precedente, tranne che sui primi giri di spira.*

L'interna superficie della teleoconca é scolpita da numerosi, fitti cordoncini spirali che passano sopra le coste assiali. A volte, sull'ultimo giro vi sono, negli intervalli fra le corde spirali, cordoncini ancora piu piccoli, visibili solo con una lente. Sul canale sifonale le coste assiali si allungano rimpicciolendosi e i cordoncini spirali si infittiscono, indebolendosi anch'essi: il loro incontro genera una microscultura cancellata, ruvida al tatto e in alcuni punti granulosa. Sutura semplice, lineare, senza rampa subsuturale: spalla ampia, ben arrotondata.

Apertura ovoidale allungata, labbro esterno semplice, tagliente, crenulato sul bordo dalle estremita dei cordoni spirali, che sono visibili anche all'interno dell' apertura. Labbro interno completamente aderente alla parete columellare. Canale sifonale molto lungo, puo essere dritto o leggermente sinuoso. Opercolo corneo, ovoidale allungato, di colore bruno scuro col nucleo sulla parte basale, e lievi striature longitudinali.

Il colore di fondo è biancastro; le coste sono di un forte color brune rossastro, che continua, divenendo un po' piu chiaro, sul canale sifonale, il cui interno è bianco brillante.

(Shell elongated fusiform, typical of the genus, quite robust. Mammillary protoconch composed of 2 smooth whorls. Teleoconch of about 10 swollen, rounded, regularly unrolled and both in the axial and spiral directions strongly sculpted whorls. The axial sculpture, which clearly prevails over the spiral one, is made up of strong rounded, prominent ribs, regularly distributed on each whorl and as high as the whorl itself, about 14 in number on the last whorl. The intervals between the ribs are slightly larger than the ribs themselves. The ribs are quite aligned with those of the previous whorl, except for the first whorls of the spire.

The inner surface of the teleoconch is sculpted by numerous thick spiral cords which pass over the axial ribs. Sometimes, on the last whorl, there are even smaller cords in the intervals between the spiral cords, visible only with a magnifying glass. On the siphonal canal the axial ribs become longer and smaller and the spiral cords thicker and weaker; their encounter generates an erased micro-sculpture, rough to the touch and grainy in some points. Simple, linear suture, without subsutural ramp; shoulder broad, well rounded.

Aperture elongated ovoid, simple, outer lip sharp, crenulated on the edge from the ends of the spiral cords, which are also visible inside the aperture. Inner lip completely adherent to the columellar wall. Siphonal canal very long, can be straight or slightly sinuous. Operculum horny, elongated ovoid, dark brown with the nucleus on the basal part, and slight longitudinal striations. The background color is whitish; the ribs are of a strong reddish brown colour, which continues, becoming a little lighter, on the siphonal canal, whose interior is brilliant white.)

A. rutilus has a protoconch consisting of 2 smooth whorls, and very fine spiral sculpture and axially elongate tubercles at the periphery, which are situated at a relatively adapical position onthe whorl. No pseudoumbilicus.

Redescription:

- protoconch mamilliform, consisting of 2 whorls;
- shell fusiform, elongate;
- teleoconch of about 10 whorls;
- first teleoconch whorls very angular, last whorls more rounded and always deeply incised to the sutures;
- last whorl, making a sharp curve to the axis;
- axial sculpture, clearly prevailing on the spiral one, is made of sharply rounded prominent ribs forming axially elongate nodes at periphery;
- last whorl with 17 axial ribs;
- spaces between ribs are slightly larger than the ribs themselves;
- the whole surface of the teleoconch is sculptured with numerous thin spiral threads, crossing over the axial cords;
- on the siphonal canal, the axial cords become longer and thinner, while the spiral ribs become thicker;
- aperture ovoid;
- siphonal canal very long, either straight or slightly sinuous;
- operculum corneous, elongate-ovoid, dark brown with slight longitudinal striae and a basal nucleus;
- periostracum never observed;
- background colour creamy white, axial ribs rusty brown.

Size: 42-200 mm; length 183 mm, width 39 mm

Range: W Africa, endemic to Gabon

Remarks: *A. rutilus* is without doubt different from the sibling species *Apertifusus caparti* and *Apertifusus meyeri*, particularly by its special profile of axial sculpture and deeply incised sutures, the brown coloured axial ribs, and by having a darker and thinner operculum. The latter two species have rounded whorls, of which the spiral ribs are prevailing on the axial cords. This axial sculpture is strong only in the first teleoconch whorls and is gradually fading out in the last whorls. The differences between these two species are constant.

Aristofusus Vermeij & Snyder, 2018

Type species: *Aristofusus excavatus* (G. B. Sowerby II, 1880)

Description: Shell very slender (length to diameter ratio 3.4 : 4.1), with very long, very narrowly open siphonal canal (canal length to shell length ratio 0.39 : 0.48, opening 2 mm or less wide); sutures very deeply impressed to almost channeled; spiral sculpture consisting of smooth high angular cords overriding broad rounded ribs without

forming nodes or tubercles; aperture ovate, adapically rounded; outer lip with strongly developed lirae; adult inner lip erect; parietal ridge present; protoconch of the typical fusinine form with a smooth first whorl and a terminal portion with fine riblets.

Size: medium to large

Range: tropical W Atlantic

Remarks: *Aristofusus* is morphologically very similar to *Heilprinia* but differs by having a typical fusinine protoconch with a smooth first whorl instead of a protoconch in which all whorls are finely ribbed. In addition, species of *Aristofusus* have more slender shells with even smoother cords and a more deeply impressed suture.

Aristofusus differs from *Lyonsifusus* by having a much longer, much more narrowly open siphonal canal, no tendency to form nodes or tubercles where spiral cords cross the broad axial ribs, and even smoother spiral cords.

Apertifusus differs from *Aristofusus* by having relatively poorly expressed, short lirae. The axial ribs of *Aristofusus* are much broader and smoother, and the siphonal canal in those genera is more narrowly open.

Aristofusus benjamini (Hadorn, 1997)

Description: Shell large for genus, uniformly white-coloured, elongate fusiform, slender, with 15-16 rounded, always unkeeled whorls. Suture wavy. 6-7 broad, strong and rounded axial ribs on upper whorls, 9-10 on penultimate and on body whorl. They reach from suture to suture on upper whorls, and terminate somewhat below the upper suture on latter whorls. 3-5 strong sharp spiral cords on early whorls, 10-12 of equal strength on penultimate whorl, intercalated with 1-3 fine spiral threads. Below the suture there are no spiral cords but 3-5 fine spiral threads. Aperture rather small, ovate, outer lip denticulated, with 16-19 strong, sharp internal lirae. Strong white parietal callus ornamented with some weak folds. Siphonal canal slender, very long and straight.

Size: up to 187 mm

Range: Barbados, Trinidad and Tobago and from French Guiana to Colombia

Remarks: *A. benjamini* is closest to *F. excavatus*, from which it differs by its larger size and more numerous whorls and by having 5-10 weak irregular folds on the parietal callus. There are also differences in protoconch sculpture. *A. excavatus* has a noticeably smaller shell, sometimes slightly keeled whorls, somewhat lower number of axil ribs on all whorls, a completely smooth parietal callus, and a clearly stronger spiral sculpture on the siphonal canal. The clearly larger spire angle and the broader, stronger siphonal canal are also good distinguishing marks.

Heilprinia dowiana has a much broader spire, less numerous whorls, broader axial ribs and a completely different parietal callus forming a wide, wing-like blade.

A. stegeri differs in its clearly smaller shell size, its lower number of whorls and in the narrower and obviously greater number of axial ribs, a curved siphonal canal with a stronger spiral sculpture, and a completely smooth parietal callus.

Lyonsifusus ansatus has a broader, less elongated shell, a lower number of whorls (11-12), sometimes slightly keeled whorls, a greater number of axial ribs with narrower interspaces, a less deeply incised suture, and a larger aperture.

Lamellilatirus ceramidus has a clearly smaller, less elongated shell, a lower number of whorls (8-9), and a shorter siphonal canal.

Aristofusus couei (Petit de la Saussaye, 1853)

Description: *Testa fusiformi, longe caudata, solida, sub epidermide stramineo alba, regulariter sulcata; anfractibus 11-12 ventricosis, superioribus nodoso-plicatis; apertura ovato-rotundata; columella subcallosa, intus sulcata, canali aperto, basi recurvo.*

Coquille fusiforme, ayant une queue qui représente presque la moitié de la longueur de la coquille, solide et assez pesante, de couleur blanche sous un épidémie de couleur paille, sillonnée assez régulièrement : elle compte onze ou douze tours de spire ventrus, les supérieurs présentant des plis noduleux; l'ouverture est presque ronde ; la columelle est presque droite, recouverte d'une callosité blanche qui laisse apercevoir à l'intérieur les parties saillantes des sillons extérieurs ; le canal, un peu ouvert dans toute sa longueur, est recourbé en arrière vers son extrémité.

(Shell fusiform, long siphonal canal, solid, under the epidermis white straw, regularly furrowed; 11-12 ventricose whorls, the upper ones nodose-folded; aperture ovate-rounded; columella subcallous, inside furrowed, canal open, base curved.

Shell fusiform, siphonal canal represents almost half the length of the shell, solid and rather heavy, of white color under a straw-colored epidermis, furrowed quite regularly: spire with 11 or 12 whorls, the upper ones presenting nodular folds; aperture almost round; columella almost straight, covered with a white callosity which reveals inside the protruding parts of the external furrows; the canal, a little open in all its length, is curved backwards towards its extremity.)

Redescription: A narrowly elongate, graceful, moderately large, heavy, white-coloured shell, consisting of 11-12 well-rounded whorls, with a weak concavity in front of the suture. Early whorls with 4-7 broad, low and rounded axial ribs, separated by narrow interspaces. They disappear at the beginning of the fifth or sixth whorl and there are 4 or 5 ribless whorls. 5-6 strong, sharp spiral cords; the 3 central ones are clearly the strongest. The number of spirals increases by intercalation on latter whorls.

Aperture narrowly ovate, pointed above, with strong internal lirae. Outer lip finely denticulate; inner lip ornamented by the underlying spiral cords. Siphonal canal long and strong, slightly curved, tapering anteriorly.

Size: 50-130 mm; length 104 mm, width 24 mm

Range: Gulf of Mexico, especially western part

Remarks: It is remarkable among its congeners, by the regularity of its shape, by its solidity and its weight, and by the shape of the aperture, almost round; in the middle of the furrows formed by the high and slightly angular cords, which surround the shell, one sees in the most swollen parts of the whorls a smaller cord, a character which is perhaps only accidental.

The similar *Fusinus dilectus* can be separated by the clearly finer spiral sculpture, the dark brown spire tip, the indistinct red-brown markings, the weaker and narrower axial ribs on early whorls, and by the somewhat larger aperture.

A. couei has rnuch stronger spiral and axial sculpture than *A. helenae*, a heavier shell, usually a larger shell size, and a different morphology of the protoconch.

Aristofusus excavatus (G. B. Sowerby II, 1880)

Synonyms: *Fusus eucosmius* Dall, 1889

Description: *Testa gracile fusiformis, fulva, spiraliter prominente lirata et interstriata, distanter costata, costis prominentibus, tuberculoso-liratis; anfractibus 10, prominentibus, ad suturam profunde excavatis.*

(Shell slender, fusiform, yellow, spirally prominently lirated and interstriated, distantly ribbed, with prominent, tuberculous-lirated ribs; 10 whorls, protruding, deeply excavated at the suture.)

Redescription: Rather variable species, with 11 rounded whorls; lower whorls usually slightly keeled. Surure wavy, rather deeply impressed. White to yellowish, often with a feeble touch of orange or apricot. Periostracum grey-white to yellowish, relatively thick.

7-9 broad, rounded axial ribs per whorl, separated by deeply impressed interspaces of the same width. Adult specimens with a conspicuously broad prelabrial axial rib. 6-7 strong, sharp spiral cords. Beginning with the second or third postnuclear whorl the two central spiral cords become somewhat stronger. Fine intercalated spiral threads appear on the last whorls.

Aperture oval, small, white. Outer edge of parietal callus free and conspicuously detached from lower part of body whorl. Strong and sharp spirals inside the aperture. Siphonal canal strong, broad, relatively long (2/5 of shell length), outer side ornamented with very strong spiral cords.

Size: up to 86 mm

Range: Gulf of Mexico, Florida Straits and east Florida

Remarks: The prominence of the whorls and deep excavation of the suture distinguish this shell from *Pseudofusus rostratus*.

A. benjamini is closest to *F. excavatus*, from which it differs by its larger size and more numerous whorls and by having 5-10 weak irregular folds on the parietal callus. There are also differences in protoconch sculpture. *A. excavatus,* compared to *A. benjamini,* has a noticeably smaller shell, sometimes slightly keeled whorls, somewhat lower number of axil ribs on all whorls, a completely smooth parietal callus, and a clearly stronger spiral sculpture

on the siphonal canal. The clearly larger spire angle and the broader, stronger siphonal canal are also good distinguishing marks.

A. excavatus can be separated from *Fusinus blakensis* by the more elongated spire, the broader and larger axial ribs and the less impressed interspaces between them, by the larger number of spiral cords, the stronger spiral sculpture especially on siphonal canal and by the stronger and broader siphonal canal.

For comparison with *Apertifusus caparti* and *A. stegeri* see there.

F. excavatus differs from *F. marcusi* in the smaller shell, in the axial ribs reaching from suture to suture, in the clearly stronger spiral sculpture on shoulder, in the broader and uncoloured interspaces between the axial ribs, and finally in the shorter, much stronger and broader siphonal canal and in the stronger spiral sculpture on siphonal canal.

Aristofusus helenae (Bartsch, 1939)

Description: Shell moderately large, fusiform, with the basal portion of the shell only a bit shorter than the length of the spire. The tip and early postnuclear whorls are pale chestnut brown, the rest of the shell is flesh-colored with the axial ribs rust-stained. The base and columellar portion also have rusty staining. Nuclear whorls a little more than 2, the first 1.5 whorls smooth, inflated, strongly rounded, the succeeding part marked by almost vertical axial ribs. The early postnuclear whorls are marked by strong, low, broad axial ribs which are separated by equally impressed spaces of about the same width. Of these ribs, about 10 occur upon each of the first 5 whorls, after which they become less conspicuous and less regular and quite inconspicuous on the last whorl. In addition to these, the whorls are marked by spiral cords, of which 5 are present on the first 3 postnuclear whorls, after which they increase by intercalation, 25 varying in strength from mere threads to rather strong keels being present between summit and periphery on the last whorl. Base short, strongly rounded. Columella very long and spindle-shaped, somewhat sinuous and marked by incremental lines and rather weak spiral threads. Aperture narrowly oval in its major portion with a long, sinuous canal basally, the posterior angle is acute, outer lip thin, rendered slightly denticulated by the axial threads; inner lip thin and appressed to the columella.

Redescription: Shell of medium size, fusiform, light in weight (small specimens), with 9-10 evenly rounded whorls. Early whorls pale chestnut brown to red-brown, the rest of the shell is flesh-coloured or whitish with the axial ribs irregularly rust-stained. 2 spiral cords at the periphery are somewhat stronger than any others. Very large specimens rather heavy, with a slight concavity below the suture on lower whorls. Early postnuclear whorls with 9-10 relatively weak, low and broad axial ribs. They become less conspicuous and less regular on latter whorls, usually obsolete on penultimate and body whorl. 5 rather fine spiral cords on early whorls, after which they increase by intercalation; 25 fine spirals varying somewhat in strength on body whorl.

Aperture narrowly ovate, outer lip thin. Parietal callus thin, appressed to the columella. Siphonal canal long, usually straight, sometimes slightly curved.

Size: 50-100 mm; 50.4 mm x 14.7 mm

Range: Gulf of Mexico, Florida

Remarks: Most closely related are *A. couei* and *Fusinus dilectus*. Both have rnuch stronger spiral and axial sculpture, a heavier shell, usually a larger shell size, and a different morphology of the protoconch.

A. helenae differs from *Fusinus dilectus* in the usually smaller shell size, the weaker axial ribs on early whorls, and in the clearly weaker spiral sculpture.

Aristofusus stegeri (Lyons, 1978)

Description: Shell large, slender, fusiform, with about 13 whorls. Embryonic whorls about 2 1/2, small, elongate, flattened apically, with only slightly convex lateral margins; last half whorl with strong axial riblets. Nearly 11 postembryonic whorls bearing prominent, swollen axial ribs, increasing numerically but decreasing in strength anteriorly; first five spiral whorls with 6 or 7 ribs, sixth whorl nearly always with 7 ribs, seventh with 8-10, eighth with 9-13, ninth with 10-14, and tenth with 13-16 ribs. Spiral whorls rounded, with strongly convex sides and constricted sutures; each whorl crossed by 6-8, usually 7, prominent spiral cords. About 10 or 11 strong cords on body whorl, 9-12 on base, sometimes with weaker cords between. Aperture ovate, slightly constricted anteriorly and posteriorly; parietal callous extended, forming sharp, thin lamina (inner lip) along columellar border of aperture; lamina

sometimes present but reduced along columellar zone of anterior siphonal canal; one or two small teeth at inner, posterior portion of parietal callus, obsolete in largest shells; inner surface of outer lip with 14-18 simple, usually paired lirae or teeth. Base and anterior siphonal canal slender, about half total length of shell. Operculum thick, rough, corneous, of same size and shape as aperture. Shell white, commonly stained gray posteriorly.

Redescription: Rather large, elegant shell with 11-13 strongly convex whorls with constricted suture. Shell withish, sometimes dirty grey in colour. All whorls with prominent rounded axial ribs, increasing numerically but decreasing in strength anteriorly. Upper whorls with 6-7 ribs, lower whorls with up to 16 ribs, body whorl often without ribs. Upper whorls crossed by 6-8 prominent spiral cords, body whorl with about 9-12 spirals, sometimes with weaker threads between them.

Aperture ovate, parietal callus extended, forming a sharp, thin lamina along the columellar border of aperture. With simple, usually paired lirae within aperture. Siphonal canal slender and long, sculptured with strong spiral cords of unequal strength.

Size: 43-120 mm; to at least 102 mm total length

Range: Gulf of Mexico, W Florida

Remarks: *A. stegeri* is distinguished from the similar *A. excavatus (= F. eucosmius)* by its larger size, possession of narrower and more numerous ribs on anterior whorls, and entirely white color. Color of living or freshly dead *A. excavatus* shells is orange or apricot, with strongest pigmentation in intercoastal areas. *A. excavatus* attains a maximum length of approximately 86 mm, but specimens larger than 80 mm are uncommon. At maximum size, *A. excavatus* has 8 or 9 strong axial ribs on the terminal (usually eleventh) whorl. Axial ribs increase with shell size throughout the development of *A. excavatus*. the final rib on the terminal whorl being far larger than any other rib on the shell. Conversely, axial ribs on later whorls of *A. stegeri* are markedly smaller than those on some intermediate whorls. The inner lip, an extension of the parietal shield and columella, is usually very well developed on large *A. stegeri*, and may be present on specimens as small as 70.4 mm, but shells as large as 87.0 mm may have no inner lip development. On shells of similar length, apertures are placed more posteriorly on F. stegeri than on *A. excavatus*.

Fusinus amphiurgus is a small species possessing 8 whorls in a length of 14 mm and colored yellowish, with sprial touches of reddish brown; it is clearly not the new species.

Fusinus halistreptus is similar to *A. stegeri*, but possesses only very low, rudimentary ribs and occurs at greater depth.

A. stegeri differs from *A. benjamini* in its clearly smaller shell size, its lower number of whorls and in the narrower and obviously greater number of axial ribs, a curved siphonal canal with a stronger spiral sculpture, and a completely smooth parietal callus.

A. stegeri can be distinguished from *Fusinus blakensis* by more numerous and never keeled whods, the longer spire, the larger number of axial ribs, and by the weaker and irregular axial ribs on penultimate and body whorl with much narrower interspaces between them.

A. stegeri can be separated from *Fusinus marcusi* by the strongly convex and unkeeled whorls, the pure white shell, the stronger axial ribs and the deeper impressed interspaces between them, by the somewhat shorter siphonal canal, the stronger spiral sculpture on shoulder, and by the often obsolete axial sculpture on penultimate and body whorl.

Barbarofusus Grabau & Shimer, 1909

Type species: *Barbarofusus barbarensis* (Trask, 1855) †

Description: Shell small to medium for family, bucciniform with short, broad rostrum. Small, bulbous and slightly heterostrophic protoconch of ca. 1.5 whorls; teleoconch sculpture of thick, rounded and evenly spaced axial ribs that span sutures in early whorls and become reduced in final part of body whorl. 6 to 8 major spiral cords between sutures of early whorls with occasional minor cords interspersed; cords expanding only slightly in crossing axial ribs. Cords cover entire adult shell, ca. 25 in adult specimen, thickening slightly towards anterior end. Fine axial sculpture of growth lirae over entire shell. Columellar margin of aperture and canal distinct; slightly edged in distal part of canal. Interior of aperture with ca. 20 spiral cords arranged in rough pairs; cords terminate at uniform

distance from lip. Aperture wall immediately behind lip clearly thickened; lip margin thickened and glossy with crenulations corresponding to external spiral cords. Canal short, open; rostrum slightly reflexed.

Size: to 49 mm

Range: NE Pacific

Remarks: Of the eastern Pacific genera in this group this internally slightly thickened lip occurs only in members of *Barbarofusus*. The lirate sculpture inside the outer lip is beaded.

Barbarofusus guadalupensis Callomon & Snyder, 2017

Description: Shell small, thick, heavy, regular bucciniform; six whorls with adpressed suture and short rostrum. Protoconch of ca. 1 whorl, heavily eroded but apparently partially subsumed. First 2 telecoconch whorls bear strong, well-spaced arcuate axial ribs with no visible spiral sculpture; thereafter smooth transition to adult sculpture of 11 rounded axial ribs per whorl with deep interspaces; ribs on body whorl becoming less distinct and no longer reaching suture. Entire shell surface covered with dense, fine axial growth lirae. Five polished major spiral cords between sutures on penultimate whorl, with several minor ones; cords distributed over entire body whorl, occasionally forming small lobes where crossing axial ribs. Columellar margin of aperture resorbed in juveniles; thickened with raised edge and anterior half broadly detached in adults. 1 or 2 nodule-like protrusions adjacent to posteriormost end of columellar margin in adults. Apertural lip in adults with pronounced flaring in anterior half, giving quadrate appearance. Canal short and open over entire length. Interior of aperture with strong spiral lirae that terminate in long points at uniform distance from lip; colored outer shell layer visible through thinned inner layer at lip.

Shell mid brown overall with extensive darker brown staining, especially on body whorl; spiral cords distinctly

darker brown than ground color. Interior white with occasional lavender cast. Operculum leaf-shaped with terminal nucleus; pale yellow, very thin and flexible.

Size: to 51.0 mm; 40.4 mm

Range: Guadalupe Isl., W Mexico

Remarks: *B. guadalupensis* lacks the obliquely adpressed suture that characterizes Harfordia and has a pronounced flare in the anterior part of the adult apertural lip that serves to separate it from other species.

Barbarofusus kobelti (Dall, 1877)

Description: Shell elegantly and regularly fusiform, of 7 or 8 whorls, sculptured with revolving lines and transverse costae. In young specimens the whorls are somewhat rounded, in the adnlt elongated. Epidermis in perfect specimens dark ashy or greenish olivaceous, rising in crowded lamellae and obscuring the coloration. This varies, however, with age and habitat. Apex acute, the second and third whorls hardly larger than the embryo. Color whitish, the alternate revolving ridges of a dark brown, which occasionally extends to all the ridges. These ridges do not lose their color in passing over the costae, except where worn off by rolling on the beach. Except on the earlier whorls the ridges do not show any tendency to enlarge in passing over the costre. On the posterior edge of the whorls the shell is appressed on the suture, and the ridges here are inconspicuous, in most specimens, compared with those on the body of the whorl. These ridges, moreover, bear the character of threads, the interspaces not being channelled as in *Harfordia harfordi* and *Hesperaptyxis luteopictus*. In the most perfect specimen, on the last whorl there are 22 brown ridges and as many more intercalary, of the same color as the shell. In melanitic specimens all may be tinged brown. On the antepenultimate whorl between the sutures there are about 6 main ridges and 8 intercalary. The costae are rounded and prominent only on the earlier whorls, but they remain on the last whorl in a flattened condition, but extend well over the periphery, and are not obsolescent as in *H. luteopictus.*

The interior of the aperture is white; before the lips are thickened the brown lines show through, and the prominent white threads of the throat are distant from the outer edge. In this stage there is no siphonal fasciole. Later, both lips may be strongly thickened; the threads (10 or 15 in number) nearly reach the edge, a labial callus and fasciole are formed. In adults there are about 12 costae on the last and 10 on the sixth whorl.

Redescription: Shell small to medium size, thick and heavy; slender bucciniform with 7 whorls, adpressed suture and short, reflexed rostrum. Protoconch worn or missing in all material examined; ca. 2 whorls, second whorl often slightly constricted. Teleoconch with 9-10 prominent and somewhat prosocline axial ribs per whorl. Six major spiral cords between sutures on penultimate whorl, distributed evenly to anterior end of rostrum; cords narrow, slightly raised and glossy.

Columellar margin with raised edge along anterior two thirds; canal broad and open along entire length. Interior of aperture with numerous strong spiral lirae that terminate in points at uniform distance from lip, where shell is uniformly thickened in adult specimens. Lip polished, slightly crenellated at termini of spiral cords.

Shell pale off-white with distinctive medium to dark brown spiral cords and occasional brown axial bands. Interior white. Periostracum thin, greenish-brown, translucent, with sparse and only slightly developed lamellae and apparently no tufts. Operculum typical fasciolariid, leaf-shaped with terminal nucleus.

Size: to 62.1 mm; lectotype 47 mm

Range: California to Pacific Baja California

Remarks: *B. kobelti* has a distinctive shell, characterized by its thick construction, short rostrum, broad axial ribs and prominent colored spiral cords. The number and width of cords vary considerably. Fully adult specimens show the distinctive thickened band set some way inward from the apertural lip and terminating the internal spiral lirae and overall have a slightly distorted appearance.

It is perfectly distinct from the other Californian species. In a general way it is perhaps a little like *Fusus ustulatus* Reeve *(?= Propefusus undulatus* Perry*)*.

Callifusus Vermeij & Snyder, 2018

Type species: *Callifusus irregularis* (Grabau, 1904)

Description: Fusinines with angular whorls; shell relatively elongate (length to diameter ratio about 3.4) with elongate, relatively widely open siphonal canal (canal length to shell length ratio about 0.38, opening 3 mm wide); spiral sculpture consisting of low rounded alternating cords, including a peripheral cord; axial sculpture present on early whorls or throughout; aperture adapically rounded with prominent parietal ridge; inner side of outer lip with short, poorly developed, often paired lirae; growth lines roughen spiral sculpture.

Size: large

Range: subtropical E Pacific

Remarks: *Callifusus* differs from *Propefusus* by having fewer axial ribs or nodes and by having only 1 row of nodes or tubercles if these are developed at all.

Although the whorls have an angular profile, they are much more weakly sculptured than those of *Goniofusus*, and the lirae are much weaker and shorter.

The temperate northeastern Pacific genus *Araiofusus* has rounded whorls and lacks lirae altogether.

In its indistinct lirae and its widely spaced rounded cords, *Callifusus* resembles the Australian genus *Propefusus* and the South African *Africofusus*.

It differs from *Africofusus* by having a longer siphonal process, a narrower siphonal canal opening, and having the aperture adapically rounded instead of angulate.

Callifusus edjanssi (Callomon & Snyder, 2017)

Description: Shell fusiform, medium size, slender, 10 bulbous whorls with adpressed suture. Protoconch paucispiral, broken or worn in all specimens; teleoconch with axial sculpture of about 13 strongly expressed ribs on penultimate whorl, becoming obsolete on last half of body whorl, interspaces between ribs narrower than ribs. Spiral sculpture of strong cords continuing halfway up rostrum, intercalary cords weakly developed. 4 or 5 more highly developed cords distributed on anterior 2/3 of whorl between sutures, forming carinae where crossing axial ribs. Columellar callus with raised rim, continuous with raised columellar margin of canal, rostrum slightly sinuous; callus at posterior end of aperture with raised plications roughly corresponding to underlying spiral cords, otherwise

with strongly expressed lobes of different orientation and spacing from spiral cords. Periostracum pale brown, thin, of dense lamellar construction with sparse, thorn-like tufts.

Size: to 164.6 mm

Range: Pacific Baja California, Mexico

Remarks: 3 other large species of Fusinus are known from southern California waters: *Goniofusus dupetitthouarsi, Goniofusus turris* and *C. irregularis*.

C. edjanssi is more slender than both *G. dupetitthouarsi* and *G. turris*, with more deeply impressed sutures and axial ribs that are stronger when expressed. Some specimens of *G. turris* and *C. irregularis* are almost devoid of axial sculpture on the later whorls. The protoconchs of *G. dupetitthouarsi* and *G. turris* are different from those of *C. edjanssi*. *G. dupetitthouarsi* has a distinctive 4-whorl protoconch with the last 3 whorls bearing narrow crowded fine axial riblets.

C. edjanssi is most similar to *C. irregularis* and their ranges overlap at Cedros Island. Grabau's original description of *C. irregularis* (as a form of *G. dupetitthouarsi*) makes note of the strong central keel on the last 2 whorls, a character found in all but a few of the 28 specimens examined. This character is often weakly expressed or absent in very large specimens (up to 241 mm), another example of sculpture that may sometimes not be expressed.

Callifusus irregularis (Grabau, 1904)

Synonyms: *Fusus dupetitthouarsi var. irregularis* Grabau, 1904

Description: The protoconch of this species is of the normal *Fusus* type, though appearing relatively larger. In all the specimens seen the apex was bitten by acid, and so the details of the structure of the protoconch could not be made out. Indications of the riblets have been observed, but whether the spirals were present on the last part of the protoconch could not be determined. It apparently ends in a varix.

The conch begins with ribs which are to all appearances bicarinate from the beginning. The whorls are otherwise round. The bicarination gradually gives way to a single carina, formed by the strengthening of the upper of the two spirals. This carination becomes very strong, producing a marked central keel. The ribs become gradually weaker and finally disappear, leaving the last two whorls ribless. The angulation of the whorls generally disappears toward the end. Some of the other spirals increase in strength, thus giving the shell a strong spirally striate appearance.

Size: 75-250 mm

Range: Cedros Island south down the Pacific coast of Baja, and then northward on the western Gulf of California coast of Baja, Mexico, at least as far as Isla Carmen, Baja California Sur

Remarks: Described as subspeciers of *Goniofusus dupetitthouarsi*. This species has the form of *F. colus* with the structure of *G. dupetitthouarsi*. Its close genetic relation to the latter species can not be questioned, though the manner of coiling and the consequent form is very different.

The relation of *C. irregularis* to *Apertifusus meyeri* is not clear, as no authentic specimens of the latter have been seen. Judging from the illustrations and descriptions, however, that species is quite distinct from *C. irregularis*.

For comparison with *C. edjanssi* see there.

Chryseofusus Hadorn & Fraussen, 2003

Type species: *Chryseofusus chrysodomoides* (Schepman, 1911)

Description: Shell usually thin, light in weight, shape fusiform. Whorls slightly convex, shoulder slope on latter whorls concave, sometimes slightly keeled, suture indistinct. Rather strong axial ribs on upper whorls, axial sculpture on latter whorls usually weak or absent. Spiral sculpture indistinct, close-set, regular, consisting of weak primary cords and intercalated fine threads, crossed by strong, close-set, curved axial growth lines, giving the surface the texture of linen. Protoconch typical of genus, ~ 1 to ~ 1 1/4 whorls, smooth, glossy, last part (~ 1/4 whorl) often sculptured with some axial riblets. Aperture ovate, white, yellowish or brownish; outer lip simple, with or without internal lirae; inner lip completely smooth, parietal wall covered with an extended, adherent thin layer of callus, never forming a detached inner lip like in *Fusinus colus*. Collumellar folds absent. Siphonal canal as long as aperture or slightly shorter, slightly curved or straight, open. Shell uniformly whitish, dirty greyish or brownish.

Some species with palé reddish coloured spiral sculpture. Operculum typical of genus, corneous, shape and size corresponding to aperture, nucleus terminal. Periostracum usually yellowish or brownish, often well adherent, thick and velvety.

Size: small to médium

Range: *Chryseofusus* is ecologically a deep water group, accommodating species from the Indo-Pacific upper bathyal zone, between 100 and 1900 m deep.

Remarks: *Chryseofusus* differs from all other subgenera in *Fusinus* by the slightly convex, usually unkeeled whorls with subsutural concavity, the presence of axial ribs usually only on upper whorls, the weak, close-set, regular spiral sculpture crossed by strong, close-set, curved axial growth lines, giving the surface the texture of linen or a sometimes pearled appearance. Outer lip always simple; inner lip completely smooth, the never detached parietal callus consists of an extended, adherent thin layer of callus.

Chryseofusus acherusius (Hadorn & Fraussen, 2003)

Description: Shell médium sized, dirty grey, rather heavy, body whorl short, spire high, consisting of about 8 carinated whorls which are appressed to preceding one. Shoulder slope straight or slightly concave. Upper teleoconch whorls with about 12 rather weak axial ribs, which are most prominent at periphery. Interspaces shallow, as broad as ribs. Ribs slightly more numerous (up to 17) on latter whorls, withdrawing from upper suture and becoming simultaneously weaker, gradually fading away towards body whorl. Usually without axial ribs on body whorl.

4 or 5 strong spiral cords on upper teleoconch whorls. Central one somewhat stronger, forming a distinct carina on all whorls. From early whorls on, 1 fine intercalated secondary thread appears between each pair of stronger primary cords. On body whorl often becoming as strong as primary ones. Spiral sculpture crossed by numerous unequal close-set axial growth lines giving surface the texture of linen.

Aperture elongate, narrow, white to yellowish. Outer lip sharp, simple, finely crenulated. Posterior canal well developed, without internal lirae. Inner lip smooth, without callus and columellar folds. Siphonal canal short, slightly longer than half of aperture length, widely open, strongly curved to the left and slightly curved backwards.

Periostracum thin, light brownish, well-adherent. Operculum typical of genus, brown coloured, corneous, size and shape corresponding to aperture, with terminal nucleus.

Size: up to 58.6 mm

Range: W Madagascar, Mozambique Channel

Remarks: *C. kazdailisi* from off the Chilean coast most closely resembles *C. acherusius*, but can be separated by having weaker and more numerous axial ribs on upper teleoconch whorls, no axial ribs on penultimate whorl, non-carinated whorls, and a narrower and straight siphonal canal.

C. acherusius has a heavier shell than *C. wareni*, carinated upper whorls, numerous pronounced axial ribs on most whorls, a rough spiral sculpture, rough growth lines of unequal strength, and a broader and shorter siphonal canal.

Chryseofusus alisae (Hadorn & Fraussen, 2003)

Description: Shell small, whitish to light brownish, fusiform, 7 or 8 convex whorls with subsutural concavity. Upper whorls slightly bicarinate. Diameter of upper whorls increasing more rapidly than lower ones. Protoconch whitish, consisting of 1 1/4 whorls. Upper part smooth and glossy, last part (about 1/4 to 1/2 whorl) sculptured with some narrow but strong axial riblets. 0.7-1.0 mm in diameter.

Axial ribs traversing from suture to suture on upper whorls, withdrawing from upper suture on latter whorls. 9-12 rather weak, narrow ribs on 2 uppermost teleoconch whorls, separated by conspicuously narrow interspaces. 10-14 ribs on following 2 or 3 whorls, latter whorls usually without ribs. Large adult specimens sometimes with conspicuously strong axial knobs on body whorl.

Teleoconch begins with 4 spiral cords. 2 adapical ones clearly stronger from beginning and forming a weak, inconspicuous double keel on upper whorls, fading away on latter whorls. From second or third postnuclear whorl on, a fine intercalated thread appears between each pair of primary cords. Number of fine threads increasing up to

2 by intercalation on latter whorls. Rather weak spiral sculpture crossed by prominent axial growth lines giving surface the texture of linen.

Aperture ovate, whitish, pointed at both ends. Outer lip slightly crenulated, simple. About 18 rather fine intemal lirae. Inner lip smooth, parietal callus thin, columellar folds absent. Siphonal canal shorter than aperture, slightly curved. Periostracum light brown, rather thin. Operculum corneous, brownish, typical of genus, shape and size corresponding to aperture, with terminal nucleus.

Size: up to 35.5 mm

Range: N of New Caledonia and Coral Sea, Chesterfield Isl.

Remarks: *C. riscus* differs in being smaller, having less convex whorls, a clearly smaller number of much broader axial ribs with broader interspaces on upper whorls, an axially ribbed penultimate and body whorl and a different protoconch (only 1 whorl, sculptured with fine axial growth lines and 2 or 3 weak spiral threads on final part).

C. cadus differs in the less numerous and broader axial ribs, less convex whorls, the upper whorls increasing in diameter slower than in *C. alisae*, and the last part of the protoconch is smooth or has some fine axial riblets.

C. scissus can be distinguished from *C. alisae* by the somewhat larger adult size, the large, ventricose body whorl, the larger aperture and the axially ribbed body whorl.

C. alisae has a smaller adult size than *C. wareni*, a whitish to light brownish colour, broader upper postnuclear whorls, a usually bicarinate profile of the upper whorls, a smaller protoconch, a subsutural concavity which is often more prominent, and an often larger number of axially ribbed whorls.

Chryseofusus alisonae (Hadorn, Snyder & Fraussen, 2008)

Description: Shell of medium size, fusiform, consisting of about 9 slightly bicarinated postnuclear whorls, giving the shell a moderately bicarinate profile with a slight subsutural concavity. Double keel more pronounced on upper whorls, situated slightly below middle of whorls, shoulder slope concave. Colour off-white, occasionally with reddish-brown tinged apex and/or tip of siphonal canal. Occasionally with red-brown tinged spiral cords on body whorl and along suture.

Suture distinct, slightly wavy, following axial sculpture of preceding whorl on spire whorls, straight on body whorl. Protoconch decollate in all available specimens. 2 specimens show a partly preserved white, glossy, smooth last protoconch whorl with some weak axial riblets near transition to teleoconch. Transition to teleoconch marked by weak varix. Diameter: 0.9-1.0 mm.

Axial ribs rather inconspicuous, broad, low, with narrow interspaces. 8-10 on 4 upper postnuclear whorls, running from suture to suture. 8-12 axial ribs on following whorls, starting below the suture in the subsutural concavity. Axial sculpture suddenly irregular, weak and low from penultimate whorl on, numbering about 10-15 often indistinct axial ribs, occasionally evanescent on body whorl.

Teleoconch beginning with 4 primary spiral cords, abapical ones stronger. 5 primary spiral cords on second whorl. From second or third whorl on, an intercalated secondary spiral cord appears between primary cords, occasionally becoming as strong as primary cords on latter whorls. From third whorl on, fine tertiary cords appear on both sides of stronger secondary cords. Number of tertiary cords on body whorl increasing to up to 6 by intercalation. Spiral sculpture crossed by conspicuously strong growth lines giving surface the texture of linen.

Aperture ovate, pinched at both ends, whitish or yellowish, smooth within. Outer lip simple. Parietal callus rather thick, smooth, appressed, lacking folds and teeth. Siphonal canal open, slightly shorter than length of aperture, straight, slightly twisted and turned backwards at tip. Operculum corneous, dark brown, shape and size corresponding to aperture, nucleus apical.

Size: to about 70 mm

Range: S Australia

Remarks: The only *Chryseofusus* species known from Australian waters, *C. westralis*, which is endemic to northwestern Australia, differs in having a much larger size (up to 140 mm), a longer spire, a larger number of ventricose, non-carinated whorls, an almost obsolete axial sculpture and conspicuously fine spiral sculpture.

C. alisonae differs from:

C. graciliformis from the Indo-West Pacific, in having a less prominent axial sculpture on upper whorls, usually obsolete axial ribs on penultimate and body whorl, convex and unkeeled whorls, and a more slender and twisted siphonal canal.

C. jurgeni from the east African coast, in having a larger size (up to 100 mm), a larger number of whorls, usually weak or obsolete axial sculpture on penultimate and body whorl, and a comparatively longer siphonal canal.

C. artutus from the Philippine Islands, in having a flesh coloured to light brownish shell, more numerous, finer and narrower axial ribs on upper whorls, abruptly fading away on penultimate whorl, and by the obsolete axial sculpture on the body whorl.

C. alisae is similar in size and sculpture to *C. cadus*, but has a larger number of narrower axial ribs, more convex whorls, and the upper whorls increase their diameter much more rapidly.

Chryseofusus artutus (Fraussen & Hadorn, 2003)

Description: Shell fusiform, stout, with broad spire angle, 9 or 10 convex, shouldered whorls with slight subsutural concavity. Suture wavy, following axial sculpture of preceding whorl on ribbed upper part of the spire, straight on lower whorls. Spire tip white, latter whorls flesh coloured, inside aperture light brownish or whitish. Protoconch rather large, white, 1 to 1 1/4 whorls, smooth and glossy, sometimes with axial growth Unes on final part, ending in a varix. 1.0 mm in diameter.

Strong, close-set axial ribs on upper teleoconch whorls, traversing from suture to suture. Interspaces narrow and deep. About 9-11 narrow and distinct ribs on upper whorls, suddenly becoming lower and broader, and fading away on penultimate whorl.

Teleoconch begins with 4 strong spiral cords. 2 additional cords appear on second whorl: one immediately below suture, the other just above lower suture. From third whorl on, a fine secondary spiral thread appears between each pair of primary cords, becoming soon as strong as primary ones. In addition very fine intercalated tertiary spirals appear. This fine spiral sculpture is crossed by strong close-set axial growth lines, giving the surface the texture of linen.

Aperture ovate, white or light brownish coloured. Outer lip thin, edge slightly crenulated, inside smooth or inconspicuously lirate. Parietal callus thin, smooth, columellar folds absent. Siphonal canal rather short, about as long as aperture, curved, slightly bending backwards.

Periostracum thin, greenish, well-adherent. Operculum typically fusinid, reddish-brown, corneous, shape and size corresponding to aperture, with terminal nucleus.

Size: up to 72.2 mm

Range: Philippines

Remarks: *C. chrysodomoides* has a less constricted suture, a white to brownish shell, coarser and less numerous axial ribs on upper whorls, and a finer, more close-set spiral sculpture.

C. graciliformis has a more elegant shell with elongate spire, a larger adult size, less ventricose, less convex and longer whorls, and has a weaker spiral sculpture with a larger number of intercalated fine threads on body whorl.

C. alisonae differs from *C. artutus* in having a flesh coloured to light brownish shell, more numerous, finer and narrower axial ribs on upper whorls, abruptly fading away on penultimate whorl, and by the obsolete axial sculpture on the body whorl.

C. artutus is similar to *C. wareni* in sculpture, but has a larger adult size, more convex whorls, a longer spire, a more constricted suture, a deeper subsutural concavity, and a longer siphonal canal.

C. artutus differs from *Fusinus thermariensis* by the larger adult size (up to 72.2 mm), the more slender spire, the weaker and more numerous axial ribs on upper teleoconch whorls, the absence of axial ribs on later whorls, the less constricted suture, and the shorter siphonal canal.

Chryseofusus bonaespei (Barnard, 1959)

Synonyms: *Fusus capensis* Thiele, 1925

Description: Aperture (incl. canal) a little longer than spire. Profile of whorls convex but weakly biangulate. Protoconch 2 1/2 whorls, when not corroded diam. 2 mm., alt. 2.5-3 mm, smooth, junction with 1st postnatal whorl abrupt. Postnatal whorls 7; feeble axial ribs 8-9 on 1st whorl, increasing to 9-10, but not traceable beyond 4th whorl; growth-lines distinct; crossed by spiral lirae, on 1st whorl 3, the lower two stronger than the upper one, continued on following whorls, the two stronger ones forming the periphery, with weaker intermediaries producing a fine cancellate sculpture, 20-25 additional lirae on base also with intermediaries. No parietal callus, columella slightly curved, canal 1 1/4-1 1/3 times, but not very sharply marked off from rest of aperture, straight or slightly curved and reflexed, narrow. Outer lip not plicate internally. Periostracum thin, fibrous-fimbriate. Operculum oval, apex incurved, 20 x12 mm in 102 mm shell, internal surface as in *Fasciolaria*.

Creamy- white or pale buff, periostracum yellowish-buff, operculum brown.

Redescription: Shell spindle-shaped with rounded whorls and strongly indented suture; spire equal to, or slightly shorter than, total length of aperture; siphonal canal long and slender; sculpture of narrow spiral cords with intermediary spiral threads; axial sculpture of distinct axial ribs on early spire whorls, but these not evident on later whorls; inner lip without columella pleats; interior of outer lip smooth. Shell white with pale horn-brown periostracum, frequently flaking off.

Size: 70-125 mm; 102 x 34 mm

Range: West coast and Agulhas Bank, South Africa

Remarks: *C. bonaespei* is larger than *F. africanae*.

Resembles *Africofusus ocelliferus*, but *C. bonaespei* is smaller and more slender, has a longer spire and lacks brown pigmentation in the shell itself.

Chryseofusus bradneri (Drivas & Jay, 1990)

Description: Shell fusiform in shape, spire slightly shorter than total length of aperture and anterior canal. Protoconch of 2 smooth whorls, apical angle 23°. Teleoconch of 8 convex whorls bearing rounded axial plicae, more neatly marked on earlier wherls, disappearing on body whorl, numbering 7 on penultimate whorl. Main spiral cords 11 on penultimate whorl, with secondary weaker cords, one in each interval, and 4 above the higher main cord. Numerous very fine undulating axial riblets overcross the cords giving the shell a finely granulate appearance. Siphonal canal large, slightly incurved. Columella callus smooth.

Outer lip of aperture thin, weakly denticulate, bearing small brown lines corresponding to the tinted spiral cords of outer surface. More deeply inside aperture present 14 lirae. Color golden brown, with a subsutural spiral band, with the darker main spiral cords. Protoconch paler. Inside of aperture white.

Redescription: Shell fusiform, medium sized, solid, consisting of 7 or 8 convex teleoconch whorls with subsutural concavity. Suture indistinct, appressed to the preceding whorl, wavy on axially ribbed part of spire, straight on latter whorls. Reddish-brown coloured, the stronger spirals and below the suture darker. Protoconch pale, typically fusinid.

About 7 strong, conspicuously broad axial ribs separated by wide interspaces on upper whorls, disappearing on penultimate whorl. 4 strong primary spiral cords on upper teleoconch whorls; from fourth whorl on an intercalated secondary fine spiral thread between primary cords, soon becoming as strong as primary ones on antepenultimate whorl. At the same time 1-3 clearly weaker tertiary intercalated threads appear on body whorl. Fine, but well-visible growth lines intersect the spiral sculpture giving the surface a finely granúlate appearance.

Aperture whitish, relatively small, ovate, pinched at both ends. Outer lip relatively thick in adult specimens, weakly denticulate, sculptured with numerous close-set and distinct internal lirae. Columellar callus smooth, adherent. Columellar folds absent. Siphonal canal long, rather narrow, slightly curved. Operculum typical of genus, corneous, reddish-brown, shape and size corresponding to aperture, nucleus terminal.

Size: height 54-77.5 mm, breadth 18-21.3 mm; 46.6-77.5 mm

Range: W Reunion, N Madagascar, Comoro Isl.

Remarks: *C. bradneri* may be compared with *C. chrysodomoides* from which it differs by smaller size, regularly convex whorls and lack of a stronger spiral cord at shoulder angle, and possession of a single secondary weaker cord in each interval instead of 2 or 3. *C. chrysodomoides* differs in having a slightly larger number of axial ribs on upper teleoconch whorls, in the narrower axial ribs and the narrower interspaces, the weak or absent lirae inside the aperture, in the uniformly whitish or greyish colour of the shell, and in the usually shorter and less twisted siphonal canal.

C. graciliformis differs by having a somewhat larger and thinner shell, a larger number of narrower axial ribs on upper whorls with narrower interspaces, an aperture with weaker and indistinct internal lirae, and a uniformly white or rarely flesh coloured shell.

C. bradneri has a smaller adult size than *C. dapsilis*, is more elegant and has a more elongate spire, a longer and narrower siphonal canal, and the inside of the aperture is strongly lirate. Moreover, the axial sculpture on upper teleoconch whorls consists of strong, broad axial ribs, and the stronger spiral cords are reddish-brown in colour.

C. bradneri differs from *C. jurgeni* by its smaller size, the more solid and reddish brown coloured shell, the less constricted suture, the broad and strong axial ribs on upper whorls, the strong close-set lirae inside the aperture, and by having a smaller number of intercalated fine threads between the stronger spiral cords.

Chryseofusus cadus (Hadorn & Fraussen, 2003)

Description: Shell small, whitish to light brownish, consisting of 8 whorls. Whorls convex, with slight subsutural concavity. Suture indistinct. Protoconch porcellaneous white, swollen, smooth and glossy, consisting of 1 whorl. Final part (about 1/4 whorl) sometimes with some fine axial riblets. 0.7-0.9 mm in diameter.

On upper teleoconch whorls, 8 or 9 strong, broad, low axial ribs, traversing from suture to suture, somewhat narrower at upper end. Interspaces half as wide as the axial ribs. Axial sculpture suddenly fading out on antepenultimate or penultimate whorl.

4 strong spiral cords on upper teleoconch whorls. From third whorl on, a fine spiral thread appears between primary ones. On fifth whorl, up to 3 fine intercalated tertiary spirals appear and secondary spirals become as broad as the primary ones. Spiral sculpture weak, crossed by numerous well-visible close-set growth lines giving surface the texture of linen.

Aperture narrowly ovate, white, pointed at both ends, with numerous weak internal lirae. Outer lip thin, finely crenulated. Parietal callus thin, smooth, appressed, columellar folds absent. Siphonal canal slightly curved, somewhat shorter than aperture. Periostracum light brownish, thick. Operculum typical of genus, corneous, brown, shape and size corresponding to aperture, with terminal nucleus.

Size: up to 35.5 mm

Range: New Caledonia

Remarks: *C. riscus* has a smaller adult size, less numerous and much broader axial ribs with broad interspaces on upper whorls, and has the penultimate and body whorl axially ribbed.

C. alisae is similar in size and sculpture, but has a larger number of narrower axial ribs, more convex whorls, and the upper whorls increase their diameter much more rapidly.

Juvenile specimens of *C. wareni* are also similar in shape and sculpture, but the whorl diameter increases more rapidly and the spire is less extended. *C. wareni* has more axial ribs per whorl, adult shells are clearly larger in size and have more whorls.

C. scissus can be distinguished from *C. cadus* by the somewhat larger adult size, the large, ventricose body whorl, the larger aperture and the axially ribbed body whorl.

Chryseofusus chrysodomoides (Schepman, 1911)

Synonyms: *Manaria insularis* Okutani, 1968

Description: Shell fusiform, with rather long, conical spire and rather long curved canal. Apex eroded, remaining whorls 9, slightly excavated below the suture, convex at the periphery, suture conspicuous but not deep. Upper whorls with a few broad concentric ribs, disappearing on the 5th whorl. Spiral sculpture consisting of numerous

lirae, which are subecjual on the upper excavated part of each whorl, and lower on alternating with stronger ones, so that between each 2 stronger lirae, runs a smaller one, in many cases with a very fine one, on one or on both sides; the lower part of last whorl, has nearly regularly 3 thinner lirae between 2 stronger ones; this spiral sculpture is crossed by stronger and finer concentric striae, producing a granular appearance of the whole surface, also on the backside of canal, which is curved finst to the left, then to the right side. Aperture oval, sharply angular above, the last whorl being appressed to the penultimate one; canal rather broad, peristome inconspicuously crenulate; interior of aperture smooth. Colour dirty white, shell covered in part by a brown epidermis; interior of aperture porcellaneous white. Operculum typical.

Redescription: Shell medium-sized, uniformly off-white to brownish, fusiform, with rather long cortical spire, solid, about 10 convex unkeeled wrhorls, slightly concave below suture, appressed to the preceding whorl. Suture not deep, wavy on upper whorls following the axial sculpture, and straight on latter whorls. Upper teleoconch whorls with relatively strong axial ribs, separated by interspaces of same width. 10-14 axial ribs on uppermost whorl, 9-11 on the following 3-5 whorls, disappearing on latter whorls.

Spiral sculpture fine, 4 or 5 primary spiral cords on uppermost teleoconch whorls; 1 fine intercalated thread on fourth whorl becoming as strong as the primary ones on following whorls. Fine tertiary threads appear from sixth or seventh whorl on; the number increases to 3 or 4 of unequal strength on body whorl. Spiral sculpture crossed by curved, strong, well-visible and close-set growth Unes, giving surface the texture of linen.

Aperture ovate, pinched at both ends, white. Parietal callus thin, smooth and glossy, extended and adherent to parietal wall. Columellar folds absent. Outer lip thin, simple, smooth inside. Siphonal canal relatively short, about as long as aperture, curved. Outer side sculptured with fine spirals, crossed by growth lines. Operculum typical of genus, corneous, brown, shape and size corresponding to aperture, nucleus terminal. Periostracum brown.

Size: height 71, width 25; aperture height with canal 38, width 11 mm; 60.0-85.0 mm

Range: Indonesia, Philippines, N Madagascar, SW Pacific

Remarks: *C. chrysodomoides* from New Caledonia usually have more prominent and broader axial ribs on upper whorls. All specimens from Fiji and Tonga and most specimens from New Caledonia are brownish coloured as opposed to the white coloured type material of *C. chrysodomoides* from Indonesia, the white coloured specimens from the East African coast and one specimen from New Caledonia.

This species is nearly allied to *C. subangulatus*. *C. chrysodomoides* is not angular, the concentric ribs occupy only the uppermost whorls, the aperture is broader, the canal much more curved. The sculpture in *C. chrysodomoides* practically consists of alternately stronger and finer lirae, in *C. subangulatus* the sculpture is more diversified, as between 2 stronger lirae, there are 6 and even 8 thinner ones, while there are by close examination only 3 intermediate ones in *C. chrysodomoides*; the spiral sculpture is consequently much more regular and less coarse; in *C. chrysodomoides* the lirae are decidedly granular, which is only the case in the upper whorls of *C. subangulatus*, the lirae of the lower whorls being only slightly crenulate.

C. westralis differs from *C. chrysodomoides* by the clearly larger shell size, the more slender and more extended spire, the larger number of whorls, by the more concave shoulder slope especially on the lower whorls, the narrower interspaces between the axial ribs on upper whorls, and finally by the finer spiral sculpture and the larger number of very fine intercalated spiral threads.

C. chrysodomoides has a less constricted suture than *C. artutus*, a white to brownish shell, coarser and less numerous axial ribs on upper whorls, and a finer, more close-set spiral sculpture.

C. chrysodomoides differs from *C. dapsilis* by the heavier shell, the broader and less close-set axial ribs and the longer siphonal canal.

C. chrysodomoides differs from *C. jurgeni* in being usually smaller, in having a heavier and stouter shell, a less constricted suture, a sometimes brownish coloured aperture and a uniformly coloured shell, and a spiral sculpture with a more beaded appearance.

C. chrysodomoides is similar in size than *C. satsumaensis*, but differs by having a longer spire, a heavier shell, a larger number of whorls, a wider spire angle, a more pronounced axial sculpture on the upper whorls, a smaller and more rounded aperture, and a shorter and broader siphonal canal.

The comparison with *C. bradneri* see there.

Manaria insularis (possible synonym) resembles closely *C. chrysodomoides*. *C. chrysodomoides* clearly has a larger adult size, a smaller spire angle (~ 35°-38° / *M. insularis*: ~ 42°), a proportionally longer spire and a narrower siphonal canal. The axial ribs are usually restricted to the spire tip, are more prominent and separated by wider interspaces. The spiral sculpture on upper whorls clearly consists of less distinct spiral cords and is also present in the interspaces between the axial ribs. The growth lines are prominent and well-visible on all whorls, a characteristic of all Chryseofusus. *M. insularis* only has inconspicuous growth lines. *C. chrysodomoides* has a smooth columella as opposed to *M. insularis,* which has one weak columellar fold.

Chryseofusus dapsilis (Hadorn & Fraussen, 2003)

Description: Shell reddish-brown, fusiform, thin, light in weight but solid. Whorls convex and ventricose, surrounded by distinct subsutural concavity. Protoconch and spire tip broken leaving 6 1/4 remaining whorls. Original number of teleoconch whorls 9 or 10 by estimation. Upper part of spire covered with 10 or 11 rounded, dense, relatively strong axial ribs, extending from suture to suture, suddenly fading away on antepenultimate whorl. Last 3 whorls smooth, except for strong, curved axial growth lines crossed by weak close-set spiral threads, giving surface the texture of linen.

4 rather strong spiral cords on uppermost remaining whorl; subsutural cord somewhat weaker. On next whorl, a fine intercalated secondary thread appears between each pair of primary cords, becoming as strong as primary ones on antepenultimate whorl. Up to 3 tertiary, clearly finer intercalated threads appear between the strong primary and secondary cords on penultimate and body whorl. Spiral sculpture crossed by strong growth lines, giving the spirals a pearled appearance.

Aperture rather large, light purplish coloured. Outer lip simple, thin, edge minutely crenulated; interior side smooth. Parietal wall covered with a thin, glossy and smooth callus, somewhat extending outside aperture. Columellar folds absent. Siphonal canal conspicuously short, broad, open and strongly curved.

Size: 74.1 mm

Range: South China Sea, off Vietnam

Remarks: *C. chrysodomoides* differs from *C. dapsilis* by the heavier shell, the broader and less close-set axial ribs and the longer siphonal canal.

C. bradneri has a smaller adult size, is more elegant and has a more elongate spire, a longer and narrower siphonal canal, and the inside of the aperture is strongly lirate. Moreover, the axial sculpture on upper teleoconch whorls consists of strong, broad axial ribs, and the stronger spiral cords are reddish-brown in colour.

C. dapsilis differs mainly from *Fusinus frausseni* in more inflated body whorl with rounded periphery, not white color, nodulous spiral ribs, strongly constricted base, wider and shorter siphonal canal.

Chryseofusus graciliformis (G. B. Sowerby II, 1880)

Synonyms: *Fusinus valdiviae* Hadorn & Fraussen, 1999, *Fusus sieboldi* Schepman, 1891

Description: *Testa eleganter fusiformis, albida, gracilis, tenuissime crebre lirata; spira attenuatim producta, acuminata, anfractibus 10, declivibus medio subangulatim prominulis, superioribus longitudinaliter plicatis; apertura utrinque acuminata, margine crenato, canali producto, gracili eleganter tortuo.*

(The shell is elegantly fusiform, whitish, slender, very finely and frequently striated; spire attenuated produced, pointed, with 10 whorls, the slopes subangularly prominent in the middle, the upper ones folded longitudinally; the aperture is pointed on both sides, with a crenate margin, produced by a canal, slender and elegantly twisted.)

Redescription: Medium-sized shell with about 9-11 convex whorls, surrounded by a weak subsutural concavity. Suture appressed to preceding whorl, not incised. 8 or 9 rather strong and narrow axial ribs, reaching from suture to suture and separated by narrow and not very deep impressed interspaces on the 2 uppermost teleoconch whorls. On the following 2 or 3 whorls the number of ribs increases up to 11-13 per whorl, becoming somewhat broader and lower and usually stopping below the upper suture; interspaces between ribs become shallower and less distinct. On antepenultimate or penultimate whorl the axial ribs become very low and less distinct and the spacing becomes irregular. Axial ribs always obsolete on body whorl and usually also on penultimate whorl.

Teleoconch begins with 5 or 6 strong but low and rounded spiral cords. Starting with the second or third whorl an additional clearly finer spiral cord appears just below suture, and a fine intercalated spiral thread appears between each pair of cords. On the following whorls the number of fine spiral threads increases by intercalation; up to 5 or 6 between each pair of primary cords on body whorl. In the subsutural concavity only some fine threads. The spiral sculpture is crossed by rather strong and well-visible curved growth lines, giving the surface of the shell the texture of linen.

Aperture ovate, whitish to yellowish in colour, acute at posterior end. Parietal callus thin, smooth and glossy, appressed to lower part of body whorl. Columellar folds absent. Outer lip simple and thin, sculptured with numerous fine internal lirae; outline of lip strikingly curved like an elongated reversed 'S'. Siphonal canal shorter than aperture length, conspicuously curved. Outer side ornamented with numerous fine, low and regularly spaced spiral cords which are intercalated by numerous fine spiral threads.

Operculum corneous, colour palé reddish brown, thin, shape and size corresponding to aperture. Outer side with fine concentric growth lines. Typical of genus, with terminal nucleus. Periostracum thin, olive-green, not hairy.

Size: 42.5-90.0 mm

Range: Japan, E China Sea, Philippines, S China Sea, and along the E African coast, from the Gulf of Aden, Djibouti, Somalia to SW Madagascar

Remarks: *C. graciliformis* differs from the buccinid species *Colus sabinii* (= *Fusus reeveanus)* in the narrowness of the body whorl and more attenuated production of the extremities.

C. hyphalus differs from *C. graciliformis* by having a more slender spire tip, a smaller adult size, a thinner and lighter shell, and by the less convex whorls.

C. graciliformis is somewhat similar to *Apertifusus frenguellii*, but differs by having an arched siphonal canal, while in *A. frenguellii* it is almost straight.

C. alisonae differs from *C. graciliformis* in having a less prominent axial sculpture on upper whorls, usually obsolete axial ribs on penultimate and body whorl, convex and unkeeled whorls, and a more slender and twisted siphonal canal.

C. graciliformis differs from *C. bradneri* by having a somewhat larger and thinner shell, a larger number of narrower axial ribs on upper whorls with narrower interspaces, an aperture with weaker and indistinct internal lirae, and a uniformly white or rarely flesh coloured shell.

C. graciliformis has a more elegant shell with elongate spire than *C. artutus*, a larger adult size, less ventricose, less convex and longer whorls, and has a weaker spiral sculpture with a larger number of intercalated fine threads on body whorl.

In general, *C. graciliformis* can be separated from *C. satsumaensis* by the somewhat larger adult size, the deeper and more pronounced subsutural concavity, the less inflated and shorter body whorl, the clearly smaller and differently sculptured protoconch, and by often having rather strong, broad axial ribs on the upper whorls.

C. graciliformis is more slender in general shape than *C. kazdailisi*, has a broader aperture, and a longer siphonal canal.

Fusinus frausseni is close to *C. graciliformis*, but spire is broader with more angulate shoulders, color not pink-brown, axial ridges more prominent and extending to penultimate whorl, spiral sculpter stronger and spiral bands at periphery body whorl are very concave.

Chryseofusus hyphalus (M. Smith, 1940)

Synonyms: according to WoRMS synonym to *Chryseofusus graciliformis* (G. B. Sowerby II, 1880)

Description: Shell thin, fusiform; nucleus pearly, 2 whorls; 7 1/2 subsequent whorls; suture well impressed but its continuity frequently broken by the growth sculpture; primary spiral ribs numerous, with several lesser ribs between each pair; slightly larger spiral rib at periphery forming an indistinct shoulder; growth lines strong, of variable size and forming a reticulate surface; the spire as far as the penultimate whorl covered with low rounded projections extending from suture to suture, about 12 to each whorl; anterior canal comparatively short, open; outer lip thin, slightly reflected, moderately dentate inside. Epidermis persistent, straw-brown in color.

Redescription: Shell entirely white or palé, medium-sized (36.0-75.0 mm), thin, lightweight, fusiform, elongate, consisting of about 8 or 9 slightly convex whorls with only slight subsutural concavity. Body whorl often inflated and ventricose in adult specimens. Suture indistinct, straight. Protoconch typical of genus, 1 1/2 whorls, bulbous, white, glossy, final part (1/4 whorl) sculptured with 4 or 5 strong axial riblets, diameter 1.0-1.1 mm.

Weak, narrow and inconspicuous axial ribs on upper 5 or 6 teleoconch whorls, separated by narrow interspaces, disappearing on latter whorls. 10 or 11 axial ribs on the 4 uppermost teleoconch whorls extending from suture to suture, 11-13 on fifth or sixth whorl, becoming weaker and disappearing on the foUowing whorl.

Teleoconch beginning with 3 relatively weak primary spiral cords, the 2 lower ones slightly stronger. From second whorl on, a fine secondary spiral thread appears between primary cords and below suture, becoming as strong as the primary cords on foUowing whorls. From fourth postnuclear whorl on, 2-4 fine intercalated tertiary threads appear between primary and secondary cords. Axial growth lines fine but distinct on all whorls, crossing spiral sculpture and giving the surface a pearled appearance.

Aperture ovate, whitish, relatively large. Edge of outer lip simple, slightly crenulated, infernal side smooth or with some weak infernal lirae. Inner lip smooth, glossy, parietal callus appressed to parietal wall, columellar folds absent. Siphonal canal thin, slightly curved, as long as aperture, open. Periostracum thin, persistent, straw-brown in colour. Operculum typical of genus, corneous, brown, shape and size corresponding to aperture, nucleus terminal.

Size: length 36.5 mm., breadth 12.5 mm., length of aperture and anterior canal 20 mm

Range: Japan, East China Sea, Philippines

Remarks: *Granulifusus noguchii* differs from *C. hyphalus* by having a smaller adult size, a more slender white-coloured shell, and by the presence of axial ribs usually on all whorls, stronger on upper whorls, becoming weaker on body whorl, and by the small, nearly round operculum, which is typical of *Granulifusus* (= *Simplicifusus)*.

C. graciliformis can be distinguished by the larger adult size, the longer spire, the more convex whorls, and by often having rather strong, broad axial ribs on upper whorls.

C. satsumaensis was often misidentified as *C. hyphalus*. The holotype of *C. hyphalus* differs from *C. satsumaensis* by the smaller size, the more convex whorls, the more constricted suture, the reddishbrown coloured shell, and the smaller protoconch (diameter 0.8 mm instead of 1.1-1.2 mm).

Chryseofusus jurgeni (Hadorn & Fraussen, 2002)

Description: Shell large, fusiform, light in weight, spire elongate, siphonal canal relatively long. 11 or 12 convex whorls, latter whorls often slightly keeled, shoulder slope concave. Shell uniformly white, sometimes with reddish brown tinged spiral cords and with some weak reddish brown axial strikes.

Protoconch typically fusinid, consisting of 1.0-1.25 smooth glossy whorls. Diameter 0.9-1.0 mm. Transition to teleoconch eroded and details not recognizable. 8 or 9 rather narrow and weak axial ribs on 4 uppermost teleoconch whorls, extending from suture to suture. 8-10 axial ribs on following whorls, withdrawing from upper suture. On penultimate whorl, axial sculpture weak or absent. Body whorl without axial sculpture. Interspaces narrow on upper whorls, slightly broader and less pronounced on latter whorls.

Spiral sculpture crossed by strong, curved axial growth lines. 3 strong spiral cords on first teleoconch whorl, the uppermost weaker. From second whorl on, a fine intercalated secondary spiral thread appears. From fifth or sixth whorl on, secondary spirals becoming as strong as primary ones and additional fine tertiary spiral threads appear. On latter whorls 3-5 intercalated fine threads visible between stronger spirals.

Aperture rather large, ovate, upper end pointed, white coloured. Outer lip simple and smooth, without internal lirae. Inner lip completely smooth, curved. Parietal callus thin, parietal wall covered with an extended adherent layer of callus. Columellar folds absent. Siphonal canal almost straight or slightly curved, as long as aperture.

Operculum typically fusinid, corneous, ovate, pointed below, dark brown, shape and size corresponding to aperture, with terminal nucleus. Outer side ornamented with strong concentric growth lines; inner side with a strongly callused edge along the outer side.

Size: up to 100.1 mm

Range: SW Madagascar

Remarks: *C. bradneri* differs by its smaller size, the more solid and reddish brown coloured shell, the less constricted suture, the broad and strong axial ribs on upper whorls, the strong close-set lirae inside the aperture, and by having a smaller number of intercalated fine threads between the stronger spiral cords.

C. subangulatus has a somewhat smaller and heavier shell, a smaller number of whorls, a more slender shape, a shorter siphonal canal and stronger spiral sculpture with a smaller number of spiral cords.

C. chrysodomoides differs in being usually smaller, in having a heavier and stouter shell, a less constricted suture, a sometimes brownish coloured aperture and a uniformly coloured shell, and a spiral sculpture with a more beaded appearance.

C. alisonae differs from *C. jurgeni* in having a larger size (up to 100 mm), a larger number of whorls, usually weak or obsolete axial sculpture on penultimate and body whorl, and a comparatively longer siphonal canal.

C. jurgeni can be distinguished from *C. satsumaensis* by its larger shell (up to 100 mm), the longer spire, the more numerous (11 or 12) and more convex whorls, the more constricted suture, the wider spire angle, the stronger spiral sculpture, the often reddish-brown tinged spiral cords, the stronger and broader axial ribs on upper teleoconch whorls, the more rounded aperture and the broader siphonal canal.

Chryseofusus kazdailisi (Fraussen & Hadorn, 2000)

Description: Shell médium sized, solid, shape fusiform, semi-slender. Whorls about 6 in number, showing a weak subsutural concavity. Suture appressed to preceding whorl. Shell dirty greyish to brown or palé reddish-brown.

8 to 14 rather strong and narrow axial ribs, traversing from suture to suture, on upper whorls. Interspaces rather narrow. Axial ribs become weaker on following whorls and finally disappear. All whorls densely covered with fine, sometimes slightly curved growth lines, often not visible on their own but recognizable by low papillae formed on spiral cords, giving the surface of latter whorls a pearled appearance. 7 to 9 strong and rounded primary spiral cords on first remaining teleoconch whorl, separated by deep and narrow interspaces. On second whorl, interspaces become broader, tending to be similar in size to spiral cords. 9 or 10 primary spiral cords on following whorl, 12-14 on penultimate whorl. On third or fourth whorl 1 fine intercalated secondary spiral thread appears between each pair of primary cords. Furthermore, 1 or 2 additional intercalated tertiary spiral threads between secondary and primary cords on lower part of penultimate whorl.

Aperture narrowly ovate to lens-shaped. Parietal callus thin, smooth and glossy, appressed to body whorl. Columellar folds absent. Outer lip thin. Siphonal canal broad, shorter than aperture, oblique at left-hand side and straight. Operculum corneous, thin and palé reddish-brown, shape and size corresponding to aperture, with terminal nucleus. Periostracum thin, olive-green in colour.

Size: 40.0-57.0 mm

Range: Nazca Ridge and off Valparaíso, Chile

Remarks: *C. graciliformis* is more slender in general shape, has a broader aperture, and a longer siphonal canal.

Aeneator castillai, a buccinid species, is similar in sculpture and colour, but can be distinguished by the larger size, the broader shape, the more ventricose body whorl, and the clearly larger aperture.

C. kazdailisi most closely resembles *C. acherusius*, but can be separated by having weaker and more numerous axial ribs on upper teleoconch whorls, no axial ribs on penultimate whorl, non-carinated whorls, and a narrower and straight siphonal canal.

C. kazdailisi is most similar to *C. wareni* in shape and sculpture but differs in having a somewhat smaller adult size, a dirty greyish to brown or palé reddish-brown colour, less numerous whorls, stronger and more pronounced axial ribs with more distinct interspaces, a smaller number of somewhat stronger spiral cords which are intercalated by 3-6 fine spiral threads on body whorl, and finally in having a broad and straight siphonal canal which is oblique to the left side.

Chryseofusus lecourtorum Fraussen & Stahlschmidt, 2014

Description: not available

Size: 50-65 mm; 62.1 mm

Range: Mascarene Plateau, Nazareth Bank

Remarks: compare to *C. bradneri*

Chryseofusus lorenzi Fraussen & Stahlschmidt, 2014

Description: not available

Size: 70-80 mm; 77.2 mm

Range: Mascarene Plateau, Nazareth Bank

Remarks: compare to *C. jurgeni*

Chryseofusus riscus (Hadorn & Fraussen, 2003)

Description: Shell small for genus, fusiform, thick, whitish to yellowish, consisting of 7 or 8 convex, slightly carinated whorls, appressed to preceding whorl, surrounded by a distinct subsutural concavity. Suture wavy, inconspicuous. Protoconch consisting of 1 whorl, white, transparent, glossy, smooth, final part (about 1/4 whorl) with some very fine axial growth lines and 2 or 3 weak spiral threads; transition to teleoconch indistinct. 0.6-0.8 mm in diameter.

Axial sculpture consists of broad, low knobs on all whorls, separated by wide and low interspaces. On upper teleoconch whorls 7 or 8 ribs traversing from suture to suture, on latter whorls 5 or 6 shorter ribs abapically prominent, often somewhat irregular on body whorl.

Teleoconch begins with 4 spiral cords, abapical ones clearly stronger. On fourth or fifth teleoconch whorl, a fifth strong spiral cord appears just above lower suture, stronger when crossing axial knobs and weak in interspaces. Number of spirals increasing by intercalation on latter whorls, secondary ones becoming as strong as primary ones on penultimate and body whorl. On body whorl fine tertiary threads appear at both sides of secondary spirals. Spiral sculpture crossed by conspicuously strong growth lines giving surface the texture of linen.

Aperture small, ovate, white coloured. Outer lip slightly crenulated, simple. Conspicuously strong, broad internal lirae. Parietal callus appressed, smooth, columellar folds absent.

Siphonal canal shorter than aperture length, straight, widely opened. Periostracum light brownish, rather thick. Operculum brownish, typical of genus, shape and size corresponding to aperture, with terminal nucleus.

Size: up to 21.5 mm

Range: S New Caledonia

Remarks: *C. cadus* and *C. alisae*, have a larger adult size, clearly narrower and more axial ribs on upper whorls, and usually a ribless penultimate and body whorl.

C. scissus can be distinguished from *C. riscus* by the somewhat larger adult size, the large, ventricose body whorl, the larger aperture and the axially ribbed body whorl.

C. riscus slightly resembles juvenile specimens of *Fusinus thermariensis*, but differs by the clearly smaller adult size (up to 21.5 mm), the less convex whorls, the less constricted suture, the weaker and less numerous axial ribs and the different protoconch morphology (only one whorl, diameter 0.6-0.8 mm).

Chryseofusus satsumaensis (Hadorn & Chino, 2005)

Description: Shell rather large for subgenus, thin, lightweight but solid, fusiform with elongate spire, uniformly white, pale or light yellow, consisting of about 9 slightly convex whorls with weak subsutural concavity. Spire long and pointed, body whorl inflated and ventricose in adult specimens, siphonal canal narrow, occasionally curved. Aperture including intact siphonal canal slightly longer than spire. Suture fine but distinct, only weakly incised. Protoconch relatively large, white, glossy, bulbous, consisting of 1 1/4-1 1/2 whorls, final 1/4 whorl with 3 or 4 narrow axial riblets, reaching from suture to suture. Transition to teleoconch marked by a varix. Diameter 1.1-1.2 mm.

Axial sculpture inconspicuous, only visible on upper teleoconch whorls. Axial ribs weak, narrow, extending from suture to suture, interspaces narrow. 10 or 11 ribs on 3 uppermost teleoconch whorls, up to 15 on fourth whorl,

becoming weaker, irregular and disappearing on fourth or fifth whorl. Axial growth lines fine but distinct on all whorls, crossing spiral sculpture and giving the surface the texture of linen.

Spiral sculpture weak. Teleoconch beginning with 5 close-set primary spiral cords. Starting with third whorl, one finer secondary spiral cord appears between each pair of primary cords. From fourth whorl on, fine tertiary spiral threads appear at both sides of the secondary cords. Their number increasing to up to 5 on body whorl, while secondary cords become as strong as the primary ones.

Aperture large, ovate, pointed at both ends, white, smooth inside. Outer lip convex, thin, simple. Inner lip smooth, parietal callus thin, glossy, appressed to parietal wall, not detached, columellar folds absent. Siphonal canal long, relatively narrow, usually curved, about as long as aperture. Outer side sculptured with fine, close-set spiral cords and intercalated fine threads of different strength. Periostracum thin, well-adherent, straw-brown. Operculum typical of genus, corneous, red-brown, ovate, rounded above and pointed below, shape and size corresponding to aperture, outer side ornamented with concentric growth lines, with terminal nucleus.

Size: up to 80 mm

Range: Japan, East China Sea, Taiwan, Philippines

Remarks: *C. satsumaensis* was often misidentified as *C. hyphalus*. The holotype of *C. hyphalus* differs from *C. satsumaensis* by the smaller size, the more convex whorls, the more constricted suture, the reddishbrown coloured shell, and the smaller protoconch (diameter 0.8 mm instead of 1.1-1.2 mm).

In general, *C. graciliformis* can be separated by the somewhat larger adult size, the deeper and more pronounced subsutural concavity, the less inflated and shorter body whorl, the clearly smaller and differently sculptured protoconch, and by often having rather strong, broad axial ribs on the upper whorls.

C. westralis differs by its larger shell (up to 140 mm), the longer spire, the larger number of whorls (11-13), the more pronounced subsutural concavity, the finer spiral sculpture consisting of a larger number of fine spiral cords and intercalated threads, and the shorter and broader siphonal canal.

C. jurgeni can be distinguished by its larger shell (up to 100 mm), the longer spire, the more numerous (11 or 12) and more convex whorls, the more constricted suture, the wider spire angle, the stronger spiral sculpture, the often reddish-brown tinged spiral cords, the stronger and broader axial ribs on upper teleoconch whorls, the more rounded aperture and the broader siphonal canal.

C. chrysodomoides is similar in size, but differs by having a longer spire, a heavier shell, a larger number of whorls, a wider spire angle, a more pronounced axial sculpture on the upper whorls, a smaller and more rounded aperture, and a shorter and broader siphonal canal.

Chryseofusus scissus (Hadorn & Fraussen, 2003)

Description: Shell small, fusiform, body whorl inflated, 8 whorls. Whorls convex, unkeeled or with an inconspicuous double keel, body whorl conspicuously ventricose. Colour uniformly white. Protoconch large, 1.0 mm in diameter, smooth, whitish, consisting of 1 1/4 whorls; final part (about 1/4 whorl) sculptured with some fine axial riblets traversing from suture to suture. Ending in an indistinct varix. 11-13 inconspicuous, weak, close-set axial folds on all whorls, traversing from suture to suture on upper whorls. Ribs withdrawing from upper suture on body whorl, becoming somewhat stronger, forming more or less prominent axial knobs at periphery.

Teleoconch beginning with 4 or 5 rather weak spiral cords. From second or third whorl on, fine intercalated secondary spiral threads appear between primary cords. Number increasing to 6 on latter whorls. 2 primary cords at periphery often somewhat stronger than others, forming sometimes an indistinct double keel.

Aperture large, ovate, pinched at upper end, white or cream coloured, often light brownish or purplish along edge on inner side of outer lip. Outer lip simple, slightly crenulated; inner side ornamented with close-set white lirae. Parietal callus thin, appressed to parietal wall, smooth and glossy. Columellar folds absent. Siphonal canal conspicuously short, broad, curved and widely open. Outer side sculptured with some rather weak spiral cords and up to 3 intercalated fine threads.

Periostracum straw coloured, thin. Operculum typical of genus, corneous, light brown, shape and size corresponding to aperture, outer side sculptured with fine concentric growth lines, with terminal nucleus.

Size: up to 33.4 mm

Range: S New Caledonia

Remarks: *C. scissus* can be distinguished from the other small southwest Pacific species *C. cadus, C. alisae* and *C. riscus* by the somewhat larger adult size, the large, ventricose body whorl, the larger aperture and the axially ribbed body whorl.

Manaría insularis, a species of uncertain generic position, most closely resembles *C. scissus* in shape and size, but differs in having a light brown shell, a smaller number of whorls, indistinct axial ribs on body whorl, and by the clearly different spiral sculpture (close-set, strong, raised spiral cords, strong on the top of ribs, obscure in the interspaces, and by the presence of only one intercalated fine thread on penultimate and body whorl).

Chryseofusus subangulatus (E. von Martens, 1901)

Description: *Testa fusiformi-turrita, imperforata, plicis verticalibus latiusculis brevibus subnodiformibus utramque suturam non attingentibus, (circa 12 in anfr. penultimo), in anfr. ultimo evanescentibus et liris spiralibus majoribus crenulatis (in anfr. penultimo 9-10 conspicuis), interjectis nonnullis minoribus, sculpta, albido-grisea, unicolor; anfr. 10, regulariter crescentes, medio subangulati, ultimus sensim in canalem attenuatus; apertura ovata, superne acuta, margine externo leviter arcuato, tenuissime crenulato, intus rufescenti-limbato, pariete aperturali et margine columellari laevibus, nitide albis, flavescenti-limbatis, canali breviusculo, aperturam non aequante, late aperto, recto vel paululum resupinato.*

(Fusiform-turrited shell, imperforate, with short subnodiform vertical folds not touching either suture, (about 12 in penultimate whorl), vanishing in the last whorl, and crenulated larger lirae spirals (9-10 visible in the penultimate whorl), interspersed with some smaller ones, carved, whitish-gray, unicolor; 10 whorls, growing regularly, subangular in the middle, the last gradually tapering into a canal; aperture ovate, acute above, outer margin slightly arched, very finely crenulated, rufescent-bordered inside, apertural wall and columellar margin smooth, bright white, yellowish-bordered, canal short, not equal to the aperture, wide open, straight or slightly recumbent.)

Redescription: Shell rather large, relatively heavy in weight. Background colour whitish to yellowish with palé reddish coloured spiral sculpture. 9 or 10 convex whorls, latter whorls distinctly keeled, shoulder slope clearly concave. Axial and spiral sculpture rather weak. Aperture relatively large, siphonal canal short and distinctly curved. Suture appressed to the preceding whorl, wavy on upper whorls, straight on penultimate and body whorl.

Upper postnuclear whorls slightly convex, sculptured with 9 or 10 narrow and rather weak axial ribs, reaching from suture to suture; interspaces between them narrow and only weakly impressed. Beginning at the appearance of the peripheral keel (usually on fourth or fifth teleoconch whorl) the interspaces between the axial ribs become wider; the ribs termínate below the upper suture and are reduced to broad, rounded knobs which are most prominent at the periphery. On the penultimate whorl they become weaker and irregular, fading out suddenly. About 9-13 axial knobs on latter whorls, but usually obsolete on body whorl and sometimes also on penultimate whorl. 4 strong spiral cords on the first teleoconch whorl, 5 or 6 on the following whorls. On latter whorls, beginning with the peripheral keel, several rather fine additional spiral threads appear on shoulder. Starting with third or fourth postnuclear whorl a fine spiral thread appears between each pair of stronger cords. The number of fine threads increases by intercalation; up to 8 fine intercalated threads of unequal strength on body whorl. Central spiral cord and the 2 cords below it somewhat stronger than all others. Spiral sculpture crossed by conspicuously strong growth lines, well-visible on all whorls.

Aperture rather large, narrowly ovate, acute at posterior end, yellowish or white in colour. Outer lip simple and sharp, without or with only weak internal lirae. Inner lip appressed to parietal wall, smooth. Columellar folds absent. Siphonal canal rather short for genus, shorter than aperture length, slightly curved, widely open. Outer side ornamented with fine spiral cords and numerous intercalated threads. Operculum rather thin, colour palé reddish brown, corneous. Shape and size corresponding to aperture, typical of genus, with terminal nucleus.

Size: length 71 mm, diam. 23.5-25 mm, length of aperture with canal 38-39.5 mm, without canal 21-21.5 mm, width of aperture 12.33-13 mm; up to 77.2 mm

Range: E Africa

Remarks: *C. jurgeni* has a larger adult size and has a broader shell, a longer siphonal canal, a larger number of spiral cords which are clearly finer and denser.

C. chrysodomoides is most similar to *C. subangulatus* and can be distinguished by having a somewhat larger adult size, uncoloured spiral cords, a larger number of weaker spiral cords, often broader and somewhat stronger axial ribs, a more ventricose body whorl, stronger axial growth lines, and usually a more curved siphonal canal.

Chryseofusus thermariensis (Hadorn & Fraussen, 2006)

Description: Shell relatively small, fusiform, solid. Spire broad, consisting of about 9 strongly convex whorls, quickly increasing in diameter. Suture distinct, constricted, with a subsutural concavity. Axial growth lines well-visible and prominent when crossing the spiral sculpture, giving the surface the texture of linen. Colour uniformly light brown, aperture white.

Protoconch typical of genus, white, glossy, bulbous, consisting of about 1 1/4 convex whorls. Final part (about 1/4 whorl) ornamented with 4 fine, inconspicuous axial riblets, traversing from suture to suture. Diameter: 1.0 mm.

All whorls sculptured with 8 or 9 strong, broad, prominent axial ribs, traversing from suture to suture, abapically more prominent. Interspaces broad. Teleoconch beginning with 4 primary spiral cords. 5 primary cords and an additional intercalated fine secondary spiral cord from second teleoconch whorl onwards. From fifth whorl onwards, up to 6 fine tertiary spiral cords of unequal strength between primary and secondary cords.

Aperture ovate, whitish, pinched at both ends. Outer lip thin, curved, finely crenulated, with fine, close-set lirae within. Parietal callus thin, smooth, without columellar folds, some spiral cords of preceding whorl still visible. Siphonal canal almost straight, slightly curved, as long as aperture. Outer side ornamented with close-set spiral cords and threads of unequal strength.

Operculum typical of genus, reddish-brown, corneous, ovate, rounded above and pointed below. Shape and size corresponding to aperture. Nucleus terminal. Outer side with fine concentric growth lines.

Size: up to 54.7 mm

Range: Hunter and Matthew Isl., New Caledonia, Loyalty Ridge

Remarks: *Chryseofusus riscus* slightly resembles juvenile specimens of *F. thermariensis*, but differs by the clearly smaller adult size (up to 21.5 mm), the less convex whorls, the less constricted suture, the weaker and less numerous axial ribs and the different protoconch morphology (only one whorl, diameter 0.6-0.8 mm).

Chryseofusus artutus differs by the larger adult size (up to 72.2 mm), the more slender spire, the weaker and more numerous axial ribs on upper teleoconch whorls, the absence of axial ribs on later whorls, the less constricted suture, and the shorter siphonal canal.

Chryseofusus wareni (Hadorn & Fraussen, 2003)

Description: Shell médium sized, fusiform, uniformly whitish or brownish, consisting of about 9 rounded teleoconch whorls with slight subsutural concavity. Suture indistinct, whorls appressed to preceding one. Protoconch white, bulbous, glossy, smooth, consisting of 1 1/4 whorls, ending in a varix. Diameter about 1 mm.

Uppermost 4 or 5 teleoconch whorls rather weakly axially ribbed. 10-12 low, broad ribs with narrow interspaces, reaching from suture to suture on first 3 whorls, withdrawing from upper suture on fourth or fifth postnuclear whorl. Lower whorls without axial ribs. All whorls ornamented with well-visible, close-set, curved growth lines, crossing the weak spiral cords and giving surface the texture of linen.

Teleoconch beginning with 4 or 5 spiral cords, adapically more prominent compared to upper ones. From third whorl on, a fine secondary spiral thread appears between each pair of primary cords. From fifth whorl on, 1 tertiary fine thread appears at both sides of secondary ones. From sixth whorl on, the secondary ones become as strong as primary ones. 2 or 3 fine intercalated spiral threads between stronger cords on body whorl.

Aperture ovate, pointed at both ends, white or flesh coloured, inner lip smooth. Parietal wall covered with a thin callus, becoming well-developed on columella. Columellar folds absent. Outer lip simple. Infernal side sculptured with about 18-20 elongate, irregular and rather strong denticles. Siphonal canal about as long as aperture, strongly curved, rather narrow, open, tapering anteriorly. Outer side sculptured with close-set spiral cords and up to 3 fine intercalated spiral threads.

Size: up to 59.5 mm

Range: New Caledonia and Tonga Isl.

Remarks: *C. kazdailisi* is most similar to *C. wareni* in shape and sculpture but differs in having a somewhat smaller adult size, a dirty greyish to brown or palé reddish-brown colour, less numerous whorls, stronger and more pronounced axial ribs with more distinct interspaces, a smaller number of somewhat stronger spiral cords which

are intercalated by 3-6 fine spiral threads on body whorl, and finally in having a broad and straight siphonal canal which is oblique to the left side.

C. acherusius has a heavier shell, carinated upper whorls, numerous pronounced axial ribs on most whorls, a rough spiral sculpture, rough growth lines of unequal strength, and a broader and shorter siphonal canal.

C. alisae has a smaller adult size, a whitish to light brownish colour, broader upper postnuclear whorls, a usually bicarinate profile of the upper whorls, a smaller protoconch, a subsutural concavity which is often more prominent, and an often larger number of axially ribbed whorls.

C. cadus also differs in having a clearly smaller adult size, a whitish to light brownish colour, a smaller protoconch with a smaller diameter, in having a less prominent subsutural concavity, a more slender shell, and a larger number of axially ribbed whorls.

C. artutus is similar in sculpture, but has a larger adult size, more convex whorls, a longer spire, a more constricted suture, a deeper subsutural concavity, and a longer siphonal canal.

Chryseofusus westralis (Hadorn & Fraussen, 2003)

Description: Shell large, light, thin, uniformly white, shape fusiform. 11-13 ventricose, unkeeled whorls, with wide subsutural concavity. Protoconch white, glossy, consisting of 1 whorl, ending in a weak varix. Surface of protoconch slightly eroded and therefore no sculpture visible. 0.9 mm in diameter.

9 to 12 rather weak, narrow axial ribs on 4 uppermost teleoconch whorls, reaching from suture to suture on first postnuclear whorl. Withdrawing from upper suture on second whorl. On third or fourth whorl ribs suddenly weaker, gradually fading away on following whorls. Growth lines curved, fine.

About 4 or 5 rather weak spiral cords on uppermost whorl. From second postnuclear whorl on, a fine intercalated secondary spiral thread appears between each pair of primary cords. On following whorls numerous fine and inconspicuous tertiary spiral threads appear. Lower whorls covered by conspicuously fine spiral sculpture, axial sculpture obsolete.

Aperture large, oval, pointed above, white. Parietal callus smooth and thin. Outer lip thin, simple, without internal lirae. Columellar folds absent. Siphonal canal shorter than aperture, rather broad, strongly curved and widely opened. Operculum typical of genus, comeous, brown, ovate, pointed at lower end, shape and size corresponding to aperture, with terminal nucleus. Outer side ornamented with numerous concentric growth lines.

Size: up to 140 mm

Range: Western Australia

Remarks: *C. westralis* has hitherto been identified and offered to collectors as "*Siphonofusus chrysodomoides*".

C. westralis differs from *C. chrysodomoides* by the larger shell size, the more slender and more extended spire tip, the larger number of whorls, the more concave shoulder slope especially on the lower whorls, the narrower interspaces between axial ribs on upper whorls, and finally by the much finer spiral sculpture and the much larger number of very fine intercalated spiral threads.

C. westralis differs from *C. alisonae* in having a much larger size (up to 140 mm), a longer spire, a larger number of ventricose, non-carinated whorls, an almost obsolete axial sculpture and conspicuously fine spiral sculpture.

C. westralis differs from *C. satsumaensis* by its larger shell (up to 140 mm), the longer spire, the larger number of whorls (11-13), the more pronounced subsutural concavity, the finer spiral sculpture consisting of a larger number of fine spiral cords and intercalated threads, and the shorter and broader siphonal canal.

It differs from *Vermeijius palmarium* by the larger shell, the wider spire angle and the smooth surface.

Cyrtulus Hinds, 1843

Type species: *Cyrtulus serotinus* Hinds, 1843

Description: *Testa fusiformis; anfractus ultimus et penultimus turbinatus; spira per saltum ascendens; apertura linearis in canali brevi effuso desinens; columella valde arcuata, superne callosa; labium externum acutum; umbilicus parvus. Epidermis laevis.*

(Shell fusiform; the last and penultimate whorl turbinate; spire escalating ascending; aperture linear, ending in a short shed channel; columella strongly arched, calloused above; outer lip sharp; umbilicus small; epidermis smooth.)

Redescription: Features uniting species of *Cyrtulus* include a very narrowly open siphonal canal (opening less than 2 mm wide), a distinct, broad spiral bulge on the siphonal process, a moderately high spire with shallow appressed sutures, relatively reduced development of spiral external sculpture, especially on the siphonal process, the presence of an adapical channel in the aperture, an erect inner lip, fine lirae on the inner side of the outer lip, abapically convex profile of outer lip, and axial sculpture, when fully expressed, consisting of high, rounded ribs that end abapically and adapically in rounded tubercles on the last whorl.

Shell proportions vary within the genus. The shell can be relatively broad, as in *C. serotinus* (length to diameter ratio about 2.1), or more slender, as in *C. undatus* (ratio 3:8); but the siphonal canal is typically of moderate length (canal length to shell length ratio 0.31:0.37). Most species are heavy for their size.

Size: not given

Range: Indo-Westpacific

Remarks: All three Indo-Westpacific genera have a very narrowly open siphonal canal.

Cyrtulus differs from *Fusinus* by having much weaker to obsolete spiral sculpture, by the presence of an adapical channel at the adapical end of the aperture, and by the presence of a spiral bulge on the siphonal process. Moreover, there are often two rows of tubercles when axial sculpture is well developed, in contrast to the single row in *Fusinus*.

Cyrtulus differs from *Marmorofusus* in its reduced spiral sculpture, especially on the siphonal process, and by the presence of the spiral bulge on the siphonal process. It shares with that genus the presence of an adapical channel.

Cyrtulus bountyi (Rehder & B. R. Wilson, 1975)

Synonyms: *Fusinus galatheae bountyi* Rehder & B. R. Wilson, 1975

Description: Shell rather large, fusiform, with a high acuminate spire that comprises about 37 to 48 % of total length, anterior neck long, narrow, and straight. Protoconch missing in all specimens, postnuclear whorls 11 in holotype, convex, with 8 ribs on 2nd postnuclear whorl, the axial ribs rapidly increasing to 10 or 11 on later whorls; ribs in earliest whorls crossed by fine spiral cords, of which the two middle ones are strongest; in later whorls the number of spiral cords increases by intercalation; beginning with the 6th whorl the ribs become angulately knobbed at the periphery; spiral sculpture crossed by very fine axial, somewhat irregular, growth lines marked (in fresh specimens) by fine periostracal lamellae which are sharply spinose at the spiral cords, giving the whole shell a densely and microscopically hirsute covering; suture closely appressed. Body whorl with 10-12 ribs that are strongly and angulately nodose at the periphery, crossed by spiral cords of varying strength, in fresh specimens covered by hairy periostracum as described above; in complete specimens the neck (enclosing the straight, relatively narrowly open anterior canal) noticeably longer than the aperture and sculptured by strong, oblique spiral cords. Aperture ovate, posteriorly acuminate, inner lip gently concave, the parietal wall curving gently into the smooth columellar portion; outer edge of parietal callus or inductura free and (in old specimens) thickened and conspicuously detached from lower part of body whorl and upper end of the neck; outer lip thickened within, marked by spiral lirae, outer edge denticulate.

Operculum unguiculate, with apical nucleus and growth lines that are strongly angulate along the midline.

Size: 116.5 to 137.7 mm

Range: Pitcairn Island

Remarks: Although *C. bountyi* is larger, the overall shell proportions and the basic sculptural pattern are the same as in *C. galatheae*. The axial sculpture of *C. bountyi*, however, is stronger; and the tubercles on the peripheral angle are stronger and less numerous on the last three whorls but more numerous and pronounced on the early postnuclear whorls.

C. bountyi also resembles, in some ways, *C. undatus*, *C. similis*, described from New Caledonia, and *Fusinus sandvichensis*. From *C. undatus C. bountyi* differs in possessing more numerous axial ribs on the early whorls and

in the tubercles on the later whorls being more acute.

Compare to *Fusinus diandraensis.*

Cyrtulus galatheae (Powell, 1967)

Description: Shell rather large, elongate fusiform, combining the characters of *Fusinus colus* with those of *Marmorofusus nicobaricus*. It has the sculpture of *F. colus*, i.e., pointed tubercles, confined to a peripheral carina, relatively weak spiral cords, and the style of aperture of *M. nicobaricus*, i.e., a broad free thin edged inner lip and a relatively short and stout, double flexed anterior canal. Spire tall, about 5/7 height of aperture plus canal. Protoconch eroded. Post-nuclear whorls angulated at just below middle whorl height; shoulder slope straight, wide and steeply descending. Axial sculpture of weak vertically compressed tubercles confined to the peripheral carina. Spiral sculpture of somewhat irregularly developed cords and threads, 3-5 primary cords from the periphery to the lower suture. On the base the primary cords are more regularly spaced, with 2-3 threads in each interspace. Aperture ovate, relatively large; outer lip delicately crenulated, and lirate within; inner lip very broad and smooth, with a thin free outer edge, raised 5 mm out from the columella. Aperture proper and anterior canal of approximately equal height. Anterior canal relatively short, stout and double flexed. Colour dull white without maculations. Operculum leaf-shaped with a terminal nucleus.

Size: 96.0 mm x 33.0 mm

Range: Kermadec Islands

Remarks: Compare with *C. genticus,* not synonym with it in WoRMS.

Although *C. bountyi* is larger, the overall shell proportions and the basic sculptural pattern are the same as in *C. galatheae*. The axial sculpture of *C. bountyi*, however, is stronger; and the tubercles on the peripheral angle are stronger and less numerous on the last three whorls but more numerous and pronounced on the early postnuclear whorls.

Cyrtulus genticus (Iredale, 1936)

Description: Shell large, white (dead), elongately fusiform, spire long, canal long. Apex missing, but 6 adult whorls remain, each notably keeled at the periphery. On the last whorl the keel is formed of 14 angulate nodules, 13 on the preceding one, 12 on the antepenultimate, and so on. The spiral line which dominate the shell vary in strength and number, about 18 appearing on the shoulder of the last whorl, of which 6 are large, the rest smaller. Below the periphery on the body whorl about 9 large and many smaller ones occur, the whole being crossed by fine radials, which do not decussate the spirals, but are subordinate to them.

Size: length 111 mm, breadth 39 mm

Range: Australia?, New Zealand

Remarks: compare to *C. galatheae*

Cyrtulus kilburni (Hadorn, 1999)

Description: Shell rather large, fusiform, variable in shape, uniformly whitish coloured, 11 convex whorls with a surrounding subsutural concavity; later whorls slightly angulated somewhat above the middle of the whorls. Suture slightly wavy according to the axial sculpture of the preceding whorl. Fine growth lines on all whorls.

Protoconch whitish to pale brownish coloured, smooth and glossy, swollen, ending in a varix; consisting of 1 1/2-1 3/4 whorls, last part (about 1/4 whorl) sculptured with some irregularly spaced axial riblets of unequal strength, which reach from suture to suture. Diameter: 1,0-1,15 mm.

Axial sculpture consists of strikingly closeset broad but low and slightly arcuate axial ribs. 9-13 on upper postnuclear whorls, increasing to 15-20 on body whorl. These ribs are weak and inconspicuous on first teleoconch whorls; they reach from suture to suture and are separated by narrow interspaces between them. Starting with the fourth teleoconch whorl the axial ribs terminate a little below the upper suture; the interspaces between them are still narrow, sometimes nonexistent. The body whorl ends in a strong, broad prelabrial axial rib which is clearly stronger than any others on the shell.

Spiral sculpture rather weak, consisting of conspicuously close-set cords and threads. The teleoconch begins with five relatively strong spiral cords; the 3 lower ones are clearly stronger and remain often somewhat stronger on all whorls. Beginning with the second teleoconch whorl an additional weaker one appears just above the lower suture. On the following whorls numerous fine intercalated threads appear between the stronger cords. Some of the threads become as strong as the primary cords on penultimate and body whorl.

Aperture rather large, ovate, pinched at both ends; outer lip thick, outer edge slightly denticulated; about 15-19 relatively strong sharp internal lirae. Parietal callus well-developed, smooth, white-coloured, becoming free and detached from the lower part of body whorl. At the posterior end of the parietal callus with a simple, conspicuously large, rounded, white tooth. No columellar folds. Siphonal canal rather long (about 1/3 of shell length), stout, more or less straight, sometimes slightly sinuous. Outer side ornamented with strong rounded cords and intercalated finer threads of unequal size. Colouration whitish, spire tip and sometimes protoconch pale brownish.

Operculum corneous, typically fusoid, redbrown in colour, shape and size corresponding to the aperture, with terminal nucleus. Outer side ornamented with concentric growth lines; inner side with a strong glossy callus along the outer edge. Periostracum rather thick, olive-brown. Each growth line on the shell produces an axial fold on periostracum.

Size: 45 mm x 91,8 mm

Range: South Africa, Natal

Remarks: The conspicuously close-set axial and spiral sculpture is characteristic.

Fusinus cratis lives sympatrically with *C. kilburni* but differs in having more convex whorls with a more constricted suture, in not having a concave shoulder slope, in clearly broader and stronger axial ribs with much wider and deeper impressed interspaces between them, in the smaller number of axial ribs, in the much stronger and less close-set spiral sculpture, in the presence of conspicuous brown spiral lirae between the axial ribs, in differences in radula morphology, and finally in lacking a strong broad prelabrial axial rib.

Viridifusus albinus can be separated by the larger adult size, by the stouter and broader shell, by the lower spire, by the clearly broader spire angle, by the large inflated body whorl, by the broader axial ribs, by the clearly larger aperture and the much finer and more numerous internal lirae, by the shorter and stouter siphonal canal, by the sometimes pale brown coloured shell, and by not having a strong broad prelabrial axial rib.

Fusinus rogersi has a more slender shell, a clearly larger protoconch, a smaller number of less close-set axial ribs, clearly weaker or sometimes obsolete axial ribs on last whorls, and differs in the presence of a clearly stronger and less close-set, sharper spiral sculpture.

Cyrtulus mauiensis (Callomon & Snyder, 2006)

Description: Shell resembling *C. undatus*, but somewhat smaller and proportionately much heavier (0.837 g/mm SL, n=7 versus 0.464 g/mm SL, n=17). Shape similar to that of *C. undatus*, but with more thickened upper neck and more prominent knobs on upper buttresses that may protrude upwards and/or be reflected anteriorly. Early whorls bear 3 thick spiral cords, increasing to 4 and then 5 by seventh whorl; single slender cord present between each major cord on early whorls, becoming obsolete after fifth to seventh whorl. Lower buttress margin usually reduced and rounded. Neck and canal strongly thickened in upper section, with broad, flared detachment of parietal canal margin. Neck straight in some specimens, but where not, recurved lower section relatively shorter than in *C. undatus*. Gap between labral dentition and spiral cords within aperture often reduced or absent. Aperture wall in adults often thickened and constricted with very pronounced labral dentition. Prominent spiral cords over entire body whorl, especially on neck.

Shell dull white overall, occasionally tinged with pink; surface usually dull and chalky. Protoconch and first 3 to 4 whorls often mid-brown, color fading away by sixth whorl.

Periostracum thin, translucent, mid-brown, bearing numerous axial lamellae; lamellae somewhat more closely spaced than in Japanese *C. undatus* (4-7 per mm), with ragged edges; lamellar margins can bear irregular hair-like projections, but only in places.

Size: average 157.9 mm (n=7)

Range: endemic to Hawaii, Maui

Remarks: *C. mauiensis* can be distinguished from *C. undatus* by its smaller size, far greater weight, more thickened upper neck and larger and more prominent knobs on the upper buttresses, which are fewer in number than in *C. undatus*. Its spiral sculpture persists onto the body whorl, and the spiral cords are especially prominent from the lower buttress margin to the tip of the neck. The columellar margin of the canal tends to be flared and detached in adults, to a much greater extent than in *C. undatus*. The significance of the difference in periostracum characters is not clear. The surface of the bodywhorl in *C. mauiensis* is usually dull and somewhat chalky, in contrast to the smooth and often polished surface of *C. undatus*.

C. mauiensis resembles somewhat another endemic Hawaiian species, *Marmorofusus michaelrogersi*. The latter is of similar size, and bears distinct buttresses, but is of much thinner and lighter construction with an open canal and distinctive thick spiral cords on the entire body whorl. The neck of *M. michaelrogersi* is relatively short, and is not as thickened as in *C. mauiensis*. In addition, it lacks the pronounced detachment of the inner canal margin, and bears a larger number of buttresses on the body whorl.

Juvenile shells of *C. mauiensis* can resemble those of *Fusinus sandvichensis*. However, the former always have broader, more inflated axial ribs on the first few whorls that are never vertically or even diagonally aligned with those above and below them but instead are interfingered. Juvenile *F. sandvichensis* can also have a thick, tapering rostrum and brown early whorls, both inviting confusion with *C. mauiensis*. The last is traditionally distinguished by having only 3 (or rarely 4) knobs visible in dorsal view, as is the case here, while the latter has 4 and often 5. Nevertheless, this specimen completely lacks the strong recurvature of the rostrum that characterizes *C. mauiensis* and has the anteriorly quadrate aperture typical of *F. sandvichensis*. The axial sculpture on the early whorls is somewhat coarser than is usual in *F. sandvichensis*.

Cyrtulus serotinus Hinds, 1843

Description: Shell somewhat fusiform, the last 2 whorls turbinate, whence a spire, less than half the length of the body-whorl, suddenly ascends; everywhere smooth, except the spire, which is nodulose and transversely ridged, and covered with the remains of a brown epidermis. The last whorl much lengthened, squarish, flattened, and not at all ventricose; the aperture terminating in a short effuse canal, and towards the centre expanded, from the conformation of the columella. Outer lip thin and sharp; inner not at all produced. Columella with a large callosity above, arcuate in the centre, corresponding to a contraction which occupies the circumference of the last whorl. A smaller callosity below assists to cover the umbilicus.

Size: 88 mm

Range: Marquesas

Cyrtulus similis (Baird, 1873)

Description: Shell elongately fusiform, spindle-shaped, moderately thick, rather solid, somewhat deeply grooved and ridged throughout transversely, and finely striated across the ridges longitudinally; spire acuminated; whorls slanting round the upper part, noduled in the middle; nodules moderate-sized, not distant from each other, about 10 or 11 in number in each whorl; interior of the aperture pure white, sharply ridged in the throat, guttately noduled at the inferior part, columella callus slightly wrinkled. Rostrum long, bent about the middle of its length; canal twisted. Of a dull white colour throughout, externally.

Size: length 150 mm, width 50 mm

Range: New Caledonia

Remarks: compare to *C. undatus*

C. similis is somewhat larger (up to 183 mm) than *Fusinus laviniae*. The aperture is distinctly quadrate and placed further toward the abapical end of the shell than in *F. laviniae*. The sutures of *C. similis* are more sharply tilted with respect to the shell axis.

Some specimens of *Fusinus sandvichensis* have prominent rounded shoulder knobs like those of *C. similis.*

Cyrtulus undatus (Gmelin, 1791)

Synonyms: *Fusus incrassatus* Lamarck, 1816

Description: *M. testa solida ventricosa undato-multangula tenuissime transversim striata, spira mucronata: anfractibus basi nodosis, labro denticulato. Testa alba, 8.5 pollicem longa ponderosa spirae anfractibus 14, cauda subincurva.*

(Shell solid ventricose wavy-multi-angular, very thinly transversely striated, spire mucronate; whorls with knotted base, lip denticulate. Shell white, heavy, 213 mm long with 14 spire whorls, subcurved canal.)

Size: 100-270 mm

Range: orig.: India; W Pacific

Remarks: From *C. undatus C. bountyi* differs in possessing more numerous axial ribs on the early whorls and in the tubercles on the later whorls being more acute.

C. undatus is both larger (up to 232 mm) and much heavier than *Fusinus laviniae*, with an almost smooth and slightly glossy surface on the penultimate and body whorls. The peripheral sculpture in *C. undatus* consists of axial buttresses with rounded lower extremities, in distinction to the sharp angular shoulder knobs of *F. laviniae*.

C. undatus is a sympatric species to *Fusinus marisinicus* with axial ribs that can span the entire whorl, but it has a thicker shell with a broader neck, pronounced shoulder knobs that form axial buttresses, and reduced or absent spiral cords.

It is distinguished from *Vermeijius palmarium* by a much larger adult size and a different shape.

Fusinus penioniformis resembling *C. undatus*, but shell with more spiral cords and more nodules.

Some specimens of *Fusinus sandvichensis* have biangular buttresses similar to those of *C. undatus*.

For comprison with *Fusinus aurinodatus* and *C. mauiensis* see there.

compare to *C. similis*

Enigmofusus Vermeij & Snyder, 2018

Type species: *Enigmofusus nicki* (M. A. Snyder, 2002)

Description: Shell narrowly elongate fusiform with very long, narrowly open siphonal canal; distal end of siphonal canal not flaring; spiral sculpture consisting of widely separated low angular cords, of which 2 (the peripheral and central cord) are enlarged and bear spirally elongate projections; cords on siphonal process well expressed, none enlarged; axial sculpture consisting of low, short, rounded ribs roughened by growth lines; aperture relatively large, ovate, its adapical end rounded and without channel; outer lip smooth-edged or crenulated, its inner side with or without fine lirae; inner lip adherent, with distinct parietal ridge at adapical end.

Size: length mm, width mm

Range: Indian Ocean

Remarks: The 2 enlarged spiral cords on the last whorl bear spirally elongate nodes, as in *Marmorofusus*; but the absence of enlarged and differentiated cords on the siphonal process distinguishes *Enigmofusus* from *Marmorofusus*.

The genus *Enigmofusus* is perhaps most similar to *Africofusus*. It differs from that temperate genus by having a longer siphonal protuberance that is more abruptly set off from the main part of the last whorl. The cords of *Enigmofusus* are more sharply rounded and the shell is more elongate. Nevertheless, it is possible that *Africofusus* is derived from a tropical lineage whose members would be assigned to *Enigmofusus.*

Enigmofusus beckii (Reeve, 1848)

Synonyms: *Fusus ventricosus* Reeve, 1847

Description: of *F. ventricosus* (*F. beckii* is a replacement name): *F. testa elongato-fusiformi, medio tumida, utrinque gracili, attenuata; anfractibus rotundatis, undique spiraliter sulcatis, medio nodoso-carinatis et plicatis; apertura fauce acute lirata; intus extusque nivea.*

Shell elongately fusiform, swollen in the middle, slender and attenuated at each end; whorls rounded, spirally grooved throughout, nodosely keeled and plicated in the middle; interior of the aperture sharply ridged; snowy white within and without.

Size: 90-170 mm

Range: orig. not given; Japan?, Andaman Islands, Australia

Remarks: A very characteristic and distinct species.

Marmorofusus akitai is somewhat related to *E. beckii*, but is smaller with a shorter siphonal canal.

E. beckii differs from *Fusinus flavicomus* by the entire white shell, the larger size, the longer and narrower siphonal canal, and the finer spiral sculpture.

Fusinus nodosoplicatus differs from *E. beckii* in all whorls strongly nodular-folded, less convex, the character of the suture, and other features.

For comparison with *E. versiformis* see there.

compare to *Fusinus teretron*

Enigmofusus nicki (Snyder, 2002)

Description: Shell large (up to 170 mm), 9-11 whorls, moderately elongate, somewhat high-spired (last whorl length : shell length, 0.60-0.64), heavy and solid. Color white with sparse pale brown markings on early whorls, pronounced in one brownish specimen. Protoconch 1 1/2 – 1 3/4 shiny white bulbous whorls; spire carinate, subtending about 30° angle, with angulate ribs; body whorl inflated with spiral cords. Prominent yellow to caramel brown axial knobs on early whorls, becoming evanescent on body whorl, 7-8 on early whorls, 10-11 on penultimate whorl. Brown patch often between knobs on mid whorls, becoming in some specimens 1 or 2 colored segments between knobs, toward body whorl. 7-13 spiral cords, extending length of siphonal canal; 1-2 more prominent cords cross axial knobs, forming a concave-bottomed groove between them, when there are 2. Cords on canal more widely spaced toward distal end, alternating strong and weak; area between cords on canal brownish on some specimens. Cords coalesce below suture to form thickened band. Some specimens have apical portion of body whorl near aperture unattached, creating open crease at suture up to 10 mm along suture and up to 4mm deep. Aperture ovate, large, with distinct well-developed posterior canal. Outer lip with weak denticles, corresponding to spiral cord sculpture. Interior of outer lip shiny white with margin overlaid 0.5-1.0 mm with pearl-colored layer with wavy periphery, wider over denticles. Outer lip shows determinate (modified) growth, being thickened at the apertural margin. Parietal shield polished, white, unattached, and flaring on some specimens. Siphonal canal straight, open, roughly 1/3 of shell length; slit twisted about 10° clockwise from plane of aperture (viewed from distal end). Periostracum pale brown.

Size: 100-160 mm; Holotype: length 163 mm, width 47 mm, aperture length 40 mm, aperture width 22 mm, siphonal canal length 60 mm

Range: S Mozambique, SW Madagascar

Remarks: It is a large carinate species characterized by an inflated body whorl, a detached parietal shield and by determinate (modified) growth.

The presence of a modified or determined lip is quite unusual in the genus *Fusinus* and serves to differentiate this species from other similar-size *Fusinus* species from east Africa.

E. nicki has been confused with the South African species *Africofusus ocelliferus*. This latter species has a shorter siphonal canal and attached parietal shield. Although its coloration is similar to *E. nicki*, the sculpture is much weaker and the species lacks the axial knobs present on the early whorls of *E. nicki*. The large protoconch of *E. nicki* suggests a localized habitat.

There are 4 other large *Fusinus* species found off Mozambique, *Fusinus colus*, *Fusinus cratis*, *Marmorofusus nicobaricus* and *Marmorofusus tuberculatus*. None of these species closely resembles *E. nicki* and hence a few observations will serve to differentiate them from *E. nicki*.

The Mozambique form of *Fusinus colus* is very narrow and elongate, and smaller then *E. nicki*. The brownish color on some specimens is accented by dark brown irregularly-shaped patches of color which always fall between the ribs.

Fusinus cratis was described from deep-water South African material. Specimens from Mozambique tend to be larger (up to 176 mm) than those from South Africa and mostly white with possible light brown axial color stripes (especially on the early whorls) between the very numerous (13) low, gently-rounded, axial ribs which extend from one suture to the next. The shell is narrow (height : width about 3.7 compared to 3.3 for *E. nicki*). The parietal shield is unattached and the open canal turns slightly clockwise, as in *E. nicki*.

Marmorofusus nicobaricus is also found in Mozambique, where specimens tend to be smoother than those from the central Pacific. These specimens do, however, display the characteristic strong diagonal cords over the length of the siphonal canal. This sculptural feature, together with the irregular chocolate brown markings, serve to distinguish *M. nicobaricus* from *E. nicki*.

Marmorofusus tuberculatus lacks the strong spiral cords of *E. nicki*. *M. tuberculatus* is irregularly marked by brown longitudinal color striations and the spire is narrower then in *E. nicki*.

Although not known from this area, *Marmorofusus akitai*, collected in southern Japan, superficially resembles *E. nicki*. Both species have inflated body whorls and wide apertures. *M. akitai* lacks the strong axial ribs of *E. nicki* and has more numerous closely spaced spiral cords that are more pronounced on the body whorl than in *E. nicki*. The shell of *M. akitai* is not as solid and heavy as in *E. nicki*. None of these species mentioned for comparison displays determinate growth.

For comparison with *Fusinus aurinodatus* and *E. versiformis* see there.

Enigmofusus versiformis Hadorn & Fraussen, 2024

Description: Shell medium-sized for genus, fusiform, thick and heavy, white to cream or light brownish coloured, sometimes with some indistinct slightly brownish tinged spiral cords in interspaces between axial ribs on upper teleoconch whorls. First teleoconch whorls convex, lower whorls usually carinated and ornamented with pointed axial knobs at periphery, body whorl (occasionally also penultimate whorl) rounded. Spire elongated, aperture narrowly ovate, siphonal canal long, open, tapering anteriorly. Suture wavy on upper whorls according to axial sculpture, straight on latter whorls, narrow but sharply incised. 8 1/2 to 9 1/2 teleoconch whorls, first 3 or 4 whorls always convex, not carinated. Usually from third or fourth (sometimes fifth) whorl on with a distinct carina situated below the middle of the whorls. Shoulder slope usually slightly concave, sometimes straight on early carinated whorls. Body whorl, sometimes also penultimate whorl, again with a convex profile without carina. The whorl profile shows a great variability and some specimens without carina on any of the whorls, while some specimens with a distinct carina, also on body whorl. Usually 8 (sometimes 7 or 9) convex axial ribs on early teleoconch whorls, running from suture to suture, adapically narrower than abapically. Interspaces impressed, about half of width of axial ribs. Number of axial ribs increasing as soon as the carinated profile of the whorls develops, up to 10-12 and occasionally up to 14 per whorl. Simultaneously, axial ribs withdrawing, at first from adapical suture, later also from abapical suture, at last forming pointed axial knobs at periphery, produced by the central spiral cord. Axial sculpture usually disappearing on body whorl (sometimes starting on penultimate whorl), becoming weaker, shallower, completely fading out. In contrast, some specimens show distinct axial knobs or shallow axial ribs on all whorls. 5 primary spiral cords on first teleoconch whorls, increasing to 7 on third or fourth whorl. Central spiral cord becoming strongest, forming a carina on later whorls. Finer secondary spiral cords appearing between the primary cords. Primary and secondary cords becoming equal in strength from antepenultimate whorl on with up to 4 tiny tertiary spiral threads appearing between these cords. The spiral sculpture is fine and regular, except for the central spiral cord that usually forms the strong nodes at periphery. A narrow subsutural band visible on later whorls, formed by 2 closeset spiral cords. The regular fine spiral sculpture extends on body whorl to the tip of the siphonal canal, but becomes inconspicuous and faint towards the end.

Aperture narrowly ovate, pinched at both ends, with small posterior canal. Outer lip finely crenulated according to spiral sculpture of body whorl. Edge of outer lip shaped like an elongated, reversed ‘S’ when seen from the side. Aperture white, with about 25 narrow strong internal lirae ending about 1 mm before edge of outer lip. Parietal callus usually white, sometimes pale brownish or cream coloured (according to shell colour), glossy. Adapical part of callus thinner, with 5 to 7 underlying spiral cords clearly visible; abapical part of callus thicker and often smooth, sometimes showing some irregular small nodules which do not correspond to underlying spiral cords, some underlying spirals sometimes indistinctly visible. Columellar folds absent. Edge of inner lip slightly detached from body whorl. Siphonal canal long, about 1/3 of total shell length, straight, open.

Size: 128-176 mm

Range: NE Somalia

Remarks: *E. versiformis* most closely resembles *E. beckii* from the Andaman and Maldive Islands, and *E. nicki* from East Africa, southern Mozambique.

E. versiformis looks similar in many aspects, but *E. beckii* mainly differs by its broad, inflated body whorl, the slenderer spire, the large square-shaped aperture, the smooth and glossy inner lip, the strongly protruding and thickened parietal margin, the thick labral margin of outer lip with prominent glossy teeth, the clearly slenderer siphonal canal with fasciole in distal third, and by the faint pale brown stains on the tips of some early axial ribs.

The East African *E. nicki* differs by the slightly larger number of whorls (9-11), the proportionally slenderer spire, the more prominent and sharply carinated whorls, the always strongly carinated penultimate whorl, the smaller number of axial knobs (10-11) on penultimate whorl, the somewhat bicarinate profile of the body whorl, the stronger, more widely spaced and alternating strong and weak spiral sculpture on the siphonal canal, the determinate (modified) growth of the outer lip, and the more vivid colouration with brownish axial knobs on the early whorls and a brownish coloured siphonal canal.

Fusinus multicarinatus from the “Red Sea“ differs by the clearly stronger, more prominent spiral sculpture, the clearly smaller number of spiral cords, the well-rounded convex upper teleoconch whorls, the only slightly carinated penultimate and body whorl, and the broad, smooth subsutural band.

Fusinus Rafinesque, 1815

Synonyms: *Exilifusus* Gabb, 1876 †, *Fusus* Bruguière, 1789, *Sinistralia* H. Adams & A. Adams, 1853, *Tritonium (Fusus)* Bruguière, 1789

Type species: *Murex colus* Linnaeus, 1758

Description: *Fusus*: *Coquille fusiforme sans varices, terminée à la base par un canal droit.*

(Fusiform shell without varices, terminated at the base by a straight channel.)

Redescription: Shells fusiform, small to large in size, elongate, with tall spire and long siphonal canal. Usually well-ribbed and with spiral threads. Columellar folds absent. Operculum corneous, shape and size corresponding to aperture, nucleus terminal.

Size: up to 400 mm

Range: tropical and temperate world oceans

Remarks: *Lamellilatirus* is distinguished from *Fusinus* by having faint but definite oblique columellar folds; shells of *Fusinus* lack columellar folds.

Heilprinia differs from *Fusinus* in the very remarkable, strongly accelerated protoconch, which is throughout its greater portion crossed by riblets.

Apertifusus differs from *Fusinus* by having relatively poorly expressed, short lirae.

Cyrtulus differs from *Fusinus* by having much weaker to obsolete spiral sculpture, by the presence of an adapical channel at the adapical end of the aperture, and by the presence of a spiral bulge on the siphonal process. Moreover, there are often two rows of tubercles when axial sculpture is well developed, in contrast to the single row in *Fusinus*.

For comparison with *Glaphyrina* see there.

Fusinus aepynotus (Dall, 1889)

Description: Shell small, slender, white, 8-whorled; nucleus milk-white, strongly transversely plicate below, above smooth, rounded; spiral sculpture of (on the last whorl 18) strong rounded threads, of which 4 or 5 are visible on the upper whorls; these are slightly swollen, but not keeled, where they pass over the ribs; between these are numerous fine close-set threads slightly marked by inconspicuous lines of growth. The transverse sculpture consists of (on the last whorl 10) rounded rather close stout ribs which pass clear over the whorl and are straight and slightly larger behind; suture appressed and wavy, conspicuous; canal stout, slightly twisted, aperture

subovate, marginated; outer lip internally lirate with two or three strong denticles anteriorly; inner lip smooth, or slightly granulous.

Redescription: Shell small, solid, whitish, consisting of 7-8 unkeeled convex whorls. Suture wavy, appressed. Protoconch milk-white, consisting of 1 1/4 whorls, smooth, final part (about 7/4 whorl) wirh srrong axial riblets. Diameter: 0.8-1.0 mm.

About 7-10 prominent, rounded and broad axial ribs on all whorls reaching from suture to suture; up to 10 on body whorl separated by rather narrow interspaces. Spiral cords strong and rounded, slightly swollen where they pass over the ribs. About 15-18 spiral cords on body whorl including siphonal canal. On first two teleoconch whorls with 3 cords, 4 on the following whorls, 4-5 on penultimate whod. Between these cords are numerous fine close-set threads. Both margins of the suture are bordered by a thread and appressed to each other in a wavy line.

Aperture ovate, outer lip thickened, with some strong internal lirae and 2 or 3 white denticles anteriorly; inner lip slightly crenulated, sometimes smooth. Siphonal canal stout, rather short, about as long as the aperture length.

Size: up to 24 mm; of last whorl, 16.5 mm; of aperture and canal, 12.5 mm; max. width 9.0 mm.

Range: Gulf of Mexico, SE Florida and Florida Keys

Remarks: This species recalls *F. bocayei*, but that species, is shorter, stouter, with only seven transverse ribs and three principal spiral threads on the spire. The fine spirals in *F. bocagei* are also more conspicuous.

F. aepynotus has a little the aspect of *F. carolinensis*, especially the young ones, while differing in many details, especially the number and straightness of the ribs.

Its nearest relative would seem to be a form named *F. lamellosus*, from the Tertiary of Modena; but this is merely the young of *F. rostratus* and the adult has very different characters.

F. benthalis can be distinguished from *F. aepynotus* by having a clearly smaller and more slender shell, a larger number of much narrower and weaker axial ribs, a weaker spiral sculpture with usually only three strong spiral cords, and by a different protoconch morphology.

F. thompsoni is smaller in size, has a sharper and different spiral sculpture, the axial ribs are narrower and less numerous, the spire angle is narrower, the suture deeper incised, the whorls more convex, and the protoconch completely different (1 3/4 whorls, first half whorl smooth, 1 1/4 whorls strongly plicated).

F. aepynotus has a larger and much heavier shell with a larger spire angle, and clearly broader and stronger axial ribs than *F. amphiurgus.*

Fusinus africanae (Barnard, 1959)

Description: Aperture (incl. canal) a little longer than spire. Protoconch 2.5 whorls, diam. 3, alt. 2.75-3 mm, smooth, with 2-3 feeble growth-lines (scarcely ribs) on outer lip. First postnatal whorl beginning abruptly, and not quite flush with outer lip of protoconch: 14 low feeble axial ribs on 1st and 15 on 2nd, 3rd whorl incomplete: crossed by 4 spiral lirae of nearly equal strength (the uppermost one slightly weaker; on 1st and 2nd whorls, a finer one between 1st lira and suture, and indications of a fine intermediary between each pair of main lirae, also a lira below the 4th but partly obscured by suture of following whorl; intersections very slightly nodulose; on base of last whorl ca. 10-12 main lirae, with finer intermediaries; lirae on later whorls distinctly flattened. A small dentiform parietal callus, columella curved, no visible pleats, canal slightly curved, a little longer than rest of aperture. Operculum oval, apex incurved, 3.5 x 2 mm to 9 x 6 mm. Protoconch glistening white, shell greyish-white, operculum horn coloured.

Redescription: Shell small, relatively robust, spindle-shaped, with rounded whorls and a strongly indented suture; spire about three-quarters total length of aperture; sculptured by distinct, rather flat, spiral cords and close-set, rounded axial ribs (weaker on body whorl); siphonal canal long, the opening very narrow; protoconch large. Axial ribs almost absent in some individuals. Shell white to apricot-coloured, usually without further colour pattern; living specimens often thickly encrusted with a brown sponge coating.

Size: 15 x 6.5 mm to 52 x 17 mm.

Range: Agulhas Bank, South Africa

Remarks: The profile of the whorls is evenly convex, without the bicarinate periphery of juvenile *Africofusus ocelliferus* (= *F. verruculatus*) and *Chryseofusus bonaespei*. *F. africanae* has a much stronger spiral sculpture and a smaller size than *C. bonaespei*.

F. hayesi has a less robust shell with fewer, stronger axial ribs and more angular spiral cords.

F. africanae is most similar to *F. transkeiensis* in shape and sculpture, but can be easily separated by the larger adult size, the non-channelled suture, the larger number of axial ribs, the clearly stronger spiral cords, and by the conspicuously large embryonic whorls.

Chryseofusus bonaespei is larger than *F. africanae*.

Fusinus agadirensis Hadorn & Rolán, 1999

Description: Shell small, fusiform, thin-shelled, light in weight, with a long spire and a rather short siphonal canal; eight-whorled, whorls convex, never keeled. Suture wavy according to the axial sculpture of the preceding whorl. Protoconch consists of 1 1/2 white to light brown coloured whorls. 1 1/4 whorls smooth and glossy, final part (1/4 whorl or less) ornamented with 4-5 strong axial riblets reaching from suture to suture. The protoconch is ending in a varix. Diameter: 0.8-0.9 mm.

Strong axial ribs on all teleoconch whorls traversing from suture to suture. 8-9 on upper teleoconch whorls, 9-10 on penultimate and 9-11 on body whorl. Interspaces between the axial ribs as broad as the ribs themselves and deeply impressed. The teleoconch begins with 3-4 strong spiral cords. The uppermost one is clearly weaker than the others. On the following whorl two additional cords appear one below and one above the suture. The cords are strongly developed and of equal strengh; they are separated by rather deep intervals. They become more prominent where they pass over the axial ribs. Without fine intercalated threads between the spiral cords.

Aperture ovate, inner lip curved, with a thin adherent smooth parietal callus, no columellar folds. Edge of the outer lip finely crenulated, with 10-11 strong and sharp internal lirae. Siphonal canal sometimes curved, rather short (as long as the aperture length), bent to the left and slightly backwards; outer side ornamented with numerous simple but strong spiral cords.

Operculum typical for genus, light brown, rather thin and subtranslucent, size ancl shape corresponding to the aperture, with a terminal nucleus. Outer side with fine concentric growth lines. Uniformly beige to light brown coloured or light red-brown, axial ribs usually somewhat lighter than the background.

Size: holotype 15.3 x 6.1 mm; 13.8-16.6 mm

Range: Atlantic coast of Morocco

Remarks: *F. agadirensis* differs from *F. tenerifensis* in being lighter in weight, in having a smaller and thinner shell, a proportionally longer and more slender siphonal canal, a whitish to light brown bur never purplish coloured aperture, in the uniformly beige to light brown colouration, in having more axial ribs on upper teleoconch whorls, stronger spiral cords of equal size with deeper interspaces between them, in not having fine intercalated threads between the spiral cords, and finally by a different radula morphology.

Pseudofusus cretellai (= *F. crassus*) which occurs also in Morocco (Strait of Gibraltar) has a larger, clearly thicker and heavier shell, a larger number of axial ribs and much narrower interspaces between them, and is ornamented with two red-brown bands on all whorls.

Pseudofusus rostratus and *Pseudofusus pulchellus* have a clearly larger shell size, often keeled whorls and a different colouration, and fine intercalated threads between the primary spiral cords.

F. sectus from the Mauritanian coast has a larger shell, more ventricose whorls, a larger number of weak axial ribs, and up to four fine secondary spirals between the primary spiral cords.

Trophonopsis muricata (= *F. longurio*) is known from the lost holotype only. This somewhat doubtful species from the Mediterranean Sea (Algeria, near Algiers) has a shorter but broader spire, a shorter siphonal canal and a clearly smaller number of spiral cords (3 instead of 5-6).

F. maroccensis lives sympatrically with *F. agadirensis*, but differs in having an always sinistral shell, more axial ribs on upper teleoconch whorls, less numerous spiral cords, in having fine intercalated threads between the spiral cords, and finally in having a proportionally shorter siphonal canal.

Pseudofusus rusticulus occuring in the infralitoral zone of the Tunisian and Algerian coasts has about the same size and colouration, but clearly differs in having less numerous but much stronger axial ribs, in the constant presence of a keel in the middle of the whorls, and in the presence of fine intercalated threads between the spiral cords.

F. agadirensis can be distinguished from *Pseudofusus rosamariae* by its spiral cords, which are strongly developed and of equal strength.

F. rudis † (? Pseudofusus parvulus) from the Mediterranean Sea has a heavier and thicker shell, a shorter siphonal canal, a somewhat shorter and broader spire, and stronger axial ribs.

The extinct and fossil species *Parvofusus lamellosus †* (Pliocene / Astien, N Italy) is also similar in shape and sculpture, but clearly differs in having a completely different protoconch (about 3-4 whorls with a tiny tip), a somewhar larger shell size, more prominent axial ribs, a clearly sharper spiral sculpture, a shorter siphonal canal which is shorter than the aperture length, and in the presence of a conspicuously fine spiral sculpture on the outer side of the siphonal canal.

Fusinus agatha (Simone & Abbate, 2005)

Description: Shell of relative small size, fusiform, elongated; wall thin, fragile. Sculpture uniform spire ribs and weak axial undulations. Canal relatively narrow and long. Aperture with weak teeth in superior region and weak fold in base of siphonal canal.

Protoconch white, smooth, glossy, relatively small; length about 1.5 mm; about two similar sized whorls. Limit protoconch-teleoconch well marked. Teleoconch with approximately 7 convex whorls, approximate spire angle of 45º. Suture well marked; profile somewhat perpendicular. Sculpture of first teleoconch whorls composed by strong axial threads, about 10 per whorl, and 3-4 spiral cords; intersection of both marked by small node. After 3-4 whorls, gradually reticulate sculpture becoming only spiral sculpture, composed by about 25 (in penultimate whorl) ribs distributed uniformly somewhat alternate between narrower and wider ribs; each rib low and narrow, separated from each other by area equivalent to their width; minute nodes detectable on tip of each rib in some areas. Axial sculpture composed only by narrow, shallow undulations, weakly stronger close to suture. Past whorl with similar pattern of sculpture, including anterior region in siphon, spiral ribs becoming gradually oblique distally.

Aperture oval; length about 1/3 of total shell length; peristome white. Outer lip with cutting edge, crenulated internally, composed by narrow ribs located perpendicular to edge, coincident with outer sculpture, becoming stringer in superior region; sub-terminal, weak, low node located in transition with siphonal canal. Inner lip mostly smooth, glossy, callus narrow, thin; superior region bearing relatively strong sup-terminal node forming narrow anal canal, this node spirally elongated, internal edge slightly taller than outer edge; from this node a series of low axial folds extending towards inferior, gradually disappearing up to middle third of inner lip; low oblique fold located in base of siphonal canal. Canal narrow (about 1/6 of body whorl width) and long (about 1/4 of total shell length), positioned straight forward.

Operculum corneus, oval, brown, occupying entire aperture. Nucleus inferior terminal. Outer sculpture weak concentric undulations. Inner surface glossy, thicker in inferior region. Scar elliptical, located approximately in central region, weakly dislocated internally; occupying about 1/3 of total inner surface.

Color white, with brown axial strips from suture to region close to medium area of each whorl, forming infra and supra-sutural irregular brown bands, separated from each other by whitish area of approximate same width of each brown band; each brown band composed by narrow axial spots, irregularly distributed, sometimes coalescent, varying from darker to paler brown along each whorl. Last whorl similar colored, except by additional white anterior region, normally interrupted by oblique brownish band in middle region of siphon. Periostracum thin, fragile, pale beige, hairy; each hair short, velvetlike, showing color by transparency.

Size: about 80-90 mm

Range: Ceará, NE Brasil

Remarks: *F. agatha* has as closer allied the species *F. lighbourni*, endemic from Bermuda. Both species are similar in size and by elongated shape of the shell. However, *F. agatha* differs from *F. lighbourni* in being wider (spire angle of about 45º, while *F. lighbourni* is about 35º), aperture proportionally smaller (*F. agatha* has the apertural length about 1/3 of total length of the shell, while *F. lighbourni* the same measure is about 1/4), and by sculpture, which has only narrow, shallow undulations, while *F. lighbourni* possess strong axial sculpture forming

regular threads; the number of spiral cords is also different, while *F. agatha* has about 25 in penultimate whorl, *F. lighbourni* has about 10. Additionally, the aperture of *F. agatha* has folds in superior region, while this region is smooth in *F. lighbourni*. *F. agatha* has no other species that can be confused.

However, it has a similar shape to *Fasciolaria tulipa* and *Fasciolaria tephrina*, in having rounded whorls and somewhat narrow and long canal; *F. agatha* differs from both species in having a slender shape, lower folds in aperture and by more uniform spiral sculpture. The bathymetry is also a distinctive feature, as *F. tulipa* occurs in shallow waters, *F. tephrina* in about 600 m, and *F. agatha* in about 60 m depth.

Fusinus alcimus (Dall, 1889)

Description: Shell resembling *F. aepynotus*, but shorter and more acute at both ends, with only 6 much more oblique and proportionally stouter ribs, coarser revolving spirals, and none of the fine spiral striation which exists between the primary threads of *F. aepynotus*. It has 8 whorls; the nucleus is strongly plicate below; the interspaces between the ribs are deep, and in them the spirals are much closer together than they are on the summit of the ribs; on the last whorl there is sometimes an intercalary single fine spiral thread. The color is yellowish with touches of dark brown; the canal is very short; the aperture is contracted, the lips much thickened, the outer one strongly internally lirate, the inner one smooth; the suture is inconspicuous and very much waved.

Redescription: Shell rather small, 8-whorled, yellowish to whitish; the touches of dark brown mentioned by Dall are not visible on the holotype shell. The suture is inconspicuous and strongly waved. Protoconch whitish, 1 1/2 whorls; first half whorl smooth, flattened, glossy; below with numerous strong axial riblets reaching from suture to suture. Diameter: 0.9 mm.

6 strong, stout, rounded and oblique axial ribs on teleoconch whorls which reach from suture to suture, separated by deep and broad interspaces. Final ribs on body whorl very prominent.

Spiral sculpture strong; 3 strong spiral cords on first teleoconch whod, 4 on the following whorls, 5-6 on penultimate whorl. The 3 primary cords are somewhat stronger than any others. In the interspaces between the axial ribs the spirals are much closer together than where they pass over the axial ribs. There is 1 intercalated fine spiral thread only visible on body whorl.

The aperture is small and contracted, the outer lip thickened. Strong internal lirae inside the aperture; inner lip smooth. Siphonal canal stout and short, about as long as the aperture length.

Size: up to 15 mm; last whorl 9.2 mm; aperture and canal 7 mm; max. width 7.0 mm

Range: Gulf of Mexico

Remarks: It differs from *F. aepynotus* by having a shorter spire and a shorter siphonal canal, stronger and broader axial ribs, a larger spire angle, a strongly plicated protoconch, and by not having numerous intercalated fine close-set spiral threads between the primary cords.

F. thompsoni has a very similar protoconch, but clearly differs in the more slender shell, and in having much narrower, weaker and more numerous axial ribs. The siphonal canal of *F. alcimus* is stouter, shorter and broader.

F. rushii was described as a variety of *F. alcimus* and differs in being smaller and uniformly whitish to yellowish coloured, in having an almost smooth protoconch, less deeply impressed interspaces between the axial ribs, less prominent straight axial ribs, and in having a weaker spiral sculpture.

Fusinus alcyoneum Hadorn & Fraussen, 2006

Description: Shell rather small for genus, fusiform, stout, rather heavy, consisting of 11 or 12 convex whorls. Spire angle broad (39°-42°). Suture constricted, wavy. White.

Protoconch flesh-coloured, translucent, glossy, smooth, consisting of about 2 1/4 whorls, suture indistinct. Final part (1/4 whorl) with 4 or 5 strongly convex fine axial riblets, reaching from suture to suture, interspaces wide. Transition to teleoconch indistinct. Diameter: 0.9 mm.

Axial ribs prominent, broad, traversing from suture to suture on ail whorls. 7-9 ribs on upper whorls, 9 or 10 on body whorl. Interspaces rather broad, deeply impressed, as broad as ribs. Axial growth lines wellvisible in axial interspaces.

Teleoconch beginning with 3 primary spiral cords, additional cord appearing on second whorl together with 1 fine intercalated secondary cord between primary cords. From third or fourth postnuclear whorl on, fine, sharp intercalated tertiary cords appear; their number increasing to up to 7 on body whorl. Spiral cords stronger when crossing axial ribs.

Aperture ovate, pinched al both ends, white. Outer lip crenulated, with some short close-set lirae within, stronger near siphonal canal. Inner lip curved, callus thin, appressed to parietal wall, surface smooth, without columellar folds, with small callused tooth near posterior canal.

Siphonal canal short, strongly curved, broad; outer side ornamented with some spiral cords and intercalated threads which become weaker towards tip of siphonal canal. Periostracum thin, greenish. Operculum reddish-brown, corneous, shape and size corresponding to aperture, rounded above, pointed below, nucleus terminal.

Size: 45 mm, occasionally up to 50 mm

Range: SW Pacific: Fiji, Vanuatu, New Caledonia and southern Coral Sea

Remarks: *Vermeijius retiarius* can be separated by the remarkable differences in protoconch morphology (white, only 1-1 1/4 whorls), the somewhat larger adult size (to 56.7 mm), the smaller number of whorls (about 10), the broader and rounded spiral cords, and by differences in radular morphology.

Pseudolatirus pallidus and *Vermeijius virginiae* differ by the somewhat larger adult size, the longer spire, the more constricted suture, the more pronounced axial ribs, and the longer, almost straight siphonal canal. *P. pallidus* differs also by the reddish brown to dark brown protoconch, consisting of 2 1/2-2 3/4 whorls, and *V. virginiae* by a whitish protoconch, consisting of 1 3/4 whorls.

Fusinus allyni J. H. McLean, 1970

Description: Shell large, thin, light in weight, covered with a fine, yellowish periostracum; whorls inflated, rounded, except for a sharply projecting periphery, suture deeply impressed. Apex missing, 9 whorls remain.

Axial sculpture on the fourth whorl of 9, on the final whorl of 10 low ribs with broader interspaces, crossed on the fourth whorl by 4 and on the penultimate whorl by 6 major spiral ribs and numerous spiral threads of varying size, the peripheral spiral cord the most prominent, forming a keel with rounded projections on the last 3 whorls. Aperture ovate, outer lip thin, simple, but reflecting the spiral sculpture; columella with a thin white callus. Canal long, straight, siphonal fasciole lacking, length of aperture and canal greater than length of the shell. Color whitish, with reddish brown on the axial ribs between the major spiral cords.

A paratype specimen, with broken apex and canal, but with body whorls of similar proportions, has a projecting inner lip and a slightly inflated outer lip, suggesting that 90 mm is about the maximum size expected in this species. A paratype specimen, 40 mm in length, has an intact apex with 3 smooth nuclear whorls.

Size: height 88.4 mm, diameter 34.2 mm

Range: endemic to the Galapagos Islands

Remarks: It differs from all other large offshore species in the Eastern Pacific in having a more inflated body whorl but thinner shell and thinner periostracum.

Fusinus amadeus Callomon & Snyder, 2008

Description: Shell thin, light, medium-sized for genus, bodywhorl profile somewhat pyriform. Protoconch of 2-2.5 whorls, smooth, glossy, last whorl somewhat constricted. Teleoconch of 7-7.5 whorls with rounded profile and obliquely abutted suture. Early whorls with numerous broad, rounded axial ribs that span entire whorl and indent suture; ribs weakening in final two whorls, becoming either absent altogether or reduced to row of carinate shoulder knobs on body whorl. Five or six very strong major spiral cords on early whorls, increasing to nine or ten by penultimate whorl as early minor cords strengthen. Narrow interspaces bear only very fine axial growth marks.

Aperture almond-shaped, white and glossy. Labral wall of aperture thin; inner face bears pairs of spiral cords and troughs that correspond in reverse to cords and troughs on outer surface. Labral margin in adults thin, corrugated; no terminal thickening or dentition in adults; slight but uniform and abrupt reduction of spiral sculpture on inner surface shortly before labral margin in adults. Parietal wall of aperture with thin glaze; parietal margin thin, sharp, but only produced in proximal half; produced margin extends into upper half of canal. Neck of medium length,

tapering steadily but occasionally more abruptly in proximal third, sometimes slightly recurved in either direction, with fragile, rounded tip; canal of varying width, open, straight.

Shell dull white overall, occasionally stained pale brown in uppermost whorls and protoconch. Periostracum thin, pale brown, with numerous spiral rows of erect tufts on very reduced axial lamellae. Operculum typical for genus; brown, chitinous with nucleus positioned at slightly reflected distal tip.

Size: length to 114.9 mm, average adult 93.4 mm (n = 12)

Range: Pacific coast of central Japan

Remarks: Among Japanese congeners, the pyriform shape and thin construction of *F. amadeus* are reminiscent of *Marmorofusus akitai*, but *F. amadeus* is on average smaller and has more prominent and developed axial sculpture with a less rounded and inflated whorl profile.

The most morphologically similar congener, however, is the patternless form of *Propefusus undulatus* (= *Fusinus pyrulatus*) from southern Australia. *F. amadeus* can be distinguished from *P. undulatus* by the more angular, widely spaced axial ribs on its early whorls; by the more developed parietal margin in adults, and by its more slender canal. In addition, *P. undulatus* usually has a curved neck, distinct nodular sculpture on the body whorl, and a pattern of brown spiral bands with darker axial flammules that often cover the whole shell. Nevertheless, the strong resemblance between the selected phenotypes of these two apparently widely allopatric species underlines the importance of accurate locality data when comparing *Fusinus* shells.

Fusinus amphiurgus (Dall, 1889)

Description: Shell small, 8-whorled, yellowish, translucent, with spiral touches of reddish brown; nucleus polished, smooth, brownish, two-whorled; transverse sculpture of fine sharp distinct incremental lines, and 9-10 narrow rounded subequal ribs, with wider interspaces, and somewhat broader anteriorly than near the suture; spiral sculpture of, on the periphery, 2 primary threads stronger than any of the others, swollen, keeled, and opaque white where they pass over the ribs; between these and the suture behind are 3 or 4 smaller threads with touches of brown in the interspaces; in front of the periphery and between it and the canal are about 6 more smaller primary threads, and others which cover the canal; between these on the whorl are from one to four extremely fine secondary threads. Owing to the difference in the size of the primaries the upper surface of the whorls slopes, roof-like, to the periphery, and this, with the white noduled peripheral threads, is the most striking feature of the shell; the aperture is rounded, the outer lip internally lirate, the canal slender and well differentiated.

Redescription: Shell small, consisting of 8 convex whorls, translucent, yellowish coloured, between the spirals with touches of reddish-brown. The protoconch consists of 1 1/2 polished and smooth whorls, final part (1/4 whorl) with some strong axial riblets. Diameter: 1.1 mm.

9-10 narrow, rounded axial ribs separated by broader interspaces. The ribs reach from suture to suture and are somewhat broader anteriody than near the suture. Spiral sculpture consists of fine sharp cords. About 4 cords on upper teleoconch whorls; the 2 Iower ones are clearly more prominent. Starting with the third whorl a fifth rather weak cord appears just below the suture. On the periphery 2 cords are clearly stronger than any of the others. They are swollen and opaque white where they pass over the ribs. Between these cords and the upper suture are 3-4 smaller cords with touches of brown in the interspaces.

Aperture nearly round; outer lip thin with some internal lirae. Inner lip smooth, no columellar folds. Siphonal canal straight, about as long as the aperture.

Size: max. length 14 mm, of last whorl 9 mm, of aperture and canal 7.3 mm; max. width 6.5 mm

Range: Gulf of Mexico, SW Florida.

Remarks: Its nearest relative is *Pseudofusus pulchellus* of the Mediterranean, from which its most obvious distinction lies in its lighter color, more delicate texture, and the peculiar bevel of the upper surface of the whorls. In *P. pulchellus* the whorls are rounded and full, and the spiral sculpture coarser and sharper.

F. thompsoni is most similar in shape and sculpture, but has a strongly plicated protoconch, somewhat stronger axial ribs, and a different spiral sculpture.

F. aepynotus has a larger and much heavier shell, a larger spire angle, and clearly broader and stronger axial ribs.

F. benthalis has a clearly larger number of much weaker axial ribs, less deeply impressed interspaces between the axial ribs, a weaker spiral sculpture and a more constricted suture.

Aristofusus stegeri is larger and white.

Fusinus annae Snyder, 1986

Synonyms: *Fusinus anni* M. A. Snyder, 1986

Description: Shell elongate, whorls rounded, aperture half total shell length. Whorls with distinct strong axial folds, 12-15 per whorl. Spiral sculpture of widely spaced, raised ribs, 3-5 on spire whorls and about 13 on the body whorl and anterior canal, forming spirally elongate nodules where they cross the axial ribs; secondary sculpture of 6 or 7 uniformly sized threads between the spiral ribs. Outer lip slightly flared, weakly crenulated by external sculpture. Columella smooth; posterior canal well defined, bordered by weak nodules on parietal wall and outer lip. Colour fawn internally and externally, nodules white; thin brown periostracum sometimes present.

Size: up to 79 mm

Range: endemic to southeastern Australia

Remarks: Juvenile specimens of *Propefusus novaehollandiae* are distinguished from this species by having no more than 2 or 3 fine spiral lirae between the major spiral ribs.

F. annae is distinguished from *Vermeijius palmarium* by a much larger adult size and a different shape.

Fusinus arabicus (Melvill, 1898)

Description: *F. testa parva, attenuata, lanceolata, gracilis anfractibus novem, duobus apicalibus brunneis omnino laevibus caeteris ventricosulis, apud suturas astrictis, longitudinaliter costatis, penultimo et ultimo ad octo costis, rotundatis, incrassatis, spiraliter undique arcte costulatis, interstitiis spiraliter granuloso-liratis, ultimo rectirostrato, canali longa, apertura ovata, labro vix incrassato, intus spiraliter plicato, columella septemplicata. Long. 34, lat. 10.5 mm*

A small species, attenuately lanceolate, 9-whorled, 2 of them are apical, smooth, brown, the rest constricted at the sutures, ventricose, longitudinally thickly ribbed, ribs about 8 on the 2 last whorls, these ribs are spirally crossed by revolving riblets, or raised lines, the interstices being granuloso-lirate, the colour is cinnamon brown, slightly darker on the ribs, the aperture is ovate, canal straight, prolonged, lip within plicately striate, the columella is seven plaited, these plaits are the continuation of the spiral riblets.

Size: 35-90 mm

Range: Muscat, Arabia

Remarks: *F. arabicus* is conchologically the most similar to *F. rogersi* but differs in having a dark brown or red-brown protoconch, in the smaller number of axial ribs on all whorls, in the broader axial ribs (especially on upper whorls), in not having a strong broad prelabrial axial rib, in usually having a weak keel at the periphery on penultimate and body whorl, in the pale to dark brown colouration of the shell, in the brown coloured interspaces between the axial ribs, in the straight outline of outer lip (*F. rogersi* like a reversed ‘S’), in having often a pale pinkish tinged parietal callus, and finally in having a smaller adult shell.

Fusinus articulatus (G. B. Sowerby II, 1880)

Description: *Testa gracilis tenuis albida, spiraliter subdistanter lirata, inter liras striata; anfractibus 9, rotundis, prominentibus, costis nodosis longitudinaliter plicata, liris inter costas punctato-articulatis, sutura excavata, ultimo anfractu brevi subdepresso, apertura intus striata, margine crenato.*

(Shell slender, thin, whitish, spirally subdistantly striated, between the lirae striated; 9 whorls, round, prominent, nodular ribs folded longitudinally, between the ribs punctate-articulated lirae, suture excavated, the last whorl shortly depressed, aperture internally striated, margin crenate.)

Rather thin and narrow with spiral ribs over rather close longitudinal plaits. The lirae are finely articulated with brown spots between the plaits.

Size: 80 mm

Range: W Pacific

Remarks: *F. articulatus* is similar to *Vermeijius retiarius* in shape and sculpture, but can be distinguished by the larger adult size, the concave shoulder slope, the longer, more slender siphonal canal, and the tiny orange-tan markings on the spiral cords.

Fusinus assimilis (A. Adams, 1856)

Description: *F. testa elongato-fusiformi, fulvicante, epidermide tenui, fusco induta; spira elongata, acuta; anfractibus decem, rotundatis, longiludinaliter plicato-costatis, costis latis, medio subnodulosis, transversim valde liratis, liris aequalibus, subdistantibus; apertura parva, ovali, labio producto, intus transversim rugoso; labro margine crenulato, intus sulcato; canali longiore, fere clauso, recto.*

(Shell elongate-fusiform, tawny, epidermis thin, covered with brown; spire elongate, sharp; with 10 whorls, rounded, longitudinally folded-ribbed, ribs broad, subnodular in the middle, transversely strongly lirated, lirae equal, subdistant; aperture small, oval, with a produced lip, internally transversely wrinkled; lip with crenulate margin, furrowed inside; a longer, almost closed, straight canal.)

Size: orig. not given; 42 mm

Range: China Seas

Remarks: Somewhat resembling in form and sculpture *F. forceps* (= *F. turriculus*), but the outline of the whorls is nodosely ungulated.

Fusinus aurinodatus Stahlschmidt & Lyons, 2009

Description: Shells of medium to large size, fusiform, spindle-shaped, elongate, solid, thick and broad for genus, with tall spire and long siphonal canal. Protoconch and spire tip broken on all but 1 specimen, leaving up to 10 whorls; original number of teleoconch whorls estimated as approximately 11. Protoconch of immature paratype 8 tiny, glassy, rather smooth, of approximately 1 whorl, incurved at tip and essentially immersed in whorl 1 of teleoconch. Suture of teleoconch adpressed, slightly wavy, with smooth subsutural band. Upper (posterior) whorls convex, bearing 7-9 broad, convex ribs reaching from suture to suture; middle whorls becoming distinctly carinate near centres as ribs become more node-like; lower (anterior most) 4-5 whorls with prominent shoulders and concave shoulder slopes, ribs of anterior whorls reduced to 9-11 prominent, rounded but somewhat pointed nodes at shoulders, creating coronate appearance. Ribs continuing as low, axially aligned but unevenly spaced undulations on body whorls of some larger (> 160 mm) shells. Spiral cords smooth, shallow, ranging in number from 15-25 per whorl; cords generally alternating strong and weak, most cords of each type subequal in size, but 2 noticeably larger cords encircling body whorl, entering at posterior end of aperture.

Aperture obliquely ovate, white, constricted posteriorly by well-developed notch created by small node on parietal shield, node overlying space between 2 larger cords of body whorl as they enter aperture. Columella concave, without folds, as typical for genus. Parietal callus thick, with irregular grooves or denticles corresponding to underlying spiral cords; upper edge of parietal shield slightly detached from body whorl in adult specimens, pseudoumbilicus not present. Outer lip nearly arcuate, slightly flexed in posterior half by terminus of shoulder, with about 25 strong, regular, generally paired lirae within, sometimes with additional weaker lirae between pairs; stronger lirae extending to outer lip, terminating as small teeth lying between termini of spiral cords on outer side of body whorl, forming serrated edge on outer lip of mature shells; serrations persisting in grooves indicating resting stages between growth phases on body whorl.

Siphonal canal moderately long for genus (1/3-2/5 shell length), straight to slightly sinuous. Sculpture of abapertural side of canal similar to that of body whorl, with oblique spiral cords alternating in size, becoming gradually weaker anteriorly, leading to smooth tip of canal. Shell colour uniformly white except for prominent golden-brown dots on apical side of each peripheral node on most whorls of spire; dots best seen in apical view of shell, most evident on nodes of whorls 5-7, faded and indistinct or absent on nodes of penultimate whorl.

Size: length to 170.6 mm

Range: Madagascar, Somalia, Mozambique Channel

Remarks: The morphology of the single available *F. aurinodatus* protoconch differs from that of all other species of Fusinus known to us. The protoconchs of 9 Japanese species figured by Callomon & Snyder (2007) provide a fair representation of most *Fusinus* protoconchs. Collectively, they are composed of about 1.5 to 2.5 smooth, glassy

whorls, most or all somewhat incurved and flattened at their tips, but all clearly elevated above the level of the first teleoconch whorl and above each other. In contrast, the sole protoconch of the examined *F. aurinodatus* consists of a single whorl whose tip is immersed within the first teleoconch whorl. With only one specimen seen, it cannot be said whether this condition is typical of the species or, if so, what its significance may be.

F. aurinodatus belongs to the "*Fusinus undatus*"-group, characterized by large, heavy, broad and mostly white shells, and is most similar to *F. longissimus*, a western Pacific species.

F. aurinodatus differs from *F. longissimus* by its smaller adult size (170 mm versus > 300 mm); some shells of the latter species still show immature features such as a thin outer lip and absence of a parietal shield at sizes as great as 216 mm, whereas subadult lips and parietal shields begin to appear on shells of F. aurinodatus as small as 129 mm. Due to their thicker walls, shells of *F. aurinodatus* are heavier than similar-sized *F. longissimus*, and their shells are also significantly broader (width-length ratio: average 0.334; range 0.31-0.36, n = 13) than those of F. longissimus (0.283; range 0.26-0.31, n = 18). The difference in ratios is very evident when comparing similar-sized specimens: about 0.34 for 166-170 mm *F. aurinodatus* versus only 0.26 for 181-193 mm and smaller specimens of *F. longissimus*. The height of whorls is greater in *F. longissimus*, conferring to that species a spire that is both relatively and absolutely taller than that of *F. aurinodatus*. The shoulder slope is shorter, higher and therefore much more concave in *F. aurinodatus*; in side view, the outline between the peripheries of adjacent whorls of the spire (node-suture-node) on *F. aurinodatus* is concave, distinctly C-shaped, whereas that outline on *F. longissimus* resembles an oblique angle with two straight sides. *F. longissimus* also has a broader and more pronounced subsutural band and closer-set, narrower and sharper spiral cords. The shoulder knobs of *F. aurinodatus* are muchmore pronounced, smoother and rounder than those of *F. longissimus* of similar size.On mature specimens of *F. longissimus*, peripheral nodes of anterior whorls are crossed at their apices by a peripheral spiral cord larger than other cords on the whorl, and that cord is bordered on each side by single cords just slightly smaller than the peripheral cord. In contrast, spiral cords crossing nodes of anterior whorls of *F. aurinodatus* are similar in size to other nearby cords on those whorls. Finally, the golden-brown colour on the apical side of those knobs, present to varying degrees on all except one of the *F. aurinodatus* examined, is absent in *F. longissimus*.

F. percyanus does resemble *F. aurinodatus* in several respects, but it has a relatively much shorter anterior canal, creating a more compressed appearance, and distinct patches of golden-brown between (but not on) peripheral nodes of the spire. Compared to *F. aurinodatus*, the shell of *F. percyanus* is shorter and broader, with a relatively shorter siphonal canal, and more rugose and prominent spiral cords on the spire and body whorl; patches of color between nodes at the shoulder do not extend onto apical faces of the nodes themselves.

F. aurinodatus differs from *Cyrtulus undatus* in having a narrower, longer and less massive siphonal canal, a relatively shorter spire, stronger spiral cords, and a lighter-weight shell. The sculpture of whorls of *F. undatus* consists of axial buttresses with rounded lower extremities, in contrast to the restricted shoulder knobs of *F. aurinodatus*, which generally are smaller, rounder and more numerous than those of *C. undatus*. The surface of the shell of *C. undatus* typically is glossy, whereas the spiral cords of *F. aurinodatus* n. sp. render its shell surface less shiny. The golden-brown colour on the apical sides of nodes on the spire, characteristic of *F. aurinodatus*, is absent in most *C. undatus*; we found such apical spots on only one of the scores of the adult shells of examined *C. undatus*.

Comparison of *F. malhaenesis*, endemic to the Saya de Malha Bank in the western Indian Ocean, to *F. longissimus*, which apparently does not live in the Indian Ocean, shows stronger spiral sculpture, fewer spiral cords, a less constricted suture, a clearly heavier and thicker shell, usually straight or concave shoulder slope and darker coloured interspaces between axial ribs on upper whorls to distinguish the latter species. Most of these characters also distinguish *F. aurinodatus* from *F. malhaensis.* In fact, it seems likely that a specimen of *F. aurinodatus* may have been used in that comparison, because darker interspaces are not known to occur on shells of *F. longissimus*.

Darker interspaces do occur between peripheral nodes on upper whorls of *Enigmofusus nicki*, a species known only from off Mozambique in the western Indian Ocean. The golden brown colour of those interspaces is similar to that on *F. aurinodatus*, and in fact that colour sometimes overlaps onto upper (apical) surfaces of the nodes, much as it does in *F. aurinodatus*, although this character seems to be inconsistent among shells of *E. nicki*. *E. nicki* also attains a maximum length of approximately 170 mm, similar to *F. aurinodatus*. However, *E. nicki* has a thinner, lighter shell with shallower sutures and a more inflated body whorl than that of *F. aurinodatus*.

Some shells from the Philippines currently considered to represent a form of *F. colus* also resemble *F. aurinodatus*. These shells attain mature lengths of 175-203 mm, somewhat larger and relatively more slender than *F. aurinodatus*. Peripheral nodes of these shells are prominent but relatively lower and more produced laterally (in the

direction of spiral coiling) than the more elevated, rounder nodes of *F. aurinodatus*. Patches of golden brown occur between nodes on some or most whorls of the spire (but not on the apical faces of those nodes); that colour fills intercostal areas of the first 7-8 teleoconch whorls but diminishes quickly on later whorls. Like other forms of *F. colus* in the Philippines, the anterior canal is tinted red brown on some shells, and the edge of the outer lip of two shells is tinted dark brown; such colour markings are not known for *F. aurinodatus*. Cords of the spire, body whorl, and siphonal canal are generally more prominent on this form of *F. colus* than on shells of *F. aurinodatus*.

Fusinus azzurrae T. Cossignani, 2023

Synonyms:

Description: not available

Size: length 63,4 mm

Range: Mozambique

Fusinus barclayi (G. B. Sowerby III, 1894)

Description: *Testa angulato-fusiformis, sinistrorsa, rimata, antice leviter contorta, postice acuminata; luteo-albida, fulvo fasciata; spira conico-turrita, acuta; anfractus 7, planato declives, spiraliter dense squamoso lirati, longitudinaliter sub-oblique costati, inferne angulati; costis paulo elevatis, latiusculis, ad angulum sub-nodulosis; sutura anguste sed profunde canaliculata; anfractus ultimus ad peripheriam valde angulatus, infra angulum leviter convexus, deinde contractus, in caudam breviusculam, leviter recurvam desinens; apertura sub-ovata, intus lirata; columella arcuata; canalis brevis.*

(Shell angular-fusiform, left-handed, grooved, anteriorly slightly twisted, posteriorly pointed; yellow-white, banded with yellow; spire conical-turreted, sharp; 7 whorls, flat slopes, spirally densely scaly, longitudinally sub-obliquely ribbed, angled below; ribs slightly raised, broad, sub-nodular at the angle; suture narrowly but deeply canaliculated; the last whorl at the periphery strongly angled, slightly convex below the angle, then contracted, terminating in a short, slightly recurved canal; aperture sub-ovate, internally striated; columella arched; canal short.)

Size: length 28 mm, width 14 mm

Range: Mauritius

Remarks: A remarkable sinistral species; it is very angular, the longitudinal ribs raised on the angle giving it a nodulous appearance. The whorls are densely scale-ridged throughout, the ridges varying in thickness.

Compare to other sinistral species like *F. maroccensis, F. elegans, F. somaliensis* and *F. gallagheri.*

Fusinus benthalis (Dall, 1889)

Description: Shell small, yellowish white, 8-whorled. Nucleus milk-white, polished, 2-whorled, smooth. Spiral sculpture of (on the last whorl about 12) rather strong rounded threads, of which three appear on the upper whorls about equal and equidistant, riding over and becoming a little swollen upon the transverse ribs; between tbese are numerous small subequal close-set spiral threads; transverse sculpture of (on the last whorl about 12) equal even ribs, which fall away toward the sutures and on the canal; these ribs are wider than their interspaces, with a tendency to become nodulous where crossed by the strong spirals; both margins of the suture are bordered by a thread and appressed to each other in a wavy line; canal and aperture moderate; the outer lip lirate within; inner lip simple, with a light wash of callus; whorls moderately rounded.

Redescription: Shell small, yellowish to white in colour, with 8 rounded whorls. Protoconch milk-white, smooth, polished, consisting of 1 1/4 whorls, last part (1/4 whorl) sculptured with fine axial riblets. Diameter: 0.8-0.9 mm.

Axial ribs narrow and weak, reaching from suture to suture on all whorls; interspaces between axial ribs somewhat smaller than the ribs themselves, weakly impressed; about 11-15 axial ribs on body whorl. Adult specimens with a strong prelabrial axial rib which is clearly stronger than any of the others.

3 strong and rounded spiral cords on upper whorls, 3-5 on latter whorls, about 12 on body whorl including siphonal canal. They are somewhat stronger where they pass over the axial ribs. Numerous fine close-set spiral threads between the spiral cords. Both margins of the suture are bordered by a thread and appressed to each other in a wavy line.

Aperture ovate, rather small. Outer lip with some internal lirae; inner lip with a light wash of callus. No columellar folds. Siphonal canal about as long as the aperture length.

Size: max. length 17 mm; of last whorl 10 mm; of aperture 4 mm; of canal in front of the aperture 4 mm; max. width 5.5 mm

Range: Gulf of Mexico, Yucatan Channel, Florida Straits and Florida Keys

Remarks: This little shell appeals to be abundant, and to have a very wide bathymetrical range.

F. aepynotus differs in having a larger shell, less numerous, but clearly coarser and broader axial ribs with deeper impressed interspaces between them.

F. benthalis has a clearly larger number of much weaker axial ribs, less deeply impressed interspaces between the axial ribs, a weaker spiral sculpture and a more constricted suture than *F. amphiurgus.*

The protoconch of *F. thompsoni* is also almost smooth, but the whorls of *F. benthalis* are less convex, and the axial ribs are more numerous and weaker.

compare to *Harasewychia harasewychi*

Fusinus bifrons (Sturany, 1900)

Synonyms: *Fusus bifrons f. paucicostata* Sturany, 1900

Description: *Schale lang spindelförmig, ziemlich schlank, mehr oder minder festschalig, mit langem, kaum gedrehtem Canal; von den 11 stärker oder schwächer gewölbten Umgängen sind die ersten 1 1/2 als glattes, bläschenförmiges Embryonalgewinde abgesetzt, auf welches einige zarte Querrippen folgen, die nun aber bald zu derberen Querwülsten anwachsen und als solche entweder bis auf die letzte Windung reichen (f. typica) oder nur drei bis vier Umgänge besetzen (f. paucicostata). Ferner ist eine deutliche, engstehende Spiralsculptur ausgeprägt: es wechseln stärkere und schwächere Spiralreifen ziemlich regelmäßig ab, welche entsprechend gewellt sind, wo sie über die Faltenrippen laufen. Spindel mit Belag, schwach oder gar nicht gerunzelt. Gaumen mit engen Falten besetzt. Mündung oval, nach oben etwas zugespitzt. Farbe gelblichweiß, bei frischen Exemplaren etliche Spiralreifen braun gefärbt.*

(Fusiform and elongated shell, rather slender, more or less robust, with long, slightly twisted canal; of the 11 more or less convex whorls, the first 1 1/2 are separated into a smooth, inflated protoconch after which some delicate axial ribs follow, which soon grow into coarser varices and either continue down to the last whorl (f. typica) or are present only on 3 to 4 whorls (f. *paucicostata*). Additionally, there is a clear, fine spiral sculpture: stronger and weaker spiral rings alternate on a fairly regular basis and are undulated when they cross the ribs. Columella with a callus, weakly or not at all wrinkled. Palate with tight folds. Aperture oval, slightly pointed in the upper part. Colour yellowish white, with some brown spiral lines in fresh specimens.)

The form *paucicostata* is a characteristic deviation, usually shown in young shells by the relatively large bubbled protoconch and the early disappearance of the axial ribs, so that the following whorls appear flatter, the spiral threads straighter and the whole shell is significantly lighter.

Size: up to 160 mm long and 38 mm wide; aperture with canal up to 92 mm long and 19 mm wide.

Range: Red Sea

Remarks: *F. bifrons* cannot be merged either with *F. multicarinatus* or with *F. forceps* (= *F. turriculus*), but it can be distinguished from the latter species because of a shallower suture, finer spiral threads and narrower ribbing of the lip.

Fusinus blakensis Hadorn & Rogers, 2000

Description: Shell fusiform, rather thin-shelled, of moderate size, consisting of about 10 well rounded whorls. Last 2 or 3 whorls slightly doubled keeled, shoulder convex. Spire elongate, siphonal canal long and slender. Spire angle 40°-43°. On all whorls with strong, narrow axial ribs with wide and deeply impressed interspaces between them. Rather weak spiral sculpture, most prominent on the axial ribs. Suture wavy, deeply incised.

Protoconch white, glossy, consisting of 1 1/2 whorls, last 1/3 whorl with about 10 axial riblets reaching from suture to suture; the first riblets are weak and very nafrow, becoming broader and stronger towards the end of the protoconch. Interspaces between them as large as the riblets. The protoconch ends in a varix. Diameter: 0.8-1.1 mm. On first 2 teleoconch whorls 6-8 weak axial ribs with narrow, rather inconspicuously impressed interspaces between them. On the following whorls the 6-8 axial ribs become stronger and the interspaces become wider and

deeper impressed. On penultimate and body whorl with 8-10 strong, relatively narrow axial ribs which are most prominent, broad and pointed at the periphery, and become weaker and narrower on shoulder. Interspaces between the ribs large, about 1 1/2-2 times as wide as the ribs themselves. Fine growth lines; there is a narrow band of irregular scales in front of the suture.

The teleoconch begins with 3 spiral cords. Beginning with the second whorl 3 additional cords appear, a fine one below the suture and two stronger ones below the primary cords (the lowest one is lying in the suture). From the fifth whorl on there are 1 or 2 additional spiral cords just below the suture. Starting with the third or fourth whorl up to 3 fine spiral threads arise between the stronger spiral cords. The central spiral cord and the one below it are somewhat stronger and form usually a characteristic double keel at the periphery on last 3 whorls.

Aperture rather small, ovate, pinched at both ends. Outer lip thin, slightly crenulated according to the spiral sculpture. Numerous weak internal lirae. Adult specimens with a strong, finely crenulated paietal callus, with a small tooth near the entrance of the posterior canal. Outer edge of parretal callus free and conspicuously detached from lower part of body whorl. No columellar folds. Siphonal canal slender, straight, long (about 2/5 of shell length). Outer side ornamented with regularly spaced spiral cords and intercalated fine threads.Uniformly white-coloured.

Operculum corneous, red-brown in colour, thin. Size and shape corresponding to the aperture. External surface with fine concentric growth lines, internal side callused as usual in Fusinus. Apical nucleus.

Size: 26.0-89.7 mm; 78.8 x 24.9 mm

Range: N Bahamas, Guadeloupe

Remarks: *F. schrammi* is similar to *F. blakensis*, being about the same size and otherwise similar, but differs from *F. blakensis* by having 2 rust-red bands and usually a red-brown coloured siphonal canal and axial ribs, by the less convex whorls, by the larger number of weaker, often slightly oblique axial ribs with clearly narrower and less deep depression between them, and finally by the clearly larger number of fine intercalated threads between the primary spiral cords.

Aristofusus excavatus can be separated by the more elongated spire, the broader and larger axial ribs and the less impressed interspaces between them, by the larger number of spiral cords, the stronger spiral sculpture especially on siphonal canal and by the stronger and broader siphonal canal.

F. halistreptus can be easily separated by the clearly weaker axial ribs on all whorls, the narrower and less deeply impressed interspaces between the axial ribs, by the weaker spiral cords, by the smaller spire angle, and by the more elongate shell.

Aristofusus stegeri can be distinguished by more numerous and never keeled whods, the longer spire, the larger number of axial ribs, and by the weaker and irregular axial ribs on penultimate and body whorl with much narrower interspaces between them.

F. blakensis differs from *F. harveyi* in having a somewhat larger adult size, in the uniformly white-coloured shell, the somewhat smaller spire angle, in having usually a slightly larger number of narrower axial ribs on all whorls, in the stronger and different spiral sculpture, in the clearly finer lirae inside the aperture, and in the different protoconch morphology.

Fusinus bondarevi Hadorn & Fraussen, 2024

Description: Shell fusiform, of small size for genus, solid, stocky, about 7 1/2 teleoconch whorls, with relatively short broad spire (ratio SL/SW 2.76) and with rather short siphonal canal of about same length as aperture. First and occasionally also second whorl convex, lower whorls distinctly carinated, with convex shoulder slope. Suture straight, simple, deeply incised. Protoconch apparently large, glossy, partly broken in all available specimens, transition to teleoconch abrupt, but no details visible due to erosion. Diameter of remaining whorl about 1.7-2.0 mm, obviously paucispiral. First 2 teleoconch whorls with about 8 axial ribs extending from suture to suture. Interspaces rather broad, first weakly impressed on first teleococh whorl, becoming broader and deeper on second whorl. From the third whorl on the axial ribs withdraw: first from upper suture, later also from lower suture, forming wellrounded, broad knobs on all latter whorls, formed by the 2 strongest primary spiral cords at the carina. Knobs slightly reddish-brown coloured, especially on the upper whorls. Number of knobs varying from 7 to 9 on latter whorls. 6 primary spiral cords on early teleoconch. 2 lowest (abapically) spiral cords clearly strongest, already from beginning, forming the distinct, knobbed carina on all abapical whorls. From second teleoconch whorl on a 7th primary spiral cord appears abapically, lying just above the suture. About at same time fine intercalated secondary

spiral cords appear, becoming about as strong as the primary cords and additionally tertiary spirals appear from penultimate whorl onwards. On body whorl all spirals close-set and more or less of the same strength, except the 2 primary spiral cords on carina. Fine close-set axial growth lines visible between the spiral cords.

Aperture widely open, ovate, white inside. Holotype showing a slightly greenish tinged inner and outer lip margin. Outer lip simple, showing determinate (modified) growth, not crenulated but flaring outwards (Fig. 7). Inside aperture with numerous more or less strong spiral cords. Parietal callus conspicuously strong and well-developed, edge welldetached from lower part of body whorl, with a conspicuously strong tooth adapically. Surface smooth, no columellar folds. Siphonal canal open, rather short, about as long as the aperture, slightly bent. Outer side ornamented with major spiral cords and intercalated minor threads, becoming weaker towards distal end.

Size: 85-98 mm

Range: SW Saya de Malha Bank, Mascarene Ridge, W Indian Ocean

Remarks: *F. bondarevi* is most closely related to the sympatric *F. malhaensis*. They are collected together at the type locality and they share some shell characteristics like the similar spiral and axial sculpture and some features of the peculiar aperture. Yet, *F. malhaensis* differs by the uniformly white, conspicuously thin, light-weight shell, the slenderer and more elongated shell, the higher spire with at least 9 teleoconch whorls (7.5 in the new species) and the clearly longer siphonal canal (ratio SL/SW 3.90 versus 2.76 in *F. bondarevi*). The axial knobs are more numerous, smaller, less conspicuous but more pointed, formed by one strong spiral cord on carina.

The eastern Pacific *Goniofusus spectrum* superficially resembles *F. bondarevi* by its similar shape, sculpture and colouration, but differs by the weaker, yet sharper axial knobs and its completely different distribution range.

Fusinus boucheti Hadorn & Ryall, 1999

Description: Shell rather large, fusiform, light in weight, uniformly whitish coloured, consisting of 8-9 convex whorls; body whorl of adult specimens usually slightly keeled somewhat below the suture. Suture wavy according to the axial ribs of the preceding whorl. Fine axial growth lines are wellvisible on all whorls.

Protoconch conspicuously large, white coloured, glossy, consisting of 1 1/4 to 1 1/2 whorls; upper part smooth, last part (1/4 whorl) first with 2-3 coarser axial growth lines (or very fine riblets), followed by 3-5 narrow, sharp, but strong axial riblets which reach from suture to suture. Protoconch ends in a varix. Diameter: 1.3-1.8 mm.

Axial sculpture consists of narrow axial ribs which reach from suture to suture. The ribs are usually straight on upper whorls; on lower whorls the uppermost part on the shoulder slope is bent to the left. Intervals between axial ribs as broad as the ribs themselves; about 12-16 ribs on body whorl, 10-13 on penultimate whorl, 9-11 on upper teleoconch whorls. On body whorl the axial ribs become sometimes weaker and less regular.

Teleoconch begins with 4 uniform strong, sharp spiral cords. On the second postnuclear whorl a fifth cord appears and on the next whorl a sixth fine cord is situated just below the suture. All following whorls with six spiral cords. Starting with the second or third teleoconch whorl a fine intercalated spiral thread appears between each pair of primary cords. The number of fine threads increases by intercalation; on body whorl with up to 3 fine intercalated threads between the stronger cords.

Aperture rather large, white, ovate. Inner lip curved, smooth, with a thin white callus; no columellar folds. Outer lip thin, edge denticulated according to the spiral sculpture on outer side of the shell. Juvenile specimens with a regularly curved outer lip; adult specimens have a distinct notch resembling the Turridae notch in the upper part of the outer lip. Inner side ornamented with about 12-16 fine lirae. Axial and spiral sculpture well-visible inside the aperture through the shell if holding against the light. Siphonal canal rather long, open, about as long as the aperture length, strongly curved. Outer side ornamented with fine sharp spiral cords which are intercalated by fine threads.

Operculum ovate, light brown, typical for the genus, outer side with very fine concentric growth lines, size and shape corresponding to the aperture; with terminal nucleus.

Size: 14.4-45.8 mm

Range: Atlantic coast of Morocco and Canary Islands

Remarks: *F. boucheti* differs from *F. bocagei bocagei* in having a larger protoconch, a somewhat larger shell, a wider spire, a more curved siphonal canal, a larger number of axial ribs (10 -13 on penultimate whorl) with narrower interspaces between them, and a larger number of spiral cords.

F. bocagei marcelpini has about the same size, but can be easily distinguished by having a thicker and much heavier shell, less numerous axial ribs (8-9 on penultimate whorl) with wider interspaces between them, weaker spiral cords, more intercalated fine spiral threads, and a less curved siphonal canal.

F. sectus can be distinguished from *F. boucheti* by being much smaller and somewhat less elongate, in having less regularly convex whorls, a less constricted suture, and finally in a smaller number of clearly weaker spiral cords.

Fusinus chocolatus (Okutani, 1983)

Description: Shell is solid and fusiform in outline with a moderately long siphonal canal. The protoconch is decollated and succeeding teleoconeh whorls are about 8 in nurnber. Each whorl is moderately inflated and ornamented by strong axial ribs, 10-11 per whorl, overridden by strong axial cords, which are strengthened on the shoulder, 10-11 primary and many intercalated ones. The base neck and siphonal canal are also ornamented by spiral cords and intercalated cords in the same fashion as on the whorls. The primary cords in these areas are counted about 20. The fasciole is rather low. The aperture is oblong, margined by moderate callus and continuous to the moderately long canal. The inner wall is white. Operculum is horny with the nucleus situated at the lowest extremity.

The external coloration is pale whitish with brownish spiral bands above the shoulder and below the periphery. The bands are distinctly darkened on the top of the axial ribs but become very obselete at the interspaces between axial ribs on which spiral cords are discolored. The siphonal canal is also colored in pale brownish but darker on the continuation of axial ribs.

Redescription: Shell solid, fusiform, rather small for genus, with 8 well-rounded and slightly inflated whorls and a constricted suture. Shell yellowish with broad brown bands above and below the suture, interrupted by the interspaces between the axial ribs. Siphonal canal also brown-coloured.

10-11 broad, prominent and straight axial ribs per whorl reaching from suture to suture, separated by rather narrow interspaces. About 4 spiral cords on uppermost teleoconch whorls. The number of cords increases from whorl to whorl, up to about 9 cords on penultimate whorl, intercalated by some fine threads of unequal strength.

Aperture ovate, with some strong internal lirae. Parietal callus white and strongly developed. Siphonal canal moderately long (about 1/3 of shell length), straight.

Size: height 64.5 mm, diameter 25.0 mm

Range: N coast of South America, from French Guiana to Venezuela, and St. Vincent

Remarks: There are more sympatric species of the genus *Fusinus* from off Surinam and French Guiana. However, they are all unicolored and much elongated species. The only species comparable with *F. chocolatus* may be *Lamellilatirus ceramidus*, but this species has no distinct color banding.

F. lightbourni, an endemic Bermudian species, differs in having a somewhat larger shell, and a clearly larger number of smaller and less distinct axial ribs.

F. schrammi has less convex, carinated whorls, more and weaker axial ribs on latter whorls, and less deeply impressed interspaces between the axial ribs.

F. harveyi seems most closely related to *F. chocolatus*. The most obvious differences are its strongly carinated whorls, the less numerous and pointed axial ribs on latter whorls, the broader and deeper impressed interspaces between the axial ribs, the finer spiral sculpture in the interspaces, and the less vivid colouration especially on early whorls.

Fusinus chuni (E. von Martens, 1904)

Synonyms: *Fusus verrucosus var. chuni* E. von Martens, 1904

Description: *Schale weißlich mit einfarbig gelbgrauer, etwas filziger Schalenhaut; alle Windungen durch eingezogene Naht voneinander abgesetzt, mit starken, ziemlich breiten Ouerfalten, 10-11 auf der drittletzten und vorletzten Windung, und scharf ausgeprägten Spiralleisten, welche über die Falten und deren Zwischenräume gleichmäßig hinweglaufen; eine derselben, ungefähr in gleicher Entfernung von der oberen*

und unteren Naht, ist stärker und bildet auf den Falten eine vorspringende Ecke, so daß diese, im übrigen bogenförmig, hier stumpfkantig erscheinen; zwischen ihr und der oberen Naht 4-5, zwischen ihr und der unteren Naht 4 Spiralleisten, zwischen der zweiten und dritten, sowie zwischen der dritten und vierten eine feinere eingeschaltet. Die Zwischenräume zwischen den Falten sind ungefähr so breit oder etwas breiter als die Falten selbst. Auf der letzten Windung bleibt die Zahl der Falten 11, und dieselben bleiben bis nahe zur Mündung gleich stumpfkantig, nur auf den 2-3 letzten schwächt sich die Ecke ab, so daß der Außenrand einfach gebogen, ohne irgend eine Ecke erscheint. Mündung innen rein weiß, Innenrand etwas von der vorletzten Windung abstehend. Kanal schlank, anderthalbmal so lang als die Mündung ohne Kanal, fast ganz gerade, nur in seinem unteren Drittel kaum merklich nach der rechten Seite des Tieres abbiegend.

(Shell whitish with uniformly yellow-grey, somewhat felty periostracum; all whorls separated from each other by a drawn-in suture, with strong, rather wide transverse folds, 10-11 on the third to last and penultimate whorl, and sharply defined spiral ridges, which run evenly over the folds and their interstices; one of them, about the same distance from the upper and lower suture, is thicker and forms a projecting corner on the folds, so that these, otherwise arched, appear here blunt-edged; between her and the upper suture 4-5, between her and the lower suture 4 spiral strips, between the second and third, as well as between the third and fourth, a finer one is switched on. The spaces between the folds are about as wide or a little wider than the folds themselves. On the last whorl, the number of folds remains 11, and they remain the same blunt-edged up to near the aperture, the corner only weakening on the last 2-3, so that the outer edge appears simply curved, without any corner. Aperture pure white on the inside, inner edge protruding slightly from the penultimate whorl. Canal slender, one and a half times as long as the aperture without a canal, almost quite straight, only in its lower third turning imperceptibly to the right side of the animal.)

Size: length 95 mm, width 31 mm; aperture with canal 89 mm, without canal 34 mm.

Range: East Africa

Remarks: *F. chuni* differs from the *Marmorofusus verrucosus* of the Red Sea in that each individual whorl in its upper part, below the upper suture, is somewhat convex, not flattened, hence the median edge appears duller, the reddish-brown tint is absent, and the canal is proportionately longer and more slender, markedly longer than the uncanaled aperture.

F. jasminae differ from *F. chuni* by its larger adult size, the much heavier, more solid, and thicker shell, the larger spire angle, the greater number of spiral cords, the stronger axial ribs on all whorls, the much deeper interspaces between axial ribs, the smaller number of axial ribs on body whorl, and the more solid and somewhat broader siphonal canal. But the most importend difference is, that *F. jasminae* is lacking the characteristic 1-2 much stronger and clearly thickened, often growed together axial ribs just behind the outer edge of the outer lip.

F. chuni differs from *F. rogersi* in its larger, more swollen protoconch, the broader and stronger axial ribs and the wider interspaces between them, by having more spiral cords on all postnuclear whorls, by the stouter and less elongated shell, the usually more or less angular whorls which are clearly more convex, and by the deeper incised suture.

Fusinus colombiensis M. A. Snyder & N. C. Snyder, 1999

Description: *Conchiglia pesante, di medie dimensioni (37,3-46,3 mm di lunghezza, massima larghezza 13,1-17,1 mm), tipicamente fusiforme, con 9 giri e spira misuante metà della lunghezza totale. Protoconca di un giro, liscia, bulbosa, translucida, giallo-arancio pallido. Aperture ovale, lirata internamente, di pari lunghezza del canale sifonale, labbro spesso e debolmente lirato. Opercolo ungulato, bruno scuro, che chiude l'apertura. Scultura assiale di 9-10 costole, intersecate da numerosi e prominent cordoni spirali intervallati da scanalature, 5-6 sul penultimo giro, circa 16 sul primo giro e continuanti sul bordo anteriore del canale sifonale. Sutura ben definita, piatta. Strisce assiali di color bruno scuro, sopra o tra le costole; scanalature tra le costole, o brune o bianche sulle costole stesse.*

(Shell heavy, of medium size, typically fusiform, with 9 whorls and spire measuring half the total length. Protoconch of 1 whorl, smooth, bulbous, translucent, pale yellow-orange. Aperture oval, internally lirated, as long as the siphonal canal, lip thick and slightly lirated. Operculum ungulate, dark brown, closing the aperture. Axial sculpture of 9-10 ribs, intersected by numerous prominent spiral cords interspersed with grooves, 5-6 on the penultimate whorl, about 16 on the ultimate whorl and continuing on the anterior border of the siphonal canal. Suture well defined, flat. Dark brown axial stripes on or between ribs; grooves between ribs, either brown or white on ribs.)

Redescription: Shell of medium size, rather heavy, fusiform, consisting of 9 convex, unkeeled whorls. A distinct subsutural concavity is present. Protoconch large, bulbous, 1 1/2 whorls. First whorl whitish, smooth, glossy, translucent. Last half whorl brownish, ornamented with about 8 strong and narrow axial riblets. Ending in a varix. Diameter: 1.0-1.2 mm.

9-10 strong, broad axial ribs, which are separated by narrow and deep interspaces. 4 strong and sharp spiral cords on upper teleoconch whorls, 5-6 on latter whorls. Between each pair of primary cords is usually one fine secondary spiral thread visible.

Aperture ovate, rather small, strongly lirate within. Outer lip thick, weakly dentate. Parietal callus thin, smooth, underlying spiral sculpture well-visible. No columellar folds. Siphonal canal straight, somewhat longer than the aperture.

Shell white, with dark brown axial colour stripes, falling either on or between the ribs. Grooves between the primary spiral cords either brown or white on ribs. Operculum dark brown, corneous, corresponding to the aperture in size and shape.

Size: 37.3-46.3 mm in length, maximum width 13.1-17.1 mm

Range: Colombia

Remarks: *F. colombiensis* differs from *F. hartvigii* by having a much larger protoconch with a different morphology and colouration, a more elongate and more slender shell and a smaller adult size. Moreover the suture is more constricted, the whorls are more convex and always unkeeled, the spire angle narrower, and the aperture smaller. The spiral ribs on the canal of *F. hartvigii* are alternately strong and very weak, while in *F. colombiensis* they are all equally pronounced. In *F. hartvigii* the axial ribs are always white and the area between them is orange-brown; in *F. colombiensis* the axial bands of color are not in constant relationship with the ribs. In *F. hartvigii* the protoconch is approximately 1/3 of the length of the first whorl; in *F. colombiensis* the protoconch is about equal in length. The lip of *F. hartvigii* is thinner than that of *F. colombiensis*. The sutural area is white in *F. colombiensis* and orange-brown in *F. hartvigii*.

Fusinus colus (Linnaeus, 1758)

Synonyms: *Colus boardmani* Iredale, 1930, *Fusus longicauda* Lamarck, 1801, *Fusus longicaudus var. toreumoides* Grabau, 1904, *Fusus longirostris* Schumacher, 1817

Description: *M. testa turrita subrecto-caudata striata nodoso-carinata, labro crenulato.*

(Shell turreted with a nearly straight siphonal canal, nodulose-carinate striated, lip crenulated.)

Redescription: Shell thick, long, biconic, spindle-shaped, with many spiral ribs, grooves and nodules; spire elongate and pointed; sunken sutures; sculptured with prominent axial ribs on early whorls intercepted by spiral ridges; median spiral ridge stronger and raised; spiral striae extending up to siphonal canal; whorls distinct. Aperture ovate with lirate interior; outer lip margin denticulate; plications absent on columella; siphonal canal very long and slender; colour usually whitish, but may be yellowish, brown or reddish in color. Periostracum thin, and brown.

Size: 75-217 mm

Range: India

Remarks: *F. colus* can occasionally approach *F. longissimus* in size, but is more slender, with rounded whorls and a longer, more strongly recurved neck.

F. colus differs from *F. malhaensis* in having a stronger spiral sculpture with a smaller number of spirals, a less constricted suture, usually a smaller adult size, a thicker shell, white axial ribs with brown-coloured interspaces at least on upper whorls, and often a red-brown tinged spire and siphonal canal.

F. colus (f. longicauda) lives sympatrically with *F. rogersi* but has a clearly wider geographical range and can be separated by having a larger adult size, a narrower spire angle and more slender proportions with longer siphonal canal, a dark brown or red-brown protoconch, an often brown-coloured spire tip and siphonal canal, by the usually brown-coloured interspaces between the axial ribs, by the much broader and less numerous axial ribs on early whorls, by the usually obsolete axial sculpture on later whorls, and by the smaller and narrower aperture.

Marmorofusus tuberculatus is close to *F. colus* in its proportions, it is less slender, more pot-bellied, and with a much shorter tail. It has a row of tubercles on each whorl; these tubercles are rather prominent, and have their interstices marked with russet spots.

Goniofusus turris is distinguished by the size and the shortness of the canal. It is nearly half the height of the shell in *F. colus*; in *G. turris*, it is hardly more than a third.

F. colus is distinguished from *Vermeijius palmarium* by a much larger adult size and a different shape.

F. stannum might be confused with *F. colus*, particularly small examples of the typical form. *F. stannum* is adult at much smaller sizes than *F. colus*, however, and the latter lacks the second growth phase of *F. stannum*.

The Mozambique form of *F. colus* is very narrow and elongate, and smaller then *Enigmofusus nicki*. The brownish color on some specimens is accented by dark brown irregularly-shaped patches of color which always fall between the ribs.

For comparison with *F. aurinodatus, Callifusus irregularis, F. laviniae, Apertifusus meyeri* and *F. dovpeledi* see there.

Fusinus consetti (Iredale, 1929)

Description: Shell small for the genus, whorls shouldered, apex missing, canal bent, long and open, rather solid, but translucent, with a short brown periostracum. Colour: white spotted with brown. Adult whorls 7, first corded with 7 ridges, anterior 3 smaller, median 2 a little stronger, succeeding 2 not quite so strong; with age the median 2 become more pronounced, the preceding 3 on the shoulder less marked, and the succeeding 2, sometimes with an intervening third, nearly as strong as the peripheral pair. As the periostracum wears off these are seen to be boldly marked with brown red spots, and sometimes lines of spots are observed. On the last whorl below the shoulder half a dozen strong cords can be counted, more than a dozen more succeeding along the canal and inner lip. Canal long, open. Columella smooth, but sculpture shows through fine glaze of inner lip.

Size: length 62 mm, breadth 28 mm

Range: New South Wales

Remarks: A small *Fusinus*, quite unlike the southern *Propefusus novaehollandiae*, and strongly recalling the West Australian *Marmorofusus philippi*.

F. consetti differs from *Vermeijius palmarium* by the wider spire angle, the vivid colouration and by the broader and shorter siphonal canal.

Fusinus crassiplicatus Kira, 1959

Description: Shell small for genus, slender fusiform with long, slender neck. Protoconch small, glossy, of 1.5 to 2 whorls, no varix at commencement of teleoconch. Early whorls with 3 strong spiral cords crossing rounded axial ribs; cords increasing in number to 9 or 10 between sutures on penultimate whorl, varying in strength, with faint minor cords present in places in troughs between majors. Very numerous axial growth lines present overall between but not on spiral cords, giving reticulate appearance. Neck long, straight or slightly recurved in lower third, with closely-spaced spiral cords on outer surface. Body whorl rounded, occasionally with slight carination at shoulder, always at around upper third of whorl; occasional slight pronunciation of cord at shoulder as it crosses axial ribs, but no knobs formed. Axial ribs broad, gently undulating, around 10 in number on body whorl. Aperture almond-shaped, slightly pinched at terminus of suture; outer lip slightly ventricose in some specimens. Labral wall corrugated, corresponding to external spiral sculpture, corrugations terminating in oblique cuts, but no developed dentition. Parietal shield developed in adults with margin detached in lower two thirds of aperture; in some specimens, columellar margin of canal also developed and detached over upper two thirds of canal. Canal open, roughly parallel-sided.

Shell pure white to off-white overall, with only very occasional rusty brown staining to crests of axial ribs on early whorls. Periostracum moderately thick, pale brown, with finely-spaced axial lamellae bearing numerous erect, slightly opisthocline triangular tufts; periostracum occasionally thinner or absent below suture line on body whorl. Operculum typical fusinine; brown, chitinous, with nucleus at pointed and slightly reflected terminus.

Size: length to 125.8 mm; average adult 103.8 mm (n = 16)

Range: Pacific coast of W Japan from Sagami Bay westwards to Tosa Bay in S Shikoku

Remarks: *F. crassiplicatus* is a fairly distinctive species that can be recognized by its relatively small adult size, slender shell and lack of pronounced shoulder. Its axial sculpture persists throughout adult growth. The labral wall

of the aperture is clearly corrugated, in contrast to several other Japanese species in which internal and external spiral cords develop independently.

F. crassiplicatus is smaller than *F. marisinicus*, with a more slender profile and fewer, more pronounced axial ribs on the early whorls. In addition, the aperture in *F. crassiplicatus* becomes somewhat ventricose in adult specimens.

F. crassiplicatus is of similar size and proportions to *F. stannum*, but has strong axial sculpture over its entire teleoconch, a more angular profile and no distinct growth phases.

Fusinus cratis Kilburn, 1973

Description: Shape narrowly fusiform, spire equal to 0.75-0.79 of length of aperture and canal; whorls strongly convex, periphery median or just above middle, sometimes rounded, but usually weakly angular, slightly impressed just below suture. Labrum with a sinuous edge in lateral view, interior with thin spiral lirae; columella callus thick, edge free and erect throughout, but not forming a false umbilicus; labial wall with traces of weak plicae, strongest in the parietal region, but visible along most of the edge.

Sculpture consists of strong, slightly arcuate axial ribs, 7 on the first teleoconch whorl, increasing to 13-16 on the body whorl; these ribs are initially subequal to their intervals, gradually becoming about twice as wide as the latter, until on the latter half of the body whorl they become subequal again; on the spire whorls they reach the lower suture but evanesce a short distance below the upper suture from about the 4th whorl, and on the body whorl rapidly disappear below the level of the paries. Spiral lirae are conspicuous on both the ribs and (chiefly on account of their colour) in the intervals, they increase from 4 on the first teleoconch whorl to about 14-20 on the penultimate one, in addition to feeble intermediaries, of which there is usually at least a trace of one in each interval; spiral lirae are weakest below the suture, strongest in the peripheral region, with one lira usually sufficiently strongly developed to form a series of small transverse tubercles across the crest of the ribs. Spiral lirae are well-developed on the base and rostrum, consisting of numerous main cords, separated by groups of 1-4 weak intermediaries. Fine growth plicules are present throughout.

Coloration pure white, spiral lirae stained with chestnut-brown where they cross the intervals between the axial ribs. Periostracum thin, olivaceous-brown, velvety. Teleoconch whorls lot. Protoconch of 2 whorls, bluntly subcylindrical, apical whorls smooth, deviating from axis, terminating in a few coarse growth lines; diameter 0,95-1,1 mm.

Size: 121.7 x 32.7 mm (holotype); 128.8 x 36.9 mm, 127.8 x 37.2 mm (paratypes)

Range: east of Durban

Remarks: *F. cratis* is a moderately large, narrowly-fusiform species, with strong axial ribs on all whorls; the presence of conspicuous brown spiral lirae between the axials, contrasting with the otherwise white shell, is characteristic.

F. cratis also has reddish-brown coloured spirals in the interspaces between the axial ribs as *F. rogersi*, but differs by having clearly stronger axial ribs with deeper and broader intervals between them, by the broader spire angle, by the coarser and more close-set spiral sculpture, by the much smaller protoconch, by the usually wavy suture, by lacking a strong broad prelabrial axial rib, and finally by the always dark redbrown coloured spirals between the axial ribs.

Lyonsifusus ansatus (= *F. torulosus)* is a much broader species than *F. cratis*, with the whorls distinctly tricarinate at their periphery and the ground colour chestnut, with the peripheral nodules white.

The limited series of *F. cratis* that is available indicates the presence of two forms, one relatively narrow with an angular periphery, the other broader with a rounded periphery. The former, which is the commoner, superficially resembles a number of Indo-Pacific species, from most of which it differs in the retention of conspicuous axial ribs on later whorls. The closest appear to be *F. sandwichensis* from Hawaii, which is uniform white with coarser spiral lirae, and *Propefusus australis (= F. nodicinctus)* from 'Australia', which has a more abbreviated shell, with conspicuous brown axial strigations reaching the base.

The non-angulate form seems to be closest to *Viridifusus albinus* from Angola. This has rather similar sculpture to *F. cratis*, but has a much shorter rostrum and lower spire (e.g. it is less fusiform), and is uniform white in colour.

F. cratis was described from deep-water South African material. Specimens from Mozambique tend to be larger (up to 176 mm) than those from South Africa and mostly white with possible light brown axial color stripes (especially on the early whorls) between the very numerous (13) low, gently-rounded, axial ribs which extend from one suture

to the next. The shell is narrow (height : width about 3.7 compared to 3.3 for *Enigmofusus nicki*). The parietal shield is unattached and the open canal turns slightly clockwise, as in *Enigmofusus nicki*.

Compare to *F. diandraensis.*

Fusinus crebricostatus Lamarck, 1822

Description: *F. testa fusiformi-turritâ , longitudinaliter costatâ , transversim sulcata; costis crassiusculis, crebris, albis, apice nodulosis; interstitiis spadiceo-punctatis; labro intus sulcato.*

(Shell fusiform-turrited, longitudinally ribbed, transversely furrowed; ribs thick, frequent, white, apex nodular; interstices spadaceous-punctate; inner lip furrowed.)

Size: length 36 mm

Range: not given

Remarks: uncertain, nomen dubium

The proportions distinguish *Goniofusus turris* from *F. crebricostatus*. Besides, the crevices of the whorls of this one are so sunken and the whorls are so rounded that it is still impossible to unite these two shells in the same species.

Fusinus damasoi Petuch & Berschauer, 2016

Description: Shell of average size for genus, heavy and thickened, fusiform, with elevated, scalariform spire; body whorl inflated, with sharply-angled shoulder; subsutural areas sloping; shoulder ornamented with 10-12 large, prominent, rounded knobs; shoulder knobs sometimes well-developed and sharply-pointed; body whorl coarsely-sculptured with 18-20 large raised spiral cords; siphonal canal proportionally short, truncated, broad, ornamented with 12-14 large, coarse spiral cords; body whorl-siphonal canal juncture indented, abrupt; shell color cream white or pale whitish-tan, overlaid with extremely numerous, closely-packed, amorphous dark brown longitudinal flammules, arranged in zebra pattern; some shoulder knobs colored dark brown; aperture white, oval in shape, flaring, sculptured with 14-16 large spiral cords; protoconch proportionally large, bulbous, colored orange-tan, and composed of 2 whorls.

Size: length 69.5 mm, width 28.9 mm

Range: Brasil, Rio de Janeiro State

Remarks: Of only five species of the genus *Fusinus* described from the Brasilian coastline (*F. brasiliensis, F. marmoratus, F. strigatus, F. frenguelli, F. agatha*), *F. damasoi* is most similar to *F. brasiliensis*, but differs in being a smaller shell with a more inflated body whorl and more rounded shoulder, in having a proportionally lower and less-exerted spire, in having finer and more numerous spiral cords around the body whorl, and in having a proportionally much shorter and broader siphonal canal. Although similar in color and color pattern, the broader, stumpier shell form and distinctly shorter siphonal canal immediately differentiates the Cabo Frio *F. damasoi* from the more northern, wide-ranging *F. brasiliensis*.

Fusinus diandraensis Goodwin & Kosuge, 2008

Description: not available

Redescription: The protoconch is typical of smaller members of the genus and consistent between the 2 examples examined, with roughly 2.3 smooth whorls and a maximum diameter of approximately 1.4 mm. Unusually, the first full whorl in both examples is bulbous and somewhat larger than the second whorl. There is no varix at the commencement of the teleoconch. Some of the present material bears traces of a thin, lamellar periostracum with rows of pointed, curved tufts identical to those of other sympatric species of similar size such as *F. perplexus*.

Redescription: Shell of medium size for genus, thick and robust. Protoconch inflated, of roughly 2.5 whorls; eroded in all material examined. Early whorls bear 5 thick spiral cords with deep interstices; cords on anterior half of whorl at first stronger, but anterior emphasis weakening and lost by seventh whorl. Single strong minor cord appears in each interstice after second or third teleoconch whorl, strengthening in later whorls but never equaling major cords in thickness. Further minor cords appear in insterstices of minors by penultimate whorl. Axial sculpture

on early teleoconch of strong rounded ribs that grow broader in successive whorls, becoming reduced or absent by penultimate whorl. Spiral cords broaden slightly in crossing axial ribs but do not form lobes; slight swellings persist in spiral cords on body whorl, marking vestiges of axial ribs. Suture adpressed, but anteriormost spiral cord positioned immediately above suture, giving slightly channeled appearance. Below periphery on body whorl, spiral cords evenly distributed to end of neck, with 2 or 3 strong minors between each major; cords weaken somewhat towards tip of neck. Entire teleoconch bears very numerous axial growth lamellae of varying strength that persist over spiral cords.

Aperture asymmetrical, leaf-shaped, labral profile more strongly curved than columellar. Adult labral margin simple, slightly indented at terminals of major spiral cords, with lamellar edge and no dentition. Smooth, slender spiral cords on inner labral wall, corresponding in position roughly to troughs between external spiral cords, often terminating slightly before adult lip; cords can be paired and occasionally reach lip even in adults. Parietal wall smooth, glazed; underlying spiral sculpture not resorbed in adults. Parietal margin distinct, detached in anterior half of aperture, detached portion extending about half-way along canal, occasionally slightly flared around entrance to canal. Neck stout, tapering steadily to thin, fragile tip; canal narrow, parallel-sided, often slightly narrowed at entrance due to flaring of parietal margin.

Shell white or pale gray with occasional pale brown or gray staining of apex and distal part of neck. Operculum typical for genus; thick, leaf-shaped, chitinous, dark brown, with terminal nucleus. Periostracum of typical lamellar structure with dense spiral rows of slightly opisthocline thorns.

Size: 112.7 mm; 90-120 mm, average adult 104.6 mm (n = 13)

Range: East China Sea

Remarks: The morphology of *F. diandraensis* is quite variable. The periphery of the body whorl may be marked by a spiral cord or be simply rounded. The profile of the whorls is usually somewhat angular or shouldered, but can be rounded.

Its closest congener is the sympatric *F. emmae*. Variant specimens of the 2 can be very similar, but *F. diandraensis* can usually be distinguished by its more angular whorl profile, particularly in the early stages, and smaller number of axial ribs. The spiral cords on the early whorls of both species tend to be stronger in the anterior half of the whorl, but by the body whorl those of *F emmae* are finer and more regularly spaced, with less prominent interstitial minors. Finally, *F. diandraensis* lacks the prominent brown axial stripes of *F. emmae*.

In the original description, *F. diandraensis* was compared with and distinguished from *F. cratis, Cyrtulus bountyi, F. nodosoplicatus, F. penioniformis* and *Marmorofusus wellsi*. However, 2 closely similar sympatric congeners were not mentioned.

These are *F. perplexus* from western Japan, from which *F. diandraensis* can be distinguished by its less angular whorl profile, and *F. flavicomus*, described from off Taiwan. *F. diandraensis* can normally be distinguished from the latter by its less angular whorl profile and more numerous spiral cords. *F. diandraensis* is close both to *F. perplexus* and *F. flavicomus* in most other characters too, and the examination of more material may reveal it to be a phenotype of one or the other.

Among other similar congeners, *F. diandraensis* can be distinguished from *F. juliabrownae* by its larger average size and more angular whorl profile and its longer neck with a narrow, parallel-sided canal.

From *F. nodosoplicatus F. diandraensis* can be distinguished by its smaller size, less pronounced angularity and the absence of the double row of carinate spiral cords at the shoulder.

F. diandraensis can be distinguished from *F. juliabrownae* by its larger average size and more angular whorl profile and its longer neck with a narrow, parallel-sided canal.

Fusinus dilectus (A. Adams, 1856)

Synonyms: *Fusus tenuiliratus* Dunker, 1867, *Fusinus marensis* Weisbord, 1962 †

Description: *F. testa fusiformi, subventricosa, spira mediocri; fulvicante, strigis irregularibus, fuscis longitudinalibus picta; anfractibus ad octo, convexiusculis, supremis costato-plicatis, liris elevatis, transversis, crenulatis, majoribus cum minoribus alternantibus, interstitiis longitudinaliter crebre striatis, apertura elongato-ovali, labio transversim corrugato; labro rufo-marginato, intus sulcato; canali longiore, vix testam aequante, subreflexo, ad sinistram curvato.*

(Shell fusiform, subventricose, spire medium-sized; fawn, with irregular stripes, painted longitudinally in brown; up to 8 whorls, convex, uppermost rib-folded, raised, transverse, crenulated lirae, major and minor ones alternating, frequently longitudinally striated, aperture elongate-oval, lip transversely corrugated; lip with a red margin, inside furrowed; canal long, barely as long as the spire, sub-reflected, curved to the left.)

Redescription: Elegant shell, rather heavy in weight, with up to 11 rounded whorls which are slightly concave below the suture. White to yellowish, sometimes brownish, with indistinct red-brown axial markings.

Only the first 4-5 postnuclear whorls with 8-10 low broad axial ribs per whorl, separared by very narrow interspaces. Axial sculpture obsolete on lower whorls. Early whorls have 3 strong spiral cords in the center of the whorl; the lower 2 are somewhat stronger. Intercalation of finer spirals occurs on both sides of the central spirals on latter whorls. On penultimate and body whorl the intercalated spirals become strong and compound with the fine spiral threads. All are cancellated by the rather strong lines of growth.

Aperture small, narrowly ovate, pointed above. Outer lip crenulated, with numerous fine internal lirae. Inner lip slightly callused, underlying spirals still well-visible. Siphonal canal long and straight.

Size: up to 116 mm

Range: Colombia to Suriname

Remarks: A very elegant Fusus reminding one somewhat in markings, form, and sculpture of an elongated *Sycotypus* (or *Ficula*).

Aristofusus couei is most closely related and can be separated by the more prominent spiral sculpture, by the uniformly white shell and by the smaller aperture.

Aristofusus helenae differs in the usually smaller shell size, the weaker axial ribs on early whorls, and in the clearly weaker spiral sculpture.

Fusinus diminutus Dall, 1915

Description: A little brownish species with 5 whorls without the nucleus, 4 or 5 strong spiral threads between the sutures on the spire and 13-15 on the last whorl, with a few minute and irregular intercalary threads; the interspaces are crossed by minute axial lamellae and the last whorl has 8 rather ill-defined wide axial ribs, most distinct near the periphery.

Size: about 11 mm long by 5.5 mm wide; 5 mm of the length is included in the spire

Range: California, San Pedro Bay

Fusinus dovpeledi Snyder, 2002

Description: Shell elongate, size moderate for genus. Siphonal canal long, slightly undulated, apex subtending an angle ol approximately 29°. Sculpture of axial ribs and spiral cords, ribs forming prominent angular knobs on later whorls, with knobs falling approximately at the center ol whorl. Body whorl with 11-13 ribs, penultimate and early whorls with 12-14 ribs. Early whorls of paratype (only) lightly sculptured with axial ribs, becoming evanescent. Axial ribs crossed by numerous spiral cords, some brown on later whorls; strong brown cords alternate with weaker uncolored cords on body whorl. Penultimate whorl with 12 strong cords, becoming evanescent toward the suture, and numerous weak, fine, axial lines, visible only under magnification, between axial ribs. Aperture typically ovate and elongate; parietal shield shiny, waxy white, extending onto siphonal canal. Spiral cords beneath shield raised to form lirate sculpture. Canal long, thin, somewhat sinuous. Operculum claw-like, light brown. Protoconch, periostracum, and radula unknown.

Size: length 107 mm, width 24.4 mm, spire height 40 mm; paratype: length 72.8 mm, width 22.8 mm

Range: Red Sea

Remarks: *F. dovpeledi* is most closely related to *Marmorofusus leptorhynchus*. The knobs on *M. leptorhynchus*, formed by the axial ribs, are fewer, numbering just 9, and are more square than those on *F. dovpeledi*. The operculum of *M. leptorhynchus* is distinctively reddish brown, and the shell is smaller, typically ranging between 75 and 80 mm, with a proportionately shorter siphonal canal. These differences are sufficient to rule out *F. dovpeledi* being a deeper-water form of *M. leptorhynchus*.

Comparison can also be made with *F. colus (= F. colus longicauda)* from the east coast of southern Africa; that species has 10 axial ribs on the penultimate whorl. However, whereas the number of axial ribs increases toward the posterior end of the spire of *F. dovpeledi*, the opposite is true in *F. colus*. The axial ribs are not nearly so pronounced on the body whorl in *F. colus* as in *F. dovpeledi*; the former grows to approximately 200 mm.

F. dovpeledi is about the same size as *F. laviniae* and has a similar long sinuous siphonal canal. The peripheral carinae on *F. dovpeledi* are not as prominent and number 12-14 on the body whorl compared to 9-12 in *F. laviniae*. Easy differentiation is provided by the spiral sculpture with approximately 12 strong cords on the later whorls compared to 5-6.

Fusinus elegans (Reeve, 1848)

Synonyms: ?= *Sinistralia maroccensis* (Gmelin, 1791)

Description: *Fus. testa gracili-fusiformi, sinistrorsi, superne late excavatis, anfractibus longitudinaliter costatis, spiraliter undique elevato-striatis; alba.*

Shell slenderly fusiform, sinistral, whorls broadly excavated round the upper part, longitudinally ribbed, spirally elevately striated throughout; white.

Size: 20-28 mm

Range: Canary Islands, West Sahara

Remarks: *F. elegans* was erroneously placed in synonymy with *F. maroccensis*. An elegantly formed species of sinistral growth in which the upper portion of the whorls is widely excavated and smooth. It is perfectly distinct from *F. maroccensis*.

F. elegans differs from *Sinistralia. maroccensis* by the more slender spire, the white or cream coloured shell, the white protoconch, the weaker and less conspicuous but somewhat broader axial ribs and the finer, less conspicuous and more numerous spiral cords. The smooth subsutural concavity in *F. elegans* is only well visible in large adult specimens.

F. elegans differs from *Sinistralia saundersi* by the white to cream coloured shell, the white protoconch, the longer, more delicate and more slender spire, the whorls excavated below the suture (only in adult specimens), the weaker and less distinct white axial ribs, the more close-set spiral cords and the shallower interspaces between them.

Fusinus emmae Callomon & Snyder, 2010

Description: Shell small to medium size for genus. Protoconch of 2.5-3 whorls; first 1.5-2 whorls smooth, inflated; final whorl usually of smaller diameter, bearing thin, arcuate axial ribs of varying density and number, sometimes terminating in varix. Teleoconch of approximately 9 well inflated whorls. Early teleoconch whorls bear 6 major spiral cords that form thickened lobes in crossing axial ribs, giving characteristic gemmate appearance. Cords notably thicker between periphery and anterior margin of whorl; posteriormost cord least developed. Minor cords in interspaces of early majors become more prominent in later whorls. Axial sculpture of thick, tightly packed ribs; spaces between ribs bear numerous coarse and occasionally lamellate axial striae that persist over spiral cords. 6 original major cords persist to body whorl but are accompanied by increasingly prominent minors, with 2 or 3 minors between each major on body whorl, sometimes shouldering a major on either side. Suture adpressed, with broad and slightly undulating subsutural band that bears fine spiral lirae.

Neck of medium length for genus, broad at posterior end, gently tapering with only slight recurvature. Well spaced spiral cords on outer surface, steepening in angle and becoming less prominent towards distal end, with only faint minors in between; 22-26 major cords between suture and tip of neck at termination of growth. Spiral cords occasionally almost absent from distal third of neck.

Aperture leaf-shaped, interior white, glossy and porcellaneous. Labral wall bears smooth spiral lirae, often paired, that correspond in position to troughs between cords on outer surface; lirae terminate slightly before lip in adults. Adult lip thin, sharp but finished; margin smooth overall, slightly indented at termini of major spiral cords, but with no dentition. Parietal wall of aperture glossy; thin porcellaneous layer overlays surface sculpture but spiral cords still clearly visible. Parietal wall resorbed in juveniles, smooth in adults with slightly detached margin that persists until roughly mid-point of canal. Canal straight or slightly recurved, parallel-sided or slightly flaring in distal third; outer margin thin, sharp, columellar margin glossy and slightly resorbed in distal half.

Shell pale cream-white overall; protoconch and primary whorls occasionally mid- to pale brown. Most shells bear characteristic dark brown axial stripes in troughs between ribs, with occasional brown staining of entire upper teleoconch. Stripes present in all material examined, but variable in strength; very pale in some examples and present only on early whorls in others. Spiral cords on body whorl normally of darker color in interstices of axial ribs. Distal part of neck stained mid-brown in some adult specimens, with paler growth periods giving axially striped appearance.

Periostracum thin, pale brown, translucent; of lamellar construction with thin, sharp regularly spaced tufts arising both on crowns and in troughs of spiral cords. Operculum typical of genus; thin, chitinous; pale brown, with nucleus at anterior end.

Size: average adult size 104 mm (n = 5), maximum 105.9 mm

Range: East China Sea

Remarks: 2 other named *Fusinus* species from Taiwan and the East China Sea are of similar size and appearance to *F. emmae*.

From *F. diandraensis, F. emmae* may be distinguished principally by the features of its early whorls, namely

- the more pronounced and numerous axial ribs
- the positioning of major spiral cords at and below the periphery but not above it, and
- the formation of lobes in the spiral cords where they cross the axials.

In addition, *F. emmae* bears distinct color bands between the axial ribs at least in the earliest growth stage, and usually over most of the teleoconch. It may also have a brown spiral band on the body whorl and/or brown staining at the distal end of the neck.

The same set of characters serves to distinguish *F. emmae* from *F. flavicomus*. The latter is a poorly-known species of which very few confirmed examples exist, but the holotype and the first paratype both bear two dominant spiral cords on the early whorls that form one or two rows of inflated nodes on the angular periphery that persist onto the body whorl.

In common with many other species in the genus, *Fusinus emmae* shows considerable variation in the expression of its shell characters. In particular, 4 specimens in 2 lots from the Taiwan Strait have a more angular whorl profile, with a dominant spiral cord at the periphery and a consistently broader canal. The angular profile suggests an affinity with *F. diandraensis* but the protoconch and primary whorl sculpture both firmly indicate *F. emmae*.

Members of this subset also resemble certain variant specimens of *F. perplexus* from the Japan Sea, from which they differ by their stronger, rounded and less numerous spiral cords on the early whorls, their broader neck and canal, and their more prominent and less numerous axial ribs. From the typical form of *F. perplexus*, all forms of *F. emmae* differ by their dominant anterior spiral cords with rounded lobes on the early whorls, their longer and more slender neck and their color pattern.

With its strong axial ribs *F. emmae* might at first glance be mistaken for *F. forceps*, but that species has characteristic sharp spiral cords that are greater in number than those of *F. emmae*, cross the axial ribs without forming lobes and persist undiminished onto the bodywhorl; it also has more deeply indented sutures, especially in the early whorls, and lacks any color pattern.

Finally, *F. emmae* can be distinguished from the sympatric *F. salisburyi* by its far smaller adult size, its lack of a dominant peripheral spiral cord, its shorter and less recurved neck, and the absence of the latter's distinctive detached anterior parietal aperture margin.

Fusinus euekes Callomon & Snyder, 2017

Description: Shell slender fusiform, small with 6-7 sharply angulate whorls and adpressed suture. Protoconch of 2 caramel-colored whorls with series of axial riblets appearing prior to appearance of spiral sculpture. Teleconch sculpture of 8-9 rounded axial ribs per whorl. First 3 whorls with 2 weak spiral cords, then 2 prominent cords on each whorl, adapical one more prominent; up to 4 strong cords on body whorl. A few weaker intercalary cords between major cords, with yet weaker fine cords between these. Strongest cord at periphery near or at center of whorl; cords forming 1 or 2 rows of prominent carinae in crossing axial ribs; final 1 or 2 carinae reduced in adult specimens. Columellar margin of aperture and canal with detached edge over entire length in mature specimens; canal broadly open over entire length. Rostrum slightly to prominently recurved in either direction. Interior with no

apparent applied sculpture. Exterior base color dark straw with darker brown axial ribs and pale cream carinae; coloration fading somewhat at suture; interior pale lavender, labral and columellar margins stained brown in adult specimens.

Size: up to 47.8 mm

Range: Pacific Ocean off Baja California Sur, Mexico

Remarks: *F. laticlavius* can be distinguished by its larger adult size; the stronger and more sinuous reflexure of the rostrum; the broader canal; the more numerous major spiral cords on the spire whorls and the broad white bands that are normally present.

Fusinus ferrugineus (Kuroda & Habe, 1960)

Synonyms: *Fusinus perplexus ferrugineus* (Kuroda & Habe, 1960), *Fusus inconstans var. minor* Lischke, 1869

Description: Shell small for the genus, rounded fusiform, light and strong. Protoconch small, glossy with 1.5-2 unsculptured whorls. Teleoconch of 9 well-inflated whorls, sutures impressed. Spiral sculpture of numerous sharp, well-defined cords; cords evenly spaced on upper whorl, less so below suture line on body whorl, with occasional major-minor pairs and interstitial spiral threads, Cords often finely decussate, especially on lower body whorl and neck. Occasional emphasis of outermost cord at periphery, with row of raised knobs persisting onto bady whorl. Numerous strong axial waves present on first 5-6 whorls; approximately 14 per whorl, with troughs of roughly corresponding breadth. Waves become redundant by penultimate and body whorls, which lack axial sculpture, but may persist in the form of knobs. Very numerous, very fine axial growth lines present over entire teleoconch, giving fine cancellate appearance. Aperture roundly ovate or occasionally slightly quadrate, with notch at terminus of suture. Adult specimens with slightly produced parietal shield, but pronounced subsequent resorbtion of parietal area evident in many. Columellar margin of siphonal canal detached in adults, but often only in uppermost third. Siphonal canal wide, with occasional slight constriction immediately below aperture and flaring in distal portion. Interior of aperture and canal smooth and glossy, with spiral grooves on labral surface of aperture corresponding in position to exterior cords.

Protoconch and entire teleoconch reddish brown with scattered axial bars and flammules of deeper color; darker brown and/or purple staining usually present, especially on distal portion of columella process. Spiral cords usually darker brown than base color. Labral margin of aperture often stained dark brown or purple, as well as margins and distal portion of siphonal canal. Periostracum light brown, of typical lamellar construction with broadly spaced, pointed tubular spines. Operculum typical for genus, brown, chitinous, leaf-shaped with nucleus at distal terminus.

Size: average 91.3 mm (n = 13)

Range: Japan

Remarks: This name is proposed for the so-called *Fusus minor* (Dunker) whose name is preoccupied. Perhaps the most distinctive character separating *F. ferrugineus* from the others, however, is its coloration. The shell of *F. ferrugineus* is invariably mid- to dark brown overall, with distinctive purple tinges present especially on the outer face of the neck. The periostracum of *F. ferrugineus* differs from that of the other species from the NW Pacific in bearing widely spaced erect thorns that are tubular in cross-section and sharply pointed, in contrast to the normal curved shape.

Resembling *F. perplexus* and *F. forceps*, but shell smaller with more inflated whorls, low nodules and mid- to dark brown color. The shape of the aperture is in consequence roundly ovate. Where peripheral sculpture is present, it takes the form of a row of knobs that are superficial to the rounded whorl profile, rather than forming a produced angle in the labral margin as in *F. perplexus*. Both the spiral cords and axial ribs tend to be finer and more numerous. The dentition on the labral margin of the aperture is reduced in comparison with the other species examined here, and the siphonal canal is consistently broader. Most *F. perplexus* retain at least some axial sculpture on the adult body whorl, in contrast to typical *F. ferrugineus*.

F. ferrugineus has about the same adult size as *F. flavicomus,* but differs by the lighter and thinner shell, the usually more convex, rounded whorls, the weaker, less prominent carina at periphery, the sharper spiral sculpture, the weaker axial ribs and the larger number of axial ribs on all whorls.

For comparison with *F. juliabrownae* see there.

Fusinus flammulatus Lussi & Stahlschmidt, 2007

Description: not available

Size: 116.5 mm x 42.5 mm

Range: E South Africa

Fusinus flavicomus Hadorn & Fraussen, 2006

Description: Shell relatively large, fusiform, solid, spire long, consisting of 9 or 10 distinctly carinated postnuclear whorls. Suture distinct, constricted. Shoulder slope straight or slightly convex, peripheral keel distinct with strong, rounded, vertically compressed knobs. Siphonal canal long. Colour cream to light orange, stronger spiral cords and threads slightly reddish brown tinged, 2 central cords darker. Protoconch white, becoming pale brownish on second whorl, bulbous, smooth and glossy, consisting of 1 1/2-1 3/4 whorls. Transition to the teleoconch abrupt, eroded, presumably with 1 or 2 weak axial riblets. Diameter about 1.3 mm.

Axial ribs rather strong on upper whorls, reaching from suture to suture. On penultimate or body whorl becoming weaker, pointed, withdrawing from upper suture. 9-11, occasionally 8, axial ribs on upper whorls, 9-13 on penultimate and body whorl. Teleoconch beginning with 3 primary spiral cords, 2 abapical ones clearly stronger. Next 1 or 2 whorls with 2 additional primary cords appearing: one strong cord above lower suture, one weak on upper suture. 2 peripheral cords stronger, resulting in upper whorls with a bicarinate profile. Central cord becoming strongest on penultimate whorl, forming an unicarinate profile. One fine intercalated secondary spiral cord appearing between each pair of primary spiral cords from second postnuclear whorl onwards. From third whorl on, 1 fine tertiary cord appearing on both sides of secondary cords, becoming as strong as secondary ones on body whorl. Occasionally the number of tertiary cords increasing up to 3 on last whorl. Stronger cords becoming broader and more prominent when crossing axial ribs.

Aperture rather large, ovate, pinched at both ends. Outer lip convex, thickened, edge slightly crenulated. White inside, with 25-30 fine but distinct lirae. Inner lip smooth, attached to parietal wall. On upper end some underlying spiral cords visible. Columellar folds absent. Siphonal canal long, broad, slightly twisted, tapering anteriorly. Outer side ornamented with stronger cords and intercalated finer threads, becoming weaker towards tip of siphonal canal. Periostracum brownish, rather thick. Operculum corneous, dark brown, ovate, rounded above, pointed below, nucleus terminal.

Size: 64.9-92.3 mm; holotype 89.3 x 29.8 mm

Range: Taiwan

Remarks: *F. beckii* differs by the entire white shell, the larger size, the longer and narrower siphonal canal, and the finer spiral sculpture.

Marmorofusus nicobaricus is most similar in shape and sculpture, but differs by the vivid reddish brown to brown markings on all whorls, the larger shell size, the more pronounced carina with sharp pointed cusps, the concave shoulder slope, the broader and stronger siphonal canal, and the prominent broad spiral cords on the siphonal canal.

F. laticostatus differs by the same characteristics as *M. nicobaricus* and by being smooth.

Marmorofusus tuberosus differs by the smaller shell size, the broader spire angle, the more pronounced knobby carina, the larger aperture, and the shorter siphonal canal.

Marmorofusus nigrirostratus (= F. tuberosus sagamiensis) can be distinguished by the larger shell size, the larger number of axial ribs with narrower interspaces, the reddish brown interspaces and the brownish shoulder slope, the weaker spiral sculpture, and by the comparatively longer siphonal canal.

Marmorofusus michaelrogersi differs by the larger, heavier and uniform white shell, the broad, large and prominent knobs, the less constricted suture, the larger aperture, and the broad siphonal canal.

Marmorofusus tuberculatus differs by a larger shell, a longer spire, the reddish brown interspaces between the axial ribs, the larger aperture, and in having the inner apertural lip detached from the parietal wall.

Marmorofusus polygonoides differs by the smaller shell size, the more prominent axial ribs, and the shorter and broader siphonal canal.

F. perplexus differs by the larger adult size (90-170 mm, average 138.2 mm), the smaller protoconch (approximately 0.7 mm in diameter), the larger number of axial ribs (11-14 per whorl on upper whorls), and the less prominent carina (if present) on later whorls.

F. ferrugineus has about the same adult size but differs by the lighter and thinner shell, the usually more convex, rounded whorls, the weaker, less prominent carina at periphery, the sharper spiral sculpture, the weaker axial ribs and the larger number of axial ribs on all whorls.

F. diandraensis can normally be distinguished from *F. flavicomus* by its less angular whorl profile and more numerous spiral cords.

For comparison with *F. emmae* see there.

Fusinus forceps (Perry, 1811)

Synonyms: *Fusus turriculus* Kiener, 1839

Description: Shell pale brown, inclining to an olive colour, strongly decussated with deep waving ridges, extending over the whole surface; the sides of the beak very straight; the cheek of the aperture deeply fluted.

Redescription: Shell slender, fusiform, thick and solid with approximately 10 roundly inflated whorls in adults. Adult size variable; some specimens mature at small sizes. Protoconch small, inflated, smooth and glossy with 2 whorls. Sutures deeply impressed. Spiral sculpture of 10 to 12 sharp, clearly defined cords that vary in thickness and prominence, with occasional minor cords present between majors. Entire teleoconch bears broad, prominent axial ribs resembling ruches in cloth. Neck unusually thick at aperture, tapering to rounded distal tip; usually straight, though some rccurvature occasionally present in the distal third. Aperture and siphonal canal bordered by thick parietal shield in adults; columellar margin of shield and occasionally also of siphonal canal detached. Labral margin of aperture in adults bears regular dentition that corresponds in position to interstices of external spiral cords. Shell dull white overall, with occasional pale brown staining on uppermost whorls. Interior of aperture porcellaneous, white; margin of aperture and parietal shield occasionally stained pale brown in adult specimens. Periostracum thin, mid-brown with occasional greenish appearance, bearing fine thorns.

Size: 57 mm-191 mm; average 115.1 mm (n = 24)

Range: South China Sea to India

Remarks: *F. forceps* consistently lacking a pronounced peripheral cord or any other peripheral emphasis in whorl profile, and has a thick, straight neck with little or no recurvature. In addition, the axial ribs persist over the entire teleoconch. These characters, together with the consistently smaller average adult size, separate *F. forceps* from its nearest congeners. *F. forceps* is smaller than *F. salisburyi*, from which it further differs by the strong axial ribs that persist onto the body whorl, as well as the consistently straight neck and absence of a dominant peripheral spiral cord.

F. assimilis somewhat resembling in form and sculpture *F. forceps*, but the outline of the whorls is nodosely ungulated.

F. bifrons can be distinguished from *F. forceps* because of a shallower suture, finer spiral threads and narrower ribbing of the lip.

F. perplexus is lighter than *F. forceps*.

F. sandvichensis resembles *F. forceps* which however has a decidedly deeper suture, and the embryonic whorl is much larger.

For comparison with *F. emmae,* F. malhaensis and *F. ferrugineus* see there.

F. jasminae differs from *F. forceps* by the much heavier and less elegant shell, the smaller number of whorls, the much stronger and more convex axial ribs, the smaller number of axial ribs on penultimate and body whorl, the shorter and broader siphonal canal, the much larger spire angle, and the uniformly dirty-grey colored shell.

Fusinus frausseni Thach, 2018

Description: Shell medium-sized for the genus and fusiform with tall spire and constricted sutures. Body whorl longer than spire with broad, slanting area below suture, periphery rounded but angulate at spire whorls. Sculpture

consists of prominent and rounded axial ridges that are strongest at teleconch, becoming nearly obsolete at body whorl and many spiral ribs that are concave at periphery and crossed by axial ribs, forming reticulate appearance. Aperture elongate-ovate, outer lip moderately thick. Siphonal canal long, straight and widely open. Color chalky white.

Size: 74.0 x 26.8 mm

Range: Vietnam

Remarks: *F. frausseni* is characterized by prominent, rounded axial ridges and concave spiral ribs at periphery of body whorl.

F. frausseni is close to *Chryseofusus graciliformis* (= *F. valdiviae)*, but spire is broader with more angulate shoulders, color not pink-brown, axial ridges more prominent and extending to penultimate whorl, spiral sculpter stronger and spiral bands at periphery body whorl are very concave.

Chryseofusus dapsilis differs mainly from *F. frausseni* in more inflated body whorl with rounded periphery, not white color, nodulous spiral ribs, strongly constricted base, wider and shorter siphonal canal.

Fusinus gallagheri Smythe & Chatfield, 1981

Description: Shell solid, sinistral, comparatively elongate with spire less than half the total height. Whorls 4-5, sutures shallow and indistinct. Siphonal canal short (3 mm) and oblique. Mouth pear-shaped, inner lip smooth and without denticles. Sculpture consisting of distinct costae crossed by narrow spiral ridges, the costae bearing nodules at the periphery of each whorl. Body whorl with 7-8 costae and 12 spiral ridges.

Protoconch smooth and colourless, followed by a teleoconch with regular brown axial ribs and no nodules. Shell dark brown with white markings, mostly at the tubercles.

Redescription: Solid, sinistral, biconic, with impressed sutures; protoconch flat topped. First 2 spire whorls axially ribbed, later whorls with sinuos axial ribs crossed by coarse spiral cords. Columella smooth, sinuous; outer lip thin edged. Purplish brown with whitish and reddish brown ribs; columella white. A single dextral example known.

Size: 15-20 mm; holotype: height 16.0 mm, breadth 8.8 mm

Range: Oman

Remarks: Compare to other sinistral species like *F. barclayi, F. elegans, F. somaliensis* and *F. maroccensis*.

F. gallagheri differs from other species of the subgenus, *F. maroccensis*, *F. barclayi* and *F. elegans*, in the more solid nature of the shell, the shorter siphonal canal, usually greater breadth and the wide costae with peripheral nodules. In these characters it differs also from dextral members of the genus *Fusinus*. Shell ornamentation consisting of both spiral and axial elements is found in both dextral and sinistral species.

Although the small illustration of *F. barclayi* in the original description looks superficially like *F. gallagheri*, comparison with the type specimen showed that they were not the same. *F. barclayi* has a more delicate sculpture and has distinctly indented sutures which affect the profile of the spire. The costae are also less prominent.

Fusinus gemmuliferus Kira, 1959

Description: not available

Redescription: Shell small for genus, regular fusiform, thin, light. Protoconch relatively tall, loosely coiled; 1.5 to 2 whorls, smooth overall with small number of weak axial ribs in final half whorl; no varix at abrupt commencement of teleoconch. Teleoconch of 7 to 8 roundly inflated whorls, neck straight or very slightly curved, tapering. Rounded axial ribs on all whorls, 13 or 14 on body whorl; ribs occasionally becoming obsolete in final quarter of body whorl. Very fine, numerous axial growth lines present between and on spiral cords. Spiral sculpture of 4 prominent cords on early whorls, increasing to 6 or 7 between sutures on penultimate whorl; 1 or 2 minor cords between some majors in later whorls. 3 or 4 cords on last 3 whorls form rounded nodes at intersection with axial ribs to give distinctive "gemmate" sculpture. Body whorl evenly rounded, with no shoulder. Aperture almond-shaped, not ventricose in any specimen examined; labral wall corrugated, labral margin crenulate with no dentition. Parietal shield smooth, glossy, with thin margin in adults, margin only slightly separated from whorl face; separation of margin persisting into upper half of canal in some specimens. Neck of medium length, tapering smoothly, straight

or very slightly curved; canal open, parallel-sided. Outer surface of neck with regular spiral cords, weakening or becoming obsolete near distal tip. Periostracum mid-brown, with very numerous axial lamellae bearing rows of fine, erect thorns. Operculum typical fusinine: pale brown, chitinous with nucleus at pointed and slightly reflected terminus.

Size: 60-130 mm; to 84.2 mm, average adult 70.1 mm (n = 6)

Range: Japan

Remarks: *F. gemmuliferus* can be separated from all other Japanese members of the genus by its small adult size, smooth, rounded whorls and distinctive gemmate sculpture similar to that of the fasciolariid genus *Granulifusus*.

Resembling *F. perplexus*, but shell not stained in brown in interspaces of axial ribs.

Fusinus gracillimus (A. Adams & Reeve, 1848)

Description: *F. testa gracillimo-fusiformi, undique spiraliter sulcata et lirata, anfractibus rotundatis, longitudinaliter plicato-costatis, costis latiusculis, medio unicarinatis, labrum versus evanidis; castaneo-fuscescente.*

Shell very slenderly fusiform, spirally grooved and ridged throughout, whorls rounded, longitudinally plicately ribbed, ribs rather broad, keeled round the middle, fading towards the lip; light chesnut-red.

Size: 70-120 mm

Range: Eastern Seas (Madagascar, Australia)

Remarks: This delicate little species approximates closely to the *F. colus* (= *F. longicaudatus)*, but is clearly distinct.

Fusinus halistreptus (Dall, 1889)

Description: Shell pure white, of about 10 whorls. Nucleus decollate in the specimen; early whorls with 10-12 faint rounded transverse ribs which become nearly obsolete on the later whorls; lines of growth elevated, sharp, fluted and reticulated by the spiral sculpture, giving the surface a rasplike character; they are also gathered into a frilled band just in front of the suture, which they cut obliquely; spiral sculpture of numerous fine threads, and on each whorl three to five stronger ones, more prominent and sharp-edged on the ribs; aperture small, surrounded with an elevated border; outer lip delicately lirate within, inner lip perfectly smooth, a distinct notch in the callus on the body at the posterior commissure of the aperture; canal long, slender, subcylindrical.

Redescription: Shell slender, elongate fusiform, variable in shape, sculpture and colouration, rather large, light in weight, thin-shelled, consisting of about 10-12 strongly convex whorls, latter ones usually slightly double keeled, with a convex shoulder and an indistinct subsutural concavity. Suture deeply incised, wavy on upper whods. Colouration whitish, often with a pale red-brown band on shoulder and another one below the suture, interrupted by the interspaces between the axial ribs. Three specimens with red-brown axial ribs. Siphonal canal sometimes pale red-brown. Protoconch small, white-coloured, consisting of 1-1 1/4 whorls. Details of sculpture eroded. Ending in a strong varix. Diameter 0.7-0.9 mm.

Axial ribs narrow, usually rather strong, often with large interspaces between them (about 1-2 times as wide as the ribs themselves), reaching from suture to suture on upper whods. On lower whods they become weaker and terminate below the upper suture. The axial sculpture is often irregular on body whorl, sometimes the ribs fade out towards the end of the turn. But the final 1-3 axial ribs just before the edge of the outer lip are usually somewhat stronger developed than any others on the shell. About 8-10 axial ribs on early postnuclear whorls, 6-8 on the following whorls, and 8-13 on the last 3 whorls.

Spiral sculpture fine and sharp, somewhat stronger where the spirals cross the axial ribs. Teleoconch begins with 3 strong spiral cords, the 2 lower ones are cleady the strongest on all whorls and form usually a weak double keel on latter whorls. Then on following whorls the number of cords increases up to 6-7. Starting with the second postnuclear whorl a fine spiral thread appears between each pair of cords. On the following whorls the number of fine threads increases by intercalation. Numerous sharp growth lines on all whorls, crossed by the spiral sculpture giving the surface a rasplike appeareance. There is a subsutural band of fine oblique scales formed by the upper end of the growth lines.

Aperture whitish, ovate, pinched at both ends; inside the aperture the axial ribs are often visible as pale brown markings. Outer lip thin, finely crenulated, with about 20 fine and indistinct internal lirae. Parietal callus conspicuously detached from lower part of body whorl, with a rather strong broad tooth just below the posterior canal. No columellar folds. Siphonal canal long, slender and straight. Outer side ornamented with numerous fine spiral cords and intercalated fine threads, fading out towards the tip of the canal. Operculum ovate, shape and size corresponding to the aperture, corneous, brownish, with a terminal nucleus. Outer side ornamented with fine concentrical growth lines; inner side with a strong callus along the outer edge.

Size: 57.0-99.5 mm; max. length 80.0 mm, of last whorl 51.0 mm, of aperture 15.0 mm, of canal in front of the aperture 28.0 mm; max. width 20.0 mm

Range: Bahamas, Virgin Is. and Gulf of Mexico (doubtful locality)

Remarks: *F. halistreptus* recalls *F. schrammi*, being about the same size and otherwise similar, but it is more drawn out, the whorls are rounded and full, and they are not angulated by the prominent peripheral thread which replaces the carina of *F. schrammi*. The gathered oblique lamellae at the suture are also peculiar.

F. halistreptus must be compared with *F. blakensis*. The latter one differs in having a smaller number of clearly stronger axial ribs with much wider and deeper impressed interspaces between them, in the larger spire angle, in the much stronger spiral sculpture, and by the more elongate shell.

Compared to *F. marcusi, F. halistreptus* has more convex whorls, a less strong and different axial and spiral sculpture, an entirely white-coloured shell or coloured with two red-brown bands, a strongly convex shoulder, a nearly round aperture with much finer internal lirae within, a small band of fine scales in front of the suture, and coarse growth lines on all whorls.

F. halistreptus is similar to *Aristofusus stegeri*, but possesses only very low, rudimentary ribs and occurs at greater depth.

Fusinus hartvigii (Shuttleworth, 1856)

Synonyms: *Fusus paeteli* Dunker, 1867

Description: *F. testa fusiformi, solida, late et grosse costata, tenuiterque remote striatula, liris spiralibus acutis, in anfr. superioribus 4, in ultimo numerosioribus circumdata; alba, ad interstitia costarum et sub sutura castaneo strigata, et epidermide tenui cornea induta; spira acutissima; anfr. 10-12 rotandati, ad suturam subconcavi; apertura ovato-oblonga, intus sulcata, margine externo intus calloso-denticulato; cauda rectiuscula, canali aperturam fere sesquies aequante.*

(Shell fusiform, solid, broadly and coarsely ribbed, thinly striated with distance, with sharp spiral lirae, 4 on the upper whorls, more numerous on the last whorl; white, at the interstices of the ribs and under the suture girded with chestnut, epidermis thin and corneous; spire very sharp; 10-12 rounded whorls, at suture light concave; aperture ovate-oblong, inside furrowed, outer margin inside callose-denticulate; siphonal canal straight, canal nearly as long as the aperture.)

Redescription: Shell solid, consisting of 9-12 rounded whorls; latter whorls usually carinated and slightly concave below the suture. Shell whitish, interspaces between axial ribs, the area below the suture and often the siphonal canal distinctly red-brown in colour. 6-7 strong broad axial ribs on early whorls, 9-14 on penultimate and body whorl, most prominent toward the periphery. Ribs very broad below the periphery, becoming narrow above it, not reaching the upper suture. Interspaces between axial ribs small. 3-4 strong sharp spiral cords on first postnuclear whorl, 4-5 on all following whorls. On latter whorls with 2 additional red-brown fine cords just below the suture. Aperture ovate, rather small. Parietal callus thin and smooth, underlying spiral cords still visible. 8-10 fine and sharp internal lirae which become broader and lower towards the outer lip. Outer lip strongly denticulated. Siphonal canal straight and rather long, outer side ornamented with conspicuous strong spiral cords.

Size: 33-65 mm, width 22 mm

Range: West Indies, Virgin Islands

Remarks: An elegant species, the coloration is very distinct.

Immature specimens of *Lyonsifusus ansatus* (= *F. closter)* from the Phillippines have sometimes a similar colouration and axial sculpture, but best distinguished by only 4 lirae in superior whorls (not 7 as in *L. ansatus*). *F.*

hartvigii can be separated on the base of the smaller spire angle, the more elongated spire, the smaller aperture, the less inflated penultimate and body whorl, the much stronger spiral cords on the siphonal canal and finally by the clearly smaller adult shell.

F. colombiensis differs from *F. hartvigii* by having a much larger protoconch with a different morphology and colouration, a more elongate and more slender shell and a smaller adult size. Moreover the suture is more constricted, the whorls are more convex and always unkeeled, the spire angle narrower, and the aperture smaller. The spiral ribs on the canal of *F. hartvigii* are alternately strong and very weak, while in *F. colombiensis* they are all equally pronounced. In *F. hartvigii* the axial ribs are always white and the area between them is orange-brown; in *F. colombiensis* the axial bands of color are not in constant relationship with the ribs. In *F. hartvigii* the protoconch is approximately 1/3 of the length of the first whorl; in *F. colombiensis* the protoconch is about equal in length. The lip of *F. hartvigii* is thinner than that of *F. colombiensis*. The sutural area is white in *F. colombiensis* and orange-brown in *F. hartvigii*.

Granulifusus williami from the Philippines differs from *F. hartwigii* by its much smaller size, more slender shell, less contrasted pattern and smaller aperture.

F. hartvigii exhibits a different color pattern and more numerous axial ribs than *Hemipolygona beckyae*.

Fusinus harveyi Hadorn & Roger, 2000

Description: Shell of medium size, solid, fusiform, with 10-11 strongly convex whorls (including protoconch). Early whorls well-rounded, latter whorls strongly carinated with a convex shoulder. The protoconch consists of about one white-coloured whorl, last part (1/4 whorl) with about 6 fine axial riblets reaching from suture to suture. Ending in a varix. Diameter 0.9 mm.

6 broad strong and rounded axial ribs per whorl, reaching from suture to suture. 7-8 prominent sharply pointed ribs on lower whorls. The ribs are separaled by narrow interspaces on early whorls, becoming broader and deeper from whorl to whorl. The final axial rib on body whorl is stronger and broader than any others on the shell.

4 strong spiral cords on eady postnuclear whorls, 5 on third, 6-7 on fourth and fifth whorl, and 7-8 on lower whorls. Starting with the fifth whorl, many intercalated finer spiral threads of unequal strength appear. The central spiral cord forming the distinct keel is clearly the strongest and become sharp and pointed where it pass over the axial ribs. The spiral cord below the keel is also more prominent than any others but clearly weaker than the central one. The spirals are strong where they cross the axial ribs but rather weak in the interspaces.

Aperture ovate, rather small, white-coloured, with numerous strong internal lirae. Edge of the outer lip finely crenulated; inner lip with a smooth, glossy white callus ornamented with some tiny denticles in the lower part. No columellar folds. Siphonal canal broken in all examined specimens but seems to be of normal size. Outside ornamented with regularly spaced spiral cords intercalated by finer threads.

Background colour cream-white, axial ribs on shoulder and below the carina tinged with red-brown on lower whorls. Spiral sculpture white, siphonal canal with irregular pale red-brown striae.

Operculum corneous, typical fusoid, dark red-brown in colour, with a terminal nucleus. Fine concentric growth lines on outer side.

Size: 46-51 mm

Range: Colombia

Remarks: *F. harveyi* seems most closely related to *F. chocolatus*. The most obvious differences are its strongly carinated whorls, the less numerous and pointed axial ribs on latter whorls, the broader and deeper impressed interspaces between the axial ribs, the finer spiral sculpture in the interspaces, and the less vivid colouration especially on early whorls.

F. schrammi is also similar in colouration, but can be easily distinguished by the longer spire and the thinner shell, and by the clearly larger number of weaker and narrower axial ribs with much narrower and less deep interspaces between them.

F. blakensis differs in having a somewhat larger adult size, in the uniformly white-coloured shell, the somewhat smaller spire angle, in having usually a slightly larger number of narrower axial ribs on all whorls, in the stronger

and different spiral sculpture, in the clearly finer lirae inside the aperture, and in the different protoconch morphology.

Fusinus hayesi Snyder, 1996

Description: *Conchiglia fusiforme, apertura (compreso il canale) piu lunga della spira. Profilo dei giri leggermente convesso. Protoconca lievemente papilliforme, appiattita all'apice, con primo giro inclinato, ampiezza massima 1.7 mm. Conchiglia piccola per il genere, sempre inferiore a 50 mm in tutti gli esemplari esaminati. Canale da diretto a fortemente incurvato.*

La conchiglia e dotata di 7 giri postembrionali. Costoline assiali da prominenti a molto evidenti sono presenti in tutti i giri, e sono 10-11 su ciascun giro, tranne l'ultimo-dove sono solo 8-9. Colore bruno chiaro-bruno rossiccio con costoline da giallo opaco a bianco-crema sulla gran parte degli esemplari. Le costoline sono intersecate da 4-5 cordoni rilevati, talora di colore bruno scuro. La sezione trasversale dei cordoni e angulosa.

Il primo giro di teleoconca ha 3 cordoni, mentre i giri successivi presentano 2 cordoni medi e piu o meno eguali, e piu marcati degli altri. Il penultimo giro ha 5 cordoni principali molto distanziati, e circa 5 piu deboli oltre la sutura e tra i cordoni maggiori. Questa scultura di cordoni bruni e la colorazione bruna intercostale sono visibile dall'interno dell'apertura. Il labbro interno presenta un'elevata liratura che rimonta all'indietro per circa 2 mm. La superficie e attraversata da linee di crescita increspate, e leggermente lamellose.

L'opercolo e da bruno giallastro chiaro a marroncino, ovale, con la superficie interna dotata di callo come accade sempre in Fusininae. Nell'olotipo, misura 7 x 5 mm.

(Shell spindle-shaped, aperture (including the canal) longer than the spire. Slightly convex profile of the whorls. Protoconch slightly papilliform, flattened at the apex, with inclined first whorl, maximum width 1.7 mm. Small shell for the genus, always less than 50 mm in all specimens examined. Canal straight to strongly incurved.

The shell has 7 post-embryonic whorls. Prominent to very noticeable axial ribs are present in all whorls, 10-11 on each whorl, except on the last one-where there are only 8-9. Color tan-reddish brown with dull yellow to creamy-white ribs on most of the specimens. The ribs are intersected by 4-5 raised cords, sometimes dark brown. The cross section of the cords is angular.

The first whorl of teleoconch has 3 cords, while the following whorls have 2 medium cords, more or less equal, and more marked than the others. The penultimate whorl has 5 widely spaced main cords, and about 5 weaker ones beyond the suture and between the major cords. This sculpture of brown cords and intercostal brown coloration is visible within the aperture. The inner lip has elevated lirae into interior for about 2 mm. The surface is crossed by crinkled lines of growth and slightly lamellose.

The operculum is light yellowish brown to brownish, oval, with the inner surface provided with a callus as always happens in *Fusininae*. In the holotype, it measures 7 x 5 mm.)

Redescription: Shell small, broadly spindle-shaped, with rounded whorls and a strongly indented suture; spire about three-quarters total length of aperture; sculptured by crisp, rather narrow (angular), spiral cords and distinct axial ribs, particularly on spire whorls; siphonal canal long and slender. White to pale brown, axial ribs often paler than their intervals; periostracum pale horn-brown.

Size: up to 60 mm; length 49.6 mm, width 17.8 mm

Range: E Agulhas Bank, South Africa

Remarks: *F. africanae* is another small species, but the sculpture of *F. hayesi* is coarser and more angular, particularly on the spire whorls.

F. hayesi is very similar to *Chryseofusus bonaespei*, the latter becomes larger, and reaches at least 117 mm. The color of *C. bonaespei* is a uniform creamy-white or pale yellowish. Completely white specimens have recently been collected, with some initial gray whorls. But none of the specimens has brown colors.

F. hayesi has a larger adult size than *F. transkeiensis*, stronger axial and spiral sculpture, more axial ribs on the upper whods, a clearly smaller number of spiral cords on all whorls, and a non-channelled suture, as well as a much larger protoconch.

Fusinus hernandezi Hadorn & Rolán, 2009

Description: Shell small, white with inconspicuously brownish tinged interspaces between axial ribs, fusiform, spire elongate but rather broad, consisting of about 7 convex whorls including protoconch. Suture constricted, incised, wavy according to the axial sculpture of preceding whorl. Protoconch white to cream, bulbous, smooth,

glossy, consisting of 1 1/2 whorls, last part (1/4 whorl) ornamented with 4-6 axial riblets reaching from suture to suture, becoming stronger and broader towards the end of protoconch. Diameter 0.8-1.0 mm.

Axial sculpture consisting of about 9 or 10 strong, broad axial ribs per whorl, 11 or 12 on body whorl, reaching from just below the upper suture to the lower suture, separated by rather deep narrow interspaces. Spiral sculpture consisting of 5 rather fine, rounded, primary spiral cords, separated by broad interspaces and by 2 fine subsutural inconspicuous cords. An intercalated fine secondary spiral cord appears from the fourth postnuclear whorl onwards.

Aperture round-ovate, white, with about 10 or 11 strong internal lirae. Outer lip crenulated. Parietal callus adherent, thin, inconspicuous, smooth, underlying spiral sculpture of the body whorl well visible through the callus. Columellar folds absent. Siphonal canal about as long as aperture length, open, slightly curved to the left and backwards. Outer side ornamented alternating strong primary and fine secondary spiral cords. Aperture and siphonal canal together about 1/2 of total shell length.

Periostracum thin, transparent, light brown, slightly hairy. Operculum corneous, thin, light brown, with terminal nucleus, filling aperture.

Size: up to 17 mm

Range: Canary Islands, NW Gran Canaria

Remarks: *F. sectus* differs from *F. hernandezi* in the less constricted suture, the less convex whorls, the smaller number of strong primary spiral cords with broader interspaces between them, the conspicuously large number of fine secondary spiral cords mainly on the shoulder but also between the primary spiral cords, and the less conspicuous axial ribs.

F. tenerifensis differs from *F. hernandezi* by the larger size, the more elongate spire, the brown coloured shell with brown protoconch, the more pronounced axial sculpture, the deeper interspaces between the axial ribs, the smaller number of axial ribs, and the stronger primary spiral cords with strong intercalated secondary cords.

Fusinus humboldti Poorman, 1981

Description: Shell small and narrow for the genus, of 7 whorls and a long canal. Height of spire less than aperture plus canal. Protoconch (eroded) small, turbinate, about 3 whorls, with a slight basal carina. Whorls rounded, with a constricted wavy suture, and with 7 high, broadly rounded axial ribs aligned up the spire. Ribs crossed by 3 heavy spiral cords in prominent nodes; 5 cords on the body whorl and about 10 lesser threads on the pillar; several very weak threads between the major cords. Aperture oval, outer lip thin, about 10 lirations within. Columellar callus thin, with several weak plications at the lower part of the aperture. Canal open to the right, extending to the left of the shell axis. Color white.

Size: height 22.1 mm, maximum diameter 8.9 mm

Range: Galapagos Islands, Ecuador

Remarks: In terms of shell morphology, this species is very close to *F. paulus*. *F. humboldti* differs in being more slender and in having a proportionately longer canal. Also, the outer lip is lirate within. The major difference, however, is in radula morphology. The angular shoulder of the rachidian tooth and the deep basal cusp of the lateral tooth of *F. humboldti* are unique in Eastern Pacific *Fusinus*.

Fusinus indicus (Anton, 1838) = **Marmorofusus tuberculatus** (Lamarck, 1822)

Fusinus inglorius Hadorn & Fraussen, 2006

Description: Shell rather small for genus, fusiform, off-white, spire elongated, consisting of about 9 convex whorls including protoconch. Surface often rough, spire tip usually eroded. Suture distinct, constricted, wavy. Protoconch bulbous, white, glossy, smooth, consisting of about one whorl. Transition to teleoconch and first teleoconch whorl eroded in most specimens. Last part with 4-6 conspicuously close-set irregular growth lines, transition indistinct. Diameter 0.8-1.0 mm.

Axial sculpture consisting of rather weak, narrow axial ribs, reaching from suture to suture on all postnuclear whorls. Interspaces as broad as ribs. 8-10 axial ribs on 3 uppermost postnuclear whorls, 9-11 on following whorls, 11 -1 4 on penultimate and body whorl. Axial ribs on body whorl occasionally weaker or absent.

Spiral sculpture rather fine, weak, inconspicuous. Teleoconch beginning with 4 primary spiral cords, 2 central cords more prominent. One secondary cord appears between primary cords from second postnuclear whorl on. From third whorl on fine tertiary cords appear on both sides of the secondary cords, increasing up to 4 on body whorl. Secondary cords occasionally becoming as strong as primary cords on later whorls.

Aperture ovate, white, pointed above. Parietal callus smooth, glossy, appressed to parietal wall, not detached. Occasionally with small simple adapical denticle. Columellar folds absent. Outer lip simple, smooth inside, edge slightly crenulated. Siphonal canal short, usually as long as aperture, curved, widely open, slightly recurved.

Operculum typical of genus, corneous, light brown, ovate, rounded above, pointed below, filling aperture. Outer side with fine concentric growth lines. Periostracum olive, rather thin, well-adherent.

Size: up to 38.4 mm

Range: Taiwan

Remarks: *F. bocagei bocagei* is similar in size and sculpture and has a rough surface, but differs by having fewer (about 8-10) but broader axial ribs on the body whorl, a two-whorled protoconch, and the radula with 5 or 6 cusps on the lateral teeth.

Vermeijius retiarius also has a similar appearance (sculpture, the rough, often eroded surface), but differs by the larger adult size, the broader, heavier and thicker shell, the more pronounced and broader axial ribs which are lower in number on all whorls.

Fusinus jasminae Hadorn, 1996

Description: Shell heavy, solid, large for the genus, fusiform, very thick-shelled. Adults with about 9-10 strongly convex postnuclear whorls. First whorls well rounded, penultimate and body whorls sometimes with a slightly to moderately strong keel on the periphery. Keel formed by 1-2 stronger spiral cords. 8-10 broad, strongly convex, coarse axial ribs per whorl, reaching from suture to suture. Interspaces between the axial ribs small (about 1/2-3/4 of the width of ribs) and deeply impressed. On the penultimate and body whorls the axial sculpture often becomes somewhat weaker. Axial ribs sometimes withdraw slightly from the upper suture, interspaces between axial ribs normally become less deep. At the same time a channeled concavity is developed just below the suture.

12-13 strong, sharp, raised spiral cords per whorl. On penultimate and body whorls 2-3 fine spiral threads between spiral cords. Just below the suture (in the surrounding concavity) 1-2 weak spiral cords. Interspaces between spiral cords larger where they cross the axial ribs. Fine axial growth lines well visible everywhere on the shell, but especially on body whorl.

Suture wavy along the axial sculpture of preceeding whorl, inconspicuously incised. Aperture oval, nearly round, relatively small. Outer lip thick, edge finely granulated with small teeth lying exactly between the spiral cords on the outer side of the shell. About 18-20 strong, white, somewhat irregular folds inside the interior. Parietal callus thick, smooth, but sometimes some underlying spiral cords visible. In adult specimens outer edge of parietal callus free and conspicuously detached from lower part of body whorl. No columellar folds. 1-2 small denticles near the posterior canal in adult specimens.

Siphonal canal solid, broad, moderately long (about 2/5 of shell length), nearly straight. Outside ornamented with the same sculpture as on body whorl. Spiral sculpture becomes gradually weaker against the tip of the canal. Last part of siphonal canal normally bent to the left. Shell uniformly dirty-grey colored, without any markings.

Size: 90-155 mm

Range: Eastern Africa (Kenya, Somalia)

Remarks: *F. jasminae* is most closely related to *F. chuni* from the same area. *F. jasminae* differ from *F. chuni* by its larger adult size, the much heavier, more solid, and thicker shell, the larger spire angle, the greater number of spiral cords, the stronger axial ribs on all whorls, the much deeper interspaces between axial ribs, the smaller number of axial ribs on body whorl, and the more solid and somewhat broader siphonal canal. But the most

importend difference is, that *F. jasminae* is lacking the characteristic 1-2 much stronger and clearly thickened, often growed together axial ribs just behind the outer edge of the outer lip.

The most obvious differences to *Marmorofusus verrucosus* are the larger adult size, the much heavier, more solid, and thicker shell, the larger spire angle, the more convex whorls, the stronger axial ribs on all whorls, the much deeper interspaces between axial ribs, the more slender and somewhat longer siphonal canal, and the uniformly dirty-grey colored shell.

F. jasminae differs from *F. multicarinatus* by the much heavier, more solid, and thicker shell,the more convex whorls, the stronger axial ribs on all whorls, the much deeper and larger interspaces between axial ribs, the greater number of spiral cords, and the uniformly dirty-grey colored shell.

F. jasminae differs from *F. forceps* by the much heavier and less elegant shell, the smaller number of whorls, the much stronger and more convex axial ribs, the smaller number of axial ribs on penultimate and body whorl, the shorter and broader siphonal canal, the much larger spire angle, and the uniformly dirty-grey colored shell.

F. jasminae can be distinguished from *F. salisburyi* by its smaller adult size, the heavier and less elegant shell, the smaller number of whorls, the much stronger and more convex axial ribs on all whorls, the smaller number of axial ribs on penultimate and body whorl, the much deeper impressed interspaces between the axial ribs, the much larger spire angle, and the uniformly dirty-grey colored shell.

Fusinus juliabrownae Callomon, Snyder & Noseworthy, 2009

Description: Shell fairly small for genus, thin, light; inflated fusiform with short, broad neck. Protoconch of approximately 1.8 to 2.5 whorls; may be tightly or loosely coiled; surface smooth, no varix or protoconch sculpture observed. Teleoconch of 8 rounded or slightly angular inflated whorls. Early whorls bear 5 pairs of major spiral cords, each pair with raised interstice, the whole forming bounded platform in cross section; bounding cords slightly raised, finely incised at intersections of axial decussations; pair nearest adapical suture reduced somewhat compared to other 4. In some specimens, third cord added to pairs. 1 or more slender minor cords in spaces between major cord pairs on early whorls, becoming more numerous and prominent in later whorls. By penultimate and body whorl, minor cords grow almost equivalent in prominence to pairs, which simultaneously decline somewhat in expression; pairs barely distinguishable beyond end of penultimate whorl. 21 spiral cords (including 3 vestigial pairs) on penultimate whorl immediately above terminus of suture; approximately 50 cords in all on body whorl. Cords on neck reduced, becoming more broadly spaced towards tip and more steeply angled relative to axis. Suture adpressed, with narrow but distinctly bounded subsutural band on early whorls, gradually disappearing by penultimate and body whorls.

Axial sculpture of numerous closely-set rounded ribs that span sutures on early whorls; ribs becoming reduced by fifth or sixth whorls at latest, though earlier in many examples, persisting thereafter as two rows of carinate knobs; knobs often reduced to undulations or absent altogether on body whorl. Spiral cords neither enhanced nor reduced in crossing axial ribs. Secondary axial sculpture of closely-set decussations that incise spiral cords, giving latter somewhat serrate appearance. Random growth pauses present on later part of body whorl in some specimens.

Aperture leaf-shaped, labral side distinctly more convex than parietal (columellar) side; labral margin corrugate, only slightly thickened, with no dentition. Interior white, bluish-gray or purple, glossy; labral wall mildly corrugate, with troughs corresponding to external spiral cords, but with no spiral lirae. Parietal margin of aperture developed and slightly detached in proximal half in some large adult specimens. Canal broad, open, with developed and detached parietal margin over most of length in adult specimens; labral margin thin, sharp; canal usually almost straight but can be slightly recurved.

Shell pale off-white with medium to dark brown patterning; color present at least in interstices of axial ribs and at growth pauses in all specimens, but usually more widespread, with some examples almost entirely stained dark brown.

Periostracum thick, straw-colored when dry, of axial lamellar construction, with very dense tufts. Tufts tall, slender, erect or slightly prosocline, arranged in spiral rows corresponding to major cords, and aligned with axial sculpture. Axial lamellar margins form prominent bridges between tuft roots. Operculum typical for genus; brown, chitinous, leaf-shaped with nucleus at proximal terminus.

Size: to 84.3 mm, average adult 63.4 mm (n=18)

Range: Japan Sea, S to E Korea

Remarks: Compared with *F. perplexus* and *F. ferrugineus*, *F. juliabrownae* shows 3 main distinctive characters:

- the clear pairing of the spiral cords on the early whorls;
- the maintenance of a constant breadth by the spiral cords in crossing the axial ribs, neither declining in strength nor forming carinae at the rib summits as in many other species;
- the short, broad neck.

F. juliabrownae is closest morphologically to *F. ferrugineus*. It can be differentiated, however, by its less pyriform shape, shorter and more obliquely tapering neck with more broadly open canal, distinctive paired spiral cords, and the absence of the row of small, sharp peripheral carinae that is often present on the body whorl of *F. ferrugineus*.

It also strongly resembles certain small, colored specimens of *F. perplexus*, from which it can be distinguished by its paired spiral cords, denser early axial ribs and shorter, broader neck.

From *Marmorofusus nigrirostratus* it can be distinguished by its smoothly rounded whorl profile, its prominent spiral cords, the numerous rounded axial ribs on the early whorls, the absence of shoulder knobs and the presence of a tufted periostracum.

It differs from *Marmorofusus tuberosus* in its thinner, lighter shell, longer and more clearly defined neck, rounded whorl profile, prominent spiral cords and tufted periostracum.

F. diandraensis can be distinguished from *F. juliabrownae* by its larger average size and more angular whorl profile and its longer neck with a narrow, parallel-sided canal.

Fusinus laetus (G. B. Sowerby II, 1880)

Description: *Testa breviter fusiformis, alba, fasciatim fusco strigata et maculata, spiraliter lirata; spira acuminata, quam canali longiori, anfractibus 8, superioribus rotunde costatis, ultimo declivi, vix angulato, ad angulum tuberculis parvis cincto; apertura ovata; canali brevi sensim declivi.*

(The shell is shortly fusiform, white, thinly banded and spotted with brown, spirally lirated; spire pointed, longer than the canal, with 8 whorls, the upper ones roundly ribbed, sloping at the end, barely angled, surrounded at the perifery by small tubercles; aperture ovate, slowly descended to the short canal.)

Ivory-white with orange-tan axial streaks; early whorls with low, rounded, rather wide ribs; spiral cords wide, interspaces bear 2 or more narrow cords.

Size: 15-50 mm

Range: not given

Fusinus laticlavius Callomon & Snyder, 2017

Description: Shell slender fusiform, small. Protoconch worn in all material examined; of ca. 2 whorls. Early teleoconch whorls rounded but sharply angled periphery developing in last 3; suture adpressed. Axial sculpture on teleoconch of 9-10 strong, narrow ribs increasing in number roughly 1 per whorl to body whorl; variably expressed spiral sculpture of 5-6 continuous primary cords distributed evenly between sutures on earlier whorls, becoming restricted largely to anterior 2/3 of penultimate whorl, with strongest at periphery; on body whorl, an additional ca. 20 primary cords of roughly equal strength distributed to end of rostrum; occasional intercalary cords, weakly and randomly developed. Columellar margin of aperture and canal with raised rim over entire length in mature specimens; raised plications at posterior end roughly corresponding to underlying spiral cords. Canal broad, uniformly open; rostrum somewhat to significantly sinuous.

Periostracum thin, glossy with very sparse and weak lamellae, covering entire shell. Operculum straw colored, flexible, translucent, leaf-shaped with terminal nucleus. Shell light to medium brown overall with broad white band at periphery developing in later whorls.

Size: to 60.9 mm

Range: W Gulf of California, Baja California Sur, Mexico

Remarks: *F. laticlavius* can be distinguished from *F. euekes* by its larger adult size; the stronger and more sinuous reflexure of the rostrum; the broader canal; the more numerous major spiral cords on the spire whorls and the broad white bands that are normally present.

F. seriatus can be compared to *F. laticlavius*, from which it can be distinguished by its much smaller adult size, broader and more rounded axial ribs and coarser, less numerous spiral cords.

Fusinus laticostatus (Deshayes, 1831)

Synonyms: according to WoRMS synonym to *Marmorofusus undulatus* (Gmelin, 1791)

Description: *F. testa fusiformi, elongata, angusta, acuta, alba; anfractibus convexis, medio tuberculatis, costatis; costis transversalibus, latis, depressis, striatis, convexis, sulco separatis; cauda spira breviore; labro crenulato, intus sulcato.*

La coquille que nous nommons ainsi est grande, alongée, étroite, solide, épaisse, toute blanche, à spire longue et pointue, formée de dix tours convexes , à peine carinés dans le milieu , où ils présentent un rang de tubercules peu saillants qui s'effacent sur les derniers tours et se changent en côtes longitudinales sur les premiers; chaque tour de spire est muni de sept côtes transversales, larges, aplaties, séparées par un sillon étroit et finement striées dans toute leur longueur; à la base du dernier tour se trouvent des côtes semblables aux autres; mais celles qui sont sur le dos du canal sont étroites, saillantes, subcarénées, et beaucoup plus distantes que les autres; le canal de la base est cylindracé, plus court que la spire; en dessous il est bordé dans toute sa longueur par le bord gauche qui est peu saillant; l'ouverture est petite, toute blanche en dedans; le bord droit est subcaréné, sillonné et strié à l'intérieur.

(Shell fusiform, elongate, narrow, acute, white; with convex whorls, tuberculated in the middle, and ribbed; transverse ribs, broad, depressed, striated, convex, separated by furrows; canal shorter than spire; lip crenulated, furrowed inside.

The shell is large, elongated, narrow, solid, thick, entirely white, with a long and pointed spire, formed of 10 convex whorls, barely carinated in the middle, where they present a row of not very prominent tubercles which are erase on the last whorls and change to longitudinal ribs on the first; each whorl of spire has 7 transverse ribs, broad, flattened, separated by a narrow furrow and finely striated in all their length; at the base of the last whorl are ribs similar to the others; but those which are on the back of the channel are narrow, projecting, subcarinated, and much more distant than the others; the base channel is cylindrical, shorter than the spire; below it is bordered in its entire length by the left edge which is not very prominent; the aperture is small, all white inside; the right edge is subcarinated, furrowed and striped inside.)

Size: length 150 mm, width 50 mm

Range: Sri Lanka

Remarks: For comparison with *Fusinus flavicomus* see there.

Compare to *Marmorofusus nicobaricus* and *Marmorofusus undulatus*, too.

Fusinus laviniae Snyder & Hadorn, 2006

Description: Shell fusiform, of medium size for genus, about 11 whorls including protoconch, with elongate, slender spire, conspicuously long, slender, sometimes wavy neck. Upper whorls convex, lower whorls distinctly carinated, with straight or slightly concave shoulder slope. Suture distinct, adpressed, with narrow subsutural band. Protoconch smooth, glossy, white, about 1 1/2 whorls. First whorl usually conspicuously bulbous, often larger than second whorl. Final half whorl ornamented with numerous close-set fine axial riblets. Transition to teleoconch abrupt, with distinct varix. Maximum protoconch diameter approximately 1.1 mm.

7-9 broad convex axial ribs on upper teleoconch whorls, reaching from suture to suture. Interspaces on earlier whorls rather narrow, about 1/4 rib width, widening to about the width of a rib by the fifth teleoconch whorl, retaining that relationship to the body whorl. Axial ribs usually becoming weaker, reduced to pointed peripheral knobs on lower whorls, 9-12 per whorl. 5 major spiral cords on early teleoconch; peripheral cord strongest, cord below peripheral cord slightly weaker, cords on shoulder weak. 5-6 major spiral cords from second or third whorl on. Weak intercalated spiral threads from third teleoconch whorl on; up to 7 on body whorl, with central one strongest. Aperture white, ovate, pinched at both ends, with well-developed posterior notch. 15-20 distinct spiral lirae on labral wall of aperture; outer lip shows determinate growth, with thickened margin in adults. Lip margin bears weak denticles. Margin of parietal shield occasionally slightly flaring, shield white, thick, glossy, irregularly wrinkled, and reflecting somewhat underlying spiral sculpture. Siphonal canal about 41.6 % of shell length (n = 16, range (0.25-0.47)), slender, sometimes slightly sinuous, tapering anteriorly. Outer face of neck ornamented with major spiral cords and intercalated minor threads, becoming weaker towards distal end.

Shell cream-white overall; axial ribs, knobs on shoulder usually red-brown. Major spiral cords at shoulder, on neck occasionally tinged red-brown. Periostracum pale brown, velvety. Operculum typical of genus, brown, corneous, solid, filling aperture, with terminal nucleus.

Size: to 115 mm

Range: New Caledonia

Remarks: *F. laviniae* is distinguished from other New Caledonia *Fusinus* by its long siphonal canal and angular sculpture. *F. laviniae* is compared to *F. colus, Marmorofusus nicobaricus, F. nobilis, F. salisburyi, Cyrtulus similis*, and *Cyrtulus undatus*.

F. colus is more elongate (length / width, 4.6, n = 10 (range 3.89-5.16), compared to 3.5, n = 16 (range 2.37-4.13)) than *F. laviniae*. The axial ribs on the early whorls are not as sharply carinate, and extend from suture to suture. The later whorl profiles are more rounded and convex than in *F. laviniae*. There are also somewhat atypical specimens of the genotype from southeast India, and from the Philippine Islands, which appear similar to *F. laviniae* in the later whorls. However, these specimens without exception show the characteristic suture-to-suture axial ribs with brownish coloration between them on the early teleoconch whorls. The examination of the early whorls will provide easy differentiation of these two species, even in this case.

The thick rounded spiral cords and distinctive overlaid brown/black color pattern readily distinguish *F. nicobaricus* from all others collected around New Caledonia.

F. nobilis is a larger species (generally over 200 mm when mature) than *F. laviniae*. The whorls are inflated with no sharp protuberances.

F. salisburyi is another somewhat larger species (up to 215 mm) with more numerous and prominent spiral cords (11-13 compared to 5-6) than *F. laviniae*, and a distinctive ‘pseudoumbilicus’ formed by recurvature of the lower portion of the parietal shield. The axial lobes or knobs on *F. salisburyi* are not as angular or pronounced as on *F. laviniae* and the siphonal canal is straight.

C. similis is somewhat larger (up to 183 mm) than *F. laviniae*. The aperture is distinctly quadrate and placed further toward the abapical end of the shell than in *F. laviniae*. The sutures of *C. similis* are more sharply tilted with respect to the shell axis.

C. undatus is both larger (up to 232 mm) and much heavier than *F. laviniae*, with an almost smooth and slightly glossy surface on the penultimate and body whorls. The peripheral sculpture in *C. undatus* consists of axial buttresses with rounded lower extremities, in distinction to the sharp angular shoulder knobs of *F. laviniae*.

Sharp proturbences on large slender fusinids are an uncommon occurrence. However, there are a few other fusinids with which *F. laviniae* could possibly be confused.

F. dovpeledi is about the same size as *F. laviniae* and has a similar long sinuous siphonal canal. The peripheral carinae on *F. dovpeledi* are not as prominent and number 12-14 on the body whorl compared to 9-12 in *F. laviniae*. Easy differentiation is provided by the spiral sculpture with approximately 12 strong cords on the later whorls compared to 5-6.

F. malhaensis is larger (up to 175 mm) than *F. laviniae* with fewer (7-8 compared to 9-12) and less prominent carinae. Additionally, the parietal shield in *F. malhaensis* is usually flared and detached.

F. stannum differs from *F. laviniae* in its stronger spiral cords and evenly rounded whorl profile, and from both in having an intermediate phase roughly between the fourth and seventh whorls during which axial ribs are absent.

Fusinus lightbourni Snyder, 1984

Description: Shell moderately large for the genus. Profile somewhat inflated, fusiform, with about 10 whorls. Embryonic whorls are smooth, quite pointed, and waxy white in color. Teleconch bears strong axial ribs which are not evanescent on the body whorl. Later whorls bear 13 or 14 such ribs. These ribs present a slightly angular profile, being crossed by about 10 strong spiral lines, the 2 strongest on the shoulder giving the angular appearance to the profile. Between these 10 stronger spiral lines are finer lines. These in turn are crossed by very fine axial lines giving the surface of the shell between the axial ribs and strong lines the texture of linen. The aperture is ovate, pinched at the anterior and posterior ends. The parietal callous is extended forming sharp, thin lamina on the inner lip along the columellar border of the aperture. The inner surface of the outer lip is calloused

and strongly denticulate with about 16 lirae. Base and anterior siphonal canal are straight and slender, being about one half of the total length of the shell. The shell is white with pale-brown bands of color just before and just after the suture. In some specimens the canal is recurved.

Redescription: Shell of medium size, with about 10 somewhat inflated strongly convex whorls. White-coloured with pale-brown bands of colour just before and just after the suture. Strong narrow axial ribs on upper teleoconch whorls, 13-14 usually weaker ones on latter whorls. Interspaces between ribs narrow, only weakly impressed especially on body whorl. About 10 strong spiral cords of equal size which are intercalated by finer spiral threads. The aperture is ovate, the parietal callus is extended forming a sharp, thin lamina. Outer lip denticulate, with about 16 internal lirae. Inner lip well developed, ornamented with some weak folds. No columellar folds. Siphonal canal usually straight and slender, sometimes recurved.

Size: 45-70 mm; 66 mm

Range: Bermuda

Remarks: *F. lightboumi* seems most closely related to *Apertifusus frenguellii*. The most obvious differences are its smaller adult size, the pale brown bands of coloration, and the details of its body sculpture. The comparison is facilitated with the aid of a table:

F. lightboumi	*A. frenguellii*
1 1/2 whorl small pointed nucleus	2 whorl large mammillate nucleus
13-14 axial ribs on body whorl	10-18 axial ribs on body whorl
colored bands	essentially uncolored
10 spiral grooves	7-8 spiral grooves with smaller ones between
heavy calloused toothed lip	thin lirate lip
slightly angular profile	rounded profile
ribs often prominent on body whorl	ribs usually evanescent on body whorl
	grows twice as large and has a proportionately longer canal

F. lightbourni differs from *F. chocolatus* in having a somewhat larger shell, and a clearly larger number of smaller and less distinct axial ribs.

F. schrammi has less convex, carinated whorls. The axial ribs are often slightly oblique, and the interspaces between them broader. The spiral sculpture has cords of unequal strength, intercalated by a clearly larger number of fine threads.

F. lightbourni is in the same size range as *F. meteoris*, but differs considerably in morphology of the teleoconch: The folds are more numerous and closer set, more wavy and flexuose, and the spirals do not make knobs at intersections.

Fusinus longissimus (Gmelin, 1791)

Synonyms: *Murex candidus* Gmelin, 1791, *Syrinx producta* Röding, 1798

Description: *M. testa tenui striata; spira obtusa nodosa, cauda longa rectissima. Testa alba 9 pollices longa, spirae anfractibus 10; nodis crebrioribus humilioribus, quam in undato.*

(Shell thinly striated; spire obtuse nodose, canal long and straight. Shell white, spire with 10 whorls; with more densely packed and lower knobs than in [*Cyrtulus undatus*].)

Redescription: Shell very large for genus, robust but light. Protoconch unknown, but probably very small, with final whorl diameter approximately 1 mm. Teleoconch of 14 whorls; whorl profile initially rounded, becoming somewhat angular in later growth stage. First 6 or 7 whorls bear heavy, rounded axial ribs, spaced randomly relative to those on following whorl; ribs then becoming more angular and reduced to series of shoulder knobs by penultimate whorl. Early whorls bear 5 strong major spiral cords with single faint minor cords in interspaces; minor cords strengthen in later whorls, becoming equal in strength to majors by sixth or seventh whorl. 2 or 3 cords that cross axial knobs at periphery then become stronger than others, with single minor between them in final whorls; knobs can thus be strongly carinate (three cords, strongest at periphery) or bluntly angular (two cords, separated by periphery). Cords extend over half way down neck, becoming fainter or absent at distal tip; 8 to 9 majors above periphery on body whorl, with occasional minors, 40-45 cords below periphery, with scattered minors. Suture adpressed, with distinct

subsutural band bearing several finer spiral cords. Numerous very fine axial growth marks over entire teleoconch, not crossing spiral cords in early whorls; later whorls bear scattered axial growth ridges not coinciding with shoulder knobs; ridges heavy enough to bend spiral cords. Neck long, smoothly tapering with only very gentle recurvature.

Aperture ovate; labral margin forms gentle angle slightly above position of shoulder knobs; second, lower angle forms in mature adults due to ventricose flaring of lip. Interior of labral wall with numerous strong spiral cords, corresponding to troughs between major spiral cords on outer surface; inner cords remain strong to margin, terminating as strong denticles in adults. Columellar margin expressed, slightly flaring in adults to form parietal shield in anterior 2/3; shield thick with sharp edge, bearing numerous short spiral cords shortly before margin; cords wavy, sometimes bifurcate or prematurely terminated, longer at posterior end of aperture where they extend far into shell. Inner margin of canal detached over entire length, continuous from parietal shield. Outer margin sharp. Canal broadly open over entire length. Shell dull off-white overall; later major spiral cords pale brown in some specimens.

Operculum typical for genus; thick, dark brown, chitinous, with nucleus at pointed tip. Periostracum thick, yellow-brown, eroded from first 6 or 7 whorls, bearing extremely fine axial lamellae with numerous curved and pointed tufts; tufts present over whole shell, becoming slightly larger towards top of subsutural band.

Size: 225 mm; to 337 mm, average 291 mm (n=12 adults)

Range: ?India (rare); Japan, Philippines, Taiwan, Vietnam and New Caledonia

Remarks: In adult form it is easily distinguished from other *Fusinus* by its enormous size, thin shell and carinate or blunt shoulder knobs. The only species in Japan that approaches it in size is *F. salisburyi*, but the latter can be easily distinguished by its thicker shell with highly inflated whorls, its strong and complex spiral sculpture and its well-developed parietal shield with a detached and reflexed margin at the entrance to the canal.

F. colus can occasionally approach *F. longissimus* in size, but is more slender, with rounded whorls and a longer, more strongly recurved neck.

F. longissimus can be distinguished from *F. malhaensis* by the stronger spiral sculpture, the smaller number of spiral cords, the less constricted suture, the clearly heavier and thicker shell, the usually straight or concave shoulder slope and by the darker coloured interspaces between the axial ribs on upper whorls.

From *F. longissimus F. nodosoplicatus* is easily distinguished by its much smaller shell, shorter canal, thicker spiral ribs and less sharp and tuberous ribs. In addition, the whorls are disconnected by a much deeper suture.

F. percyanus is differing from *F. longissimus* in being wider and shorter and in having a band of reddish yellow upon the angles.

For comparison witn *F. aurinodatus* see there.

Fusinus magnapex Poorman, 1981

Description: Shell small, fusoid; spire equal to aperture plus canal in height. First turn of protoconch large, sharply tilted, tip immersed; second turn slightly larger, flat-sided. Beginning of adult sculpture eroded. Spire of 6 whorls increasing regularly to a large body whorl. Aperture oval; outer lip sharp and serrated, about 7 lirations within. Columellar wall with light callus but with a heavy deposit before the juncture with the canal. Canal short, broadly open to the right, angling slightly to the left of the shell axis. Axial sculpture of 8 strong rounded ribs equal in width to interspaces, aligned up the spire. Spiral sculpture of 7 strong cords overriding the ribs in crested nodes, the 3 at the periphery strongest; weaker threads on the shoulder and down the pillar; with a few intercalary threads between the major cords. Color white; regions above and below the 3 peripheral cords red brown, strongest on the shoulders of the ribs.

Size: height 25.4 mm, maximum diameter 10.8 mm

Range: Baja California Sur, Mexico

Remarks: *F. magnapex* superficially resembles a small specimen of *Hesperaptyxis ambustus*. It differs radically in having such a large protoconch with a tilted first turn, and in being proportionately shorter and stouter.

Fusinus malhaensis Hadorn, Fraussen & Bondarev, 2001

Description: Shell large, elongate, fusiform, conspicuously thin, light in weight, spire high, siphonal canal long, straight. Protoconch and spire tip broken in all available specimens, leaving 9 remaining whorls. Original number of teleoconch whorls 11 or 12 by estimation. Upper whorls rounded, middle whorls with peripheral keel, lower whorls with small pointed knobs. Suture deeply incised, shoulder slope straight or convex. Upper whorls with 7 or 8 narrow, rounded axial ribs extending from suture to suture. Interspaces weakly impressed, about as broad as ribs. On following whorls 7-10 axial ribs, withdrawing from both sutures and gradually transforming in small pointed knobs. 7-11 knobs on penultimate and 8-12 on body whorl.

Spiral sculpture consisting of conspicuously fine spiral cords and fine intercalated threads. 5 or 6 primary cords on uppermost remaining whorls. On following whorls, a secondary thread appears between primary cords, becoming as strong as primary ones on next whorls. On following whorls, fine intercalated tertiary threads between primary and secondary ones. Their number increasing by intercalation to up to 6 on latter whorls. Primary and secondary cords becoming weaker and tertiary threads becoming slightly stronger, sometimes from penultimate whorl on. Finally, all spirals have about the same strength on body whorl. Primary cord at periphery forming the strongest cord of carinated whorls. Spiral sculpture crossed by fine growth lines, giving the surface a uniform, minutely granulated appearance.

Aperture ovate, white. Outer lip simple, slightly crenulated with numerous rather strong, close-set internal lirae. Parietal callus strongly developed, outer edge free and detached from lower part of body whorl, surface of callus smooth or with some weak irregular folds. Columellar folds absent. Siphonal canal conspicuously long, slender, straight. Outer side ornamented with weak spirals on upper half of siphonal canal, lower half almost smooth. Uniformly white, one specimen (dwarf form) with brown coloured axial knobs.

Size: 91-175 mm

Range: Saya de Malha Bank, W Indian Ocean

Remarks: *F. malhaensis* is easily recognizable and characterized by the conspicuously fine spiral sculpture, the large, elongate and light-weight shell, by the straight or clearly convex shoulder slope, and by the unicarinated lower whorls.

F. colus differs in having a stronger spiral sculpture with a smaller number of spirals, a less constricted suture, usually a smaller adult size, a thicker shell, white axial ribs with brown-coloured interspaces at least on upper whorls, and often a red-brown tinged spire and siphonal canal.

F. longissimus can be distinguished by the stronger spiral sculpture, the smaller number of spiral cords, the less constricted suture, the clearly heavier and thicker shell, the usually straight or concave shoulder slope and by the darker coloured interspaces between the axial ribs on upper whorls.

F. forceps and *F. salisburyi* have both a conspicuously strong spiral sculpture, a clearly smaller number of spiral cords, a slightly channeled suture, a broader spire angle, a stronger and broader siphonal canal, and finally a thicker and heavier shell. Moreover, *F. forceps* has unkeeled whorls.

F. multicarinatus from Somalia has a broader spire angle, ventricose whorls, a heavier and thicker shell, a stronger spiral sculpture, less numerous spirals, a less constricted suture, and a broader and shorter siphonal canal.

F. malhaensis is larger (up to 175 mm) than *F. laviniae* with fewer (7-8 compared to 9-12) and less prominent carinae. Additionally, the parietal shield in *F. malhaensis* is usually flared and detached.

F. stannum differs from *F. malhaensis* in bearing strong spiral cords over the entire teleoconch, in its longer, recurved neck and in lacking a parietal shield.

F. bondarevi is most closely related to the sympatric *F. malhaensis*. They are collected together at the type locality and they share some shell characteristics like the similar spiral and axial sculpture and some features of the peculiar aperture. Yet, *F. malhaensis* differs by the uniformly white, conspicuously thin, light-weight shell, the slenderer and more elongated shell, the higher spire with at least 9 teleoconch whorls (7.5 in the new species) and the clearly longer siphonal canal (ratio SL/SW 3.90 versus 2.76 in *F. bondarevi*). The axial knobs are more numerous, smaller, less conspicuous but more pointed, formed by one strong spiral cord on carina.

Fusinus marcusi Hadorn & Rogers, 2000

Description: Shell fusiform, slender, large, with 11-12 convex, distinctly keeled whorls with a subsutural concavity and a broad, slightly concave shoulder slope. Siphonal canal slender, very long and neady straight. Suture slightly wavy on upper whorls, straight below; numerous growth lines crossing the spiral sculpture.

Protoconch typically fusoid, bulbous, porcellaneous white, glossy, consisting of 1 to 1 1/4 whorls; last half whorl strongly sculptured with 12-15 narrow axial riblets traversing from suture to suture. They become stronger towards the end of the protoconch. Ending in an indistinct varix. Diameter 0.9-1.1 mm.

9-10 narrowly spaced axial ribs on first postnuclear whorl, 7-9 on following whorls, 11-13 on penultimate and body whorl. On upper teleoconch whods the axial ribs are narrow and low, reaching from suture to suture. On the following whorls they become broader and terminate below the upper suture. On lower whorls they terminate also somewhat above the lower suture and are usually reduced to broad knobs at the periphery. Adult specimens sometimes with a heavy thickened, broad prelabrial axial rib.

The teleoconch begins with 4 spiral cords; the upper ones are weak on all whorls, the 2 lower ones are clearly stronger especially where they pass over the axial ribs, and form a distinct double keel at the periphery on upper whorls. On latter whorls the lower one of the 2 strong cords becomes usually somewhat weaker and therefore the profile of the whorls becomes single keeled. In the subsutural concavity with fine, hardly visible spiral threads. Starting with the second postnuclear whorl 2-3 additional secondary spiral cords appear directly above the suture. The number of fine intercalated threads increases on latter whorls.

Aperture rather small and narrow, white or yellowish, ovate, pinched at both ends. Parietal callus strongly developed and conspicuously detached from lower part of body whorl, slightly crenulated, with a well delevoped posteior canal (only full grown specimens). Outer lip slightly denticulated; about 13-17 strong internal lirae. No columellar folds. Siphonal canal long and slender, straight, tapering anteriorly. On outer side sculptured with rather strong and regularly spaced spiral cords which are intercalated by some finer threads.

Shell white, yellowish or sometimes pale orange. Axial ribs or knobs white or yellowish, interspaces between them often reddish-brown, mainly the two central spiral cords are often darker red-brown between the axial ribs.

Operculum corneous, red-brown in colour oblong ovate, shape and size corresponding to the aperture, with terminal nucleus. Weak concentric growth lines on outer side. Inner side with some concentric lines and with a dark brown callus along the outer edge.

Size: up to 102 mm

Range: N Cuba

Remarks: It differs from the columbariid species *Fulgurofusus timor* by being much larger, by having more whorls, clearly stronger axial knobs, stronger and broader spiral cords, by the often red-brown interspaces between the axial ribs, the strong lirae inside the aperture, by the well-developed and detached parietal callus and finally by the typical fusoid protoconch.

Aristofusus stegeri can be separated by the strongly convex and unkeeled whorls, the pure white shell, the stronger axial ribs and the deeper impressed interspaces between them, by the somewhat shorter siphonal canal, the stronger spiral sculpture on shoulder, and by the often obsolete axial sculpture on penultimate and body whorl.

F. excavatus differs in the smaller shell, in the axial ribs reaching from suture to suture, in the clearly stronger spiral sculpture on shoulder, in the broader and uncoloured interspaces between the axial ribs, and finally in the shorter, much stronger and broader siphonal canal and in the stronger spiral sculpture on siphonal canal.

F. halistreptus has more convex whorls, a less strong and different axial and spiral sculpture, an entirely white-coloured shell or coloured with 2 red-brown bands, a strongly convex shoulder, a nearly round aperture with much finer internal lirae within, a small band of fine scales in front of the suture, and coarse growth lines on all whorls.

Fusinus mariaodetae Petuch & Berschauer, 2016

Description: Shell small for genus, thin, delicate, elongated, distinctly fusiform; shoulder completely rounded, with no angulation; body whorl inflated, with rounded sides, ornamented with 12 large, rounded, evenly-spaced spiral cords; faint, thin spiral thread present between each pair of spiral cords; body and spire whorl spiral cords, in turn, overlaid with 13-16 narrow, low, evenly-spaced longitudinal ribs; intersection of spiral cord and longitudinal rib

producing low, elongated bead; spire and siphonal canal of approximately same length; siphonal canal straight, sculptured with 18-20 fine, smooth spiral ribs; siphonal canal-body whorl juncture abrupt, highly indented, constricted; body whorl and siphonal canal uniformly pale cream or pale straw color, with interstices between ribs sometimes being slightly darker colored; spire and early whorls darker yellow-cream to pale orange; aperture almost round, pale cream-white within interior, sculptured with 12-14 large ribs; prototconch pale yellow-orange, proportionally very large, bulbous and mammilate, composed of 2 whorls.

Size: length 43.2 mm, width 16.3 mm

Range: Sao Paulo State, Brasil,

Remarks: Of the known Brazilian *Fusinus* species, *F. mariaodeteae* is similar only to *Apertifusus frenguelli*. Both species have very rounded shoulders and a sculpture pattern of intersecting strong spiral cords and narrow longitudinal ribs and both are colored a pale cream-white of pale yellow. *F. mariaodeteae* differs, however, in being a much smaller, stockier, and less elongated species with a proportionately lower spire and much shorter siphonal canal. The spiral cords on *A. frenguelli* are also much larger and more pronounced, and have more numerous smaller cords and threads between each set of main ribs. The larger *A. frenguelli* also prefers shallow water, normally being collected in 20-50 m depths, while *F. mariaodeteae* is a more offshore animal, preferring depths of 100-150 m.

Fusinus marisinicus Callomon & Snyder, 2009

Description: Shell medium-sized for genus, thick, robust, of approximately 10 whorls. Whorl profile evenly rounded with no peripheral keel or angulation. Protoconch missing in all material examined. Primary (post-nuclear) whorls bear 4 strong, evenly spaced spiral cords, with a weaker fifth immediately below suture; fifth cord strengthens from third whorl and other minor cords emerge; fourth whorl with 4 major cords and at least one minor one on either side of central 4. By seventh whorl, 7 major spiral cords present, with interspersed minor cords in troughs; penultimate whorl at terminus of suture bears 12 major cords and numerous minor cords. Approximately 50 spiral cords of even strength distributed over body whorl, angle of cords to axis steepening towards end of neck; cords slightly crowded near suture, evenly distributed otherwise.

Axial sculpture of characteristic broad, closely spaced ribs spanning whorl from suture to suture; ribs present from first whorl through entire teleoconch, but often becoming reduced or absent on final half of body whorl. Spiral cords cross ribs, thickening slightly at apex of ribs on later whorls but not forming lobes. Interspaces of spiral cords with very numerous, fine axial growth lines that can be slightly lamellate; growth lines do not cross cords.

Aperture almond-shaped, smooth and porcellaneous within. Labral wall bears spiral cords that terminate in tapered points shortly before lip and correspond in position to troughs between spiral cords on shell exterior; lip thus corrugate, with slight indentations and thickened, glazed margin in adults, but no developed dentition. Parietal wall of aperture smooth, thickened; margin clearly pronounced but not detached or recurved. Neck tapered, slightly to strongly recurved in distal half. Canal open, of even width over whole length, even in specimens with heavily twisted neck; parietal margin of canal pronounced but not detached.

Shell dull white overall, with occasional pale brown staining of earliest whorls. Periostracum thin, pale brown, of axial lamellar construction, lamellae bearing finely pointed tufts with broad, triangular bases. Operculum typical for genus, thick, chitinous and almondshaped, with nucleus at pointed tip; dark brown.

Size: to 195.5 mm; average adult size 173.8 mm (n = 11)

Range: East China Sea

Remarks: *F. marisinicus* is a distinctive species characterized by its broad, rounded axial ribs that span all the spire whorls from suture to suture.

The nearest congener to it morphologically is *F. crassiplicatus* from central Japan, but that species is smaller than *F. marisinicus*, with a more slender profile and fewer, more pronounced axial ribs on the early whorls. In addition, the aperture in *F. crassiplicatus* becomes somewhat ventricose in adult specimens.

Another similar sympatric species is *F. salisburyi*, from which *F. marisinicus* may be distinguished by its smaller adult size, its broad, rounded axial ribs, its much finer, less numerous spiral cords, and the absence both of a detached, recurved parietal shield and of a pronounced whorl periphery.

From large specimens of *F. perplexus* known from Japan and the East China Sea off Kyushu, *F. marisinicus* can be distinguished by its thicker, heavier shell; its longer, more slender neck, and the absence of a peripheral cord or knobs.

Cyrtulus undatus is a sympatric species with axial ribs that can span the entire whorl, but it has a thicker shell with a broader neck, pronounced shoulder knobs that form axial buttresses, and reduced or absent spiral cords.

Fusinus maritzaallaryae T. Cossignani & Allary, 2019

Synonyms: according to WoRMS synonym to *Apertifusus caparti* (Adam & Knudsen, 1955)

Description: not available

Size: 127 mm

Range: S Angola

Remarks: unaccepted > junior subjective synonym

Fusinus martinezi Macsotay & Campos, 2001

Synonyms: according to WoRMS synonym to *Lyonsifusus ansatus* (Gmelin, 1791)

Description: not available

Size: 123 mm

Range: Venezuela

Fusinus meteoris Gofas, 2000

Description: Shell elongate fusiform, of 8-9 whorls, whitish. Protoconch 1 1/4 whorls, with globose nucleus and subsequent whorl constricted; protoconch whorls slightly convex, with maximum convexity near the suture; the later part with delicate axial folds. Protoconch/teleoconch limit well marked, orthocline. Teleoconch of 7-8 whorls, moderately solid. Spire whorls convex, slightly shouldered, with 10 strong, widely spaced axial folds overrun by spiral cords. Three major spiral cords throughout teleoconch whorls, forming elongate knobs at intersection with straight, slightly prosocline axial folds; smaller subsutural and suprasutural cords added from penultimate whorl onwards. Second-order spiral threads between major cords hardly apparent on the first 4 teleoconch whorls, grading to 3 in each interspace on penultimate and body whorl. Body whorl with rounded periphery and a long, straight, tapering siphonal canal, with ca. 20 spiral cords, somewhat unequal in size but not alternating, less prominent towards the tip of the canal.

Aperture oval, merging abapically into the quite open siphonal canal. Parietal edge bearing anteriorly a very weak knob, very close to the attachment of the outer lip. Columellar edge smooth, appressed. Outer lip with a thin edge, smooth inside, weakly notched at the termination of the spiral cords. Inside of the aperture with very faint spiral grooves in the deeper visible part. Colour of protoconch whitish; teleoconch also whitish, grading to a very faint tan colour between the axial folds; interior of aperture white.

Size: 48.8 mm; 40-72 mm

Range: Great Meteor bank, NE Atlantic

Remarks: *F. lightbourni* is in the same size range as *F. meteoris*, but differs considerably in morphology of the teleoconch: The folds are more numerous and closer set, more wavy and flexuose, and the spirals do not make knobs at intersections.

The closest relationship as can be inferred from morphology is with *F. bocagei*, mainly distinguished by being smaller (large specimens on the seamounts reach 30 mm) and having a multispiral protoconch. The pattern of sculpture with widely spaced, straight and slightly prosocline axial folds, knobs at intersections of spirals is however basically the same.

Fusinus midwayensis Kosuge, 1979

Description: not available

Size: 73.3 mm

Range: Midway Islands

Remarks: It is smaller and has a relatively shorter neck, numerous strong spiral cords and weak axial ribs than *F. undatus, F. similis, F. sandvichensis, F. michaelrodgersi, F. genticus, F. galatheae, F. bountyi* and *F. mauiensis*.

The distribution of *F. midwayensis* overlaps with that of *F. sandvichensis* but the former is easily distinguished by its smaller size, shorter rostrum, more rounded whorl profile and distinctive narrow, widely-spaced axial ribs.

Fusinus multicarinatus (Lamarck, 1822)

Description: *F. testa fusiformi, transversim sulcatâ et striata, cinereo-rufescente; sulcis dorso acutis, cariniformibus; anfractibus convexis, medio plicâto-nodosis; labro intùs sulcato.*

Tours très-arrondis, à plis ou noeuds d'autant plus saillnns qu'ils approchent davantage du sommet; spire presque aussi longue que la queue. Longueur, 5 pouces deux lignes.

(Shell fusiform, transversely furrowed and striated, greyish-red; sharp furrows on the back, keeled; with convex whorls, in the middle folded-nodose; the lip furrowed inside.

Whorls very rounded, with folds or nodes all the more protruding as they approach closer to the top; spire almost as long as the canal.)

Size: 250 x 170 mm; 139 mm

Range: Red Sea

Remarks: *Propefusus australis* differs from *F. multicarinatus* by closer streaks, less pronounced bulges, and larger whorls.

F. jasminae differs from *F. multicarinatus* by the much heavier, more solid, and thicker shell,the more convex whorls, the stronger axial ribs on all whorls, the much deeper and larger interspaces between axial ribs, the greater number of spiral cords, and the uniformly dirty-grey colored shell.

F. multicarinatus from Somalia has a broader spire angle than *F. malhaensis*, ventricose whorls, a heavier and thicker shell, a stronger spiral sculpture, less numerous spirals, a less constricted suture, and a broader and shorter siphonal canal.

F. multicarinatus differs from *Enigmofusus versiformis* by the clearly stronger, more prominent spiral sculpture, the clearly smaller number of spiral cords, the well-rounded convex upper teleoconch whorls, the only slightly carinated penultimate and body whorl, and the broad, smooth subsutural band.

Fusinus nanus T. Cossignani & Rosado, 2022

Description: not available

Size: length 22,32 mm; up to 31 mm

Range: Mozambique

Fusinus nobilis (Reeve, 1847)

Description: *Fus. testa gigantea, elongato-fusiformi, anfractibus rotundatis, spiraliter creberrime acute liratis, longitudinaliter plicato-costatis, costis latiusculis, anfractiis ultimi et penultimi labrum versus gradatim evanidis; alba, lirarum interstitiis pallidissime rufescentibus.*

Shell very large, elongately fusiform, whorls rounded, spirally very closely sharply ridged, longitudinally plicately ribbed, ribs rather broad, of the last and penultimate whorl gradually fading away towards the lip; white, interstices of the ridges very faintly tinged with reddish-brown.

Size: length 262.5 mm, width 87.5 mm

Range: New Caledonia

Remarks: Unlike other large species, the whorls exhibit no indication of any spiral row or keel of nodules.

F. nobilis is a larger species (generally over 200 mm when mature) than *F. laviniae*. The whorls are inflated with no sharp protuberances.

F. nobilis lacks the detached, recurved parietal margin and heavily indented sutures that characterize *F. salisburyi*.

Fusinus nodosoplicatus (Dunker, 1867)

Synonyms: *Fusinus grabaui* Kuroda & Habe, 1952, *Fusus inconstans* Lischke, 1868

Description: *Testa magna, crassa, solida, alba, in apice fuscescens, inter costas interdum fusco strigata, anfractibus 9 ad 10 valde convexis, nodoso-plicatis undique transversim sulcatis acuteque liratis instructa; epidermide tenui lamellosa pallide cornea facile dehiscente vestita; anfractus ultimus, 3/5 totius testae longitudinem adaequans, nodis crassis 11 cinctus; rostrum longum rectum, ad canalem interdum colore fusco tinctum; apertura ovata alba; labrum intus sulcatum.*

(The shell is large, thick, solid, white, brownish at the apex, sometimes streaked with brown between the ribs, with 9 to 10 very convex whorls, knotty-folded and transversely furrowed and sharply lirated; epidermis thin, lamellar, pale horny coloured, and easily falling off; the last whorl, equaling 3/5 of the entire length of the shell, is surrounded by 11 thick knobs; a long, straight siphonal canal, sometimes with brown color; aperture white, ovate; lip furrowed inside.)

Redescription: Shell medium sized for genus; angular fusiform with pronounced shoulder ornamentation. Protoconch smooth, glassy, with 1.5 highly inflated whorls, terminating abruptly at first axial rib. Teleoconch of 8 or 9 whorls with adpressed suture. Axial sculpture of broad ribs with deep troughs; whorl prolile noticeably angular from third or fourth whorl. Ribs continue to span sutures until body whorl. Shoulder often with 2 angles, the sharper at the periphery, the second shortly above it, both angles defined by spiral cords, with one cord in between. 6 strong, polished spiral cords on early whorls that cross axial ribs without weakening; cords constrict slightly in troughs between ribs, where they are crossed by numerous well-defined axial growth lines. Number of spiral cords increases to between 9 and 10 on penultimate whorl; cords broadly spaced, those above shoulder finer and weaker than those below; several faint minor cords often present between major cords, especially below shoulder. Numerous spiral cords below suture line on body whorl, often joined in closely-set pairs that resemble flat ribbons. Subsutural band of varying width, becoming less pronounced on body whorl.

Aperture with angular labral margin, often slightly ventricose in lower part; slightly pinched at terminus of suture. Labral wall with internal sculpture of irregular spiral ribs that often bifurcate or disintegrate shortly before margin; spacing of ribs corresponds to troughs between outer spiral cords, but shell not corrugated. Labral margin plain, not thickened in adults; termini of spiral cords slightly oblique, but with no developed dentition. Parietal callus thin, revealing underlying spiral cords; callus margin only slightly detached in mature adults, and often only in lower half; columellar margin of canal detached over entire length. Canal open, somewhat sinuous, flaring slightly towards distal end. Neck thick, slightly recurved in lower half, with distinct fasciole at distal end; spiral cords on body whorl persist on upper 2/3 of neck, becoming reduced or obsolete on distal third.

Shell pale off-white to pure white overall, but protoconch and early whorls pale brown. Spiral cords often pale brown over part or whole of teleoconch. Aperture white.

Periostracum moderately thick, mid-brown, composed of very numerous axial lamellae bearing erect thorns. Operculum typical fusinine: thick, brown, chitinous. with nucleus at pointed and slightly reflected terminus.

Size: length 146 mm, width circa 50 mm; to 149.7 mm, average adult 124.6 mm (n = 14)

Range: Japan

Remarks: From *F. longissimus F. nodosoplicatus* is easily distinguished by its much smaller shell, shorter canal, thicker spiral ribs and less sharp and tuberous ribs. In addition, the whorls are disconnected by a much deeper suture.

It differs from *Enigmofusus beckii (= F. ventricosus)* in all whorls strongly nodular-folded, less convex, the character of the suture, and other features.

From *F. nodosoplicatus F. diandraensis* can be distinguished by its smaller size, less pronounced angularity and the absence of the double row of carinate spiral cords at the shoulder.

It can be distinguished from *F. perplexus* by its strong shoulder bearing a row of biangular knobs that persist almost to the aperture, by its broader neck, and by the absence of developed labral dentition even in gerontic adults.

It differs from *F. salisburyi* by its smaller size, its more pronounced shoulder and more angular early shell profile, by the persistence of axial sculpture on the body whorl and by the absence of the distinctive "pseudoumbilicus" of *F. salisburyi*.

F. teretron resembles certain variants of *F. nodosoplicatus*, but it can be distinguished by its thinner adult shell, the lack of the prominent, upwardly inclined shoulder knobs of *F. nodosoplicatus* and its slender, regularly tapering spire with finer axial sculpture and broader ramps above the periphery.

Fusinus pauciliratus (Shuto, 1962) †

Fusinus pauciliratus complex M. A. Snyder, 2000

Synonyms: *Fusus simplex* E. A. Smith, 1879

Description: of *simplex*: Shell fusiform, white, clothed with a smooth greyish-olive epidermis. Whorls sloping and slightly concave at the upper part, bulging beneath and contracted at the base, carinately margined above at the suture, obliquely nodosely plicate and spirally lirate; plicae or costae 8 or 9 on the upper whorls, rounded, large, almost obsolete at the upper part; spiral lirae about 6 in number on a whorl, whereof 3 around the lower portion are the stoutest; besides these lirae, at times a few fine thread-like lirulae are present in the interstices. Last whorl with the costae not extending below the middle, lirate throughout, the lirae on the rostrum being very fine and close together. Aperture suboval, together with the canal equal in length to the spire above it; columella arcuate above, tortuous beneath; canal shorter than the aperture aud a little recurved.

Size: 30-65 mm; *simplex:* length 18 mm, width 5.5 mm

Range: Japan

Remarks: invalid: junior homonym of *Fusus simplex* Deshayes, 1834, and *F. simplex* Grateloup, 1847; *Fusinus complex* is a replacement name

F. guidonis can easely be distinguished from *F. pauciliratus complex*: The general form of the latter is much more elongate because of the longer siphonal canal and the less swollen whorls. *F. pauciliratus complex* has the axial folds heavier and crossed by much stronger spiral threads; the aperture more ovate than in. Compared with *F. pauciliratus complex* the shell of *F. guidonis* is a real lightweight.

Granulifusus rufinodis is close to *F. pauciliratus complex* but much larger, with a relatively larger aperture and distinct in coloration.

Fusinus paulus Poorman, 1981

Description: Shell small, stout, solid, with about 6 whorls; height of the spire equal to the aperture plus the canal. Protoconch eroded (probably turbinate). Adult sculpture begins abruptly with fine axial ribs and spiral cords. Axial sculpture of 8 rounded ribs aligned up the spire. Spiral sculpture of 3 strong cords on the periphery of each rounded whorl, crossing the ribs as high elongated nodes, several weak threads below the suture and between the cords; about 6 smaller cords on the pillar. Aperture ovate, constricted below by columellar callus. Outer lip thin and crenulated, without internal lirations. A low cord of callus begins on the parietal wall and spirals into the aperture to the left of the suture. Canal short, open, starting left from aperture and curving right to end on shell axis. Animal color (dried) pale yellow; shell color white; fibrous periostracum yellow-beige.

Size: height 19.2 mm (nucleus eroded), maximum diameter 7.7 mm

Range: Baja California Sur, Mexico

Remarks: *F. paulus* superficially resembles *F. humboldti*. It differs from the Galapagan species in having a broader, more open canal, in radular variations, in being smooth within the outer lip, and in having an internal cord of callus at the top of the aperture.

Fusinus penioniformis Habe, 1970

Description: not available

Redescription: Shell small for genus, thin and light. Protoconch of 1.5 whorls, smooth, glassy, inflated; final half whorl slightly constricted, with no varix at commencement of axial sculpture. Sculpture on early whorls of regular axial ribs that become angular by fourth or fifth whorl, crossed by six smooth spiral cords; interstices of cords with numerous pronounced axial growth marks and minor spiral lirae, giving clathrate appearance. Spiral cords become finer and more numerous in later whorls, with axial ribs gradually reduced to row of sharp, carinate shoulder knobs and faint axial buttresses on body whorl. Body whorl with five or more scattered spiral cords between shoulder and neck, three or more finer cords above shoulder. Suture plain in early whorls, slightly adpressed on body whorl; no subsutural band develops until final half whorl.

Labral profile of aperture straight and oblique above shoulder, rounded and occasionally slightly ventricose in lower part; slight constriction of aperture sometimes present at terminus of suture, corresponding to subsutural band. Labral wall of aperture with numerous fine spiral cords, not corresponding in position or spacing to external spiral sculpture; cords occasionally discontinuous or bifurcated; all cords terminate some way behind labral margin in adults. Labral margin of aperture thin, plain, with no developed dentition in adults. Parietal wall of aperture smooth; margin defined in adult specimens, but not detached from whorl face. Canal narrow, open; columellar margin of canal not detached, labral margin thin.

Neck slender, strongly tapering, straight in upper part with mild to sharp curvature in lower third. Outer surface with numerous fine spiral cords that persist to distal tip. Shell often pure white overall, but some specimens (including holotype) pale to medium brown with irregular pale spiral bands; coloration becoming stronger on distal portion of neck. Aperture and canal always white.

Size: to 106.5 mm; average 91.3 mm (n = 7); 89.4 mm

Range: S Japan

Remarks: From the similarly-sized *Marmorofusus akitai F. penioniformis* can be distinguished by its more slender shell, angular whorl profile and row of carinate knobs on the shoulder.

F. penioniformis differs from *F. perplexus* by its smaller size, its angular profile and the absence of labral dentition in adults.

Resembling *Cyrtulus undatus*, but shell with more spiral cords and more nodules.

Compare to *F. diandraensis.*

Fusinus percyanus (G. B. Sowerby II, 1880)

Synonyms: ?placed in synonymy with *Marmorofusus polygonoides* (Lamarck, 1822)

Description: *Testa ventricosa, F. longissimo similis, latior, fusco flavescens, ad angulum fasciata.*

(Shell ventricular, similar to *F. longissimus*, wider, yellowish brown, banded at the angle.)

Size: not given

Range: orig. no data; Red Sea

Remarks: Differing from *F. longissimus* in being wider and shorter and in having a band of reddish yellow upon the angles.

F. percyanus does resemble *F. aurinodatus* in several respects, but it has a relatively much shorter anterior canal, creating a more compressed appearance, and distinct patches of golden-brown between (but not on) peripheral nodes of the spire. Compared to *F. aurinodatus*, the shell of *F. percyanus* is shorter and broader, with a relatively shorter siphonal canal, and more rugose and prominent spiral cords on the spire and body whorl; patches of color between nodes at the shoulder do not extend onto apical faces of the nodes themselves.

Fusinus perplexus (A. Adams, 1864)

Synonyms: *Fusinus perplexus var. nagasakii* (Grabau, 1904), *Fusus nodosoplicatus var. lischkii* Grabau, 1904

Description: *F. testa fusiformi, tenui, turrita, alba, rufo tincta; anfractibus 7, convexis, longitudinaliter obsolete plicatis, transversim liratis, liris acutis aequalibus undulatis, lineis elevatis filiformibus alternantibus, liris transversis subnodulosis in medio anfractuum instructis; apertura ovata, canali aperto; rostro recto, crasso, apertura longiore.*

(Shell fusiform, thin, turreted, white, tinged with red; with 7 whorls, convex, longitudinally obsoletely folded, transversely lirate, sharp equal undulating lirae, alternate raised filiform lines, transverse subnodular lirae arranged in the middle of the whorls; aperture ovate, canal open; siphonal canal straight, thick, longer than the aperture.)

Redescription: Shell medium-sized for genus, angular fusiform, thick, solid, with approximately 10 well-inflated whorls. Protoconch (eroded in most material examined, but smooth and glassy; slightly taller than wide, approximately 0.7 mm in maximum diameter, with two complete whorls and no apparent varix at transition to teleoconch. Profile of teleoconch whorls smoothly rounded to strongly angular. Spiral sculpture of numerous slender and sharp to thick and rounded cords, irregularly spaced, varying considerably in breadth and occasionally forming major-minor pairs. Single cord at periphery slightly to strongly pronounced, occasionally carinate, with gentle axial ribs and/or prominent lobes also present to varying degrees. Occasionally pair of peripheral spiral cords of equal prominence present on earlier teleoconch whorls. Interstices of cords bear numerous fine axial growth lines. First 8 whorls bear axial ribs varying in number from 11 to 14 per whorl; ribs usually obsolete in penultimate whorl and absent from body whorl, though persisting in some cases as lobes on peripheral spiral cord. Ribs on early whorls evenly spaced, with peaks and troughs of roughly equal breadth.

Aperture ovate, but with pointed upper extremity and usually oblate between periphery and suture; thin, sharp-edged parietal shield appears at maturity, with detached parietal margin that may extend some way down siphonal canal. Interior of aperture glossy, with fine spiral cords on inner labral surface; cords correspond in position and number to troughs between exterior cords. Cords within aperture of adult specimens becoming bifurcate close to labral margin. Dentition present on labral margin in adults; position of broad, triangular teeth corresponds to interstices of external spiral cords. Neck thick, tapering strongly to fragile tip; gentle constriction present due to recurvature, usually confined to distal third but occasionally starting nearer aperture.

Prototoconch and first 4-5 whorls pale brown; teleoconch otherwise usually white, though with occasional blue or gray cast on upper whorls. Brown axial stains occasionally present on teleoconch; some specimens also bear brown or gray staining between axial ribs, especially on earlier whorls, and narrow to broad brown spiral bands occasionally occur. Aperture white; periostracum buff to brown with dense thorns arranged in axial rows corresponding to growth margin. Operculum typical for genus: thin, brown and chitinous, with nucleus situated at pointed terminus.

Size: 90-170 mm, average 138.2 mm (n = 7)

Range: Japan

Remarks: *F. perplexus* is lighter than *F. forceps*.

Marmorofusus akitai is resembling *F. perplexus*, but shell not stained in brown in interspaces of axial ribs.

F. diandraensis can be distinguished from *F. perplexus* by its less angular whorl profile.

F. gemmuliferus is resembling *F. perplexus*, but shell not stained in brown in interspaces of axial ribs.

F. juliabrownae also strongly resembles certain small, colored specimens of *F. perplexus*, from which it can be distinguished by its paired spiral cords, denser early axial ribs and shorter, broader neck.

From large specimens of *F. perplexus*, *F. marisinicus* can be distinguished by its thicker, heavier shell; its longer, more slender neck, and the absence of a peripheral cord or knobs.

F. nodosoplicatus can be distinguished from *F. perplexus* by its strong shoulder bearing a row of biangular knobs that persist almost to the aperture, by its broader neck, and by the absence of developed labral dentition even in gerontic adults.

F. penioniformis differs from *F. perplexus* by its smaller size, its angular profile and the absence of labral dentition in adults.

In central Japan *F. salisburyi* can normally be distinguished from *F. perplexus* by its larger adult size (186 mm average of 10 specimens) and heavier construction, though in the East China Sea *F. perplexus* attains similar

sizes. In addition, however, the spiral cords of *F. salisburyi* are more numerous and pronounced, and their troughs are deeper. The parietal shield is thicker and the labral dentition more pronounced. *F. perplexus* may be further distinguished from *F. salisburyi* by the more pronounced recurvature of its somewhat slimmer neck, and by the tendency of its early axial ribs to transform in the middle teleoconch into knobs that bear a somewhat pronounced peripheral cord and then become obsolete on the penultimate and body whorls, both of which are often smooth and rounded in profile with little or no definition of the periphery.

F. teretron shows a similar range of adult sizes to the sympatric species *F. perplexus* though the former is easily distinguishable by its angular early whorls with finer axial sculpture, carinate shoulder knobs and taller, more slender spire. *F. teretron* apparently has a considerably narrower geographical range too, and seems less morphologically variable.

For comparison with *F. emmae, F. flavicomus* and *F. ferrugineus* see there.

Fusinus pyrulatus (Reeve, 1847)

Synonyms: according to WoRMS synonym to *Propefusus undulatus* (Perry, 1811)

Description: *Fus. testa elongato-pyriformi, anfractibus rotundatis, subventricosis, costis tumidis longitudinalibus et transversis subdistantibus nitide clathratis; lutescente, rufo-fuscescente hic illic pallide tincta.*

Shell elongately pyriform, whorls rounded, somewhat ventricose, neatly latticed with longitudinal and transverse swollen ribs; yellowish, faintly stained here and there with reddish-brown.

Size: 60-100 mm

Range: Tasmania

Remarks: Of light growth, amply distinguished from any other species both in form and sculpture.

Fusinus rogersi Hadorn, 1999

Description: Shell moderately large for genus, slender, elongate fusiform, consisting of 10-11 convex whorls which are sometimes slightly keeled, but usually not; with a distinct but rather weak subsutural concavity. Fine growth lines visible on all whorls. Protoconch large, porcellaneous white to pale brownish, consisting of 1 3/4-2 whorls. The first 1 1/2-1 3/4 whorls are smooth, swollen and glossy; the final part of the protoconch (1/4 whorl) is sculptured with numerous very fine axial riblets reaching from suture to suture. The riblets are of unequal strength, irregularly spaced and become stronger and more distinct towards the end of the protoconch. The protoconch abruptly ends in a varix. Diameter 1.2-1.4 mm.

6-8 strong axial ribs on upper postnuclear whorls, 9-11 on following whorls and 12-16 on penultimate and body whorl. On upper whorls the interspaces between the axial ribs are rather small, about half as wide as the ribs themselves. Starting with the fourth postnuclear whorl the axial ribs terminate below the upper suture and become usually weaker on later whorls. On body whorl, sometimes also on penultimate whorl, they are usually reduced to axial knobs at periphery, becoming irregular or sometimes obsolete on body whorl. Adult specimens with a large broad prelabrial axial rib which is much larger than any others on the shell.

The teleoconch begins with 3 strong spiral cords, of which the 3 lower ones are the stronger. Starting with the second whorl a fine primary spiral thread appears between each pair of spiral cords. Simultaneously an additional spiral cord appears just above the lower suture, 2 below the upper suture. Beginning with the third or fourth whorl the number of spiral threads increases by intercalation. The primary threads become nearly as strong as the primary cords. The 2 primary cords just below the middle of the whorl are the strongest on all whorls.

Aperture ovate, rather small, white coloured, pinched at the anterior and posterior end, with about 15-17 strong internal lirae. The parietal callus is extended forming a sharp, thin lamina on the inner lip along the columellar border of the aperture. Parietal callus ornamented with some fine irregular crenulations. Some underlying spiral cords are still visible especially in the posterior part. With a strong callused tooth near the entrance of the posterior canal. No columellar folds. Edge of outer lip denticulated, outline strikingly curved like an elongated reversed ‘S’. Siphonal canal rather long, strong and broad, narrowly open, usually sinuous, tapering anteriorly. Outer side sculptured with regularly spaced spiral cords and intercalated fine threads which become fainter towards the tip of the siphonal canal.

Shell whitish, sometimes pale brownish. On upper whorls the interspaces between the axial ribs are often somewhat darker but not brown coloured. On lower whorls the spiral cords and threads are sometimes pale red-brown tinged.

Operculum corneous, red-brown, corresponding to the aperture in size and shape, typical for genus, with terminal nucleus. Outer side sculptured with fine concentric growth lines; inner side with a broad glossy callus along the outer edge. Periostracum rather thick, olive-brown in colour.

Size: 57 -105 mm

Range: S Mozambique

Remarks: *F. arabicus* is conchologically the most similar to *F. rogersi* but differs in having a dark brown or red-brown protoconch, in the smaller number of axial ribs on all whorls, in the broader axial ribs (especially on upper whorls), in not having a strong broad prelabrial axial rib, in usually having a weak keel at the periphery on penultimate and body whorl, in the pale to dark brown colouration of the shell, in the brown coloured interspaces between the axial ribs, in the straight outline of outer lip (*F. rogersi* like a reversed 'S'), in having often a pale pinkish tinged parietal callus, and finally in having a smaller adult shell.

F. colus (f. longicauda) lives sympatrically with *F. rogersi* but has a clearly wider geographical range and can be separated by having a larger adult size, a narrower spire angle and more slender proportions with longer siphonal canal, a dark brown or red-brown protoconch, an often brown-coloured spire tip and siphonal canal, by the usually brown-coloured interspaces between the axial ribs, by the much broader and less numerous axial ribs on early whorls, by the usually obsolete axial sculpture on later whorls, and by the smaller and narrower aperture.

F. chuni differs from *F. rogersi* in its larger, more swollen protoconch, the broader and stronger axial ribs and the wider interspaces between them, by having more spiral cords on all postnuclear whorls, by the stouter and less elongated shell, the usually more or less angular whorls which are clearly more convex, and by the deeper incised suture.

F. cratis described from off Durban, South Africa, also has reddish-brown coloured spirals in the interspaces between the axial ribs, but differs by having clearly stronger axial ribs with deeper and broader intervals between them, by the broader spire angle, by the coarser and more close-set spiral sculpture, by the much smaller protoconch, by the usually wavy suture, by lacking a strong broad prelabrial axial rib, and finally by the always dark redbrown coloured spirals between the axial ribs.

F. rogersi has a more slender shell than *Cyrtulus kilburni*, a clearly larger protoconch, a smaller number of less close-set axial ribs, clearly weaker or sometimes obsolete axial ribs on last whorls, and differs in the presence of a clearly stronger and less close-set, sharper spiral sculpture.

Fusinus rushii (Dall, 1889)

Synonyms: *Fusus alcimus rushii* Dall, 1889

Description: Shell smaller than *F. alcimus*, pure white, nucleus hardly plicate, depressions between the ribs less deep, ribs less prominent and hardly oblique.

Redescription: Shell very small for genus, white to brownish, consisting of 6 slightly convex and unkeeled whorls. Protoconch white, glossy, consisting of about 1 1/4 whorls; first whorl smooth, last part (1/4 whorl) with some fine axial riblets. Diameter: 0.7-0.8 mm.

7 rather weak, broad and low axial ribs reaching from suture to suture on all teleoconch whods. Interspaces between axial ribs smaller than the width of the ribs, not very deeply impressed. Adult specimens have a prominent prelabrial axial rlb. Spiral sculpture consists of fine spiral cords. 3 cords on upper teleoconch whods, 4 on penultimate whorl. Aperture ovate, outer lip clearly thickened, with strong internal lirae. Inner lip smooth, curved, no columellar folds. Siphonal canal very short, shorter than aperture length.

Size: up to 8.3 mm; length 8.5 mm, width 4.0 mm

Range: Bahamas, Florida

Remarks: *F. rushii* is similar to *F. alcimus* but clearly differs in being smaller and uniformly whitish to brownish, in having an almost smooth protoconch, less deeply impressed interspaces between the axial ribs, less prominent straight axial ribs, and a weaker spiral sculpture.

F. rushii has about the same size as *F. vitreus*, but can be easily distinguished by the clearly smaller protoconch, the unkeeled whorls, the broad and low axial ribs, the smaller number of axial ribs, and by the weaker and completely different spiral sculpture.

compare to *Fusinus thompsoni*

Fusinus salisburyi Fulton, 1930

Description: Shell elongately fusiform, white, openly remate, nuclear whorls atrophied and apex plugged; remaining whorls 9, very convex, canaliculated at suture; with narrow raised spiral ridges (11 on penultimate) between which are finer ones; middle whorls with about 13-14 axial ribs, which extend across the earlier whorls and become quite short on the last; aperture ovate, continuous, thickened on columella edge; canal long, about equal to the length of spire measured from the top edge of the peristome.

Redescription: Shell large, fusiform, generally solid but variable in weight. Protoconch of 2 to 3 well-inflated whorls, smooth in first 1.5 whorls with axial ribs appearing thereafter: ribs of varying strength, crowded towards terminus of protoconch, final rib forming varix. Teleoconch of 13 well-inflated whorls with pronounced periphery from third or fourth onwards. Teleoconch bears strong spiral cords, 11 to 13 in number between sutures immediately above aperture; cords may be interspersed with further minor spiral threads, and may themselves be spirally striate. Axial sculpture on upper third of teleoconch consisting of strong ribs that span sutures; ribs becoming less prominent in lower two thirds, transforming into pronounced knobs with single strengthened cord at peripheral extreme; peripheral cord may thicken at summit of knobs to form lobes. Neck thick and regularly tapering in upper part, but distal third frequently recurved. Aperture ovate to slightly quadrate, with numerous spiral lirae on inner face of body whorl; lirae correspond in position to interstices of spiral cords on exterior, and are often bifurcate with staggered terminals. Labral margin of aperture in adults bears teeth of varying definition, corresponding in position to interstices of external spiral cords. Parietal callus thick and well produced in adult specimens, with characteristic reflexure at base of aperture. Columellar margin of siphonal canal detached and produced over entire length. Teleconch white, with occasional pale brown staining of uppermost 3-5 whorls; staining sometimes persists to lower teleoconch, but confined to axial knobs. Aperture porcellaneous, white, with occasional very pale brown staining of margins in adult specimens. Periostracum thin and pale brown, with numerous fine corneous thorns arranged in axial rows.

A variant, commonly seen from the Visayas region of the central Philippines, has somewhat stronger spiral sculpture than usual and often extensive brown staining, principally on the axial ribs but extending over most of the teleoconch.

Size: 160-203 mm; average adult size 187 mm (n = 20); length 170 mm, width 50 mm

Range: from central Japan and the East China Sea through the Philippines to Australia, and in the South China Sea at least as far west as Vietnam

Remarks: Shell with a distinctive detached parietal aperture margin (“pseudoumbilicus”); occasional adult specimens bear little or no axial sculpture after the first few whorls.

F. salisburyi is nearest to *Goniofusus spectrum (= F. reeveanus)*, but is larger and broader in form and its axial ribs are narrower and more numerous.

F. nobilis lacks the detached, recurved parietal margin and heavily indented sutures that characterize *F. salisburyi*.

The earlier whorls are similar in form to *F. forceps* (= *F. turriculus)*. Its chief distinguishing character is its more or less canaliculate suture. In *F. salisburyi* the parietal margin of the adult aperture is constricted and the shield is reflexed at the entrance to the siphonal canal, forming the "pseudoumbilicus". From *F. forceps* it may be further distinguished by its greater average size and thinner construction, as well as by the transformation in the penultimate and body whorls of its axial sculpture from smooth, pronounced ribs to a series of prominent peripheral knobs that bear at their summit a strengthened cord.

In central Japan *F. salisburyi* can normally be distinguished from *F. perplexus* by its larger adult size (186 mm average of 10 specimens) and heavier construction, though in the East China Sea *F. perplexus* attains similar sizes. In addition, however, the spiral cords of *F. salisburyi* are more numerous and pronounced, and their troughs are deeper. The parietal shield is thicker and the labral dentition more pronounced. *F. perplexus* may be further distinguished from *F. salisburyi* by the more pronounced recurvature of its somewhat slimmer neck, and by the tendency of its early axial ribs to transform in the middle teleoconch into knobs that bear a somewhat pronounced

peripheral cord and then become obsolete on the penultimate and body whorls, both of which are often smooth and rounded in profile with little or no definition of the periphery.

F. jasminae can be distinguished from *F. salisburyi* by its smaller adult size, the heavier and less elegant shell, the smaller number of whorls, the much stronger and more convex axial ribs on all whorls, the smaller number of axial ribs on penultimate and body whorl, the much deeper impressed interspaces between the axial ribs, the much larger spire angle, and the uniformly dirty-grey colored shell.

F. salisburyi is another somewhat larger species (up to 215 mm) with more numerous and prominent spiral cords (11-13 compared to 5-6) than *F. laviniae*, and a distinctive ‘pseudoumbilicus’ formed by recurvature of the lower portion of the parietal shield. The axial lobes or knobs on *F. salisburyi* are not as angular or pronounced as on *F. laviniae* and the siphonal canal is straight.

F. salisburyi can be easily distinguished from *F. longissimus* by its thicker shell with highly inflated whorls, its strong and complex spiral sculpture and its well-developed parietal shield with a detached and reflexed margin at the entrance to the canal.

F. marisinicus may be distinguished from *F. salisburyi* by its smaller adult size, its broad, rounded axial ribs, its much finer, less numerous spiral cords, and the absence both of a detached, recurved parietal shield and of a pronounced whorl periphery.

F. nodosoplicatus differs from *F. salisburyi* by its smaller size, its more pronounced shoulder and more angular early shell profile, by the persistence of axial sculpture on the body whorl and by the absence of the distinctive "pseudoumbilicus" of *F. salisburyi*.

It is distinguished from *Vermeijius palmarium* by a much larger adult size and a different shape.

For comparison with *F. malhaensis* see there.

Fusinus sandvichensis (G. B. Sowerby II, 1880)

Description: *Testa alba, tenuiter lirata; spira elongata, anfractibus 11, superioribus rotundis rotunde plicatis; ultimo angulato; canali spiram longitudine sequanti.*

(Shell white, thinly furrowed; spire elongated, with 11 whorls, the upper ones folded roundly; the last one angular; canal following the length of the spire.)

Redescription: The shell is white, covered with a thin, straw-yellow cuticle, and stained with russet at the tip, having a very long anterior canal, and a long spire; longitudinally folded, the folds broad, rounded, about 7 on a whorl, crossed by numerous spiral cords, parted by wider, concave intervals, with weak, fine spirals over the cords and intervals. On the earlier post-nuclear whorls there are 4 large and 1 small spiral cords. The cuticle has minute, close longitudinal raised threads, which are slightly bristly at intersections of the spirals (the bristles deciduous, and mainly lost in dry shells). The aperture is short, oval, lirate within; canal long and slender. The whorls are strongly convex. Embryonic shell of 2 whorls, the first bulbous, obliquely swollen, smooth, 0.7 mm in diameter; the next whorl narrower, less convex, its last half closely costulate; the total length of the embryonic shell is 1.1 mm.

Size: 40.3-180.0 mm; length 71.5, width 19.5 mm (12 whorls)

Range: Hawaii

Remarks: Of a much finer sculpture than *Propefusus novaehollandiae*, with rounded upper, and slightly angular lower whorls. The ribs are rounded and the canal and spire about equal in length.

This species resembles *F. forceps* (= *F. turricula*) which however has a decidedly deeper suture, and the embryonic whorl is much larger.

Some specimens have prominent rounded shoulder knobs like those of *Cyrtulus similis* from the western Pacific.

Other specimens have biangular buttresses similar to those of *Cyrtulus undatus*.

For comparison with *F. cratis* and *Cyrtulus mauiensis* see there.

Fusinus schrammi (Crosse, 1865)

Description: *T. imperforata, elongato-fusiformis, parum crassa, vix subtranslucida, transversim subtiliter multilirata, alba, adsuturam et infra carinam anfractuum, zona pallide ferruginea interdum balteata; anfr. 11 valde convexi, embryonales 2 laeves, sequentes longitudinaliter tuberculato-costati, costis validis, medio subacutis et carinam mentientibus, in anfractu penultimo et in ultimo minus prominulis, carina mediana perstante; ultimus spiram superans, acute nodato-carinatus; apertura ovata, ad suturam subangulata, intus alba; columella vix arcuata, granosa, extus in lamellam albidam prominula; canali longo, subrecto.*

(Shell imperforate, elongated, moderately thick, subtranslucent, transversely furrowed with fine and numerous streaks, white and ornamented, in the vicinity of the suture, and a little below the middle part of the whorls, with a rust-colored band, more or less obliterated. The whorls, 11 in number, are strongly convex; the first two (embryonic) are smooth, the others provided with rather pronounced longitudinal ribs, tuberculous, pointed, and forming like a keel in their middle part. On the penultimate whorl, these ribs are already less strong; on the last, which is larger than the spire, they diminish even more, but the median keel still remains intact.

The aperture is oval, subangular near the suture, and white inside. The columella is weakly arched, granular, and is prolonged outside in a sort of protruding and whitish lamella. The canal is elongated and almost straight.)

Redescription: Shell of medium size, elongate, fusiform, light in weight, subtranslucent. Consisting of 10-11 convex, always carinated whorls, surrounded by a slight subsutural concavity on latter whorls. Shoulder slope convex. Fine growth striae visible on latter whorls. Rather narrow, weak, often slightly oblique axial ribs, pointed at the periphery. Interspaces as broad as the ribs themselves. On penultimate whorl they become sometimes weaker and fade away on body whorl. However, the peripheral keel persists to the aperture. There are 7-8 axial ribs on the first 4 teleoconch whorls, 9-10 on the following ones, 11-13 on antepenultimate, 12-14 on penultimate and 12-18 on body whorl.

The teleoconch begins with 4 spiral cords. The number increases to 5-6 on the following 2 whorls. Starting with the second whorl a fine intercalated spiral thread appears between each pair of primary cords. The number of fine spiral threads increases by intercalation. There are up to 8 intercalated spirals of unequal strength between the primary cords. The whorls are double keeled on upper whorls, and with a single keel on latter whorls.

Aperture rather large, ovate, pointed above, white coloured. Outer lip rather thin, crenulated, ornamented with numerous fine internal lirae. The parietal callus is strongly developed, free and conspicuously detached from the lower part of the body whorl, slightly crenulated. Without columellar folds. Siphonal canal straight, long (about 1/3 of shell length) and slender.

Background colour white, below the suture and somewhat below the carina with an indistinct rust-red band. Axial ribs and siphonal canal on latter whorls usually irregularly red-brown coloured.

Size: 65-77 mm; length 69 mm, width 21 mm

Range: Guadeloupe, Saint Barthelemy Island

Remarks: *Goniofusus spectrum*, from the seas of the Far East, is the one which seems to approximate most closely to *F. schrammi*. Both species are about the same size and color; moreover, they have a common characteristic, the presence of hairy tuber ribs, forming a keel by the projection of their middle part, and disappearing more or less completely in the last two whorls of the spire. Nevertheless, *F. schrammi* will easily be distinguished from *G. spectrum* by the number and delicacy of its transverse striae, by its less thickness, and by the ridges of its last whorl, less attenuated and still very visible.

F. blakensis has a uniformly white coloured shell, more convex, double keeled whorls, less numerous, clearly stronger, broader and straight axial ribs and broader and deeper impressed interspaces between them, and finally there is a clearly smaller number of fine intercalated spiral threads between the primary spiral cords.

F. chocolatus has more convex and unkeeled whorls, a more constricted suture, and a smaller number of axial ribs on latter whorls. The axial ribs are broader, straight and more prominent, separated by deeper interspaces between them.

F. schrammi differs from the Columbariidae *Fulgurofusus timor* by having a larger shell size, a larger number of teleoconch whorls, a different axial and spiral sculpture, and by the different colouration.

F. lightbourni differs also by the more convex, unkeeled whorls and the more constricted suture. The axial ribs are straight, separated by narrower interspaces. The spiral sculpture is more regularly and the primary cords are intercalated by a smaller number of fine spiral threads.

F. harveyi is also similar in colouration, but can be easily distinguished by the shorter spire, the much stronger and broader axial ribs, the clearly deeper and broader interspaces between them, and by the very prominent carina at the periphery. Moreover, there is a smaller number of intercalated fine threads between the primary spiral cords.

F. halistreptus recalls *F. schrammi*, being about the same size and otherwise similar, but it is more drawn out, the whorls are rounded and full, and they are not angulated by the prominent peripheral thread which replaces the carina of *F. schrammi*. The gathered oblique lamellae at the suture are also peculiar.

Fusinus sectus (Locard, 1897)

Synonyms: *Fusus sectus var. minor* F. Nordsieck, 1968

Description: *Coquille de taille médiocre, d'un galbe fusiforme un pou allongé, turriculé, aussi développé en dessous qu'en dessus. Spire un peu haute, acuminée, composée de 7 à 8 tours à croissance assez lente mais régulière et progressive, à profil plan-oblique ou très légèrement concave dans le haut des tours, ensuite bien convexe, mais sans solution de continuité; dernier tour égal, à sa naissance, aux deux tiers de la hauteur totale, à profil latéral, du côté opposé au labre, bien convexe, presque arrondi, progressivement atténué dans le bas, terminé par un canal assez allongé, ouvert, un peu large, fortement retroussé latéralement et en arrière. Suture linéaire, ondulée. Sommet petit, obtus, mamelonné. Ouverture un peu plus petite que la demi-hauteur totale, faiblement ovalaire, à bords opposés subsymétriques, presque aussi rétrécie en haut qu'en bas, inscrite dans un plan sensiblement vertical.*

Péristome simple, subcontinu; bord externe légèrement épaissi en dedans, soutenu en dehors par une dernière costulation longitudinale, tranchant, orné à l'intérieur de quelques plis correspondant aux cordons décurrents externes, à profil latéral externe bien arrondi, puis recto-déclive le long du canal; bord columellaire arqué dans le haut, tordu dans le bas, ne descendant pas jusqu'à la base, accompagné à la partie supérieure d'un callum peu développé. Test solide, un peu épais, subopaque, orné de côtes longitudinales, de cordons décurrents et de stries d'accroissement: côtes longitudinales au nombre de 12 sur l'avant-dernier tour, fortes, arrondies, tendant à devenir obsolètes et légèrement fluxueuses dans le haut des tours, droites et descendant jusqu'à la suture, s'atténuant rapidement en dessous du dernier tour, laissant entre elles des espaces intercostaux plus étroits que leur épaisseur; cordons décurrents fins, droits, continus, réguliers, comme granuleux, trois d'entre eux plus forts, avec d'autres intermédiaires logés dans le bas de l'avanl-dernier tour, se retrouvant également sur le dernier et accompagnés sur le canal d'autres cordons plus accusés, sans cordons intermédiaires; stries d'accroissement fines, assez marquées, passant par-dessus ces cordons et leur donnant, surtout au dernier tour, un faciès subgranuleux. Coloration, après la mort de l'animal, d'un roux terne un peu clair.

(Shell of moderate size, fusiform and elongated, turriculated, as developed below as above. Spire a little high, acuminate, composed of 7 to 8 whorls with fairly slow but regular and progressive growth, with a plane-oblique or very slightly concave profile at the top of the whorls, then quite convex, but without solution of continuity; last whorl equal, at its origin, to two-thirds of the total height, in lateral profile, on the side opposite the labrum, quite convex, almost rounded, gradually attenuated at the bottom, terminating in a rather elongated canal, open, a little wide, strongly upturned laterally and posteriorly. Linear, wavy suture. Apex small, obtuse, hilly. Aperture a little smaller than the full half height, weakly oval, with subsymmetrical opposite edges, almost as narrow at the top as at the bottom, inscribed in a substantially vertical plane.

Simple, subcontinuous peristome; external edge slightly thickened inside, supported outside by a last longitudinal costulation, sharp, decorated inside with a few folds corresponding to the decurrent cords external, with a well-rounded external lateral profile, then recto-sloping along the canal; columellar margin arcuate above, twisted below, not descending to the base, accompanied above by a poorly developed callum. Spire solid, somewhat thick, subopaque, adorned with longitudinal ribs, decurrent cords and ridges of growth: longitudinal ribs 12 in number on the penultimate whorl, strong, rounded, tending to become obsolete and slightly fluxous in the top of the whorls, straight and descending to the suture, tapering rapidly below the last whorl, leaving between them intercostal spaces narrower than their thickness; thin, straight, continuous, regular, as if grainy decurrent cords, 3 of them stronger, with other intermediaries lodged in the bottom of the penultimate whorl, also found on the last and accompanied on the canal by other more pronounced cords, without intermediate cords; fine, fairly marked growth streaks, passing over these lines and giving them, especially at the last whorl, a subgranular facies. Coloring, after the death of the animal, of a dull, slightly pale red.)

Size: length 20 mm, width 10 mm

Range: West Sahara

Remarks: *F. bocagei* is distinguished from *F. sectus*, at equal size: by its much lower spire; by its lower and regularly convex whorls; by its more narrowly rounded last whorl; by its more elongated and above all much more twisted canal; by its wider, more oval aperture; by its much more numerous costulations, less regular in their thickness; by its much finer and differently distributed decurrent cords, etc.

F. sectus is closer to *Pseudofusus rostratus (= F. fragosus)*; but it separates from it, at equal size: by its less slender, less elongated curve; by its stockier whorl; by its larger and more pot-bellied last whorl; by its tightly twisted canal; by its larger aperture; by its less strong and much more numerous costulations, etc.

F. sectus can be distinguished from *F. boucheti* by being much smaller and somewhat less elongate, in having less regularly convex whorls, a less constricted suture, and finally in a smaller number of clearly weaker spiral cords.

F. sectus differs from *F. hernandezi* in the less constricted suture, the less convex whorls, the smaller number of strong primary spiral cords with broader interspaces between them, the conspicuously large number of fine secondary spiral cords mainly on the shoulder but also between the primary spiral cords, and the less conspicuous axial ribs.

F. sectus can be easily separated from *F. tenerifensis* by the smaller number of whorls, by the less pointed and broader spire, by the clearly more inflated body whorl, by the more numerous, somewhat weaker axial ribs, by the different spiral sculpture, by the larger aperture, and finally by the uniformly reddish-brown coloured shell.

F. sectus can be compared to *Pseudofusus rosamariae*, but *P. rosamariae* shows more convex whorls, a greater number of axial ribs, fine threads between the spiral cords, and a siphonal canal which is shorter than the aperture length and bent to the left.

Fusinus seriatus Callomon & Snyder, 2017

Description: Shell small for genus, fusiform with adpressed suture; rostrum of medium length. Protoconch worn in all material examined; small, ca.1.5 whorls. Teleoconch sculpture of eight broad axial ribs per whorl; ribs increase in size with shell until declining in last third of body whorl. 7 spiral cords on upper whorls; 3 strongest bracketing periphery, single somewhat weaker cord directly adjoining suture of succeeding whorl; finer cords of varying strength over entire rostrum. Major cords form prominent carinae in crossing axial ribs but become almost obsolete in interstices. Entire teleoconch surface covered with fine, dense axial growth lines; surface glossy. Columellar margin resorbed in all specimens examined, including large and apparently adult paratype.

Canal broad, open; labral margin with crenellations at termini of major spiral cords. Shell pale buff overall with darker brown coloration on axial ribs between spiral cords and occasional pale brown spiral bands.

Size: to 42.4 mm

Range: eastern Gulf of California

Remarks: The closest species to which *F. seriatus* can be compared is *F. laticlavius*, from which it can be distinguished by its much smaller adult size, broader and more rounded axial ribs and coarser, less numerous spiral cords.

Fusinus severnsi Goodwin & Kosuge, 2008

Description: not available

Redescription: The species is characterized by its relatively small adult size, prominent early axial ribs and absence of axial sculpture on the distinctly pyriform body whorl. It has a well-developed parietal margin and distinct dentition on the apertural lip.

Size: 80-200 mm

Range: Hawaii

Fusinus somaliensis Smythe & Chatfield, 1984

Description: Shell moderately solid, sinistral, with the spire about one half of the total height, whorls 5 plus protoconch. Sutures distinct, siphonal canal comparatively long (4 mm) and only slightly directed at an angle away from the aperture. There are no columellar folds. Mouth (aperture) pear-shaped; inner lip with the peristome having linear teeth which are inward projections of the grooves between the spiral ridges of the outside of the shell; these do not project far into the mouth. At the top of the aperture is a small notch and tooth that also occur in other species of Sinistralia. Shell sculpture is dominated by strong spiral ridges (14 on the body whorl of the holotype),

broad ones alternating with narrow ones. The whorls are crossed by distinct longitudinal costae (9 on the body whorl). The shell is a uniform cinnamon brown but often obscured by lime encrustation on the spire. Protoconch smooth and colourless, followed by a brown teleoconch with the beginning of axial ribbing.

Size: 15-25 mm, holotype: height 25.5 mm, breadth 12.6 mm

Range: Somalia

Remarks: *F. gallagheri* differs from all the other '*Sinistralia*'-species in having a much heavier and more solid shell; it and the sinistral syntype of *Peristernia tayloriana* both have rounded, comparatively smooth varices. *F. somaliensis* resembles the other species of *Sinistralia*, except *F. gallagheri*, in having a light weight shell, in having the apertural notch and tooth and in the protoconch. In all the known species, the protoconch consists of a smooth apex, followed by an axially ribbed teleoconch.

F. somaliensis resembles *Sinistralia barclayi* in having a comparatively short spire, about half the total height, and in having a slight peripheral keel, particularly on the body whorl, this is much more exaggerated in *S. barclayi*. It differs from the latter in colour, the much stronger spiral ribbing and the more posterior position of the peripheral keel.

In *Sinistralia maroccensis*, *F. elegans* and '*F. taylorianus*' the spire height is distinctly more than half the total height and the whorls are rounded rather than angular.

Fusinus sonorae Poorman, 1981

Description: Shell broadly fusoid, of medium size; height of spire equal to aperture plus canal. Protoconch turbinate, 3-whorled, heavy distant ribs on last 1\2 turn. Whorls of teleoconch shouldered, subsutural region concave, spire somewhat turreted; first few whorls nearly flat-sided, with 2 heavy spiral cords crossing 12 crowded ribs. Beginning with 5 th whorl, spiral cords gradually increase to 9 on the body whorl and 9 more on the pillar. Axial ribs decrease in number down the spire, 8 on the body whorl; ribs rounded and strong but weaker near the sutures. Spiral cords cross ribs in crested nodes. Aperture large, ovate, pinched posteriorly. Outer lip thin, serrated, with 9 irregular lirations within. Columella with heavy callus at lower part of aperture. Canal stout, shorter than aperture, broadly open to the right, angled to the left of shell axis. Color cocoa brown, darker on ribs; prominent crests on spiral cords white.

Size: height 56.1 mm, maximum diameter 23.3 mm

Range: W Mexico, Sonora

Remarks: The protoconch is of the same type as *F. zacae*; and the shell morphology is similar. However, differences in coloration and the outlines of the spires readily separate the 2 species. *F. sonorae* is much stouter and has a turreted spire. The shoulders are high and rounded and the spiral cords are of nearly equal strength from suture to suture. The subsutural region is concave and nearly tangent to the whorl above. The spire of *F. zacae* is sharply angulated by a strong peripheral cord which rises to prominent crests over the ribs. The shoulder is concave and the lower part of the whorl is only slightly convex. The suture is distinct and incised.

Fusinus stannum Callomon & Snyder, 2008

Description: Shell slender fusiform, medium size for genus. Protoconch missing in all shells examined. Teleoconch of 10 evenly rounded, well inflated whorls in normal adults. First 3 or 4 whorls represent first growth phase with thick, rounded axial ribs, increasing in number with whorl count, offset at random to those above and below, crossed by 4 to 5 strong spiral cords. Cords cross axial ribs without forming lobes or nodes; interspaces of cords with strong, finely spaced axial growth lines. Adapical spiral cord adpressed to suture, bearing conspicuous finely-spaced axial decussations. Single minor spiral cords appear between major cords after third whorl; minor cords more pronounced in adapical part of whorl. Axial sculpture reduced or absent from fourth or fifth to seventh or penultimate whorl, resuming as row of knobs at periphery; phase of reduced axial sculpture variable in duration, but present in all specimens. During second growth phase axial ribs replaced by sharp axial growth lirae, regularly spaced over most of whorl but crowded and more numerous on uppermost spiral cord; lirae very prominent in some specimens, edged with raised lamellae that give middle whorls distinctive reticulate appearance. 5 major spiral cords persist over entire teleoconch with interspaced minor cords of varying strength; major cords strongest at and below periphery. Final 2 or 3 whorls in most specimens represent third growth phase, with short, low,

rounded axial ribs that form sharply carinate knobs where crossed by spiral cords, especially at periphery; axial ribs may be reduced or absent.

Aperture ovate, leading into narrow canal. Inner labral wall bears strong spiral cords corresponding in placement to interspaces of external cords; labral margin thus strongly corrugated, with glossy finished margin in mature adults but no developed dentition at cord termini. Parietal wall with thin, glossy white lining showing underlying spiral cords that are not resorbed; margin sharp and well-defined but with no produced shield or strong recurvature at entrance to canal.

Neck long, narrowly tapering; straight in all juveniles and occasional adults, but usually recurved in lower third. Parietal canal margin of mature adult specimens forming sharp edge, clearly defined over entire length; some large specimens apparently still in growth mode, with parietal margins of aperture and canal resorbed. Outer surface of neck bears strong, regularly spaced spiral cords in proximal two thirds; approximately 20 to 45 cords between terminus of suture and lower extent, set at gradually steepening angle to axis, cords on neck of uniform spacing and thickness, with no minor cords in interspaces.

Shell off-white overall, with faint brown staining of first few whorls and distal third of neck in most specimens (see discussion). Occasionally brown dashes present in interspaces of axial sculpture.

Size: adult size 73.7-127.7 mm; average length 92.7 mm (n = 32 unbroken adult specimens)

Range: Thailand, Andaman and Nicobar Islands

Remarks: With its 3 phases of sculpture *F. stannum* is a distinctive species in the genus.

F. stannum resembles most closely *F. malhaensis* from the Saya de Malha bank in the Indian Ocean and *F. laviniae* from New Caledonia. It differs from *F. malhaensis* in bearing strong spiral cords over the entire teleoconch, in its longer, recurved neck and in lacking a parietal shield; from *F. laviniae* in its stronger spiral cords and evenly rounded whorl profile, and from both in having an intermediate phase roughly between the fourth and seventh whorls during which axial ribs are absent.

Another species with which *F. stannum* might be confused is *F. colus*, particularly small examples of the typical form. *F. stannum* is adult at much smaller sizes than *F. colus*, however, and the latter lacks the second growth phase of *F. stannum*.

The Japanese species *F. crassiplicatus* is of similar size and proportions to *F. stannum*, but has strong axial sculpture over its entire teleoconch, a more angular profile and no distinct growth phases.

Fusinus stanyi Swinnen & Fraussen, 2006

Description: Shell small for the genus, rather thin but solid,shape elongate fusoid with slender spire and short siphonal canal. Suture deep. Colour reddish brown on upper spire, gradually becoming paler, body whorl white with small reddish brown spots.

Protoconch consisting of 1 3/4 whorls, tip flattened, surface glossy, covered with minute, shallow holes. First protoconch whorl white, gradually narrowing, with incised suture. Last half whorl pale brown, covered with 8 axial riblets. Transition to teleoconch marked by a fine incremental line. About 6 1/2 well convex teleoconch whorls. First teleoconch whorl with 5 rather strong, glossy spiral cords, interspaces narrow. Second whorl with 6 spiral cords, interspaces gradually increasing. Third whorl with 6 spiral cords, interspaces broad, with 1 fine intercalated secondary spiral cord. On fifth whorl, a fine tertiary spiral cord appears at both sides of the secondary cord. Penultimate whorl with 7 primary spiral cords, interspaces broad with 3 or 5 (secondary and tertiary) spiral cords of different strength.

First teleoconch whorl with 12 rather strong axial ribs. Second whorl with 14, third whorl with 17 axial ribs. Interspaces narrow. Ribs gradually becoming smoother from fourth whorl onwards. Penultimate and body whorl with numerous, hard to recognize, low axials, occasionally with small brown spots when crossing spiral cords.

Aperture ovate. Outer lip thin, simple, edge sharp, with 23 fine lirae within. Columella gently curved, smooth, with thin callus. Paratype 1 with a small adapical columellar knob. Siphonal canal rather short, broad, widely open. Aperture and siphonal canal about 1/2 of total shell length. Operculum corneus, pale brown, half the size of aperture, nucleus terminal, pointed. Periostracum thick, velvety, pale brown.

Size: length up to 46 mm

Range: Angola

Remarks: *F. stanyi* is characterized by the reddish brown apex with strong spiral cords and narrow interspaces, the convex whorls in combination with a pale body whorl with small reddish brown spots and broad spiral interspaces.

F. zebrinus is similar in sculpture and pattern but can be distinguished by the slightly broader shape with shorter spire, the heavier shell, the weak subsutural concavity, the axial ribs which are broader and lower in number, the less constricted base and the usually darker pattern.

Fusinus tenerifensis Hadorn & Rolán, 1999

Description: Shell small for genus, fusiform, variable in shape and colouration, consisting of 8-9 convex and always unkeeled whorls, with a long pointed spire and a conspicuously short siphonal canal. Suture wavy according to the axial ribs on the preceding whorl, distinctly constricted. Fine axial growth lines visible on all whorls.

Protoconch red-brown, consisting of 1 1/4-1 1/2 well-rounded whorls. 1-1 1/4 whorls smooth, glossy and swollen; final part (about 1/4 whorl) sculptured with about 5-6 axial riblets which reach from suture to suture. The earliest 2 or 3 riblets are fine and inconspicuous, the last 3 ones are usually very strong and broad. Protoconch ends in a varix. Diameter: 0.8-0.95 mm.

The axial sculpture consists of strong, rather broad and convex axial ribs, which traverse from suture to suture. Intervals between them deeply impressed and as broad as the ribs themselves. 6-7 ribs on upper teleoconch whorls, 7-9 on antepenultimate, 9-10 on penultimate, and 9-12 on body whorl.

The spiral sculpture consists of rather fine and somewhat rounded cords and threads. The teleoconch begins with 4 strong cords, the uppermost one is much weaker than the others. Starting with the second or third postnuclear whorl 2 additional spirals appear; a strong one just above the lower suture and a weak one below the upper suture. Simultaneously a fine thread appears between each pair of stronger cords. On body whorl the number of very fine spiral threads increases by intercalation. The 3 prominent primary cords are the strongest on all whorls.

Aperture rather small, nearly round, dark brown, sometimes slightly purplish. Inner lip slightly calloused, smooth, brownish coloured, sometimes with a feable touch of purple. No columellar folds. Outer lip finely crenulated, with numerous rather strong close-set internal lirae of equal strength. The white band (if exists) is usually well visible inside the aperture. Siphonal canal conspicuously short (clearly shorter than aperture length), strongly curved, rather broad, widely open, bending to the left and slightly backwards.

Coloured dark brown to chocolate-brown, sometimes light brown. Axial ribs usually somewhat lighter coloured. On all whorls (except of protoconch) often with a white band just below the periphery. The whitish band (if exists) is well visible inside the aperture.

Periostracum rather thick, greenish, with closeset axial folds. Slightly hairy where the spiral cords cross the axial growth lines. Operculum corneous, yellowish-brown coloured, ovate, subtranslucent; size and shape corresponding to the aperture, typical for genus, with terminal nucleus. Outer side sculptured with very fine concentric growth lines; inner side with a conspicuously broad callus along its outer edge.

Size: up to 29.9 mm

Range: Canary Islands, Tenerife and La Palma

Remarks: *F. sectus* was collected in deep water (882 m) off Mauritania. It can be easily separated by the smaller number of whorls, by the less pointed and broader spire, by the clearly more inflated body whorl, by the more numerous, somewhat weaker axial ribs, by the different spiral sculpture, by the larger aperture, and finally by the uniformly reddish-brown coloured shell.

Pseudofusus cretellai (= *F. crassus*) from N Morocco has a much thicker and heavier shell, a somewhat larger shell size, more close-set axial ribs, and a completely different colouration (background colour whitish to yellowish with two red-brown bands).

Sinistralia maroccensis from the NW African coast and the Canary Islands can be distinguished on the base of the more elongated and always sinistral shell, by having clearly narrower and weaker axial ribs with much narrower interspaces between them, and by the smaller and more elongate aperture.

The resemblance to *Pseudofusus rostratus* and *Pseudofusus pulchellus* is not strong. They have usually a clearly larger adult shell, often carinated whorls, a completely different axial and spiral sculpture, a much longer siphonal canal, and differences in colouration.

Aptyxis boettgeri, a common and rather small species from Senegal, Dakar area, differs by its larger size (up to 45 mm), by having usually slightly carinated whorls, by axial ribs which are formed like an elongated reversed 'S', by the wider interspaces between the axial ribs, by a longer and less curved siphonal canal, and finally by not having a white band below the periphery.

Hesperaptyxis luteopictus is most similar in size, general shape and colouration, and has also a yellowish-white band just below the periphery. *H. luteopictus* is a West American species. It can be separated by the often slightly keeled whorls, by having a broader and less pointed spire, by the weaker axial ribs not reaching from suture to suture on later whorls, and by the brown blotches between the axial ribs.

F. tenerifensis differs from *F. hernandezi* by the larger size, the more elongate spire, the brown coloured shell with brown protoconch, the more pronounced axial sculpture, the deeper interspaces between the axial ribs, the smaller number of axial ribs, and the stronger primary spiral cords with strong intercalated secondary cords.

Fusinus teretron Callomon & Snyder, 2008

Description: Shell medium sized for genus. Protoconch tall and bulbous, of roughly two whorls; whorl surface glassy and smooth, with no abrupt terminus; maximum protoconch diameter circa 1. mm. Teleoconch of 11 whorls, with slender, regularly tapering spire. Early whorls with thick but well-spaced, rounded axial ribs; upper whorls with angular periphery some way below mid-whorl. 4 to 6 major spiral cords on early whorls, with interspersed minor cords emerging below periphery after fifth whorl. Cords above periphery weaken in latter half of growth, while those below strengthen in similar proportion. Axial ribs become more widely spaced in later whorls, persisting as far as beginning of body whorl in most specimens; axial sculpture on body whorl of shortened, reduced ribs protruding somewhat at periphery and crossed by peripheral spiral cord to form carinate knobs. Entire teleoconch bears very numerous, fine but strong axial growth lines that do not cross major spiral cords but that form distinct decussate sculpture in interspaces. Cords below periphery on body whorl persist 2/3 of way to distal end of neck; approximately below periphery, 6 above, with occasional slender minor cords interspersed.

Aperture roughly ovate, with angulate labral margin in adults and occasional mild flaring of distal third to produce quadrate profile. Angle formed by terminus of suture clearly pinched and slightly flared in adults. Numerous fine spiral cords on inner labral wall of aperture, corresponding to interspaces of outer cords; labral cords contract slightly just before adult lip, but remain uninterrupted and form sharp, well-defined dentition on lip. Parietal margin defined over entire length in mature adults, somewhat produced in distal two-thirds of aperture and first third of neck. Underlying spiral cords reflected as undulations in parietal layer. Neck slender, straight or slightly recurved in distal third; canal open with sharp labral margin.

Shell dull white overall, with occasional very pale brown staining of first few whorls. Margin of parietal shield stained pale brown in a few examples.

Operculum typical for genus: thick, brown, chitinous, leaf-shaped with nucleus at distal terminus. Periostracum thin, pale brown, composed of numerous fine axial lamellae that correspond to axial growth lines on shell; lamellae form numerous evenly-spaced pointed tufts.

Size: to 155.7 mm; average adult 112.5 mm (n = 24)

Range: Pacific coast of central Japan

Remarks: *F. teretron* resembles certain variants of *F. nodosoplicatus*, but it can be distinguished by its thinner adult shell, the lack of the prominent, upwardly inclined shoulder knobs of *F. nodosoplicatus* and its slender, regularly tapering spire with finer axial sculpture and broader ramps above the periphery.

F. teretron shows a similar range of adult sizes to the sympatric species *F. perplexus* though the former is easily distinguishable by its angular early whorls with finer axial sculpture, carinate shoulder knobs and taller, more slender spire. *F. teretron* apparently has a considerably narrower geographical range too, and seems less morphologically variable.

Large specimens of *F. teretron* have also been found in collections misidentified as *Enigmofusus beckii*. But the latter species does not occur in Japan.

Fusinus thielei (Schepman, 1911)

Description: Shell fusiform, with conical spire and strongly curved canal. Whorls 8 or 9, the smooth nucleus being incomplete, convex, with a sharply impressed suture. Sculpture consisting of rounded concentric ribs, 14 in number on penultimate whorl, much fainter on last whorl, where they are however still visible below the suture, but disappear at the periphery or a little below it; these ribs are crossed by much less conspicuous spiral lirae, of which 3 on each whorl are more prominent, with numerous unequal, fainter and intermediate spiral striae, which cross the growth-striae and give under the lens a cancellated appearance to the whole shell. Aperture oval, nearly rounded above, with a very obtuse angle; columellar side with a porcellaneous layer of enamel, which is rather thick, but quite appressed on the body-whorl; at its upper part there is a faint rib, too faint to make the upper angle channelled; basal canal rather wide, curved first to the left, then to the right; peristome simple, with very faint crenulations, corresponding to the external spirals, smooth within. The whole shell is of a dull white colour externally, the aperture is porcellaneous. Operculum typical, rather dark corneous, with basal nucleus.

Size: height 44 mm, width 17 mm; aperture length (with canal) 23 mm, width 7.5 mm

Range: Timor Sea

Remarks: This species has a superficial resemblance with *Granulifusus rufinodis*, but is quite different by its particulars of sculpture, the spirals not being compressed as in that species, the ribs are more numerous, the canal is much shorter and much more curved, the aperture is smooth, the shell, though fresh, is quite white etc.

This species is also much similar to *Amiantofusus pacificus* but differs by having a broader shape, a slightly deeper subsutural concavity, a more twisted columella, sharp spiral cords on the base with wider and smooth interspaces.

F. thielei differs from *Amiantofusus gloriabundus* in having a strongly twisted columella. a lower number of axial ribs and a longer siphonal canal.

Fusinus thompsoni Hadorn & Rogers, 2000

Description: Shell small, fusiform, subtranslucent, 7-whorled. Whorls strongly convex, suture deeply incised. Protoconch consists of 1 3/4 whorls; first half whorl small, smooth and glossy, final part (1 1/4 whorls) with numerous narrow, strong axial riblets reaching from suture to suture. Diameter: 0.8-0.9 mm.

7-8 rather strong and narrow axial ribs on all whorls, reaching from suture to suture. Interspaces between the axial ribs as broad as the ribs themselves, deeply impressed. Teleoconch begins with 3 strong and sharp spiral cords. Starting with the following whorls 2 additional weaker spiral cords appear; 1 above and 1 below the suture. On latter whorls with a sixth spiral cord just lying above the lower suture. The spirals are somewhat stronger where they pass over the axial ribs. On penultimate and body whorl with a single fine intercalated thread between the spiral cords.

Aperture small, narrowly ovate. Outer lip thickened, with about 9 strong internal lirae; inner lip slightly curved, with a wash of callus, smooth; no columellar folds. Siphonal canal somewhat longer than the aperture length, slightly curved; outer side ornamented with some simple spiral cords and threads. Uniforrnly whitish-coloured.

Size: up to 13.6 mm

Range: E Florida

Remarks: *F. aepynotus* is rnost similar to *F. thompsoni*, but differs in being larger, in having a stronger spiral sculpture, less numerous spiral cords, broader and more axial ribs, less convex whorls and a less deeply incised suture, numerous close-set intercalated fine threads between the spiral cords, and finally in having a completely different protoconch (1 1/4 whorls, smooth, with some strong axial riblets below).

F. amphiurgus is also similar in shape and sculpture, but differs in the almost smooth protoconch, the somewhat weaker axial ribs which becorne narrower towards the upper suture, and in the weaker spiral sculpture especially on shoulder.

F. alcimus has a similarly sculptured protoconch, but clearly differs in shell shape and sculpture. The shell is broader and less elegant, the axial ribs much broader and less numerous, the interspaces between them obviously deeper impressed, and the siphonal canal stouter, shorter and broader.

The protoconch of *F. benthalis* is also almost smooth, the whorls less convex, and the axial ribs more numerous and weaker.

F. rushii and *F. vitreus* have also an almost smooth protoconch, and *Amiantofusus amiantus* has a protoconch consisting of 3 1/2 whorls, below sculptured with semilunar axial riblets and a basal carina.

compare to *Amiantofusus amiantus*

Fusinus toreuma (Deshayes, 1843)

Description: *F. testa elongato-fusiformi, angusta; spira longa, acuminata; anfractibus convexiusculis, longitudinaliter costatis, in medio angulato-nodosis, transverslm tenue sulcatis: ultimo cauda gracili, longa terminato; apertura ovata, alba; labro serrato, intus sulcato.*

Le Fusus toreuma est une coquille allongée, étroite, qui se rapproche un peu du Fusus colus, mais qui est un peu plus ventrue. La spire, très longue et très pointue, compte un grand nombre de tours convexes sur lesquels s'élèvent des côtes longitudinales qui diminuent d'épaisseur vers les derniers tours et disparaissent sur le dernier. Un angle médian, peu sail- lant, divise les tours en deux parties égales. Cet angle devient noduleux en passant sur les côtes, et chacun des tubercules blanchâtres est rendu plus apparent par une tâche d'un brun foncé qui, sur l'angle, occupe l'intervalle de chacun d'eux. Le dernier tour est court ; il se prolonge à la base en un canal très grêle, presque aussi long que la spire et sur lequel il n'y a jamais que des stries obliques. Ce canal, à son extrémité surtout, est d'un brun marron plus foncé que le reste. L'ouverture est ovalaire, d'un très beau blanc; la columelle est accompagnée d'un bord droit assez épais; le droit est finement dentelé dans toute sa longueur, il est sillonné en dedans. Nous pourrions signaler plusieurs variétés de couleur dans cotte espèce. Il y a des individus qui sont d'un brun uniforme, avec les tubercules blancs marqués de brun foncé à la base; d'autres ont les côtes blanches avec les intervalles bruns; d'autres, enfin, sont blan-châtres, flammulés de brun.

(Shell elongate-fusiform, narrow; spire long, pointed; convex whorls, longitudinally ribbed, angular-knotted in the middle, transversely thinly furrowed; at the end a slender, long-terminated canal; aperture ovate, white; serrated lip, furrowed inside.

F. toreuma is an elongated, narrow shell, which is somewhat similar to *F. colus*, but which is a little more plump. The spire, very long and very pointed, has a large number of convex whorls with rised longitudinal ribs which decrease in thickness towards the last whorls and disappear on the last. A slightly protruding median angle divides the whorls into 2 equal parts. This angle becomes nodular as it passes over the ribs, and each of the whitish tubercles is made more apparent by a dark brown spot which, on the angle, occupies the interval between each of them. The last whorl is short; it is prolonged at the base in a very slender channel, almost as long as the whorl and on which there are always only oblique striae. This canal, especially at its extremity, is of a darker chestnut-brown color than the rest. The aperture is oval, of a very fine white; the columella is accompanied by a fairly thick straight edge; the rectus is finely serrated throughout its length, it is furrowed within. Several varieties of color could be pointed out in this species. There are individuals which are of a uniform brown, with the white tubercles marked with dark brown at the base; others have white ribs with brown intervals; others, finally, are whitish, flamed with brown.)

Redescription: Shell elongate-fusiform, slender, solid; 11-12 whorls, spirally lirated, convex at the top and distinctly folded concentrically, followed by angled and compressed white tubercles, armed on both sides scarcely stopping at the ribs; narrow oval aperture, narrow canal, long, slightly twisted, thick lip, loose at the edge, protected above by an entering tubercle, lip lirated. White, marked with brownish-chestnut stripes and spots, with intense chestnut tubercles between the ribs.

Size: length to 130 mm; length 115 mm, width 30 mm

Range: Sri Lanka

Remarks: *F. toreuma*, sometimes misidentified as *M. tuberculatus*, is a member of the *F. colus* species group.

compare to *Marmorofusus nicobaricus*

Fusinus townsendi (Melvill, 1899)

Description: *F. testa eleganter fusiformi, usque apicem rapide attenuata, cinerea, rufo-vel brunneo-purpureo suffusa; anfractibus 11, duobus apicalibus globulosis, vitrifactis, ochraceis vel brunneis inclusis, caeteris apud suturas multum impressis, longitudinaliter costatis, costis fortibus, crassis, ad medium acuticarinatis, et fusco-pictis, ultimo in anfractu ad numerum novem, superficie tota spiraliter arcte filo-lirata, ad medium anfractuum perforti, interstitiis tenui-liratis; apertura oblonga, intus cinerea, striata; canali perlongo (ad 32 mm.), arcte lirato usque ad basim; labio tenui; columella nitida, paullum reflexa.*

(Shell elegantly fusiform, rapidly tapering to the apex, grey, suffused with red- or brownish-purple; with 11 whorls, the two apical globose, vitreous, ochreous or brown, the rest at the sutures much impressed, longitudinally ribbed, the ribs strong, thick, in the middle with a sharp keel, and brown-painted, lastly in the ninth whorl, the whole surface

spirally closely thread-lirated, broken in the middle of the whorls, with thin interstices; aperture oblong, inside gray, striated; canal long (up to 32 mm), closely striated up to the base; with a thin lip; columella shiny, slightly reflected.)

The colour varies from ochreous or stramineous to purplish brown on a grey ground; the whorls are 11 in number, 2 being apical and glassy brown, the rest are very strongly ribbed, all acutely angled in the middle of each whorl, the ribs showing here most prominently, with narrow white spaces surrounded by a dark brown coloration. The spiral lirae are very close and fine. Canal much produced; aperture oblong; aperture greyish within and spirally striate. Outer lip thin. Columella shining, somewhat reflexed.

Size: length 60-80 mm, width 19-24 mm

Range: Persian Gulf

Remarks: A fine species, with a resemblance to *F. tuberculatus*, or *F. toreuma*, in miniature.

Unlike *F. tuberculatus*, the dark coloration is on the ribs, not at the interstices.

Fusinus transkeiensis Hadorn, 2000

Description: Shell small for the genus, fusiform, light in weight, consisting of a total of 6-7 ventricose, always unkeeled whorls (including protoconch). Suture conspicuously and deeply channelled. Shell brownish with some irregular darker redbrown coloured spots on shoulder. Protoconch yellowish-white, large, consisting of 1 1/2 rounded whorls. First whorl smooth and glossy; on last half whorl 2 weak indistinct spiral cords appear. Final part with some weak axial growth lines, not ending in a varix, with sharp and clearly visible transition. Diameter 1.0-1.4 mm.

7-9 rather low, broad but plain axial ribs on the 3 upper teleoconch whorls, becoming weaker on latter whorls. The ribs begin below the subsutural concavity and reach down to the lower suture. The interspaces between them are inconspicuous and as broad as the ribs themselves. Penultimate and body whorl with very weak or often no axial sculpture. Axial growth lines are well visible on all teleoconch whorls, forming fine scales in the interspaces between the spirals. The spiral sculpture consists of close-set nearly flat spiral cords, separated by narrow, rather deep interspaces.

The teleoconch begins with 5 spiral cords, of which the two lower ones are somewhat stronger. On second whorl there are about 7-9 cords of equal strength. On third whorl about 10, on penultimate whorl 11-13 cords. On latter whorls a fine intercalated spiral thread may appear between the cords.

Aperture ovate, rather large. Outer lip thin, simple; inner lip curved, smooth, adult specimens with a thin smooth callus. No columellar folds. Siphonal canal straight, short, as long as the aperture length. Operculum corneous, pale brownish, shape typically fusinid, with terminal nucleus.

Size: 10-20 mm

Range: Transkei, South Africa

Remarks: *F. transkeiensis* is characterized by the deeply channeled suture, the conspicuously small adult size and by the nearly flat, close-set spiral sculpture.

The South African *F. africanae* is most similar to *F. transkeiensis* in shape and sculpture, but can be easily separated by the larger adult size, the non-channelled suture, the larger number of axial ribs, the clearly stronger spiral cords, and by the conspicuously large embryonic whorls.

F. hayesi also has a larger adult size, stronger axial and spiral sculpture, more axial ribs on the upper whods, a clearly smaller number of spiral cords on all whorls, and a non-channelled suture, as well as a much larger protoconch.

Fusinus vitreus Dall, 1927

Description: Shell small, white, thin, with an inflated smooth, white nucleus of 2 whorls and 3 1/2 subsequent whorls; suture distinct, more or less undulated by the sculpture; axial sculpture of (on the last whorl 10 or 11) well-marked rounded ribs with equal or wider interspaces, crossing the whorls on the spire, obsolete on the base, and very fine silky incremental lines; spiral sculpture of (on the spire 2) cords near the periphery and one close to or hidden by the succeeding suture; these become prominent on the periphery of the last whorl and nodulose where they cross the ribs; in front of them the base and canal are sculptured with very fine close spiral threads; aperture

moderate, outer lip simple, body with a thin wash of enamel; canal well developed, flexuous; axis minutely pervious.

Redescription: Shell very small for genus, thin, translucent, brownish, 5-whorled. Teleoconch whorls carinated. Suture wavy according to the axial sculpture of the preceding whorl. Protoconch conspicuously large, bulbous, white-coloured, consisting of 1 1/4 smooth and glossy whorls; last part (about 1/4 whorl) with some fine growth lines. Diameter: 1.3 mm.

About 10 narrow, but rather strong axial ribs with equal or wider interspaces on all teleoconch whorls, reaching from suture to suture. Growth lines well-visible on all postnuclear whorls. The spiral sculpture is simple, consisting of 2 strong spiral cords situated in the middle of the whorls; a third one is lying just above the lower suture. Shoulder, siphonal canal and between the spiral cords ornamented with numerous fine spiral threads of equal size.

Aperture rather small, ovate. Outer lip thin (broken in holotype), inner lip smooth, no columellar folds. Siphonal canal curved, shorter than aperture length.

Size: 9.0 mm; length of shell 9.5 mm, of aperture and canal, 4.5 mm, diameter 5 mm

Range: off Georgia

Remarks: *F. rushii* has about the same size, but can be easily distinguished by the clearly smaller protoconch, the unkeeled whorls, the broad and low axial ribs, the smaller number of axial ribs, and by the weaker and completely different spiral sculpture.

compare to *Fusinus thompsoni*

Fusinus zacae A. M. Strong & Hertlein, 1937

Description: Shell slender, fusiform, with a long, slightly twisted canal, dark brown, lighter on the interspaces between the axial ribs of the lower whorls, base and canal reddish brown; nuclear whorls smooth, followed by 8 strongly sculptured whorls, angulated in the middle; sutures strongly appressed; axial sculpture of 8, rounded ribs, strong over the middle of the whorls, fading out toward the summit of the whorls and on the base; entire surface with wavy lines of growth; spiral sculpture of 6 cords, faint in the interspaces, strong over the axial ribs where they form narrow, spirally elongated nodes; of these cords the one on the angle of the whorls is the strongest, while the two between the angle and the summit and the 3 between the angle and the suture become progressively weaker; base and canal with about 15, faint, spiral threads; outer lip thin; columella smooth.

Size: length 52 mm, length of aperture and canal 25 mm, maximum diameter 20 mm

Range: Lower California, W Mexico

Remarks: In some ways *F. zacae* agrees with the description of the unfigured *Hemipolygona centrifuga* from the Galapagos, but the surface of the west Mexican *F. zacae* can hardly be said to be sculptured with "elevated lamellae," or the spiral cords to form "spade shaped spines" where they cross the axial ribs.

The protoconch of *F. sonorae* is of the same type as *F. zacae*; and the shell morphology is similar. However, differences in coloration and the outlines of the spires readily separate the 2 species. *F. sonorae* is much stouter and has a turreted spire. The shoulders are high and rounded and the spiral cords are of nearly equal strength from suture to suture. The subsutural region is concave and nearly tangent to the whorl above. The spire of *F. zacae* is sharply angulated by a strong peripheral cord which rises to prominent crests over the ribs. The shoulder is concave and the lower part of the whorl is only slightly convex. The suture is distinct and incised.

Fusinus zebrinus (Odhner, 1923)

Description: Shell turreted covered with a thin caducous cuticula, with convex whorls and a moderately deep, simple suture.

Sculpture: faint but thick axial ribs, beginning ih the 2nd whorl, 14 in the 3rd, and decreas1ng in the 6th, to become rather obsolete towards the margin, crossed by revolving threads (7 principal· ones in the penultimate whorl, and finer ones of alternating strength in the interstices); fine lines of growth make the surface minutely clathrated. Spiral sculpture extending on the canal; this rather long, slightly curved; aperture spoon-shaped, outer lip simple, with a lot of obscure lirae at some distance within the edge; columella smooth, with a thin callous covering; no parietal callus.

Colour: upper whorls light-brownish, lower whorls variegated with light-yellowish and longitudinal stripes of reddish-brown, appearing on the costal elevations, and extending down the canal.

Size: height 30 mm, aperture heigth 16.5 mm, width 12 mm

Range: Angola

Remarks: *F. zebrinus* is similar in sculpture and pattern to *F. stanyi* but can be distinguished by the slightly broader shape with shorter spire, the heavier shell, the weak subsutural concavity, the axial ribs which are broader and lower in number, the less constricted base and the usually darker pattern.

Glaphyrina Finlay, 1926

Type species: *Fusus vulpicolor* G. B. Sowerby II, 1880 accepted as *Glaphyrina caudata* (Quoy & Gaimard, 1833)

Description: Apex of 2 smooth whorls, small and globose.

Range: New Zealand

Remarks: *Glaphyrina* is very close to *Latirus* and *Taron*. The bright vermilion coloured animal, pagodi-form carinated protoconch and ovate operculum with terminal nucleus and small muscle impression are characters common to both *Taron* and Glaphyrina. The shell of *Glaphyrina* is much thinner than that of *Taron*, the canal is considerably longer, and the aperture is minus the parietal tubercle and lirate outer lip.

The *Latirus* group seems separable as a subfamily, the radula having fewer cusps on the laterals and the operculum being roughly ovate, with only a small muscle impression.

In the typical genus *Fasciolaria* and in *Fusinus*, the laterals of the radula are multicuspid, while the operculum is roughly pyriform with a very large muscle impression.

Key to Species of *Glaphyrina*:

- Spirally ribbed and axially costate. 5 primary spiral cords on penultimate, and 11-12 axial costae. Canal long and straight. Spire considerably shorter than aperture plus canal *plicata*
- Spirally ribbed and axially costate. 5-6 primary spiral cords on penultimate, and about 16 axial costae. Canal rather short, slightly twisted. Spire slightly shorter than aperture plus canal *caudata*
- Spirally ribbed, 8-10 primary ribs on penultimate whorl. Axial costae absent from last 2 or 3 whorls. Slightly thinner shell than typical species. Spire same height as aperture plus canal *vulpic. progenitor †*

Glaphyrina caudata (Quoy & Gaimard, 1833)

Synonyms: *Fusus vulpicolor* G. B. Sowerby II, 1880, *Glaphyrina progenitor* Finlay, 1926 †

Description: *Fusus, testa minima, fusiformi, ventricosa, apice elongata, turriculata, fulva, transversim striata; anfractibus convexis, subplicatis; apertura ovali; canali brève.*

C'est avec quelques doutes que nous formons une espèce de ce Fuseau, qui pourrait bien n'être que le jeune âge d'une autre espèce que nous ne connaissons pas. Sa queue est remarquablement longue, grosse, peu pointue; son canal, court, épais. Les tours de spire sont élevés, arrondis, bien distincts, un peu obliques; le dernier est renflé; tous sont profondément sillonnés en travers, avec des plis longitudinaux plus apparents au sommet, nuls à la base. Entre chaque raie transverse en est une autre plus fine. L'ouverture est grande, ovalaire, un peu striée sur le bord droit, et de couleur jaunâtre. Extérieurement cette coquille est aussi d'un jaune clair.

(Shell small, fusiform, ventricose, apex elongate, turriculated, yellow, transversely striated; convex whorls, subfolded; aperture oval; channel short.

It is with some doubts that it is a new species of *Fusinidae*, which could well be only the young of another species that is not known. Its siphonal canal is remarkably long, thick, not very pointed; the canel is narrow and thick. The spire whorls are high, rounded, quite distinct, a little oblique; the last whorl is swollen; all are deeply furrowed across, with longitudinal folds more apparent at the top, none at the base. Between each transverse line is another finer. The aperture is large, oval, slightly ridged on the right edge, and yellowish in color. Externally this shell is also of a light yellow.)

Size: length 31.6 mm, width 11.3 mm

Range: New Zealand

Glaphyrina plicata Powell, 1929

Synonyms: *Glaphyrina marwicki* Beu, 1965 †

Description: Shell of moderate size, thin but solid. Protoconch as in vulpicolor, angled at centre, of two smooth whorls, raised to a blunt tip. Whorls 7, all strongly convex. Spire considerably shorter than aperture plus canal. All post-nuclear whorls sculptured with rather prominent spiral ribs, with one or two finer threads in the interstices, the whole crossed by prominent regular axial folds reaching from suture to suture and to periphery on body-whorl. Penultimate whorl with eleven or twelve broad, rounded axial costae. Spiral ribs thickened and more prominent on crests of the axial costae. Canal open, rather long and straight. Fasciole inconspicuous. Outer lip thin not variced. Inner lip spreading as a callus over parietal wall and halfway down inner side of columella. Colour yellowish-brown, spiral ribs dark reddish-brown. Interior of aperture greyish with brown external ribs showing through at outer lip. Parietal callus whitish, stained with yellowish-brown. Operclum ovate with terminal nucleus, and very small muscle impression.

Size: length 35 mm, width 14.5 mm; height 44.5 mm, diameter 19.5 mm (paratype)

Range: New Zealand

Goniofusus Vermeij & Snyder, 2018

Type species: *Goniofusus dupetitthouarsi* (Kiener, 1840)

Description: Large fusinines with broad to relatively elongate shell (shell length to diameter ratio 2.4:3.3), relatively widely open siphonal canal (width 3-4 mm), distal opening of canal slightly flaring; moderately long siphonal process (canal length to shell length ratio 0.31:0.35); sculpture consisting of angular spiral cords on entire shell and short axial ribs usually forming spirally elongate tubercles on well-marked peripheral cord; other cords high, sometimes alternating with secondary cords; aperture large, with short but distinct narrow adapical channel marked by 1 or 2 prominent parietal ridges; inner side of outer lip with 10 paired well-marked lirae; inner lip adherent; growth lines prominent, slightly roughening spiral sculpture.

Size: large

Range: tropical America

Remarks: Shells characterized by a distally flaring, relatively widely open siphonal canal, strongly angular whorls, paired lirae, an adapically slightly channeled aperture, and very short axial ribs that, when expressed, form spirally elongate peripheral tubercles.

The genus differs from *Lyonsifusus* from the western Atlantic in having shorter ribs, a larger aperture, the presence of an adapical channel or notch, wellmarked growth lines, and a distally flaring siphonal canal.

Although the whorls of *Callifusus* have an angular profile, they are much more weakly sculptured than those of *Goniofusus*, and the lirae are much weaker and shorter.

Goniofusus brasiliensis (Grabau, 1904)

Description: The protoconch of this species is somewhat less oblique than the normal, appearing slightly more depressed from above. It consists of one and one half volutions, the last portion of which are furnished with vertical riblets, which toward the end become strong. The whole aspect of the protoconch recalls that of the Italian Tertiary Fusi.

The conch begins with rounded whorls, which at first are less bulging in the middle than those of the preceding species. The shell thus appears more cylindrical in the young. There are two strong central spirals visible, giving the appearance of bicarination. There are really three of these strong peripheral spirals, the lower one, how whorl. Above these central spirals on the shoulder are three other spirals, the third of which is next to the upper margin of the whorl. The ribs are faint, being more of the nature of undulations, broadly rounded and with narrow concave interspaces. On the latter part of the third volution an additional (fourth) spiral appears between the upper marginal one and the one just below it. A little later intercalated spirals appear between the three central primary spirals.

With continued flattening of the shoulder the upper of the two exposed central spirals becomes stronger, and projects above and beyond the others as a strong keel. By intercalation and separation of secondary from primary

spirals, the appearance of highly compound intercalation is produced. The lines of growth are strongly marked, producing a vertical striation, which serrates the spirals. The ribs fade away toward the sutures, being strongest and sharpest on the angle. In some of the less accelerated specimens the whorls remain round longer, the angularity scarcely becoming pronounced until the ephebic stage is reached.

Accelerated individuals show a loss of angulation and tubercles in the last whorl. One specimen has been seen, in which the ribs are absent from the last two whorls, and the angulation absent from the last whorl. This represents an advanced coins type of this series (i. e, the coins variety of this species). It almost approaches the *longicaudus* type, which would be reached as soon as the angular ribbed whorls are suppressed or replaced by rounded ribbed whorls. In this, as in all the other series, whether they be considered series of species (as would be most proper) or series of varieties, or even subvarieties, the same order of variation prevails and the same types of mutations (or more correctly the same types of species) are reproduced.

The color of the American specimens of this species is white, with orange tipping on the tubercles. The coloration extends in a weak stream downward and upward from the tubercle, biit soon dies out.

Size: 70-170 mm

Range: Brasil

Remarks: A variety from off Cape Frio shows a development comparable to *Fusinus longissimus*. It represents the opposite extreme from that shown in the *Fusinus longicaudus* (= *Fusinus colus*) variety of this series, and represents a progressive rather than a retrogressive type. It agrees with the normal form in the protoconch and early whorls, but the shoulder becomes more concave, and the tubercles become vertically flattened and strong. The spirals become faint to obsolete on the shoulder. This variety has quite a distinct aspect, but it is clearly a modification of the normal type.

For comparison with *Fusinus damasoi* see there.

In some of the specimens of this series the ribs become bulging on the last whorls, and the spirals become sharp. This variety seems to form a connecting link between this species and *Marmorofusus verrucosus* (= *Fusus marmoratus)*.

Goniofusus dupetitthouarsi (Kiener, 1840)

Synonyms: *Fusus funiculatus* Lesson, 1842

Description: *Coquille allongée, fusiforme; la spire, à laquelle on compte 10 ou 11 tours, est moins longue que le dernier de ces tours; chacun d'eux est convexe, subanguleux dans le milieu; l'angle est couronné sur les tours supérieurs d'un rang de nodosités qui se prolongent en côtes plus ou moins saillantes vers le sommet de la coquille; toute la surface de ce Fuseau est couverte d'un grand nombre de sillons transverses, disposés régulièrement, peu distants les uns des autres, et entre lesquels sont placées plusieurs stries très-fines; le dernier tour se prolonge en un canal cylindrique, étroit, sur lequel les sillons se continuent; ils sont plus rapprochés entre eux et s'amoindrissent vers la base. L'ouverture est ovale, d'un beau blanc mat à l'intérieur; le bord droit est peu épais, tranchant, crénelé dans sa longueur et sillonné en dedans. Cette coquille, dont la coloration est blanche ou grisâtre, est recouverte d'un épiderme d'un fauve clair, sur lequel on voit un grand nombre de très-fines strie longitudinales produites par les accroissements.*

(Shell elongated, fusiform; the spire, in which there are 10 or 11 whorls, is shorter than the last of these whorls; each of them is convex, subangular in the middle; the angle is crowned on the upper towers with a row of nodules which extend into more or less projecting ribs towards the top of the shell; the whole surface of this *Fusus* is covered with a great number of transverse furrows, regularly arranged, not very distant from each other, and between which are placed several very fine streaks; the last whorl is prolonged in a cylindrical, narrow canal, on which the furrows are continued; they are closer to each other and lessen towards the base. The aperture is oval, of a beautiful dull white inside; the straight edge is thin, sharp, crenellated along its length and furrowed within. This shell, the coloring of which is white or greyish, is covered with an epidermis of a light tawny color, on which are seen a great number of very fine longitudinal striae produced by the growths.)

Size: 17.5 mm

Range: Pacific Ocean off the coast of California

Remarks: Shell elongate-fusiform, white or gray, transversely furrowed; pointed spire; convex whorls, subcarinate-nodular in the middle; crenate lip, furrowed inside; elongated canal.

Callifusus edjanssi is more slender than *G. dupetitthouarsi*, with more deeply impressed sutures and axial ribs that are stronger when expressed. *G. dupetitthouarsi* has a distinctive 4-whorl protoconch with the last 3 whorls bearing narrow crowded fine axial riblets.

Compare with *Callifusus irregularis*.

Goniofusus spectrum (A. Adams & Reeve, 1848)

Synonyms: *Fusinus panamensis* Dall, 1908, *Fusinus spectrum var. albus* (Philippi, 1852), *Fusinus spectrum var. reeveanus* (Philippi, 1850)

Description: *Fus. testa elongato-fusiformi, anfractibus convexis, transversim subtilissime striatis, longitudinaliter tuberculatis, tuberculis apicem versus peculiariter fortibus et conspicuis, anfractiis ultimi fere evanidis, nisi in carinam, acute compressam; alba, epidermide tenui lutescente induta.*

Shell elongately fusiform, whorls convex, transversely very finely striated, longitudinally tuberculated, tubercles peculiarly strong and conspicuous towards the apex, of the last whorl faded away except in showing a sharply compressed keel; white, covered with a thin yellowish epidermis.

Size: 60-150 mm

Range: “Eastern Seas”; Costa Rica to Peru

Remarks: A curious species, distinguished by the forcible manner in which the tubercles are developed towards the apex, whilst in the last whorl they become resolved into a faintly nodulous keel.

Fusinus salisburyi is nearest to *G. spectrum*, but is larger and broader in form and its axial ribs are narrower and more numerous.

G. spectrum is the one which seems to approximate most closely to *Fusinus schrammi*. Both species are about the same size and color; moreover, they have a common characteristic, the presence of hairy tuber ribs, forming a keel by the projection of their middle part, and disappearing more or less completely in the last two whorls of the spire. Nevertheless, *F. schrammi* will easily be distinguished from *G. spectrum* by the number and delicacy of its transverse striae, by its less thickness, and by the ridges of its last whorl, less attenuated and still very visible.

G. spectrum superficially resembles *Fusinus bondarevi* by its similar shape, sculpture and colouration, but differs by the weaker, yet sharper axial knobs and its completely different distribution range.

Goniofusus strigatus (Philippi, 1850)

Description: *F. testa fusiformi, solida, transversim crebrilirata, longitudinaliler plicato-costata, alba, costis plerumque ferrugineis; anfractibus medio angulatis; apertura oblongo-ovata, intus lirata; canali aperturam aequante.*

Das verhältnismässig solide Gehäuse wird von zehn Windungen gebildet. Die obersten vier bis fünf sind gleichmässig gerundet, und zeigen etwa acht stark erhabene gerundete Längsrippen, so wie drei bis fünf Querleisten; die folgenden Windungen erscheinen in der Mitte kantig, indem vornehmlich die Rippen in der Mitte in eine Kante vorspringen, und haben zugleich zahlreichere, stark erhabene, aber stumpfe Querleisten, die mit schwächeren abwechseln. Die Anwachsstreifen sind deutlich und dicht gedrängt. Der bauchige Teil des letzten Umganges ist von der Nase deutlich abgesetzt. Die Mündung ist länglich eiförmig; die Innenlippe stark entwickelt, schwach geriffelt. Desto stärker ist die Aussenlippe innen geriffelt, und am Rande gekerbt. Die Färbung ist weiss, mit braunroten Striemen auf den Rippen mit Ausnahme der obersten Windungen.

(The relatively solid shell is made up of 10 whorls. The top 4 to 5 are evenly rounded, and show about 8 strongly raised rounded longitudinal ribs, as well as 3-5 transverse ridges; the following whorls appear angular in the middle, especially because the ribs in the middle protruding into a keel, and they have more numerous, strongly raised, but blunt transverse ridges, with alternate weaker ones. The growth lines are clear and densely packed. The bulbous part of the last whorl is clearly separated from the canal. The aperture is elongated ovate, as long as the canal; the inner lip strongly developed, weakly serrated. The outer lip is more serrated on the inside and notched on the edge. The coloring is white, with maroon-red streaks on the ribs except for the top whorls.)

Size: 75-95 mm

Range: Brasil

Goniofusus turris (Valenciennes, 1832)

Description: *Fus. testa fusiformi, turrita, superne costata, transversim sulcata, alba; cauda crassa abbreviata.*

Cette coquille, allongée, renflée vers le milieu et atténuée vers les deux extrémités, ressemble au Fuseau quenouille (Fusus colus, Lam.). L'épaisseur du dernier tour est moindre que le tiers de la hauteur totale. La longueur de la queue fait la moitié de celle du tour qu'elle prolonge, et qui est plus haut que les autres tours mesurés ensemble. On en compte dix à onze. Des côtes arrondies s'élèvent sur les tours supérieurs, mais elles s'effacent sur le dernier. Le milieu de ces côtes est un peu plus épais, ce qui fait paroître la coquille tuberculeuse. De nombreuses carènes transversales, inégales, sillonnent la surface de la coquille sur laquelle on voit encore des stries parallèles au bord de l'ouverture de la bouche: elle est en ovale régulier, dont le diamètre transversal ne fait que la moitié du vertical, et elle se prolonge en une longue gouttière rendue plus creuse par l'élévation du bord gauche le long du syphon. La surface interne de l'ouverture est sillonnée par de nombreuses carènes dont l'extrémité s'élève sur le bord droit, l'entaille et le rend dentelé. Cette coquille est d'une belle couleur blanche uniforme; la lèvre seule est rousse.

(Shell fusiform, turreted, ribbed above, transversely furrowed, white; abbreviated thick canal.

Shell elongated, swollen towards the middle and attenuated towards both ends, resembles *F. colus*. The width of the last whorl is less than a third of the total height. The length of the canal is half that of the spire which it extends, and which is higher than the other whorls measured together. There are 10 to 11 whorls. Rounded ribs rise on the upper whorls, but they fade on the last. The middle of these ribs is a little thicker, which makes the shell appear tuberculous. Many transverse, unequal keels criss-cross the surface of the shell on which streaks parallel to the edge of the aperture are still seen; aperture regular oval, the transverse diameter of which is only half of the vertical, and it extends into a long gutter made more hollow by the elevation of the left edge along the siphon. The internal surface of the aperture is furrowed by numerous keels whose extremity rises on the right edge, notching it and making it jagged. This shell is of a beautiful uniform white color; the lip alone is red.)

Size: 150 mm

Range: W Mexico

Remarks: *G. turris*, close to *Fusinus colus*, is distinguished by the size and the shortness of the canal. It is nearly half the height of the shell in *F. colus*; in *G. turris*, it is hardly more than a third.

These proportions also distinguish *G. turris* from *Fusinus crebricostatus* (nomen dubium). Besides, the crevices of the whorls of this one are so sunken and the whorls are so rounded that it is still impossible to unite these two shells in the same species.

Araiofusus eueides is visually similar to *G. turris*. It can be distinguished by its simple protoconch, smaller adult size (*G. turris* can exceed 190 mm), thinner shell, short, recurved canal and lack of a peripheral keel.

Granulifusus Kuroda & Habe, 1954

Synonyms: *Simplicifusus* Kuroda & Habe, 1971

Type species: *Granulifusus niponicus* (E. A. Smith, 1879)

Description: The shell characters of *Granulifusus* do not agree with those of *Fusinus* in having a few granulated spiral series on the shell surface and the aperture gently narrowed to the siphonal canal without any constriction. The operculum of *Granulifusus* is very small, thick and ovate, nucleus of which situated excentrically, not terminally as in many other species of *Fusinus*.

Redescription: Shell fusiform, whorls convex, siphonal canal extended and open, sculpture of weak axial riblets crossed by spiral threads with raised granules or nodules at intercepts. Columella smooth without plications, aperture relatively large with small rounded operculum. Base colour white to cream with reddish-brown to greyish-brown spiral threads, granules often much paler. Colour rarely plain white. Shell relatively small.

Redescription: Most species are light brown with reddish-brown spiral bands. Moreover, most *Granulifusus* species have 1 or 2 indistinct columellar fold(s) visible inside the aperture, often acquired in adult stage. Typical protoconch of *Granulifusus* is paucispiral, consisting of 1-1,5 smooth, glossy whorls, final 1/4 whorl sculptured with some axial riblets, transition to teleoconch abrupt, marked by a varix. Periostracum thin and inconspicuous, straw coloured. The operculum is very small, corneous, thin, translucent, yellowish to brown coloured, round-ovate, smaller than aperture, with fine concentric ridges and with a nucleus located excentrically at the lower right hand side, not terminally as in many other *Fusinus*. Moreover, most *Granulifusus* species have 1 or 2 indistinct columellar fold(s) visible inside the aperture, often acquired in adult stage. Typical protoconch of Granulifusus is

paucispiral. consisting of 1-1,5 smooth, glossy whorls, final 1/4 whorl sculptured with some axial riblets, transition to teleoconch abrupt, marked by a varix. Periostracum thin and inconspicuous, straw coloured.

Size: up to 60 mm

Range: Indo-West Pacific

Remarks: The allopatric variability can easily be explained by the paucispiral protoconch, indicating a quick larval development with short planktonic stage. *Granulifusus* is characterized and separated from *Fusinus* by a granulated surface sculpture, the recent species also by a small round operculum which does not fill the aperture.

Granulifusus more resembles *Propefusus* than *Fusinus* in its aperture and the ornamentation. But *Propefusus* has shorter shell ornamented with less granular projections than *Granulifusus*.

Vermeijius differs from *Granulifusus* in its uniformly coloured light shell with smooth or nearly smooth columella, more abruptly constricted shell base, producing a relatively narrow canal.

compare to *Pseudolatirus †*

Granulifusus amoenus Hadorn & Fraussen, 2005

Description: Shell exceptionally small for genus, fusiform, thick, solid, with rather short broad spire, consisting of 4.5-6 convex teleoconch whorls. Shape broad, rather biconical with concave base. Body whorl ventricose, outer lip strongly convex, siphonal canal conspicuously short. Suture distinct. Fine axial growth lines well-visible on all teleoconch whorls.

Colour pale brown, with orange-brown spiral lines on top of spiral cords. Protoconch light brown, 1.25 bulbous, glossy whorls, first whorl smooth, final 1/4 whorl sculptured with 2-4 low but broad, sometimes curved axial riblets. separated by broad interspaces. Transition to teleoconch abrupt. Diameter 0.7-0.9 mm.

Teleoconch beginning with 3 strong equally spaced spiral cords, pronounced on axial ribs. Interspaces deep, broad, ornamented with numerous fine axial lamellae (growth lines). 3 primary cords on second and third teleoconch whorl, 4 on penultimate whorl. Starting with second postnuclcar whorl, one strong secondary intercalated spiral thread between primary cords. 17-20 primary spiral cords on body whorl of which 7 or 8 on siphonal canal, occasionally a fine intercalated spiral thread in middle of interspaces.

Axial sculpture consisting of 12-17 broad, low, close-set axial ribs, reaching from suture to suture on all whorls. 2 prelabral ribs clearly stronger and broader, fusing together, forming a thick outer lip.

Aperture ovate, adapically pointed, rather large, white. Outer lip strongly convex, conspicuously thick, ornamented with 5-8 strong internal lirae, forming a row of broad, strong, irregularly sized teeth behind edge of outer lip, middle one strongest. Columellar callus white, usually 1 or 2 strong broad teeth on upper end. 2, occasionally 1, strong columellar fold(s), acquired in adult stage, well-visible inside aperture. Siphonal canal clearly shorter than aperture length, broad, nearly straight. Outer side sculptured with regularly spaced spiral cords. Aperture with siphonal canal slightly larger than 1/2 of total shell length.

Size: 9.5-11.5 mm

Range: Vanuatu

Remarks: *G. amoenus* looks similar to *Clivipollia* by the strong columellar denticles which are located on the spiral sculpture of the preceding whorl, and by strong denticles on the inner side of the outer lip, but differs by its smaller shell with concave base, the peculiar orange spiral line present on top of the spiral cords, the intercalated spiral threads, and the broader aperture.

G. amoenus differ from *G. monsecourorum* by having a distinctly reddish-brown coloured spiral sculpture, a thicker outer lip. a strong teeth inside the aperture, and a stronger columellar fold.

For differences with *G. geometricus* see the remarks under that species.

Granulifusus annae Kantor, Fedosov, Snyder & Bouchet, 2018

Description: Shell thin but solid, slender, fusiform, consisting of 2.25 protoconch and 8.5 teleoconch whorls (in holotype). Protoconch bluntly conical, with moderately convex whorls, last 1/2 whorl with 6 axial riblets, protoconch/

teleoconch discontinuity distinct. Protoconch diameter 930 µm, exposed height 850 µm. Teleoconch whorls convex, suture deep, impressed. Axial sculpture of broad, raised axial ribs, running from suture to suture, in holotype 9 on first whorl, 8 on 2nd-6th whorls and 9 on last whorl. Spiral sculpture of evenly spaced, strong, raised cords, 3-4 on earlier whorls, abapicalmost strongest, 6 on antepenultimate and penultimate whorls, 35 on last whorl. Between major cords, 1-3 smaller secondary cords, slightly nodulose at intersection with raised growth lines. Siphonal canal open, long, straight.

Aperture with 12 weak lirae inside. Inner lip completely adherent to columella, forming very thin, shiny columellar callus with 5 weak columellar plicae. No umbilicus. Protoconch light brown, interior of aperture white. Teleoconch light-tan with still lighter spiral band on shell periphery, spiral cords tan, usually darker than background, upper spiral whorls brownish adapically. Operculum small, length in holotype 5.3 mm, occupying slightly more than 1/3 of aperture without canal, oval, nucleus supposingly terminal, older part of operculum missing.

Size: up to 55 mm; length 50.3 mm, aperture (with canal) 30.0 mm, width 15.9 mm

Range: Philippines, New Caledonia, Papua New Guinea, Vanuatu, Fiji

Remarks: This species is moderately variable both in slenderness of the shell and in whorl convexity. Rarely the spiral cords are lighter than the shell background.

G. annae is similar to *G. kurodai* and has been confused with it, but can be distinguished by a different protoconch, consisting of 2.25 whorls in *G. annae* rather than only 1.75 whorls in *G. kurodai*, as well as by a straight siphonal canal, darker shell coloration, and more pronounced and less numerous primary spiral cords (6 on penultimate whorl in *G. annae* and 10 in paratype of *G.* kurodai).

The species is also conchologically similar to *G. jeanpierrevezzaroi*, differing in the more brownish background shell colour with more contrastingly coloured spiral cords, more dense axial ribs and a smaller protoconch.

Granulifusus babae Hadorn & Fraussen, 2005

Description: Shell small, fusiform with broad, elongate spire, consisting of about 6,5 convex whorls. Siphonal canal conspicuously short. Suture weakly constricted, wavy on all whorls. Colour uniformly white to cream. Spiral cords and threads white, when crossing axial ribs, cream in interspaces. Protoconch white to cream, bulbous, glossy, consisting of 1,25 whorls. Upper part smooth, final ¼ whorl sculptured with 4 or 5 rather strong, sharp axial riblets reaching from suture to suture. Transition to teleoconch abrupt. Diameter 0.8-1.0 mm.

Teleoconch beginning with 4 or 5 primary spiral cords; adapical one weaker, abapical one just above lower suture. One secondary spiral thread appears between each pair of primary cords, 2 below upper suture. Starting with fourth whorl, a fine tertiary thread appears on both sides of secondary cords. Spiral cords strong, rounded, white, clearly stronger when crossing axial ribs, forming elongate, horizontally orientated, narrow knobs. Spiral cords weak or almost obsolete in interspaces.

Axial ribs strong, reaching from suture to suture. 12-14 ribs on upper whorls, 13-16 on penultimate and body whorl. Interspaces narrower than ribs, rather deep on upper whorls, becoming shallow on later whorls. Axial growth lines well-visible on all whorls, but stronger between axial ribs.

Aperture white, ovate, pointed above. Outer lip crenulated. with about 12 internal lirae of different strength. Columella smooth, glossy, with one broad but indistinct columellar fold. Siphonal canal short, slightly curved, open. Outer side sculptured with spiral cords, becoming slightly weaker towards tip.

Size: 15.0-18.0 mm, rarely up to 29.8 mm

Range: Indonesia

Remarks: *G. balbus* differs by its usually larger shell size (25-30 mm), the larger number of whorls (7.5), the more convex whorls, the more prominent, sharper and more close-set spiral sculpture, the more pronounced suture, the narrower aperture, and the conspicuously thickened outer lip.

G. monsecourorum can be distinguished by its white protoconch, the slenderer and more elongate shell, the conspicuously close-set axial sculpture, the numerous and more close-set axial ribs on the body whorl, the weaker spiral sculpture, the straight, slightly longer siphonal canal, the two reddish-brown bands on body whorl, and the predominant axial sculpture (in *G. babae* the spiral sculpture is predominant).

Granulifusus bacciballus Hadorn & Fraussen, 2005

Description: Shell rather small for genus, fusiform, spire short and broad, aperture and siphonal canal longer than spire. 7 or 8 ventricose, convex whorls, siphonal canal short. Suture wavy, slightly constricted. Colour white, primary spiral cords and stronger spiral threads occasionally inconspicuously reddish-brown. Protoconch consisting of 1.25-1.5 bulbous, white, glossy whorls. Final 1/4 whorl ornamented with 3 or 4 relatively strong axial riblets. Transition to teleoconch abrupt. Diameter 0.8-1.0 mm.

Teleoconch beginning with 3 primary spiral cords. 3 or 4 cords on first 3 teleoconch whorls, 5 cords on fourth whorl, 5 or 6 on penultimate whorl. Starting with third or fourth whorl, one fine intercalated secondary spiral cord appears. From antepenultimate or penultimate whorl on, one fine tertiary spiral thread appears at both sides of secondary cords, large specimens with up to 3 on body whorl. Axial sculpture consisting of 13-16 rather weak, low, broad, close-set axial ribs, reaching from suture to suture. Interspaces narrow, becoming slightly broader on body whorl.

Aperture large, ovate, pointed above, white. Outer lip convex, edge slightly crenulated, inside smooth or with 13-15 white, close-set, weak internal lirae. Columella with thin white callus, spiral cords of previous whorl often still visible. Adult specimens occasionally with 1 or 2 weak columellar fold(s), acquired in adult stage. Siphonal canal clearly shorter than aperture length, broad, straight, slightly twisted, outer side ornamented with weak spiral cords and secondary threads. Operculum typical of genus, ovate, reddish-brown.

Size: up to 38 mm, but usually 20-25 mm

Range: New Caledonia

Remarks: *G. dalli* differs from *G. bacciballus* by having a slenderer and more elongate shell, and by the weaker axial and spiral sculpture.

G. niponicus differs by having a larger shell, a narrower spire angle, a longer siphonal canal, and a more prominent spiral sculpture.

G. kiranus differs by having a larger size, a larger and more elongate aperture, a broader and widely open siphonal canal, and a sharper and more prominent spiral sculpture.

G. rubrolineatus differs by having a larger size, by the slenderer shell, the smaller and narrower aperture, the more intensively coloured spiral sculpture, and the often dark brown background colour.

G. vermeiji has a similar, conspicuously broad shape, but differs by its larger shell, the extended spire, the subsutural concavity, the strong, broad and widely spaced axial ribs, the spiral cords only present on axial ribs, and by the broad and short siphonal canal.

G. bacciballus is most similar in shape to *G. lochi*, but differs by having a somewhat shorter spire, weaker axial ribs and shallower interspaces, and a clearly larger number of finer, more close-set, often reddish-brown tinged spiral cords.

For differences with *G. balbus* see the comparison under that species.

compare to *G. benjamini*

Granulifusus balbus Hadorn & Fraussen, 2005

Description: Shell small for genus, solid, occasionally thin, occasionally translucent (deep water), fusiform, consisting of about 7.5 slightly convex whorls. Siphonal canal conspicuously short and broad. Spiral sculpture close-set and sharp, only present on axial ribs, interrupted in axial interspaces, giving the surface a rasp-like appearance. Axial sculpture weak and low, interspaces narrow. Growth lines inconspicuous but still visible on all teleoconch whorls. Suture fine, wavy. Colour off-white to light brownish. Primary and secondary spiral cords occasionally inconspicuously reddish-brown tinged. Protoconch white, occasionally pale brownish, bulbous, glossy, consisting of 1.25 whorls. Final part sculptured with 3 or 4 rather strong, slightly curved axial riblets. Transition to teleoconch abrupt. Diameter 0.8-0.9 mm.

3, rarely 4, strong, sharp primary spiral cords on first tclcoconch whorl. Starting with second or third whorl, 2 additional cords appear: one below upper suture and one above lower suture. From second whorl on, a fine intercalated secondary spiral cord appears between each pair of primary cords, often becoming as strong as primary cords on body whorl. A fine inconspicuous tertiary thread appears on both sides of secondary spirals on penultimate whorl. Spiral cords and threads clearly stronger when crossing axial folds, forming elongate white

knobs. Axial ribs close-set, narrow, reaching from suture to suture. 11-13 on upper teleoconch whorls, 13-15 on antepenultimate and penultimate and 20-25 on body whorl.

Aperture with siphonal canal about 1/2 of whole shell length. Aperture narrowly ovate, pointed above, white. Columella smooth and glossy; fully adult specimens with 1 weak columellar fold, (visible as an inconspicuous edge when broken open). Outer lip slightly crenulated, conspicuously thickened in adult specimens, with about 14-18 strong, close-set internal lirae. Siphonal canal conspicuously short for genus, broad, widely open. Operculum typical of genus, reddish-brown.

Size: usually about 25 mm, rarely up to 30 mm

Range: S New Caledonia, S Coral Sea

Remarks: Some specimens from deeper water off South New Caledonia and the southern Coral Sea generally have a lighter, thinner, almost translucent shell.

G. balbus differs from *G. babae* by its usually larger shell size (25-30 mm), the larger number of whorls (7.5), the more convex whorls, the more prominent, sharper and more close-set spiral sculpture, the more pronounced suture, the narrower aperture, and the conspicuously thickened outer lip.

G. monsecourorum differs by its smaller size (12-16 mm), the thinner and lighter shell, the weaker spiral sculpture, the smaller protoconch, the more rounded aperture, the simple outer lip, and the pattern with reddish-brown bands.

G. benjamini differs by its thin light-weight shell, the longer siphonal canal, the stronger, less numerous axial ribs, the wider spaced spiral cords, the vividly coloured spiral cords and the reddish-brown bands.

G. bacciballus differs by having more ventricose and broader whorls, a wider spaced axial and spiral sculpture, stronger and less numerous axial ribs, and a broader, more rounded aperture.

G. dalli differs by its somewhat smaller adult size, the lighter, more elongate shell, the longer spire, the larger number of whorls, the less close-set spiral cords, the longer siphonal canal, and radula morphology.

Granulifusus benjamini Hadorn & Fraussen, 2005

Description: Shell small for genus, fusiform, spire relatively long and slender, consisting of 7 or 8 convex whorls. Aperture and siphonal canal slightly longer than spire. Suture distinctly constricted. Background colour yellowish to light brown, usually with 1 weak reddish-brown broad band on shoulder, occasionally a second narrow band on body whorl. Primary spiral cords and stronger spiral threads reddish-brown on all teleoconch whorls. Tip of siphonal canal often reddish-brown tinged. Protoconch consisting of 1.25-1.5 bulbous, glossy, usually light brown, occasionally white whorls. Final 1/4 whorl with 3 or 4 rather strong axial riblets. Transition to teleoconch abrupt. Diameter 0.8-1.0 mm.

Teleoconch beginning with 3 primary spiral cords. On upper whorls 3 or 4 cords, 5 or 6 on penultimate whorl. One fine intercalated secondary spiral cord appears on third or fourth whorl. Starting with antepenultimate or penultimate whorl, one fine tertiary spiral thread appears at both sides of secondary cords, up to 3 on body whorl. 11-13 rather weak, low, narrow, close-set axial ribs, reaching from suture to suture. Interspaces about as broad as ribs or slightly narrower.

Aperture ovate, pointed above, white. Outer lip convex, edge slightly crenulated, with 13-15 white, close-set internal lirae. Columella covered with a thin white callus. Adult specimens occasionally with weak columellar fold, acquired in adult stage. Siphonal canal as long as aperture, almost straight, slightly twisted, outer side ornamented with weak spiral cords and threads, becoming weaker towards tip. Operculum typical of genus, reddish-brown.

Size: up to 32 mm, but usually about 20 mm; 21.6 mm

Range: SW Pacific (Tonga Islands, Fiji, New Caledonia, Vanuatu. Coral Sea)

Remarks: *G. benjamini* differs from *G. balbus* by its thin light-weight shell, the longer siphonal canal, the stronger, less numerous axial ribs, the wider spaced spiral cords, the vividly coloured spiral cords and the reddish-brown bands.

G. benjamini has a smaller adult size than *G. consimilis*, a shorter and broader spire, a less constricted suture, less convex whorls without subsutural concavity, a shorter siphonal canal, weaker axial ribs with shallower interspaces, and a finer spiral sculpture.

G. benjamini differs from *G. poppei* by its smaller size, the more ventricose whorls, the shorter spire, the less constricted suture, the round-ovate aperture, and the short, narrow, slightly twisted siphonal canal.

G. benjamini differs from *G. rufinodis* by its smaller and shorter shell, the finer and more close-set spiral sculpture, the more numerous, weaker and finer axial ribs, and the short siphonal canal.

For comparison with *G. obesus* see there.

compare to *G. bacciballus* and *G. rubrolineatus*

Granulifusus captivus (E. A. Smith, 1889)

Description: *Testa fusiformis, parva ?, sordide albida, rufo lirata; anfractus 8, convexi, supremi duo laeves, globosi, caeteri costis 10-11 tenuibus obliquis arcuatis instructi, liris transversis duobus circa medium cincti, lineisque spiralibus filiformibus paucis ornati, incrementi lineis striati, ultimus liris praecipuis circiter 12 succinctus; apertura alba, longit. totius 1/2 aequans; labrum tenue, intus liris intrantibus 8-9 munitum; columella callo tenui induta, superne arcuata; canalis anterior obliquus, subrecurvus, haud elongatus.*

(Shell fusiform, small?, dirty white, reddish streaked; 8 convex whorls, the last 2 smooth, globose, the other ribs equipped with 10-11 thin oblique arcs, surrounded by 2 transverse lirae around the middle, decorated with a few filiform spiral lines, striated growth lines, the last whorl with about 12 protruding lirae; aperture white, equaling 1/2 of the whole length; lip thin, inside 8-9 fortified lirae; columella covered with a thin callus, arched above; anterior canal oblique, subcurved, not elongated.)

Size: length 22.5 mm, width 8.5 mm; length of aperture 11 mm, width 3 mm

Range: Andaman Islands

Remarks: The fine thread-like spiral lines being crossed by rather distinct lines of growth, give to the surface a finely latticed appearance. Allied to *G. niponicus*.

G. poppei most closely resembles in shape and sculpture, but differs by its larger shell size, the longer siphonal canal, the larger number of primary spiral cords on the upper whorls, and the more close-set spiral sculpture.

The deep-water form of *G. kiranus* from Taiwan is similar in shape and sculpture, but differs by its larger shell size (up to 45 mm), the uniform white shell, the smaller aperture and the longer siphonal canal.

Granulifusus consimilis Garrard, 1966

Description: Shell rather small for the family, elongately fusiform, with long slightly recurved siphonal canal, aperture and canal being a little more than half total length of shell, outer lip thin and simple. Protoconch at 45° angle to main whorls, straw coloured, translucent and shining, of 1 1/2 whorls and merging gradually into sculpture of main whorls, which number 7; whorls rounded, sutures impressed. Sculpture consists of about 10 pronounced axial ribs to each whorl, over-ridden by numerous spiral cords, 4 major cords to each whorl, a less pronounced cord between each, and still smaller cords between these, whilst others extend at an oblique angle on body whorl below periphery to base of shell; initial 3 whorls present a beaded appearance.

Colour fawn with axial bands of brown between ribs, all primary cords and main secondary cords yellowish on ribs and deep brown between; aperture varies from pure white to light blue. Periostracum when present thin and straw coloured. Operculum light brown, glossy, pear shaped, fairly heavily concentrically ridged, with nucleus at lower right hand side.

Redescription: Protoconch of 1 1/2 whorls, set at 45 degrees to the shell axis. Whorls with about 10 axial folds with spiral ribs present both on and between the folds; 3 primaries per whorl forming elongate nodules at intersection of axial folds; 3-5 finer threads between primaries. Anterior canal long, aperture slightly more than half shell length. Outer lip simple, smooth internally. Columella smooth; posterior canal weakly defined, parietal nodule absent. Colour fawn with major spiral ribs light brown on folds, dark brown between; aperture white. Covered with a thin straw-coloured periostracum when alive.

Size: up to 44 mm in length;holotype, length 32.5 mm, breadth 12.5 mm, length of aperture 19.5 mm

Range: Australia (Queensland)

Remarks: *G. consimilis* has a somewhat similar appearance to *G. kurodai* and to *Vermeijius pallidus* from Japanese waters, and is midway between these two species in size. However the position of the operculum nucleus places it in the genus *Granulifusus*.

G. benjamini has a smaller adult size, a shorter and broader spire, a less constricted suture, less convex whorls without subsutural concavity, a shorter siphonal canal, weaker axial ribs with shallower interspaces, and a finer spiral sculpture.

G. poppei is similar in shape but differs by having a less constricted suture, the absence of a subsutural concavity, a weaker and more close-set axial sculpture, weaker and less pronounced primary spiral cords, and a more elongate body whorl with broader and shorter siphonal canal.

G. rubrolineatus differs by its ventricose body whorl, the less constricted suture, the larger number of weak axial ribs, the weaker spiral sculpture, and the shorter siphonal canal.

G. consimilis can be distinguished from *G. rufinodis* by having more convex whorls, a more constricted suture, a distinct subsutural concavity on later whorls, a shorter body whorl, a round-ovate aperture, a longer siphonal canal, and somewhat shorter but stronger axial ribs on later whorls.

G. consimilis differs from *G. lochi* by its more elongate shell, the longer spire and clearly longer siphonal canal, the distinct subsutural concavity, and the reddish-brown primary spiral cords.

Granulifusus dalli (R. B. Watson, 1882)

Synonyms: *Granulifusus libratus* (R. B. Watson, 1886)

Description: Thin, porcellaneous, pale ruddyish yellow, fusiform, long, finely ribbed and spiralled, with compressed and constricted whorls and a club-shaped mouth. The whorls are crossed by narrow little ribs and furrows, of which there are about 11 on tlie upper whorls and 19-20 on the penultimate, becoming increasingly feeble as they approach the mouth; they harmonize completely with the course of the dense, clear, and sharp hair-like lines of growth.

There are narrow, prominent spiral threads, of which two near the bottom of the whorls are somewhat stronger than the others; the furrow which parts them is also a little wider and deeper than the rest; below this is a small but rather sudden constriction of the whorls into the suture; the spirals in crossing the longitudinal ribs are thrown out into blunt white linear points; the spirals on the base and snout are more regular and equal than the others.

Colour a pale ruddyish yellow, with a fine roughened surface. Spire high and conical. Apex broken, but apparently very small, sharp, and smooth. Whorls, 8 remain; probably the broken embryonic apex consisted of two more; they are convex, with a slight slow contraction above and a small sudden constriction below; the last is small, long, with rounded outlines, and produced into a long, rather lop-sided and slightly twisted snout. Suture fine, sharp, impressed. Mouth long, club-shaped, being oblong, pointed above and produced iu front into a longish canal. Outer lip thin, with a slight, white, internal varix, not much arched, patulous in front, where its line is concave, and then straight along the canal. Inner lip short and scarcely convex on the body, hollowed at the base of the pillar, which is narrow, straight, and cut off in front, on a long, slightly oblique, and somewhat twisted line; the glazing which edges it is very thin and narrow.

Size: heigth 31.75 mm, width 12.5 mm; penultimate whorl, height 5 mm; aperture, height 17.5 mm, breadth 6 mm

Range: SW Pacific (Tonga Islands. Fiji, Vanuatu and south New Caledonia)

Remarks: The general aspect of this shell is very much that of a *Fasciolaria*; but the pillar has no plaits. It is not in form unlike the young of *Pseudofusus rostratus*; but the base is much longer, and the snout shorter, and the constriction at the bottom of the whorls is not found in that species; in these respects it has more resemblance to *Aptyxis syracusana*, in which, however, the whole sculpture is very unlike. It resembles perhaps most of all *Fusus filosus* [a synonym of *Latirus gibbulus*], from the Chinese seas, but is still slimmer in its outlines.

G. dalli differs from *G. bacciballus* by having a slenderer and more elongate shell, and by the weaker axial and spiral sculpture.

G. niponicus differs by its larger shell (up to 35-70 mm), a more prominent sculpture (axial as well as spiral), and a longer siphonal canal.

G. dalli differs from *G. balbus* by its somewhat smaller adult size, the lighter, more elongate shell, the longer spire, the larger number of whorls, the less close-set spiral cords, the longer siphonal canal, and radula morphology.

G. kiranus differs by its larger (up to 40-60 mm), usually less elongate shell with more ventricose whorls, stronger axial ribs, and stronger spiral cords with broader interspaces.

G. hayashii is most similar to *G. dalli*, but differs by having a larger size (up to 52 mm), a smaller number of slightly stronger spiral cords, and a longer siphonal canal.

G. staminatus, having a brown protoconch in common with *G. dalli*, differs by its smaller size (up to 21.4 mm), the smaller number of whorls (7.5) the smaller and darker protoconch, the vivid colour, and the smaller number of axial ribs on later whorls.

compare to *G. rufinodis*

Granulifusus discrepans (Kuroda & Habe, 1961)

Description: Shell large, with multispiral protoconch of 2.75 conical, smooth, convex, grayish whorls, last 1/4 whorl with 6-7 rounded axial riblets progressing in strength, protoconch/teleoconch boundary without varix, defined by appearance of spiral sculpture. Protoconch diameter 960 µm, exposed height 890 µm.

Teleoconch with regularly convex whorls, upper ones slightly angulated, with long slightly sinuous to nearly straight siphonal canal; aperture in young specimens with 3-4 plicae, in adult with a single columellar plica, delimitating siphonal canal, and sometimes with indistinct parietal tooth. Axial sculpture of distinct axial ribs, 7-8 per whorl on upper whorls, obsolete on posterior whorls in shells over 50 mm. Spiral sculpture of 2-3 raised cords on periphery of upper whorls and numerous thin riblets of even strength. On posterior whorls, cords obsolete and some riblets more pronounced. Background colour tan, with darker brown spiral bands along suture.

Size: attains a shell length over 90 mm

Range: Japan, East China Sea to the Philippines and the Solomons

Remarks: Young specimens bear a superficial resemblance to specimens of the Miocene species *Pseudolatirus bilineatus †* of similar size.

Latirus philippinensis is similar in shape to *G. discrepans* from Japan, and occasionally collected in tangle nets in the Philippine Islands, but *P. discrepans* grows much longer (to 87.5 mm), has very faint brown color bands, less prominent axial ribs on later whorls, and a straight canal.

Granulifusus dondani M. A. Snyder, 2003

Description: Shell fusiform, average size for genus, biconic, thin. Whorls convex and inflated. Protoconch pearly white, smooth, 1 1/4 – 1 1/2 whorls, diameter on holotype 0.6 mm. Teleoconch of 8 whorls, sculpture of promient axial ribs, 10-13 in number (11 on holotype), varying little from whorl to whorl, whorls crossed by 3-4 strong spiral cords on early whorls, 4-5 on penultimate whorl (4 on holotype), and 16 strong cords on body whorl of holotype; cords are added apically. Weaker cords between strong ones, with one central one stronger than others and often colored. Strong cords brown against varying background color of white, grey, tan and light brown.

There are 2 distinct color forms of this species. First form with shell color in bands, with transition from one color band to another occuring at a strong cord. Second form with more uniform tan and light brown bands, also with fewer cords on siphonal canal, although that seems to be the only morphological differentiation between the color forms.

Aperture oval, narrow, elongate toward the siphonal canal. Lip weakly dentate, interior of aperture shiny white with minor brown tinge at labral margin. Margin smooth about 1 mm; inside of lip then corded 8-9 mm into interior with prominent raised cords; columella smooth.

Size: 30-50 mm; holotype: length 48.1 mm, greatest diameter 19.2 mm

Range: Central Philippines

Remarks: Of the specimens examined about 60% are the banded “form” (like the holotype). These color forms may represent sexual dimorphism of this species.

G. dondani can be distinguished from *G. niponicus* by the white nodules on the latter species. The surface sculpture on *G. dondani* is not so sharp and well defined as in *G. niponicus*.

G. hayashii is larger (to 79.1 mm) with a more slender profile and more distinct nodules than in *G. dondani*.

G. poppei is also more elongate then *G. dondani* and the intermediate spiral cords are all of equal strength.

G. kiranus is larger (to 70.5 mm) and often has more (15-20) axial ribs on the body whorl.

G. dondani differs from *G. lochi* by its vividly reddish-brown banded shell, the dark reddish-brown primary spiral cords, the weaker and smoother spiral cords, the less ventricose body whorl, the smaller aperture, and the narrower, more strongly curved siphonal canal.

G. dondani differs from *G. rufinodis* by having a broader and shorter spire, a more constricted suture, more convex whorls, a short and ventricose body whorl, a nearly round aperture, and a reddish-brown banded, occasionally vividly coloured shell.

Granulifusus faurei (Barnard, 1959)

Description: Aperture (incl. canal) 1 1/3 times spire. Profile of whorls convex, slightly biangulate. Protoconch 2 (2 1/2) whorls, diam. and alt. 2 mm, smooth (but all specimens more or less corroded). Postnatal whorls 6; axial ribs 11-12 on 1st whorl, increasing to c. 18-20 on last whorl (irregular and obscure on last half whorl), low, rounded not prominent except at the 2 peripheral lirae, slightly retractive below suture; crossed by 2 main peripheral costae from 1st whorl onwards, with finer lirae above and below, on last whorl 6-7 above and 3-4 below the peripheral costae, varying in strength, the lowest one (next the suture) the strongest, 2-3 between the 2 costae, 15-20 additional lirae on base, usually an intermediary between each pair. No parietal callus. Columella gently curved, no pleats, not rimate. Canal a little shorter than, and distinctly but not sharply marked off from rest of aperture, straight or very slightly reflexed at tip, open. Periostracum thin. Operculum oval, apex blunt, incurved, 9 x 5 mm in 38 mm shell. Creamy-white, periostracum grey, operculum amber-brown.

Size: 50 (protoconch and tip of canal broken) x 22 mm; 33 x 15 mm

Range: South Africa

Granulifusus geometricus Hadorn & Fraussen, 2005

Description: Shell exceptionally small for genus, fusiform, thick, solid, consisting of 4.5-6 slightly convex whorls. Shape rather biconical, spire short and broad, base concave, siphonal canal conspicuously short. Suture distinct, weakly incised, wavy. Fine axial growth lines visible on all teleoconch whorls. Colour whitish or yellowish, with orange-brown spiral lines on top of spiral cords. Protoconch white or light brown, 1.25 bulbous whorls, first whorl smooth and glossy, final 1/4 whorl sculptured with 2 or 3 weak axial riblets. Transition to teleoconch abrupt. Diameter 0.7-0.9 mm.

Teleoconch beginning with 3 or 4 primary spiral cords. 4 on following whorls, 5 or 6 on penultimate, 15-22 on body whorl, of which 7 or 8 on siphonal canal. Spiral cords equally spaced, pronounced on axial ribs. Interspaces deep, broad, well concave, ornamented with numerous fine axial growth lines.

Axial ribs relatively weak, narrow, close-set, reaching from suture to suture on all whorls, becoming low and inconspicuous on penultimate whorl. 12-16 ribs on upper whorls, about 19 on body whorl. 2 or 3 prelabral ribs stronger and broader, fusing together, forming a thick outer lip. Both axial and spiral sculpture together form a reticulate, conspicuous structure of deep canals, which can be accentuated by the coloured spiral lines on top of the cords.

Aperture ovate, adapically pointed, white. Outer lip convex, conspicuously thick, ornamented with 5-7 strong internal lirae, forming a row of broad, strong, irregularly sized teeth behind edge of outer lip, middle one strongest. Parietal wall strongly curved. Columellar callus white and thin, underlying spiral cords often visible. On upper end with 1 broad, white tooth. 1 distinct strong and sharp columellar fold, well-visible inside aperture. Siphonal canal clearly shorter than aperture length, broad, straight, bending to the left. Outer side sculptured with regularly spaced spiral cords. Operculum typical of genus, corneous, small, ovate, thin.

Size: 7.4-10.7 mm

Range: Tonga Islands to New Caledonia and the Southern Coral Sea

Remarks: *G. geometricus* and *G. amoenus* both look similar to *Clivipollia* by the strong columellar fold and strong denticles on the inner side of the outer lip, but differ by their smaller shell with concave base, the peculiar reddish-brown spiral line present on top of the spiral cords, and the broader aperture.

G. amoenus differs by its slightly larger adult size, the broader shell, the ventricose body whorl, the pale brown background colour, the presence of an intercalated spiral thread between the primary cords on later whorls, and the light brown protoconch.

G. geometricus differ from *G. monsecourorum* by having a distinctly reddish-brown coloured spiral sculpture, a thicker outer lip. a strong teeth inside the aperture, and a stronger columellar fold.

Granulifusus guidoi Kantor, Fedosov, Snyder & Bouchet, 2018

Description: Shell strong, slender, fusiform, of average size for genus. Protoconch multispiral, of 2.5 smooth whorls in holotype, with 4 axial riblets on last whorl, pale grey-orange. Transition to teleoconch marked by groove between last riblet and first teleoconch axial rib. Teleoconch of 8-9 convex whorls, suture deep, adpressed.

Axial sculpture of distinct ribs, closely spaced, 10 on earlier whorls, increasing to 12 on later whorls. Spiral sculpture of dark cords, often with less prominent and paler secondary cords between them. First whorl with single dark cord, adding roughly one cord per whorl, with 7 cords on penultimate whorl. Cords continue to anterior end of canal, crowding closer together at tip; in holotype, last whorl with about 25 cords. Siphonal canal recurved back from aperture, moderately long, open. Dark spiral cords matched on inner lip by low, light brown lirae. Columellar callus white, with a few spiral lines continuing inward at adapical end of shield. Two stronger rounded columellar plicae situated towards aperture and one much weaker towards canal. Teleoconch white to light tan with light orange-brown neck; caramel-colored spiral cords on entire shell.

Size: up to 31 mm; length 30.2 mm, length of aperture (without canal) 8.1 mm, width 10.1 mm

Range: Philippines

Remarks: *G. guidoi* is most similar to *G. kurodai*, with which it is often confused. It differs by a multispiral protoconch with more whorls, and a narrower shell with narrower aperture.

It is also similar to *Takashius ellenae*, which has white cords with dark interspaces on the teleoconch whereas *G. guidoi* has dark, caramel-colored cords with light tan interspaces.

Granulifusus hayashii Habe, 1961

Description: The shell is thin and fragil, elongate and fusiform, with 9 convex whorls, the surface of which is sculptured with 3-4 spiral cords granulated on the low axial wrinkles. The color is light brown with a brown band on the base of body whorl. The aperture is elongated ovate narrowing towards the long curved siphonal canal.

Redescription: Shell thin, skinny, with 3-4 slender spiral cords that become transversely elongated tubercles on axial ribs.

Size: 40-75 mm; length 51.3 mm, width 15.2 mm

Range: Japan, Honshu

Remarks: *G. niponicus* is a related species, but differs by its more solid, broader and less elongate shell, the stronger, broader and shorter siphonal canal, and the more pronounced axial and spiral sculpture.

G. hayashii is most similar to *G. dalli*, but differs by having a larger size (up to 52 mm), a smaller number of slightly stronger spiral cords, and a longer siphonal canal.

G. hayashii also has a larger adult size, a slenderer and more elongate shell, and more distinct nodules than *G. dondani.*

G. kiranus usually has a smaller shell, a broader and shorter spire, a shorter and wider siphonal canal, and the granules on the axial ribs are coarser.

For comparison with *G. poppei* see there.

Granulifusus jeanpierrevezzaroi (T. Cossignani, 2017)

Description: Shell slender, fusiform, large for genus. Protoconch multispiral, conical, smooth, translucent pale grey, of 3.25 somewhat convex whorls, last 1/2 whorl with 4-6 rounded axial riblets progressing in strength, protoconch/teleoconch boundary without varix. Protoconch diameter 1100 µm, exposed height 1280 µm. Teleoconch whorls convex, suture deep, adpressed. Axial sculpture of very prominent ribs, 7-9 per whorl. Spiral sculpture of evenly spaced strong cords, 2-3 on first whorl, 6-8 on penultimate whorl, about 23-25 on last whorls, becoming evanescent towards tip of canal. Weaker secondary cords between primary strong cord pairs, 1 on earliest whorls increasing to 3 on later whorls. Siphonal canal long, open, straight, about ⅓ of shell length. Aperture with 7-12 interior lirae. Inner lip adherent, forming smooth, white columellar callus, with 3 rounded columellar plicae, adapical two more prominent than abapical one. In side view additional adapicalmost weak plicae can be observed. Teleoconch pale flesh to pale orange-brown with lighter prominent axial cords. Periostracum medium to dark brown.

Size: to 90.0 mm

Range: Vietnam, tropical Indo-West Pacific

Remarks: Conchologically the species is most similar to *G. annae* which has a similar size, but *G. jeanpierrevezzaroi* differs in having fewer axial ribs per whorl and being nearly uniformly coloured with lighter spiral cords, while in *G. annae* the spiral cords are darker than the background.

Granulifusus kiranus Shuto, 1958

Description: not available

Redescription: Shell of medium size, light weight, fusiform, spire slender, consisting of 9 convex whorls, body whorl usually ventricose, siphonal canal short and broad. Spiral sculpture on upper whorls fine and inconspicuous, axial sculpture usually predominant, close-set and strong. On later whorls the opposite: spiral sculpture predominant, axial sculpture finer. Suture distinct, slightly incised. Colour variable; from uniform white to cream, occasionally with cream background colour with a broad brown tinged band on shoulder and often with an additional narrow second band on upper end of parietal wall. Primary spiral cords white or reddish-brown. Protoconch broad, short, bulbous, white, glossy, smooth, consisting of 1.25 whorls, final 1/4 whorl ornamented with 3 or 4 curved axial riblets. Transition to teleoconch abrupt. Diameter about 1.0 mm.

Teleoconch beginning with 3 strong, sharp and narrow primary spiral cords, adapical one weaker, interspaces broad. Starting with third or fourth whorl, one fine intercalated spiral thread appears. Their number increasing by intercalation: 3 on following whorls, 5-8 on penultimate, up to 10 on body whorl, 12-14 relatively weak, often inconspicuous axial ribs on upper teleoconch whorls, about 15 on penultimate, 20-22 on body whorl (occasionally up to 30), becoming often close-set and weak towards aperture. Axial ribs bearing narrow, sharp, horizontally oriented axial knobs, sometimes forming widely spaced rows of small granules.

Aperture ovate, relatively large, upper end pointed, while. Outer lip convex, slightly crenulated, inside smooth or sculptured with fine, close-set internal lirae. Inner lip smooth, slightly glossy, parietal callus thin, extending on parietal wall, attached, underlying spiral sculpture still visible. Some adult specimens have a weak columellar fold, acquired in adult stage. Siphonal canal short, slightly curved, broad, widely open. Outer side sculptured with fine spiral threads. Operculum typical of genus, reddish-brown.

Size: up to 60 mm, but usually 40-50 mm

Range: Western Pacific

Remarks: *G. kiranus* shows a remarkable variability in shape, sculpture and colour. Specimens from western Australia often have extremely ventricose whorls and widely spaced rows of tiny granules on body whorl. Specimens from New Caledonia have a richer colour and have a longer, slenderer shell and a longer, narrower siphonal canal (tending to *G. hayashii*). Deep-water specimens from Taiwan are occasionally conspicuously slender and heavily calloused. Indonesian specimens from deep water often have a short shell, a ventricose body whorl and a remarkably short siphonal canal.

The Indonesian deep-water form of *G. kiranus* with conspicuously short siphonal canal and short spire comes closely to *G. lochi*, but differs by its larger shell, the less constricted suture, the weaker, less pronounced spiral sculpture, the larger number of spiral cords on the upper whorls, the more ventricose body whorl, and the shorter,

broader, widely open siphonal canal. The typical *G. kiranus* differs by its larger size, the more elongate shell, the longer spire and the longer siphonal canal, and the weaker, more close-set, more numerous axial ribs.

G. kiranus differs from *G. dalli* by its larger (up to 40-60 mm), usually less elongate shell with more ventricose whorls, stronger axial ribs, and stronger spiral cords with broader interspaces.

G. kiranus differs from *G. dondani* by its larger adult size and often has more axial ribs on the body whorl.

G. rufinodis differs by its somewhat smaller, yellowish shell, the less constricted suture, the smaller number of axial ribs, the stronger axial knobs, the broader and intensively reddish-brown coloured spiral cords, and by the curved siphonal canal.

G. hayashii differs by its remarkable elongate, thin, light-weight and fragile shell, the conspicuously fine spiral sculpture, and the long curved, narrow siphonal canal.

G. niponicus differs by having a slightly more constricted suture, the usually smaller aperture, the longer and narrower siphonal canal, the narrower interspaces between the primary spiral cords, the stronger, more pronounced primary spiral cords, and by the white nodules on the axial ribs.

G. kiranus differs from *G. bacciballus* by having a larger size, a larger and more elongate aperture, a broader and widely open siphonal canal, and a sharper and more prominent spiral sculpture.

The deep-water form of *G. kiranus* is similar to *G. captivus* in shape and sculpture, but differs by its larger shell size (up to 45 mm), the uniform white shell, the smaller aperture and the longer siphonal canal.

For differences with *G. dondani* and *G. obesus* see remarks under that species.

Granulifusus kurodai (Okutani & Sakurai, 1964)

Description: Shell rather small, elongated fusiform, with a long siphonal canal abapically. Protoconch mamillated, 1.5 turns, porcellaneous white, polished. Teleoconch about 6 turns, rounded, ornamented with 10-11 rounded axial ribs overridden by crowded spiral cords. Suturey flush and sutural ramp continuous to the roundish shoulder. Among the spiral cords, some carved in relief by their reddish brown color in contrast to the fleshy colored background. These colored spiral cords counted 8 on the penultimate whorl and adapical 5 of them are more widely spaced and stronger than other abapical 3. Weaker and non-colored spiral cords present between them. Body whorl has about 20 colored spiral cords from the sutural ramp to the neck. Aperture ovate, siphonostomous, white, shining, continuous to the open, slightly curved canal. Outer lip smooth; parietal lip with a wash of inductura and presents a weak abapical node. Periostracum pale straw-colored, thin and visible on the subsutural area.

Redescription: Shell medium-sized, fusiform, with long, slightly sinuous siphonal canal. Protoconch paucispiral, dome-shaped, of 1.75 whorls, with strongly convex first whorl and much flatter last 3/4 of whorl, with 2 closely spaced and rather indistinct axial riblets at transition to teleoconch, protoconch/teleoconch discontinuity distinct. Protoconch diameter 900 µm, exposed height 750 µm.

Teleoconch with regularly convex whorls, aperture with two very weak columellar plicae, and indistinct parietal tooth; spiral sculpture of unevenly spaced narrow cords of similar strength; axial ribs not aligned along the spire. Background colour cream to yellowish, primary spiral cords light tan.

Size: 35.1 mm; height 26.0 mm, diameter 9.45 mm

Range: Japan

Remarks: Conchologically *G. kurodai* is similar to *G. annae*; for differences see the description of the latter.

G. guidoi is most similar to *G. kurodai*, with which it is often confused. It differs by a multispiral protoconch with more whorls, and a narrower shell with narrower aperture.

G. kurodai is allied to *Vermeijius pallidus*, but differs from it in having more elongated shell, weaker sculpture and thinner but distinctly colored spiral cords.

compare to *G. consimilis*

Granulifusus lochi Hadorn & Fraussen, 2005

Description: Shell medium-sized, fusiform, solid, with relatively short spire, siphonal canal short, consisting of about 8 convex, ventricose whorls, with weak subsutural concavity. Suture distinct, wavy. Axial growth lines well visible. Colour uniform light brown, axial ribs with white knobs. Protoconch consisting of 1.25-1.5 white whorls, final 1/4 whorl sculptured with about 6 fine axial riblets of unequal strength, reaching from suture to suture. Transition to teleoconch abrupt. Diameter 0.8 mm.

Teleoconch beginning with 3 or 4 fine, sharp primary spiral cords, the lower ones clearly stronger. Starting with second whorl, 2 additional fine primary spiral cords appear below upper and above lower suture. Simultaneously 1 fine secondary intercalated spiral thread appears between the primary cords. Starting with third or fourth whorl, the number of secondary spiral cords increases, up to 10 on body whorl, central one slightly stronger. Primary spiral cords on later whorls sharp and prominent, forming elongate, horizontally orientated knobs when crossing the axial ribs, but almost obsolete in the interspaces. Axial ribs on upper whorls weak, close-set, reaching from suture to suture, becoming stronger on later whorls. Interspaces deep and broad. 13 or 14 ribs on upper post-nuclear whorls. 11 or 12 on penultimate and body whorl.

Aperture round-ovate, white, pointed above. Parietal callus white, thin, underlying spiral sculpture still visible. Columella smooth, with one weak indistinct columellar fold. Outer lip strongly convex, slightly crenulated according to spiral sculpture, inside smooth. Siphonal canal shorter than aperture length, broad, slightly bending to the left. Outer side ornamented with rather weak spiral cords and threads, becoming weaker towards the tip. Operculum typical of genus, light brown, corneous, small, ovate, thin, not filling the aperture.

Size: up to 38.9 mm

Range: W Australia

Remarks: *G. niponicus* differs by its larger, more elongate shell, the longer spire and the clearly longer siphonal canal, the smaller aperture, and the thicker outer lip which is strongly lirate within (adult specimens).

G. consimilis differs by its more elongate shell, the longer spire and clearly longer siphonal canal, the distinct subsutural concavity, and the reddish-brown primary spiral cords.

G. dondani differs by its vividly reddish-brown banded shell, the dark reddish-brown primary spiral cords, the weaker and smoother spiral cords, the less ventricose body whorl, the smaller aperture, and the narrower, more strongly curved siphonal canal.

G. bacciballus is most similar in shape to *G. lochi*, but differs by having a somewhat shorter spire, weaker axial ribs and shallower interspaces, and a clearly larger number of finer, more close-set, often reddish-brown tinged spiral cords.

The Indonesian deep-water form of *G. kiranus* with conspicuously short siphonal canal and short spire comes closely to *G. lochi*, but differs by its larger shell, the less constricted suture, the weaker, less pronounced spiral sculpture, the larger number of spiral cords on the upper whorls, the more ventricose body whorl, and the shorter, broader, widely open siphonal canal. The typical *G. kiranus* differs by its larger size, the more elongate shell, the longer spire and the longer siphonal canal, and the weaker, more close-set, more numerous axial ribs.

G. vermeiji is similar in spiral sculpture, but differs by its larger size, the clearly broader axial ribs and broader interspaces, the smaller number of axial ribs, the weaker spiral sculpture, the strongly curved siphonal canal, and the (often) reddish-brown colour.

Granulifusus martinorum (Cernohorsky, 1987)

Description: Shell moderately small, fusiformly-elongate, width 43-50 % of length, solid, protoconch of 2 1/4-2 3/4 smooth, glassy-white embryonic whorls which terminate in 4-5 plain arcuate axial ribs before merging into the granulose sculpture of 5 1/4-6 1/4 slightly convex whorls of teleoconch. Sculpture granulose, axial sculpture consisting of low axial ribs which number from 15-19 on penultimate and from 12-20 on body whorl; spiral cords override axial ribs and form laterally elongated nodules; penultimate whorl with 5 spiral rows and body whorl with 13-16 rows of nodules, interspaces of nodules with a single fine intermediate spiral thread and numerous, close-set, oblique cords. White in colour, spire whorls ornamented with 2 spiral rows of reddish-brown nodules anteriorly, centre of body whorl with 2-3 rows of reddish-brown nodules followed by a single row of white nodules and 4-7

rows of reddish-brown nodules, aperture porcellaneous-white. Periostracum thin and dirty greyish-brown. Operculum corneous, irregularly ovate and yellowish-brown.

Redescription: Shell with granulose sculpture, white in color with spiral rows of reddish brown nodules. Columella with 3-4 lirae centally, 1-2 on parietal wall and another 1-2 lirae opposite anal canal.

Size: 10-20 mm; up to 18 mm; length 16.6 mm, width 6.9 mm, height of aperture 8.6 mm

Range: Philippines

Remarks: There is no known similar species in the Fasciolariidae with which it could be compared.

Granulifusus monsecourorum Hadorn & Fraussen, 2005

Description: Shell small, fusiform with elongate spire and rather long siphonal canal, consisting of 5.5-5.25 convex whorls with weak subsutural concavity. Suture fine but distinct, wavy on upper whorls, straight on later whorls. Fine axial growth lines well-visible on all whorls.

Colour cream to yellowish, with 2 weak reddish-brown bands; one below suture, another on base. Protoconch white, bulbous, glossy, consisting of 1-1.25 whorls, final part with 2 or 3 weak axial riblets. Transition to teleoconch abrupt. Diameter 0.7-0.8 mm.

Teleoconch beginning with 3 strong primary spiral cords, 2 abapical ones slightly stronger. Cords becoming stronger, forming elongate white knobs, when crossing axial ribs. One fine intercalated secondary spiral cord appears on third whorl. Body whorl occasionally with an additional, fine tertiary spiral thread at both sides of secondary cords. Axial ribs close-set, reaching from suture to suture on upper whorls, becoming slightly weaker on later whorls. Interspaces narrow. 13-15 ribs on 2 uppermost whorls, 16 or 17 on third, 18 or 19 on fourth, 20-22 on body whorl.

Aperture with siphonal canal slightly longer than 1/2 shell length. Aperture white, ovate, adapically pointed. Columella with 1 white, adapical columellar tooth, and with 1 or 2 weak columellar folds. Parietal callus thin, whitish and glossy. Outer lip with 11 or 12 strong and white internal lirae. Siphonal canal shorter than aperture length, broad, widely open, slightly twisted. Outer side simply sculptured with some widely spaced spiral cords and threads, becoming clearly weaker towards tip. Operculum typical of genus, reddish-brown.

Size: 12.0-16.0 mm

Range: Madagascar

Remarks: *G. balbus* differs by its larger size (25-30 mm), the more solid and heavier shell, the close-set, stronger and sharper interrupted spiral sculpture, the more pronounced axial ribs, the larger protoconch, the narrower aperture, the conspicuously thickened outer lip, and the uniform colour.

G. amoenus and *G. geometricus* differ by having a distinctly reddish-brown coloured spiral sculpture, a thicker outer lip. a strong teeth inside the aperture, and a stronger columellar fold.

For differences with *G. babae* we refer to the remarks under that species.

Granulifusus niponicus (E. A. Smith, 1879)

Synonyms: *Fusus suboblitus* Pilsbry, 1904

Description: Shell fusiform, brownish white or sordid yellowish, stained at the upper part of the whorls with brown, and ornamented with a narrow zone of the same colour around the middle of the last whorl. Whorls 7, apical one smooth, mamillar, the rest longitudinally plicated and transversely ridged, sloping above, and then very convex; plicae or ribs oblique, not much elevated, attenuated and faint at the upper ends, eleven in number on the last whorl, attenuating and vanishing just below the middle or convex portion. Transverse lirae numerous; most of them (about 11 on the penultimate whorl) are very fine, thread-like, and simple; but 2 or 3 stouter than the preceding, and situated at some distance apart at the middle portion of the whorls, on crossing the plicae are elevated into compressed and transversely elongated tubercles; suture prettily wavy, margined with the thickened upper edge of the volutions; last contracted below the middle, and produced into an elongated cauda, which is obliquely and rather closely and finely lirate; the transverse ridges, which become tubercular, number about 6 or 7 on this

volution, 3 of them being more conspicuous than the others. Aperture with the canal equal to about 4/7 of the whole length, whitish within; columella smooth, thinly enamelled, tortuous; canal elongate, narrow, oblique.

Redescription: Shell rather large, fusiform, elongate, thin, consisting of about 10 strongly convex whorls. Suture incised, slightly wavy. Growth lines fine but well-visible. Colour brownish-white or yellowish, occasionally slightly darker on shoulder and base. Axial ribs only darker between the white knobs formed where spiral cords cross. Primary spiral cords white. Protoconch bulbous, elongate, white, smooth and glossy, consisting of 1.25-1.5 whorls. Final 1/4 whorl with 3 or 4 relatively strong, broad, slightly curved axial riblets with broad interspaces. Transition to teleoconch marked by a varix. Diameter 0.8-0.9 mm.

Teleoconch beginning with 3 or 4 primary spiral cords. Starting with second whorl, an additional fourth (or fifth), clearly weaker cord appears below suture, and a fifth (or sixth) cord is partly hidden by the lower suture. Primary spiral cords rather strong and sharp when crossing axial folds, weak in interspaces. Inconspicuous fine intercalated secondary spiral threads of different strength appear on third whorl; their number increasing on later whorls, about 10-12 on body whorl.

About 10 weak, arcuate axial ribs on first 4 teleoconch whorls, 12 on fifth and sixth whorl, 15 on penultimate and 18 on body whorl. Ribs oblique below suture, stronger on periphery, sometimes slightly brown tinged. Interspaces narrow, shallow. Axial sculpture on siphonal canal absent.

Aperture with siphonal canal equal to about 4/7 of whole shell length, narrowly elongate, ovate, pinched at upper end, white. Columella smooth, glossy, thin, underlying spiral cords of preceding whorl still visible, with a small adapical tooth. Fully adult specimens sometimes with 1 or 2 columellar folds, acquired in adult stage. Outer lip thin and delicate in juvenile specimens, adult shells with thickened outer lip, with a row of white, relatively strong, elongate teeth somewhat behind the edge. Siphonal canal as long as aperture, narrow, oblique. Outer side ornamented with numerous relatively fine spirals of unequal strength. Operculum typical of genus, reddish-brown.

Size: length 22 mm, width 7 mm; 35-70 mm

Range: Japan, Taiwan, Philippines

Remarks: *G. niponicus* shows a remarkable variability in shape, size and sculpture. Specimens from Taiwan are often reddish-brown and generally smaller in size, and often have a bicarinate profile on the upper whorls, formed by the two adapical, strong, white primary spiral cords.

G. niponicus differs from *G. rufinodis* by its larger adult size, the elongate spire, the more convex whorls and more constricted suture, the interrupted primary spiral cords, and the sharp white nodules on axial ribs.

G. niponicus differs from *G. bacciballus* by having a larger shell, a narrower spire angle, a longer siphonal canal, and a more prominent spiral sculpture.

G. niponicus differs from *G. dalli* by its larger shell (up to 35-70 mm), a more prominent sculpture (axial as well as spiral), and a longer siphonal canal.

G. niponicus differs from *G. dondani* by the white nodules and the surface sculpture which is sharper and well defined.

G. niponicus is related to *G. hayashii*, but differs by its more solid, broader and less elongate shell, the stronger, broader and shorter siphonal canal, and the more pronounced axial and spiral sculpture.

G. niponicus differs from *G. lochi* by its larger, more elongate shell, the longer spire and the clearly longer siphonal canal, the smaller aperture, and the thicker outer lip which is strongly lirate within (adult specimens).

For differences with *G. kiranus* and *G. poppei* see to the remarks under that species.

compare to *G. captivus*

Granulifusus noguchii (Habe & Masuda, 1990)

Description: not available

Redescription: The operculum is small, ovate, thin, much smaller than the aperture, and the nucleus is situated at lower outer side.

Size: 30-45 mm; holotype 49.0 x 16.2 mm

Range: East China Sea, Japan, S Korea

Remarks: *G. noguchii* differs from all other *Granulifusus* by the uniform while to off-white shell, the bulbous and inflated protoconch, the often weak inconspicuous spiral sculpture, and the absence of compressed horizontally oriented nodules on axial ribs.

G. noguchii differs from *Chryseofusus hyphalus* by having a smaller adult size, a more slender white-coloured shell, and by the presence of axial ribs usually on all whorls, stronger on upper whorls, becoming weaker on body whorl, and by the small, nearly round operculum, which is typical of *Granulifusus*.

Granulifusus norfolkensis Kantor, Fedosov, Snyder & Bouchet, 2018

Description: Shell thin, slender, fusiform, of nearly 4 protoconch and 5 teleoconch whorls (in holotype). Protoconch acutely conical, with moderately convex whorls, last 1/2 whorl with 6 axial, progressively thickening, riblets, protoconch/teleoconch transition abrupt, marked by onset of distinctive sculpture. Protoconch diameter 1130 µm, exposed height 1150 µm.

Teleoconch whorls weakly convex, suture deeply impressed. Axial sculpture of broad, prominent ribs extending from suture to suture (7 per whorl in holotype), including on last and penultimate whorls. Spiral sculpture of evenly spaced, strong, raised cords, nodulous at crossings with axial ribs, in holotype 2 on first whorl, 3 on other whorls, 7 on last whorl before transition to canal. 3 or 4 weaker secondary cords situated between primary cords, slightly nodulous at intersections with raised growth lines. Two brown secondary cords situated in each interspace between primary cords on last whorl. Siphonal canal open, long, slightly turned to left and recurved, sculptured by 25 (in holotype) weaker cords of slightly uneven strength.

Aperture with 8 weak lirae inside. Inner lip completely adherent to columella, forming very thin, shiny columellar callus with 4 columellar plicae, first very weak. No umbilicus. Protoconch transparent flesh colour, interior of aperture white. Teleoconch light tan with several brown spiral bands also present on canal. Major spiral cords slightly lighter than background, secondary spiral cords mostly brown.

Size: up to 14 mm; length 13.0 mm, length of aperture (without canal) 3.5 mm, width 4.7 mm

Range: S New Caledonia

Remarks: *G. norfolkensis* can be recognized by its small size, coloration and constricted aperture. Conchologically it is most similar to *G. tatianae*, also from southern New Caledonia, but differs in having a smaller and more slender shell with longer siphonal canal and brown spiral bands.

G. williami has a small, rather slender shell with attenuated straight canal. It is most similar to *G. norfolkensis*, differing in details of colouration and in having a straight siphonal canal rather than inclined to left.

G. tatianae also resembles *G. norfolkensis* in sculpture and particularly in apertural armature. Nevertheless, the shell shape in *G. tatianae* is rather different, and the species can be easily distinguished by size at maturity: *G. tatianae* attains a significantly larger size, up to 18.1 mm, versus 13.6 mm in *G. norfolkensis*.

Granulifusus obesus Snyder, 2013

Description: Shell of medium size, but large for genus, light weight, fusiform, and broad (ratio of maximum width to length ~ 0.45); 7 inflated convex whorls, siphonal process short, recurved. Spiral sculpture of prominent cords on all whorls; axial rib sculpture prominent on all whorls with intersection of cords and ribs marked by raised pustules, squarish to somewhat spirally elongated. Suture distinct, slightly incised and usually marked by band of pustules. Apex subtends angle of ~ 40°, (apex of slenderest specimen examined subtends 33°). Teleoconch of 6 whorls, protoconch missing or damaged on all 15 specimens examined, remnants suggest large translucent embryonic whorls. Three spiral cords develop on first whorl and increase to 4-5 on penultimate whorl; most abapical cord often close to suture. 20-24 cords on body whorl extend up entire siphonal process. Concave space between cords with some fine lines. Prominent axial ribs develop on first whorl and extend suture to suture, increasing in number: 10-13 on next three whorls, 13-14 on penultimate whorl, 18-19 on body whorl. Aperture large, ovate, white, inner side of outer lip usually smooth, but occasionally with as many as 12 fine lirae, more numerous abapically. Outer lip convex, somewhat crenulate. Columella with elongate fold at entrance to canal. Shell color cream with broad caramel brown band adjacent to the adapical suture on last three whorls; the body whorl has a similar thinner band

intersecting the lip at approximately the midpoint of the whorl. Operculum smaller than aperture (as is typical of genus), somewhat ovate, light brown.

Size: up to 62.4 mm

Range: Timor Sea, from Indonesia southwards to NW Australia

Remarks: There are two *Granulifusus* species that require comparison. The much smaller *G. benjamini* has a similar inflated profile, but is only 21.2 mm in length and has fewer axial ribs.

The quite variable *G. kiranus* is about the same size as *G. obesus* and is found in the same general area. *G. obesus* has a much shorter siphonal process that is recurved, fewer whorls, and fewer axial ribs with spiral cords on entire shell. Most notably, *G. obesus* is much more inflated with a larger apical angle (40° vs 30°) and a larger width to length ratio (0.45 vs 0.38).

Granulifusus poppei Delsaerdt, 1995

Description: Shell fusiform-elongate, thin, translucent; adult specimens with 7 postnuclear whorls. Body whorls convex, whitish to light brown, shining, ornamented with orange-brown spiral cords thickened when crossing the axial folds. Between the 3-4 major spiral cords are 3-4 minor threads; the minor threads are of the same whitish groundcolor of the body whorls, but become as coloured as the major cords on the 6th and 7th postnuclear whorl. Aperture oval, rather narrow, white inside and strongly lirate; columella shining white in young specimens, but in the adults with spiral threads in the same color as the threads on the outside. Siphonal canal rather short for the genus, ornamented with coloured spiral threads as regularly spaced as on the whorls.

Redescription: Operculum small, thick and ovate, about 6 mm in length. Amber coloured with an eccentric nucleus and ventral margins slightly ridged.

Size: length 51.3 mm, width 18.3 mm

Range: Somalia, Mozambique, SW India

Remarks: The striking, coloured spiral cords (with shining interspaces) not only on the body whorls but also on the siphonal canal-this is a good distinguishing mark.

G. rubrolineatus differs by its broader spire, the more ventricose whorls, the round-ovate aperture with a red and finely denticulated margin, and the narrower siphonal canal. The coloured spiral cords are not interrupted.

G. benjamini differs by its smaller size, the more ventricose whorls, the shorter spire, the less constricted suture, the round-ovate aperture, and the short, narrow, slightly twisted siphonal canal.

G. rufinodis can be distinguished by its shorter and broader spire, the less constricted suture, the less numerous but stronger axial ribs on body whorl, the shorter body whorl with broader aperture, and the narrower and slightly longer siphonal canal.

G. consimilis differs by its long, narrow and slightly recurved siphonal canal which is also without coloured threads as seen in *G. poppei*, the more convex, slightly carinated whorls, the small, round-ovate aperture, and the stronger, more pronounced, widely spaced axial ribs. When crossing the axial folds, the major spiral cords are less coloured to white. Adults of *G. consimilis* do not reach the length of *G. poppei.*

The ochreous-fawn coloured whorls of *G. hayashii* are more convex than in *G. poppei*, in which the last whorl is more ovately decreasing into the siphonal canal. Between the 3-4 major spiral cords are 8-10 minor, fine threads, crossing many fine axial threads, forming a beautiful regularly reticulated sculpture (under magnification). The more curved siphonal canal is also longer than in *G. poppei*.

As opposited to *G. niponicus*, in *G. poppei* the tubercles on the ridges where they rise over the longitudinal plaits are less pronounced and darker coloured. Between the major spiral cords of *G. niponicus* also several (4-9) minor fine threads, crossed by many fine axial threads, which resulted also in a reticular sculpture but not so regularly and accentuated as in *G. hayashii.* This reticular micro-sculpture between the major spiral cords in *G. hayashii* and *G. niponicus*, is nearly invisible (under magnification) in *G. poppei.* Here, the interspaces are shining and dominated by the spiral threads. The spiral cords on the last whorl of *G. niponicus* are less visible and not really coloured on the siphonal canal, which is nearly smooth on the last part.

G. poppei most closely resembles *G. captivus* in shape and sculpture, but differs by its larger shell size, the longer siphonal canal, the larger number of primary spiral cords on the upper whorls, and the more close-set spiral sculpture.

G. poppei has a more elongate shell and the intermediate spiral cords arc all of equal strength than *G. dondani.*

For comparison with *G. westhuizeni* see there.

Granulifusus pulchellus Hadorn & Chino, 2005

Description: Shell small for genus, consisting of about 6 convex whorls including protoconch, light brown to brown with a whitish band in the middie of the whorls, délicate and thin, fusiform, spire broad, angle about 40-44°. Siphonal canal rather short. Suture constricted. Protoconch white to light brown, consisting of 1 1/2 bulbous, smooth, glossy whorls. Final 1/4 whorl with about 3-5 fine axial riblets. Transition to teleoconch abrupt, marked by a distinct varix. Diameter 0.9-1.0 mm.

4 sharp primary spiral cords on upper teleoconch whorls, 5 on latter whorls. Cords prominent when crossing axial ribs, weak in interspaces, giving surface a typical granulate appearance. A fine intercalated spiral thread appears between primary cords from third whorl on. Mature spécimens with up to 3 intercalated threads on body whorl. Axial ribs broad, reaching from suture to suture, conspicuously close-set, interspaces usually narrow. 12-14 ribs on upper whorls, 12-16 on body whorl.

Aperture white, ovate, pointed at both ends. Outer lip simple, with some weak internal lirae. Inner lip smooth, fully mature spécimens with traces of a weak columellar fold. Siphonal canal shorter than aperture length, occasionally curved. Outer side omamented with fine, dense spiral cords. Operculum typical of genus, light brown, ovate, not filling the aperture.

Size: up to 20 mm

Range: Central to SW Japan

Remarks: *G. pulchellus* differs from all other known récent Japanese *Granulifusus* species by its conspicuous small adult size, the small number of teleoconch whorls, the broad spire angle, the yellowish banded pattern, the numerous close-set, rather weak axial ribs in combination with sharp spiral cords producing elongate white or yellowish knobs, and the short siphonal canal.

G. musasiensis † from the Japanese Pleistocene differs by its larger adult size, the larger number of teleoconch whorls, and by having only 3 distinct spiral cords on teleoconch whorls.

G. makiyamai †, also from the Japanese Pleistocene, differs by having a somewhat larger adult size, a larger number of teleoconch whorls, and 2 protoconch whorls.

Granulifusus rubrolineatus (G. B. Sowerby II, 1870)

Description: *F. testa breviuscula, pallide rubescente, castaneo bifasciata, distanter spiraliter rubra lineata, tenuiter striata; spira breviuscula; anfractibus septem, costis longitudinalibus subdistantibus rotundis spiraliter liratis ornatis, superne fascia castanea lata cinctis; apertura subovata, in canalem subelongatum terminante.*

(Shell short, pale reddish, bifurcated with chestnut, distantly spirally lined with red, thinly striated; spire short with 7 whorls, the longitudinal ribs are decorated with round spiral lirae below, surrounded above by a wide chestnut band; aperture subovate, terminating in a subelongate canal.)

Redescription: Shell rather small for genus, fusiform, consisting of 8 or 9 convex whorls, body whorl slightly ventricose. Suture distinct, wavy. Axial growth lines fine and inconspicuous. Colour pale to reddish-brown, occasionally dark brown, with dark reddish-brown spiral cords and threads. Interspaces between axial ribs usually darker. Occasionally with a whitish band below periphery on later whorls. Protoconch with 1-1.25 white, bulbous, glossy whorls, final 1/4 whorl with 2-4 fine axial riblets, transition to teleoconch marked by a varix. Diameter 0.9-1.0 mm.

Teleoconch beginning with 3 primary spiral cords. Starting with second whorl, a fourth spiral cord appears adapically, on fifth or sixth whorl a fifth cord appears in lower suture. Fine, often reddish coloured, inconspicuous intercalated spiral threads appear from third teleoconch whorl on; their number increasing to 5-7 on body whorl,

central one stronger. Axial ribs equal, usually strong, interspaces as broad as ribs, often darker coloured. About 10 or 11 axial ribs on upper whorls, 10 -12 on penultimate and 14 or 15 on body whorl.

Aperture ovate, white, pointed on upper end. aperture with siphonal canal about 1/2 of whole shell length. Columella smooth. Outer lip thin when juvenile, thickened in adult specimens. Inside with numerous strong lirae. Fully mature specimens often with 1-2 strong columellar fold(s). acquired in adult stage. Siphonal canal shorter than aperture length, almost straight. Outer side sculptured with fine red spiral cords. Operculum typical of genus, light brown.

Size: about 35 mm in length (occasionally up to 46 mm)

Range: South Africa to S Somalia

Remarks: *G. rubrolineatus* is a remarkably variable species: Most specimens from Agulhas Bank and Algoa Bay are dark brown in colour, with lighter coloured strong axial ribs, occasionally with a short, broad spire. The holotype from Agulhas Bank is almost identical to this brown form, but lighter coloured. Occasionally yellowish or pale brown specimens with weak axial ribs and distinct reddish-brown spiral cords are observed also from Agulhas Bank and off East London. Specimens from the East African coast (Madagascar, Comoro Islands, Zanzibar and southern Somalia) belong to this yellowish form with distinct reddish-brown spiral cords. These two forms can be linked together, intermediate forms can occasionally be observed.

The brown coloured form is easy to recognize, but the yellowish form with reddish-brown spiral cords should be compared with the following species:

G. rufinodis differs by having a larger adult size, a somewhat longer spire and longer siphonal canal, stronger axial ribs, and stronger primary spiral cords.

G. poppei differs by its slender spire, the shorter and broader siphonal canal, the narrowly elongate aperture, the more constricted suture, and the rather strong axial ribs.

G. consimilis differs by its more elongate spire, the longer siphonal canal, the more constricted suture, the subsutural concavity, and the stronger spiral and axial sculpture.

G. rubrolineatus differs from *G. bacciballus* by having a larger size, by the slenderer shell, the smaller and narrower aperture, the more intensively coloured spiral sculpture, and the often dark brown background colour.

For comparison with *G. westhuizeni* see there.

compare to *G. benjamini*

Granulifusus rufinodis (E. von Martens, 1901)

Description: *Testa fusiformis, imperforata, plicis verticalibus sat latis, interstitia non aequantibus (11-12 in anfr. ultimo, 11 in penultimo) et liris spiralibus angustis, 3 in anfr. penultimo conspicuis 6 in ultimo, plicas transcurrentibus ibique compresse nodosis et nonnullis subtilioribus interpositis sculpta, pallide flavescens vel albida, liris majeribus rufis; anfr. (superstites) 8, convexi, sutura simplice, modice, impressa, leviter undulata, ultimus basi sensim attenuatus; apertura angusta, lanceolata, margine externo tenui crenulato, fauce spiralim sulcata, pariete aperturali et margine columellari nitide albis, canali sat longo aperto flexuoso.*

(Shell fusiform, imperforate, with wide vertical folds, gaps not equal (11-12 at the last whorl, 11 in the penultimate whorl) and narrow spiral lirae, 3 in penultimate whorl visible, 6 in the last; with folds running across and there and there with compressed and with some finer interspersed carvings sculptured nodules, pale yellow or whitish, with red major lirae; whorls (survivors) 8, convex, suture simple, moderately, impressed, slightly wavy, the last one gradually attenuated at the base; aperture narrow, lanceolate, outer margin thinly crenulated, throat spirally furrowed, apertural wall and columellar margin bright white, canal sat with a long open flexure.)

Size: length 48 mm, width 17 mm, aperture length incl. canal 30.5 mm, without canal 16 mm, aperture width 8 mm

Range: Indonesia, W Sumatra, (?E Afrika)

Remarks: Closest to *G. niponicus* and *Fusus simplex (=Fusinus pauciliratus complex)* from the Sea of Japan but much larger, with a relatively larger aperture and distinct in coloration; also related to *Penion sulcatus*, *Propefusus undulatus* (= *Fusinus pyrulatus)* and *G. dalli (= Fusus libratus)*.

G. niponicus differs by its larger adult size, the elongate spire, the more convex whorls and more constricted suture, the interrupted primary spiral cords, and the sharp white nodules on axial ribs.

G. kiranus is almost identical but differs by its larger size, the finer but sharper primary spiral cords, the small, sharp, close-set and horizontally orientated axial knobs, the slight subsutural concavity, and by the weaker and more numerous axial ribs.

G. consimilis can be distinguished by having more convex whorls, a more constricted suture, a distinct subsutural concavity on later whorls, a shorter body whorl, a round-ovate aperture, a longer siphonal canal, and somewhat shorter but stronger axial ribs on later whorls.

The yellowish form of *G. rubrolineatus* with reddish-brown spiral cords differs by having a shorter spire and siphonal canal, weaker and more close-set axial ribs, a ventricose body whorl, a broader aperture, and weaker primary spiral cords.

G. poppei is similar in size, shape and sculpture, but differs by its more elongate and slender spire, the more constricted suture, the more numerous but weaker axial ribs on body whorl, the more elongate body whorl with narrower aperture, and the wide open, comparatively short siphonal canal.

G. benjamini differs by its smaller and shorter shell, the finer and more close-set spiral sculpture, the more numerous, weaker and finer axial ribs, and the short siphonal canal.

G. dondani differs by having a broader and shorter spire, a more constricted suture, more convex whorls, a short and ventricose body whorl, a nearly round aperture, and a reddish-brown banded, occasionally vividly coloured shell.

Fusinus thielei has a superficial resemblance with *G. rufinodis*, but is quite different by its particulars of sculpture, the spirals not being compressed as in that species, the ribs are more numerous, the canal is much shorter and much more curved, the aperture is smooth, the shell, though fresh, is quite white etc.

Granulifusus staminatus (Garrard, 1966)

Description: Protoconch of 14 whorls, smooth and brilliantly polished, deep brown initially, fading to lighter brown, developing about 4 axial plications before terminating abruptly at commencement of main whorls, which number five; 12 axial plications to each whorl, crossed by prominent spiral ridges showing only on axial plications, five on body whorl, 4 on penultimate and 3 on others, with a finer thread between each; in addition, two somewhat undulating ridges below the sutures; smaller ridges and threads continue anteriorly, becoming very oblique towards end of shell. Aperture a little more than half total length, columella curved, no callus, a small ridge at posterior end forms an indefinite canal, anterior canal straight and open, usual small ridges at anterior end of columella barely discernible; outer lip thin and simple, several pronounced internal spiral ridges commence a little behind outer lip. Colour light brown, a dark brown band below sutures and round centre of body whorl, dark patches at anterior end, aperture white tinted with pale blue, spiral ridges white on axial ribs. Operculum is vestigial, less than 2 mm in length, light brown, horny, with fine concentric ridges, nucleus at right hand side.

Redescription: Protoconch 1 1/2 whorls, smooth and polished. Whorls with about 12 axial folds, crossed by spiral ribs restricted to the folds, usually with a single secondary thread between each fold; 4-7 ribs on the penultimate whorl. Anterior canal long, aperture slightly more than half total shell length. Outer lip with about nine lirae internally. Columella smooth, or in mature shells, one or two lirae and a parietal nodule. Colour fawn, with an obscure brown band below the suture and at centre of body whorl; aperture white.

Redescription: Shell small for genus, fusiform, solid, axial and spiral sculpture strong, richly coloured for genus, consisting of 7.5 convex whorls. Suture fine, wavy. Colour white to light brown, conspicuously vivid, with a slightly darker subsutural band, body whorl with a narrow interrupted band below periphery. Axial ribs slightly darker. Siphonal canal white with irregular dark brown patches; occasionally brownish with 1 or 2 narrow white bands. Protoconch small, bulbous, glossy, 1.25 whorls. Tip usually conspicuously dark brown, becoming suddenly paler, often with a central darker brown band. Protoconch rarely white (but all from Fiji). Final part sculptured with 2-4 weak, but distinct axial riblets, transition to teleoconch abrupt. Diameter 0.6-0.7 mm.

3 or 4 strong, sharp primary spiral cords on first 2 post-nuclear whorls. Third whorl with 5 primary spiral cords and 1 fine secondary spiral cord appearing above central cord, becoming as strong as primary one on penultimate whorl. Starting with penultimate whorl, one fine inter-calated spiral thread appears between each pair of cords. Spiral cords sharp and prominent when crossing axial ribs but obsolete in interspaces, which are only ornamented with some fine axial growth lines.

Axial ribs low and broad, conspicuously close-set, reaching from suture to suture on all whorls, interspaces narrow, relatively deep. 10 or 11 axial ribs on upper postnuclear whorls, 10-12 on antepenultimate and pen-ultimate, and 12 or 13 on body whorl.

Aperture ovate, pointed above, white, columella glossy, callous thin, with 1 or 2 weak and inconspicuous columellar folds, acquired in adult stage. Outer lip simple, sharp, finely denticulated, with numerous sharp internal lirae. Siphonal canal slightly curved, usually shorter than aperture length, bending backwards. The length of the siphonal canal is subject of considerable variability. Operculum typical of genus, reddish-brown.

Size: up to 21.4 mm in length, but usually 13.0-16.0 mm; holotype: length 15 mm, breadth 6 mm, length of aperture 9 mm

Range: orig. Qld to NSW; S Pacific (Tonga Islands, Futuna Isl., Fiji, Vanuatu, New Caledonia, S Coral Sea and QLD, Australia) and Philippines

Remarks: *G. staminatus* is characterized and can be distinguished at once from all other *Granulifusus* species by the dark brown protoconch (except in Fiji) and/or the vivid colour in combination with the small size. These give the shell a different appearance, yet in all other aspects it is a typical *Granulifusus*.

G. staminatus is very small for the genus, and somewhat resembles *Pseudofusus pulchellus* from the Mediterranean, but has a longer anterior canal, and all main spiral ridges are of equal prominence, besides other minor differences. It can be readily recognised by the brilliantly polished protoconch and the raised spiral ridges like white cotton threaded regularly round the whorls.

For differences with *G. dalli*, a species which also bears a brown protoconch, see the comparison under that species.

Meteuthria futilis (18.4 x 6.8 mm), type locality between Kerguelen and Heard Isl., is similar in shape and sculpture, but has a larger and completely different sculptured protoconch, and an aperture which is adapically oval.

Granulifusus tatianae Kantor, Fedosov, Snyder & Bouchet, 2018

Description: Shell broadly fusiform, solid, of 3.5 protoconch and 7 weakly convex teleoconch whorls in holotype. Protoconch bluntly conical, last 3/4 whorl with axial riblets, protoconch/teleoconch discontinuity distinct, marked by appearance of teleoconch sculpture. Protoconch smooth except scattered microgranules, more dense along suture, where they are arranged in oblique lines. Protoconch diameter 820-910 µm (latter in holotype), exposed height 860-920 µm (former in holotype).Teleoconch whorls convex with impressed suture.

Axial sculpture of broad, prominent axial ribs, aligned axially on spire from one whorl to the next, 7 ribs per whorl, and of very weak incremental lines. Spiral sculpture of evenly spaced, strong, raised primary cords, in holotype 3 on spire whorls, 13 on last whorl, and numerous, much weaker secondary threads, about 5-7 between 2 adjacent primary cords. Intersection of secondary spiral threads and incremental lines forming finely reticulate microsculpture. Siphonal canal open, short, recurved.

Aperture with 8 strong lirae inside, adapicalmost stronger, forming spirally elongated tooth constricting base of siphonal canal. Inner lip partially detached, with three prominent columellar plicae and one strong parietal tooth, forming well-defined posterior canal. No umbilicus. Colour of protoconch and interior of aperture white. Teleoconch background colour creamy white, axial ribs light brown, spiral cords lighter than ribs.

Size: up to 18 mm; length 14.3 mm, length of aperture (without canal) 4.5 mm, width 6.1 mm

Range: SW Pacific, Futuna and New Caledonia

Remarks: *G. tatianae* is superficially similar to *Takashius kuroseanus*. Both species have brown axial ribs aligned along the spire against a lighter, creamy background, and both have a multispiral protoconch indicating planktotrophic larval development. *T. kuroseanus*, however, reaches a much larger adult size and is proportionally broader at comparable size; it has a longer siphonal canal, weaker columellar plicae, and spiral cords of uneven strength, without the very regular pattern of evenly spaced primary cords separated by 5-7 very fine, even, spiral threads of *G. tatianae*.

Takashius ellenae also superficially resembles *G. tatianae*, which differs by its short siphonal canal, strong apertural barriers, and the presence of second order spiral and axial sculpture.

G. tatianae also resembles *G. norfolkensis* in sculpture and particularly in apertural armature. Nevertheless, the shell shape in *G. tatianae* is rather different, and the species can be easily distinguished by size at maturity: *G. tatianae* attains a significantly larger size, up to 18.1 mm, versus 13.6 mm in *G. norfolkensis*.

Granulifusus vermeiji M. A. Snyder, 2003

Description: Shell broad for genus, size about average. Protoconch shiny brown, smooth, 1 - 1 1/4 whorls, diameter on holotype 0.85 mm. Teleoconch of 8 whorls, sculpture of prominent axial ribs, 8 on penultimate and body whorl, 10 on next to penultimate whorl and 12 on earlier whorls; whorls crossed by 4 strong spiral cords on first teleoconch whorl, cords added adapically with 7 strong spiral cords on body whorl. Additional prominent cords developed between these strong cords, with 3 intermediate cords on penultimate and body whorl.

Numerous axial lines form surface texture divided roughly into squares. Background color whitish to pale beige, brown early whorls, brown where central strong longitudinal cords cross ribs, with brown streaks from last few ribs extending up siphonal canal to color canal dark brown. Columella shiny white, smooth, with a few pale brown stripes, wrapping from the canal. Aperture and inner lip bright shiny white with lirations, labral margin brown.

Size: 40-60 mm; holotype: length 53.4 mm, greatest diameter 24.1 mm

Range: Central Philippines

Remarks: *G. vermeiji* is unlike any other recent *Granulifusus*. It follows the general shell morphology of the genus but is exceptionally broad compared to other living members of the genus. This breadth is reminiscent of the early Pliocene *G. matsumotoi* from Japan. *G. matsumotoi †* and *G. dualis †*, both from the Pliocene of Japan, have a smaller adult size and a smaller number of axial ribs on body whorl. *G. matsumotoi †* has a height:largest diameter ratio of approximately 2.8 compared to 2.21 in holotype for *G. vermeiji*, but it attains a height of just 33 mm and has 10-11 axial ribs. *G. dualis †* exhibits a similar height to largest diameter ratio but again is quite small (a large specimen attaining 37.5mm). This species also has more axial ribs than *G. vermeiji*.

G. vermeiji is easy to distinguish from all other *Granulifusus* species by the broad and ungulate shape.

G. bacciballus is similar in shape, but differs by its smaller size, the shorter spire, the weaker and narrower axial ribs, the narrower interspaces, the completely different spiral sculpture, and the shorter siphonal canal.

G. vermeiji is similar to *G. lochi* in spiral sculpture, but differs by its larger size, the clearly broader axial ribs and broader interspaces, the smaller number of axial ribs, the weaker spiral sculpture, the strongly curved siphonal canal, and the (often) reddish-brown colour.

Granulifusus westhuizeni Lussi, 2014

Description: Shell fusiform, whorls convex, suture well defined, siphonal canal moderately extended and open, aperture large, lip with spiral ridges inside, columella with feeble parietal and basal folds not always visible. Protoconch bulbous and fragile, most specimens studied having lost theirs. Protoconch 0.76 mm diameter, w/l 0.41. Sculpture consists of axial riblets which extend from suture to suture and number 11 on body whorl. Spiral cords number 10 on body whorl excluding siphonal canal. Raised nodules occur at intercepts between axial and spiral sculpture. Micro sculpture consists of one to three spiral threads between the cords and fine interstical axial striae. Colour plain white throughout.

Size: 20-33 mm

Range: South-Africa

Remarks: Micro sculpture in *G. westhuizeni* consists of 1-3 spiral thread between major spiral cords, whereas in *G. rubrolineatus* and *G. poppei*, there are 4-5 spiral threads between the cords. *G. westhuizeni* has a markedly thicker wall (~ 1.6 mm) compared to either *G. rubrolineatus* or *G. poppei* (~ 0.9 mm).

Granulifusus williami (Poppe & Tagaro, 2006)

Description: Shell small for the genus, fusiform in shape, not very solid. Protoconch with 3 whorls, smooth, glossy and cream colored with a red tinge. Spire with 5 whorls. Body whorl large and together with the siphonal canal larger than half the shell height. Suture deeply incised. Sculpture of the whorls consists of broad wavy axial ribs,

numbering 8 to 9 on the last whorl. Covered with a sculpture of 3 primary thin but rounded and well visible spiral cords. Numerous smaller secondary spiral cords. Lip thin. Siphonal canal long, about 1/3 of the total shell length. There are 3 columellar folds. Inside of the outer lip with 6 smooth teeth at about 1,5 mm from the lip. Overall color brown with a lighter band, cream colored mid-whorl in 2 of the 4 specimen. Two other shells are almost uniform light brown.

Redescription: Shell slender, fusiform, small to medium-sized for genus. Protoconch multispiral of 4.25 whorls, conical, smooth, except scattered microgranules more dense along suture, flesh coloured with reddish thin line along suture. Whorls somewhat convex, last 1/2 whorl with 11-12 rounded axial riblets progressing in strength, protoconch/teleoconch boundary without varix, defined by appearance of spiral sculpture. Protoconch diameter 1000 µm, exposed height 1240 µm.

Teleoconch whorls convex, suture deep, adpressed. Axial sculpture of very prominent ribs, 7-9 per whorl. Spiral sculpture of evenly spaced strong cords, 2 on first whorl, 3-4 on penultimate whorl, 8-9 on last whorl and shell base, becoming much weaker on canal. Weaker but distinct secondary cords between primary cords, one on earliest whorls increasing to 5 on last whorl, primary and secondary cords becoming similar in size on canal. Siphonal canal long, open, straight, about 1/3 of shell length.

Aperture with 7-8 smooth teeth periodically appearing and corresponding to interspaces between axial ribs. Inner lip adherent, forming smooth, white columellar callus, 2-3 distinct columellar rounded plicae, adapical two more prominent than abapical one. Teleoconch light brown, usually with lighter spiral band on whorls periphery.

Size: length 17.8 mm, width 5.2 mm; up to 30.8 mm in length

Range: Philippines; Indo-Pacific, from Taiwan to French Polynesia, Madagascar and Réunion

Remarks: *G. williami* has a smooth columella and therefore is well differentiated from its congeners with columellar plicae. *G. williami* has a small, rather slender shell with attenuated straight canal. It is most similar to *G. norfolkensis*, differing in details of colouration and in having a straight siphonal canal rather than inclined to left.

It is most similar to *G. norfolkensis*, differing in details of colouration and in having a straight siphonal canal rather than inclined to left. Molecular data clearly separate the two species.

G. williami differs from *Fusinus hartwigii* from the Caribbean by its much smaller size, more slender shell, less contrasted pattern and smaller aperture.

G. williami differs from *Pseudofusus pulchellus* (= *F. quandumpulchellus)* from the Mediterranean by its much smaller size, less rounded and much smaller aperture, color pattern and more slender shell.

Harasewychia Petuch, 1987

Type species: *Harasewychia harasewychi* Petuch, 1987

Description: Shell small for subfamily, fusiform in shape, thin delicate, fragile; spires elevated, usually scalariform, with tabulate whorls; shells characteristically ornamented with sharp axial ribs overlaid with large, evenly spaced spiral cords; spiral cords and axial ribs intersect to produce row of small knobs down length of axial rib; protoconch large, mamillate, smooth, usually composed of 2 or 2 1/2 rounded whorls; shell color pur white; some species being vitreous and translucent; periostracum usually thick, velvety, and tightly adherent; ecologically, a deep water group.

Size: small

Range: Caribbean

Harasewychia harasewychi Petuch, 1987

Description: General shell form and color for genus; shoulder and spire whorls sharply-angled, giving shell tabulate appearance; periphery of shoulder with one strong, carina-like cord; 15-17 thin, evenly-spaced axial ribs per whorl; ribs overlaid by 10 large spiral cords; large, knoblike bead produced at intersection of axial and spiral cords; fine spiral threads between large spiral cords and on siphonal canal; sloping area between shoulder cord and suture without coarse sculpture.

Size: 15-35 mm

Range: Venezuela

Remarks: *H. harasewychi* cannot be confused with the small Western Atlantic *Fusinus*. It has a much shorter and broader spire, a clearly larger shell than any other small *Fusinus* referred to *Harasewychia*, and the whorls are much more ventricous.

H. harasewychi is closest to *Fusinus benthalis*, both in size and sculpture pattern, but differs in having sharply-angled whorls and a tabulate spire, in having the relatively unsculptured, smooth area between the shoulder cord and the suture, and in having more numerous axial ribs and spiral cords.

H. harasewychi resembles *Eosipho atlanticus* in shape, sculpture, colour and periostracum but differs by the angular spire whorls (instead of only slightly angular), broader shape, slightly weaker axial and spiral sculpture, more slender siphonal canal and absence of internal apertural lirae.

Harfordia Dall, 1921

Type species: *Harfordia harfordii* (Stearns, 1871)

Description: proposed without diagnosis by Dall as a “section”

Redescription: Shell less elongate than typical *Fusinus*, with shorter, more widely open anterior canal and less clearly delimited parietal callus; the suture is obliquely adpressed, forming a sulcus at the posterior end of the aperture.

Size: not given

Range: NE Pacific

Harfordia chucksnelli Callomon & Snyder, 2017

Description: Shell small for subfamily with 6 inflated whorls, suture obliquely adpressed, rostrum short. Protoconch and nuclear whorls eroded or missing in all material examined; ca. 2 whorls. Teleoconch with sculpture of low broad rounded axial ribs, spanning sutures in early whorls but gradually restricted to posterior 2/3 of whorl and mostly absent by second half of body whorl. Spiral sculpture of distinctive major cords composed of narrow colored crests centered on broader shoulder; interspaces with single or double colored minor cords, sometimes absent; all cords finely decussate from fine axial growth lines.

Columellar margin of aperture resorbed in most specimens, but detached edge often present in anterior third and over entire margin in (rare) fully mature specimens. Interior shell wall bears numerous fine spiral lirae of alternating strength that terminate in points at uniform distance from lip. Lip thin, polished, with fine crenulations corresponding to outer spiral sculpture; colored outer shell layer visible through thinned inner layer at lip. Canal wide, open over entire length.

Shell pale reddish brown with darker brown primary and secondary cords and occasional narrow white spiral bands. Interior pure white. Operculum typically fasciolariid, leaf-shaped with terminal nucleus; dark brown.

Size: to 70 mm; 66.6 mm

Range: California

Remarks: *H. chucksnelli* can be distinguished from its closest relative *H. harfordii* by its somewhat larger and more elongated mature shell in which the point of maximum outward curvature of the axial ribs is biased somewhat to the posterior half of the whorl, resulting in a “shouldered” appearance that is accentuated by the more obliquely adpressed suture, particularly in the later whorls. *H. chucksnelli* also has a larger number of axial ribs; the major spiral cords are finer and the minor ones stronger than in *H. harfordii*, giving the shell the appearance of having many more closely spaced cords, and a similar contrast of dark brown cords and pale brown background gives *H. chucksnelli* a striking appearance that is accentuated by its pure white interior.

H. mcleani can be differentiated from *H. chucksnelli* by the pronounced posteriorward exaggeration of the axial ribs that combines with the strongly oblique suture to produce a coronate profile, and by its coarser spiral sculpture.

Harfordia harfordii (Stearns, 1871)

Description: Shell solid, elongate, regularly fusiform; spire elevated, whorls 6 or 7, moderately convex, slightly flattened (in outline) above, with a groove or canal following the suture; color, chocolate brown; surface marked by

numerous narrow revolving costae, which alternate in prominence on the body whorl, and longitudinally by fine incremental striae, and on the upper whorls by obtusely rounded ribs of more or less prominence; aperture ovate, about 1/2 the length of the shell, polished, white and finely ribbed within; (the outer lip in perfect specimens is probably finely crenulated;) canal short, nearly straight.

Redescription: Shell broad to more slender bucciniform, small for family, 5 rounded whorls with obliquely adpressed suture, rostrum short. Protoconch worn or absent in material examined; ca. 2 whorls. Teleoconch sculpture of 9-11 wide rounded axial ribs per whorl with interspaces of equal width; ribs becoming reduced or obsolete on body whorl. Spiral sculpture of thick, often flattened cords with finely decussate surface; interspaces deep and narrow. 7 major cords evenly distributed between sutures on penultimate whorl; single minor cord in each interspace thickening by body whorl; cords distributed evenly to anterior end of shell.

Columellar margin of aperture strongly resorbed in juveniles; thickly glazed with distinct edge over entire length in adults. Outer wall of shell crenulate, with interior lirae in loose pairs corresponding in position to interspaces of outer spiral cords and terminating at uniform distance from lip. Adult margin of lip polished, but lacking dentition. Canal very short and broad.

Shell dark orange-brown with spiral cords distinctly darker; interior white in type material, pale lavender in many fresher specimens. Operculum light yellow-brown.

Size: length 53.2 mm, width 23.5 mm

Range: N California to at least British Columbia and possibly Alaska

Remarks: The ratio of shell width to length varies considerably in *H. harfordii* (from 0.42 to 0.49 in adult specimens; 17 % variation, mean = 0.45, n = 21).

H. mcleani can be differentiated from *H. harfordii* by the pronounced posteriorward exaggeration of the axial ribs that combines with the strongly oblique suture to produce a coronate profile; *H. mcleani* can also be distinguished by its longer, more slender shell and narrower, less flattened spiral cords

For comparison with *H. chucksnelli* see there.

Harfordia mcleani Callomon & Snyder, 2017

Description: Shell large for genus, elongate fusiform of 7-8 strongly angulate whorls with obliquely adpressed suture and moderately long canal. Protoconch eroded, damaged or missing in most material examined; ca. 1.5-2 whorls. Teleoconch sculpture of about 10 prominent axial ribs per whorl, evenly spanning sutures on early whorls, becoming reduced in anterior part of later whorls to give characteristic “shouldered” appearance; ribs weakening or vanishing in latter half of final whorl. Spiral sculpture of 5 major and 5 or more minor cords between sutures on spire whorls; minor cords strengthening on final whorl, cords distributed evenly to tip of rostrum. Entire shell surface with fine, closely-set axial striae that cross and decussate spiral cords.

Columellar margin resorbed over entire length in most specimens; occasionally a thin edge present in anterior third. Interior of aperture with grooves corresponding to outer spiral cords; grooves overlaid with very fine spiral lirae, mostly in pairs, lirae terminating well behind lip. Lip thin, crenellate; colored outer shell layer visible through thinned inner layer at lip.

Shell mid brown overall with paler ribs on first 5-6 whorls; later ribs often pale at shoulder; spiral cords often much paler at summits of axial ribs. Occasional pale spiral bands of varying width. Interior of aperture white with occasional violet cast. Operculum light to medium brown, typically fasciolariid; leaf-shaped with terminal nucleus.

Periostracum thick, translucent greenishbrown, composed of dense continuous axial lamellae with spiral rows of thorn-like tufts concentrated near suture; tufts more sparse elsewhere.

Size: to 71 mm; 68.1 mm

Range: California

Remarks: *H. mcleani* can be differentiated from all other members of the genus by the pronounced posteriorward exaggeration of the axial ribs that combines with the strongly oblique suture to produce a coronate profile. From *H. harfordii* it can also be distinguished by its longer, more slender shell and narrower, less flattened spiral cords, and from *H. chucksnelli* by its coarser spiral sculpture.

Harfordia robusta (Trask, 1855) ?†

Synonyms: *Fusinus monksae* Dall, 1915

Description: Shell fusiform, turreted, thick; about 7 convex whorls: 8 varicosed, distant folds on the last whorls, which are interrupted at the sutures: about 5 revolving lines on the upper whorls, and 12 on the last: folds become obsolete a little anterior to the middle of the body whorl: greatest breadth across the posterior portion ol the aperture.

Aperture obovate; outer lip thick: canal straight: distance from the posterior edge of the aperture to the end of the canal, equal to half the length of the shell; apex of the spire bluntly rounded.

Size: length 30 mm, width 12.5 mm

Range: California, Pleistocene

Remarks: Very similar to the fossil *F. barbarensis †*, but generally heavier and with a shorter canal, described as fossil.

Heilprinia Grabau, 1904

Synonyms:

Type species: *Heilprinia caloosaensis* (Heilprin, 1886) †

Description: The shells are usually close coiled with short spire and bulging whorls. The canal is long and the columella usually furnished with numerous short plications in the adult.

Redescription: The extant species are slender (length to diameter ratio 3.1 : 3.4) with a relatively long siphonal canal (canal length to shell length ratio 0.32 : 0.41).

Size: not given

Range: Antillean region and Florida

Remarks: *Heilprinia* differs from *Fusinus* in the very remarkable, strongly accelerated protoconch, which is throughout its greater portion crossed by riblets.

Lyonsifusus differs from *Heilprinia* in having a more widely open siphonal canal and an adherent inner lip, and by having the first protoconch whorl smooth rather than finely ribbed.

Heilprinia coltrorum (Hadorn & Rogers, 2000)

Description: Shell fusiform, rather thin-shelled, consisting of about 9-10 whorls; upper whorls well-rounded, lower whorls strongly keeled at the periphery, with a concave shoulder slope. Suture wavy. Numerous fine growth lines on all whorls.

Protoconch composed of 1 3/4 convex, flesh-coloured whorls; first half whorl very small, the following whorl swollen, strongly convex and much larger than the preceding part; the last part becomes less convex and has about the same diameter than the preceding one. All protoconch whorls sculptured with strong, coarse axial riblets reaching from suture to suture. The protoconch ends in a varix. Diameter 1.5 mm.

About 6-7 axial ribs on upper teleoconch whorls, 8-10 on the last 3 whorls. On upper whorls the ribs are more or less rounded, strong and rather narrow; they are most prominent at the periphery and reach from suture to suture. Interspaces between them as wide as the ribs themselves. On latter whorls the ribs terminate below the upper suture and are reduced to strong and sharp knobs at the periphery.

The teleoconch begins with 5 spiral cords, the 2 lowermost are the strongest. Starting with the second postnuclear whorl, two additional cords appear just above the suture. On the following whorls, a fine intercalated spiral thread appears between each pair of cords; up to four intercalated fine threads on body whorl. The central spiral cord is clearly the strongest and forms a distinct strong keel at the periphery.

Aperture conspicuously narrow, ovate, white-coloured; outer lip thickened, crenulated; about 14 strong and sharp internal lirae. Parietal callus thin, underlying spiral sculpture well visible, spreading over the columellar wall which becomes free in its lower part to form a high, wide and transparent wing-like blade. Posterior canal well developed.

No columellar folds. Siphonal canal rather long (about one third of shell length) and straight. Outer side ornamented with strong and sharp spiral cords and fine intercalated threads. Uniformly white-coloured.

Size: 73.9 x 23.3 mm

Range: Florida Straits

Remarks: *H. coltrorum* is the third known recent member of the subgenus Heilprinia, which is characterized by the entirely ribbed protoconch. The other 2 taxa are *H. timessa* and *H. dowiana*.

H. dowiana is most closely related to *H. coltrorum* and has a nearly identical aperture and protoconch, but differs in having much stronger, broader and well rounded axial ribs with smaller interspaces between them, in the smaller number of axial ribs on latter whorls, the always unkeeled and strongly convex whorls with a convex shoulder slope, and finally in the stronger and sharper spiral sculpture especially on shoulder.

H. timessa can be separated by having a shorter spire and inflated, never keeled whorls with a convex shoulder slope, by the larger number of axial ribs, by differences in spiral sculpture, by the nearly round aperture, the thicker and completely different shape of the parietal callus, and by the stronger and broader siphonal canal.

Heilprinia dowiana (Olsson, 1954)

Description: The shell is moderately large, fusiform, the spire a little shorter than the length of the aperture and anterior canal. Spire is relatively slender, composed of about 12 whorls including the nucleus. General ground color of the shell is white except for a portion of the spire which has a pink or amber color which is deepest between the ribs and around the suture. The nucleus is that typical of the subgenus and composed of 1 1/2 whorls finely sculptured over the entire surface by strong, axial riblets (about 16 to the whorl); the color of the protoconch is a deep amber brown. The change from the nuclear stage to the nepionic is sharp and abrupt, indicated by the assumption of spiral sculpture. Whorls are well-rounded, their convexity being accentuated by the coarse ribs which persist through over the penultimate whorl, fading out only on the back of the bodywhorl in a fully adult specimen. The ribs and their interspaces are crossed by strong, ridge-like spiral threads, rather well spaced, the concave intervals between them marked by still smaller secondary and tertiary spirals, the whole crossed by longitudinals imparting a coarse, cross-etched effect which shows best on the whorls of the spire. The anterior canal is fairly long and slender, about one-third the total length, thick and straight in the upper section, more slender and slightly twisted in the lower, the canal itself narrow and open along its whole length. The aperture is semilunate, the outer lip strongly and deeply lirate within. Inner lip has a callous spread over the parietal wall which in the adult shell becomes free in its lower part to form a high, wide, wing-like blade. Operculum corneous, thick, of the usual *Fusinus* type.

Redescription: Large shell, composed of about 12 well-rounded, unkeeled whorls. Colouration white, sometimes orange or pinkish. Entire protoconch sculptured by strong axial riblets. 6-7 coarse broad and low axial ribs which persist through over the penultimate whorl, fading out only on the back of the body whorl in adult specimens. Strong and sharp ridge-like spiral cords between them with smaller secondary and tertiary spiral threads.

Aperture semilunate, with strong internal lirae within. Inner lip has a callus spread over the columellar wall which becomes free in its lower part to form a high, wide, wing-like blade. Siphonal canal fairly long and slender (about 1/3 of shell length), thick and straight in the upper section, more slender and slightly twisted in the lower.

Size: 86-163 mm; length 137 mm, aperture and canal 83 mm, greater diameter 39.3 mm

Range: NE coast of Honduras, Colombia to Texas

Remarks: *H. dowiana* is unusual among fusinines in that its adult outer lip is both externally and internally thickened.

H. timessa is generally smaller and has a stouter shell, with a wider and more inflated body whorl, never keeled whorls, and a completely different parietal callus.

H. dowiana is most closely related to *H. coltrorum* and has a nearly identical aperture and protoconch, but differs in having much stronger, broader and well rounded axial ribs with smaller interspaces between them, in the smaller number of axial ribs on latter whorls, the always unkeeled and strongly convex whorls with a convex shoulder slope, and finally in the stronger and sharper spiral sculpture especially on shoulder.

H. dowiana has a much broader spire than *Aristofusus benjamini*, less numerous whorls, broader axial ribs and a completely different parietal callus forming a wide, wing-like blade.

Heilprinia timessa (Dall, 1889)

Synonyms: *Heilprinia lindae* Petuch, 1987

Description: Shell solid, waxen white, with 9 1/2 inflated whorls. Nucleus of 2 whorls, swollen, polished, the last whorl with sharp transverse riblets. Sculpture of sharply carinate spiral ridges, 6-8 on the earlier whorls, 11-15 on the last whorl, beside about 20 on the canal. On the last whorl, the 4 or 5 ridges in front of the suture are smaller than the others; there is generally a small sharp ridge between the pairs of large ones which becomes a fine thread if we follow it up the spire; on the canal all the ridges become less prominent anteriorly. On the apical whorls there are 10-12 transverse ribs, rounded, and only prominent toward the periphery; the ridges run over these without much change and the transverse riblets become fainter on the later whorls and usually vanish on the last one. The only other transverse sculpture is formed by the lines of growth, which are rather sharp and scalloped between the ridges, corresponding to serrations of the outer lip; the whorls increase rapidly in diameter, and the suture is deep but not channelled.

The base of the last whorl is rather suddenly constricted, while the canal tapers rapidly. The aperture is small, surrounded by a continuous sharp lip-lamina which extends to the end of the canal. The outer lip is strongly serrate, corresponding to 12-14 strong internal lirae; the inner lip is also lirate, but the lirae are often broken up irregularly toward their outer ends. In the immature shell the lamina about the mouth and the lirations on the inner lip are of course absent.

Redescription: Shell solid, with 9-11 inflated, strongly convex whorls. The whorls increase rapidly in diameter. Suture deeply impressed. Shell whitish, sometimes yellow, orange or pink.

On upper whorls with 8-12 rounded axial ribs, only prominent towards the periphery; they are separated by rather narrow interspaces. The axial ribs become fainter on latter whorls and usually disappear on the body whorl. 5-8 sharp, slightly wavy spiral cords on upper whorls, 10-15 on penultimate whorl.

Aperture small, round-ovate, with 12-19 very strong internal lirae. Columellar callus strongly developed, ornamented with many irregular lirae. The base of the last whorl is suddenly constricted, while the siphonal canal tapers rapidly.

Size: max. length of shell 88 mm, of last whorl 60 mm, of aperture 20 mm, of aperture and canal 55 mm; max. width of shell 33 mm, of aperture 15 mm; 75-150 mm

Range: Gulf of Mexico, Florida, Cuba

Remarks: This is a very remarkable species; in the short and rapidly increasing spire, large body whorl, and rapidly tapering canal, it has no parallel among recent species. Its nearest relative, and doubtless ancestor, is the *F. caloosaensis †*, from the Pliocene of the Caloosahatchie River, Florida, which has very much such a spire, but the whorls are appressed to the suture and the sculpture is markedly different in detail; the lirae of the outer lip are double, and the shell is usually smaller than in *H. timessa*. In *H. timessa* the soft parts are white, the operculum thick and solid.

H. timessa can be separated from *H. coltrorum* by having a shorter spire and inflated, never keeled whorls with a convex shoulder slope, by the larger number of axial ribs, by differences in spiral sculpture, by the nearly round aperture, the thicker and completely different shape of the parietal callus, and by the stronger and broader siphonal canal.

H. timessa is generally smaller than *H. dowiana* and has a stouter shell, with a wider and more inflated body whorl, never keeled whorls, and a completely different parietal callus.

Hesperaptyxis Snyder & Vermeij, 2016

Type species: *Hesperaptyxis cinereus* (Reeve, 1847)

Description: Shell small, fusiform. Protoconch paucispiral. Teleoconch with up to 8 whorls. Suture accentuated by steep subsutural slope on all whorls. Teleoconch sculpture consisting of strong spiral cords and axial ribs. Shoulder cord angulated. Central cord at adapical end of base less prominent. Base strongly constricted. Spiral cords

present on entire siphon. Tip of siphon slightly upturned. Aperture elongate-ovate. Outer lip crenulated at edge, smooth or weakly lirate within. Inner lip smooth, columellar margin resorbed in posterior third, callused and slightly produced in anterior third, with transition between. Single entrance fold at base of siphonal canal, shallow abapical sinus present on outer lip, aperture slightly folded at terminus of suture.

Size: maximum length about 70 mm

Range: W America

Remarks: In shell characters, *Hesperaptyxis* is extremely similar to *Aptyxis* from the Mediterranean Sea and adjacent warm-temperate eastern Atlantic. Although there have been occasional placements of additional Mediterranean species in *Aptyxis*, the comparison is based on the type species, Murex syracusanus. The genus *Aptyxis* differs from *Hesperaptyxis* by having a straight siphon without upturned tip and by having the abapical end of the inner lip, at the distal end of the siphonal canal, forming a detached edge to the left margin of the canal. This occurs in roughly 50 % of mature specimens (n = 12).

Another similar genus is *Pseudaptyxis †*, based on *P. santamariae* from the Late Miocene (Tortonian) St. Mary's Formation of Maryland. The examination of the holotype of *P. santamariae* shows that this small species (length about 25 mm) differs from both *Aptyxis* and *Hesperaptyxis* by much finer spiral and axial sculpture and by having a straight outer lip without abapical and adapical sinuses. The outer lip is smooth within, and a parietal tooth or ridge is absent. *Pseudaptyxis* resembles *Hesperaptyxis* in having the tip of the siphon slightly upturned. In this respect, *Hesperaptyxis* and *Pseudaptyxis* differ from the eastern Atlantic *Aptyxis*. In addition, the shoulder is rounded in *Pseudaptyxis*, whereas it is more or less angulate in *Aptyxis* and *Hesperaptyxis*.

Hesperaptyxis ambustus (A. Gould, 1853)

Synonyms: *Fusinus hertleini* H.N. Lowe, 1935

Description: *T. fusiformis, subequilateralis, dilute rufa, fusco tincta; spira elongata, acuta, anfract. ad octo convexis, subangulatis, liris crebris cinctis, et plicis conspicuis ad octo ornatis, prope suturam constrictis; apertura parva; rostro subrecto.*

Shell fusiform, its largest diameter near the middle; color yellowish, shaded with brown, so as to appear as if scorched; spire acute, having as many as 8 convex somewhat angular whorls, which are girdled with elevated threads, and have about 8 varicose folds on each whorl disappearing on the last half of the anterior whorl: suture deep, to which the upper part of each whorl gradually slopes. Aperture quite small, nearly semicircular, furrowed within; beak nearly straight, and with a very narrow canal.

Size: length 44 mm, diameter 19 mm

Range: Mazatlan, W Mexico

Remarks: The only described species to which it bears any resemblance are *Marmorofusus verrucosus* (= *F. marmoratus)*, which is twice as long, more numerously ribbed, mottled in coloring, and with the whorls more angular; and *Pseudofusus rostratus*, from the Mediterranean, which is smaller, and has remarkably rounded whorls with the folds extending to the suture.

Fusinus magnapex superficially resembles a small specimen of *H. ambustus*. It differs radically in having such a large protoconch with a tilted first turn, and in being proportionately shorter and stouter.

In all stages of growth *H. fredbakeri* is much broader than *H. ambustus*. It also has more, although less prominent, axial ribs.

Hesperaptyxis cinereus (Reeve, 1847)

Description: *T. testa gracili-fusiformi, anfractibus subangulato-convexis, longitudinaliter costatis, costis distantibus, compresso-nodatis, interstitiis striis distantibus decussatis; nigricante-cinerea, costis albidis nigricante-fusco maculatis.*

Shell slenderly fusiform, whorls somewhat angularly convex, longitudinally ribbed, ribs distant, compressly noduled, interstices crossed with distant striae; dark ash-colour, ribs whitish, spotted with blackish-brown.

Size: 13-30 mm

Range: NW Mexico

Hesperaptyxis felipensis (H. N. Lowe, 1935)

Description: Shell small, purplish brown, nearly the same size as the average *H. luteopictus* of the upper California coast. There are 7 rounded whorls, including the smooth white nucleus. There are 11 axial ribs with somewhat wider interspaces on the penultimate and ten on the antepenultimate whorl, which are continuous from suture to suture; they gradually fade out on the body whorl. There are 4 or 5 strong, spiral cords to the whorl, with a weaker spiral thread between, which render the axial ribs nodulous. Aperture oval, of a purplish color; outer lip thin, slightly crenulated by the spiral sculpture; inside smooth; canal straight, of medium length and width.

Size: length 19.2 mm, diameter 7.7 mm

Range: Gulf of California

Hesperaptyxis fredbakeri (H. N. Lowe, 1935)

Description: Shell with 6 well-rounded, strongly sculptured whorls exclusive of the nuclear whorls. Axial sculpture, on the penultimate whorl, of 12 rounded ribs, with about equal interspaces, most prominent on the periphery. There are 8 or 9 spiral cords of unequal strength on the penultimate whorl. The type specimen is of a deep cream color, on other specimens shaded to a warm sienna brown. Canal straight, narrow and of medium length, aperture broadly rounded; outer lip thin, crenulated by the spiral sculpture, which shows through on the inside.

Size: length 38 mm, diameter 15.5 mm

Range: Gulf of California

Remarks: In all stages of growth this shell is much broader than *H. ambustus*, measurements of which are diameter 13.3 mm, length 38 mm. It also has more, although less prominent, axial ribs.

Hesperaptyxis luteopictus (Dall, 1877)

Description: Shell small, fusiform, rather thin, provided with numerous revolving ridges and transverse costae. Aperture plus canal less in length than the spire. Whorls rounded, somewhat excavated near the sutures. General coloration dark brown, occasionally interrupted on the ridges. Costae, with that portion of the ridges which pass over them, bright yellow, in dead specimens fading to whitish. On the last whorl, when the costae become obsolete, the lighter coloration is often continued as a light band marked within the aperture, as well as externally, while the anterior half of the whorl continues dark, the darker coloration appearing on the inner edge of the lip as a brown spot or spots. Spire, when perfect, containing six or seven whorls, the nuclear portion light colored, with delicate cancellation. Canal short, 2/3 as long as the aperture at most. Aperture rounded-ovate, within white, when adult provided with about 12 threads, strongly marked and disposed in pairs. These stop just within the margin of the outer lip, which is crenulated. On the fourth whorl there are about 10 costae, which pass the periphery, but are obsolete just beyond it. The canal is often of a lighter brown than the rest. The ridges are slightly thickened on the costae, and on the last whorl are about 12 in number, with a few intercalary threads.

Size: length 20.5 mm, greatest width 8.8 mm, canal 3.5 mm, canal and aperture 9.3 mm, spire 11.3 mm

Range: California

Remarks: Comparison see under *H. negusi.*

H. luteopictus is most similar to *Fusinus tenerifensis* in size, general shape and colouration, and has also a yellowish-white band just below the periphery. It can be separated by the often slightly keeled whorls, by having a broader and less pointed spire, by the weaker axial ribs not reaching from suture to suture on later whorls, and by the brown blotches between the axial ribs.

Hesperaptyxis negusi Snyder & Vermeij, 2016

Description: Shell small, slender, with short siphonal process. Protoconch broken or missing in all specimens examined. Teleoconch of 8 convex whorls at maturity, constricted at sutures. Axial sculpture of about 12 ribs on early and penultimate whorl, 18 on body whorl, morphing on last whorl to weak axial ridges toward lip. Ribs stop short of suture posteriorly and anteriorly. Spiral cords on entire teleoconch, to tip of neck, about 5 on early whorls, 6 on penultimate whorl with intercalated weaker cords; spiral sculpture weaker on body whorl. Anterior sutural ramp

steep with strong cord at base, 3-4 close-set cords on ramp. Rounded knobs where spiral cords cross axial ribs, evanescent on second half of body whorl. Siphonal process short, straight, with slightly upturned tip. Aperture elongate-ovate, glazed white within with raised cords terminating short of lip; small entrance fold at base of siphonal canal. Parietal callus resorbed, blending smoothly into exterior shell surface. Columellar margin of siphonal canal raised.

Operculum typical of genus, thin, light caramel color. Shell background color pale to light brown. Spiral cords dark brown between axial ribs, cream color at knobs where crossing axial ribs. Remnants of one protoconch suggest a dark caramel color.

Size: length to about 29 mm

Range: Baja California, Mexico

Remarks: *H. negusi* is most closely related to *H. luteopictus*, being of similar size and shape, and sharing the same or similar habitats. It is easily distinguished from *H. luteopictus* by its more slender and elongated profile and its less prominent sculpture. *H. luteopictus* is purplish brown with white spiral bands where prominent centrally placed cords cross raised portions of axial ribs, forming sharply pointed knobs. *H. negusi* has a smoother more rounded surface sculpture.

Lyonsifusus Vermeij & Snyder, 2018

Type species: *Lyonsifusus ansatus* (Gmelin, 1791)

Description: Fusinines with relatively elongate shell (length to diameter ratio approximately 3.0); relatively long, widely open siphonal canal (canal length to shell length ratio approximately 0.4, opening about 3 mm); sculpture consisting of high smooth angular spiral cords on entire shell and broad rounded axial ribs extending on last whorl to basal constriction; whorl profile rounded to angulate; aperture adapically rounded; outer lip with long smooth lirae on inner side; inner lip adherent.

Size: large

Range: S Caribbean

Remarks: *Lyonsifusus* differs from *Fusinus* in having smooth spiral cords, an adherent inner lip, and a more widely open siphonal canal.

Apertifusus differs from *Lyonsifusus* by having relatively poorly expressed, short lirae. The axial ribs of *Lyonsifusus* are much broader and smoother, and the siphonal canal in those genera is more narrowly open.

It differs from *Heilprinia* and *Aristofusus*, both from the western Atlantic, in having a more widely open siphonal canal and an adherent inner lip, and from *Heilprinia* by having the first protoconch whorl smooth rather than finely ribbed.

Goniofusus differs from *Lyonsifusus* from the western Atlantic in having shorter ribs, a larger aperture, the presence of an adapical channel or notch, wellmarked growth lines, and a distally flaring siphonal canal.

Lyonsifusus ansatus (Gmelin, 1791)

Synonyms: *Fusinus frailensis* Macsotay & Campos, 2001, *Fusinus martinezi* Macsotay & Campos, 2001, *Fusinus caboblanquensis* Weisbord, 1962, *Fusinus closter* (Philippi, 1850), *Fusus distans* Lamarck, 1822, *Fusus torulosus* Lamarck, 1816, *Murex striatulus* Gmelin, 1791, *Murex versicolor* Gmelin, 1791, *Syrinx maculata* Röding, 1798

Description: *M. testa fusca transversim striata; spira mucronata; anfractibus convexis distantibus basi nodosis, cauda longa; testa 5 1/4 pollices longa, striis alternatim minoribus.*

(Shell brown transversely striated; spire mucronate; whorls convex at a distance from the nodose base, siphonal canal long; shell 5 1/4 inches long, with alternate smaller stripes.)

Redescription: Shell solid, large, extremely variable in shape, consisting of 11-12 ventricose whorls, lower whorls sometimes more or less keeled in the middle with a slightly convex shoulder slope. Whitish, sometimes stained irregularly with chestnut-brown, sometimes dark brown or red-brown between the axial ribs on early whorls, keel (if exists) deep chestnut between the nodules.

On early whorls 8-10 rather strong, broad and rounded axial ribs with narrow interspaces between them. The number of ribs increases on latter whorls. With the appearance of the angulation (keeled specimens), the ribs become fainter on the shoulder, and fading out on body whorl. The nodules continue on the keel, becoming compressed vertically. 3-4 slightly waved spiral cords on early whorls, 8-10 on lower whorls, intercalated with some finer spiral threads.

Aperture large, ovate. Outer lip strongly denticulated, with strong sharp internal lirae. Parietal callus thin, ornamented with some lirae, underlying spiral sculprure usually visible. Siphonal canal long and strong, straight or sinuous.

Size: 90-200 mm

Range: nothern coast of South America

Remarks: see under *F. carvalhoriosi*

L. ansatus has a broader, less elongated shell, a lower number of whorls (11-12), sometimes slightly keeled whorls, a greater number of axial ribs with narrower interspaces, a less deeply incised suture, and a larger aperture than *Aristofusus benjamini*.

Lyonsifusus ansatus is a much broader species than *Fusinus cratis*, with the whorls distinctly tricarinate at their periphery and the ground colour chestnut, with the peripheral nodules white.

Immature specimens of *L. ansatus* from the Phillippines have sometimes a similar colouration and axial sculpture as *Fusinus hartvigii*, but best distinguished by only 4 lirae in superior whorls (not 7 as in *L. ansatus*). *F. hartvigii* can be separated on the base of the smaller spire angle, the more elongated spire, the smaller aperture, the less inflated penultimate and body whorl, the much stronger spiral cords on the siphonal canal and finally by the clearly smaller adult shell.

Fusinus frailensis Macsotay & Campos, 2001

Synonyms: according to WoRMS synonym to *Lyonsifusus ansatus* (Gmelin, 1791)

Description: not available

Size: 114-250 mm; holotype 198 mm

Range: Venezuela, Isla Margarita

Lyonsifusus carvalhoriosi (Macsotay & Campos, 2001)

Description: *L. carvalhoriosi* has a moderately heavy shell with broadly swollen axial ribs crossed by relatively few raised spiral cords on all whorls; most shells lack a prominent peripheral cord bearing interrupted dashes of brown, although faint indicators of such a cord are evident on a few shells in the present material. Spiral cords are equally large on some specimens and variously large and small on others. Shell background colors range from yellowish-tan to white; areas between ribs of many shells are golden or dark brown, whereas intercostal areas of others are simply white.

Size: 90-180 mm

Range: Barbados to E Venezuela to NE Brasil

Remarks: Collectively the features distinguish *L. carvalhoriosi* from the several overlapping varieties of *L. ansatus*. Of those varieties, *L. carvalhoriosi* most resembles the one named *F. closter*, but the *F. closter* variety has a lighter-weight shell with axial ribs confined to the upper spire and not continuing onto the penultimate whorl. Lack or diminishment of a peripheral cord causes lateral profiles of the spire and body whorl of *L. carvalhoriosi* to be rounded, whereas the lateral profiles of *L. ansatus* whorls tend to be peripherally carinate.

Marmorofusus M. A. Snyder & Lyons, 2014

Type species: *Marmorofusus nicobaricus* (Röding, 1798)

Description: Fusinine shells of medium to large size, fusiform, with moderate to tall spire, generally angled whorls, and long, slender siphonal process. Axial sculpture of low ribs, sometimes expressed as nodes or knobs, most prominent at peripheral angle; spiral sculpture of large broadly rounded cords, often flattened on sutural ramps.

Exterior shell color white or cream marked with solid or interrupted darker axial streaks or spots.

Size: length to nearly 190 mm

Range: Indo-West Pacific

Remarks: *Marmorofusus* radulae do not much resemble those of any of the other fusinine genera either, leading us to propose that the radula may be a diagnostic generic feature for this group.

Cyrtulus differs from *Marmorofusus* in its reduced spiral sculpture, especially on the siphonal process, and by the presence of the spiral bulge on the siphonal process. It shares with that genus the presence of an adapical channel.

The 2 enlarged spiral cords on the last whorl of *Enigmofusus* bear spirally elongate nodes, as in *Marmorofusus*; but the absence of enlarged and differentiated cords on the siphonal process distinguishes *Enigmofusus* from *Marmorofusus*.

Marmorofusus akitai (Kuroda & Habe, 1961)

Description: Shell rather large, stoutly fusiform, covered with a velvety yellowish periostracum. The spire of 9 inflated whorls is pyramidally elevated and the body whorl is large and well inflated and ventricose, with a rather short anterior prolongation. Surface sculptured with about 10 spiral ridges throughout and about 15 longitudinal wrinkles. Aperture oval, terminating in a narrow and long canal.

Size: 80-98 mm; length 76.9 mm, width 28.7 mm

Range: Japan

Remarks: Resembling *F. perplexus*, but shell not stained in brown in interspaces of axial ribs.

M. akitai is somewhat related to *Enigmofusus beckii*, but is smaller with a shorter siphonal canal.

M. akitai superficially resembles *Enigmofusus nicki*. Both species have inflated body whorls and wide apertures. *M. akitai* lacks the strong axial ribs of *E. nicki* and has more numerous closely spaced spiral cords that are more pronounced on the body whorl than in *E. nicki*. The shell of *M. akitai* is not as solid and heavy as in *E. nicki*. None of these species mentioned for comparison displays determinate growth.

From the similarly-sized *M. akitai Fusinus penioniformis* can be distinguished by its more slender shell, angular whorl profile and row of carinate knobs on the shoulder.

Marmorofusus bishopi (Petuch & Berschauer, 2017)

Description: Shell small for genus, thin and delicate, extremely elongated, with high, protracted spire and very long, narrow siphonal canal; shoulder distinctly sloping; shoulder sharply angled, subcarinate, ornamented with

12-13 elongated knobs; body whorl and spire whorls ornamented with 12-13 low, narrow, evenly-spaced longitudinal ribs; ribs end abruptly at body whorl-siphonal canal juncture, producing sharply-angled anterior edge of body whorl; body whorl encircled with 9 large raised spiral cords; juncture of spiral cords and longitudinal ribs producing a small raised bead; siphonal canal smooth, ornamented with very small and thin spiral threads; spire whorls ornamented with 8 spiral cords; shell color pale cream-white, overlaid with scattered faint brown patches and flammules; areas between shoulder knobs and between small knobs of anterior body whorl angle marked with large dark brown dots or small dark brown patches; anterior tip of siphonal canal colored light brown; protoconch proportionally large, composed of 2 whorls, white in color; aperture proportionally small, circular, pure white in color, with inside of lip ornamented with 16 elongated, narrow ribs.

Size: length 72 mm, width 23 mm

Range: Western Australia

Remarks: Of the known southern Australian *Fusinus* species, *M. bishopi* most closely resembles *M. wellsi* from Western Australia, but differs in the following ways:

- in having less tabulate and much more sloping shoulders, with a much greater shoulder angle;
- in having a proportionally much higher and more protracted spire;
- in having more numerous longitudinal ribs on the body whorl (13-14 on *M. bishopi* and 10-11 on *M. wellsi*);
- and in having more numerous shoulder knobs (14 per whorl on *M. bishopi* and 10 per whorl on *M. wellsi*).

The 2 shells are very similar and definitely represent a sibling species pair, with *M. wellsi* being found in deep water areas along Western Australia and with the more elongated and delicate *M. bishopi* being restricted to deep water areas within the Great Australian Bight.

Both species share the same color pattern and ornamentation as *M. philippii* (= *Fusinus tessellatus)* from shallow water areas along the southwestern area of Western Australia, but differ in being more delicate and elongated and in having much longer and better-developed siphonal canals. All 3 species constitute a closely-knit species complex that is restricted to Western Australia and the Great Australian Bight.

Marmorofusus brenchleyi (Baird, 1873)

Description: Shell fusiform moderately ventricose in the middle, spire and canal about equal in length; whorls 11 or 12 in number, closely noduled round the centre of each, spirally grooved and ridged; ridges irregular, some consisting of 2 striae, others of 3 or 4 spiral ridges crossed longitudinally with numerous, small, raised striae, giving them the appearance, under a low power, of being reticulated. Shell white with numerous chesnut-coloured blotches and lines, the blotches more decidedly marked between the nodules and outside of canal; lower extremity of canal marked with a large deep orange-coloured spot.

Redescription: Shell of medium size for genus, fusiform, with angular whorls, deep suture, and long, slender siphonal process. Protoconch of about 2+ smooth, glassy whorls, first whorl wider than tall, flattened on top, with immersed tip; second whorl wider than first, with convex sides; junction with teleoconch abrupt. Teleoconch of 8-9 whorls bearing node-like axial ribs and generally low spiral cords; axial ribs most developed at prominent, rounded or blade-like shoulder periphery; ribs on later whorls extending from shoulder to abapical suture but di sappearing before reaching adapical suture; nodes at shoulder rounded or laterally elongate. Suture exposed on early whorls, overlain by sutural ramp on later whorl. Spiral sculpture of cords and threads; cords of spire whorls generally flattened, increasing by intercalation to about 10 cords on penultimate whorl, 4-5 weak cords above shoulder, 3-4 stronger cords below shoulder, strongest cord at periphery; about 14 cords on body whorl, cords on sutural ramp flattened, weaker, peripheral cord and third and fourth cords abapical to periphery distinctly stronger, with minor cords and threads between. Strong, widely-spaced transverse cords with single threads between extending along siphonal process to tip. Aperture subovate, with small posterior sinus created by cord-like callus emerging from aperture. Outer lip semicircular, inner surface !irate, with lirae terminating in band of dark brown crenulations forming small teeth at lip edge. Parietal shield polished, slightly detached abapically, extending as thin lip for short distance into siphonal canal; columella typically smooth.

Siphonal process open, generally long and straight. Shell exterior light or dark brown and creamy white, with primary pattern of brown blotches, sometimes accompanied by brown and/or white axial streaks; interspaces between peripheral nodes filled with prominent brown spots on all specimens examined, nodes themselves usually white; some cords with white segments separated where crossed by brown streaks; interior of aperture and canal white. Operculum typically fusinine, brown/black. Periostracum thin, olivaceous.

Size: to 109.5 mm; length 88 mm, width 33 mm

Range: S Sea Islands, W New Caledonia

Remarks: Shells of *M. brenchleyi* differ from those of *M. nicobaricus* by their smaller maximum size (109.5 mm vs. 189.1 mm); spiral cords are generally finer, peripheral nodes are well developed on all whorls including the body whorl, and large dark brown spots consistently fill spaces between (but not atop) the peripheral nodes.

For comparison with *M. hedleyi, M. natalensis* and *M. matteus* see there.

Marmorofusus brianoi (Bozzetti, 2006)

Description: Shell medium-large sized with respect to its genus, fusiform, broad and massive. Protoconch missing, teleoconch whorls outlines convex. Axial sculpture consisting of 7-13 rounded ribs on the first teleoconch whorls, after reducing to axially elongate nodules. Spiral sculpture of strong, flat cords more developed on the shoulder. Siphonal canal moderately long, straight to slightly sinous, open and barely notched. Suture incised. Aperture ovate, axially elongate. Labrum and siphonal canal with crenulate edge and inside lyrate. Background colour white with spiral pattern of brown dashes and spots. Periostracum brown, thin, transparent. Operculum claw shaped, with terminal nucleus, filling the aperture, brown coloured.

Size: 122-170 mm.

Range: S Madagascar

Remarks: At first glance *M. brianoi* resembles a teratological form of *M. nicobaricus*, sometimes called *F. laticostatus* (a synonym of *M. undulatus)*, but the constant presence of the distinctiv characters in the studied specimens excluded this possibility. *F. brianoi* differs from *M. nicobaricus* in the teleoconch whorl outlines, rounded-subangulate vs. strongly angulate, in the spiral sculpture, flat vs. elevated, in the aperture more axially elongate and larger joining the siphonal canal.

Marmorofusus hedleyi Snyder & Lyons, 2014

Description: Shell small for genus, fusiform, with 9 whorls including protoconch. Protoconch unknown, damaged or missing on all specimens. Teleoconch of about 8 expanding whorls bearing axial ribs, spiral cords, a nodular periphery, straight suture, slightly concave sutural ramp, and modest siphonal process. Axial sculpture of 6-7 broad ribs extending suture to suture on first 3-5 adapical whorls, transitioning to prominent, node-like peripheral ribs on later whorls. Fine spiral cords 5 on early whorls, increasing to about 16-18 cords on body whorl; body whorl subquadrate, angled at anterior periphery and at junction with base; sutural ramp with 8-10 flattened, alternately large and small spiral cords; periphery band-like, formed of 9-12 round nodes that diminish in size toward edge of lip in larger specimens; 5-6 spiral cords between periphery and posterior angle, largest 2 cords at and near posterior margin; base with 1-2 large spiral cords flanked by single threads. Siphonal process short and broad for genus, with about 4 coarse transverse cords extending to tip, sometimes with single finer threads between cords. Aperture subquadrate, angled at anterior and posterior peripheral cords; outer lip crenu lated by termini of larger cords of body whorl; anal sinus indistinct, bordered by interior cord emerging onto generally adherent parietal shield; inner lip thin, separated from shield abapically, continuing separated into siphonal canal. Siphonal canal typically open, canted slightly left, usually slightly sinuous. Exterior shell color cream with inegular light to dark brown axial streaks, largely confined to spaces between ribs and to siphonal process; space between peripheral nodes often marked by large, dark brown spot; shell interior white. Operculum caramel brown, ovate, fi lling aperture, typically fusinine. Periostracum olivaceous, very thin.

Size: to 88.2 mm; length 85.9 mm

Range: Queensland, Australia

Remarks: *M. hedleyi* has a smoother shell with a brighter white primary color than *M. brenchleyi* or *M. natalensis*, both of which it resembles; like those species, dark brown spots and axial streaks pass between peripheral nodes, rather than over them as they do on shells of *M. nicobaricus*. Measurements to date indicate that the maximum size of *M. hedleyi* is smaller than that of *M. brencheyi* or *M. natalensis* (88.2 vs. 109.5 & 133.4 mm), and the spire is relatively taller and more slender than those of the latter two species.

Although brown axial streaks occur on both, shells of *M. hedleyi* are much smaller than those of *M. undulatus (= Fusus laticostatus)*, which attains at least 175.4 mm; shells of the latter species also differ by being less markedly concave between whorls; the peripheral cord on the body whorl is smooth or bears only inconspicuous nodes; and the angle between the posterior part of the body whorl and the base is marked by only a single broad, low, smooth cord.

For comparison with *M. matteus* see there.

Marmorofusus leptorhynchus (Tapperoni Canefri, 1875)

Synonyms: *Fusus subquadratus* G. B. Sowerby II, 1880

Description: *F. testa elongato-fusiformi, gracili, solidiuscula, albida flammulis irregularibus rufo-fuscis plus minusve pictà, et liris spiralibus impressis angustissimis rufo-fuscis undique ornata; spira elata, acutissima; anfractus 12 circiter convexiusculi, ultimus superne, coeteri medio ungulati, crebre spiruliter cingulati, cingulis inaequalibus, obtuse subcarinatis; longitudinaliter plicato-tuberculati, plicis ad suturas evanidis, tuberculis ad angulum proeminentibus; apertura mediocris, ovata, alba, columella subcorrugata, fauce argute lirata; cauda gracilis, spirae longitudinem interdum superans.*

Conchiglia fusiforme allungata, piuttosto stretta e assai angusta, di color bianco con macchie e striscie longitudinali più o meno cariche e numerose di color rosso-bruno e con le numerose linee spirali impresse che separano i cingoli dello stesso colore. La spira è elevata, stretta, acutissima. Di giri di spira se ne contano circa 12 e sono piuttosto convessi, i superiori come angolosi nel mezzo, 1' ultimo superiormente per la sporgenza dei tubercoli delle coste. La superficie di questi giri è percorsa da numerosi cingoli spirali subcarenati e non molto eguali fra di loro ed adorna di pieghe o coste longitudinali che si smorzano verso le suture e talora sul l' ultimo giro; queste appaiono munite di tubercoli che sporgono formando un angolo nel mezzo di ciaschedun giro, tolto nell' ultimo che esse rendono angoloso superiormente : talora se ne vede una seconda serie presso la base dell' ultimo giro. L'apertura è mediocre, bianca colla lamina columellare ben pronunciata e come rugosa e la fauce fornita di strie rilevate e taglienti. Il canale è sottile ed allungato, ora lungo quanto la spira, ora più lungo di essa.

(Shell elongate-fusiform, slender, solid, whitish, more or less painted with irregular rufous-brown flames, and ornamented on all sides with very narrow rufous-brown spiral lirae; spire raised, very sharp; 12 approximately convex whorls, the last above, the others ungulate in the middle, often spirally corded, unequal cords, obtusely subcarinate; longitudinally folded-tuberculate, the folds evanescent at the sutures, the tubercles projecting at the periphery; aperture average, ovate, white, sub-corrugated columella, aperture sharply lirated; canal slender, sometimes exceeding the length of the spire.

Elongated fusiform shell, rather compressed and very narrow, of white color with more or less charged and numerous longitudinal spots and stripes of red-brown color and with numerous impressed spiral lines that separate the cords of the same colour. The spire is elevated, narrow, very acute. There are about 12 whorls of spire and they are rather convex, the upper ones as if angular in the middle, the last one above due to the protrusion of the tubercles of the ribs. The surface of these whorls is crossed by numerous sub-keeled spiral cords and not very equal to each other and adorned with longitudinal folds or ribs which fade towards the sutures and sometimes on the last whorl; these appear provided with tubercles which protrude forming an angle in the middle of each whorl, removed in the last one which they make angular above: sometimes a second series is seen near the base of the last whorl. The aperture is moderate, white with the columellar shield well pronounced and somewhat wrinkled and the outer lip has raised and sharp striae inside. The canal is thin and elongated, as long as the spire, or longer than it.)

Size: length 92 mm, width 28 mm

Range: Red Sea

Remarks: This species is closely related to *M. polygonoides* for the sculpture and to *Fusinus toreuma* for the shape. It varies in the length of the canal, and some specimens offer a second series of knots at the base of the last whorl, forming like a second keel.

Fusinus dovpeledi is most closely related to *M. leptorhynchus*. The knobs on *M. leptorhynchus*, formed by the axial ribs, are fewer, numbering just 9, and are more square than those on *F. dovpeledi*. The operculum of *M. leptorhynchus* is distinctively reddish brown, and the shell is smaller, typically ranging between 75 and 80 mm, with a proportionately shorter siphonal canal. These differences are sufficient to rule out *F. dovpeledi* being a deeper-water form of *M. leptorhynchus*.

M. leptorhynchus is collected in the same area as *M. verbinneni* and *M. undulatus*, but has just 7-8 axial ribs on the body whorl, a different colour pattern and can grow somewhat larger to 87.2 mm. The protoconch is pure white and the spiral cords are much more uniform in *M. leptorhynchus* than in either of the other 2 species.

M. leptorhynchus is somewhat larger than *M. wellsi*, has fewer axial ribs (8-9 on body whorl), and sometimes has random brown dots of colour, but often on the abapical side of the axial rib rather than by the sutural ramp.

Marmorofusus matteus Snyder & Lyons, 2014

Description: Shell medium size for genus, fusiform, stocky, with swollen body whorl, relatively broad but short spire, and long, slender siphonal process. Protoconch glassy, of 2+ whorls; first whorl smooth with convex sides, flattened top and immersed tip; remaining 1+ whorls smooth, little wider than first, with convex sides; final 1/2 whorl ornamented with 5-6 fine axial riblets extending from suture to suture before abrupt terminus. Teleoconch of about

8 whorls, with sculpture of axial ribs crossed by spiral cords; 10 ribs on first whorl, increasing to 12 on body whorl, ribs evanescent by about sixth whorl, replaced by sharply pointed, axially-elongate knobs at periphery of whorls; about 5 spiral cords on early whorls, increasing to 8 on penultimate whorl; cords on sutural ramp broad, flattened, nearly smooth, those crossing peripheral knobs and abapical halves of whorls much stronger; body whorl with 4-6 low cords adapical to periphery; peripheral band of sharp knobs connected by prominent thin, sharp-topped spiral cord; 2-3 very strong cords with intermediate weaker ones abapical of peripheral band, strongest of these connecting numerous, lower knobs at junction with posterior section of body whorl, followed by single large and small cords on abapical slope of body whorl. Siphonal process with about 10 strong widelyspaced transverse cords extending to tip. Suture adpressed; abapical whorls overlapping suture with nearly smooth, curtain-like, 2 mm wide band marked by fine axial lines.

Aperture subovate; outer lip subangulate at terminus of periphery; sinus small but distinct, formed by cord emerging from within aperture; parietal shield glossy, detached from axial midpoint of aperture to near abapical end of siphonal canal in mature specimens; inner lip with emergent continuous lirae, terminating at lip in about 5-8 denticles produced by termini of cords of body whorl. Siphonal canal open, slightly sinuous. Shell exterior cream colored; whorls 5 through 8 with dark brown axial dashes or spots atop peripheral knobs, most prominently on penultimate and body whorls; dark markings usually split by sharp peripheral cord; larger abapical cords of body whorl marked with many subequally spaced brown spots; scattered pale brown lines or spots on siphonal process, shell interior white.

Size: to 114.4 mm

Range: Monte Bello Isl., N Western Australia

Remarks: *M. matteus* shares with its congeners a white or cream colored shell with prominent dark markings. Like those congeners, whorls of its spire are angled near the center, where they are ornamented by a prominent spiral band of peripheral nodes or knobs; large, broad spiral cords that are flattened on the sutural ramp but elevated on abapical halves of the whorls; and a long, slender siphonal process. The principal difference between *M. matteus* and all of its congeners is its relatively short, broad spire, reminiscent of the western Atlantic genus Heilprinia, but Heilprinia lacks prominent peripheral nodes on its whorls.

M. matteus also can be distinguished from *M. brenchleyi, M. hedleyi* and *M. natalensis* by its prominent black-brown peripheral nodes with lighter interspaces between them. Shells of the latter three species have white or cream peripheral nodes with brown interspaces between them. Shells of *M. matteus* resemble those of *M. nicobaricus* in having dark spots on peripheral nodes, not in interspaces, but the species is distinguished from

M. nicobaricus by its broader, relatively shorter spire, its usual lack of axial streaks, and its smaller maximum size (114.4 vs 189.1 mm SL). Body whorls of paratypes 3 and 4 differ from others by having reduced, nearly obsolete peripheral nodes, conferring to the body whorl a more rounded appearance and accentuating a resemblance to Heilprinia; both shells also have faint brown axial streaks on the body whorl and siphonal process, unlike other conspecifics.

Marmorofusus michaelrogersi (Goodwin, 2001)

Description: not available

Redescription: *M. michaelrogersi* can be distinguished by its relatively thin construction, prominent spiral cords and open canal. It has strong cords on the rostrum and a pronounced sculpture of the shoulder.

Size: 136.2 mm

Range: endemic to NW Hawaii

Remarks: *M. michaelrogersi* differs from *Fusinus flavicomus* by the larger, heavier and uniform white shell, the broad, large and prominent knobs, the less constricted suture, the larger aperture, and the broad siphonal canal.

C. mauiensis resembles somewhat another endemic Hawaiian species, *Marmorofusus michaelrogersi*. The latter is of similar size, and bears distinct buttresses, but is of much thinner and lighter construction with an open canal and distinctive thick spiral cords on the entire body whorl. The neck of *M. michaelrogersi* is relatively short, and is not as thickened as in *C. mauiensis*. In addition, it lacks the pronounced detachment of the inner canal margin, and bears a larger number of buttresses on the body whorl.

Marmorofusus natalensis Snyder & Lyons, 2014

Description: Shell medium size for genus, angular and fusiform, with 9-10 whorls; early teleoconch profile very slender, later whorls inflated. Protoconch unknown, damaged or missing on all specimens. Axial sculpture of ribs on early whorls, becoming irregular and skewed on later whorls; ribs replaced by peripheral band of prominent sharp knobs, with one or sometimes two additional bands of 10-11 less prominent knobs on body whorl. Spiral sculpture of very fine cords on adapical slope of shoulder; about 3 somewhat stronger cords on abapical side, each separated by single finer cord or thread; 6-7 low cords on adapical slope and about 13 cords on abapical portion of body whorl, strongest cord crossing knobs at shoulder, a somewhat lesser cord at posterior angle of whorl. Siphonal process long, slender, usually straight, bearing thick transverse cords persistent to tip, sometimes with weaker cords between. Aperture subovate, labral margin planar, finely dentate, with about 20 teeth

created by extensions of dorsal cords. Inner side of outer lip white, polished, with lirae terminating at teeth on lip. Anal sinus small, bordered by thick parietal callus. Parietal shield polished, flaring, elevated and detached abapically, with thin, elevated margin extending into adapical part of canal; columella typically smooth. Siphonal canal partially closed, outer and inner edges nearly touching in adapical portion.

External shell color creamy orange with irregular caramel marking; darker color found between peripheral knobs and on additional bands of knobs on body whorl; interior white.

Size: to 133.4 mm

Range: KwaZulu-Natal, South Africa to S Mozambique

Remarks: Shells of *M. natalensis* most resemble those of *M. brenchleyi*, sharing with that species prominent axial nodes on the periphery of whorls and large dark spots that separate those nodes. However, *M. natalensis* attains a larger size than M. brenchleyi (133.4 vs. 109.5 mm), other nodular cords on whorls of the spire and body are much more prominent, and the exterior markings, including spots between nodes, are caramel orange, not dark brown.

Shells of *M. natalensis* differ from those of *M. nicobaricus* by having cords atop the body whorl more uneven in size, a large abapical cord there that is markedly nodulous, dark spots between but not atop the large peripheral nodes, and an orange or caramel primary shell color, not white as on *M. nicobaricus*.

For comparison with *M. hedleyi* and *M. matteus* see there.

Marmorofusus nicobaricus (Röding, 1798)

Synonyms: *Fusus brenchleyi* Baird, 1873, *Fusus hemifusus* Kobelt, 1880, *Syrinx marmorata* Röding, 1798

Description: not given

Redescription: Shell medium to large for genus, angular fusiform. Protoconch damaged in all material examined; of approximately 2 whorls, less than 1 mm diameter, smooth, glassy. Axial sculpture of thick, rounded ribs that span sutures on early whorls; ribs becoming buttresses below shoulder in later whorls, reduced to vertical racks of knobs by body whorl. Spiral sculpture of 3 or 4 thick, rounded cords on early whorls, increasing to 7 or more above suture on penultimate whorl. Spaces between cords with numerous axial growth lines on early whorls, lines becoming less definite in later whorls. 2 dominant cords cross axial buttresses, the upper at periphery, giving distinctive double-noded appearance. Cords heavy and numerous below suture line on body whorl; thick, rounded major cords often interspersed with minors. 1 dominant cord on lower body whorl defines lower angle of profile. Cords may be broad and flattened in cross-section: axial sculpture on last half of body whorl often reduced to shoulder knobs. Suture adpressed; narrow subsutural band with numerous fine growth lines. Neck long, often strongly recurved in distal half, covered with characteristic sparse, thick spiral cords that persist to distal tip. Labral margin of aperture angulate; upper angle at shoulder, lower at terminus of lower dominant spiral cord. Labral wall of aperture smooth, glossy, with regular, fine spiral cords in pairs that join and terminate in developed teeth on labral margin; teeth correspond in position to troughs between external cords, and can be highly developed. Columellar margin of aperture smooth, glossy; parietal margin produced and slightly detached in adults: detached margin extends into upper part of canal. Canal long, open; labral margin thin, sharp, corrugated; corrugations are termini of spiral cords on outer surface.

Shell white or ivory overall overlaid with pattern of dark brown to black blotches and dashes distributed randomly on spiral cords, with some brown axial flammules. Dark brown staining can be present on labral margin of aperture

between teeth. Density and coverage of color pattern highly variable, from dense dark brown pattern over entire shell to isolated small patches and flecks. Interior of aperture and canal white.

There are 4 varieties of shell morphology and color that are included within *M. nicobaricus*. These varieties are loosely related to geographic distribution, but intergrades were seen between all forms.

- Shells from central and southern Japan generally with peripheral nodes on all whorls but sometimes reduced or uncommonly absent on body whorl; irregular dark brown axial streaks usually accompanied by many thinner, lighter brown streaks, conferring overall brown hue to body whorl and siphonal process. Shells from Okinawa usually with peripheral nodes and strong, dark brown axial streaks on all whorls but lacking smaller brown streaks, leaving more white shell surface.
- Peripheral nodes on body whorls of Philippine (PI) and Papua New Guinea (PNG) shells usually prominent, rarely reduced or absent; dark brown axial streaks often broken into scattered brown spots, shells rarely nearly all white; spiral cords on body whorl and siphonal process well developed, two abapical cords on body whorl larger than others. PNG shells similar to PI form.
- Shells from South China Sea (SCS), including Taiwan, Vietnam, Indonesia and Thailand, with peripheral nodes on body whorl usually reduced or absent, producing rounded shoulder; spiral cords large, of subequal size, especially prominent on abapical part of body whorl and siphonal process; dark axial streaks usually prominent, sometimes broken into scattered spots.
- Sri Lanka shells generally more slender than PI or SCS forms, with well developed peripheral nodes on all whorls and with large, subequal spiral cords on abapical half of body whorl; large, dark axial streaks accompanied by smaller streaks and blotches, especially on body whorl and siohonal process, rendering their principal color brown; shells resembling Japanese variety in color but with large, subequal cords of SCS shells.

Size: to 189.1 mm, average 108.3 mm (n = 60)

Range: Indo-West Pacific

Remarks: Though variable in form and patterning, *M. nicobaricus* is not easily confused with any other species in the northwestern Pacific. Shells of *M. nicobaricus* may be distinguished from those of congeners by greater size (to 197 vs. 133, 114, 109 & 88 mm) and by dark markings on the sides or atop peripheral ribs or nodes; dark markings on shells of congeners occur between the ribs or nodes but not atop them. It can be readily distinguished by its angular profile, thick, highly developed spiral cords on the neck and pattern of dark brown spots, bands and flammules.

Shells of *M. brenchleyi* differ from those of *M. nicobaricus* by their smaller maximum size (109.5 mm vs. 189.1 mm); spiral cords are generally finer, peripheral nodes are well developed on all whorls including the body whorl, and large dark brown spots consistently fill spaces between (but not atop) the peripheral nodes.

At first glance *M. brianoi* resembles a teratological form of *M. nicobaricus*, but the constant presence of the distinctiv characters in the studied specimens excluded this possibility. *F. brianoi* differs from *M. nicobaricus* in the teleoconch whorl outlines, rounded-subangulate vs. strongly angulate, in the spiral sculpture, flat vs. elevated, in the aperture more axially elongate and larger joining the siphonal canal.

M. undulatus (= Fusus laticostatus) is often cited as a synonym of *M. nicobaricus*, but it is considered that the consistent morphological differences between it and all other forms of this species warrant treatment as separate pending further study. The type locality of *F. laticostatus* is Sri Lanka, and examination of specimens in various collections suggest that it is a separate species confined geographically to southern India and Sri Lanka.

M. nicobaricus is most similar in shape and sculpture to *Fusinus flavicomus*, but differs by the vivid reddish brown to brown markings on all whorls, the larger shell size, the more pronounced carina with sharp pointed cusps, the concave shoulder slope, the broader and stronger siphonal canal, and the prominent broad spiral cords on the siphonal canal.

The thick rounded spiral cords and distinctive overlaid brown/black color pattern readily distinguish *M. nicobaricus* from all others collected around New Caledonia as *Fusinus laviniae.*

M. nicobaricus is also found in Mozambique, where specimens tend to be smoother than those from the central Pacific. These specimens do, however, display the characteristic strong diagonal cords over the length of the siphonal canal. This sculptural feature, together with the irregular chocolate brown markings, serve to distinguish *M. nicobaricus* from *Enigmofusus nicki*.

It is distinguished from *Vermeijius palmarium* by a much larger adult size and a different shape.

For comparison with *M. matteus* and *M. natalensis* see there.

compare to *Fusinus toreuma*

Marmorofusus nigrirostratus (E. A. Smith, 1879)

Synonyms: *Fusinus sagamiensis* Kuroda & Habe, 197, *Fusinus tuberosus f. nigrirostratus* (E. A. Smith, 1879)

Description: Shell fusiform, brownish, much streaked with very dark brown or black, especially between the plications, with white transverse lirae upon them; rostrum of the last whorl purplish black. Whorls 9, obliquely tabulated and a little concave above, then acutely angulated, contracted to the base, longitudinally plicate, and prominently spirally ridged; plicae suberect, becoming obsolete above the angulation, 10 on the penultimate whorl; transverse lirae of different thicknesses, 2 around the middle and 1 at the lower suture of the whorls specially prominent, forming acute compressed transverse nodules upon the costae; about 14 on the upper whorls, all subgranose through being crossed by deep striae of growth; on the body-whorl there is a fourth especially prominent lira falling within the aperture, just beneath the upper extremity of the labrum. Aperture bluish or purplish within, with the dark streaks of the exterior showing through, together with the canal equal to half the length of the shell; columella arcuate and whitish or livid above, oblique and purplish black below the middle; canal oblique, of moderate length, only a trifle reflexed.

The epidermis of this interesting form is of a brown colour, longitudinally, finely, and exceedingly closely lamellated, bearing upon the transverse lirae minute acute productions somewhat resembling short hairs.

Redescription: Shell small for genus, angular fusiform with short, straight neck. Tall, protruding protoconch of approximately two to 2.5 loosely-coiled whorls; whorls well inflated with constricted suture. Juncture with teleoconch marked by appearance of first axial ribs. Teleoconch of approximately 7 whorls; axial sculpture of thick, rounded ribs on early whorls that persist onto body whorl, in most cases as vertical buttresses. Ribs crossed by 4 to 5 strong spiral cords in early whorls; whorls above shoulder decline in strength in later whorls to become fine threads on body whorl. Spaces between cords almost smooth, with numerous microscopic axial growth lines. 2 or 3 dominant cords on upper teleoconch, 1 at periphery, 1 some way below it and occasionally a third just above suture; cords cross axial ribs, giving characteristic carinate appearance. 2 more dominant spiral cords revealed on body whorl, 1 at suture line with a second some way below it; cord profile may be flattened or bifurcated at summit. Cords below suture line with characteristic carinate thickening at juncture with axial buttresses. Numerous other

spiral cords below shoulder on body whorl, of varying width, persisting to distal end of neck. Suture adpressed; narrow, indistinct subsutural band above broad flat or slightly concave ramp leading to shoulder. Neck short, stout, strongly tapering, with recurved fasciole at distal end.

Labral margin of aperture angular; angles coincide with termini of dominant cords. Slight pinching of top of aperture caused by subsutural ramp on labral side and emergence of lower dominant cord on columellar side. Labral wall of aperture smooth, with numerous spiral cords of varying strength in adults; cords terminate some way before margin, but do not form pairs. Labral margin thin, plain, with no developed dentition. Columellar wall of aperture smooth, with most spiral cords resorbed; margin only slightly pronounced in adults, detached only in lower half of aperture and on upper two thirds of canal. Canal of varying length, straight or regularly curved, occasionally with recurved distal end; outer margin thin, sharp.

Shell pale off-white to buff overall, with pattern of brown axial flammules that can coalesce; flammules can spread between spiral cords to give appearance of spiral color bands. Distal portion of neck often heavily stained dark purplish-brown, whence the Latin name.

Periostracum fairly thick, mid-brown, composed of numerous, dense axial lamellae that lack thorns. Operculum typical for genus, thick, dark brown, chitinous, with terminal nucleus.

Size: length 50 mm, width 17 mm; to 99.3 mm, average adult 64.4 mm (n = 34)

Range: Japan

Remarks: The relationship between *M. tuberosus* and *M. nigrirostratus* is apparently very close. They occupy overlapping bathymetric ranges, with typical *M. tuberosus* occurring in the low intertidal zone to ten meters while *M. nigrirostratus* is subtidal in habitat and known from depths of three to over 200 meters. The principal differences between *M. nigrirostratus* and *M. tuberosus* include the morphology of the neck and of the axial sculpture; the neck of *M. tuberosus* is shorter, with a broader canal that is more open at the apertural end. The axial sculpture of *M. nigrirostratus*, while variable, tends to be more pronounced, with sharper shoulder knobs that arc strongly carinate where they are crossed by the spiral cords. In contrast, the axial growth lines between the spiral cords are much finer in *M. nigrirostratus*, whose early whorls thus lack the somewhat cancellate appearance of *M. tuberosus*. In *M. nigrirostratus*, the 2 dominant cords at and below the suture line on the body whorl tend to develop carinations where they cross the axial sculpture, and the axial sculpture usually extends downwards from the shoulder as buttresses. The spiral cords on the labral wall of the aperture in *M. nigrirostratus* are fewer and more poorly defined than in *M. tuberosus*, and may be absent altogether. The external coloration and patterning is stronger in *M. tuberosus*, which is usually covered with distinctive dense dark-brown axial flammules. *M. nigrirostratus* is unusual in that the length of the canal is variable relative to the teleoconch.

M. nigrirostratus can be distinguished from *Fusinus flavicomus* by the larger shell size, the larger number of axial ribs with narrower interspaces, the reddish brown interspaces and the brownish shoulder slope, the weaker spiral sculpture, and by the comparatively longer siphonal canal.

From *M. nigrirostratus F. juliabrownae* can be distinguished by its smoothly rounded whorl profile, its prominent spiral cords, the numerous rounded axial ribs on the early whorls, the absence of shoulder knobs and the presence of a tufted periostracum.

Marmorofusus oblitus (Reeve, 1847)

Synonyms: *Fusinus turrispictus* Hedley, 1918

Description: *Fus. testa elongato-fusiformi, gracillima, anfractibus margine juxta suturas corrugatis, medio tuberculatis, undique spiraliter sulcatis, sulcis irregulariter distantibus; albida, rufo-spadiceo peculiariter tincta, sulcis rufo-spadiceis.*

Shell elongately fusiform, very slender, whorls wrinkled at the margin next the sutures, tubercled throughout the middle, spirally grooved, grooves irregularly distant; whitish, peculiarly stained with reddish fawn colour, grooves reddish-fawn.

Size: 80-140 mm

Range: La Réunion

Marmorofusus philippii (Jonas, 1846)

Synonyms: *Fusinus dampieri* Finlay, 1930, *Fusinus tessellatus* (G. B. Sowerby II, 1880), *Fusus exilis* Menke, 1843

Description: *F. testa fusiformi, medio subventricosa, helva, fusco-strigata, in longitudinem plicata, transversim lirata et costata; liris et costis alternis, sulcis intermediis crispatis; anfractibus 6 1/2 superne angulatis, supra angulum planulatis: ultimo spira paulo longiore, canali breviusculo terminato; sutura undulata; apertura ovata, alba, intus transversim obscure sulcata, sulcis liris et costis externis respondentibus; columella alba, nuda.*

(Shell fusiform, moderate subventral, light, brown-striped, longitudinally folded, transversely striated and ribbed; lirae and alternate ribs, intermediate furrows curled; with 6 1/2 whorls angled above, flat above the angle: the last whorl is a little longer, terminated by a short canal; wavy suture; aperture ovate, white, internally transversely darkly furrowed, corresponding to the furrows of the lirae and the external ribs; columella white, smooth.)

Size: length 22.7 mm, width 13.1 mm, length of aperture 18.5 mm

Range: W Australia

Remarks: *M. bishopi* and *M. wellsi* share the same color pattern and ornamentation as *M. philippii* from shallow water areas along the southwestern area of Western Australia, but differ in being more delicate and elongated and in having much longer and better-developed siphonal canals.

For comparison with *M. vercoi* and *Vermeijius palmarium* see there.

compare with *Fusinus consetti*

Fusinus dampieri Finlay, 1930

Synonyms: according to WoRMS synonym to *Marmorofusus philippii* (Jonas, 1846); *Fusinus tessellatus* (G. B. Sowerby II, 1880), *Fusus exilis* Menke, 1843

Description: of *Fusus exilis*: *F. testa fusiformi-turrita, acuminata, pallida, transversim lirata, longitudinaliter costato-plicata; anfractibus septem; spira producta; labro intus laevi; fauce rufa.*

(Shell fusiform-turreted, pointed, pale, transversely lirated, longitudinally rib-folded; 7 whorls; spire produced; lip smooth inside; aperture red.)

Size: length 33 mm, width 13 mm

Range: Western Australia

Remarks: replacement name for *Fusus exilis* Menke

Fusinus tessellatus (G. B. Sowerby II, 1880)

Synonyms: according to WoRMS synonym to *Marmorofusus philippii* (Jonas, 1846)

Description: *Testa breviter fusiformis, fulva, fusco strigata, maculis nigrescentibus inter nodulos tessellata; spiraliter alternatim lirata; anfractibus subquadratis ad angulum superiorem nodulosis; canali brevi, truncato.*

(Shell shortly fusiform, yellow, striped with brown, tessellated with blackish spots between the nodules; spirally alternately lirated; whorls subquadrate to the upper nodose shoulder; a short, truncated canal.)

The whorls are of a square form and the shell is prettily tessellated with dark spots.

Size: 35-60 mm

Range: W Australia

Remarks: *M. bishopi* and *M. wellsi* share the same color pattern and ornamentation as *M. philippii* from shallow water areas along the southwestern area of Western Australia, but differ in being more delicate and elongated and in having much longer and better-developed siphonal canals.

It differs from *F. palmarium* by the wider spire angle, the vivid colouration and by the broader and shorter siphonal canal.

For comparison with *M. vercoi* see there.

Marmorofusus polygonoides (Lamarck, 1822)

Synonyms: *Fusus biangulatus* Deshayes, 1833

Description: *F. testa fusiformi, transversè sulcatâ, pliciferâ et tuberculatâ, albidâ, rufo-maculosâ; anfractibus mediô angulato-tuberculatis, infernè pliciferis; labro margine dentato, intùs rufo et striato; lamina columellari albâ, prominente.*

(Shell fusiform, transversely sulcated, pliciferous and tuberculate, whitish, red-spotted; whorls in the middle angulated-tuberculated, below pliciferous; the lip with a jagged edge, red and streaked inside; columellar plate white, prominent.)

The last whorl has 2 rows of tubercles. Subumbilical canal.

Size: 68 mm

Range: orig. Australia; Red Sea

Remarks: *M. polygonoides* differs from *Fusinus flavicomus* by the smaller shell size, the more prominent axial ribs, and the shorter and broader siphonal canal.

compare to *M. undulatus*

Marmorofusus tuberculatus (Lamarck, 1822)

Synonyms: *Fusinus indicus* (Anton, 1838), *Fusinus tuberculatus* (Lamarck, 1822), *Fusinus tuberculatus fuscobandatus* Bozzetti, 2017, *Fusinus tuberculatus priscai* Bozzetti, 2013, *Fusus maculiferus* Tapparone Canefri, 1875

Description: *F. testa fusiformi, transversim sulcatâ, albâ; ventre majusculo; anfractibus convexis, medio angulatis: angulo unica série tuberculifero, interstitiis tuberculorum rufis; labro intus sulcato.*

(Shell fusiform, transversely furrowed, white; pot-bellied; convex whorls, angled in the middle: at the keel a single series of tubercles, interstices of red tubercles; inner lip furrowed.)

Size: 124 mm

Range: Madagascar, Philippines

Remarks: Close to *Fusinus colus* in its proportions, it is less slender, more pot-bellied, and with a much shorter tail. It has a row of tubercles on each whorl; these tubercles are rather prominent, and have their interstices marked with russet spots.

M. tuberculatus differs from *Fusinus flavicomus* by a larger shell, a longer spire, the reddish brown interspaces between the axial ribs, the larger aperture, and in having the inner apertural lip detached from the parietal wall.

M. tuberculatus lacks the strong spiral cords of *Enigmofusus nicki*. *M. tuberculatus* is irregularly marked by brown longitudinal color striations and the spire is narrower then in *E. nicki*.

compare to *Fusinus toreuma and Fusinus townsendi*

Fusinus tuberculatus priscai Bozzetti, 2013

Synonyms: according to WoRMS synonym to *Marmorofusus tuberculatus* (Lamarck, 1822)

Description: *Specie dalla conchiglia di medio-grandi dimensioni per il genere, solida, fusiforme, slanciata. Protoconca mancante, visibili 8 giri residui di teleoconca, primi 4 giri dal profilo convesso, i seguenti, fortemente carenati alla spalla, mostrano una rampa suturale ed un'area sub-periferica dal profilo concavo. Sutura incisa, lievemente ondulata. Scultura assiale costituita da 6-8 costole che, dopo il 4. giro, si trasformano in 9-19 tubercoli alla spalla; sull'ultimo giro, al terzo anteriore, 1-2 file spirali di tubercoli meno sviluppati di quelli sovrastanti; costoline assiali secondarie negli spazi intratubercolari. L'intera superficie conchigliare, canale sifonale compreso, è percorsa da fitti cordoncini spirali granulosi e da cordoncini secondari negli interspazi. Seno posteriore moderamente profondo, arrondontato a forma di "U" rovesciata; canale sifonale lungo, diritto e aperto. Labbro esterno convesso, lievemente compresso sotto la periferia, dal bordo tagliente e fittamente denticolato, lirature corrispondenti ai denticoli percorrono l'interno della fauce. Labbro interno uniformemente concavo, ricoperto da pliche orizzontali che, partendo a circa 3 mm dal bordo, proseguono all'interno. Columella con forte inductura che prosegue sul canale sifonale. Colore di fondo beige con file spirali di macule brune, da sub-quadrate a lineari, posizionate negli spazi intratubercolari delle 2/3 file spirali di tubercoli. Periostraco marrone, opercolo corneo, claviforme, con nucleo terminale, di color marrone.*

(Species with a medium-large shell for the genus, solid, fusiform, slender. Protoconch missing, 8 residual whorls of teleoconch visible, first 4 whorls with convex profile, the following, strongly keeled at the shoulder, show a sutural

ramp and a sub-peripheral area with concave profile. Suture incised, slightly wavy. Axial sculpture made up of 6-8 ribs which, after the 4th whorl, transform into 9-19 tubercles at the shoulder; on the last whorl, in the anterior third, 1-2 spiral rows of tubercles less developed than those above; secondary axial ribs in the intratubercular spaces. The entire shell surface, including the siphonal canal, is crossed by dense granular spiral cords and secondary cords in the interspaces. Posterior sinus moderately deep, rounded in the shape of an inverted "U"; siphonal canal long, straight and open. External lip convex, slightly compressed under the periphery, with a sharp and densely denticulated edge, the ridges corresponding to the denticles run along the inside of the aperture. Uniformly concave internal lip, covered with horizontal folds which, starting about 3 mm from the edge, continue inside.

Columella with a strong secondary layer of callus that continues on the siphonal canal. Background color beige with spiral rows of brown macules, from sub-square to linear, positioned in the intratubercular spaces of the 2/3 spiral rows of tubercles. Periostracum brown; operculum horny, claviform, with terminal nucleus, brown.)

Size: length 128.10 mm, width 42.85 mm; 115.58-143.77 mm

Range: SE Madagascar

Remarks: *M. t. priscai* differs from *M. t. tuberculatus* by the presence of 1 or 2 keels on the anterior third which reflect to a more limited extent the shape and color of the main keel at the shoulder, the only one present in *M. t. tuberculatus*.

M. t. priscai shows a certain morphological affinity with *M. polygonoides*; the latter is distinguished from the subspecies in question for the vaguer and, sometimes absent, spiral spotted pattern, for the 2 anterior keels not always present and for the smaller dimensions, 50-120 mm against 116-144 mm.

Marmorofusus tuberosus (Reeve, 1847)

Description: *Fus. testa fusiformi, spira turrita, canali breviusculo, leviter contorto, anfractibus undique spiraliter irregulariter liratis et striatis, superne concavo-declivibus, medio fortiter nodosis et bicarinatis; apertura fauce acute lirata; alba, castaneo-fusco profuse tincta.*

Shell fusiform, spire turreted, canal rather short, slightly twisted; whorls spirally irregularly ridged and striated throughout, concavely slanting round the upper part, strongly nodose and two-keeled; interior of the aperture sharply ridged; white, profusely stained with chesnut-brown.

Size: 50-100 mm

Range: Japan

Remarks: *M. tuberosus* differs from *Fusinus flavicomus* by the smaller shell size, the broader spire angle, the more pronounced knobby carina, the larger aperture, and the shorter siphonal canal.

Fusinus juliabrownae differs from *M. tuberosus* in its thinner, lighter shell, longer and more clearly defined neck, rounded whorl profile, prominent spiral cords and tufted periostracum.

For comparison with *M. nigrirostratus* see there.

Marmorofusus undulatus (Gmelin, 1791)

Synonyms: *Fusus fasciatus* Röding, 1798, *Fusus laticostatus* Deshayes, 1831, *Murex variegatus* Perry, 1811

Description: *M. testa alba badio undulata sulcata: sulcis elevato-striatis, anfractibus margine nodulosis, cauda recta. Habitat in mari rubro, testa ultra 4 pollices longa. Turriti subulati, cauda brevissima.*

(Shell white with wavy furrows; raised-striated furrows, whorls at the edge nodular, straight canal. Spire subulate, canal very short.)

Size: 100 mm

Range: Red Sea

Remarks: *M. undulatus (= Fusus laticostatus)* is often cited as a synonym of *M. nicobaricus*, but it is considered that the consistent morphological differences between it and all other forms of this species warrant treatment as separate pending further study. The type locality of *F. laticostatus* is Sri Lanka, and examination of specimens in various collections suggest that it is a separate species confined geographically to southern India and Sri Lanka.

For comparison with *M. verbinneni* or *M. hedleyi* see there.

compare to *M. polygonoides, Granulifusus rufinodis*

Marmorofusus verbinneni (Snyder, 2006)

Description: Shell small for genus, angular, fusiform, thick, solid, with 8-9 whorls. Protoconch usually eroded, smooth and glassy, about 1 1/2-2 1/4 whorls, transitioning to teleoconch with several isolated axial rib lines; transition smooth. Protoconch somewhat taller than wide with maximum diameter of about 0.7 mm. Profile of teleoconch whorls angular. Spiral sculpture of numerous cords, some stronger than others, with about 6 strong cords on penultimate whorl. Axial sculpture of strong ribs with about 7 on early whorls, increasing to about 11 on penultimate and body whorls.

Aperture typically ovate with pointed abapical extremity. Thin sharp-edged parietal shield with (usually) detached parietal margin that extends down siphonal canal. Interior of aperture glossy white with numerous fine lirations on inner labral surface. Labral margin dentate. Canal open, and somewhat twisted in about half the specimens examined.

Protoconch white to light tan. Angular protrusion of axial ribs midway between sutures marked by dark brown blotch. Additional irregular brown banding on apical side of protrusions. Brownish bands extend up canal, with colour more prominent on axial sculpture. Operculum typical of genus: thin, light brown, chitinous, with nucleus toward pointed terminus.

Size: 52.3-62.0 mm

Range: Northern Red Sea

Remarks: *M. verbinneni* might be confused with *M. undulatus*, its closest relative in the Red Sea. Generally *M. undulatus* is heavier and more solid, and the ratio of largest width to shell length is greater (0.395, n = 9, compared to 0.329, n = 8). The protoconchs are similar, the protoconch of *M. undulatus* having roughly 2 whorls, but being brownish and not so elevated as in *M. verbinneni*, at the onset. The early teleoconch whorls are quite different.

M. leptorhynchus is collected in the same area as *M. verbinneni* and *M. undulatus*, but has just 7-8 axial ribs on the body whorl, a different colour pattern and can grow somewhat larger to 87.2 mm. The protoconch is pure white and the spiral cords are much more uniform in *M. leptorhynchus* than in either of the other 2 species.

Marmorofusus vercoi (Snyder, 2004)

Description: Shell fusiform, moderate size for genus, broad and heavy, with prominent axial sculpture; spiral sculpture less prominent. Protoconch of 2 whorls, first 1 1/4 smooth, bulbous moderately depressed white with subsequent 3/4 whorl chocolate brown with fine axial line sculpture; early whorls slightly eroded and probably brown as well. Transition to teleoconch fairly well defined with coarser axial sculpture and onset of spiral sculptured whorls; 7-8 whorls in teleconch. Axial sculpture dominant, consisting of 11-12 strong, angular ribs per whorl, aligned with spaces between ribs of previous whorl. Ribs angular on all whorls forming sloping sutural ramp; suture impressed. Fine axial ridges between and over axial ribs. Spiral sculpture of strong and weak cords; 2-5 weak cords between strong cords on sutural ramp, one crossing axial ribs above ramp, forming nodules; 3-4 on abapical side of whorl; on last whorl 9-10 strong cords to abapical end of canal.

Aperture ovate, weakly developed anterior canal. Columella thin, smooth, shiny white,adherent in some specimens but often flaring at abapical end of aperture with prominent fold towards outer lip, constricting canal. Canal moderately long, slightly recurved away frpm plane of aperture, relatively closed. Outer lip with rounded dentations, ~ 1 mm wide, with brown colouration between dentations on most specimens. Inner lip shiny, white, with ~ 15-18 lirations stopping ~ 2.5 mm from periphery of lip.

Shell colour mottled light-dark brown with white; dark brown spots often between axial nodules, towards sutural ramp, prominent on later whorls. Operculum typically fasciolariid, light to medium brown, claw-like, with terminal nucleus, filling aperture.

Size: to 77.2 mm

Range: Western Australia

Remarks: *M. vercoi* is closest to *M. philippii* (= *Fusinus tesselatus)*, also from Western Australia, which, in addition to its smaller adult size, has a stubby, widely open siphonal canal. In most *M. vercoi*, the columella is detached from the canal, folding towards the lip of the canal, restricting and almost closing the canal. On *F. tesselatus* the less prominent axial sculpture usually becomes obsolet on the last whorl. The prominent axial sculpture of *M. vercoi* remains pronounced on the last whorl, in many cases showing its strongest expression. The columellar shield is adherent in *F. tesselatus*, very rarely forming a slit-like sinus towards the abapical end of the canal. The protoconch of *F. tesselatus* is usually dark brown wheras the first embryonic whorls of *M. vercoi* are white.

Propefusus australis has a protoconch of nearly 3 whorls rather than 2, has similar early-whorl sculpture, which becomes obsolete on the body whorl, and attains a much larger size, to 139 mm. *P. australis* never has the dark brown spots between the axial knobs, as is usually the case in *M. vercoi.*

It differs from *Vermeijius palmarium* by having a larger adult size and by the wider spire angle.

Marmorofusus verrucosus (Gmelin, 1791)

Synonyms: *Fusus marmoratus* Philippi, 1846, *Fusus rudicostatus* G. B. Sowerby II, 1880, *Fusus striatus* Röding, 1798, *Syrinx venosa* Röding, 1798

Description: *M. testa umbilicata cingulis, mediis elatioribus, cincta: anfractibus tuberculis fusco maculatis coronatis, cauda inflexa.*

(Shell with spiral cords, the middle ones raised; whorls with coronated knobs spotted with brown, siphonal canal bent.)

Shell has angled whorls with marked suture, spiny spiral ribs with white specks, siphonal canal long and narrow.

Size: 50-110 mm

Range: Red Sea, SE Mediterranean Sea; ?Brasil

Remarks: *Fusinus marmoratus* is the synonym for the Brasilian population of *M. verrucosus*.

Fusinus chuni differs from *M. verrucosus* in that each individual whorl in its upper part, below the upper suture, is somewhat convex, not flattened, hence the median edge appears duller, the reddish-brown tint is absent, and the canal is proportionately longer and more slender, markedly longer than the uncanaled aperture.

The most obvious differences of *Fusinus jasminae* to *M. verrucosus* are the larger adult size, the much heavier, more solid, and thicker shell, the larger spire angle, the more convex whorls, the stronger axial ribs on all whorls, the much deeper interspaces between axial ribs, the more slender and somewhat longer siphonal canal, and the uniformly dirty-grey colored shell.

M. verrucosus is twice as long as *Hesperaptyxis ambustus*, more numerously ribbed, mottled in coloring, and with the whorls more angular.

compare to *Goniofusus brasiliensis*

Marmorofusus wellsi (Snyder, 2004)

Description: Shell fusiform, moderate size for genus, moderately broad and heavy, with prominent axial and spiral sculpture. Protoconch with 1.75-2 smooth, bulbous, white glabrous whorls with narrow riblets on last half whorl. Transition to teleoconch abrupt, with coarser axial sculpture and onset of spiral sculptured whorls; teleoconch with 8-10 whorls. Axial sculpture dominant, consisting of 9-11 strong, angular ribs per whorl, aligned with spaces between ribs of previous whorl. Ribs angular on all whorls, forming sloping sutural ramp. Minute axial ridges and grooves between axial ribs. Spiral sculpture of strong cords; 2-4 on sutural ramp, one crossing axial ribs above ramp, forming nodules, 2-3 on abapical side of whorl; on body whorl 4 strong cords across raised central portion of axial rib with 3 weak cords between, ~ 10 strong cords along sloping concave neck and towards abapical end of canal.

Aperture ovate, with well developed posterior canal. Columella thin, smooth, shiny white, adherent. Outer lip with rounded lirae, 1-2 mm wide. Inner lip shiny, white, with lirations 1.0-1.3 mm apart, terminating ~ 2.5 mm from periphery of lip. Siphonal canal long, straight to slightly sinuous. Shell colour white with randomly placed brown spots between axial ribs, usually centred on spiral cords. Operculum typically fasciolariid, caramel brown, claw-like, with terminal nucleus.

Size: to 75.8 mm

Range: Western Australia

Remarks: *M. leptorhynchus* from the Red Sea is somewhat larger (to 76.4 mm), has fewer axial ribs (8-9 on body whorl), and sometimes has random brown dots of colour, but often on the abapical side of the axial rib rather than by the sutural ramp.

M. philippii (= Fusinus tessellatus) has a stubby siphonal canal wheras *F. wellsi* has a long canal and a larger adult size. *F. tesselatus* has rounded axial sculpture; the axial sculpture of *F. wellsi* is angular.

Propefusus australis attains a larger size, it is much broader and heavier.

It differs from *Vermeijius palmarium* by having a larger adult size and by the wider spire angle.

For comparison with *M. bishopi* see there.

compare to *F. diandraensis*

Microcolus Cotton & Godfrey, 1932

Type species: *Microcolus dunkeri* (Jonas, 1846)

Description: Spindle-shaped, turreted, rather narrow; axial ribs thick, spiral lirae obscure; spire elevated, conical; protoconch few-whorled, blunt and smooth at first, then validly axially ribbed, afterwards acquiring spirals; no scar end to protoconch visible; adult whorls numerous, rather convex, angulated, concave above; canal very short, slightly curved.

Redescription: Shell small, shape rhomboid with angular corners, siphonal canal short and open, periphery of whorls angular, protoconch dome shaped. Sculpture of sharp axial ribs crossed by spiral grooves, outer lip with spiral ridges inside, two spiral rows of coronations per whorl, columella with weak basal plications. Colour cream to yellowish-brown with dark brown banding.

Size: up to 20 mm

Range: Australia

Microcolus dunkeri (Jonas, 1846)

Description: *Fusus testa fusiformi-turrita, crassiuscula, angusta, transversim obscure sulcata, in longitudinem crasse costata; anfractibus 7 1/2 convexis, albis, zona fusca interrupta inferne balteatis: ultimo medio zonato, spira breviore, canali brevissimo terminato; apertura ovata, laevi; columella nuda.*

(Shell fusiform-turreted, thick, narrow, transversely darkly furrowed, thickly ribbed longitudinally; with 7 1/2 convex whorls, white, banded below, with an interrupted brown zone: last whorl zoned in the middle, a shorter spire, terminated by a very short channel; aperture ovate, smooth; columella nude.)

Redescription: Small, solid; white, banded below, with an interrupted brown zone; axial ribs prominent, not many, crossed by spiral ribs, close set; protoconch, first smooth, then axially ribbed, followed by one spiral groove; adult whorls 7 1/2, angulated, concave above, convex below; canal very short.

Size: length 20.3 mm, width 7.9 mm

Range: W Australia

Remarks: A characteristic angular coronation is present on either end of each rib like it is in *M. harveyorum*.

Microcolus harveyorum Lussi, 2014

Description: Outline of shell roughly diamond shaped, width/length 0.46, whorls convex but angular at periphery, siphonal canal relatively short and open, shoulder slope wide. Protoconch dome shaped and 0.67 mm in diameter. Sculpture consists of axial ribs angled at both ends and crossed by weak spiral threads. Interstical area between threads with weak axial striae. Axial ribs do not extended to sutures thereby creating a wide shoulder slope. Body whorl with about 10 axial ribs and 22 spiral threads (excluding siphonal canal). Lip with conspicuous spiral ridges

inside, columella smooth except for 1 to 2 weak basal folds, only visible in adult specimens. Colour cream with spiral rows of reddish-brown dashes and bands, rarely reddish-brown with cream apex and base.

Size: 15-19 mm; length 17.00 mm, width 7.86 mm

Range: N KZN, South Africa

Remarks: A characteristic angular coronation is present on either end of each rib like it is in *M. dunkeri*.

Microcolus lincolnensis (Crosse & P. Fischer, 1865)

Description: *T. imperforata, ovato-fusiformis, haud crassa, longitudinaliter obtuse costato-plicata, transversim liris subflexuosis, tenuibus, capillaceis, pallide castaneis cingulata, alba; apice obtusiusculo, rotundato; anfr. 7 convexiusculi, embryonales 1 1/2 laeves, ultimus spira paulo minor, basi zona lata brunneo-nigricante cingulatus; apertura subovata, margine columellari leviter arcuato, albo, externo simplice, intus partim albo, partim brunneo-nigricante; canali brevissimo, paululum recurvo.*

Coquille imperforée, ovale-fusiforme, peu épaisse, subtranslucide, munie de côtes longitudinales obtuses, coupées par des linéoles transverses, légèrement flexueuses, très-fines, d'un brun clair, et au nombre de 2 seulement à la partie médiane des tours; le fond de la coloration est blanc. Le sommet, formé par les tours embryonnaires, est arrondi et légèrement obtus. Les tours, au nombre de 7, sont assez convexes ; le dernier, un peu plus petit que la spire, est orné, au-dessous de sa partie médiane, d'une large zone transverse d'un brun noirâtre: on retrouve, à la base des autres tours, la partie de cette zone qui n'est point englobée dans le tour suivant. L'ouverture est à peu près ovale, le bord columellaire blanc et légèrement arqué, le bord externe simple et présentant, à l'intérieur, la contre-partie de la zone d'un brun noirâtre, qui a été signalée plus haut. Le canal est très-court et légèrement recourbé.

(Shell imperforate, oval-fusiform, not very thick, subtranslucent, provided with obtuse longitudinal ribs, cut by transverse lines, slightly wavy, very fine, of a light brown, and 2 in number only at the median part of the whorls; the ground colour is white. The apex, formed by 1 1/2 smooth embryonic whorls, is rounded and slightly obtuse. The 7 whorls are quite convex; the last whorl, a little smaller than the spire, is decorated, below its middle part, with a large transverse zone of blackish brown: at the base of the other whorls there is the part of this zone which is not included by the next whorl. The aperture is nearly oval, the columellar edge white and slightly arched, the outer edge simple and presenting, on the inside, the counterpart of the blackish-brown zone. The channel is very short and a little curved.)

Redescription: Small, solid, subtranslucent; white, banded with blackish-brown above at sutures, and a broad band just below periphery on the last whorl; axial ribs, obtuse, cut: at the middle of the whorls by two brown spiral lines, slightly wavy; protoconch very like *M. dunkeri* but broader, and having two spiral grooves instead of one; whorls 7, rather convex, body-whorl a little shorter than the spire; outer lip with the blackish-brown band showing through; canal short, slightly recurved.

Size: length 13.5 mm, width 5 mm

Range: S Australia

Microfulgur Finlay & Marwick, 1937

Type species: *Microfulgur longirostris* (P. Marshall, 1917) †

Description: Shell rather small, roughly biconic, protoconch of about 2 whorls, conoid-papillate, but low. Sculpture of strong, spaced, rather sharp spiral ridges. Aperture pyriform, posteriorly channeled, produced anteriorly into a long canal, which is bent to the left but scarcely twisted and not sinused at the end. Outer lip thin, antecurrent to the suture, slightly sinused on the shoulder and convex below. Inner lip thick, smooth, with a sharply defined outer edge. Columella with a slight fold where it is bent to the canal , and a weak spiral groove above the fold.

Size: rather small

Range: New Zealand

Microfulgur carinatus Ponder, 1970

Description: Medium size, rather thin, fusiform with spiral cords. Whorls 5 1/2, including a slightly swollen protoconch of 1 1/2 whorls, smooth except for 3-4 weak axial ribs on last whorl, terminated by a distinct varix. Teleoconch with convex whorls, subangled in middle of each whorl by uppermost of two strong, rounded spiral cords on lower half of all whorls. Shoulder almost flat, with weak spirals (4-5 on body whorl), these stronger as they

approach the periphery. In a small (male) paratype the lowest shoulder spiral is nearly equal in strength to the upper main spiral. A rather weak cord emerges from the suture on the penultimate whorl. Base with numerous, rather weak, spiral cords (about 36 in holotype); the uppermost 1-2 basal spirals nearly equal in strength to the 2 main spirals. Axial sculpture of fine, dense growth lines, slightly and evenly curved corresponding to the weak apertural sinus. Whole surface covered with very fine, dense, irregular spiral strie.

Outer lip with a slight posterior concavity a little below suture, thin (in the one paratype which appears to be mature), with a little external thickening but no varix. Inner lip a thin glaze with a distinct boundary. There is no apertural ornament. Anterior canal long, initially nearly straight, then twisted to the right and behind. Anterior end of canal notched.

Operculum: Thin, semi-transparent, yellowish-brown, with distinct growth lines and sub-apical nucleus.

Size: length 25.0 mm, width 9.6 mm

Range: New Zealand

Ollaphon Iredale, 1929

Type species: *Ollaphon molorthus* (Hedley & May, 1908)

Description: new generic name for *Trophon molorthus*

The shell has a long spire, a small apex, a medium canal, and a narrow mouth; it has a sculpture of concentric cords overrunning longitudinal waves, quite unlike other *Trophon*.

Size: small

Range: Tasmania

Remarks: Family allocation of *Ollaphon* uncertain. Sometimes placed in *Muricidae*.

Ollaphon molorthus (Hedley & May, 1908)

Description: Shell narrowly fusiform. Whorls subgradate, 7, including a smooth pointed 2-whorled protoconch. Colour dull white. Sculpture: the radial ribs about 12 to a whorl, are broad and wave-like, divided by interstices of equal breath, commence at the shoulder, swell at the periphery, and fade away towards the lower suture, or, in the case of the last whorl, the base. The upper whorls are traversed by about 8 evenly spaced spiral low cords, separated by flat interstices of equal breadth, which cross ribs and interstices alike. On the last whorl the cords amount to 22. Aperture oval, lip unfinished, canal turned a little to the right.

Redescription: It has a long spire, a small apex, a medium canal, and a narrow mouth; it has a sculpture of concentric cords overrunning longitudinal waves,

Size: up to 18 mm, typical 12 mm; length 10.5 mm, width 4.5 mm

Range: Tasmania; SE Australia

Remarks: A near ally is *Trophon simplex*. From that *O. molorthus* differs by less rounded and more slowly increasing whorls, shorter canal, and more numerous spirals.

Propefusus Iredale, 1924

Type species: *Propefusus undulatus* (Perry, 1811)

Description: new generic name for *Fusus pyrulatus* Reeve, 1847 (= *Propefusus undulatus*)

Redescription: Shell with narrowly open siphonal canal (2 to 3 mm), outer lip without lirae or with very poorly expressed lirae at the edge; aperture adapically rounded with one or more parietal ridges; inner lip adherent; spiral sculpture consisting of low rounded or almost angular cords axially roughened by growth lines, the intervals between them wide and sculptured by a secondary cords and several flanking tertiary threads; axial sculpture consisting of very low ribs on upper whorls, 13-15 per whorl, represented on later whorls by low rounded tubercles on one or more primary cords. The combination of numerous low axial elements, widely separated primary cords, and very narrowly open canal makes this genus highly distinctive.

Size: up to 300 mm

Range: Australia

Remarks: *Callifusus* differs from *Propefusus* by having fewer axial ribs or nodes and by having only 1 row of nodes or tubercles if these are developed at all.

In its indistinct lirae and its widely spaced rounded cords, *Callifusus* resembles *Propefusus.*

Granulifusus resembles *Propefusus* in its aperture and the ornamentation. But *Propefusus* has shorter shell ornamented with less granular projections than *Granulifusus*.

Propefusus australis (Quoy & Gaimard, 1833)

Synonyms: *Fusus crebriliratus* Reeve, 1847, *Fusus nodicinctus* A. Adams, 1856

Description: *Fusus, testa fusiformi, subventricosa, transversim tenuiter striata, ferruginea-rufescente; anfractibus convexis subnodulosis; spira cauda aequante; apertura ovali; labro margine dentata, intus laeviter striato.*

(Shell fusiform, subventricose, transversely thinly striated, reddish brown; subnodular convex whorls; spire as long as siphonal canal; aperture oval; lip with serrated edge, slightly grooved inside.)

Its transverse lines are unequal in thickness and sometimes coupled: they are crossed by other longitudinal lines, infinitely more slender. The end of the canal is nodulous. The general color is a reddish brown, more intense on the reliefs. The aperture is flamed in the same color, but lighter. The epidermis is hairy and reddish.

Size: 50-100 mm; length 70 mm, width 25 mm

Range: Australia

Remarks: This species resembles the *Penion sulcatus* (a *Buccinoidea*) and *Fusinus multicarinatus*; but it differs from the latter by closer streaks, less pronounced bulges, and larger whorls; it differs from the *Penion sulcatus*, by the elongation of its canal and its more oval aperture; and on the other hand, seeing it from behind, it is difficult to distinguish it from the *Fusinus ferrugineus*. It is rather large, a little plump, having the canal almost as long as the spire; the oval aperture, scarcely striated inside, rather strongly denticulated on the right edge, which forms a small sinus on joining the columella. This is rough, almost flattened, then raised like a blade along the canal, which is wavy and dark red-brown internally.

For comparison with *Fusinus cratis* and *Marmorofusus vercoi* see there.

Apertifusus frenguellii differs from *P. australis*, in that the last basal whorl does not have such large ribs, the precedence of this form is not known.

P. australis differs from *Fusinus multicarinatus* by closer streaks, less pronounced bulges, and larger whorls.

P. australis is distinguished from *Vermeijius palmarium* by a much larger adult size and a different shape.

P. australis attains a larger size than *Marmorofusus wellsi*, it is much broader and heavier.

Propefusus novaehollandiae (Reeve, 1848)

Description: *Fus. testa elongato-fusiformi, anfractibus rotundatis, liris fortibus transversis costisque longitudinalibus nitide clathratis; alba, epidermide fibrosa induta.*

Shell elongately fusiform, whorls rounded, neatly latticed with strong transverse ridges and longitudinal ribs; white, covered with a fibrous epidermis.

Size: 100-280 mm

Range: Australia

Remarks: Juvenile specimens of *P. novaehollandiae* are distinguished from *Fusinus annae* by having no more than 2 or 3 fine spiral lirae between the major spiral ribs.

It is distinguished from *Vermeijius palmarium* by a much larger adult size and a different shape.

*Fusinus sandvichensis is o*f a much finer sculpture than *P. novaehollandiae*, with rounded upper, and slightly angular lower whorls. The ribs are rounded and the canal and spire about equal in length.

Propefusus undulatus (Perry, 1811)

Synonyms: *Fusus pyrulatus* Reeve, 1847, *Fusus legrandi* Tenison Woods, 1876

Description: Shell of a pale red, marked transversely with wavy sutures; mouth slightly marked with flutes, and the spire rounded and furrowed.

Size: not given

Range: unknown

Fusinus pyrulatus (Reeve, 1847)

Synonyms: according to WoRMS synonym to *Propefusus undulatus* (Perry, 1811)

Description: *Fus. testa elongato-pyriformi, anfractibus rotundatis, subventricosis, costis tumidis longitudinalibus et transversis subdistantibus nitide clathratis; lutescente, rufo-fuscescente hic illic pallide tincta.*

Shell elongately pyriform, whorls rounded, somewhat ventricose, neatly latticed with longitudinal and transverse swollen ribs; yellowish, faintly stained here and there with reddish-brown.

Size: 60-100 mm

Range: Tasmania

Remarks: Of light growth, amply distinguished from any other species both in form and sculpture.

Fusus ustulatus Reeve, 1848

Synonyms: according to WMSDB synonym to *Propefusus undulatus* (Perry, 1811)

Description: *Fus. testa subobeso-fusiformi, anfractibus superne rotundatis et ventricosis, transversim liratis, longitudinaliter subobsolete plicatis; ferrugineo-fuscescente.*

Shell somewhat stoutly fusiform, whorls rounded and ventricose, transversely ridged, longitudinally rather obsoletely plicated; rust-brown.

Size: 66 mm

Range: St. Vincent's Gulf, S Australia

Remarks: The whorls of this species are peculiarly rounded at the upper part, and the faint plicated sculpture is distinguished by its darker colour.

compare with *Barbarofusus kobelti*

Pseudofusus Monterosato, 1884

Synonyms: *Aegeofusinus* Russo, 2017, *Carinofusus* Ceulemans, Landau & Van Dingenen, 2014 †

Type species: *Pseudofusus rostratus* (Olivi, 1792)

Description: not given

of *Aegeofusinus*: Shells small, light but not fragile. Spire with 5.5 to 6.5 whorls excluding the protoconch that is always paucispiral with about 1.5 whorls and does not differ greatly among the various species examined, except in size, which ranges from 600 to 755 µm with nucleus variably recessed by 200-480 µm. H/D ratio 2.09-2.60; 7-8 spiral cords from the mouth to the suture between the last and penultimate whorl, very evident by virtue of being always paler or darker than their background, pronounced and well spaced; secondary cords generally absent; 7-8 pronounced axial ribs, spaced and evident with interstices on average larger than rib thickness, also evident due to being paler or darker than background; whorls generally angled, suture non canaliculate but accentuated; siphonal canal from barely elongated to short and open. Colour shiny reddish brown to black with intercostal spaces ranging

from black to reddish like the axial ribs; spiral cords from white to reddish, always contrasting with background. Aperture oval, operculum horny, pale brown and semitransparent.

Size: 11 mm to 15 mm

Range: Mediterranean

Remarks: *Aegeofusinus* differs from *Fusinus* by virtue of much smaller size, very short open siphonal canal, background colour and number of spiral cords, the latter always greater in *Fusinus*. As well, the colour of the spiral cords contrasts with background colour, as does that of the axial ribs, which therefore stand out by being darker or paler.

It also differs from *Tarentinea* in size, colouration and the pattern, number and conformation of the axial ribs, which in *Tarentinea* are more similar to *Nodolatirus*, while evident spiral cords are also absent in *Tarantinea*.

It differs from *Aptyxis* in size, number of axial ribs (greater in *Aptyxis*) and their pattern, which in *Aptyxis* are only evident in the subapical part of the last whorl.

Pseudofusus albacarinoides (Hadorn, Afonso & Rolán, 2009)

Description: Shell small for genus, fusiform, thin, lightweight, with long pointed spire and short siphonal canal, consisting of 8 strongly convex whorls (including protoconch). Surface of the shell roughened by numerous thin growth striae making the spiral cords nearly granular, often forming fine scales or lamellae crossing the spiral sculpture between interspaces of axial ribs on latter whorls.Suture constricted, slightly wavy according to the axial sculpture. Below suture often with a conspicuous band of well-visible scales formed by growth striae.

Shell red-brown to dark brown with a conspicuous broad white or yellowish band at periphery and usually with an indistinct second white or light brown band on parietal wall which is only visible on body whorl.

Protoconch paucispiral, bulbous, light brown, consisting of 1 1/4 smooth glossy whorls, final part with 1-2 fine axial riblets reaching from suture to suture, transition to teleoconch abrupt, marked by a varix. Diameter 0.8-0.9 mm.

Axial sculpture consisting of broad, rather weak axial ribs reaching from suture to suture on all postnuclear whorls. Interspaces between axial ribs rather broad, only slightly impressed. 8 or 9 axial ribs on upper whorls, 8-10 on antepenultimate, 8-11 on penultimate and 8-13 on body whorl.

Spiral sculpture usually darker than the background colour, consisting of broad coarse spiral cords with rough surface caused by numerous thin growth striae. Teleoconch beginning with 3 or 4 primary spiral cords, 4 on second whorl, 5 on third whorl, 6 on fourth, and 7 on latter whorls. Spiral cords 3 and 4, counted from the lower suture, are always the strongest and white coloured (occasionally yellowish or light brown). Secondary spiral cords appear between the primary cords from third or fourth whorl on, at the beginning fine and inconspicuous but occasionally becoming nearly as strong as the primary cords on body whorl. About 20-22 strong spiral cords behind the outer lip, becoming weaker towards the tip of the siphonal canal.

Aperture ovate, rounded above, slightly constricted below, posterior canal inconspicuous. Juvenile or subadult specimens with a thin transparent body whorl showing colouration of the outer side of the shell. Adult specimens white inside aperture, ornamented with 8-10 sharp but fine folds forming tiny usually white teeth on outer lip. Outer lip convex, edge finely crenulated. Parietal callus thin, white or transparent, glossy, adherent, not detached from the parietal wall. Underlying spiral sculpture sometimes still visible. No columellar folds. Siphonal canal usually slightly shorter than aperture length, straight or slightly curved, widely open.

Operculum corneous, thin, yellowish, shape and size corresponding to aperture, nucleus apical.

Size: up to 22 mm in length

Range: Algarve; Ibero-Moroccan Gulf

Remarks: Only few other *Fusinus* species are reported from the infralittoral zone of Southern Portugal, Algarve coast: *P. pulchellus*, *P. rostratus* and *Aptyxis syracusanus*. However, the occurrence of *A. syracusanus* in the Atlantic cannot be confirmed despite intensive research along the Algarve coast.

Some other *Fusinus* species from the eastern Atlantic and the Canary Islands are similar in shape and sculpture and therefore also compared to *P. albacarinoides*:

P. cretellai is most similar to *P. albacarinoides*. *P. cretellai* from North Morocco, Tangier (type locality), differs from *P. albacarinoides* by the larger shell size (20-28 mm), the thicker and more solid shell, the smoother surface, the shorter spire, the less constricted suture, the less prominent but more close-set axial ribs, the longer and stronger siphonal canal, the prominent but less numerous spiral cords on the outer side of the siphonal canal, and by the entirely white aperture and the thick outer lip.

P. cretellai from Southern Spain is most similar to *P. albacarinoides*, but differs by the lighter coloured shell, the smaller protoconch (diameter 0.7 mm instead of 0.8-0.9 mm), the smoother surface, the weaker and less prominent spiral sculpture especially at periphery, and by the distinct white tooth near the posterior canal.

P. pulchellus differs by the smaller number but more prominent and wider spaced axial ribs, the lighter coloured shell, and the longer, straight and more slender siphonal canal.

P. rostratus often has a rough surface produced by numerous thin axial growth striae, forming fine scales and nearly granular spiral cords, but differs by the larger size (45-55 mm on the average), by the distinct prominent axial sculpture, the usually uniformly coloured shell, and the long straight siphonal canal.

A. syracusanus differs by the larger size, the stout but light and broad shell, the carinated, well-shouldered whorls, and the distinct close-set, regularly spaced and usually white coloured axial ribs.

Fusinus tenerifensis is similar in shape, sculpture and colouration, but differs by the red brown protoconch, the dark brown to chocolate-brown colouration, the more prominent and wellspaced axial ribs, the dark brown, sometimes slightly purplish aperture, and usually by the less conspicuous white band, and the shorter siphonal canal.

Some other *Fusinus* species are recorded from the Ibero-Moroccan Gulf, from the Atlantic coasts of Portugal or Morocco, but none of them is similar to *P. albacarinoides*.

Fusinus sectus differs by the broader and shorter spire and the uniformly coloured shell.

Fusinus agadirensis differs by the smaller shell size (up to 16.6 mm), the uniform light brown shell, and the distinct regularly spaced axial and spiral ribs.

Fusinus boucheti differs by the larger shell size (up to 45.8 mm), the larger protoconch (diameter 1.3-1. 8 mm), the longer siphonal canal, and the uniformly coloured shell.

Fusinus bocagei bocagei differs by the larger size (24-38 mm), the prominent broad, well-spaced axial ribs, the simple inconspicuous spiral sculpture, and the uniformly coloured shell.

Pseudofusus alternatus (Buzzurro & Russo, 2007)

Synonyms: *Fusinus alternatus* Settepassi, 1985

Description: *Conchiglia allungata, non carenata, apparentemente fragile, snella, composta da 8 giri di spira. Protoconca liscia, di forma lievemente arrotondata di circa 1,5 giri. Vi sono 7-8 costole assiali per giro e circa 5 cordoni spirali primari. Sull'ultimo giro di spira si osservano 7-8 costole assiali di colore marrone nocciola che contrastano decisamente con il colore giallo tenue della conchiglia; vi sono 5 cordoni spirali primari e 2 secondari, questi ultimi interposti rispettivamente tra il quarto e quinto cordone primario e tra il sesto e settimo; tali cordoni sono dello stesso colore del fondo della conchiglia, tranne dove intersecano le costole assiali, assumendo il loro marrone scuro; solo il terzo cordone primario appare costantemente dello stesso colore di fondo della conchiglia. Linee di accrescimento opistocline. Sull'ultimo giro vi sono fino a 24-25 cordoni spirali che giungono all'estremità del canale sifonale. Canale sifonale corto, massiccio, decisamente aperto, leggermente rivolto a sinistra, che presenta sempre, nella parte anteriore, dei cordoni spirali in rilievo. Apertura ovale, stretta, di colore beige. Labbro esterno internamente lirato, con una notevole varice. Dente parietale evidente, callo columellare privo di pliche.*

(Shell elongated, not keeled, apparently fragile, slender, composed of 8 whorls. Smooth protoconch, with a slightly rounded shape of about 1.5 whorls. There are 7-8 axial ribs per whorl and about 5 primary spiral cords. On the last whorl of the spire, 7-8 axial ribs of a hazelnut brown color are observed which contrast decidedly with the pale yellow color of the shell; there are 5 primary and 2 secondary spiral cords, the latter interposed respectively between the fourth and fifth primary cord and between the sixth and seventh; these cords are of the same color as the background of the shell, except where they intersect the axial ribs, assuming their dark brown; only the third primary cord consistently appears the same color as the background of the shell. Opisthocline growth lines. On the last whorl there are up to 24-25 spiral cords which reach the end of the siphonal canal. Siphonal canal short, massive, decidedly open, slightly turned to the left, always presenting raised spiral cords in the anterior part. Aperture oval, narrow, beige colored. External lip internally lirate, with a notable varix. Evident parietal tooth, columellar callus without folds.)

Size: 22.0 x 9.0 mm; protoconch of 613 µm, with a nucleus of 203 µm

Range: Central-Eastern Mediterranean Sea; Tyrrhenian Sea, Sicily Channel, Aegean Sea

Remarks: It differs from *Pseudofusus rostratus* in the smaller size and the much shorter siphonal canal.

P. clarae differs from *P. alternatus* for its larger size, for having more numerous and closer axial ribs, for a greater number of spiral cords, for secondary cords in different positions, for coloring (uniform in *P. clarae*, with axial ribs darker in color than the ground in *P. alternatus*), due to the more swollen and more flattened whorls, due to the conformation of the suture. The H / D ratio is 2.43 (*P. clarae*) versus 2.50 (*P. alternatus*).

P. fioritae differs from *P. alternatus* in shape of spire whorls, dimensions, length of siphonal canal, axial rib colouring and keel.

For comparison with *P. corallinus* and *P. ventimigliae* see there.

Pseudofusus angeli (Russo & Angelidis, 2016)

Description: Shell small, light, consisting of 5.5 teleoconch whorls, paucispiral protoconch, with about 1 1/4 whorls measuring 660 µm with slightly recessed nucleus measuring 480 µm. Last teleoconch whorl with 8 distinct, well spaced, axial ribs. Space between the ribs greater than rib width. Angled whorls, axial ribs terminating well before suture, never interfering with ribs of upper whorl. Decrease in width of axial ribs, especially in last and penultimate whorls, begins from second supramedian spiral cord. Suture not deep or canaliculate. Number of spiral cords is as follows: first whorl 3, second whorl 3, third whorl 4, fourth whorl 5, fifth whorl 7, last whorl 7 until aperture, 21-23 until the end of siphonal canal. Secondary spiral cord absent. Very fine orthoclinal growth lines in intercostal spaces. Siphonal canal open, rather short, straight or slightly curving. Aperture oval, external lip non varicose, internal lip lacking columellar callus. Pale yellow background colour, white axial ribs and reddish brown spiral cords, well spaced, rather thin and flat, and much darker than background. This colouration is observed in all spire whorls, and, in particular, median and supramedian spiral cords are thicker and maintain their dark colouration also in intercostal space. Other spiral cords lose their dark colouring where crossing spaces between axial ribs, blending into the background, only to resume their dark colouring where they surmount the rib. Supramedian cord forming a slight false keel where it intersects axial ribs. H/D = 2.16.

Size: height 6.2-14.8 mm, diameter 3.1-6.3 mm

Range: Aegean Sea

Remarks: All the species endemic to the Aegean Sea are small, ranging from 16-20 mm in the case of *P. dimitrii* to 12-14 mm for *P. profetai*, all with such constant and distinctive colouration as to make this an important diagnostic character. They may have axial ribs darker than the background (*P. margaritae, P. rolani*) or darker intercostal spaces (*P. eviae, P. patriciae*) or spiral cords paler (*P. margaritae, P. rolani*) or darker (*P. profetai, P. eviae*) than the background or axial ribs slightly paler than the background (*P. dimitrii*).

P. angeli can be compared with *P. eviae, P. margaritae* and *P. profetai*.

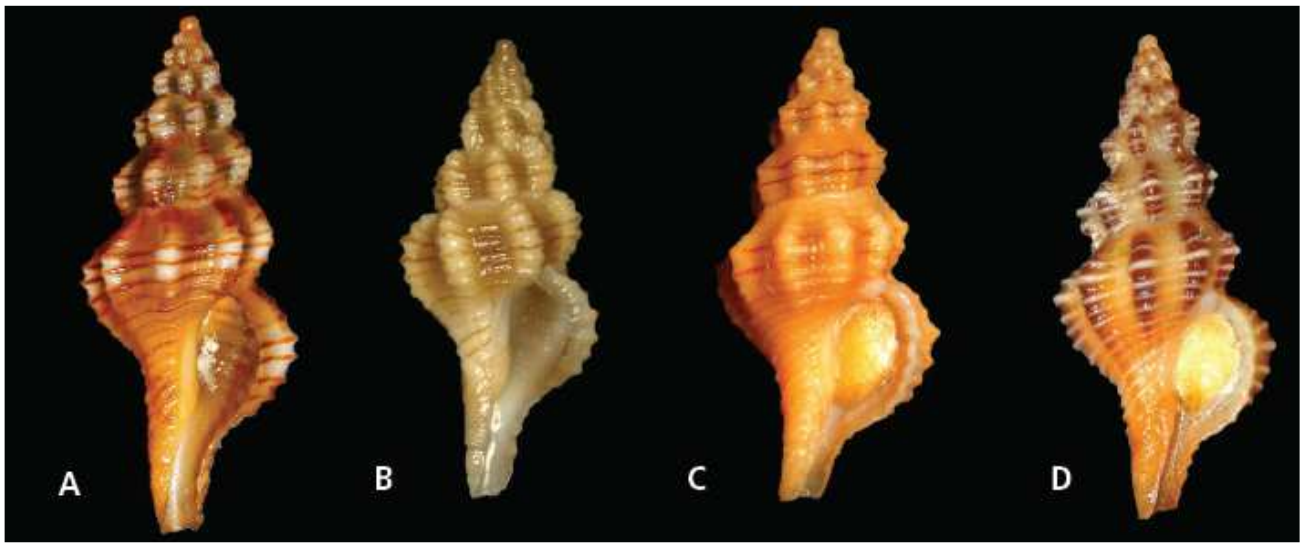


Plate of comparison: A: *P. angeli* 14,8 mm; B: *P. eviae* 13,0 mm; C: *P. profetai* 11,5 mm; D: *P. margaritae* 14,4 mm. The specimens portrayed aren't reproduced in scale.

For main distinctive features of Aegean *Pseudofusus* see *P. eviae.*

P. eviae has well rounded whorls and its axial ribs are thicker and rounder, and they run from suture to suture interfering with those of the superior whorl. *P. angeli* has angled whorls and the axial ribs thin considerably towards

the sutures, never interfering with them. In *P. eviae* the axial ribs are pale yellow, barely paler than the background, whereas in *P. angeli* they are white. In *P. eviae* the spiral cords have a slightly darker shade than the background, whereas in *P. angeli* they are much darker, reddish brown, and contrast sharply, besides decreasing in thickness to almost disappear towards the base of the siphonal canal, whereas in *P.eviae* they continue down to the base of the siphon, maintaining their darker colouration. In *P. eviae* the spiral cords also maintain a slightly darker colour in the spaces between ribs. *P. eviae* is always smaller: the maximum dimension encountered was 13.2 mm. The habitats are similar.

P. angeli has a similar morphological structure to *P. margaritae*, although its whorls are more angled. *P. margaritae* has dark brown, almost black, axial ribs on all whorls, whereas those of the present species are white. In *P. margaritae* the spiral cords are always white instead of dark brown and its external lip is varicose, unlike that of *P. angeli. P. margaritae* has a slightly shorter siphonal canal that twists perceptibly to the right, whereas that of *P. angeli* is straight or slightly deviates. Their dimensions are similar, whereas their habitats are very different.

P. angeli has similar morphological structure to *P. profetai*, although all the whorls of the spire, not just the last one, are sharply angled, and it has a greater number of axial ribs: up to 10, compared to 8 of *P. profetai*. In *P. profetai* the ribs are the same colour as their background, whereas the median and supramedian spiral cords are darker and stand out more than the others. It also has a short stubby siphonal canal and a varicose external lip. *P. profetai* has smaller dimensions: the maximum encountered for the species is 11.4 mm. *P. profetai* has a small parietal tooth, missing in *P. angeli*, the habitat are very different.

Pseudofusus bocagei bocagei (P. Fischer, 1882)

Synonyms: *Fusus azoricus* Dautzenberg, 1889, *Fusus bocagei var. ecaudata* Locard, 1897, *Fusus bocagei var. longicaduata* Locard, 1897, *Fusus bocagei var. major* Locard, 1897, *Fusus bocagei var. minor* Locard, 1897

Description: *Testa alba, fusiformis, gracilis; anfractus 10, embryonales 3 sublaevigati, ceteri convexi, spiraliter lirati (liris 3 in penultimo anfractu, interdum lirula interjacente discretis) et radiatim costati, costis 8 in ultime anfractu; sutura undulata, impressa; anfractus ultimus dimidium testae fere aequans; cauda angusta, lirata, elongata; apertura ovata; columella tuberculo dentiformi superne munita.*

Shell elongately fusiform, of relatively small size (rarely larger than 35 mm), 9 or 10 whorls (including protoconch). Whorls regularly convex, never keeled. Spire pointed, elongate, usually larger than length of body whorl. Suture wavy according to the axial ribs of the preceding whorl. Fine inconspicuous axial growth lines.

Protoconch small, white, glossy, consisting of about 2 convex whorls; about 1 3/4 whorls smooth, last part (1/4 whorl) ornamented with very fine, curved growth lines. Not ending in a varix as is usual for the genus *Fusinus*. Diameter: 0.7-0.8 mm.

Axial ribs rather prominent, always traversing from suture to suture. 8-10 axial ribs on all whorls, intervals between them as broad as the ribs themselves, on body whorl they are usually broader.

Spiral sculpture relatively simple, consisting of narrow, rather weak spiral cords. The cords are narrower where they run through the interspaces between the axial ribs; but they are rather sharp and well-developed where they pass over the axial ribs. The teleoconch begins with two strong spiral cords. Starting with the second or third postnuclear whorl 2 clearly weaker cords appear below the suture. Some specimens have on latter whorls a fifth strong cord lying just above the suture. Beginning with the fourth postnuclear whorl fine spiral threads appear between the primary cords. The number of fine threads increases by intercalation to up to 3 per interval on body whorl.

Aperture ovate, relatively small, translucent white. Inner lip smooth, curved, with a thin parietal callus which becomes somewhat thicker on the columella. Sometimes with 1-2 very fine riblets on columella, but no columellar folds. Outer lip slightly denticulated according to the spiral sculpture. Internal side ornamented wirh some rather weak lirae. Siphonal canal usually slightly shorter than aperture length, widely open, rather straight, often slightly curved. Outer side sculptured with some rather weak spiral cords.

Operculum ovate, thin, corneous, light brown to reddish-brown, with a terminal nucleus. Size and shape corresponding to the aperture. Outer side ornamented with fine concentric growth lines. Periostracum greenish, transparent, thin.

Size: 24.0-38.0 mm; length 25, width 10 mm

Range: West coast of Spain and Portugal, Azores, the Canary and the Cape Verde Islands

Remarks: *P. bocagei marcelpini* from Mauritania and Senegal is most closely related to *P. b. bocagei*. The differences are discussed under *P. b. marcelpini*.

P. b. bocagei differs from *Fusinus boucheti* in having a clearly smaller protoconch, a somewhat smaller shell, a more slender spire, a less curved siphonal canal, a smaller number of axial ribs with much wider interspaces between them, and finally in having fewer spiral cords.

P. rosamariae shows some affinities to *P. bocagei* with respect to the shell morphology. Nevertheless, both species can be easily separated because, in specimens of *P. rosamariae*, the axial cords do not extend from suture to suture on any of the whorls, the interspaces between axial ribs are narrower than the ribs themselves, and spiral threads between the spiral cords are absent.

In *Fusinus sectus* the whorls increase their diameter more rapidly, the axial ribs are more numerous, the spiral sculpture is more complex, and the siphonal canal is more curved.

P. b. bocagei is similar to *F. inglorius* in size and sculpture and has a rough surface, but differs by having fewer (about 8-10) but broader axial ribs on the body whorl, a two-whorled protoconch, and the radula with 5 or 6 cusps on the lateral teeth.

The closest relationship from *Fusinus meteoris*, as can be inferred from morphology, is with *P. bocagei*, mainly distinguished by being smaller (large specimens on the seamounts reach 30 mm) and having a multispiral protoconch. The pattern of sculpture with widely spaced, straight and slightly prosocline axial folds, knobs at intersections of spirals is however basically the same.

Pseudofusus bocagei marcelpini (Hadorn & Ryall, 1999)

Description: Shell of medium size, greyish-white, fusiform, apex always eroded. Whorls regularly convex, never keeled, slightly concave below the suture. Suture sharply incised, wavy according to the axial ribs of the preceding whorl. Axial growth lines well-visible on all whorls giving the surface a rough appearance. Protoconch not examined-always eroded.

Axial ribs prominent, rather narrow, becoming weaker towards the upper suture, reaching from suture to suture on all whorls. Interspaces between them as broad as the ribs themselves, sometimes a little bit broader on latter whorls. 7 axial ribs on uppermost whorls, 7-8 on following whorls, about 8-9 on penultimate whorl and 8-10 on body whorl.

The spiral sculpture consists of strong and prominent spiral cords and intercalated finer spiral threads. On the earliest whorls which can be examined (apex always eroded) there are 4 strong and sharp spiral cords. The 3 central cords are weaker where they run through the interspaces between the axial ribs, but become stronger and broader on the axial ribs. On the following whorl a fifth, clearly weaker spiral cord appears between the upper suture and the uppermost cord. Simultaneously a fine intercalated spiral thread appears berween each pair of cords. On latter whorls the number of fine threads increases by intercalation. Up to 4 or 5 intercalated threads of unequal strength on body whorl.

Aperture ovate, often nearly round, whitish, rather small, aperture length usually shorter than siphonal canal. Parietal callus smooth, curved, thin; columellar callus rather strongly developed, with some fine irregular folds, but without columellar folds as in genus Latirus. Outer lip slightly denticulated according to the spiral sculpture. Internal lirae weak, sometimes obsolete, often irregular. Sometimes with a small white denticle in the upper part of the parietal callus. Siphonal canal rather long, strong, usually somewhat longer than aperture length, widely open, slightly curved. Outer side ornamented with strong spiral cords and fine intercalated threads.

Operculum ovate, corneous, brown coloured. Outer side ornamented with fine concentric growth lines. Inner side with a large, broad, glossy callus which roughly covers the lower halfof the operculum. With a terminal nucleus. Periostracum rather thin, olive coloured.

Size: 36.9-55.1 mm

Range: Mauritania to Senegal

Remarks: The overall shell proportions, the basic sculpture and the radula morphology are the same as in *P. b. bocagei*, and therefore it is considered that the two to belonging to the same species complex. The adult size of *P. b. marcelpini* from Mauritania and Senegal, however, is much larger (> 35 mm), the axial sculpture is coarser, the number of axial ribs on early whorls is smaller (7 instead of 8-10), the whorls increase their diameter somewhat more rapidly, the spiral sculpture is coarser and sharper, the intercalated fine spiral threads are stronger and sharper, the axial growth lines are coarser and better visible, and finally the periostracum is thicker and olive coloured instead of the "greenish, transparent, thin" periostracum of *F. b. bocagei*.

With regard to the parapatric occurrence of *P. b. bocagei* (Bay of Biscay to the Ibero-Moroccan Gulf and in the Azores, the Canary and Cape Verde Islands, but NOT along the West African coast) and *P. b. marcelpini* (along the West African coast from Mauritania to Senegal), these differences do not justify a separation at the species level.

P. b. marcelpini differs from *Fusinus sectus* in having a clearly larger adult size, a more elongate and more slender shell, more regularly convex whorls, in the greyish-white shell, in the smaller number of axial ribs and the wider interspaces between them, the stronger spiral cords, and in the less curved siphonal canal.

P. bocagei marcelpini has about the same size as *Fusinus boucheti*, but can be easily distinguished by having a thicker and much heavier shell, less numerous axial ribs (8-9 on penultimate whorl) with wider interspaces between them, weaker spiral cords, more intercalated fine spiral threads, and a less curved siphonal canal.

Pseudofusus buzzurroi (Prkić & Russo, 2008)

Description: Shell solid and fusiform, consisting of 1.3-1.4 protoconch whorls and 6-7 teleoconch whorls, rather small for genus. Protoconch brownish, mamillate, striated by 6 obvious, equidistant spiral threads, with interspaces completely smooth, about 755 µm in diameter, with an apical nucleus measuring 252 µm across. Teleoconch whorls convex, slightly carinated by an obvious, but not very raised, keel, separated by well-marked, but not canaliculated sutures. The sculpture consists of strong, raised and wellspaced axial ribs, 6-7 on each whorl, rarely 8, and closely spaced primary spiral cords, which are stronger where they pass over the axial ribs. The spiral sculpture also consists of secondary threads, which are more evident on the last two or three whorls.

The body whorl represents 60-64 % of the total shell height. Aperture oval, outer lip varicose, internally lirate with 7-10 elongate teeth, columellar callus thin, but obvious. A parietal tooth is well evident in the upper part of aperture. Some studied specimens show 2 or 3 columellar folds, more or less evident, which are caused by the underlying primary spiral cords, at the base of the columella. Siphonal canal short, broad and curved, slightly deviating to the left when seen in apertural view. Operculum corneous, brown in colour, with an apical nucleus.

The shell colour varies, usually is brownish, rarely whitish or pale beige, with spiral cords only slightly darker than the background colour, sometimes with a whitish keel. In some studied specimens the spiral cords are dark brown or reddish-brown, conspicuously darker than the background colour.

Size: up to 26.4 x 11.7 mm, usually from 16 to 22 mm in height

Range: Adriatic (Croatia)

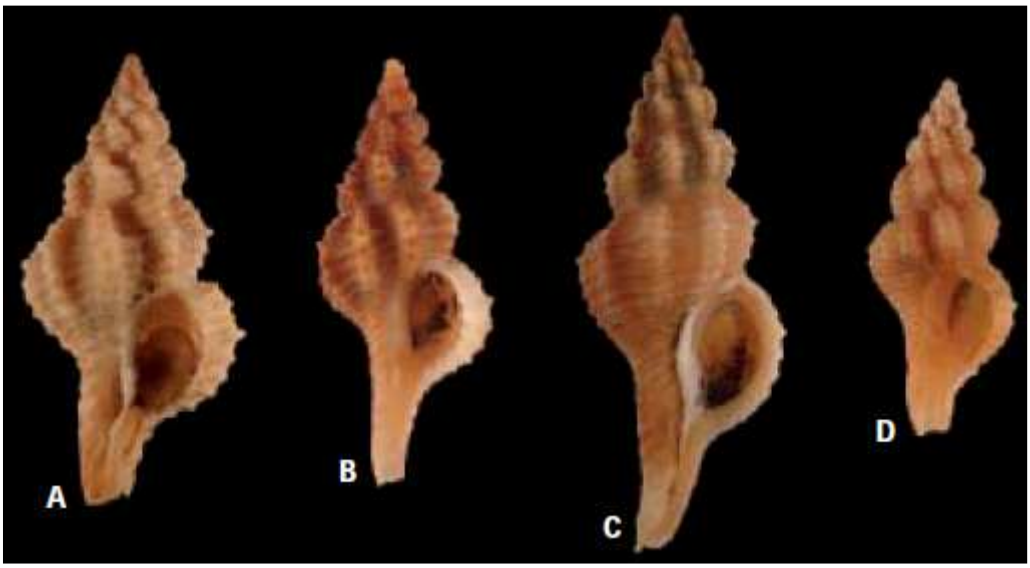
Remarks: *P. buzzurroi* can be compared to *P. rostratus, P. dimitrii*, and *P. parvulus*.

P. buzzurroi differs from *P. rostratus* for the much smaller size, the stubbier shape, the smaller protoconch (755 µm against 910 µm of North-Adriatic populations of *P. rostratus*). In *P. rostratus* the axial ribs start just after the suture in the adapical part, while in *P. buzzurroi* they begin intersecting the ribs of the next whorl in the sutural area. *P. rostratus* shows a much longer siphonal canal. In *P. rostratus* there are some populations having a slight keel, others a well-developed keel, while others are quite acarinate; *P. buzzurroi* has always a slight keel. In *P. buzzurroi* the average of conchometrical parameters h/d has a value of 2.14 against 2.65 in *P. rostratus*. In *P. rostratus* the habitat is more diversified, ranging from circalittoral to bathyal mud and white coral biocoenoses, extending to a depth of 823 meters. Records in association with red coral were never reported from Dalmatian coasts.

P. buzzurroi differs from *P. dimitrii* in the larger size, the less elongated profile, the lower number of axial ribs (numbering 8-9 in *P. dimitrii* against 6-7 in *P. buzzurroi* on the body whorl), the keel (always absent in *P. dimitrii*), the axial ribs broader and more prominent with wider interspaces, the presence of an obvious secondary spiral

sculpture. *P. buzzurroi* has a shorter and more widely open siphonal canal; the protoconch is marked by 6 spiral threads, while it appears to be smooth in *P. dimitrii*; the operculum is brown in colour, being yellowish in *P. dimitrii*. With respect to conchometrical parameters, in *P. dimitrii* the average of h/d has a value of 2.49 against 2.14 in *P. buzzurroi*. Habitat is similar.

P. buzzurroi differs from *P. parvulus* in the stouter and heavier shell, the number of axial ribs, (6-7 in *P. buzzurroi* and 8-9 in *P. parvulus*), the presence of secondary spiral cords and a keel, always absent in *P. parvulus*, the suture which is more marked in *P. parvulus*, the spire whorls more flattened in *P. parvulus*, the colour always uniform in *P. parvulus*, while in *P. buzzurroi* only the juveniles can be uniformly coloured, sometimes having spiral cords darker than background colour, the protoconch more raised in *P. parvulus*, more rounded in *P. buzzurroi*. Habitats and distributional ranges are different. Conchometrical parameters are similar.



A. *P. buzzurroi* 21.4 x 10.2 mm. B. *P. dimitrii* 17.8 x 7.4 mm. C. *P. rostratus* 43.8 x 16.6 mm. D. *P. parvulus* 13,4 x 7,4 mm.

Pseudofusus cinctus (Bellardi & Michelotti, 1840) †

Synonyms: ?= *P. rostratus* (Olivi, 1792)

Description: *Testa elongata, fusoidea, transversim multi-striata; striis elevatis; intermedia parviuscula; anfractibus omnibus in centro a cingulo transverso bipartitis 7-8; supremis, longitudinaliter multi-costatis; costis crassis, rotundalis; cingulo in costis subspinoso; ultimis anfractibus simplicibus, convexis: apertura rotundata, integra; labro dextro intus rugoso, subcrenulato; columella callosa; canali aperto, elongatissimo, basi compresso.*

Conchiglia molto allungata fusiforme, composta di undici giri di spira, i quali sono elegantemente attraversati da numerosissime strie, delle quali una intermedia piu piccola d'assai delle altre, benche sensibilissima, gli 8 primi anfratti hanno delle coste longitudinali, undici all'incirca per ciascun giro, grosse rotondate: gli ultimi sono.semplicemente striati come gli altri, convessi; tutti poi hanno un cordoncino, che li divide in due parli uguali, il quale diventa quasi spinoso passando sulle coste longitudinali, semplice e rotondato negli ultimi anfratti. Le strie transversali, cominciando dalla parte superiore, ingrossano sensibilmente avvicinandosi alla base, dove poi sono del doppio quasi piu grosse di quelle vicine alla sutura: l'apertura e intiera, quasi rotonda, angulosa superiormente, il labbro destro un poco rigonfio, quasi crenulato, interiormente rugoso: la columella callosa: la base molto depressa, il che da all'apertura quella forma che si ha quasi rotonda; il canale aperto retto, molto allungato formante coll'ultimo giro la meta della lunghezza totale della conchiglia, leggermente dilatato, ricurvo alla sommita; l'asse della conchiglia non e retto, ma bensi un po' piegato, dando alla superficie generale una forma curvata.

(Shell elongate, fusoid, transversely multi-striated; stripes raised, intermediate small; all whorls are divided in the center from a transverse cord 7-8; uppermost, longitudinally multi-ribbed; ribs thick, rounded; cord on the ribs subspinous; the last whorls are simple, convex; the aperture is rounded, complete; the inside of the right lip is wrinkled, subcrenulated; columella callous; canal open, very elongated, base compressed.

Shell very elongated fusiform, composed of 11 spire whorls, which are elegantly crossed by numerous striae, of which an intermediate one is much smaller than the others, although very sensitive, the 8 first whorls have large rounded longitudinal ribs, approximately 11 per each whorl; the last whorls are simply striated like the others, convex; then they all have a cord, which divides them into 2 equal sections, which becomes almost spinose as it passes along the longitudinal ribs, simple and rounded on the last whorls. The transverse striae, starting from the upper part, thicken significantly as they approach the base, where they are almost double larger than those close to

the suture; the aperture is entire, almost round, angular at the top, the right lip is a little swollen, almost crenulated, internally wrinkled; columella callous; the base is very depressed, which gives the aperture that almost round shape; canal straight open, very elongated, forming with the last whorl half the total length of the shell, slightly dilated, curved at the top. The axis of the shell is not straight, but rather slightly bent, giving the general surface a curved shape.)

Size: not given

Range: Piemont, Italy

Remarks: described as fossil

P. cinctus has a lot of relation to *P. rostratus*. The keel of *P. rostratus* adorned with spiny tubercles, which follows in all the whorls, and the rounded longitudinal ribs on the last whorl seem to be able to justify the separation from *P. cinctus.*

Pseudofusus clarae (Russo & Renda in Russo, 2013)

Description: *Conchiglia di piccole dimensioni, leggera ma non fragile, con 7 giri di spira compresa la protoconca, colorazione bruno uniforme senza sfumature, con 9 costole assiali sull'ultimo giro, 9 nel quinto, 8 nel quarto, 7 nel terzo e nel secondo e 6 nel primo. La scultura spirale è costituita da 4 cordoncini spirali sul primo giro, 5 sul secondo, 6 sul terzo, 7 sul quarto e sul quinto, 8 sul sesto fino all'apertura e circa 26-27 fino alla base del canale sifonale, che è leggermente arcuato. Nell'ultimo giro sono presenti corde secondarie, tra la prima e la seconda corda primaria, e tra la seconda e la terza. Le costole assiali non sono particolarmente rilevate, sono ben separate tra loro e terminano prima della sutura senza mai interferire con questa. La sutura è ben impressa e canalicolata, in particolare tra l'ultimo ed il penultimo giro, e tra il penultimo ed il terzultimo. Corde spirali fitte, ravvicinate e leggermente appiattite, che sormontano le costole assiali senza variazioni di spessore e senza formare carene in nessun giro. L'ultimo giro rappresenta circa il 61 % del totale. Rapporto H/D pari a 2,43. Protoconca paucispirale di circa giri 1 e 1/4 del diametro di 697 µm, con nucleo leggermente elevato del diamentro di 250 µm.*

(Shell small, light but not fragile, with seven whorls of the spire including the protoconch, uniform brown color without nuances, with 9 axial ribs on the last whorl, 9 in the fifth, 8 in the fourth, 7 in the third and in the second and 6 in the first. The spiral sculpture consists of 4 spiral cords on the first whorl, 5 on the second, 6 on the third, 7 on the fourth and fifth, 8 on the sixth up to the aperture and about 26-27 up to the base of the canal siphon, which is slightly arched. In the last whorl, there are secondary striae, between the first and second primary striae, and between the second and third. The axial ribs are not particularly prominent, they are well separated from each other and end before the suture without ever interfering with it. The suture is well impressed and channeled, in particular between the last and the penultimate whorl, and between the penultimate and the third last. Dense spiral striae, close together and slightly flattened, which surmount the axial ribs without variations in thickness and without forming keels in any whorl. The last whorl represents about 61 % of the total. H / D ratio equal to 2.43. Paucispiral protoconch of about 1 and 1/4 whorl, with a diameter of 697 µm, with a slightly elevated core with a diameter of 250 µm.)

Size: 21,0 mm; length 18.6 mm, width 7.2 mm

Range: Gulf of Cagliari, Italy; Messina Strait and S Sardinia

Remarks: *P. clarae* is found in the same environments and at bathymetry similar to those of *P. alternatus*, *P. pulchellus*, and *P. ventimigliae.*

P. clarae differs from *P. ventimigliae* in order to have rounder and slightly compressed whorls of the spire, for the closer and greater number of spiral cords, to have a smaller number of secondary cords, for the always uniform color, for the slightly twisted siphonal canal (while it is straight in *P. ventimigliae*), and for the total absence of a keel in *P. clarae*. The H / D ratio is 2.43 against 2.53 for *P. ventimigliae*.

P. clarae differs from *P. alternatus* for its larger size, for having more numerous and closer axial ribs, for a greater number of spiral cords, for secondary cords in different positions, for coloring (uniform in *P. clarae*, with axial ribs darker in color than the ground in *P. alternatus*), due to the more swollen and more flattened whorls, due to the conformation of the suture. The H / D ratio is 2.43 (*P. clarae*) versus 2.50 (*P. alternatus*).

The comparison with *P. rostratus* deserves a different approach as this species, unlike most of the Mediterranean *Fusinus* which generally show low intraspecific variability, is decidedly polymorphic and rich in geographic clines or races. The abundant material available has allowed to observe that in *P. rostratus* the secondary cords are always present, while this does not happen in *P. clarae*.

P. clarae differs from the Tyrrhenian morphotype of *P. rostratus*, due to its increasingly smaller size, the conformation of the slightly compressed whorls, the wider and closer axial ribs and a greater number of spiral cords; due to the constant presence, in *P. rostratus*, of secondary cords; due to the coloring which in *P. rostratus* (Tyrrhenian morphotype) is constantly whitish and uniform. It also differs from *P. rostratus* in having a shorter and wider siphonal canal. *P. rostratus* has a particularly papillose protoconch of considerable size reaching 1021 µm, the largest among the Mediterranean species of *Pseudofusus*, while the protoconch of *P. clarae* has a diameter of 697 µm. The H / D ratio is equal to 2.43 against 2.76.

P. fioritae differs from *P. clarae* in dimensions, spire whorl shape, siphonal canal length, and spiral cord number and thickness.

Pseudofusus corallinus (Russo & Germanà, 2014)

Description: *Conchiglia piccola, leggera ma non fragile, con labbro varicoso lirato internamente. Formata da 6 giri di spira oltre alla protoconca che è paucispirale, composta da 1 giro e 1/4 circa. Colorazione di fondo bruno scuro tendente al rossiccio. Nell'ultimo giro si contano 8 costole assiali, 8 nel 4°, 7 nel 3° e nel 2°. Corde spirali non eccessivamente rilevate, sottili ma ben definite e separate; se ne contano 3 nel 1° giro, 4 nel 2°, 5 nel 3°, 6 nel 4°, 6-7 nel 5° e 7 nel 6° fino all'apertura, e 23-25 alla base del canale sifonale dove sono poco rilevate e appena accennate. Si nota la presenza di alcune corde secondarie, non regolarmente localizzate nei vari esemplari, ma sempre presenti. Apertura ovale piuttosto stretta, canale sifonale ben allungato, sottile e leggermente ritorto, giri ben arrotondati; è presente un leggero callo columellare. Costole assiali molto ben rilevate, robuste e spaziate, di colore leggermente più chiaro del fondo. Le costole vanno da sutura a sutura, interferendo con essa e sfiorando quelle del giro successivo. Sutura non molto impressa, non elevata né canalicolata, poco evidente in quanto le costole assiali interferiscono con essa interrompendone la continuità. Cordoncini spirali di colore bruno rossiccio, molto più scuri della tonalità di fondo, caratteristica che dà un aspetto particolare e inconfondibile alla conchiglia; negli esemplari adulti, generalmente i cordoncini sono di colore rosso anche nel tratto in cui sormontano le costole assiali, anche se in alcuni casi la colorazione sfuma leggermente; questo però non avviene nel caso della corda mediana dell'ultimo giro che nel punto di intersezione è sempre di colore più chiaro del fondo della conchiglia. Sempre negli esemplari adulti, o di maggiori dimensioni, si nota un leggero dente nel punto di incontro tra labbro esterno e columella. La corda mediana o sopramediana dell'ultimo giro a volte è leggermente rilevata, mai tanto da determinare una carenatura. Rapporto H/D di 2,27. Protoconca paucispirale, del diametro di 613 µm con nucleo infossato di 186 µm, ornata da 5 cordoncini spirali.*

(Small shell, light but not fragile, varicose lip internally lirated. 6 spire whorls in addition to the protoconch which is paucispiral, made up of 1 and about 1/4 whorl. Dark brown background color tending to reddish. On the last whorl there are 8 axial ribs, 8 in the 4th, 7 in the 3rd and 2nd. Spiral cords not excessively raised, thin but well defined and separated; there are 3 on the 1st whorl, 4 on the 2nd, 5 on the 3rd, 6 on the 4th, 6-7 on the 5th and 7 on the 6th until the aperture, and 23-25 at the base of the siphonal canal where they are little detected and barely indicated. The presence of some secondary striae is noted, not regularly localized in the various specimens, but always present. Aperture rather narrow, oval; siphon canal well elongated, thin and slightly twisted, whorls well rounded; there is a slight columellar callus. Axial ribs very well raised, strong and spaced, slightly lighter in color than the bottom. The ribs go from suture to suture, interfering with it and touching those of the next round. Suture not very impressed, not elevated or canaliculated, not very evident as the axial ribs interfere with it, interrupting its continuity. Spiral cords of reddish brown color, much darker than the background shade, a characteristic that gives a particular and unmistakable appearance to the shell; in adult specimens, generally the cords are red also in the section where they cross the axial ribs, even if in some cases the color fades slightly; this however does not happen in the case of the median cord of the last whorl which at the intersection point is always lighter in color than the bottom of the shell. Also in adult specimens, or larger ones, a slight tooth is noted at the meeting point between the external lip and the columella. The median or supramedian cord of the last whorl is sometimes slightly raised, never so much as to determine a keel. H / D ratio of 2.27. Protoconch paucispirale, with a diameter of 613 µm with a sunken core of 186 µm, decorated with 5 spiral cords.)

Size: length 15.8 mm, width 6.5 mm

Range: Jonian Sea (E Sicily)

Remarks: In *P. corallinus*, the distinctive features concern the axial ribs, the spiral cords and the coloring. Given the morphological characteristics described, *P. corallinus* can only be compared with *P. alternatus* and with *P. ventimigliae*.

P. corallinus has massive axial ribs, well raised, of a thickness more or less equal to the space between the ribs themselves, which are the same color as the bottom of the shell and go from suture to suture, sometimes interfering with the ribs of the preceding whorl. In *P. alternatus* the ribs are less thick and much more spaced, darker in color than the bottom and decrease in thickness near the suture, just touching it. *P. corallinus* has reddish colored spiral cords that clearly stand out from the background color, while those of *P. alternatus* have the same color as the shell. In *P. alternatus* the suture is well delineated and visible, while in *P. corallinus*, the suture is

interrupted by the axial ribs. In *P. alternatus* the spiral cords are light in color and thicker than those of *P. corallinus*. The siphonal canal is similar between the two species. The H/D ratio is also different, which is 2.27 in *P. corallinus* against 2.50 in *P. alternatus*. In *P. alternatus*, considering the portion of the last whorl that goes from the suture to the aperture, the presence of two secondary cords in the area of the aperture is noted, and following observations may notice their occasional presence also between the first and second cord, always starting from the suture between the penultimate and last whorl.

P. ventimigliae differs from *P. corallinus* for the decidedly more elongated shape, for the larger dimensions, for the much longer siphon canal, for the presence of a single light-colored cord in the median area of the whorls, for the less intense coloring and tending to yellowish brown, due to the coloring of the primary cords which in *P. corallinus* are red, while in *P.* ventimigliae they are the same color as the background. The H/D ratio of *P. ventimigliae* is 2.53.

P. fioritae differs from *P. corallinus* in axial rib shape, suture, colouring, siphonal canal dimensions and thickness.

Pseudofusus cretellai (Buzzurro & Russo, 2008)

Synonyms: *Fusinus crassus* (Pallary, 1901), *Fusus crassus var. minor* Pallary, 1920

Description: of *Fusinus crassus*: *Testa elongato-turrita, crassissima. Anfr. 8 convexi, sutura impressa juncti, costis longitudinalibus validis, numerosis (13 in anfr. ultimo), parum obliquis, funiculisque transversis, approximatis, costas transgredientibus, sculpti. Cauda elongata primo recta, deinde sinistrorsum retrorsumque inflexa, apertura ovata marginibus callo adnato nitidoque junctis. Columella arcuata, inferne torta. Labrum intus plicatum. Color lutescens, fasciis duabus rubiginosis cinctus.*

(Shell elongate-turreted, 8 very thick convex whorls, impressed suture; numerous, slightly oblique and strong longitudinal ribs (13 on the last whorl); transverse cords, stronger approximate crossing the ribs. The elongated siphonal canal is at first straight, then bent to the left and back, aperture oval, the margins attached to the callus and smooth. Columella arched, twisted below. Lip folded inside. Color yellowish, surrounded by 2 rusty bands.)

Redescription: Shell fusiform, rather small for genus, conspicuously thick-shelled, consisting of 7-8 strongly convex, inflated and unkeeled whorls. Suture deeply incised. Rather narrow and slightly oblique axial ribs on all whorls, separated by very narrow and deeply impressed interspaces. 9-11 ribs on upper teleoconch whorls, 12-13 on penultimate whorl and 13-14 on body whorl, traversing from suture to suture on all whorls.

The spiral sculpture consists of strong rounded spiral cords, which are stronger where they pass over the axial ribs. About 5 strong and rounded close-set spiral cords on first teleoconch whorl, 6 on the following whorls, 7 on the penultimate whorl. On the last 2 whorls sometimes with an intercalated fine thread between the stronger cords. The 2 whitish central cords are slightly stronger than any of the others.

Aperture yellowish, rather small, nearly round to ovate. Outer lip clearly thickened, edge strongly denticulated, with 8-9 strong internal lirae. Inner lip curved, parietal callus smooth, well-developed. No columellar folds. Siphonal canal short, about as long as the aperture length, broad and straight, bending to the left. Outer side ornamented with some strong spiral cords and finer intercalated threads.

Coloured whitish to yellowish, with 2 redbrown bands: one on shoulder, the other one below the periphery. At the periphery with a small whitish band. Siphonal canal with some brownish axial striae.

Size: 20-28 mm; high 28 mm, max. width 42 mm; aperture 9 mm high, 4 mm wide.

Range: Alboran Sea and Ibero-Moroccan Gulf

Remarks: *P. cretellai* has affinities with *P. rostratus*; but it differs from it by its more numerous longitudinal folds, its shorter canal, its darker coloration, its more elongated, less rounded aperture, etc. It could hardly be regarded as a maximum variety of *P. pulchellus*, since the latter is only a minor form of *P. rostratus*.

P. cretellai is easily distinguishable from all other West African and Mediterranean *Pseudofusus* by having a strikingly thick shell, numerous low axial ribs with very narrow interspaces between them, and in having a light yellow background colour with 2 red-brown bands on all whorls.

P. cretellai has a much thicker and heavier shell than *Fusinus tenerifensis*, a somewhat larger shell size, more close-set axial ribs, and a completely different colouration (background colour whitish to yellowish with two red-brown bands).

P. cretellai can be distinguished from *P. rosamariae* by its strongly developed spiral cords of equal strength.

For comparison with *F. agadirensis* and *P. albacarinoides* see there.

Pseudofusus dimassai (Buzzurro & Russo, 2007)

Description: *Conchiglia piccola, solida, piuttosto spessa, formata da 6,5 giri. Protoconca striata, mamillata, composta da 1,5 giri circa. I giri della teleoconca si presentano convessi e totalmente privi di carenatura. Le costole assiali, verticali e leggermente prosocline, attraversano completamente i giri da sutura a sutura e ammontano a 7-8 per giro; queste sono ben pronunciate, rilevate, distanziate tra loro, di colore marrone scuro, tranne che nei punti di intersezione con i cordoni spirali, dove assumono il medesimo colore di fondo beige della conchiglia. Interspazi lievemente più larghi delle coste assiali. Sutura ondulata che si confonde con la sporgenza dell'ultimo cordoncino, dando l'impressione, a tratti, di essere canalicolata. I cordoni spirali, di colore beige, sono tre sul primo e sul secondo giro di teleoconca, 4 sul terzo, dove i due posti più in basso sono i più consistenti, 5 sul quarto, di cui il terzo ed il quarto più cospiqui, e 16 sull'ultimo, 5 dei quali sopra l'apertura. Sull'ultimo giro i primo 4 cordoni spirali, di cui il terzo ed il quarto leggermente più rilevati, giungono fino all'apertura, memtre gli altri arrivano ad ornare il canale sifonale, e sono tutti dello stesso colore della conchiglia. L'ultimo giro raprresenta il 65% dell'altezza totale della conchiglia. Apertura ovale. Labbro esterno semplice, crenulato, interiormente lirato con una decina di dentelli. Il peristoma è liscio e la columella leggermente callosa, con un dente parietale evidente. Canale sifonale ben aperto, snello, breve, rivolto a sinistra e leggermente all'indietro. Protoconca (di altro esemplare) percorsa da 4-5 sottili cordoni spirali con interspazi piuttosto larghi ed irregolari con un diametro di 655 µm, con un nucleo apicale di 282 µm.*

(Shell small, solid, rather thick, formed by 6.5 whorls. Protoconch striated, mamillated, composed of about 1.5 whorls. The whorls of the teleoconch are convex and totally without fairing. The axial ribs, vertical and slightly prosocline, completely traverse the whorls from suture to suture and amount to 7-8 per whorl; these are well pronounced, raised, spaced apart, of a dark brown colour, except at the points of intersection with the spiral cords, where they are of the same beige background color as the shell. Interspaces slightly wider than the axial ribs. Wavy suture that merges with the protrusion of the last cord, giving the impression, at times, of being channeled. There are 3 spiral cords, beige in colour, on the first and second whorl of the teleoconch, 4 on the third, where the 2 lowest are the most consistent, 5 on the fourth, of which the third and fourth are more conspicuous, and 16 on the last one, 5 of them above the aperture. On the last whorl the first 4 spiral cords, of which the third and fourth are slightly more raised, reach the aperture, while the others come to decorate the siphonal canal, and are all of the same color as the shell. The last whorl represents 65 % of the total height of the shell. Oval aperture. External lip simple, crenulated, internally furrowed with about ten denticles. The peristome is smooth and the columella slightly calloused, with an evident parietal tooth. Siphonal canal well open, slender, short, turned to the left and slightly backwards. Protoconch (of another specimen) crossed by 4-5 thin spiral cords with rather large and irregular interspaces with a diameter of 655 µm, with an apical nucleus of 282 µm.)

Size: 9,3 mm x 3,9 mm)

Range: Italy, Strait of Messina

Remarks: *P. insularis* differs from *P. dimassai* by virtue of larger size, longer (on average) siphonal canal, different spiral cord colouring and greater thickness, thicker axial ribs and more inflated last whorl.

compare to *P. parvulus, P. pulchellus*

Pseudofusus dimitrii (Buzzurro & Ovalis in Buzzurro & Russo, 2007)

Description: *Conchiglia piccola, relativamente solida, fusiforme, formata da 6,5 giri spirali, di cui 1,35 appartengono alla protoconca che è liscia e mamillata. I giri sono convessi, ciascuno di essi presenta 8-9 costole assiali large e prominenti, che sul primo giro sono attraversate da 3 cordoni spirali, sul secondo da 4, sul terzo da 5 e sul quarto da 6 cordoni. L'ultimo giro, che rappresenta circa il 57% dell'altezza totale, è percorso da 8 costole assiali sporgenti, larghe all'incirca quanto gli interspazi, che arrivano fino alla base; esse sono di colore bianco latteeo e contrastano con il colore del fondo della conchiglia che è marroncino pallido, quasi giallo chiaro. I cordoni spirali sono in numero di 18-20 e si presentano dello stesso colore della conchiglia. 6 di essi decorrono al di sopra dell'apertura e quelli centrali appaiono più evidenti, con il quarto più rilevato per la presenza di una carenatura lievemente accentuata; tali cordoni sormontano le costole assiali, mentre gli altri, di minore consistenza, giungono fino alla fine del canale sifonale. Apertura ovale, ombelico assente. Labbro esterno fortemente varicoso, marcato internamente da denti allungati appena accennati. Columella liscia, che nella parte terminale reca un accenno lievissimo di 2 cordoni spirali, da non confondere con pliche columellari. Canale sifonale aperto, mediamente allungato, arcuato e leggermente deviato a sinistra. Opercolo corneo giallastro con nucleo laterale. La protoconca ed il nucleo apicale (esaminati in altro esemplare) presentano rispettivamente un diametro di 755 µm e 312 µm.*

(Shell small, relatively solid, fusiform, formed by 6.5 spiral whorls, of which 1.35 belong to the protoconch which is smooth and mamillated. The whorls are convex, each of them has 8-9 large and prominent axial ribs, which on the first whorl are crossed by 3 spiral cords, on the second by 4, on the third by 5 and on the fourth by 6 cords. The last whorl, which represents about 57 % of the total height, is crossed by 8 protruding axial ribs, roughly as wide as the interspaces, which reach up to the base; they are milky white in color and contrast with the color of the bottom of the shell which is pale brownish, almost light yellow. The spiral cords are 18-20 in number and have the same color as the shell. 6 of them run above the aperture and the central ones appear more evident, with the fourth more prominent due to the presence of a slightly accentuated fairing; these cords surmount the axial ribs, while the others, of less consistency, reach the end of the siphonal canal. Oval aperture, umbilicus absent. External lip

strongly varicose, internally marked by hardly indicated elongated teeth. Columella smooth, which bears a very slight hint of 2 spiral cords in the terminal part, not to be confused with columellar folds. Siphonal canal open, moderately elongated, arched and slightly deviated to the left. Operculum horny, yellowish, with lateral nucleus. The protoconch and the apical nucleus (examined in another specimen) have a diameter of 755 µm and 312 µm, respectively.)

Size: 13.3 mm x 5.5 mm

Range: Greece, N Aegean

Remarks: *P. dimitrii* has not been included in the genus *Aegeofusinus* as it lacks the morphological characteristics that distinguish this genus.

P. buzzurroi differs from *P. dimitrii* in the larger size, the less elongated profile, the lower number of axial ribs (numbering 8-9 in *P. dimitrii* against 6-7 in *P. buzzurroi* on the body whorl), the keel (always absent in *P. dimitrii*), the axial ribs broader and more prominent with wider interspaces, the presence of an obvious secondary spiral sculpture. *P. buzzurroi* has a shorter and more widely open siphonal canal; the protoconch is marked by 6 spiral threads, while it appears to be smooth in *P. dimitrii*; the operculum is brown in colour, being yellowish in *P. dimitrii*. With respect to conchometrical parameters, in *P. dimitrii* the average of h/d has a value of 2.49 against 2.14 in *P. buzzurroi*. Habitat is similar.

P. patriciae differs from *P. dimitrii* in the generally smaller dimensions, in the decidedly shorter siphonal canal, in the smaller number of spiral cords, in the coloration of the ribs which in *P. dimitrii* tend to milky white, and in the intercostal spaces which are dark brown in *P. patriciae* and due to the angle of the spire whorls, absent in *P. dimitrii*. Another common feature is the "spinosity", due to the thickness of the spiral cords at the point of intersection with the axial ribs.

For comparison with *P. rostratus* and *P. parvulus* see *P. buzzurroi.*

For main distinctive features of Aegean *Pseudofusus* see *P. eviae.*

Pseudofusus eviae (Buzzurro & Russo, 2007)

Description: not available

Redescription: It is totally acarinate and with rounded whorls, intercostal spaces and spiral cords darker than the background.

Redescription: The shell, of a yellow orange colour, bears slightly prosocline rounded radial folds. A distinctive feature is the more or less marked red brownish blotches at the periphery of each teleoconch whorl, located in the interspaces. In some variants, the spiral ribs also can be coloured in that same red brown. Protoconch granulose, of about one whorl after the egg, characterized by a keel on the top, quickly vanishing, and two other ones at the periphery. The transition protoconch-teleoconch is marked by strong radial ribs, after what begins the usual scupture of the teleoconch, made up of 2 spiral cords in the continuation of the previous keels, and radial folds.

Size: 10-15 mm; 11.5 mm

Range: Aegean Sea, Greece, Astypalea Isl. and Kàrpathos

Remarks: Compared to *P. angeli, P. eviae* has well rounded whorls and its axial ribs are thicker and rounder, and they run from suture to suture interfering with those of the superior whorl. *P. angeli* has angled whorls and the axial ribs thin considerably towards the sutures, never interfering with them. In *P. eviae* the axial ribs are pale yellow, barely paler than the background, whereas in *P. angeli* they are white. In *P. eviae* the spiral cords have a slightly darker shade than the background, whereas in *P. angeli* they are much darker, reddish brown, and contrast sharply, besides decreasing in thickness to almost disappear towards the base of the siphonal canal, whereas in *P. eviae* they continue down to the base of the siphon, maintaining their darker colouration. In *P. eviae* the spiral cords also maintain a slightly darker colour in the spaces between ribs. *P. eviae* is always smaller: the maximum dimension encountered was 13.2 mm. The habitats are similar.

P. patriciae differs from *P. eviae* in the conformation of the whorls, which in the latter species are rounded and swollen, in the shape of the axial ribs which end well before the suture, while in *P. eviae* they tend to cover it, and to intersect with the ribs of the upper whorl; in coloration, light brown tending to yellowish in *P. eviae* (in both there is a darker coloration in the intercostal spaces). It also differs in the coloring of the spiral cords, which are darker in

P. eviae, while in *P. patriciae* they definitely follow the coloring of the area they intersect: reddish brown on the ribs and dark brown in the interspaces. The two species live in different environments and bathymetries.

Main distinctive features of Aegean *Pseudofusus*:

species	ribs darker than background	ribs lighter than background	spiral cords darker than background	spiral cords clearest than background	intercostal spaces darker than background	parietal tooth	external lip varicose
Fusinus dimitrii		*					
F. eviae		*	*		*		
F. margaritae	*			*		*	*
F. patriciae					*	*	*
F. profetai			*			*	*
F. rolani	*			*		*	*
F. angeli		*	*				

Pseudofusus fioritae (Russo & Pagli, 2019)

Description: Shell small, rather thick, teleoconch with 6 whorls, protoconch not planktotrophic with 1.25 / 1.30 whorls. Last whorl with 8 strong, raised, well-spaced axial ribs on which the supramedian spiral cord forms a slight but evident keel, completely absent on the previous whorls, except for the penultimate, where the same, but less evident, feature is sometimes visible. The axial ribs are narrow in the adapical part of the last whorl, forming a slightly angled ramp. The last whorl bears 8 spiral cords that extend to the aperture and 18-20 that extend to the base of the siphonal canal, that is straight and not excessively long, sometimes with a slight right twist. The spiral cords are thick and raised in the abapical part of the last whorl, narrowing in the adapical part. Several secondary cords are sometimes evident, though not regularly present. The suture is elevated between the last and penultimate whorl, narrower and slightly canaliculate in the other whorls.

The axial ribs are rounded from the first to the fifth whorl, extending from suture to suture and generally touch it; the spiral cords clearly overlie the axial ribs and are milky white on all whorls. On the last whorl this colour fades towards the suture, the aperture and in the central part of the intercostal space and merges into the pale reddish brown of the background; this fading is no longer evident and colour becomes uniformly whitish from the first to the third whorl. External lip varicose, aperture oval and rather wide, operculum horny and pale yellow.

Size: height up to 20 mm

Range: Ionian Sea

Remarks: The most striking characteristic of *P. fioritae* is the colour of the axial ribs, which remains milky white on all whorls of the teleoconch, also differing from the other species by virtue of its more prominent axial ribs and spiral cords. The particular colouring of the ribs was a constant in all the specimens examined, to the point of being a determinant factor for its recognition, facilitated by high morphological stability.

P. fioritae differs from:

- *P. alternatus* in shape of spire whorls, dimensions, length of siphonal canal, axial rib colouring and keel;
- *P. clarae* in dimensions, spire whorl shape, siphonal canal length, and spiral cord number and thickness;
- *P. corallinus* in axial rib shape, suture, colouring, and siphonal canal dimensions and thickness;
- *P. insularis* in spiral cord colouring, shell dimensions, whorl pattern and axial rib colouring;
- *P. parvulus* in dimensions, colouring, keel, whorl shape and environment;
- *P. pulchellus* in spire whorl shape, general colouring, axial rib colouring and the double white cord on the whorls;
- *P. rostratus* in dimensions, siphonal canal length, colouring and aperture shape (these parameters applied to all the morphs examined);
- *P. ventimigliae* in axial rib shape, spire whorl structure, axial ribs, colouring and suture.

Pseudofusus insularis (Russo & Calascibetta, 2018)

Description: Shell small, light but not fragile, consisting of teleoconch with 5 whorls and paucispiral protoconch, indicating non planktotrophic development of about 1.3 whorls of diameter about 617 µm with slightly elevated nucleus of 390 µm. Protoconch bears about ten faint spiral cords. The whorls of the spire are moderately rounded. Axial ribs strong with good relief, intercostal spaces narrower than ribs which touch and in some cases cover the suture. Suture indistinct and non canaliculate; up to 4.5 whorls, the axial ribs almost cover the suture; from whorl 5.5 to 6.5 they are less evident, giving the suture a different, slightly elevated appearance. Last whorl, never keeled, with 8 axial ribs. Spiral cords thick, rounded and closely spaced with interspaces narrower than the cords themselves and clearly overlying the axial ribs. The last whorl has 8-9 cords between the aperture and the suture, 24-25 between the suture and the base of the siphonal canal, towards the end of which they are less evident and have low relief; the penultimate and third last whorls have 5 cords. The second whorl has 4-5 cords, whereas cords are absent or difficult to distinguish on the first whorl; no secondary cords are visible. Beginning at the aperture, the first two spiral cords are dark brown and stand out from the background colour; the median cord is pale yellow, paler than the background and the next two towards the suture are a lighter brown than the first two but darker than the median cord. In subsequent whorls, the sequence 2-1-2 is repeated but in a less evident way. On the opposite side of the aperture and along the siphonal canal, there are some dark brown cords. Siphonal canal moderately elongated, and in larger specimens slightly twisted to the left. Aperture oval and moderately wide. External labrum varicose, columellar tooth barely visible or absent. Operculum pale yellow and semi-transparent.

Size: 10-15 mm

Range: SW Tyrrhenian Sea, (N Sicily)

Remarks: *P. insularis* differs from *P. dimassai* by virtue of larger size, longer (on average) siphonal canal, different spiral cord colouring and greater thickness, thicker axial ribs and more inflated last whorl.

P. insularis differs from *P. pulchellus* in that it lacks the whitish double cord on the median part of the last whorl, and by virtue of thicker and more outstanding axial ribs, different rib colouring and shorter siphonal canal.

P. insularis differs from *P. ventimigliae* by virtue of smaller dimensions, different spiral cord colouring and greater thickness, different axial rib conformation and shorter siphonal canal. In the compared species, the darker color concern the axial ribs, while in *P. insularis*, the darker color occurs on some spiral cords.

P. fioritae differs from *P. insularis* in spiral cord colouring, shell dimensions, whorl pattern and axial rib colouring.

Pseudofusus labronicus Monterosato, 1884

Description: *Bellissima forma, solida, echinata, a coste brune mammillate. Coda corta.*

(Beautiful shape, solid, echinate, with mammillate brown ribs. Short canal.)

Redescription: Shell small, heavy, stubby, thick, opaque, made up of 6.5 rounded whorls, the last of which is broad and inflated. Protoconch formed by about 1.5 spiral whorl. There is no trace of fairing. Colour light yellowish-brown with much darker brown axial ribs, well separated from each other, in the number of 9-10 for each whorl. The axials cover the entire whorl, from suture to suture. The whorls are decorated with 5, sometimes 6, spiral cords of the same colour than the surface of the shell; they are quite prominent and surmount the axial ribs. No intermediate cords; the ornamentation continues, rather marked, along the siphonal canal. Suture conspicuous, slightly canaliculated. The last whorl features 9-10 axial ribs and about 15 spiral cords, some secondary, which reach the end of the siphonal canal. This one is stubby, short and slightly deviated to the left. Columella smooth, broad, calloused, decidedly expanded, where a parietal tooth is noted. Aperture oval and narrow. Outer lip thickened, the inside of which is adorned with 10-12 teeth. Operculum ovate, with lateral apical nucleus of brown colour.

Size: 19-21 mm; length 20 mm, width 8-9 mm

Range: Italy; Central Mediterranean (N Tyrrhenian; Sardinia; S France)

Pseudofusus margaritae (Buzzurro & Russo, 2007)

Description: not available

Redescription: Shell small, fusiform, rather elongated, vaguely turriform, consisting of 6.5 slightly angled whorls that impart a moderately keeled appearance. Protoconch composed of about 1.5 smooth elongated whorls. Suture distinct but not canaliculate. Axial ribs sharp and evident, brown in colour and numbering 7-8 per whorl; they arise at the start of the whorl near the suture, extend around the whorl and end in the underlying suture without intersecting the ribs of the adjacent whorl. Spiral cords number 2 on the first whorl, 3 on the second and third, 6 on the fourth and 20 on the last, where they extend as far as the siphonal canal; the cords are white, including where they cross the axial ribs. On the last whorl, the fifth cord, which stands out and is slightly keeled, is more developed, whereas the first four and the sixth are less pronounced. The axial ribs number 8 per whorl and extend to the end of the siphonal canal, becoming progressively finer, maintaining their brown colouration that contrasts with the yellowish background colour of the shell. The interstices are slightly translucent and wider than the axial ribs. The last whorl accounts for 59 % of total shell height. Aperture ogival, columella not expanded, devoid of pleats, with an evident parietal tooth where the aperture connects to the external lip, which is crenulated and without varicosities. Siphonal canal slightly elongated, straight, curved slightly backward at its end. Operculum horny, oval, pale brown with lateral apical nucleus.

Size: 15.5 mm; 11 x 5 mm

Range: endemic of Karpathos Island, Greece

Remarks: *P. patriciae* differs from *P. margaritae* in the less fusiform shape, in the more solid structure, in the color of the axial ribs which in *F. margaritae* are always dark brown on a very light brownish background; for the spiral cords which in *P. margaritae* are white and stand out in the overlap with the ribs and appear much less prominent and robust. Similar is the trend of the spins, angled in both, and of the ribs that end before the suture. Furthermore, *P. margaritae* has a greater number of spiral cords, 20 in the last whorl, against 15 of the species under examination. The H/D ratio is equal to 2.22 for *P. margaritae*, against 2.12 for *P. patriciae*.

P. margaritae is very similar to *P. rolani*.

For Comparison with *P. angeli* see there.

For main distinctive features of Aegean *Pseudofusus* see *P. eviae.*

Pseudofusus parvulus Monterosato, 1884

Synonyms: *Fusinus (Barbarofusus) suturalis* F. Nordsieck, 1972

Description: *Piccola forma, paucicostata, flava o fulva a coste sporgenti, coda corta.*

(Shell small, with few ribs, yellowish to yellow at the protruding ribs, canal short.)

Redescription: Slender spindle-shaped; about 6 rounded whorls; periphery rounded; sculptured by axial ribs reaching the base and strong, smooth spiral stripes overrunning the axial ribs; suture unobtrusive; base rounded; columella smooth, anal canal separated by a tooth; aperture oval; siphonal canal short and wide, straight; outer lip varix-like thickened, inside with spiral folds reaching far back into the aperture; plain yellowish-brown; aperture slightly brighter.

Size: length 16-17 mm; width 5-6 mm of average specimens

Range: Italy; Mediterranean Sea (excluding Alboran Sea)

Remarks: For comparison with *P. buzzurroi, P. rostratus* and *P. dimitrii* see unter *P. buzzurroi*, with *P. profetai* see there.

P. fioritae differs from *P. parvulus* in dimensions, colouring, keel, whorl shape and environment.

compare to *P. dimassai* and *P. rusticulus*

Pseudofusus patriciae (Russo & Olivieri, 2013)

Description: *Conchiglia di piccole dimensioni, piuttosto spessa, formata da 7 giri di spira compresa la protoconca. Giri di spira angolati. Nel primo giro vi sono 6 costole assiali, 7 nel secondo e nel terzo, 8 nel quarto e nel quinto e 9 nell'ultimo. Il primo ed il secondo giro di spira risultano abrasi e non è possibile individuare le corde spirali, che hanno lo stesso colore delle costole assiali e sono 4 nel terzo giro, 5 nel quarto, quinto e sesto e 7 nell'ultimo giro fino all'apertura, mentre se ne contano 14/16 fino alla base del canale sifonale che si presenta corto, leggermente deviato all'indietro e appena ritorto. Costole assiali ortocline, robuste, rilevate e spaziate che terminano ben prima della sutura, dando a questa un aspetto elevato, ma non canalicolato.*

Corde spirali spesse, molto rilevate all'intersezione con le costole assiali, ma poco apprezzabili nell'interspazio, lo stesso si rileva nella zona adapicale di ogni giro dove le corde appaiono obsolete e di difficile lettura, per cui la zona subsuturale appare quasi liscia. In ogni giro di spira la corda adapicale rispetto alla mediana, ed in misura minore anche la mediana, sporge sensibilmente all'incontro con le costole assiali, formando così una falsa carena che si interrompe negli spazi intercostali. Questa caratteristica dà un aspetto "ispido" alla conchiglia. Lungo il canale sifonale vi sono tre corde particolarmente rilevate e spesse. Labbro varicoso, privo di dentellatura interna, apertura ovale, senza dente parietale. Callo columellare sottile, ma evidente. Colorazione intensa, tendente al bruno rossastro con spazi intercostali marrone scuro; questa colorazione non va da sutura a sutura ma termina prima e crea, nella zona suturale, una fascia avente la stessa colorazione delle costole assiali, con un risultato cromatico molto caratteristico ed inconfondibile. Protoconca paucispirale piuttosto elevata, con nucleo infossato di circa giri 1 e 1/4, con diametro di circa 580 µm e nucleo di circa 190 µm. Rapporto H/D pari a 2,12.

(Shell small, rather thick, formed by 7 whorls including the protoconch. Spire whorls angled. There are 6 axial ribs in the first whorl, 7 in the second and third, 8 in the fourth and fifth, and 9 in the last. The first and second whorl of the spire are abraded and it is not possible to identify the spiral cords, which have the same color as the axial ribs and are 4 in the third whorl, 5 in the fourth, fifth and sixth and 7 in the last whorl up to the aperture, while 14/16 are counted up to the base of the siphonal canal which is short, slightly deviated backwards and slightly twisted. Axial ribs orthoclinic, strong, raised and spaced apart, they end well before the suture, giving it an elevated, but not channeled appearance.

Thick spiral cords, very prominent at the intersection with the axial ribs, but little appreciable in the interspace, the same is found in the adapical area of each whorl where the cords appear obsolete and difficult to see, so the subsutural area appears almost smooth. In each whorl of the spire the adapic cord with respect to the median, and to a lesser extent also the median, noticeably protrudes at the crossing with the axial ribs, thus forming a false carina which is interrupted in the intercostal spaces. This feature gives the shell a "shaggy" appearance.

Along the siphonal canal there are 3 particularly raised and thick cords. Varicose lip, without internal serration, oval aperture, without parietal tooth. Columellar callus thin, but evident. Intense colouration, tending towards reddish brown with dark brown intercostal spaces; this coloring does not go from suture to suture but ends before and creates, in the sutural area, a band having the same coloring as the axial ribs, with a very characteristic and unmistakable chromatic result. Rather high paucispiral protoconch, with a sunken nucleus of about 1 and 1/4 whorls, with a diameter of about 580 µm and a nucleus of about 190 µm. H/D ratio equal to 2.12.)

Size: 9-15 mm; length 9.4 mm, width 5 mm

Range: Greece, Crete Isl.

Remarks: *P. patriciae* is compared with *P. dimitrii, P. eviae, P. margarite, P. profetai* and *P. rolani*.

P. patriciae differs from *P. dimitrii* in the generally smaller dimensions, in the decidedly shorter siphonal canal, in the smaller number of spiral cords, in the coloration of the ribs which in *P. dimitrii* tend to milky white, and in the intercostal spaces which are dark brown in *P. patriciae* and due to the angle of the spire whorls, absent in *P. dimitrii*. Another common feature is the "spinosity", due to the thickness of the spiral cords at the point of intersection with the axial ribs.

P. patriciae differs from *P. eviae* in the conformation of the whorls, which in the latter species are rounded and swollen, in the shape of the axial ribs which end well before the suture, while in *P. eviae* they tend to cover it, and to intersect with the ribs of the upper whorl; in coloration, light brown tending to yellowish in *P. eviae* (in both there is a darker coloration in the intercostal spaces). It also differs in the coloring of the spiral cords, which are darker in *P. eviae*, while in *P. patriciae* they definitely follow the coloring of the area they intersect: reddish brown on the ribs and dark brown in the interspaces. The two species live in different environments and bathymetries.

Another comparison is with *P. margaritae*, from which *P. patriciae* differs in the less fusiform shape, in the more solid structure, in the color of the axial ribs which in *P. margaritae* are always dark brown on a very light brownish background; in the spiral cords which in *P. margaritae* are white and stand out in the overlap with the ribs and appear much less prominent and robust. Similar is the shape of the whorls, angled in both, and of the ribs that end before the suture. Furthermore, *P. margaritae* has a greater number of spiral cords, 20 in the last whorl, against 15 of *P. patriciae*. The H/D ratio is equal to 2.22 for *P. margaritae*, against 2.12 for *P. patriciae*.

P. patriciae differs from *P. profetai* in the constant presence, in this species, of two cords per whorl, in the dark brown color, and in the coloring of the spaces between the ribs of the same color as the shell; in the consistency of so-called cords which, again in *P. profetai* appear not very robust and little or not projecting, in the angle of the whorls which in *P. profetai* appears even more marked, and in the shape of the ribs in the subsutural area of each whorl which end well before the suture, almost disappearing. The H/D ratio is similar: 2.12 versus 2.09. The 2 species live in different geographical areas.

P. patriciae differs from *P. rolani* in the presence, in the latter, of thin spiral cords of a lighter color, in the axial ribs of black color in the median area and the interspaces of a light brown colour; in the dimensions, smaller in *P. rolani*. *P. patriciae* has fewer spiral cords in the last whorl, 14-16 against 18 in *P. rolani*, and a greater number of axial ribs, 9 against 8 in *P. rolani*. Finally, it should be noted that *P. patriciae* has an infralittoral distribution, while *P. rolani* lives in coralligenous and pre-coralligenous environments. The H/D ratio is very different: 2.60 for *P. rolani* against 2.12.

For main distinctive features of Aegean *Pseudofusus* see *P. eviae.*

Pseudofusus profetai (Nofroni, 1982)

Description: Spindle shaped shell, rather solid, dull with 7 whorls, 2 of which form the apex which is pointed and smooth. Elongated spire with convex and angulated whorls, each of which has 2 clear spiral ribs of a reddish brown colour. The body whorl is about 2/3 of the height of the shell, has 8 to 9 vertical angled ribs in the midbody and 8 to 10 main spiral riblets, the most elevated of which forms a carena, giving the whorl an angled appearance. Above the carena there are 2 or 3 barely visible riblets and the same number of riblets can be seen along the siphonal canal wich is open, short and bent to the left. Deep suture, oval mouth, no umbilicus. A posterior siphonal canal present. External lip with a varix and just a trace of teeth, narrow and elongated on the inside. Straight columella with a small plait at the base. Ground colour orange, darker in the areas between the ribs. 6 of the spiral cordlets are reddish brown in colour and more precisely the 4 higher ones and 2 other lower ones separated by the first 2 riblets which are of the ground colour. Soft parts red but not better examined.

Size: 10-14.5 mm; length 12 mm, width 6 mm

Range: Aegean Sea

Remarks: The more obvious characteristics are the 6 (4 + 2) spiral cordlets of darker colour, which look like those of *Raphitoma (Leufroyia) concinna* and the number or the same cordlets (from 8 to 10) which is inferior to those of all the other species known for the Mediterranean. Moreover, the *P. profetai* can be distinguished from *P. pulchellus* by its angulated and carenated whorls and from *P. parvulus* for the shorter siphonal canal and not rough surface. There is not need to compare with *Marmorofusus verrucosus* (= *Fusus marmoratus*) and *Aptyxis syracusana* nor with one of the many forms of *P. rostratus.*

For Comparison with *P. angeli* see there.

For main distinctive features of Aegean *Pseudofusus* see *P. eviae.*

P. patriciae differs from *P. profetai* in the constant presence, in this species, of two cords per whorl, in the dark brown color, and in the coloring of the spaces between the ribs of the same color as the shell; in the consistency of so-called cords which, again in *P. profetai* appear not very robust and little or not projecting, in the angle of the whorls which in *P. profetai* appears even more marked, and in the shape of the ribs in the subsutural area of each whorl which end well before the suture, almost disappearing. The H/D ratio is similar: 2.12 versus 2.09. The 2 species live in different geographical areas.

Pseudofusus pulchellus (Philippi, 1840)

Synonyms: *Fusinus quandumpulchellus* M. A. Snyder, 2000, *Murex bicolor* Risso, 1826, *Murex philippii* Monterosato, 1872, *Pseudofusus adustus* Coen, 1914, *Fusus pulchellus var. curta* Bellini, 1929

Description: *F. testa fusiformi-turrita, lineis elevatis transversis cincta, pallide fulva, costis circa 7-8 atro fuscis, lineaque albida per medios anfractus decurrente ornata; anfractibus rotundatis, cauda breviuscula. Testa raro 8''' longa, 3''' lata. Anfractus novem valde convexi, ut in F. rostrato, lineis elevatis circa 8-10, costisque 8-10 valde prominentibus, angustis sculpti; apertura ovata; callus in angulo superiore; labrum intus striatum; canalis angustus, aperturam aequans.*

(Shell spindle-shaped, surrounded by elevated transverse lines, pale yellow, with about 7-8 dark brown ribs, decorated with a white line running down the middle of the whorls; rounded whorls, short canal. The 9 whorls are very convex, as in *F. rostrato*, with about 8-10 raised lines, and 8-10 very prominent ribs, narrowly carved; aperture oval, a callus in the upper corner; inner lip striated; a narrow canal, equaling the aperture.)

Redescription: Shell fairly slender, spindle-shaped, with a turreted spire and a short, curved tail, rather thin-walled; whorls 8-9, very convex, but not angular, sculpted with projecting concentric ribs, which are separated by broad, relatively even interspaces; among the rather close-fitting, sharp spiral ridges, the two middle ones are slightly stronger, projecting like keels, and always white in color. Aperture small, oval, quite as long as the curved narrow canal; the columella is almost undetectable, the parietal callous always weak. The colour is characteristic, pale brown-yellow with a white middle banding, the ribs on both sides of the banding intensely reddish-brown.

Size: 15-50 mm; 18 x 6.7 mm

Range: Mediterranean Sea and and neighbouring Atlantic

Remarks: It differs from *Aptyxis syracusana* and *P. rostratus* in height and color; from *A. syracusana*, in addition, in fewer ribs and rounded whorls, from *P. rostratus*, in a shorter canal.

P. albacarinoides differs from *P. pulchellus* in having a slightly larger white band on the periphery: it goes a little beyond the two peripheral spirals, beginning a little posteriorly the adapical one and finishes slightly anteriorly the abapical one. The background colour is more uniform, while *P. pulchellus* bears marked darkenings of the costae; the radial sculpture is also stronger in *P. pulchellus*, the siphonal canal longer and less open.

P. fioritae differs from *P. pulchellus* in spire whorl shape, general colouring, axial rib colouring and the double white cord on the whorls.

P. insularis differs from *P. pulchellus* in that it lacks the whitish double cord on the median part of the last whorl, and by virtue of thicker and more outstanding axial ribs, different rib colouring and shorter siphonal canal.

Fusinus amphiurgus has a lighter color, a more delicate texture, and a peculiar bevel of the upper surface of the whorls. In *P. pulchellus* the whorls are rounded and full, and the spiral sculpture coarser and sharper.

The resemblance of *Fusinus tenerifensis* to *P. pulchellus* is not strong. *P. pulchellus* has usually a clearly larger adult shell, often carinated whorls, a completely different axial and spiral sculpture, a much longer siphonal canal, and differences in colouration.

Granulifusus staminatus is very small for the genus, and somewhat resembles *P.pulchellus*, but has a longer anterior canal, and all main spiral ridges are of equal prominence, besides other minor differences. It can be readily recognised by the brilliantly polished protoconch and the raised spiral ridges like white cotton threaded regularly round the whorls.

Granulifusus williami from the Philippines differs from *P. pulchellus* by its much smaller size, less rounded and much smaller aperture, color pattern and more slender shell.

Though resembling *P. pulchellus* in general aspect, *Peristernia tayloriana* will be found to differ materially on comparison. It has all the appearance of being a more exotic species, the whorls are more ventricose, the ribs more robust, and the dark colouring, it will be observed, is not on the ribs, which, on the contrary, are white, but in the interstices.

For comparison with *P. cretellai, P. ventimigliae* and *P. profetai* see there.

compare to *P. dimassai*

Pseudofusus raricostatus (Del Prete, 1883)

Description: *Coste longitudinali piu grosse e piu rade (7-8 sull' ultimo giro), anfratti piu rigonfi e piu rotondi.*

(Axial ribs larger and more spaced (7-8 in the last whorl) [than in *P. rostratus*], whorls more swollen and rounded.)

Redescription: Shell medium to small, thick and solid, with six whorls of the spire beyond the protoconch; last whorl inflated and roundish, like the previous five, but to a lesser extent, axial ribs very thick and raised, ending just before the suture without affecting the next whorl; the ribs are well spaced and number 7-8 per whorl; intercostal space similar or greater than rib thickness. Spiral cords well delineated and separated, seven in the last whorl running from the suture to the aperture, and 20-25 to the end of the siphonal canal. The latter are thick and

rounded and overlie the axial ribs, without giving rise to spines; note presence of several secondary cords, especially in the subapical part of the last whorl, whereas there is no evidence of them in the other whorls. Suture deep, almost caniculate, lip thick and varicose, aperture wide suboval, columellar callus quite extensive and evident, siphonal canal moderately elongated and slightly twisted with an evident tapering in the final part, which gives the species its characteristic subtriangular appearance; protoconch paucispiral, indicating small, non planktotrophic development of about 1 1/4 whorls.

Size: around 30.0 mm

Range: Coasts of Sicily, Sardinian Sea, Naples, coasts of Algeria

Remarks: Described as subspecies from *P. rostratus*.

Pseudofusus rolani (Buzzurro & Ovalis, 2005)

Description: not available

Redescription: Μικρός αριθμός δειγμάτων, σε ποικιλία σταδίων ανάπτυξης και αποχρώσεων, είδους μικρού μεγέθους. Χαρακτηριστικό του είναι το κοντό σιφώνι, και κυρίως οι αδρές πτυχώσεις, με κορυφές έντονα σκουρότερες στο μέσον των ελιγμών και ενίοτε λευκάζουσες τις αντίστοιχες λίγες, σπειροειδείς γραμμές.

(Species small-sized; its characteristic is the short siphon, and mainly the rough folds, with peaks strongly darker in the middle of the whorls and sometimes whitening the corresponding few, spiral lines.)

Redescription: Spindle-shaped, thick; about 6 convex whorls; periphery rounded; sculptured by (ca. 8) rounded, distantly arranged axial ribs (interspaces broader than ribs), these more or less regular, reaching down towards the base and distantly arranged, rather regular spiral stripes; suture incised, more or less wavy; columella a bit callus-like widened, smooth; aperture oval, posterior canal separated by a strong tooth on the parietal wall, outer lip thickened varix-like, inside with approx. 10 denticles, siphonal canal short, straight; basal colour orange-brown, axial ribs dark brown, overrun by white spiral cords, aperture white inside.

Size: 8-15 mm; holotype 10 x 4.9 mm

Range: Greece

Remarks: *P. patriciae* differs from *P. rolani* in the presence, in the latter, of thin spiral cords of a lighter color, in the axial ribs of black color in the median area and the interspaces of a light brown colour; in the dimensions, smaller in *P. rolani*. *P. patriciae* has fewer spiral cords in the last whorl, 14-16 against 18 in *P. rolani*, and a greater number of axial ribs, 9 against 8 in *P. rolani*. Finally, it should be noted that *P. patriciae* has an infralittoral distribution, while *P. rolani* lives in coralligenous and pre-coralligenous environments. The H/D ratio is very different: 2.60 for *P. rolani* against 2.12.

For main distinctive features of Aegean *Pseudofusus* see *P. eviae.*

Pseudofusus rosamariae Castillo & Ramil, 2024

Description: Shell rather small, highly elongate-fusiform, composed of 8 convex whorls, including protoconch. Protoconch cream, elongate, smooth, of 2 1/2 whorls, 1.2 mm in diameter. Spire pointed, elongate, length almost as long as body whorl. Suture inconspicuous, slightly wavy due to axial ribs of preceding whorl.

Axial sculpture composed of 7 or 8 rather prominent ribs on all whorls; intervals narrower than ribs themselves. Ribs occupy 2/3 of lower part of whorls, never extending from suture to suture. Spiral sculpture of 3 thin spiral cords on upper part of each whorl and 3 stronger, more spaced spiral cords on lower part where they cross axial ribs. Body whorl with 4 thin spiral cords on upper part and 1 additional, strong spiral cord on lower part. Cords narrower where they cross axial ribs. Intercalated finer spiral threads between cords absent.

Aperture ovate, whitish, small, length shorter than siphonal canal. Inner lip curved, with columellar callus poorly developed, smooth, white; columellar folds absent. Outer lip slightly denticulate due to spiral sculpture. Internal lirae obsolete. Siphonal canal long, longer than aperture, open, slightly curved to left and with outward fold on inner lip. Outer side ornamented with strong, close spiral cords, without intercalated threads. Periostracum thin, light brown. Shell white to cream.

Size: 23.8 mm

Range: N Mauritania

Remarks: *P. rosamariae* shows some affinities to *P. bocagei* with respect to the shell morphology. Nevertheless, both species can be easily separated because, in specimens of *P. rosamariae*, the axial cords do not extend from suture to suture on any of the whorls, the interspaces between axial ribs are narrower than the ribs themselves, and spiral threads between the spiral cords are absent.

Aptyxis boettgeri is larger and has intercalated ribs present between the spiral cords, and there are differences in the protoconch sculpture and the peristome with respect to *P. rosamariae*.

The Moroccan *P. cretellai* and *Fusinus agadirensis* can be distinguished from *P. rosamariae* by their spiral cords, which are strongly developed and of equal strength.

Another small fusiform species from West Africa is *Fusinus sectus*, but *P. rosamariae* shows more convex whorls, a greater number of axial ribs, fine threads between the spiral cords, and a siphonal canal which is shorter than the aperture length and bent to the left.

Pseudofusus rostratus (Olivi, 1792)

Synonyms: *Fusinus carinatus* (Roemer, 1836) †, *Fusinus sanctaeluciae* (Salis Marschlins, 1793), *Fusus (Pseudofusus) dalpiazi* Coen, 1918, *Fusus bengasiensis* Sturany, 1896, *Fusus caelatus* Reeve, 1847, *Fusus carinatus* Roemer, 1836 †, *Fusus carinulatus* Locard, 1886, *Fusus fragosus* Reeve, 1848, *Fusus rostratus var. carinata* del Prete, 1883, *Fusus rostratus var. subcarinata* del Prete, 1883, *Fusus strigosus* Lamarck, 1822, *Murex rubicundus* Nardo, 1847, *Murex sanctaeluciae* Salis Marschlins, 1793, *Pseudofusus gigliolii* Monterosato, 1890, *Pseudofusus locardi* Pallary, 1904, *Pseudofusus rostratus var. kobeltiana* Monterosato, 1890, *Pseudofusus rostratus var. latiroides* Monterosato, 1890, *Pseudofusus rostratus var. sollieri* Monterosato, 1890

Description: *M. Strombo di prima spezie di colore biondetto formato ad angoli, e tutto ricoperto di finissimi cordoncini, che gli girano pel traverso*.

(Shell of blondish color formed at angles, and all covered with very fine cords going around.)

Redescription: This gastropod, 3 to 6 cm in length, has an elongated spindle-shaped shell. The whorls are distinctly domed and the sutures very deep. The sculptures are in the form of narrow spiral ribs, visible on all the whorls, with very marked primary cords and secondary cords regularly spaced between the primary cords. In some individuals, particularly those found in the eastern part of the Mediterranean Sea, a keel is present.

The aperture is semi-circular in shape and is extended by a slender and very long (longer than the aperture itself) siphon. The columellar edge is slightly detached. The shell is tan to reddish brown in color. The horny operculum is oval in shape.

Size: 15-95 mm

Range: W Mediterranean Sea

Remarks: It should be noted that aberrantly shaped shells are well known in this species. There are albino forms.

P. rostratus can quite easily be confused with other species of the *Fasciolariidae* family (*P. parvulus* for example), or even with *Muricidae*, such as *Hadriana craticulata*. In the *Fasciolariidae*, the siphonal canal is straight and directly extends the columella. In *Hadriana craticulata*, the siphonal canal is oblique and curved dorsally.

P. fioritae differs from *P. rostratus* in dimensions, siphonal canal length, colouring and aperture shape (these parameters applied to all the morphs examined).

P. rostratus can also be confused with *Aptyxis syracusana*, which has alternating light and dark bands, while the shell coloration of *P. rostratus* is uniform.

It is also possible to distinguish it from *Trophonopsis muricata*, whose siphonal canal is shorter and the shape of the aperture is more ovoid.

The prominence of the whorls and deep excavation of the suture distinguish *Aristofusus excavatus* from *P. rostratus*.

Fusinus sectus is close to *P. rostratus*; but it separates from it, at equal size: by its less slender, less elongated curve; by its stockier whorl; by its larger and more pot-bellied last whorl; by its tightly twisted canal; by its larger aperture; by its less strong and much more numerous costulations, etc.

The resemblance of *Fusinus tenerifensis* to *P. rostratus* is not strong. *P. rostratus* has usually a clearly larger adult shell, often carinated whorls, a completely different axial and spiral sculpture, a much longer siphonal canal, and differences in colouration.

Vermeijius wallacei most closely resembles the strongly carinated deep-water form of *P. rostratus*, and differs in having a larger size, an often reddish-brown colour, an often stronger peripheral keel (occasionally forming strong spines), a thicker parietal callus, and a longer siphonal canal.

P. rostratus is smaller than *Hesperaptyxis ambustus*, and has remarkably rounded whorls with the folds extending to the suture.

For comparison with *P. buzzurroi, P. dimitrii* and *P. parvulus* see under *P. buzzurroi.*

The comparison with *P. clarae* and *P. cretellai* see there.

Pseudofusus rusticulus (Monterosato, 1880)

Synonyms: *Trophon rostratus var. rusticula* Monterosato, 1880

Description: *Una varietà che si avvicina per le sue macchie al P. pulchellus. Altra importante forma, particolare di queste regioni, è lunga non più di 15 mill., carenata, a forti nodulosità tanto sporgenti da sembrare spinose di un colorito fulvo uniforme. Sempre carenato a scultura ispida.*

(A variety that is similar in its spots to *P. pulchellus*. Another important form, particular to these regions, is no more than 15 millimeters long, keeled, with strong nodules so protruding as to appear thorny with a uniform fawn colour. Always carinate with a shaggy sculpture.)

Redescription: like *P. parvulus*, but with sharply shouldered whorls, whorls beneath suture and shoulder sloping straightly, then more or less rounded; periphery rounded; sculptured by about 8-9 axial ribs reaching the periphery and strong, smooth spiral stripes overrunning the axial ribs, forming sharp nodules on the shoulder; suture unobtrusive; base rounded; columella smooth; aperture oval; siphonal canal short and wide, straight; outer lip varix-like thickened, inside with thin spiral folds reaching far back into the aperture; plain white to tan.

Size: 10-22 mm

Range: Tunisia, Gulf of Gabès

Remarks: compare to *P. parvulus*

Pseudofusus ventimigliae (Russo & Renda in Russo, 2013)

Description: *Conchiglia di piccole dimensioni, fusiforme, leggera ma non fragile, con 7 giri di spira compresa la protoconca, colorazione abbastanza uniforme, tendente al bruno rossastro con sfumature più scure irregolarmente disposte sulle costole. Su ogni giro della spira sono presenti 7 costole, ortocline e piuttosto rilevate; 8 nell'ultimo giro; spazi intercostali ampi circa quanto le costole. Le costole si interrompono subito prima della sutura, sia nella parte abapicale che adapicale, dando alla sutura stessa una conformazione piuttosto elevata. Canale sifonale allungato, ben aperto e diritto, senza callo columellare e fessura ombelicale. Nel primo giro sono visibili 4 corde spirali, 5 corde nel secondo, terzo e quarto giro, 7 nel quinto e 7 nell'ultimo fino all'apertura, mentre se ne contano 25-26 fino alla base del canale sifonale.*

Presenza costante di corde secondarie, ben evidenti sia nell'ultimo che nel penultimo giro. Nella zona mediana di ogni giro si nota una singola corda primaria rilevata, in particolare nell'incrocio con le costole assiali, di colore più chiaro formante una leggera carena che divide nettamente in due parti ogni giro di spira. Si osserva un cordoncino doppio solo nel primo e secondo giro di spira.

Apertura ovale, senza dente parietale. Labbro semplice. L'ultimo giro rappresenta il 69 % circa dell'altezza totale. Protoconca paucispirale di circa 1 giro e 1/4 che misura 587 µm circa con nucleo leggermente infossato di circa 175 µm. Il valore medio (su 8 esemplari) del rapporto H/D è 2,52.

(Shell small, fusiform, light but not fragile, with 7 whorls including the protoconch, fairly uniform colouring, tending towards reddish brown with darker shades irregularly arranged on the ribs. On each whorl of the spire there are 7 ribs, orthocline and rather raised; 8 in the last whorl; intercostal spaces about as wide as the ribs. The ribs interrupt immediately before the suture, both in the abapical and adapical parts, giving the suture itself a rather high conformation. Siphonal canal elongated, well open and straight, without columellar callus and umbilical fissure. In the first whorl 4 spiral cords are visible, 5 cords in the second, third and fourth whorl, 7 in the fifth and 7 in the last up to the aperture, while there are 25-26 up to the base of the siphonal canal.

Constant presence of secondary cords, clearly evident both in the last and in the penultimate whorl. In the median area of each whorl there is a single raised primary cord, in particular in the intersection with the axial ribs, of paler color, forming a light keel which clearly divides each whorl of the spire into two parts. It is observed a double cord only in the first and second whorl of the spire.

Aperture oval, without parietal tooth. Simple lip. The last whorl represents about 69 % of the total height. Protoconch paucispiral, approximately 1 1/4 whorl, measuring approximately 587 µm with slightly sunken nucleus of about 175 µm. The average value (of 8 specimens) of the H/D ratio is 2.52.)

Size: length 23.4 mm, width 8.6 mm

Range: NE Sicilia

Remarks: Since *P. ventimigliae* lives in coralligenous environments, like *P. alternatus*, these 2 species are compared, together with *P. puchellus*, which is the species most similar to *P. ventimigliae*. It is worth highlighting a common feature between *P. ventimigliae*, *P. pulchellus*, *P. cretellai* and *P. albacarinoides*: the white band in the median part of the whorls, which in *P. ventimigliae* is always single, while in the other species this band is always represented by a double white primary cord with equally white interspace.

P. ventimigliae is distinguished from *P. pulchellus* by its larger size, by the more elongated and narrow siphonal canal, by the shape of the axial ribs, decidedly more robust and raised, by the more convex shape of the whorls, by the greater number of spiral cords (18 up to the end of the siphonal canal in *P. pulchellus*), and the interspaces between the narrowest ribs. Furthermore, *P. ventimigliae* is clearly distinguished by the single median cord of each whorl which is of a lighter, whitish colour, while in *P. pulchellus* this cord is split, with a white interspace like the cords. *P. ventimigliae* is still distinguished by the trend of the axial ribs which remain well raised almost up to the suture, while in *P. pulchellus* their strength is significantly reduced up to the sub-sutural area, and by the very different H/D ratio (2.52 against 2.20). It also differs in the chromatic pattern, which in *P. pulchellus* is generally lighter with dark brown axial ribs.

As far as the comparison with *P. alternatus* is concerned*, P. ventimigliae* differs for the larger dimensions, for the chromatic pattern, for the more inflated and convex whorls, for the much more spaced axial ribs in *P. alternatus*; due to the constant presence of secondary cords in the last and penultimate whorl, while in *P. alternatus* they are present only between the fourth and fifth and between the sixth and seventh primary cord. Furthermore *P. alternatus* never has a keel nor does it have a lighter colored median cord. The H/D ratio in *P. alternatus* is equal to 2.50. The protoconch of *P. ventimigliae* is of the paucispiral type, a characteristic common to all Mediterranean species of *Fusinus*.

P. clarae differs from *P. ventimigliae* in order to have rounder and slightly compressed whorls of the spire, for the closer and greater number of spiral cords, to have a smaller number of secondary cords, for the always uniform color, for the slightly twisted siphonal canal (while it is straight in *P. ventimigliae*), and for the total absence of a keel in *P. clarae*. The H / D ratio is 2.43 against 2.53 for *P. ventimigliae*.

P. fioritae differs from *P. ventimigliae* in axial rib shape, spire whorl structure, axial ribs, colouring and suture.

For comparison with *P. corallinus* see there.

Sinistralia H. Adams & A. Adams, 1853

Synonyms: *Fusus (Sinistralia)* H. Adams & A. Adams, 1853

Type species: *Sinistralia maroccensis* (Gmelin, 1791)

Description: Shell fusiform, reversed; canal long; whorls rounded.

Redescription: Shell fusiform, sinistral, medium-sized (length - diameter ratio c. 2.7), with a relatively short siphonal canal (canal length – shell length ratio c. 0.2); axial sculpture consisting of broad, rounded ribs; spiral sculpture consisting of strong, rounded cords, strongest and more widely spaced where they cross axial ribs; aperture ovate, adapically rounded; outer lip slightly denticulate on inner side; columellar callus poorly developed, almost obsolete, without columellar folds.

Size: medium-sized

Range: Morocco and Western Sahara, Canary Isl.

Sinistralia maroccensis (Gmelin, 1791)

Synonyms: *Buccinum scaevolum* Meuschen, 1787, *Fusus elegans* Reeve, 1848, *Fusus maroccanus* Reeve, 1848, *Fusus sinistralis* Lamarck, 1816

Description: *M. testa angustata subfusca transversim striata; spira mucronata; anfractibus distantibus contrariis teretibus longitudinaliter costatis, cauda prominula, apertura ovali.*

(Shell narrowed, dark brown transversely striated; spire mucronate; whorls with spaced opposite tapering longitudinally ribs, canal prominent, aperture oval.)

Size: 31 mm

Range: Morocco

Remarks: Compare to other sinistral species like *S. barclayi, Fusinus elegans, Fusinus somaliensis* and *S. gallagheri.*

S. maroccensis differs from *S. saundersi* from the Canary Islands by the light brown to cream coloured shell, the light brown protoconch, the longer, more delicate and more slender spire, the more incised suture, the more convex whorls, the weaker, narrower and slightly oblique white axial ribs, the more prominent spiral cords and the deeper grooves between them.

S. maroccensis can be distinguished from *Fusinus tenerifensis* on the base of the more elongated and always sinistral shell, by having clearly narrower and weaker axial ribs with much narrower interspaces between them, and by the smaller and more elongate aperture.

Sinistralia saundersi (Hadorn & Rolán, 2009)

Description: Shell small, fusiform, sinistral, consisting of about 8 convex whorls (including protoconch) with a slight subsutural concavity. Light brown to dark brown, with a distinct white band at periphery. Usually lighter coloured on axial ribs, darker in the interspaces. A uniformly light brown colour form exists with darker brown interspaces between axial ribs. Spire angle broad (about 35-40°). Suture incised, wavy according to the axial ribs of preceding whorl.

Protoconch dark brown, glossy, consisting of 1 1/2 to 1 3/4 whorls. Last part (1/4 whorl) ornamented with 4-5 strong axial riblets, reaching from suture to suture, separated by broad, deep interspaces. Microsculpture of very small granules only in the non eroded material. Diameter 0.8-1.0 mm.

Axial sculpture consisting of broad, oblique axial ribs, traversing from below the subsutural concavity to the lower suture; most prominent at periphery, separated by narrow deep interspaces. 7 or 8 axial ribs on upper postnuclear whorls, 9 on antepenultimate, 10 or 11 on penultimate and 11-13 on body whorl. Fine axial growth lines are well visible.

Spiral sculpture consisting of broad, strong, rounded spiral cords, more prominent when crossing the axial ribs, weaker in the interspaces. Teleoconch beginning with 3 strong, light brown to white coloured primary spiral cords; the abapical cord strongest, the 2 abapical cords usually lighter coloured. From the second whorl onwards an additional fine spiral cord appears below the 3 central cords, soon becoming as strong as the subsutural cord. A fine secondary spiral cord intercalated between the primary cords on the penultimate and body whorls. Some indistinct fine spiral cords of different strength visible in the subsutural area.

Aperture ovate, pinched at both ends, brown coloured, the white band well-visible inside the aperture. Outer lip thin, edge slightly crenulated, with numerous fine internal lirae. Parietal callus thin, almost obsolete, smooth. Columella smooth. Siphonal canal short, slightly curved to the right and slightly bending backwards, widely open. Aperture and siphonal canal together about 2/5 of total shell length. Periostracum fine, light brown, hairy.

Operculum corneous, light brown, thin, ovate, filling aperture, adapically rounded, abapically with terminal nucleus, ornamented with fine concentric growth lines.

Size: up to 25 mm

Range: Canary Isl., Gran Canaria, Tenerife and Lanzarote

Remarks: *Fusinus elegans* from the Western Sahara differs from *S. saundersi* by the white to cream coloured shell, the white protoconch, the longer, more delicate and more slender spire, the whorls excavated below the

suture (only in adult specimens), the weaker and less distinct white axial ribs, the more close-set spiral cords and the shallower interspaces between them.

S. maroccensis from West Morocco differs from *S. saundersi* by the light brown to cream coloured shell, the light brown protoconch, the longer, more delicate and more slender spire, the more incised suture, the more convex whorls, the weaker, narrower and slightly oblique white axial ribs, the more prominent spiral cords and the deeper grooves between them.

Takashius Kantor, Fedosov, M. A. Snyder & Bouchet, 2022

Synonyms: *Okutanius* Kantor, Fedosov, M. A. Snyder & Bouchet, 2018 [invalid: junior homonym of *Okutanius* D.R. Smith, 1981; *Takashius* is a replacement name]

Type species: *Takashius kuroseanus* (Okutani, 1975)

Description: of *Okutanius:* Shell medium-size, fusiform to broad fusiform, strong, with spiral colour bands. Teleoconch whorls evenly strongly convex, shell base sharply narrowing towards long, weakly sinuous siphonal canal. Protoconch multispiral, of 3-3.75 whorls. Axial sculpture of distinct broad, weakly opisthocline, closely spaced ribs. Spiral sculpture of distinct primary cords, subequal in size, and much thinner cordlets between them. Aperture narrow, oval, relatively small, columella with several weak plicae. No distinct parietal knob. Operculum spans entire aperture, with terminal nucleus.

Size: to 30 mm

Range: not given

Remarks: *Takashius* is a replacement name for *Okutanius* (invalid: junior homonym of *Okutanius* Smith, 1981).

Takashius is very similar to *Granulifusus* and conchological and morphological characters overlap at least in some species. Species of *Takashius* do not reach as large size as in *Granulifusus*. Nevertheless, without molecular data, it would be difficult to suggest the existence of two clearly separate genera.

Vermeijius differs from *Takashius (=Okutanius)* in its uniformly coloured light shell with smooth or nearly smooth columella, more abruptly constricted shell base, producing a relatively narrow canal.

Takashius aikeni Lussi, 2014

Description: Shell strong, fusiform. Protoconch and uppermost teleoconch whorls eroded, protoconch conical, multispiral, of 3+ whorls (protoconch tip broken off) and 0.35 mm in diameter, w/l 0.38. Teleoconch with regularly strongly convex whorls, suture incised, with medium long, open and somewhat twisted siphonal canal. Aperture broad, oval, with nearly smooth columella with very weak ridges in the lower part, corresponding to spiral cords not completely overlaid by callus. Inner lip with spiral ridges. Spiral sculpture of about 15 (excluding siphonal canal) unevenly spaced distinct flattened cords of varying strength; 9 to 11 axial ribs strong, weakly opisthocline, closely spaced, and running from suture to suture, not aligned along the spire. Background colour creamy, with two darker brown spiral bands and more dark shell base, spiral cords tinged brown.

Size: 26-29 mm

Range: South Africa

Remarks: *T. aikeni* which is an endemic and *T. kuroseanus*, an Indo-Pacific species, occur together in southern KwaZulu-Natal. *T. aikeni* has a larger number of axial ribs and strong spiral cords compared to *T. kuroseanus*. The spiral sculpture in *T. kuroseanus* is conspicuously white in colour whereas in *T. aikeni* it is tinged with brown.

Takashius ellenae (Kantor, Fedosov, M. A. Snyder & Bouchet, 2018)

Description: Shell thin, slender, narrowly fusiform, consisting in holotype of 3.75 protoconch and 7 teleoconch whorls. Protoconch conical, with weakly convex whorls, last 1/2 whorl with 6 axial riblets, protoconch/teleoconch discontinuity distinct. Protoconch diameter 1070 µm, exposed height 1110 µm. Teleoconch whorls convex, suture deep, adpressed. Axial sculpture of broad, prominent ribs, aligned axially on spire from one whorl to the next, 6 ribs per whorl. Spiral sculpture of evenly spaced, strong, raised cords, in holotype 2 on first whorl, 3 on subsequent whorls, abapicalmost stronger, 5 on antepenultimate and penultimate whorls, 22 on last whorl. No second order

axial or spiral sculpture. Siphonal canal open, long, slightly recurved. Aperture with 11 weak lirae inside, base of siphonal canal not clearly demarcated. Inner lip completely adherent to columella, forming smooth, white, shiny columellar shield, with 3 weak columellar plicae. No umbilicus. Colour of protoconch and interior of aperture white or flesh-coloured. Teleoconch with alternating white spiral cords and orange brown interspaces, and three white bands, one subsutural, one just below periphery of last whorl and one at tip of siphonal canal.

Size: to 29.6 mm; length 22.7 mm, width 7.8 mm, last whorl length 15.4 mm, aperture length (without canal) 5.7 mm

Range: Coral Sea, New Caledonia to Tonga

Remarks: *T. ellenae* showing little variation in shell shape and colouration.

It resembles *T. kuroseanus*, but is easily separated by its sculpture of even spiral cords and distinct colour pattern of alternating white cords and dark interspaces. *T. kuroseanus* reaches a much larger adult size, and is also broader at comparable size.

T. ellenae also superficially resembles *Granulifusus tatianae*, which differs by its short siphonal canal, strong apertural barriers, and the presence of second order spiral and axial sculpture.

Granulifusus guidoi is similar to *T. ellenae*, which has white cords with dark interspaces on the teleoconch whereas *G. guidoi* has dark, caramel-colored cords with light tan interspaces.

Takashius kuroseanus (Okutani, 1975)

Synonyms: *Pseudolatirus leucostriatus* Kosuge, 1979

Description: Shell elongate fusiform in shape, solid. Protoconch pellucid white, about 1.5 in turns. Teleoconch 8, gradually increases diameter abapically. Suture impressed. Whorls moderately inflated, with strong, thick, pronounced, brownish axial ribs, 6-7 in nurnber, which are overridden by strong, 7-8 raised spiral cords. Spiral cords stronger on the axial ribs and whitish in color and relieved by brownish background, but become thinner on interspaces. Many interstitial, weaker spiral cords being not whitish but not distinct from the background. Aperture imperfect in holotype, continues to a weakly twisted, moderately long, open canal. The innerwall of the outerlip present several spiral cords. Columellar lip weakly enameled.

Redescription: Shell fusiform, protoconch acutely conical, multispiral, of 3 smooth, weakly convex whorls, with several slightly arcuate axial riblets on last 1/2 whorl. Protoconch diameter 870 µm, exposed height 1000 µm. Teleoconch with regularly convex whorls, without imbricated subsutural spiral ridge, with long siphonal canal; aperture with weak columellar plication, and indistinct parietal tooth; spiral sculpture of unevenly arranged cords of uneven strength; axial ribs aligned along the spire. Background colour from creamy light to yellowish brown, axial ribs brown, primary spiral cords white.

Size: up to 28 mm; height 20.8 mm, diameter 11.8 mm

Range: SW Pacific Ocean, Indian Ocean to KwaZulu-Natal

Remarks: *T. kuroseanus* resembles *Fusolatirus kandai* particularly in having thick axial ribs that are ridden by raised spiral cords. But, it is easily and distinctly discriminated from *F. kandai* in having slenderer shell, paler color, slenderer canal and smaller size.

This distinct, medium-sized species is similar to *Granulifusus tatianae*; for differences, see the description of the latter.

It also resembles *T. ellenae*, but can be easily differentiated from the latter species by the colour pattern.

T. aikeni has a larger number of axial ribs and strong spiral cords compared to *T. kuroseanus*. The spiral sculpture in *T. kuroseanus* is conspicuously white in colour whereas in *T. aikeni* it is tinged with brown.

Pseudolatirus leucostriatus Kosuge, 1979

Synonyms: according to WoRMS synonym to *Takashius kuroseanus* (Okutani, 1975)

Description: not available

Size: 17 mm

Range: Midway Island

Trophonofusus Kuroda & Habe, 1971

Type species: *Trophonofusus muricatoides* (Yokoyama, 1920)

Description: (from Japanese: Shell small, long spindle-shaped, dark purple-brown to pale yellowish-brown, 8 tall whorls, protoconch smooth, horn-colored, with 4-5 thin spiral cords and 10-13 longitudinal ribs.)

Shell rather small , elongated fusiform, with highly elevated spire of about 8 whorls. Protoconch globose and smooth.

Size: small

Range: Japan

Trophonofusus muricatoides (Yokoyama, 1920)

Description: Shell small, fusiform, moderately thick; whorls very convex separated by very deep sutures, longitudinally ribbed and spirally striated; ribs rounded, strong on the upper whorls, but almost obsolete on the body-whorl, separated by intervals of less breadth, about 13 in number on the penultimate whorl; spiral striae or threads equal, distant, 5 on all the whorls except the body-whorl which has in addition more than 7 on the base, which are, however, somewhat finer: between these threads there are invariably one or a few very fine interstitial lines. Aperture inverted flask-shaped, with a short, somewhat bent canal. Inner lip smooth. Outer lip thickened, smooth within. Apex lacking, the whorls preserved are 5, but their original number seems to have been at least 3 more.

Size: length about 13 mm, width 5 mm

Range: Japan

Remarks: orig. described as fossil.

This species has a great resemblance to *Trophon muricatus* of the North Atlantic, but is chiefly distinguished from it by the ribs becoming obsolete on the body-whorl and the inner lip being smooth within.

Vermeijius Kantor, Fedosov, Snyder & Bouchet, 2018

Type species: *Vermeijius pallidus* (Kuroda & Habe, 1961)

Description: Shell medium-sized, fusiform, strong but light, usually offwhite, with evenly convex to inflated teleoconch whorls, constricted shell base and long, straight or weakly sinuous canal. Protoconch paucispiral or multispiral (1.5–3.25 whorls). Axial sculpture of distinct narrow ribs, nearly coaxial, separated by broader (1–2 times) interspaces. Spiral sculpture of distinct cords, unequal in size, covering entire shell surface, major cords nodulose at intersection with axial ribs. Aperture broad, oval, relatively small, with smooth or weakly plaited columella (plaits correspond to spiral cords covered by columellar callus). Parietal knob present in some specimens. Operculum spans entire aperture, with terminal nucleus.

Size: adult size from 27 mm (*V. wallacei*) to 60 mm (*V. pallidus*)

Range: not given

Remarks: *Vermeijius* differs from *Granulifusus* and *Okutanius* in its uniformly coloured light shell with smooth or nearly smooth columella, more abruptly constricted shell base, producing a relatively narrow canal.

Vermeijius guidonis (Delsaerdt, 1995)

Description: A medium sized, lightweight shell, translucent and pure white; fusiform in outline; strongly convex whorls, sculptured with widely spaced, strong axial folds which are crossed by major and minor spiral threads; very undulate suture because of the strong axial folds. Aperture roundly ovate, internally lirate, columella smooth. Straight siphonal canal, about the same length as the outer lip and with many spiral threads.

Size: 30-55 mm; length 49.9 mm, width 20.5 mm

Range: Somalia

Remarks: *V. pallidus* has a curved siphonal canal and the whorls are not so swollen as in *V. guidonis*. *V. pallidus* is described with “weak folds on the columella margin”, the spire as consisting of “about 10 whorls” and “the longitudinal ribs are 9 in number”. The types of *V. guidonis*, missing the nuclear whorls, consist of about 9 whorls of which the last whorl with 12 axial folds. Also no trace of weak folds on the columellar margin.

V. guidonis differs from *V. virginiae* by the slightly smaller size, the smaller number of whorls, the broader spire angle, the conspicuously lightweight and translucent shell, the widely spaced and stronger primary spiral cords and the finer intercalated spiral threads.

V. guidonis can easely be distinguished from *Fusinus pauciliratus complex* (= *F. simplex)*: The general form of the latter is much more elongate because of the longer siphonal canal and the less swollen whorls. *F. pauciliratus complex* has the axial folds heavier and crossed by much stronger spiral threads; the aperture more ovate than in . Compared with *F. pauciliratus complex* the shell of *F. guidonis* is a real lightweight.

Vermeijius insperatus Hadorn & Fraussen, 2024

Description: Shell uniformly white or cream coloured, of medium size for genus, strong, solid, with proportionally long, slender spire compared to a short body whorl. About 10 convex teleoconch whorls. Suture wavy, slightly incised. Protoconch not preserved in any available specimens. Upper teleoconch whorls with 7 or 8 axial ribs extending from just below adapical suture to abapical suture, adapically weak and narrower, abapically broader and stronger. Interspaces deeply impressed, about as wide as the axial ribs. Body whorl, sometimes also on penultimate whorl, with 8 or 9 prominent axial ribs of uniform size with regularly spaced interspaces, gradually withdrawing from adapical suture. All axial ribs ornamented with primary spiral cords. 4 primary spiral cords on early teleoconch, the 2 central cords clearly stronger already at beginning. Uppermost cord weak and inconspicous, lowermost often partly covered by abapical suture. All primary spiral cords of about same strength on later whorls, well-visible when crossing axial ribs, but weak and inconspicuous in interspaces. From third or fourth teleoconch whorl on fine spiral threads appear, which multiply by intercalation. Numerous intercalated fine spiral threads of different strength between the primary cords on later whorls. This fine intercalated spiral ornamentation is well-visible in some specimens (e.g. holotype), but inconspicous in some specimens and reduced to the presence of primary cords upon superficial inspection. Fine, close-set, inconspicous axial growth lines visible between the spiral cords.

Aperture small, ovate, white and completely smooth inside. Outer lip simple, smooth, glossy, not crenulated. Parietal callus smooth, usually without columellar fold(s), one specimen (paratype 1) with an inconspicuous fold, not corresponding to underlying spiral sculpture. Adapically with a rather strong, flat, calloused tooth. Siphonal canal open, short, about as long as the aperture, slightly bent, tapering towards the tip. Outer side ornamented with major spiral cords and intercalated minor threads, becoming weaker towards distal end.

Size: up to 50 mm

Range: Mozambique Channel, W Madagascar

Remarks: The conchologically closest relative of *V. insperatus* is V. retiarius from East Africa. *V. insperatus* can be ditinguished from *V. retiarius* by the proportionally longer, slenderer spire (ratio SL/SW 2.66 instead of 2.44), smaller number of axial ribs on body whorl (8 or 9 instead of 12 to 14), broader interspaces between axial ribs, more prominent, well-visible primary spiral cords on axial ribs on all whorls, the more constricted suture, the smaller, more convex and less inflated body whorl, resulting in a clearly smaller aperture, and by the somewhat shorter, narrower and more tapered siphonal canal (*V. insperatus*: ratio aperture+siphonal 53.4% / spire length 46.6% versus *V. retiarius*: 47.1% / 52.9%).

Other *Vermeijius* species are *V. pallidus*, ranging from Japan to New Caledonia, and *V. virginiae*, also from Mozambique Channel, southern Madagascar. Both are easily distinguishable from *V. insperatus* by the more convex teleoconch whorls, more numerous and narrower axial ribs reaching from suture to suture, much stronger spiral sculpture, clearly longer and narrower siphonal canal, and the internal lirae inside the aperture.

Vermeijius pallidus (Kuroda & Habe, 1961)

Description: [*V. pallidus* is very like *Fusinus pauciliratus complex (= Granulifusus simplex)* in shape and sculpture, but is discriminated from the latter in having the strong longitudinal plications and elevated spiral ridges forming a coarsely latticed sculpture. The aperture is roundly ovate, slightly constricting at the base of the narrow and curved

canal and the columellar margin bears weak folds. This spindle shell is white covered with a light yellowish periostracum and the spire is highly elevated and attenuated and consists of about 10 whorls. The longitudinal ribs are 9 in number and the striations are 5-6 on the penultimate whorl.]

Redescription: Shell solid, fusiform, with strongly constricted base with long, nearly straight, siphonal canal, slightly inclined to left. Protoconch obtusely conical of 3.25 whorls, with evenly convex, brown, smooth whorls, last half whorl with seven distinct, arcuate, axial ribs, protoconch/teleoconch discontinuity distinct, marked by appearance of spiral sculpture of teleoconch. Protoconch diameter 1160 µm, exposed height 1100 µm. Teleoconch with strongly convex whorls. Aperture wide, oval, with weak columellar plicae, corresponding to primary spiral cords overlaid by callus, from nearly absent to 4-5 on lower half of columella. Spiral culpture of unevenly arranged cords, alternating in strength, strongly nodulous at intersection with axial ribs. Axial ribs broadly spaced, narrow, not aligned along spire, 10-12 on last whorl. Growth lines usually thickened, forming reticulated structure at intersection with spiral cords. Background colour pale flesh to nearly white. Operculum elongate, leaf-shaped, nearly spanning the entire aperture. Nucleus terminal, often abraded.

Size: up to 60 mm; length 56.8 mm, width 18.7 mm

Range: Japan to New Caledonia

Remarks: *V. pallidus* is very like *Fusinus pauciliratus complex (= Granulifusus simplex)* in shape and sculpture, but is discriminated from the latter in having the strong longitudinal plications and elevated spiral ridges forming a coarsely latticed sculpture.

V. pallidus is somewhat similar to *V. virginiae*; for differences, see the description of the latter.

V. pallidus has a curved siphonal canal and the whorls are not so swollen as in *V. guidonis*. *V. pallidus* is described with “weak folds on the columella margin”, the spire as consisting of “about 10 whorls” and “the longitudinal ribs are 9 in number”. The types of *V. guidonis*, missing the nuclear whorls, consist of about 9 whorls of which the last whorl with 12 axial folds. Also no trace of weak folds on the columellar margin.

V. retiarius differs from *V. pallidus* by a more stout shell with paucispiral protoconch.

Granulifusus kurodai is allied to *V. pallidus*, but differs from it in having more elongated shell, weaker sculpture and thinner but distinctly colored spiral cords.

For comparison with *V. insperatus* and *Granulifusus jeanpierrevezzaroi* see there.

compare to *Granulifusus consimilis*

Vermeijius palmarium Hadorn & Fraussen, 2006

Description: Shell rather small for the genus, fusiform, with elongate, pointed spire and long, almost straight siphonal canal, uniform white. Spire consisting of 8 1/2-9 1/2 convex whorls including protoconch. Upper whorls convex, latter whorls carinated below middle of whorl, subsutural slope broad, straight. Suture distinct, constricted. Fine axial growth lines well-visible on all teleoconch whorls. Protoconch white, bulbous, glossy, consisting of 1 1/4-1 1/2 convex whorls. Final part (1/4 whorl) ornamented with 3 strong, widely spaced axial riblets reaching from suture to suture, transition to teleoconch abrupt, marked by a fine varix. Diameter 0.7-0.8 mm.

Axial sculpture consisting of strong, broad axial ribs, running from suture to suture on upper whorls, becoming more prominent at periphery, slightly withdrawing from upper suture on penultimate or body whorl. Interspaces relatively deep, as broad as ribs, occasionally slightly broader. 6-8 axial ribs on upper postnuclear whorls, 7-9 on penultimate and 7-10 on body whorl. Teleoconch beginning with 4 or 5 primary spiral cords, 5 on the latter whorls. From second or third teleoconch whorl on, one fine intercalated secondary spiral cord appearing between primary cords. Tertiary cords appearing from fourth whorl on at both sides of the slightly stronger secondary cords, their number increasing up to 2 on body whorl. Cords strong and sharp when crossing axial ribs, 3 abapical ones more prominent, peripheral one strongest.

Aperture roundly-ovate, white, rather small, pointed above, suddenly constricted below. Outer lip thick, strongly convex, edge slightly crenulated, with up to 15 fine indistinct internal lirae. Inner lip slightly calloused, smooth, attached to parietal wall. Siphonal canal straight, long, narrow, tapering anteriorly. Operculum typical of genus, light brown, filling the aperture.

Size: 37.0-41.1 mm

Range: E Australia

Remarks: None of the known Australian *Fusinus* is similar to *V. palmarium. Fusinus annae, Propefusus australis, Fusinus colus, Marmorofusus nicobaricus, Propefusus novaehollandiae, Fusinus salisburyi*, and *Cyrtulus undatus* are distinguished by a much larger adult size and a different shape.

Marmorofusus wellsi and *Marmorofusus vercoi* from Western Australia differ by having a larger adult size and by the wider spire angle.

Chryseofusus westralis differs by the larger shell, the wider spire angle and the smooth surface.

The 2 remaining small Australian species *Fusinus consetti* and *Marmorofusus philippii* (= *F. tessellatus*) differ by their wider spire angle, the vivid colouration and by the broader and shorter siphonal canal.

Vermeijius retiarius (E. von Martens, 1901)

Description: *Testa fusiformi-oblonga, imperforata, plicis verticalibus latiusculis interstitia non aequantibus (12 in anfr. ultimo, 11 in penultimo) et liris spiralibus acutiusculis 4 in anfr. penult. conspicuis, 6 anfr. ultimo, laxe cancellata, lineolis spiralibus elevatis ternis vel quaternis inter liras interpositis, griseo-albida, unicolor; anfr. 7, convexi, regulariter crescentes, sutura modice profunda, paululum undulata, ultimus sensim in canalem attenuatus; apertura ovata, margine externe modice arcuato, crasso, integro, pariete aperturali et margine columellari laevibus, flavescenti-albidis, canali breviusculo recto aperto.*

(Shell fusiform-oblong, imperforate, with wide vertical folds, intervals not equal (12 in the last whorl, 11 in the penultimate whorl) and 4 sharp spiral lirae in the penultimate whorl, 6 in the last whorl, loosely cancellated, 3 or 4 raised spiral lines interposed between lirae, grey-white, unicoloured; 7 whorls, convex, growing regularly, suture moderately deep, a little wavy, the last one gradually tapering into a canal; aperture ovate, outer margin moderately arched, thick, intact, apertural wall and columellar margin smooth, yellowish-white, with a short, straight, open canal.)

Redescription: Shell small for genus (large for genus Vermeijius), fusiform, uniformly white, thick and solid, spire high, siphonal canal relatively short. About 10 convex whorls. Suture incised, slightly wavy according to axial sculpture. Protoconch white, glossy, bulbous, smooth, consisting of 1.0-1.25 convex whorls. Transition to teleoconch slightly eroded in all available specimens but some fine axial riblets still visible. Diameter 0.8 mm.

7 or 8 prominent axial ribs on upper whorls, 8-10 on penultimate and 9-13 on body whorl. Ribs broad, reaching from suture to suture on all teleoconch whorls, separated by wide interspaces, which are as broad as ribs. Axial ribs sometimes becoming slightly weaker and narrower on penultimate and/or body whorl, but again strong and more prominent towards aperture. Prelabral rib being the strongest in adult specimens.

Teleoconch beginning with 3 strong rounded spiral cords and a slightly weaker one just above suture. An intercalated fine thread appears between primary cords and below suture on second or third postnuclear whorl. From fourth whorl on, additional fine intercalated threads of unequal strength appear between the existing cords. Their number increases by intercalation to 6-11 on body whorl. Axial growth lines well-visible on all whorls.

Aperture ovate, white, pinched at both ends. Outer lip simple and smooth, internal side smooth or sculptured with some weak glossy teeth near transition to siphonal canal. Inner lip smooth, glossy, appressed to parietal wall, attached. Adult specimens sometimes with a fine inconspicuous riblet on columellar callus, not corresponding to underlying spiral sculpture, but not present on columella inside upper whorls of shell. A simple small white tooth on upper end of parietal callus. Columellar folds absent. Siphonal canal rather short, as long as aperture, strongly curved, rather broad, open. Outer side sculptured with close-set spiral cords and intercalated threads of unequal strength.

Operculum typical of genus, corneous, red-brown, shape and size corresponding to aperture, rounded above and pointed below, with terminal nucleus. Periostracum thin, yellowish, producing fine short hairs when growth lines cross spiral sculpture.

Redescription: Shell large for genus, up to 57 mm in length, strong, broadly fusiform, gradually constricting to medium long, sinuous, coaxial siphonal canal. Protoconch dome-shaped, paucispiral, of 1.5 convex smooth whorls, greyish, semitransparent, with 3 weak arcuate axial ribs at transition to teleoconch. Protoconch/teleoconch discontinuity distinct, marked by appearance of teleoconch spiral sculpture. Protoconch diameter 1000 µm, exposed height 700 µm. Teleoconch with strongly convex whorls. Aperture broad, oval, columella smooth. Spiral sculpture of moderately strong cords, beaded at intersection with axial ribs and much thinner, although distinct, secondary cords, covering interspaces between primary cords; 4-5 primary spiral cords on spire whorls, including

penultimate. Axial ribs not aligned along spire, 11-12 per whorl. Background colour pale flesh to nearly white. Operculum elongate, leaf-shaped, spanning nearly entire aperture. Nucleus terminal.

Size: up to 56.7 mm; length 40 mm, width 15.5 mm, aperture length incl. canal 21.5 mm, excl. 12.5 mm, aperture width 7 mm

Range: E Africa, Somalia to S Madagascar

Remarks: *V. retiarius* is bimorphic for unknown reason. No intermediates were found. The first form has a broader spire angle and a gradually increasing whorl diameter, the second form has a slender spire and a conspicuously ventricose body whorl.

V. retiarius can be characterized and distinguished from other rather small *Fusinus* by the uniformly white coloured, solid and thick shell, the strong axial ribs covering all whorls and the stronger prelabral axial rib, the 3 prominent primary spiral cords on upper whorls and the numerous (up to 11) intercalated fine threads of different strength, by the short and strongly curved siphonal canal, and by the usually relatively strong tooth/teeth inside aperture at lower end of outer lip.

Fusinus articulatus is similar in shape and sculpture, but can be distinguished by the larger adult size (78 mm), the concave shoulder slope, the longer, more slender siphonal canal, and the tiny orange-tan markings on the spiral cords.

V. retiarius differs from *V. pallidus* and *V. virginiae* by a more stout shell with paucispiral protoconch.

V. retiarius also has a similar appearance (sculpture, the rough, often eroded surface) as *Fusinus inglorius*, but differs by the larger adult size, the broader, heavier and thicker shell, the more pronounced and broader axial ribs which are lower in number on all whorls.

V. retiarius looks similar to *Amiantofusus cartilago* but differs by the broader spire, the stronger spiral sculpture, and the protoconch without axial riblets.

For comparison with *V. insperatus* see there.

Vermeijius virginiae (Hadorn & Fraussen, 2002)

Description: Shell elongate fusiform, of medium size, uniformly white, consisting of 11 or 12 strongly convex whorls. Suture constricted, wavy according to axial sculpture. Protoconch consisting of about 1.75 whorls, whitish, first whorl small, second whorl broader. Upper part smooth and glossy, final part (about 0.25 whorls) sculptured with about 4 or 5 fine curved axial riblets. Diameter: 0.7-0.8 mm.

8 or 9 strong but narrow axial ribs on uppermost postnuclear whorls, 7 or 8 on following, 8 or 9 on penultimate and 10 or 11 on body whorl. Axial sculpture extending from suture to suture on all whorls. Interspaces deep and broad: on upper teleoconch whorls as broad as the ribs or slightly narrower, on latter whorls nearly twice as broad. Teleoconch beginning with 3 or 4 strong spiral cords, uppermost one weakest. Peripheral cord the strongest on all whorls. From second whorl on, a somewhat weaker secondary thread appears between each pair of primary cords. From fourth whorl on, a very fine tertiary thread appears at both sides of the secondary threads. The number of tertiary threads increases by intercalation to 3-5 of unequal strength. Spirals stronger when crossing axial ribs. Fine growth lines produce tiny granules when crossing spiral sculpture. Siphonal canal ornamented with fine regularly spaced spirals and intercalated fine threads.

Aperture white, nearly round, rather small, pinched at both ends. Edge of outer lip strongly convex, with fine crenulation corresponding to external shell sculpture. Internal side smooth or with some weak, close-set internal lirae, which form a row of fine teeth somewhat behind the edge of the outer lip. 2 lowermost teeth often conspicuously strong. Parietal callus smooth, curved, appressed to parietal wall, attached. A small, simple tooth on upper end of aperture. Columella smooth, or with 1 or 2 weak, inconspicuous ridges, or with 1 or 2 rows of fine teeth, more or less corresponding to underlying spiral sculpture of preceding whorl. Siphonal canal almost straight, strong, tapering anteriorly. Operculum corneous, reddish brown, shape and size corresponding to aperture. Upper side rounded, pointed below, with terminal nucleus. Periostracum greenish brown, velvety, rather thick.

Redescription: Shell large for genus, strong, fusiform, with strongly constricted base with long, nearly straight, siphonal canal, slightly inclined to left. Protoconch conical of 2.25 moderately convex, smooth, greyish and semitransparent whorls, with elevated first whorl, and 2–5 indistinct axial ribs at transition to teleoconch. Protoconch/teleoconch discontinuity distinct, marked by appearance of teleoconch spiral sculpture. Protoconch

diameter 960 µm, exposed height 800 µm. Teleoconch with regularly strongly convex whorls. Aperture broad, oval, columella smooth, or with 1 or 2 weak, inconspicuous plicae, corresponding to underlying spiral sculpture of preceding whorl. Spiral sculpture of unevenly spaced cords, alternating in strength, slightly nodulous at intersection with axial ribs. Growth lines usually thickened, forming reticulated structure at intersection with spiral cords. Axial ribs not aligned along spire, 9–11 on last whorl. Background colour pale flesh to nearly white. Operculum elongate, leaf-shaped, spanning nearly the entire aperture. Nucleus terminal.

Size: 49.0-60.0 mm; up to 56 mm

Range: Mozambique Channel, S Madagascar

Remarks: *V. pallidus* resembles *V. virginiae*, but differs by the usually larger adult size, the broader spire, the more ventricose whorls, the stronger spiral sculpture, and the differences in protoconch morphology (2.5-2.75 whorls, final part (0.5 whorls) with 7 or 8 riblets, red-brown to dark brown, diameter 0.9-1.0 mm). *V. virginiae* differs from *V. pallidus* in having fewer protoconch whorls, thinner spiral cords, forming less defined beads at intersection with axial ribs.

V. guidonis differs by the slightly smaller size, the smaller number of whorls, the broader spire angle, the conspicuously lightweight and translucent shell, the widely spaced and stronger primary spiral cords and the finer intercalated spiral threads.

V. retiarius differs from *V. virginiae* by a more stout shell with paucispiral protoconch.

For comparison with *V. insperatus* see there.

Vermeijius wallacei Hadorn & Fraussen, 2006

Description: Shell small, fusiform, spire angle broad (37°-43°), consisting of 7 or 8 uniformly whitish, strongly convex, carinated whorls. Axial sculpture strong, well developed. Spiral cords wellvisible, usually forming a distinct double keel at periphery. Shoulder slope slightly convex, suture deeply incised, wavy according to the axial sculpture. Growth lines well-visible on all whorls.

Protoconch relatively large, paucispiral, consisting of one bulbous whorl, always sloping towards coiling axis, whitish, smooth, transition to teleoconch sculptured with 1 or 2 strong axial riblets reaching from suture to suture, ending in a varix. Diameter: 1.0 mm.

7-9 axial ribs on upper whorls, 8-10 on penultimate and body whorl. Ribs narrow and prominent, crossing from suture to suture on all whorls, becoming sharp and pointed at periphery of lower whorls. Interspaces deeply impressed, wide, broader than ribs. Teleoconch begins with 4 spiral cords; two middle ones stronger, usually forming a distinct, single or double keel, at periphery. From second or third postnuclear whorl onwards, a fine intercalated secondary cord appears between primary cords. A fine tertiary cord arises on both sides of the secondary cords on penultimate and/or body whorl. Spiral cords strongly developed, forming sharp pointed knobs at periphery, when crossing axial ribs.

Aperture round, white. Outer lip simple, finely crenulated, sculptured with some internal lirae, mainly on lower half of aperture. Parietal callus thin, smooth, appressed to parietal wall. Siphonal canal rather long, nearly straight, bending to the left and slightly backwards, tapered anteriorly. Outer side sculptured with rather weak spiral cords and intercalated fine threads.

Periostracum thin, olive coloured. Operculum typical of genus, corneous, light brown, shape and size corresponding to aperture.

Size: 22-28 mm

Range: Indonesia

Remarks: *V. wallacei* most closely resembles the strongly carinated deep-water form of *Pseudofusus rostratus (= F. sanctaeluciae)*, a species restricted to the Mediterranean and Lusitanian province and differs in having a larger size, an often reddish-brown colour, an often stronger peripheral keel (occasionally forming strong spines), a thicker parietal callus, and a longer siphonal canal.

Angulofusus nedae somewhat resembles *V. wallacei* in having angulated whorls and in general shell sculpture; however *A. nedae* has a distinctive anal sinus, wider interspaced axial ribs and a shorter siphonal canal.

Viridifusus Snyder, Vermeij & Lyons, 2012

Type species: *Viridifusus buxeus* (Reeve, 1847)

Description: Shell small to medium-sized for *Fusininae*, broadly fusiform, with relatively short siphonal process; teleoconch with rounded whorls, sculptured with narrow rounded axial ribs crossed by numerous rugose cords which do not form nodules on axial ribs; outer lip almost planar, its edge with closely set pairs of crenulations, its adaxial side with distinct lirae that are coarsely beaded; inner lip smooth, erect for most of its length; parietal ridge and columellar folds absent.

Redescription: The genus *Viridifusus* is characterised by a broadly fusiform shell, a relatively widely open siphonal canal (with a gap of 3 mm) with flaring tip, a very weakly erect inner lip on the main part of the last whorl but strongly erect along the siphonal canal, a slight channel and parietal ridge at the adapical end of the aperture, beaded lirae on the inner side of the outer lip (the beads are very weakly expressed in *V. albinus* and absent in *V. mollis*), a shallow suture, and a sculpture consisting of fine spiral threads and very low, numerous (11 to 22 on the last whorl) rounded ribs that extend on the last whorl to the basal constriction. The whorls are rounded and without angulations or nodes.

Size: largest species to 112 mm

Range: West Africa

Remarks: The absence of columellar folds demonstrates *Viridifusus* to belong to the *Fusininae*.

The beaded lirae set *Viridifusus* apart from all other *Fusininae* genera.

Viridifusus albinus (A. Adams, 1856)

Synonyms: *Austrofusus appresus* E. von Martens, 1901, *Fusinus loebbeckei* (Kobelt, 1880), *Fusus lacteus* Dunker, 1882

Description: *F. testa ovato-fusiformi, subventricosa, candida, spira mediocri; anfractibus octo, convexis, longitudinaliter costato-plicatis, plicis, ad suturas, obsoletis, liris transversis crebris cinctis; apertura elongato-ovali, labio laevi; labro intus sulcato, canali mediocri recto, aperto.*

(Shell ovate-fusiform, subventricose, white, spire medium-sized; with 8 convex whorls; longitudinal, rounded, rib-like plicae, obsolete at the sutures, surrounded by frequent transverse lirae; aperture elongate-oval, lip smooth; inner lip furrowed; canal medium-sized, straight, open.)

Redescription: Shell heavy with 8 teleoconch whorls, distinctly convex, quickly increasing in diameter. Protoconch with 2 1/2 embryonal whorls, the 1 1/2 smooth and remaining part axially striated. Last whorl very convex with regular, rounded axial ribs (18-20 on the last whorl), starting from a groove under the suture. These ribs are obsolete at their upper end but are most developed at the periphery.

Spiral cords are very fine (10-15 on the penultimate whorl), each primary cord separated by one thinner secondary thread. Aperture rather large, oval, nearly circular. Siphonal canal strong, but relatively short compared to similar species.

Colour white, greyish white or brown-yellow and especially the axial ribs are dark brown in some specimens. Operculum elongate, oval with a longitudinal fold and a terminal nucleus.

Size: 70-120 mm

Range: West Africa, from southern Angola to southern Namibia

Remarks: *V. albinus* has a rather similar sculpture to the non-angulate form of *Fusinus cratis*, but has a much shorter rostrum and lower spire (e.g. it is less fusiform), and is uniform white in colour.

V. albinus can be separated from *Cyrtulus kilburni* by the larger adult size, by the stouter and broader shell, by the lower spire, by the clearly broader spire angle, by the large inflated body whorl, by the broader axial ribs, by the clearly larger aperture and the much finer and more numerous internal lirae, by the shorter and stouter siphonal canal, by the sometimes pale brown coloured shell, and by not having a strong broad prelabrial axial rib.

For comparison with *V. mollis* see there.

Viridifusus buxeus (Reeve, 1847)

Synonyms: *Fasciolaria bistriata* Gould & P. P. Carpenter, 1857, *Fasciolaria fischeriana* Petit de la Saussaye, 1856

Description: *Fus. testa subobeso-fusiformi, crassa, subponderosa, spirae suturis rudis, anfractibus rotundatis, spiraliter sulcatis et inciso-striatis, longitudinaliter subplicatis; spadiceo-fuscescente, intus alba.*

Shell somewhat stoutly fusiform, thick, rather ponderous, sutures of the spire rude, whorls rounded, spirally grooved and deeply striated, longitudinally faintly plicated; light fawn-brown, interior white.

Size: 30-110 mm

Range: West Africa, Cape Verde

Remarks: A shell of peculiarly solid growth, of which the sculpture, refined with neatness in the first few whorls, becomes gradually more and more obsolete towards the aperture.

Leucozonia granulilabris is similar to *V. buxeus*. Besides reaching a larger size, *V. buxeus* lacks shoulder nodes, which are present in some specimens of *L. granulilabris*.

Viridifusus maximus (G. B. Sowerby III, 1893)

Description: *Testa fusiformi-turbinata, solida, ponderosa, laevigata, fusca, vel albida, fusco irregulariter strigata et vittata; Spira breviter turrita, obtusa, sutura irregulariter impressa; anfractus obtuse angulati, costis obtusis latis muniti; anfractus ultimus spiram superans, sub-quadratus, irregulariter vel sub-obsolete costatus, infra medium constrictus, basin versus spiraliter sulcatus, breviter caudatus; apertura subovata, fauce alba, tenuissime lirata; columella albo-callosa, leviter granulata, plicis inconspicuis.*

(Shell spindle-shaped, solid, heavy, smooth, brown or whitish, irregularly streaked and laced with brown; spire shortly towered, obtuse, suture irregularly impressed; whorls obtusely angled, protected by wide obtuse ribs; the last whorl surmounting the spire, sub-square, irregularly or sub-obsoletely ribbed, constricted below the middle, spirally furrowed towards the base, shortly caudate; aperture subovate, aperture white, very thinly striated; columella white-callous, slightly granulated, inconspicuous folds.)

Size: 50-90 mm; length 90 mm, width 50 mm

Range: Cape Verde

Remarks: This is a remarkably stout, ponderous shell, somewhat approaching the genus *Turbinella*.

In *Latirus gibbulus*, which seems to be the nearest ally to *V. maximus*, the plaits are only visible in the younger specimens.

Viridifusus mollis (G. B. Sowerby III, 1913)

Description: *Testa fusiformis, solidiuscula, pallide straminea; spira acute pyramidata; anfractus 8, leviter convexi, spiraliter subobsolete striati, costis latis longitudinalibus circiter 8 instructi; anfractus ultimus spiram superans fere laevis, antice rostratus; rostrum leviter recurvum, mediocriter longum; apertura ovata, intus lirata; columella alba, laevis, arcuata.*

(Shell fusiform, solid, pale straw-like; spire sharply pyramidal; 8 whorls, slightly convex, spirally subobsoletely striated, with about 8 broad longitudinal ribs; the last whorl, surmounting the spire, is almost to the left, and is pointed in front; siphonal canal slightly curved, moderately long; aperture ovate, striated within; columella white, smooth, arched.)

Redescription: Shell solid, outstanding heavy with 7 slightly convex whorls. Waxy appearance overall. Rather elongate with a remarkable large and swollen body whorl. Protoconch with 2 1/2 embryonal whorls, the 1 1/2 smooth and remaining part axially striated.

Axial cords (18-19) very distinct, but irregular, running from suture to suture in the last whorl. They become rather broad and irregular without becoming completely obsolete, but weakly pointed at periphery. Interstices between axial ribs narrow. Spiral structure weak and rather inconspicuous. Aperture oval and white. Siphonal canal strong and remarkably short.

Colour mostly yellow-brown, but white specimens can occasionally also occur. The velvety periostracum is olive coloured and provided with microscopic small hairs.

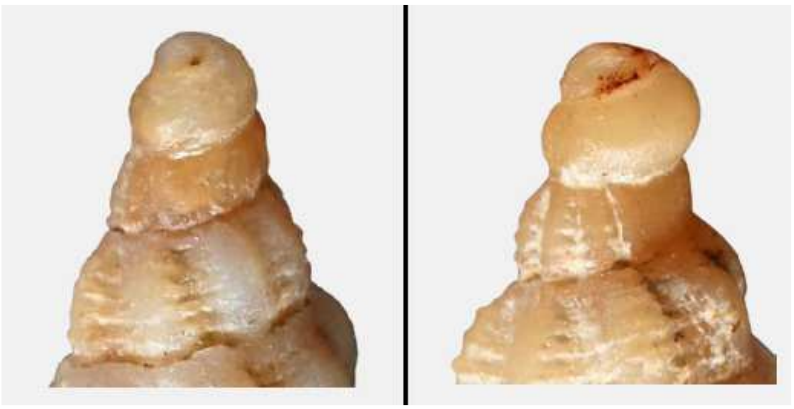
Size: length 40 mm, width 15 mm

Range: orig. not given; W Africa

Remarks: Although this shell is finely spirally striated, especially on the upper whorls, in general aspect it has a peculiarly smooth waxy appearance.

The following differences are proposed to distinguish *V. mollis* from *V. albinus*: *V. mollis*
- has a very heavy shell which weighs half as much as specimens of *V. albinus* of the same size, which have a slender outline;
- has a shorter siphonal canal;
- has on the other hand a remarkable prominent body whorl: the average ratio of last whorl / total length is 0.74 compared to 0.70 in *V. albinus*;
- has axial ribs that are broad and irregular, from suture to suture, sharply pointed at the periphery and different from those in *V. albinus*, whose cords start from a cavity under the suture;
- possesses spiral cords, which are weak and nearly visible in the last 2 whorls;
- has a more oval aperture than *V. albinus*;
- is definitively not so small as generally assumed and adult specimens can grow even larger than *V. albinus* specimens.

Comparative table with differences between *V. albinus* and *V. mollis*:

	Viridifusus albinus	***Viridifusus mollis***
Locality	southern Angola, Namibia	Ascension, Angola, northern Namibia
Depth	5-90 m	5-80 m
Size	90-118 mm	43-124 mm
Teleoconch whorls	8; very convex; body whorl: 70% of total length	7; body whorl swollen, it takes 75% of total length
Spiral cords	fine threads, each primary cord separated by one secondary thread	weak, nearly visible in last 2 whorls, evenly spaced
Axial cords	start from a cavity beneath the sutures, most developed at periphery	run from suture to suture; irregular, very distinct, sharp pointed at periphery
Siphonal canal	strong, short	very short
Aperture	nearly circular	oval
Periostracum	?	velvety, with microscopic small hairs
Colour	white or yellow-brown	white or yellow-brown
Protoconch		

Peristerniinae Tryon, 1880

Synonyms: *Peristerniidae* Tryon, 1880

Type genus: *Peristernia* Mörch, 1852

Description: Columella with transverse plications.

Size: not given

Range: not given

Remarks: The *Peristerniinae* have columellar folds, but these are usually more transverse, are situated higher on the columella, and the shells are much smaller than *Fasciolaria*.

Benimakia Habe, 1958

Synonyms: *Latirus (Benimakia)* Habe, 1958

Type species: *Benimakia rhodostoma* (Dunker, 1860)

Description: based on radulae description and a straight siphonal canal.

Redescription: Fasciolariids with high spire (spire ≥ 40 % total shell height); usually 6 to 8 (rarely 5 or 9) high, prominent, rounded axial ribs per whorl, extending from suture to suture on spire whorls and from suture to adapical end of basal constriction on last whorl; axial ribs crossed by very low, rounded spiral cords or threads, which do not form nodes or spines at intersections; outer lip crenulated at edge, usually with protrusion or tooth (labral tooth) at end of strong cord demarcating basal constriction from central sector of last whorl; inner side of outer lip with smooth, deeply recessed lirae; parietal ridge very weak or absent; columella with 2-4 low, closely spaced folds behind the fold marking adapical end of siphonal canal; siphonal canal straight; umbilical chink usually absent.

Size: up to 60 mm

Range: Indo-West Pacific

Benimakia cloveri Snyder & Vermeij, 2008

Description: Shell solid, medium-sized for genus. Protoconch of aboul 3 whorls. Teleoconch consisting of 7 whorls separated by weakly impressed sutures; axial sculpture consisting of 6-7 low, broad, rounded ribs, obliquely aligned up the spire; spiral sculpture eroded on all but the last 3 or 4 whorls, consisting of 20-21 weak, irregular cords from shoulder to upper end of constriction, with 8 additional indistinct cords on the siphonal protubérance; outer lip finely crenulated, slightly convex, without abapical or adapical sinus and without labial tooth at edge; inner side of outer lip with 9 or 10 low, well-spaced, smooth lirae, and with small abapical tooth at position that would be occupied by a labral tooth were one présent; inner lip adhèrent, with weak columellar fold adapical to entrance fold of siphonal canal; pariétal rib at adapical end of inner lip absent; siphonal canal short (half or less of the length of the aperture), straight in the axial direction and not dorsally recurved. Exterior of shell creamy white to tan with chocolaté brown spiral cords. Interior white to lustrous yellow in some spécimens. Operculum typically fasciolariid, light to dark brown, with terminal nucleus.

Size: maximum length 35.0 mm

Range: Philippines

Remarks: *B. cloveri* is most similar to *B. fastigium* from Sri Lanka. Both species lack a labral tooth, have about 20-21 exceedingly fine cords on the shoulder and convex part of the last whorl, rounded whorls, a similar number (5-7) of rounded axial ribs that join at the sutures, and a convex outer lip. *B. fastigium* differs from *B. cloveri* by having a much more slender shell (length to breadth ratio 2.7-3.0 in *B. fastigium*, 2.3-2.5 in *B. cloveri*) and having a less deeply impressed suture. *B. fastigium* has 4 small columellar folds adapical to the entrance fold, whereas *B. cloveri* has only one weak columellar fold.

Benimakia delicata Vermeij & Snyder, 2003

Description: Shell small, fusiform, basally constricted, relatively squat (h/d, 2.1–2.3); spire moderately high, 55-58 % of total shell height; early spire whorls weakly inflated, last one to one and a half whorls with narrow, concave subsutural band followed abapically by a weak angulation marking the upper end of a weakly inflated central sector of the whorl; axial sculpture consisting of 6 to 7 high, rounded ribs, extending suture to suture on spire whorls and from suture to upper end of basal constriction on last whorl; spiral sculpture of last whorl consisting of 4 very fine threads in subsutural sector, 15 very low indistinct threads on central sector, an enlarged cord demarcating central sector from base, and about 11 cords on base and canal; outer lip convex in central sector, with distinct, low labral tooth at end of enlarged cord, and with concave abapical sinus; inner side of outer lip with 11-15 smooth, continuous, deeply recessed lirae; columella with two to three very low, closely spaced folds immediately adapical to entrance of canal; parietal thickening at adapical end of columella absent; siphonal fasciole and false umbilicus absent; siphonal canal straight. Shell yellowish-brown with a lavender aperture.

Size: height 28.1 mm; maximum height, 31.2 mm

Range: American Somoa

Remarks: *B. delicata* is most easily confused with *B. rhodostoma*. In *B. delicata*, there are more than 30 very low spiral cords or threads on the last whorl, whereas in *B. rhodostoma* the spiral sculpture is coarser, consisting of 2-7 basal, 8-15 central-sector, and 2-5 shoulder elements. The whorl profile of *B. delicata* is adapically somewhat angular, whereas that in *B. rhodostoma* is more evenly rounded and more strongly convex.

In *B. lanceolata*, the spiral sculpture is very weak, as in *B. delicata*, but there are 10-15 central-sector cords and up to 7 cords on the base and canal, of which two may be somewhat enlarged. *B. lanceolata* is much more slender (h/d, 2.7–3.1) and has more inflated whorls than *B. delicata*. The adapical part of the whorls is sharply rounded in *B. lanceolata*, and somewhat angulate in *B. delicata*.

Peristernia marquesana likewise has coarser spiral sculpture, with 6 central-sector cords and 8 very weak cords on the base and siphonal canal.

Benimakia fastigium (Reeve, 1847)

Description: *Turb. testa lanceolato-fusiformi, striis elevatis undique nitide cingulata; anfractibus subhexagonis, longitudinaliter plicato-costatis, costis distantibus, rudis, subirregularibus; rubido-fuscescente.*

Shell lanceolately fusiform, neatly encircled throughout with raised striae; whorls nearly hexagonal, longitudinally plicately ribbed, ribs distant, rude, somewhat irregular; light reddish brown.

Redescription: Shell has 5-7 high axial ribs per whorl, extending from suture to suture on spire whorls and from the suture to the concave base of the last whorl. The very weak spiral sculpture consists of 4 subsutural threads, 14-18 very fine cords on the convex central sector, and 12-14 cords on the long, straight siphonal canal on the last whorl. A parietal ridge, siphonal fasciole, and false umbilicus are absent. The outer lip has a convex, crenulated central sector and a concave abapical sinus; there is neither a labral tooth nor a corresponding rounded protrusion at the transition between the central sector and the abapical sinus. The lirae on the inner side of the

outer lip are deeply recessed and smooth. The peculiar protoconch consists of 3.5 whorls; the first whorl is small and smooth, whereas the remaining protoconch whorls are large and of equal diameter. The transition between the protoconch and teleoconch is marked by a round, distinct rib, but there is no sinusigeral notch.

Size: 29.0 mm

Range: orig. not given; Indo-Pacific

Remarks: *B. fastigium* differs from *B. rhodostoma* by having a markedly more slender shell (h/d, 2.7–3.0), a multiwhorled instead of a paucispiral protoconch, by lacking a labral tooth, and by having weaker, more numerous spiral sculptural elements.

There also appears to be some resemblance of *Fusolatirus elsiae* to *B. fastigium,* but this is reddish-brown in colour, with stronger spiral threads, and different proportions to *Fusolatirus elsiae*.

Fusolatirus formosior differs from *B. fastigium* in the more rounded whorls, greater regularity of the longitudinal ribs, fewer whorls (9 in *B. fastigium*) and less slender attenuation of form.

For differences with *B. cloveri* see there.

Benimakia flavida (A. Adams, 1855)

Synonyms: *Latirus burnupi* E. A. Smith, 1906

Description: *L. testa fusiformi, imperforata, pallide flava, spira aperturam aequante; anfractibus longitudinaliter plicatis, plicis distantibus, rotundatis, transversim crebre liratis, linea elevata transversa ad partem anticam et liris verrucosis transversis ornata; apertura ovato-quadrata, canali mediocri, aperto, labro intus sulcato, columella plicis paucis obsoletis instructa.*

(Shell fusiform, imperforate, pale yellow, length of spire equal to the aperture; longitudinally folded whorls, distant folds, rounded, often transversely lirate, a raised line transverse to the anterior part and decorated with verrucous transverse lirae; aperture ovate-square, canal average, open, inner lip furrowed, columella provided with a few obsolete folds.)

Size: 20-38 mm

Range: South Africa, Madagascar, Philippines

Remarks: This is a simple yellow, somewhat smooth species, with a number of transverse verrucose lirae at the fore part of the last whorl.

B. flavida has fewer and stronger axial ribs than *B. vermeiji*, and the cord that demarcates periphery from base is significantly enlarged and ends in a small labral tooth.

Benimakia lanceolata (Reeve, 1847)

Description: *Turb. testa lanceolato-fusiformi, hexagonali, laevigata, basem versus rude lirata; anfractibus tuberculis grandibus costaeformibus continuis undique longitudinaliter decussatis; aperturae fauce tenuistriata; luteo-fuscescente, apertura vivide violacea.*

Shell lanceolately fusiform, hexagonal, smooth, rudely ridged towards the base; whorls longitudinally crossed with large continuous rib-like tubercles; interior of the aperture finely striated; yellowish brown, aperture deep violet.

Size: 25-60 mm

Range: Philippines, New Caledonia

Remarks: *B. lanceolata* is allied to *Nodolatirus nodatus*, but quite distinct; it is of a more sharply lanceolate growth, and the rib-like tubercles follow continuously one under the other, imparting an hexagonal form to the shell, whilst the whorls are less rounded. The deep violet colouring of the aperture is also characteristic; in *N. nodatus* it is constantly of a pinker hue.

In *B. lanceolata*, the spiral sculpture is very weak, as in *B. delicata*, but there are 10-15 central-sector cords and up to 7 cords on the base and canal, of which two may be somewhat enlarged. *B. lanceolata* is much more slender (h/d, 2.7–3.1) and has more inflated whorls than *B. delicata*. The adapical part of the whorls is sharply rounded in *B. lanceolata*, and somewhat angulate in *B. delicata*.

B. rhodostoma is similar to *B. lanceolata*, but differs from *B. lanceolata* in the raised transverse lines.

Latirus meli differs from *B. lanceolata* for the less slender profile, stronger spiral sculpture, less developed siphonal canal in relation to the shell height, darker and less contrasted color and for the smaller dimensions, 23.2-29 mm versus 30-60 mm.

Latirus philippinensis is similar in size and shape to *B. lanceolata* from the tropical Indo-Pacific but *B. lanceolata* has fewer axial ribs, a purple aperture and a straight canal.

compare to *Nodolatirus robillardi*

Benimakia mariei (Crosse, 1869)

Synonyms: *Peristernia pulchella mariei* (Crosse, 1869)

Description: *T. fusiformis, solidula, longitudinaliter crassicostata, transversim minute et regulariter striato-sulcata, brunneo-fulva; spini elongata, sutura subirregulariter impressa; anfr. 8 convexi, ultimus spiram vix superans, versus basin attenuatus, in caudam brevem, abrupte truncatam desinens; apertura ovato-oblonga, intus sulcata, vivide nigro-violacea, in canalem desinens breviusculum; perist. vivide violaceum, margine columellari laevigato, vix arcuato, subrecto, externo subacuto, versus basin denticulum brevem, obtusulum, emittente.*

(Shell fusiform, solid, longitudinally thickened, transversely minutely and regularly striated-grooved, brownish-yellow; spine elongate, suture subregularly impressed; 8 convex whorls, the last one barely surpassing the spire,

tapering towards the base, terminating in a short, abruptly truncated siphonal canal; aperture ovate-oblong, furrowed inside, vividly black-violet, terminating in a short canal; peristome vividly violet, with smooth columellar margin, scarcely arched, substraight, external subacute, towards the base a short, obtuse, emitting denticle.)

Redescription: *B. mariei* is characterized by its overall squat appearance, with a sculpture of strong, broad ribs, 9 on last whorl, 8 on penultimate, intersected by numerous low, rounded spiral cords, 19 between suture and labral tooth cord of last whorl; the overall colour pattern is very light brown, with a darker, lavender brown, base, and similarly darker interspaces between ribs; the interspaces between spiral cords are also of a darker brown than the cords themselves.

Size: length 25 mm, width 11 mm

Range: New Caledonia

Remarks: The species *Turbinella incarnata*, an inhabitant of the Philippines, is close, but to be distinguished by more convex whorls, stronger ribs, equal, minute striae, a denticle on the right margin, and a black-purple peristome.

Benimakia mirabilis Bozzetti, 2018

Description: not available

Size: 30.93 mm

Range: Mozambique

Remarks: is according to WoRMS *Peristernia mirabilis*

Benimakia nux Bouchet & Snyder, 2013

Description: Shell small, fusiform ovoid, relatively broad (h/d 1.72–2.02), consisting of 6+ whorls; protoconch and early protoconch whorls indistinct because of encrustations / dissolution, but protoconch appearing to be paucispiral; spire moderately high, 50 % of total shell height, broadly coeloconoid; whorls weakly inflated, with subsutural band adpressed to preceding whorl, forming a weakly crenulated suture, whorl periphery regularly convex; axial sculpture consisting of 10 (on penultimate whorl) to 11 (on last whorl) low, rounded ribs, interspaces much narrower than ribs, extending adapically from suture and interrupted rather abruptly at tooth-bearing cord; spiral sculpture consisting of sharply defined raised cords, of even strength on cords and between cords, evenly spaced, interspaces narrower than cords, 3 in subsutural ramp, 17 on periphery above enlarged cord demarcating base, and about 11 cords on base and canal; outer lip convex, with a very distinct labral tooth at end of enlarged cord, indistincly constricted at base of siphonal canal; inner side of outer lip with 9 smooth, continuous, deeply recessed lirae; columella with two very low, closely spaced folds; parietal thickening at adapical end of columella absent; siphonal fasciole and false umbilicus absent; siphonal canal straight. Shell white with background colour between ribs lavender brown, siphonal canal lavender brown, inner lip lavender, inner side of outer lip alternating white and lavender brown as on axial sculpture.

Size: height 19.0 mm, width 9.55 mm

Range: New Caledonia

Remarks: *B. nux* is distinguished from other species of *Benimakia* by its short, broad shell, with strong spiral cords and distinctive colour pattern.

B. nux has a superficial resemblance to *Peristernia reincarnata*, which also has a rounded shell, with interspaces darker than axial ribs, but lacks a tooth-bearing spiral cord.

Benimakia rhodostoma (Dunker, 1860)

Description: *T. testa lanceolato-fusiformi, septangula, fulva, costis septenis longitudinalibus crassis in anfractu ultimo instructa lineisque elevatis albidis subaequalibus cincta; columella plicis duabus obsoletis signata; labro intus laevigato neque striato; faucibus roseis.*

(Shell lanceolate-fusiform, septangular, yellow, lined with 7 thick longitudinal ribs at the last whorl and surrounded by subequal white raised lines; columella marked with two obsolete folds; the inside of the lip is smooth and not streaked; aperture pink.)

Redescription: There are 6 to 8 prominent, high, sharply rounded axial ribs on the last whorl, usually perfectly lined across the suture with ribs on the penultimate whorl and the earlier teleoconch whorls. The spiral sculpture is variably developed. On the last whorl, there are 8-15 cords between the periphery and the central cord, 2-7 cords on the base, and 2-5 fine cords or threads on the shoulder above the periphery. 1 or 2 threads may be situated between adjacent main cords. Smooth lirae on the inner side of the outer lip vary in number from 8-14. There is a well-developed labral tooth at the end of the enlarged cord.

Size: height 22.8 mm, width 9.0 mm

Range: S Japan, Taiwan, Palau, NE Australia, Cook Islands, NW Madagascar, Zanzibar

Remarks: *B. rhodostoma* is similar to *Nodolatirus nodatus*, but differs from *N. nodatus* in the much smaller size and the ribbed, non-nodular whorls.

B. rhodostoma is similar to *B. lanceolata*, but differs from *B. lanceolata* in the raised transverse lines.

B. delicata is most easily confused with *B. rhodostoma*. In *B. delicata*, there are more than 30 very low spiral cords or threads on the last whorl, whereas in *B. rhodostoma* the spiral sculpture is coarser, consisting of 2-7 basal, 8-15 central-sector, and 2-5 shoulder elements. The whorl profile of *B. delicata* is adapically somewhat angular, whereas that in *B. rhodostoma* is more evenly rounded and more strongly convex.

B. fastigium differs from *B. rhodostoma* by having a markedly more slender shell (h/d, 2.7–3.0), a multiwhorled instead of a paucispiral protoconch, by lacking a labral tooth, and by having weaker, more numerous spiral sculptural elements.

Like *B. rhodostoma*, *B. rosadoi* has 3 weak columellar folds adapical to the entrance fold. The shell of *B. rosadoi* is relatively squat (length to breadth ratio 2.1), *B. rhodostoma* has fewer stronger spiral cords, a longer labral tooth, and a generally somewhat more slender shell.

B. vermeiji is more slender and more finely sculptured than *B. rhodostoma*, and in *B. vermeiji* the cord that demarcates periphery from base is only slightly enlarged and without a labral tooth.

compare to *Latirus anosyanus*

Benimakia rosadoi (Bozzetti, 2002)

Description: *Conchiglia di medie dimensioni, fusiforme, slanciata, formata da 6 giri di spira convessi, subangolati alla spalla, piu l'ultimo giro. Protoconca e primi giri erosi, sutura marginata. 6 nodulationi, prominenti ed arrotondante per giro in posizone centrale, 11 costole spirali sui giri di spira, piu marcate sulle nodulazioni, 13 sull'ultimo giro, 7/8 lievemente tubercolate sul canale sifonale che risulta diritto, aperto e lievemente piegato a sinistra. Labbro esterno sottile, crenulato, lirato internamente. Presente una cordonatura spirale tubercolata e piu marcata delle altre al di sotto delle nodulazioni dell'ultimo giro, corrispondente sui giri di spira al margine suturale. Columella lucida, callosa, con 2 brevi pliche oblique appena sopra l'imboccatura del canale sifonale. Colore bianco sulle nodulazioni, bruno scuro negli interspazi, tendente al marrone alla periferia delle nodulazioni, margine suturale bianco; area dorsale del canale sifonale bianca sui tubercoli, marrone negli incavi; colore interno della fauce viola, piu chiaro in corrispondenza delle nodulazioni esterne, piu scuro in corrispondenza degli interspazi; columella viola.*

(Shell medium-sized, fusiform, slender, with 6 convex whorls, subangulated at the shoulder, plus the last whorl. Protoconch and first whorls eroded, suture marginated. 6 nodulations, prominent and rounding per whorl in central position, 11 spiral ribs on the spire whorls, more marked on the nodulations, 13 on the last whorl, 7-8 slightly tuberculated on the siphonal canal which is straight, open and slightly bent to the left. External lip thin, crenulated, internally lirated. There is a tuberculate spiral crease which is more marked than the others below the nodulations of the last whorl, corresponding on the spire whorls to the sutural margin. Columella lucid, callous, with 2 short oblique folds just above the mouth of the siphonal canal. White color on the nodulations, dark brown in the interspaces, tending towards brown on the periphery of the nodulations, white sutural margin; dorsal area of the siphonal canal white on the tubercles, brown in the recesses; internal color of the aperture purple, lighter in correspondence with the external nodulations, darker in correspondence with the interspaces; columella purple.)

Size: 20-25 mm; holotype 28.6 mm

Range: N Mozambique

Remarks: The external and internal coloring allow *B. rosadoi* to be easily separated from congeneric species. The shape and strong hump are reminiscent of *Nodolatirus nodatus* from which *B. rosadoi* is distinguished by its smaller size (15 – 29 mm versus up to 90 mm), the color and pattern: white and brown with a purple interior in *B. rosadoi*, white to yellowish solid color with pink interior in *N. nodatus*.

With its very weak but distinct labral tooth, *B. rosadoi* closely resembles *B. rhodostoma* (Japan), as well as *B. delicata* from Samoa; *B. lanceolata* from the Philippines and eastern Indian Océan; *B. marquesana* from the Marquesas Islands; and to a lesser extent the Brazilian *B. ogum*.

Like *B. rhodostoma*, *B. rosadoi* has 3 weak columellar folds adapical to the entrance fold. The shell of *B. rosadoi* is relatively squat (length to breadth ratio 2.1), *B. rhodostoma* has fewer stronger spiral cords, a longer labral tooth, and a generally somewhat more slender shell.

Benimakia rubens (Lamarck, 1822)

Synonyms: *Peristernia kobeltiana* Tapparone Canefri, 1879, *Peristernia zealandica* (Küster & Kobelt, 1876)

Description: *F. testa fusiformi-abbreviatâ, subovatâ, transversim sulcatâ, rubente, apice albida; sulcis prominulis, albis; anfractibus convexis, obsolète plicato-nodulosis; aperturâ angustata, alba; labro denticulato.*

(Shell fusiform-abbreviated, subovate, transversely furrowed, red, apex white; prominent furrows, white; convex whorls, obsoletely folded-knotted; aperture narrowed, white; lip serrated.)

Size: up to 25 mm; 22.56 mm

Range: Mauritius

Benimakia rubus Bouchet & Snyder, 2013

Description: Shell small, fusiform, basally constricted, slender (h/d 2.47), consisting of 8+ whorls; protoconch and tip of teleoconch (1 whorl?) broken off; spire high, 52 % of total shell height; whorls unevenly inflated, with concave subsutural band adpressed to preceding whorl, forming an undulating suture, whorl periphery regularly convex; axial sculpture consisting of 7 (on penultimate and last whorls) high, rounded ribs, interspaces broader than ribs, extending adapically from below subsutural ramp to basal cord, not extending on base; spiral sculpture consisting of raised cords, of even strength on ribs and between ribs, evenly spaced, interspaces as broad as cords, 3 in subsutural ramp, beaded, 11 on periphery above enlarged cord demarcating base, and about 15 uneven cords on base and neck, 4 of these stronger on neck; outer lip convex, without distinct labral tooth, constricted at base of siphonal canal; inner side of outer lip with 12 smooth, continuous, deeply recessed lirae; columella with two very low, closely spaced folds; parietal thickening at adapical end of columella absent; siphonal fasciole and false umbilicus absent; siphonal canal straight. Shell overall lilac brown with darker interspaces between ribs, cords on ramp with white beads separated by brown intervals, base of shell and aperture lavender.

Size: height 17.05 mm, width 6.9 mm

Range: Vanuatu

Remarks: *B. rubus* is distinguished by its small adult size, shell base delimited by distinctly set off cord, and overall lilac brown colour.

Benimakia sowerbyi (Melvill, 1907)

Description: *L. testa mediocri, fusiformi, utrinque attenuata, solida, anfractibus 7, apice parvo, laevi, caeteris ad suturas paullum impressis, quatuor supernis (apicali excluso) gradatim multum attenuantibus, ultimo caeteris exsuperante, apud basim attenuante, undique costis crassiusculis decoratis, nigro-brunneis vel (in uno specimine) castaneis, spiraliter crassiliratis, liris irregulariter hic illic nitide albopustulatis, praesertim prope basim, apertura lactea vel violascente, pyriformi, subtus elongata, canali producto, columella nitida, obscure triplicata.*

(Shell medium-sized, fusiform, tapered on both sides, solid, with 7 whorls, apex small, smooth, the other whorls slightly impressed at the sutures, the 4 upper ones (excluding the apical one) tapering gradually, the last surpassing the others, tapering at the base, decorated with thick ribs on all sides, black -brown or (in one specimen) chestnut, spirally thickened, lirae irregularly here and there with bright whitish pustules, especially near the base, aperture milky or violaceous, pyriform, elongate beneath, produced by a canal, columella shiny, with 3 obscure folds.)

Size: length 19 mm, width 8 mm

Range: orig. Galapagos Isles (error); Tuamotu Is., the Marshall Is.

Remarks: The thickened, dark or chestnut-coloured longitudinal ribs, and white shining scattered pustules, more gregarious near the base of the body-whorl, are likewise characteristic, as is the pyriform aperture, much narrowed basally, the canal being somewhat prolonged.

B. sowerbyi has a very distinct colour pattern with dark brown ribs and beige interspaces, and a much coarser spiral sculpture than *B. vermeiji*.

Benimakia vermeiji Bouchet & Snyder, 2013

Description: Shell small, fusiform, basally constricted, relatively slender (h/d 2.25–2.54), consisting of 7 whorls; protoconch indistinct because of encrustations/wear on all specimens, but appearing to be paucispiral; spire high, 50 % of total shell height, weakly coeloconoid; whorls weakly inflated, with concave subsutural band extensively adpressed to preceding whorl, forming a crenulated, undulating suture, whorl periphery regularly convex; axial sculpture consisting of 12 (on penultimate whorl) to 13 (on last whorl) high, rounded ribs, interspaces narrower than ribs, extending adapically from subsutural ramp and gradually becoming obsolete on base; spiral sculpture consisting of raised cords, of even strength on ribs and between ribs, evenly spaced, interspaces as broad as cords, 3 in subsutural ramp, 13 on periphery above slightly enlarged cord demarcating base, and about 9 cords on base and canal; outer lip convex, without distinct labral tooth at end of slightly enlarged cord, constricted at base of siphonal canal; inner side of outer lip with 11 smooth, continuous, deeply recessed lirae; columella with two very low, closely spaced folds; parietal thickening at adapical end of columella absent; siphonal fasciole and false umbilicus absent; siphonal canal straight. Shell brown with a lavender aperture.

Size: height 23.5 mm, width 9.25 mm

Range: Loyalty Isl.

Remarks: In general shell shape, *B. vermeiji* is most similar to *B. sowerbyi* and *B. flavida*.

B. sowerbyi has a very distinct colour pattern with dark brown ribs and beige interspaces, and a much coarser spiral sculpture.

B. flavida has fewer and stronger axial ribs, and the cord that demarcates periphery from base is significantly enlarged and ends in a small labral tooth.

B. vermeiji is more slender and more finely sculptured than *B. rhodostoma*, and in *B. vermeiji* the cord that demarcates periphery from base is only slightly enlarged and without a labral tooth.

Bullockus Lyons & Snyder, 2008

Type species: *Bullockus guesti* Lyons & M. A. Snyder, 2008

Description: Peristerniine gastropods with broadly fusiform shells of small to large size for subfamily; whorls sculpted with moderate to strong axial ribs and less prominent spiral cords; sutures incised, lacking adjacent cords or lamellae; siphonal canals relatively short, slender, canted to left, with shallow pseudoumbilicus near tip; apertures ovate, constricted anteriorly and posteriorly, with parietal shields with columellar plicae absent, rudimentary, or developed only on largest mature shells; and outer lips of mature shells bearing internal lirae interrupted as dashes or dots.

Size: lengths 30-82 mm

Range: W Atlantic

Remarks: Shells of *Polygona* have prominent, near-perpendicular columellar plicae and sutures bordered with spiral cords, wrinkles, axial lamellae, or often all three.

Bullockus is distinguished from *Latirus* by having shells with angulate whorls bearing distinct spiral cords and subovate apertures.

Bullockus is distinguished from *Hemipolygona* by lacking distinct columellar plicae and by having sutures that are finely incised between the smooth surfaces of adjacent whorls, without adjacent cords, wrinkles or lamellae.

Bullockus guesti Lyons & Snyder, 2008

Description: Shell solid, broadly fusiform, with about 10 whorls. Protoconch smooth, glassy, of about 2 whorls, with rounded tip and convex sides; final 1/2 whorl with 3-5 axial rib lets of increasing strength; junction with teleoconch abrupt. Teleoconch pale orange, sometimes faded nearly white, of about 8 rapidly expanding, sharply angled whorls, with prominent axial ribs, less prominent orange-brown spiral cords, and a well-marked suture. Axial ribs about 8 per whorl, broad, abutting anterior suture and extending to, but not over, posterior sutural ramp. First teleoconch whorl with about 3 spiral cords of equal size; cords increasing by intercalation to 6 or more on second and later whorls, including about 4 smaller cords on sutural ramp and posterior halves of ribs and 2 larger cords on anterior halves of ribs, sometimes with another cord adjacent to anterior suture; 3-4 largest cords on each whorl colored dark orange-brown, contrasting with lighter background color of teleoconch; body whorl with as many as 12 dark cords, 2 cords at periphery strongest. Suture well-marked, undulating in accord with ribs and intercostal areas, without subsutural lamellae.

Aperture ovate to subquadrate; parietal wall smooth, concave, distinctly demarked on mature shells, with node-like callus at posterior sinus; columella without plicae but terminating in (usually) sharp angle at junction with siphonal canal. Outer lip arcuate, finely crenulate in accord with termini of spiral cords, internal wall with 8-10 well-developed lirae, posterior lirae entire, anterior ones interrupted as dashes or dots on mature shells, lirae not extending to lip edge; node at anterior end usually prominent, uncommonly reduced, together with columellar terminal angle forming constriction between aperture and siphonal canal. Siphonal canal rather short, slender, canted to left in apertural view, smooth within; edge of parietal callus distinct, raised on larger shells, forming shallow, chink-like pseudoumbilicus near anterior tip; about 7 dark or lighter smooth oblique cords continuing from base of body whorl to tip. Operculum ovate, brown, corneous, dimensions 5.4 X 3.6 mm, nucleus terminal, with concentric growth increments on upper surface and muscle scar bordered by conspicuous callus beneath, callus wider and thicker near nucleus.

Size: length to 29.7 mm, width 13.0 mm; 28.6 x 12.8 mm

Range: Bermuda

Remarks: Shells of *B. guesti* have been confused with *Polygona brevicaudata*. Although their shells are similar in general profile, in sculpture of the axial ribs, and particularly in having orange-brown spiral cords, *P. brevicaudata* can be distinguished by having distinct, well-developed, near-perpendicular plicae on its columella and rugose wrinkles, often overlain by fine axial lamellae, just anterior to its suture.

Shells of *B. guesti* most resemble those of *B. honkeri*, but shells of the latter species are uniformly yellow and larger (to 55.5 mm, versus 29.7 mm for *B. guesti*), with larger protoconchs, whorls with more prominent spiral cords, colored the same as other exterior surfaces, that protrude and create the appearance of points where they cross axial ribs, and several inconspicuous folds on the columella.

Bullockus honkeri (Snyder, 2006)

Description: Shell medium-sized for genus, angular, fusiform, solid with 7-8 inflated whorls. Protoconch large, bulbous, glossy white, of 1 1/2 - 2 whorls, about 1.0 mm in width. Transition to teleoconch direct with 1-3 weak axial ribs at transition point, with 4 spiral cords abruptly appearing after transition point. Profile of teleoconch whorls rather smoothly rounded to strongly angular. Spire length somewhat more than half shell length. Spiral sculpture of well-spaced cords, 4-5 on early whorls, 5 on later whorls, extending onto abapical end of neck. Two spiral cords more prominent than others forming sharp protuberances where they cross axial ribs. Ribs number 6-8 on early whorls, somewhat more prominent there than on body whorl where they number 7-10. Suture shghtly impressed, with apical whorl laid over abapical whorl.

Aperture ovate, canal typically short, open, and tilting back away from plane of aperture. Lip dentate with smooth inner surface, glabrous, and convexly tented, corresponding to external spiral sculpture. Pseudoumbilicus very small, shallow, slit-like. Overall color cream to orange-cream. Operculum typically latirid: thin, light brown and chitinous with terminal nucleus.

Size: approximately 30-55 mm; holotype: length 39.6 mm

Range: SW Caribbean Sea, E Bahamas

Remarks: Shells of *B. guesti* most resemble those of *B. honkeri*, but shells of the latter species are uniformly yellow and larger (to 55.5 mm, versus 29.7 mm for *B. guesti*), with larger protoconchs, whorls with more prominent

spiral cords, colored the same as other exterior surfaces, that protrude and create the appearance of points where they cross axial ribs, and several inconspicuous folds on the columella.

Hemipolygona lamyi lis larger than *B. honkeri*, has a different color pattern, and axial ribs that are distinctly prosocline, a rare character in the family Fasciolariidae. The unusual purple band below the suture on *H. lamyi* is clearly visible in both the smallest and the largest specimens.

Bullockus mcmurrayi (Clench & Aguayo, 1941)

Description: Shell solid and strong, openly umbilicate and somewhat extended. Color probably a yellowish brown or yellowish gray. Whorls 9, regularly increasing in size and very moderately convex. Spire-whorls visible within. Sculpture of strong and rather bold axial nodules numbering 6 on the body whorl. Fine sculpture consisting of fairly strong growth lines crossed by numerous spiral threads, both visible to the unaided eye. Nuclear whorl corroded but apparently with small nodules.

Redescription: It is highly variable in form and color. The color may be off-white to dark brown, with or without darker spiral bands. Most remarkably, the umbilicus may be wide and flaring as in the holotype, or it may be narrow and nearly absent.

Size: 55.6 mm; holotype: length 51.5 mm, width 22.7mm, aperture (without canal) 13 x 8 mm

Range: Cuba, Bahamas

Remarks: *B. mcmurrayi* differs from other species of *Bullockus* by having a shell with an often remarkably expanded umbilicus. This is a variable feature in several latirid genera. Some shells of *B. mcmurrayi* have a few weak, oblique folds or even small, tooth-like plicae near the anterior end of the columella, but on most shells the columella is as featureless as that of the type species of *Bullockus*; for that feature and the complete lack of ornamentation around the suture the species is placed in *Bullockus*.

B. mcmurrayi is proportionally longer, and lacks the very strong spiral costae of *Hemipolygona armata*.

B. mcmurrayi differs from other species of the genus *Hemipolygona* in having smooth rather than beaded lirae.

Bullockus pseudovarai Lyons & Snyder, 2008

Description: Shell solid, relatively large fusiform, with about 11 whorls. Protoconch of about 2 smooth, glassy whorls, with rounded tip and convex sides, about 4 axial riblets on final 1/2 whorl; junction with teleoconch abrupt. Teleoconch white with prominent orange-brown axial ribs and other patches of similar color scattered on body whorl; about 9 postnuclear whorls increasing in size anteriorly; axial ribs well developed, 7 ribs on early whorls, increasing to 8 by about whorl 5; ribs aligned in transverse rows between whorls beginning at about whorl 5. Spiral cords 3 on first whorl, of about equal size, anteriormost 2 cords stronger than others thereafter, creating "squared" effect where they cross ribs and conferring tabulate appearance to spire; number of cords increas- ing to 4 on about whorl 5, with some barely perceptible secondary threads between, middle 2 cords strongest, resembling points where they cross ribs; about 11 cords of varying strength on body whorl, 2 cords at shoulder much stronger than others. Suture incised, distinct, undulating slightly in accord with adjacent ribs and interspaces, bordered above and below by essentially smooth shell surfaces interrupted only by very fine, irregularly spaced axial growth increments. Aperture ovate, white, with slight anterior and posterior constrictions; parietal wall essentially smooth, concave, slightly thicker at posterior sinus; columella bearing single, inconspicuous, oblique fold, arching anteriorly in gradual transition to siphonal process. Outer lip arcuate, marked with 2 points near shoulder and lesser crenulations elsewhere in accord with termini of spiral cords of body whorl; internal wall with as many as 20 lirae of unequal size, some terminating before others, none extending to edge of lip, termini of farthest extending lirae punctuated with extra dots at end; prominent node at anterior edge of liral array, forming constriction at entrance to siphonal process. Siphonal canal rather short, slender, canted to left in apertural view, smooth within; inner edge (continuation of parietal wall) distinct, raised, forming shallow, slender pseudoumbilicus near anterior tip; about 8 white, oblique cords continuing from base of body whorl to tip, diminishing in strength anteriorly. Operculum brown, corneous, fairly slender, curved and tapering anteriorly to terminal nucleus; outer surface marked with numerous closely packed, arc-like concentric growth increments; inner surface with muscle scar bearing concentric elliptical rings of growth, surrounded by thick ring of callus.

Size: to 82.3 x 27.7 mm

Range: Bahama Isl.

Remarks: *B. varai* can be distinguished from *B. pseudovarai* by having many more white spiral cords crossing the brown axial ribs. The cords are smaller and more closely spaced than those of *B. pseudovarai* and, because of their subequal size, do not create the "squared" profile seen on *B. pseudovarai*. Instead, the ribs of *B. varai* are rather evenly convex.

Bullockus varai (Bullock, 1970)

Description: Shell large, spire slightly higher than half the length of the shell. Whorls 10, including 2 whorls of the protoconch. Aperture squarish in the mature specimen examined and about the same length as the siphonal canal. Axial sculpture of 7-8 ribs per whorl and numerous fine growth lines. Spiral sculpture of 13-15 cords which are more pronounced as they pass over the axial ribs. 9-11 spiral cords on the upper whorls. Columella with 4 folds, the upper one weaker than the others. Outer lip slightly crenulate, with about 15 irregular, sometimes beaded, lirae running into the aperture. Fasciole well developed, pseudo-umbilicus slit-like.

Shell white to tawny brown in the areas of the sutural ramp and the neck. Axial ribs light chestnut brown and crossed by white spiral cords. Aperture white.

Size: up to 70 x 27.8 mm

Range: Cuba

Remarks: *B. varai* may easily be distinguished from *Hemipolygona distincta* by its stronger spiral sculpture, more rounded whorls, and especially by its possession of the chestnut brown coloration on the axial ribs, not between them.

B. varai can be distinguished from *B. pseudovarai* by having many more white spiral cords crossing the brown axial ribs. The cords are smaller and more closely spaced than those of *B. pseudovarai* and, because of their subequal size, do not create the "squared" profile seen on *B. pseudovarai*. Instead, the ribs of *B. varai* are rather evenly convex.

The general appearance of the ribs of *B. varai* is much like that of *Fusolatirus kandai*, known only from Japan.

Hemipolygona beckyae resembles *B. varai* but is readily distinguished from it by its smaller, differently colored shell. *H. beckyae* has roughly half as many strong spiral cords as *B. varai*. The axial ribs in *H. beckyae* are whitish whereas in *B. varai* the axial ribs are light chestnut brown.

B. varai may easily be differentiated from *Hemipolygona carinifera* by its stronger spiral sculpture, more rounded whorls, and chestnut brown coloration on the axial ribs, not between them.

B. varai has a shorter canal than *Hemipolygona lamyi* and the spiral cords are more pronounced. It too has a different color pattern.

Crassibougia Stahlschmidt & Fraussen, 2012

Synonyms:

Type species: *Crassibougia clausicaudata* (Hinds, 1844)

Description: Shell of medium size, thick, solid. Shape elongate, fusiform with high spire and moderately elongate siphonal canal, rather biconical. Protoconch rather papilliform, higher than broad, whorls smooth and glossy. Teleoconch whorls weakly convex with broad, flattened subsuturral slope on upper spire whorls. Axial sculpture dominant on abapical part of upper spire whorls, occasionally present on lower whorls; with fine incremental lines covering the whole surface. Spiral sculpture weak, consisting of flattened spiral cords with deep interspaces or fine incisions. Aperture rather small, oval. Columella white, gently curved, smooth; callus thin, glossy; with a single big, adapical parietal knob; with a broad abapical columellar knob on transition to siphonal canal. Labral lip thick, curled inwards, forming broad, hollow varix. Siphonal canal long, big, gradually narrower towards tip; open by fine slit.

Size: medium

Range: South Africa

Remarks: *Crassibougia* is characterized by the big papilliform protoconch; the peculiar shape with a rather biconical appearance because of the big and gradually narrowing siphonal canal, and the wide labral varix.

The genus *Pseudolatirus †* differs by the much more fusinoid appearance in shape and sculpture, the presence of a subsutural concavity, a rather constricted base, spiral cords with broad interspaces, a conical shaped protoconch and a thinner lip.

The genus *Latirus* differs by having 3-4 oblique abapical columellar folds, a usually thinner outer lip without a broad varix at the transition to the siphonal canal, a smaller protoconch and a shorter siphonal canal.

The buccinid genus *Afer* has a similar papilliform protoconch and also the sculpture may look similar in some species, but differs by the radula which is typical for Buccinidae.

Crassibougia clausicaudata (Hinds, 1844)

Description: *Testa, fusca, solida; spira costata; costis brevibus rotundatis; anfractu ultimo et penultimo ecostato; lineis transversis ordinatim exarata; apertura parva, oblique ovali, coarctata, superne callositate; canali subrecurvo, fere clauso.*

(Shell brown, solid; spire ribbed, short rounded ribs; at the last and penultimate whorl no ribs; drawn with transverse lines in an orderly manner; aperture small, obliquely oval, narrowed by callosum above; the channel is curved, almost closed.)

The whorls of the spire are ribbed rather strongly, but the 2 last are entirely without this character. The shell is particularly solid in its structure, and is covered by regularly disposed impressed lines. The labrum is thickened by the re-appearance of a rib, and which extends to nearly midway along the canal.

Redescription: Shell moderately small, narrowly spindle-shaped, robust when adult; spire whorls sculptured with strong, widely-spaced, rounded axial ribs, these much weaker or scarcely evident on last adult whorl; spiral sculpture of low, flat-topped spiral cords, separated by narrow incised grooves of alternating strength; siphonal canal long with a narrow slitlike opening; aperture of mature specimens with a strong callus nodule just below insertion of outer lip and a well-developed varix behind outer lip.

Shell orange-brown when fresh, the axial ribs usually somewhat paler; aperture whitish. Animal orange-red.

Size: length up to 60 mm

Range: South Africa

Remarks: *C. clausicaudata* is characterized by the rather biconical shell shape with high spire and moderately elongate siphonal canal; the papiliform protoconch; the rather smooth spiral sculpture consisting of flattened, bilirate spiral cords separated by fine incisions, resulting in a surface covered by alternating fine and finer incisions; the axial sculpture which is dominant on the abapical part of the upper spire whorls but which is absent on the lower whorls; the small aperture with broad, the inwards curled labral varix and the soft pastel ground colour.

For comparison with *C. hediae* see there.

Latirus philippinensis may be compared to *C. clausicaudata*, but the latter species lacks the prominent brown color bands, has a very small aperture with a peculiar thickened lip, and has a long, straight almost closed siphonal canal.

Crassibougia hediae Stahlschmidt & Fraussen, 2012

Description: Shell of medium size, thick, solid. Shape elongate, fusiform with high spire and elongate siphonal canal, rather biconical. Protoconch rather papilliform. Teleoconch whorls about 5 1/2 in number, weakly convex, with broad but weak subsutural concavity on upper spire whorls. Axial sculpture dominant, spiral sculpture fine. Suture distinct. Ground colour white to brown; axial ribs pale or white. Protoconch rather papilliform, higher than broad, consisting of about 2 1/2 smooth, glossy whorls, 2.1 mm in diameter, 3.0 mm high. Transition to teleoconch marked by a fine incremental line where the spiral sculpture of the teleoconch starts.

First teleoconch whorl starting with 7 broad but weak spiral cords, an eighth spiral cord partly concealed under subsequent whorl. After about 1/4 whorl fine secondary spiral cords appear, increasing in strength along first whorl, becoming as strong as primary spiral cords; top rounded. Second whorl with 12 well developed spiral cords of almost equal strength, at periphery slightly broader; top flattened; interspaces narrow, deep. Penultimate whorl with

14 spiral cords; 2 additional secondary spiral cords present on subsutural slope, situated between second and third and between third and fourth primary spiral cord. Body whorl with 24 spiral cords, occasionally with secondary spiral cords at subsutural slope and on base; interspaces slightly narrower along periphery; numerous broad but low spiral cords on siphonal canal which are broader near base but slightly finer near tip.

First teleoconch whorl with 8 fine, weakly opisthocline, axial ribs, running from suture to suture; interspaces about twice as broad. Axial ribs suddenly increasing in strength after 1/2 whorls, abapical part becoming well developed, forming a big rib. Second whorl with 7 such axial ribs. Their number staying constant on all following whorls, their strength slightly increasing on adapical part of whorls but becoming smooth on subsutural slope. Body whorl with 7 axial knobs along periphery and a big labral varix. Whole surface covered with obscure, incremental lines.

Aperture rather small, oval. Columella white, gently curved, smooth; callus thin, glossy; with a single big, adapical parietal knob; with a broad abapical columellar knob on transition to siphonal canal. Labral lip thick, curled inwards, forming a broad, hollow varix. Inner side of outer lip with a single abapical knob, situated in front of the abapical columellar knob which both form a narrow transition towards siphonal canal. Siphonal canal long, big, gradually narrower towards tip; open by fine slit. Aperture together with siphonal canal more than ½ of total shell length. Body whorl together with aperture and siphonal canal S of total shell length. Operculum corneus, rather thick, pale brown, semi-ovate, nucleus terminal.

Size: up to 50.7 mm

Range: SE South Africa, Transkei to Natal

Remarks: *C. hediae* is characterized by the moderately small size, the elegant shape and rather biconical appearance, the axial ribs which have a weak opisthocline orientation, the fine spiral cords of equal size, the inwards curled outer lip forming a big labral varix and the pale pattern consisting of a brownish pastel colour, usually in combination with white axial knobs.

C. clausicaudata looks similar at first glance but differs by the presence of axial knobs on the upper spire whorls only, leaving the body whorl smooth; the spiral cords which are flatter and smoother, having a bilirate appearance (with alternating fine and finer spiral incisions), and being lower in number (7 on the second whorl, instead of 12), the slightly broader base which forms a conical shape together with the siphonal canal (instead of weakly concave at the transition towards the siphonal canal), the colour pattern which is more uniform, usually reddish brown, and the larger adult size.

Dentifusus Vermeij & Rosenberg, 2003

Type species: *Dentifusus deynzeri* Vermeij & Rosenberg, 2003

Description: Fasciolariid with weak axial ribs on early teleoconch whorls, low spiral cords, a prominent cord demarcating the concave base from the central sector of the last whorl and ending in a labral tooth, beaded lirae on the inner side of the outer lip, a smooth columella, and a prominent parietal callus.

Size: not given

Range: Philippines

Remarks: *Latirus* differs from *Dentifusus* by the absence of a labral tooth, by usually having columellar folds, and consistently by having axial ribs on all whorls. As here restricted, *Latirus* is an essentially Indo-West Pacific genus.

Dentifusus deynzeri Vermeij & Rosenberg, 2003

Description: Shell thick, fusiform, basally constricted; spire moderately high, comprising 37-42 % of total shell length; protoconch consisting of one smooth inflated whorl; teleoconch with 7 1/2 whorls, separated by adpressed sutures; 9-12 axial ribs on early teleoconch whorls, increasing slightly from 9-10 on first whorl to 10-12 on fourth whorl, becoming obsolete by fifth or sixth whorl; early teleoconch whorls with three primary cords, one just below upper suture, the other two closely spaced at some distance below the first cord; secondary cord between the first and second primary cords rapidly increasing in strength, becoming as strong as the primary cords; last two whorls with concave subsutural area, sculptured by 5-7 very weak threads and a stronger cord; below this concave area, last whorl has rounded profile on its central sector, with 5-7 low primary cords with 2-3 weak secondary cords between; at adapical end of central sector is a strong cord, forming sharp angulation and ending at outer lip on

prominent labral tooth; sector of last whorl below tooth-bearing cord strongly concave in profile, marked with 6–8 low primary cords with 2–4 weak secondary cords between; outer lip medially convex, with a deep, broad sinus below the labral tooth; outer lip with slight indentations corresponding to primary spiral cords, indentations weak anterior to labral tooth, becoming obsolete on siphonal canal; inner lip thickly glazed; columella smooth, adapical end of inner lip with prominent parietal ridge ending in distinct parietal callus; smooth zone within outer lip, followed further in by 17-22 deeply recessed lirae that are beaded near aperture, especially anteriorly; siphonal fasciole smooth, rounded; siphonal canal long, more than 40 % of total apertural length and more than 25% of total shell length; aperture and primary and main secondary cords white; spaces between primary cords white or pale tan or caramel brown (uniformly within a specimen), overlain with brown periostracum; operculum dark brown with terminal nucleus, smooth except for growth lines.

Size: up to 68.4 mm; length 61.0 mm, diameter 34.8 mm, aperture length 38.1 mm

Range: Philippines

Remarks: Despite its unique combination of traits, the highly distinctive *D. deynzeri* is difficult to classify on the basis of shell characters; it could be either a fasciolariid or a buccinid. 3 features-beaded lirae, a labral tooth at the end of a cord, and an indeterminate outer lip indicate a tentative assignment to the *Fasciolariidae*.

Fractolatirus Iredale, 1936

Type species: *Fractolatirus normalis* Iredale, 1936

Description: Shell elongately fusiform, spire longer than aperture, canal moderately long, columella 2 plicate, outer lip lirate within, sculpture of longitudinal broad ribs.

Size: small

Range: New South Wales, Australia

Fractolatirus normalis Iredale, 1936

Description: Shell small, elongate fusiform, spire attenuate, canal long, but apertural length less than that of spire, columella with two plaits, outer lip thick, lirate within. Coloration, uniform brown.

The apex is worn, but 7 adult whorls remain; the sculpture consists of longitudinal ribs, which are comparatively few in number, broad and rounded, and these are crossed by fine concentric ridges separated by intervals of 2 or 3 times the thickness of the ridges. On the penultimate whorl about 15 ridges can be counted, and 9 longitudinal ribs. On the last whorl the ribs are about the same number, showing, however, strong growth stages between. The aperture is narrow, the outer lip showing about 8 long line inside, the canal moderately long, straight and narrow. The columella has two somewhat indistinct plaits, and the inner lip is shown as a thick glaze passing to the outer lip, where there appears on the body whorl a slight nodule.

Size: length 26 mm, width 9 mm, length of aperture 12 mm

Range: New South Wales, Australia

Remarks: *Latirus meli* is distinguished from *F. normalis* by the more developed and less axially elongated tubercles, the siphonal canal longer in relation to the shell height and with a clearer separation from the base, external coloration more or less uniform dark brown against light beige with dense darker spiral lines and for the internal coloration, dark purple versus whitish / light beige.

Fusolatirus Kuroda & Habe, 1971

Type species: *Peristernia pilsbryi* Kuroda & Habe, 1952 accepted as *Fusolatirus coreanicus* (E. A. Smith, 1879)

Description: Shell medium in size, thin but solid, elongated fusiform with highly elevated spire of about 8 [whorls]. Protoconch white, smooth and polished and other teleoconch whorls somewhat convex and with narrow spiral cords all over and stout longitudinal ribs forming the shoulder angles and reducing to the body whorl. Body whorl high, more than half shell and narrowing to the rather long and twisted siphonal beak. Aperture rather small and ovate in shape with long siphonal canal open.

Addition: A further character of *Fusolatirus* that was not mentioned in the original description is an immediately subsutural band of imbricate scales that is found on all teleoconch whorls, but its prominence varies. In addition, there is a channel-like constriction of the lower aperture, at the top of the siphonal canal, that is caused by reflexure of the parietal wall.

Size: medium

Range: Indo-west Pacific

Remarks: *Fusolatirus* is taller and more slender than *Peristernia* and differs particularly in its long siphonal process.

Pseudolatirus also has tall, slender shells, but they are larger and their siphonal processes are straight.

Shells of some species of the genus *Fusolatirus* resemble those of *Lamellilatirus* but differ by having a *Peristernia*-like radula.

Outer lips of some *Fusolatirus* also have serrate edges like *Pustulatirus*, but the internal lirae of *Fusolatirus* are uninterrupted, not beaded or pustulose.

Fusolatirus balicasagensis (Bozzetti, 1997)

Description: Shell solid, fusiform, high spired; protoconch papillose, paucispiral, made up of 1 1/2 smooth coils, teleoconch of 8 1/2 convex whorls; suture well impressed, wavy, partially hidden by a spiral band of white vaulted scales occupying the upper fifth of whorl. Axial sculpture consisting of 8 elongated, rounded folds per whorl covering the whorl heidht from lower end of the scales to lower suture, and up to siphonal canal on body whorl. Spiral scuöpture consisting of primary ribs, 6-8 on spire whorls and 18-19 on body whorl and siphonal canal, strongest on the folds, becoming obsolete in the interspaces, minor riblets between primary ribs.

Anal sulcus with a fold-like callus separating it from the inner lip; aperture ovate with a thin, rounded labrum, inside lirated, denticulated on the edge, lirations and denticles corresponding to primaryspirals; elongate callous fold at the joint of siphonal canal. Inner lip well developed, weakly lirate on the edge, with 3 folds at anterior end of the mouth, adherent above and detached below, extending to siphonal canal; growth scars noticeable in axial interspaces. Siphonal canal elongated, about 25 % of total height, left twisted and dorsally raised.

Protoconch white coloured, teleoconch red-brown, dark brown on the axial folds; primary spirals white on the folds, light brown and red dotted in axial interspaces; 2 dark brown spiral bands on basal area, upper one being the widest. Inner lip whitish with a light brown stained edge, inside of mouth reproducing external pattern and colours near the aperture, becoming whitish in the inner side, siphonal canal brownish. Operculum black coloured, smooth, inflated and fitting the aperture.

Redescription: Shell with multispiral protoconch of 2 1⁄4 whorls. Teleo□on□h with □ery □on□ex whorls, narrow, recurved siphonal canal, and narrow axial ribs that are regularly rounded along their axial extension. Colour pattern with brown colour restricted to crest of axial ribs and brown band just below periphery.

Size: 30-45 mm; 40.1 x 15 mm

Range: Philippines, Solomon Islands, New Caledonia

Remarks: *F. balicasagensis* can be confused with the light forms of *F. kandai*; see remarks under that species. *F. balicasagensis* has vaulted scales, a more elongate siphonal canal and more noticeable colour contrast in the axial folds versus shell surface.

The protoconch, of 2 smooth whorls with axial riblets in the last 1⁄4 whorl, white mottled with light brown of *F. suduirauti*, is very similar to that of *F. balicasagensis*.

Fusolatirus brinkae (Lussi, 1996)

Description: Shell fusiform with a high pointed spire which is about equal in length to remainder of body whorl. Siphonal canal moderately long and slightly curved. Weak false umbilicus only visible in mature esamples. 5-9 strongly curved axial ribs per whorl with number of ribs increasing from body-whorl to postnuclear whorl. Axial ribs run from suture to suture. There are a total of 6 whorls in adult specimens. Axial ribs roughly equal in thickness to intervals.

Suture moderately deep. Aperture oval, interior of labrum smooth. Columella callus bordered by a shallow groove in mature specimens. There is 1 small transverse fold on the base of the columella and 1 tooth in the parietal region near the anal notch.

Exterior surface of shell sculptured by spiral lirae throughout and which are closely set and vary in thickness. Protoconch smooth, fragile as indicated by the many examples obtained with brken apex, translucent white and consisting of 2.5 whorls. Diameter of protoconch 0.8 mm. Operculum horny, chestnut brown, claw schaped and with a terminal nucleus. Colour of shell is white throughout.

Size: 10-35 mm; length 31.5 mm, width 14 mm

Range: South Africa

Remarks: Amongst South African species *F. brinkae* most closely resembles *F. elsiae*. The latter species is larger (44 mm and above), is flesh in colour with a series of brown spots mainly on the shoulder slope. The axial ribs of *F. elsiae* are gently rounded and levelled around the apex of each rib. In addition, the interior of the shell is lirate.

Another related species is *F. formosior* from East Africa but this is on average larger, the spiral lirae on the surface of the shell are more pronounced, the labrum is lirate within and the shell is yellow in colour.

Fusolatirus bruijnii (Tapparone Canefri, 1876)

Description: *F. testa elongato-fusiformi, subumbilicata, solida, ferrugineo-fusca, concolore. Spira elata, apice acutiuscula. Anfractus 9, convexi suturis impressis et marginatis divisi, crebre spiraliter subsquamuloso-cingulati, cingulis minutis, inaequalibus; per longitudinem plicato-costatis, costis 9-10 crassis, rotundatis,.superne evanescentibus; ultimus superne obscure subangulatus. Cauda mediocris, spiram non aequans, crassiuscula. Apertura ovato-subquadrata, canali brevior, externe ad marginem crenulata, fauce subsulcata, porcellaneo-alba, labro et columella vivide ferrugineo marginatis.*

Var. Cauda plus minusve profunde umbilicata, ore ferrugineo-fusco.

(Shell elongate-fusiform, subumbilical, solid, rusty-brown, monochrome. Spire elevated, apex pointed. 9 convex whorls divided by impressed and margined sutures, often with subsquamous spiral cords, cords minute, unequal; folded-ribbed along its length, 9-10 thick, rounded ribs, evanescent above; the last whorl is obscurely subangular above. The siphonal canal is average, not as long as the spire, rather thick. Aperture ovate-subquadrate, canal shorter, externally crenulated at the margin, aperture weakly furrowed, porcelain-white, lip and columella edged bright rusty.

Var.: Siphonal canal more or less deeply umbilicated, tip rusty-brown.)

Redescription: Shell of average size for genus (largest 39.4 mm SL, average 34.8 mm SL, n = 10), broad fusiform. Protoconch missing in all material examined, but minute, roughly 0.5 mm in final diameter. Teleoconch of nine whorls, bearing broad, rounded axial ribs of equal breadth to their intervals; ribs offset slightly, with differing degrees of alignment, becoming slightly reduced in height and somewhat more widely spaced on body whorl. Three or four major spiral cords on first two to three whorls, increasing in number to eight at point above terminus of suture; cords not weakening or thickening in crossing axial ribs. Single weak minor cord emerging between each major by third whorl. Cords persist over entire body whorl and to tip of neck, angle relative to axis steepening towards anterior end; minors strongest on anterior half of neck. Axial sculpture of very numerous fine but distinct growth flanges that decussate cords in crossing them. Suture deeply impressed, lying in channel between immediately posterior and anterior cords.

Aperture with smoothly curved sinuous columella but distinctly quadrate outer lip in adults. Labral margin deeply serrated, with indents corresponding to termini of spiral cords. Labral wall bears smooth spiral lirae not corresponding in position to outer spiral sculpture; lirae terminate slightly before lip. Parietal wall smooth, strongly thickened; parietal margin detached from anterior half of aperture to distal terminus of canal. Canal deep, parallel-sided, smooth within. Neck sharply tapering, very broad at juncture with body whorl, somewhat recurved in distal half; tip rounded, fragile. Shell exterior mid to dark orange-brown overall, with no patterning or staining. Interior of aperture paler brown, but inner lip margin somewhat darker. Operculum typical for family; chitinous, dark brown, leaf-shaped with nucleus at anterior end.

Size: length 40 mm, width 14-15 mm

Range: Papua New Guinea

Remarks: This species is close to *Latirus constrictus*; it differs:

- for the color is rusty-brown but not orange;
- for the more elongated and less inflated shape;
- for the greater length of the siphonal canal;
- for the lack of the deep umbilicus typical of *L. constrictus*, and which is only casually recognized in *F. bruijnii*;
- for the shape and color of the aperture.

Fusolatirus coreanicus (E. A. Smith, 1879)

Synonyms: *Peristernia pilsbryi* Kuroda & Habe, 1952

Description: Shell fusiform, dirty diluted flesh-colour, streaked with dark brown upon the costae. Whorls 7.5-8; nucleus consisting of 1.5-2 whorls, smooth, globose; remaining volutions sloping and a trifle excavated above, margined at the suture, somewhat angular at the middle, a little convex beneath and much contracted at the base, longitudinally costate and transversely ridged; costae or plicae only slightly prominent, but little oblique, twelve in number on the penultimate whorl; spiral lirae close-set, pretty regularly alternately fine and coarser, about 12 on a whorl, whereof 3 or 4 around the lower half are larger than the rest and subnodulous on the ribs; the latter become obsolete about the middle of the bodywhorl, which is rather suddenly contracted just below that point, and produced into a short oblique rostrum. Aperture ovate, fuscous within, with the canal occupying only 5/11 of the entire length; columella smooth, arcuate above, very oblique inferiorly; canal short, slightly retroverted.

Redescription : Adult shell small for genus with tall, turriculate spire and short siphonal process. Protoconch of 1.5 whorls, small, glassy, white or brown; clear juncture with teleoconch. 7 teleoconch whorls bearing broad axial ribs crossed by spiral cords; 6-7 broad, rounded major cords between upper and lower suture immediately above aperture, interspersed with minor cords of varying strength; cords persist over axial ribs. Cords fewer and less pronounced above periphery. Single prominent cord present on lower body whorl, corresponding to projected path of suture. Fine axial growth lines present between spiral cords, but summits of cords almost smooth. Suture impressed, ragged, with immediately subsutural band of coarse, sparsely-distributed lunate imbrications that bridge suture.

Aperture quadrate in adults, occasionally flaring slightly in lower outer quarter. Parietal margin thickened in adults to form porcellaneous callus. Interior of aperture smooth, with spiral lirae corresponding to troughs between external spiral cords; terminal points of lirae at lip forming slightly to clearly pronounced dentition, colored dark brown in some specimens. Pronounced constriction of parietal and labral sides where aperture leads into siphonal canal; canal immediately broadening again, thereafter broadly open, occasionally slightly flaring at tip. Siphonal process short, stout, very slightly recurved; terminus of suture to tip of process averages 52.1% of shell length (n = 10). Parietal margin of siphonal canal thickened and pronounced over entire length of process.

Teleoconch peach color to pale brown, overlaid with blotches and/or spiral bands of darker brown, occasionally with gray and/or purple cast; blotches most pronounced on axial ribs and in subsutural band. Spiral cords occasionally whitened at summits of axial ribs. Some specimens paler around aperture and siphonal process. Interior of aperture matches base color of shell exterior.

Operculum thin, translucent, pale brown; characteristic fasciolariid auriform, with slightly hooked terminal nucleus.

Size: length 22 mm, width 8 mm; average length 23.5 mm (n = 10)

Range: Japan, Korea

Remarks: This species is remarkable for the brevity of the canal and the style of colouring. The dark stripes always appear to fall upon the ribs, and they are somewhat interrupted by the stoutest of the transverse lirae, which are rather nodulous and dirty whitish. The thickened margin at the top of the whorls is also pale.

F. rikae is very similar to *F. coreanicus*, which differs by its very short siphonal canal, coarser spiral sculpture and blotched colour pattern. The coloration of *F. rikae* tends more to the red end of brown than the more gray and purple hues of the Japanese *F. coreanicus*. In addition, the imbrications of the subsutural band in *F. rikae* are more prominent and numerous.

For comparison with *F. higoi* see there.

Fusolatirus elsiae (Kilburn, 1975)

Description: Fusiform, spire almost equal in length to rest of shell, sharp, orthoconic; sutures deep, whorls strongly convex, particularly the last and penultimate ones, periphery just below middle on early whorls, slightly above it on penultimate one; siphonal rostrum long, narrow, slightly twisted, umbilicus absent, but columella callus bordered by a shallow groove; fasciolar ridge low and rounded, siphonal canal subequal in length to rest of aperture. Labial callus moderately thick, edge adnate in parietal region, slightly free along columella; base of columella with four weak pleats, of which the anteriormost is the strongest, and there is a weak parietal ridge in the posterior angle of the aperture. Aperture ovate, interior of labrum with 14 thin spiral ridges each of which breaks up into a series of granules near the lip.

Sculpture of thick, gently rounded axial ribs, somewhat wider than their intervals, on spire whorls extending from suture to suture, somewhat flattened below suture; on body whorl these ribs evanesce at the base of the siphonal rostrum; ribs rather sharp on first teleoconch whorl, 11 in number, decreasing to 9 on the 2nd whorl, and to 7 on the 4th and succeeding whorls; the very last rib is somewhat varicoid. Spiral sculpture consists of fine, close spiral lirae which cross the ribs; these number about 5 on the 1st teleoconch whorl, increasing to about 26 on the penultimate whorl, plus finer intermediaries, some of.which run along the crests of the main lirae; lirae rather widely spaced on base, body whorl with a total of about 80 main lirae; intervals show rather pliculate growth lines.

Colour pale flesh, base tinged with purplish-brown, crests of ribs with a series of axial brown spots on the shoulder slope, and another around middle of body whorl (showing in places above suture on spire whorls), base of siphonal rostrum with a third series of brown streaks; aperture and labial callus pinkish-white.

Size: length 51.4 mm, width 19.8 mm

Range: Mozambique

Remarks: *F. elsiae* is closely allied to *F. formosior*, but differs in coloration, in its weaker sculpture, larger size and more adnate columella callus.

Amongst South African species *F. brinkae* most closely resembles *F. elsiae*. The latter species is larger (44 mm and above), is flesh in colour with a series of brown spots mainly on the shoulder slope. The axial ribs of *F. elsiae* are gently rounded and levelled around the apex of each rib. In addition, the interior of the shell is lirate.

F. pagodaeformis, from the Gulf of Oman, is also somewhat similar, but is smaller, with much stronger spiral lirae and more numerous axial ribs.

The protoconch, of 2 smooth whorls with axial riblets in the last 1⁄4 whorl, white mottled with light brown of *F. suduirauti*, is very similar to that of *F. elsiae*.

There also appears to be some resemblance to *Benimakia fastigium* from Sri Lanka and the Andamans, and *Latirus constrictus* from the Philippines; both of these, however, are reddish-brown in colour, with stronger spiral threads, and different proportions to *F. elsiae*.

Latirus philippinensis somewhat resembles *F. elsiae* but that species is not so elongate and is colored with axial brown streaks along the ribs rather than brown spiral bands.

L. ceramidus shells show an interesting resemblance to several species of *Fusolatirus* from the Indo-west Pacific, especially *F. elsiae* of southeastern Africa. Subsutural lamellae on shells of *L. ceramidus* are much more prominent than those on shells of *F. elsiae.*

Fusolatirus formosior (Melvill, 1891)

Description: *L. testa gracili-fusiformi, fulvo-ochracea, apice roseo, anfractibus octo, rotundatis, elevato-striatis, striis arcte et regulariter tranversim cingulatis, longitudinaliter plicato-costatis, costis rotundatis, canali subrecurva, apertura intus lirata, columella quinqueplicata albescente.*

(Shell slender-fusiform, yellow-ochreous, apex pink, with 8 rounded, elevate-striated whorls, striae close and regular transverse, longitudinally folded-ribbed, ribs rounded; canal slightly curved, aperture internally lirated, columella with 5 whitish folds.)

Size: length 30 mm, width 11.5 mm

Range: orig. not given; ?East Africa

Remarks: A very beautiful shell, more so than its nearest congener, *Benimakia fastigium*. *F. formosior* differs from *Benimakia fastigium* in the more rounded whorls, greater regularity of the longitudinal ribs, fewer whorls (9 in *B. fastigium*) and less slender attenuation of form.

F. brinkae is related to *F. formosior,* but this is on average larger, the spiral lirae on the surface of the shell are more pronounced, the labrum is lirate within and the shell is yellow in colour.

F. elsiae is closely allied to *F. formosior*, but differs in coloration, in its weaker sculpture, larger size and more adnate columella callus.

F. pearsoni is also compared to *F. formosior. F. formosior* usually has at most 6-7 axial ribs, a short siphonal canal, and is uniformly yellow or orange-yellow.

F. formosior is very similar to *Latirus constrictus*, which, however, has a broader, more truncate siphonal rostrum, 9 or 10 ribs (instead of 6 or 7) and is reddish-brown in coloration.

Fusolatirus higoi Snyder & Callomon, 2005

Description: Adult shell large for genus, fusiform with tall, turriculate spire and relatively long, recurved siphonal process. Protoconch of 1.5 whorls, small to moderately large and bulbuous, glassy, white; no clear juncture with teleoconch. 6 teleoconch whorls bearing broad axial ribs crossed by spiral cords; 6-7 fine major cords between upper and lower suture immediately above aperture, interspersed with minor cords of varying strength; cords persist over axial ribs. Cords fewer and less pronounced above periphery. Fine axial growth lines present between spiral cords, but summits of cords almost smooth; axial lines can be very regular, giving somewhat reticulate appearance. Suture impressed, ragged; subsutural band varying in width, with coarse, sparsely-distributed sinuous imbrications of varying size, that bridge suture. Imbrications almost absent in some specimens.

Aperture frequently quadrate in adults, but lip does not flare. Parietal margin thickened in adults to form narrow porcellaneous callus. Interior of aperture smooth, glossy, with discontinuous spiral lirae corresponding to troughs between external spiral cords; lirae terminate some distance behind lip; lip margin unevenly crenulate but lacking dentition. Pronounced constriction of parietal and labral sides where aperture leads into siphonal canal; canal immediately broadening again, thereafter open, narrow and of equal breadth over entire length.

Siphonal process long, slightly recurved, with strong torsion in some specimens; terminus of suture to tip of process averages 57.8 % of shell length (n = 12). Parietal margin of siphonal canal smooth and slightly pronounced, usually terminating 2/3rds down process. Teleoconch off-white to very pale brown, often with no external patterning. Axial ribs often slightly paler than base color. Interior of aperture white.

Operculum thick, translucent, pale to dark brown; characteristic fasciolariid auriform, with slightly hooked terminal nucleus.

Size: average length 33.4 mm (n = 9)

Range: central Japan

Remarks: *F. higoi* is larger in adult size than *F. coreanicus* and *F. rikae*, and has a relatively longer siphonal process than *F. coreanicus*. Its spiral sculpture is finer and it lacks the pronounced cord that extends the suture line around the body whorl in both *F. coreanicus* and *F. rikae*. The parietal margin of the aperture is less developed in *F. higoi*, and it is paler in base color with little or no color pattern.

Comparison of shell characters:

	F. coreanicus	***F. rikae***	***F. higoi***
protoconch diameter	smaller than 1st teleoconch whorl, 1.5 whorls, glassy, white or brown; clear juncture with teleoconch.	smaller than 1st teleoconch whorl, 1.5 whorls, glassy, white; no step at transition point	equal to or larger than 1st teleoconch whorl, 1.5 whorls, glassy, white; first whorl bulbous
teleoconch whorls	7	7	6
adult size (length, in mm)	23.5 (n = 10)	23.4 (n = 9)	33.4 (n = 9)
spiral cords (on penultimate whorl, above aperture)	6-7 majors with minors of varying strength; fewer cords above periphery	6-7 majors with minors of varying strength; fewer cords above periphery.	6-7 fine majors with minors of varying strength; fewer cords above periphery.
axial sculpture (excluding ribs)	fine growth lines	fine growth lines; occasionally reticulate.	fine to coarse growth lines, sometimes forming scales or reticulation
subsutural imbrications	coarse, sparsely distributed, lunate	numerous, welldeveloped, lunate	sparsely distributed, can be absent; sinuous
siphonal process	short, stout, with narrow, open canal that may flare	long, sharply recurved, canal narrow, does not flare	long, sharply recurved, canal narrow, does not flare
suture terminus to tip of siphonal process vs. SL, in % (min / aver. / max)	49.1 / 52.1 / 55.3 (n = 10)	52.8 / 57.5 / 62.2 (n = 9)	50.6 / 57.8 / 62.6 (n = 12)
labial dentition (adults)	present; colored in some specimens	present; colored in some specimens	absent
lirae within aperture (adults)	present, terminating in dentition at lip	present, terminating in dentition at lip	discontinuous, terminating before lip

Fusolatirus kandai (Kuroda, 1950)

Description: *from Japanese* (Shell fusiform, pointed at both ends, thick; orange-brown, longitudinal folds tinged with maroon, with white spiral ridges; 9 whorls, first whorl rounded at the top, horn colored; each whorl has a sturdy slightly recessed lower fold; 7 or 8 strong ribs on each whorl, attenuated at the front and bottom of the suture, suture slightly wavy, with a fine granular white rim and slightly grooved. Each whorl is constricted at the anterior part at the suture. The white cords are very pronounced on the ribs, and rather weak between the ribs. They are arranged in regular intervals, 6 between sutures, 1 more narrow cord between each thigh. There are up to 16 main cords on the whorl, the ones on the anterior canal and the bottom are prominent, without intervening cords and decorated with white granules.

The anterior canal is elongated, slightly curved, with an umbilical space that is markedly cloudy. Shell oval, white inside; outer lip slightly elongated, margin sharp, serrated and colored with brown spots; inside 9-10 lirae. The posterior corner is slightly grooved, and there is 1 small lubricating bulge at the posterior end of the body wall.

The lip margin of the columella is plate-like and the lower part has 2 oblique weak ridges. Canal open, both sides parallel and slightly curved, and there is 1 weak tooth inside near the front edge of the outer lip.)

Redescription: Shell fusiform, very solid, consisting of 1.5 protoconch and 8 teleoconch whorls. Protoconch paucispiral, ending with 3 strong axial ribs before the distinct protoconch / teleoconch discontinuity. Teleoconch whorls moderately convex, adpressed to preceding whorl, suture bordered abapically by low and broad, indistinctly imbricated spiral ridge. Axial sculpture of broad, prominent axial ribs that are regularly rounded both in their axial extension and spiral cross-section, 7 ribs per whorl on earlier spiral whorls, 8 on penultimate and last whorls; and of much lower incremental riblets, indistinct on most of whorl periphery and base, distinct only in subsutural area where they form low and solid adapical imbrications, 3 or 4 riblets between two adjacent ribs and 3 or 4 overlaying each rib. Spiral sculpture of narrow, raised primary spiral cords, 6 on spire whorls, 18 on last whorl, and much weaker secondary cords, 1 between 2 adjacent primary cords.

Siphonal canal open, long, recurved abaxially from aperture. Aperture lirate, 16 lirae extending spirally as far as one can see, corresponding with primary and secondary cords, most abapical lira stronger, forming a spirally elongated tooth constricting the base of the siphonal canal. Outer lip dentate. Inner lip detached, forming very oblique, narrowly open slit-like umbilicus, with one columellar plica and trace of a second. Color of protoconch and interior of aperture white. Teleoconch background colour creamy white, with narrow, light brown basal band below periphery and light brown siphonal canal; axial ribs dark brown, with very distinctly set of white primary spiral cords.

Size: to 51.3 mm; length 40.5 mm, width 16.4 mm, body length 28.6 mm, aperture (with canal) 21.5 mm

Range: Japan to Taiwan, the Philippines, Solomon Islands, Vanuatu and Tonga

Remarks: *F. kandai* is variable in colour, with extreme specimens almost uniformly orange-brown and others with brown colouration restricted to the axial ribs; although most of the specimens from Japan belong to the dark form, and most of those from the South Pacific belong to the lighter form, both forms and intermediates apparently coexist in the Philippines. The number of axial ribs is also a variable character, from a low of 7 on the last whorl in Japan, to 9, and occasionally 10, in the Philippines and Tonga. The number of spiral cords, by contrast, seems to be fairly constant throughout the range.

Turrilatirus craticulatus and *Turrilatirus nagasakiensis* are immediately distinguishable from *F. kandai* by the long anterior canal.

Latirus strangei seems to be the closest to *F. kandai*, but it is short, small and solid, and the canal is shorter, too. The fact that the umbilicus of *F. kandai* is extremely conspicuous can also be said to be a major difference.

F. kandai superficially resembles *F. balicasagensis*, and lives sympatrically with it in the Philippines. In *F. balicasagensis*, the shell is less solid, the siphonal canal is narrower, and the whorls are much more convex. *F. kandai* has a paucispiral protoconch, indicating non-planctotrophic larval development, whereas the protoconch of *F. balicasagensis* is multispiral.

F. pearsoni is also compared to *F. kandai*. *F. kandai* is rather elongated, caramel brown in colour, darker on the axial ribs, with white spiral cords; in some specimens the colors are mixed.

F. sarinae is morphologically closest to *F. kandai*. This latter species was described from material collected off Japan, but is also collected in tangle nets in the Philippine Islands. *F. kandai* is smaller than *F. sarinae* and has more prominent spiral cords that are white against a uniformly orange-brown background color versus cords that are the same color as the axial ribs. The lip of *F. kandai* is weakly dentate and the aperture is lirate right up to the lip, whereas in *F. sarinae* these lirae are interrupted by a smooth labral margin. The protoconchs of both species are similar in form, indicating that *F. sarinae* may be a reasonably widespread species.

Takashius kuroseanus resembles *F. kandai* particularly in having thick axial ribs that are ridden by raised spiral cords. But, it is easily and distinctly discriminated from *F. kandai* in having slenderer shell, paler color, slenderer canal and smaller size.

The general appearance of the ribs of *Bullockus varai* is much like that of *F. kandai*.

F. kandai has the same general sculpture and coloration of *Hemipolygona aldeynzeri*. However, the latter rarely reaches more than 56 mm, has more rounded, less angular whorls, and does not develope the funnel-like umbilicus of *H. aldeynzeri*.

For comparison with *F. sarinae* see there.

Fusolatirus luteus Snyder & Bouchet, 2006

Description: Shell fusiform, solid, consisting of 1.5 protoconch and 7 1⁄4 teleoconch whorls. Teleoconch whorls very convex, slightly shouldered adapically, hardly adpressed to preceding whorl, suture very weakly bordered by low, indistinctly imbricated spiral ridge. Axial sculpture of low, very broad, and poorly defined axial ribs, rather indistinct on first whorls, 8 on last whorl; and of still more indistinct incremental riblets, except in subsutural area where they form short, low imbrications. Spiral sculpture of low and ill-defined spiral cords, 5 primary cords with one secondary cord in interspace on first whorls, about 12, of uneven strength, on penultimate whorl, and about 25 on last whorl, very indistinct on base and canal. Siphonal canal narrowly open, moderately long, recurved abaxially from aperture. Aperture lirate, 15 lirae extending spirally as far as one can see, most abapical lira only slightly stronger. Outer lip sharp. Inner lip detached, forming oblique umbilicus, with one very weak but columellar plica and a short tooth at base of siphonal canal. Color of the shell yellowish, a little darker on axial ribs.

Size: length 46.5 mm, width 17.6 mm, last whorl height (from peristome suture to tip of canal) 23.5 mm, aperture height 14.6 mm

Range: N New Caledonia

Remarks: *F. luteus* is easily recognized by its poorly developed axial sculpture, with an overall ressemblance to buccinids classified in *Euthria* or *Buccinulum*.

F. luteus resembles *F. sarinae*, but it has a considerably larger protoconch and its axial sculpture is obsolete. In *F. sarinae*, the inner lip is adherent to the columella up to the apical end of the umbilicus, whereas in *F. luteus* it is erect and unattached from the apical end of the umbilicus to 2/3 of the distance to the posterior canal.

Despite the superficial dissimilarity, *F. luteus* may be closely related to *F. pachyus*, which differs by its larger adult size and strong and sturdy axial sculpture.

Fusolatirus nana (Reeve, 1847)

Description: *Turb. testa gracili-fusiformi, anfractibus rotundatis, longitudinaliter fortiter costatis, liris parvis conspicuis regulariter cingulata, spadiceo-fusca, columella pallide rosacea.*

Shell slenderly fusiform, whorls rounded, longitudinally strongly ribbed, regularly encircled with small conspicuous ridges; bay-brown, columella pinkish. There are faint indications of a light band about the middle of the ribs.

Size: 20-55 mm

Range: Philippines

Fusolatirus pachyus Snyder & Bouchet, 2006

Description: Shell fusiform, very solid and heavy, consisting of 7+ teleoconch whorls (protoconch and tip of teleoconch eroded). Teleoconch whorls moderately convex, rather flat at periphery, shouldered adapically and adpressed to preceding whorl, suture bordered by low and broad, coarsely imbricated spiral ridge. Axial sculpture of very broad, prominent axial ribs that are regularly rounded in cross-section but distinctly flattened at periphery in their axial extension, 7 ribs per whorl on earlier spiral whorls, 6 on penultimate and last whorls; and of much lower incremental riblets, indistinct on most of whorl periphery and base, distinct only in subsutural area where they form low and solid adapical imbrications, 4-6 riblets between two adjacent ribs and 4-6 overlaying each rib. Spiral sculpture of broad and ill-defined spiral cords, 7 on spire whorls, 8 or 9 on penultimate whorl and 25 on last whorl; no second order spiral sculpture.

Siphonal canal open, rather short, recurved abaxially from aperture. Aperture strongly lirate, 14 lirae extending spirally as far as one can see, most abapical lira only slightly stronger. Inner lip detached, forming oblique umbilicus, with one weak but distinct, and two incipient, columellar plicae and a short tooth at base of siphonal canal. Color of the shell entirely creamy white.

Size: length 52.8 mm, width 20.5 mm, last whorl height (from peristome suture to tip of canal) 27.5 mm, aperture height 16.4 mm

Range: Loyalty Ridge, New Hebrides

Remarks: *F. pachyus* superficially resembles *F. paetelianus*, but it has fewer axial ribs (6 7 vs 8 on last whorl) and fewer, much less distinct spiral cords (8 9 vs 10 on penultimate whorl). In *F. pachyus*, the siphonal canal is recurved dorsally away from the plane of the aperture and is also twisted abaxially; in *F. paetelianus*, the siphonal canal is shorter, more open, and less recurved.

Despite the superficial dissimilarity, *F. luteus* may be closely related to *F. pachyus*, which differs by its larger adult size and strong and sturdy axial sculpture.

Fusolatirus paetelianus (Kobelt, 1874)

Synonyms: *Latirus carpentariensis* Hedley, 1912

Description: *Testa elongato-fusiformis, basi gracili, anfractus 9 rotundati, sutura undulata subcrenulata divisi, spiraliter creberrime corrugato-striati, costis concentricis subobliquis, suturam non attingentibus armati; apertura ovato-rotundata, in canalem angustum elongata,*

intus fortiter lirata, margine dextro simplici, crenulato, cum lamina columellari elevata peristoma quasi continuum formante. Columella obsolete biplicata, superne et ad introitum canalis tuberculata. Cinereo-fulva, interstitiis obscurioribus, apertura albida.

Unsere Art ist lang spindelförmig, aus neun stark gewölbten Umgängen bestehend, nach unten in einen schlanken langen Stiel fortgesetzt. Sie ist dicht von runzlichen Spiralrippen umgeben und mit ziemlich schmalen, etwas schräg verlaufenden concentrischen Rippenhöckern versehen, welche schon etwas unter der Naht enden und durch etwa gleichbreite Zwischenräume getrennt sind. Die Mündung ist kurz eiförmig, in einen kaum kürzeren engen Canal fortgesetzt, im Schlunde stark gerippt, der Mundrand gezähnelt, die Spindelplatte steht fast senkrecht und hebt sich ein wenig vom Gehäuse ab, so dass ein förmlicher zusammenhängender Mundsaum entsteht, welcher der Schnecke ein eigenthümliches Ansehen gibt; ausser den beiden undeutlichen Falten trägt die Spindel noch oben, sowie unten, wo sie in scharfem Winkel in den Canal übergeht, je ein Knötchen. Die Färbung ist ein ziemlich gleichmässiges gelbliches Grau, nur in den Zwischenräumen der concentrischen Rippen dunkler, die Mündung innen gelblichweiss.

(Shell elongate-fusiform, base slender, 9 rounded whorls, divided by a wavy subcrenulate suture, spirally very thickly corrugated-striated, suboblique concentric ribs, ribs not touching the suture; aperture ovate-rounded, elongated into a narrow channel, strongly striated inside, with a simple, crenulated right margin, with a raised columellar plate forming a continuous peristome. Columella obsoletely bifurcated, tuberous above and at the entrance of the canal. Grey-yellow, with darker interstices, aperture whitish.

Shell long fusiform, with 9 strongly convex whorls, continuing downwards into a slender long siphonal canal. It is densely surrounded by wrinkled spiral ribs and provided with rather narrow, somewhat sloping concentric ribs, which end somewhat below the suture and are separated by spaces of about the same width. The aperture is short egg-shaped, continued in a narrow canal that is hardly shorter, strongly ribbed inside, the edge of the mouth serrated, the columella plate is almost vertical and stands out a little from the shell, so that a formal connected aperture rim results, which gives the snail a peculiar appearance; in addition to the 2 indistinct folds, the columella has a nodule both above and below, where it merges into the canal at a sharp angle. The coloring is a fairly uniform yellowish grey, darker only in the spaces between the concentric ribs, the aperture is yellowish white on the inside.)

Size: length 46 mm, width 20 mm, length of aperture (without canal) 12 mm, canal 13 mm

Range: China?

Remarks: From *Fusolatirus paetelianus the form F. p. f. carpentariensis* appears to differ in colour and by having the same number of whorls in 3/4 the size.

F. paetelianus is heavier and broader than *F. pearsoni*.

The Australian form of *F. paetelianus* develops a heavy fasciole and a somewhat wide umbilicus as *Hemipolygona aldeynzeri*. However, *F. paetelianus* only reaches 60 mm in length and is uniform orangebrown in coloration.

F. pachyus superficially resembles *F. paetelianus*, but it has fewer axial ribs (6 7 vs 8 on last whorl) and fewer, much less distinct spiral cords (8 9 vs 10 on penultimate whorl). In *F. pachyus*, the siphonal canal is recurved dorsally away from the plane of the aperture and is also twisted abaxially; in *F. paetelianus*, the siphonal canal is shorter, more open, and less recurved.

compare to *Latirus constrictus*

Fusolatirus pagodaeformis (Melvill, 1899)

Description: *L. testa attenuata, fusiformi, fusca, ad medium costarum albescente, deinde infra spiraliter fusco-zonata; anfractibus decem, quorum tres apicales pallida brunnei, vitrei, laeves, caeteris tumidis, apud suturas multum impressis, longitudinaliter rotundicostatis, costis crassis, apud ultimum anfractum decern, undique spiraliter filoliratis, interstitiis arcte squamiferis; apertura ovata, intus cinerea vel pallidissime violacea; labro tenui, simplici; columella laevi, nitida, obscure et oblique quadriplicata; canali longo, paullum recurvirostri, brunneo-tincto.*

(Shell thin, fusiform, brown, whitish towards the middle of the ribs, then spirally brown-zoned below; 10 whorls, the 3 apical whorls are pale brown, vitreous, smooth, the rest swollen, at the sutures much impressed, longitudinally rounded, thick ribs, 10 at the last whorl; fine spiral lirae, the interstices closely scaly; aperture ovate, inside gray or very pale violet; lip thin and simple; columella smooth, shiny, with 4 obscure and oblique folds; canal long, slightly recurved, brownish.)

Size: length 28 mm, width 9.5 mm

Range: Persian Gulf

Remarks: The nearest congener of this shell is *Peristernia pulchella*. *F. pagodaeformis* differs in its far more tumid whorls, pinched in and compressed at thesutures, and likewise in the long, recurved, and fuscous-tinged canal; the whole spire is far more attenuate, the proportion of the last whorl as breadth is to length being 8:15, while in *P.*

pulchella it is 15:22 in a normal-sized example. *F. pagodaeformis* is 10-whorled, 3 being pale brown, glassy, and apical; the remaining 7 are tumid, longitudinally thickly and roundly ribbed, and spirally lirate; colour fuscous-brown, whitish towards the middle of each whorl, where the ribs naturally are most prominent, and on the last whorl just below this runs an indistinct spiral zone of darker brown. The aperture is oval, coloured within cinereous or very pale violet, never carnation or crimson as in *P. pulchella*; the outer lip is thin and normally simple, columella obscurely and obliquely four-plaited; canal long, recurved, suffused at the base with brown.

F. pagodaeformis seems more distinct from *P. pulchella* than does *Latirus nassoides*, though perhaps the recurved canal of the latter may constitute a specific character.

F. pagodaeformis is also somewhat similar to *F. elsiae*, but is smaller, with much stronger spiral lirae and more numerous axial ribs.

Fusolatirus pearsoni (Snyder, 2002)

Description: *Conchiglia di medie dimensioni per il genere, biconica, con profilo inflato, lunghezza degli esemplari adulti da 32 a 48 mm. Spira alta, protoconca di giri 1 1/2 lisci da marrone perlaceo a bruno. La scultura inizia sul primo giro di teleoconca, la cui colorazione varia da marrone perlaceo a bruno, con 7-8 giri addizionali, variamente colorati. Scultura di 7-8 coste assiali per giro, strette ed arrotondate ed attraversate da 8-11 cordoni spirali sottili che continuano verso l'estremità distale del canale sifonale, sul quale diventano più grossolani. Sutura impressa ma attraversata dai cordoni spirali dei giri continui in direzione adapicale.*

Apertura tipicamente ovale con canale anale definito. All'interno sono presenti lire largamente spaziate le quali si interrompono al livello del margine labiale, che è liscio; interno dell'apertura da bianco ad arancione chiaro. Labbro esterno spesso, con deboli dentelli la cui posizione corrisponde ai cordoni spirali esterni. Columella breve con tre pliche variabilmente pronunciate; è presente talvolta una plica piuttosto evidente all'estremità abapicale dell' apertura vicino al canale; spesso piccole creste sul labbro approssimativamente in corrispondenza della plica opposta. Ombelico piuttosto aperto. Il colore della conchiglia varia in maniera considerevole. Il colore di base varia da bianco a bruno. Alcune parti della conchiglia variano da arancione a bruno, spesso presentando diversi pattern a strisce.

(Medium-sized shell for the genus, biconical, with an inflated profile. Spire high, protoconch of 1 1/2 smooth whorls from pearly brown to brown. The sculpture begins on the first whorl of teleoconch, whose color varies from pearly brown to brown, with 7-8 additional whorls, variously colorful. Sculpture of 7-8 axial ribs per whorl, narrow and rounded and crossed by 8-11 thin spiral cords which continue to the distal end of the siphonal canal, upon which they become coarser. Impressed suture but crossed by the spiral cords of continuous whorls in an adapical direction.

Typically oval aperture with defined anal canal. Inside there are widely spaced lirae which stop at the level of the labial margin, which is smooth; inside of aperture white to light orange. Outer lip thick, with faint indentations corresponding to the outer spiral cords. Columella short with 3 variably pronounced folds; a rather evident plica is sometimes present at the abapical end of the aperture near the canal; often small ridges on the lip corresponding approximately to the opposite fold. Umbilicus rather open. The color of the shell varies considerably. The basic color varies from white to brown. Some parts of the shell vary from orange to brown, often with various striped patterns.)

Size: 32 to 48 mm

Range: Philippines, Vietnam

Remarks: *F. pearsoni* has often been confused with *Latirus constrictus*, which is generally larger (up to 58.1 mm), has a shorter siphonal canal, weak or obsolete columellar folds, and an uniform orange to orange-brown coloration.

The comparison is also made with *F. formosior. F. formosior* usually has at most 6-7 axial ribs, a short siphonal canal, and is uniformly yellow or orange-yellow.

F. kandai is rather elongated, caramel brown in colour, darker on the axial ribs, with white spiral cords; in some specimens the colors are mixed.

F. paetelianus is a heavier and broader species.

Fusolatirus rikae (Fraussen, 2003)

Description: Shells solid. Shape fusiform with slender spire, angulate, sipho short. Colour orange-brown. Dark brown dots, situated on axial ribs, fine, horizontally orientated, separated by a pale brown, occasionally white dot, arranged in about 5 or 6 spiral bands, the 3 or 4 abapical ones occasionally fused to become a broad band. Protoconch white, rather bulbous, consisting ot 1 1/4 to 1 1/2 whorls. Diameter 1-1.1 mm.

7 teleoconch whorls, convex between axial ribs, carinated on axial ribs. Subsutural concavity strong. Suture ornamented with a double band upper band on suture, narrow, consisting of minute wrinkled irregular folds, second band weak, consisting of some weak, white, hardly recognizable knobs.

5 strong, well rounded spiral cords on 2 upper teleoconch whorls. On penultimate whorl 8, on body whorl 13, thin, moderately elevated spiral cords, of which 5 between carina and lower suture. Interspaces broad, with 3 or 7 extremely fine, hardly visible lirae, the central one slightly stronger. Siphonal canal with 11 rather broad and flat spiral cords. 8-10 strong axial ribs on first teleoconch whorl, 7 or 8 on penultimate and body whorl. Interspaces broad.

Aperture ovate, yellowish to brownish, white near edge of outer lip, subadult. Columella pale brown, callus thin or absent, transition to siphonal canal smooth, columellar denticles not yet visible. Outer lip thin with 12-14 internal striae, edge sharp, anal fold already visible in these subadult specimens. Siphonal canal short, slightly curved, open. Aperture with siphonal canal slightly shorter than 1/2 total shell length.

Redescription: Adult shell small for genus (with tall, turriculate spire and long siphonal process. Protoconch of 1.5 whorls, small, glassy, white or brown; no step at transition point to teleoconch. Seven teleoconch whorls bearing broad axial ribs crossed by spiral cords; seven broad, rounded major cords between upper and lower suture immediately above aperture, interspersed with minor cords of varying strength; cords persist over axial ribs. Cords fewer and less pronounced above periphery. Single prominent cord on lower body whorl, corresponding to projected path of suture. Fine axial growth lines present between spiral cords, but summits of cords almost smooth; lines can be pronounced and regular, giving cancellate appearance. Suture impressed, ragged, with immediately subsutural band of numerous crowded, lunate imbrications that bridge suture.

Aperture quadrate in adults, occasionally flaring slightly in lower outer quarter. Parietal margin thickened in adults to form porcellaneous callus. Interior smooth, with spiral lirae corresponding to troughs between external spiral cords; terminal points of lirae at lip form slightly to clearly pronounced dentition, colored dark brown in some specimens. Pronounced constriction of parietal and labral sides where aperture leads into siphonal canal; canal immediately broadening again, thereafter open, narrow and of even breadth, not flaring at tip. Siphonal process long, strongly recurved, with pronounced torsion; terminus of suture to tip of process averages 57.5% of shell length (n = 9). Parietal margin of siphonal canal pronounced and detached over entire length of process.

Teleoconch peach color to pale brown, overlaid with blotches and/or spiral bands of darker reddish brown; blotches most pronounced on axial ribs and in subsutural band. Spiral cords occasionally whitened at summits of axial ribs. Interior of aperture matches base color of shell exterior.

Operculum thin, translucent, dark brown; characteristic fasciolariid auriform, with slightly hooked terminal nucleus.

Size: length 23 mm; average length 23.4 mm (n = 9)

Range: Philippines

Remarks: *F. rikae* looks remarkably similar to *F. suduirauti* and is without doubt closely related, but differs by multiple conchological differences. The protoconch of *F. rikae* is smaller in number of whorls (1 1/4-1 1/2 instead of 1 3/4-2 1/4) and bulbous (instead of rather conical), the subsutural concavity is rather strong (instead of weak), the double subsutural band has a weak second cord with hardly visible knobs, less spiral cords on the penultimate whorl, body whorl and on the siphonal canal (8 instead of 15-22), the broader interspaces with a higher number of intercalated lirae (3-7 instead of 0-3), the slightly lower number of axial ribs on the first whorl (8-10 instead of 10-11) and the already broad interspaces from the beginning (instead of narrow at first and becoming broader somewhat later), the slightly broader spire with whorls which increase in size more rapidly (7 whorls correspond with 6 1/2 whorls in subadult *F. suduirauti*), the siphonal canal is slightly shorter, and the surface of the shell looks not as brilliant or glossy.

F. rikae is very similar to *F. coreanicus*, which differs by its very short siphonal canal, coarser spiral sculpture and blotched colour pattern. The coloration of *F. rikae* tends more to the red end of brown than the more gray and purple hues of the Japanese *F. coreanicus*. In addition, the imbrications of the subsutural band in *F. rikae* are more prominent and numerous.

For comparison with *F. higoi* see there.

Fusolatirus sarinae (Snyder, 2003)

Description: Shell médium size for genus, fusiform. Siphonal canal short, straight, angled from apertural plane, umbilicus open in larger specimens but as slit on smaller specimens. Smooth whitish protoconch of approximately 1 whorl, eroded on most specimens; teleoconch of 8-9 whorls with 8 heavy rounded axial ribs per whorl. Ribs on teleoconch solidly colored yellow-orange to orange-brown, interstices between with longitudinal bands of predomínate shell color interspersed with white bands, 6-7 such bands on body whorl with narrow white band by suture, siphonal canal mostly white. Weak spiral cords most visible crossing axial ribs, with weaker axial lines. Suture impressed with white imbrícate dentation from abapically contiguous whorl. Aperture ovate, lip weakly dentate, thin at edge and thickened within, aperture lirate within after 4 mm smooth inner lip. Columella smooth with one plica with traces of a second plica in some specimens.

Size: 48.9 mm 55.0 mm

Range: Philippines

Remarks: *F. sarinae* is morphologically closest to *F. kandai*. This latter species was described from material collected off Japan, but is also collected in tangle nets in the Philippine Islands. *F. kandai* is smaller than *F. sarinae* and has more prominent spiral cords that are white against a uniformly orange-brown background color versus cords that are the same color as the axial ribs. The lip of *F. kandai* is weakly dentate and the aperture is lirate right up to the lip, whereas in *F. sarinae* these lirae are interrupted by a smooth labral margin. The protoconchs of both species are similar in form, indicating that *F. sarinae* may be a reasonably widespread species.

F. luteus resembles *F. sarinae*, but it has a considerably larger protoconch and its axial sculpture is obsolete. In *F. sarinae*, the inner lip is adherent to the columella up to the apical end of the umbilicus, whereas in *F. luteus* it is erect and unattached from the apical end of the umbilicus to 2/3 of the distance to the posterior canal.

Fusolatirus suduirauti (Fraussen, 2003)

Synonyms: *Latirus cloveri* M. A. Snyder, 2003

Description: Shell of medium size, thin but solid. Shape fusiform with slender spire, whorls angulate, sipho short.

Colour yellowish brown. Brown dots, situated on axial ribs, arranged in 2 spiral bands, separated by a pale spiral band which is occasionally white when crossing axial ribs. Protoconch white, well rounded, surface smooth, with 1 3/4 to 2 1/4 well convex whorls, at first minute, gradually increasing in size. Diameter 1.1-1.2 mm.

9 teleoconch whorls, carinated on axial ribs, interspaces convex. Subsutural concavity weak. Suture ornamented with a double band upper band on suture, narrow, consisting of small axial semilunar scales, second band consisting of small, white, low knobs. 5 strong, well rounded spiral cords on 2 upper teleoconch whorls, 5 or 6 on third teleoconch whorl 11-22 thin, moderately elevated, spiral cords on penultimate whorl, of which 8-11 between carina and lower suture. Interspaces as narrow as cords, smooth or with 1 or 3 fine, hardly visible, lirae. Body whorl and siphonal canal with 25-35 fine spirals, denser and finer towards tip of siphonal canal.

10 or 11 strong axial ribs on first teleoconch whorl, 8 or 9 on penultimate whorl, 9 or 10 on body whorl. Ribs pronounced on periphery, resulting in angulate whorls. Interspaces at first narrow, towards second whorl as broad as ribs, but wider from third whorl on.

Aperture ovate, yellowish to brownish, snow-white near edge of outer lip. Columella brown, callus thin or absent, smooth, with 1 strong abapical and 1 strong adapical columellar denticle, occasionally 1-5 additional weak denticles, transition to siphonal canal smooth. Outer lip thin, with 18-20 internal lirae. Edge sharp, slightly furrowed. Connection between lip and columellar callus rather thick, anal fold striking, situated on lip rather than on transition to columella. Siphonal canal short, slightly curved, open. Aperture with siphonal canal about 1/2 of total shell length (holotype) or slightly lesser.

Size: length up to 56.4 mm

Range: Philippines

Remarks: *F. suduirauti* is characterized by the angulate whorls and elongate, rather pagodoid, shape, the double subsutural band, of which the upper one is sculptured with minute axial scales, and by the weak subsutural concavity.

For differences with *F. rikae* see the comparison under that species.

Euthria walleri has a somewhat similar shell, but can be distinguished by the presence of a well developed subsutural concavity, by the axial ribs which have the carina situated closer to the upper suture, and which give the whorls a parallel outline (instead of angulate), the pattern based on a cream brown background with fine, alternating darker and paler, spiral lines and by a more elongate, narrow siphonal canal.

Siphonofusus lubricus, from Japan, differs from *F. suduirauti* by the smooth shell with convex whorls and subsutural concavity.

The protoconch, of 2 smooth whorls with axial riblets in the last 1⁄4 whorl, white mottled with light brown, is very similar to that of *F. elsiae* and *F. balicasagensis*.

Hemipolygona Rovereto, 1899

Synonyms: *Chascax* R. B. Watson, 1873 (Junior homonym of *Chascax* Ritgen, 1829 [Reptilia]; *Hemipolygona* is a replacement name.)

Type species: *Hemipolygona armata* (A. Adams, 1855)

Description: of *Chascax*: Shell spindle-shaped, strongly umbilicated, longitudinally ribbed and spirally ridged, but without varices. Epidermis horny. Mouthedge angulated. Outer and inner lip quite smooth. Canal long, narrow, and deep, bent a little to the left, but not at all reversed in front. Operculum strong, horny; nucleus terminal, internally strengthened by a broad ridge all along the right margin.

Redescription: Shell medium to large, fusiform, with strongly constricted base; siphonal protuberance straight, moderately long; spire whorls stepped; last whorl with deeply concave subsutural sector, crossed by subdued axial ribs; central sector of last whorl with 12 or fewer prominent, high, rounded axial ribs, and high spiral cords that usually form nodes at prominent shoulder angulation, central cord, and sometimes other points of intersection with axial ribs; outer lip of adult usually sharp, strongly to weakly ornamented with paired crenations on central sector; lip planar to weakly convex, with abapical and adapical sinuses absent or very poorly developed; inner side of outer lip with beaded lirae, not forming denticles; inner lip with several abapical folds and, in adults, a very weakly developed parietal nodule; pseudoumbilicus usually present.

Size: maximum length 30 to 109 mm

Range: pantropical, Indo-West Pacific, E Atlantic, W Atlantic and E Pacific

Remarks: *Hemipolygona* comprises strongly sculptured species with a pronounced shoulder angulation, nodes where the shoulder angulation, central cord, and sometimes other cords cross axial ribs, a relatively long siphonal protuberance and beaded lirae.

Bullockus is distinguished from *Hemipolygona* by lacking distinct columellar plicae and by having sutures that are finely incised between the smooth surfaces of adjacent whorls, without adjacent cords, wrinkles or lamellae.

Polygona differs from *Hemipolygona* in lacking nodes where axial ribs intersect spiral cords except at the shoulder angulation.

The anterior location and low, oblique shape of the columellar plicae distinguish species of *Lightbournus* from species of *Hemipolygona,* whose columellar plicae are generally stronger, aligned more nearly perpendicular, and situated higher on the columella.

Hemipolygona is a genus which cannot be confused with *Tarantinaea*, being adorned with 3 spiral rows of protruding tubercles and is strongly umbilicate.

Comparisons with *Latirus* are given under that genus.

Hemipolygona aldeynzeri (E. F. García, 2001)

Description: Shell broadly fusiform, prominently fan-shaped dorsally at anterior end, creating a wide, funnel-like umbilicus when seen ventrally; moderately heavy, with strong axial and spiral sculpture. Protoconch white, with convex whorls; surface eroded. Teleoconch of about 8.5 tabulated whorls with 7 rather sharp, rounded axial ribs; ribs about equal in width to interspaces in early whorls, becoming somewhat narrower than interspaces in last whorl; inconspicuous axial growth lines covering surface of shell, giving a corrugated appearance to surface when crossed by spiral cords; at times showing lamellations, particularly so between labial and penultimate axial ribs.

Spiral sculpture of well-defined cords. 20 between top of shoulder and base of last whorl, alternating in strength, most conspicuous cords at shoulder, at base of last whorl and at anterior fan-shaped end. Aperture widely ovate, lirate within; outer lip thin, crenulated; pariétal wall erect anteriorly; siphonal canal open, long, strongly recurved. Surface color and spiral cords yellowish-white, burned-orange on axial ribs and fan-shaped anterior end; aperture porcellaneous white within, with color pattern of outer surface showing at edge of outer lip. Operculum 9.7 mm in length, comeous, rather thin, dark brown, with terminal nucleus.

Size: length 90.2 mm, width 39.4 mm

Range: Philippines

Remarks: The structural characteristics of the anterior end of *H. aldeynzeri* separate it from most *Latirus*.

Completely mature *Nodolatirus recurvirostra* have a somewhat similarly developed anterior end. However, the latter differs from *H. aldeynzeri* in having a more tubular, less fan-shaped anterior end; in almost totally lacking spiral sculpture in apical whorls; in showing wider, much less numerous spiral cords in body whorl, with a maximum of 7 from top of shoulder to base of whorl; in having wider, less rounded axial ribs; in having an almost solid tan coloration; and in having tan colored aperture. Moreover, the periphery of the umbilical area of *N. recurvirostra* shows an axially oriented growth pattern in the form of heavy crenulations, instead of the well-defined, barely corrugated spiral cord of *H. aldeynzeri*.

The Australian form of *Fusolatirus paetelianus* also develops a heavy fasciole and a somewhat wide umbilicus. However, it only reaches 60 mm in length and is uniform orangebrown in coloration.

Fusolatirus kandai, a species that occurs from Japan to the Philippines, has the same general sculpture and coloration of *H. aldeynzeri*. However, the latter rarely reaches more than 56 mm, has more rounded, less angular whorls, and does not develope the funnel-like umbilicus of *H. aldeynzeri*.

Hemipolygona amaliae (Kobelt, 1874)

Description: *Testa fusiformis, cauda elongata, curvata; anfractus 9 angulati, transversim plicati, plicis ad angulum tuberculatis; spiraliter rude lirati, liris parum prominentibus, in cauda tantum acutioribus. Apertura testae dimidiam parum superans, subtriangularis, in canalem angustum, ad partem dextram curvatum terminata, labro externo simplici crenulato, medio angulato, fauce lirato, ad canalem acute tuberculato, columella triplicala. Brunneo-lutescens, liris albidis, costis in interstitiis lirarum brunneis; apertura fuscescente-brunnea.*

Gehäuse schlank spindelförmig, mit ziemlich langem, gekrümmtem Stiel; 9 langsam zunehmende kantige Umgänge, durch eine wellenförmige, crenulirte Naht verbunden, stark quer gefaltet, die Faltenhöcker breiter als die Zwischenräume, an der Kante ein Knötchen bildend, nach oben die Naht kaum erreichend. Die Spiralsculptur besteht aus groben, aber wenig vorspringenden Rippen mit breiteren Zwischenräumen; nur auf dem Stiel springen sie stärker vor. — Die Mündung ist mit dem Canal wenig länger als das Gewinde, fast dreieckig, in einen langen, engen, nach rechts gekrümmten Canal übergehend; der Mundrand ist einfach, scharf, leicht crenulirt, der Gaumen gerippt, am Eingange des Canals ein kleines, scharfes Knötchen tragend; Spindelumschlag schwach, eine Nabelritze freilassend, mit drei deutlichen Fältchen. Der Grund ist hell-braungelb, die Spiralrippen sind weissgelb und ihre Zwischenräume auf den Höckern kastanienbraun. Spindel und Mündung sind gelblichbraun.

(Shell fusiform, siphonal canal elongated, curved; 9 angular whorls, transversely folded, the folds at the angle tuberculate; spirally coarsely lirated, the lirae little prominent, only sharper on the siphonal canal. Aperture slightly exceeding half of the shell, subtriangular, ending in a narrow canal, curved to the right, outer lip simple crenulate, angled in the middle, aperture lirate, at the canal acutely tuberculate, columella with 3 folds. Brownish-glossy, whitish lirae, ribs in the interstices of the lirae brown; aperture dark-brown.

Shell slender spindle-shaped, with a rather long, curved siphonal canal; 9 slowly increasing angular whorls, connected by a wavy, crenulated suture, strongly transversely folded, the ribs wider than the spaces between, forming a nodule at the edge, scarcely reaching the suture at the top. The spiral sculpture consists of coarse but slightly projecting ribs with wider spaces between them; only on the siphonal canal they do protrude more. The aperture with the canal is a little longer than the spire, almost triangular, merging into a long, narrow canal curving to the right; the edge of the aperture is simple, sharp, slightly crenulated, the palate ribbed, bearing a small, sharp nodule at the entrance of the canal; reflected columellar margin weak, exposing an umbilical fissure, with 3 distinct small plications. The ground color is light brown-yellow, the spiral ribs are white-yellow and their interstices on the ribs maroon. Spindle and aperture are yellowish brown.)

Size: length 50 mm, width 23 mm, length of aperture 27 mm, length of canal 13 mm

Range: orig. unknown; India, W Thailand

Remarks: The coloring is reminiscent of some forms of *Latirus polygonus*.

H. amaliae has decidedly stronger sculpture than *Latirus tigroides*, a longer siphonal canal and a yellowish-brown aperture.

Hemipolygona armata (A. Adams, 1855)

Synonyms: *Chascax maderensis* R. B. Watson, 1873, *Turbinella spinosa* Gray, 1838

Description: *L. testa ovato-fusiformi, umbilicata, spira apertura breviore, fulva, epidermide fusca obtecta; anfractibus longitudinaliter plicatis, lira prominenti transversa (muricata ad plicas) in medio anfractuum ornatis, ultimo liris minoribus instructo; apertura ovali, canali recto, aperto, columella obsolete plicata, plicis quinque, labro intus sulcato, margine crenato.*

(Shell ovate-fusiform, umbilicate, spire shorter than aperture, yellow, covered with a brown epidermis; longitudinally folded whorls, a prominent muricated transverse ridge in the middle of the whorls, the last whorl with smaller lirae; aperture oval, canal straight, open, columella obsoletely folded, five folds, inner lip furrowed, margin crenate.) Shell covered with a brown epidermis.

Size: up to 54 mm

Range: orig. California (doubtful); W Africa

Remarks: *Bullockus mcmurrayi* is proportionally longer, and lacks the very strong spiral costae of *H. armata*.

The shell of *H. carinifera* is somewhat similar to *H. armata*, but it lacks the 2 prominent contiguous spiral cords at the base of the body whorl.

H. mosselensis has somewhat the build of *H. armata*, but is much larger with a longer canal; the surface is noticeably smooth but for the nodules, which are below the periphery of each whorl instead of above as in *H. armata*.

Hemipolygona beckyae (Snyder, 2000)

Description: Shell broadly fusiform, biconic, moderately heavy, with prominent axial and spiral sculpture. Protoconch with 1 3/4-2 smooth, bulbous, white, translucent whorls, with axial sculpture and shoulder developing in last 1/4 whorl. Transition to teleoconch abrupt, distinguished by coarser axial sculpture, onset of spiral sculpture, and by change of color from white to orange-tan. Teleoconch with up to 8 1/2 convex, strongly sculptured whorls. Axial sculpture dominant, consisting of 7-8 strong, broad ribs per whorl, aligned with spaces between ribs of previous whorl. Ribs rounded on early whorls, becoming increasingly angular with size. Growth lines forming widely spaced lamellae, eroded on early whorls and on spiral cords, most prominent along adpressed suture and between spiral cords on body whorl. Spiral sculpture of strong, cream-colored cords (3-5 on early whorls, 5-7 between suture and periphery, 6-7 between periphery and siphonal canal, 6-9 on siphonal canal) that are most pronounced along axial ribs. Weak threads (1-2) may be present between adjacent cords. Aperture ovate, with weakly developed posterior canal. Columella with 1 weak, narrow fold below mid-aperture, and one weak, broad fold over the fasciole, which may represent two partially fused folds. Outer lip crenulated, with 12-15 irregular lirae running into the aperture. Siphonal fasciole well developed. Pseudoumbilicus slit-like, prominent, open. Siphonal canal as long as aperture, broad, open, proximal end demarcated by tubercles on columella and outer lip. Shell color a dense caramel-tan, with cream spiral cords and threads. Operculum medium dark-brown, claw-like, with terminal nucleus.

Size: length to 54 mm

Range: Espirito Santo State, Brazil

Remarks: *H. beckyae* is readily distinguished from conchologically similar species in the same genus by its caramel color, white spiral banding, and angular profile.

H. beckyae resembles *Bullockus varai* but is readily distinguished from it by its smaller, differently colored shell. *H. beckyae* has roughly half as many strong spiral cords as *B. varai*. The axial ribs in *H. beckyae* are whitish whereas in *B. varai* the axial ribs are light chestnut brown.

H. beckyae might also be confused with some specimens of *H. cuna* from Honduras and east Panama. This latter species is usually bright orange or yellow and broader overall with a proportionally shorter canal than *H. beckyae*. *H. cuna* has pairs of white cords on the body whorl and sometimes on earlier whorls as well as on the terminal part of the body whorl. Because of these white spiral cords, an orange-brown color form of *H. cuna* superficially

resembles *H. beckyae*. Separation of the two species is easy: *H. beckyae* is more elongate and angular, with a relatively larger teleoconch than *H. cuna*.

There are 4 previously known species of *Latirus* endemic to Brazil, all of which are very distinct from *H. beckyae*. *Polygona devyanae* from southeastern Brazil, has a distinctive curved siphonal canal and grows to just 35 mm.

Polygona lactea, from northern Brazil, is glossy-white and grows to just 32 mm.

Pustulatirus ogum from eastern Brazil has few large smooth axial nodules and attains 43 mm.

Polygona vermeiji, from the northern coast of Brazil, is very small with a short stumpy canal, growing to just 26 mm.

There are five other Caribbean species of *Latirus* also found in northern Brazil. Four of them differ in shape and color from *H. beckyae*: *H. carinifera, Polygona angulata, Polygona infundibulum*, and *Pustulatirus virginensis*. *Polygona bernadensis* is uniformly light-cream-orange, a color that sets its apart from *H. beckyae.*

There are 6 species of Fusinus known from Brazil, of which 2 are superficially similar to *H. beckyae*. The other 4 species that cannot possibly be confused with *H. beckyae* are large Fusinus, all with more or less dark brown markings. These are *Fusinus brasiliensis, F. closter* (= *Lyonsifusus ansatus*), *F. marmoratus* (= *Marmorofusus verrucosus*), and *F. strigatus*.

The superficially similar species are *Fusinus hartvigii* and *Apertifusus frenguellii*. *F. hartvigii* exhibits a different color pattern and more numerous axial ribs than *H. beckyae*.

Young specimens of *Apertifusus frenguellii* could be confused with *H. beckyae*. The axial ribs of *A. frenguellii* are more numerous and its coloration ranges from uniform white to pale orange.

Hemipolygona bonnieae (Smythe, 1985)

Description: Shell: fusiform, moderately solid, with an apparently sharp apex and a moderately long siphonal canal. The body whorl is approximately 66 % the height of the shell and the aperture approximately 57 % the height. Protoconch is in fact dome-shaped, smooth, white, 1 1⁄2 to 2 whorls, followed by one white whorl with very fine axial ribs. In the majority of shells seen by the author the protoconch is eroded. The whorls are encircled by a strong cord at the periphery which bears 7 to 8 pointed nodules. Above this cord the shoulders are concave, below it the nodules extend into rounded ribs for a short distance and bear 1 fine and 2 coarse spiral cords. Just below these cords the body whorl narrows sharply into the neck, at the anterior of which is a strong siphonal fasciole. Above this, following the line of the fasciolar ridge are 3 to 4 coarse, gemmulated cords. In some large shells is a small pseudoumbilicus or chink. On the body whorl are many fine, close growth striae; there are a few of these striae on the other whorls. The sutures are weakly impressed.

Aperture: oval, extending into a long and wide anterior canal. The outer lip is thin with fine plications inside the aperture in older shells; there are 2 sharp plications on the columella. The columellar callus is thick, highly glazed and detached in places from the body whorl. The siphonal canal is inclined to the left.

Colouring: the colour is a distinctive reddish-brown, the shell surface, columella and aperture being uniformly coloured with the exception of the conspicuous white apical whorls and the peripheral and siphonal cords which are also white.

Periostracum: thick, finely, longitudinally fibrous, dark brick.

Operculum: thick and horny, lanceolate with the nucleus at the pointed end which is sharp, very fine, numerous growth striae externally. It is convex on the exterior and incurved considerably at the apex and upper edge. Colour sepia. Internally the muscle scar is deeply incised round the edge, heavily grooved and dull; otherwise the varnish layer is glazed. The edges are thickened .

Redescription: Thick, fusiform, twice as long as broad; sutures shallow; protoconch usually eroded. Nodular axial ribs crossed by up to 4 spiral ridges, uppermost ridge very prominent; coarse growth lines between nodes. Base of columella has 2 or 3 plications; aperture lirate;sometimes with false umbilicus. Reddish brown with cream ridges; aperture apricot; apical whorls white.

Size: 35-60 mm; average height 52 mm, diameter 26 mm, body whorl height 35.6 mm, aperture height 28.5 mm

Range: Oman, E Arabia

Hemipolygona carinifera (Lamarck, 1816)

Synonyms: *Latirus trochlearis* (Kobelt, 1874)

Description: not given

Redescription: Shell highly variable, heavy. Whorls 8-9, including 1 1/2 whorls of the protoconch. Spire about half the length of the shell, but sometimes slightly less. Aperture almost square and twice as long as the short, thick siphonal canal. Axial sculpture of 8-9 moderately pronounced, squarish ribs. Spiral sculpture of heavy cords which begin at the shoulder of the whorl and continue anteriorly to the tip of the siphonal canal. 2-3 cords visible on the upper whorls, 5 on the body whorl, the 2 lowest closer together and being characteristic of this species. Between spiral cords 6-7 fine threads usually present but may be entirely absent. Sutural ramp devoid of major cords, although possibly with numerous spiral threads; at times this area is completely smooth. Columella with 2 folds with a weaker one below; occasionally 4 strong folds. Outer lip crenulated due to spiral sculpture. Within the lip are 13-22 irregular lirae which may be very weak. Fasciole present, sometimes very pronounced. Anal canal partially developed.

Color white, yellow, or light cream-orange. Spiral cords usually the same color as shell, but at times white. Many specimens, but not all, with a reddish brown bar between each axial rib of the earlier whorls. Some specimens have brown between the white spiral cords. Periostracum thin and light brown.

Size: 30-80 mm; to 73.0 mm long, 36.8 mm wide

Range: Greater Antilles, Florida, Caribbean to the N coast of S America

Remarks: This is a highly variable species, but the 2 conspicuous, heavy, contiguous spiral cords at the base of the body whorl serve to distinguish it from all other *Latirus*.

The shell of *H. carinifera* is somewhat similar to *H. armata* of the eastern Atlantic, but it lacks the 2 prominent contiguous spiral cords at the base of the body whorl.

H. cuna somewhat resembles the widespread Caribbean *H. carinifera*, but differs in being a more slender, elongated shell with a narrower, more protracted siponal canal, and in having a more sharply-angled shoulder with proportionally larger and sharper shoulder knobs.

Bullockus varai may easily be differentiated by its stronger spiral sculpture, more rounded whorls, and chestnut brown coloration on the axial ribs, not between them.

Latirus maxwelli † is related to the recent *H. carinifera*, but differs conspicuously by the profuse development of spiral sculpture and the weaker axial folds.

H. carinifera differs in shape and color from *H. beckyae.*

Hemipolygona centrifuga (Dall, 1915)

Description: Shell with 3 smooth conoid nuclear whorls, followed by 6 1/2 strongly sculptured whorls; suture appressed; axial sculpture of numerous sharp thin elevated lamellae, raised into a retractively looped frill in front of the suture and similarly but less prominently looped between its intersections with the spiral threads: on the last whorl are 8 prominent rounded ribs with subequal interspaces, which extend from the suture to the base; between the sutural frill and the shoulder of the whorl are 3 inconspicuous spiral threads; on the shoulder one very prominent cord flattened and produced at the summit of each axial rib into a spade-shaped, not pointed, horizontal spine; between this cord and another less prominent cord in front, are 1 to 3 small spiral threads; a third still less prominent cord forms the margin of the base in front of which are about 12 spiral threads which are more prominent on the canal. The color of the shell is brownish, more livid inside the aperture; the canal produced and straight, the outer lip sharp but probably immature.

Size: height 22 mm, height of spire 12 mm, maximum diameter 10 mm

Range: Galapagos

Remarks: The sculpture of this shell would identify it at any age.

In some ways *Fusinus zacae* agrees with the description of the unfigured *H. centrifuga*, but the surface of the west Mexican *F. zacae* can hardly be said to be sculptured with "elevated lamellae," or the spiral cords to form "spade shaped spines" where they cross the axial ribs.

H. cuna is similar to the Panamic *H. centrifuga*, but differs in being a more slender, elongated shell with a proportionally longer siphonal canal. Otherwise, both *H. centrifuga* and *H. cuna* share the same type of sharply-angled shoulder, large shoulder knobs, and strongly projecting shoulder cords.

Hemipolygona cuna (Petuch, 1990)

Description: Shell elongately fusiform, with high, scalariform spire and narrow protracted siphonal canal; shoulder sharply angled, with rounded, spikelike knobs; whorls with 8 narrow, raised axial ribs per whorl; axial ribs overlaid with 5 large, thick spiral cords; 2 spiral cords at shoulder largest and best developed, projecting farthest from shell body; areas between large cords ornamented with numerous very fine cords and spiral threads; siphonal canal ornamented with 4 large spiral cords; areas between large siphonal cords ornamented with numerous fine cords and threads; interior of aperture with 10-12 large, beaded cords; edge of lip finely crenulated, with crenulations corresponding to fine spiral cords and threads on shell surface; narrow umbilicus present; shell color bright orange-tan; large cords of body whorl, spire, and siphonal canal white; interior of aperture orange.

Size: 46 mm

Range: E Panama, Florida

Remarks: *H. cuna* somewhat resembles the widespread Caribbean *H. carinifera*, but differs in being a more slender, elongated shell with a narrower, more protracted siponal canal, and in having a more sharply-angled shoulder with proportionally larger and sharper shoulder knobs.

H. cuna is also similar to the Panamic *H. centrifuga*, but differs in being a more slender, elongated shell with a proportionally longer siphonal canal. Otherwise, both *H. centrifuga* and *H. cuna* share the same type of sharply-angled shoulder, large shoulder knobs, and strongly projecting shoulder cords.

H. beckyae might be confused with some specimens of *H. cuna*. This latter species is usually bright orange or yellow and broader overall with a proportionally shorter canal than *H. beckyae*. *H. cuna* has pairs of white cords on the body whorl and sometimes on earlier whorls as well as on the terminal part of the body whorl. Because of these white spiral cords, an orange-brown color form of *H. cuna* superficially resembles *H. beckyae*. Separation of the two species is easy: *H. beckyae* is more elongate and angular, with a relatively larger teleoconch than *H. cuna*.

Hemipolygona distincta (A. Adams, 1855)

Description: *L. testa fusiformi, spira aperturam magis aequante, alba; anfractibus longitudinaliter plicatis, interstitiis atro-purpureo tinctis, liris duabus elevatis, nodulosis ad plicas, et linea transversa elevata ad suturas instructis; anfractu ultimo antice constricto; apertura subquadrata, columella plicis quatuor instructa, canali aperto, labro intus plicato.*

(Shell fusiform, spire longer than aperture, white; whorls longitudinally folded, the interstices dyed dark-purple, 2 raised cords, nodular at the folds, and a raised transverse line at the sutures; last whorl narrowed anterior; aperture sub-square, columella with 4 pleats, channel open, the lip is folded inside.)

This is a white shell, with the interstices between the longitudinal plicae stained of a dark purple colour.

Size: 30-45 mm

Range: SE Florida, Gulf of Mexico and W Caribbean

Remarks: *Bullockus varai* may easily be distinguished from *H. distincta* by its stronger spiral sculpture, more rounded whorls, and especially by its possession of the chestnut brown coloration on the axial ribs, not between them.

Hemipolygona lamyi Snyder, 2007

Description: Shell medium to large-sized for genus, with 7-8 whorls. Protoconch absent or damaged in material examined; residual pieces glossy white. Teleoconch elongated with rounded whorl profile; spire roughly half of shell length. Spiral sculpture of raised, well separated cords, four on early whorls, becoming more numerous on later whorls, spaced roughly uniformly: cords span entire body whorl, extending to abapical end of neck. Seven to eight distinctly prosocline axial ribs on each whorl. Suture impressed, forming a wavy crease. Aperture ovate. Canal typically short and somewhat recurved at maturity, tilting away from plane of aperture. Lip damaged in material examined. Inner lip surface glabrous white with beaded (discontinuous) lirae that stop short of dentate shiny white

callus at edge of lip. Constriction at entrance to canal, formed by ribs from both sides. 2-3 prominent columellar folds. Pseudoumbilicus small, slit-like in smaller specimens, modestly developed in largest specimen. Color cream-orange with orange purple band about 1-2 mm wide immediately below suture.

Size: 38.7-74.0 mm

Range: W Guadeloupe, French Antilles

Remarks: *H. lamyi* is readily distinguished from its relatives *Bullockus honkeri* and *Bullockus varai*:

- It is larger than *B. honkeri*, has a different color pattern, and axial ribs that are distinctly prosocline, a rare character in the family Fasciolariidae. The unusual purple band below the suture on *H. lamyi* is clearly visible in both the smallest and the largest specimens.
- *B. varai* has a shorter canal than *H. lamyi* and the spiral cords are more pronounced. It too has a different color pattern.

Hemipolygona mcgintyi (Pilsbry, 1939)

Synonyms: *Latirus carinifer mcgintyi* Pilsbry, 1939

Description: The shell is strong and solid, openly umbilicate, fusiform, the spire tapering rather slowly (the early whorls lost in the type); the periphery (measured in front) about midway of the length; anterior part of the last whorl cylindric, terminating in a narrow siphonal fasicole around a large, funnel-shaped umbilicus. Suture not deeply impressed. Sculpture of heavy rounded axial folds at the periphery and downward to the basal contraction, 8 on each of the later whorls. These are crossed by about 5 spiral cords, more prominent in the intervals of the folds, the lower 2 being contiguous and forming a weak angulation next to the basal concavity; there are also several low, unequal spirals on the cylindric anterior part. Between the cords there are several unequal spiral threads; these extend also over the foldless concave zone between periphery and suture. The irregularly racquet-shaped aperture has about 9 lirae in the throat and two oblique folds on the columella, a barely perceptible third fold below them. Anterior end of the siphon is recurved. The shell is cream colored, with traces of tawny-olive periostracum where unworn. The aperture is shell pink within, deepening to coral pink in the throat.

Size: length 69.5 mm, width 31 mm, length of aperture 36.5 mm (about 6 remaining whorls)

Range: Florida

Remarks: *Nodolatirus recurvirostra* is a peculiar species of this group, much more lengthened and slender anteriorly than *H. mcgintyi*.

Latirus maxwelli † is related to the recent *H. mcgintyi*, but differs conspicuously by the profuse development of spiral sculpture and the weaker axial folds.

H. mcgintyi is more inflated than *Polygona anapetes* and its periphery is angulated.

The presence of 2 well developed cords on the earlier whorls of *Polygona jucunda* suggests the recent *Hemipolygona mcgintyi*.

Hemipolygona mosselensis (Tomlin, 1932)

Description: Shell turreted, fusiform, rimate, with spire produced; whorls 11 in number, acutely nodulous a little below the middle of each whorl, with an additional row of much weaker nodules below the periphery of the body-whorl; canal long and quite straight; colour of periostracum brownish terracotta, columella and interior bright pinkish; columella quite straight, with 2 plaits obscure and only just traceable; the length of aperture and canal is almost exactly half the total length.

The operculum is typically Fasciolariid, pear-shaped, pointed at the apex with apical nucleus; colour light-brown; narrowly concave on the columellar side; growth-lines very numerous and regularly semicircular.

Size: length 53.5 mm, width 23 mm

Range: Mossel Bay, South Africa

Remarks: This fine species has somewhat the build of *H. armata*, but is much larger with a longer canal; the surface is noticeably smooth but for the nodules, which are below the periphery of each whorl instead of above as in *H. armata*.

Lamellilatirus Lyons & Snyder, 2008

Type species: *Lamellilatirus ceramidus* (Dall, 1889)

Description: Peristerniine gastropods with fusiform shells of small to medium size; whorls sculpted with moderate to strong axial ribs and less prominent spiral cords; sutures distinct, bordered anteriorly by prominent, dense band of lamellae; siphonal canals relatively short, slender, canted to left; aperture ovate, constricted anteriorly and posteriorly, with parietal shield bearing very weak, oblique columellar plicae and outer lip bearing internal lirae that are entire posteriorly but interrupted as beaded dots and dashes anteriorly on mature specimens.

Redescription: Shell small to medium size, fusiform, light-weight, with columellar folds faint or (usually) lacking and with abundant scale-like lamellae on sutural ramp.

Size: lengths to 51.0 mm

Range: W Atlantic

Remarks: *Lamellilatirus* is distinguished from *Fusinus* by having faint but definite oblique columellar folds; shells of *Fusinus* lack columellar folds.

Its relatively light-weight shells bearing conspicuous subsutural axial lamellae and faint oblique columellar plicae distinguish *Lamellilatirus* from other *Latirus*-like genera, most of which have heavier shells with well-developed, near-perpendicular columellar plicae.

Shells of some species of the Indo-west Pacific genus *Fusolatirus* resemble those of *Lamellilatirus* but differ by having a *Peristernia*-like radula.

Lightbournus is readily distinguished from *Lamellilatirus*, with which it has been confused, by its lack of subsutural lamellae; although species of both genera have oblique columellar plicae, those of *Lamellilatirus* are broader, lower, and much less distinctly defined than those of *Lightbournus*.

Lamellilatirus boucheti Lyons & Snyder, 2019

Description: Shell small for genus, fusiform, slender, with prominent axial ribs, spiral cords of subequal size and abundant subsutural lamellae. Protoconch of 2 elevated, glassy whorls, first whorl smooth, subglobose and with immersed tip; second whorl slightly wider, with 2 or 3 very faint axial riblets near junction with teleoconch. Teleoconch of 7 whorls, each with 7 or 8 loosely aligned, well-developed axial ribs crossed by spiral cords; 3 subequal cords on whorls 1-3, increasing by intercalation to about 6 on penultimate whorl, usually separated by single faint spiral threads; 2 medial cords larger on whorls 4 and 5, diminishing in relative size on penultimate whorl. Body whorl with broadly rounded axial ribs and about 10 spiral cords; cords most prominent where crossing ribs, each cord separated from others by about 3 faint threads. Suture deeply impressed, slightly undulating, bordered anteriorly by sutural ramp bearing many prominent, scale-like lamellae. Base with about 6 rather small cords, tapering rapidly to short, slender siphonal process; 9 or 10 thin, oblique cords continuing to tip of process. Aperture subovate, outer lip arched adapically, shallowly crenulate at edge, inner surface bearing 12-14 straight, continuous lirae; columella smooth, nearly straight anteriorly, arched posteriorly with small node on parietal shield, node subsumed by thickened callus on largest specimen. Shell exterior orange brown, with lighter cream band near anterior edge of body whorl; some cords also tinged with cream where crossing ribs on penultimate and body whorl; aperture light tan. Operculum obliquely ovate, slightly hooked, tapering to anterior nucleus; outer surface bearing many faint growth increments, inner surface with thick callus around entire circumference; color light tan, nearly transparent.

Size: to 23.1 x 9.9 mm

Range: French Guiana

Remarks: The body whorl and spire of shells of *L. boucheti* have more numerous cords of more modest size compared to the 3 or 4 much larger cords of *L. corrugatus*; mature shells of *L. boucheti* have 12-14 distinct, entire lirae on the inside of the outer lip, whereas *L. corrugatus* has only 6 or 7 less distinct, sometimes interrupted lirae; and shells of *L. boucheti* display a pale band at the anterior edge of the body whorl, whereas shells of *L. corrugatus* are uniformly orange-brown.

A pale band also occurs on the body whorl and later whorls of the spire of *L. lamyi*, but that band is situated near the middle of each whorl, whereas the band on *L. boucheti* occurs only at the anterior edge of the body whorl and

does not occur on whorls of the spire. Spiral cords are also more slender and widely spaced on shells of *L. lamyi* than on shells of *L. boucheti*.

Lamellilatirus ceramidus (Dall, 1889)

Description: Shell of a waxen or brownish yellow color, of a peculiar waxen subtranslucency, 9-whorled, strongly transversely ribbed, with obscure spiral sculpture and an imbricated band in front of the suture. Nucleus white, smooth, small but swollen. Transverse sculpture of 7 or 8 rounded ribs, stouter and more prominent on the early whorls, and on most of them not quite reaching the suture; also sharpish lines of growth which in front of the suture are elevated into flattish somewhat irregular imbricated scales, forming a narrow band in front of the suture. Spiral sculpture of primary and finer secondary threads, 1 or 2 of the former, near the periphery, becoming sharper and more prominent as they pass over the ribs; on the later whorls all the spiral sculpture has a worn or partially obsolete appearance. Aperture large, canal moderate, curved to the left; outer lip not much thickened, internally lirate; a callous ridge on the body, near the outer lip; the inner lip smooth, or with a few lira near the canal.

Redescription: Shell relatively small, stoutly fusiform, heavy, rather thick. Spire short, consisting of about 9 convex whorls. Penultimate and body whorl often slightly keeled in adult specimens. With a narrow band of small irregular axial scales in front of the suture. Shell of a waxen or brownish yellow colour.

7-8 prominent, broad and rounded axial ribs per whorl, which are usually stronger on earlier whorls. Interspaces about half as wide as the ribs themselves, deeply impressed. Fine, plain spiral cords, becoming more prominent as they pass over the ribs. 3 spiral cords per whorl, intercalated by numerous fine close-set spiral threads.

Aperture rather large with some white-coloured internal lirae. Short, strong siphonal canal, curved to the left. Sometimes with some obscure lirae near the canal. Inner lip smooth, with a callus ridge on the columella.

Redescription: Shell broadly fusiform, color pale orange-pink to white, with about 9-10 whorls. Protoconch of about 2 whorls, tip incurved and flat, sides convex but not expanding, first 1-3/4 whorls smooth, glassy, final 1/4 whorl with 2-4 axial riblets, junction with teleoconch distinct. Teleoconch with as many as 8 rounded, subtabulate, rapidly expanding whorls ornamented with axial ribs, spiral cords, and subsutural lamellae. Suture well defined by convexity of surrounding whorls, undulating slightly in accord with adjacent axial ribs and intercostal areas, bordered anteriorly by prominent, densely imbricated axial lamellae beginning on about third teleoconch whorl and continuing to anterior end of body whorl. Axial ribs prominent, broad, extending from suture to suture on first 2-3 whorls, beginning anterior to subsutural lamellae on subsequent whorls; usually 6 ribs on all whorls, less commonly 7 or 8 on penultimate and body whorls of some shells. Spiral cords generally low, broadest atop axial ribs, narrowest near centers of intercostal areas; first 3 whorls with 2-3 primary cords crossing axial ribs and 3-4 fine threads between cords; primary cords increasing by intercalation to 5 by about whorl 6, third cord strongest, creating shoulder angle on that and subsequent whorls, posterior-most cord weaker than others; about 6 primary cords on penultimate whorl, secondary threads by now weakened and barely perceptible; body whorl subquadrate, defined by shapes of large axial ribs, ribs not continuing onto siphonal process; about 9-11 spiral cords on body whorl, some considerably stronger than others.

Aperture ovate to subquadrate, constricted at posterior sinus and at junction with siphonal canal. Parietal wall thin, smooth, concave, with 1-4 weak, oblique folds near anterior end of columella and rather weak node at edge of posterior sinus, folds and nodes sometimes absent on immature shells. Outer lip thin, broadly arcuate, slightly crenulated by termini of spiral cords, internal wall with about 12-16 lirae, those toward posterior side generally smooth and entire, those toward anterior side often periodically constricted or interrupted as dashes and dots; smooth area separating tips of lirae from edge of outer lip. Anterior end of aperture constricted by anteriormost columellar plica and prominent node on inside of outer labral wall in mature shells. Siphonal canal of mature shells moderately long, slightly curved and canted to left in apertural view, smooth within; parietal margin distinct, slightly raised, forming narrow pseudoumbilicus near tip; 12-14 thin, oblique spiral cords crossed by numerous fine axial growth increments continuing from base of body whorl to tip.

Operculum of lectotype ovo-elongate, subreniform, dimensions 10.6 x 5.5 mm, corneous, brown, with terminal nucleus; outer surface covered with densely packed microscopic growth lines; inner surface smooth, with large, ovate muscle scar surrounded by thick callus, about 6 distinct concentric growth increments evenly spaced across surface.

Size: length to 51.0 mm; max. height 46.5 mm, of last whorl 32.0 mm, of aperture and canal 26.0 mm, max. width 18.7 mm

Range: W Atlantic Ocean; S Caribbean Sea at Barbados, Colombia, Panama, and Nicaragua

Remarks: Shells of *L. ceramidus* are readily separable from all other western Atlantic *Peristerniinae* by the combination of characters stated in the generic dagnosis and easily recognized by the color and imbricated band before the suture.

However, *L. ceramidus* shells show an interesting resemblance to several species of *Fusolatirus* from the Indo-west Pacific, especially *F. elsiae* of southeastern Africa. Subsutural lamellae on shells of *L. ceramidus* are much more prominent than those on shells of *F. elsiae.*

For comparison with *L. lamyi* and *L. sunderlandorum* look there.

L. ceramidus has a clearly smaller, less elongated shell, a lower number of whorls (8-9), and a shorter siphonal canal than *Aristofusus benjamini*.

compare to *Lightbournus russjenseni*

Lamellilatirus corrugatus Lyons & Snyder, 2019

Description: Shell small for genus, with prominent axial ribs, strong spiral cords and abundant subsutural lamellae. Protoconch of nearly 2 elevated glassy whorls, first whorl smooth, flattened, with immersed tip; secord whorl scarcely wider than first, with flat sides and 4 or 5 rather robust axial riblets near junction with teleoconch. Teleoconch of about 7 whorls, each with about 6 large, unaligned, broadly rounded axial ribs extending from suture to suture; whorls 1-3 with 3 subequal spiral cords; whorls 4-6 with 4 thick, elevated cords with rounded tops; cords wider where crossing ribs, separated from each other by 3-5 faint spiral threads; interspaces between cords deep, channel-like. Body whorl wider than long, with 3 or 4 prominent cords crossing axial ribs and flanked anteriorly and posteriorly by 1 or 2 lesser cords, all separated by fine threads. Suture deeply impressed, slightly undulating, bordered anteriorly by sutural ramp bearing many scale-like lamellae; similar lamellae scattered irregularly across shell surface at edges or previous growth increments. Base with 4 or 5 thin spiral cords, narrowing abruptly from body whorl, tapering to short, slender siphonal process; 12-14 thin, oblique cords and threads continuing to tip. Aperture subovate, slightly constricted at anterior and posterior ends; outer lip rendered slightly crenulate at edge by termini of external cords, inner surface bearing 6 or 7 narrow lirae, 2 or 3 nearest entrance to siphon interrupted, others entire; inner lip slightly detached, extending more than half distance to tip along inner edge of siphon; columella straight anteriorly, curved posteriorly to merge with thick parietal callus; siphon smooth, sinuose. Shell exterior entirely orange-brown, without bands or patches of different hues; interior white. Operculum obliquely ovate, slightly hooked, tapering to anterior nucleus; outer surface covered with closely-packed, concentric growth increments; inner surface with narrow callus around perimeter and several narrower concentric rings within; color orange, nearly transparent.

Size: to 30.5 x 13.6 mm

Range: French Guiana

Remarks: The relatively few cords on the spire and body whorl are exceptionally tall and robust and confer a channeled appearance to spaces between the cords, an effect unique among species of *Lamellilatirus*.

L. corrugatus somewhat resembles *L. lamyi* from Martinique, but may be distinguished by its channeled sculpture of ridge-like cords and its lack of a prominent, pale band on the spire and body whorl, the latter a feature characteristic of *L. lamyi*.

For comparison with *L. boucheti* and *L. dominiquei* look there.

Lamellilatirus dominiquei Lyons & Snyder, 2013

Description: Shell small for genus, fusiform, slender, with about 9 whorls, elevated spire and elongate siphonal process. Protoconch of 2 elevated whorls; first whorl smooth, rounded, with immersed tip; second whorl no wider than first, with 4-5 faint axial riblets near terminus. Teleoconch of 7 convex whorls separated by deep suture and sculpted with prominent axial ribs and spiral cords, and with fine axial lamellae on sutural ramp; first whorl with about 8 small axial ribs, thereafter with 6 prominent, broad, elevated ribs on each whorl, ribs aligned from whorl to whorl on spire, not aligned on body whorl; 3 equal-sized spiral cords on whorl 1, increasing to 4 on whorls 2-4 and to 5 on whorls 5 and 6, 3 middle cords stronger than others; 8 cords on body whorl, 4 crossing tops of axial ribs

most prominent; many very fine spiral threads and axially aligned micro-lamellae between cords of spire and body whorl. Suture impressed, undulant in accord with ribs and interspaces; sutural ramp bearing many very thin lamellae overlying faint spiral threads; base and siphonal process slender, elongate, with 8-12 narrow, oblique cords extending to rounded tip. Aperture subovate; outer lip crenulated by cords and interspaces of body whorl; inner side with a few thin, straight lirae. Columella arcuate, smooth except for small node on pariétal shield and 2 faint, oblique folds near callous at anterior end; siphonal canal slender, straight, smooth within. Protoconch and shell exterior light brown or tan; larger cords of body whorl darker reddish brown; interior white. Operculum elliptical, gray-brown, with anterior nucléus and many fine, concentric growth incréments on outer surface.

Size: to 29.3 x 11.1 mm

Range: Guadeloupe and Colombia, S Caribbean Sea

Remarks: Shells of *L. dominiquei*, like those of *L. lamyi*, are basically brown but lack the lighter hued peripheral band of the latter species; instead, the 3 or 4 strongest cords crossing the axial ribs of *L. dominiquei* are dark reddish brown, especially on the body whorl, providing a conspicuous contrast with the rest of the shell. Compared to shells of *L. lamyi*, those of *L. dominiquei* are also smaller, with a relatively more slender spire and much finer, less numerous sutural lamellae. Both specimens of *L. dominiquei* have thin, immature lips, and it seems likely that fully adult specimens may be larger. However, the number of teleoconch whorls (7) of *L. dominiquei* is similar to that of the larger immature shell of *L. lamyi*, so *L. dominiquei* may ultimately prove to be a smaller species.

The brown shell of *L. dominiquei* séparâtes that species from *L. ceramidus* and *L. eburneus*. In addition, *L. ceramidus* bas more prominent and abundant sutural lamellae, and its spire is more swollen, the ribs are broader, and the cords more subdued.

For comparison with *L. sunderlandorum* look there.

Lamellilatirus eburneus Lyons & Snyder, 2013

Description: Shell of moderate size for genus, fusiform, slender, with about 10 1/2 whorls, elevated spire, elongate siphonal process and scattered sutural lamellae. Protoconch of about 2 1/2 whorls, first whorl globose, tip immersed, second whorl not much wider than first, with slightly convex sides and about 4 faint axial riblets near terminus. Teleoconch of about 8 convex whorls separated by deeply impressed suture and sculpted with prominent axial ribs and spiral cords and with sparse axial lamellae scattered on rudimentary sutural ramp; axial ribs of all whorls broad, node-like, extending from anterior suture to posterior sutural ramp; 5 spiral cords on early whorls, of nearly equal size on whorl 1; middle 3 cords becoming stronger on whorls 2-4; all cords strong on whorls 5-7. Body whorl somewhat shouldered, with 2 or 3 very prominent cords at periphery; 2 or 3 more cords diminishing in strength apically and 3 or 4 cords diminishing in strength toward base; surface of spire and body whorl with many fine, axially aligned microlamellae and as many as 6 spiral threads in interspaces between cords; about 12 oblique cords, some separated by fine threads on base and siphonal process. Aperture subovate; outer lip highly arched, thin, crenulated at edge by spiral cords and interspaces of body whorl, inner side of lip with 8 or 9 smooth, emergent lira extending to lip edge; columella gently curved, with about 2 faint folds near anterior end; pariétal shield smooth; siphonal canal slender, smooth within, twisted near middle to form small pseudoumbilicus near anterior end. Protoconch and exterior and interior of fresh shell pure white; older shell fading to cream.

Size: to 43.4 x 16.2 mm

Range: Venezuela and Colombia, S Caribbean Sea

Remarks: Shells of *L. eburneus* differ from those of *L. ceramidus* by having a relatively taller, more slender spire and more scattered and sparse axial lamellae. The shell surface of *L. ceramidus* is nearly smooth, whereas that of *L. eburneus* has strong spiral cords on all whorls; the 2 or 3 large cords crossing the tops of the axial ribs characterize the species.

For comparison with *L. lamyi* and *L. sunderlandorum* look there.

Lamellilatirus lamyi Lyons & Snyder, 2013 †?

Description: Shell of moderate size for genus, fusiform, slender, with about 9 whorls, prominent axial ribs and spiral cords, and abundant axial lamellae. Protoconch of 2 elevated whorls, first whorl smooth, rounded, tip immersed; second whorl not much wider than first; sides slightly convex, with 3-4 very faint axial riblets near

terminus. Teleoconch of 7 whorls, each with 6 or 7 rounded, node-like, seldom aligned axial ribs; whorls 1-4 each with 4 spiral cords; 2 middle cords crossing ribs stronger than others; cord bordering anterior suture increasing in strength toward anterior whorls; whorls 5 and 6 with 5 cords, 3 anterior cords stronger. Body whorl with about 11 cords of varions strengths; 3 cords at and anterior to periphery more prominent than others; surface of spire and body whorl with many axially aligned micro-lamellae and (sometimes) with 1-3 fine spiral threads between cords. Suture deeply impressed, undulant in accord with ribs and interspaces; sutural ramp bearing many prominent scale-like lamellae on middle whorls (3-5); lamellae less prominent on anterior whorls; base and siphonal process slender, elongate, with 8-10 oblique cords of varions strengths extending to truncate tip. Aperture subovate; outer lip thin, highly arched, slightly crenulate, inner side bearing 9-11 low, straight, sometimes discontinuons lirae; several anteriormost lirae beaded. Columella nearly straight anteriorly, arched posteriorly, with small node-like callous on pariétal shield and faint ondulations suggestive of folds near callous at anterior end. Siphonal canal slender, straight, smooth within, with lamellate inner edge forming distinct pseudoumbilicus near tip. Shell exterior light orange- brown, with lighter hue extending in vague band across ribs of spire; protoconch and shell interior white.

Size: to 38.3 x 15.2 mm

Range: Martinique, French West Indies

Remarks: In WoRMS listed as “fossil only”, but originally described as recent.

The outer lip of the holotype is thin and not fully developed, suggesting that the specimen may be immature and the species may attain somewhat greater size.

Brown shells of *L. lamyi* distinguish that species from *L. ceramidus* and *L. eburneus*, which have white shells. Spiral cords that cross the ribs of *L. lamyi* are stronger than those of *L. ceramidus* but weaker than those of *L. eburneus*. Sutural lamellae are less densely packed on *L. lamyi* and *L. eburneus* than on *L. ceramidus* but are arrayed over more of the sutural ramp on *L. lamyi* than on *L. eburneus*. The larger shell (holotype) of *L. lamyi* has beaded lirae within the aperture, a feature shared with *L. ceramidus* but apparently not with some other congeners.

A pale band also occurs on the body whorl and later whorls of the spire of *L. lamyi*, but that band is situated near the middle of each whorl, whereas the band on *L. boucheti* occurs only at the anterior edge of the body whorl and does not occur on whorls of the spire. Spiral cords are also more slender and widely spaced on shells of *L. lamyi* than on shells of *L. boucheti*.

For comparison with *L. dominiquei* and *L. sunderlandorum* see there.

Lamellilatirus sunderlandorum Lyons & Snyder, 2013

Synonyms: *Polygona bessei* Petuch, 2013

Description: Shell of moderate size for genus, fusiform, slender, of about 9 whorls, with tall spire and slender siphonal process. Protoconch of about 2 elevated whorls; first whorl smooth, rounded, with immersed tip; second whorl slightly wider, with nearly straight sides and about 4 very faint axial riblets near terminus. Teleoconch of about 7 whorls bearing prominent axial ribs and low spiral cords; suture narrow, impressed, undulant in accord with ribs and interspaces. Axial ribs 7, high, broad, node-like, bordered anteriorly by suture and posteriorly by short sutural ramp; 3 spiral cords of similar size on whorls 1-3; cords thereafter alternating larger and smaller in size and gradually increasing in number to 10 on penultimate whorl and about 15 on body whorl; strongest cord at periphery atop ribs. Sutural ramp marked with several spiral threads crossing reduced sutural lamellae, creating reticulate pattern. Base and siphonal process elongate, slender, bearing about 11 low, oblique cords and terminating at rounded tip. Aperture subovate, constricted posteriorly by well-developed pariétal node and anteriorly by prominent node opposite node at junction of columella and siphonal canal; outer lip arched, generally smooth at edge, inner side bearing 9-14 straight lirae not extending to lip edge; inner lip thin, elevated on largest specimens, extending from pariétal région to canal. Columella nearly straight anteriorly, arched posteriorly, bearing 3-4 oblique plicae which diminish to obscure folds on largest shells; siphonal canal straight, smooth within; larger shells (compare to 32 mm) bordered on inner side by lamellate extension of inner lip which extends to tip, creating chink-like pseudoumbilicus on siphonal process. Exterior of shell orange to orange-brown; interior white. Operculum brown, ovate, vaguely drop-shaped, tapering to anterior nucléus; outer surface bearing many fine concentric growth incréments.

Size: to 35.3 x 12.4 mm

Range: N Honduras, W Caribbean Sea

Remarks: Sutural lamellae of *L. sunderlandorum* shells are much reduced as compared to those of their congeners, but close examination reveals fine, low but distinct lamellae on the sutural ramp. Other features consistent with *Lamellilatirus* are the morphology of the protoconch, the tall spire, the generally slender shell, the relatively long, narrow siphonal process, the non-serrate edge of the outer lip, and the progression from distinct columellar folds in young shells to obscure folds on the largest shells. The prominent node at the anterior end of the aperture and an opposing node at the junction of the columella and siphonal canal, présent only on the largest *L. sunderlandorum* (35.0 and 35.3 mm), are features that also occur on larger shells of *L. ceramidus*. Shells of *L. sunderlandorum* are orange, whereas those of *L. ceramidus* and *L. eburneus* are white and those of *L. dominiquei* and *L. lamyi* are brown, the latter with a lighter-hued band at the periphery. Spiral cords of *L. sunderlandorum* are much smaller than those of *L. eburneus*, *L. lamyi* and *L. dominiquei*. Like *L. ceramidus*, spiral cords alternate large and small, but all cords of *L. sunderlandorum* are proportionally smaller than those of *L. ceramidus*.

L. sunderlandorum also resembles *Pustulatirus watermanorum* with which it sometimes occurs off the Honduran coast. Both shells are orange, but *L. sunderlandorum* is longer and more slender than *P. watermanorum*, which has less rounded whorls, a shallower suture lacking lamellae, and a serrate edge on at least the anterior portion of its outer lip.

Latirolagena G. F. Harris, 1897

Synonyms: *Lagena* Schumacher, 1817

Type species: *Latirolagena smaragdulus* (Linnaeus, 1758)

Description: (of *Lagena*, preoccupied) *Ouverture oblongue; la lèvre externe presque tranchante; columelle sinueuse, à trois petits plis obliques.*

(Aperture oblong; outer lip almost sharp; columella sinuous; with 3 small oblique folds.)

Size: not given

Range: not given

Remarks: Distinguished from typical examples of *Leucozonia* by the absence of keels on the whorls, the latter being rounded; the shell is bucciniform and devoid of conspicuous ornament, whilst the denticle or tubercle (when present) on the outer margin is extremely rudimentary. *Latirolagena* differs from *Leucozonia* by lacking a labral tooth, lacking axial sculpture, having a strongly convex outer lip, and having a weakly developed notch where the outer lip meets the penultimate whorl. The outer-lip notch is absent in *Latirus* and *Leucozonia*, which generally have a sinus corresponding to the subsutural ramp between the suture and the shoulder angulation.

It is related to *Mazzalina* †, but the type of that genus, *M. pyrula,* is strongly plicate, the several plaits being implanted obliquely on a profoundly excavated columella; that genus is not umbilicate, and the outer margin is of a different character.

Latirolagena smaragdulus (Linnaeus, 1758)

Synonyms: *Buccinum agathinum* Fischer von Waldheim, 1807

Description: *B. testa ovata acuta glaberrima, columella planiuscula.*

(Shell ovate, acute, and smooth, columella flat.)

Size: 35-45 mm

Range: Australia, Indo-Pacific

Latirulus Cossmann, 1889

Synonyms: *Fredenia* Cadée & A. W. Janssen, 1994 †, *Lathyrus (Lathyrulus)* Cossmann, 1901 †, *Latirus (Latirulus)* Cossmann, 1889 †, *Pseudolatirus* Cossmann, 1889 †, *Streptocarina* Hinsch, 1977 †, *Streptochetus* (*Streptolathyrus*) Cossmann, 1901 †, *Streptodictyon* Tembrock, 1961 †, *Streptolathyrus* Cossmann, 1901 †

Type species: *Latirulus subaffinis* (d'Orbigny, 1850) †

Description: *Coquille étroite, à spire allongée, à canal assez court et courbé; rides columellaires transverses dégénérant rapidement en plis obliques; labre plissé.*

(Shell narrow, with an elongated spire, with a rather short and curved channel; transverse columellar wrinkles rapidly degenerating into oblique folds; lip pleated.)

Size: not given

Range: not given

Remarks: This group forms a transition between the *Latirus* and the *Streptochetus* † genera, which have a narrower spire and obtuse and smooth embryonic whorls.

Latirulus should be restricted to Eocene species.

Latirulus fasciatus Habe & Okutani, 1968

Description: Shell is solid and staut, elongate fusiform in shape, slightly inflated. Spire is elevated and consists of 6 whorls except embryonic whorls. Each whorl is somewhat inflated and encircled with 4 to 5 raised and bright brownish spiral cords and on the Iower whorls with interstitial cords inbetween, and is also ornamented with rough growth lines. About 15 stout longitudinal ribs are present and are reducing their prominence from the upper whorls to the lower ones. The body whorl is as long as 2/5 of the whole shell height, slightly rounded at the periphery and somewhat constricted at the base and has 13 to 15 brown spiral cords tending to narrowly spaced towards the base and siphonal canal. Aperture is rhomboidal in outline, with a slightly oblique and elongated siphonal canal anteriorly and tinted with golden yellow along the margin. Outer lip gently curved and inner one bears callus and has no nodule but weak rumples at the adapical corner. The columella is slightly twisted.

Size: height 34.5 mm, breadth 15.0 mm

Range: Japan, Hawaii

Remarks: In form and spiral sculpture, *L. fasciatus* somewhat resembles *Euthria solifer* from New Caledonia, but it differs by lacking axial ribs, by having almost imperceptible instead of slightly impressed sutures, in having the inside of the outer lip lirate instead of smooth, and in lacking a fold at the entrance of the siphonal canal. The siphonal fasciole of *L. fasciatus* is barely perceptible, whereas that of *E. solifer* is prominent and rounded. The protoconch is caramel brown, of about 3 1/2 whorls, smooth for the first 3 whorls then with reticulated sculpture continuing without transitional break onto the teleoconch.

Turrilatirus turritus somewhat resembles *L. fasciatus*, but it has black spiral cords on the brownish shell and is not a deep sea form but a shallow water rocky shore dweller.

Leucozonia Gray, 1847

Type species: *Leucozonia nassa* (Gmelin, 1791)

Description: not given

Redescription: Shell oval, subglobose, shouldered; spire moderate; aperture oblong; canal short; columella subflexuous, with small oblique, unequal plaits; outer lip sub-acute, with a more or less prominent tooth or tubercle at the forepart.

Redescription: Shell medium-sized, solid; protoconch paucispiral; teleoconch consisting of up to 8 rounded or shouldered whorls separated by linear, appressed sutures; last whorl comprising less than 50 % to more than 70 % of total shell height, with flat or concave subsutural ramp, rounded or angulated central sector, and weakly constricted toward base; spiral sculpture of last whorl consisting of up to 10 threads on subsutural ramp, 3-10 cords or threads on central sector bounded below by strong central cord, and up to 11 threads or cords on base and siphonal canal; axial sculpture consisting of 7-15 rounded ribs, often obsolete on subsutural ramp and base, sometimes absent on later teleoconch whorls, but usually expressed as nodes at the shoulder angulation; outer lip thin, indeterminate, crenulated at edge, with adapical and abapical sinuses, usually planar on central sector; ventrally directed labral tooth usually developed on outer lip at end of central spiral cord; adaxial side of outer lip with 5-22 deeply recessed, beaded or discontinuous lirae; inner lip adherent, with weakly recessed margin, its

adapical end with distinct parietal rib; columella concave, with 3-4 prominent folds near base, 1 or more smaller secondary folds occasionally present; umbilical slit absent or very narrow; siphonal canal relatively broad, short (usually less than 45 % of height of aperture and canal); siphonal fasciole low, spirally continuous, rounded; aperture relatively narrow (height/breadth, 2.3-3.0).

Size: height up to 90 mm

Range: Amphiatlantic

Remarks: *Leucozonia* is distinguished by a combination of features, none of which is unique to the genus. These are the labral tooth (often marked on the shell exterior by a white spiral band), beaded lirae, parietal tooth, linear suture, relatively short siphonal canal, and axial sculpture that is poorly expressed or absent on the subsutural ramp.

Leucozonia is most similar in shell characters to *Latirus* and *Latirolagena*. All three genera have relatively thick, short-spired shells with a relatively short siphonal canal, and beaded lirae on the inner side of the outer lip:

- *Latirus* differs from typical *Leucozonia* by lacking a labral tooth, and from toothless species of *Leucozonia* by having a strongly convex instead of a planar outer lip. *Latirus* has a tendency to form an umbilical slit, a feature not seen in *Latirolagena* or *Leucozonia*.
- *Latirolagena* differs from *Leucozonia* by lacking a labral tooth, lacking axial sculpture, having a strongly convex outer lip, and having a weakly developed notch where the outer lip meets the penultimate whorl. The outer-lip notch is absent in *Latirus* and *Leucozonia*, which generally have a sinus corresponding to the subsutural ramp between the suture and the shoulder angulation.

Leucozonia cerata (W. Wood, 1828)

Description: not given

Redescription: Shell large, relatively slender (diameter / shell height, mean 0.535-0.022, n = 22, range 0.51-0.60) and high-spired (aperture height / total shell height, mean 0.56 ± 0.041, range 0.49-0.64); spiral sculpture of last whorl consisting of about 10 threads on strongly concave subsutural ramp, 4 prominent primary cords (including upper shoulder angulation and central cord) on central sector, and 2 (rarely 3) prominent cords on base and siphonal canal; axial sculpture consisting of 8-12 prominent rounded ribs, which form distinct nodes or tubercles on the upper 2-4 cords on the central sector; labral tooth absent; outer lip with distinct subsutural sinus and a nearly planar central and abapical sector; adaxial side of outer lip with 11 deeply recessed, beaded lirae; base weakly and gently constricted; aperture relatively broad, its height / breadth ratio 2.4-2.5; siphonal canal long (canal height / aperture height, mean 0.45 ± 0.07, range 0.36-0.58); columella with 3 strong basal folds and 3 weaker ones adapical to these; siphonal fasciole distinct; umbilical slit absent; external color yellow-brown, with lighter (sometimes white) nodes; periostracum darker brown; aperture white.

Size: maximum height 88 mm

Range: tropical E Pacific; N Gulf of California along continental coast to N Peru and the Galapagos Islands

Remarks: At a height of 88 mm, *L. cerata* is the largest known species of *Leucozonia*. As is usual in species of *Leucozonia*, however, there is considerable variation in maximum size from place to place.

L. cerata differs from the sympatric *L. rudis* by having more nodose axial ribs, by lacking a subsutural cord, and by having a planar rather than a strongly convex central sector of the outer lip.

L. cerata differs from the western Atlantic *L. ocellata* by attaining a much larger adult size, and by usually having a higher spire, much weaker lirae, and stronger principal spiral cords.

Polygona socorroensis bears a slight resemblance to *L. cerata* but it differs from that species in the more slender form, longer canal, less strongly tuberculate shoulder and in lacking the well developed fine, concentric, secondary spiral threads.

Leucozonia granulilabris (Vermeij & Snyder, 2004)

Description: Shell fusiform, basally constricted, relatively small for genus, thick; protoconch paucispiral; teleoconch consisting of up to 8 moderately convex whorls separated by appressed sutures; spire whorls with obtuse, sharply rounded shoulder angulation, 2 spiral cords above and four cords below angulation; penultimate

and last whorls with 8 spiral threads above spiral angulation, the uppermost 3 of which are finest; penultimate whorl with 8 cords at and below shoulder angulation; last whorl of large shells with about 30 spiral cords and threads, of which about 12 are situated below the central sector of the whorl; larger cords tend to alternate with finer threads; axial sculpture of spire whorls consisting of 10 to 14 low, rounded ribs per whorl, extending from shoulder angulation to lower suture; ribs becoming obsolete or disappearing on last one or two whorls; surface of shell roughened by growth lines; aperture ovate-elongate; outer lip thin, crenulated at edge, with broad, shallow abapical and adapical sinuses and a convex central sector; inner side of outer lip marked by 23 beaded (interrupted) lirae extending from lip's edge to well within aperture; inner lip adherent except for very narrow umbilical slit in some specimens; columella with 2 or rarely 3 low folds adapical to fold marking entrance to siphonal canal; adapical end of inner lip with low but distinct parietal ridge; siphonal fasciole rounded; adapical free margin of siphonal notch keeled; color brown to brownish orange.

Size: 40-71.5 mm; holotype: length 62.8 mm, diameter 31.2 mm, aperture height 20.7 mm, aperture width 11.8 mm

Range: S Brazil

Remarks: Relatively small "*Pleuroploca"* with low spire, short siphonal canal, low to obsolete axial ribs, deeply recessed beaded lirae, and keeled adapical edge of siphonal canal.

The species differs from *Filifusus* in having weak outer-lip crenulations, in lacking the sharp entrance fold, and in having a marked adapical sinus on the outer lip. The last character state is typical of *Peristerniinae* but absent in *Fasciolariinae*.

L. granulilabris can be confused with *L. nassa*. Both species have a broadly fusiform shell with variably developed axial sculpture and granular lirae on the inner side of the outer lip. In *L. granulilabris* there is no labral tooth and corresponding enlarged cord separating the convex sector of the last whorl from the base, as there is in most specimens of *L. nassa* and in other typical species of *Leucozonia*. There are 2-3 columellar folds as opposed to 3-4 in *Leucozonia*. Moreover, the lirae extend from the edge of the outer lip into the aperture in *L. granulilabris* and in other species of *Pleuroploca*, whereas in *Leucozonia* they begin at some distance from the edge of the lip.

It is perhaps most similar to the temperate Australian *Australaria australasia*. *L. granulilabris* differs from *A. australasia* by having more numerous spiral cords and threads, more distinctly granular as compared to discontinuous lirae, and an adapically keeled siphonal canal.

The Indo-Pacific *Filifusus filamentosus* differs from *L. granulilabris* by attaining a larger size (often well over 100 mm), by having more numerous granular lirae (up to 50 as compared to 23 in *L. granulilabris*), by generally being more nodose at the shoulder angulation, and by having 3 instead of 2 columellar folds. In *F. filamentosus*, the adapical-most columellar fold is, however, very weak. The adapical edge of the siphonal canal is keeled in *L. granulilabris* but not in *F. filamentosus*. The spire is higher and the siphonal canal is longer in *F. filamentosus* than in *L. granulilabris*.

L. granulilabris may also be compared to the similar Japanese species *Filifusus glaber*.

Another similar recent species is *Viridifusus buxeus* from the Cape Verde Islands. Besides reaching a larger size, the Cape Verde species lacks shoulder nodes, which are present in some specimens of *L. granulilabris*.

Leucozonia leucozonalis (Lamarck, 1822)

Synonyms: *Leucozonia nassa leucozonalis* (Lamarck, 1822)

Description: *T. testa ovalo-acuta, ventricosa, mutica, laevigata,rufa aut fusca; anfractibus convexis: ultimo infra médium fascia alba cincto; apertura alba; columella triplicata.*

(Shell oval-acute, ventricose, dull, smooth, rufous or brown; whorls convex, the last one is surrounded by a white band below the middle; aperture white; columella triplicate.)

Redescription: Shell of moderate size, moderately inflated (diameter / shell height, mean 0.625 ± 0.028, n = 19, range 0.57-0.67), low-spired (aperture height / total shell height, mean 0.675 ± 0.028, range 0.63-0.72), and thick; The protoconch consists of 2 whorls, the first minute, the second inflated. There is no terminal protoconch varix, but instead a smooth transition from the protoconch to the axially ribbed first teleoconch whorl. Spiral sculpture of last whorl weak, consisting of extremely fine obsolete threads; upper and lower angulations often absent, but labral tooth always present even when central cord not well expressed; axial sculpture weak or absent on last whorl, often present as low ribs on early teleoconch whorls but never forming tubercles or nodes; when present on last

whorl, axial ribs are 9-11 in number, confined to upper part of whorl only; subsutural ramp usually absent; outer lip medially convex, adapical sinus obsolete or absent; adaxial side of outer lip with up to 22 weak, beaded lirae; aperture relatively narrow, its height / breadth ratio usually 2.8-2.9; siphonal canal usually short (canal height / apertural height, mean 0.32 ± 0.04, range 0.22-0.39); siphonal fasciole distinct; umbilical slit absent; external color brown to almost black, sometimes with white striae, sometimes light; aperture white to peach-colored.

Size: length 42.8 mm; maximum height 53.7 mm

Range: Turks and Caicos Islands, NW and S Cuba, N Jamaica and Hispaniola, Grand Cayman, E Quintana Roo (Mexico) to Belize and Honduras and Isla Providencia (Columbia)

Remarks: In the western Caribbean region, several populations of *Leucozonia* are characterized by relatively inflated, low-spired shells with strongly reduced spiral and axial sculpture and a variably expressed, but always present, labral tooth. Most shells have a white aperture, but in some populations (e.g., from West Caicos) it is peach-colored. Populations differ in the expression of ornament. No axial ribs are evident on the spire whorls in many populations.

For the most part, *L. leucozonalis* and *L. nassa* occupy different geographic regions within the western Atlantic. *L. leucozonalis* occurs on the south, east, and northwest coasts of Cuba, the north coasts of Jamaica and Hispaniola, in the southern Bahamas and Turks and Caicos Islands, in the Cayman Islands, and on the mainland coast from eastern Quintana Roo (Mexico) to Honduras. It also occurs at Isla Providencia, an island belonging to Colombia but situated in the western Caribbean off Costa Rica. *L. nassa*, by contrast, occurs in the Bahamas, northeast Cuba, the south coasts of Jamaica and Hispaniola, in Mexico from Vera Cruz to western Quintana Roo and Campeche, and on the mainland coast of Central America south of Honduras. It also occurs throughout the rest of the Caribbean and Florida, and on the mainland coast of South America to southern Brazil. The 2 species co-occur at a few localities, including Little Guana Cay, Abaco, Bahamas, and Bull Bay, St. Andrew's, Jamaica.

Leucozonia nassa (Gmelin, 1791)

Synonyms: *Fasciolaria cingulifera* Lamarck, 1816, *Fusus cingulatus* Röding, 1798*, Fusus cingulifera* (Lamarck, 1816), *Lagena californica* A. Adams, 1853, *Leucozonia caribbeana* Weisbord, 1962, *Leucozonia jacarusoi* Petuch, 1987, *Leucozonia knorrii* (Deshayes, 1843), *Leucozonia trinidadensis* Mallard & Robin, 2005, *Murex rubicunda* Perry, 1811, *Peristernia inculta* Gould, 1860, Turbinella angularis Reeve, 1847, *Turbinella angularis var. riiseana* Küster & Kobelt, 1874, *Turbinella brasiliana* d'Orbigny, 1841, *Turbinella dubia* Petit de la Saussaye, 1853, *Voluta fuscata* Gmelin, 1791

Description: *M. testa solida nigra vel dilute fusca: fascia alba subdiaphana, anfractibus nodosis, columella subplicata.*

(Shell solid black or slightly brown; subtransparent white band, knotty whorls, subfolded columella.)

Redescription: Shell large, variable in shape (diameter / shell height, 0.48-0.74); whorls usually with 2 distinct upper angulations, one at shoulder and the other marked by central cord; other spiral sculpture of last whorl usually fine, consisting of 4-10 threads on subsutural ramp, 5 or more cords or many fine threads between the 2 angulations, and 4 or more cords or fine threads on base and siphonal canal; axial sculpture consisting of 7-14 rounded ribs, usually forming tubercles or nodes at upper angulation, weakening adapically toward suture and abapically toward lower angulation, and absent on base; outer lip medially convex, with distinct labral tooth at end of central cord, and with well-developed subsutural sinus above upper angulation; lirae beaded, weakly expressed; aperture height / breadth, 2.4-3.0; siphonal canal comprising 18-52 % of total apertural height; siphonal fasciole distinct; umbilical slit usually absent; shell externally chestnut-brown, with white spiral band corresponding to central cord ending in labral tooth; aperture white to peach-colored; soft parts bright red.

Size: maximum height 68.2 mm

Range: N Carolina to E Caribbean, Costa Rica to Brazil

Remarks: *L. nassa* is a widespread, geographically variable western Atlantic taxon distinguished by usually fine spiral ornament, distinct axial ribs, usually a row of nodes at the shoulder angulation, fine beaded lirae on the inner side of the outer lip, and a labral tooth. No other species has this combination of characters.

L. leucozonalis, which mostly occurs in the northwestern Caribbean outside the range of *L. nassa*, typically lacks axial ribs and shoulder nodes, and its spiral sculpture on the convex part of the adult last whorl is obsolete.

A possible confusion could occur from *Polygona martini* with *L. nassa* which is somewhat similar in profile and coloration. This shell lacks the strong axial sculpture of *P. martini*, and has a thick, black-brown operculum. A characteristic narrow white band at the base, commonly terminating in a small spine on the outer lip, serves to distinguish *L. nassa* from *P. martini*.

For other comparisons see remarks under *L. granulilabris, L. ponderosa, L. triserialis*, and *L. ocellata*.

Leucozonia ocellata (Gmelin, 1791)

Description: *B. testa laevi atra: guttis maculisque albis seriatis, spira prominula; anfractu primo ventricoso.*

(Shell white black; serrated white drops and spots, spire prominent; first whorl bellied.)

Redescription: Shell relatively small, biconic, relatively inflated (diameter / shell height, mean 0.645-0.053, n = 27, range 0.54-0.74), relatively low-spired (aperture height / total shell height, mean 0.65 ± 0.054, range 0.55 -0.78); base weakly constricted; spiral sculpture of last whorl consisting of 5 to 7 prominent cords, of which 3 or 4 on the upper part of the whorl are separated from 2 (rarely 3) on base; axial sculpture consisting of 8-15 weak to strong ribs forming nodes on shoulder angulation and sometimes on the second and third cords as well; outer lip medially convex, inflected but without labral tooth at position of central cord; adapical sinus prominent; adaxial side of inner lip with 10-12 strong, sparsely beaded lirae; aperture relatively broad, its height / breadth ratio 2.3-2.8; siphonal canal short (canal height / aperture height, mean 0.31 ± 0.05, range 0.20-0.41); external color dark grayish-black to black, with white nodes sometimes crossed by black striae; aperture white.

Redescription: Shell solid, short, fusiform, with a row of nodules on the middle of the whorls, which becomes a strong ridge on the shoulder of the body whorl. There is a small, or secondary, row of nodules in the concave space above the shoulder. The surface of the shell is covered with small revolving ridges, and between these there are fine raised threads, and these are crossed by the distinctly marked growth lines, making the surface reticulate. Outer lip lirate within; canal short; columella with three folds. Color dark brown or bluish, the nodules white, and there are often broken white bands on the body whorl; aperture bluish white, with a dark-spotted border.

Size: maximum height 37.7 mm; length 27 mm, diameter 18 mm

Range: Florida, Bahamas, Caribbean to Brazil (Rio de Janeiro)

Remarks: Compared to the eastern Pacific *L. rudis*, the western Atlantic *L. ocellata* has a lower spire, broader aperture, and less markedly convex outer lip. Moreover, L. ocellata lacks the subsutural cord characteristic of *L. rudis*.

Leucozonia ponderosa Vermeij & Snyder, 1998

Description: Shell large, moderately squat (length / width 1.56-1.72), moderately high-spired (last whorl length / length 0.53-0.59), heavy and solid. Color light-brown. Spiral sculpture of last whorl consisting of 6 (sometimes 5) cords, one at shoulder, a second below the shoulder, and a third central, and 3 (sometimes 2) basal cords, all separated by fine threads. Axial sculpture of last whorl consisting of 8 strong, rounded ribs, forming low, rounded nodes where they are crossed by each of the 3 adapical spiral cords. Outer lip with distinct adapical sinus, convex medial sector, and weakly concave abapical sinus. Third spiral cord ending in well-developed labral tooth. Adaxial side of outer lip with 11-12 strong, beaded lirae. Aperture relatively broad (aperture length / aperture width 2.4-2.7), color light-peach. Siphonal fasciole well developed; umbilical slit absent. Siphonal canal relatively long (siphonal canal length / aperture length 0.38-0.42).

Size: maximum length 66.8 mm; length 47.3 mm, width 28.8 mm; aperture length 28.0 mm, aperture width 10.5 mm, siphonal canal length 11 mm

Range: Trindade Island, Brazil

Remarks: A *Leucozonia* with 5 or 6 primary spiral cords on the last whorl, the adapical 3 rows being sculptured by low, rounded tubercles; distinct labral tooth present at end of third cord.

Some specimens of *L. nassa* superficially resemble *L. ponderosa* in having 3 nodose adapical cords, but they differ from *L. ponderosa* in having the 2 adapical cords so close together that the shoulder appears to have a double keel. In *L. ponderosa* the second row of nodes lies farther from the shoulder. Moreover, the aperture of Caribbean specimens of *L nassa* is white instead of peach-colored.

Two other species of Leucozonia have 3 adapical cords sculptured by nodes or tubercles:

- *L. triserialis* from the Cape Verde Islands differs from *L. ponderosa* in having a much more tuberculate shell, 1 basal cord instead of 3, and a white instead of a peach-colored aperture.
- *L. tuberculata* from the Galapagos and Cocos Islands in the eastern Pacific differs from *L. ponderosa* by having 2 instead of the usual 3 basal cords, by being smaller in size, and by having a white aperture. Moreover, the third (tooth-bearing) cord of *L. tuberculata* is not nodose, whereas that of *L. ponderosa* bears nodes.

Leucozonia rudis (Reeve, 1847)

Description: *Turb. testa oblongo-ovata, solidiuscula, transversim rude lirata et striata, anfractibus superne concavis, medio compresso-nodatis, nodis basin versus evanidis; alba, epidermide crassa castaneo-nigricante induta.*

Shell oblong-ovate, rather solid, transversely rudely ridged and striated, whorls concave round the upper part, compressly noduled in the middle, nodules gradually disappearing towards the base; whitish, covered with a thick chesnut-black epidermis.

Redescription: Shell of medium size, slender (diameter / shell height, 0.51 ± 0.024, n = 9, range 0.47-0.56), high-spired (aperture height / total shell height, mean 0.56 ± 0.032, range 0.48-0.63), weakly constricted at base; spiral sculpture on last whorl consisting of a strong subsutural cord, 4 principal cords on central sector including shoulder angulation and central cord, and 2 principal cords on base; all cords separated by many spiral threads; axial sculpture of last whorl consisting of 8-10 broad, rounded ribs, often longitudinally divided into 2 parts by axial groove, and forming low nodes at shoulder angulation; outer lip medially strongly convex, lacking labral tooth; subsutural sinus prominent; adaxial side of outer lip with 9 strong, beaded lirae; aperture narrow, its height / breadth ratio 2.9-3.1; siphonal canal relatively long (canal height / total aperture height, mean 0.44 ± 0.03, range 0.40-0.50); umbilical slit sometimes present; external color white under brownish-olive periostracum; aperture white.

Size: maximum height 51 mm

Range: S Mexico to N Peru

Remarks: Approaching *L. tuberculata* in form, but readily distinguished from that species. A feature distinguishing *L. rudis* from all other species of *Leucozonia* and from tropical American species of *Hemipolygona* and related groups is the well-developed, weakly-noded subsutural cord, which is separated from the shoulder angulation by a concave, spirally threaded subsutural ramp. *L. rudis* is further characterized by a slender, high-spired shell with broad axial ribs that extend abapically to the central cord, and by a strongly convex outer lip that lacks a labral tooth.

L. rudis differs from the sympatric *L. cerata* by being smaller, by having a much more strongly convex outer lip, a narrower aperture, a longer siphonal canal, and broader axial ribs.

It differs from the western Atlantic *L. ocellata* in being much more slender, having a much more convex outer lip, a narrower aperture, and a longer siphonal canal.

Both *L. cerata* and *L. ocellata* lack the subsutural cord characteristic of *L. rudis*.

Leucozonia triserialis (Lamarck, 1822)

Synonyms: *Turbinella hidalgoi* Crosse, 1865

Description: *T. testa ovato-acuta, longitudinaliter plicata, transversim striata, fulvo-rufescente; tuberculis albis subacutis transpersim seriatis; seriis tribus in ultimo anfractu; cauda brevissima; apertura alba. Elle est un peu ventrue et a trois petits plis transverses sur sa columelle.*

(Shell ovate-acute, longitudinally folded, transversely striated, yellow-red; white subacute tubercles serrated across, 3 rows on the last whorl; siphonal canal very short; aperture white. It is a little potbellied and has 3 small transverse folds on its columella.)

Redescription: Shell of medium size, moderately inflated (diameter / shell height, mean 0.62 ± 0.033, n = 4, range 0.58-0.66), moderately low-spired (aperture height / total shell height, mean 0.63 ± 0.028, range 0.59-0.66), very weakly constricted at base; spiral sculpture of last whorl consisting of 3 principal cords, a shoulder angulation, central cord ending in blunt labral tooth, and basal cord; many spiral threads between cords; axial sculpture of last whorl consisting of 10-12 ribs, which form nodes on each principal cord; outer lip medially convex, with very

shallow or obsolete subsutural sinus; adaxial side of outer lip of ten very weak, short, beaded lirae; aperture broad, its height / breadth ratio 2.5-2.8; siphonal canal very short (canal height / aperture height, mean 0.21 ± 0.02, range 0.18-0.24); umbilical slit present in large individuals; external color chestnut-brown, with white nodules; aperture white.

Size: length 26.5 mm; maximum height 45 mm

Range: Cape Verde

Remarks: *L. triserialis*, a species apparently endemic to the Cape Verde Islands, is a distinctive species characterized by 3 principal cords, all of which are noded where the axial ribs cross them. The outer lip almost lacks a subsutural sinus and is marked by a blunt labral tooth. The siphonal canal is unusually short. Further comparative remarks are given under *L. ponderosa*.

Leucozonia tuberculata (Broderip, 1833)

Description: *Turb. testa fusiformi-turrita, transversim tuberculato-costata, et interstitialiter striata, anfractibus angulatis, angulis noduliferis, albida costis nodulisque nigro-castaneis; apertura alba, columella 3-4-plicata.*

(Shell fusiform-turreted, transversely tuberculate-ribbed, and interstitially striated, whorls angular, shoulder nodular, white ribs and black-chestnut nodules; aperture white, columella with 3-4 folds.)

Redescription: Shell of medium size, inflated (diameter / shell height, mean 0.67 ± 0.061, n = 7, range 0.55-0.72), moderately low-spired (aperture height / total shell height, mean 0.605 ± 9,932, range 0.55-0.67), biconic, very weakly constricted at base; spiral sculpture of last whorl consisting of 5 principal cords, two at shoulder angulation, a central cord ending in variably expressed labral tooth, and two basal cords; axial sculpture of last whorl consisting of 8-12 ribs, forming tubercles on the 2 shoulder cords; outer lip moderately convex, with deep subsutural sinus; adaxial side of outer lip with 10 weak, beaded lirae; aperture relatively broad, its height / breadth ratio 2.3-2.7; siphonal canal relatively short (canal height / aperture height, mean 0.27 ± 0.08, range 0.17-0.41); umbilical slit absent; external color white to buff with brown nodes; aperture white.

Size: length 40.6 mm, width 25 mm; maximum height 53.9 mm

Range: Galapagos and Cocos Islands

Remarks: *L. tuberculata* is the most heavily sculptured species of the genus, characterized by 5 strong cords, the upper 2 of which bear sharp tubercles. The aperture is relatively broad, and the outer lip bears a deep subsutural sinus and usually a sharp labral tooth. *L. tuberculata* is the only eastern Pacific *Leucozonia* with a labral tooth. The species varies little except in size.

L. tuberculata differs from *L. ponderosa* by having 2 instead of the usual 3 basal cords, by being smaller in size, and by having a white aperture. Moreover, the third (tooth-bearing) cord of *L. tuberculata* is not nodose, whereas that of *L. ponderosa* bears nodes.

L. rudis approaches *L. tuberculata* in form, but readily distinguished from that species. A feature distinguishing *L. rudis* from all other species of *Leucozonia* and from tropical American species of *Hemipolygona* and related groups is the well-developed, weakly-noded subsutural cord, which is separated from the shoulder angulation by a concave, spirally threaded subsutural ramp. *L. rudis* is further characterized by a slender, high-spired shell with broad axial ribs that extend abapically to the central cord, and by a strongly convex outer lip that lacks a labral tooth.

Lightbournus Lyons & Snyder, 2008

Type species: *Lightbournus russjenseni* Lyons & M. A. Snyder, 2008

Description: Peristerniine gastropods with small fusiform shells and smooth, paucispiral protoconchs; whorls sculpted with broad, strong axial ribs and less prominent spiral cords; sutures distinct, not bordered by spiral threads or axial lamellae; aperture ovate, constricted anteriorly and posteriorly; parietal shield of mature shells with distinct posterior node, columella with several low but distinct, oblique folds near anterior end; inside of outer lip with well-developed lirae that are paired and entire in posterior half of aperture, unpaired and somewhat interrupted in anterior half; siphonal canal slender, moderately extended, canted to left in apertural view.

Size: lengths to 35.7 mm

Range: W Atlantic

Remarks: *Lightbournus*, known only by its type species, is readily distinguished from *Lamellilatirus*, with which it has been confused, by its lack of subsutural lamellae; although species of both genera have oblique columellar plicae, those of *Lamellilatirus* are broader, lower, and much less distinctly defined than those of *Lightbournus*.

The anterior location and low, oblique shape of the columellar plicae distinguish species of *Lightbournus* from species of *Hemipolygona, Polygona*, and *Pustulatirus*, other western Atlantic *Latirus*-like genera whose columellar plicae are generally stronger, aligned more nearly perpendicular, and situated higher on the columella.

Lightbournus russjenseni Lyons & Snyder, 2008

Description: Adult shell of moderate size, uniformly white, with nearly 10 rapidly expanding, well-separated convex whorls. Protoconch relatively slender, of about 2 1/4 to 2 1/2 elevated whorls, first 2 whorls glassy, smooth, final 1/4 to 1/2 whorl with 3 or 4 rather broad axial riblets, junction with teleoconch abrupt. Nearly 8 teleoconch whorls each bearing 7, occasionally 8, broad, well-developed axial ribs crossed by less conspicuous spiral cords. Axial ribs extending from anterior suture nearly to posterior suture, slightly shouldered posteriorly, more strongly developed toward anterior suture, increasing in size anteriorly, continuing undiminished over body whorl. Suture well-defined, undulating slightly in accord with adjacent ribs and intercostal areas, rarely with faint crenulations caused by growth increments on posterior edge of adjacent anterior whorl. Spiral cords smooth, beginning at junction with protoconch; first teleoconch whorl with 4 cords, weaker 2 on posterior slope, stronger 2 crossing axial ribs, more swollen on ribs than in intercostal areas; number of cords increasing by intercalation anteriorly, about 3-4 weak ones on slope and 6 stronger ones on ribs of penultimate whorl; about 12-14 cords of more or less even strength on body whorl, continuing anteriorly onto siphonal process.

Aperture ovate-elongate, constricted near posterior sinus and at intersection with siphonal canal. Parietal wall concave, smooth, with 1-3 low, oblique folds (plicae) near anterior end of columella and single prominent node at posterior sinus. Outer lip arcuate, finely crenulate in accord with termini of spiral cords, internal wall with 10-12 prominent to weak lirae, those toward posterior half of aperture often paired, entire, those toward anterior side on mature shells often interrupted into dashes or raised dots; lirae terminating in swollen tips before reaching edge of outer lip of mature shells, interval between tips and edge smooth. Constriction at anterior end of aperture formed by anteriormost columellar fold and prominent node on labral wall of larger shells. Siphonal canal well developed, moderately long, canted to left in apertural perspective, smooth within, with distinct parietal margin and 10-12 thin, oblique spiral cords on outer surface, cords diminishing in strength toward tip.

Size: length to 35.7 mm

Range: S Bermuda

Remarks: compare to *Lamellilatirus ceramidus*, *Polygona brevicaudata*

Nodolatirus Bouchet & Snyder, 2013

Type species: *Nodolatirus nodatus* (Gmelin, 1791)

Description: Shell large for subfamily, high-spired, fusiform; axial sculpture of wide, rounded ribs, extensing usually just partly down each whorl, outer lip weakly convex with crenulations at edge, inner side of lip with small dentations and after a smooth segment, numerous fine lirae; 3 to as many as 6 columellar plicae; spiral sculpture of fine spirals becoming prominent on neck, with 2-6 characteristic raised thickened cords at adapical end of neck.

Size: type species to 115 mm

Range: not given

Remarks: The prominent nodes and heavy cords on the neck serve to distinguish species of *Nodolatirus* from other peristerniines. Some larger specimens of *Latirus* (s.s.) have cords on the neck of the shell, but they never are as heavy or prominent as in *Nodolatirus*.

Nodolatirus nodatus (Gmelin, 1791)

Synonyms: *Fusus rosaponti* Lesson, 1842, *Murex rigidus* W. Wood, 1828, *Turbinella multinoda* Petit de la Saussaye, 1842

Description: *M. anfractibus nodosis, cauda recta apertura violacea, labio dentato.*

(Shell with knotty whorls, a straight siphonal canal with a purplish aperture, lip serrated.)

Size: 35-100 mm

Range: Australia

Remarks: *Benimakia lanceolata* is allied to *N. nodatus*, but quite distinct; it is of a more sharply lanceolate growth, and the rib-like tubercles follow continuously one under the other, imparting an hexagonal form to the shell, whilst the whorls are less rounded. The deep violet colouring of the aperture is also characteristic; in *N. nodatus* it is constantly of a pinker hue.

Benimakia rhodostoma is similar to *N. nodatus*, but differs from *N. nodatus* in the much smaller size and the ribbed, non-nodular whorls.

Latirus meli is distinguished from *N. nodatus* by the less slender profile, less pronounced tubercles, stronger spiral sculpture, siphonal canal less developed in relation to the shell height, absence of strong spiral folds on the siphonal canal, darker color and smaller size, 23.2-29 mm versus 35-100 mm.

For comparison with *N. rapanus, N. robillardi* and *Benimakia rosadoi* see there.

Nodolatirus rapanus Bouchet & Snyder, 2013

Description: Shell medium-sized for the family, fusiform, stout (h/d 2.07-2.28), consisting of 1 protoconch and 9 teleoconch whorls; protoconch paucispiral; spire moderately high, 53 % of total shell height; whorls inflated, with concave subsutural band extensively adpressed to preceding whorl, forming an undulating suture, whorl periphery regularly convex; axial sculpture consisting of 6 (on penultimate whorl) to 7 (on last whorl) short, bulbous ribs, interspaces narrower than ribs, not extending on base; spiral sculpture consisting of raised cords, more distinct where they cross ribs than between ribs, interspaces broader than cords, none in subsutural ramp, 3 on periphery of spire whorls, abapical one distinctly stronger, increasing to 8-10, very low and indistinct, on penultimate and last whorls respectively, 15 much stronger and uneven on base and neck; outer lip very convex, without labral tooth, constricted at base of siphonal canal; inner side of outer lip with 10 smooth, continuous, deeply recessed lirae; columella with 4 strong but low folds; siphonal fasciole and false umbilicus indistinct; siphonal canal straight. On early whorls, color pattern of punctuated brown lines in interspaces between cords, fading out after 5th whorl; adult shell dull white with light olive periostracum; aperture pink.

Size: height 43.5 mm, width 20.6 mm

Range: French Polynesia, Austral Islands, Rapa

Remarks: *N. rapanus* differs from *N. nodatus* by its stouter appearance, broader last whorl, shorter siphonal canal, and less prominent cords on the neck. The 2 species are inferred to have different modes of larval development, with the paucispiral protoconch of *N. rapanus* indicating non-planktotrophic development, while development is planktotrophic in *N. nodatus*. However, the protoconch and early teleoconch whorls are often encrusted or corroded, and this is a character that is seen only in very young specimens of 6 whorls or less.

Nodolatirus recurvirostrus (Schubert & J. A. Wagner, 1829)

Description: *T. testa fusiformi-turrita, longitudinaliter plicata, transversim costata, fulvo-lutescente; plicis rubro-ferrugineis, costellis albis; cauda longa, depressa, tricarinata, recurva, profunde umbilicata.*

(Shell fusiform-turreted, longitudinally folded, transversely ribbed, yellow-shiny; red-rusty folds, white ribs; siphonal canal long, depressed, tricarinate, recurved, deeply umbilicated.

Shell fusiform-turreted, much enlarged in the middle, 11 whorls, of which the last, with its long canal, accounts for one half, and the pointed spire the other half of the length. All whorls form an angle in the middle, widening slightly towards the middle from their lower end and then rapidly narrowing. There are strong and rounded axial ridges, prominent on the lower half of each whorl, flattening on the upper, 7 on each whorl. Spiral sculpture of narrow,

protruding ribs, which protrude more strongly on the longitudinal ribs, strongly compressed and therefore sharp. There are 3 distinct transverse ribs on each whorl and 4 on the last whorl, and above these there are 1 or 2 less visible ones. The upper half of each whorl has no transverse ribs. The last whorl suddenly narrows downwards and runs into a long siphonal canal. This is compressed from top to bottom, turned up and to the left at its anterior end, cut off obliquely, and encircled by 3 strong, oblique, sharp ribs. Aperture roundish-oval, runs into a smooth, deep canal curved like the siphonal canal. The right margin is thin, sharp, and notched; the columella lip folded over, smooth and shiny, inside with 3 weak transverse folds. Characteristic is the wide and deep umbilicus down on the left side of the canal. Color light orange-yellow, the longitudinal ridges dark brown-red, the transverse ribs white. Aperture nice orange-yellow, reddish streaked on the inner side of the right lip.)

Size: length 61 mm, width 26 mm

Range: tropical W Pacific

Remarks: The shell of *Latirus stenomphalus* differs evidently from the real *N. recurvirostra* in having the fatter shell and 7 nodules on the whorls compared to 6. Chestnut spots between the spiral ribs are evident, and the umbilicus is visible, does not open significantly outwards and is narrow.

Completely mature *N. recurvirostra* have a somewhat similarly developed anterior end as *Hemipolygona aldeynzeri*. However, *N. recurvirostra* differs from *H. aldeynzeri* in having a more tubular, less fan-shaped anterior end; in almost totally lacking spiral sculpture in apical whorls; in showing wider, much less numerous spiral cords in body whorl, with a maximum of 7 from top of shoulder to base of whorl; in having wider, less rounded axial ribs; in having an almost solid tan coloration; and in having tan colored aperture. Moreover, the periphery of the umbilical area of *N. recurvirostra* shows an axially oriented growth pattern in the form of heavy crenulations, instead of the well-defined, barely corrugated spiral cord of *H. aldeynzeri*.

N. recurvirostra is much more lengthened and slender anteriorly than *Hemipolygona mcgintyi*.

Nodolatirus robillardi (Tapparone Canefri, 1879)

Description: *L. testa elongato-fusiformi, laevigata, conspicue nodosa, epidermide fusca tenuissimaque induta, et sub epidermide alba, lineis distantibus, spiralibus, fusculis, valde obsoletis et obscure impresso-punctatis ornata; spira turrita, acuminata, apice rubella, aperturae et caudae longitudinem aequante; cauda elongata, extus spiraliter bicingulata, ad basin peculiariter contorta. Anfractus 9, sutura undulata sejuncti, superne impressi, medio tuberculis magnis, elevatis, rotundatis praediti; tubercula in unoquolibet anfractu sex. Apertura ovata, intus laevigata; columella superne excavata, inferne oblique et minute quadriplicata, in canalem elongatum, basi truncatum, desinens; labrum simplex; cauda elongata, cingulos duos, spirales, distantes, asperos gerens; cingulus basalis majusculus, inferne sulcum late excavatum ostendens. Color faucis et columellae pallide amethystinus.*

(Shell elongate-fusiform, smooth, conspicuously knotty, clothed with a very thin brown epidermis, under the epidermis white, ornamented with distant brown spiral-lines, very obsolete and obscurely impressed-punctate; spire turreted, pointed, with red apex, equaling the length of the aperture with siphonal canal; siphonal canal elongate, spirally bisected on the outside, peculiarly twisted at the base. 9 whorls, separated by a wavy suture, impressed above, provided with large, elevated, rounded tubercles in the middle; 6 tubercles at each whorl. Aperture ovate, smooth inside; columella excavated above, with 4 oblique and small folds below, terminating in an elongated canal, with a truncated base; lip simple; siphonal canal elongated, bearing 2 spiral, distant, rough ribs; basal rib large, showing a widely excavated furrow. The color of the aperture and the columella is pale violet.)

Size: length 51 mm, width 21 mm

Range: tropical Indo-Pacific, Mauritius

Remarks: This beautiful shell is intermediate between *N. nodatus* and *Benimakia lanceolata*. However, in its general shape, it is closer to *N. nodatus*, with which it has perhaps been confused. It differs from it, however, in its smaller size; by the very particular shape of the base of its canal; by the ribs of its outer surface; by the number and shape of the folds of the columella; by the color of the shell and, above all, by the coloring of its aperture which remembers the mouth of *B. lanceolata*.

Nodopelagia Hedley, 1915

Type species: *Nodopelagia brazieri* (Angas, 1877)

Description: Shell very solid, fusiform, with a short canal and longitudinal ribs.

Size: small

Range: E Australia

Remarks: Absence in *N. brazieri*, of the essential character, plaits on the columella, excludes it both from the family and genus of *Peristernia*, and brings it nearer to *Cominella*.

Nodopelagia brazieri (Angas, 1877)

Description: Shell fusiform, moderately solid, light yellowish brown, longitudinally ribbed with about eight broad ribs, tumid above, which become obsolete towards the anterior portion of the basal whorl, crossed with numerous fine, impressed, concentric lines, especially on the upper whorls; whorls 6 1/2, slightly flattened below the sutures; sutures irregularly impressed; aperture narrowly ovate; outer lip with a small blunt tooth anteriorly; columella arcuate, with a slight callous projection close to its junction with the outer lip; canal moderate, very slightly exserted and recurved.

Redescription: Whorls sculptured with 7 or 8 axial folds per whorl. Surface irregular due to numerous axial growth lines. Columella smooth, aperture, white or yellowish-brown. Light brown externally with a thin brown periostracum.

Size: 25-37 mm; length 25 mm, width 11.2 mm

Range: E Australia

Remarks: The tooth-like projection just inside the outer lip, at the upper portion of the canal, is only present in fully adult specimens. The slight fold in the columella, characteristic of *Peristernia*, is either absent or but very faintly developed in *N. brazieri*.

Opeatostoma Berry, 1958

Type species: *Opeatostoma pseudodon* (Burrow, 1815)

Description: Shell broadly buccinoid, spirally corded, with a high, wide, square shoulder; last cord sharply elevated, bounding an excavated fasciole; spire moderate in height, conic, acute. Aperture with a strong, arcuately produced outer lip, which bears a long sturdy tooth at its lower margin near the short recurved canal; inner lip with a porcellaneous callus which terminates above in a strong entering ridge; columella straight above the canal, bearing inwardly 2 or 3 major folds and occasional minor plaits, outside of which may appear a varying number of intercalated nodulations.

Size: to 75 mm

Range: Mexico to Bolivia

Remarks: In *Leucozonia nassa* the "tooth" is short, often obsolescent, and consists essentially of only the slight marginal projection of one of the spiral cords about midway between the shoulder and the canal. In *Opeatostoma* the long, fang-like spike arises far below this point, not as a projection of a riblet, but as an independent structure proceding from a major furrow which runs around the outside of the shell at this level and which continues as a groove running part way out on the tooth. A small nodule arising inside the aperture near the entrance to the relatively confined and narrow canal in *Leucozonia* is possibly the true homologue.

Opeatostoma pseudodon (Burrow, 1815)

Synonyms: *Monoceros cingulatum* Lamarck, 1816

Description: Shell oblong, solid, transversely striate; whorls obtusely carinate, surrounded with transverse raised bands; aperture crenate, columella with two plaits. Specimen white, covered with a transparent brown epidermis; raised bands dark brown; aperture white, ovate; a few elevated striae above the plaits on the columella, which is rather impressed towards the upper part; lower part of the outer lip furnished with the rudiments of a spine or tooth.

Size: 30-75 mm

Range: Mexico to Peru, Galápagos

Remarks: This species has the longest apertural tooth developed by any gastropod.

Peristernia Mörch, 1852

Synonyms: *Ascolatirus* Bellardi, 1884, *Lathyrus (Peristernia)* Mörch, 1852, *Latirus (Peristernia)* Mörch, 1852, *Plicatella (Peristernia)* Mörch, 1852, *Turbinella (Peristernia)* Mörch, 1852

Type species: *Peristernia nassatula* (Lamarck, 1822)

Description: not given

Redescription: Shell turreted, not umbilicated; whorls longitudinally ribbed; aperture oval; canal moderate and recurved; outer lip thin and crenulated; columella with 1 or 2 slight plaits anteriorly.

Redescription: Shell small, rhomboid with rounded corners, siphonal canal short and open, whorls convex, apex pointed. Sculpture consists of rounded axial ribs crossed by numerous spiral threads, few species are almost smooth. Periphery rarely angled by coronations, never with 2 spiral rows of coronations as in *Microcolus*. Outer lip with spiral ridges inside, columella with 1-2 basal plications. Radula with uneven comb-like cusps, unlike those of other genera which are uniform in size.

Size: up to 35 mm

Range: Indo-Pacific

Remarks: *Fusolatirus* is taller and more slender than *Peristernia* and differs particularly in its long siphonal process.

The want of umbilicus, less distinct columella folds and recurved canal are the principal (and not sufficient) distinctions from *Latirus*.

Peristernia aethiops Macpherson, 1959

Description: Spindle-shaped, spire approximately same length as mouth; sculptured with strong close-set encircling cords and axial costae (10 on body-whorl); colour red-brown with some cords all white or white on the apex of each costa; mouth mauve, outer lip thin, finely crenulate, interior showing impressions of the costae, inner lip smooth and 2 faint plaits at the base of the columella which is twisted and reflected to almost close the umbilicus in the type. Anterior canal short, reflected.

Size: length 30 mm, width 15 mm

Range: N Queensland, Australia

Peristernia angulata (G. B. Sowerby III, 1888)

Description: *E. testa acuminato-fusiformi, albida, fulvo-fasciata; spira turrita, acutissima; anfractus 8, acute biangulati, rugoso-plicati et spiraliter lirati; ultimus spiraliter valide liratus, irregulariter plicatus, varicibus acutis muricatis hic illic irregulariter munitus, superne angulatus, supra angulum leviter concavus, infra convexiusculus, infra medium valde contractus, in caudam breviusculem desinens, et canalem aperturalem formans. Apertura parviuscula, angulata, intus dentato-costata; columella uniplicata; labrum acutum, crenulatum.*

(Shell acuminate-fusiform, white, yellow-banded; spire turreted, very sharp; 8 whorls, acutely biangulated, wrinkled-folded and spirally ridged; the last whorl with strong spiral lirae, irregularly folded, here and there irregularly fortified with sharp murky varices, angled above, slightly concave above the angle, convex below, very contracted below the middle, terminating in a short siphonal canal, and forming an apertural canal. Aperture small, angled, internally toothed-ribbed; columella with one fold; lip sharp and crenulated.)

Size: length 22 mm, width 12.5 mm

Range: Hongkong, China

Remarks: Distinguished by its crisply ridged angular whorls, and raised, rather sharp longitudinal ribs.

Peristernia aureocincta (G. B. Sowerby III, 1875)

Synonyms: according to WoRMS synonym to *Crassicantharus noumeensis* (Crosse, 1870)

Description: *L. testa elongato-turrita; spira obtuso-acuminata; basi multo contracta; anfractibus 9, rotundatis, spiraliter liratis, longitudinaliter costatis, costis latis rotundatis, liris aureo-flavis, interstitiis atro-fuscis, filo-striatis, striis albidis; apertura ovata, parva; columella triplicata; labio externo crenulato; canali brevi, rectiuscula.*

An elongately turreted shell; spire obtusely acuminated; base much contracted; whorls 9 in number, rounded, spirally ridged, longitudinally ribbed; ribs broad, rounded; ridges of a golden yellow colour; interstices nearly black, with fine whitish threads; aperture ovate, small; columella three-plaited; outer lip crenulated; canal short, nearly straight.

Size: length 20 mm, width 8 mm; length of aperture 5 mm, width 2.5 mm

Range: Mauritius

Remarks: is a Buccinid

Peristernia australiensis (Reeve, 1847)

Description: *Turb. testa ovata, medio ventricosa, anfractibus longitudinaliter plicato-costatis, costis tumidis, subdistantibus, liris conspicuis acutis creberrime cingulatis, alba, maculis grandibus quadratis purpureo-nigris inter costas ornata, apertura rosaceo-fuscesente.*

Shell ovate, ventricose in the middle, whorls longitudinally plicately ribbed, ribs swollen, rather distant, very closely encircled with sharp conspicuous ridges; white, ornamented between the ribs with (large) square purple-black blotches, aperture pinkish-brown.

Size: 25-35 mm

Range: N Australia

Remarks: *P. loebbeckei* reminds of *P. australiensis* in its overall habit and especially in its coloring, especially when it is a little rubbed; but it is much more slender and the ribs are more dense; it also has 2 more whorls

Peristernia bicolor (Kobelt, 1874)

Description: *Testa fusiformis, gracilis, solida, spira aperturam superante; anfractus 9 rotundati leniter accrescentes, sutura crenulata, undulata juncti, transversim fortiter plicato-costati, plicis concentricis, elevatis, suturam non attingentibus, spiraliter liris acutis, subsquamatis, alternantibus undique cingulati, striis intercedentibus, ad suturam et in interstitiis lirarum transversim striati. Apertura anguste ovata, fauce lirato, ad introitum canalis angusti dentato; columella angusta triplicata, ad canalem verticalis. Alba, ad suturam et in cauda purpureo-fusca, interstitiis in anfractibus spirae purpureis, in ultimo seriebus duabus macularum pulcherrime cincta, apertura et apice luteis.*

Gehäuse schlank spindelförmig, fest, das Gewinde länger als die Mündung; 9 gutgewölbte, durch eine wellenförmige, crenulirte Naht verbundene Umgänge, mit starken concentrischen Querrippen, welche nicht ganz bis an die Naht reichen und breiter als die Zwischenräume sind; man sieht auf dem letzten Umgänge 5 auf einmal.

Die Spiralsculptur besieht aus scharfen, schmalen, in der Stärke abwechselnden Rippen, die Zwischenräume sind breiter als die Rippen und fein quergestreift; in dem Raum unter der Naht und am Stiel sind diese Streifen stärker, an der Naht so stark, dass diese crenulirt erscheint. Die Mündung ist schmal eiförmig, oben mit der Andeutung eines Canals, der Gaumen gerippt und beim Uebergang in den engen, nach links und hinten gerichteten Canal mit einem Höcker versehen. Spindel nur oben gebogen, Spindelplalte stark aber fast senkrecht stehend, am Canal ganz senkrecht, einen tiefen Nabelritz freilassend, mit drei Falten.

Die Färbung äusserst zierlich; die Grundfarbe ist ein reines Weiss, aber der Raum zunächst unter der Naht, der Stiel und an den oberen Umgängen der ganze Zwischenraum zwischen den Falten sind schön purpurbraun, auf dem letzten Umgang stehen in den Zwischenrippenräumen zwei Reihen grosser Purpurflecken. Mündung und Apex sind gelblich.

(Shell slender spindle-shaped, solid, spire longer than aperture; 9 well-arched whorls, connected by a wavy crenulated suture, with strong concentric transverse ribs, which do not quite reach the suture and are wider than the interstices, 5 on the last whorl. The spiral sculpture consists of sharp, narrow ribs, varying in thickness, the interstices are wider than the ribs and finely striated; in the space under the suture and on the siphonal canal these streaks are stronger, at the suture so severe that it appears crenulated. The aperture is narrowly ovate, with the suggestion of a canal at the top, the palate ribbed and humped at the transition to the narrow canal which is directed to the left and backwards. Columella curved only above, columella plate strong but standing almost vertically, quite vertical at the canal, leaving a deep umbilical slit, with 3 folds.

The coloring extremely dainty; the ground color is a pure white, but the space first below the suture, the siphonal canal and on the upper whorls the entire space between the folds are beautiful purple-brown, on the last whorl there are 2 rows of large purple spots in the spaces between the ribs. Aperture and apex are yellowish.)

Size: length 40 mm, width 18 mm, aperture 18 mm

Range: not given; Australia?

Remarks: compare to *P. ustulata*

Peristernia boutetorum Tröndlé, 2017

Description: *Espèce pouvant atteindre 28,3 mm mais généralement plus petite (16-20 mm). Les tours sont convexes si ce n'est pour la zone sous-suturale légèrement concave et squameuse. Le test est sculpté de bourrelets axiaux traverses sur chaque tour par deux cordes spirales principales. En avant, en arrière de ces cordes et entre elles, une ou deux rides secondaires plus fines sont présentes. Sur le dernier tour on retrouve cette alternance, moins marquee a sa base. Cette sculpture est constante chez tous les exemplaires examines. La couleur du test est généralement orangée, brillante, parfois marquee de traces plus claires. Certains jeunes specimens sont bruns.*

L'ouverture ocre est large, arrondie et intérieurement striée. La columelle lisse possède a sa base 2 ou 3 plis discrets et une dent peu prononcée limite le canal anal. Le labre est crénelé a l'extrémité des cordes circulaires. La protoconque est de type paucispiral et est formée de 1.5 tours.

(Species that can reach 28.3 mm but generally smaller. Whorls are convex except for the slightly concave and scaly subsutural area. The shell is sculptured with axial ridges crossed on each whorl by 2 main spiral cords. In front, behind these cords and between them, 1 or 2 finer secondary wrinkles are present. On the last whorl there is this alternation, less marked at its base. This sculpture is constant in all the specimens examined. The color of the shell is generally orange, shiny, sometimes marked with lighter traces. Some young specimens are brown.

The ocher aperture is wide, rounded and internally striated. The smooth columella has 2 or 3 discreet folds at its base and a not very pronounced tooth limits the anal canal. The labrum is crenellated at the end of the circular cords. The protoconch is of the paucispiral type and is formed by 1.5 whorls.)

Size: up to 28.3 mm but generally smaller (16-20 mm)

Range: French Polynesia

Remarks: The most visible details that differentiate *P. granulosa* from *P. boutetorum* are its brown color and its internally purple aperture. The aperture is oval in shape and the columella has 2 well-marked folds at its base. Furthermore, the sub-sutural area is not squamous but covered by 5 grainy wrinkles. This squamous aspect of the undersutural zone of *P. boutetorum* is to be compared to what can be seen for the genus *Lamellilatirus* or even, but less clearly, for the genus *Fusolatirus*. On the other hand, the species corresponding to the specific characteristics to these genera have in particular a long and curved siphonal canal which is not found in *P. boutetorum*.

Peristernia canthariformis Melvill, 1891

Description: *P. testa gracili, elongato-fusiformi, ad basin subrecurva, anfractibus octo, longitudinaliter irregulariter costatis, liris, binis transversim multicinctis, albida, ad costas hic illic aurantio-suffusa, apertura simplici, columella quadriplicata, albescente*.

(Shell slender, elongate-fusiform, subcurved at the base, with 8 whorls, longitudinally irregularly ribbed, lirated, pairwise transversely multi-lirated, whitish, here and there orange-suffused at the ribs, aperture simple, columella with 4 folds, whitish.)

Size: length 31 mm, width 11 mm

Range: Mauritius

Remarks: The extremely attenuated and graceful form, superficial character of the ribs, the delicate orange chestnut colouring, impart a very lively bright appearance to the shell, which is not unlike *Cantharus gracilis* in form superficially suggesting the trivial name.

A most graceful and delicate species, slightly resembling *P. cremnochione*, from which it abundantly differs in many particulars.

Peristernia carlajoostae Lussi, 2014

Description: Shell roughly diamond shaped, whorls weakly convex, apical whorls straight-sided, siphonal canal short but distinct, false umbilicus present, protoconch dome shaped and 1.04 mm diameter, w/l 0.46. Sculpture of about 8 weak flattened axial ribs crossed by spiral threads, lip with spiral ridges inside, columella with posterior nodule and 2-3 basal plications. Upper margin of whorls adorned with undulating folds overlapping suture. Colour

ranges from cream with reddish-brown subsutural band, to peach with reddish-brown blotches to reddish-brown with cream apex and base, rim of aperture cream. Operculum oval with terminal nucleus.

Size: 17-23 mm

Range: Port Edward, South Africa

Remarks: Similar to *P. forskalii leucothea* but with stronger spiral sculpture, weaker axial ribs and always with some colour, never plain white. Banded, spotted and uniformly coloured forms have been observed. In addition, *P. f. leucothea* is an intertidal species whereas *P. carlajoostae* occurs in deep waters only (80 meters and over) and never washes ashore.

There are similarities to *P. fuscotincta* which is endemic to the Eastern Cape, but that species is narrower and almost devoid of any spiral sculpture.

Peristernia carotiana (Tapparone Canefri, 1881)

Description: Kobelt: [of *Turbinella ustulata* (not Reeve):*Testa fusiformis, solida, spirae suturis subimpressis, crenulatis; anfractus 8 subrotundati, superne impressi, medio interdum carinati, transversim latecostati, costis obliquis, spiraliter subtiliter rugoso-lirati; apertura ovata, subangulata, fauce lirato, canali angusto, recurvo. Colore lutescente, ad basin nigra, plerumque ustulato-fusce tincta et fasciata; apertura lutescens.*

Gehäuse spindelförmig, solid, aus acht langsam zunehmenden Windungen bestehend, welche durch eine ziemlich eingedrückte, crenulirte Nath verbunden sind. Sie sind ziemlich gerundet, doch obenher etwas eingedrückt und mitunter in der Mitte gekielt, stark quergefaltet mit breiten, etwas schrägen Rippenfalten und von sehr dichten, rauhen, fast schuppigen Spiralreifen umzogen. Die Mündung ist klein, kaum die Hälfte des Gehäuses ausmachend, eckig eiförmig, in einen engen, rückwärts gekrümmten Canal fortgesetzt, an dessen Eingang auf dem Gaumen ein Zähnchen steht; der Mundrand ist einfach, der Gaumen dicht gerippt, Spindelbelag stark, Falten kaum sichtbar. Färbung gelbbraun mit einem schwarzen oder purpurbraunen Fleck an der Basis, meistens auch in den Zwischenräumen der Rippenhöcker dunkler rauchbraun, oder mit undeutlichen braunen Bändern; Mündung gelblich, mit einer bläulichen Lippe, am unteren Ende der Spindelplatte und im Canal dunkel.]

(Shell fusiform, solid, spiral sutures subimpressed, crenulate; 8 subrounded whorls, impressed on top, sometimes carinated in the middle, transversely wide, oblique ribs, spirally delicately wrinkled; aperture ovate, subangular, lirated, canal narrow and recurved. Lustrous in color, black at the base, usually tinged and banded with scotch-brown; aperture shining.

Shell fusiform, solid, consisting of 8 slowly increasing whorls, connected by a rather depressed, crenulated suture. Whorls fairly rounded, but somewhat indented at the top and sometimes keeled in the middle, heavily folded transversely with broad, somewhat oblique ribs and surrounded by very dense, rough, almost scaly spiral cords. The aperture is small, scarcely half the shell length, angularly ovate, continuing into a narrow backward-curving canal, with a little tooth at the beginning; the edge of the aperture is simple, inside densely ribbed, columella callus strong, folds are hardly visible. Coloration yellow-brown with a black or purplish-brown spot at the base, usually also darker smoky brown in the spaces between the ribs, or with indistinct brown bands; aperture yellowish, with a bluish lip, dark at the bottom of the columella plate and in the canal.)

Size: [length 28 mm, width 14 mm, length of aperture 14 mm]

Range: Mauritius, Réunion

Remarks: The species from Mauritius is surely the same as that described in the Turbinelles monograph by M. Kobelt, under the name of *Turbinella ustulata*, which is quite different from the true *P. ustulata*, Reeve.

This species seems to vary greatly in sculpture and drawing; only the dark spot at the base is constant.

Peristernia castanoleuca Tapparone Canefri, 1879

Description: *D'après les observations que nous venons de faire précédemment, l'espèce figurée par Reeve, sous le nom de Turbinella Philberti, se trouvant sans nom, nous la distinguons sous la dénomination spécifique de P. castanoleuca, d'après sa coloration.*

(According to the observations which we have just made previously, the species figured by Reeve, under the name of *Turbinella philberti*, being without name, we distinguish it under the specific name of *P. castanoleuca*, according to its coloration.)

Turbinella philberti: [*Testa fusiformi, rufo-fusca, longitudinaliter latè et obtuse novem costata, lineis elevatis albis, aequidistantibus cincta; anfractibus octonis, supra compresso-planis declivis et in medio carinis albis alternatim tuberculalis; infimo ventricoso bicarinato; spira conica, obtusata; cauda cingulata: cingulis 2 3 majoribus; columella obsolète biplicata, basi umbilicata; labro bicarinato, crenulis castaneis notato.*

Shell fusiform, rufous-brown, 9 longitudinal wide and obtuse ribs, equidistant raised white lines; 8 whorls, above compressed-flat slopes and in the middle a white keel alternately tubercular; below ventricose bicarinate; spire conical, obtuse; siphonal canal with 2 3 larger spiral cords; columella obsoletely bifolded, base umbilicated; lip bicarinated, marked with chestnut ridges.]

Size: [length 56 mm]; 26 mm

Range: Philippines

Remarks: *P. vezzaroi* differs from *P. castanoleuca* in the absence of the typical bands and less angular whorls.

Peristernia chlorostoma (G. B. Sowerby I, 1825)

Synonyms: *Latirus newcombii* A. Adams, 1855, *Peristernia scabrosa* (Reeve, 1847), *Peristernia stigmataria* A. Adams, 1855, *Turbinella crenulata* Kiener, 1840, *Peristernia selinae* J.C. Melvill, 1891

Description: *T. testa ovali, albida longitudinaliter costata, transverse striata, apice acutiusculo; aperturae margine denticulata, parte interna lutea, canalis basi fusco maculata.*

(Shell oval, white longitudinal ribs, transversely striated, apex sharp; margin of the aperture is denticulate, the inner part is yellow, the base of the canal is spotted with brown.)

Size: length 18.8 mm, width 1.25 mm

Range: orig. not given; Indo-Pacific

Remarks: Two specimens of this shell are in the collection, one of which is without spots, and the other has a row of dark chesnut spots along the middle of the last volution, and a few spots of the same colour close to the suture: the row of spots in the middle of the last volution is so arranged that one spot comes between each longitudinal rib.

Due to the system of coloring and due to the shape *P. forskalii forskalii* has some resemblance to *P. chlorostoma*.

P. loebbeckei is quite close to *P. chlorostoma*, but differs sufficiently by the completely different sculpture.

P. nigritella is to be compared to *P. chlorostoma*. The most salient characteristics are: a larger size, slightly more convex and slightly more depressed whorls near the suture, finally the very dark brown end of the canal, which makes a charming contrast with the coloration general from the rest of the shell.

Peristernia clathrata (Kiener, 1840)

Description: *T. testa oblongâ, bucciniformi, cancellatâ, albidà, apice acuminatâ, longitudinaliter tenue plicatâ, transversim regulariter striato rugosâ; anfractibus convexiusculis; caudâ brevi; aperturâ ovatâ; labro dextro intùs sulcato; columellâ subcylindraceâ, quadriplicatà.*

Coquille oblongue, étroite, assez épaisse, bucciniforme, aspire conique, allongée, très-pointue; elle est formée de sept ou huit tours médiocrement convexes et pourvus d'un assez grand nombre de côtes longitudinales étroites, pliciformes, rapprochées les unes des autres, traversées par un grand nombre de stries élevées qui, en passant sur les côtes, deviennent rugueuses et forment avec cellesci un réseau élégant; les stries ont assez d'espace entre elles pour qu'une autre strie très-fine puisse s'y intercaler; le dernier tour est aussi long que le reste de la spire; il est terminé par un canal très-court et une échancrure assez profonde; le bord droit est épais, crénelé, fortement sillonné en dedans; la columelle est également épaisse, presque droite, garnie de quatre plis inégaux, dont les premiers sont les plus petits. Cette coquille est d'un beau blanc de lait, quelquefois nuancé d'une trèslégère teinte rosée.

(Shell oblong, bucciniforme, cancellate, whitish, apex acuminate, longitudinally thinly folded, transversely regularly striated; convex whorls; siphonal canal short; aperture ovate; right lip furrowed inside; columella subcylindrical, with 4 folds.

Shell oblong, narrow, rather thick, bucciniform, spire conical, elongated, very pointed; it is formed of 7 or 8 moderately convex whorls and provided with a fairly large number of narrow longitudinal ribs, pliciform, close to each other, crossed by a large number of raised striae which, passing over the ribs, become rough and form with them an elegant network; the streaks have enough space between them for another very fine streak to be inserted; the last whorl is as long as the rest of the spire; it is terminated by a very short canal and a rather deep indentation; the right edge is thick, crenellated, strongly furrowed inside; the columella is also thick, almost straight, with 4 unequal folds, the first of which are the smallest. This shell is of a beautiful milky white, sometimes nuanced with a very slight rosy tint.)

Size: 26.8 mm

Range: not given; ? America, ? W Atlantic

Peristernia columbarium (Gmelin, 1791)

Synonyms: *Turbinella iostoma* Küster, 1844, *Turbinella spinosa* Deshayes, 1843

Description: *M. testa longitudinaliter plicato-costata transversimque sulcata angulata spinosa, carinata alternatim albo fuscoque varia, anfractibus gradatis, cauda recta brevi, fauce violacea.*

(Shell longitudinally folded-ribbed and transversely furrowed with spiny angles, carina alternately white and brown, whorls graduated, short straight siphonal canal, aperture violet.)

Size: 20-35 mm

Range: Paulo Condore Isl., S Vietnam

Peristernia cremnochione Melvill, 1891

Synonyms: *Peristernia cremnochione var. photiformis* Melvill, 1891

Description: *P. testa subattenuata, fusiformi, anfractibus septem, anguliferis, longitudinaliter costulatis, ad angulis costarum praecipue albofusis sulculis plus minusve binis, transversim rugulosis, fascia fulvo-brunnea ad suturas et in medio ultimo anfractu insigni, columella triplicata, apertura pallida, ovata, labro subangulato.*

(Shell attenuated, fusiform, with 7 angular, longitudinally ridged whorls, at the corners of the ribs more or less 2, mainly whitish furrows, transversely rugose, a yellow-brown band at the sutures and in the middle of the last whorl, columella with 3 folds, aperture pale, ovate, lip with an angle.)

Size: length 24 mm, width 11 mm

Range: Mauritius

Remarks: This seems a variable little species. The central brown fascia is, however, always present, the number of ribs, and their more or less angularity vary immensely. The general appearance resembling *Phos roseatus*, in miniature.

P. canthariformis is a most graceful and delicate species, slightly resembling *P. cremnochione*, from which it abundantly differs in many particulars.

P. cremnochione resembles *Latirus deynzerorum* in the outline and color pattern of the shell. *P. cremnochione*, however, lacks a siphonal fasciole, and has a short, straight siphonal canal, characteristic of *Peristernia*.

Peristernia crocea (Gray, 1839)

Description: Shell ovate, turreted, thick, spirally striated, and coarsely longitudinally plaited, white, brown at each end; spire tapering, larger than the mouth; apex ovate, brown; whorls rounded, upper with a sutural band of brown spots, last dark brown in front; axis perforated. Mouth small, ovate; throat yellow, grooved; inner lip thin; pillar with 3 oblique plaits in front.

Size: 31.25 mm

Range: Pacific

Remarks: *Latirus castaneus* is somewhat like a small variety of *P. crocea*, but the plaits on the pillar are larger, and the throat and lips are differently coloured.

compare to *P. sulcata*

Peristernia decorata (A. Adams, 1855)

Description: *L. testa ovato-fusiformi, alba, castaneo varie tincta, longitudinaliter plicata, transversim lirata, liris majoribus cum minoribus alternantibus, duabus ad suturas moniliformibus; apertura ovali, canali brevi, columella plicis tribus instructa, labro intus sulcato.*

(Shell ovate-fusiform, white, variegated with chestnut, longitudinally folded, transversely lirated, larger and smaller lirae alternating, 2 at the ring-shaped suture; aperture oval, with a short canal, columella with 3 folds, lip furrowed inside.)

This is a pretty little species; white, with chestnut markings, and with a double series of granules encircling the whorls at the sutures.

Redescription: There are 9 broad axial ribs on the penultimate and the same number on the body whorl, spiral cords override axial ribs, sutures with 2 prominently granulose spiral cords, columella with 3 basal denticles, aperture lirate, pinkish-white in colour and brown between axial ribs.

Size: 15-25 mm; length 18.2 mm, width 7.8 mm

Range: orig. New Zealand (error); tropical Indian Ocean

Peristernia despecta (A. Adams, 1855)

Description: *L. testa ovato-fusiformi, umbilicata, spira aperturam aequante, fusca, lineis albis transversis ornata, antice atro-purpureo tincta; anfractibus planiusculis, longitudinaliter plicatis, plicis distantibus, rotundatis, transversim liratis, liris subaequalibus, confertis, supremis ad suturas crenato-dentatis, suturis impressis; apertura ovata, columella plicis quatuor subobsoletis instructa, canali brevi, labro intus sulcato.*

(Shell ovate-fusiform, umbilicated, spire equal to the aperture, brown, decorated with transverse white lines, dyed black-purple anteriorly; with flat whorls, longitudinally folded, folds distant, rounded, transversely lirated, lirae subequal, crowded, uppermost crenate-toothed at the sutures, sutures impressed; aperture ovate, columella with 4 subobsolete folds, channel short, inner lip furrowed.)

A small fusiform fuscous species, transversely lineated with white, and stained at the fore part with blackish-violet.

Size: 15-25 mm

Range: Chinese Seas

Peristernia forskalii forskalii (Tapparone-Canefri, 1875)

Description: *L. testa ovato-fusiformi, solida; spira acuta, subturrita, apice rosaceo. Anfractus 7 8 convexi, longiludinaliter costati, costis novenis insignes; spiraliter lirati, liris inaequalibus; suturis subimpressis. Color albidus costarum interstitiis, zonis tribus in anfractu ultimo, et regione umbilicali castaneo-fuscis. Cauda breviuscula. Apertura parva, laete violacea, columella triplicata plicis saepe evanidis, fauce intus lirata.*

Conchiglia ovato-fusiforme, lievemente panciuta, piuttosto spessa, colla spira abbastanza elevata, acuta, ad apice color di rosa. Giri di spira a suture profonde, convessi, in numero di sette ad otto, forniti di nove coste sporgenti, rotondate, ed ornati di numerosi cingoletti o strie elevate spirali di ineguale grandezza, spesso alternativamente maggiori e minori. Il colore della conchiglia è bianchiccio; ma gli interstizi delle coste, tre fascie, di cui una suturale, sull'ultimo giro, e finalmente la regione umbilicale sono di un bel bruno-castagno. Canale piuttosto breve. Apertura piccola, d'un violetto vivace, colla columella adorna di tre pieghe, spesso affatto obliterate quando la conchiglia ha raggiunto tutto il suo completo sviluppo.

(Shell ovate-fusiform, solid; spire sharp, subtended, with a rosy apex. 7-8 convex whorls, longitudinally ribbed, 9 distinct ribs; spirally lirated, lirae unequal; suture suppressed. Color whitish in the interstices of the ribs, 3 zones on the last whorl and the umbilical region chestnut-brown. A short siphonal canal. Aperture small, lively violet, columella with 3 folds which often disappear, aperture lirated inside.

Shell ovate-fusiform, slightly pot-bellied, rather thick, with a fairly high, acute spire, apex pink-coloured. 7-8 spire whorls with deep, convex sutures and 9 protruding ribs, rounded, and decorated with numerous spiral cords or elevated spiral streaks of unequal size, often alternately larger and smaller. The shell color is whitish; but the interstices of the ribs, 3 bands, one of which is sutural, on the last whorl, and finally the umbilical region are of a beautiful brown-chestnut. Somewhat short channel. Aperture small, bright violet; columella adorned with 3 folds, often completely obliterated when the shell has reached its full development.)

Redescription: Axial ribs strong and well defined, extending from suture to suture on spire whorls, and almost or quite to the base of the last whorl; number 8-11 on the body whorl. Spiral lirae stronger and coarser than *P. leucothea*, these being well developed even below the suture, periphery with a single lira which is markedly stronger than the others where it crosses the ribs. First lira below suture with a series of fine denticulations. Whorls tend to be more convex than in *P. leucothea*.

Typical coloration yellowish or white, with the subsutural region, a band around the middle of the body whorl, and usually another just below this, chestnut brown; this colour usually suffuses the intervals between the axial ribs as well. Occasional shells are completely chestnut, save for the crests of the ribs in the peripheral region, which are pale. Aperture usually deep violet, sometimes violaceous-brown. In the Cape Vidal-Mission Rocks race white examples predominate to the almost complete exclusion of coloured shells, although uniform flesh and brown-

marked individuals do occur; in white shells the aperture is usually colourless but sometimes vivid violet in colour, and this may impart a slight violaceous tint to the exterior as well.

Size: 15-30 mm; 19.8 mm

Range: Red Sea to South Africa

Remarks: *P. forskalii leucothea* is completely white in colour, with markedly weak sculpture (particularly in the southern part of the range), while typical *P. forskalii forskalii* shows vivid chestnut-brown zones, a violet aperture, and markedly stronger and rougher sculpture.

P. forskalii has much analogy with some varieties of *P. nassatula*; but *P. forskalii* has a smaller shell, lacks keels above the ribs, has a abbreviated shape and a different coloring. The individuals of *P. nassatula* of New Guinea are the ones that most closely resemble *P. forskalii*, but are much larger, more pot-bellied, and differently colored. *P. nassatula* is larger, broader and more biconical than *P. forskalii*, with a sharply-keeled peripheral angle and fewer, stronger spiral ridges.

Due to the system of coloring and due to the shape this species also has some resemblance to *P. chlorostoma*.

Peristernia forskalii leucothea Melvill, 1891

Synonyms: *Euthria eburnea* G. B. Sowerby III, 1900

Description: *P. testa subpyramidali, ad apicem multum attenuata, anfractibus septem, longitudinaliter multicostatis, transversim liris tenuibus arcte cingulatis omnino albescentibus, apertura effusa simplici, alba, labro intus sulcato, columella obscure triplicata.*

(Shell subpyramidal, greatly attenuated at the apex, with 7 whorls, longitudinally multiple ribs, transversely with thin, tight lirae; completely whitish, aperture shed simple, white, lip furrowed inside, columella obscurely triplicated.)

Redescription: Axial ribs relatively weak, particularly in the southern part of the range, obsolete below the suture and usually on the base; generally 8 in number, occasionally 9 or 10. Spiral lirae weak, usually obsolete below the suture; there is no trace of a prominently developed peripheral lira such as occurs in *P. forskalii s.s*. Subsutural crenulations are weaker than in the latter. Colour uniform white, inside and out, although when present the thin periostracum usually gives the shell a dirty cream appearance.

Size: length 18.5 mm, width 8 mm

Range: South Africa, from eastern Cape to S Natal

Remarks: *P. forskalii leucothea* is completely white in colour, with markedly weak sculpture (particularly in the southern part of the range), while typical *P. forskalii forskalii* shows vivid chestnut-brown zones, a violet aperture, and markedly stronger and rougher sculpture.

P. carlajoostae is similar to *P. f. leucothea* but with stronger spiral sculpture, weaker axial ribs and always with some colour, never plain white. Banded, spotted and uniformly coloured forms have been observed. In addition, *P. f. leucothea* is an intertidal species whereas *P. carlajoostae* occurs in deep waters only (80 meters and over) and never washes ashore.

Peristernia funiculata (Tapparone Canefri, 1882)

Description: *L. testa turbinato-fusiformis, solida, per longitudinem plicata et spiraliter tenui-cingulata, fusca, cingulis albidis, basi et apice pallidioribus, ornata; spira conica, acuta. Anfractus extantes 6 (in testa intégra prob. 8-9), angusti, in medio angulato-nodosi, superne ad suturam compressiusculi et sutura undulata, crenulata sejuncti; costis longitudinalibus, parum elevatis et cingulis tenuibus, fréquent ibusque albidis regulariter exarati; ultimus major, aperturae longitudinem aequans. Apertura ovata, subquadrangularis, fusco-violacea, in canalem rectiusculum, crassiusculum et parum elongatum desinens; columella obscure quadriplicata; labrum acutum; fauce lirata.*

Coquille charmante, dont la forme générale se rapproche de celle du L. (Turbinella) amjiluslre, Kiener. Elle est turbinée fusiforme; sa spire conique et pointue est composée de 6 tours dans mon exemplaire dont le sommet est malheureusemenl légèrement corrodé; probablement il y en avait 8. Ces tours sont chargés de quelques côtes longitudinales, médiocrement saillantes et leur surface est uniformément parcourue par des petits cordons transverses, très réguliers, assez nombreux et qui se détachent par leur blancheur sur la couleur brune foncée du fond de la coquille; le sommet de la spire et la base du canal sont plus pâles et décoloration rouillée. Le dernier tour est conique, légèrement concave à sa partie supérieure, près de la suture, et se termine en un canal épais, assez droit et pas trop long. L'ouverture est ovale et même un peu quadrangulaire; elle est entièrement de couleur violacée, sale et foncée; la columelle porte quatre plis peu marqués; la lèvre droite est mince et tranchante, avec des stries élevées à l'intérieur.

(Shell turbinate-fusiform, solid, longitudinally folded, thin spiral cords, brown, decorated with whitish cords, base and apex paler; spire conical, sharp. Remaining whorls 6 (in the intact shell prob. 8 9), narrow, angular-knotted in the middle, above compressed to the suture and separated by the wavy, crenulated suture; with longitudinal ribs, slightly elevated and with thin cords, frequent and regularly drawn whitish; last whorl larger, equaling the length of the aperture. Aperture ovate, subquadrangular, brownish-purple, ending in a straight, thick and slightly elongated canal; columella with 4 obscure folds; sharp lip; aperture wide open.

Shell is fusiform turbinate; its conical and pointed spire is composed of 6 whorls in a specimen whose top is unfortunately slightly corroded; probably there were 8. These whorls have a few longitudinal ribs, moderately protruding, and their surface is uniformly traversed by small transverse cords, very regular, quite numerous and which stand out by their whiteness against the dark brown base color of the shell; the top of the spire and the base of the channel are paler and rusty discolored. The last whorl is conical, slightly concave at its upper part, near the suture, and terminates in a thick channel, fairly straight and not too long. The aperture is oval and even a little quadrangular; it is entirely purplish in color, dirty and dark; the columella bears four slightly marked folds; the right lip is thin and sharp, with raised ridges inside.)

Size: length 19 mm, width 8 mm

Range: orig. not given; ? Vanuatu

Peristernia fuscotincta (G. B. Sowerby III, 1886)

Synonyms: *Euthria ordinaria* W. H. Turton, 1932

Description: *Testa elongata, solidiuscula, alba, fusco irregulariter tincta; spira elata, acutiuscula, sutura impressa; anfractus 7, laevissime convexi, spiraliter obscurissime sulcati; anfr. ultimus convexus, medio fusco balteatus, inferne attenuatus; apertura ovata, mediocriter lata, canali brevi, columella leviter reflexa.*

Shell elongated, rather solid, white, irregularly tinged with brown; spire elevated, rather acute, whorls very slightly convex, very obscurely spirally grooved; last whorl convex, with a brown band, attenuated towards the base; aperture [oval], moderately wide; canal rather short, columella slightly reflexed.

Size: length 20 mm, width 7.5 mm

Range: South Africa

Remarks: *P. carlajoostae* has similarities to *P. fuscotincta*, but that species is narrower and almost devoid of any spiral sculpture.

Peristernia gemmata (Reeve, 1847)

Description: *Turb. testa ovata, crassa, obesa, spira subacuminata; anfractibus laevigatis aut subtiliter striatis, nodulis elevatis irregularibus undique seriatim cinctis; lutescente, nodulis partim eburneis partim purpureo-atris, intus vivide crocea.*

Shell ovate, thick, stout, spire somewhat acuminated; whorls smooth or very finely striated, encircled throughout with rows of elevated irregular nodules; yellowish, nodules partly black, and in part opal white, interior bright saffron yellow.

Size: 18-30 mm

Range: orig. not given; Tuamotu

Remarks: Entirely beset with conspicuously coloured nodules.

Compared with *P. lirata*, the ribs of *P. gemmata* are greater in number, much smaller and less prominent, nodulose and crossed by impressed striae, instead of being ridged. Its color is yellow, with the white spots more numerous, and it has the peculiarity, in common with several species inhabiting Western Polynesia, of the colors becoming iridescent when wet. The base is not stained.

compare to *P. jeaniae*

Peristernia granulosa (Pease, 1868)

Description: *T. elongato-fusiformi, longitudinaliter costata, costis 9, rotundatis, transversim lirata, interstitiis lira parva granulosa cingulata; anfr. superne angulatis, vix excavatis, angulis granuloso-lirata; labro intus lirata; anfr. convexo-rotundatis; rufescente-fusca, granulis pallidis, apertura violacea.*

Shell elongately fusiform, longitudinally ribbed, ribs 9, rounded, corded with transverse ridges, with a small granose ridge encircling the interstices; whorls angulated and slightly excavated at the upper part, angulation encircled by close set granulose ridges; outer lip lirate within; whorls convexly rounded; color reddish brown, granules lighter, aperture violet.

Size: length 22 mm, width 12 mm

Range: Tuamotu

Remarks: The most visible details that differentiate *P. granulosa* from *P. boutetorum* are its brown color and its internally purple aperture. The aperture is oval in shape and the columella has 2 well-marked folds at its base. Furthermore, the sub-sutural area is not squamous but covered by 5 grainy wrinkles.

Peristernia hilaris Melvill, 1891

Description: *P. testa subfusiformi, fulvo-aurantia, anfractibus septem, conspicue ad suturas angulatis, longitudinaliter multicostatis, liris transversim candidis arcte complexis, infra suturas duabus, ultimo anfractu tribus, moniliformibus; sphaerulis aequis, nitidis, labro simplici, apertura subangusta, oblonga, columella plicis tribus instructa.*

(Shell subfusiform, yellow-orange, with 7 whorls, conspicuously angled at the sutures, with many longitudinal ribs, closely clustered transverse white lirae, below sutures 2, 3 at the last whorl, ring-shaped, with equal, shiny beads; lip simple, aperture rather narrow, oblong, columella with 3 folds.)

Redescription: The ground colour is a deep orange, and the clean cut and close-lying white lirae transversely cross the whorls, affording a pleasing contrast. The 2 or 3 lirae immediately below the sutures are decorated with shining white round beads, of almost equal size, regularly concentrically disposed.

Size: length 19 mm, width 9 mm

Range: Mauritius

Remarks: *Latirus mannophorus* is allied to *P. hilaris*, but is, in several particulars, quite different. The transverse lirae are not so close nor so deeply sulcated between, and the first lirae below the sutures are more irregularly beaded with necklace-like nodules, and the mouth is more ovate.

Peristernia igorshlegeli Bozzetti, 2020

Description: not available

Size: 10.8 mm; up to 11.8 mm

Range: S Madagascar

Remarks: Superficially *P. igorshlegeli* looks like a juvenile *P. nassatula*, but has a different protoconch of 0.9 mm of diameter, bulbous, versus 0.65 mm, conical, with tubercles on the periphery, rounded versus pointed, in the short siphonal canal, bent to the left versus more developed and less oblique, in the pattern less contrasted, and smaller in size, 8-11.8 mm versus 22-45 mm.

Peristernia incerta Schepman, 1911

Description: Shell fusiform, spire about half the length, conical; canal moderately long. Whorls 8 or 9, nuclear ones worn, subsequent ones convex at the periphery, slightly concave below the suture, angular by a prominent keel, occupying the median part of upper whorls and by another keel, just above the suture; sculpture consisting of broad, rounded, concentric ribs, 7 in number on last whorl and fine growth-striae, crossed by the 2 keels described above, which form nearly spines on the ribs and some less prominent ones on the last whorl; moreover numerous finer lirae run over the whorls, 4 in number between suture and upper keel and occasionally still finer ones, 3 between first and second keel, 3 between this and third keel, 1 between third and fourth keel and 14 and a few intermediate lirae on lower part of last whorl and canal. Suture undulate, appressed, strongly squamiferous.

Aperture oval, angular above, ending in a rather wide canal, slightly curved to the left, peristome thin (probably not quite developed) slightly expanded, angular and crenulated by the lirae; columella concave, slightly enamelled, with two very faint plaits. Colour yellowish-white, with three interrupted, reddish-brown bands, most conspicuous on the ribs, and numerous spots of the same colour on the finer lirae, base of canal reddish-brown, interior of aperture white, with brown blotches on peristome, corresponding to the interrupted bands.

Size: length 24 mm, width 5 mm; length of aperture 7 mm, with canal 13 mm

Range: E Rotti-Island, Indonesia

Remarks: *P. incerta* is allied to *Latirus philberti* and *P. nassatula*, but it differs by shape from both, by the smaller aperture and the much more slender canal, which is more suddenly separated from bodywhorl, moreover it is more distinctly 2-keeled at the periphery than in those species, and the finer sculpture and colour, though similar in some parts, is quite different in many particulars.

In prominence of keels *P. incerta* remembers *Latirus spinosus*, which is however quite different in most other respects.

Peristernia iniuensis Melvill, 1891

Description: *P. testa ovato-fusiformi, roseo-tincta, anfractibus sex, subventricosis, longitudinaliter plicato-costatis, tranversim crassisulcatis, apice roseo, labro intus crenulato, apertura ovata, columella fortiter triplicata.*

(Shell ovate-fusiform, pink-tinged, with 6 whorls, subventricose, longitudinally folded-ribbed, transversely thickly furrowed, apex pink, inner lip crenulated, aperture ovate, columella with 3 strong folds.)

Size: length 7.5 mm, width 3 mm

Range: Niue Isl. (Pacific Ocean)

Remarks: *P. venusta is* allied to *P. iniuensis*. It is, however, a little narrower than that species, has more numerous and finer spiral lirae, and is also distinguished by the brown thread-like line, which, passing round the body-whorl, revolves up the spire. The rosy spots between the upper ends of the costae also constitute a distinguishing feature. The lines of growth are well marked and sufficiently strong on crossing the spiral lirae to give them a crenulated appearance. The two plicae on the columella are, in fact, the continuation of 2 lirae upon the end of the whorl.

Peristernia jeaniae (Melvill, 1911)

Description: *L. testa ovata, abbreviata, pyramidato-fusiformi, solida, laetissime flavo-ochracea, anfractibus ad 8, quorum apicales duo albi, vitrei, perlaeves, caeteris arcte longitudinaliter costulatis, et spiraliter liratulis, liris super costas albescentibus et saepius incrassatis, nitidiusculis, apertura ovata, intus pallide puniceo-suffusa, labro tenuis columella triplicata, plicis obscuris, canali lato, brevi.*

(Shell ovate, abbreviated, pyramidal-fusiform, solid, very yellow-ochraceous, 8 whorls, the apical 2 of which are white, vitreous and smooth, the others closely longitudinally ribbed, and spirally lirated, lirae over the ribs whitish and often thickened, shiny; aperture ovate, inside pale pinkish-suffused, lip thin, columella triplicated, folds dark, canal broad short.)

Size: length 22 mm, width 11 mm

Range: Mauritius

Remarks: A most attractive, pretty species, allied to *P. lirata* and *P. gemmata*; from the former of these, which is the nearest akin, it differs in the complete absence of any darkly-shaded equidistant longitudinal bands, so conspicuous a feature in *P. lirata*, and from which it takes its name.

Peristernia ktolemandoensis (K. Martin, 1933) ?†

Description: *Spindelförmig, ziemlich schlank; die Mündung länger als das Gewinde, dessen Umgänge eine hintere Depression und S-förmige Profillinien besitzen. Auf den älteren Mittelwindungen sind kräftige, abgerundete, von Naht zu Naht reichende Querrippen vorhanden, die aber beim Anwachsen der Sehale auf der Depression undeutlich werden. Sie ziehen meist in zusammenhängender Reihe schräg über das Gewinde hin und ihre Zahl beträgt auf der letzten Mittelwindung neun. Die ganze Oberfläche ist ferner mit dicht gedrängten, scharfen Spiralleisten von zweierlei Ordnung, die fast regelmässig miteinander abwechseln und durch die Anwachslinien fein gekörnelt sind, bedeckt. Die Spiralen sind auf der Depression feiner als auf dem vorderen, gewölbten Teile der Umgänge und hier treten vier derselben besonders deutlich hervor. Die Schlusswindung ist vorne links ziemlich stark eingebuchtet. Die Querrippen erreichen anfangs kaum die Nahtlinie und werden gegen*

die Mündung hin sehr undeutlich; die Längsskulptur trägt bis zur Stirn den gleichen Charakter wie am Gewinde, doch kommen in der Mitte der Schlusswindung Spiralen von dreierlei Ordnung vor.

Die Mündung ist länglich-bimförmig, hinten mit schmaler Rinne versehen, vorne mit breitem, undeutlich begrenztem, aber ziemlich langem Kanal, welcher nach links gewendet ist und dem ein vorderer Ausschnitt fehlt. Weder Nabelritze noch Spiralwulst sind vorhanden. Die Spindel ist ein wenig konkav; auf ihrem schlecht erhaltenen Innenrande ist nur eine einzelne schräge Falte angedeutet. Die Innenlippe schwach, am Ansatzpunkte des Kanals und gegenüber der hinteren Rinne der Mundöffnung ein wenig verdickt; die Aussenlippe an ihrer Innenseite mit scharfen, entfernt stehenden Leisten bedeckt.

(Fusiform, fairly slender; the aperture is longer than the spire, spire-whorls with a rear depression and S-shaped profile lines. On the older central whorls there are strong, rounded transverse ribs extending from suture to suture, but these become indistinct onto the depression as the shell grows. They usually run diagonally across the spire in a continuous row and their number is 9 on the last central whorl. The entire surface is also covered with densely packed, sharp spiral ridges of 2 orders, which alternate almost regularly with one another and are finely granulated by the growth lines. The spirals are finer on the depression than on the anterior, arched parts of the whorls and here 4 of them are particularly noticeable. The final whorl is quite heavily indented at the front left. The transverse ribs initially barely reach the suture and become very indistinct towards the aperture. The longitudinal sculpture has the same character up to the forehead as the spire, but in the middle of the final whorl there are spirals of 3 orders.

The aperture is elongated pear-shaped, with a narrow canel at the back and a wide, indistinctly defined but fairly long canel at the front, which is turned to the left and lacks a front cutout. Neither umbilical fissure nor spiral ridge are present. The columella is a little concave; Only a single oblique fold is indicated on its poorly preserved inner edge. The inner is lip weak, slightly thickened at the attachment point of the canal and opposite the posterior groove of the aperture; the outer lip is covered on the inside with sharp, distant strips.)

Size: not given

Range: Indonesia, Buton Island

Remarks: described as fossil

Peristernia lirata (Pease, 1868)

Description: *T. fusiformi-ovata, solida, longitudinaliter costata, costis 10, rotundatis, transversim liris parvis, compressis cingulata; apertura parviuscula, intus lirata; flavus, costis, linea unica nigrescens strigatis; liris hic illic ad interstitiis alba rnaculatis; columella aperturaque, croceis, basi nigro tincta; epidermide membranacea tenui induta, longitudinaliter rugosa.*

Shell fusiformly ovate, solid, longitudinally ribbed, ribs contiguous, rounded, 10 in number, encircled transversely with small compressed ridges; aperture rather small, interior ridged. Reddish-yellow, ribs striped (on the left side) with a blackish line; transverse ridges, here and there spotted with white, at the interstices between the ribs; aperture and columella bright saffron, base stained with black; covered with a thin membranaceous epidermis, roughened longitudinally.

Size: length 30 mm, width 16 mm

Range: Marquesas

Remarks: Compared with *P. lirata*, the ribs of *P. gemmata* are greater in number, much smaller and less prominent, nodulose and crossed by impressed striae, instead of being ridged. Its color is yellow, with the white spots more numerous, and it has the peculiarity, in common with several species inhabiting Western Polynesia, of the colors becoming iridescent when wet. The base is not stained.

P. jeaniae is allied to *P. lirata*; *P. jeaniae* differs from *P. lirata* in the complete absence of any darkly-shaded equidistant longitudinal bands, so conspicuous a feature in *P. lirata*, and from which it takes its name.

Peristernia loebbeckei (Kobelt, 1876)

Description: *Testa ovato-acuminata, solida, spira aperturam aequante; anfractus 7 subangulati, sutura undulata, subcanaliculata discreti, leniter accrescentes, transversim plicato-costati, costis conspicuis, ad angulum grosse tuberculatis, spiraliter confertim lirati, liris rotundatis, interstitiis minoribus. Apertura parva, rotundata, ad canalem coarctata, fauce lirata, labro crenulato, columella vix plicata. Albida, basi nigricante, fasciis tribus castaneis, media interdum interrupta, ornata, apertura rosea, ad columellam nigromaculata.*

Gehäuse spitz-eiförmig, festschalig, das Gewinde fast eben so lang als die Mündung; 7 etwas kantige Umgänge, langsam und regelmässig zunehmend, durch eine schwach rinnenförmige, wellig gebogene, am Rande ganz leicht crenulirte Naht getrennt, stark und ziemlich dicht quergefaltet, die Falten schwellen an der Kante, und weniger deutlich auch noch einmal am Beginn der Verschmälerung zu runden Knoten an; die Spiralsculptur besteht aus starken, runden, dichtstehenden Reifen, welche unter der Loupe fein quergestreift erscheinen; in den ohnehin

schon engen Zwischenräumen verläuft immer noch eine schwächere Rippe. Mündung eng, gerundet, am Eingang in den gekrümmten Canal plötzlich verengt, der Gaumen gestreift, die Aussenlippe den Spiralreifen entsprechend gezähnelt, die stark gebogene Spindel lässt kaum Spuren einer Falte erkennen. Farbe weiss mit schwärzlicher Basis, auf dem letzten Umgang verlaufen drei dunkelkastanienbraune Binden, von denen sich zwei auch auf die oberen fortsetzen; die oberste beginnt dicht an der Naht und ist sehr breit, die zweite liegt dicht unter der Kante; sie ist nur in einem Interstitium zusammenhängend, sonst auf den Falten unterbrochen, während in den Zwischenfurchen quadratische Flecken stehen; die dritte ist wieder breiter und verläuft über den Beginn des Stieles; die Mündung ist rosa, auf der Spindel stehen einige undeutliche schwärzliche Flecken.

(Shell ovate-acuminate, solid, spire as long as the aperture; 7 subangular whorls, gently increasing, suture undulating, discrete subcanaliculate; transversely folded-ribbed, ribs conspicuous, coarsely tuberculate at the angle, spirally tightly lirated, lirae rounded with smaller interstices. Aperture small, rounded, narrowed to the canal, mouth wide, lip crenulated, columella barely folded. White, with a blackish base, 3 chestnuts bands, sometimes interrupted in the middle, ornamented, aperture pink, black-spotted at the columella.

Shell pointed-ovoid, solid, the spire almost as long as the aperture; 7 somewhat wrinkled whorls, increasing slowly and regularly, separated by a slightly groove-shaped, wavy curved suture, very slightly crenulated at the edge; strong and fairly dense transverse folds, the folds swelling at the edge and again less clearly at the beginning of the narrowing to round knobs; spiral sculpture consists of strong, round, dense cords, which appear finely striated under the loupe; a weaker cord still runs in the already narrow interspaces. Aperture narrow, rounded, suddenly narrowing at the entrance to the curved canal, the palate striated, outer lip serrated according to the spiral cords, the strongly curved columella shows hardly any traces of a fold. Color white with blackish base, on the last whorl 3 dark maroon bands, 2 of which also continue on the upper whorls; the top one begins close to the suture and is very wide, the second lies just below the edge; it is only contiguous in a interstitium, otherwise it is interrupted on the folds, while there are square spots in the intermediate furrows; the third is broader again and runs across the beginning of the siphonal canal; aperture pink, some indistinct blackish spots on the columella.)

Size: length 23 mm, width 14 mm, length of aperture with canal 13 mm

Range: Polynesien

Remarks: *P. loebbeckei* is quite close to *P. chlorostoma*, but differs sufficiently by the completely different sculpture.

P. loebbeckei reminds of *P. australiensis* in its overall habit and especially in its coloring, especially when it is a little rubbed; but it is much more slender and the ribs are more dense; it also has 2 more whorls

Peristernia malvastoma Lussi, 2014

Description: Shell more or less oval, body whorl convex, apical whorls almost straight-sided, apex pointed, false umbilicus obscured by columella callus, siphonal canal short but well defined and open. Protoconch conical and 0.54 mm in diameter, w/l 0.49. Sculpture rough consisting of sharp axial ribs numbering about 10-11 on body whorl and nodular spiral cords numbering about 15. Columella with posterior notch and 2 basal plications. Inner lip with spiral lirae only visible on the edge. Colour light mauve to white, stained with light brown between the ribs, aperture mauve.

Size: length 20-28 mm

Range: South Africa, possibly to Mozambique

Remarks: *P. malvastoma* has in the past been confused with *P. nassatula*, an eastern Indian Ocean / Pacific species. The latter has a different colour pattern, a subsutural spiral band and the axial ribs are angled at the periphery. The geographical distribution of *P. nassatula* is mainly around the Philippines / Australia region and does not occur further west in the Indian Ocean.

Peristernia marquesana (A. Adams, 1855)

Description: *L. testa fusiformi, umbilicata, sordide alba, rufo tincta, apice purpureo, spira apertura longiore; anfractibus septem, longitudinaliter plicatis, transversim liratis, liris asperis; anfractu ultimo antice atro-purpureo tincto; apertura ovali, canali mediocri, columella plicata, labro margine crenato.*

(Shell fusiform, umbilicated, sordid white, tinged rufous, apex purple, spire longer than aperture; 7 whorls, longitudinally folded, transversally lirated, lirae rough; the base of the last whorl is stained with purplish-black;

aperture oval, the size of the canal is averaged, columella folded, plicae are rough, with minute imbricate scales; lip crenated at the margin.)

Size: 20-32 mm

Range: Marquesas

Remarks: *P. marquesana* likewise has coarser spiral sculpture than *Benimakia delicata*, with 6 central-sector cords and 8 very weak cords on the base and siphonal canal.

Peristernia melanorhynca (Tapparone Canefri, 1882)

Description: *L. testa abbreviato-fusiformis, umbilicata, per longitudinem plicata et spiraliter lirata, lutescente-albida, ad suturam ferruginea et zona item ferruginea in medio anfractus ultimi ornata; cauda intense fusca; spira conica, acuta, apice fusco. Anfractus 8, regulariler accrescentes, convexiusculi, sutura anguste canaliculata, lacerata sejuncti; liris alternatim majoribus et minoribus, superne evanidis, et plicis subdistantibus, parum obliquis praediti; ultimus inflalus, spiram subaequans. Apertura ovata, in canalem parum elongatum, subincurvum desinens; columella perobscure biplicata; labrum acutum; fauce obsolète lirata.*

Cette curieuse coquille a beaucoup de rapport par sa coloration avec le L. infracinctus, Kobelt; elle est ovale et fusiforme, renflée au milieu, de couleur jaunâtre, ferrugineuse près de la suture et à sa base; un peu au-dessous du milieu du dernier tour se déroule une bande plus foncée qui se prolonge dans les autres tours le long de la suture; l'extrémité de la queue est très foncée et presque noire. La spire, à peu près de la meme longueur que l'ouverture, est formée de 8 tours, assez convexes, séparés par une suture profondément crénelée, onduleuse et canaliculée. Sur toute la surface de la coquille s'élèvent des petits filets transverses, alternant avec des stries très fines et très régulières. Des côtes longitudinales garnissent tous les tours et sur le dernier elles deviennent sinueuses et séparées par de larges interstices. L'ouverture est ovale et se termine en une queue courte et courbée en arrière; la columelle porte deux plis très peu marqués; la lèvre droite est striée intérieurement.

(Shell abbreviate-fusiform, umbilicated, folded lengthwise and spirally lirated, lustrous-white, at the suture rusty and also a rusty zone in the middle of the last whorl; siphonal canal intensely brown; spire conical, sharp, apex brown. 8 whorls, regularly increasing, convex, suture narrowly canaliculate, separated by lacerations; lirae alternately larger and smaller, evanescent above, folds below, a little oblique; the last whorl inflated, as long as the spire. Aperture ovate, a little elongated into the canel, ending in a curve; columella with 2 very weak folds; lip sharp, palate obsolete lirated.

Shell oval and fusiform, swollen in the middle, yellowish in color, ferruginous near the suture and at the base; a little below the middle of the last whorl a darker band which continues in the other whorls along the suture; the end of the siphonal canal is very dark and almost black. The spire, about the same length as the aperture, is formed of 8 whorls, rather convex, separated by a deeply crenellated, wavy and canaliculated suture. Over the entire surface of the shell small transverse threads rise, alternating with very fine and very regular streaks. Longitudinal ribs on all whorls and on the last they become sinuous and separated by wide interstices. The aperture is oval and ends in a short, backward-curved canal; the columella bears two very weak folds; the right lip is internally striated.)

Size: length 19 mm, width 9.5 mm

Range: not given, Indo-Pacifik?

Remarks: The coloring resembles *P. ustulata* (= *Latirus infracinctus*).

P. vezzaroi differs from *P. melanorhynca* in a different color and less convex whorls.

*Latirus hesterae, a*n elegant, brightly coloured species, is nearly allied to *P. melanorhynca*, but differing in its much more attenuate contour, and enhanced sutural impression, the whorls on that account shewing greater ventricosity. The ribs are more numerous too, 8 on the body whorl of *P. melanorhynchus*, which is almost black tipped at the base, while in *L. hesterae* the coloration is a warm chestnut brown.

Peristernia moltenii Bozzetti, 2014

Description: *Specie dalla conchiglia di grandi dimensioni per il genere di appartenenza, 31.6-37.6 mm, fusiforme, slanciata, spira alta dal profilo diritto, protoconca globosa, paucispirale, circa 1 giro, non meglio analizzabile causa erosione, teleoconca formata da 8 giri convessi, sutura incisa. Scultura assiale costituita da 7-8 ampie, prominenti costole per giro, estese fino alla base sull'ultimo giro, fitte costoline negli interspazi; scultura spirale formata da corde arrotondate, più sviluppate all'intersezione con le costole assiali, in numero di 3 sui primi giri di teleoconca, aumentando fino a 9 sul penultimo giro, 29 sull'ultimo giro e canale sifonale; presenti corde secondarie negli interspazi. Sotto la sutura una corda tubercolata, più evidente sulla parte terminale dell'ultimo giro, i tubercoli corrispondono al bordo superiore dei seni posteriori precedenti. Apertura ovale, internamente lirata sul lato labiale, labbro esterno uniformemente convesso, affilato, presenti sul bordo 20 denticoli arrotondati, labbro interno concavo, percorso da 2 forti pliche oblique all'estremità basale; il callo columellare si eleva in un' inductura che, proseguendo sul canale sifonale, ne percorre il bordo sinistro. Seno posteriore sviluppato, a forma di "V" rovesciata, delimitato ai lati da 2 forti*

pliche parallele. Canale sifonale corto, aperto, diritto, piegato a sinistra, incavato alla base, ombelico aperto. Colore beige-rosato, più chiaro sulle costole. Peristoma e interno della fauce viola. Opercolo corneo di colore marrone, a forma di artiglio, moderatamente ritorto, con nucleo terminale.

(Shell large for the genus, fusiform, slender, spire tall with a straight profile, protoconch globose, paucispiral, about 1 whorl, not better analyzed due to erosion, teleoconch formed by 8 convex whorls, suture engraved. Axial sculpture consisting of 7-8 large, prominent ribs per whorl, extending to base on last whorl, dense riblets in the interspaces; spiral sculpture formed by rounded cords, more developed at the intersection with the axial ribs, 3 on the first teleoconch whorls, increasing up to 9 on the penultimate whorl, 29 on the last whorl and siphonal canal; there are secondary strings in the interspaces. Under the suture a tubercular cord, more evident on the terminal part of the last whorl, the tubercles correspond to the upper edge of the previous posterior sinuses. Aperture oval, internally lirated on the labial side, external lip uniformly convex, sharp, with 20 rounded denticles on the edge, internal lip concave, crossed by 2 strong oblique folds at the basal end; the columellar callus rises in an inductura which, continuing on the siphonal canal, runs along its left edge. Posterior sinus developed, in the shape of an inverted "V", delimited on the sides by 2 strong parallel folds. Siphonal canal short, open, straight, bent to the left, concave at the base, umbilicus open. Color beige-pink, lighter on the ribs. Peristome and inside aperture purple. Horny operculum brown, claw-shaped, moderately twisted, with terminal nucleus.)

Size: 31.6-37.6 mm

Range: SE Madagascar

Remarks: *P. moltenii* is sometimes confused with *Latirus hesterae*, a species with a wide Indo-Pacific distribution; the differences between the 2 taxa are evident: compared to L. hesterae, *P. moltenii* has a less slender profile with less developed whorls, uniform pinkish-beige color against light brown with a dark band at the suture and on the siphonal canal, inside the aperture uniform purple vs whitish with brown bands reflecting the exterior design and a larger size, 31.6-37.6 mm vs 20-30 mm.

P. reincarnata, has similarities in general appearance with *P. moltenii*. *P. moltenii* differs from *P. reincarnata* for its less slender profile, less dense axial sculpture, uniform pinkish-beige color against orange-beige with dark brown axial interspaces and for its larger dimensions, 31.6-37.6 mm against 18-30 mm.

Peristernia nassatula (Lamarck, 1822)

Synonyms: *Peristernia deshayesii* (Kobelt, 1876), *Turbinella microstoma* Kobelt, 1876

Description: *T. testa subturritâ, longitudinaliter costatâ, transversè sulcatâ et striatâ; costis interruptis albis: interstitiis luteo-roseis; caudâ brevissimâ; apertura roseo-violacescente.*

(Shell subturreted, longitudinally ribbed, transversely furrowed and striate; white interrupted ribs: interstices yellow-pink; very short siphonal canal; aperture pinkish-purple.) 3 small folds at the columella, the lower one is almost obsolete.

Size: 36 mm

Range: SW Pacific

Remarks: *P. forskalii* has much analogy with some varieties of *P. nassatula*; but *P. forskalii* has a smaller shell, lacks keels above the ribs, has a abbreviated shape and a different coloring. The individuals of *P. nassatula* of New Guinea are the ones that most closely resemble *P. forskalii*, but are much larger, more pot-bellied, and differently colored. *P. nassatula* is larger, broader and more biconical than *P. forskalii*, with a sharply-keeled peripheral angle and fewer, stronger spiral ridges.

P. incerta is allied to *P. nassatula*, but it differs by shape, by the smaller aperture and the much more slender canal, which is more suddenly separated from bodywhorl, moreover it is more distinctly 2-keeled at the periphery, and the finer sculpture and colour, though similar in some parts, is quite different in many particulars.

P. malvastoma has in the past been confused with *P. nassatula*, an eastern Indian Ocean / Pacific species. The latter has a different colour pattern, a subsutural spiral band and the axial ribs are angled at the periphery. The geographical distribution of *P. nassatula* is mainly around the Philippines / Australia region and does not occur further west in the Indian Ocean.

Superficially *P. igorshlegeli* looks like a juvenile *P. nassatula*, but has a different protoconch of 0.9 mm of diameter, bulbous, versus 0.65 mm, conical, with tubercles on the periphery, rounded versus pointed, in the short siphonal

canal, bent to the left versus more developed and less oblique, in the pattern less contrasted, and smaller in size, 8-11.8 mm versus 22-45 mm.

Peristernia neglecta (A. Adams, 1855)

Description: *L. testa turbinato-fusiformi, umbilicata, spira apertura longiore, sordide alba, fusco tincta; anfractibus convexiusculis, longitudinaliter plicatis, plicis distantibus, crassis, rotundatis, transversim liratis, liris inaequalibus, ad plicas elevatis; apertura ovata, intus carnea, canali brevi subrecurvo, columella antice obsolete plicata, labro intus sulcato.*

(Shell turbinately-fusiform, umbilicated, spire longer than aperture, sordid white, tinged with brown; whorls convex, longitudinally ribbed, ribs distant, thick, rounded, transversely lirate, lirae unequal, raised at the ribs; aperture ovate, inside pink, canal short, somewhat recurved, columella anteriorly obsoletely folded, inner lip furrowed.)

Size: not given; 20-35 mm

Range: orig. China; South Africa, Réunion

Peristernia nigritella (Tapparone-Canefri, 1882)

Description: *L. testa majuscula, incrassata, anfractibus magis tumidis, cauda ad basim saturate fusco maculata.*

(Shell large, thickened, whorls very swollen, siphonal canal at the base spotted with saturated brown.)

Size: 30-40 mm; 32.3 mm

Range: unknown; ? Fiji, New Caledonia

Remarks: *P. nigritella* is to be compared to *P. chlorostoma* (= *Latirus scabrosus*). The most salient characteristics are: a larger size, slightly more convex and slightly more depressed whorls near the suture, finally the very dark brown end of the canal, which makes a charming contrast with the coloration general from the rest of the shell.

Peristernia pulchella (Reeve, 1847)

Synonyms: *Turbinella sutoris* Kobelt, 1876

Description: *Turb. testa fusiformii, anfractibus oblique costatis, costis latiusculis, solidis, transversim carinatis et striatis, carinis striisque inter costas multo prominentibus; fulvo-fusca, apertura vivide violacea.*

Shell fusiform, whorls obliquely ribbed, ribs rather broad, solid, transversely keeled and striated, keels and striae much more prominent between the ribs, fulvous-brown, aperture rich violet.

Size: 18-35 mm

Range: orig. not given; Indo-Pacific

Remarks: For comparison with *Fusolatirus pagodaeformis* see there.

Peristernia reincarnata Snyder, 2000

Synonyms: *Peristernia incarnata* (Deshayes, 1833) sensu Kiener, 1840

Description: Size average for genus, solid, elongate to somewhat squat, ratio of maximum length to maximum diameter from 2.2-2.4; sculptured with broad axial ribs, tending to be oblique and sinuate on later whorls, spiral cords often evanescent on ribs on later whorls; 8-9 ribs and 8 spiral cords per whorl, rounded in cross section. Color variable, axial ribs white, yellow or caramel brown, interstices dark brown; aperture rosy pink to violet. Aperture narrow, lirate within, with weakly dentate margin, single denticle toward anal canal, 3-4 plicae toward short straight open siphonal canal. Operculum typically ungulate, convex, light brown, filling aperture.

Size: up to 34 mm; length 26.8 mm, width 11.8 mm

Range: Indo-W Pacific

Remarks: *P. reincarnata*, has similarities in general appearance with *P. moltenii*. *P. moltenii* differs from *P. reincarnata* for its less slender profile, less dense axial sculpture, uniform pinkish-beige color against orange-beige with dark brown axial interspaces and for its larger dimensions, 31.6 37.6 mm against 18-30 mm.

Benimakia nux has a superficial resemblance to *P. reincarnata*, which also has a rounded shell, with interspaces darker than axial ribs, but lacks a tooth-bearing spiral cord.

Peristernia retiaria Melvill, 1891

Description: *P. testa fusiformi, pallide flavo-ochracea, crassiuscula, anfractibus septem, rotundatis, subventricosis, longitudinaliter costatis, costis subangulatis, indistincte fulvo-punctatis, costulis transversim cingulatis, labro tenuis apertura oblonga, basi nigro-caerulea.*

(Shell fusiform, pale yellow-ochreous, thick, with 7 whorls, rounded, subventricose, longitudinally ribbed, ribs subangular, indistinctly yellow-dotted, ribs with transverse riblets, lip thin, aperture oblong, black-blue base.)

A delicate looking, though non-transparent shell, and of rather thicker substance than one would imagine, of a pale ochraceous colour, with indigo blue base, the ribs are very numerous, and crossed in a somewhat latticed style of network with smaller riblets, the main longitudinal ribs being dimly spotted with fulvous dots, hardly visible without the aid of a lens. There is also a dark line at the sutures.

Size: length 20 mm, width 8 mm

Range: Mauritius

Peristernia rollandi (Bernardi & Crosse, 1861)

Description: *Testa fusiformis, crassiuscula, subumbilicata, luteo-aurantiaca, apice mucronato, spirae suturis subprofundis; anfr. 8 longitudinaliler costatis, transversim granulato-striatis; columella obscure biplicala, pallide aurantiaca; fauce striata, pallide aurantiaca; cauda lata, breviuscula.*

Coquille fusiforme, assez épaisse, légèrement ombiliquée, d'un jaune orangé clair; le sommet de la spire est pointu, la suture des tours assez profonde et flexueuse; on compte huit tours de spire ornés de côtes longitudinales assez nombreuses, et de stries transversales légèrement granuleuses; deux plis peu marqués à la columelle, qui est d'une nuance orangée plus intense que celle des tours de spire, quoique peu vive; l'ouverture est striée et de même couleur que la columelle; le canal est assez court et large.

(Shell fusiform, thick, subumbilical, yellow-orange, apex pointed, spiral sutures deep; 8 longitudinally ribbed whorls, transversely granulate-striated; columella indistinctly bifolded, pale orange; aperture striated, pale orange; siphonal canal broad, short.

Shell fusiform, rather thick, slightly umbilical, of a light orange-yellow; the top of the spire is pointed, the suture of the whorls rather deep and flexuous; there are 8 spire whorls adorned with quite numerous longitudinal ribs, and slightly grainy transverse streaks; 2 slightly marked folds at the columella, which is of a more intense orange hue than that of the whorls, although not very lively; the aperture is striated and of the same color as the columella; the channel is quite short and wide.)

Size: length 41 mm, width 13 mm

Range: New Caledonia

Remarks: *P. rollandi* is close to *P. ustulata* (= *Turbinella caledonica*), for the arrangement of the ribs and the streaks and the coloring of the aperture; it is distinguished by a larger size and differences in the shape and coloration of the canal.

P. rollandi seems quite close to *Siphonalia spadicea*, for the size, the general aspect and the shape of the canal; but it has tighter streaks, more numerous, less prominent ribs, and a different coloration.

Peristernia rosea (Reeve, 1846)

Description: *Ricin. testa ovata, basi producta, spira peculiariter abbreviata; anfractibus longitudinaliter nodoso-costatis, labro incrassato, apertura parva; rosacea, fusco zonata.*

Shell ovate, produced at the base, spire peculiarly shortened; whorls longitudinally nodosely ribbed, lip thickened, aperture small; rose-colour, zoned with brown.

Size: orig. not given; height 11.1 mm, diameter 6.4 mm

Range: Masbate, Philippines (error?); Caribbean?

Remarks: Somewhat akin in form to *Muricopsis deformis*.

Peristernia scabra (Souverbie, 1869)

Description: *Testa fusiformis, elongata, solida, longitudinaliter scabre crassicostata, costulis 1-2 minoribus interpositis cincta, nigra; anfr. 10? (spira apice fracto) sutura rude crenulata discreti, ultimus turgidus; apert. ovato-oblonga, in canalem subelongatum desinens, fauce subviolaceo-albida et valide sulcata; margine dextro minute undulato, columellari appresso, extus lamellose prominente, intus tuberculo valido, plicas 2 transversas, subviolaceo-albas gerente munito.*

(Shell fusiform, elongate, solid, longitudinally coarsely thickened, surrounded by 1-2 smaller interposed cords, black; 10? whorls (apex broken) separated by a coarsely crenulated suture, last whorl swollen; aperture ovate-oblong, ending in a sub-elongate channel, inside light-violet-white and strongly furrowed; right margin minutely wavy, columellar appressed, protruding lamellae on the outside, strong tubercle on the inside, 2 transverse folds, covered with a light-violet-white callus.)

Size: length (broken apex) 15 mm, width 6 mm; length of aperture without canal 3 mm, width 2 mm

Range: New Caledonia

Remarks: uncertain, taxon inquirendum

Peristernia schepmani Dekkers, 2014

Description: Shell of small size, thick, rather light weight, slender-fusiform. Protoconch consists of about 1.5 smooth white whorls. Teleoconch with generally 6 whorls, starting with yellowish spiral cords and red brownish interstices becoming darker towards the body whorl; later whorls bear strong reddish orange coloured spiral ribs, 3 on the penultimate whorl, alternating with 3 smaller spiral ribs of the same colour which are divided by reddish brown coloured smaller spiral interstices. In some specimens the reddish brown area is not divided by the small reddish orange ribs until the body whorl; in others the division starts on the antepenultimate whorl. Towards the body whorl the axial ribbing gets stronger. On the body whorl the number of axial ribs is about 11-12; the ribs are triangular and rounded on top; on the shoulder up to 4 cords the sharpest outward projecting edges are at the crossing of the spiral cords with the axial ribs. This sculpture is also present on the penultimate whorl. Most of the shells the fifth or six major cord below the suture on the body whorl has interrupted white markings instead of orange. Where this white cord enters the aperture it is covered by the callus where the inside of the aperture is attached to the penultimate whorl. Suture deeply incised with white squamous extensions randomly scattered along it for at least the last 2-3 whorls.

The aperture is roughly half the total shell length and ends in a strong siphonal canal; at the posterior side the aperture ends in a shallow canal. The aperture itself is more squarish and twice as high as broad. The aperture is orange inside. The columella has a small well defined columellar shield. The columella bears 2 shallow ribs entering the aperture. The anteriormost rib-like structure is a dentical constricting the base of the siphonal canal. There are 10-11 raised lirations, which correspond in position to the interstices of the spiral cords. On the edge of the lip the ending of the interstices become denticulate, even up to the end of the siphonal canal. Siphonal canal strong but slender and curving slightly to the left when seen ventrally.

Size: 17-21.7 mm

Range: Philippines

Remarks: There is not much variability in sculpture and the basic colouring is constant: only the white parts on the spiral ribs can vary.

P. schepmani can be confused with *Turrilatirus lautus*. *P. schepmani* is more slender, has thinner but sharper spiral cords and has an interrupted white line on the lower part of the body whorl which is just covered by the growing whorl and the white feather-like extensions at the suture.

Turrilatirus melvilli has about 9 strong axial ribs on the body whorl (absent in *P. schepmani*), and has raised whitish spiral cords and orange-red interstices.

Peristernia smithiana Melvill, 1891

Description: *P. testa fusiformi fulvo-ochracea, ad angulos costarum pallidiore, anfractibus septem, interdum octo, longitudinaliter forticostatis, liris et costis tranversim alternantibus, ad suturas rugulosis, in medio angulatis, canali brevi, subrecurva, apertura intus striata, labro simplici, columella obscure triplicata.*

(Shell fusiform yellow-ochreous, paler at the angles of the ribs, with 7, sometimes 8, strong longitudinal ribs, lirae and ribs transversely alternating, sutures rough, angled in the middle, channel short, subcurved, aperture internally striated, lip simple, columella with 3 obscure folds.)

Size: length 28-38 mm, width 12-18 mm

Range: Mauritius

Remarks: Of uniform tawny ochreous colour, paler at the points where the ribs are crossed at the angle of the whorls by the transverse riblets. It varies a good deal in size.

Peristernia squamosa (Pease, 1863)

Description: *T. fusiformis, turrita, longitudinaliter costata; costis 7-8, transversion lirata, liris subdistantibus, costis supra nodosis, interstitiis transversim, et longitudinaliter subtilissime striatis, minute et irregularlter squamatis: anfr. convexis, ad suturas squamis prominentibus erectis ordinatim ornatis: anfractu ultimo parte inferiore basin versus contracto: rufescenti-fusca, liris transversis super castas lutescenti-fuscis, squamis albis: apertura alba.*

Shell fusiform, turreted; body-whorl somewhat veatricose, longitudinally ribbed; ribs 7 or 8, transversely ridged; ridges somewhat distant, becoming nodulous on the longitudinal ribs; interstices finely ribbed, transversely and very finely striated longitudinally, squamate, more particularly at the base of the body-whorl. Whorls ornamented at the sutures with a row of prominent, erect, squamate scales or spines; lower part of last whorl contracted towards the base. Colour reddish brown; nodulous portion of the transverse ridges yellowish white; scales and spines white; aperture white.

Size: length 45 mm, width 20 mm

Range: Pacific Islands

Peristernia striata (Gray, 1839)

Description: Shell ovate, fusiform, solid, dark brown, closely spirally striated; spire acute, as long as the small rounded mouth; whorls rounded, transversely plaited; throat deeply grooved; inner lip white; pillar with 3 rather small close plaits in front.

Size: 25 mm

Range: Pacific, Hawaii

Remarks: is not *Peristernia striata* (Pease, 1868) [= *Morula striata* (Pease, 1868)]

Peristernia sulcata (Gray, 1839)

Description: Shell ovate, fusiform, ventricose, solid, white (covered with a thin brown periostracum), longitudinally plaited, with close small rounded, alternately smaller, spiral ridges; the spire conical, as long as the mouth; whorls rounded. Mouth ovate; outer lip crenulated; throat deeply grooved; inner lip smooth; front of pillar with 3 very obscure oblique plaits; canal short, straight, wide, open, slightly perforated.

Size: 25 mm

Range: Pacific; Australia, Philippines

Remarks: compare to *P. crocea*

Peristernia taitensis (Lesson, 1842)

Description: *Coquille très-petite, haute de 6 mm au plus, turbinée, allongée, à tours séparés par une suture peu marquée, tous couverts de côtes saillantes, peu serrées, au nombre de six sur le dernier tour seulement, traversés horizontalement par des cordons espacés, formant des saillies sur les côtes. Ouverture ovalaire, à canal court, à bord droit tranchant, garni de sillons en dedans. Columelle marquée de trois à quatre varices petites, recouvrant une fente ombilicale.*

(Very small shell, turbinate, elongated, whorls separated by a not very marked suture, all covered with projecting ribs, a little compressed, six on the last whorl, crossed horizontally by spaced cords, forming projections on the

ribs. Aparture oval, with a short channel, a sharp straight edge, inside lined with furrows. Columella marked with 3 to 4 small varices, covering an umbilical slit.)

Size: to 6 mm

Range: Tahiti

Peristernia tayloriana (Reeve, 1848)

Description: *Fus. testa pyramidali-fusiformi, canali brevi, anfractibus medio tumidis et subangulatis, longitudinaliter fortiter costatis, spiraliter striatis, striis elevatis, castas super prominentioribus; luteo-fuscescente, anfractuum parte inferiori castaneo-fusco conspicue maculata, costis albidis, interstitiis obscure fusco-punctatis.*

Shell pyramidally fusiform, canal short, whorls swollen and somewhat angled in the middle, longitudinally strongly ribbed, spirally striated, striae raised, more prominent upon the ribs; yellowish brown, lower part of the whorls conspicuously blotched with chesnut brown, ribs whitish, interstices obscurely dotted with brown.

Size: 20-35 mm

Range: orig. not given; Oman

Remarks: Though resembling *Pseudofusus pulchellus* in general aspect, it will be found to differ materially on comparison. It has all the appearance of being a more exotic species, the whorls are more ventricose, the ribs more robust, and the dark colouring, it will be observed, is not on the ribs, which, on the contrary, are white, but in the interstices.

Peristernia tulipa (Lesson, 1842)

Description: *B. testa crassà, ovato-conicâ, nitidà, costis undulosis tectà; striis numerosissimis cum mamillis niveis inter costas. Testa luteà; marginis costarum incarnatis; mamillis parvis et perlatis; suturis mamillatis. Aperturà parvà; labro crasso, intùs denticulato, luteo; canali elongato; columellà brevi, crassà.*

(Shell thick, ovate-conic, shiny, with wavy ribs; with very numerous striae with snowy-white nodules between the ribs. Shell yellow; the edges of the ribs incarnate; small and pearly nodules; sutures nodose. Aperture small; lip thick, serrated inside, yellow; elongate canal; columella short, thick.)

Size: 20.3 mm

Range: W Mexico

Peristernia ustulata (Reeve, 1847)

Synonyms: *Peristernia ustulata var. luchuana* Pilsbry, 1901, *Turbinella caledonica* Petit de la Saussaye, 1851, *Turbinella infracincta* Kobelt, 1876, *Turbinella iricolor* Hombron & Jacquinot, 1848

Description: *Turb. testa fusiformi, spira suturis subimpressis, anfractibus subrotundatis, longitudinaliter laticostatis, transversim subtiliter rugoso-liratis, medio carinatis; lutescente, ustulato-fusco tincta et fasciata, maculis fuscis ad suturas inter castas, basi nigra tincta.*

Shell fusiform, sutures of the spire rather impressed, whorls somewhat rounded, longitudinally broadly ribbed, transversely finely roughly ridged, keeled in the middle; yellowish, tinged and banded with burnt-brown spots at the ribs, base stained with black.

Size: 20-40 mm

Range: orig. not given; W Pacific

Remarks: Distinguished in some measure by the black stain at the base, and dark spots between the ribs which occur only next the sutures.

P. rollandi is close to *P. ustulata*, for the arrangement of the ribs and the streaks and the coloring of the aperture; it is distinguished by a larger size and differences in the shape and coloration of the canal.

The coloring of *P. melanorhynca* resembles *P. ustulata*.

compare to *P. bicolor*

Peristernia venusta E. A. Smith, 1911

Description: *Testa minima, breviter fusiformis, albida, ad apicem et antice rosacea, circa medium anfractuum linea fusca cincta, infra suturam inter costas roseo maculata; anfractus 7, duo apicales laeves convexi mammillaeformi, caeteri oblique rotunde costati et spiraliter lirati, lineis incrementi conspicuis sculpti; anfr. ultimus costis septem infra medium evanescentibus instructus, liris spiralibus circiter undecim (quarto, sexto, et octavo fuscis) ornatus, inter liras spiraliter striatus; apertura parva, antice oblique canaliculata; labrum intus tenuiter denticulatum; columella in medio biplicata, rosacea.*

(Shell small, shortly fusiform, whitish, pinkish at the apex and anteriorly, surrounded by a brown line around the middle of the whorls, below the suture between the ribs spotted with pink; 7 whorls, the 2 apical smooth convex mammillaeforms, the others obliquely roundly ribbed and spirally lirated, carved with visible lines of growth; the last whorl with 7 ribs disappearing below the middle, ornamented with about 11 spiral lirae (the fourth, sixth, and eighth brown), spirally striated between the lirae; aperture small, anteriorly obliquely canaliculated; inner lip finely denticulate; columella with 2 folds in the middle, rosy.)

Size: length 7 mm, width 3 mm; aperture with canal 3 mm, width 1.25 mm

Range: Christmas Island

Remarks: One of the smallest species of the genus and allied to *P. iniuensis*, from Savage Island, Oceania. It is, however, a little narrower than that species, has more numerous and finer spiral lirae, and is also distinguished by the brown thread-like line, which, passing round the body-whorl, revolves up the spire. The rosy spots between the upper ends of the costae also constitute a distinguishing feature. The lines of growth are well marked and sufficiently strong on crossing the spiral lirae to give them a crenulated appearance. The 2 plicae on the columella are, in fact, the continuation of two lirae upon the end of the whorl.

Peristernia vezzaroi T. Cossignani, 2024

Description: *Conchiglia fusiforme con spira medio-alta e base irregolarmente ovata, con 6 giri, guscio solido, giri convessi e spigolosi per la presenza di una decina di tubercoli prominenti e allungati in senso apico-caudale di colore biancastro per giro, inframezzati dal colore marrone-fulvo che caratterizza l'intera conchiglia. Apertura oblunga con ampio ma breve canale sifonale aperto; il labbro esterno è appena ritorto con ben visibili le costole spirali che si arrestano sul bordo. Evidenti sono le 10 costole assiali, che si elevano in maniera particolare con tipica colorazione fulva, più intensa, tendente al marrone scuro, in prossimità del canale sifonale; 14-15 costole spirali dell'ultimo giro che si riducono a 4-5 nei giri sovrastanti e diventano 3 nei primi 2 giri, di colore biancastro, intersecano le coste assiali. Protoconca cupoliforme appiattita, di poco più di due giri, di colorazione grigio scuro.*

(Shell fusiform with medium-high spire and irregularly ovate base, with 6 whorls, shell solid, whorls convex and angular due to the presence of about 10 prominent and elongated whitish tubercles per whorl in apical-caudal direction, interspersed with brown-fawn that characterizes the entire shell. Aperture elongate with wide but short open siphonal canal; the external lip is slightly twisted with the spiral ribs which stop at the edge clearly visible. The 10 axial ribs are evident, which rise in a particular way with a typical tawny colour, more intense, tending towards dark brown, near the siphonal canal; 14-15 spiral cords on the last whorl which are reduced to 4-5 on the above whorls and become 3 on the first 2 whorls, whitish in colour, intersect the axial ribs. Flattened dome-shaped protoconch, somewhat more than 2 whorls, dark gray in colour.)

Size: up to 27 mm; holotype 15,37 mm

Range: Philippines

Remarks: *P. vezzaroi* differs from *P. castanoleuca* in the absence of the typical bands and less angular whorls and from *P. melanorhynca* in a different color and less convex whorls.

Peristernia violacea (Reeve, 1847)

Description: *Turb. testa subfusiformi, spira acuminata, anfractibus medio tuberculato-costatis, liris subtilibus striisque undique cingulatis, violaceo-alba, basi nigricante-castanea, apertura rosaceo-violacea.*

Shell somewhat fusiform, spire acuminated, whorls tubercularly ribbed in the middle, encircled throughout with fine ridges and striae; violet-white, stained at the base with blackish-chesnut, aperture pinkish-violet.

Size: 30-35 mm

Range: orig. not given; Andaman Islands

Remarks: A delicately violet-tinged shell distinguished by a dark chesnut stain at the base.

Pustulatirus Vermeij & Snyder, 2006

Type species: *Pustulatirus mediamericanus* (Hertlein & A. M. Strong, 1951)

Description: Shell slender, with or without very low shoulder angulation; spiral sculpture on later whorls reduced to absent on central sector and distal end of siphonal protuberance; axial sculpture of low, short, axially elongated nodes; outer lip strongly convex at point just above basal constriction; inner side of outer lip with strongly beaded lirae; adapical and abapical sinuses distinct.

Revised Diagnosis: Shells of small to moderate size, generally slender, with tall spire and well-developed siphonal process. Shells ornamented with narrow to broad axial ribs and low spiral cords, latter often most developed near outer lip; whorl surface sometimes nearly smooth, waxy on central sectors and on abapical end of siphonal process; outer lip markedly convex just above basal constriction, edge rendered serrate by extensions of interspaces between spiral cords of body whorl; inner side of outer lip with beaded lirae resembling pustules; 3 or 4 plicae aligned obliquely to axis of columella, sometimes with a smaller plica adapically; adapical and abapical sinuses distinct.

Size: largest to about 100 mm

Range: tropical E Pacific

Remarks: The serrate edge of the outer lip is found to occur consistently on all western Atlantic and all but one eastern Pacific species. It is cautioned that pustulose lirae and serrate outer lips are features of mature shells and may be poorly developed or absent on immature specimens. Serrate edges are not find on outer lips of *Hemipolygona, Polygona, Leucozonia*, *Opeatostoma*, or *Bullockus, Lamellilatirus*, and *Lightbournus*.

The anterior location and low, oblique shape of the columellar plicae distinguish species of *Lightbournus* from species of *Pustulatirus*, whose columellar plicae are generally stronger, aligned more nearly perpendicular, and situated higher on the columella.

Outer lips of some *Fusolatirus*, an Indo-west Pacific genus, also have serrate edges, but their internal lirae are uninterrupted, not beaded or pustulose.

The denticles on abapical part of *Turrilatirus* do not occur in *Pustulatirus*.

Pustulatirus attenuatus (Reeve, 1847)

Description: *Turb. testa subelongato-fusiformi, anfractibus striis prominentibus regulariter funiculatis, longitudinaliter fortiter tuberculato-costatis; lutescente-alba, epidermide pallide olivacea induta.*

Shell somewhat elongately fusiform, whorls regularly corded with prominent striae, longitudinally strongly tubercularly ribbed; yellowish-white, covered with a pale olive epidermis.

Redescription: Shell small for genus, narrowly fusiform, with rounded whorls, broad axial ribs, well-developed spiral cords, shallow suture, and narrow post-sutural ramp bearing closely-packed axial lamellae. Teleoconch of about 7 regularly expanding convex whorls separated by shallow suture; suture undulant in accord with adjacent whorls and interspaces; each whorl with about 8 broad axial ribs; 4 subequal spiral cords on first whorl, enlarging in size but not increasing in number on succeeding whorls of spire, 10-11 cords on body whorl; cords on sutural ramp low, parallel to and undulating in concert with suture, crossed by numerous well-developed subsutural lamellae; cords crossing ribs larger than those of ramp, sometimes with single spiral threads between; 6 or more oblique cords of unequal size on siphonal process, occasionally with single smaller thread between. Aperture ovate, constricted adapically by thick parietal node and abapically by small tooth-like node opposite fold at base of columella; outer lip broadly arcuate, rendered serrate by extensions of interspaces between spiral cords, inner surface with about 8 beaded lirae; columella with 4 oblique plicae, another smaller plica adapically; siphonal canal typical of genus, outer lip thin, crenulated by termini of interspaces between larger dorsal cords, inner lip simple, straight. Shell outer surface yellow with white axial ribs on first 3 or 4 teleoconch whorls, interior white.

Size: 25-40 mm; holotype 31.1 mm

Range: Caribbean: Guadeloupe, Cuba to Lesser Antilles

Remarks: Shells of *P. utilaensis* resemble the type of *P. attenuatus*, but the latter is a relatively more slender shell with axial ribs that are less shouldered adapically; *P. utilaensis* shells are consistently reddish brown or dark brown whereas the type of *P. attenuatus* is yellow with white ribs on early adapical whorls.

compare to *P. virginensis*

Pustulatirus biocellatus Lyons & Snyder, 2013

Description: Shell small for genus, solid, broadly fusiform. Protoconch of about 2 rounded whorls; first whorl smooth, second with 2 or 3 broad axial riblets on last quarter whorl; riblets increasing in strength toward junction with teleoconch. Teleoconch of as many as 7 whorls bearing prominent broad, well-rounded axial ribs crossed by low, smooth spiral cords; cords diminishing in strength abapically, causing shell surface to appear smooth; whorls 1 and 2 each with 7 or 8 ribs, subsequent whorls each with 6 or 7 ribs; about 3 evenly spaced cords on whorls 1 and 2, joined by 2 or 3 more broad, low cords on sutural ramp of whorl 3, number of cords increasing to about 14 on body whorl of largest shell; most body whorl cords very low and indistinct, presence of some indicated only by color changes atop ribs; 3 to 5 stronger, oblique cords atop siphonal process, sometimes with 1 to 3 faint spiral threads between. Aperture ovo-elongate, constricted adapically by callosity on parietal shield and abapically by prominent node at junction with siphonal canal; outer lip arcuate, serrate on mature shells, particularly on abapical edge in response to termini of extensions between spiral cords of body whorl and outer edge of siphon, inner side with 7 to 11 (usually 8 or 9) well-spaced, strongly beaded lirae, most evident on fully developed lip; inner lip and parietal shield adherent; columella straight, with 4 distinct plicae adapical to entrance fold of short, straight siphonal canal. Shell exterior reddish brown, with creamy white node-like ribs, light-colored ribs of body whorl crossed by narrow brown band, producing two distinctive spots on each rib; some mature shells uncommonly with ribs of body whorl tan, not white, rendering “biocellate” effect less evident; interior of shell white except for brown band at edge of outer lip. Operculum corneous, narrow, with anterior terminal nucleus, outer surface covered with many indistinct, concentric, arcuate growth increments.

Size: largest 30.0 x 13.8 mm

Range: Ceará southward to Bahía, NE Brazil

Remarks: The pattern of spots on the body whorl immediately distinguishes *P. biocellatus* from *P. eppi* and *P. virginensis*.

Although their shells are similar in size, *P. biocellatus* has more rounded whorls, deeper sutures, and more conspicuous spiral cords than *P. eppi*.

Shells of *P. virginensis* are larger and more attenuate than *P. biocellatus*, with longer, narrower ribs and a relatively longer and more slender siphonal process.

Pustulatirus eppi (Melvill, 1891)

Description: *L. testa ovato-fusiformi, crassa, fulvo-brunnea, anfractibus laevibus, longitudinaliter costatis, nitentibus, transversim obscure filo-liratis, liris ad suturas distinctioribus, canali subproducto, spiraliter lirato, aperturae fauce sulcata, albescente, columella quadriplicata, alba.*

(Shell ovate-fusiform, thick, yellow-brown, whorls smooth, longitudinally ribbed, shiny, transversely darkly thread-lirated, lirae more distinct at sutures, channel sub-produced, spirally grooved, aperture furrowed inside, whitish, columella with 4 folds, white.)

Redescription: Shell small for genus, solid, broadly fusiform, axially compressed and compact, with rapidly expanding whorls, broad axial ribs, and low spiral cords. Protoconch too worn for description. Teleoconch with about 6 whorls, suture slightly undulant in accord with ribs and interspaces, sutural ramp lacking; whorls shorter than wide, with 8 or 9 axial ribs extending from suture to suture; spiral sculpture of low cords, 3 or 4 cords on whorls 2 and 3, 4 or 5 cords on whorl 4, cords on later whorls becoming nearly obsolete except for about 3 cords near adapical suture and 1 or 2 on body whorl near junction with siphonal process; about 5 stronger, oblique cords on dorsal surface of broad, abapically tapering siphonal process. Aperture ovo-elongate, constricted adapically by parietal node at posterior sinus and abapically by node opposite entrance fold at base of columella; outer lip lowly arcuate, with flexure near junction with siphonal process; outer lip smooth, worn on specimens examined, but with remnants between termini of cords suggesting extensions of interspaces; inside of outer lip with about 6 pustulose lirae emerging from aperture; inner lip smooth, adherent, with 3 or 4 oblique plicae on abapical half. Shell surface chestnut brown, apparently fading to yellow in older dead shells, interior white.

Size: largest 24.1 x 10.8 mm

Range: Curaçao

Remarks: The nearest approximations to this species are undoubtedly *Latirus castaneus* and *Latirus acuminatus* from both of which it can easily be differentiated by its small size, and other reasons.

Shells of *P. virginensis* are larger, relatively more slender, seldom occur in a single color, and usually have more elevated ribs crossed by more prominent spiral cords than do shells of *P. eppi*.

The pattern of spots on the body whorl immediately distinguishes *P. biocellatus* from *P. eppi*. Although their shells are similar in size, *P. biocellatus* has more rounded whorls, deeper sutures, and more conspicuous spiral cords than *P. eppi*.

Pustulatirus hemphilli (Hertlein & A. M. Strong, 1951)

Description: Shell fusiform, moderately slender, spire high, thick, whorls broadly rounded; sculpture consists of rather broad axial folds or ridges which are crossed by spiral threads varying in size, on the earlier whorls 2 or 3 threads stand out stronger than the others; aperture elongately ovate, anterior canal moderately long, a siphonal fasciole present, the columella bears 3 oblique plaits; color yellowish covered with a dark brown periostracum, interior white.

Size: length 68.5 mm, maximum diameter 23.8 mm, height of spire 39 mm

Range: Lower California, to Taboga Island, Panama

Remarks: The shell of *P. hemphilli* differs from *P. mediamericanus*, in that the whorls as well as the axial ridges are more rounded, and the spiral threads are very much stronger especially on the body whorl.

P. hemphilli bears considerable resemblance to *Latirus acuminatus*, a Philippine species, but is more slender in outline, the concentric ribbing appears to be less evenly arranged and it possesses a well developed siphonal fasciole.

Some of the specimens of *P. hemphilli* bear a resemblance to *Siphonalia spadicea,* but none of them are as broad in proportion to the height, the whorls are less strongly rounded and the canal is longer. The whorls of *S. spadicea* appear to be more tumid than those of *P. hemphilli* but less so than *Polygona tumens* which approaches the Indo-Pacific *Nodolatirus nodatus*.

Pustulatirus mediamericanus (Hertlein & A. M. Strong, 1951)

Description: Typical forms of this attractive west American *Latirus* may be easily recognized by the comparatively smooth, often somewhat flattened whorls, bearing rude, oblique axial plications. The anterior canal is sculptured with about 8 spiral ribs. The earlier whorls bear spiral threads and sometimes the whole shell bears weak or subobsolete spirals. The color is chestnut brown.

Size: up to 91.0 mm; height 52.8 mm, maximum diameter 18 mm

Range: E Pacific, Mexico to Colombia

Remarks: The shell of *P. hemphilli* differs from *P. mediamericanus*, in that the whorls as well as the axial ridges are more rounded, and the spiral threads are very much stronger especially on the body whorl.

P. ogum much resembles the Panamic *P. mediamericanus*.

Pustulatirus ogum (Petuch, 1979)

Description: Holotype with 7 whorls, each with 8 elongate, low, rounded axial ribs; spiral sculpture on body whorl consisting of 15 raised cords, all equally prominent; siphonal canal long for genus, roughly 1/3 length of shell; siphonal canal with 3 large, prominent cords, several secondary cords between; columella with 4 folds; inside of lip with 12 rows of large pustules, fusing into lirae deep inside aperture; color orange-red, darker on axial ribs; periostracum thin, reddish-brown.

Redescription: Shell of medium size for genus, elongate, fusiform, with rounded, rapidly expanding whorls, broad axial ribs, and low spiral cords; spire surface of large shells (compare to 40 mm) nearly smooth except for fine spiral cords on early whorls and stronger cords on body whorl and siphonal process. Protoconch brown, of about 2 equal-sized swollen whorls; first whorl smooth with rounded sides, remaining half whorl with straight sides, smooth except for few faint axial striae and one or two axial riblets near abrupt terminus. Teleoconch of 7 to 8 whorls; spire whorls each with about 7 broad axial ribs, 6 to 9 on body whorl; suture shallow, slightly impressed, somewhat undulant in concert with axial ribs and interspaces; sutural ramp hatched with fine spiral cords crossed by low, thin

axial growth increments, hatching nearly obsolete in large shells; whorls 1 and 2 with 2 smooth spiral cords crossing ribs on abapical half of whorl, several finer spiral threads on adapical half (sutural ramp); cords increasing to 3 but diminishing in strength abapically, hardly perceptible on whorls 4 to 7; posterior half of body whorl initially smooth but then showing weak re-emergance of spiral cords, cords becoming increasingly evident on final (abapical) half whorl, about 13 to 15 smooth cords at lip; cords generally increasing in strength toward anterior end of whorl, occasionally with single spiral threads between; siphonal process with 4 or 5 strong, oblique cords, usually with single lesser cords between, sometimes with 7 or 8 small, oblique cords near tip; smaller shells (~30-39 mm sl) with prominent large and small cords over entire surface of spire, as many as 14 smilar cords on body whorl. Aperture ovo-elongate, constricted adapically by thick parietal callus and abapically by ridge-like, sometimes bifid node opposite entrance fold at base of columella; outer lip broadly arcuate to semicircular, crenulated by extensions of interspaces between termini of spiral cords of body whorl and siphonal process, conferring serrate or saw-toothed effect, less evident on large shells; serration created by interspace adjacent to large anterior cord near anterior flexure of body whorl larger than neighboring serrata; inner surface of outer lip (of mature shells) with 9 to 13 lirae of various strengths, all (or sometimes only those on abapical side) interrupted as though composed of dashes and dots; lirae separated from lip margin by smooth band-like strip; inner lip adherent, columella arcuate posteriorly, straight anteriorly, with 3 or 4 broad plicae, occasionally with 1 or 2 lesser plicae adapically; siphonal canal typical of genus, rather short, slender, broader adapically, smooth within; outer edge crenulated in accord with termini of interspaces between exterior cords, inner edge raised, smooth, forming narrow pseudoumbilicus near tip. Shell surface uniformly dark reddish brown to light yellowish brown, usually darker on ribs; interior light orange, tan or white. Operculum corneous, dark brown, sometimes nearly black, drop-shaped, longer than wide, with terminal nucleus at pointed, inwardly curved abapical end; outer surface with many fine, arcuate, concentric growth increments.

Size: largest 53.1 x 17.4 mm; length 40 mm, width 18 mm

Range: Brazil

Remarks: The larger size and often smooth surface of adult shells suggest *P. ogum* to be more closely related to *P. virginensis* than to other western Atlantic species, but *P. ogum* also much resembles the Panamic *P. mediamericanus*.

P. ogum very closely resembles the Panamic *P. sanguineus* - especially so with its red-orange color - and can be considered the Atlantic analogue.

Polygona bernadensis from the Lesser Antilles and northern Brazil differs from *P. ogum* in lacking the 3 prominent cords on the siphonal canal, by having much stronger spiral cords, lighter color, and a much more angled shoulder, a planar instead of a convex outer lip, lacking a labral tooth, and having a distinct false umbilicus.

Polygona vermeiji somewhat resembles a stumpier version of the Abrolhos Islands endemic *P. ogum*, but differs in having a much shorter siphonal canal and more angled shoulder.

Polygona devyanae differs from *P. ogum* by the absence of large nodules.

Compared to *Hemipolygona beckyae, P. ogum* has few large smooth axial nodules and attains 43 mm.

Pustulatirus praestantior (Melvill, 1891)

Synonyms: *Latirus gracilis* Reeve, 1847

Description: *L. testa fusiformi, turrita, solida, rufofuscescente, anfractibus decern, longitudinaliter fortiter angulatim crassicostatis, transversim undique regulariter filoliratis, ad suturas laevibus, duabus vel tribus liris in medio anfractuum omnium apud angulos costarum distinctioribus, canali producta, aperturae fauce intus fortiter costulata, albida, columella quadriplicata.*

(Shell fusiform, turreted, solid, reddish-brown, with 10 whorls, longitudinally strongly angled and thickened, with transverse and regular filamentous lirae, smooth at the sutures, with 2 or 3 lirae in the middle of all whorls at the more distinct angles of the ribs, canal produced, mouth of the aperture strongly stitched inside, white, columella with 4 folds.)

The shell is rufous-brown, elegantly fusiform, turreted, somewhat solid, possessed of 10 whorls, each regularly ornamented with thick longitudinal ribs, crossed transversely (excepting at the sutures, where the shell is smooth) with equidistant filamentous lirae. The canal is produced, the aperture distinctly ribbed within, columella 4-plaited, white.

Size: up to 100 mm

Range: orig. Mauritius; tropical E Pacific, W Mexico

Remarks: There is some little resemblance to *Latirus filamentosus* in miniature, or, to *Latirus gracilis* (synonym of *P. praestantior*), and especially *Polygona concentrica*, next which it must be placed.

P. praestantior is closely related to *Polygona bernadensis*, but its spiral sculpture is not as strong, especially on the body whorl.

In *P. praestantior* the spiral lines are few and raised, in *Polygona tumens* numerous and impressed.

Pustulatirus sanguineus (Wood, 1828)

Synonyms: *Turbinella varicosa* Reeve, 1847

Description: not available; of *Turbinella varicosa*: *Turb. testa elongato-fusiformi, canali breviusculo, anfractibus spiraliter tenuiliratis, costis longitudinalibus confertis concentrice decussatis; aurantio-albida, costis conspicue castaneo-fuscis.*

Shell elongately fusiform, canal rather short, whorls spirally finely ridged, concentrically crossed with close-set longitudinal ribs; orange-white, ribs conspicuously chesnut-brown.

A well-defined and very characteristic species, the chief peculiarity of which is exhibited in the unusually close-set concentric ribs and their dark contrast of colour.

Size: 30-75 mm

Range: Galapagos Isl.

Remarks: *P. sanguineus* differs from *P. ogum* in having a flat instead of a concave subsutural area on later whorls, and in lacking a labral tooth.

P. sanguineus is somewhat similarly coloured as *Turrilatirus nagasakiensis*, but is less robust, the plicae being narrower and the spiral lirae more numerous.

Pustulatirus utilaensis Lyons & Snyder, 2013

Description: Shell small for genus, moderately fusiform, with rounded whorls, broad, somewhat adapically shouldered axial ribs, low spiral cords, shallow suture, and narrow sutural ramp bearing closely-packed axial lamellae. Protoconch of about 2 whorls; first whorl smooth, broadly globose, with rounded sides; second whorl no wider than first, with straight sides, about 4 broad axial riblets near terminus. Teleoconch of 6 to 7 rapidly expanding convex whorls, each with 8 or 9 broad axial ribs, whorls separated by well-developed suture; suture undulant in accord with adjacent ribs and interspaces; 5 subequal spiral cords on first whorl, becoming more numerous on each succeeding whorl, 10-11 cords on penultimate whorl and 14-16 on body whorl; cords on sutural ramp low, parallel to and undulant in concert with suture, and crossed by numerous well-developed subsutural lamellae; cords crossing ribs larger than those of ramp, sometimes with single spiral threads between; 6 or more oblique cords of unequal size on siphonal process, occasionally with single smaller threads between, larger oblique cords raised at intersections with subaxial growth lines, forming lamella-like scales, similar scales sometimes on anterior-most cord of body whorl. Aperture ovate, constricted adapically by thick parietal node and abapically by tooth-like node opposite fold at base of columella; outer lip broadly arcuate, crenulated by extensions of interspaces between spiral cords, inner surface with 10-12 beaded lirae; columella with 2 or 3 oblique plicae, sometimes with smaller plicae adapically; siphonal canal typical of genus, outer lip thin, crenulated by termini of interspaces between larger dorsal cords, inner lip simple, straight, slightly raised, sometimes forming shallow pseudoumbilicus near tip. Outer shell surface uniformly reddish brown or dark brown, interior white. Operculum thin, corneous, yellow or light brown, ovate, with anterior terminal nucleus, outer surface with many arcuate growth increments.

Size: largest 31.6 x 11.5 mm

Range: Honduras, Panama

Remarks: Unworn shells never have smooth surfaces or lighter colored axial ribs like those that often occur on *P. virginensis*, whose shells are often larger than the maximum length known for *P. utilaensis*.

Shells of *P. utilaensis* also resemble the type of *P. attenuatus*, but the latter is a relatively more slender shell with axial ribs that are less shouldered adapically; *P. utilaensis* shells are consistently reddish brown or dark brown whereas the type of *P. attenuatus* is yellow with white ribs on early adapical whorls.

The uniformly bright orange color is helpful in distinguishing *P. watermanorum* from the partially sympatric *P. utilaensis*. *P. watermanorum* also differs from *P. utilaensis* by its proportionally shorter spire and longer body whorl and siphon. Axial ribs of *P. watermanorum* extend from suture to suture whereas those of *P. utilaensis* (and *P. attenuatus*) are separated from the suture adapically by a narrow ramp. Sutures of *P. utilaensis* are more impressed, whorls are more convex, and spiral cords are stronger.

Pustulatirus virginensis (Abbott, 1958)

Synonyms: *Latirus karinae* Nowell-Usticke, 1969, *Pustulatirus annulatus* (Röding, 1798) sensu Vermeij & Snyder (2006)

Description: Shell elongate, fusiform, moderately heavy, yellowish brown, and with strong axial, rounded ribs which are characteristically white in color. Whorls 8, bearing 8-9 strong rounded axial ribs which begin rather well below the fimbriate suture. They are usually white in color, especially in the early whorls, and are crossed by 4 or 5 moderately developed, rounded spiral cords. These cords are almost obsolete between the ribs. Spire acute, slightly less than half the total length of the shell. Siphonal canal long, open along its length. Lower half of white columella with 4-5 weak, slanting, spiral plicae. Upper and inner corner of aperture with a strong bulbous callus and a weak posterior canal. Inside of last whorl with about 9 fine, sharp spiral cords which end in 2 or 3 pustules. Lowest pustule usually very large. Outer lip finely crenulated. Nuclear whorls smoothish, somewhat swollen. Periostracum yellowish brown, thin, axially crinkled, and covering the axial, shelly fimbriations just below the suture. Operculum corneous, dark brown, ungulate, smoothish on the outer side, except for distinct growth lines.

Redescription: Shell of medium size for genus, elongate, fusiform, slender, with rounded whorls, broad axial ribs, and low spiral cords; outer lip serrate and internal lirae beaded as in generic diagnosis. Variability in shell morphology, size, and color is very extensive.

The "*virginensis*" form is typified by a mostly smooth shell with broad axial ribs, low to absent spiral cords, and a rather waxy shell surface. The shell color is usually olivaceous brown with lighter-colored ribs, but completely orange or yellow specimens are known, and some shells are mostly orange or yellow but with brown patches between ribs on posterior whorls. A population from Little St. James Island in the U. S. Virgin Islands is uniformly olivaceous.

The "*karinae*" form is typified by robust, swollen ribs and well-defined spiral cords. The shell color is usually orange-brown but may be yellow, dark brown, or even black, with white axial ribs in stark contrast to the background color. Axial ribs are usually more developed on the karinae form than on the virginensis form and may occur on all whorls, but more often become subdued on the penultimate and body whorls of large specimens.

Size: largest 52.7 x 18.7 mm; 30-37 mm

Range: E Caribbean, Virgin Islands

Remarks: The pattern of spots on the body whorl immediately distinguishes *P. biocellatus* from *P. virginensis*. Shells of *P. virginensis* are larger and more attenuate than *P. biocellatus*, with longer, narrower ribs and a relatively longer and more slender siphonal process.

Shells of *P. virginensis* are larger, relatively more slender, seldom occur in a single color, and usually have more elevated ribs crossed by more prominent spiral cords than do shells of *P. eppi*.

The larger size and often smooth surface of adult shells suggest *P. ogum* to be more closely related to *P. virginensis* than to other western Atlantic species.

Unworn shells of *P. utilaensis* never have smooth surfaces or lighter colored axial ribs like those that often occur on *P. virginensis*, whose shells are often larger than the maximum length known for *P. utilaensis*.

P. virginensis resemles *Polygona infundibulum* in shape, but differs in being smaller, in having white axial ribs in the early whorls, in having 4-5 spiral cords crossing the ribs (instead of 3 distinct, sharp, brown ones), and in having a strong tooth at the lower outer corner of the aperture. The spiral ribs in *P. virginensis* are usually obsolet between the ribs, and, in some specimens, may be weak on the axial ribs of the last whorl.

Polygona devyanae differs from *P. virginensis* by the colour and different sculpture.

Hemipolygona beckyae differs in shape and color from *P. virginensis.*

Pustulatirus watermanorum Lyons & Snyder, 2013

Description: Shell small for genus, fusiform, with rounded whorls, prominent axial ribs and obscure spiral cords, surface generally appearing smooth, waxy. Protoconch of 2 whorls, first whorl broadly globose, nearly flat on top, with rounded sides; second whorl no wider than first, with straight sides and two or three faint axial riblets just before terminus. Teleoconch of 6 to 7 rapidly expanding whorls, each with 8 or 9 broad, evenly rounded axial ribs that extend from suture to suture; about 7 spiral cords on first whorl, including 3 faint ones on sutural ramp; cords increasing in number abapically, penultimate whorl with 4 cords on ramp and 8 more crossing axial ribs, sometimes with single lesser threads between cords crossing ribs; central area of body whorl nearly smooth, but with about 13 very low cords, followed by 2 stronger cords adjacent to junction with base; dorsal surface of siphonal process with 9 or 10 oblique cords of varying strength, sometimes with single faint threads between. Aperture ovate, constricted adapically by parietal node at anal sinus and abapically by tooth-like node opposite entrance fold at junction of columella and siphonal canal; outer lip arcuate, edge crenulated by extensions of interspaces between spiral cords on body whorl, inner surface with about 10 beaded lirae, some incomplete; inner lip adherent, columella with 3 or 4 oblique plicae near base, sometimes with smaller plica adapically; siphonal canal typical for genus, straight, outer edge crenulated, inner edge simple, straight, slightly raised, sometimes forming shallow pseudoumbilicus near tip. Outer surface of shell uniformly orange, interior white. Operculum corneous, brown, drop-shaped, with terminal nucleus at pointed anterior end, outer surface with many concentric, arcuate growth increments; prominent posterior muscle scar occupying about 70 % of inner surface, bounded by thick, raised ridge.

Size: largest 32.2 x 10.5 mm

Range: W Caribbean, Honduras, Colombia

Remarks: The uniformly bright orange color is helpful in distinguishing *P. watermanorum* from the partially sympatric *P. utilaensis*. *P. watermanorum* also differs from *P. utilaensis* by its proportionally shorter spire and longer body whorl and siphon. Axial ribs of *P. watermanorum* extend from suture to suture whereas those of *P. utilaensis* (and *P. attenuatus*) are separated from the suture adapically by a narrow ramp. Sutures of *P. utilaensis* are more impressed, whorls are more convex, and spiral cords are stronger.

Lamellilatirus sunderlandorum also resembles *P. watermanorum* with which it sometimes occurs off the Honduran coast. Both shells are orange, but *L. sunderlandorum* is longer and more slender than *P. watermanorum*, which has less rounded whorls, a shallower suture lacking lamellae, and a serrate edge on at least the anterior portion of its outer lip.

Tarantinaea Monterosato, 1917 (Subfamily Peristerniinae)

Type species: *Tarantinaea lignaria (Linnaeus, 1758)*

Description: not given

Redescription: The shell is characterized by a spire equal to the half of the total shell length, an anterior canal as long as the aperture, and carinate whorls.

Size: not given

Range: Europe

Remarks: Near *Latirus* with species of warm seas, rough and richly colored.

Pleuroploca is the genus which most closely resembles the *Tarantinaea*, but has the interior colored chrome, the canal longer and curved, has a different aspect as a whole, and is not umbilicate like the *Tarantinaea*.

Hemipolygona (=*Chascax*), is a genus which cannot be confused with *Tarantinaea*, being adorned with 3 spiral rows of protruding tubercles and is strongly umbilicate.

Tarantinaea lignaria (Linnaeus, 1758)

Synonyms: *Fasciolaria savignyi* Tapparone Canefri, 1875, *Fasciolaria tarentina* Lamarck, 1822, *Latirus unifasciatus* (W. Wood, 1828)

Description: *M. testa oblonga rudi, anfractibus obtuse nodosis, apertura edentula, cauda brevi rectiuscula. Testa vix digiti longitudine; anfractus laeves rudes, simplici serie tuberibus obtusis.*

(Shell is oblong, rough, with bluntly knotted whorls, aperture toothed, short straight canal. The shell was scarcely a finger in length; smooth, whorls rough, blunted by a simple series of knobs.)

Redescription: Unmistakable shell, not much changeable in its outline and in its colour pattern. Stretched in form, scalariform in aspect, sharp-cornered, with about ten large axial ribs on the last whorl making a sort of shoulder below the suture producing some big tubercles. Siphonal canal stretched, straight, columellar callus showing one plica in the upper part. Aperture oval in form, external lip sharp. Operculum corneous, thick, dark brown in colour. It has a slight periostracum and it is either yellow or uniform light brown in colour. Rarely there can be found transversal streaks white in colour. Protoconch globose, smooth. Besides the protoconch, juvenile specimens are recognizable due to their brown colour pattern, with big nodulous knotty tubercles, dirty white in colour. Moreover the surface is crossed by one fine spiral streakiness which is not often clear in adult specimens.

Size: 25-70 mm

Range: Mediterranean

Taron Hutton, 1882

Type species: *Taron dubius* (Hutton, 1878)

Description: not given; *Taron* new genus of *Fusidae* instead of *Trophon*

Size: small

Range: New Zealand

Remarks: *Glaphyrina* is very close to *Taron*. The bright vermilion coloured animal, pagodi-form carinated protoconch and ovate operculum with terminal nucleus and small muscle impression are characters common to both *Taron* and Glaphyrina. The shell of *Glaphyrina* is much thinner than that of *Taron*, the canal is considerably longer, and the aperture is minus the parietal tubercle and lirate outer lip.

Taron albocostus Ponder, 1968

Description: Shell small, rather elongate, with broad, rounded, axial ribs and strong spiral cords. Protoconch of about 1 1/2 whorls, not clearly marked off from the teleconch, smooth, convex, pink, the last portion crossed by about 6 weak, slightly oblique axials crossed by exceedingly fine spiral threads. Post-nuclear whorls 5 1/2, convex, strongly sculptured with about 5 spirals on spire whorls, lower 3 spirals slightly stronger than others. Penultimate whorl with extra supra-sutural weak cord and intermediate spirals developed on shoulder. Body whorl with 11 spirals on base, plus 2 intermediate cords on pillar, and a few weak spirals on neck of canal . Axial ribs broad, rounded, 11 on penultimate whorl, 12 on body whorl. Ground colour and lower 2/3 of axials yellowish-white, spirals (except where crossing white part of axials) dark brown. Protoconch, columella and canal pink. Holotype not quite adult so that apertural lirations are not developed. Canal twisted to left and slightly recurved.

Operculum yellowish, thin, flat, transparent, tapering, with terminal nucleus. Muscle scar not differentiated .

Size: height 15 mm, width 6 mm; holotype: 12.7 x 5.9 mm

Range: N New Zealand

Remarks: *T. albocostus* is readily distinguished from from *T. dubius* and *T. mouatae* by its smaller size, more slender shape and the possession of white axial ribs.

Taron dubius (Hutton, 1878)

Synonyms: *Latirus huttoni* Suter, 1908

Description: *Coquille ovale fusiforme et épaisse. Tours de spire au nombre de 7, convexes et à côtes spirales grossières, les tours spiraux étant seuls munis de côtes transverses. Ouverture ovale; canal très-court, non infléchi et arrondi antérieurement. Test recouvert d'un épiderme persistant et d'un brun verdâtre. Intérieur de l'ouverture d'un pourpre foncé. Canal et portion antérieure de la columelle blanchâtres.*

(Shell oval spindle-shaped and thick. 7 whorls, convex and with coarse spiral ribs, the spire whorls alone being provided with transverse ribs. Aperture oval; canal very short, not inflected and rounded anteriorly. Shell covered with a persistent greenish-brown epidermis. Interior of the aperture dark purple. Canal and anterior portion of the columella whitish.)

Size: length 19 mm, width 11 mm

Range: New Zealand

Remarks: *T. mouatae* differs considerably from the monotypic *T. dubius* in being more slender, with a higher spire, in having uniform light colour, and in the more numerous axial and spiral ribs and a lighter build.

For comparison with *T. albocostus* see there.

Distinguished from *Bedeva paivae* by its greater width and by its much shorter canal, as well as by the absence of transverse ribs on the last whorl.

It differs from *Xymene plebeius* (= *Fusus inferus*) by its narrow and anteriorly rounded canal.

Taron mouatae Powell, 1940

Description: Shell larger than the genotype, ovate-fusiform, moderately solid. Whorls 6 1/2, including small, bluntly rounded protoconch of about 2 1/2 whorls. The badly eroded protoconch of the holotype appears to have the first whorl smooth, but the remaining whorl and a half sculptured with strong rounded axial costae which are crossed by four evenly-spaced rounded spiral cords. On the post-nuclear whorls there are prominent fold-like axial costae with narrow interspaces. These axials are 13 per whorl, are strongest at the periphery and become almost obsolete both towards the upper suture on the spire whorls and on the base and the neck of the body-whorl. The spiral sculpture consists of moderately strong rounded low spiral cords, the 3-4 situated from the periphery downwards being strongest. On the shoulder there are 2 cords of moderate strength and 2 weak ones, the latter uppermost. There is an interstitial thread and several microscopic spiral striations in each interspace over all whorls. Primary spiral cords number 18 on the body whorl and base, and the fasciole has 5 strong spiral threads about half the strength of the cords of the body-whorl. The suture is margined below by a rather wide flattened zone marked off from the sculptured area by a shallow groove. Spire tall, a little less than height of aperture plus canal. Aperture comparatively small, ovate, produced below into a short, open, slightly oblique canal. Outer lip thin and sharp but internally thickened and spirally ridged within the aperture. Parietal callus with a weak plait-like denticle above as well as a weak plait at the base of the pillar. Colour ochreous buff, interior of aperture and parietal callus white.

Size: height 22 mm, diameter 10.5 mm

Range: New Zealand

Remarks: *T. mouatae* differs considerably from the monotypic *T. dubius* in being more slender, with a higher spire, in having uniform light colour, and in the more numerous axial and spiral ribs and a lighter build.

For comparison with *T. albocostus* see there.

Turrilatirus Vermeij & M. A. Snyder, 2006

Type species: *Turrilatirus turritus* (Gmelin, 1791)

Description: Shell small to medium-sized, high-spired, fusiform, basally constricted, with a short siphonal protuberance; spire usually longer than aperture plus canal; spire flat-sided, with appressed sutures; last whorl evenly rounded, without shoulder angulation; axial sculpture of last whorl consisting of 6-10 low, broad, rounded ribs, mainly confined to central sector; spiral sculpture consisting of two or three strong subsutural cords, 6 or 7 smooth rounded cords on central sector, often with a thread between adjacent cords, and three to five low cords on base; intersections between cords and axial ribs without nodes; aperture relatively small, elongate-oval; outer lip of

adult convex, adapical sinus shallow or absent, abapical sinus absent; edge of adult outer lip very slightly reflected, with paired crenations on central sector; inner side of outer lip with smooth lirae, which in adults of large species form 2 or 3 enlarged, deeply recessed denticles on abapical part. Inner lip usually slightly erect, with four abapical folds and in adults a parietal nodule; pseudoumbilicus usually absent.

Size: maximum adult length 18 to 74 mm

Range: Indo-West Pacific

Remarks: The denticles on abapical part do not occur in *Pustulatirus*.

Turrilatirus resembles *Polygona* in having broad axial ribs lacking nodes, abapical denticles deeply recessed on the outer lip and lirae that are smooth as in the type species of *Polygona*, but it differs from *Polygona* in having a high spire and consistently short siphonal protuberance, and in usually lacking a pseudoumbilicus.

Dolicholatirus is allied to *Turrilatirus* with members from the Indo-Pacific region having relatively large shells and occurring in shallow waters.

Turrilatirus craticulatus (Linnaeus, 1758)

Description: *M. testa oblonga, anfractibus rotundatis plicatis transversim reticulatis, apertura dentata, cauda brevi.*

(Shell oblong, rounded whorls with transversely reticulated ribs, aperture toothed, siphonal canal short.)

Size: 40-55 mm

Range: tropical Indo-West Pacific

Remarks: *T. craticulatus* is more cylindrical than *T. nagasakiensis*, has less pronounced costae, coarser spiral ridges, and is differently coloured.

T. craticulatus is immediately distinguishable from *Fusolatirus kandai* by the long anterior canal.

compare to *Teralatirus festivus*

Turrilatirus iris ([Lightfoot], 1786)

Synonyms: *Peristernia prismatica* (Martyn, 1784) Nomen nudum

Description: not given

Description of *Peristernia prismatica*: *Turb. testa ovato-turrita, crassa, basi in canalem brevem subrecurvum terminata; anfractibus longitudinaliter plicato-costatis, transversim subtilissime striatis, lirs brevibus elevatis conspicuis super castas; albida, liris interruptis nigricantibus, plus minusve irridescentibus, intus crocata.*

Shell ovately turreted, thick, terminating at the base in a short slightly recurved canal; whorls longitudinally plicately ribbed, transversely very finely striated, with short conspicuous elevated ridges upon the ribs; whitish, interrupted ridges blackish, more or less irridescent, interior saffron yellow.

Redescription: of *Latirus prismaticus* by Pease: Although figured by Martyn, the original and the only description of this species was given by Mr. Reeve in Conch. Icon., under Turbinella, from a worn specimen. The figure of Martyn is not correct; but the colour is not exaggerated, nor can it be. Occasionally we have observed the tints change, and pass through several shades, while drying. We have seen specimens 3 inches in length. The following description is taken from a mature specimen: *L. t. turrito-fusiformi, crassa, longitudinaliter plicato-costata, transversim nodoso-lirata; liris elevatis, supra castas compresso-angulatis; interstitiis concentrice tenuiter liratis, longitudinaliter squamuloso-rugosis; columella triplicata, callositate parva superne munita; labro simplici, acuto, intus lirato; fulva, liris nigro-purpureis, purpurea vel viridi vel caeruleo iridescentibus, intus crocata.*

(Shell turreted-fusiform, thick, longitudinally folded-ribbed, transversely knotty-ribbed; lirae raised, compressed-angled above the chest; interstices concentrically thinly lirate, longitudinally scaly-rough; columella triplicate, protected above by a small callus; the lip simple, sharp, furrowed within; yellow, purple-black lirae, purple or green or blue iridescent, inside saffron-colored.)

Size: 15-50 mm

Range: tropical Pacific; Central Polynesia

Remarks: *T. prismatica* is amply distinguished from any other species by its black interrupted transverse ridges.

The whorls of *Latirus fallax* are somewhat more curved, the suture is therefore clearer, the spiral lines are narrower and sharper, the aperture is more sharply ribbed inside and the spindle folds are more obliquely than in *T. iris (= P. prismatica)*. The coloring is quite different, intense brown-yellow, darker in the spaces between the transverse folds and partly also in those of the spiral ribs; the aperture is reddish-white, while in *T. iris* it is always liver-brown.

Turrilatirus lautus (Reeve, 1847)

Description: *Turb. testa ovata, subobesa, canali brevi, leviter recurva; anfractibus longitudinaliter subobsolete plicato-costatis, transversim undique sulcatis; coccineo-rufa, sulcis fuscis, costis hic illic albis, apertura aurantia.*

Shell ovate, rather stout, canal short, slightly recurved; whorls longitudinally somewhat obsoletely plicately ribbed, transversely grooved throughout; scarlet-red, grooves brown, ribs here and there white, aperture orange.

Size: 15-20 mm

Range: Philippines, Papua New Guinea, S Japan

Remarks: In arrangement of colour *T. melvilli* resembles much *T. lautus*, which has the same sculpture and distribution of colours, but is more slender and there is no white on the ribs.

Shells of *T. lautus* are much smaller than *Latirus poppei* (maximum about 23 mm), bulloid in shape, and have nearly straight sides, a shallow suture, and prominent spiral cords separated by distinct grooves; the cords and background color are orange and white or sometimes red (“scarlet”) and the grooves are brown.

Peristernia schepmani can be confused with *T. lautus*. *P. schepmani* is more slender, has thinner but sharper spiral cords and has an interrupted white line on the lower part of the body whorl which is just covered by the growing whorl and the white feather-like extensions at the suture.

Turrilatirus melvilli (Schepman, 1911)

Description: Shell ovately-fusiform, spire rather long, conical, with convex sides and short slightly recurved canal. Whorls 7 to 8, upper ones rather convex, last one contracted below the suture, which is distinct and irregularly squamate. Sculpture consisting of broad, rounded, concentric ribs, 8 in number on last whorl, and coarser and finer striae, which make the surface slightly crenulate; this sculpture is crossed by spiral lirae, four in number on penultimate whorl, of which the subsutural is the broadest, these lirae are separated by grooves which have the character of intermediate lirae. Colour orange brown on the lirae, dark red-brown in the interstices.

Aperture oval, angular above, peristome rather thick, undulated by the lirae, columellar margin concave. Interior of aperture with rib-like lirae at some distance from the peristome, with a tooth at the entrance of canal; columellar margin with a thick layer of enamel, its basal part with 3 plicae, of which the most basal one is double, its left margin ridge-like, leaving an umbilical slit. Canal short, directed to the left. Interior of aperture yellowish, its margin and canal orange, the margin with brown streaks corresponding to the lirae.

Size: height 17.5 mm, width 8.25 mm; height of aperture 5.5 mm, with canal 8.5 mm, width 3.5 mm

Range:

Remarks: This species is allied to *T. turritus*, but is easily distinguished by its colour, which is just the reverse of *T. turritus*, the lirae being lighter than the interstices, moreover it differs in many details of shape and sculpture.

In arrangement of colour it resembles much *T. lautus*, which has the same sculpture and distribution of colours, but is more slender and there is no white on the ribs.

T. melvilli has about 9 strong axial ribs on the body whorl (absent in *Peristernia schepmani*), and has raised whitish spiral cords and orange-red interstices.

Turrilatirus nagasakiensis (E. A. Smith, 1880)

Description: *Testa crassa, fusiformis, rotunde plicata et spiraliter lirata, costis nigro-fuscis, interstitiis pallide rufis, liris pallidioribus vel albidis. Anfractus circiter 12, convexiusculi, sutura profunda undulata sejuncti, costis vel plicis 8 latis, rotundatis, paulo obliquis, supra spiram subregulariter continuis instructi, liris transversis supra costas prominulis (in anfr. superioribus 3, in ultimo circiter 12) et lineis elevatis filiformibus interjacentibus cincti. Anfr. ultimus superne rotundatus, infra medium contractus, ad basin anguste perforatus, costis inferne*

attenuatis subobsoletis. Apertura fusco-albida, cum canali longitudinis totius 3/7 adaequans, intus tenuiter lirata. Columella callo fusco-albido induta, superne parum arcuata, ad basin obliqua, in medio plicis tenuibus tribus levissime elevatis instructa. Canalis obliquus, vix reflexus.

(The shell is thick, fusiform, rounded and spirally folded, the ribs are black-brown, the interstices are pale red, the lirae are paler or whitish. About 12 whorls, convex, separated by a deep wavy suture, 8 wide, rounded ribs or folds, slightly oblique, arranged on the spire with subregularly continuous, transverse lirae above prominent ribs (in the upper whorls 3, in the last about 12) and interjacent raised filiform surrounded lines. The last whorl rounded above, contracted in the middle below, narrowly perforated at the base, the ribs being thinned and obsolete. Aperture brownish-white, equal to 3/7 of the entire length of the canal, thinly lirated inside. Columella with a brownish-white callus, slightly arched at the top, oblique at the base, arranged in the middle with 3 very slightly raised thin folds. Channel oblique, hardly reflected.)

Size: length 60 mm, width 22 mm

Range: Japan

Remarks: This species may readily be distinguished by its striking painting. The swollen plicae, which are about twice as broad as the interstices, are of a rich chocolate-brown, whilst the interlying spaces are quite pale.

Pustulatirus sanguineus is somewhat similarly coloured, but is less robust, the plicae being narrower and the spiral lirae more numerous.

T. craticulatus is more cylindrical, has less pronounced costae, coarser spiral ridges, and is differently coloured.

T. nagasakiensis is immediately distinguishable from *Fusolatirus kandai* by the long anterior canal.

Turrilatirus sanguifluus (Reeve, 1847)

Description: *Turb. testa subelongato-fusiformi, anfractibus longitudinaliter plicato-costatis, costis latis, subdistantibus, transversim undique sulcatis; alba, sulcis longitudinalibus et transversis aurantio- vel sanguineo-rufis.*

Shell somewhat elongately fusiform, whorls longitudinally plicately ribbed, ribs broad, rather distant, transversely grooved throughout; white, longitudinal and transverse grooves orange or blood-red.

Size: 30-60 mm

Range: Marquesas

Remarks: Distinguished in form, and by the peculiar disposition of its orange or red colouring which flows as it were among the interstices between the ribs.

Turrilatirus turritus (Gmelin, 1791)

Synonyms: *Turbinella teniata* Deshayes, 1833

Description: *V. testa turrita brunnea lineis undulatis fuscis varia: plicis horizontalibus obsoletis subnodosis, apertura striata, columella triplicata, cauda prominula.*

(Shell brown with various wavy brown lines; horizontal folds obsolete and slightly nodose, aperture striated, columella triplicate, siphonal canal prominent.)

Size: 35-60 mm

Range: Indo-West Pacific

Remarks: *T. melvilli* is allied to *T. turritus*, but is easily distinguished by its colour, which is just the reverse of *T. turritus*, the lirae being lighter than the interstices, moreover it differs in many details of shape and sculpture.

T. turritus somewhat resembles *Latirulus fasciatus*, but it has black spiral cords on the brownish shell and is not a deep sea form but a shallow water rocky shore dweller.

compare to *Teralatirus festivus*

Dolicholatiridae Kantor et al., 2021

Type genus: *Dolicholatirus* Bellardi, 1884

Description: Shell small to medium-large, from broad to narrow fusiform or turriform. Spire tall, siphonal canal from short to long, constituting nearly half of shell length. Protoconch paucispiral, with smooth initial part and later whorls sometimes bearing axial ribs. Spiral sculpture of fine to strong cords, sometimes pronounced only in interspaces between axial ribs. Axial sculpture of strong, broad axial ribs present in most species. Columella sometimes with 2 weak columellar plaits. Shell usually of dark colour, sometimes with brightly coloured spiral bands. Operculum with terminal nucleus or paucispiral.

Size: length to 60 mm

Range: tropical Pacific and Atlantic

Remarks: In superfamily *Buccinoidea* in order to the radular morphology.

Teralatirus are similar to *Dolicholatirus* morphologically, but they are exclusively new world species.

Crassicantharus Ponder, 1972

Type species: *Crassicantharus norfolkensis* Ponder, 1972

Description: Shell small, elongate - buccinoid, solid, with strong spiral cords and axial ribs. Protoconch of 1 bicarinate whorl. Inner lip and columella smooth except for a parietal tubercle at the base of the posterior canal. Outer lip without a sinus, thickened and denticulate within. Operculum oval, with an apical nucleus.

Size: small

Range: not given; SW Pacific

Remarks: The radular and protoconch features readily separate *Crassicantharus* from any other genus in the *Buccinidae*.

Crassicantharus aureatus Fraussen & Stahlschmidt, 2015

Description: Shell small. Shape semi-oval, broad, spire fusiform, base rather short. Protoconch consisting of 1 1/4 to 1 1/2 whorls, exact number uncertain because transition to teleoconch indistinct; size at 1 1/2 whorls 0.7 mm in diameter; tip flattened, weakly inclined; colour bordeau-red; first whorl smooth, glossy; last 1/4 or 1/2 whorl with abapically opisthocline orientated axial ribs, at first weak, becoming broader, rather pronounced along last part. Teleoconch with 4 1/4 moderately convex whorls. Suture distinct. Subsutural slope broad, concave. Colour golden-yellow; sculpture with white knobs, forming broad white spiral bands with fine, goldenyellow interspaces; aperture white, apex dark red. First teleoconch whorl with 3 spiral cords: 2 adapical (subsutural) finer cords with narrow interspace, abapical spiral cord slightly stronger, separated from other cords by broader interspace. First interspace gradually becoming broader along second whorl, with 2 or 3 fine secondary spiral threads; adapical subsutural primary spiral cord staying fine while both other primary spiral cord growing broader and stronger. Penultimate whorl with 1 fine subsutural spiral cord separated from other cords by broad interspace; 2 other spiral cords broad, flat; a third spiral cord appearing, partly concealed under suture with subsequent whorl. Subsutural cord growing broader along penultimate whorl. Body whorl with 5 broad primary spiral cords: 1 broad, flat, rather bilirate subsutural, 4 or 5 broader spiral cords ornamented with white knobs, numerous fine spiral cords on base of which 3 slightly stronger. Spiral interspaces with 3 fine secondary spiral threads. First whorl with 8 axial ribs, lower spire whorls with 9 broad but rather weak ribs. On first whorl broad with narrow interspaces, running from suture to suture but weaker on subsutural slope. Axial ribs gradually growing weaker on subsutural slope, almost smooth on third whorl. Axial ribs slightly sharper along body whorl. Aperture ovate. Outer lip thick, broken in all studied specimens, with 8 fine internal lirae. Columella concave, parietal knob big, columellar fold(s) eroded or absent. Siphonal canal short, broad, open. Aperture and siphonal canal together larger than 2/5 of total shell length.

Size: length up to 7.7 mm

Range: French Polynesia

Remarks: *C. aureatus* is characterized by its broad shape with weak subsutural concavity, the strong and sharp axial ribs, the constricted base with a moderately long siphonal canal and by the pale colour in combination with a dark apex.

C. norfolkensis is similar in sculpture but differs by the primary spiral cords that are present along the subsutural slope and on the base, the slender shape without subsutural concavity, the broader base with weaker concavity and the shorter siphonal canal.

C. letourneuxi differs by the straighter axial riblets on the protoconch, weaker and broader axial ribs, the more oval shape, the straight subsutural slope (rather that concave), the slightly narrower base, the much darker colour, the thick sculpture within the aperture and the slightly shorter siphonal canal. *C. letourneuxi* is a shallow water species while *C. auratus* is found in the lower bathyal zone.

For comparison with *C. feioides C. nexus C. perlatus* see there.

Crassicantharus beslui Fraussen & Stahlschmidt, 2015

Description: Shell small. Shape semi-oval, moderately broad, spire fusiform, base rather short. Protoconch consisting of 1 1/2 whorls, 0.6 mm in diameter; colour pink; first whorl smooth, glossy; tip weakly curled inwards, first 1/2 whorl smooth but with strong folds, resulting in flattened, rather hollow tip; flattened slope gradually becoming narrower along first whorl; last 1/2 whorl convex with fine, weakly diagonally orientated, axial riblets, at first weak, becoming broader, rather pronounced along last part. Transition to teleoconch indistinct, traceable only by appearance of spiral sculpture of teleoconch whorl.

Teleoconch with 3 1/2 weakly convex whorls. Suture distinct. Colour pink with slighlty paler axial ribs along body whorl, base and siphonal canal darker, with dark brown dots on subsutural spiral cord according to axial sculpture. First teleoconch whorl with 3 rather big spiral cords, interspaces narrow. Spiral cords gradually growing broader but flatter, interspaces growing broader with a fine secondary spiral cords appearing. Second whorl with 3 broad, flat spiral cords, interspace moderately broad with 2 or 3 fine secondary spiral threads. Penultimate whorl with weak subsutural spiral cord; 2 other spiral cords stronger, broad, flat; a fourth spiral cord partly concealed under suture of subsequent (body) whorl. Body whorl with 4 broad, prominent primary spiral cords along periphery, in addition a single fine but moderately sharp subsutural spiral cord, 3 fine spiral cords on base. Spiral interspaces with 3-5 fine secondary spiral threads, adapical spiral interspace woth 5 or 6 such threads. First teleoconch whorl with 10 or 11 big, axial ribs with narrow interspaces. Second whorl with 9 broader but slightly flatter axial ribs, running from suture to suture but weaker on subsutural slope. Axial ribs gradually growing weaker on subsutural slope, almost smooth on body whorl. Aperture ovate, laterally weakly flattened. Outer lip thick, coloured according to outer pattern, edge sharp, with 4 - 6 fine internal lirae. Columella weakly concave, parietal knob big and prominent, callus glossy with 3 big columellar folds. Siphonal canal short, broad, open. Aperture and siphonal canal together slightly larger than 1/2 of total shell length.

Size: length up to 5.8 mm

Range: French Polynesia, Moruroa Atoll

Remarks: *C. beslui* is characterized by the somewhat flattened protoconch whorls, the low number of teleoconch whorls, the broad, oval shape, the broad and flattened spiral cords, the thick knobs inside the aperture, the soft pattern consisting of pastel colours and the dark dots on the subsutural spiral cord.

C. letourneuxi differs by the convex protoconch whorls, the higher number of teleoconch whorls, the lower number of axial ribs along the first whorl, the lower number of secondary spiral cords along the body whorl, the weaker subsutural cord, the somewhat more elongate shape, the weaker columellar knobs, the darker and brighter colour, the pattern consisting of spiral bands and spiral lines and the slightly larger adult size.

C. feioides, also occuring in Moruroa, differs by the finer primary spiral cords, the somewhat longer base with narrower siphonal canal, the brighter orange colour without pattern and the larger adult size.

Crassicantharus boutetorum Fraussen & Stahlschmidt, 2015

Description: Shell small. Shape moderately slender, fusiform, base rather short. Protoconch eroded in both studied specimens, consisting of 1 1/2 whorls by estimation, 0.7 mm in diameter; colour dark brown to black; first

whorl smooth, glossy; last 1/4 whorl with fine, rather straight, axial riblets. Transition to teleoconch indistinct, traced by appearance of teleoconch sculpture consisting of diagonally orientated axial riblets with fine spiral lines.

Teleoconch with 5 rather convex, weakly angulated whorls. Suture distinct. Pattern chocolate brown along subsutural slope and base; with broad, white spiral band along periphery. Part of axial ribs on subsutural slope occasionally paler or white coloured, resulting in an alternating pattern. Spiral cords along subsutural slope occasionally slightly darker on top, accentuating the alternating pattern. Spiral cords along white peripheral band occasionally slightly darker on top. Spiral band along base always plain brown. Aperture coloured according to pattern of outer surface, siphonal canal pale yellowish to white.

First teleoconch whorl with 3 spiral cords. Second whorl with 5 fine spiral cords. Penultimate whorl with 8 spiral cords, all of equal strength; interspaces twice as broad with 3 fine secondary spiral threads. Strength of spiral cords slightly increasing along body whorl. Body whorl with about 15 slightly broader primary spiral cords; interspace of equal size or broader with 3 microscopic spiral threads, on base with 5, fine, microscopic spiral threads of which middle one stronger.

Upper spire whorls with 11 or 12 strong axial ribs, running from suture to suture; interspaces rather narrow. Penultimate and body whorls with 10 such ribs. Adapical part of axial ribs on subsutural slope of last 1/4 part of body whorl slightly weaker.

Aperture ovate. Outer lip thick, edge eroded in both studied specimens, with 11 fine internal lirae corresponding to outer spiral cords. Columella almost straight with 4 columellar folds in transition to siphonal canal, parietal part concave with sharp knob; callus narrow, rather thin, glossy. Siphonal canal moderately short, broad, open. Aperture and siphonal canal together slightly smaller than 2/5 of total shell length.

Size: length 9.1 mm

Range: French Polynesia, Moruroa Atoll

Remarks: *C. boutetorum* is characterized by the rather simple sculpture of moderately fine spiral cords that are equally spaced along the whole whorl, the dark brown to black apex and by the peculiar pattern of a broad, white spiral band and a white siphonal canal in combination with a chocolate brown suture and base.

C. metallicus differs by the much weaker columellar knobs, the finer spiral cords, the broader spiral interspaces often with a fine secondary spiral cord, the slightly higher number of spiral cords on the subsutural slope with a somewhat stronger subsutural cord, a slightly higher number of axial ribs, a slightly narrower siphonal canal, a concaver base and a darker colour without white bands.

Crassicantharus feioides Fraussen & Stahlschmidt, 2015

Description: Shell small,. Shape semi-oval, broad, with moderately angulated whorls, spire fusiform, base rather short. Protoconch consisting of 1 1/4 whorls, 0.9 mm in diameter; colour pink. First 1/2 whorl, including tip, round, smooth, glossy; last 3/4 whorl with axial riblets, first riblet fine, straight, subsequent riblets stronger, gradually more diagonally orientated. Transition to teleoconch indistinct, traceable only by appearance of spiral sculpture of teleoconch whorl.

Teleoconch with 4 weakly angulated whorls. Suture distinct. Colour orange, axial knobs along periphery occasionally slightly paler; aperture orange, apex pink, siphonal canal pale pink. First teleoconch whorl with 3 spiral cords of equal strength, forming big pearled knobs on top of axial ribs, interspaces narrow. Subsubsural spiral cord growing weaker while adapical interspace gradually growing broader along first whorl. A single secondary spiral cords appearing in middle of both spiral interspaces along end of first whorl. Those secondary spiral cords gradually stronger along second whorl, becoming as strong as primary spiral cords. Second whorl with 5 or 6 fine spiral cords (primary and secondary together), on subsutural slope thin. Penultimate whorl with 8 moderately fine spiral cords, 4 subsutural ones finer; interspaces rather broad with 1-3 fine, obscure, tertiary, spiral threads visible under magnification only. Body whorl with about 24 fine primary spiral cords of which 7 or 8 on siphonal canal, spiral cords along periphery slightly broader and flattened; interspaces moderately broad with 2 or 3 fine, obscure, secondary spiral threads visible under magnification only; interspace on subsutural slope slightly broader.

All whorls with 10 or 11 strong axial ribs, running from suture to suture but weak along subsutural slope; interspaces narrow. Axial ribs growing stronger along first whorl. Axial ribs weaker below midwhorl, shell base almost smooth.

Aperture ovate. Outer lip thick; edge sharp, with 9 fine internal lirae. Columella concave, parietal knob fine but sharp, callus glossy with 2 columellar folds. Siphonal canal short, broad, open. Aperture and siphonal canal together about 1/2 of total shell length.

Size: up to 6.8 mm

Range: French Polynesia, Moruroa Atoll

Remarks: *C. feioides* is characterized by the rather angulated whorls, the many fine primary spiral cords of almost equal strength and the orange colour without additional pattern in combination with a pink apex and siphonal canal.

C. norfolkensis, the type species of the genus, is similar in sculpture but differs by the broader primary spiral cords, the higher number of axial ribs, the pattern with spiral lines, the axial interspaces without pattern, the slenderer shape, the shorter base.

C. aureatus differs by the weakly opisthocline axial riblets on the protoconch, stronger and sharper axial ribs, the broader shape, the deeper constricted base, the concave subsutural slope (rather that straight), the paler colour and the slightly longer siphonal canal.

For comparison with *C. beslui C. magnificus* see there.

Crassicantharus letourneuxi Fraussen & Stahlschmidt, 2015

Description: Shell small. Shape semi-oval, moderately broad, spire fusiform, base rather short. Protoconch consisting of 1 1/4 whorls, 0.7 mm in diameter; colour dark bordeau-red; first whorl smooth, glossy; last 1/2 whorl with fine, rather straigth, axial riblets, at first weak, becoming broader, rather pronounced along last part. Transition to teleoconch indistinct, traceable only by appearance of spiral sculpture of teleoconch whorl.

Teleoconch with 4 1/4 weakly convex whorls. Suture distinct. Colour bordeau-red with 4 spiral rows of big white knobs, interspaces reddish brown; aperture bordeaux-red, apex dark red, siphonal canal bordeauxred. First teleoconch whorl with 3 spiral cords: 2 adapical (subsutural) cords finer with narrow interspace, abapical spiral cord slightly stronger, separated from other cords by broader interspace. First interspace gradually becoming broader along second whorl, with 2 or 3 fine secondary spiral threads; adapical subsutural primary spiral cord staying fine while both other primary spiral cord growing stronger. Penultimate whorl with 1 fine but sharp subsutural spiral cord separated from other spiral cords by broad interspace; 2 other spiral cords broad, flat. Body whorl with 4 broad primary spiral cords situated along periphery, in addition a single fine but sharp subsutural spiral cord and 3 fine spiral cords on base. Spiral interspaces with 3 fine secondary spiral threads, adapical spiral interspace with 5 such threads.

All whorls with 9 broad but rather flat axial ribs; on first whorl running from suture to suture but weaker on subsutural slope; interspaces narrow. Axial ribs gradually growing weaker along subsutural slope of first whorl, almost smooth on subsutural slope of second whorl. Axial ribs slightly sharper along body whorl. Aperture ovate, laterally weakly flattened. Outer lip thick, coloured according to outer pattern, edge sharp, with 5 or 6 fine internal lirae. Columella concave, parietal knob big, callus glossy with 2 columellar folds in transition to siphonal canal. Siphonal canal short, broad, open. Aperture and siphonal canal together slightly larger than 2/5 of total shell length.

Size: up to 7.1 mm

Range: French Polynesia, Australes Archipelago

Remarks: *C. letourneuxi* is characterized by the oval shape, the thick inner sculpture of the aperture and the bright reddish colour. Crassicantharus beslui sp. nov. differs by the rather angular protoconch whorls, the low number of teleoconch whorls, the higher number of axial ribs along the first whorl, the higher number of secondary spiral cords along the body whorl, the slightly stronger subsutural cord, the broader shape, the strong columellar knobs, the soft colour, the pattern of dark dots on the subsutural spiral cord and the slightly smaller adult size.

C. norfolkensis, the type species of the genus, is similar in sculpture but differs by the primary spiral cords that are present along the subsutural slope and on the base, the slightly higher number of axial ribs, the paler pattern, the axial interspaces without pattern, the slenderer shape, and the shorter base.

For comparison with *C. aureatus C. beslui C. nexus C. perlatus* see there.

Crassicantharus magnificus Fraussen & Stahlschmidt, 2015

Description: Shell small. Shape semi-oval, moderately broad, spire fusiform, base rather short. Protoconch consisting of 1 1/4 whorls, 0.7 mm in diameter; colour purplish pink; tip weakly curled inwards, first 1/2 whorl smooth, glossy, convex; last whorl adapically strongly folded, resulting in flattened, rather hollow tip; last 1/8 whorl with 3 weak, rather straight, axial riblets. Transition to teleoconch indistinct, traceable only by appearance of spiral sculpture of teleoconch whorl.

Teleoconch with 4 3/4 weakly convex whorls. Suture distinct. Colour pale yellowish to white, axial interspaces pale brown; aperture coloured according to pattern of outer surface but with pink parietal knob, apex and siphonal canal bright purplish pink. First teleoconch whorl with 3 spiral cords that form big pearled knobs on top of axial ribs, interspaces narrow. Interspaces growing broader along last part of first whorl, showing traces of fine secondary spiral threads. Adapical interspace (below subsutural cord) gradually becoming broader along second whorl, with 2 or 3 fine secondary spiral threads; subsutural primary spiral cord weaker than both other primary spiral cord growing stronger. One secondary spiral thread in adapical spiral interspace growing stronger along third whorl, becoming as strong as subsutural cord. Penultimate whorl with 4 moderately strong spiral cords, 2 subsutural ones slightly weaker; interspaces broad with 3 or 4 fine secondary spiral threads. Body whorl with 11 primary spiral cords, 2 subsutural ones weak; interspaces broad with 3 or 4 fine secondary spiral threads; interspaces on siphonal canal broader, abapical interspace with 5 secondary spiral threads.

All whorls with 13 strong axial ribs, running from suture to suture; interspaces narrow. Axial ribs growing stronger along second whorl, with slightly broader interspaces. Penultimate and body whorls with 9 strong axial ribs, running from suture to base, weaker on siphonal canal.

Aperture ovate. Outer lip thick; edge sharp, with orange dots according to spiral sculpture, with 7 fine internal lirae. Columella concave, parietal knob big, callus glossy with 2 columellar folds in transition to siphonal canal. Siphonal canal short, broad, open. Aperture and siphonal canal together slightly lesser than 1/2 of total shell length.

Size: up to 8.5 mm

Range: French Polynesia, Gambier Archipelago, Aukena Island

Remarks: *C. magnificus* is characterized by the angulated protoconch (in fresh specimens, paratype 1 is slightly eroded and its protoconch whorls look much more convex), the strong axial ribs running from suture to along the base up to the siphonal canal, the pattern of brown axial strikes on a pale yellowish to white background in combination with a bright purplish pink apex and siphonal canal.

C. feioides differs by the weakly opisthocline axial riblets on the protoconch, stronger and sharper axial ribs, the broader shape, the deeper constricted base, the concave subsutural slope (rather that straight), the paler colour and the slightly longer siphonal canal.

For comparison with *C. boutetorum* see there.

Crassicantharus metallicus Fraussen & Stahlschmidt, 2015

Description: Shell small. Shape moderately slender, spire fusiform, base rather short. Protoconch eroded in all studied specimens, transition to teleoconch not traceable; remains of fine, rather straight, axial riblets traceable on last part of protoconch whorls.

Teleoconch with about 5 rather convex, weakly angulated whorls. Suture distinct; margin of adjacent subsequent whorl moderately thickened by weakly raised subsutural spiral cord. Colour dark brown, almost black, fresh shells with metallic gloss; aperture with tip of siphonal canal dark reddish brown. First teleoconch whorl with 3 broad spiral cords. Interspaces narrow but gradually becoming broader along second whorl with 1 fine secondary spiral cord growing as strong as subsutural cord along second whorl. Subsutural primary spiral cord situated on weakly elevated subsutural ridge that accentuate suture. Number of spiral cords increasing; interspaces growing slightly broader with 3-5 finer spiral threads; middle spiral thread stronger. Penultimate whorl with 10 or 11 fine spiral cords; 5 of them on subsutural slope, all slightly finer except subsutural spiral cord. Body whorl with about 23 fine spiral cords (primary and secundary together), subsutural cord slightly stronger than spirals on subsutural slope; interspaces rather broad, with 3 to 5 fine (tertiary) spiral threads, middle ones in interspaces along periphery slightly stronger. Siphonal canal covered with numerous fine spiral cords.

Upper spire whorls with 15 strong axial ribs, running from suture to suture; interspaces rather narrow. Axials becoming weaker on subsutural slope along third whorl. Penultimate whorl with 13 such axial ribs. Body whorl with 11 axial ribs, strong at periphery, weak on subsutural slope, base almost smooth.

Aperture ovate. Outer lip thick; edge glossy, weakly curled outwards; with 10 fine internal lirae. Columella almost straight with 2 weak columellar knobs at transition to siphonal canal, parietal part concave with small parietal knob; callus narrow, rather thin, glossy. Siphonal canal moderately short, broad, open. Aperture and siphonal canal together slightly larger than 2/5 of total shell length.

Size: up to 9.3 mm

Range: French Polynesia, Gambier Archipelago, Aukena Island

Remarks: *C. metallicus* is characterized by the fine spiral sculpture with slightly thinner cords on the subsutural slope but a moderately thick subsutural elevation that accentuate the suture, the rather smooth columella with 2 weak columellar knobs only, the weak parietal knob and the uniform dark colour without pattern.

C. boutetorum differs by the presence of 4 columellar knobs, the spiral cords that all have about the same strength, a slightly lower number of spiral cords on the subsutural slope, a slightly higher number of axial ribs, a slightly broader siphonal canal with a weaker concavity of the base and a paler colour with a white spiral band.

Crassicantharus mirabelkarinae T. Cossignani, 2015

Description: not available

Size: length 11.5 mm

Range: New Caledonia

Crassicantharus nexus Fraussen & Stahlschmidt, 2015

Description: Shell small. Shape semi-oval, slender, spire fusiform, base short. Protoconch eroded, consisting of 1 1/4 whorls by estimating remaining traces. Teleoconch with 4 1/2 whorls, laterally flattened. Suture distinct. Subsutural slope narrow, straight. Colour golden-yellow; sculpture with white knobs, forming broad white spiral bands with fine, goldenyellow interspaces; apex reddish.

First teleoconch whorl with 3 spiral cords: 2 adapical (subsutural) cords finer, interspaces narrow. Subsutural spiral cord staying weak while 2 other (abapical) spiral cord gradually grow broader. Third whorl with 3 broad primary spiral cords: subsutural spiral cord weak, hardly detectable; other 2 spiral cords more pronounced. Body whorl with 6 broad primary spiral cords: 1 weak subsutural, 3 strong at periphery, 2 weaker on base.

Upper spire whorls with 12 broad but rather weak axial ribs. Their number increasing to 15 on penultimate whorl. Body whorl with 15 axial ribs. Axial interspaces narrow. Aperture ovate, eroded, internal sculpture not tracable. Siphonal canal short, broad, open. Aperture and siphonal canal sligthly larger than 2/5 of total shell length.

Size: 7.0 mm in length

Range: French Polynesia, Austral Archipelago, Rimatara Island

Remarks: *C. nexus* is charactarized by the rather conical spire, the spiral cords that are broad and low in number, the large number of weak axial ribs, the rather narrow subsutural slope and the small adult size.

C. norfolkensis differs by the slightly larger protoconch when compared to shell size, the two subsutural spiral cords (rather than 1) and the lower number of axial ribs.

C. auratus differs by the axial ribs that are more accentuated with broader interspaces and fewer in number, the broad subsutural slope that is concave (rather than straight), the broader shape, the constricted base, the paler pattern in combination with a darker apex and by the slightly larger adult size.

C. letourneuxi differs by the broad spiral cords along the peripheral area of the whorls only, leaving the broad subsutural slope and the base ornamented with fine secondary spiral threads only, the broad subsutural slope, the constricted base, the axial ribs that are weaker and fewer in number, the dark red colour, the occasional presence of pattern in the axial interspaces and the strongly sculptured aperture.

Crassicantharus norfolkensis Ponder, 1972

Description: Shell small, elongate, solid, with strong spiral cords and axial ribs. Whorls of teleoconch about 5, subshouldered, sutures moderately impressed. Protoconch almost flat, of 1 whorl, tip only slightly raised, with 2 strong spiral ridges continuous with those of first whorl of teleoconch. These ridges are crossed by weak axial riblets which render the spiral cords slightly nodulous on the first 1/2 whorl. The finer details of protoconch sculpture were not visible due to abrasion. Sculpture of teleoconch of white to yellowish, broad, flat, spiral ridges, with narrow, dark reddish-brown interstices. First whorl of teleoconch with 2 spiral cords crossing the axial ribs, the points of intersection slightly nodulous. Spiral increase to 4 on penultimate whorl and there are 11 on the body whorl and base. Sometimes an additional weak cord below periphery on body whorl. Axial ribs strong, 11-12 on body whorl. Fasciole prominent, inner lip and columella smooth, a large parietal tubercle at base of posterior canal. There is no sinus on the outer lip which is thickened with about 8 long denticles. There is no external varix. Anterior canal short, curved to left, and open.

Size: length 10.25 mm, width 4.55 mm

Range: Norfolk Island

Remarks: *C. norfolkensis* is characterized by the presence of broad spiral cords all over the surface, the slender shape with high spire, the pale yellowish brown spiral cords separated by reddish brown spiral interspaces and the short siphonal canal.

For comparison with *C. aureatus C. feioides C. letourneuxi C. nexus C. perlatus* see there.

Crassicantharus noumeensis (Crosse, 1870)

Synonyms: *Peristernia aureocincta* (G. B. Sowerby III, 1875)

Description: *T. imperforata, elongato-fusiformis, longitudinaliter obtuse costata, transversim rugis prominulis et lineis granosis decussata, cinerea, cingulis aurantiacis 3, primo subsuturali, secundo et tertio supra-medianis, fere contiguis eléganter ornata; spira elevata; sutura parum conspicua; anfr. 8 9 convexi, primi 2 sublaevigati, roseo- fusci, ultimus spira paulo minor, cingulis aurantiacis 6, quarto et quinto infra médium sitis, sexto e columella oriundo, basali, munitus, in canalem brevissimum, subito interruptum desinens; apertura ovata, intus suturate purpureo-fusca; peristoma simplex, purpureo-fuscum, margine columellari valide biplicato, externo subarcuato, subacuto.*

(Shell imperforate, elongate-fusiform, longitudinally obtusely ribbed, transversely decussated with prominent wrinkles and grainy lines, grey, with 3 orange belts, first subsutural, second and third supra-median, almost contiguous and elegantly ornamented; spire elevated; suture little visible; 8 9 convex whorls, the first 2 smoothed, pinkish-brown, the last a little smaller than the spire, with 6 orange belts, the fourth and fifth located below the middle, the sixth arising from the columella, basal, fortified, ending in a very short canal, suddenly interrupted; aperture ovate, purple-brown suture inside; peristome simple, purplish-brown, the columellar margin strongly bifurcated, outer margin subarcuate, subacute.)

Size: length 11.5 mm, width 4.5 mm; aperture length 3 mm, width 1.5 mm

Range: New Caledonia

Remarks: It is a *Buccinidae*.

Crassicantharus perlatus Fraussen & Stahlschmidt, 2015

Description: Shell small. Shape semi-oval, moderately broad, spire fusiform, base rather short. Protoconch consisting of 1 1/4 whorls, 0.8 mm in diameter; tip flattened, weakly incleaned; colour dark bordeau-red; first whorl smooth, glossy; last 3/4 whorl with rather strongly opisthocline orientated axials, at first weak, becoming broader, rather pronounced along last part. Transition to teleoconch indistinct, traceable only by appearance of spiral sculpture of teleoconch whorl.

Teleoconch with 4 weakly convex whorls. Suture distinct. Colour pinkish-brown with 2 spiral rows of big white knobs, apex dark red, aperture with siphonal canal pink. First teleoconch whorl with 3 spiral cords: 2 primary cords broad, sculptured with big white knobs; in addition 1 finer subsutural spiral cord, along first part of whorl running smooth or with weak knobs of orange-brown ground colour or only slightly paler, becoming weaker towards second whorl. Interspaces initially narrow, gradually growing broader with 1 fine secondary spiral. Uppermost secondary spiral cord, thus in adapical interspace, growing stronger along second whorl, as big as relative weak subsutural cord on third whorl. Spiral interspaces growing broader, with an increasing number of secondary spiral cords.

Penultimate whorl with 2 broad primary spiral cords with big white knobs on axial ribs; a third similar spiral cord appearing, partly concealed under suture of subsequent whorl; subsutural slope with 2 fine, weak spiral cords; all interspaces with 5-9 fine secondary spiral threads of different strength, some only visible under strong magnification. Body whorl with 10 spiral cords: 2 fine subsutural, 4 broader spiral cords ornamented with white knobs, 4 weaker spiral cords on base and siphonal canal.

All whorls with 12 big axial ribs, interspaces rather narrow. On first whorl running from suture to suture but weaker on subsutural slope. From second whorl on almost absent on subsutural slope, detectable by presence of knobs only. Aperture ovate, laterally weakly flattened. Outer lip rather thin, edge sharp, with 4 or 5 fine internal lirae. Columella concave, with 2 columellar folds in transition to siphonal canal. Siphonal canal short, broad, open. Aperture and siphonal canal together slightly lesser than 2/5 of total shell length.

Size: up to 6.8 mm

Range: French Polynesia, Austral Archipelago, Neilson Reef

Remarks: *C. perlatus* is characterized by the pronounced sculpture consisting of strong, snow white knobs on a pinkish brown background.

C. norfolkensis, the type species of the genus, is similar in shape but differs by the smoother sculpture with spiral cords that are broader and weaker, rather than forming strong knobs, with narrower spiral interspaces, without secondary spiral cords, the lower number of axial ribs, the broader base ornamented with broad spiral cords, rather than constricted and ornamented with fine threads, the convex outer lip, without concavity at transition to siphonal canal and the slightly shorter siphonal canal.

C. aureatus differs by the straighter axial riblets on the protoconch, the smoother sculpture with spiral cords that are broader, weaker, rather than forming strong knobs, with narrow spiral interspace, without secondary spiral cords, the lower number of axial ribs, the axial interspaces without pattern, the broader shape with shorter and more conical spire, the broad subsutural concavity and the paler colour.

C. letourneuxi differs by the straighter axial riblets on the protoconch, smoother sculpture with spiral cords that are broader and weaker, rather than forming strong knobs, with narrow spiral interspaces, by the lower number of axial ribs, the shorter siphonal canal, the darker colour and the slightly smaller adult size.

Dolicholatirus Bellardi, 1884

Synonyms: *Fusilatirus* T. L. McGinty, 1955, *Latirofusus* Cossmann, 1889 †, *Latirus (Dolicholatirus)* Bellardi, 1884

Type species: *Dolicholatirus bronni* (Michelotti, 1847) †

Description: *Testa fusiformis, angusta, perlonga: spira valde acuta, polygyrata. Anfractus parum sed regulariter convexi; ultimus ad basim caudae profunde depressus, dimidia longitudine longior. Costae longitudinales ad suturam posticam productae. Columella biplicata; plicae axi testae parum obliquae, inter se satis distantes: cauda angusta, perlonga, inumbilicata, in axim testae producta.*

(Shell fusiform, narrow, long; spire very sharp, with many whorls. The whorls are slightly but regularly convex; the last whorl deeply depressed at the base of the siphonal canal, half the length longer. Longitudinal ribs produced at posterior suture. Columella with 2 folds; the folds are slightly oblique to the axis of the shell, quite distant from each other; siphonal canal narrow, long, not umbilicated, produced in the axis of the shell.)

Redescription: Shell elongate fusiform, spire elevated, siphonal canal extended and almost closed, aperture small and oval, outer lip with spiral ridges inside. Sculpture of broad axial ribs crossed by spiral threads. Columella concave with two weak plications. Protoconch mammilliform. Colour generally various shades of dark brown to cream with lighter spiral threads. Size relatively small.

Size: up to 60 mm in length

Range: mainly from deep tropical and temperate waters around the world

Remarks: Other allied genera are *Turrilatirus* with members from the Indo-Pacific region having relatively large shells and occurring in shallow waters. *Teralatirus* are also similar morphologically, but they are exclusively new world species.

Dolicholatirus acus (A. Adams & Reeve, 1848)

Description: *Fus. testa lanceolato-fusiformi, gracillimi, solidiuscula, anfractibus longitudinaliter plicato-costatis, spiraliter sulcatis, sulcis subtilibus, confertis, peculiariter plano-excavatis; apertura parva, canali fere, clauso; rufo-ferruginea.*

Shell lanceolately fusiform, very slender, rather solid, whorls longitudinally plicately ribbed, spirally grooved, grooves fine, close-set, peculiarly flatly excavated; aperture small, canal almost closed; reddish rust-colour.

Size: 20-60 mm

Range: China Sea off Borneo

Remarks: A very narrow lanceolate shell of peculiar solid growth.

Dolicholatirus bairstowi (G. B. Sowerby III, 1886)

Description: *Testa turrita, atro-fusco; anfractus 8-9, leviter convexi, longitudinaliter plicati, liris pallidis spiraliter cingulati; anfr. ultimus maj. convexus, ad basin productus, attenuatus; apertura parva, ovata, intus lirata; canalis longiuscula, leviter recurva.*

Shell turrited, dark brown; whorls 8 [- 9], slightly convex, longitudinally plicated, encircled with pale spiral ridges; last whorl more convex produced at the base; aperture small, oval, interior ridged; canal rather long, slightly recurved.

Size: length 27 mm, width 8 mm

Range: South Africa

Remarks: *Latirus rousi* has a shorter canal and the spiral ridges are dark brown, flattened and broader than the interstices, which are light fulvous brown.

For comparison with *D. maryseae* and *D. bozzettii* see there.

Dolicholatirus bozzettii Lussi, 1993

Description: Shell narrow and fusiform. Spire longer than aperture and approximately the same length as siphonal canal. Shell has no false umbilicus. Columella with 1 small basal pleat. Interior of labrum smooth. Siphonal canal long and almost closed in mature specimens. Axial ribs, crossed by thin spiral threads, extend from suture to suture and onto base. 10-12 axial ribs per whorl and 7-8 whorls in adult specimens. Protoconch elongated and consists of 3 whorls. Operculum horny and claw-shaped with a terminal nucleus, periostracum not visible on specimens studied. Colour uniform white to greyish-white with pinkish-white protoconch.

Size: max. length 45.5 mm

Range: South Africa

Remarks: Compared to local species, *D. mosterti* is most similar to *D. bozzettii*. The latter is always white in colour, has stronger but fewer spiral threads, is on average larger in size and occurs further north off KZN.

For comparison with *D. maryseae* see there.

Comparison with *D. bairstowi*:

	D. bairstowi	***D. bozzettii***
Colour	dark brown with pale spiral threads, base of body whorl blackish brown, protoconch ruby red.	uniform white to greyish white, protoconch pinkisch.
Structure	interior of labrum ridged siphonal canal shorter axial ribs less pronounced.	interior of labrum smooth siphonal canal longer axial ribs more pronounced.
Size	max.: approx. 30 mm.	max.: 45.5 mm.
Habitat	shallow water (15-50 m), off eastern Cape, Transkei and Southern Natal.	deep water (280 m) off Central and Nothern Natal.

Dolicholatirus brevicaudatus Lussi, 2014

Description: Outline elongate turriform, whorls weakly convex, aperture small and oval, columella with 2 weak plications situated anteriorly, lip with sparse spiral ridges inside, edge of lip thickened, protoconch dome shaped, siphonal canal oblique and partially open. Protoconch 0.80 mm diameter, width/length 0.37. Sculpture of axial folds (varices) visible in mature specimens only, and spiral threads, body whorl with about 10-13 major spiral threads with a minor threads in-between, interstices between spiral threads with axial striae only visible under magnification. Colour reddish-brown, protoconch and siphonal canal darker, spiral threads white.

Size: length normally 11-14 mm, but can reach 21mm; 12.84 mm x 4.59 mm

Range: South Africa

Remarks: *D. brevicaudatus* is closely related to *D. fernandesi* from neighbouring Mozambique. Major difference is the colour and the occurrence of pronounced axial ribs in the latter. It is doubtful that this species and its ally, *D. fernandesi*, belong to the genus *Dolicholatirus*. Significant differences are the shape of the protoconch and the length of the siphonal canal. The siphonal canal in both cases is shorter than the aperture length and the protoconch is dome shaped, not nipple shaped.

Compared to *D. maryseae, D. brevicaudatus* has fewer spiral ribs (only 9 on final whorl), which are white on a rusty brown shell, its whorls are more rounded and its siphonal canal is shorter.

Dolicholatirus cayohuesonicus (G. B. Sowerby III, 1879)

Description: *L. testa elongato-turrita, solidua, atro-fusca,antice contracta, subelongata; spira elongata; anfractibus 9, convexiusculis, spiraliter liratis, longitudinaliter costatis, costis latis rotundatis, liris alternis minoribus, interstitiis striatim cancellatis; apertura ovata, parva, fauce laevi, purpureo-fusca; columella bicostata; canali subelongato, recto.*

(Shell elongate-turreted, solid, dark-brown, anteriorly contracted, subelongate; spire elongated; 9 convex whorls, spirally lirated, longitudinally ribbed, broad rounded ribs, smaller alternate lirae, interstitials striately cancellated; aperture oval, small, inside smooth, purplish-brown; columella with 2 folds; canal elongated, straight.)

Size: length 10 mm, width 5.5 mm

Range: Key West, Florida

Remarks: A very dark little *Dolicholatirus*, almost black within and without, with general characters common to the genus, and of the ordinary form of the larger species, such as *Polygona infundibulum*.

D. minusculus differs from *D. cayohuesonicus* for its smaller size, 11-12.70 mm versus 13-20 mm, for the shorter siphonal canal, for the external lip, calloused and smooth versus thin and crenulated.

Teralatirus funebris is allied to *D. cayohuesonicus*, but differs from that species in its less pyramidal form and in the transverse ribs, which are much more numerous and finer than is the case with *D. cayohuesonicus*.

Dolicholatirus celinamarumai Kosuge, 1981

Description: not available

Size: 20-38 mm

Range: Philippines - Malaysia

Dolicholatirus fernandesi Bozzetti, 2002

Description: *Conchiglia di piccole dimensioni, fusiforme, slanciata, formata da 6 giri di spira debolmente convessi, piu l'ultimo giro. Protoconca parzialmente osservabile per l'erosione, comunque piu larga del giro di spira che segue. Scultura assiale costituita da 7 gibbosita per giro, allungate dalla sutura superiore all'inferiore e da fitte e deboli costole; 5 pliche spirali principali ed altre secondarie si intersecano alla scultura assiale dando alla superficie un aspetto cancellato. Sutura scarsamente rilevabile per la preminenza della scultura assiale.*

Apertura stretta, ellittica, 2 pliche parallele sulla columella, distanziate fra di loro, che non raggiungono il bordo; labbro interno percorso interamente da una prominente induttura; labbro esterno crenulato. Canale sifonale corto, diritto, nella fusione col canale precedente forma un falso ombelico. Peristoma dall'aspetto vetroso; colore bruno scuro uniforme sia esternamente che all'interno della fauce.

(Shell small, fusiform, slender, of 6 weakly convex spiral whorls, plus the last whorl. Protoconch partially observable due to erosion, however wider than the spire that follows.

Axial sculpture made up of 7 knobs per whorl, elongated from the upper to the lower suture and by dense and weak ribs; 5 main spiral folds and other secondary ones intersect the axial sculpture giving the surface an cancellated appearance. Suture barely detectable due to the prominence of the axial sculpture.

Aperture narrow and elliptical, 2 parallel folds on the columella, spaced apart, which do not reach the edge; internal lip crossed entirely by a prominent induction; external lip crenulated. Siphonal canal short and straight, forms a false umbilicus in fusion with the previous canal. Peristome with a glassy appearance; color uniform dark brown both externally and internally.)

Size: 12.8-16.3 mm; holotype 15.6 mm

Range: Mozambique

Remarks: *D. fernandesi* has some similarities with *D. bairstowi*, but differs from it in its smaller dimensions - 13/16 mm versus 25/30 mm - in the less developed siphonal canal, in color and pattern: dark brown in *D. fernandesi*, brown with paler spiral striae in *D. bairstowi*.

D. brevicaudatus is closely related to *D. fernandesi*. Major difference is the colour and the occurrence of pronounced axial ribs in the latter.

Even though *D. maryseae* and *D. fernandesi* share the same colour, they can easily be separated by the shorter siphonal canal, the more bulbous whorls, the lower number of teleoconch whorls, the more rounded shape of the outer lip, the lack of thickened callus and groove on the adapical end of the columella and the dark colour of the aperture in *D. fernandesi*.

Dolicholatirus lancea (Gmelin, 1791)

Synonyms: *Fusus lanceola* Reeve, 1842, *Fusus ligula* Kiener, 1840, *Murex angustus* Gmelin, 1791

Description: *M. testa angustata: spirae anfractibus transversim costatis longitudinaliter crenatis, apertura ovata intus albo-costata margine dentata, columella biplicata. Juniorum rubella, adultiorum alba, costarum interstitiis et apertura violaceis, spirae anfractibus 11-12.*

(Shell narrowed; spire whorls longitudinally crenate with transverse ribs; aperture ovate, inside with a white-ribbed toothed margin, columella with 2 folds. Shell of juniors reddish, adults white, the interstices of the ribs and aperture purple, spire whorls 11-12.)

Size: 40-75 mm

Range: Amboina

Remarks: *D. maryseae* cannot be confused with *D. lancea* as the latter is much more slender, has more bulbous whorls with a subsutural concavity, stronger and sharper spiral and axial cords and a completely different colour (grey as opposed to brown or black in *D. maryseae*).

compare to *D. smithi*

Dolicholatirus maryseae D. Monsecour & Lorenz, 2018

Description: Shell of medium size for the genus, slender, elongate. Protoconch damaged in all examined shells, by estimation consisting of 1 1/2–1 3/4 whorls. Transition to teleoconch clearly visible, marked by the appearance of both axial and spiral sculpture. Teleoconch consisting of 9-9 1/2 slightly rounded whorls. Suture very indistinct, almost invisible, which renders the whorls hard to tell apart. Spiral sculpture consisting of 2 strong, flattened primary cords dividing the whorls in 3 almost equal parts on all whorls, except for the final whorl, which bears 7 or 8 primary cords (not including the cords on the siphonal canal). All whorls also bear a third, less strong primary cord just below the suture. In between the primary cords, 1-5 usually equally strong secondary cords are visible on all whorls. These secondary cords are randomly arranged and the type lot does not show a fixed system as to how many secondary cords are present on which whorl. Siphonal canal with 7-9 primary spiral cords with 1-4 secondary

spiral cords in between them. Axial sculpture consisting of broad, rounded cords, rendering an undulating effect of the spiral sculpture. Uppermost teleoconch whorl with 5-6 such axial cords, becoming 6-7 on third or fourth whorl; last but two, penultimate whorl and final whorl with 7-8 axial cords. In between the axial cords, numerous fine growth lines are visible, but none of them rises to the level of secondary axial cords.

Siphonal canal about 25 % of total shell length, narrow, straight, closed, except for the most abapical part. Columella with a weakly developed semi-attached columellar shield demarcating the aperture; adorned with 2 strong striae extending into the aperture. Outer lip clearly showing the spiral sculpture in its shape, somewhat thickened. Inside the aperture 5 striae extend into the aperture, leaving a smooth interspace behind the inner lip before they set off like a small, thickened bead. Aperture semi-ovate, adapically with a small groove and a thickened callus on the columellar side, abapically tapering towards the siphonal canal.

Shell colour uniformly dark brown to black, even though the 3-4 adapicalmost whorls are somewhat paler. Protoconch pale brown. Aperture off-white to greyish, cords extending into the aperture paler. There is a brown axial line right behind the inner lip. Adult specimens also show brown lines in the spiral grooves on the inside of the outer lip. Columellar shield with a hint of brown, especially near the edge.

Size: up to 43.9 mm; length 27.8 mm, width 7.8 mm

Range: Red Sea, W Indian Ocean

Remarks: Even though the only possible sympatric congener is *D. lancea, D. maryseae* cannot be confused with this species as the latter is much more slender, has more bulbous whorls with a subsutural concavity, stronger and sharper spiral and axial cords and a completely different colour (grey as opposed to brown or black in *D. maryseae*).

D. maryseae stands out from both *D. bairstowi* and *D. bozzettii* by the higher number of teleoconch whorls, the much longer, closed siphonal canal, the much lowetr number of spiral cords, the tapering abapical end of the aperture and the overall dark brown to black colour. Moreover, the known range of both species is restricted to South Africa.

Even though *D. maryseae* and *D. fernandesi* (only known from Mozambique) share the same colour, they can easily be separated by the shorter siphonal canal, the more bulbous whorls, the lower number of teleoconch whorls, the more rounded shape of the outer lip, the lack of thickened callus and groove on the adapical end of the columella and the dark colour of the aperture in *D. fernandesi*.

D. mosterti (limited to South Africa) is much more slender and more elongate than *D. maryseae* and has a completely different sculpture of much weaker spiral ribs and above all broad, wavy axial ribs. Moreover, its colour is off-white.

D. brevicaudatus (limited to South Africa) has fewer spiral ribs (only 9 on final whorl), which are white on a rusty brown shell, its whorls are more rounded and its siphonal canal is shorter.

Dolicholatirus minusculus Bozzetti, 2007

Description: *Specie dalla conchiglia di piccoli dimensioni per il genere di appartenenza, altezza massima 12.7 mm, fusiforme, slanciata, spira alta dal profilo diritto, spalla arrotondata, protoconca mancante, teleoconca formata da 5-6 giri residui lievemente convessi. Scultura assiale costituita da 6-8 pliche gibbose, e da fitte costoline secondarie, scultura spirale costituita da 3 corde primarie per giro, 9 sull'ultimo giro comprendendo il canale sifonale, che sulle pliche spirali si ingrossano, la prima in direzione abapicale margina e parzialmente ricopre la sutura, le restanti uniformemente distribuite dalla periferia alla sutura inferiore o, nell'ultimo giro, al canale sifonale. Presenti fitte e minute corde secondarie che incrociandosi con le costoline assiali danno luogo ad una superficie tessellata. La scultura assiale secondaria non e presente sulle pliche spirali primarie ad eccezione della plica subsuturale.*

Apertura subellittica, labro esterno uniformemente convesso, con bordo calloso, arrotondato e liscio, internamente presenti 6 sottili lirature limitate alla parte piu esterna della fauce, labbro interno convesso, percorso da 2 pliche all'estremita basale, con evidente callosita che prosegue sul canale sifonale. Seno posteriore stretto, delimitato da callosita sia columellare che labiale. Canale sifonale corto, ampio, dai bordi callosi e leggermente piegato a sinistra. Colore marrone uniforme.

(Species with a small shell for the genus, fusiform, slender, spire high with a straight profile, shoulder rounded, protoconcha missing, teleoconcha formed by 5-6 slightly convex residual whorls. Axial sculpture made up of 6-8 gibbous folds, and dense secondary ribs, spiral sculpture made up of 3 primary cords per whorl, 9 on the last whorl including the siphonal canal, which thicken on the spiral folds, which initially limit and partially cover the suture in the abapical direction, the remainder uniformly distributed from the periphery to the inferior suture or, on the last whorl, to the siphonal canal. There are dense and minute secondary cords which, when intersecting with the axial

ribs, produce a tessellated surface. Secondary axial sculpture is not present on the primary spiral folds with the exception of the subsutural fold.

Aperture subelliptic, external lip uniformly convex, with calloused edge, rounded and smooth, internally there are 6 thin lirae limited to the outermost part of the aperture, inner lip convex, crossed by 2 folds at the basal end, with evident callosity that continues on the siphonal canal. Posterior sinus narrow, delimited by both columellar and labial callosities. Siphonal canal short, wide, with callused edges and slightly bent to the left. Colour uniform brown.)

Size: length 23.1 mm; length 12.55, width 4.80 mm; maximum height 12.7 mm

Range: SW Madagascar

Remarks: The only two congeneric species comparable to *D. minusculus* are *D. fernandesi*, known from the Mozambique channel, and *D. cayohuesonicus*.

D. minusculus is distinguished from *D. fernandesi* by its smaller dimensions, 11-12.70 mm versus 12.8-25 mm, by the shorter and more curved siphonal canal, by the broader and more convex last whorl, by the wider aperture, by the thicker spiral sculpture, by the external lip, calloused and smooth against thin and crenulated, and by the color, brown against dark brown.

D. minusculus differs from *D. cayohuesonicus* for its smaller size, 11-12.70 mm versus 13-20 mm, for the shorter siphonal canal, for the external lip, calloused and smooth versus thin and crenulated.

D. minusculus has morphological and dimensional similarities with some species included in the genus *Teralatirus*, endemic to the Western Atlantic and that is: *T. roboreus*, and *T. funebris*.

D. minusculus differs from *T. roboreus*, for the spiral sculpture which is much stronger and preponderant on the axial one in *T. ernesti*, for the color and pattern, uniform brown against dark brown with white, yellow, reddish spiral bands, for the lip external, calloused and smooth versus thin and crenulated.

D. minusculus differs from *T. funebris* in its sculpture: in *T. funebris* spiral and axial sculpture are almost equivalent giving the shell surface a uniform coarsely tessellated appearance, while in *D. minusculus* there is a preponderance of spiral sculpture and the tessellation is discontinuous and generated only by the secondary sculpture, due to the external lip, calloused and smooth versus thin and crenulated, and due to the color, brown versus dark brown.

Dolicholatirus mosterti Lussi, 2014

Description: Outline elongate fusiform, whorls weakly convex, aperture small and oval, columella smooth except for 1-2 weak anterior plications, lip with sparse spiral ridges inside (only visible in mature specimens), protoconch mamillate comprising 3 whorls, siphonal canal straight and partially open. Protoconch 1.44 mm diameter, width/ length 0.25. Sculpture of axial ribs extending from suture to suture, 9 on body whorl and crossed by spiral threads, about 16 excluding those on siphonal canal, interstices with axial striae visible under magnification. Colour uniform yellowish-brown, protoconch darker, spiral threads lighter.

Size: length 35.71 mm, width 8.59 mm; length ranges 30-38 mm

Range: South Africa

Remarks: Compared to local species, *D. mosterti* is most similar to *D. bozzettii*. The latter is always white in colour, has stronger but fewer spiral threads, is on average larger in size and occurs further north off KZN.

As far as extralimital species are concerned, *D. mosterti* is most closely allied to *D. thesaurus* from eastern Australia. The latter has stronger spiral ribs, resulting in more convex whorls. Sculpture consists of white spiral threads, less in numbers than in *D. mosterti*.

D. mosterti is much more slender and more elongate than *D. maryseae* and has a completely different sculpture of much weaker spiral ribs and above all broad, wavy axial ribs. Moreover, its colour is off-white.

Dolicholatirus pauli (T. L. McGinty, 1955)

Description: Shell medium size, slender, fusiform, of about 10 whorls, color light brown. Nucleus large with 1 1/2 smooth, discolored whorls. There are about 8 1/2 sculptured whorls, with strong, flattened spiral threads, 4 on the

penult whorl, whioch cross over the swollen axial ribs. There are weak, close-set axial lines of growth, which are a little stronger in the concave channels between the spiral threads. The anterior canal is long, slender, tapering, with spiral threads, decreasing in size and becoming wavy near the anterior notch.

Aperture subovate, outer lip simple, a little thickened, internally lirate, posterior canal weakly suggested with a rather strong fold on the inner lip.There are 2 plaits on the columella. Periostracum thin, straw colored. Operculum brown, horny, wedge-shaped, with the nucleus at the narrow end.

Size: length 30 mm, width 8.2 mm

Range: Florida Keys; Gulf of Mexico, Caribbean Sea

Dolicholatirus smithi Snyder, 2000

Synonyms: *Latirus angustus* E. A. Smith, 1884 (invalid: secondary junior homonym of *Murex angustus* Gmelin, 1791; *Dolicholatirus smithi* is a replacement name)

Description: of *Latirus angustus*: Shell narrow, fusiform, of a rich brown colour. Whorls 11 1/2; the 2 apical ones smooth, forming a bluntish apex, the rest strongly ribbed and spirally ridged. Ribs a little oblique, very broad, rounded, with scarcely any interstices, not reaching the upper boundary of the whorls. Transverse lirae or ridges strong: 3 principal ones on the upper whorls; the uppermost, or that almost bounding the suture, a little wavy, scarcely affected by the longitudinal costae; the 2 others situated round the middle of the whorls, prominent, and rather acute on the ribs; between these are fine thread-like lirae, generally one in each interstice. Last whorl similarly lirated throughout with large and small ridges. The entire surface of the shell exhibits between the transverse lirae coarse lines of growth. Aperture small, subpyriformly ovate, brownish white within, with about 4 slender white lirae not reaching to the margin of the labrum, which is crenulated and dotted with brown at the ends of the exterior ridge. Columella covered with a prominent brownish callosity bearing 2 fine transverse plaits, one at the middle and the other below it. Canal almost straight and nearly closed.

Size: up to 58 mm; length 38 mm, width 9 mm

Range: Queensland, Andaman Islands; Indo-W Pacific

Remarks: This species may be recognized by its slender form, in which respect it somewhat resembles *D. lancea*. Viewed with the unassisted eye, the whorls appear to be encircled by 3 transverse prominent lirae, of which the uppermost is nearly simple, whilst the 2 inferior ones are undulate upon and between the ribs.

Fresh specimens are a rich caramel-brown color with dark brown staining art the anterior end of the siphonal canal.

Dolicholatirus spiceri (Tenison-Woods, 1876)

Synonyms: *Latirofusus nigrofuscus* Tate, 1891

Description: *F. t. elongata, turrita, solida, rufo-castanea vel lutea, striis laevibus transversalibus (alternantibus parvis et maj.) et costulis undulatis longitudinalter obsolete plicata; spira (saepe contorta) superne sensim attenuata; apice mamilata vel decollata; anfr. in medio rotundatis; apertura ovata, canali longiusculo, recto, terminato; labro simplici tenui; labia inconspicuo ad suturam tenuiter canaliculato, columella encausta.*

Shell elongate, turreted, solid, reddish chestnut or yellow, cancellate, with smooth transverse striae (large and small alternating), and undulating longitudinal lines; obsoletely plicate, lengthwise; spire (which is often contorted), gradually attenuated above; apex mamillate or decollate, whorls rounded in the middle; aperture ovate, terminated by a somewhat long straight canal; outer lip simple, thin; inner lip inconspicuous, slightly channelled at the suture; columella enamelled.

Size: length 25 mm, width 9 mm (8 whorls)

Range: King's Island, Tasmania; E Victoria to SW Australia

Remarks: *D. vezzaroi* is similar to *D. spiceri*. The siphonal canal is noticeably shorter and off-axis than in the compared species. *D. spiceri* is more elongated and with almost no axial marbling and a more enlarged and flattened protoconch.

Dolicholatirus thesaurus (Garrard, 1963)

Description: Shell fairly narrow and fusiform, of 8 main whorls with simple smooth protoconch of 1 whorl, merging gradually into sculpture of main whorls, which are somewhat convex, sutures impressed; sculpture consists of strong axial plications, 10 on penultimate whorl, diminishing in number towards the spire, and tending to disappear on body whorl; 9 or 10 raised spiral lirae on each whorl over-ridden by growth lines which become pronounced on body whorl; aperture narrow and half total length of shell, lip slightly reflected and showing slight indentations due to raised external lirae; anterior canal open, straight and narrow; colour uniform light brown, spiral lirae whitish, anterior end stained dark purple brown, interior of aperture pinkish brown.

Size: length 42 mm, breadth 12 mm, aperture 21 mm

Range: New South Wales, Australia

Remarks: As far as extralimital species are concerned, *D. mosterti* is most closely allied to *D. thesaurus*. The latter has stronger spiral ribs, resulting in more convex whorls. Sculpture consists of white spiral threads, less in numbers than in *D. mosterti*.

Dolicholatirus vezzaroi T. Cossignani, 2015

Description: *Conchiglia allungata, di piccole dimensioni, spirale con giri moderatamente convessi e profilo quasi lineare. Verticilli ben scolpiti con pieghe assiali evidenti mamellonate; linee di sutura apprezzabili. Tutta la conchiglia è caratterizzata da una nervatura spirale rappresentata da 5 nervature primarie che diventano 16 nell'ultimo giro. Tre trecce personalizzano la columella anteriore distale. Il labbro esterno è lirato con 13 tubercoli bianchi all'estremità del labbro, inizio delle lirature interne. Il canale sifonale è un po' allungato e piega leggermente a sinistra, in linea con l'apertura che è inclinata di 18° rispetto all'asse della conchiglia. L'apertura rappresenta 1/4 dell'intera conchiglia. La colorazione è bruno scuro con il fondo di solchi spirali bianco-grigio chiaro.*

(Shell elongated, small, spire with moderately convex whorls and profile almost linear. Whorls well sculpted with evident marbled axial folds; suture lines appreciable. The whole shell is characterized by a spiral ribbing represented by 5 primary ribs which become 16 on the last whorl. 3 cords on the distal anterior columella. The outer lip is lirated with 13 white tubercles at the edge of the lip, beginning with the internal lirae. The siphonal canal is somewhat elongated and bends slightly to the left, in line with the aperture which is inclined by 18° with respect to the axis of the shell. The aperture represents 1/4 of the whole shell. The color is dark brown with with a background of white-light gray spiral furrows.)

Size: length 16.5 mm

Range: New Caledonia

Remarks: *D. vezzaroi* is similar to *D. spiceri*, known from eastern Victoria to southwestern Australia. The siphonal canal is noticeably shorter and off-axis than in the compared species. *D. spiceri* is more elongated and with almost no axial marbling and a more enlarged and flattened protoconch.

Teralatirus Coomans, 1965

Type species: *Teralatirus roboreus* (Reeve, 1845)

Description: Shell small, siphonal canal curved and short, about half the length of the aperture; no swollen axial ribs, although sometimes broad axial crenulations are present; spiral sculpture consists of many low lirae, spiral lirae of various widths, space between the spiral lirae is as wide or narrower than the lirae; aperture relatively large, 1/4 x the length of the shell; shell brown with multicoloured lirae.

Redescription: Typical shell is elongated, turriform, with high spire, small aperture and a short canal. The fasciolariid nature of the genus is suggested by the 2-3 small folds on the right base of the canal.

Size: adult shorter than 13 mm; 10-20 mm

Range: Caribbean Sea

Remarks: *Teralatirus* are similar to *Dolicholatirus* morphologically, but they are exclusively new world species.

Teralatirus festivus (Haas, 1941)

Description: Shell elongate, biconical to turreted, strongly and spirally sculptured; aperture comparatively short; a short canal, curved leftward and backward; spire acuminate with broad apex, consisting of about 6 whorls; suture hardly visible. A broad yellow spiral cord or lira just beneath the suture, followed by 2 narrower purplish cords of almost equal width bordered with yellow; on the penultimate and the antepenultimate whorl, a third narrow yellow cord is developed between the broad subsutural one and the 2 narrower lower ones, and there may even be traces of additional narrow cords on the last 2 whorls. The last whorl shows 1 broad yellow subsutural cord, 2-3 narrower purplish ones, another broad yellow one and, lastly, toward the base of the shell, 2 narrow purplish cords; the canal is adorned by one broad yellow and 2 narrow purplish cords, so that, as a whole, there are 3 broad yellow cords and 6-7 purplish ones on the last whorl and its canal. The cords have a polished, enameled surface and are separated by incised narrower lines; these incised lines are black and show a fine but distinct vertical striation. The apical whorls are worn and thus have a dull appearance; their colors are alternately grayish-blue and grayish-purple. The nepionic part of the apex has entirely disappeared. The columella is lined with an especially heavy coat of purplish brown enamel, which is raised and forms a decided rim at its left side and which vividly contrasts in color with the gaily sculptured outer surface. There are 2 rather obvious oblique folds on this columellar enameled coat, corresponding in position to the continuation of the two purplish spiral cords of the surface situated between the central and the lower broad yellow cord; but these 2 columellar folds are separated from the cords mentioned by the raised enamel coat of the columella. At the base of the shell there is a kind of narrow, shallow, umbilical chink, bordered at the left by the external surface and at the right by the rim of the enameled coat of the columella.

Size: length 7-10.75 mm, width 3-4.25 mm, aperture 2.5-4 mm (immature)

Range: Yucatan, Mexico

Remarks: The only species closely allied to *T. festivus* is *T. roboreus* from the West Indies. This shell is certainly related to *T. festivus* and with it apparently forms a distinct group within *Latirus*, superficially resembling typical *Turrilatirus* (especially *Turrilatirus craticulatus* and *Turrilatirus turritus*) but differing in lacking the vertical folds, or rounded ribs, which cross the spiral cords in the typical subgenus.

This reticulated sculpture of *T. funebris* is different from the one occasionally observed in *T. festivus*, mainly because the ribs and cords are much narrower and thinner in *T. funebris*, forming a much more delicate pattern.

Teralatirus funebris (Preston, 1907)

Synonyms: *Dolicholatirus duffyi* Petuch, 1992

Description: Shell elongately fusiform; dark purplish brown; remaining whorls 7, slightly rounded, sculptured with closely-set transverse ribs, intersected by spiral grooves, giving the shell a cancellate appearance; sutures impressed; outer lip serrated by the termination of the spiral grooves; aperture oval; columella 2-plaited; canal moderately short.

Redescription: Shell small; aperture length ~1/3 of shell length, spire length ~2/3 of shell length. Color from homogeneous light orange to reddishbrown to nearly black. Teleoconch sculpture consisting of strong rounded spiral cords (width ~1/6 of whorl width, nearly constant on same whorl) and weaker, slightly wider axial ribs, forming reticulate pattern with nodules at intersections.

Size: length 15 mm, width 5 mm; aperture height 4 mm, width 2.25 mm; ~12-14 mm

Range: West Indies

Remarks: Allied to *Dolicholatirus cayohuesonicus* from Florida, but differs from that species in its less pyramidal form and in the transverse ribs, which are much more numerous and finer than is the case with *D. cayohuesonicus*.

Shells of *T. funebris* and *T. roboreus* have similar proportions (e.g., size and outline), the shell color range of both is also very similar. The main differences between these species reside in the shell sculpture. Although the dominant spiral sculpture is a feature shared by both species, the reticulate, nodose pattern formed by the intersection of axial and spiral ribs and cords is only present in *T. funebris*.

This reticulated sculpture is different from the one occasionally observed in *T. festivus*, mainly because the ribs and cords are much narrower and thinner in *T. funebris*, forming a much more delicate pattern.

Dolicholatirus minusculus differs from *T. funebris* in its sculpture: in *T. funebris* spiral and axial sculpture are almost equivalent giving the shell surface a uniform coarsely tessellated appearance, while in *D. minusculus* there is a preponderance of spiral sculpture and the tessellation is discontinuous and generated only by the secondary sculpture, due to the external lip, calloused and smooth versus thin and crenulated, and due to the color, brown versus dark brown.

Teralatirus roboreus (Reeve, 1845)

Synonyms: *Latirus ernesti* Melvill, 1910

Description: *Mitr. testa pyramidali, spira acuminata; nigricante-fusca, liris nitidis angustis undique funiculata; columella biplicata, plicis subindistinctis; apertura parva.*

Shell pyramidal, spire acuminated; blackish-brown, corded throughout with narrow white ridges; columella 2-plaited, plaits somewhat indistinct; aperture small.

Redescription: Shell small, outline biconical, not compressed. Spire tall, conical, length ~3/4 of shell length, spire angle ~30°. Color homogeneous light orange to dark reddish brown; when slightly eroded, spiral cords become white. Protoconch large, blunt, darker than teleoconch, with 2 whorls, width ~1/4 of shell width and length ~1/10 of shell length; sculpture consisting of 8-9 strong axial ribs on first whorl (initial third of first whorl smooth), gradually changing to reticulate pattern of spiral cords and axial ribs on second whorl, forming small nodules at intersections; protoconch-teleoconch limit inconspicuous. Teleoconch of 5 convex whorls, suture barely visible; sculpture consisting of 3-4 strong spiral cords per whorl; spiral cord width ~1/6 of whorl width, equidistant from each other on the same whorl; interval between cords equivalent to ~1.5 of their own width, smooth or bearing small, low scales. Body whorl length ~1/4 of total shell length, bearing 10-12 strong spiral cords; distance between cords slightly exceeding their own width; irregular axial growth lines visible on depressions between spiral cords, like scales, mainly on anterior peri-siphonal region. Aperture elliptical, ~1/3 of shell length; 1.5 times as long as wide. Peristome colored from pale orange or brown to white, thickened. Edge of outer lip orthocline, thick, with strong internal spiral ribs, which are congruent with external sculpture. Inner lip with 2 strongly developed and 1 (posterior) faint columellar folds, remaining areas smooth. Callus narrow, somewhat conspicuous. Canal curved, short, reaching ~1/5 of body whorl length, width ~1/2 of shell width. Anal canal very short, weakly demarcated. Columella bears a pair of similar spiral cords at inferior half, ending at inferior folds of inner lip.

Operculum: Outline elliptical, corneous, thick, rigid. Nucleus terminal, inferior. Outer sculpture consisting of commarginal growth lines and undulations. Scar elliptical, occupying ~60 % of inner surface area, dislocated closer to inner edge. Outer margin of scar flanked by tall, wide, shining ridge.

Size: 8-12 mm; 10.2 x 4.2 mm

Range: orig. not given; Antigua, Barbados and the Lesser Antilles to Rio Grande do Norte state, Brazil

Remarks: An interesting dark brown pyramidal shell, encircled throughout with white cord-like ridges.

Shells of *T. funebris* and *T. roboreus* have similar proportions (e.g., size and outline), the shell color range of both is also very similar. The main differences between these species reside in the shell sculpture. Although the dominant spiral sculpture is a feature shared by both species, the reticulate, nodose pattern formed by the intersection of axial and spiral ribs and cords is only present in *T. funebris*.

Dolicholatirus minusculus differs from *T. roboreus*, for the spiral sculpture which is much stronger and preponderant on the axial one in *T. ernesti*, for the color and pattern, uniform brown against dark brown with white, yellow, reddish spiral bands, for the lip external, calloused and smooth versus thin and crenulated.

compare to *T. festivus*

Additional description:

Latirus anosyanus Bozzetti, 2018

Description: *Specie dalla conchiglia di medio-piccole dimensioni per il genere di appartenenza, fusiforme, slanciata, spira alta dal profilo diritto, protoconca globosa, paucispirale, circa 1 giro, non meglio analizzabile causa erosione, teleoconca formata da 6-7 giri convessi, sutura molto incisa. Scultura assiale costituita da 8 ampie, prominenti costole per giro, dal profilo arrotondato, estese da sutura a sutura sui giri di spira, fino all' innesto del canale sifonale sull'ultimo giro, sparse costoline negli interspazi. Scultura spirale formata da fitti cordoncini tubercolati,3 appaiono piu sviluppati: i 2 a cavallo della periferia ed uno al bordo superiore della base, presenti cordoncini secondari negli interspazi; sotto la sutura presente una corda scabrosa formata dai residui dei bordi superiori del seni posteriori precedenti. Apertura ellittica, internamente lirata sul lato labiale, labbro esterno uniformemente convesso, affilato, fimbriato da una ventina di denticoli appaiati, labbro interno concavo, liscio, 3-4 pliche all'estremita basale; il callo columellare si eleva in un'induttura che, proseguendo sul canale sifonale, ne percorre il bordo sinistro. Seno posteriore sviluppato, a forma di "U" rovesciata, delimitato ai lati da 2 forti pliche parallele. Canale sifonale corto, aperto, diritto, incavato alla base, ombelico aperto. Colore da beige a marroncino, piu chiaro sui tubercoli, 2 linee spirali biancastre, piu evidenti sulla sommita dei tubercoli, percorrono la periferia ed il bordo superiore della base. Peristoma e interno della fauce lilla. Opercolo corneo di colore marrone, a forma di artiglio, moderatamente ritorto, con nucleo terminale.*

(Shell of medium-small size for the genus, fusiform, slender, spire high with a straight profile, protoconcha globose, paucispiral, about 1 whorl, not better analysable due to erosion, teleoconcha made up of 6-7 convex whorls, very strong suture engraved. Axial sculpture made up of 8 large, prominent ribs per whorl, with a rounded profile, extending from suture to suture on the spire whorls, up to the connection of the siphonal canal on the last whorl, scattered ribs in the interspaces. Spiral sculpture formed by dense tuberculate cords, 3 appear more developed: the 2 straddling the periphery and one at the upper edge of the base, secondary cords present in the interspaces; under the suture there is a rough cord formed by the residues of the upper edges of the previous posterior sinuses. Aperture elliptical, internally rounded on the labial side, external lip uniformly convex, sharp, fimbriated with about 20 paired denticles, concave internal lip, smooth, 3-4 folds at the basal end; the columellar callus rises into a duct which, continuing along the siphonal canal, runs along its left edge. Developed posterior sinus, in the shape of an inverted "U", delimited on the sides by 2 strong parallel folds. Siphonal canal short, open, straight, sunken at the base, umbilicus open. Colour beige to brownish, lighter on the tubercles, 2 whitish spiral lines, more evident on the top of the tubercles, run along the periphery and the upper edge of the base. Peristome and inside the mouth lilac-coloured. Operculum horny, claw-shaped, moderately twisted, with terminal core.)

Size: 28.39-44.18mm; holotype 38.52 x 18.25 mm

Range: SE Madagascar

Remarks: *L. anosyanus* differs from *L. nassoides* in the higher spire and more twisted teleoconch, darker color, pattern, 2 whitish lines against 2 broad white bands and in the presence of 3 stronger spiral cords not present in *L. nassoides*.

L. anosyanus differs from *Benimakia rhodostoma* in the absence of the dentiform protrusion on the external lip (typical of the genus *Benimakia*), the presence of an umbilicus and induction versus absent, a much deeper suture and the presence of 2 whitish spiral lines versus absent.

L. anosyanus differs from *Peristernia moltenii* in the higher spire and more twisted teleoconch, darker colour, pattern, 2 whitish lines versus absence of pattern, presence of 3 stronger spiral cords absent in *P. moltenii*, 3-4 folds on the internal lip against 2.

L. anosyanus differs from *Peristernia pulchella* in the higher spire and more curved teleoconch, darker background color and coloration of the peristome and internal mouth, lilac against white.

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