

New Caribbean *Lamellilatirus* (Gastropoda: Fasciolariidae: Peristerniinae) with a new record of a previously described species

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ABSTRACT. Four new species of *Lamellilatirus* Lyons & Snyder, 2008, *L. eburneus*, *L. lamyi*, *L. dominiquei* and *L. sunderlandorum*, are described and distinguished from each other and from the type species, *L. ceramidus* (Dall, 1889). The new species are from various locations in Guadeloupe, Martinique, Venezuela, Colombia and Honduras in the southern Caribbean Sea. The range of *L. ceramidus*, previously known from Barbados, Colombia, Panamá and Nicaragua, is extended to Puerto Rico.

INTRODUCTION

Lamellilatirus Lyons & Snyder, 2008, was introduced as a monotypic genus to contain *Fusus ceramidus* Dall, 1889, whose radula was revealed by Bullock (1968) to be peristerniine, not fusinine. Unusual features of the shell and radula dictated that a new genus be erected to contain the species. Recent studies of specimens in several private collections have revealed four additional undescribed species which are appropriately placed in *Lamellilatirus*.

Material and Methods

All specimens were acquired from commercial shell dealers or amateur collectors. Animals had been removed and discarded but opercula still accompanied many shells. Some shells had passed through several hands before we obtained them, but most species were represented by several lots obtained from different sources, and data with the lots are in sufficient agreement to instill confidence in general accuracy. Measurements are reported in metric units. Depths of collection, sometimes initially recorded in feet (ft) or fathoms (fm), are converted to meters (m). Shell sizes are reported in millimeters (mm), measured to nearest 0.1 mm with electronic digital calipers; single measures are of shell length (sl; = height), whereas two measures signify shell length and width (sl x w) or a range of shell heights (sl – sl); lv denotes live-taken specimens, dd empty shells.

Abbreviations

Specimens were examined in private collections of Kevan and Linda Sunderland (SC) of Plantation, Florida and the senior author (LC). Dominique Lamy of Guadeloupe, French West Indies, provided several important specimens which he donated to institutional collections. Abbreviations for institutional catalogue numbers are: ANSP, Academy of Natural Sciences of Drexel University, Philadelphia, Pennsylvania; BMSM, Bailey-Matthews Shell Museum, Sanibel, Florida; MNHN, Muséum national d'Histoire naturelle, Paris; UF, Florida Museum of Natural History, Gainesville; and USNM, United States National Museum of Natural History, Washington, D.C.

SYSTEMATICS

Family FASCIOLARIIDAE Gray, 1847

Subfamily PERISTERNIINAE Tryon, 1881

Genus *Lamellilatirus* Lyons & Snyder, 2008

Type species by original designation: *Fusus ceramidus* Dall, 1889, Recent, Barbados.

Remarks. *Lamellilatirus ceramidus* (Figs 1, 2) was previously known by specimens from the southern Caribbean Sea (Barbados, Colombia, Panamá and Nicaragua) in depths of 73-220 m (Lyons & Snyder, 2008). The species has a polished white shell of moderate size with a somewhat swollen spire, broad

axial ribs, reduced or obsolete spiral cords, reduced columellar plicae, internal lirae entire or interrupted as beaded pustules, a slender siphonal process, and numerous axial lamellae on the sutural ramp. The radula was figured by Lyons & Snyder (2008: fig 3a), after Bullock (1968: pl. 8, fig 7). Although *Latirus*-like, the laterals have distinctive rounded cusps near the inner margin, whereas most peristerniines have sharply pointed cusps. The generic diagnosis is modified here to accommodate new species with relatively more slender spires, more prominent spiral cords, less prominent sutural lamellae and more colorful shells.

The only other Caribbean genera of Peristerniinae with conspicuous sutural lamellae are *Polygona* Schumacher, 1817 [type species *Polygona fusiformis* Schumacher, 1817, = *Murex infundibulum* Gmelin, 1791, Recent, Caribbean Sea, by monotypy, *vide* Vermeij & Snyder (2006: 419, 420)] and some *Pustulaturus* Vermeij & Snyder, 2006 (type species *Latirus mediamericus* Hertlein & Strong, 1951, Recent, tropical eastern Pacific, by original designation). However, both *Polygona* and *Pustulaturus* species generally live in shallower water and their columellar plicae remain conspicuous in mature shells. Shells of *Polygona* are heavier, more compact, and usually have much shorter siphonal processes. Mature shells of *Pustulaturus* have a serrate outer lip formed by extensions of interspaces between spiral cords of the body whorl, whereas shells of *Lamellilaturus* lack labral serrata.

We encountered one specimen that extends the range of *L. ceramidus* northward in the eastern Caribbean. The new record is a 59.0-mm shell taken dead in a fish trap off Mona Island, Puerto Rico, depth 220 fm [403 m] (LC; Figs 3, 4). The specimen represents new depth and size records for *L. ceramidus*. However, the shell was probably carried into the trap by a crab and the specimen may have lived in a lesser depth.

Lamellilaturus eburneus n. sp.

Figs 5-7, 24

Type material. Holotype (43.4 x 16.2 mm), dd, off Isla San Bernardo, Colombia, trawled, depth 150 m, ANSP 450383.

Other material. 1 (24.9 mm), dd, off Islas de Los Testigos, Venezuela, dredged, 195 m, LC.

Distribution. Venezuela and Colombia, southern Caribbean Sea; depth range 150-195 m.

Description. Shell of moderate size for genus, to 43.4 x 16.2 mm, fusiform, slender, with about 10 ½ whorls, elevated spire, elongate siphonal process and scattered sutural lamellae. Protoconch of about 2 ½ 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; parietal 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. Operculum and radula unknown.

Etymology. From the Latin *eburneus*, an adjective meaning "ivory-colored," referring to the pure white shells whose colors fade to cream like old ivory as they age.

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 two or three large cords crossing the tops of the axial ribs characterize the species. Differences with other species are discussed in accounts that follow.

The 24.9-mm Venezuelan shell is too old and worn to be included as a type.

Lamellilaturus lamyi n. sp.

Figs 8-12, 25

Type material. Holotype (38.3 x 15.2 mm), off Pointe de la Caravelle, east coast of Martinique, French West Indies, depth 250 m, MNHN 25714; paratype (20.6 mm), same data as holotype, ANSP 450384.

Distribution. Known only from type locality off Martinique, French West Indies, depth 250 m.

Description. Shell of moderate size for genus, to 38.3 x 15.2 mm, 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 various 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 various strengths extending to truncate tip. Aperture subovate; outer lip thin, highly arched, slightly crenulate, inner side bearing 9-11 low, straight, sometimes discontinuous lirae; several anteriormost lirae beaded. Columella nearly straight anteriorly, arched posteriorly, with small node-like callous on parietal shield and faint undulations 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. Operculum and radula unknown.

Etymology. The name honors M. Dominique Lamy, Baie-Mahault, Guadeloupe, whose collections have enriched our knowledge of Caribbean Mollusca. M. Lamy provided specimens of two species treated in this paper, including both specimens of the species here described.

Remarks. 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. 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.

Lamellilaturus dominiquei n. sp.
Figs 13-17, 26

Type material. Holotype (29.3 x 11.1 mm), off Cabo

de la Vela, Colombia, trawl, depth 200 m, ANSP 450385; paratype (21.4 mm), Saint François, eastern Guadeloupe, French West Indies, depth 200 m; MNHN IM-2012-25.

Distribution. Guadeloupe and Colombia, southern Caribbean Sea, in 200-m depths.

Description. Shell small for genus, to 29.3 x 11.1 mm, 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 parietal 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 nucleus and many fine, concentric growth increments on outer surface. Radula unknown.

Etymology. The name honors M. Dominique Lamy, Baie-Mahault, Guadeloupe, who provided one of the two specimens used in the description of the species.

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 three or four 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 (seven) 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* separates that species from *L. ceramidus* and *L. eburneus*. In addition, *L. ceramidus* has more prominent and abundant sutural lamellae, and its spire is more swollen, the ribs are broader, and the cords more subdued.

Lamellilaturus sunderlandorum n. sp.

Figs 18-22, 27

Type material. Holotype (33.3 mm), dd, off Pulpit Rock, Mangrove Bight, Roatán, Honduras, trap, 270-280 m, ANSP 450386. Paratypes: 1 (32.2 mm), dd, same data as holotype, MNHN IM-2012-26; 2 (35.3 and 18.0 mm), dd, same data as holotype, SC; 2 (27.6 mm, lv; 27.2 mm, dd), off Flores Bay Church, Roatán, trap, 124 m, SC; 4 (19.2 and 11.2 mm, lv; 16.6 and 15.3 mm, dd), off Roatán, shell traps, 200-300 ft [61-91 m], SC; 1 (23.7 mm), lv, off Roatán, baited shell trap, 300 ft [91 m], UF 456795; 1 (18.7 mm), lv, same data, BMSM 17934; 3 (20.8, 17.6 and 15.5 mm), dd, same data, LC; 1 (35.0 mm), dd, off north coast of Roatán, dredge, 350 m, SC.

Distribution. Known only from rather deep water (61-350 m) off the northern coast of Honduras, western Caribbean Sea.

Description. Shell of moderate size for genus (to 35.3 x 12.4 mm), 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 parietal 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 parietal region 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 (> 32 mm sl) 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 nucleus; outer surface bearing many fine concentric growth increments. Radula unknown.

Etymology. The species is named for Kevan and Linda Sunderland of Plantation, Florida, who provided many of the specimens we examined and whose collection has proved invaluable in this and other studies.

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 *Lamellilaturus* are the morphology of the protoconch (Figs 23-27), 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, present only on the largest *L. sunderlandorum* (35.0 and 35.3 mm sl), are features that also occur on larger shells of *L. ceramidus*.

Figures 1-22. Scale bar: 5.0 mm.

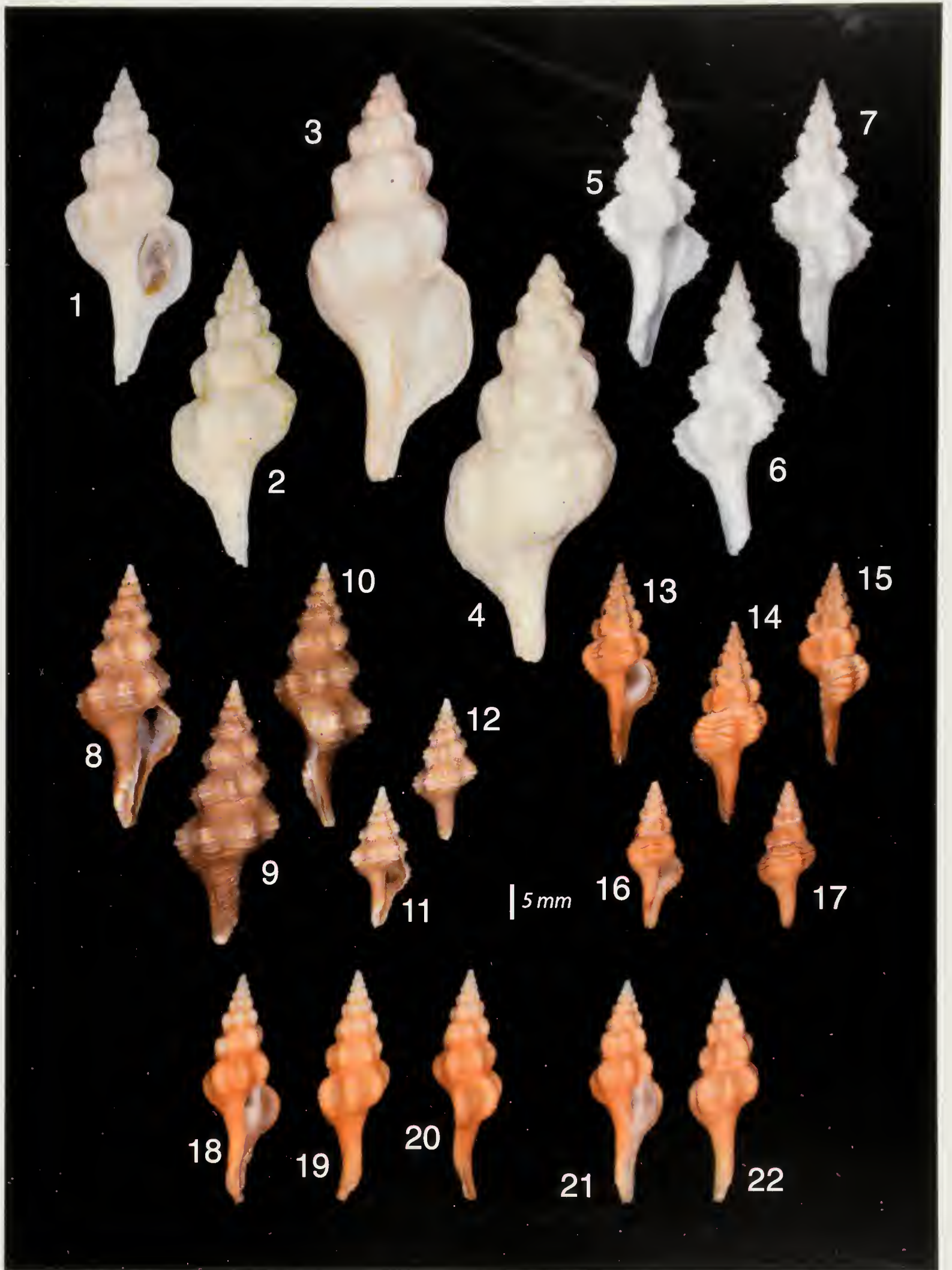
1-4. *Lamellilaturus ceramidus* (Dall, 1889). **1-2.** Lectotype, 46.2 mm, Barbados, depth 134 m, USNM 87069; **3-4.** Off Mona Island, Puerto Rico, 403 m, LC, 59.0 mm.

5-7. *Lamellilaturus eburneus* n. sp. **5-7.** Holotype, 43.4 mm, ANSP 450383, off Isla San Bernardo, Colombia, 150 m.

8-12. *Lamellilaturus lamyi* n. sp. **8-10.** Holotype, 38.3 mm, MNHN 25714, off Pointe de la Caravelle, Martinique, 250 m; **11-12.** Paratype, 20.6 mm, ANSP 450384, same data as holotype.

13-17. *Lamellilaturus dominiquei* n. sp. **13-15.** Holotype, 29.3 mm, ANSP 450385, off Cabo de la Vela, Colombia, 200 m; **16-17.** Paratype, 21.4 mm, MNHN IM-2012-25, Saint François, Guadeloupe, 200 m.

18-22. *Lamellilaturus sunderlandorum* n. sp. **18-20.** Holotype, 33.3 mm, ANSP 450386, off Pulpit Rock, Mangrove Bight, Roatán, Honduras, 280-270 m; **21-22.** Paratype, 32.2 mm, MNHN IM-2012-26, same data as holotype.



Shells of *L. sunderlandorum* are orange, whereas those of *L. ceranidus* 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. ceranidus*, spiral cords alternate large and small, but all cords of *L. sunderlandorum* are proportionally smaller than those of *L. ceranidus*.

Lamellilaturus sunderlandorum also resembles a new species of *Pustulaturus* with which it sometimes

occurs off the Honduran coast (Lyons and Snyder, in prep.) Both shells are orange, but *L. sunderlandorum* is longer and more slender than the new *Pustulaturus*, which has less rounded whorls, a shallower suture lacking lamellae, and a serrate edge on at least the anterior portion of its outer lip.

Both the inner and outer lip of the largest paratype (35.3 mm sl) of *L. sunderlandorum* are chipped and the body whorl bears a conspicuous hole similar to some we have seen on shells *ex pisce*. The 35.0-mm paratype also has a severely chipped outer lip.



Figures 23-27. Protoconchs; scale bar: 1.0 mm.

23. *Lamellilaturus ceranidus* (ANSP 450455); 24. *Lamellilaturus eburneus*, holotype (ANSP 450383); 25. *Lamellilaturus lamyi*, holotype (MNHN 25714); 26. *Lamellilaturus dominiquei*, holotype (ANSP 450385); 27. *Lamellilaturus sunderlandorum*, holotype (ANSP 450386).

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