Four new species of *Latirus* (Gastropoda: Fasciolariidae) from the Philippine Islands and the southern Caribbean

Cuatro nuevas especies de *Latirus* (Gastropoda: Fasciolariidae) de Filipinas y el Caribe sur

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ABSTRACT

This paper describes four *Latirus* species in the neogastropod family Fasciolariidae, *Latirus cloveri*, *Latirus sarinae*, and *Latirus philippinensis*, all from the Philippine Islands, and *Latirus abbotti* from the southern Caribbean. *Latirus cloveri* is distinguished from *Fasciolaria walleri* Ladd, 1976, also from the Philippine Islands, *Latirus sarinae* from *Latirus kandai* Kuroda, 1950 from the western Pacific, *Latirus philippinensis* from *Latirus elsiae* Kilburn, 1975 from South Africa, and *Latirus abbotti* from *Latirus angulatus* (Röding, 1798) from the Caribbean.

RESUMEN

Se describen cuatro especies de Latirus pertenecientes a la familia Fasciolariidae, *Latirus cloveri*, *Latirus sarinae*, y *Latirus philippinensis*, procedentes de Filipinas, y *Latirus abbotti* del Caribe sur. *Latirus cloveri* se diferencia de *Fasciolaria walleri* Ladd, 1976, también de Filipinas, *Latirus sarinae* de *Latirus kandai* Kuroda, 1950 del Pacífico oeste, *Latirus philippinensis* de *Latirus elsiae* Kilburn, 1975 de Sudáfrica, y *Latirus abbotti* de *Latirus angulatus* (Röding, 1798) del Caribe.

KEY WORDS: Mollusca, Gastropoda, Fasciolariidae, *Latirus,* new species.
PALABRAS CLAVE: Mollusca, Gastropoda, Fasciolariidae, *Latirus,* nuevas especies.

INTRODUCTION

These four new species of *Latirus* from the Philippine Islands and from the Caribbean are new discoveries from areas where several new species of *Latirus* have been described in recent years. Tangle net collecting in the Philippine Islands has resulted in the discovery of many new molluscan species including *Latirus aldeynzeri* Garcia, 2001, *L. balicasagensis* Bozzetti, 1997 and *L. martinorum* Cernohorsky, 1987. Many new species have also been discovered recently in the Caribbean, especially around Honduras, including "*Latirus anapetes*" (Woodring) Petuch, 1981, *L. martini* Snyder, 1988 and *L. cuna* Petuch, 1990. Almost all of the material described herein was or is part of the author's collection. These specimens were collected in the last 10 years, either as a byproduct of commercial fishing operations or by scuba diving.

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Abbreviations used

ANSP Academy of Natural Sciences of Philadelphia, Philadelphia, Pennsylvania, USA
EC Everson collection, Louisville, Kentucky, USA
MNHN Muséum national d'Histoire naturelle, Paris, France
SC Snyder collection, Villanova, Pennsylvania, USA
USNM National Museum of Natural History, Smithsonian Institution, Washington D.C., USA

SYSTEMATICS

Family FASCIOLARIIDAE Gray, 1853
Subfamily PERISTERNIINAE Tryon, 1880
Genus *Latirus* Montfort, 1810

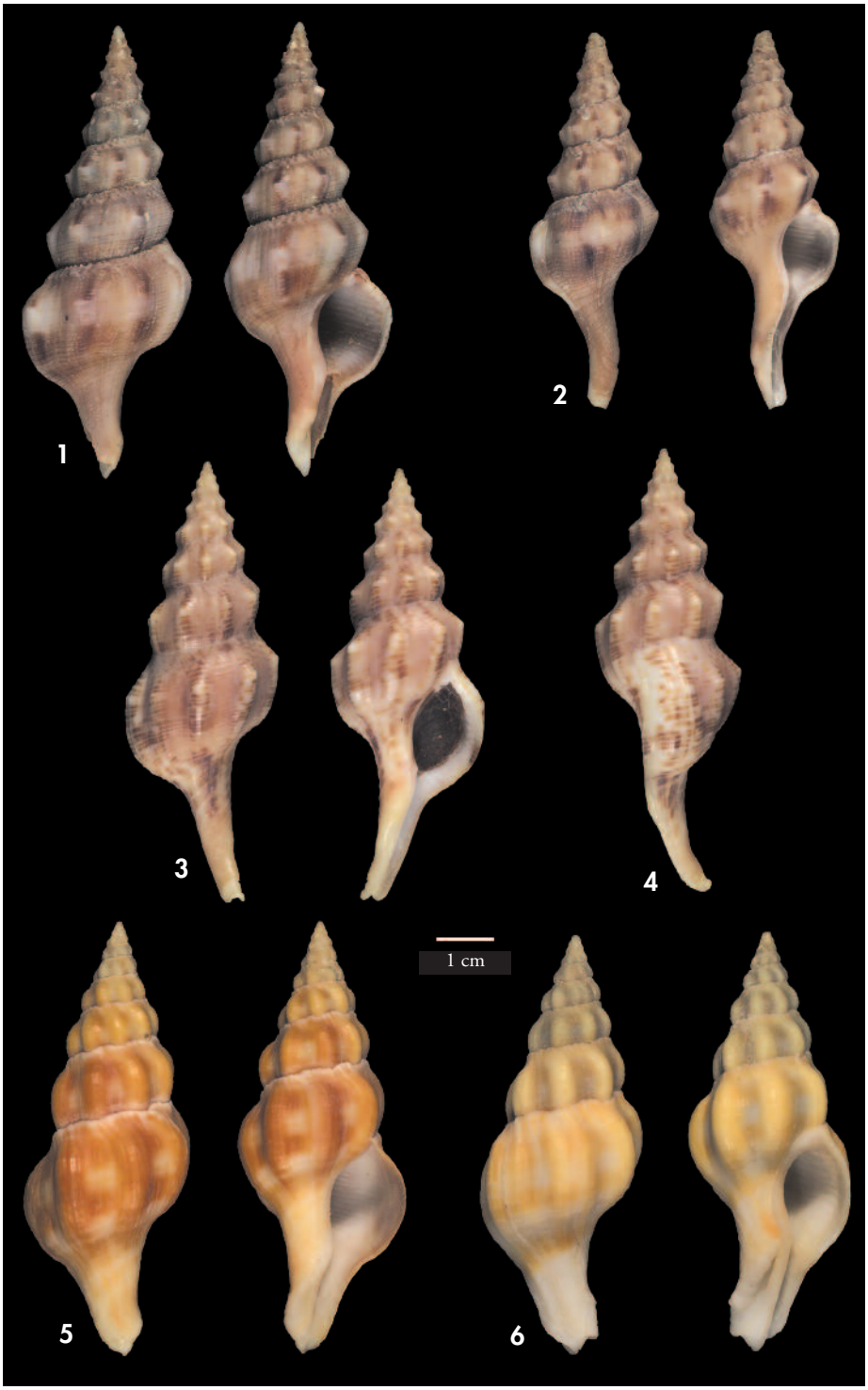
Type species: *Latirus aurantiacus* Montfort, 1810, a synonym of *Latirus gibbulus* (Gmelin, 1791), Recent, Indo-Pacific, by monotypy.

Latirus cloveri spec.nov. (Figs. 1, 2)

Type material: Holotype ANSP 408331, length 52.7 mm, in tangle nets, depth 150 m. Paratype 1, MNHN, length 40.4 mm, subadult, in tangle nets, Balicasag Island, Bohol, Philippine Islands. Paratype 2, SC, length 49.6 mm, from type locality. Paratype 3, SC, length 48.1 mm, from type locality.
Other material examined: 1 adult specimen 64.5 mm and 3 immature specimens, 34.2 mm, 38.7 mm, 43.3 mm, the first apparently live collected, all SC. 38.7 mm specimen from type locality; others from tangle nets off Panglao, Bohol, Philippine Islands.
Etymology: The species is named for Phillip Clover of Glen Ellen, California, a friend and shell dealer, who provided much of the type material.
Type locality: Aliguay Island, off Dipolog, northwest Mindanao, Philippine Islands.

Description: Shell medium size for genus, fusiform, length of adult specimens from 48.1 mm to 64.5 mm. Siphonal canal short, narrowly open, curved, often twisted away from aperture. Smooth pearly white protoconch of 1 1/4 to 1 1/2 whorls, with 8-9 additional whorls. Sculpture begins on first teleoconch whorl, which is also pearly white; balance of teleoconch colored light tan to brown. Teleoconch sculpture of 7-8 narrow axial ribs per whorl with sharply angular nodes at shoul-

(Right page) Figure 1. *Latirus cloveri* spec. nov. Holotype. ANSP 408331, (52.7 mm), from tangle nets off Aliguay Island, off Dipolog, northwest Mindanao, Philippine Islands, depth 150 m. Figure 2. *Latirus cloveri* spec. nov. Paratype 1. SC (40.4 mm), from tangle nets, Balicasag Island, Bohol, Philippine Islands. Figures 3, 4. *Fasciolaria walleri* Ladd, 1976. SC (51.3 mm), in tangle nets at night, Cebu, Philippine Islands, depth 130 m. Figure 5. *Latirus sarinae* spec. nov. Holotype. ANSP 408332, (50.5 mm), from tangle nets off Mactan Island, Cebu, Philippine Islands, depth 160 m. Figure 6. *Latirus sarinae* spec. nov. Paratype 1. MNHN (48.9 mm), from type locality.
(Página derecha) Figura 1. Latirus cloveri *spec. nov. Holotipo. ANSP 408331, (52,7 mm), de redes de cerco frente a Aliguay Island, frente a Dipolog, noroeste de Mindanao, Filipinas, profundidad 150 m. Figura 2.* Latirus cloveri *spec. nov. Paratipo 1. SC (40,4 mm), de redes de cerco, Balicasag Island, Bohol, Filipinas. Figuras 3, 4.* Fasciolaria walleri *Ladd, 1976. SC (51,3 mm), en redes de cerdo de noche, Cebu, Filipinas, profundidad 130 m. Figura 5.* Latirus sarinae *spec. nov. Holotipo. ANSP 408332, (50,5 mm), de redes de cerco frente a Mactan Island, Cebu, Filipinas, profundidad 160 m. Figura 6.* Latirus sarinae *spec. nov. Paratipo 1. MNHN (48.9 mm), de la localidad tipo.*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ders crossed by numerous fine spiral cords, axial ribs streaked white and dark brown, shoulder nodes usually white. Suture deeply impressed with imbricate scaly projections from abapically contiguous whorl. Aperture ovate, lirate within, interior of aperture pink to purple-brown with about 25-30 lirations stopping short of smooth labral margin. Lip moderately thick with minute dentations terminating in internal lirations. Columella smooth with one reasonably prominent plica at abapical end of aperature by canal; small ridge on lip approximately opposite plica.

Distribution: *Latirus cloveri* has been collected in tangle nets at various locations in the central Philippine Islands.

Discussion: This species was figured and discussed by SPRINGSTEEN AND LEOBRERA (1986: 332, pl. 94, fig. 12) as "*Fasciolaria" walleri* Ladd, 1976 (teratological) although they mention that "it may represent a good taxon." These authors state that it is "almost morphologically indistinguishable" from *Fasciolaria walleri* (Figs. 3, 4) which they redescribe from Recent material (177, pl. 47, fig. 17). However, apart from the shoulder nodules, which are more rounded and less prominent in *F. walleri*, and the suture, free of the scaly projections in *F. walleri*, there are other differences worth noting. The color pattern of *F. walleri* is a random mix of segments of brownish axial stripes and vertical stripes, especially on the body whorl, against a pale brown background color; the coloration is much less pronounced than in *L. cloveri*. The canal of *F. walleri* is proportionally longer, straighter and often more strongly recurved than in *L. cloveri.*

The status of *Fasciolaria walleri* deserves comment. LADD (1976: 133, figs. 16-20) described this species based upon Pleistocene material from the New Hebrides Islands, and placed it in the subgenus *Pleuroploca*. Subsequently (LADD, 1982: 47) he transferred the species to *Siphonofusus* [Buccinidae], while noting a superficial resemblance to the fasciolariid genus *Granulifusus*. Later, BEETS (1987: 90) placed this species in *Buccinulum* (*Euthria*) [Buccinidae] and described a subspecies *B. walleri sedanense*. These placements were based on fossil material. This species was subsequently discovered living in the Philippine Islands (SPRINGSTEEN AND LEOBRERA, 1986: 177, pl. 47, fig. 17). Although this species has been collected alive, no soft parts have been preserved and no definitive generic or familial placement can be made at this time. One subadult specimen was obtained with an operculum which presumably corresponds to the shell. This operculum, ovate and corneus, light brown, size and shape corresponding to aperature, with terminal nucleus, is consistent with assignment as a fasciolariid, as is the dentate lip (which buccinids of this size lack) and the lack of determinate growth.

The final generic placement of *Latirus cloveri* is also problematic. At the beginning of the siphonal canal there is a ridge on the inside of the lip, reminiscent of *Siphonofusus lubrica* (Dall, 1918), the type of *Siphonofusus* [Buccinidae]. The shell of *L. cloveri* is not entirely consistent with placement in either *Latirus* or *Fusinus* although it is apparently a fasciolariid. One should also note the dentate lip and the lack of determinate growth. GOFAS (2000: 15) has noted that columellar folds may not be an absolute differentiator for the genera *Fusinus* and *Latirus*.

Latirus sarinae spec. nov. (Figs. 5, 6)

Type material: Holotype ANSP 408332, length 50.5 mm, in tangle nets, depth 160 m. Paratype 1, MNHN, length 48.9 mm, from type locality. Paratype 2, SC, length 55.0 mm, from type locality. No live collected specimens seen; all type material adult.
Other material examined: Four subadult specimens, 34.7 mm and 37.3 mm, from type locality, and two specimens, 31.3 mm and 44.3 mm, from tangle nets off Balicasag Island, Bohol, Philippine Islands (all SC).
Etymology: The species is named for the author's daughter, Sarina.
Type locality: Mactan Island, off east central Cebu, Philippine Islands.

Description: Shell medium size for genus, fusiform, length of adult specimens from 48.9 mm to 55.0 mm. 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 predominate 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 imbricate 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.

Distribution: *Latirus sarinae* has been collected in tangle nets at various locations in the central Philippine Islands.

Discussion: *Latirus sarinae* is morphologically closest to *L. kandai* Kuroda, 1950 (Fig. 7). This latter species was described from material collected off Cape Shirazaki, Kii Peninsula, Wakayama Prefecture, Japan, but is also collected in tangle nets in the Philippine Islands. *Latirus kandai* is smaller than *L. 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 *L. kandai* is weakly dentate and the aperture is lirate right up to the lip, whereas in *L. sarinae* these lirae are interrupted by a smooth labral margin. The protoconchs of both species are similar in form, indicating that *L. sarinae* may be a reasonably widespread species.

Latirus philippinensis spec. nov. (Figs. 8, 9)

Type material: Holotype ANSP 408333, length 54.8 mm, in tangle nets, depth 160 m. Paratype 1, MNHN, length 45.2 mm, in tangle nets, depth 160 m, Mactan Island, Cebu, Philippine Islands. Paratype 2, SC, length 45.3 mm, same data as paratype 1. No live collected specimens seen.
Etymology: The species is named for the area of discovery, the Philippine Islands.
Type locality: Balut Island, off southernmost Mindanao, Philippine Islands.

Description: Shell medium size for genus, fusiform, thin and elongate, length of adult specimens from 45 mm to 55 mm. 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. Three 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.

Distribution: *Latirus philippinensis* is known from just four specimens, all from the type locality.

Discussion: *Latirus philippinensis* cannot be confused with any other member of the genus. The very strong columellar folds resemble those of *Latiromitra* [Turbinellidae], but the teleoconch sculpture, with broad uncoronated ribs and numerous closely-shaped spiral cords, is unlike any species of *Latiromitra*. The color pattern of

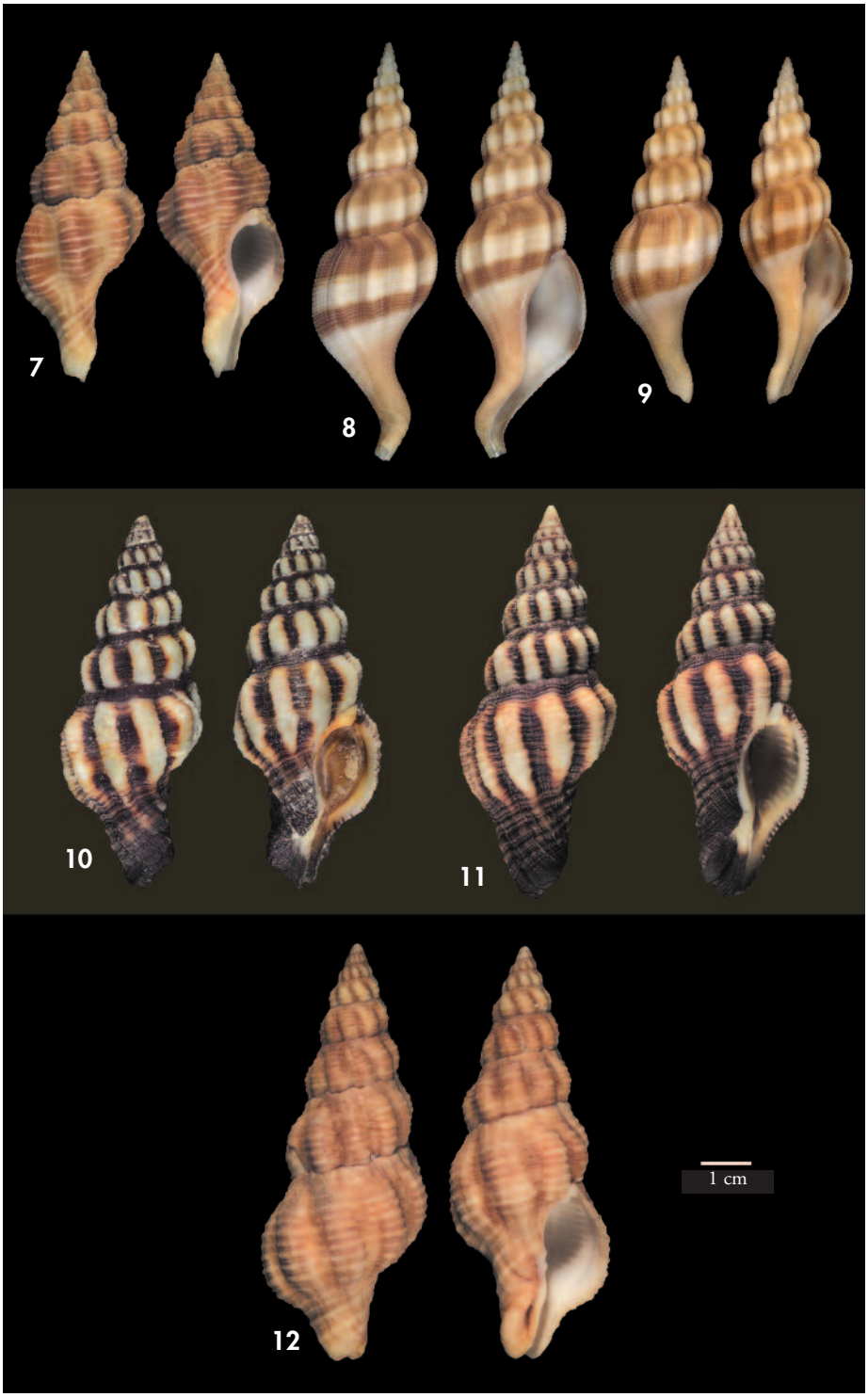
L. philippinensis is unlike species of *Latiromitra* which are without color or bands. The protoconch is inconclusive for generic placement, and the other resemblances to *Latiromitra* are superficial. Although the radula alone would permit an unequivocal generic assignment, shell morphology suggests placement in *Latirus* rather than *Latiromitra*.

Latirus philippinensis is similar in size and shape to *Benimakia lanceolata* (Reeve, 1847) from the tropical Indo-Pacific but *B. lanceolata* has fewer axial ribs, a purple aperture and a straight canal. It somewhat resembles *L. elsiae* Kilburn, 1975 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 *Pseudolatirus discrepans* Kuroda and Habe, 1971 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. Finally, *L. philippinensis* may be compared to *Pseudolatirus clausicaudatus* (Hinds, 1844) 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 abbotti spec. nov. (Figs. 10, 11)

Type material: Holotype ANSP 408334, length 49.1 mm, on sand, depth 6 m. Paratype 1, USNM 1001651, length 26.0 mm, from type locality. Paratype 2, EC, length 52.1 mm, by scuba at night on turtle grass, depth 6 m, between Ragged Cay and Sandy Cay off Utila Island, Honduras. Paratype 3, SC, length 45.9 mm, under rubble, depth 3 m, Monte Cristi, Dominican Republic.
Other material examined: 4 immature specimens, 21.0 mm – 36.0 mm, Utila Island, Honduras; 8 immature specimens, 22.5 mm – 43.9 mm (largest specimen live collected), Roatan Island, Honduras; 2 immature specimens, 26.2 mm, 27.1 mm, Cayo Gorda, (Mesquitia) Honduras; 1 immature live collected specimen, 23.6 mm, Punta Rusia, north coast Dominican Republic; 2 immature specimens, 23.4 mm, 25.6 mm, Quita Sueno Bank, Nicaragua (all SC).
Etymology: The species is named in memory of R. Tucker Abbott, one of the foremost researchers on mollusks of America, and my early mentor.
Type locality: Utila Island, off north central Honduras.

(Right page) Figure 7. *Latirus kandai* Kuroda, 1950. SC (43.4 mm), in tangle nets, Panglao Island, off southwest Bohol, Philippine Islands, depth 160 m. Figure 8. *Latirus philippinensis* spec. nov. Holotype. ANSP 408333 (54.8 mm), in tangle nets, Balut Island, Cebu, Philippine Islands, depth 160 m. Figure 9. *Latirus philippinensis* spec. nov. Paratype 2. SC (45.3 mm), from tangle nets, Mactan Island, Cebu, Philippine Islands, depth 160 m. Figure 10. *Latirus abbotti* spec. nov. Holotype. ANSP 408334, (49.1 mm), on sand off Utila Island, Honduras, depth 6 m. Figure 11. *Latirus abbotti* spec. nov. Paratype 2. EC (52.1 mm), by scuba at night on turtle grass between Ragged Cay and Sandy Cay off Utila Island. Honduras, depth 6 m. Figure 12. *Latirus angulatus* (Röding, 1798). SC (54.7 mm), dived from sand, under rocks, Salvador, Bahia State, Brazil, depth 15-20 m.
(Página derecha) Figura 7. Latirus kandai *Kuroda, 1950. SC (43,4 mm), en redes de cerco, Panglao Island, al sudoeste de Bohol, Filipinas, profundidad 160 m. Figura 8.* Latirus philippinensis *spec. nov. Holotipo. ANSP 408333 (54,8 mm), en redes de cerco, Balut Island, Cebu, Filipinas, profundidad 160 m. Figura 9.* Latirus philippinensis *spec. nov. Paratipo 2. SC (45,3 mm), en redes de cerco, Mactan Island, Cebu, Filipinas, profundidad 160 m. Figura 10.* Latirus abbotti *spec. nov. Holotipo. ANSP 408334, (49,1 mm), en arena frente a Utila Island, Honduras, profundidad 6 m. Figura 11.* Latirus abbotti *spec. nov. Paratipo 2. EC (52,1 mm), de buceo nocturno sobre* Thalassia testudinum *entre Ragged Cay y Sandy Cay frente a Utila Island. Honduras, profundidad 6 m. Figura 12.* Latirus angulatus *(Röding, 1798). SC (54,7 mm), arena, bajo rocas, Salvador, Bahia, Brasil, profundidad 15-20 m.*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Description: Shell medium size for genus, fusiform, length of adult specimens from 45.9 mm to 52.1 mm. 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 two 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.

Distribution: *Latirus abbotti* has been widely collected in the southwestern Caribbean.

Discussion: This distinctive species is easily differentiated from known Caribbean species of *Latirus*. The unusual coloration and numerous axial ribs are an immediate distinguishing characteristic. The closest species morphologically is *Latirus angulatus* (Röding, 1798) which has an elongate form (Fig. 12) from Cuba and South America (see as well BULLOCK (1974: 74-76, fig. 20)). *Latirus angulatus* has just 7-8 axial ribs on each whorl compared to 10-11 in *L. abbotti* and has an orange to orange-brown background with lighter longitudinal cords; the color is uniform throughout whereas in *L. abbotti* is brown with lighter often whitish ribs.

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