

Two New Muricid Gastropods from the Tropical Americas

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ABSTRACT Two new large muricids gastropods are named from the American tropics; one from the Lucasian Infraprovince of the Magdalenan Subprovince, Panamic Molluscan Province of the Eastern Pacific and the other from the Martiniquean Infraprovince of the Grenadian Subprovince, Caribbean Molluscan Province of the Caribbean Sea. The new Panamic species, *Neorapana iwamasai* Petuch, Berschauer, and Powell n. sp., is found on a very small stretch of coastline along Baja California Sur, Mexico. The other species, *Phyllonotus bellettii* Petuch, Berschauer, and Powell n. sp., is endemic to the islands of Martinique and Guadeloupe, and adjacent smaller islands, in the French West Indies.

KEY WORDS Muricidae, *Neorapana*, *Neorapana iwamasai*. *Phyllonotus*, *Phyllonotus bellettii*, Panamic Molluscan Province, Caribbean Molluscan Province, Lucasian Infraprovince, Magdalenan Subprovince, Martiniquean Infraprovince, Grenadian Subprovince, Baja California Sur, Martinique Island, Guadeloupe Island

INTRODUCTION

Two geographically-small areas of the tropical Americas, the southwestern tip of Baja California Sur in the Eastern Pacific and the French Islands of Martinique and Guadeloupe in the Caribbean Sea, are known for their high percentages of endemism in the resident populations of mollusks (Petuch and Berschauer, 2021). These “evolutionary hot-spots” were referred to as “infraprovinces” in recognition of their special and remarkable molluscan faunas; with the Mexican hot-spot being named the “Lucasian Infraprovince” (for Cabo San Lucas, Baja California Sur) and the French West Indian hot-spot being named the “Martiniquean Infraprovince” (for the island of Martinique). Some of the more prominent and well-known

endemic species from the Lucasian Infraprovince include the conid *Gradiconus magdalensis* (Bartsch and Rehder, 1939), the olivid *Americoliva hemphilli* (Ford, 1915), and the volutid *Enaeta barnesi pedersenii* Verrill, 1870 (all illustrated and discussed in Petuch and Berschauer, 2021). Some prominent endemic species found in the Martiniquean Infraprovince include the muricid *Timbellus phyllopterus* (Lamarck, 1822) and the conids *Dauciconus boui* (da Motta, 1988), *Dauciconus norai* da Motta and Raybaudi Massilia, 1992), *Poremskiconus colombi* (Monnier and Limpalaer, 2012), and *Poremskiconus hennequini* (Petuch, 1995) (all illustrated in Petuch and Berschauer, 2021).

Recently, two undescribed large muricids were brought to our attention by two advanced citizen scientists; Robert Iwamasa of Michigan, USA and Lt. Carlo Belletti of Italy. Upon closer examination, we determined that these previously-undescribed species were components of infraprovinces in the northern Panamic Molluscan Province and the eastern Caribbean Sea and their discovery further strengthens the endemic nature of these two geographically-small areas, emphasizing their status as areas of special evolution. These important new infraprovincial endemics are described here.

SYSTEMATICS

Class Gastropoda Cuvier, 1795

Subclass Caenogastropoda Cox, 1960

Order Neogastropoda Wenz, 1938

Superfamily Muricoidea Rafinesque, 1815

Family Muricidae Rafinesque, 1815

Subfamily Rapaninae Gray, 1853

Genus *Neorapana* Cook, 1918

Neorapana iwamasai Petuch, Berschauer, and
Powell, new species
(Plate 1 A-D)

Description. Shell large for genus, averaging around 93 mm in length; shell extremely inflated, heavy, with rounded sides and shoulder; spire elevated with sloping subsutural areas; suture encircled by strong fimbriated rounded cord, equal in size to body whorl; shell widest around mid-body, ornamented with four proportionally low, wide, rounded, encircling ribs, and numerous fine, wavy, closely-packed strong longitudinal fimbriations; large, well-defined siphonal fasciole short, truncated, with shallow umbilicus; calcite frilly outer shell layer, color tan to ivory-white; aperture proportionately large, almost as large as body whorl, widely flaring; edge of lip sculptured

with numerous thin tooth-like ribs; interior of aperture white, columella pale orange-tan.

Type Material. HOLOTYPE - Length 95.0 mm, width 66.0 mm, from Santa Maria Bay, Baja California Sur, Mexico, in the Molluscan Collection of the Santa Barbara Museum of Natural History, Santa Barbara, California, with the catalog number 235865; PARATYPE - Length 91.0 mm, width 70.0 mm, from Punta Estero Bramonas, Manteo, Magdalena Bay region, Baja California Sur, Mexico, in the Robert Iwamasa research collection, Midland, Michigan.

Type Locality. The holotype was collected dead on the beach at Santa Maria Bay, Magdalena Bay region of southwestern Baja California Sur State, Mexico.

Range. At present, known only from the Magdalena Bay region of southwestern Baja California Sur State, Mexico (the Lucasian Infraprovince). This new taxon can be considered to be a biogeographical index species for the Magdalenan Subprovince of the Panamic Molluscan Province.

Etymology. Named for Robert Iwamasa of Midland, Michigan, who collected the type material of the new species in the Magdalena Bay region, Baja California Sur, Mexico.

Discussion. With the discovery of the new Baja California species, the Panamic-restricted genus *Neorapana* is now known to contain four species: *N. tuberculata* (Sowerby I, 1835), widespread throughout the province, from the Gulf of California to Peru; *N. muricata* (Broderip, 1832) (Plate 1 E, F), widespread throughout the province, from the Gulf of California to Peru; *N. grandis* (Sowerby I, 185), endemic to the Galapagos Islands; and *N. iwamasai* n. sp., which is endemic to the southwestern tip of Baja California Sur, Mexico. Of the three previously-described species, the new Magdalenan Subprovince endemic is morphologically-closest only to the widespread

Panamic Province *N. muricata* but differs in being a larger and much more inflated species with much lower and more rounded spiral cords, in having a much-heavier frilled sculpture on the body whorl and spire whorls, and in having proportionally much larger and more prominent closely-packed fimbriations that cover the entire shell. The frilled cord bordering the suture on the spire whorls is also much larger, thicker, and more prominent than that seen on *N. muricata*. On *N. muricata*, the four main fimbriated cords on the body whorl are more prominent and better-developed, and project farther from the body whorl. These large cords are characteristically separated from each other by wide areas that are smooth and devoid of any strong fimbriated sculpture, completely unlike the dense frilled sculpture that covers the entire shell of *N. iwamasai*.

Subfamily Muricinae Rafinesque, 1815
Genus *Phyllonotus* Swainsin, 1833

Phyllonotus bellettii Petuch, Berschauer, and
Powell, new species
(Plate 2 A-D)

Description. Shell large for genus averaging 90 mm in length, broad, inflated, with rounded shoulder and sloping subsutural area; body whorl highly inflated, broad, slightly rectangular in shape; protoconch consisting of two whorls, light-brown to gold in color; spire proportionally low compared to congeners, subpyramidal; siphonal canal proportionally long, broad, recurved posteriorly; body whorl and spire whorls with 3 large, thick varices per whorl; varices recurved laterally; intravarical areas with 2 thick, prominent, knobbed longitudinal ribs; varices ornamented with 12 to 15 low flattened spines with anterior 3 or 4 being largest in size; body whorl encircled with 10 to 12 heavy spiral cords, alternating with 1 smaller cord in-between larger cords, creating

highly sculptured appearance; spiral cords strongly ornamented with microsculpture composed of elongated beads, giving shell rough texture; aperture oval to almost round, large size for genus; edge of lip with 12 large pointed teeth along peristome; parietal shield proportionally small, thin, only slightly recurved and attached, cream-tan in color; columellar part of parietal shield with 8-10 low, rounded teeth; siphonal canal ornamented with large spiral threads terminating in 3 large flattened spines which are longer than varical spines; shell color medium to dark brown overlaid with 3 wide bands of darker brown, darkest on varices; interior of aperture varying from bright white to pale orange; edge of apertural lip marked with 3 large dark brown patches.

Type Material. HOLOTYPE - Length 92.0 mm, width 63.0 mm, from off Pointe-Noir, Guadeloupe Island, French West Indies; in the Natural History Museum of Paris, with the catalog number MNHN-IM-2000-36257; PARATYPE No. 1 Length 111.1 mm, width 64.8 mm, in the Carlo Belletti Collection; PARATYPE No. 2, Length 124 mm, from 5 m depth off LeVauclin, Martinique Island, French West Indies, in the Petuch Research Collection.

Type Locality. On coral rubble and sand, 7 m depth off Pointe-Noir, Guadeloupe Island, French West Indies.

Range. As far as presently known, the new species is endemic to Martinique and Guadeloupe Islands of the French West Indies, but also may occur on the surrounding smaller islands of the French West Indies.

Etymology. Named for First Lieutenant (retired, Italian Navy) Carlo Belletti of Rome, Italy, an avid muricid collector, who recognized the large muricid as being a new species and who kindly donated the type material for our research.

Discussion. The new French West Indian muricid is the eighth *Phyllonotus* species found in the tropical western Atlantic. The other seven

species include: *Phyllonotus pomum* (Gmelin, 1791), a widespread species that ranges from North Carolina to the northern Caribbean Sea (Plate 3A); *Phyllonotus oculatus* (Reeve, 1845), the most widespread western Atlantic species, ranging from Florida and the Gulf of Mexico south to central Brazil (it is the only *Phyllonotus* species in Brazil; Plate 3B); *Phyllonotus margaritensis* (Abbott, 1958), confined to northern Colombia and the Gulf of Venezuela, the entire coast of Venezuela, and the Venezuelan offshore islands (Plate 3C); *Phyllonotus mexicanus* (Petit de la Saussaye, 1852), confined to the coastal lagoons of Yucatan, Mexico (Plate 3D); *Phyllonotus whymani* Petuch and Sargent, 2011, confined to the deep water areas off the Dry Tortugas, Florida and the outer edge of the western Florida continental shelf (Plate 3E); *Phyllonotus guyanensis* Garrigues and Lamy, 2016, confined to the areas off Guyana, Suriname, French Guiana, and Amapa State, Brazil (Plate 3F); and *Phyllonotus salutensis* Garrigues and Lamy, 2016, confined to French Guiana. The systematics and biogeography of the genus in the western Atlantic was discussed in detail in the excellent paper by Garrigues and Lamy (2016), which illustrates each species and discusses the variability within the various species of the complex.

Of the species in the genus, *Phyllonotus bellettii* (Plate 2A-D) is most similar, in both general shape and size, to the widespread *P. oculatus* (Plate 3B). The new species, however, differs in having a distinctly lower spire, in having a more inflated body whorl, and in having a proportionally longer siphonal canal with larger and better-developed spines. The parietal shield of *P. oculatus* is characteristically colored a bright orange or orange-pink while that of *P.*

bellettii is always cream-white or pale yellow edged with dark brown patches. The body whorl and spire whorl sculpture of *P. oculatus* is also much coarser and less-developed than that of the new species, lacking the distinctive shell micro-sculpture that sets *P. bellettii* apart from all seven other of its congeners. Specimens of *Phyllonotus bellettii* from Martinique Island are often paler in color than the typical Guadeloupe specimens, being cream-yellow.

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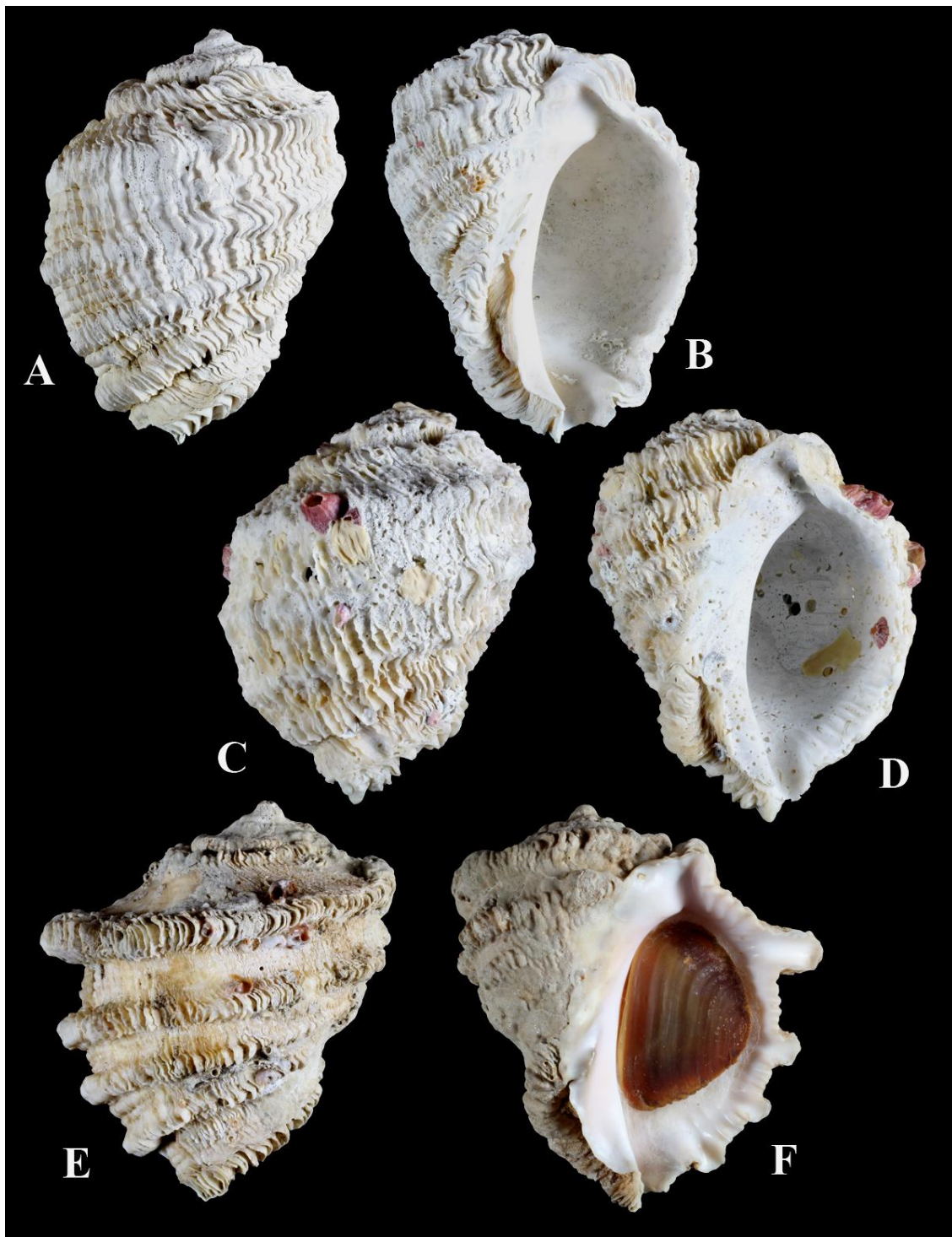


Plate 1. *Neorapana iwamasai* Petuch, Berschauer, and Powell, new species.

A, B= *Neorapana iwamasai* Petuch, Berschauer, and Powell, n. sp., holotype, length 95 mm, on the beach at Santa Maria Bay, Magdalena Bay region, Baja California Sur, Mexico; **C, D=** *Neorapana iwamasai* Petuch, Berschauer, and Powell, n. sp., paratype, length 91 mm, on the beach at Punta Estero Bramonas, Adolfo Lopez, Manteo, Magdalena Bay region, Baja California Sur, Mexico; **E, F=** *Neorapana muricata* (Broderip, 1832), length 70.1 mm, Guaymas, Sonora, Mexico; for comparison with *Neorapana iwamasai*.

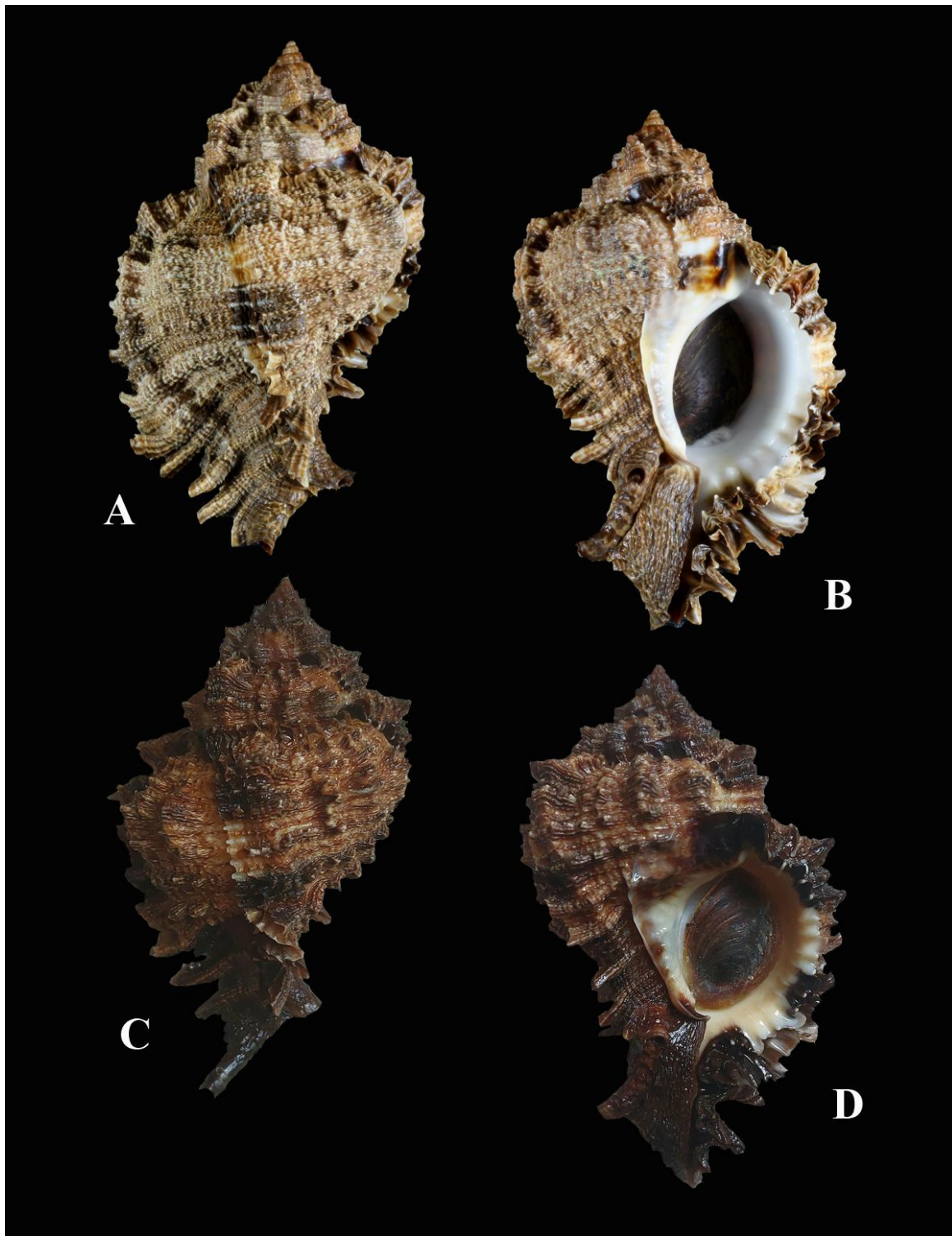


Plate 2. *Phyllonotus bellettii* Petuch, Berschauer, and Powell, new species.

A, B= *Phyllonotus bellettii* Petuch, Berschauer, and Powell, n. sp., holotype, length 92 mm, Guadeloupe Island, French West Indies; **C, D=** *Phyllonotus bellettii* Petuch, Berschauer, and Powell, n. sp., paratype 1, length 111.1 mm., Guadeloupe Island, Lesser Antilles; in the Belletti Research Collection.

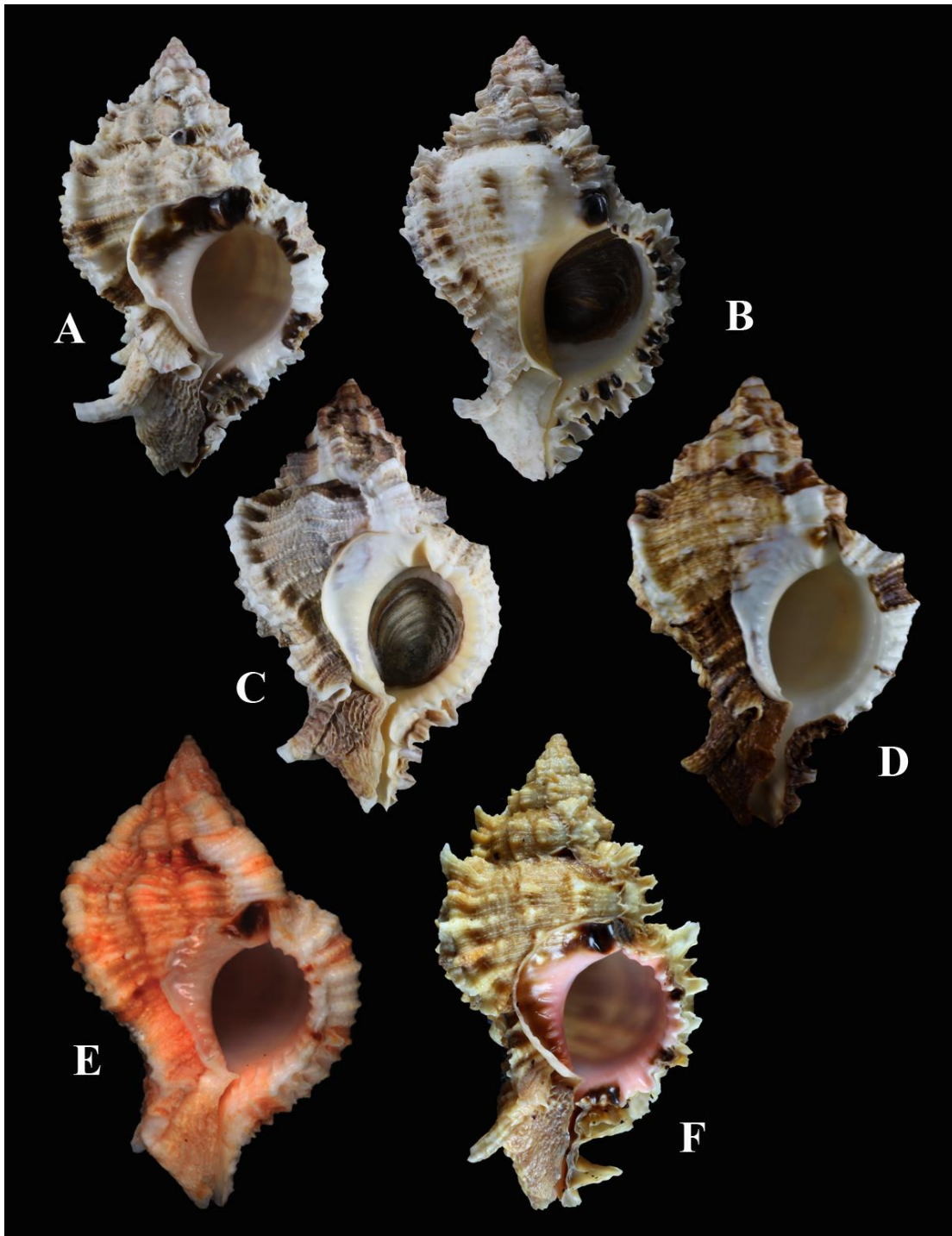


Plate 3. Apertural Views of *Phyllonotus* Species from the Tropical Western Atlantic.

A= *Phyllonotus pomum* (Gmelin, 1791), length 84 mm, Florida Keys; **B**= *Phyllonotus oculatus* (Reeve, 1845), length 83 mm, Salvador, Brazil; **C**= *Phyllonotus margaritensis* (Abbott, 1958), length 91.7 mm, Amuay Bay, Venezuela; **D**= *Phyllonotus mexicanus* (Petit de la Saussaye, 1852), length 70 mm, Laguna de Yalahau, Yucatan, Mexico; **E**= *Phyllonotus whymani* Petuch and Sargent, 2011, holotype, length 43.4 mm, deep water off the Dry Tortugas, Florida; **F**= *Phyllonotus guyanensis* Garrigues and Lamy, 2016, length 112 mm, off Cayenne, French Guiana.