

## New Species and Subspecies of Olive Shells (Gastropoda: Olividae) from the Panamic and Indo-Pacific Regions and the Gulf of Mexico

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### INTRODUCTION

Within the past six years, intensive field work and research by worldwide specialists in the systematics of the family Olividae have led to the discovery and description of many new taxa, both at the species and genus level. This renewal of interest in olivid biodiversity, the first pulse since the large number of new taxa proposed in the late 1980's, is the result of an increase in the availability of specimens from previously-unsampled deep water areas or from remote island groups or coastlines. Commercial fishermen from around the world, utilizing dredge hauls and tangle nets, recently have brought to light many new and unusual deep water forms, including the tiny *Americoliva mooreana* (Petuch, 2013) from 310 m depth off Belize and the problematical *Oliva poppei* Sargent and Petuch, 2008 from 150 m depth off Aliguay Island, Philippines (probably representing an unnamed genus). Previously-unstudied shallow water areas in the tropical western Atlantic have also recently yielded new olivid taxa, some of which include *Americoliva reticularis lilacea* (Paulmier, 2013) from off Guadeloupe Island, French West Indies and *Americoliva circinata jorioi* (Petuch, 2013) from northern Brazil. This process of discovery is still ongoing, as we currently have the descriptions of two more deep water Floridian *Americoliva*

species being published in our upcoming book on the Florida Keys ("Molluscan Communities of the Florida Keys and Adjacent Areas: Their Ecology and Biodiversity", CRC Press, *in press* 2014), and we here describe six more new species and subspecies from the Indo-Pacific, Panamic, and western Atlantic regions.

This paper is meant to be simply an augmentation and updating of previous studies on olivid biodiversity from around the world. Three new species and three new subspecies are described in the following sections, and these include:

### NEW SPECIES

*Americoliva grovesi* new species, from deep water sea mounts off Baja California, Mexico

*Americoliva mcleani* new species, from offshore areas of Ecuador

*Omogymna vullieti* new species, from 500 m depth in the Celebes Sea, southern Philippines

### NEW SUBSPECIES

*Americoliva bollingi choctaw* new subspecies, from the northeastern Gulf of Mexico

*Miniaceoliva efasciata thierryi* new subspecies, from Kiribati, Micronesia

*Miniaceoliva lamberti chloae* new subspecies,  
from the Wallis and Futuna Islands

All of the holotypes of the new taxa, except for one, are deposited in the molluscan type collection of the Los Angeles County Museum of Natural History, Los Angeles, California, and bear LACM numbers. One holotype (*Miniaceoliva lamberti chloae*) is also deposited in the National Museum of Natural History, Paris, France, and bears an MNHN number. Paratype specimens are deposited in the Los Angeles County Museum of Natural History (bearing an LACM number), and also in the personal research collections of the senior author, Thierry Vulliet (Queensland, Australia), and Pierre Recourt (The Netherlands), and in the United States National Museum of Natural History, Smithsonian Institution (bearing a USNM number). The descriptions of the new olivid taxa are arranged here by genus.

## SYSTEMATIC SECTION

**Class Gastropoda**

**Subclass Orthogastropoda**

**Superorder Caenogastropoda**

**Order Sorbeoconcha**

**Infraorder Neogastropoda**

**Superfamily Volutoidea**

**Family Olividae**

**Subfamily Olivinae**

**Genus *Americoliva* Petuch, 2013**

*Americoliva bollingi choctaw* new subspecies  
(Figure 1G, H, I)

**Description:** Shell of average size for genus, smaller than nominate subspecies, subcylindrical and inflated, with slightly convex sides; shoulder slightly rounded,

grading directly into body whorl; filament channel narrow but deep, edged by sharp, blade-like carina; fasciole and fascicular band proportionally small, narrow, confined to anterior one-fourth of body whorl; spire proportionally low, subpyramidal; spire whorls partially covered by thick callus; columella edged with 16-18 elongated teeth (holotype with 18 teeth), with posteriormost teeth being proportionally small and becoming larger and more prominent toward anterior end; posterior one-quarter of columella smooth and devoid of teeth; shell base color canary yellow, overlaid with dense, tightly-woven network of pale tan closely-packed triangles of various sizes; 2 broad bands of darker brownish-tan flammules and triangles encircle middle of body whorl, one on either side of shell mid-body; shoulder and edge of filament channel colored pale bluish-green, overlaid with closely-packed dark brown hairlines that are arranged in separate bundles; spire whorl calluses colored pale brown; fascicular band pale tan, marked with regularly-spaced small brown flammules; columellar teeth white; aperture proportionally wide, slightly arcuate, with interior colored pale cream-yellow; protoconch proportionally large, projecting, composed of 2 rounded, bulbous whorls.

**Type Specimens:** Holotype: length 43 mm, width 18 mm, LACM 3271; Paratypes: length 44 mm, width 19 mm, same locality as the holotype, LACM 3272; length 43 mm, width 19 mm, same locality as holotype, in the research collection of the senior author; 2 specimens, length 44 mm, width 18 mm, and length 38 mm, width 16 mm, from the same locality as the holotype, in the research collection of Pierre Recourt, The Netherlands.

**Type Locality:** In clean quartz sand, exposed at low tide, St. Andrew Sound, Panama City, Bay County, Florida (Apalachicola River Delta).

**Range:** At present, known only from the northeastern Gulf of Mexico, in the vicinity of the Apalachicola River Delta of the Florida Panhandle, where the new subspecies occurs on intertidal sand flats.

**Etymology:** The taxon honors the Choctaw Indian Tribe, the inhabitants of the Apalachicola River Delta and northern coast of the Gulf of Mexico at the time of the first contact with European explorers. Named as a noun in apposition.

**Discussion:** This new taxon is here proposed as a geographically-isolated subspecies of the wide-ranging *Americoliva bollingi* (Clench, 1934), which occurs along the southeastern United States coast from Georgia south to eastern Florida and the Florida Keys (Figure 1E, F). [Note: There is much confusion regarding the nomenclature of this common southeastern United States olive; *A. bollingi* was originally described by Clench as a subspecies of the widespread Caribbean *A. reticularis* (Lamarck, 1811), but it was later considered to be a subspecies of another widespread Caribbean olive, *A. bifasciata* (Kuster, 1878) (Petuch and Sargent, 1986: 127-128; Petuch, 2013: 35). This southeastern United States endemic olive is here considered to be a full species that is distinct from its Caribbean congeners]. Although similar in general shape and color pattern to the nominate subspecies, *A. bollingi choctaw* differs in being a smaller, stockier, and less elongated shell, in having proportionally wider and more-intricately patterned spiral bands around the mid-body, and in having the distinctive pale yellow base color. Typical *A. bollingi bollingi* has a pale blue or white base

color, is larger and more elongated, and is most frequently collected in the carbonate sediments and coralline environments of southeastern Florida (from Fort Pierce to Miami) and the Florida Keys (Petuch and Sargent, 2011: 67) or from the offshore scallop beds of Georgia and northeastern Florida. No *bollingi*-type olives are known to occur along the intertidal areas of western Florida, from the Ten Thousand Islands north to Apalachee Bay, and the family is represented along the west coast only by the larger and more elongated *Americoliva sayana* (Ravenel, 1834).

*Americoliva bollingi choctaw* appears to represent a relictual population of the nominate subspecies that had become isolated in the northeastern Gulf of Mexico during the late Pleistocene and has undergone subsequent genetic drift. The areas of St. Andrew Sound, Apalachee Bay, and the Apalachicola Delta are all under the influence of the warm-water Gulf Loop Current, which bathes this coast with subtropical water conditions during the cold winter months. The near shore areas of western Florida south of the Suwannee River Mouth, on the other hand, are not influenced by this warm water current and are exposed to very cold winter temperatures, often near freezing. Because of these low winter water temperatures, the warm water-loving *Americoliva bollingi bollingi* cannot live along this coast. Conversely, the Florida Keys are continuously under the influence of the warm Florida Current and the southeastern coast of Florida is bathed by the equally-warm Gulf Stream waters. These east coast tropical marine climates support coral reefs and their adjacent carbonate sand areas, providing the ideal habitat for *A. bollingi bollingi*. The two subspecies also inhabit different biogeographical regions, with *A. bollingi bollingi* occurring within the warm water Floridian Subprovince and Palm Beach Provinciatone of the Carolinian Province, and

with *A. bollingi choctaw* being a faunal component of the cooler water Suwannean Subprovince of the Carolinian Province (see Petuch, 2013 for descriptions of the North American provinces and subprovinces).

***Americoliva grovesi* new species  
(Figure 1A, B)**

**Description:** Shell of average size for genus, extremely narrow and elongated, fusiform, with straight sides and high, elevated spire; shoulder almost non-existent, grading directly into spire whorls; filament channel narrow and deep, bounded by sharp, raised carina; fasciole and fascicular band poorly-developed, proportionally narrow, confined to anterior one-fourth of body whorl; spire whorls protracted, approximately one-fourth length of body whorl, partially covered with thick callus; columella edged with 16-17 thin, evenly-spaced teeth, with teeth becoming larger and better developed toward anterior end; posterior one-fifth of columella smooth, without teeth; body whorl pale cream-yellow overlaid with open network of interconnected large, pale orange elongated triangles and zig-zag flammules; edge of filament channel marked with widely-spaced large, elongated orange triangular flammules; fasciole and fascicular band cream-white, marked with scattered faint orange flammules; aperture proportionally narrow, widening slightly toward anterior end; columella and interior of aperture pale cream-white; protoconch proportionally very large, rounded, dome-like, composed of 2 whorls, pale cream in color.

**Type Specimens:** Holotype: length 44 mm, width 15 mm, LACM 3268; Paratype: length 41 mm, width 15 mm, USNM 1155470, collected by diver from 30-40 m depth, in sand, off Santa Catalina Island, Baja California del Sur, Gulf of California, Mexico (25 degrees 30.2 minutes N, 110 degrees 46.3

minutes W; in the collection of the Division of Mollusks, National Museum of Natural History, Smithsonian Institution, Washington, D.C.

**Type Locality:** Dredged from 128 m depth on the Outer Gorda Bank, 6.5 miles from Punta Gorda, Baja California del Sur, Gulf of California, Mexico (23 degrees 01.56 minutes N, 109 degrees 28.5 minutes W). The holotype was collected by the R/V *Velero IV* (AHF 1729-49), 12 March 1949.

**Range:** The new species appears to be endemic to the deep banks and seamounts off the southern tip of Baja California del Sur, Mexico, in an area extending from the Outer Gorda Bank to Santa Catalina Island.

**Etymology:** Named for Lindsey T. Groves, Collections Manager of the Department of Malacology, Los Angeles County Museum of Natural History, in recognition of his many contributions to the systematics and taxonomy of living and fossil gastropods.

**Discussion:** With its extremely elongated shape, straight sides, and high, protracted spire, *Americoliva grovesi* stands out as very different from all the other known Panamic Province *Americoliva* species (see Petuch, 2013: 209-210 for a discussion and list of all 14 known Panamic taxa). The only other olive that comes even close, morphologically, to this new Gulf of California species is *Americoliva deynzeriae* (Petuch and Sargent, 1986), an elongated shell that is endemic to Cocos Island, Costa Rica (Petuch and Sargent, 1986: 149-150, plate 28, figures 12 and 13). *Americoliva grovesi* differs from its Cocos Island congener in being an even more slender and fusiform shell with a proportionally higher spire, in having a fainter and more diffuse color pattern, in having a distinctive cream-white base color, and, most importantly, in having a

proportionally much larger and more prominent dome-shaped protoconch. The two type specimens of *A. grovesi*, although having the same exact shell shape, proportions, and protoconch structure, differ somewhat in the intensity of the color pattern, with the Smithsonian paratype being darker than the cream-colored holotype. This spectrum of variability is typical of the genus *Americoliva*, where all 14 known Panamic species are known to range in color from white and golden forms to melanistic varieties, often occurring within the same population. With the holotype coming from 128 m depth, *A. grovesi* is also the deepest-dwelling olive shell known from the Gulf of California region. Further collecting on, and exploration of, the seamounts and deep banks at the mouth of the Gulf of California may show that this unusual new species has a wider distribution than is shown here.

***Americoliva mcleani* new species  
(Figure 1C, D)**

**Description:** Shell small for genus, short, stocky, inflated, with sloping shoulder area; body whorl somewhat pyriform, with widest area anterior of shoulder; spire whorls only slightly elevated, subpyramidal; filament channel very narrow, deep, bounded by sharp carina; spire whorls partially covered by thick callus; fasciole and fascicular band proportionally narrow, confined to anterior one-fourth of body whorl; shell color pale cream-white, overlaid with thin, evenly-spaced pale purple-blue zig-zag flammules that are arranged in zebra pattern; shoulder area devoid of zebra pattern, being uniform pale cream-white in color; edge of filament channel marked with widely-separated dark brown triangular patches, averaging only 6 per whorl; spire whorls and spire calluses pale cream-white in color, marked with widely-separated dark brown patches; columella white, with 13-

14 evenly spaced elongated teeth which become larger and better developed toward anterior end; posterior one-fourth of columella smooth, devoid of teeth; aperture proportionally wide, becoming wider toward anterior end, pale cream-white on interior; inner edge of lip marked with scattered dark brown irregular flammules; anterior end of fasciole colored pale yellow-orange; protoconch colored pale cream-white, proportionally large, rounded, dome-like, composed of 2 whorls.

**Type Specimens:** Holotype: length 23 mm, width 11 mm, LACM 3269; Paratypes: 3 specimens, lengths 18 mm, 16 mm, and 12 mm, LACM 3270, same locality and depth as the holotype.

**Type Locality:** Dredged from 50 m depth off La Libertad, Guayas Province, Ecuador (2 degrees 12.1 minutes S, 80 degrees 55.2 minutes N). The holotype and 3 paratypes were collected by the R/V *Velero III* (AHF 20-33), 21 January 1933.

**Range:** At present, known only from deeper water off the coast of Ecuador.

**Etymology:** Named for Dr. James H. McLean, Curator Emeritus of the Department of Malacology, Los Angeles County Museum of Natural History, in recognition of his innumerable contributions to the systematics and ecology of the mollusks of the Panamic Province.

**Discussion:** With its distinctive and characteristic zebra color pattern, *Americoliva mcleani* is most similar in appearance to *A. harpularia* (Lamarck, 1811) from the southern part of the Gulf of California (see Petuch and Sargent, 1986: 153, plate 30, figure 26; listed as "*Oliva (Strephona) venulata* color form *harpularia*"). The deep water Ecuadorian *A.*

*mcleani* differs from its far northern congener in being a much smaller shell (averaging 21 mm as opposed to the 38 mm length of the *harpularia* illustrated by Petuch and Sargent), in being more inflated and stocky, in having a clear, unpatterned area around the shoulder and filament channel, in having large dark brown, widely-spaced patches along the filament channel, and in lacking the characteristic large, prominent reddish-brown patch seen on the fasciole of *A. harpularia*. The Gulf of California and Ecuadorian species also differ in the form of their zebra color patterns; in *A. mcleani*, the stripes are more numerous and closer together and do not extend onto the shoulder area (having, instead, a wide colorless band), while on *A. harpularia*, the stripes are fewer in number, far more widely spaced, and extend onto the shoulder and filament channel, where they connect with the small patches that border the filament channel and carina. The similar zebra striped patterns of the two geographically widely separated species is an artifact of convergent evolution, as no other similarly patterned olives are known from anywhere between Baja California del Sur, Mexico and Ecuador.

This new species is also similar, in general appearance, to "*Oliva*" *peruviana* Lamarck, 1811 (particularly the zebra-striped color form *fulgurata* Martens, 1869) from intertidal areas along the coasts of Peru and northern Chile (**Note:** the cold water Peruvian Province *O. peruviana* and the tropical Panamic Province *O. kaleontina* Duclos, 1835 both appear to represent a new, undescribed genus of the Olividae that is confined to the western coasts of Central America and northern South America, from Baja California, Mexico south to Ecuador, and to the coasts of Peru and Chile; these species are referred to here as *Oliva sensu lato*). The Peruvian Province *Oliva peruviana* form *fulgurata* differs from the southernmost Panamic Province

*Americoliva mcleani* in being a larger and more colorful shell that is infused with bright pinks and purples and marked with dark chocolate-brown zebra flammules, in having a heavily-patterned shoulder area marked with numerous large brown flammules, in lacking the characteristic large triangular flammules along the filament channel, and in having a less-polished shell with a slightly duller surface finish. In 20-50 m depths off the Ecuadorian coast, *Americoliva mcleani* is now known to be sympatric with two other endemic Ecuadorian olivids, *Americoliva polpasta radix* (Petuch and Sargent, 1986) and *Strephonella undatella ecuadoriana* (Petuch and Sargent, 1986). None of these species extend into the colder water of the Peruvian Province.

#### **Genus *Miniaceoliva* Petuch and Sargent, 1986**

##### ***Miniaceoliva efasciata thierryi* new subspecies (Figure 2E, F)**

**Description:** Shell small for genus, averaging 45 mm, elongated, cylindrical, with slightly rounded, convex sides; spire proportionally low, subpyramidal, distinctly stepped; shoulder very sloping, almost obsolete, grading directly into spire whorls; filament channel proportionally wide, deep, bordered by prominent raised carina; fasciole and fascicular band small, narrow, comprising only anterior one-fourth of body whorl; body whorl color pale blue or bluish-cream, overlaid with regularly-spaced large purple brown zig-zag flammules arranged in zebra-striped pattern; shoulder area and carina of filament channel without pattern, devoid of zebra stripes, being uniform blue-cream in color; spire whorls partially callused, cream-blue in color, marked with widely-spaced large, prominent purple oval-shaped spots;

edge of filament carina with few, widely-separated small pale purple flammules, around 4-6 per whorl; columella wide, cream-white in color, ornamented with 13-15 large tooth-like plications; smaller secondary plications often present between larger primary plications; fascicular band marked with 6-9 large, regularly-spaced, elongated purple spots; aperture proportionally wide, slightly arcuate, widening toward anterior end; interior of aperture deep red-orange; protoconch cream-white in color, proportionally large, rounded, domelike, composed of 2 whorls.

**Type Specimens:** Holotype: length 45 mm, width 17 mm, LACM 3273; Paratypes: length 46 mm, width 19 mm, from the same locality as the holotype, in the research collection of the senior author; length 46 mm, from the same locality as the holotype, in the collection of Thierry Vulliet, Queensland, Australia.

**Type Locality:** Found in clean coral sand, 2.5 m depth, off Tarawa Atoll, Kiribati, Micronesia.

**Range:** At present, known only from Kiribati (formerly the Gilbert Islands), particularly Tarawa Atoll, and Tuvalu (formerly the Ellis Islands), southwestern Micronesia.

**Etymology:** Named for Thierry Vulliet of Arundel, Queensland, Australia; inspired amateur naturalist and conchologist, who first brought the new subspecies to our attention.

**Discussion:** This new Kiribati subspecies is one of the two newly-discovered members of the *Miniaceoliva miniacea-efasciata-lamberti* species complex that are described in this paper. This close-knit species group, confined biogeographically to the Southwest Pacific, Melanesia, Micronesia, and Polynesia areas (Petuch and Sargent, 1986: 31, 44, figure 25), was originally thought to comprise a single

species, *Miniaceoliva miniacea* (Roding, 1798) and its two subspecies, *efasciata* (Dautzenberg, 1927) and *lamberti* (Jousseume, 1884) (Petuch and Sargent, 1986: 94-96). The nominate subspecies, *miniacea*, ranges from Northern Territory, Australia, through Indonesia, the Philippines, Palau, Vietnam, Taiwan, the Ryukyu Islands, and north to southern Japan, but does not extend into the Indian Ocean or the Central Pacific. Subsequent research on the shell morphologies and biogeographical distributions of the Melanesian, Micronesian, and Polynesian “subspecies” (by the senior author), however, has shown that the species complex is more complicated and diverse than originally thought. Preliminary studies on shell morphology, conducted by the authors and European workers such as Pierre Recourt (The Netherlands; personal communication), now indicate that the subspecies *lamberti* and *efasciata* actually represent distinct full species, each with their own biogeographically-isolated subspecies. These include:

*Miniaceoliva efasciata efasciata* (Dautzenberg, 1927) (confined to the Central Pacific, including French Polynesia, especially the Society Islands, Tuamotu Islands, and Marquesas Islands, and also the Line Islands, Cook Islands, and Tonga)

*Miniaceoliva efasciata berti* (Terzer, 1986) (Kwajalein and Eniwetok Atolls and the Marshall Islands; Caroline Islands)

*Miniaceoliva efasciata thierryi* new subspecies (confined to Kiribati and Tuvalu, Micronesia)

*Miniaceoliva lamberti lamberti* (Jousseume, 1884) (Queensland, Australia, the Coral Sea, the Chesterfield Islands, the Diamond Isles, New Caledonia, and the Loyalty Islands)

*Miniaceoliva lamberti chloae* new subspecies (described next in this paper) (Wallis and Futuna Islands, Fijis, Vanuatu, and the Santa Cruz Islands)

Along with the northwestern Australia to Japan *Miniaceoliva miniacea*, the genus is now thought to be represented by three species and three subspecies in the Pacific Ocean basin and peripheral areas. A similar pattern of speciation and geographically-isolated subspecies is seen in the Indian Ocean, where the sister taxon *Miniaceoliva tremulina* (Lamarck, 1811) has evolved a mirror-image complex containing species such as *M. hayesi* (Sargent and Petuch, 2012), *M. flammeacolor* (Petuch and Sargent, 1986), and *M. olympiadina* (Duclos, 1835) (see Sargent and Petuch, 2012).

The new Kiribati subspecies, *M. efasciata thierryi*, differs from the nominate subspecies in having a smaller, more cylindrical shell, a distinctive pale blue and cream base color, a color pattern composed of evenly-spaced purple zebra stripes, and in having a clear, unpatterned band around the shoulder. The Marshall Islands subspecies *M. efasciata berti*, which is restricted to the island archipelagoes north of western Kiribati, differs from its southern congener in having a smaller, broader shell, a proportionally higher spire, a white base color, and a color pattern made up of thin, widely-scattered dark purple flammules.

***Miniaceoliva lamberti chloae* new  
subspecies  
(Figure 2A, B)**

**Description:** Shell of average size for genus, bulbous and inflated, thickened and heavy, with rounded profile and sides; spire proportionally low, only slightly elevated, subpyramidal; shoulder rounded, grading

directly into spire; spire whorls partially callused; filament channel proportionally wide and deep, edged by outwardly-bending, sharp-edged carina; fasciole and fascicular band narrow, confined to anterior one-fourth of body whorl; base color pale cream-orange overlaid with densely-packed reticulated network of olive-green longitudinal flammules, thin patches, and elongated spots; flammules of reticulated pattern bordered by large patches of sky blue and dark orange, which often completely fill areas between olive-green flammules; 3 wide bands of large dark blue-green rectangular patches, one around shoulder, one around mid-body, and one around anterior tip, present on some specimens (such as paratype in research collection of senior author); shoulder area devoid of fine reticulated pattern, being marked by large orange triangular patches; base of filament channel along shoulder marked with evenly-spaced small blue-green dashes; spire whorls dark olive-green, overlaid with closely-packed amorphous patches of orange and blue; upper edge of filament channel carina white; columella orange, ornamented with 19-22 large, elongated, evenly-spaced, tooth-like plications; anterior tip of columella darker orange; fascicular band dark purple-brown in color, with pattern composed of fusion of numerous small flammules; aperture proportionally wide, flaring, slightly arcuate, becoming wider toward anterior end; lip thickened, arcuate in profile, colored bright orange; interior of aperture intense deep red orange; early whorls white; protoconch white in color, composed of 2 whorls.

**Type Specimens:** Holotype: length 61 mm, width 30 mm, MNHN IM-2000-27480 (in the molluscan type collection of the Department of Malacology, National Museum of Natural



History, Paris, France); Paratypes: length 60 mm, width 37 mm, in the research collection of the senior author; length 60 mm, in the collection of Thierry Vulliet, Queensland, Australia.

**Type Locality:** In sand, 3 m depth off Tepako Point, Uvea Island, Wallis and Futuna Islands.

**Range:** The new subspecies ranges from Wallis and Futuna in the east, westward to the Fijis, Vanuatu, and Santa Cruz Islands of Melanesia.

**Etymology:** Named in honor of Chloe Gutierrez-Vulliet of Gold Coast, Queensland, Australia, grand-daughter of well-known conchologist Thierry Vulliet.

**Discussion:** As outlined at the end of the previous description, *Miniaceoliva lamberti chloae* represents a distinct, geographically-isolated subspecies of the Coral Sea *M. lamberti lamberti* (Jousseaume, 1884) (Figure 2C, D). The new subspecies represents the easternmost extension of the *M. lamberti* complex and abuts against the ranges of the *M. efasciata* (Dautzenberg, 1927) complex; with *M. efasciata efasciata* to the east, in Samoa and the Cook Islands, and with *M. efasciata thierryi* new subspecies to the north, in Kiribati. The new subspecies differs from its Coral Sea-centered nominate subspecies to the west in having a far more inflated and bulbous shell shape, in being a more darkly-colored shell, with a densely reticulated pattern of olive-green, blue, and orange flammules and spots, in having a bright orange anterior end to the columella, and in having a much more colorful interior of the aperture, being a vivid deep orange-red instead of the pale orange seen in *M. lamberti lamberti*.

## Genus *Omogymna* Von Martens, 1897

### *Omogymna vullieti* new species (Figure 2G, H)

**Description:** Shell of average size for genus, rotund, inflated, bulbous, with rounded sides and profile and with widest part of body whorl just anterior of shoulder; spire proportionally very low, pyramidal, with rounded sides; spire whorls almost completely covered by thick calluses; shoulder distinctly rounded, grading into spire whorls; filament channel very narrow and shallow, edged by small carina; fasciole and fascicular band proportionally very small and poorly-developed, comprising only one-sixth of total shell length; oblique enamel line extremely posterior on body whorl, confined to shoulder area, extending from posteriormost edge of lip around to posteriormost end of columella; shell color pale yellow-white overlaid with dense network of interconnected reddish-tan triangles of various sizes; triangles on network pattern generally arranged with proportionally large triangles being interspersed within matrix of smaller triangles; edge of filament channel on shoulder marked with large, triangular reddish-brown flammules, arranged in separate clumps; columella colored pale cream-white, ornamented with 15 elongated, evenly-spaced tooth-like plications, which become larger toward anterior end; posterior section of columella smooth, without any teeth; aperture proportionally wide, slightly arcuate, becoming wider toward anterior end; interior of aperture pale cream-white; lip white, thickened and callused; protoconch exceptionally large, dome-shaped, composed of 2 broadly rounded whorls, pale cream-white in color.

**Type Specimen:** Holotype: length 27 mm, width 12 mm, LACM 3274.

**Type Locality:** Collected by commercial fishermen in a tangle net, brought up from 500 m depth off Balut Island, Sarangani Group, Batulaki Peninsula region, Mindanao Province, Philippines.

**Range:** At present, known only from deep water (500 m depth) in the northern Celebes Sea, off the southern coast of Mindanao Island, Philippines.

**Etymology:** Named for Thierry Vulliet of Arundel, Queensland, Australia, who recognized the species as new and who kindly donated the holotype for research.

**Discussion:** Until recently, the genus *Omogymna* was known to contain only four living species: *O. paxillus* (Reeve, 1850), the widest-ranging species, being found on shallow sand flats near coral reefs from East Africa all the way to French Polynesia; *O. sandwichensis* (Pease, 1860), which is endemic to shallow reef areas around the Hawaiian Islands; *O. richerti* (Kay, 1979), a deep water species (200 m depth) that ranges across eastern Polynesia, from Hawaii (the type locality) to the Marquesas and Tuamotu Islands; and *O. leonardi* (Petuch and Sargent, 1986), which ranges along southeastern Africa, from Mozambique south to the Natal coast (type locality off Durban). The discovery of the new deep water Philippines species brings the number of congeners up to five. Of these known *Omogymna* species, *O. vullieti* is closest only to *O. richerti*, from deep water areas of eastern Polynesia. Although having a similar color pattern of reddish-tan triangles on a cream background, the new species differs from the Hawaiian, Marquesan, and Tuamotuan *O. richerti* in being a stockier, less-elongated shell that is broader and wider across the shoulder, in having proportionally smaller and less-developed columellar plications, in having the oblique enamel line

much farther back on the body whorl, very close to the filament channel, and, most importantly, in having a very low, truncated spire that is the exact opposite of the highly elevated and protracted spire seen on *O. richerti*.

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**Figure 1. New Species and Subspecies of *Americoliva* from the Panamic Province and the Suwannean Subprovince of the Carolinian Province.**

**A, B** *Americoliva grovesi* Petuch and Myers, new species. Holotype, length 44 mm, dredged from 128 m depth on the Outer Gorda Bank, Baja California del Sur, southern Gulf of California, Mexico, LACM 3268; **C, D** *Americoliva mcleani* Petuch and Myers, new species. Holotype, length 23 mm, dredged from 50 m depth off La Libertad, Guayas Province, Ecuador, LACM 3269; **E, F** *Americoliva bollingi* (Clench, 1934), length 52 mm, 3 m depth on carbonate sand, off Boca Raton, Palm Beach County, Florida (for comparison with *Americoliva bollingi choctaw*; collection of the senior author); **G, H** *Americoliva bollingi choctaw* Petuch and Myers, new subspecies. Holotype, length 43 mm, on clean quartz sand at low tide, St. Andrew Sound, Panama City, Bay County, Florida, LACM 3271; **I** *Americoliva bollingi choctaw* Petuch and Myers, new subspecies. Paratype, length 44 mm, on clean quartz sand at low tide, St. Andrew Sound, Panama City, Bay County, Florida, LACM 3272.



**Figure 2. New Species and Subspecies of *Miniaceoliva* and *Omogymna* from the Central and Southwestern Pacific Regions.**

**A, B** *Miniaceoliva lamberti chloae* Petuch and Myers, new subspecies. Holotype, length 61 mm, 3 m depth off Tepako Point, Uvea, Wallis and Futuna Islands, MNHN IM-2000-27480 (National Museum of Natural History, Paris, France); **C, D** *Miniaceoliva lamberti* (Joussemae, 1884), length 59 mm, in sand, 10 m depth, off Diamond Isles, Coral Sea. (for comparison with *Miniaceoliva lamberti chloae*; collection of the senior author); **E, F** *Miniaceoliva efasciata thierryi* Petuch and Myers, new subspecies. Holotype, length 45 mm, 2.5 m depth off Tarawa Atoll, Kiribati, Micronesia, LACM 3273; **G, H** *Omogymna vullieti* Petuch and Myers, new species. Holotype, length 27 mm, collected in a tangle net, from 500 m depth off Balut Island, Sarangani Group, Batulaki Peninsula region, Mindanao Province, Philippines, LACM 3274.