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New species of the genus *Otitoma* Jousseaume, 1898 (Pseudomelatomidae, Conoidea) from the Western Pacific Ocean

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Abstract. Twelve new species are assigned to the genus *Otitoma* Jousseaume, 1898 in the family Pseudomelatomidae Morrison, 1966 and herein described: *O. hadra* sp. nov., *O. neocaledonica* sp. nov., *O. rubiginostoma* sp. nov and *O. tropispira* sp. nov. from New Caledonia; *O. boucheti* sp. nov., *O. nereidum* sp. nov. and *O. sororcula* sp. nov. from the Fiji Islands; *O. xantholineata* sp. nov. from the Solomon to the Fiji Islands; *O. crassivaricosa* sp. nov. from Fiji to Hiva Oa Island (Marquesas Archipelago); *O. philpoppei* sp. nov. from the Philippines but also reported from the Fiji Islands; *O. elegans* sp. nov. from the Fiji Islands and *O. philippinensis* sp. nov. from the Philippines. New data on *O. carnicolor* (Hervier, 1896) are provided. *Otitoma mitra* (Kilburn, 1986), from Southern Mozambique, is here considered a synonym of *O. cyclophora* (Deshayes, 1863). *Drillia batjanensis* Schepman, 1913, previously assigned to the genus *Maoritomella* Powell, 1942 in the family Borsoniidae Bellardi, 1875, is here assigned to the genus *Otitoma*. Photographs of the holotype of *Drillia batjanensis* are provided for the first time. In addition, color photographs of the type specimens of the following species are provided: *Drillia kwandangensis* Schepman, 1913, *D. timorensis* Schepman, 1913 and *Mitrellatoma mitra* Kilburn, 1986.

Keywords. Systematics, Mollusca, biodiversity, type specimens, new species.

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Introduction

For numerous years, the French Institut de Recherche pour le Développement (IRD) and the Musèum national d'Histoire naturelle (MNHN) of Paris have been conducting an intensive sampling program in the Indo-Pacific region, particularly in waters surrounding New Caledonia (Bouchet *et al.* 2008). As a result of such efforts an unprecedented amount of turriform gastropods has been accumulated. This material provided the basis for several studies which have been published over the last two decades, exploring the extreme morphological diversification among the Conoidean groups previously assigned to Turridae (*sensu* Powell 1966), but which has since been resolved in 13 distinct families (Bouchet *et al.* 2011). We had the opportunity to examine numerous lots of material assigned to *Otitoma* Jousseaume, 1898 following preliminary sorting. The generic name *Otitoma* Jousseaume, 1898 was rediscovered by Kilburn (2004), who treated *Thelecytharella* Shuto, 1969 as a synonym. *Otitoma* and *Thelecytharella* have recently been considered distinct genera by Wiedrick (2014) on the basis of the anal sinus structure. This feature, however, seems variable within certain genera belonging to the family Pseudomelatomidae Morrison, 1966 and we accordingly prefer to follow Kilburn in considering *Thelecytharella* a synonym of *Otitoma.* Kantor *et al.* (2008) demonstrated that shell features of turriform gastropods may be inadequate for supraspecific classification. The status of *Thelecytharella*, as a synonym of *Otitoma*, will therefore remain uncertain until anatomical and/or molecular features become known. *Otitoma* and *Thelecytharella* include respectively seven and 11 recognized Pleistocene to Holocene species (see WoRMS Editorial Board 2016). In the present paper, we describe 12 new species of *Otitoma* (= *Thelecytharella*), which represent the more distinctive species among the available material.

Material and methods

Inclusion of *Otitoma* in the family Pseudomelatomidae follows Bouchet *et al.* (2011) and Puillandre *et al.* (2011). The material examined is represented by empty shells. Descriptions and measurements were based on shells oriented spire up with the aperture facing the viewer (front view) and turned 90° counter clock-wise (side view). Photographs were made using a Motic SMZ-140-N2GG stereo microscope. SEM micrographs of selected samples mounted onto stubs and coated with gold were taken with a Hitachi S-2400 scanning electron microscope and a JEOL-5200 scanning probe microscope.

Abbreviations:

a = aperture length
a/l = ratio of aperture length to total shell length
b = shell width
b/l = ratio of shell width to total length
l = total shell length
MNHN = Muséum national d'Histoire naturelle, Paris, France
MZB = Museo di Zoologia dell'Università di Bologna, Bologna, Italy
o.d. = original designation
pers. obs. = personal observation
spm(s) = specimen(s)
Stn = station
USNM = National Museum of Natural History, Washington DC, USA
ZMA = Naturalis Biodiversity Center, Leiden, the Netherlands

Results

Superfamily Conoidea Fleming, 1822
Family Pseudomelatomidae Morrison, 1966

Genus ***Otitoma*** Jousseaume, 1898

Otitoma Jousseaume, 1898: 106.
Thelecytharella Shuto, 1969: 208 (as subgenus of *Euclathurella*). Type species (o.d.): *Agladrillia oyamai* Shuto, 1965, Pleistocene of Japan.
Lioglyphostomella Shuto, 1970: 165. Type species (o.d.): *Drillia timorensis* Schepman, 1913, Recent of Indonesia.
Metaclathurella Shuto, 1983: 15 (as subgenus of *Austropusilla*). Type species (o.d.): *A. (M.) crokerensis* Shuto, 1983, Recent of Arafura Sea.

Type species

Otitoma ottitoma Jousseaume, 1898 (o.d.), Recent of Djibouti and Aden.

Diagnosis

Shell of small to moderate size, up to about 19 mm, with cylindric-fusiform or pupoid shape and constricted base. Sculpture predominantly spiral of weak to distinct cords sometimes plicate by axial ribs. Outer lip edge sharp, preceded by a varix, anal sinus rounded, U-shaped. Stromboid notch distinct. Inner lip with a parietal pad which constricts entrance to anal sinus. Protoconch paucispiral and papilliform to multispiral bluntly or narrowly conical.

Remarks

Shuto (1969: 208) proposed *Thelecytharella* as a subgenus of *Euclathurella*, selecting *Agladrillia oyamai* Shuto, 1965 from the Pleistocene of Kyushu (Japan) as the type species. In 1970, the same author erected the genus *Lioglyphostomella* to accommodate two Recent species from Indonesia, *Drillia kwandangensis* Schepman, 1913 and *D. timorensis* Schepman, 1913. Later, this author described *Austropusilla (Metaclathurella) crokerensis* Shuto, 1983 from the Arafura Sea (Shuto 1983). Subsequently, Kilburn (1995) moved the genus *Thelecytharella* to the Mangeliinae and recognized two South African species, *T. oneili* (Barnard, 1958) and *T. metuloides* Kilburn, 1995. In this paper we follow Kilburn (1995), who placed *Metaclathurella* and *Lioglyphostomella* in junior synonymy with *Thelecytharella* and demonstrated that *Austropusilla* is not related. A few years later, Sysoev (1997) described *Thelecytharella kecil* from Indonesia and demonstrated that it and *T. vitrea* (Reeve, 1845) are morphologically distinct and may actually represent a genus separate from *Thelecytharella*. Kilburn (2004) resurrected the genus *Otitoma*, previously considered a *nomen dubium* by Powell (1966: 126), and demonstrated that its type species, *Otitoma ottitoma* Jousseaume, 1898 from Yemen, is a synonym of the widely distributed Indo-Pacific *Pleurotoma cyclophora* Deshayes, 1863. This latter species had been assigned to the genus *Daphnella* Hinds, 1844, subgenus *Hemidaphne* Hedley, 1918 by Powell (1966). Kilburn (2004) described the similarities between *Otitoma* and *Thelecytharella* and considered the latter generic name a synonym of *Otitoma*. More recently, Wiedrick (2014) regarded both taxa as valid and described two new species, namely *O. astrolabensis* and *"Otitoma" fergusoni*, the latter assigned to genus *Otitoma* with doubt. *Daphnella deluta* Gould, 1860, described from the ambiguous locality "China Sea", was assigned to the genus *Otitoma* by Wiedrick (2014). We have not examined the type material, but judging from photographs of the lectotype (USNM 24225), the species appears to be raphitomine and its inclusion in *Otitoma* is uncertain. Conversely, *Drillia batjanensis* Schepman, 1913, described from Indonesia, Maluku (Moluccas), West of Halmahera, at a depth of 397 m, has been assigned to the genus *Maoritomella* Powell, 1942 in the family Borsoniidae Bellardi, 1875 by numerous

authors (Beets 1984; Shuto 1970; Sysoev 1997), but photographs of the holotype (ZMA 136858), clearly indicate that the species belongs to genus *Otitoma*. *Otitoma batjanensis* is similar to the holotype of *O. crokerensis* (Shuto, 1983) (see Australian Museum Collections). In this paper we follow Kilburn (2004) and tentatively treat *Thelecytharella* as a synonym of *Otitoma*, because in our opinion, the morphological features proposed by Wiedrick (2014) as diagnostic of the two groups are of doubtful value, at least at the supraspecific level. The systematic position of *Otitoma* (= *Thelecytharella*) has been a subject of debate. Shuto (1969) and Kilburn (1995) referred it to the subfamily Mangeliinae (now Mangeliidae), while Sysoev (1997) referred to *Thelecytharella* as "Conoidea *incertae sedis*". More recently, Bouchet *et al.* (2011) assigned *Otitoma* (= *Thelecytharella*) to the family Pseudomelatomidae Morrison, 1966 on the basis of molecular evidence.

Otitoma cyclophora (Deshayes, 1863)
Fig. 1A–L

Pleurotoma cyclophora Deshayes, 1863: 111, pl. 12, figs 19–21. Type locality: Réunion Island.
Daphnella crenulata Pease, 1868: 221, pl. 15, fig. 20. Type locality: Polynesia.
Otitoma ottitoma Jousseaume, 1898: 106. Type locality Djibouti and Aden.
Mitrellatoma mitra Kilburn, 1986: 682, figs 97, 101. Type locality: Two Mile Reef, Benguera Island, Bazaruto Archipelago, southern Mozambique, 21°53′ S, 35°26′ E. syn. nov.

Material examined

FIJI ISLANDS: 1 spm, MUSORSTOM 10, Stn CP1366, S of Viti Levu, 18°12.4′ S, 178°33.1′ E, 149–168 m; 1 spm, MUSORSTOM 10, Stn DW1381, S of Viti Levu, 18°17.8′ S, 177°54.4′ E, 275–430 m.

SOUTHWEST PACIFIC: 1 spm, MUSORSTOM 7, Stn DW626, Banc Bayonnaise, 597–600 m.

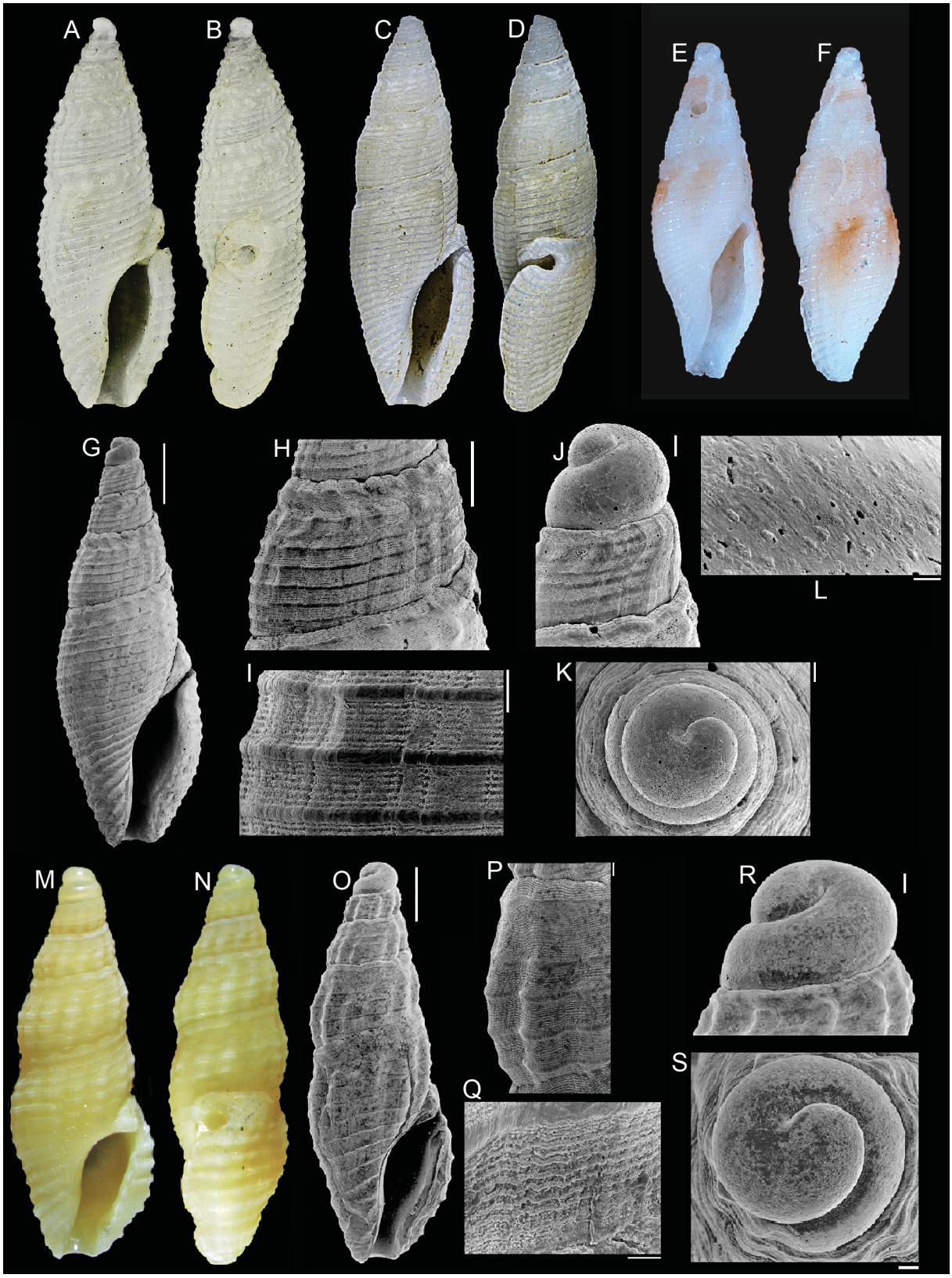
PHILIPPINES: 1 spm, Mactan Island, 10–20 m.

MADAGASCAR: 1 spm, Tulear reef, 15–20 m.

Remarks

This species, the type of the genus *Otitoma*, has a very broad distribution from the southern Red Sea and Mozambique to Japan, Fiji and Polynesia. Kilburn (2004) selected a neotype from Aden and re-described the species on the basis of local material from Mozambique. The same author determined *Daphnella crenulata* Pease, 1868, described from Polynesia, to have been based on a juvenile specimen of *O. cyclophora*. Our material (Fig. 1A–C, G–L) matches that figured and discussed by Kilburn (2004) in morphological features and is, accordingly, considered as conspecific. Kilburn (1986) introduced *Mitrellatoma mitra* for a single shell from Southern Mozambique; the taxon was later cited by the same author in his list of species belonging to the genus *Otitoma* (Kilburn 2004), but without a formal

Fig. 1. [next page] **A–L**. *Otitoma cyclophora* (Deshayes, 1863). **A–B**. Philippines, Mactan Island, 10–20 m, 7.5 × 2.67 mm. **C–D**. MUSORSTOM 10, Stn CP 1366, Fiji, S of Viti Levu, 18°12.4′ S, 178°33.1′ E, 149–168 m, 11.35 × 3.65 mm. **E–F**. Holotype of *Mitrellotoma mitra* Kilburn, 1986, S Mozambique, Bazaruto Archipelago, approximately 21°53′ S, 35° 26′ E, 6.4 × 2.3 mm (NMJ4527/T3287). **G–K**. Madagascar, Tulear reef, 15–20 m. **G**. Shell. **H**. Teleoconch. **I**. Secondary spiral sculpture of the teleoconch. **J–L**. Protoconch. **L**. Microsculpture of the protoconch. — **M–S**. *Otitoma carnicolor* (Hervier, 1896). **M–N**. Specimen from Lifou, 20°55.0′ S,167°05.2′ E, 9–20 m, 7.26 × 2.57 mm. **O–S**. Specimen from Lifou, 20°53.5′ S, 167°02.7′ E, 12–32 m. **P**. Teleoconch. **Q**. Secondary spiral sculpture of the teleoconch. **R–S**. Protoconch. Scale bars: G, O = 1 mm; H = 500 μm; I–K, P, R–S = 100 μm; L = 10 μm; Q = 50 μm.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discussion of the reassignment. In our opinion, the holotype of *Mitrellatoma mitra* (Fig. 1E–F) is a juvenile specimen that perfectly matches the morphological features of the lectotype of *Daphnella crenulata*, and the former species is also considered a synonym of *O. cyclophora* here.

Otitoma cyclophora has previously been considered a littoral species (Kilburn 2004), but the present records indicate it can also live in deep water (down to 600 m). The available specimen from deep water (Stn DW626) measures 13.7 × 4.0 mm, aperture height 6.4 mm and is the maximum size reported for the species. As already noted by Kilburn (2004), *O. cyclophora* has a well-developed secondary spiral sculpture of numerous closely-spaced, fine spiral threads (Fig. 1I).

Otitoma carnicolor (Hervier, 1896)
Fig. 1M–S

Drillia carnicolor Hervier, 1896: 141. Type locality: Lifu Island.

Material examined

LOYALTY ISLANDS: 2 spms (1 juv), Atelier LIFOU, Stn 1444, Lifou, Santal Bay, NE of Gaatcha Bay, 20°55.0′ S, 167°05.2′ E, 9–20 m; 2 spms, Atelier LIFOU, Stn 1432, Lifou, Santal Bay, Récif Shelter, 20°53.5′ S, 167°02.7′ E, 12–32 m; 1 spm (eroded), Atelier LIFOU, Stn 1438, Lifou, Santal Bay, Chépénéhé Point, 20°47.7′ S, 167°09.35′ E, 16 m.

Description

Shell claviform-fusiform (b/l 0.36–0.37; a/l 0.44–0.50), somewhat pupoid. Teleoconch of 4½–4¾ weakly and evenly convex whorls with periphery just below mid-whorl height on earlier two whorls, at mid-whorl on later ones. Suture shallow, bordered by a sub-sutural fold, demarcated by a shallowly concave sutural ramp. Axial ribs opisthocline and rounded, equal in width to or wider than intercostal space, extend from whorl base to sub-sutural fold but becoming rather weak on sutural ramp. 12–13 axial ribs on penultimate whorl, 12–16 on last whorl. Spiral sculpture (Fig. 1P) of narrow, widely-spaced spiral cords, not forming distinct nodules where crossing axial ribs. First two teleoconch whorls with a sub-sutural cord, 1–2 weak cords (abapical one stronger) on sutural ramp and two main cords below ramp, 1–2 additional main cords develop on subsequent two whorls. Last whorl with 8–9 spiral cords on base and rostrum. Interspaces between spiral cords sculptured by dense, closely-spaced fine spiral threads irregularly plicate by axial incremental lines. Aperture rather narrow, slightly constricted at entrance to siphonal canal, the latter short, slightly expanded terminally, somewhat obliquely truncated. Inner lip with moderately thick callus and strong parietal pad. Outer lip edge sharp, preceded by a wide, low, rounded varix. Stromboid notch distinct. Anal sinus moderately deep, U-shaped, with strongly constricted opening. Protoconch papilliform, of 1½ whorls, superficially smooth but under SEM with traces of somewhat spirally-aligned granules (Fig. 1R–S). Protoconch diameter 0.90–0.95 mm. Dimensions (based on two well preserved adult specimens): 7.3 × 2.6 mm, aperture height 3.2 mm (Stn 1444); 6.45 × 2.4 mm, aperture height 3.25 mm (Stn 1432). Color pale-yellowish.

Remarks

This species was originally described from Lifou Island and cited by Bouge & Dautzenberg (1914). It has subsequently been ignored until Kilburn (2004) included it in his list of *Otitoma* species. The available material positively compares with the photographs of the syntypes of *Drillia carnicolor* published by MNHN (https://science.mnhn.fr/institution/mnhn/collection/im/item/2000-2863) and is accordingly considered conspecific. Wiedrick (2014) assigned *Drillia carnicolor* to *Thelecytharella*, even though the species clearly resembles an unidentified species from the Philippines, which the author assigned to *Otitoma* (Wiedrick 2014: 53, figs 10–12). Actually, *Otitoma carnicolor* resembles *O. cyclophora* in type of protoconch structure and interstitial sculpture of numerous spiral threads (Fig. 1Q) but otherwise

differs distinctly mainly in its smaller size (6.45–7.3 mm vs 10.9–7.7 mm), larger protoconch (0.90–0.95 mm vs 0.52–0.59 mm) and very different axial ribbing. In particular, *O. cyclophora* has more numerous and weaker axial ribs, which become distinctly arcuate on the sutural ramp, while in *O. carnicolor* the axial ribs are stronger and straight. Furthermore, *O. carnicolor* has a shallower anal sinus compared to that of *O. cyclophora*. Under SEM the protoconch surface of *O. cyclophora* is seen to be covered by somewhat spirally-aligned granules (Fig. 1L). Traces of similar microscopic granules are also seen on the partially abraded protoconch surface of *O. carnicolor*.

Otitoma sororcula sp. nov.
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Fig. 2A–I

Etymology

The specific epithet comes from the Latin '*sororcula*', meaning 'a little sister', alluding to its strong resemblance to *Otitoma kwandangensis* (Schepman, 1913).

Type material

Holotype

FIJI ISLANDS: MUSORSTOM 10 Stn, CP1323, Bligh Water, 17°16.1′ S, 177°45.7′ E, 143–173 m (MNHN IM-2000-32582).

Paratypes

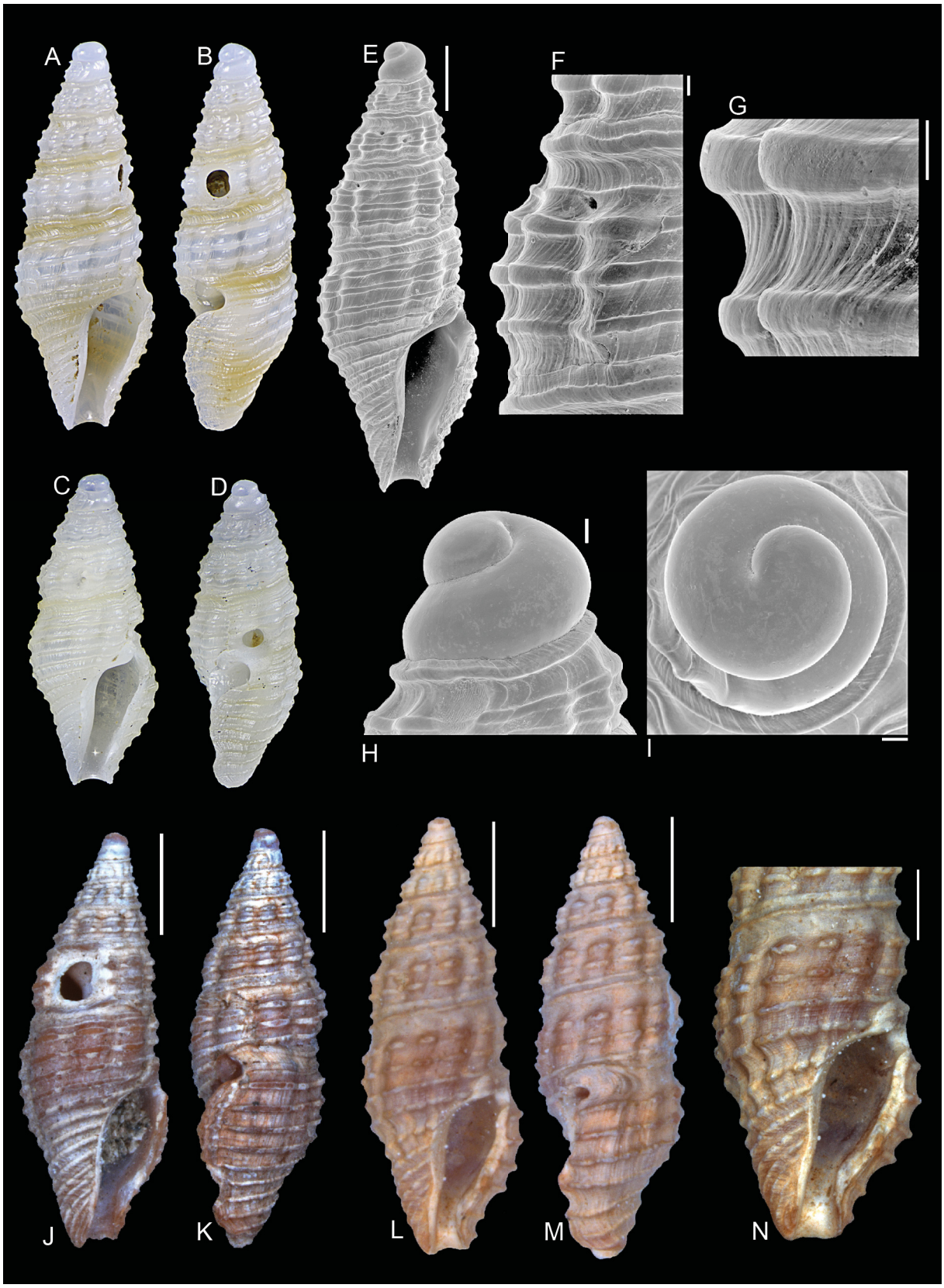
FIJI ISLANDS: paratype 1, same data as holotype (MZB 60210); paratype 2, MUSORSTOM 10, Stn DW1329, Bligh Water, 17°19.3′ S, 177°47.4′ E, 102–106 m (MNHN IM-2000-32583); paratypes 3–4, MUSORSTOM 10, Stn DW1365, SE of Viti Levu, 18°12.7′ S, 178°32.4′ E, 295–302 m (MNHN IM-2000-32584); paratypes 5–6, MUSORSTOM 10, Stn DW1359, SE of Viti Levu, 17°49.7′ S, 178°47.8′ E, 183–188 m (MNHN IM-2000-32585); paratype 7, MUSORSTOM, 10 Stn DW1356, SE of Viti Levu, 17°50.3′ S, 178°48.0′ E, 203–208 m (MNHN IM-2000-32586).

Additional material

FIJI ISLANDS: 2 spms, MUSORSTOM 10, Stn CP1323, Bligh Water, 17°16.1′ S, 177°45.7′ E, 143–173 m; 4 spms, MUSORSTOM 10, Stn DW1329, Bligh Water, 17°19.3′ S, 177°47.4′ E, 102–106 m.

Description

Shell claviform-fusiform (b/l 0.36–0.44; a/l 0.43–0.50), somewhat pupoid. Teleoconch of 3½–4¾ convex whorls with median periphery. Suture distinct, bordered by a prominent spiral cord, demarcated by a distinctly concave sutural ramp. Axial ribs rather straight, opisthocline and distinctly rounded, broader than intervals between them, developed mainly in peripheral region, becoming much weaker to obsolete and slightly arcuate on sutural ramp. 8–11 axial ribs on penultimate whorl, 11–14 on last whorl. Spiral sculpture of prominent, narrow, widely-spaced spiral cords, becoming conspicuously nodulose where crossing axial ribs (Fig. 2F). Earlier 1–2 whorls with a subsutural cord and two cords on abapical part of whorl, increasing to 3 and 4 on penultimate and last whorl, respectively. Sutural ramp with 1–2 weak spiral cords on abapical side. Last whorl with 9–12 spiral cords on base and rostrum. Interspaces between spiral cords lacking secondary sculpture (Fig. 2G). Aperture rather narrow and almost linear, but strongly constricted at entrance to siphonal canal. Siphonal canal short, relatively wide, expanding slightly distally. Inner lip with moderately thick callus with distinct parietal pad. Outer lip edge sharp, preceded by a wide, low, rounded varix. Stromboid notch distinct. Anal sinus rather deep, apically rounded, asymmetrically U-shaped, with strongly constricted opening. Protoconch papilliform, of ¼–1½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whorls (Fig. 2H–I), diameter 0.62–0.89 mm. Color white or yellowish-white with an amber-orange band bordering the adapical suture.

Dimensions

Holotype: 6.0 × 2.3 mm, aperture height 2.9 mm. Paratype 1 (largest specimen): 6.6 × 2.4 mm, aperture height 3.0 mm; paratype 7 (smallest specimen): 4.3 × 1.9 mm, aperture height 1.85 mm.

Remarks

Among its described congeners, *Otitoma sororcula* sp. nov. most closely resembles *Otitoma kwandangensis* (Schepman, 1913) (Fig. 2J–K). The two species are nearly indistinguishable from each other in teleoconch morphology, but differ in protoconch structure, which in *O. sororcula* sp. nov. is papilliform, of 1¼–1½ whorls while in *Otitoma kwandangensis* it "is broken at the tip and the preserved part consists of 2.7 volutions" (Shuto 1970: 166, plate X, fig. 19). *Otitoma sororcula* sp. nov. is remarkably smaller than the type specimen of *Drillia kwandangensis* (4.3–6.6 mm vs 8.2 mm, mean 5.15 mm in length) and differs in color (white or yellowish-white with an amber-orange band bordering the adapical suture and tinged with the same color on the adapical part of the base vs a uniform red-brown). The new species is comparable to *Otitoma timorensis* (Schepman, 1913), in protoconch features and shape, but judging from the photographs of the holotype ZMA 138096 (Fig. 2L–N), *Otitoma sororcula* sp. nov. differs in lacking a secondary spiral sculpture, having a different number of spiral cords (3 instead of 2 on penultimate whorls), which are more distinctly nodulous where crossing the axial ribs, and in having broader and more bulging axial ribs.

Otitoma xantholineata sp. nov.
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Fig. 3A–G

Etymology

The specific epithet comes from the Greek '*xanthos*' and Latin '*lineata*', alluding to the brownish orange spiral cords.

Type material

Holotype

FIJI ISLANDS: MUSORSTOM 10, Stn CP1363, S of Viti Levu, 18°12.4′ S, 178°33.0′ E, 144–150 m (MNHN IM-2000-32587).

Paratypes

FIJI ISLANDS: paratypes 1–2, MUSORSTOM 10, Stn DW1365, S of Viti Levu, 18°12.7′S, 178°32.4′E, 295–302 m (MNHN IM-2000-32588); paratype 3, MUSORSTOM 10, Stn CP1366, S of Viti Levu,

Fig. 2. [preceding page] **A–I**. *Otitoma sororcula* sp. nov. **A–B**. Holotype (MNHN IM-2000-32582), MUSORSTOM 10, Stn CP1323, Fiji, Bligh Water, 17°16.1′ S, 177°45.7′ E, 143–173 m, 6.0 × 2.3 mm. **C–D**. Paratype 5 (MNHN IM-2000-32585), MUSORSTOM 10, Stn DW1359, Fiji Islands, South-East Viti Levu, 17°49.7′ S, 178°47.8′ E, 183–188 m, 4.65 × 2 mm. **E–I**. Paratype 1 (MZB 60210), MUSORSTOM 10, Stn CP1323, Fiji, Bligh Water, 17°16.1′ S, 177°45.7′ E, 143–173 m. **F**. Teleoconch. **G**. Secondary sculpture of the teleoconch. **H–I**. Protoconch. — **J–N**. *Drillia kwandangensis* Schepman, 1913, holotype, Indonesia, Kwandang Bay, 75 m, 8.5 × 3 mm (ZMA.MOLL.136871). — **L–N**. *Drillia timorensis* Schepman, 1913, holotype, near south coast of Timor**,** Indonesia, 34 m, 8.5 × 2.75 mm (ZMA.MOLL.138096). Scale bars: E = 1 mm; F, H–I = 100 µm; G = 10 µm.

18°12.4′ S, 178°33.1′ E, 149–168 m (MNHN IM-2000-32589); paratype 5, MUSORSTOM 10, Stn CP1366, same locality as preceding (MZB 60211).

SOLOMON ISLANDS: paratype 4, SALOMON 1, Stn DW1850, 10°28.1′ S, 161°59.0′ E, 139–261 m (MNHN IM-2000-32590).

Description

Shell cylindric-fusiform (b/l 0.37–0.41; a/l 0.48–0.54). Teleoconch of 4–5 weakly and evenly convex whorls with periphery at mid-whorl height. Suture shallow and bordered by a sub-sutural fold with a prominent spiral cord. Sutural ramp concave on earlier whorls, more shallowly concave on later ones. Axial sculpture absent (holotype) or consisting of ribs restricted to earlier two teleoconch whorls. Spiral sculpture consisting of prominent, angular and well-spaced cords. First two teleoconch whorls with a sub-sutural cord and two cords between sutural ramp and whorl base, increasing to 3 on antepenultimate whorl, 3–4 and 4–5 on penultimate and last whorl, respectively. Sutural ramp sculptured with none (usually first whorl) to 1 weak cord on earlier whorls; later two whorls with two spiral cords, abapical one strongest. Last whorl with 12–14 spiral cords on base and rostrum. Interspaces between spiral cords lacking secondary sculpture (Fig. 3E). Surface covered only by relatively coarse axial incremental lines. Aperture pyriform, constricted at entrance to siphonal canal. Siphonal canal relatively wide, expanding slightly distally, oblique, not notched. Inner lip covered with thin callus, most of its parietal region occupied by a thin pad. Outer lip edge sharp, preceded by a wide, low and rounded varix. Stromboid notch distinct. Anal sinus U-shaped, its entrance only slightly constricted by parietal pad. Protoconch domed, of 1½–1¾ smooth whorls with distinct protoconch/teleoconch transition, white, diameter 0.77–0.90 mm (Fig. 3F–G). Teleoconch yellowish-white to pale orange-yellow, with light brownish orange spiral cords and aperture edged with brownish orange.

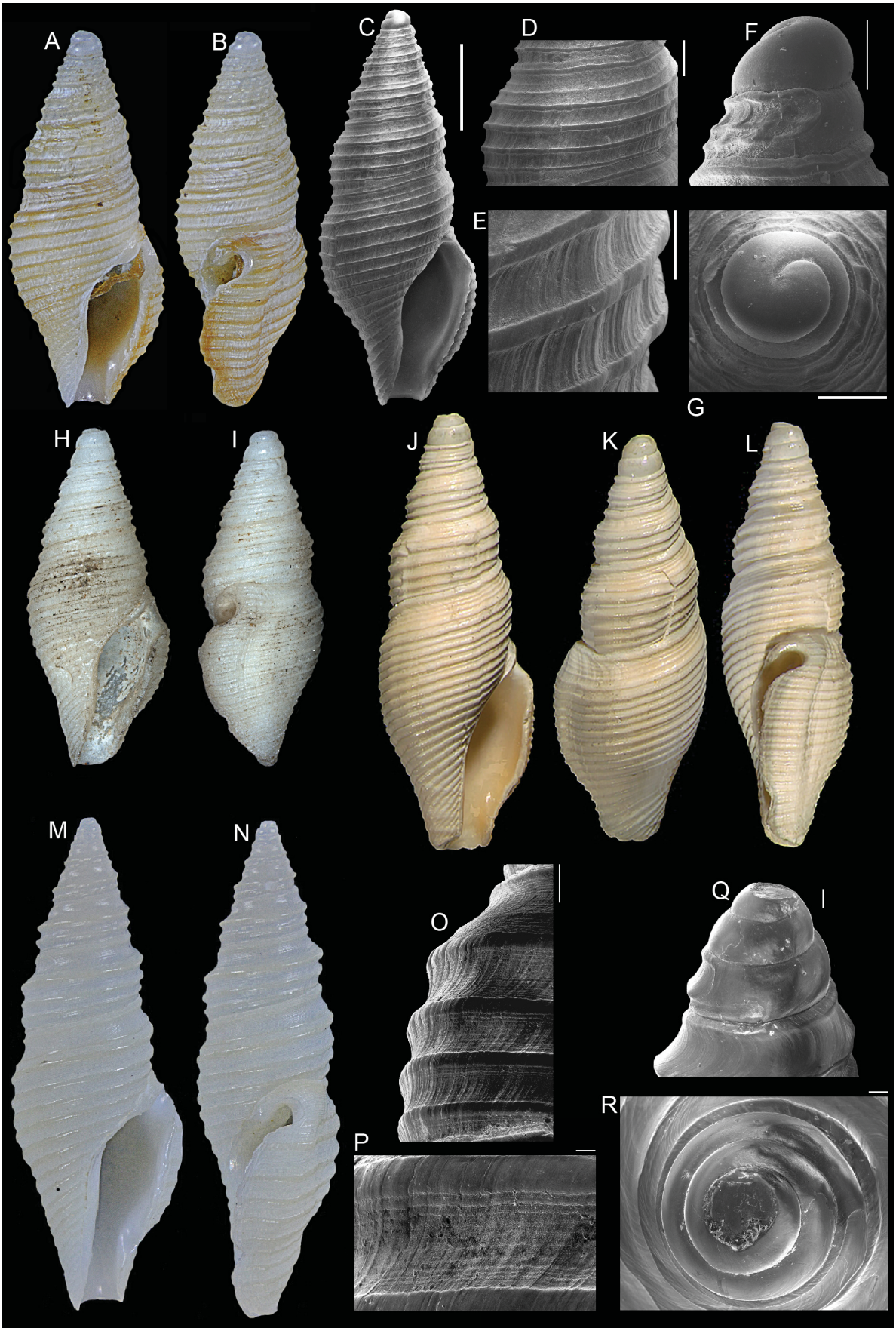
Dimensions

Holotype: 7.25 × 3.0 mm, aperture height 3.8 mm. Paratype 3: 8.8 × 3.35 mm, aperture height 4.6 mm; paratype 4: 8.5 × 3.2 mm, aperture height 4.6 mm.

Remarks

Otitoma xantholineata sp. nov. is similar in shape and number of spiral cords to *O. kagoshimaensis* from the Upper Pleistocene of Moeshima Island, Japan (3 on first teleoconch whorl increasing to 4–5 on later whorls), based on a single specimen of the latter, which is lacking the spire apex. However, *O. kagoshimaensis* is sculptured by axial ribs on all teleconconch whorls (Shuto 1965: 156), while in *O. xantholineata* sp. nov. axial sculpture is absent or restricted to earlier teleoconch whorls. In *O. kagoshimaensis* the interspaces between spiral cords are "covered by numerous minute spiral lines", while *O. xantholineata* sp. nov. has no interstitial sculpture. Furthermore, *O. xantholineata* sp. nov. has

Fig. 3. [next page] **A–G**. *Otitoma xantholineata* sp. nov. **A–B**. Holotype (MNHN IM-2000-32587), Fiji, S of Viti Levu, 18°12.4′ S, 178°33.0′ E, 144-150 m, 7.25 × 3.0 mm. **C–G**. Paratype 5 (MZB 60211), MUSORSTOM 10, Stn CP1366, Fiji, S of Viti Levu, 18°12.4′ S, 178°33.1′ E, 149–168 m. **D**. Teleoconch. **E**. Secondary sculpture of the teleoconch. **F–G**. Protoconch. — **H–I**. *Drillia batjensis* Schepman, 1913, syntype, Batjan, 0°11′ S, 127°25′ E, Indonesia, 397 m, 7.39 × 3.75 mm, (ZMA.MOLL.136858_1). — **J–L**. *Austropusilla* (*Metaclathurella*) *crokerensis* Shuto, 1983, holotype, Australia, Northern Territory, Arafura Sea, 10°17′00″ S, 132°38′00″ E, ca 45 m (C.134692). — **M–R**. *Otitoma tropispira* sp. nov. **M–N**. Holotype (MNHN IM-2000-32591), BATHUS 2, Stn DW747, S of New Caledonia, 22°30′ S, 166°260′ E, 574 m, 16.3 × 5.7 mm. **O–R**. Paratype 2 (not coated) (MZB 60212), SW New Caledonia, Boulari Passage, 400 m. **O**. Teleoconch. **P**. Secondary spiral sculpture of the teleoconch. **Q–R**. Protoconch. Scale bars: C = 2 mm; D, O = 500 μm; E–G = 200 μm; P–R = 100 μm.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a more shallowly concave sutural ramp compared to *O. kagoshimaensis*. *Otitoma xantholineata* sp. nov. is superficially similar to two Recent species: *Drillia batjanensis* Schepman, 1913 from Indonesia (Fig. 3H–I) and *O. crokerensis* (Shuto, 1983) from the Arafura Sea (Fig. 3J–L). *Otitoma xantholineata* sp. nov. is readily distinguished from *D. batjanensis* in protoconch structure (domed, of 1½–1 ¾ whorls rather than bluntly conical, of 3 whorls), and by spiral sculpture features. The two species have a comparable number of spiral cords on spire whorls, but these are of nearly uniform strength in *Otitoma xantholineata* sp. nov., while in *D. batjensis* they are more "keel-like", with those on abapical side of the whorl more prominent than the others. Furthermore, *O. xantholineata* sp. nov. has vestigial axial sculpture on earlier whorls and distinct axial incremental lines on the entire surface, while there is no indication of axial sculpture in *D. batjensis*. *Otitoma xantholineata* sp. nov. may superficially resemble *O. crokerensis* (Shuto, 1983), from which it is distinctly different in protoconch features (*O. crokerensis* has the same protoconch structure as *D. batjensis*), in having fewer and narrower spiral cords, in the profile of spiral whorl(evenly convex instead of slightly shouldered) and in the more defined siphonal canal.

Otitoma tropispira sp. nov.
urn:lsid:zoobank.org:act:85D8CD51-3521-4BEB-B393-80F55132AAF6
Fig. 3M–R

Etymology

The specific epithet comes from a combination of the Greek '*tropis*' (a keel) and the Latin '*spira*' (spire), alluding to the strong spiral sculpture of the keel-like cords.

Type material

Holotype

NEW CALEDONIA: BATHUS 2, Stn DW747, S of New Caledonia, 22°30′ S, 166°260′ E, 574 m (MNHN IM-2000-32591).

Paratypes

NEW CALEDONIA: paratype 1, same data as holotype (MNHN IM-2000-32592); paratypes 2 (MZB 60212) and 3 (MNHN IM-2000-32593), SW of New Caledonia, Boulari Passage, 400 m; paratype 4, BATHUS 4, Stn CP946, N of New Caledonia, 20°34′ S, 164°58′ E, 386–430 m (MNHN IM-2000-32594); paratype 5, BATHUS 1, Stn DW683, off E coast, 20°35′ S, 165°07′ E, 380–400 m (MNHN IM-2000-32595); paratype 6, BATHUS 2, Stn DW758, S of New Caledonia, 22°18′S, 166°11′E, 377–386 m (MNHN IM-2000-32596).

Description

Shell fusiform (b/l 0.34–0.36; a/l 0.42–0.50). Teleoconch of 6–7 convex whorls with periphery at middle on earlier whorls, posterior to mid-whorl on later ones. Suture moderately deep, bordered by a prominent sub-sutural fold bearing a spiral cord, demarcated by a distinctly concave sutural ramp. Sculpture consisting of widely-spaced, narrow, keel-like spiral cords. Four earliest teleoconch whorls with a sub-sutural cord and two cords on abapical half of whorl, increasing to 3 on fifth and 4 on later two whorls. Last whorl with 11–15 spiral cords on base and rostrum. Sutural ramp with a narrow weak cord on its abapical part, becoming stronger on later two whorls (in paratype 5 (MNHN IM-2000-32595) comparable in strength to main spiral cords). Interspaces between spiral cords sculptured by numerous, very fine and faint spiral threads varying in number (up to about 13) (Fig. 3P). Axial sculpture represented only by incremental lines, more evident on sutural ramp, where they are arcuate in conformity with curvature of anal sinus. Aperture rather narrow, lanceolate, strongly constricted at entrance to siphonal canal. Siphonal canal long for genus, not notched terminally. Inner lip with moderately thin callus,

parietal region with a pad formed at intersection with outer lip. Outer lip edge sharp, preceded by a wide, strong, rounded varix. Stromboid notch distinct, deep. Anal sinus deep, U-shaped, with strongly constricted opening. Protoconch conical, of 2½–2¾ smooth whorls. Protoconch diameter 0.81–0.92 mm (Fig. 3Q–R). Color white or cream, with yellowish-orange spiral cords.

Dimensions

Holotype: 16.3 × 5.7 mm, aperture height 8.1 mm. Paratype 2 (largest specimen): 18.8 × 6.4 mm, aperture height 8.5 mm; paratype 6 (smallest specimen): 14.3 × 5.0 mm, aperture height 6.8 mm.

Remarks

Otitoma tropispira sp. nov. is distinguished from its described congeners by its rather large size (attains about 19 mm in maximum length) and the sculpture of its keel-like spiral cords, somewhat reminiscent of members of the pseudomelatomid genus *Turridrupa* Hedley, 1922. However, members of that genus have a weak to absent parietal pad, which does not constrict entrance to the anal sinus, and the interior part of the aperture is sculptured by spiral plicae. Furthermore, the protoconch of *O. tropispira* sp. nov. is smooth, while that of *Turridrupa* bears axial riblets on the last 1½–2 whorls (Kilburn 1988; Powell 1966).

Otitoma boucheti sp. nov.

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Fig. 4A–F

Etymology

Named after Dr. Philippe Bouchet of the Department of Systematics and Evolution, MNHN, Paris.

Type material

Holotype

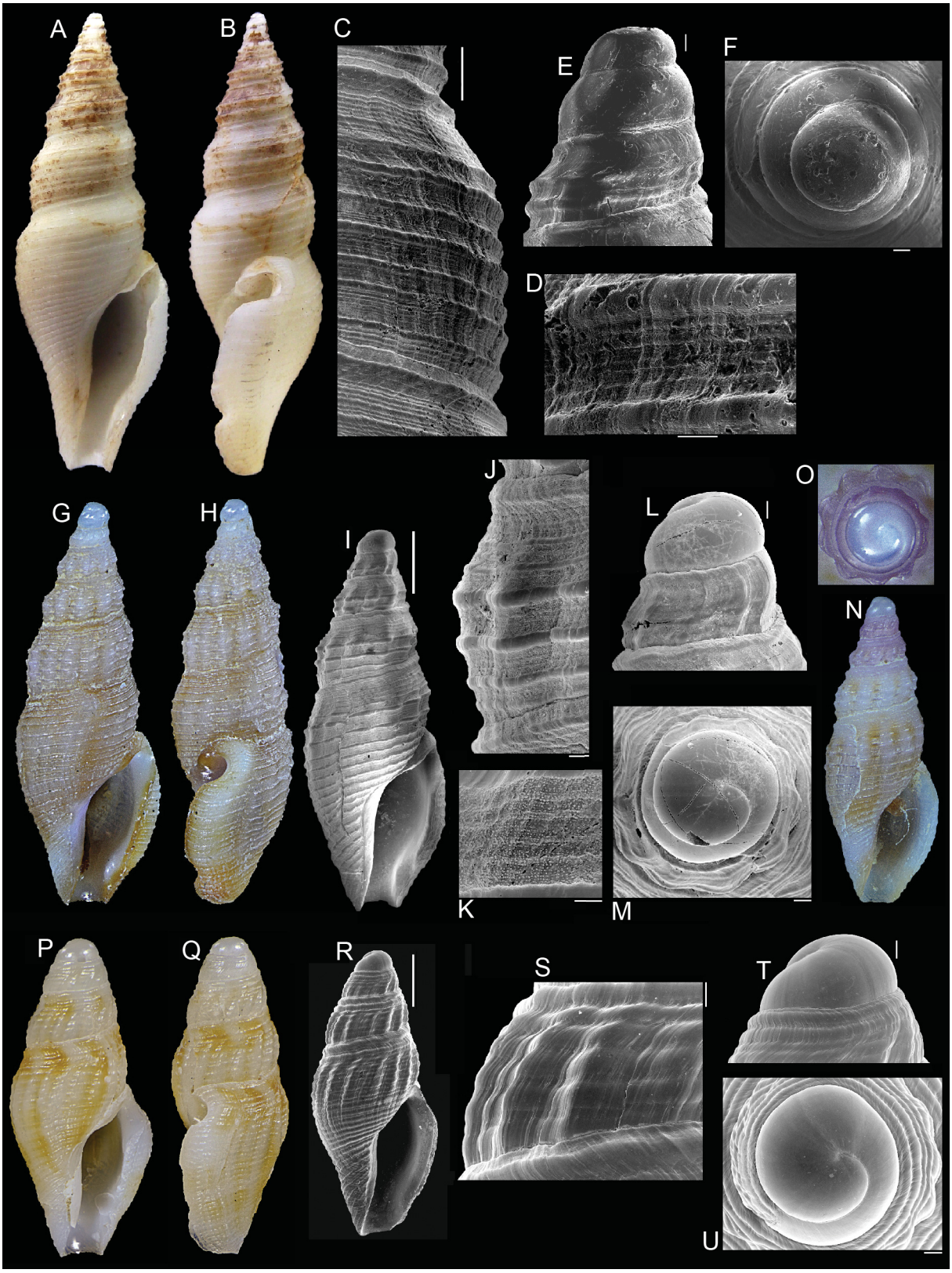
FIJI ISLANDS: MUSORSTOM 10, Stn CP1366, S of Viti Levu, 18°12.4′ S, 178°33.1′ E, 149–168 m (MNHN IM-2000-32597).

Description

Shell fusiform (b/l 0.33; a/l 0.52). Teleoconch of 6 whorls, moderately convex, with a slightly angular shoulder posterior to mid-whorl. Suture shallow, bordered by a narrow and weak sub-sutural cord and a shallowly concave sutural ramp. Axial sculpture absent. Spiral sculpture of widely-spaced and rather narrow cords. Three earliest teleoconch whorls with sub-sutural fold and two cords on abapical half of whorl; fourth whorl with two additional cords, one secondary cord at abapical margin of sutural ramp and one main cord margining whorl base. Penultimate whorl with three main and four weaker cords, increasing in strength in such a way that there are 7 cords of nearly uniform strength on last whorl (Fig. 4C). Last whorl with 21 spiral cords on base and siphonal canal. Interspaces between cords sculptured by 2–5 spiral threads (Fig. 4D). Aperture rather narrow and ovate, constricted at entrance to siphonal canal. Siphonal canal long for genus, not notched terminally. Inner lip with moderately thin callus, parietal region with a pad formed at junction of outer lip. Outer lip edge sharp, preceded by a wide, low, rounded varix. Stromboid notch moderately deep. Anal sinus deep, U-shaped, with constricted opening. Protoconch narrowly conical, of 2¾ smooth whorls, diameter 0.76 mm (Fig. 4E–F). Color yellowish-white.

Dimensions

Holotype: 14.9 × 5.0 mm, aperture height 7.7 mm.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Remarks

In its large size (up to about 15 mm in length) and yellowish-white shell, *Otitoma boucheti* sp. nov. may superficially resemble *O. tropispira* sp. nov., but is readily distinguished from the latter in having more numerous, but much narrower and less prominent spiral cords, and a longer siphonal canal.

Otitoma neocaledonica sp. nov.
urn:lsid:zoobank.org:act:0502F4E9-D944-4F48-8CFD-32FA40FC5D40
Fig. 4G–O

Etymology

The specific epithet alludes to the origin of the type material (New Caledonia).

Type material

Holotype

NEW CALEDONIA: Montrouzier Expedition, Stn 1322, Koumac, Deverd Passage, 20°45.2′ S, 164°15.2′ E, 53–71 m (MNHN IM-2000-32598).

Paratypes

NEW CALEDONIA: paratypes 1–4, same data as holotype (MNHN IM-2000-32599); paratypes 5–6, Montrouzier Expedition, Stn 1309, Koumac Lagoon, l'îlot Kendek Passage, 20°40.5′ S, 164°13.4′ E, 18 m (MNHN IM-2000-32600); paratype 7 (coated, MZB 60213) and paratypes 8–11 (MNHN IM-2000-32601), Montrouzier Expedition, Stn 1314, Koumac Lagoon, 20°39.8′ S, 164°15.3′ E, 30–63 m.

Additional material examined

NEW CALEDONIA: 5 spms, Montrouzier Expedition, Stn 1322, Koumac, Deverd Passage, 20°45.2′ S, 164°15.2′ E, 53–71 m; 6 spms, Montrouzier Expedition, Stn 1314, Koumac Lagoon, 20°39.8′ S, 164°15.3′E, 30–63 m; 1 spm, Montrouzier Expedition, Stn 1313, Koumac Lagoon, 20°38.8′S, 164°15.6′ E, 13–38 m.

Description

Shell cylindric-fusiform (b/l 0.35–0.40; a/l 0.45–0.52), somewhat pupoid. Teleoconch whorls up to 3¾–5½, moderately convex, with periphery just posterior to mid-whorl. Suture shallow, bordered by two closely spaced spiral threads demarcated by a wide, shallow and concave sutural ramp. Axial ribs

Fig. 4. [preceding page] **A–F**. *Otitoma boucheti* sp. nov. **A–B**. Holotype (MNHN IM-2000-32597), MUSORSTOM 10, Stn CP1366, Fiji, S of Viti Levu, 18°12.4′ S, 178°33.1′ E, 149–168 m, 14.9 × 5.0 mm. **C**. Teleoconch (not coated). **D**. Secondary spiral sculpture of the teleoconch (not coated). **E–F**. Protoconch (not coated). — **G–O**. *Otitoma neocaledonica* sp.nov. **G–H**. Holotype (MNHN IM-2000-32598), Montrouzier Expedition, Stn 1322, New Caledonia, Koumac, Deverd Passage, 20°45.2′S, 164°15.2′ E, 53–71 m, 8.2 × 3.0 mm. **I–M**. Paratype 7 (MZB 60213), Montrouzier Expedition, Stn 1314, New Caledonia, Koumac Lagoon, 20°39.8′ S, 164°15.3′ E, 30–63 m. **I**. Shell. **J**. Teleoconch. **K**. Secondary spiral sculpture of the teleoconch. **L–M**. Protoconch. **N–O**. Paratype 5 (MNHN IM-2000-32600), Montrouzier Expedition, Stn 1309, New Caledonia, Koumac Lagoon, 20°40.5′ S, 164°13.4′ E, 18 m, 5.78 × 2.18 mm. **O**. Colour micrograph of the protoconch. — **P–U**. *Otitoma hadra* sp. nov. **P–Q**. Holotype (MNHN IM-2000-32602), BATHUS 4, Stn DW882, N New Caledonia, 22°02′ S, 165°56′ E, 250-350 m, 5.1 × 2.1 mm. **R–U**. Paratype (MNHN IM-2000-32603), BATHUS 4, Stn DW882. **S**. Teleoconch, scale bar C, J = 100 µm. **T–U**. Protoconch. Scale bars: C, K = 500 µm; D–F, L–M, T–U = 100 µm; I, R = 1 mm.

rather straight, opisthocline and rounded, equal to or wider than intercostal space, developing mainly in peripheral region, not reaching suture. 12–15 axial ribs on penultimate whorls; on last whorl 11–17 ribs, but reduced to 8–10 in specimens with ribs fading on last portion of whorl. Sculptured by widely-spaced spiral cords, crossing low axial ribs, not forming distinct nodules. Earliest two teleoconch whorls with 2–3 spiral cords between sutural ramp and whorl base, increasing to 4–6 on later two whorls. Sutural ramp with 2 main cords on abapical side and 1–2 finer cords posterior to these. Last whorl with 12–17 main spiral cords, interstices with none to 1–2 secondary cords and with finer interstitial threads on base and rostrum. Under SEM (Fig. 4J–K) intervals between main cords seen to be sculptured by 2–4 rather inconspicuous, microscopic spiral threads and numerous granules. Entire surface covered by coarse axial growth lines. Aperture rather narrow and almost linear, but constricted at entrance to siphonal canal. Siphonal canal relatively wide, expanding slightly distally, oblique, not notched terminally. Inner lip with moderately thin callus, but distinct parietal pad. Outer lip edge sharp, preceded by a wide, low, rounded varix. Anal sinus moderately deep, apically rounded, asymmetrically U-shaped, with strongly constricted opening. Stromboid notch distinct. Protoconch domed to papilliform, of 1¼–1¾ whorls; first whorl smooth, last portion with numerous irregular axial riblets, diameter 0.67–0.88 mm (Fig. 4L–M). Protoconch and earlier teleoconch whorls violaceous in some specimens (Fig. 4O–N). Two color forms: a) white or yellowish-white tinged with light brownish-orange on sub-sutural ramp, base and tip of rostrum, and aperture rimmed with darker brownish orange; b) a uniform light brown (paratype 6).

Dimensions

Holotype: 8.2 × 3.0 mm, aperture height 3.85 mm. Paratype 7 (smallest paratype): 5.5 × 2.1 mm, aperture height 2.75 mm; paratype 9 (largest paratype): 7.4 × 2.7 mm, aperture height 3.6 mm.

Remarks

Otitoma neocaledonica sp. nov. is morphologically similar to *O. oneili* (Barnard, 1958), but differs from the latter in numerous characters. The new species is smaller in length (up to 8.2 mm vs up to 12.3 mm in maximum length), with different proportions (a/l 0.45–0.52 vs 0.32–0.41), fewer secondary cords on the sub-sutural ramp and the presence of weaker, inconspicuous microscopic cords in the interspaces between the main cords. *Otitoma neocaledonica* sp. nov. has a different protoconch structure (domed-papilliform and of 1¼–1¾ whorls instead of bluntly conical, of about 3 whorls). Furthermore, the protoconch and the earlier teleoconch whorls are violaceous in most specimens of *Otitoma neocaledonica* sp. nov., a feature not reported in *O. oneili* (Kilburn 1995 and pers. obs).

Otitoma hadra sp. nov.
urn:lsid:zoobank.org:act:D699962E-3975-4973-A6AB-047323F41C8B
Fig. 4P–U

Etymology

The specific epithet refers to the Greek '*hadros*' (thick), alluding to the small but very thick shell.

Type material

Holotype

NEW CALEDONIA: BATHUS 4, Stn DW882, N of New Caledonia, 22°02′ S, 165°56′ E, 250–350 m (MNHN IM-2000-32603).

Paratype

NEW CALEDONIA: same data as holotype (MNHN IM-2000-32604).

Description

Shell somewhat biconic (b/l 0.41–0.48; a/l 0.56–0.57). Teleoconch of 3–3¼ weakly and evenly convex whorls, with a slight shoulder at mid-whorl height. Suture shallow, bordered by a weakly prominent sub-sutural fold followed by a shallowly concave sutural ramp. Axial sculpture of opisthocline ribs, subequal to or narrower than intercostal spaces, abruptly ending at level of abapical side of sutural ramp (Fig. 4S). 14–16 axial ribs on penultimate and 18–19 ribs on last whorl. First teleoconch whorl with 3 spiral cords between the sutural ramp, sutures of following whorl increasing to 4–5 on penultimate and last whorl. Spiral cords closely-spaced, not plicate where crossing axial ribs. Sutural ramp with 1 spiral cord increasing to 2 cords on later two whorls. Last whorl with 19–22 main spiral cords and 1 occasional secondary cord in interspaces on base and rostrum. Interspaces between cords lacking secondary sculpture. Aperture rather narrow, ovate, constricted at entrance to siphonal canal. Siphonal canal short, relatively wide. Inner lip covered with a thick callus. Outer lip edge sharp, preceded by a strong, wide varix. Stromboid notch weak. Anal sinus relatively broad and moderately deep, a C-shaped notch, its entrance weakly constricted. Protoconch domed, of up to 1½ smooth whorls, diameter 1.04–1.09 mm. Protoconch white, teleoconch yellowish-white flecked with orange-yellow on sutural ramp and along some axial ribs on last whorl.

Dimensions

Holotype: 5.1 × 2.1 mm, aperture height 2.85 mm. Paratype: 4.7 × 2.25 mm, aperture height 2.7 mm.

Remarks

Otitoma hadra sp. nov. is readily distinguished from its described congeners by its rather small, thick shell (about 5 mm in maximum length), with a relatively large protoconch and well developed sculpture (both spiral and axial).

Otitoma rubiginostoma sp. nov.
urn:lsid:zoobank.org:act:2F873060-FD37-440F-B8B5-3D51CAFA9F8A
Fig. 5A–H

Etymology

The specific epithet is a ombination of the Latin words '*rubiginosus*' (rusty) and '*stoma*' (aperture), alluding to the rust-like color of the outer lip edge and parietal pad nodule.

Type material

Holotype

NEW CALEDONIA: MUSORSTOM 4, Stn DW151, 19°07′ S, 163°22′ E, 200 m (MNHN IM-2000-32604).

Paratypes

NEW CALEDONIA: paratype 1, same data as holotype (MNHN IM-2000-32605); paratype 2, MUSORSTOM 4, Stn DW149, 19°08′ S, 163°23′ E, 155 m (MZB 60214).

Description

Shell cylindric-pupoid (b/l 0.38–0.45; a/l 0.44–0.55). Teleoconch of 2½–3½ whorls which are weakly and evently convex to roundly shouldered above mid-whorl height. Suture shallow, bordered by a moderately prominent sub-sutural fold with two closely spaced cords, followed by a shallow, concave sutural ramp. Axial sculpture of opisthocline ribs, subequal to or narrower than intercostal space, extending on spire whorls from suture to suture, becoming much narrower and strongly arcuate on sutural ramp. 13–16 axial ribs on penultimate whorl and 16–18 on last whorl. First teleoconch whorl

with 2–3 spiral cords between whorl base and sutural ramp, increasing to 4–5 on penultimate whorl and 5–6 on last whorl. Spiral cords somewhat plicate where crossing axial ribs. Interspaces between main cords with none to 1–2 weaker cords (Fig. 5D–E). Sutural ramp with 1 weak spiral cord on first whorl, increasing to two on following whorl(s) (abapical one slightly more prominent); additional fine, inconspicuous cords on abapical side of sutural ramp of last whorl (in holotype). Base sculptured by 13–15 spiral cords, with none to 1–2 interstitial cords. Surface covered by dense axial incremental lines, particularly evident on sutural ramp, where they are sinuous in conformity with curvature of anal sinus. Aperture narrow and almost linear, but constricted at entrance to siphonal canal. Siphonal canal wide, expanding slightly distally, not notched. Inner lip covered with a thin callus and parietal pad. Outer lip edge sharp, preceded by a wide, low and rounded varix. Stromboid notch deep. Anal sinus deep, rounded, asymmetrically U-shaped, its entrance slightly constricted. Protoconch domed and flat, of 2¼–2½ whorls; first whorl smooth, subsequent whorl with numerous inconspicuous, widely-spaced axial riblets and sparse microgranules (Fig. 5H). Protoconch white, diameter 0.71–0.89 mm. Teleoconch white, with outer lip edge and parietal pad tinged with brown-orange.

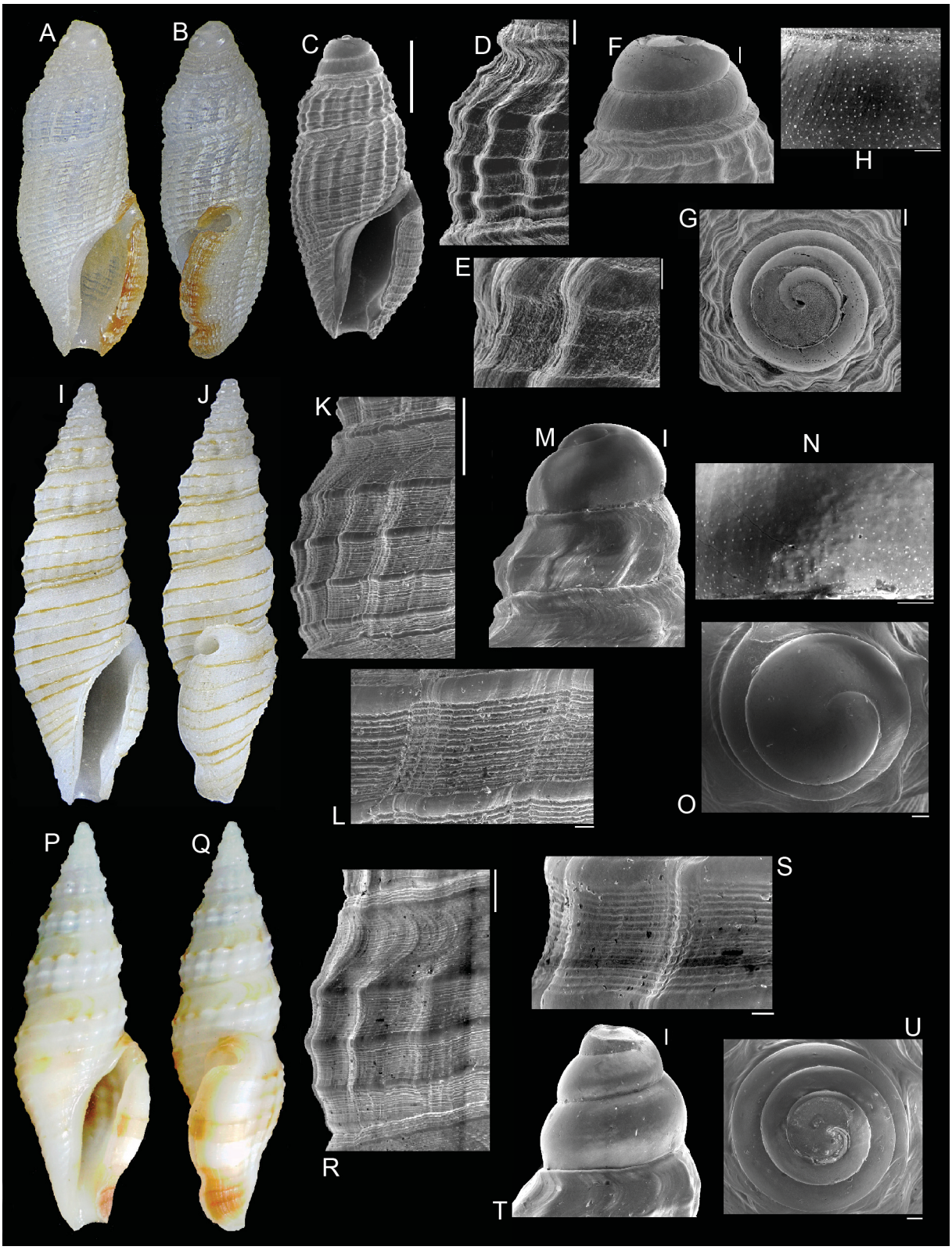
Dimensions

Holotype: 4.7 × 1.8 mm, aperture height 2.4 mm. Paratype 1: 4.1 × 1.7 mm, aperture height 1.8 mm; paratype 2: 4.0 × 1.8 mm, aperture height 2.2 mm.

Remarks

Otitoma rubiginostoma sp. nov. is a morphologically distinctive species. The profile of the whorls and type of axial ribbing (i.e., axial ribs becoming strongly arcuate on sutural ramp) may cause it to superficially resemble *O. cyclophora*, but the two species are otherwise very different in numerous characters. *Otitoma rubiginostoma* sp. nov. is much smaller in length (up to 4.7 mm vs 13.7 mm), with fewer teleoconch whorls (2½–3½ instead of 4½–5) and it has a different shape (cylindric-pupoid instead of cylindric-fusiform). *O. rubiginostoma* sp. nov. has strong axial ribs while in most specimens of *O. cyclophora* these are weak to obsolete, particularly on the last two teleoconch whorls. The protoconch of *O. rubiginostoma* sp. nov. is much larger than that of *O. cyclophora* (0.71–0.89 mm vs 0.52–0.59 mm) with different a shape and number of whorls (domed and flat of 2¼–2½ vs papilliform of about 1¾ whorls). The two species further differ in color: *O. rubiginostoma* sp. nov. has a white shell with the outer lip edge and parietal pad tinged with brown-orange while *O. cyclophora* has a uniform pale buff shell. The new species is similar to *O. vitrea* and *O. kecil*, both of which possess large, domed protoconchs, but their teleoconch characters are otherwise too different for meaningful comparison.

Fig. 5. [next page] **A–H**. *Otitoma rubiginostoma* sp. nov. **A–B**. Holotype (MNHN IM-2000-32604), MUSORSTOM 4, Stn DW151, New Caledonia, 19°07′ S, 163°22′ E, 200 m, 4.7 × 1.8 mm. **C–H**. Paratype 2 (MZB 60214), MUSORSTOM 4, Stn DW149, New Caledonia, 19°08′ S, 163°23′ E, 155 m. **D**. Teleoconch. **E**. Secondary spiral sculpture of the teleoconch. **F–G** Protoconch. **H**. Microsculpture of the protococonch. — **I–O**. *Otitoma elegans* sp. nov. **I–J**. Holotype (MNHN IM-2000-32606), BORDAU 1, Stn DW1465, Fiji Island, 18°09′ S, 178°39′ W, 290–300 m, 12.6 × 4.8 mm. **K**. Teleoconch (not coated). **L**. Secondary spiral sculpture of the teleoconch (not coated). **M, O**. Protoconch (not coated). **N**. Microsculpture of the protococonch. — **P–U**. *Otitoma philippinensis* sp. nov. **P–Q**. Holotype (MZB 60215), Philippines, Nocnocan Island, 180–250 m, trawled by fishermen, 15.4 × 5.25 mm. **R**. Teleoconch (not coated). **S**. Secondary spiral sculpture of the teleoconch (not coated). **T–U**. Protoconch (not coated). Scale bars: C, K = 1 mm; D, F–G, L–N, S–U = 100 µm; E, H, O = 50 µm; R = 500 µm.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Otitoma elegans sp. nov.
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Fig. 5I–O

Etymology

The specific epithet refers to the Latin '*elegans*', meaning 'characterized by refined grace', alluding to the aesthetically pleasant appearance of the shell.

Type material

Holotype

FIJI ISLANDS: BORDAU 1, Stn DW1465, 18°09′S, 178°39′W, 290–300 m (MHNH IM-2000-32606).

Description

Shell fusiform (b/l 0.38; a/l 0.55). Teleoconch of slightly less than 7 convex whorls, with periphery at middle of the 3 earliest whorls, posterior to mid-whorl on the later whorls. Whorls separated by a distinct suture bordered by a spiral cord. Sutural ramp moderately concave. Axial sculpture consisting of opisthocline ribs, subequal to broader than intercostal spaces, extending on spire whorls from suture to abapical side of sutural ramp, prominent on earlier whorls, but becoming remarkably weaker on last whorl. 21 axial ribs on penultimate whorl and 17 on last whorl. Spiral sculpture consists of widely-spaced, narrow, weakly prominent spiral cords, somewhat plicate where crossing axial ribs. Earliest three whorls with two cords between sutural ramp and abapical suture, increasing to three cords on fourth and antepenultimate whorls and four on penultimate and last whorls. Last whorl with 13 spiral cords on base and rostrum. Insterpaces between cords sculptured by numerous fine spiral threads (up to 14) (Fig. 5K–L). Aperture rather narrow, lanceolate, constricted at entrance to siphonal canal. Siphonal canal moderately long, not notched terminally. Inner lip with moderately thin callus, parietal region with a pad formed by termination of outer lip. Outer lip edge sharp, preceded by a wide, low, rounded varix. Anal sinus moderately deep, apically rounded, asymmetrically U-shaped, not strongly constricted at opening. Stromboid notch moderately deep. Protoconch of 1½ smooth, domed whorls with few sparse microscopic granules when observed under SEM (Fig. 5N), diameter 0.86 mm. Color yellowish-white with brown-orange spiral cords.

Dimensions

Holotype: 12.6 × 4.8 mm, aperture height 7.0 mm.

Remarks

Although only a single specimen of *Otitoma elegans* sp. nov. is available, this species differs distinctly from its described congeners in having only a few, widely-spaced primary spiral cords with well developed secondary spiral sculpture, and a peculiar color pattern (yellowish-white with brown-orange spiral cords). *O. elegans* sp. nov. further differs from its congeners of similar size in possessing a paucispiral and domed protoconch instead of multispiral and conical.

Otitoma philippinensis sp. nov.
urn:lsid:zoobank.org:act:2E5D9D74-C5CB-4C19-9D6A-D0AF85DBC669
Fig. 5P–U

Etymology

The specific name is derived from the country of the origin of the type.

Type material

Holotype

PHILIPPINES: Nocnocan Island, 180–250 m, trawled by fishermen (MZB 60215).

Paratype

PHILIPPINES: Mactan Island, 200 m, trawled by fishermen (MM collection).

Description

Shell fusiform (b/l 0.33–0.34; a/l 0.46–0.47). Teleoconch of 6 convex whorls with periphery below mid-whorl height on earliest four whorls, at mid-whorl on later two whorls. Whorls separated by a distinct suture bordered by a weakly prominent spiral cord. Sutural ramp rather wide and shallowly concave. Axial sculpture consisting of opisthocline ribs, subequal to broader than intercoastal spaces, extending on spire whorls from suture to abapical side of sub-sutural ramp, prominent on earlier whorls but becoming much weaker on last whorl. 15 axial ribs on penultimate whorl, becoming obsolete on last whorl. Spiral sculpture consisting of widely-spaced, narrow, moderately prominent spiral cords, plicate where they cross axial ribs. First three teleoconch whorls with two cords between sub-sutural ramp and abapical suture, increasing to three cords on following three whorls. Last whorl with 13-15 spiral cords on base and rostrum. Intercostal spaces sculptured by numerous very fine spiral threads (up to about 13) (Fig. 5R–S). Aperture rather narrow, lanceolate, constricted at entrance to siphonal canal. Siphonal canal long for genus, not notched terminally. Inner lip with moderately thin callus, parietal region with a pad formed by termination of outer lip. Outer lip preceded by a wide, prominent, rounded varix; edge of lip sharp. Anal sinus moderately deep, asymmetrically U-shaped, with constricted opening. Stromboid notch moderately deep. Protoconch narrowly conical, of three smooth whorls (Fig. 5T–U), diameter 0.80 mm. Color yellowish-white tinged, with light brown on sub-sutural ramp, along peripheral cord and at level of abapical suture.

Dimensions

Holotype: 15.4 × 5.25 mm, aperture height 7.1 mm. Paratype: 15.3 × 5.1 mm, aperture height 7.2 mm.

Remarks

This species is characterized by its large size, wide sutural ramp and well developed sculpture on the abapical side of each whorl. It is very similar to an undescribed species occurring in the Philippines and represented in the available material by a single large (17.9 × 6.3 mm), but damaged specimen from the Solomon Islands [SALOMON 1, Stn DW1768], which will be described by other authors elsewhere. The main difference is that in *O. philippinensis* sp. nov. there are two peripheral spiral cords on the earliest three whorls, increasing to 3 on later whorls; one very weak spiral cord is also present at the level of the abapical suture of the later whorls. In the undescribed species there are two main peripheral spiral cords bordered by a third, weaker cord on the abapical part of the sutural ramp and one (earlier whorls) increasing to 2 cords (later two whorls) at the level of the abapical suture. A further distinguishing feature is represented by its color pattern. *Otitoma philippinensis* sp. nov. is yellowish-white, tinged light brown on the sutural ramp, along the peripheral cord and at the level of the abapical suture, while the undescribed species is more vividly patterned with two well defined and intense brown bands.

Otitoma crassivaricosa sp. nov.
urn:lsid:zoobank.org:act:54B1C89F-BA68-4388-B719-73B4B71BB55F
Fig. 6A–H

Etymology

The specific epithet is a combination of the Latin words '*crassus*' (thick) and '*varicosus*' (bearing varices), alluding to the well developed axial sculpture.

Type material

Holotype

MARQUESAS ARCHIPELAGO: MUSORSTOM 9, Stn DW1218, Hiva Oa Island, 9°44.5′ S, 138°50.9′ W, 125–135 m (MNHN IM-2000-32607).

Paratypes

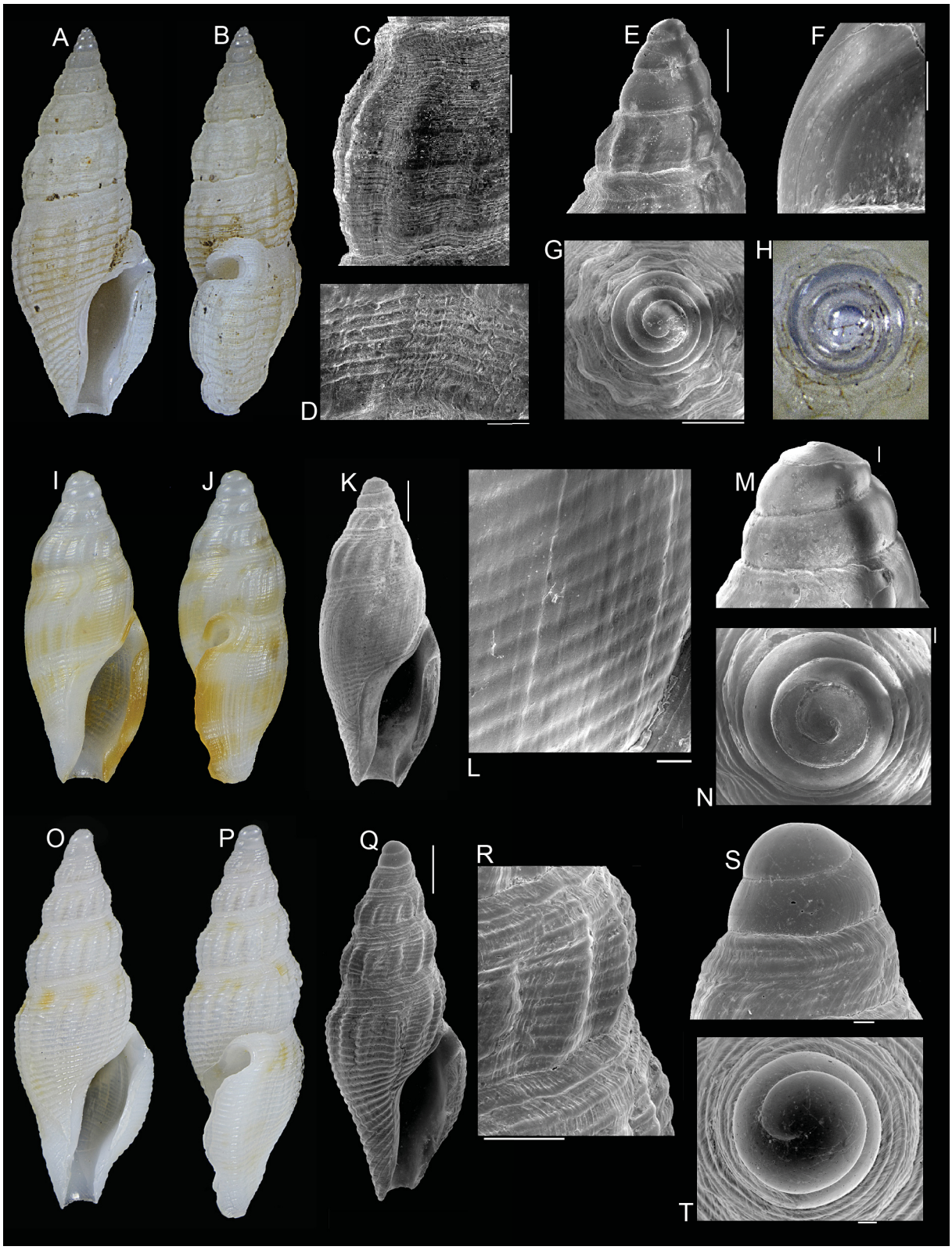
MARQUESAS ARCHIPELAGO: Paratype 1, same data as holotype (MZB 60216).

FIJI ISLANDS: Paratype 2, MUSORSTOM 10, Stn DW1365, 18°12.7′ S, 178°32.4′ E, 295–302 m (MNHN IM-2000-32608).

Description

Shell fusiform-cylindrical (b/l 0.37–0.40; a/l 0.50–0.52). Teleoconch of up to 5¾ weakly convex whorls. Suture distinct, bordered by a moderately prominent sutural fold, followed by a moderately concave sutural ramp. Axial sculpture consisting of opisthocline axial ribs, rather straight and rounded, equal to or wider than intervals, developing mainly in peripheral region, gradually disappearing on abapical portion of sutural ramp. 13–14 axial ribs on penultimate whorl, 11–12 on last whorl. Spiral sculpture consisting of widely-spaced cords, not forming distinct nodules at their intersection with axial ribs. First two teleoconch whorls with 3 spiral cords between sutural ramp and whorl base, increasing to 5–6 on later two whorls. Last whorl with 12 spiral cords on base and rostrum. Interspaces between spiral cords covered by microscopic spiral threads, 4–7 between spiral cords on later two teleoconch whorls (Fig. 6C–D). Aperture narrowly elliptical, constricted at entrance to siphonal canal. Siphonal canal short, slightly expanded at its end, and somewhat obliquely truncate. Outer lip edge sharp, preceded by a wide, prominent rounded varix. Stromboid notch strong. Anal sinus rather deep, apically rounded, its entrance strongly constricted by parietal pad. Protoconch narrowly conical, of 3¼ whorls, smooth except for presence of sparse microgranules, diameter 0.82–0.84 mm (Fig. 6E–H). Color yellowish-white with yellowish-orange spiral cords.

Fig. 6. [next page] **A–H**. *Otitoma crassivaricosa* sp. nov. **A–B**. Holotype (MNHN IM-2000-32607), MUSORSTOM 9, Stn DW1218, Hiva Oa Island, Marquisas Archipelago, 9°44.5′ S, 138°50.9′ W, 125–135 m, 9.85 × 3.7 mm. **C**. Teleoconch (not coated). **D**. Secondary spiral sculpture of the teleoconch (not coated). **E–H**. Protoconch (not coated). **F**. Microsculpture and of the protoconch (not coated). **H**. Color micrograph of the same protoconch. — **I–N**. *Otitoma philpoppei* sp. nov. **I–J**. Holotype (MNHN IM-2000-32609), Philippines, Mactan Island, 200 m, from local fishermen, 6.7 × 2.7 mm. **K–N**. Paratype (MNHN IM-2000-32610), BORDAU 1, Stn DW1464, Fiji, 18°09′ S, 178°38′ W, 285–300 m. **L**. Teleoconch. **M–N**. Protoconch. — **O–T**. *Otitoma nereidum* sp. nov. **O–P**. Holotype (MNHN IM-2000-32611), BORDAU 1, Stn DW1464, Fiji, 18°09′ S, 178°38′ W, 285–300 m, 9.15 × 3.35 mm. **Q–T**. Paratype 2 (MZB 60216), BORDAU 1, Stn DW1494, Fiji, 18°55′ S, 178°29′ W, 240–319 m. **R**. Teleoconch. **S–T**. Protoconch, scale bar = 100 µm. Scale bars: C, E, R = 500 µm; D, L–N = 100 µm; F = 10 µm; K, Q = 1 mm.


A
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Dimensions

Holotype: 9.85 × 3.7 mm, aperture height 5.1 mm. Paratype 1: 9.3 × 3.7 mm, aperture height 4.65 mm; paratype 2: 11.2 × 4.1 mm, aperture height 5.3 mm.

Remarks

This species differs from its congeners by the combination of a narrowly conical protoconch, strong axial sculpture and well-developed secondary spiral sculpture. It may superficially resemble some specimens of *O. cyclophora*, from which it differs mainly in having broader axial ribs, a less constricted entrance to the anal sinus, and different protoconch features (narrowly conical, of 3¼ whorls rather than bluntly papillose, of about 1¾ whorls; see Kilburn 2004: 268).

Otitoma philpoppei sp. nov.
urn:lsid:zoobank.org:act:D0F62828-F675-448A-903A-73AB90576A4A
Fig. 6I–N

Etymology

This taxon is dedicated by one of the authors (AN) to his friend the malacologist Philippe Poppe (Lapu Lapu, Philippines).

Type material

Holotype

PHILIPPINES: Mactan Island, 200 m, from local fishermen (MNHN IM-2000-32609).

Paratype

FIJI ISLANDS: BORDAU 1, Stn DW1464, 18°09′S, 178°38′W, 285–300 m (MNHN IM-2000-32610).

Description

Shell cylindric-pupoid (b/l 0.39–0.40; a/l 0.55–0.59). Teleoconch consisting of 2¾–3½ whorls which are weakly and evenly convex. Last whorl with a shallowly excavated base. Whorls separated by a shallow suture, bordered by 2 closely spaced spiral cords, but lacking a distinct sub-sutural fold. Subsutural ramp shallow and concave. First teleoconch whorl with 2 closely spaced cords at suture, 1 weak cord on sutural ramp and 3 spiral cords on abapical part of whorl. On following whorl additional cords develop on sutural ramp, including 2–3 spirals more prominent than others, with 8–9 spiral cords below sutural ramp, increasing to 14–15 on last whorl. Spiral cords closely spaced, somewhat irregular in strength, rendered plicate by dense, moderately coarse incremental growth lines covering entire surface (Fig. 6L). Base sculptured by 14–15 spiral cords with 1 fine interstitial thread between. Axial sculpture restricted to penultimate whorl, consisting of irregularly spaced, opisthocline axial ribs, narrower than intercostal spaces, extending from suture to suture, but becoming narrower and arcuate on sutural ramp (about 13 on penultimate whorl in holotype). Aperture narrow and almost linear, but constricted at entrance to siphonal canal. Siphonal canal wide, expanding slightly distally, not notched. Inner lip covered with a thin callus and weak parietal pad. Outer lip preceded by a wide, low and rounded varix, its edge sharp, with a relatively shallow (for genus) stromboid notch. Anal sinus moderately deep, rounded, asymmetrically U-shaped, its entrance only slightly constricted by parietal pad. Protoconch domed, of 2½–2¾ whorls, smooth (Fig. 6M–N), diameter 0.89–0.90 mm. Color white or white with three light brownish orange bands (on sutural ramp, on base of last and penultimate whorl and on base) and aperture edged with brownish orange.

Dimensions

Holotype: 6.7 × 2.7 mm, aperture height 3.7 mm. Paratype: 5.6 × 2.2 mm, aperture height 3.3 mm.

Remarks

Otitoma philpoppei sp. nov. belongs to a morphologically distinctive group, which includes *O. kecil* and *O. vitrea*, that are rather small (about 5 mm in length), have a pupoid shape, and have similar protoconch features. The new species is comparable to *O. vitrea* from Mindanao, Philippines, but differs in having a much more abbreviated shell such that the last whorl represents nearly 60% of total height, and possesses more numerous raised spiral cords. Furthermore, *O. philpoppei* sp. nov. has distinct axial ribs on the penultimate whorl, while *O. vitrea* lacks axial sculpture. *Otitoma philpoppei* sp. nov. differs distinctly from *O. kecil* in its proportions (b/l 0.39–0.40 vs 0.29; a/l 0.55–0.59 vs 0.44), the presence of axial ribs on the penultimate whorl (axial sculpture is absent in *O. kecil*) and the type of spiral sculpture (spiral cords closely-set and low rather than narrow, widely spaced and prominent as in *O. kecil*).

Otitoma nereidum sp. nov.
urn:lsid:zoobank.org:act:27A8D135-5719-42CA-97EE-8218C500D4EB
Fig. 6O–T

Etymology

The specific epithet refers to the Latin '*nereidum*' ('of Nereids', sea nymphs in Greek mythology) and is a noun in apposition.

Type material

Holotype

FIJI ISLANDS: BORDAU 1, Stn DW1464, 18°09′S, 178°38′W, 285–300 m (MNHN IM-2000-32611).

Paratypes

FIJI ISLANDS: Paratype 1, MUSORSTOM 10, Stn DW1365, 18°12.7′ S, 178°32.4′ E, 295–302 m (MNHN IM-2000-32612). Paratypes 2 (coated, MZB 60217) and 3–11 (MNHN IM-2000-32613), BORDAU 1, Stn DW1494, 18°55′S, 178°29′W, 240–319 m; paratype 12, BORDAU 1, Stn DW1506, 18°09′S, 178°37′W, 294–300 m (MNHN IM-2000-32614); paratype 13, BORDAU 1, Stn DW1498, 18°41′S, 178°28′W, 300–307 m (MNHN IM-2000-32615).

Additional material examined

FIJI ISLANDS: 8 spms, BORDAU 1, Stn DW1464, 18°09′S, 178°38′W, 285–300 m; 2 spms, BORDAU 1, Stn DW1498, 18°41′S, 178°28′W, 300–307 m; 1 spm, BORDAU 1, Stn DW1441, 17°10′S, 178°42′W, 306–320 m.

Description

Shell fusiform (b/l 0.34–0.40; a/l 0.47–0.55). Teleoconch whorls 4–5 moderately convex, with a rounded to minimally angular shoulder posterior to mid-whorl. Suture shallow, undulating, bordered by a moderately prominent sutural fold with two closely spaced spiral cords. Sutural ramp shallowly concave. Axial sculpture consisting of opisthocline ribs, subequal to narrower in width than intercostal spaces, extending on spire whorls from suture to sutural ramp, distinct on spire whorls, but becoming weaker on last whorl and rapidly fading on base. 14–20 axial ribs on penultimate whorl and 18–25 on last whorl. Spiral sculpture of closely-spaced, strong and narrow spiral cords. Spiral sculpture of first whorl consisting of a sutural fold, followed by 2 cords on sutural ramp and 3 cords below ramp, increasing to 6–7 on later 2 whorls. Spiral cord interspaces sculptured by none to 2–5 secondary spiral threads (Fig. 6R). Last whorl with 15–18 spiral cords on base and rostrum. Entire surface covered by coarse axial incremental lines sometimes rendering spiral cords somewhat plicate. Aperture narrow and ovate, constricted at entrance to siphonal canal. Siphonal canal long for genus, not notched terminally. Inner lip with moderately thin callus, parietal region with a pad formed at its junction with outer lip. Outer

lip edge sharp, preceded by a wide, low, rounded varix. Stromboid notch moderately deep. Anal sinus moderately deep, apically rounded, and rather asymmetrically U-shaped, with only a weakly constricted entrance. Protoconch papilliform or domed, of 1¾ smooth whorls (Fig. 6S–T), diameter 0.76–0.98 mm. Color white with irregular light brown blotches on sub-sutural ramp.

Dimensions

Holotype: 9.15 × 3.35 mm, aperture height 4.85 mm. Paratype 1: 9.2 × 3.4 mm, aperture length 4.7 mm; paratype 10 (smallest): 6.6 × 2.6, aperture height 3.3 mm; paratype 12 (largest): 10.8 × 3.75 mm, aperture height 5.55 mm.

Remarks

Otitoma nereidum sp. nov. is readily distinguished from its congeners on the basis of a combination of features including protoconch structure (paucispiral and domed), sculpture of the numerous axial ribs incised by strong spiral cords, and the relatively long siphonal canal.

Discussion

According to the WoRMS register of marine species the genus *Otitoma* Jousseaume, 1898 is represented by seven Recent species while *Thelecytharella* Shuto, 1969, retained as a full genus, includes 11 species consisting of nine Recent and two Pleistocene species. According to Wiedrick (2014), the genus *Thelecytharella* differs from *Otitoma* in having a broadly domed instead of bulbous protoconch, with a weak parietal callus pad and "open" anal sinus rather than restricted as in *Otitoma*. Although described by Kilburn (1995) as "bluntly conical, of about 3 whorls", species belonging to *Thelecytharella* show a remarkable variability in protoconch shape, varying from multispiral and bluntly conical (as in *Otitoma oneili* Barnard, 1958) to paucispiral and bulbous (*Otitoma timorensis* Schepman, 1913) and the stated difference is therefore very doubful. Similarly, the taxonomic value of anal sinus structure in supraspecific classification is uncertain. In the Pseudomelatomidae genus *Inquisitor* Hedley, 1918, for example, the anal sinus varies from U-shaped with constricted entrance to openly U-shaped with diverging sides (Kilburn 1988: 258–259). We, therefore, prefer to follow Kilburn (2004) in considering *Thelecytharella* as a synonym of *Otitoma.* However, Kantor *et al*. (2008) recently pointed out that shell features of members of Turridae are useful for species-level identification but are inadequate for supraspecific classification. For this reason, the status of *Thelecytharella* as a synonym of *Otitoma* will remain uncertain until anatomical and/or molecular features of species become known.

Otitoma (=*Thelecytharella*) is a rather variable assortment of species including several different morphological subgroups indicative of remarkable diversification, but the dividing line between groups is too nebulous to permit recognition of separate genera or even subgenera. *Agladrillia oyamai* Shuto, 1965, type species of *Thelecytharella*, is characterized by a multispiral, bluntly conical protoconch of three whorls, and a teleoconch with predominant axial sculpture consisting of numerous weaker spiral cords. Similar features occur in *O. oneili* (Barnard, 1958) and *O. metuloides* (Kilburn, 1995), while *O. neocaledonica* sp. nov. differs in protoconch structure but otherwise conforms in sculpture to this group.

Shuto (1970) proposed the genus *Lioglyphostomella* for the two Recent species *Otitoma kwandangensis* and *O. timorensis*, both described by Schepman (1913), which differ from the "typical" group in having stronger, more prominent axial ribs crossed by few spiral cords forming low nodules where crossing the axials (Shuto 1970: 165). *Otitoma sororcula* sp. nov., the third member of this small species-group, is very similar in teleoconch features to *D. kwandangensis* from which it differs in protoconch structure. The generic name *Lioglyphostomella* was considered a synonym of *Thelecytharella* by Kilburn (1995), while Bouchet *et al.* (2011: 293) retained it as a valid genus, but without a discussion.

A further morphological subgroup includes species which resemble *Austropusilla (Metaclathurella) crokerensis* Shuto, 1983, namely the Recent *Otitoma batjanensis* (Schepman, 1913) and *O. xantholineata* sp. nov. These species have a predominantly spiral sculpture differing from *Agladrillia oyamai* Shuto, 1965 in lacking axial sculpture or in retaining vestigial ribs on earlier teleoconch whorls (*O. xantholineata* sp. nov). *Austropusilla (M.) crokerensis* Shuto, 1983 and *O. batjanensis* (Schepman, 1913) have a large conical protoconch of three whorls similar to that occurring in *Agladrillia oyamai*, while in *O. xantholineata* sp. nov. the protoconch is somewhat bulbous, of 1½–1¾ whorls.

Some large size *Otitoma* species (up to 19 mm in length), namely *O. tropispira* sp. nov., *O. boucheti* sp. nov. and *O. kagoshimaensis* (Shuto, 1965), a Pleistocene species from Japan originally assigned to *Turridrupa*, have prominent keel-like spiral cords, somewhat reminiscent of those in the pseudomelatomid genus *Turridrupa* Hedley, 1918. However, members of the latter genus bear spiral plicae in the interior part of the aperture and have the last half to two protoconch whorls sculptured by axial riblets (Kilburn 1988: 235; Powell 1966: 54).

Sysoev (1997: 344) noted that *O. vitrea* (Reeve, 1845) and *O. kecil* (Sysoev, 1997) (both as *Thelecytharella*) "*form a distinct group characterized by a very small (5.5 mm high) pupoid shell without axial sculpture*" and suggested the possibility that these species may represent a separate genus. A further feature of these species is that the teleoconch consists of only a few whorls, usually three, while in the "typical" *A. oyamai* and *O. oneili* there are up to 6–7 teleoconch whorls. *Otitoma philpoppei* sp. nov. is morphologically similar in shape and protoconch features to *O. vitrea*, but has distinct axial ribs on the first teleoconch whorl, obscuring the limit of this subgroup.

Species assigned to the genus *Otitoma* show a remarkable variability in spiral sculpture. For example, in the morphologically related *O. kecil*, *O. vitrea* and *O. philpoppei* sp. nov., the spiral sculpture is rather weak and there is no trace of secondary sculpture. Other species have a developed primary spiral sculpture but lack secondary threads between cords (examples are exhibited by *Otitoma metuloides*, *O. sororcula* sp. nov., *O. kwandangensis* and *O. xantholineata* sp. nov.). On the contrary, *O. cyclophora* and the majority of species have a distinct secondary sculpture (examples are *O. boucheti* sp. nov., *O. carnicolor*, *O. crassivaricosa* sp. nov., *O. elegans* sp. nov., *O. philippinensis* sp. nov., *O. timorensis and O. tropispira* sp. nov.). In this latter "group", the spiral threads may appear almost linear (*O. philippinensis* sp. nov., *O. tropispira* sp. nov.) or somewhat plicate where they cross axial incremental lines (Figs 3P, 5S). *Otitoma neocaledonica* sp. nov. has relatively weak spiral interstitial threads, but a well-developed sculpture of microscopic granules (Fig. 4K). Secondary sculptural features seem poorly correlated with subgroups recognized on the basis of other characters. There are numerous cases of morphologically similar species differing in absence/presence of secondary spiral threads (*O. xantholineata* sp. nov. vs *O. kagoshimaensis*, *O. kwandangensis* vs *O. timorensis* and *O. metuloides* vs *O. oneili*); therefore, this feature should only be considered of specific value.

McLean (1971) proposed the genus *Maesiella* with *Maesiella maesae* McLean & Poorman, 1971 from Pacific Mexico selected as the type species. While discussing the taxon, McLean noted that "*Thelecytharella* has the appearance of a crassispirine genus related to *Maesiella* but having a broadly open rather than constricted sinus" (McLean 1971: 123). The four species currently accepted as belonging to *Maesiella* (see WoRMS Register), have a reported distribution from Mexico and Panama to Venezuela, are morphologically very similar to *Otitoma* (= *Thelecytharella*) as presently construed, and the stated difference in anal sinus structure is, as previously remarked, of uncertain value. We have not examined material of *Maesiella* and therefore cannot provide a more objective evaluation; however, in our opinion further studies will probably demonstrate that the two taxa are synonymous.

From the data available in the literature, the majority of species belonging to the genus *Otitoma* (= *Thelecytharella*) are from the Indo-Pacific region, particularly the central-western (Indonesia and Philippines) and south-western (New Caledonia and Lifou) to the central Pacific (Howland Island, Cook Islands). Of the twelve species here described, four are presently reported from New Caledonia (*O. hadra* sp. nov., *O. neocaledonica* sp. nov., *O. tropispira* sp. nov. and *O. rubiginostoma* sp. nov.), while *O. carnicolor* (Hervier, 1896) occurs in the vicinity of Lifou Island. Six species, including five here described, are from Fiji Islands (*O. astrolabensis*, *O. boucheti* sp. nov., *O. elegans* sp. nov., *O. nereidum* sp. nov., *O. sororcula* sp. nov. and *O. xantholineata* sp. nov.). *Otitoma philpoppei* sp. nov. occurs from the Philippines to Fiji, while *O. philippinensis* sp. nov., *O. batjanensis*, *O. kecil*, *O. kwandangensis*, *O. timorensis* and *O. vitrea* are reported from the Philippines. *Otitoma crokerensis* is only known from the Arafura Sea. *Otitoma crassivaricosa* sp. nov. has a wide Pacific distribution from Fiji to Hiva Oa, Marquesas Archipelago. At present only three taxa are reported from Southern Africa and Mozambique, namely *O. oneili*, *O. metuloides* and *O. cyclophora* (= *O. mitra*) (Kilburn, 1986). However, *O. oneili* (Barnard, 1958) actually has a much broader distribution, occurring also from the Philippines to the Solomon Islands (pers. obs.). Perplexingly, *O. cyclophora* Deshayes, 1863, type species of *Otitoma*, is the sole *Otitoma* species presently reported from the Red Sea (Dekker & Orlin 2000) and the northern Indian Ocean; it seems probable that more intense sampling in these still poorly explored areas will yield recognition of additional undescribed species.

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