

Engina mirabilis (Gastropoda: Buccinidae), a new species from Marquesas Archipelago

Koen FRAUSSEN

Leuvensestraat 25, B-3200 Aarschot, Belgium

koen.fraussen@skynet.be

Peter STAHLSCHMIDT

Institute for Environmental Sciences, Universität Koblenz–Landau

Fortstrasse 7, D-76829 Landau, Germany

stahlschmidt@uni-landau.de

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ABSTRACT. *Engina mirabilis* sp. nov. is described from Marquesas Archipelago and compared to *E. spica* Melvill & Standen, 1895. In addition, a specimen of *E. albocincta* is recorded from Marquesas Archipelago.

INTRODUCTION

The Marquesas Islands, the northernmost archipelago in French Polynesia, harbours a diverse and endemic marine mollusc fauna. Tröndlé & von Cosel (2005) reported 391 species including about 29 endemic species. However, additional new and endemic species are expected from material collected by MUSORTSOM 9 cruise carried out in 1997. In the present paper a new *Engina* species is described and *Engina albocincta* (Pease, 1860) is recorded from the Marquesas Islands.

The new species is compared to *Engina spica* from Indo-West Pacific and added to the fauna of the Marquesas Islands as *E. mirabilis* sp. nov.

Abbreviations

Depositories

KF: collection Koen Fraussen, Belgium.

MNHN: Muséum national d'Histoire naturelle, Paris, France.

PS: collection Peter Stahlschmidt, Germany.

RH: collection Raymond Huet, France.

Other abbreviations

juv: juvenile(s).

dd: empty shell(s).

lv: collected alive.

SYSTEMATICS

Family **BUCCINIDAE** Rafinesque, 1815

Subfamily **Pisaniinae** Gray, 1857

Genus *Engina* Gray, 1839

Engina Gray, 1839: 112-113. Type species *Engina zonata* Gray, 1839 (subsequently designated by Gray,

1847) = *Engina turbinella* Kiener, 1836. A species known from the tropical West Atlantic.

Engina mirabilis sp. nov.

Figs 1-6

Type material. Holotype, 9.6 mm, Pacific, Marquesas Islands, Nuku-Hiva Island, MUSORSTOM 9, stn DW1170, 8°45'S, 140°13'W, 104-109 m, MNHN IM-2000-27787.

Paratype 1, 7.0 mm, same locality, MNHN IM-2000-27788,

Paratype 2, 9.6 mm, Eiao Island, MUSORSTOM 9, stn DW1154, 7°58'S, 140°44'W, 102 m, MNHN IM-2000-27789,

Paratype 3, 9.5 mm, Ua-Huka island, MUSORSTOM 9, stn DR1292, 8°54'S, 139°38'W, 95-100 m, KF-7336.

Paratype 4, 7.0 mm, Hiva-Oa Island, MUSORSTOM 9, stn DW1200, 9°41'S, 139°09'W, 95-100 m, PS.

Paratype 5, 7.4 mm, Nuku-Hiva Island, MUSORSTOM 9, stn CP1177, 8°45'S, 140°15'W, 108-112 m, MNHN IM-2000-27790.

Type locality. Polynesia, Marquesas Islands, Nuku-Hiva Island, MUSORSTOM 9, stn DW1170, 8°45'S, 140°13'W, 104-109 m.

Material examined. Marquesas Archipelago:

MUSORSTOM 9, stn DW1154, 7°58'S, 140°44'W, 102 m, 3 dd; stn DW1170, 8°45'S, 140°13'W, 104-109 m, 3 dd; stn CP1177, 8°45'S, 140°15'W, 108-112 m, 4 dd (1 juv); stn DW1200, 9°41'S, 139°09'W, 95-100 m, 4 dd (1 juv); stn DW1208, 9°49'S, 139°09'W, 117 m, 2 dd (1 juv); stn DW1224, 9°45'S, 138°51'W, 115-120 m, 3 dd; stn DR1292, 8°54'S, 139°38'W, 95-100 m, 1 dd; stn DR1305, 8°54'S, 140°14'W, 90-155 m, 1 dd, juv.

Range. At present only known from the Marquesas Archipelago, from empty shells, in 100–117 m.

Description. Shell small, solid, size variable, from 7.0 to 9.6 mm in length. Shape biconical, with high, fusiform spire, base weakly prolonged. Axial sculpture dominant, accentuated by pattern.

Protoconch multispiral, consisting of 3 smooth, glossy, weakly convex whorls; tip small, flat; colour off-white to yellowish, suture of first whorl including tip ornamented with thin brown line, after $\frac{1}{2}$ whorl with a row of small, ocellate brown spots that grow in size corresponding to size of increasing whorl, last whorl with 2 rows of such dots of which adapical ones usually much smaller and more numerous. Transition to teleoconch distinct, marked by fine line.

Teleoconch consisting of $5\frac{3}{4}$ whorls; spire whorls laterally weakly flattened, with bicarinate appearance as result of strong spiral cords; last whorl weakly convex.

Pattern white to off-white with red-brown dots arranged on top of axial sculpture. Dots rectangular, separated by broad white bands running through axial interspaces but by fine white line running through spiral interspaces, resulting in a dominant axial pattern. Dots covering primary spiral cord on upper spire whorls, keeping same size on lower whorls by covering narrower primary spiral cords but also both adjacent secondary spiral cords. Dots darker at margin: adapically and abapically bordered by darker margin situated on secondary spiral cords when present; laterally bordered by a dark line that is eventually interrupted, resulting in a moderately ocellate pattern. Those dots usually split in two by 1 thin, white to pale yellowish spiral line situated on top of spiral sculpture, running over 1–3 knobs. Knobs on third (suprasutural) cord occasionally entirely snow-white instead of brown; this exception only on spire whorls, knobs on penultimate and last whorls uniform patterned in all studied specimens. Last whorl with white to off-white spiral band running over fourth spiral cord (situated just below sutural line), with snow white dots. Fifth to seventh spiral cord with brown dots only: forming an interrupted, brown band along base. Eight to tenth spiral cord with few white dots, diagonally arranged, among majority of brown

dots. Eleventh and twelfth spiral row (on siphonal canal) with smaller dots.

First teleoconch whorl with 3, equally sized, spiral cords; forming strong, spirally orientated, usually brown coloured, knob on top of axial sculpture, weaker in axial interspaces; spiral interspaces narrow, white to off-white; at end of first whorl already with fine secondary spiral threads adherent to both sides of adapical spiral interspace. Interspaces gradually broader along second whorl, adapical interspace with 3 fine secondary spiral threads, other interspaces with 2 fine, usually reddish-brown secondary spiral threads adherent to each side. Number of secondary spiral threads increasing along third whorl. Penultimate whorl with 3 primary spiral cords: subsutural cord weak and flattened, 2 other with strong knobs at intersection with axial ribs but weak in axial interspaces; with 6 or 7 secondary spiral threads in adapical interspace. Last whorl with 12 primary spiral cords of which 2 on siphonal canal, subsutural cord weak and flattened, abapically separated from other spirals by broad adapical interspace, with 7 or 8 fine secondary spiral threads of different strength in interspaces.

Spire whorls with 9 or 10 axial ribs, interspaces about as broad. Penultimate and body whorl with 11 such ribs.

Aperture typical for genus, semi-oval, rather narrow, adapical border slightly flattened, abapical part towards siphonal canal gradually becoming narrower. Outer lip thick; edge sharp, glossy, ornamented with red-brown dots situated between edge and spiral sculpture of outer surface. Internal knobs of outer lip according to interspaces of outer sculpture: 1 big anal denticle and 6 denticles becoming gradually weaker towards siphonal canal. Columella gently curved, typical for genus, with a big parietal knob; this parietal knob and adjacent adapical part of columella with a number of fine, obscure lirae; columella with 4 low but broad, weak columellar knobs becoming even weaker towards siphonal canal. Callus thick, adapical part with adjacent adapical part of outer lip forming moderately broad plain, white with some irregular, pale red-brown dots. Siphonal canal moderately long, broad, open. Aperture and siphonal canal together slightly more than $\frac{2}{5}$ of total shell length.

Figures 1–10

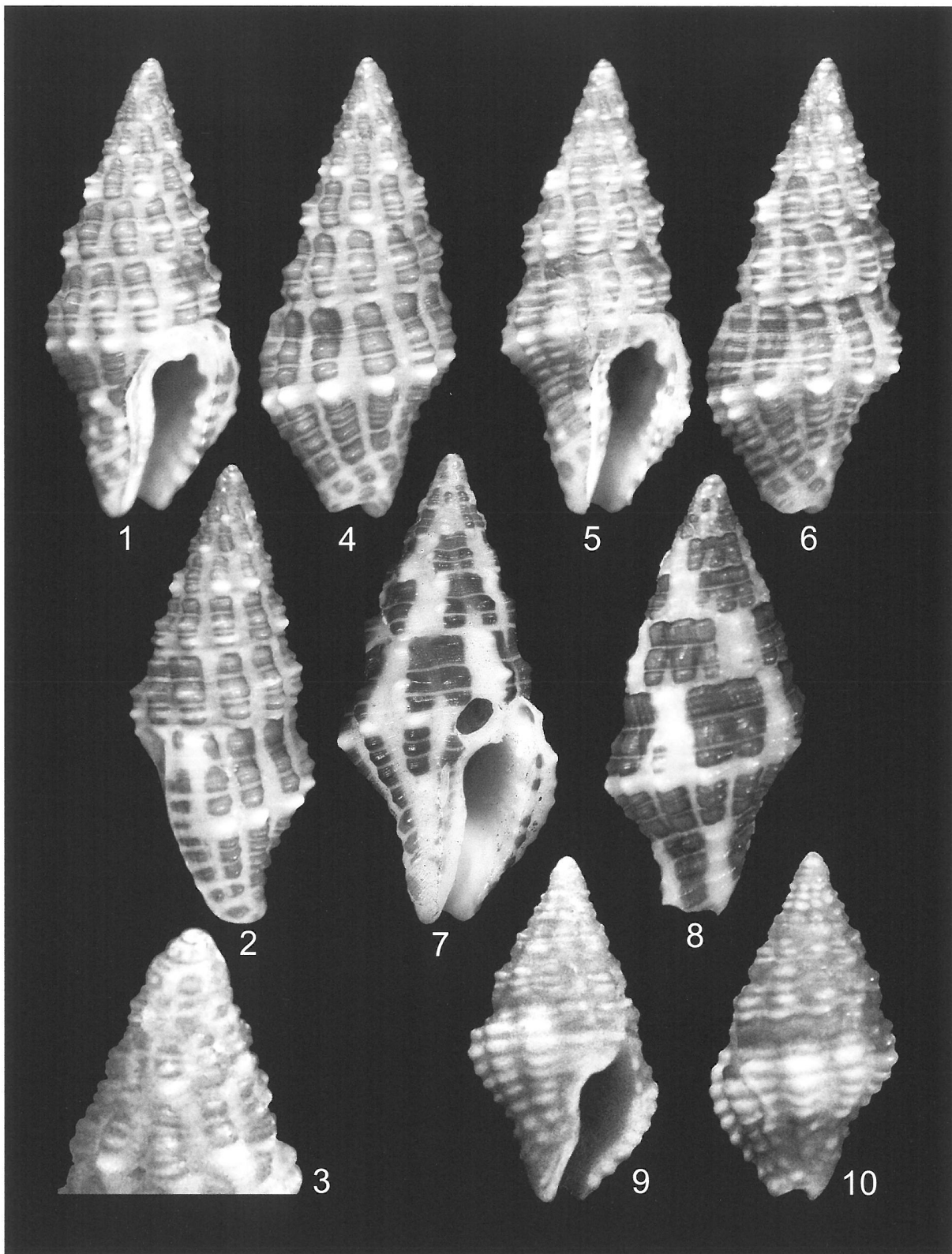
1–6. *Engina mirabilis* sp. nov.

1–4. Holotype, 9.6 mm, Pacific, Marquesas Islands, Nuku-Hiva Island, MUSORSTOM 9, stn DW1170, 8°45'S, 140°13'W, 104–109 m, MNHN IM-2000-27787; **5–6.** Paratype 2, 9.6 mm, Eiao Island, MUSORSTOM 9, stn DW1154, 7°58'S, 140°44'W, 102 m, MNHN IM-2000-27789.

7–8. *Engina spica* Melvill & Standen, 1895

7. Holotype, 12.7 mm, Loyalty Islands, Lifu, Melvill-Tomlin collection, Amgueddfa Cymru – National Museum Wales, NMW.1955.158.00373; **8.** 9.4 mm, Philippines, Mactan Island, off Punto Engano, KF.

9–10. *Engina albocincta* Pease, 1860, 5.4 mm, Marquesas Islands, Motu One Island, MUSORSTOM 9, stn DW 1281, 7°48'S, 140°21'W, 450–455 m, 1 dd, MNHN.



Comparison. *Engina mirabilis* sp. nov. is characterized by the white protoconch ornamented with a row of large, red-brown spots that split into 2 rows at the last whorl; the teleoconch ornamented with red-brown axial bands interrupted by white to pale-yellowish spiral lines that are situated in the spiral interspaces as well as on top of the spiral cords and by the thick lip with heavy white callus near the anal notch.

Engina spica Melvill & Standen, 1895 (type locality: Lifu, Loyalty Islands), commonly known as *Engina mactanensis* Cernohorsky, 1985 (type locality: Philippines, Cebu, Mactan Island, Punta Engano, in shell nets at 300 m) differs by the more rapidly increasing whorls resulting in a lower number of whorls (about 5 whorls where *E. mirabilis* of the same size have $5\frac{3}{4}$ whorls, this means that when two shells of the same size are aligned according to the transition between protoconch and teleoconch: one has the aperture at about the opposite direction as the other); it also differs by the broader and more angulate shape; the much weaker subsutural spiral cord without knobs or when present very low, leaving a concave subsutural slope with fine secondary spiral threads only; the dots on the protoconch that are smaller and lower in number along the first $1\frac{1}{2}$ whorls; the pattern consisting of irregularly spaced axial bands that often fuse together at the subsutural slope or the base and usually with wider, irregular, white axial interspaces and by the uniform or ocellate dots (that are not crossed by white spiral lines on top of the spiral sculpture) with both darker lateral margins uninterrupted (Figs 7-8).

Etymology. *Engina mirabilis* sp. nov. is derived from the Latin adjective *mirabilis*, meaning “wonderful”, and refers to the magnificent pattern.

Engina albocincta Pease 1860
Figs 9-10

Engina albocincta Pease, 1860: 142.

Type locality: Hawaiian Islands, “Sandwich Islands”.

Material examined. Hawaiian Islands, Oahu, Pearl Harbour Channel, on dead coral, 5-7 m, 3 lv, KF-5872.

Marquesas Islands, Motu One, MUSORSTOM 9 stn DW 1281, 7°48'S, 140°21'W, 450-455 m, 1 dd, MNHN.

Nuku-Hiva, shell grit on beach, 11/2013, 1 dd juv, RH.

Remarks. *Engina albocincta* is characterized by the large multispiral protoconch; by the tuberculate

sculpture on the first teleoconch whorl consisting of 3 spiral cords: the subsutural one with fine perled knobs, the second (middle) spiral cord with moderately big, perled knobs and the third (abapical or suprasutural spiral cord) with larger, spirally orientated knobs; the subsutural cord that does not increase in strength and thus becoming narrow when compared to the other spiral cords, with low, elongated knobs; the white band covering 2 to 4 spiral cords; the low number of spiral cords along the body whorl 8 or 9; the small size and the two strong, muricid-like, internal apertural knobs.

The shell from Marquesas Islands is dead collected, faded and moderately worn but shows the typical spiral sculpture still. The specimen may be young because the aperture does not show fully developed internal denticles. It differs from the Hawaiian shells by the smaller size only.

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