Pectinoidea (Mollusca, Bivalvia, Propeamussiidae, Cyclochlamydyidae n. fam., Entoliidae and Pectinidae) from the Vanuatu Archipelago

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ABSTRACT
This paper documents the species of Pectinoidea Rafinesque, 1815 collected in Vanuatu during the SANTO 2006 expedition. A total of 49 species (13 Propeamussiidae Abbott, 1954, 4 Cyclochlamydyidae n. fam., 1 Entoliidae Teppner, 1922, and 31 Pectinidae Rafinesque, 1815) are represented, of which 70% are new records for Vanuatu. A new family, Cyclochlamydyidae n. fam., is established for the genera Cyclochlamys Finlay, 1926, Chlamydyella Iredale, 1929 and Micropecten n. gen., formerly placed in Propeamussiidae, but differing by their sculptured prodissconch (smooth in Propeamussiidae), an occasionally antimarginally sculptured right valve (smooth or weak commarginally sculptured in Propeamussiidae), a (common) simple outer prismatic layer of longitudinally hexagonal microstructure on the right valve (an outer layer of columnar calcite in Propeamussiidae). The family Cyclochlamydyidae n. fam. includes about 30 species, all with adult size in the 1.2-6 mm range, and living mainly in the Southern Hemisphere and Indo-West Pacific; the family is not known from the Arctic, the Atlantic, or the northern and eastern Pacific. One new genus, Micropecten n. gen., and two new species, Cyclochlamys aperta n. sp. and Micropecten excuratus n. gen., n. sp., are described.

RÉSUMÉ
Pectinoidea (Mollusca, Bivalvia, Propeamussiidae, Cyclochlamydyidae n. fam., Entoliidae et Pectinidae) de l’archipel du Vanuatu.
Ce travail recense les espèces de bivalves Pectinoidea Rafinesque, 1815 échantillonnés pendant l’expédition SANTO 2006. Au total, 49 espèces (13 Propeamussiidae

KEY WORDS
Bivalvia, Vanuatu Archipelago, littoral, bathyal, new family, new genus, new species, new records.
INTRODUCTION

Espiritu Santo is the largest island of Vanuatu (formerly known as the New Hebrides), situated in the north of the archipelago and, together with Malo and a few smaller satellite islands, forming the administrative province of Sanma. This paper deals with the littoral and bathyal pectinoid species collected during the SANTO 2006 expedition (Bouchet et al. 2011a). The expedition, based in Luganville, sampled the southeast corner of Santo Island and we refer to Bouchet et al. (2011b) for methods used in the field and samples and specimens workflow in the lab. An earlier paper (Dijkstra 2001) had reported on the deep-sea pectinoids sampled during the MUSORSTOM 8 expedition, but ironically the shallow-water fauna of the archipelago had earlier never been properly sampled.

Unsurprisingly, many new records and two new species have come to light: 70% of the 49 pectinoid species reported here are recorded from Vanuatu for the first time. Even in the deep-sea species, half of the Propeamussiidae Abbott, 1954, although well sampled during MUSORSTOM 8, are also new records. When the records of the present paper and those of the MUSORSTOM 8 expedition are summed up, a total of 59 pectinoid species are now documented from Vanuatu. The fauna of Vanuatu is overall unremarkable, being part of the standard southwest Pacific part of the tropical Indo-Pacific. Species treated in full earlier recent publications (Dijkstra 1995b, 1989, 2001) are here simply reported briefly, but not refigured. All studied material is deposited in the Muséum national d’Histoire naturelle (MNHN).

ABBREVIATIONS AND TEXT CONVENTIONS

Repositories

| Repository | Location                          |
|------------|-----------------------------------|
| AMS        | Australian Museum, Sydney         |
| LSL        | Linnean Society of London, London |
| MHNG       | Muséum d’Histoire naturelle, Geneva |
| MNHN       | Muséum national d’Histoire naturelle, Paris |
| NHMUK      | The Natural History Museum, London |
| NMW        | National Museum of Wales, Cardiff |
| RMNH       | Nationaal Natuurhistorisch Museum, Leiden |
| TMTT       | Taiwan Museum, Taipei             |
| UMMUT      | University Museum, University of Tokyo, Tokyo |
| UMZC       | University Museum of Zoology, Cambridge |
| USNM       | National Museum of Natural History, Washington, DC |
| UUZM       | Zoological Museum, Uppsala        |
| ZMA        | Zoölogisch Museum, Amsterdam      |
| ZMUC       | Zoologisk Museum, Copenhagen      |
| ZSI        | Zoological Survey of India, New Alipur, Calcutta |

MOTS CLÉS

Bivalvia, archipel du Vanuatu, littoral, bathyal, famille nouvelle, genre nouveau, espèces nouvelles, occurrences nouvelles.
Pectinoidea (Mollusca, Bivalvia) from Vanuatu

**SYSTEMATICS**

Superfamily **PECTINOIDEA** Rafinesque, 1815
Family **PROPEAMUSSIDAE** Abbott, 1954
Genus **Propeamussium** de Gregorio, 1884

**Propeamussium investigatoris** (Smith, 1906)

*Amussium investigatoris* Smith, 1906: 255.

**Propeamussium investigatoris** – Dijkstra & Kastoro 1997: 248, figs 11-15 (synonymy, references, type data, description, distribution).

**Material examined.** — India. W of Travancore, 410-519 m, lectotype spm (ZSI M835/1), designated by Dijkstra & Kastoro (1997: 250).

Vanuatu. SANTO 2006, stn AT19, 15°40.8'S, 167°00.5'E, 880-953 m, 19 spms, 1 lv. — Stn AT61, 15°39.2'S, 167°01.4'E, 266-281 m, 1 spm.

**Distribution.** — Northern Indian Ocean, Indonesia, Solomon Islands, Vanuatu, Fiji, Tonga, Kermadec Islands, alive in 176-688 m (Dijkstra & Maestrati 2008: 82).

**Propeamussium jeffreysii** (Smith, 1885)

*Amussium jeffreysii* Smith, 1885: 310, pl. 23, figs 2-2c.

**Propeamussium jeffreysii** – Dijkstra 2001: 76, figs 5-12 (references, type data, description, distribution).

**Material examined.** — Philippines. 686 m, lectotype spm (NHMUK 1887.2.9.3310), designated by Dijkstra (2001: 76).

Vanuatu. SANTO 2006, stn AT59, 15°31.5'S, 167°21.9'E, 759-985 m, 4 spms. — Stn AT60, 15°33.1'S, 167°22.0'E, 880-953 m, 1 spm.

**Distribution.** — Southeast Africa, Gulf of Aden, Maldive Islands, Japan, Philippines, Vanuatu, Fiji, Wallis and Futuna. Bathymetric range: former recorded from 290 to 797 m (Dijkstra & Maestrati 2008: 83), here extended to 880 m.

**Propeamussium caducum** (Smith, 1885)

*Amussium caducum* Smith, 1885: 309, pl. 23, figs 1-1c.

**Propeamussium caducum** – Dijkstra 1995b: 15, figs 9, 10, 129-132 (synonymy, references, type data, description, distribution).

**Material examined.** — Philippines. W of Luzon, 1280 m, lectotype spm (NHMUK 1887.2.9.3313), designated by Dijkstra (1995b: 17).

Vanuatu. SANTO 2006, stn AT19, 15°40.8'S, 167°00.5'E, 503-600 m, 5 spms, 1 lv. — Stn AT59, 15°31.5'S, 167°21.9'E, 759-985 m, 3 spms. — Stn AT70, 15°40.7'S, 167°00.5'E, 517-614 m, 2 lv. — Stn AT72, 15°44.1'S, 167°03.3'E, 618-722 m, 1 spm. — Stn AT73, 15°40.8'S, 167°00.5'E, 514-636 m, 2 spms, 1 lv.

**Distribution.** — Zanzibar area, Gulf of Aden, Arabian Sea, Bay of Bengal, Japan, Philippines, Indonesia, Solomon Islands, Vanuatu and New Caledonia. Bathymetric range: formerly recorded from 176 to 688 m (Dijkstra & Maestrati 2008: 82), here extended to 807 m.

**Propeamussium andamanicum** (Smith, 1894)

*Amussium andamanicum* Smith, 1894: 172, pl. 5, figs 13, 14.

**Propeamussium andamanicum** – Dijkstra 1995b: 15, figs 5-8, 138-142 (references, type data, description, distribution).

**Material examined.** — Andaman Sea. 1249 m, lectotype spm (ZSI 7418/9), designated by Dijkstra (1995b: 15).

Vanuatu. SANTO 2006, stn AT60, 15°33.1'S, 167°22.0'E, 880-953 m, 19 spms, 1 lv. — Stn AT61, 15°39.2'S, 167°01.4'E, 266-281 m, 1 spm.

**Distribution.** — Zanzibar area, Gulf of Aden, Arabian Sea, Andaman Sea, New Caledonia, Vanuatu, Fiji and Wallis and Futuna. Bathymetric range: earlier recorded from 1216 to 2000 m (Dijkstra & Maestrati 2008: 79), now significantly extended to shallower depths at 281-880 m.

**Propeamussium rubrotinctum** (Oyama, 1951)

*Parvamussium* (Parvamussium) rubrotinctum Oyama, 1951: 81, pl. 13, figs 8-10.
Propeamussium rubrotinctum – Dijkstra 1995b: 21, figs 23-26 (synonymy, references, type data, description, distribution).

Material examined. — Japan. Gulf of Tosa, off Shikoku, depth not recorded, type material untraceable, not in the Tosa Museum and Aquarium (Dr K. Oyama, pers. comm.).

Vanuatu. SANTO 2006, stn AT58, 15°33.0’S, 167°19.3’E, 364-390 m, 1 spm.

Distribution. — Southeastern Africa, Andaman Islands, Indonesia, Solomon Islands, Vanuatu, New Caledonia, Fiji, Kermadec Islands, and Austral Islands, in 330-510 m (Dijkstra & Maestrati 2010: 338).

Parvamussium multiliratum Dijkstra, 1995

Parvamussium multiliratum Dijkstra, 1995b: 26, figs 31-34, 91-92. — Dijkstra & Maestrati 2010: 339.

Material examined. — Southern New Caledonia. 2100-2110 m, holotype spm (MNHN 21173).

Vanuatu. SANTO 2006, stn AT59, 15°31.5’S, 167°21.9’E, 759-985 m, 1 rv.

Distribution. — Fiji, Wallis and Futuna, Tonga, Vanuatu and New Caledonia at 640-2110 m depth (Dijkstra & Maestrati 2010: 339).

Parvamussium pauciliratum (Smith, 1903)

Amussium paucilirata [sic] Smith, 1903: 622, pl. 36, figs 23-24.

Parvamussium pauciliratum – Dijkstra 1995b: 26, figs 107-110, 151, 152 (references, type data, description, distribution).

Material examined. — Maldive Islands. S Nilandu Atoll, 2-66 m, lectotype spm (NHMUK 1903.9.17.17), designated by Dijkstra (1995b: 28).

Vanuatu. SANTO 2006, stn EP03, 15°32.2’S, 167°09.6’E, 46 m, 1 lv. — Stn DS10, 15°36.6’S, 167°10.1’E, 6-24 m, 1 rv. — Stn DS103, 15°34.1’S, 167°16.0’E, 70-80 m, 3 rv. — Stn DS104, 15°34.1’S, 167°16.0’E, 10-80 m, 1 lv. — Stn DS108, 15°33.2’S, 167°16.6’E, 100 m, 1 lv.

Distribution. — Maldive Islands, Indonesia, Solomon Islands, Vanuatu (new record) and New Caledonia. With the exception of one record from the Solomon Islands (Dijkstra & Maestrati 2008: 92), this is a shallow-water species.

Parvamussium retiaculum Dijkstra, 1995

Parvamussium retiaculum Dijkstra, 1995: 28, figs 35-38.

Material examined. — New Caledonia. Southern New Caledonia, 23°05’S, 167°45’E, 680-700 m, holotype spm (MNHN 24266).
Parvamussium scitulum (Smith, 1885)

Amussium scitulum Smith, 1885: 312, pl. 23, figs 4-4b.

Parvamussium scitulum – Dijkstra 1995b: 31, figs 43-46, 153, 154 (synonymy, references, type data, distribution, description). — Dijkstra & Maestrati 2010: 339.

Material examined. — South of New Guinea. 51 m, lectotype lv (NHMUK 1887.2.9.3319/1), designated by Dijkstra (1995b: 31).

Vanuatu. SANTO 2006, stn ED02, 15°31.7'S, 167°09.7'E, 18-21 m, 1 spm, 3 rv. — Stn AT04, 15°32.9'-33.1'S, 167°13.3'-13.7'E, 97-101 m, 2 lv, 9 rv. — Stn ED13, 15°31.3'-31.6'S, 167°10.0'-10.4'E, 22-29 m, 6 lv, 5 rv. — Stn ED17, 15°32.0'S, 167°09.6'E, 23-27 m, 8 lv, 16 rv. — Stn DS22, 15°31.7'S, 167°09.7'E, 25 m, 2 spms, 2 lv, 3 rv. — Stn AT37, 15°22.5'S, 167°12.6'E, 72-82 m, 1 spm. — Stn AT44, 15°36.5'S, 167°02.7'E, 86-118 m, 1 rv. — Stn AT52, 15°31.5'S, 167°12.7'E, 52-62 m, 11 spms, 3 lv, 2 rv. — Stn AT53, 15°31.8'S, 167°12.7'E, 56-62 m, 1 spm. — Stn AT76, 15°38.7'S, 167°03.6'E, 105-135 m, 1 lv, 5 rv. — Stn AT80, 15°31.7'S, 167°10.8'E, 36-43 m, 1 lv, 1 rv.

Distribution. — Western and southwestern Pacific from southern Japan to New Caledonia, Vanuatu (new record), Wallis and Futuna, Tonga and Austral Islands, alive in 50-300 m (Dijkstra & Maestrati 2010: 339). The Santo specimens are from as shallow as 21 m.

Genus Cyclopecten Verrill, 1897

Cyclopecten cancellus Dijkstra, 1991

Cyclopecten cancellus Dijkstra, 1991: 21, figs 66-70.

Material examined. — Indonesia. Off SW Salayer, 130-155 m, holotype lv (RMNH 56560).

Vanuatu. SANTO 2006, stn ZB06, 15°36.8'S, 167°01.3'E, 30 m, 1 spm. — Stn EP10, 15°34.5'-34.8'S, 167°05.1'-13.6'E, 45-101 m, 1 spm. — Stn NB12, 15°33.1'S, 167°09.6'E, 20 m, 1 spm, 3 lv, 1 rv. — Stn AT14, 15°23.7'-24.0'S, 167°12.9'-13.5'E, 102-120 m, 1 lv, 1 rv. — Stn EP19, 15°37.5'-38.0'S, 167°05.1'-05.6'E, 80-94 m, 2 lv. — Stn DB20, 15°30.5'S, 167°01.4'E, 22-25 m, 1 spm. — Stn EP21, 15°37.7'S, 167°05.2'E, 99 m, 1 spm. — Stn ZS22, 15°33.1'S, 167°09.6'E, 27-29 m, 1 lv. — Stn EP36, 15°33.1'-33.3'S, 167°12.4'-12.7'E, 20-60 m, 1 spm. — Stn EP40, 15°33.1'-33.6'S, 167°16.4'-16.5'E, 125-156 m, 1 spm. — Stn FB43, 15°28.4'S, 167°14.9'E, 19 m, 1 lv, 2 rv. — Stn FP50, 15°36.8'S, 167°08.7'E, 25 m, 1 spm. — Stn DB63, 15°26.9'S, 167°15.8'E, 21 m, 1 rv. — Stn DB77, 15°27.9'S, 167°14.7'E, 42-45 m, 1 spm. — Stn FS77, 15°33.1'S, 167°09.6'E, 29 m, 3 lv, 2 rv. — Stn DB80, 15°37.1'S, 167°07.5'E, 18 m, 1 lv. — Stn DS99, 15°32.5'S, 167°16.9'E, 100-105 m, 1 spm, 3 lv, 1 rv. — Stn DS102, 15°34.1'S, 167°16.0'E, 98-100 m, 1 spm, 2 lv, 1 rv. — Stn DS103, 15°34.1'S, 167°16.0'E, 70-80 m, 3 lv, 2 rv. — Stn DS105, 15°33.0'S, 167°16.7'E, 92 m, 3 lv.

Distribution. — Eastern Australia, Solomon Islands, Vanuatu (new record) and Kermadec Islands. Earlier known from shells in 130-614 m; Santo specimens collected alive in 20-125 m.

Remarks

The Santo specimens are indistinguishable from the type material. The rudimentary internal riblets are very variable, i.e. lacking (typically) one or several short rudimentary.

Cyclopecten kapalae Dijkstra, 1990

Cyclopecten kapalae Dijkstra, 1990: 29, figs 1-5.

Material examined. — Australia. New South Wales, off Sydney, 914-907 m, holotype spm (AMS C.155831.1).

Vanuatu. SANTO 2006, stn AT19, 15°40.8’S, 167°00.5’E, 503-600 m, 6 lv, 4 rv. — Stn DB69, 15°24.4’S, 167°00.5’E, 38 m, 1 spm.

Distribution. — Eastern Australia, Solomon Islands, Vanuatu (new record) and Kermadec Islands. Earlier known from 512-549 m (Dijkstra & Maestrati 2008: 97), the Santo specimen live collected in 38 m shows that this is a shallow offshore species.

Cyclochlamydidae n. fam.

Type genus. — Cyclochlamys Finlay, 1926: 245. — Type species (by original designation): Pecten transenna [sic] Suter, 1913. Recent, New Zealand.

Diagnosis. — Very small Pectinoidea (c. 1.2 up to 6 mm in height) with a smooth or variously sculptured left valve with a flat, weakly to strongly inflated or even conical and pointed sculptured prodissoconch, sometimes bordered by a strong flange-like comm marginal
distribution. — Known only from the type locality, alive at 70 m depth.

Etymology. — A micro-scallop with a smooth disc (Latin “apertus”, adjective meaning uncovered or laevis).

Description
Shell up to c. 1.20 mm high, fragile, posteriorly oblique, inequivalve, inequilateral, left valve more inflated than right valve, wider than high, translucent.

Left valve disc and auricles smooth with a few commarginal growth lines. Posterior auricle slightly larger than anterior one. Prodissoconch c. 310 µm wide, conical, sculptured with crisp radial threads.

Right valve disc and ventral half of posterior auricle with outer layer of commarginally elongate, hexagonal prisms that form broad, flexible ventral apron. Anterior auricle with three weak radial threads with small tubercles. Byssal notch moderately deep.

Dimensions of holotype: H 1.2 mm, W 1.8 mm, D 0.8 mm.

Remarks
Cyclochlamys aperta n. sp. is morphologically closest to Cyclochlamys australense Dijkstra & Maestrati, 2010, from the Austral Islands (lives in 3-52 m). Both species are almost the same size (C. aperta n. sp. 1.2 mm in height, C. australense 1.8 mm), and are posteriorly oblique. However, C. aperta n. sp. is almost smooth with only a few very weak commarginal growth lines. Cyclochlamys australense has a commarginal vesicular sculpture in late growth stage.

Genus Cyclochlamys Finlay, 1926

Cyclochlamys aperta n. sp. (Fig. 1A-E)

Type Material. — Vanuatu. SANTO 2006, stn DS93, 15°33.6'S, 167°16.5'E, 70 m, holotype spm (MNHN 24271). — Stn DS104, 15°34.1'S, 167°16.0'E, 10-80 m, 2 paratypes lv (MNHN 24272).

Type Locality. — Vanuatu Archipelago, west of Tutuba Island, 15°33.6'S, 167°16.5'E, 70 m (SANTO 2006 stn DS93).

Distribution. — Known only from the type locality, alive at 70 m depth.
Fig. 1. — **A-E**, Holotype of Cyclochlamys aperta n. sp. (MNHN 24271); **A, B**, external views of left and right valve; **C**, left valve prodissococonch; **D**, right valve detail; **E**, right valve prodissococonch; **F-J**, Micropecten excaratus n. gen., n. sp.; **F**, holotype (MNHN 24273), external view of left valve; **G**, paratype (MNHN 24274), external view of right valve; **H**, holotype, left valve prodissococonch; **I**, paratype, right valve detail; **J**, paratype, right valve prodissococonch. Scale bars: **A, B, F, G, 500 µm; C-E, H-J, 100 µm.**
Genus *Chlamydella* Iredale, 1929

*Chlamydella favus* (Hedley, 1902)

*Cyclopecten favus* Hedley, 1902: 305, fig. 50 (as *Cyclopecten flavus*, typographic error). *Cyclopecten favus* is herein the correct original spelling (ICZN 1999 article 24.2.3) and *Cyclopecten flavus* is incorrect.

*Chlamydella favus* – Iredale 1929: 164.

*Cyclochlamys favus* – Dijkstra 1995b: 40, figs 87-90 (synonymy, references, description, distribution).

**Material examined.** — **Australia.** New South Wales, 5.5-7.5 miles NE of Cape Three Points, 75-91 m, holotype spm (AMS C.13231).

*Vanuatu*. SANTO 2006, stn FB43, 15°28.4’S, 167°14.9’E, 19 m, 20 spms, 3 lv, 2 rv. — Stn DB58, 15°24.6’S, 167°14.3’E, 4-63 m, 4 spms, 3 lv, 1 rv. — Stn DB63, 15°26.9’S, 167°15.8’E, 21 m, 1 spm, 4 lv, 3 rv. — Stn DB75, 15°22.9’S, 167°11.9’E, 20 m, 10 spms, 13 lv, 4 rv.

**Distribution.** — Australia (Western Australia, southern Queensland, New South Wales), Vanuatu (new record), and New Caledonia. Bathymetric range: earlier recorded alive at 367-570 m; the Santo specimens live collected in 19-21 m show that this is also a shallow offshore species, which corresponds with unpublished data (Dijkstra & Beu in prep.) from Australia.

**Micropecten** n. gen.

**Type species.** — *Cyclochlamys plectofilum* Oliver & Holmes, 2004. Recent, Rodrigues Island, Indian Ocean, shallow water.

**Included species.** — *Micropecten plectofilum* (Oliver & Holmes, 2004) n. comb. and *M. excuratus* n. sp.

**Diagnosis.** — Cyclochlamydidae n. fam. with an irregularly lattice-sculptured prodissoconch, conical on left valve and flattened on right valve; antimarginally sculptured valves, at least in late ontogeny, left valve also weakly commarginally sculptured or lacking; preradial stage of right valve with a simple outer layer of longitudinal and hexagonal microstructure. Byssal notch well developed; ctenolium lacking; internal disc riblets absent; hinge teeth and ridges lacking.

**Etymology.** — A small pectinoid. Gender masculine.

**Remarks**

*Micropecten* n. gen. is different from *Cyclochlamys* by the following morphological characters:

– a rounded prodissoconch angle (obtuse in *Cyclochlamys*);
– a lattice-sculptured prodissoconch on both valves (left valve antimarginal, right valve almost smooth in *Cyclochlamys*);
– a simple outer layer of longitudinally hexagonal microstructure in preradial stage on the right valve (throughout right valve in *Cyclochlamys*);
– and an antimarginal sculpture on the right valve (lacking in *Cyclochlamys*).

*Micropecten* n. gen. also differs from *Chlamydella* by:

– having a circular shape (more posteriorly oblique in *Chlamydella*), an antimarginal sculpture on both valves (smooth or commarginally sculptured on the left valve in *Chlamydella*);
– a latticed sculptured conical left valve prodissoconch (weakly inflated and radially sculptured in *Chlamydella*);
– a simple outer layer of longitudinally hexagonal microstructure in preradial stage on the right valve (throughout right valve in *Chlamydella*);
– an antimarginal sculpture on the right valve (lacking in *Cyclochlamys*).

**Micropecten excuratus** n. sp. (Fig. 1F-J)

**Type material.** — *Vanuatu*. SANTO 2006, stn DS101, 15°32.3’S, 167°17.2’E, 17-19 m, holotype lv (MNHN 24273), 10 paratypes lv, 14 paratypes rv (MNHN 24274), 1 paratype lv, 1 paratype rv (ZMA Moll. 4.11.015).

**Type locality.** — Vanuatu Archipelago, north of Tutuba Island, 15°32.3’S, 167°17.2’E, 17-19 m, sand (SANTO 2006 stn DS101).

**Distribution.** — Known only from the type locality, collected dead in 17-19 m.

**Etymology.** — From the Latin adjective “excuratus”, meaning well-groomed or well-dressed, with reference to the abundantly sculptured disc of this micro-scallop.

**Description**

Shell up to c. 2.5 mm high, fragile, hyaline, subcircular, slightly posteriorly oblique, inequivale, inequilateral, left valve more inflated than right valve; translucent, prodissoconch of left valve conical, of right valve flat.
Pectinoidea (Mollusca, Bivalvia) from Vanuatu

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**Family**
Pectinidae

**Genus**
Pectinella

**Pectinella aequoris**

*Dijkstra, 1991: 23, figs 78-86.*

**Material examined.** — *Indonesia.* N of Sumbawa, Bay of Sanggar, 175-185 m, holotype lv (RMNH 56567). *Vanuatu.* SANTO 2006, stn DS93, 15°33.6'S, 167°16.5'E, 70 m, 1 rv. — Stn DS99, 15°32.5'S, 167°16.9'E, 100-105 m, 1 lv. — Stn DS102, 15°34.1'S, 167°16.0'E, 98-100 m, 1 lv, 1 rv. — Stn DS104, 15°34.1'S, 167°16.0'E, 10-80 m, 1 spm. — Stn DS105, 15°33.0'S, 167°16.7'E, 92 m, 1 lv.

**Distribution.** — *Indonesia, New Caledonia,* Vanuatu (new record), Fiji, Austral Islands and the Hawaii Islands (Dijkstra 2001: 90; Dijkstra & Maestrati 2008: 102; 2010: 342). Bathymetric range: earlier recorded from depths of 260 m; the Santo specimens live collected in 10-80 m show that this is also a shallow offshore species.

*Left valve (holotype) disc and auricles sculptured with numerous narrow antimarginal lirae, secondary riblets in interspaces, and delicate commarginal lirae, commencing in early growth stage. Auricles subequal, anterior one slightly larger than posterior one. Prodissoconch c. 230 µm wide, conical, sculptured with a web-like pattern of raised tracery.*

*Right valve (paratype) disc and ventral half of posterior auricle similarly sculptured with narrow antimarginal lirae; intercostal secondary riblets in late growth stage. Longitudinal hexagonal microstructure. Posterior auricle continuous with disc, anterior one demarcated and sculptured with a few fine nodulous radial riblets. Byssal notch relatively deep. Prodissoconch flat and similarly sculpture as prodissoconch of left valve.*

**Dimensions of holotype (left valve): H 2.4 mm, W 2.4 mm.**

**Remarks**

*Micropecten excuratus* n. gen., n. sp. is morphologically closest to *Micropecten plectofilum* (Oliver & Holmes, 2004) n. comb., known from Rodrigues (Indian Ocean, Mascarene Islands; dead at 17 m depth). Both species have a similar size (*M. excuratus* n. gen., n. sp. 2.5 mm in height, *M. plectofilum* (Oliver & Holmes, 2004) n. comb. 2 mm), are slightly posteriorly oblique, and have an antimarginal sculpture on the right valve. However, *M. excuratus* n. gen., n. sp. has more regularly spaced antimarginal sculpture, commencing at an earlier stage on the right valve, and *M. excuratus* n. gen., n. sp. also has a commarginal sculpture on the left valve, which is lacking in *M. plectofilum* (Oliver & Holmes, 2004) n. comb.

**Family**

Entoliidae

**Genus**
Pectinella

**Pectinella aequoris**

*Dijkstra, 1991: 23, figs 78-86.*

**Material examined.** — *Philippines.* N of Lubang, 175-185 m, holotype lv (RMNH 56567). *Vanuatu.* SANTO 2006, stn EP40, 15°33.1'-33.6'S, 167°16.4'-16.5'E, 125-156 m, 1 lv. — Stn EP41, 15°33.1'-33.6'S, 167°16.4'-16.5'E, 25-80 m, 1 sv. — Stn EP42, 15°33.1'-33.6'S, 167°16.4'-16.5'E, 125-156 m, 1 spm.

**Distribution.** — *Philippines,* Indonesia, Solomon Islands, Vanuatu (new record), New Caledonia and French Polynesia, Austral Islands (Dijkstra & Marshall 1997: 88; Dijkstra & Maestrati 2008: 105; 2010: 344), alive from 150-250 m.

**Family**

Pectinidae

**Genus**

Delectopecten

**Delectopecten musorstomi**

*Poutiers, 1981*

**Material examined.** — *Philippines.* N of Lubang, 150-159 m, holotype spm (MNHN 21162). *Vanuatu.* SANTO 2006, stn EP40, 15°33.1'-33.6'S, 167°16.4'-16.5'E, 125-156 m, 1 spm.

**Distribution.** — *Philippines,* Indonesia, Solomon Islands, Vanuatu (new record), New Caledonia and French Polynesia, Austral Islands (Dijkstra & Maestrati 2008: 344), alive from 150-250 m.

**Table 1.** — Principal different morphological characters of Cyclochlamys Finlay, 1926, Chlamyrella Iredale, 1929 and Micropecten n. gen.

|                     | *Cyclochlamys* | *Chlamyrella* | *Micropecten n. gen.* |
|---------------------|---------------|--------------|----------------------|
| **Prodissoconch**   | obverse       | rounded      | rounded              |
| **Sculpture prodissoconch left valve** | antimarginal | smooth       | latticed             |
| **Sculpture prodissoconch right valve** | almost smooth | smooth       | latticed             |
| **Sculpture left valve** | radial or latticed | smooth or commarginal | latticed             |
| **Sculpture right valve** | smooth       | smooth       | radial               |
| **Microstructure right valve** | hexagonal throughout | hexagonal throughout | hexagonal only in pre-radial stage |

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**Delectopecten musorstomi**

*Poutiers, 1981: 331, pl. 1, figs 2-3. — Dijkstra & Maestrati 2010: 344.*
Genus *Laevichlamys* Waller, 1993

*Laevichlamys cuneata* (Reeve, 1853)

*Pecten irregularis* Sowerby II, 1842: 69, pl. 13, figs 51, 52 (junior homonym of *Pecten irregularis* Schlotheim, 1813).

*Laevichlamys cuneata* – Raines & Poppe 2006: 198, 199, pl. 12, figs 1, 5, 6; pl. 151, fig. 4 (references, type data, original and additional descriptions, distribution).

**Material Examined.** — *Pecten irregularis*: type locality not indicated, Reeve (1853: species 19, pl. 4, figs 19a, 19b) mentioned “Eastern Seas” [Philippines and/or Indonesian archipelago], 2 syntypes spms (NHMUK 1950.11.14.39/1-2).

*Pecten cuneatus*: Indonesia. Maluku, 3 syntypes spms (NHMUK 20010485/1-3).

**Distribution.** — Throughout the tropical Indo-West Pacific (Raines & Poppe 2006: 188), live lodged in *Acropora* branches intertidally to sublittorally. This is a new record for Vanuatu, based on live specimens from the intertidal zone to 45 m.

Genus *Hemipecten* Adams & Reeve, 1849

*Hemipecten forbesianus* Adams & Reeve, 1849

*Hemipecten forbesianus* – Dijkstra & Marshall 1997: 89, pl. 7, figs 1-6 (references, synonymy, type data, distribution). — Raines & Poppe 2006: 68, pl. 4, fig. 10 (original and additional descriptions). — Petit 2007: 99 (information on publication data).

**Material Examined.** — *Philippines*. Sulu Archipelago, c. 26 m, lectotype spm (NHMUK 1874.12.11.376), designated by Dijkstra & Marshall (1997: 89).

*Vanuatu*. SANTO 2006, stn EP10, 15°34.5'-38.0’S, 167°05.1'-13.6'E, intertidal, 45-101 m, 1 spm.
Material examined.—Type locality not indicated. Lectotype spm (NHMUK, Sloane collection), designated by Dijkstra (1991: 32).

**Vanuatu.** SANTO 2006, stn ZR03, 15°33.1'S, 167°09.6'E, 0-45 m, 1 spm.—Stn ZB13, 15°36.7'S, 167°02.0'E, 18-30 m, 1 spm.—Stn LS17, 15°31.1'S, 167°10.5'E, 7 m, 1 lv, 2 rv.—Stn LR18, 15°31.1'S, 167°10.5'E, 7 m, 1 spm.—Stn NR20, 15°27.2'S, 167°15.1'E, 42 m, 1 lv.—Stn ZB20, 15°36.1'S, 167°05.4'E, 15-20 m, 2 spms.—Stn DS31, 15°31.4'S, 167°09.7'E, 5 m, 2 lv.—Stn DB33, 15°34.7'S, 167°13.8'E, 14-25 m, 1 spm.—Stn EP36, 15°33.1'-33.3'S, 167°12.4'-12.7'E, 20-60 m, 1 spm.—Stn DS37, 15°29.5'S, 167°14.8'E, 8 m, 1 spm, 1 lv, 1 rv.—Stn NS37, 15°31.4'S, 167°09.8'E, 2-3 m, 5 lv, 3 rv.—Stn DS38, 15°29.9'S, 167°15.1'E, 3 m, 1 lv, 1 rv.—Stn DR39, 15°29.9'S, 167°15.1'E, 3 m, 1 spm.—Stn FB40, 15°22.9'S, 167°11.7'E, 9 m, 3 spms.—Stn NR48, 15°33.2'S, 167°08.8'E, 20 m, 1 spm.—Stn DB53, 15°28.8'S, 167°15.2'E, 5 m, 1 spm.—Stn FR53, 15°42.7'S, 167°15.1'E, 6 m, 1 spm.—Stn DS54, 15°33.2'S, 167°07.5'E, 18 m, 1 spm.—Stn DR84, 15°43.4'S, 167°15.0'E, 6 m, 1 spm.

**Laevichlamys wilhelminae** (Bavay, 1904)

*Chlamys wilhelminae* Bavay, 1904: 200, pl. 6, figs 3, 4, 13, 14.

**Laevichlamys squamosa** (Gmelin, 1791)

*Ostrea squamosa* Gmelin, 1791: 3319.

**Laevichlamys squamosa**—Raines & Poppe 2006: 208, pl. 151, figs 1-3, 5-6, pl. 152, figs 1-7, pl. 296, fig. 2 (references, type data, original and additional descriptions, distribution).
Genus *Semipallium* Jousseaume in Lamy, 1928

*Semipallium dianae* (Crandall, 1979)

Chlamys dianae Crandall, 1979: 114, figs 3-8.

**Material examined.** — Japan. Ryukyu Islands, c. 30 m, holotype spm (TMTT 7911).

*Vanuatu*. SANTO 2006, stn FR08, 15°33.1’S, 167°12.2’E, 3-40 m, 1 spm. — Stn DB63, 15°26.9’S, 167°15.8’E, 21 m, 2 spms.

**Distribution.** — Coral reefs throughout the Indo-Pacific; lives embedded in massive heads of scleractinian corals in shallow water. Live specimens from the intertidal zone to 15 m.

Genus *Pascahinnites* Dijkstra & Raines, 1999

*Pascahinnites coruscans coruscans* (Hinds, 1845)

**Material examined.** — Marquesas Islands. Nukuhiva, 13 m, lectotype spm (NHMUK 19709), designated by Waller (1972: 231).

*Vanuatu*. SANTO 2006, stn DS04, 15°31.4’S, 167°14.1’E, 25 m, 1 rv. — Stn DB20, 15°30.5’S, 167°01.4’E, 22-25 m, 1 rv. — Stn EP24, 15°36.5’S, 167°00.9-01.7’E, 108-121 m, 1 lv. — Stn AT37, 15°22.9’S, 167°11.7’E, 9 m, 1 lv. — Stn FS79, 15°33.1’S, 167°09.6’E, 2 m, 1 lv. — FS96, 15°33.1’S, 167°09.6’E, 35 m, 1 lv.

**Distribution.** — Indo-West Pacific, from eastern South Africa to southern Japan, throughout the South Pacific to Pitcairn Island, alive from the intertidal zone to 60 m (Waller 1972: 234; Dijkstra & Marshall 1997: 101; 2008: 51; Dijkstra & Maestrati 2010: 346).

Genus *Pedum* Bruguière, 1892

*Pedum spondyloideum* (Gmelin, 1791)

**Material examined.** — India. Holotype spm (ZMUC BIV-57).

*Vanuatu*. SANTO 2006, stn VM11, 15°28.8’S, 167°15.2’E, 15-55 m, 3 spms. — Stn FS79, 15°33.1’S, 167°09.6’E, 2 m, 1 rv.

**Distribution.** — Southern Japan, Philippines, the Solomon Islands, Vanuatu (new record), and western and southwestern Pacific at depths of 20-90 m (Dijkstra & Kastoro 1997: 270, and present records).

Genus *Semipallium* Jousseaume in Lam, 1928

*Semipallium flavicans* (Linnaeus, 1758)

Ostrea flavicans Linnaeus, 1758: 698.

**Material examined.** — “O. australiore”, lectotype spm (UUZM), designated by Dijkstra (1999: 426).

*Vanuatu*. SANTO 2006, stn VM02, 15°34.1’S, 167°24.9’E, 15-30 m, 1 spm. — Stn DB63, 15°26.9’S, 167°15.8’E, 21 m, 2 spms.
### Pectinoidea (Mollusca, Bivalvia) from Vanuatu

**Genus Talochlamys Iredale, 1929**

*Talochlamys gladysiae* (Melvill, 1888)

### Material Examined
- **Type locality not indicated**, holotype spm (NMW 1955.158.10).
- **Vanuatu**. SANTO 2006, stn AT04, 15°32.9’-33.1’S, 167°13.3’-13.7’E, 97-101 m, 1 spm. — Stn EP10, 15°34.5’-38.0’S, 167°05.1’-13.6’E, 45-101 m, 7 spms. — Stn AT13, 15°27.8’S, 167°15.7’E, 146-153 m, 1 spm. — Stn AT14, 15°23.7’-24.0’S, 167°12.9’-13.5’E, 102-120 m, 1 spm. — Stn EP19, 15°37.5’-38.0’S, 167°05.1’-05.6’E, 80-94 m, 2 spms, 2 lv, 1 rv. — Stn EP21, 15°37.7’S, 167°05.2’E, 99 m, 1 lv. — Stn EP24, 15°36.5’S, 167°00.9’-01.7’E, 108-121 m, 1 spm. — Stn AT29, 15°35.9’-36.0’S, 167°01.3’-01.6’E, 83-90 m, 2 lv. — Stn EP29, 15°38.0’S, 167°14.0’E, 91-110 m, 2 spms. — Stn AT37, 15°22.5’-23.0’S, 167°12.6’E, 72-82 m, 3 lv, 2 rv. — Stn AT41, 15°36.7’-37.0’S, 167°02.7’-02.8’E, 88-118 m, 1 rv. — Stn AT44, 15°36.5’S, 167°02.7’E, 86-118 m, 1 rv. — Stn AT46, 15°37.7’S, 167°05.3’E, 92-104 m, 1 lv. — Stn FP50, 15°36.8’S, 167°08.7’E, 25 m, 2 spms. — Stn AT88, 15°31.9’S, 167°15.0’E, 87-115 m, 1 spm, 1 lv, 1 rv. — Stn AT91, 15°33.3’-35.0’S, 167°16.7’E, 92 m, 1 rv.

**Distribution.** — China, Vietnam, Thailand, Philippines, Indonesia, Malaysia, northern Australia, Papua New Guinea, Solomon Islands, Vanuatu (new record), and New Caledonia, found from the intertidal zone to 91 m depth (ZMA, unpublished data and present record).

### Genus Palliolium Monterosato, 1884

*Palliolium minutulum* Dijkstra & Southgate, 2000

**Material Examined.** — New Caledonia. Coral reef lagoon off Koumac, 12-14 m, holotype spm (MNHN 21160).

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**Distribution.** — Western and southwestern Pacific, from southern Japan southwards to northern Australia, and eastwards to French Polynesia, live in intertidal to 49 m (ZMA, unpublished data). Vanuatu is a new record.
Vanuatu. SANTO 2006, stn LD35, 15°32.7’-32.8’S, 167°11.5’-11.6’E, 3-8 m, 1spm. — Stn EP36, 15°33.1’-33.3’S, 167°12.4’-12.7’E, 20-60 m, 1spm. — Stn EP37, 15°23.4’-23.6’S, 167°13.1’-13.3’E, 50-61 m, 1spm. — Stn NS37, 15°31.4’S, 167°09.8’E, 2-3 m, 1lv. — Stn DB53, 15°28.8’S, 167°15.2’E, 5 m, 1spm.

DISTRIBUTION. — Philippines, Indonesia, northeastern Australia, Papua New Guinea, Solomon Islands, Vanuatu (new record), New Caledonia, Fiji and Kiribati (Dijkstra & Southgate 2000: 16), from depths of 5-50 m (ZMA, unpublished data, and present records).

Genus Dentamussium Dijkstra, 1990

Dentamussium obliteratum (Linnaeus, 1758)

Ostrea obliterata Linnaeus, 1758: 697. — Dijkstra 1999: 400, figs 9A, B.

Dentamussium obliteratum — Raines & Poppe 2006: 140, pl. 88, figs 1-5 (references, type data, original and additional descriptions, distribution).

MATERIAL EXAMINED. — “O. australiore”, lectotype spm (UUZM).

Vanuatu. SANTO 2006, stn EP36, 15°33.1’-33.3’S, 167°12.4’-12.7’E, 20-60 m, 1spm.

DISTRIBUTION. — China, Philippines, Malaysia, Indonesia, Marshall Islands, and Vanuatu (new record), between the intertidal zone to 80 m depth (ZMA, unpublished data).

Genus Serratovola Habe, 1951

Serratovola rubicunda (Chenu, 1843)

Pecten asper Sowerby II, 1842: 50, pl. 19, figs 196, 197.

Pecten rubicundus Chenu, 1843: 3, pl. 7, figs 4, 5 (nomen novum for Pecten asper Sowerby II, 1842, preoccupied by Pecten asper Lamarck, 1819).

Serratovola rubicunda — Dijkstra & Maestrati 2008: 110, figs 46, 47 (synonymy, references, description, distribution).

MATERIAL EXAMINED. — New Guinea. 7 syntypes spms (NHMUK 20080065).

Vanuatu. SANTO 2006, stn AT02, 15°32.5’-32.8’S, 167°16.1’-16.5’E, 160-175 m, 1rv. — Stn EP12, 15°31.9’S, 167°15.1’E, 97 m, 2lv. — Stn AT22, 15°32.3’S, 167°16.0’E, 180-227 m, 1rv. — Stn AT30, 15°36.7’S, 167°02.6’E, 83-120 m, 1rv. — Stn AT36, 15°21.5’S, 167°12.3’E, 53-59 m, 4lv, 2rv. — Stn AT37, 15°22.5’S, 167°12.6’E, 72-82 m, 9lv, 4rv. — Stn AT39, 15°22.4’S, 167°12.6’E, 57-81 m, 2lv, 4rv. — Stn AT42, 15°37.5’S, 167°02.3’E, 112-148 m, 1lv. — Stn AT43, 15°36.4’S, 167°02.3’E, 84-105 m, 1rv. — Stn AT52, 15°31.5’S, 167°12.7’E, 52-62 m, 2spms, 1rv. — Stn AT53, 15°31.8’S, 167°13.6’E, 62-71 m, 3spms, 7lv, 9rv. — Stn AT54, 15°32.1’S, 167°14.1’E, 9-30 m, 1spm. — Stn AT55, 15°36.2’S, 167°02.5’E, 80-82 m, 1lv, 3rv. — Stn DR66, 15°25.8’S, 167°13.0’E, 9-30 m, 1spm. — Stn AT75, 15°31.5’S, 167°12.4’E, 58-59 m, 2spms, 1rv. — Stn AT84, 15°32.4’S, 167°14.3’E, 71-104 m, 4spms, 2rv. — Stn AT112, 15°33.5’S, 167°16.1’E, 150-168 m, 1lv. — Stn AT119, 15°35.6’S, 167°02.4’E, 87-120 m, 1spm, 1lv.

DISTRIBUTION. — Southern Japan, South China Sea, Philippines, Indonesia, Papua New Guinea, Solomon Islands, Vanuatu (new record), Fiji and Tonga (Dijkstra & Maestrati 2008: 111), alive in 30-140 m.

Genus Cryptopecten Dall, Bartsch & Rehder, 1938

Cryptopecten bullatus (Dautzenberg & Bavay, 1912)

Pecten (Chlamys) bullatus Dautzenberg & Bavay, 1912: 17, pl. 27, figs 1, 2.

Cryptopecten bullatus — Dijkstra 1995b: 60, figs 115-118 (synonyms, references, description, distribution).

MATERIAL EXAMINED. — Philippines. Sulu Archipelago, 275 m, holotype spm (ZMA Moll. 3.12.006).

Vanuatu. SANTO 2006, stn AT13, 15°27.8’S, 167°15.7’E, 146-153 m, 1lv. — Stn AT23, 15°27.0’S, 167°16.1’E, 176-210 m, 3lv, 3rv. — Stn AT64, 15°39.6’S, 167°01.9’E, 249-252 m, 1rv. — Stn AT116, 15°32.9’S, 167°16.2’E, 153-196 m, 1rv.

DISTRIBUTION. — China, Philippines, Malaysia, Indonesia, Marshall Islands, and Vanuatu (new record), New Caledonia, Fiji and Kiribati (Dijkstra & Southgate 2000: 16), from depths of 5-50 m (ZMA, unpublished data).

Genus Serratovola Habe, 1951

Cryptopecten nux (Reeve, 1853)

Pecten coruscans — Reeve 1853: sp. 143, pl. 32, fig. 143 (not Pecten coruscans Hinds, 1845 [erroneously determined]).

Pecten nux Reeve, 1853: errata (correctly determined).
**Cryptopecten nux** – Raines & Poppe 2006: 314, pl. 276, figs 1-8 (references, type data, original and additional descriptions, distribution). — Dijkstra & Maestrati 2008: 109 (distribution).

**Material examined.** — **Marquesas Islands**, Nukuhiva, 13 m, lectotype spm (NHMUK 1950.11.14.52), designated by Wagner (1989: 56).

**Vanuatu.** SANTO 2006, stn EP01, 15°32.5’S, 167°09.0’E, 46-47 m, 2 rv. — Stn AT02, 15°32.5’-32.6’S, 167°16.1’-16.5’E, 160-175 m, 1 lv. 5 rv. — Stn AT06, 15°38.2’S, 167°02.2’E, 140-167 m, 1 rv. — Stn EP10, 15°34.5’-38.0’S, 167°05.1’-13.6’E, 45-101 m, 1 spm, 2 lv. 2 rv. — Stn AT13, 15°27.8’S, 167°15.7’E, 146-153 m, 1 spm, 1 lv, 3 rv. — Stn AT14, 15°23.7’-24.0’E, 167°12.9’-13.5’E, 102-120 m, 1 spm, 5 lv. — Stn AT17, 15°39.9’S, 167°02.0’E, 267-270 m, 1 lv. — Stn EP19, 15°37.5’-38.0’S, 167°05.1’-05.6’E, 80-94 m, 1 spm, 3 lv, 3 rv. — Stn EP22, 15°37.3’-37.4’S, 167°05.8’-06.0’E, 78-91 m, 3 lv, 1 rv. — Stn AT23, 15°27.0’S, 167°16.1’E, 176-210 m, 2 rv. — Stn ZS27, 15°35.0’S, 167°07.7’E, 3-15 m, 1 lv. — Stn EP28, 15°38.0’S, 167°05.0’E, 90-110 m, 1 spm, 2 rv. — Stn EP35, 15°34.9’-35.1’S, 167°13.9’-14.1’E, 10-51 m, 1 lv, 2 rv. — Stn AT36, 15°21.5’S, 167°12.3’E, 53-59 m, 6 lv, 4 rv. — Stn AT37, 15°22.5’S, 167°12.6’E, 72-82 m, 1 spm, 11 lv, 14 rv. — Stn AT46, 15°37.7’S, 167°05.3’E, 92-104 m, 3 lv, 5 rv. — Stn AT65, 15°40.3’S, 167°15.9’E, 160-167 m, 1 lv. 8 rv. — Stn AT67, 15°39.0’S, 167°15.8’E, 201-212 m, 2 rv. — Stn AT74, 15°37.0’-37.2’S, 167°09.7’-09.9’E, 50-64 m, 2 lv, 2 rv. — Stn AT76, 15°38.7’S, 167°03.6’E, 105-135 m, 1 lv, 1 rv. — Stn DS93, 15°33.6’S, 167°16.5’E, 100 m, 1 rv. — Stn DS99, 15°32.5’S, 167°16.9’E, 100-105 m, 1 rv. — Stn DS102, 15°34.1’S, 167°16.0’E, 98-100 m, 1 rv. — Stn DS103, 15°34.1’S, 167°16.0’E, 70-80 m, 1 lv. — Stn DS104, 15°34.1’S, 167°16.0’E, 10-80 m, 1 lv. — Stn DS105, 15°33.0’S, 167°16.7’E, 92 m, 2 lv, 3 rv. — Stn AT114, 15°33.4’S, 167°16.4’E, 148-166 m, 1 rv.

**Distribution.** — Northeast South Africa, Madagascar, Reunion Island, Mauritius, Mozambique, Kenya, Philippines, Indonesia, Papua New Guinea, Solomon Islands, Vanuatu (new record) and Tahiti, from the intertidal zone to 36 m depth (ZMA, unpublished data).

**Haumea rehderi** (Grau, 1960)

**Chlamys (Argopecten) rehderi** Grau, 1960: 15, pl. 2, figs 1-3.

**Haumea rehderi** – Raines & Poppe 2006: 318, pl. 274, fig. 2 (references, type data, original description, distribution).

**Material examined.** — **Society Islands**, Bora Bora Island, Tereia Point, 24-29 m, holotype spm (USNM 612201).

**Vanuatu.** SANTO 2006, stn ED02, 15°31.7’S, 167°09.7’E, 18-21 m, 2 lv, 2 rv. — Stn ED05, 15°31.7’S, 167°09.4’E, 9-13 m, 1 lv. — Stn ED07, 15°33.9’-34.2’S, 167°08.0’-08.4’E, 20-28 m, 1 rv. — Stn ED13, 15°31.3’-31.6’S, 167°10.0’-10.4’E, 22-29 m, 3 rv. — Stn LD21, 15°31.3’S, 167°09.9’E, 1-6 m, 2 spms, 1 lv, 1 rv. — Stn DS22, 15°31.7’S, 167°09.7’E, 25 m, 1 spm, 1 rv. — Stn LD24, 15°31.4’S, 167°10.0’E, 4-7 m, 1 rv. — Stn LD27, 15°35.3’S, 166°59.3’E, 3-5 m, 1 spm, 3 lv, 4 rv. — Stn LD28, 15°35.4’S, 166°58.7’E, 3-8 m, 1 spm. — Stn AT35, 15°20.7’E, 167°11.6’E, 28-37 m, 1 lv. — Stn LD39, 15°35.4’S, 166°58.7’E, 6-9 m, 1 lv. — Stn AT41, 15°36.7’-37.0’S, 167°02.7’-02.8’E, 88-118 m, 1 rv. — Stn FS74, 15°35.7’S, 166°59.3’E, 12 m, 1 rv. — Stn AT88, 15°31.9’S, 167°15.0’E, 87-115 m, 1 rv. — Stn FS88, 15°32.7’S, 167°11.5’E, 5 m, 12 m, 1 spm.

Genus **Haumea** Dall, Bartsch & Rehder, 1938

**Haumea minuta** (Linnaeus, 1758)

**Ostrea minuta** Linnaeus, 1758: 696.

**Haumea minuta** – Raines & Poppe 2006: 318, pl. 279, figs 1-6 (references, type data, original and additional descriptions, distribution).
8 rv. — Stn FB68, 15°35.4'S, 166°59.7'E, 11 m, 2 lv, 4 rv. — Stn FS74, 15°35.7'S, 166°59.3'E, 12 m, 4 lv.

DISTRIBUTION. — Thailand, Philippines, Indonesia, Papua New Guinea, northern Australia, New Caledonia, Vanuatu (new record), Fiji, Samoa and Society Islands (ZMA, unpublished data), from the intertidal zone to 55 m depth.

Genus Decatopecten Sowerby II, 1839

**Decatopecten radula** (Linnaeus, 1758)

*Ostrea radula* Linnaeus, 1758: 698.

**Decatopecten radula radula** – Raines & Poppe 2006: 106, pl. 50, figs 1-7; pl. 51, figs 1-3, 5, 6; pl. 295, fig. 2 (references, type data, original and additional descriptions, distribution).

MATERIAL EXAMINED. — “O. Indico”, lectotype spm (UUZM), designated by Dijkstra (1999: 403).

**Vanuatu.** SANTO 2006, stn DR11, 15°36.6'S, 167°10.1'E, 6-24 m, 1 spm. — Stn VM24, 15°35.2'S, 167°59.4'E, intertidal, 1 lv. — Stn VM35, 15°29.4'E, 167°15.2'E, intertidal, 2 spms. — Stn NS37, 15°31.4'S, 167°09.8'E, 2-3 m, 1 lv. — Stn DR41, 15°28.8'S, 167°15.2'E, 5-20 m, 1 spm. — Stn FR53, 15°42.7'S, 167°15.1'E, 7 m, 1 spm. — Stn DR84, 15°43.4'S, 167°15.0'E, 6 m, 2 spms.

DISTRIBUTION. — Eastern India, Sri Lanka, China, Vietnam, Philippines, Malaysia, Indonesia, Papua New Guinea, Solomon Islands, Vanuatu, New Caledonia, Fiji Islands, Tonga and Samoa (ZMA, unpublished data), from the intertidal zone to 36 m depth. Live taken in the intertidal zone to depths of 7 m.

REMARKS

Geographical morphotypes will be discussed in a forthcoming monograph on the Australian Pectinoidea (Dijkstra & Beu in prep.).

Genus Anguipecten Dall, Bartsch & Rehder, 1938

**Anguipecten picturatus** Dijkstra, 1995

*Pecten aurantiacus* Adams & Reeve, 1850: 74, pl. 21, fig. 12.

**Anguipecten picturatus** Dijkstra, 1995a: 17 (nomen novum for *Pecten aurantiacus* Adams & Reeve, 1850, preoccupied by *Pecten aurantiacus* Röding, 1798). — Raines & Poppe 2006: 90, pl. 24, figs 1-3, 5-7 (references, type data, original and additional descriptions, distribution).

MATERIAL EXAMINED. — China Sea. Holotype spm (NHMUK 1950.11.14.8).

**Vanuatu.** SANTO 2006, stn AT113, 15°33.7'S, 167°16.3'E, 115 m, 1 lv.

DISTRIBUTION. — Reunion Island, southern Japan, Philippines, Thailand, Papua New Guinea, Solomon Islands, Vanuatu (new record), Fiji and Austral Islands, at 20-130 m depth.

Genus Bractechlamys Iredale, 1939

**Bractechlamys oweni** (De Gregorio, 1884)

*Pecten pictus* Sowerby II, 1842: 62, pl. 20, fig. 233.

**Pecten oweni** De Gregorio, 1884: 133 (nomen novum for *P. pictus* Sowerby II, 1842, preoccupied by *P. pictus* Da Costa, 1778).

**Bractechlamys oweni** – Raines & Poppe 2006: 102, pl. 38, figs 1-6, pl. 51, fig. 4 (references, type data, original and additional descriptions, distribution).

MATERIAL EXAMINED. — Philippines. Isle of Baicus, holotype spm (UMZC 1461).

**Vanuatu.** SANTO 2006, SE corner of Santo, shallow water, 2 spms, 2 lv. — Stn FB90, 15°35.0'S, 167°07.7'E, 36-39 m, 1 rv. — Stn DR41, 15°28.8'S, 167°15.2'E, 5-20 m, 1 spm. — Stn DR84, 15°43.4'S, 167°15.0'E, 6 m, 2 spms.

DISTRIBUTION. — Thailand, Philippines, Indonesia, northern Australia, Papua New Guinea, Solomon Islands, Vanuatu (new record), from depths of 14-165 m (ZMA, unpublished data).

Genus Excellichlamys Iredale, 1939

**Excellichlamys spectabilis** (Reeve, 1853)

*Pecten spectabilis* Reeve, 1853: sp. 128, pl. 29, fig. 128.

**Excellichlamys spectabilis** – Raines & Poppe 2006: 110, pl. 55, figs 1-7 (references, type data, original and additional descriptions, distribution).

MATERIAL EXAMINED. — Philippines. Isle of Baicus, holotype spm (NHMUK 1950.11.14.53).

**Vanuatu.** SANTO 2006, stn DB20, 15°30.5'S, 167°01.4'E, 22-25 m, 1 spm. — Stn NR29, 15°17.3'S, 167°12.6'E, 32 m, 1 lv. — Stn LD34, 15°33.4'S, 167°12.4'E, 2-6 m, 1 rv. — Stn DS43, 15°27.9'S, 167°14.3'E, 22 m, 1 rv. —

Genus Decatopecten Sowerby II, 1839

**Decatopecten radula** (Linnaeus, 1758)
Stn FB52, 15°42.7'S, 167°15.1'E, 7 m, 1 lv. — Stn DS59, 15°24.6'S, 167°14.3'E, 6-43 m, 1 rv. — Stn FS67, 15°35.4'S, 166°59.7'E, 4 m, 1 rv. — Stn DB69, 15°24.4'S, 167°13.0'E, 38 m, 1 spm, 1 lv.

Distribution. — Reunion Island, Mauritius, Red Sea, Maldives, Thailand, southern Japan, China, Philippines, Malaysia, Indonesia, northern Australia, Papua New Guinea, Solomon Islands, Vanuatu (new record), New Caledonia, Fiji, Samoa (ZMA, unpublished data) and Marshall Islands, from the intertidal zone to 120 m.

Genus *Glorichlamys* Dijkstra, 1991

*Glorichlamys elegantissima* (Deshayes, 1863)

*Pecten elegantissimus* Deshayes, 1863: 32, pl. 4, figs 11, 12.

*Glorichlamys elegantissima* – Raines & Poppe 2006: 116, pl. 68, figs 1-3, 6, 7 (references, original and additional descriptions, distribution). — Dijkstra & Maestrati 2010: 353, fig. 5E (distribution).

Material examined. — Reunion. Type material appears to be lost (Dijkstra & Maestrati 2010: 353).

*Vanuatu*. SANTO 2006, stn FS67, 15°35.4'S, 166°59.7'E, 4 m, 1 spm. — Stn DS91, 15°33.7'S, 167°08.4'E, 7 m, 1 lv.

Distribution. — Eastern South Africa, Mozambique, Madagascar, Reunion Island, southern Japan, China, Thailand, Philippines, Indonesia, northern Australia, Papua New Guinea, Vanuatu (new record), New Caledonia, Fiji, Line Islands, Society Islands, Austral Islands and Tuamotu Archipelago, from depths of 4-120 m (Dijkstra & Maestrati 2010: 353, and present record).

*Glorichlamys quadrilirata* (Lischke, 1870)

*Pecten quadrilirata* Lischke, 1870: 29; 1871: 158, pl. 9, figs 5, 6.

*Glorichlamys quadrilirata* – Raines & Poppe 2006: 116, pl. 58, figs 4, 5 (references, original and additional descriptions, distribution).

Material examined. — Japan. Nagasaki, type material appears to be lost.

*Vanuatu*. SANTO 2006, SE corner of Santo, deep water, 7 lv, 7 rv. — Stn AT14, 15°23.7°-24.0°S, 167°12.9°-13.5°E, 102-120 m, 1 lv, 1 rv. — Stn DB20, 15°30.5'S, 167°01.4'E, 22-25 m, 1 rv. — Stn AT23, 15°27.0'S, 167°16.1'E, 176-210 m, 1 lv. — Stn AT43, 15°36.4'S, 167°02.3'E, 84-105 m, 1 rv. — Stn DB63, 15°26.9'S, 167°15.8'E, 21 m, 1 lv. — Stn AT65, 15°40.3'S, 167°15.9'E, 160-167 m, 2 rv. — Stn AT84, 15°32.4'S, 167°14.3'E, 71-104 m, 1 lv. — Stn AT88, 15°31.9'S, 167°15.0'E, 87-115 m, 1 lv. — Stn AT119, 15°36.5'S, 167°02.4'E, 87-120 m, 1 lv.

Distribution. — Madagascar, Red Sea, southern Japan, China, Thailand, Philippines, northern Australia, Papua New Guinea, Vanuatu (new record), New Caledonia, Fiji, dead in 20-176 m depth (ZMA, unpublished data, and present records).

Genus *Gloripallium* Iredale, 1939

*Gloripallium pallium* (Linnaeus, 1758)

*Ostrea pallium* Linnaeus, 1758: 697. — Dijkstra 1999: 405, figs 2E, F, 3A, B.

*Gloripallium pallium* – Raines & Poppe 2006: 118, pl. 70, figs 1-6; pl. 71, figs 1-6; pl. 72, figs 1-5; pl. 294, figs 1-5 (references, type data, original and additional descriptions, distribution).

Material examined. — "O. australiore & Indico", lectotype spm (LSL), designated by Dijkstra (1999: 405). *Vanuatu*. SANTO 2006, SE corner of Santo, shallow water, 2 spms, 2 lv. — Stn FR01, 15°32.3'S, 167°13.1'E, 18-20 m, 1 spm. — Stn NR01, 15°33.0'S, 167°16.8'E, 17 m, 1 spm. — Stn ZR01, 15°33.1'S, 167°09.6'E, 8-35 m, 3 spms. — Stn NR03, 15°34.6'S, 167°13.6'E, 17 m, 1 spm. — Stn DS04, 15°31.4'S, 167°14.1'E, 25 m, 1 lv, 1 rv. — Stn NR05, 15°28.7'S, 167°15.2'E, 19 m, 1 spm. — Stn ZB06, 15°36.8'S, 167°01.3'E, 30 m, 1 spm. — Stn ED07, 15°33.9°-34.2'S, 167°08.0°-08.4'E, 20-28 m, 1 lv, 1 rv. — Stn FR08, 15°33.1'S, 167°12.2'E, 3-40 m, 1 spm. — Stn NR09, 15°37.6'S, 167°08.8'E, 8 m, 1 spm. — Stn ZB09, 15°40.6'S, 167°05.1'E, 5-7 m, 1 rv. — Stn FR11, 15°36.9'S, 167°10.5'E, 6-33 m, 1 spm. — Stn NR11, 15°33.4'S, 167°09.4'E, 26 m, 1 spm. — Stn DB12, 15°36.6'S, 167°10.1'E, 10-18 m, 1 lv, 1 rv. — Stn LD12, 15°36.6'S, 167°11.3'E, 2-4 m, 1 lv. — Stn NB12, 15°33.1'S, 167°09.6'E, 20 m, 1 lv. — Stn LM13, 15°36.6'S, 167°11.1'E, intertidal, 1 rv. — Stn LS17, 15°31.1'S, 167°10.5'E, 7 m, 1 lv. — Stn NR21, 15°26.8'S, 167°15.1'E, 3-22 m, 2 spms. — Stn ZS22, 15°33.1'S, 167°09.6'E, 27-29 m, 1 lv. — Stn FR26, 15°31.7'S, 167°09.5'E, 3-33 m, 1 spm. — Stn FR29, 15°27.9'S, 167°14.6'E, 5-35 m, 1 rv. — Stn DR34, 15°34.7'S, 167°13.8'E, 14-25 m, 1 spm. — Stn NR41, 15°36.7'S, 167°02.0'E, 25 m, 1 spm. — Stn DS49, 15°38.7'S, 167°05.2'E, 10-17 m, 2 lv, 1 rv. — Stn DR50, 15°38.7'S, 167°05.2'E, 10-17 m, 1 spm. — Stn DR51, 15°32.9'S, 167°09.9'E, 28-60 m, 1 spm. — Stn FR53, 15°42.7'S, 167°15.1'E, 7 m, 1 spm. — Stn FB56, 15°35.2'S, 167°02.1'E, 3-18 m, 1 spm. — Stn...
Mirapecten rastellum (Lamarck, 1819)

Pecten rastellum Lamarck, 1819: 698. — Dijkstra 1994: 474, figs 17-26.

Mirapecten rastellum – Raines & Poppe 2006: 132, pl. 81, figs 1-6; pl. 82, figs 1-6 (references, type data, original and additional descriptions, distribution).

Material examined. — “Les mers du nord”, holotype spm (MHNG 1088/24).

Vanuatu. SANTO 2006, stn FR03, 15°36.2’S, 167°06.3’E, 3-32 m, 1 rv. — Stn DB20, 15°30.5’S, 167°01.4’E, 22-25 m, 1 rv. — Stn ZS22, 15°33.1’S, 167°09.6’E, 10-51 m, 1 lv. — Stn EP35, 15°34.9’-35.1’S, 167°13.9’-14.1’E, 10-51 m, 1 rv. — Stn DS103, 15°34.1’S, 167°16.0’E, 70-80 m, 1 lv. — Stn DS105, 15°33.0’E, 167°16.7’E, 92 m, 1 rv.

Distribution. — Southern Japan, China, Philippines, Malaysia, Indonesia, Papua New Guinea, Solomon Islands, Vanuatu (new record), New Caledonia, Fiji, Austral Islands and Hawaiian Islands, from depths of 37-230 m (Dijkstra & Maestrati 2010: 354).

Mirapecten rastellum (Lamarck, 1819)

Pecten rastellum Lamarck, 1819: 698. — Dijkstra 1994: 474, figs 17-26.

Mirapecten rastellum – Raines & Poppe 2006: 132, pl. 81, figs 1-6; pl. 82, figs 1-6 (references, type data, original and additional descriptions, distribution).

Material examined. — “Les mers du nord”, holotype spm (MHNG 1088/24).

Vanuatu. SANTO 2006, stn FR03, 15°36.2’S, 167°06.3’E, 3-32 m, 1 rv. — Stn DB20, 15°30.5’S, 167°01.4’E, 22-25 m, 1 rv. — Stn ZS22, 15°33.1’S, 167°09.6’E, 10-51 m, 1 lv. — Stn EP35, 15°34.9’-35.1’S, 167°13.9’-14.1’E, 10-51 m, 1 spm. — Stn EP39, 15°33.6’-33.7’S, 167°16.3’-16.5’E, 75-80 m, 2 spms. — Stn DB63, 15°26.9’S, 167°15.8’E, 21 m, 1 lv. — Stn DB65, 15°25.8’S, 167°13.0’E, 13 m, 1 spm. — Stn DB69, 15°24.4’S, 167°13.0’E, 38 m, 1 spm. — Stn DR87, 15°38.5’S, 167°15.1’E, 13 m, 1 spm. — Stn DS103, 15°34.1’S, 167°16.0’E, 70-80 m, 1 lv. — Stn AT114, 15°33.4’S, 167°16.4’E, 148-166 m, 1 lv.

Distribution. — Throughout tropical Indo-Pacific (except the Red Sea and Hawaiian Islands), southwestern limit northern Zululand, eastern limit French Polynesia, found in intertidal to sublittoral depths.

Genus Juxtamusium Iredale, 1939

Juxtamusium maldivense (Smith, 1903)

Pecten maldivensis Smith, 1903: 622, pl. 36, figs 19, 20.

Juxtamusium maldivense – Raines & Poppe 2006: 126, pl. 74, figs 1, 3; pl. 75, figs 1-7 (references, type data, original and additional descriptions, distribution).

Material examined. — Maldives Islands. Lectotype spm (NHMUK 1903.9.17.49), designated and refigured by Waller (1972: 250, figs 111, 112).

Vanuatu. SANTO 2006, stn DS10, 15°36.6’S, 167°10.1’E, 6-24 m, 1 rv. — Stn AT36, 15°21.5’S, 167°12.3’E, 53-59 m, 1 rv. — Stn AT37, 15°22.5’S, 167°12.6’E, 72-82 m, 1 lv, 1 rv. — Stn DS96, 15°33.6’S, 167°16.5’E, 114 m, 1 rv.

Distribution. — South Africa, Reunion Island, Red Sea, Mauritius, southern Japan, Thailand, Philippines, Malaysia, northern Australia, Papua New Guinea, Vanuatu (new record) and New Caledonia, live recorded at depths of 8-140 m (ZMA, unpublished data).

Genus Mirapecten Dall, Bartsch & Rehder, 1938

Mirapecten mirificus (Reeve, 1853)

Pecten mirificus Reeve, 1853: sp. 104, pl. 26, fig. 104.

Mirapecten mirificus – Raines & Poppe 2006: 130, pl. 77, figs 1-7, pl. 78, figs 1-7, pl. 79, figs 1-7 (references, type data, original and additional descriptions, distribution). — Dijkstra & Maestrati 2010: 354, fig. 5G, H.

Material examined. — Indonesia. Ambon, holotype spm (NHMUK 1950.11.46).

Vanuatu. SANTO 2006, stn FR24, 15°33.1’S, 167°09.6’E, 1-30 m, 1 lv. — Stn EP35, 15°34.9’-35.1’S, 167°13.9’-14.1’E, 10-51 m, 1 rv. — Stn DS103, 15°34.1’S, 167°16.0’E, 70-80 m, 1 lv. — Stn DS105, 15°33.0’E, 167°16.7’E, 92 m, 1 rv.

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