

Six new Buccinidae (Mollusca: Gastropoda) from New Caledonia

Koen FRAUSSEN

Leuvensestraat 25, B-3200 Aarschot, Belgium
koen.fraussen@skynet.be

Roland HADORN

Schuetzenweg 1, CH-3373 Roethenbach, Switzerland
fusus@bluewin.ch

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ABSTRACT. *Serratifusus* Darragh, 1969 comprises five Recent species, all from New Caledonia, of which three are described as new: *Serratifusus excelens* sp. nov., *S. harasewychi* sp. nov. and *S. sitanius* sp. nov.

Formerly known from New Caledonia by only one species, the genus *Euthria* M. E. Gray, 1850 is enriched with three new species: *Euthria cumulata* sp. nov., *E. scepta* sp. nov. and *E. solifer* sp. nov.

"*Siphonofusus*" *vicdani* Kosuge, 1992, a species with uncertain generic placement, and previously only known from the Philippine Islands and Australia, is now recorded from off New Caledonia.

RESUME. Le genre *Serratifusus* Darragh, 1969 comprend cinq espèces actuelles, toutes de Nouvelle-Calédonie, trois sont décrites comme nouvelles: *Serratifusus excelens* sp. nov., *S. harasewychi* sp. nov. et *S. sitanius* sp. nov. Le genre *Euthria* M. E. Gray, 1850, auparavant connu par une espèce en Nouvelle-Calédonie, est maintenant enrichi de trois nouvelles espèces: *Euthria cumulata* sp. nov., *E. scepta* sp. nov. et *E. solifer* sp. nov.

La distribution géographique de "*Siphonofusus*" *vicdani* Kosuge, 1992, auparavant limitée aux Philippines et à l' Australie, s'étend à présent en Nouvelle-Calédonie.

INTRODUCTION

During the French expeditions, called CAMPAGNES MUSORSTOM, conducted by ORSTOM (now IRD) (New Caledonia, Noumea) and MNHN (France, Paris) in the Indo-West Pacific and in particular in the seas around New Caledonia, a huge number of interesting species, many of them new to science, were collected. The Buccinidae are well represented in this rich material.

Bouchet & Warén (1986) presented the results on deep sea Buccinidae from these first expeditions, mainly executed in the Indian Ocean. Part of the results on Buccinidae from the expeditions in the seas around New Caledonia are published by Harasewych (1991) and Vermeij & Bouchet (1998). Harasewych described the first two Recent *Serratifusus* species and transferred the genus from Turbinellidae to Buccinidae. Vermeij & Bouchet discussed *Cantharus* and *Polia* and described the new genus *Cancellopolia*. In the present report we continue this work by listing and describing the *Serratifusus* and *Euthria* species from New Caledonia.

The present study is essentially based on the material collected by French research vessels and expeditions in the New Caledonian region since 1984 (LAGON, BIOCAL, MUSORSTOM 4, HALICAL 1, CHALCAL 2, SMIB 4, 6, 8 & 10, BATHUS 2 & 4). We refer to Richer de Forges (1990, 1993), Richer de Forges & Chevillon (1996) and Richer de Forges & Bargibant (1985) for a narrative of these cruises and station lists.

Material from these expeditions is, unless otherwise stated, deposited in MNHN. No individual catalogue number is allocated, but material is unambiguously designated and retrievable by the combination of expedition acronym and station number.

ABBREVIATIONS

AMNH: American Museum of Natural History, New York, USA

AMS: Australian Museum, Sydney, Australia

IRD: Institut de Recherche pour le Développement, Noumea, New Caledonia.

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

NMNZ: Museum of New Zealand *Te Papa Tongarewa*, Wellington, New Zealand
 GP: collection Guido Poppe, Belgium
 KF: collection Koen Fraussen, Belgium
 RH: collection Roland Hadorn, Switzerland
 ORSTOM.: former name for IRD.
 alc: in alcohol collection
 dd: empty shell, dead collected
 lv: collected alive, animal dried
 CP: (chalut à perche) beam trawl
 DE: (drague épibenthique) epibenthic dredge
 DW: (drague Warén) Warén dredge
 juv: juvenile
 spms: specimens

SYSTEMATICS

Family **BUCCINIDAE** Rafinesque, 1815

Genus *Serratifusus* Darragh, 1969

Serratifusus Darragh, 1969: 89.

Type species (by original designation) *Fusus craspedotus* Tate, 1888 from the Miocene of southeast Australia.

The genus was described by Darragh (1969: 89) to accommodate a number of fossil species in the Columbariidae from the southeast Australian and Tasmanian Miocene. Until the late eighties, the genus *Serratifusus* was only known from fossil shells. At that time, the first Recent specimens were collected by the Muséum national d'Histoire naturelle, Paris, during MUSORSTOM 4, LAGON and CHALCAL 2 expeditions. Two new species were described by Harasewych (1991). Moreover, the genus was transferred from Turbinellidae to Buccinidae, based on anatomical and radular characteristics. Since then, more material has been collected during further scientific surveys in the seas around New Caledonia. This material, containing hundreds of specimens belonging to this genus, gives us a more complete view on the two already known species, their forms and their range. As a result three new species are described.

Serratifusus is characterized by the striking columbariform shape: fusiform with spiny or knobbed carina and a long siphonal canal.

A difference in shell morphology, dividing the genus in two groups, is recognizable. The fossil species and the Recent *S. virginiae* have hollow spines and (visible in the Recent species) a dotted pattern. All other Recent *Serratifusus* species have a tuberculate carina and are patterned with spiral colour lines. No anatomical or radular difference is found (Harasewych, 1991). We believe this conchological difference is not sufficient evidence to allow the introduction of (two) subgenera.

Intraspecific variability in spiral sculpture is high in *S. lineatus* and *S. excelens* and in a lesser degree (probably because of the few material available) also in *S. sitanius*. They have a sculptured form (with

primary and secondary spiral cords and with well-developed axial sculpture) and a smooth form (spiral sculpture hardly visible, axial sculpture weaker) which co-exist with a number of intermediates.

For an anatomical description of the genus (*S. virginiae* and *S. lineatus*) we refer to Harasewych (1991).

Serratifusus virginiae Harasewych, 1991

Figs. 11-16

Serratifusus virginiae Harasewych, 1991: 251-257.

Type locality. MUSORSTOM 4, stn DW212, 22°47.40'S, 167°10.50'E, in 375-380 m, west of the Ile des Pins, New Caledonia.

Material examined. MUSORSTOM 4: stn DW212, 22°47.40'S, 167°10.50'E, 375-380 m, (holotype). - Stn DW226, 22°47.20'S, 167°21.60'E, 395 m, (paratypes 3-4). - Stn DW227, 22°46.00'S, 167°20.00'E, 320 m, (paratype 6). - Stn DW234, 22°15.50'S, 167°08.30'E, 350-365 m, (paratypes 7-8). **CHALCAL 2:** stn DW82, 23°13.68'S, 168°04.27'E, 304 m, (paratypes 13-14).

SMIB 8: stn DW182-184, 23°18'S, 168°05'E, Banc Aztèque, 305-367 m, 4 lv (alc).

BATHUS 2: stn DW717, 22°44'S, 167°17'E, 350-393 m, 2 dd.

LAGON: stn 16, 22°46'S, 167°12'E, 390-400 m, 1 dd.

From fishing boat: approx. 22°50'S, 167°15'E, 200-400 m, (paratype 9).

From local collector: New Caledonia, 350-500 m, 3 lv, KF nr.3456; 1dd, KF nr.2932.

Distribution. *S. virginiae* is known from the waters around Ile des Pins only.

Remarks. *S. virginiae* looks similar to *S. craspedotus*, the type species of *Serratifusus*, and differs from all other known Recent species of *Serratifusus* by having a dotted pattern without spiral bands, a siphonal canal which can be bent but without torsion and by the more typical columbariform shape with hollow spines.

The shell is variable in sculpture on body whorl and siphonal canal (more or lesser accentuated), direction of spines (curved up, downwards or radial), siphonal canal (straight or curved), and in spire height.

Serratifusus lineatus Harasewych, 1991

Figs 23-29, 62-64.

Serratifusus lineatus Harasewych, 1991: 257-258.

Type locality. MUSORSTOM 4, stn DW181, 18°57.20'S, 163°22.40'E, in 350 m, western end of Grand Passage, off northwestern New Caledonia.

Material examined. MUSORSTOM 4: stn DW156, 18°54.00'S, 163°18.80'E, 525 m, fragment. - Stn DW164, 18°33.20'S, 163°13.00'E, 255 m, 1 dd. - Stn DW181, 18°57.20'S, 163°22.40'E, 355 m, 16 spms (holotype, paratypes 4-18). - Stn DW184, 19°04.00'S, 163°27.50'E, 260 m, 11 spms (paratypes 21-31). - Stn CP195, 18°54.80'S, 163°22.20'E, 470 m, 9 spms (paratypes 32-40). - Stn DW196, 18°55.00'S, 163°23.70'E, 460 m, 6 spms (paratypes 41-46).

LAGON: stn 1152, 18°58'S, 163°24'E, 335 m, 28 lv, 11 dd. - Stn 1153, 18°58'S, 163°23'E, 330 m, 1 lv, 1 dd.

SMIB 6: stn DW115, 19°00'S, 163°27'E, 280-285 m, 2 lv, 1 dd. - Stn DW116, 18°59'S, 163°26'E, 290-300 m, 1 dd. - Stn DW117, 18°59'S, 163°25'E, 290 m, 3 lv, 4 dd. - Stn DW118, 18°58'S, 163°26'E, 290-300 m, 21 lv, 11 dd. - Stn DW119, 18°59'S, 163°26'E, 295-305 m, 6 lv, 6 dd. - Stn DW120, 18°58'S, 163°26'E, 310-325 m, 9 lv, 14 dd (1 white form). - Stn DW121, 18°58'S, 163°26'E, 315 m, 15 lv, 18 dd. - Stn DW122, 18°58'S, 163°25'E, 325-330 m, 8 lv, 9 dd. - Stn DW123, 18°57'S, 163°25'E, 330-360 m, 2 lv, 7 dd. - Stn DW126, 18°59'S, 163°23'E, 320-330 m, 2 lv, 2 dd.

BATHUS 1: stn DE694, 20°36'S, 164°58'E, 400-500 m, 1 dd.

BATHUS 4: stn DW924, 18°55'S, 163°24'E, 344-360 m, 16 lv (2 alc), 27 dd. - Stn DW925, 18°55'S, 163°24'E, 370-405 m, 9 lv, 26 dd. - Stn DW926, 18°57'S, 163°25'E, 325-330 m, 15 lv, 16 dd. - Stn DW927, 18°56'S, 163°22'E, 444-452 m, 14 lv (3 alc), 28 dd. - Stn DW928, 18°55'S, 163°24'E, 420-452 m, 1 lv, 2 dd. - Stn DW929, 18°52'S, 163°23'E, 502-516 m, 7 dd. - Stn DW931, 18°55'S, 163°24'E, 360-377 m, 12 lv, 30 dd. - Stn DW932, 19°08'S, 163°29'E, 170-190 m, 2 dd. - Stn DW936, 19°04'S, 163°28'E, 252-258 m, 5 lv (2 alc). - Stn DW937, 19°03'S, 163°28'E, 257-261 m, 1 lv. - Stn DW938, 19°00'S, 163°26'E, 280-288 m, 1 lv, 1 dd. - Stn DW939, 18°58'S, 163°25'E, 304-320 m, 21 lv, 6 dd. - Stn DW940, 19°00'S, 163°26'E, 305 m, 41 lv, 10 dd. - Stn DW941, 19°02'S, 163°27'E, 270 m, 3 dd. - Stn DW942, 19°04'S, 163°27'E, 264-270 m, 5 lv, 4 dd. - Stn DW946, 20°34'S, 164°58'E, 386-430 m, 1 lv.

HALICAL 1, Grand Passage: stn DW01, 18°56'S, 163°24'E, 380-400 m, 4 lv, 3 dd. - Stn DW03, 18°53'S, 163°24'E, 350-380 m, 1 lv. - Stn DW04, 18°55'S, 163°24'E, 350-365 m, 3 lv, 2 dd. - Stn DW1-4, 18°53'-18°56'S, 163°24'E, 350-400 m, 4 lv, 2 dd.

SMIB 10: stn DW205, 24°57'S, 168°21'E, Banc Eponge, 517-559 m, 1 lv, 2 dd. - Stn DW208, 24°59'S, 168°09'E, Banc Kaimon Maru, 270 m, 2 lv. - Stn DW210, 24°49'S, 168°09'E, Banc Kaimon Maru, 308-510 m, 1 lv.

From local collector: New Caledonia, 350-500 m, 46 lv, KF nr.2928; 1 lv, RH; 1 lv (white form), KF nr.2930; 1 lv (white form), RH.

Distribution. *S. lineatus* was formerly known from the northwestern reefs of New Caledonia only. This species is now also recorded from off the eastern coast (BATHUS 1, stn DE694 and BATHUS 4, stn DW946), from Banc Eponge (SMIB 10, stn DW205), and from Banc Kaimon Maru on the Norfolk Ridge (SMIB 10, stn DW208 and DW210). Bathymetric range alive in 258-517 m, shells from 190-525 m.

Remarks. A smooth form (similar to the holotype) and a form with spiral sculpture (as paratypes 41-46) co-exist. Intermediates are present, however their quantity is low. We cannot find evidence to split this species in more than one taxon and conclude that these two forms fall within the variability of the species.

Three snow-white specimens were studied. The first belong to the smooth, typical form (SMIB 6, stn DW120). Two other specimens (KF, RH), small and belonging to the form with spiral sculpture, look at first sight distinct, but after close examination, no differences in sculpture and protoconch were found (Figs 30-31, 68). Therefore we consider these shells merely a form until more material is available for study.

In several specimens the first part of the protoconch shows a normal development but is suddenly inflated, producing a bigger and deformed protoconch, most probably due to adelphophagy.

For differences with *S. excelens* sp. nov. and *S. harasewycki* sp. nov. we refer to the comparison under these species.

Serratifusus excelens sp. nov.

Figs 9-10, 32-36, 65-67

Type material. Holotype (38.0 x 15.9 mm), MNHN. Paratypes 1, 5, 8 in MNHN. Paratype 2 in AMNH. Paratype 3 in AMS. Paratype 4 in NMNZ. Paratype 6 in KF. Paratype 7 in RH.

Type locality. BATHUS 4, stn DW925, 18°55'S, 163°24'E, 370-405 m, northwestern reefs of New Caledonia.

Material examined. MUSORSTOM 4: stn CP194, 18°53'S, 163°22'E, 545 m, 1 lv.

SMIB 6: stn DW120, 18°58'S, 163°26'E, 310-325 m, 1 dd. - Stn DW121, 18°58'S, 163°26'E, 315 m, 1 lv, 2 dd. - Stn DW127, 19°07'S, 163°23'E, 190-205 m, 1 lv.

BATHUS 4: stn DW923, 18°52'S, 163°24'E, 470-502 m, 1 lv, 9 dd. - Stn DW924, 18°55'S, 163°24'E, 344-360 m, 1 lv (paratype 5), 9 dd. - Stn DW925, 18°55'S, 163°24'E, 370-405 m, 2 lv, 8 dd. (holotype, paratypes 1-4). - Stn DW926, 18°57'S, 163°25'E, 325-330 m, 2 dd. - Stn DW927, 18°56'S, 163°22'E, 444-452 m, 23 lv (4 alc), 59 dd. - Stn DW928, 18°55'S, 163°24'E, 420-452 m, 5 lv (2 alc), 9 dd. - Stn DW929, 18°52'S, 163°23'E, 502-516 m,

5 lv, 23 dd, (paratypes 6-8). - Stn DW930, 18°51'S, 163°24'E, 520-530 m, 4 dd. - Stn DW931, 18°55'S, 163°24'E, 360-377 m, 4 dd. - Stn DW940, 19°00'S, 163°26'E, 305 m, 1 dd.

HALICAL 1, Grand Passage: stn DW01, 18°56'S, 163°24'E, 380-400 m, 1 lv, 1 dd. - Stn DW04, 18°55'S, 163°24'E, 350-365 m, 1 lv, 3 dd. - Stn DW1-4, 18°53'-18°56' S, 163°24'E, 350-400 m, 1 dd.

SMIB 10: stn DW205, 24°57'S, 168°21'E, Banc Eponge, 517-559 m, 2 lv.

From local collector: New Caledonia, 350-500 m, 49 lv, KF nr.2929; 4 lv, RH.

Distribution and habitat. *S. excelens* is known from the northwestern reefs of New Caledonia and from Banc Eponge (southeast off New Caledonia) (SMIB 10). Bathymetric range alive in 205-545 m.

Living on rubble bottoms.

S. excelens is sympatric with *S. lineatus* at most of the above listed stations, and with *S. harasewychi* (BATHUS 4, stn DW929).

Description. Shell from 25 to 53 mm in height, thin but solid, shape fusiform with long siphonal canal. Spire angle 46°-55° (knobs included), 34°-41° when using the suture as measuring point.

Colour white to dirty white, occasionally with brownish area between axial ribs, ornamented with 2-7 reddish-brown spirals on the penultimate, 8-12 on the body whorl. In some specimens the brownish areas join into a broad brownish band situated under the white axial ribs. One specimen without any coloured spiral, but brown axial pattern between the knobs only, is known from New Caledonia (1 lv, RH).

Protoconch smooth, globose, 1.2-1.6 mm in diameter, consisting of 1.25-1.50 whorls, the first whorl deviated from coiling axis by about 45°.

Teleoconch consisting of about 6 whorls. First whorl with one primary spiral cord, on second or third whorl a second spiral cord appears between shoulder and suture, 2 or 3 on penultimate and 8-12 on body whorl. Primary spiral cords weak, in some specimens hardly visible and indicated by the presence of coloured spirals only. Some specimens with well visible primary spiral cords show 2 or 3 (rarely 5) intercalated secondary spiral threads between each pair of primary cords, the middlest usually broader, interspaces a narrow groove. On body whorl

occasionally 5-13 fine cords above carina, of which 2 or 3 occasionally reddish-brown coloured. Up to 30 fine spiral cords on siphonal canal, 4-10 adapical ones well visible.

Spire whorls with 8 or 9 (rarely 7) broad axial ribs. Body whorl with 7-9 (8 or 9 in specimens with developed secondary spirals, 7 in specimens with smooth surface) broad and more or lesser developed axial ribs, running from just above shoulder down to about halfway base, forming a strong knob on carina. Aperture ovate, pinched at both ends, whitish. Outer lip with 17-20 internal lirae, adapical ones arranged 2 by 2. Lip mostly smooth, sometimes slightly furrowed. Columellar callus white to dirty white, thin, smooth, glossy. Siphonal canal straight, between whorls and middle occasionally with torsion, resulting in a siphonal lip curved back when seen laterally (fig. 35).

Operculum light to dark brown, somewhat smaller as aperture, shape semi-oval, above rounded, lower side pointed, with terminal nucleus.

Comparison. *S. excelens* differs from *S. lineatus* by the more axially orientated ribs (instead of broad short spines on carina), and by the presence of an additional spiral cord already present on the second or third teleoconch whorl. In *S. lineatus* the first whorls are more conical with a more developed keel on carina, usually closer to the lower suture.

A smooth form (similar to the holotype, fig. 67) and a form with spiral sculpture (similar to paratype, fig. 66) co-exist with a number of intermediates, a phenomene also observed in *S. lineatus*. We cannot find evidence to split this new species in more than one taxon and conclude that these 2 forms fall within the variability of the species which is normal for the genus.

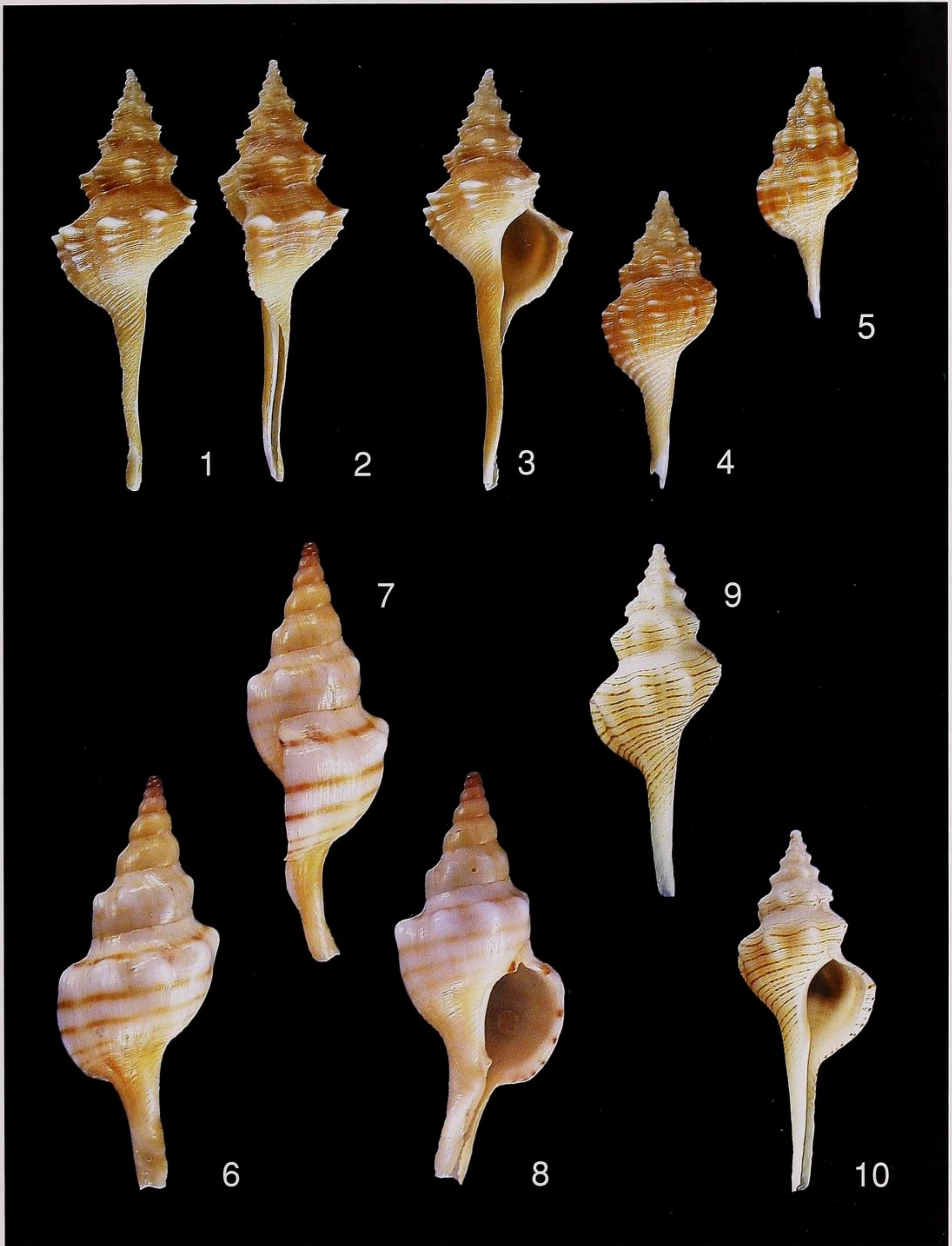
Separating *S. excelens* from *S. lineatus* with the naked eye is easy, based on the presence of the shape of the shoulder and the form of the spines or axial knobs. Under magnification however, the variability in spiral sculpture is, as mentioned above, so high for both species, that a correct determination based on spiral sculpture alone is not possible.

Etymology.

Named after the Latin expression *excelens* (adjective), meaning "high, exalted, lofty".

Figures 1-10

1-5. *Serratifusus sitanius* n.sp., off northwestern New Caledonia. 1-3. Holotype, 61.4 mm. 4. Paratype 1, 31.7 mm. 5. Paratype 2, 28.9 mm. **6-8.** *Euthria solifer* n.sp., Aztèque Bank, southern New Caledonia, holotype, 47,0 mm. **9-10.** *S. excelens* n.sp., off northwestern New Caledonia, paratype 8, 37.0 mm.



Serratifusus harasewychi sp. nov.

Figs. 37-38, 69-73

Type material. Holotype (35 x 15 mm) and paratypes 1-3 in MNHN.

Type locality. BATHUS 4, stn DW929, 18°52'S, 163°23'E, 502-516 m, northwestern reefs of New Caledonia.

Material examined. LAGON: stn 444, 18°15'S, 162°59'E, Atoll de Surprise, 300-350 m, 5 dd.

MUSORSTOM 4: stn CP194, 18°53'S, 163°22'E, 545 m, 1 lv (paratype 3).

BATHUS 4: stn DW929, 18°52'S, 163°23'E, 502-516 m, 3 dd (holotype, paratypes 1-2).

Distribution and habitat. *S. harasewychi* is known from the northwestern reefs of New Caledonia and from Atoll de Surprise (northwest off New Caledonia).

In Atoll de Surprise living on white sand and coral sand with stylaster and echinids.

S. harasewychi is sympatric with *S. lineatus* (BATHUS 4, stn DW929) and *S. excelens* (BATHUS 4, stn DW929 and MUSORSTOM 4, stn CP194). Bathymetric range alive in 545 m, empty shells in 350-502 m.

Description. Shell up to 42 mm in height, solid, shape fusiform with long siphonal canal. Spire angle 50°-54° (knobs included), 40°-48° when using the suture as measuring point. Subsutural concavity weak or absent.

Colour white to pale brownish, occasionally with 2 brown spots between axial ribs, adapically white on axial ribs.

Protoconch smooth, globose, 1.4-1.6 mm in diameter, consisting of 1.3-1.5 whorls, first whorl deviated from coiling axis by about 45°.

Teleoconch consisting of about 6 whorls. 1 primary spiral cord on upper whorls, 2 on third whorl, 3 or 4 on penultimate and 7-10 on body whorl of which 2 or 3 (rarely 4) adapical ones the strongest, producing low knob when crossing axial ribs. On penultimate and body whorl 3 (occasionally 5) secondary spiral cords between each pair of primary cords, middle one strongest, interspaces consisting of narrow groove. Juvenile and subadult specimens looks smoother. 15-20 fine, narrow spiral cords on siphonal canal, adapical ones alternating broad and narrow.

10 or 11 broad, rounded axial ribs, running from just above shoulder down to about halfway base. When

crossing the spiral cords a prominent and pale coloured knob is formed.

Aperture rounded to ovate, slightly pinched at both ends, white to dirty white in colour, outer lip with 16-18 internal lirae. Edge of outer lip smooth. Columellar callus thin, smooth and glossy. Siphonal canal straight, without torsion.

Operculum not preserved.

Radula with rectangular central tooth, tricuspid; lateral teeth tricuspid, outermost cusp largest.

Comparison. *S. harasewychi* differs from other known Recent *Serratifusus* species by the shape of the whorls which are more convex and increase in diameter more rapidly, and by the pale colour without coloured spiral lines. *S. harasewychi* differs from *S. lineatus* and *S. excelens* by the straight siphonal canal without torsion and by having a different spiral sculpture. From *S. sitanius* by the broad shape, the big protoconch and by having 3 (rarely 4 or 5) secondary spiral cords on the body whorl, of which the middle one becomes nearly as broad and strong as a primary spiral cord.

Etymology. This species is named to honor Jerry Harasewych from the National Museum of Natural History, Smithsonian Institution, for his contributions to the knowledge of columbariform molluscs.

Serratifusus sitanius sp. nov.

Figs 1-5, 74-76

Type material. Holotype (61.4 x 21.6 mm) in MNHN.

Paratypes 1-2, 5-6 in MNHN. Paratype 3 in RH. Paratype 4 in KF.

Type locality. BATHUS 4, stn DW914, 18°49'S, 163°15'E, 600-616 m, northwestern reefs of New Caledonia.

Material examined. LAGON: stn 475, 18°36'S, 163°11'E, Lagon Nord, 415-460 m, 1 dd juv (paratype 6).

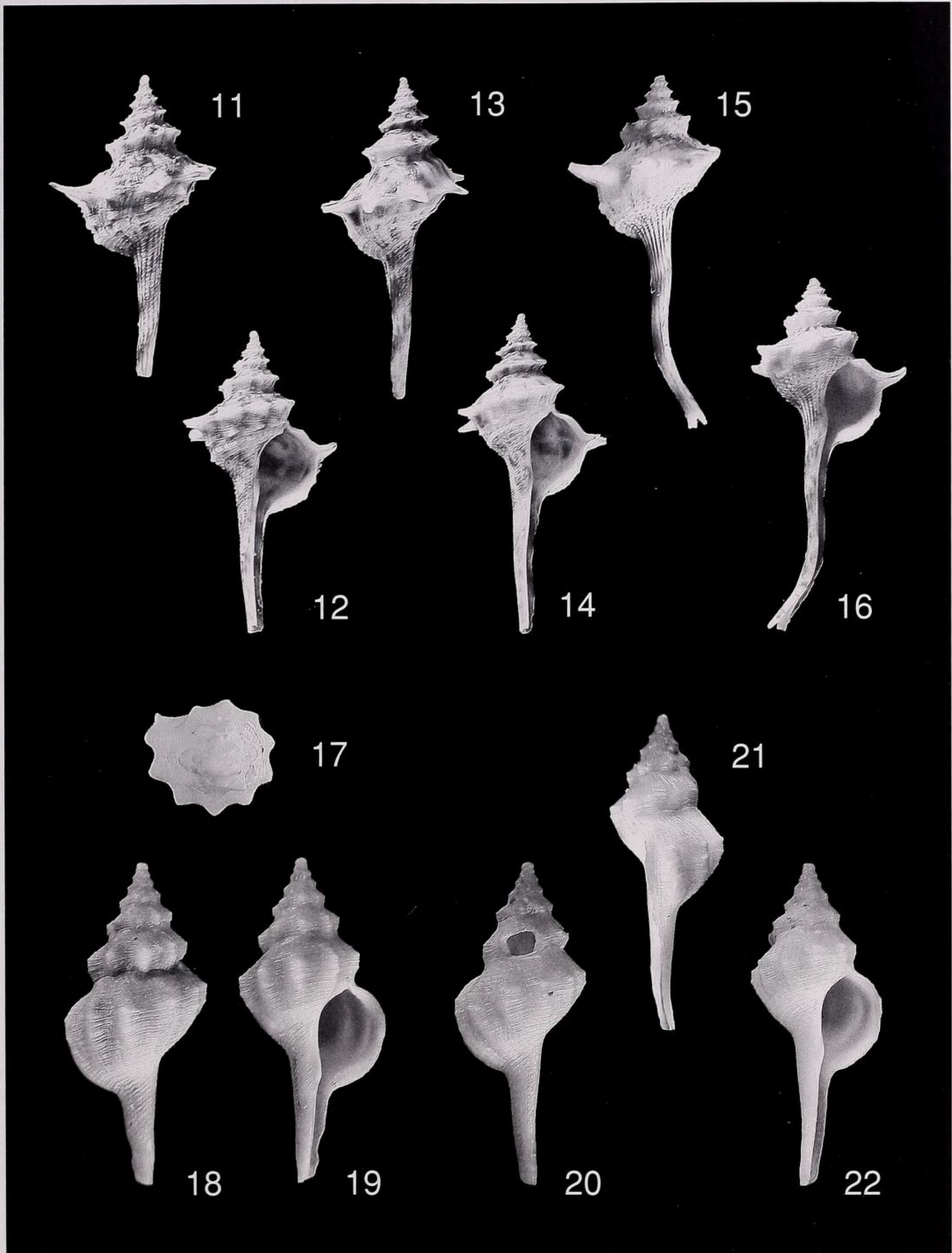
MUSORSTOM 4: stn DW162, 18°35'S, 163°10'E, 525 m, 4 lv, 1 dd juv, (paratypes 1-5).

BATHUS 4: stn DW914, 18°49'S, 163°15'E, 600-616 m, 1 dd (holotype).

Distribution. *S. sitanius* is known from off northern New Caledonia. Bathymetric range, empty shells only, 460-600 m.

Figures 11-22

11-16. *Euthria virginiae* Harasewych, 1991, New Caledonia, coll. KF. 11-12. 43.2 mm. 13-14. 45.7 mm. 15-16. 51.7 mm; **17-22.** *E. harasewychi* n.sp., off northwestern New Caledonia. 17-19. Holotype, 35 mm. 20-22. Paratype 2, 35 mm.



Description. Shell up to 61 mm in length, thin but solid, shape fusiform with long siphonal canal. Spire angle 47°-50° (knobs included), 37°-43° when using the suture as measuring point. Suture adpressed to preceding whorl, forming a subsutural concavity.

Colour orange with 1-4 whitish spiral bands on the penultimate whorl, 5-10 on the body whorl.

Protoconch smooth and globose, 1.3-1.4 mm in diameter, consisting of 1.25-1.50 whorls, first whorl deviated from coiling axis by about 45°.

Teleoconch consisting of 6 or 7 whorls. Adapical whorls with 2 primary spiral cords, 3 on penultimate and 8-13 on body whorl (carina, 0-3 above and 7-9 below shoulder). Carina and 2 or 3 spirals below most prominent, producing a well-developed knob when crossing axial ribs. One secondary intercalated spiral cord appears at second or third teleoconch whorl. On penultimate and body whorl 4-7 (rarely 3) secondary spiral cords of equal strength between each pair of primary cords, interspaces narrow. 20-35 weak spiral threads on siphonal canal, adapical ones alternating well-developed and fine.

7-9 broad axial ribs on first teleoconch whorl, 8-10 on body whorl, running from just above shoulder down to about halfway the base, producing 3 or 4 strong knobs.

Aperture ovate, pinched at both ends, whitish in colour with narrow orange-brown border along inner lip. Inner side with 12-17 lirae, adapically arranged 2 by 2. The single intact specimen has a smooth lip. Columellar callus thin, smooth and glossy, white to pale orange-brown in colour, adapically with a low columellar fold. Siphonal canal straight, without torsion.

Operculum corneus, light to dark brown, above rounded, lower side pointed, with terminal nucleus.

Comparison. *S. sitanius* differs from other known Recent *Serratifusus* species by the inverse pattern (white spirals on coloured background instead of coloured spirals on whitish background), by the orange-brown colour and by differences in spiral sculpture (3-7 secondary spiral cords of about equal strength).

S. sitanius is variable in shape. The shell may have strong axial knobs (as in holotype) or be rather rounded (as paratypes), a situation also observed in *S. lineatus* and *S. excelens*.

Etymology. The name is derived from the Latin *sitanius* (noun, neuter), meaning "summer wheat". Being orange-brown in colour, the striking shape on a long siphonal canal resembles the golden wheat-ears riping during summer.

Genus *Euthria* M. E. Gray, 1850

Euthria Gray, M. E., 1850: 67.

Type species (by original designation) "*Fusus lignarius* Chiaje", this is *Fusus lignarius* Lamarck, 1816 (a junior synonym of *Murex corneus* Linnaeus, 1758), from Mediterranean Sea.

In most publication, the author of this genus is simplified cited "Gray 1850", without initials. Shuto (1978: 358), Fraussen (1999: 75) and Hadorn & Fraussen (1999: 111, 120) cited the author "J. E. Gray in M. E. Gray, 1850". Studying the original description again, we figured out J. E. Gray is only responsible for pages iii-iv ("Preface") and 129-219 ("List of the genera of recent Mollusca, their synonymy and types"). Pages 36-124 ("Systematic arrangement of the figures"), containing the description of *Euthria* (on page 67), is from the hand of M. E. Gray. Consequently, the authorship of this genus must be stated "M. E. Gray, 1850".

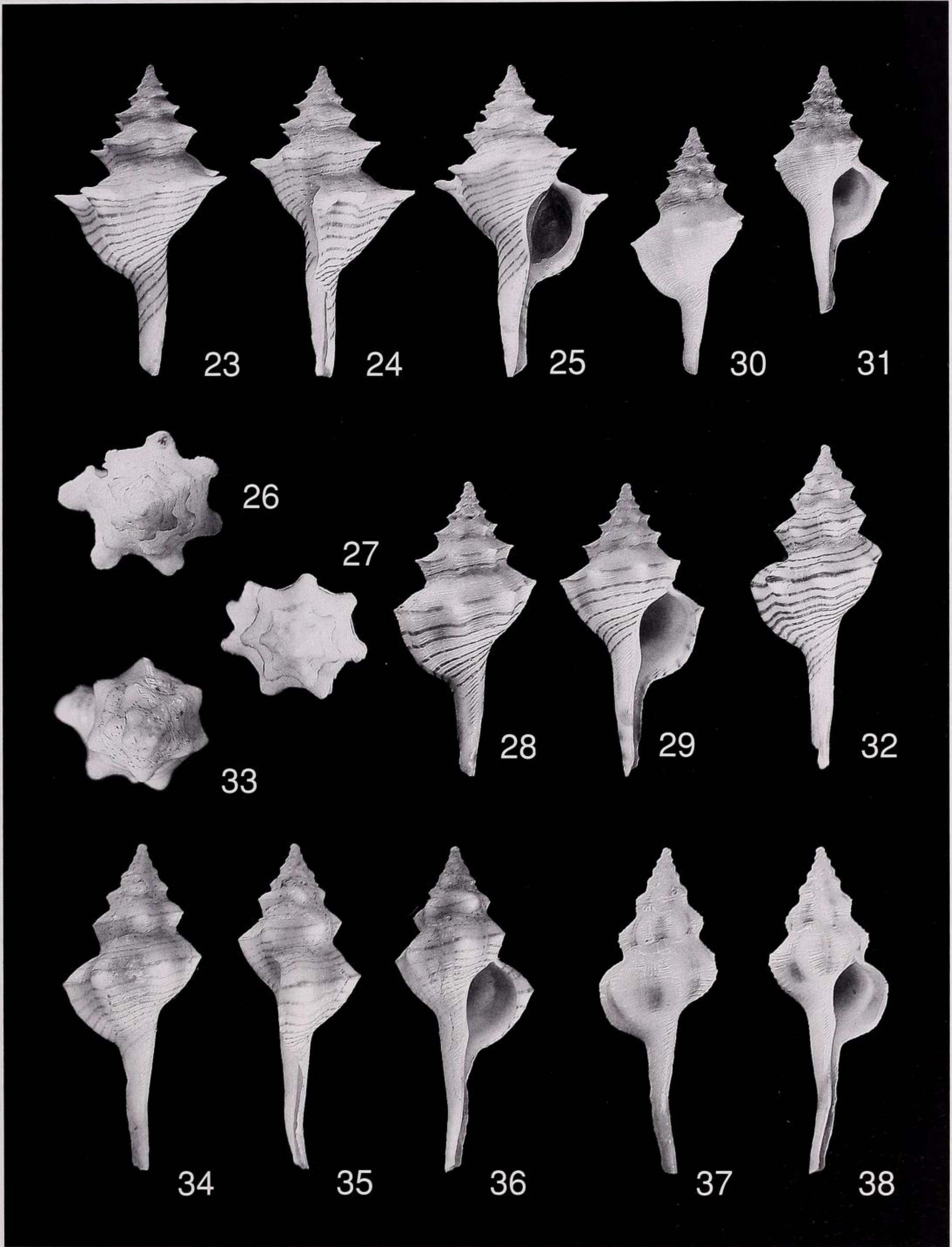
The generic placement of the three *Euthria* species described as new in this paper is based on the morphology of the radula, which is closer to *Euthria* than to *Siphonofusus* Kuroda & Habe, 1954. The upper part of the central tooth of *Euthria* is triangular (instead of quadrangular in *Siphonofusus*), the lateral teeth have a heavier base, the cusps on central and lateral teeth are longer than in *Siphonofusus* (Barnard 1959: 169, 171-172, fig. 31: i-j; Shuto 1978: 360, fig. 2, 3). The differences in shell morphology are weak and *Euthria* and *Siphonofusus* are difficult to distinguish. With the present knowledge, radular difference only, and also according to Shuto (1969, 1978), Beets (1986), Fraussen (2000) and Hadorn & Fraussen (1999) we prefer not to refer to *Siphonofusus* Kuroda & Habe, 1954 as a separate genus.

The three New Caledonian *Euthria* species described in this paper differs from other *Euthria* by the more elongate cusps and by the upper part of the central tooth which is stretched and narrow just below the cusps, resulting in a narrow connection between cusps and tooth. The radula of *E. boavistensis* from Cape Verde Islands, as figured by Rolán (1987: tav.1, fig.3), is tending to these.

The New Caledonian species all have a much larger protoconch (in proportion to their size) than usual in *Euthria* and *Siphonofusus*. The number of whorls, however, is smaller (1.25 - 1.50 instead of more than 2). This fact suggests a lecithotrophic larval type, a larval development restricting their dispersal to the close neighbourhood.

Figures 23-38

- 23-29. *Serratifusus lineatus* Harasewych 1991, off northwestern New Caledonia. 23-26. Holotype, 61.4 mm. 27-29. Paratype, 31.7 mm; 30-31. *S. cf. lineatus* Harasewych 1991 "white form", New Caledonia, 28.6 mm, coll. KF. 32-36. *S. excelens* n.sp., off northwestern New Caledonia. 32. Paratype 5, 44.5 mm. 33-36. Holotype, 38.0 mm. 37-38. *Euthria harasewychi* n.sp., Atoll de la Surprise, 32.2 mm.



Euthria philpoppei Fraussen, 2002

Figs. 48-49

Euthria philpoppei Fraussen, 2002: 70-75.

Type material. Holotype, 22.8 x 9.6 mm, in Muséum national d'Histoire naturelle, Paris, France. Paratype, 30.1 x 13.1 mm, coll. Koen Fraussen, Belgium.

Type locality. Off New Caledonia, trawled, 200-500 m deep.

Material examined. Known from the type material only.

Remarks. *Euthria philpoppei* sp. nov. is characterized, and differs from all other known Recent *Euthria* species, by the small shell with inflated protoconch, the peculiar knobbed axial sculpture on the upper whorls and the descending suture on the last whorl.

Species of the genus *Buccinulum* Deshayes, 1830 [type species *Murex lineatus* Gmelin, 1791, subsequent designation by Iredale (1921: 208), I.C.Z.N. Opinion 479 /1957. *Buccin lineatus* Martyn, 1784 (rejected as being not binominal) is a synonym] look similar, but differ by having a short siphon, by the rather rough surface of their shell and by the small protoconch. This species is placed in *Euthria* because it shows more conchological similarities with that genus than with *Buccinulum*.

Euthria scepta sp. nov.

Figs 39-44, 77-79

Type material. Holotype (28 x 12 mm) in MNHN. Paratypes 1-2, 7-8, 10 in MNHN. Paratype 3 in NMNZ. Paratype 4 in AMNZ. Paratype 5 in KF. Paratype 6 in RH. Paratype 9 in AMS.

Type locality. SMIB 2: stn DW10, 22°55'S, 167°16'E, 490-495 m, off Ile des Pins, southern New Caledonia.

Material examined. LAGON: stn 423, 22°46'S, 167°13'E, Grand Récif Sud, 405 m, 1 dd.

BIOCAL: stn DW44, 22°47'S, 167°14'E, 440-450 m, 7 dd (5 juv).

MUSORSTOM 4: stn DW212, 22°47'S, 167°10'E, 375-380 m, 1 dd juv. - Stn DW229, 22°51'S, 167°13'E, 445-460 m, 2 dd.

Figures 39-51

39-44. *Euthria scepta* n.sp., Ile des Pins, southern New Caledonia. 39-40. holotype, 27.9 mm. 41-42. Paratype 1, 30 mm. 43-44. Paratype 8, 20 mm; **45-47.** *E. solifer* n.sp., Aztèque Bank, southern New Caledonia, paratype 5, 45 mm; **48-49.** *E. philpoppei* Fraussen, 2002, off New Caledonia, holotype, 22.8 mm; **50-51.** *E. queketti* Smith, 1901, off Natal, South Africa, 38 mm, coll. KF.

SMIB 1: stn DW2, 22°52'S, 167°13'E, 415 m, 3 dd (1 juv), 2 lv. - Stn DW7, 22°56'S, 167°16'E, 500 m, 1 dd.

SMIB 2: stn DW1, 22°53'S, 167°13'E, 438-444 m, 1 lv. - Stn DW3, 22°56'S, 167°15'E, 412-428 m, 5 dd. - Stn DW4, 22°53'S, 167°13'E, 410-417 m, 1 dd. - Stn DW5, 22°56'S, 167°14'E, 398-410 m, 1 dd. - Stn DW6, 22°56'S, 167°16'E, 442-460 m, 3 dd. - Stn DW10, 22°55'S, 167°16'E, 490-495 m, 4 dd, 3 lv, (holotype, paratypes 1-6). - Stn DW17, 22°55'S, 167°15'E, 428-448 m, 2 dd (1 juv).

SMIB 3: stn CP4, 24°54'S, 168°22'E, 530 m, 2 lv. - Stn DW25, 22°56'S, 167°16'E, 437 m, 4 dd. - Stn DW29, 22°47'S, 167°12'E, 405 m, 9 dd, 4 lv (paratypes 7-10).

SMIB 8: stn DW197-199, 22°51'S-22°52'S, 167°12'E-168°12'E, Récife Sud, off Ile des Pins, 408-436 m, 10 dd, 8 lv (4 alc).

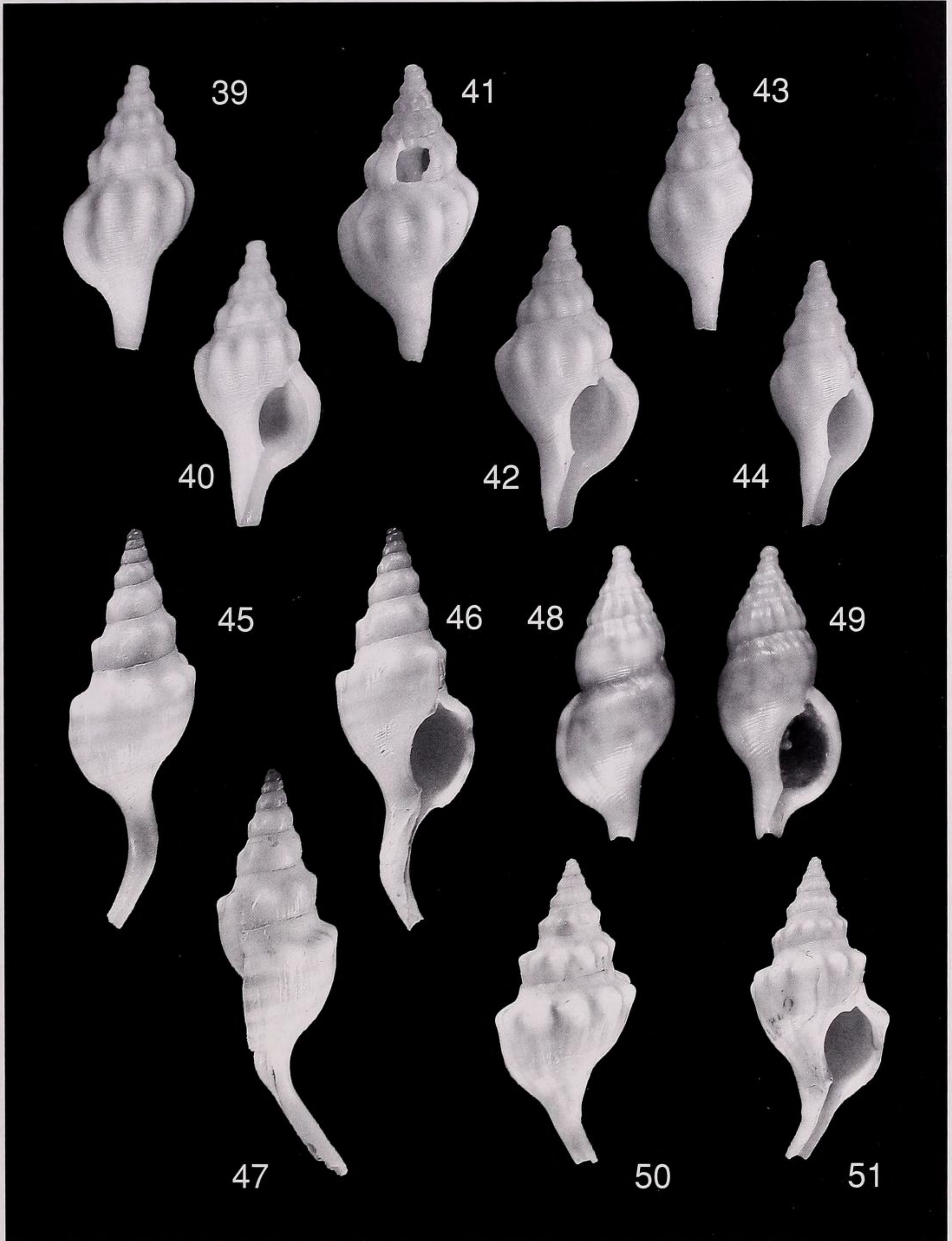
BATHUS 2: stn DW719, 22°48'S, 167°16'E, 444-445 m, 21 dd, 7 lv (3 juv, 4 alc). - Stn DW720, 22°52'S, 167°16'E, 530-541 m, 1 lv. - Stn DW729, 22°52'S, 167°12'E, 400 m, 3 dd, 3 lv. - "BATHUS 2", 12 dd, 4 lv.

Distribution and habitat. *E. scepta* is known from off Ile des Pins, southern New Caledonia, and is probably endemic to a small area there. Bathymetric range alive in 400-530 m, empty shells in 380-500 m. *E. scepta* is sympatric with *E. cumulata* (SMIB 1, stn DW2; SMIB 8, stn DW197-199; BATHUS 2, stn DW729).

Description. Shell small for the genus, 17-33 mm in length, solid, surface smooth, rather dull. Shape fusiform, slender, siphonal canal short. Whorls slightly angulate above midwhorl, with weak subsutural concavity.

Colour white to dirty white, with pale brown axial pattern between axial ribs. Rarely completely white. Protoconch white to dirty white, smooth, glossy, consisting of 1.25-1.50 whorls. Diameter 1.5 - 2.1 mm.

Teleoconch consisting of 5 or 6 whorls. First teleoconch whorl with 7-10 hardly visible, equally spaced spiral grooves, 8-10 on second whorl. Body whorl with numerous, hardly visible, fine spiral lines. First teleoconch whorl with 10-12 narrow axial ribs traversing from suture to suture, 8-10 on second whorl. Body whorl with 7-9 short axial ribs, running from just below suture to half way body whorl.



Aperture ovate to lens-shaped, outer lip convex. Columellar callus thin, smooth and glossy, without columellar fold. Both columellar teeth small but sharp. Inner side of outer lip with 14-16 spiral cords (in some specimens absent) producing a knob near outer lip (in some specimens only visible on abapical part).

Operculum corneous, thin, pale brown, shape corresponding to aperture, with terminal nucleus.

Radula: central tooth with stretched upper part and 3 elongate cusps, connection between tooth and base of cusps narrow. Lateral teeth with 3 cusps, the outermost largest, inner and middle cusp of equal size.

Comparison. *E. szeptia* differs from all other known Recent *Euthria* and *Siphonofusus* species in the small adult size and the axial sculpture with brown pattern between.

Five specimens are completely white without brown pattern (BIOCAL, stn DW44, 1dd; SMIB 3, stn DW29, 1 lv; BATHUS 2, stn DW729, 1 lv; "BATHUS 2", 1 dd, 1 lv).

Etymology. Named after the Latin expression *szeptus* (adjective), meaning "descending from the clouds". Being small and smooth as a hail-stone, *E. szeptia* looks as if it were dropped from the clouds, which are occasionally as grey and dull as this shell. This name also conjures the contrast between high (clouds) and deep (the species habitat).

Euthria solifer sp. nov.
Figs 6-8, 45-47, 85-87

Type material. Holotype (47 x 19 mm) in MNHN. Paratypes 1, 2, 3, 7 in MNHN. Paratype 4 in AMS. Paratype 5 in RH. Paratype 6 in KF.

Type locality. SMIB 8: stn DW182-184, 23°18'S-23°19'S, 168°05'E, 305-367 m, Aztèque Bank, southern New Caledonia.

Material examined. LAGON: stn 444, 18°15'S, 162°59'E, Atoll de Surprise, 300-350 m, 1 lv juv.

CHALCAL 2: stn DW82, 23°14'S, 168°04'E, 304 m, 1 dd juv.

SMIB 4: stn DW56, 23°21'S, 168°05'E, 230-260 m, 1 dd juv.

SMIB 5: stn DW98, 23°02'S, 168°16'E, 335 m, 2 dd juv. - Stn DW101, 23°21'S, 168°05'E, 270 m, 1 dd

juv. - Stn DW104, 23°16'S, 168°04'E, 335 m, 1 lv (paratype 1).

SMIB 8, Aztèque Bank: stn DW181, 23°18'S, 168°05'E, 311-330 m, 2 dd (paratypes 3-4), 1 lv alc (paratype 2). - Stn DW182-184, 23°18'S-23°19'S, 168°05'E, 305-367 m, 5 dd (holotype) (4 juv), 2 lv juv.

- Stn DW185, 23°15'S, 168°04'E, 305-355 m, 2 dd (paratypes 6-7), 2 lv juv.

- Stn DW187, 23°17'S, 168°06'E, 390-540 m, 1 dd (paratype 5).

BATHUS 3: stn DW 829, 23°21'S, 168°02'E, 386-390 m, 2 dd (1 juv). - Stn 830, 23°20'S, 168°01'E, 361-365 m, 2 dd juv.

From local collector: New Caledonia, 350 m, 2 lv, KF nr.3041. - 300-450 m, 9 lv (5 juv), GP.

Distribution and habitat. *Euthria solifer* is known from Atoll de Surprise (northwest off New Caledonia) and Aztèque Bank (southern New Caledonia). Bathymetric range alive in 330-335 m, empty shells in 260-390 m.

This species was currently not collected together with *E. cumulata*, although they were found close together (CHALCAL 2, stn DW82 and DW83).

Description. Shell up to 51 mm in length, glossy, thin but solid. Shape fusiform, slender, spire high. Siphonal canal long, occasionally curved.

Background colour snow white to pale yellow, knobs white or pale. Lower part of body whorl and terminal part of siphonal canal occasionally darker. Several specimens show 4 or 5 thin, yellow to orange-brown spiral bands: one on shoulder slope, remaining 3 well dispersed over body whorl with about equal interspaces. Fifth band, if present, close under lowest band. Rarely completely white.

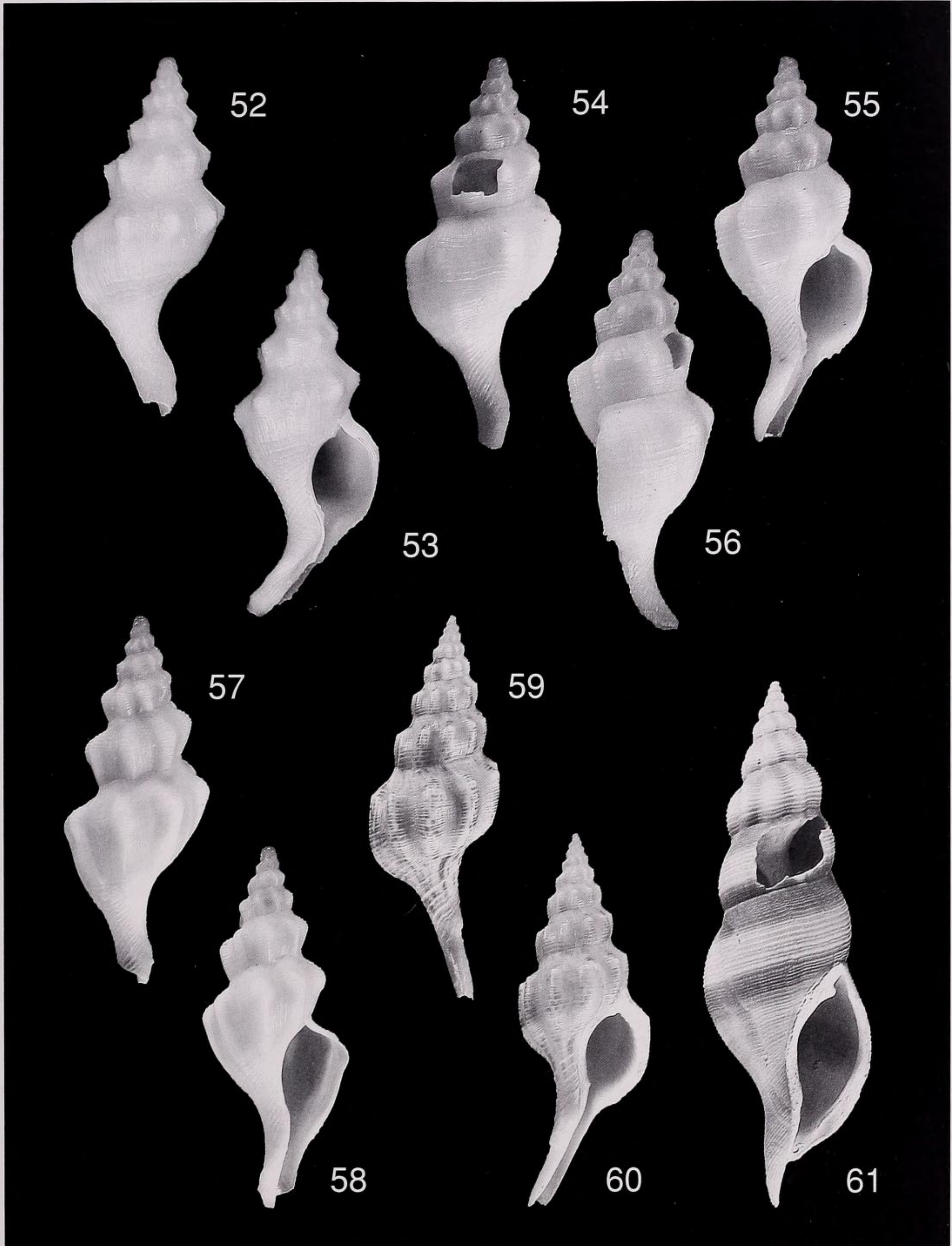
Protoconch purple-brown, smooth, glossy, bulbous, large for genus, 1.8 - 2.1 mm in diameter, consisting of 1.25-1.50 whorls.

About 6 teleoconch whorls. 3 adapical whorls weakly rounded. Fourth whorl angulate above midwhorl and with subsutural concavity. First teleoconch whorl with 9-14 hardly visible spiral cords, interspaces fine. Their number increases to 16 on second whorl. Shell smooth from fourth whorl on. Body whorl smooth, lower part and siphonal canal with numerous fine spiral cords.

Weak nodules visible from third or fourth whorl on, making whorls slightly angulate. Penultimate or body whorl strongly angulate with 7-11 axial knobs. In some specimens these axial knobs are weak or (rarely) absent.

Figures 52-61

52-58. *Euthria cumulata* n.sp., Ile des Pins, southern New Caledonia. 52-53. Holotype, 36.5 mm. 54-56. Paratype 3 "ribbed form", 38 mm. 57-58. Paratype 7 "ribbed form", 47 mm; 59-60. *E. walleri* Ladd, 1976, Mindanao, Philippines, 51 mm, coll. KF.; 61. "*Siphonofusus*" *vicdani* Kosuge, 1992, 93 mm.



Aperture ovate, outer lip rather rectangular. Parietal callus thin, smooth and glossy. Adapical columellar nodule small but sharp in adult specimens. Abapical columellar tooth rather strong, situated at end of a fine columellar fold.

Operculum corneus, thin, pale brown, shape corresponding to aperture, with terminal nucleus.

Radula: central tooth with stretched upper part and 3 elongate cusps, connection between tooth and base of cusps narrow. Lateral teeth with 3 peculiar long cusps, inner cusp smallest, becoming larger from inner to outer side.

Comparison. The resemblance between *E. queketti* Smith, 1901 from South Africa (figs. 50-51) and *E. solifer* is striking, in particular the shape and axial sculpture of the body whorl. *E. queketti* differs by the white, smaller protoconch consisting of 2 whorls (instead of 1.25-1.50 in *E. solifer*), by the presence of 9-14 hardly visible spiral bands (instead of 5 coloured spiral bands in *E. solifer*), by the axial ribs on the first 2 whorls, giving a reticulate appearance, by the more angulate shoulder already present on adapical whorls, and by the unequally spaced spiral grooves on the lower whorls. *E. queketti* occasionally has a brownish axial pattern between the knobs.

For differences with *E. cumulata* see under that species.

In most of the examined specimens, the siphonal canal is broken for an unknown reason. There are no signs of predation.

3 specimens are completely white, including the protoconch (SMIB 8, stn DW185, 1 dd, 1 lv juv; from local collector, 1 lv, KF).

Etymology. Named after the Latin expression *solifer* (adjective), meaning "bringing sunshine". Being sometimes bright coloured with yellow or orange lines, *E. solifer* looks like a hot summer afternoon, the sun rays smelted on the shell. A certain contrast between this "sunny" species and the sympatric *E. scepta* is noticed.

Euthria cumulata sp. nov.

Figs 52-58, 80-84

Type material. Holotype (36 x 15 mm) in MNHN. Paratypes 2, 3, 5, 7 in MNHN. Paratype 1 in AMS. Paratype 4 in RH. Paratype 6 in KF. Paratype 8 in NMNZ.

Type locality. MUSORSTOM 4: stn DW227, 22°46'S, 167°20'E, 300 m, off Ile des Pins, southern New Caledonia.

Material examined. LAGON: stn 420, 22°44'S, 167°09'E, Grand Récif Sud, 345 m, 1 lv juv.

MUSORSTOM 4: stn DW210, 22°44'S, 167°09'E, 340-345 m, 1 dd (paratype 6). - Stn DW227, 22°46'S, 167°20'E, 300 m, 2 dd (holotype, paratype 1). - Stn DW228, 22°47'S, 167°18'E, 410 m, 1 dd. - Stn DW230, 22°52'S, 167°12'E, 390-420 m, 1 lv juv. - Stn DW234, 22°15'S, 167°08'E, 350-365 m, 1 dd.

SMIB 1: stn DW2, 22°52'S, 167°13'E, 415 m, 1 dd (paratype 5).

SMIB 2: stn DW15, 22°53'S, 167°11'E, 375-402 m, 1 lv (paratype 4).

CHALCAL 2: stn DW83, 23°20'S, 168°06'E, 200 m, 2 dd juv.

SMIB 8: stn DW197-199, 22°51'S-22°52'S, 167°12'E-168°12'E, Récif Sud, off Ile des Pins, 408-436 m, 1 dd, 2 lv (1 alc) (paratypes 2-3).

BATHUS 2: stn DW715, 22°39'S, 167°11'E, 202-227 m, 1 dd juv. - Stn DW717, 22°44'S, 167°17'E, 350-393 m, 1 dd juv. - Stn DW724, 22°48'S, 167°26'E, 344-358 m, 1 dd juv. - Stn DW729, 22°52'S, 167°12'E, 400 m, 1 lv (paratype 8). - "BATHUS 2", 1 dd juv.

From local collector: New Caledonia, 390 m, 1 lv, KF nr.2747. - Dredged at 350-500 m, 1 lv, (paratype 7) MNHN; 1 lv, KF nr.3043. - 350 m, 1 lv, KF nr.3042. - 300-450 m, 13 lv (5 juv), GP.

Distribution and habitat. *Euthria cumulata* is known from off Ile des Pins (southern New Caledonia). Bathymetric range alive in 345-408 m, empty shells in 200-415 m.

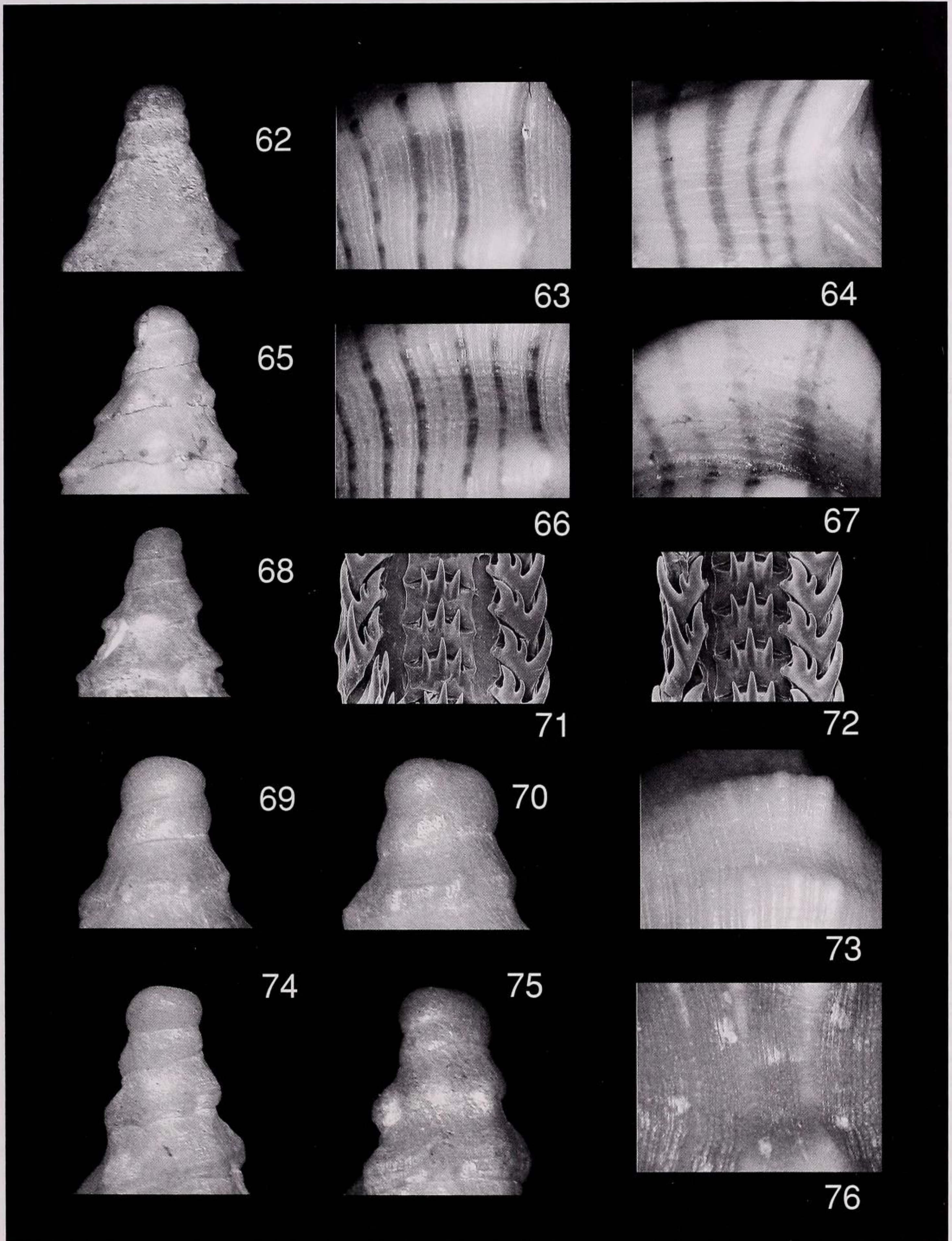
E. scepta is sympatric with *E. cumulata* (SMIB 1, stn DW2; SMIB 8, stn DW197-199; BATHUS 2, stn DW729).

E. solifer was currently not collected together with *E. cumulata*, although they were found close together (CHALCAL 2, stn DW82 and DW83).

Description. Shell up to 48 mm in length, glossy, thin, rather fragile. Shape fusiform, slender, spire high. Siphonal canal long, more or less curved. Colour white to pale yellow or brownish. Knobs or axial ribs paler. Lower part of siphonal canal slightly darker.

Figures 62-76

62-64. *Serratifusus lineatus* Harasewych 1991. 62. Apex of holotype. 63. Sculpture of paratype. 64. Sculpture of holotype; 65-67. *S. excelens* n.sp. 65. Apex of holotype. 66. Sculpture of paratype. 67. Sculpture of holotype; 68. *S. cf. lineatus* Harasewych 1991 "white form". Apex. Coll. KF.; 69-73. *S. harasewychi* n.sp. Apex, radula and sculpture of paratype 2; 74-76. *S. sitanius* n.sp. Apex and sculpture of holotype.



Protoconch whitish to purplish-brown, smooth, glossy, rather inflated, variable in size, consisting of 1.25-1.50 whorls, large for genus, diameter 1.8-2.2 mm.

Teleoconch consisting of 5 or 6 whorls, strongly angulate above midwhorl and with slight subsutural concavity. First teleoconch whorl with 10-12 fine spiral cords, 10-16 on second whorl. Whorls abapically gradually smooth below shoulder. Body whorl with about 16 fine spiral cords on shoulder slope. Spirals which cross the knobs slightly stronger. Middle part of body whorl almost smooth. Lower part and siphonal canal with 20-25 spiral cords, 3 adapical ones sometimes strong, others fine, occasionally with one fine intercalated spiral thread between each pair.

First teleoconch whorl with 10-14 axial ribs, 9-11 on second whorl, mostly traversing from just below upper suture to just above lower suture. In some specimens these ribs are reduced from third whorl on. Body whorl with 7-9 well-developed axial ribs or strong rounded knobs.

Aperture ovate, outer lip more rectangular. Parietal callus thin, smooth and glossy, abapically transformed to fine, sharp lip. Adapical columellar nodule weak, in some specimens hardly visible. Abapical columellar nodule weak or absent, situated on end of columellar fold.

Operculum corneous, thin, pale brown, shape corresponding to aperture, with terminal nucleus.

Radula: central tooth with elevated and stretched upper part, connection between tooth and base of cusps narrow. Lateral teeth with 3 cusps, becoming larger from inner to outer side.

Comparison. In some specimens the axial sculpture consists of well rounded knobs on shoulder, we call these "knobbed form". Specimens with well-developed axial ribs running from suture down to halfway the body whorl we call "ribbed form". The early whorls are identical, the divergence begins from the third whorl on, when the forms develop knobs respectively ribs. We could not find any evidence to separate these 2 forms in distinct species. Intermediate between both forms, specimens which accumulate knobs on the adapical end of axial ribs, are occasionally found.

E. cumulata, in particular the knobbed form, resembles closely *E. solifer*. *E. cumulata* differs by the axial sculpture which is already present on the upper whorls, resulting in a more angulate shape, by the paler protoconch, by the presence of spiral cords

on the body whorl, and by the shorter cusps of both central and lateral teeth.

E. cumulata, in particular the ribbed form, resembles *Siphonofusus walleri* Ladd, 1976 (figs. 59-60). *E. cumulata* differs by the smaller number of whorls which are more triangular in shape, the absence of colour pattern and the bigger protoconch.

Etymology. Derived from the Latin *cumulare* (verb), meaning "piling up" or "accumulating". Showing two forms of axial sculpture, *E. cumulata* can accumulate both forms in one specimen.

"*Siphonofusus*" *vicdani* Kosuge, 1992

Fig. 61

Siphonofusus vicdani Kosuge, 1992: 159.

Type material. Holotype in IMT: IMT-92-47. Not consulted.

Type locality. Balud, Davao, Philippines.

Additional material. New Caledonia: **SMIB 8:** stn DW150, 24°54'S, 168°22'E, 519-530 m, 2 dd. - Stn DW152, 24°54'S, 168°22'E, 514-530 m, 2 dd. - Stn DW178, 23°46'S, 168°17'E, 400 m, 1 dd.

BATHUS 3: stn CP811, 23°41'S, 168°15'E, 383-408 m, 1 dd.

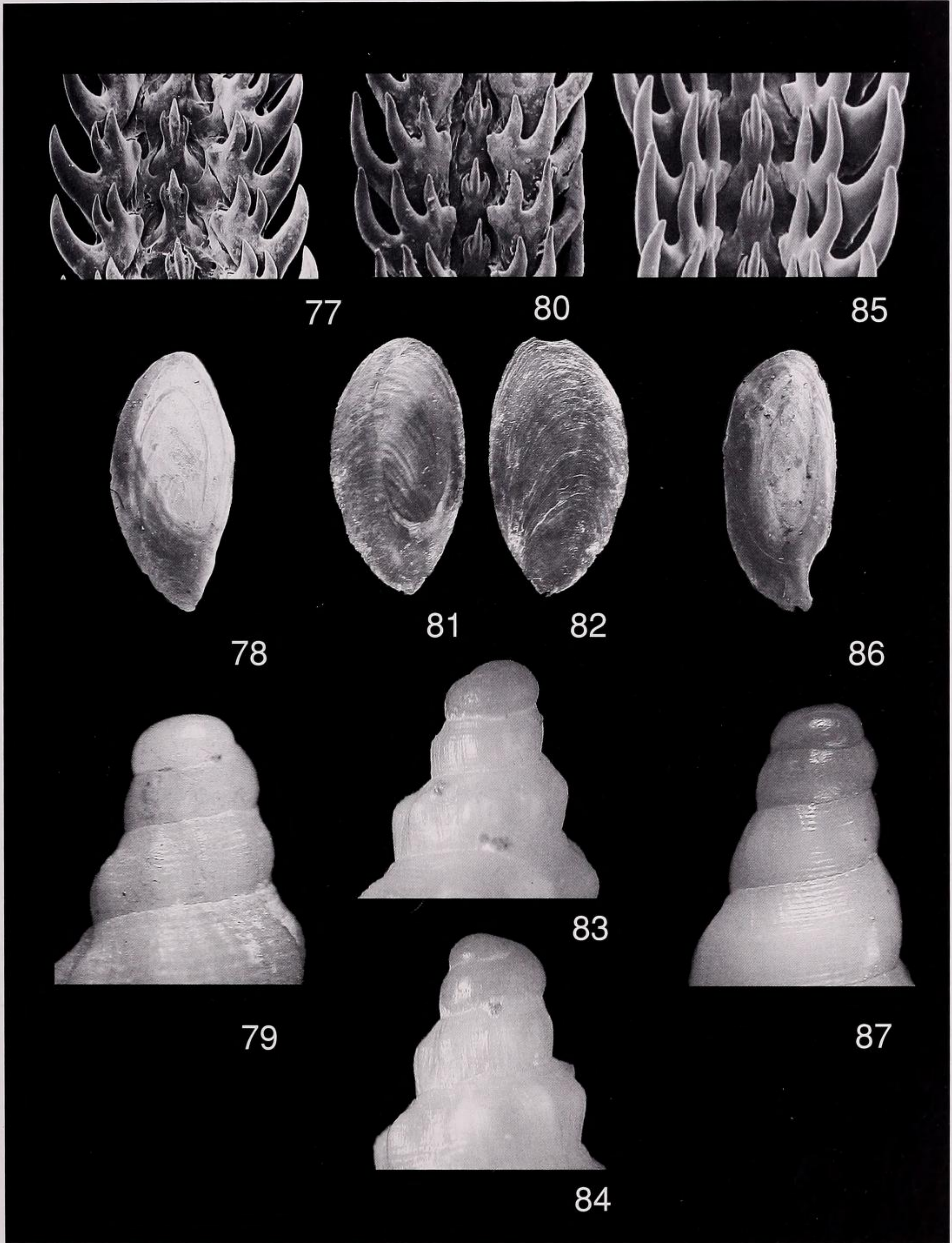
Remarks. The six New Caledonian specimens have been dead collected and were inhabited by hermit crabs. Most of them are badly damaged, showing signs of predation: a hole crushed in the lower part of the spire and/or the body whorl crumbled of. Other species of Buccinidae or Fasciolaridae dredged at the same stations do not show these signs of predation.

This species was currently known from the Philippines only. The presence of specimens off the New Caledonian coast means a considerable range extension to the south.

The generic placement is doubtful. Regarding the shell morphology, no genus can be ascertained to accommodate this species. Operculae studied by both authors, stuck in specimens from the Philippines and obtained by dealers, are different from each other. Many were typical for Fasciolaridae, but the question is which operculum really belongs to this species and which was subsequently stuck in. Further radular and anatomical studies are needed to ensure the generic placement of this species.

Figures 77-87

77-79. *Euthria scepta* n.sp. Radula, operculum and apex of paratype 1; **80-84.** *E. cumulata* n.sp. Radula, operculum and apex of paratype 3; **85-87.** *E. solifer* n.sp. 85-86. Radula and operculum of paratype 1. 87. Apex of holotype.



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