

Gloria Maris	44 (3-4)	55-68	Antwerpen, juni 2005
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Contributions to the knowledge of Strombacea. 7*

Notes on the *Strombus (Dolomena) marginatus*-complex
(Gastropoda: Strombidae) and the status of *Strombus (Dolomena)*
robustus Sowerby, 1874; with description of a new subspecies,
and a neotype designation of *Strombus (Dolomena) marginatus*
Linnaeus, 1758

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*Contributions to the knowledge of Strombacea 6: see Gloria Maris 36(5-6): 73-107

Abstract: The status of *Strombus robustus* Sowerby, 1874 is discussed. As a result, the taxon is placed in synonymy with *Strombus marginatus* Linnaeus, 1758, of which a neotype is designated. *Strombus robustus* auct. (non Sowerby, 1874) is described as new for science. A lectotype is selected of *Lambis carinata*.

Introduction: In modern literature on **Strombidae**, *Strombus marginatus* Linnaeus, 1758 is well documented. Following Abbott (1960) all recent authors recognize this Indo-West Pacific species with four subspecies:

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|--|--|
| <i>S. marginatus marginatus</i> Linnaeus, 1758 | from the Gulf of Bengal to Madras, India |
| <i>S. m. robustus</i> Sowerby, 1874 | from Japan to N W Borneo, Malaysia and China |
| <i>S. m. succinctus</i> Linnaeus, 1767 | E coast of India and Sri Lanka |
| <i>S. m. septimus</i> Duclos, 1844 | from the Philippines to the New Hebrides |

So far, type material for *S. m. marginatus* has been lacking and its identity was in fact open for discussion. Possible type material was located in the Zoological Museum of Uppsala, Sweden. From this series we selected a neotype for this taxon.

Additionally, we herein redescribe the southeast Asian population of *S. marginatus*, which was hitherto known as *S. marginatus robustus* Sowerby, 1874, and some remarks are made on the other two subspecies.

In this paper we have not attempted to list all secondary literature references of the taxa under discussion as it would result in a quite extensive and largely uninformative list of misidentifications in publications. Only the primary synonyms and the literature references as given by Abbott (1960) are listed.

Systematic part

Strombus (Dolomena) marginatus marginatus Linnaeus, 1758
(Pl. 1, figs. 1-2; Pl. 2, figs. 1; Pl. 3, figs. 1-2)

Synonymy:

Strombus marginatus Linnaeus, 1758: 744.

Lambis carinata Röding, 1798: 62.

Strombus robustus Sowerby, 1874: 599-600, Pl. 72, figs. 5-5a [erroneously as figs. 3-3a in text and on plate caption]. – type locality: Hong Kong.

Strombus marginatus marginatus – Abbott, 1960: 98-99, Pl. 18, figs 6-7; Pl. 74, fig. 1.

Description: Shell 33 – 60 mm long, almost two times higher than wide, solid, elongated and bulbous; somewhat glossy. Up to 10 whorls, of which the last 2-3 bear a sharp keel on the shoulder. Spire somewhat concave. Three nuclear whorls, which are smooth, and of a lavender colour. The columella has a thick callus, which is separated from the body whorl. The outer lip moderately flared, curling inward and slightly thickened when fully grown. The upper margin (posterior canal) extends

over the previous suture. The anterior canal is short and slightly arched. Stromboid notch shallow. There is axial sculpture on the postnuclear whorls and sometimes also former varices. The last whorls have no axial ribs, but show radial sculpture and a series of small knobs on the shoulder keel. On the last whorl these knobs become less prominent and the keel is almost smooth. The last whorls with radial sculpture, more prominent near the base. The inside of the outer lip is lirate. The columella is smooth, except for some lirae posteriorly and anteriorly. Colour light to dark brown, with axial flammulations, and white spiral bands in which brown chevrons are usually visible. The inside of the outer lip, columella and outside of margin white. The smooth, thin periostracum is light brown.

Type locality: designated by Abbott, 1960 (op cit): Ceylon [Sri Lanka].

Material examined:

INDIA: S coast (GVR 176/1); Kilakarai (LMV/4); Gulf of Manaar, Pamban (GVR 176b/5 – LMV/9); Rameswaram, dredged Sep. 1992 (GVR 176c/2; Rameswaram (LMV/1 – LMV/2– LMV/3); Rameswaram, June 1982 (GKE 532/1); Ramanathapuram, Devipattanam, 1982 (GKE 304/1); Madras (LMV/1).

INDONESIA: Rhiau (LMV/1); Rhiau, coll. at low tide (GKE 504/1); Sumatra, Aceh, Tapatoean (=Tapaktuan), leg. H. E. Wempe, 1912, no. 31b (NNM/2).

NICOBAR ARCHIPELAGO: November 6, ex.colln.J.Berkhout (GKE 119/1).

SINGAPORE: (GVR 176a/1).

SRI LANKA: (LMV/1)

THAILAND: Phuket, Ko Racha at 25-30m (GVR 176d/4)

Distribution: From southeast India and Sri Lanka to Singapore and northern Sumatra, Indonesia

Discussion: Linnaeus' very concise description: "marginatus 431. S. testae labro prominulo, dorso marginato laevi, cauda integra. *Habitat* . ." (1758: 744) shows that he introduced *Strombus marginatus* without a single reference to existing literature. A further literature study revealed that he had no material in his private collection (Dodge, 1965: 262-264; Abbott, 1960: 99).

However, it is quite possible that Linnaeus was familiar with the three specimens present in the Museum of Evolution, University of Uppsala, Sweden. These shells were part of the collection of Karl XII (1682-1718), but originate from an older Swedish collection and had been collected before 1718 (pers. comm. O. Israelsson

via R. G. Moolenbeek). These three specimens (UUZM 1229a-c) clearly represent the species that is currently known as *S. m. marginatus* as described by Abbott (1969:99). To stabilize the nomenclature we herewith select specimen UUZM 1229a (Pl. 3, figs. 1-2) as the neotype.

As no locality data are available for the Uppsala specimens, there is no reason to change Abbott's designation of the type locality Ceylon [Sri Lanka].

Röding (1798: 62) referred to three figures when describing his *Lambis carinata*. That of Martini (1777: Pl. 79, fig. 816) is barely recognisable. Those of Chemnitz (1788: Pl. 156, figs. 1489-1490) are probably ventral and dorsal reproductions of a single specimen, although there is no evidence to be certain. The ventral drawing clearly involves the same taxon as was stabilised above by our selection of the neotype of *Strombus marginatus*. Therefore, we designate Chemnitz, 1788: Pl.156, fig. 1489 as illustrated lectotype of *Lambis carinata* Röding, 1798.

Abbott (1960:100-101) erroneously attributed the southeast Asian population of *Strombus marginatus* Linnaeus, 1758 – which we will describe below as new - to *Strombus robustus* Sowerby, 1874. Although the type locality of the latter, Hong Kong, falls within the range of that southeast Asian population, the type figures (Pl. 3, figs. 5-6) quite clearly depict a specimen belonging to what is nowadays commonly considered to be the nominal subspecies *S. m. marginatus* Linnaeus, 1758, which is exclusively found west of the Malaysian Peninsula. Therefore, *Strombus robustus* Sowerby, 1874 should be considered a junior synonym of *Strombus marginatus* Linnaeus, 1758, and its type locality may therefore be considered dubious.

There is some overlap of the nominate subspecies distribution with that of *S. m. succinctus* near Sri Lanka and Madras, India. Some confusing records might occur due to the fact that Madras is a major fishing port. Madras records therefore have to be considered doubtful for the locality as local fishermen may have brought in specimens from somewhat more remote localities.

***Strombus (Dolomena) marginatus sowerbyorum* subsp. nov.**

(Pl. 1, figs. 3-4; Pl. 2, figs. 2; Pl. 3, figs. 3-4)

Synonymy:

Strombus septimus – Crosse & Fischer, 1899: 287 [non *Strombus septimus* Duclos, 1844].

Labiostrombus succinctus – Kira, 1955: 31, Pl.15, fig. 14 [non *Strombus succinctus* Linnaeus, 1767].

Strombus marginatus robustus – Abbott, 1960: 100-101. Pl. 18, figs. 8-9; Pl. 76 [non *Strombus robustus* Sowerby, 1874].

Strombus marginatus marginatus Linnaeus var *robustus* Sowerby – Walls, 1980: 116.

Description: This is what Abbott described as the heavier and more rotund subspecies. The shell is indeed globose and always without the keel present on the shoulder of *S. m. marginatus*. Very characteristic for this subspecies is the plication ventrally on the left, forming a thin 'rib' (Pl. 2, figs 2). The length of the shell varies from 25 to 65 mm. The anal canal extends up the spire and often bends sharply to the left, well onto the spire whorls (Pl. 2, figs. 2).

Shells from southern Thailand show characteristics of both the nominal subspecies (an indication of a keel at the shoulder) and this subspecies (globose, ventral plication). This fits perfectly in our subspecies concept: these are the perfect transitional forms one should expect to find in the areas of overlapping distribution of subspecies.

Type material: A series of 4 shells in Borneo, Brunei, Kuala Belait, 27 July 1983, beach-collected by J. N. J. Post. The holotype (Pl. 3, figs. 3-4; NMR 15986) measures 42 x 23 mm and is shaped as typical of the subspecies: globose at the shoulder, the left-ventral plication is present and the anal canal bends to the left onto the spire.

The paratypes, from the same locality, are somewhat smaller and more worn; they measure 40.5 x 21.5 mm (LMV), 34.5 x 18 mm and 32.5 x 18 (GVR/567).

Material examined:

BRUNEI: (KTB:6); Kuala Belait, 27 July 1983, coll. by J. N. J. Post (GVR/567/2 – LMV/2).

MALAYSIA: South coast (GVR 567a/1; Kuala Terengganu (LMV/1).

THAILAND: southeast coast (KTB/6 - LMV/1 – GVR 567/c/1 – GKE 2504/2); Ko Samui (KTB/2); Ko Samui, 1991 (GKE 2579/1); Ko Samui, Chaweng beach (LMV/4); Ko Chang (KTB/3).

VIETNAM: Na Trang, Hon Lon Island, at 10-12 m in sand, by diver (GKE 3843/1).

Distribution: Japan to northwest Borneo (Brunei), Gulf of Thailand, and China.

Etymology: In honour of the Sowerby family, of which four generations of malacologists contributed many important works to science.

Discussion: This subspecies has until now been called *S. robustus* Sowerby, 1874. However, as we have showed above, *S. robustus* is a junior synonym of *S. m. marginatus* Linnaeus.

***Strombus (Dolomena) marginatus succinctus* Linnaeus, 1767**
(Pl. 1, figs. 5-6; Pl. 2, figs 3; Pl. 3, fig. 7)

Synonymy :

Strombus succinctus Linnaeus, 1767 : 1212.

Strombus marginatus succinctus – Abbott, 1960 : 99, Pl. 18, figs. 13-14.

Type locality: India. Restricted to Madras by Abbott (1960: 100).

Material examined:

INDIA: Madras (GVR 305/1 - GVR 305b/1 – LMV/2 – LMV/2 – LMV/1); Madras, dredged, May 1986 (GKE 1539/1); Madras, dredged (GKE 116/1 – GKE 505/1); Madras, dredged, depth 9m (LMV/2).

SRI LANKA: (GVR 305a/1).

THAILAND: Andaman Sea Coast, off Ko Chang, near Kapoe, in net at 54m (GKE 2774/1).

General remarks: The westernmost member of the *marginatus*-group, from the east coast of India and north-western Sri Lanka to the Andaman Sea in a depth range of 9-54 m. This is the most slender and elongated of the subspecies, up to 55 mm long. The posterior canal is straight, the shell is unkeeled at the shoulder and pale brown.

The fact that it seems to live partly sympatric with the nominal subspecies (east coast of India, Sri Lanka) would warrant further investigation regarding the status of this taxon. No real intermediates between these two populations seem to exist and that would be an indication that *S. m. succinctus* might be a separate species. Much more reliable information concerning the distribution ranges of *S. m. marginatus* and *S. m. succinctus* is needed.

Strombus (Dolomena) marginatus septimus Duclos, 1844
(Pl. 1, figs. 7-8; Pl. 2, figs 4; Pl. 3, fig. 8)

Synonymy:

Strombus septimus Duclos, 1844: 8, Pl. 13, figs. 9-10, Pl. 15, fig. 11, Pl. 26, fig. 2.

Strombus marginatus septimus – Abbott, 1960 : 102, Pl. 18, figs. 10-11, Pl. 74, fig. 2.

Type locality : Not given. Subsequently designated by Abbott (1960: 102): Philippines, Luzon Island, Bataan Peninsula.

Material examined:

INDONESIA: Molluccas, Ambon, Hitu, Ambon Bay, Rumahtiga:3,5-XII-1990, Rumphius Biohistorical Expedition, 1990 (NNM 20215/RUM.34/1).

PHILIPPINES: Luzon Island, Manila Bay (GVR 606a – LMV/2 – LMV/3).

SOLOMON ISLANDS: Guadalcanal, Honiara (GVR 606/2).

General remarks: This is the easternmost subspecies, ranging from southern Japan and the Philippines to northeastern Borneo and New Caledonia. Differences with the other three subspecies: there is no keel nor knob at the shoulder of the shell and the outer lip is flaring wider. The shell is also more colourful and darker than those of the other subspecies.

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Abbreviations used

- GKE – collection G. Kronenberg, Eindhoven, The Netherlands.
 GVR – collection G. J. Visser, Rotterdam, The Netherlands.
 KTB – collection K. de Turck, Hersele, Belgium.
 LMV – collection L. A. Man in 't Veld, Vlaardingse, The Netherlands.
 NNM – ‘Naturalis’, Leiden, The Netherlands.
 UUZM – Museum of Evolution, Uppsala University, Sweden.
 ZMA – Zoological Museum, Amsterdam, The Netherlands.

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Summarizing translation into Dutch / Samenvattende Nederlandse vertaling

Strombus marginatus Linnaeus, 1758 wordt in de moderne literatuur steevast beschouwd met vier ondersoorten: *Strombus marginatus marginatus* Linnaeus, 1758 (Golf van Bengalen tot Madras, India); *Strombus marginatus robustus* Sowerby, 1874 (Japan tot NW Borneo, Maleisië en China); *Strombus marginatus succinctus* Linnaeus, 1767 (Oost-India en Sri Lanka) en *Strombus marginatus septimus* Duclos, 1844 (Filippijnen tot de Nieuwe Hebriden).

Linnaeus (1758) beschreef *S. marginatus* zonder enige referentie naar bestaande literatuur en hij had geen enkel exemplaar in zijn persoonlijke collectie. Het is echter wel mogelijk dat hij weet had van drie exemplaren in het Museum of Evolution, Uppsala, Zweden. Deze drie exemplaren vertegenwoordigen duidelijk de soort die wij nu algemeen kennen als *S. marginatus marginatus*, zoals ook beschreven door Abbott (1960). Omwille van de stabiliteit binnen de nomenclatuur wordt hierbij specimen UUZM1229a (pl. 3, fig. 1-2) als neotype geselecteerd. De tylocaliteit blijft Ceylon (Sri Lanka), zoals voorgesteld door Abbott (1960). Bovendien wordt ook een lectotype

aangeduid van *Lambis carinata* Röding, 1798, een junior synoniem van *S. marginatus marginatus*.

Abbott (1960) deelde de populatie van Zuid-Oost Azië in bij *S. marginatus robustus* Sowerby, 1874. The typefiguur (pl. 3, fig. 5-6) betreft echter duidelijk een exemplaar van *S. marginatus marginatus* (zie boven). *S. robustus* Sowerby, 1874 moet dus als een junior synoniem van *S. marginatus marginatus* beschouwd worden en zijn typelocaliteit (Hong Kong) moet als twijfelachtig beschouwd worden. De tot nu toe als *S. marginatus robustus* gekende exemplaren worden hierbij beschreven als een nieuwe ondersoort: *S. marginatus sowerbyorum*.

De overige ondersoorten van *S. marginatus* worden beknopt besproken, waarbij voor *S. marginatus succinctus* opvalt dat een deel van het verspreidingsgebied overlapt met dat van *S. marginatus marginatus*. Bovendien blijken echte tussenvormen te ontbreken, wat mogelijk op een aparte soort wijst. Meer onderzoek en meer verspreidingsgegevens zijn echter nodig om hierin tot een conclusie te komen.

Plate 1.

The four subspecies of *Strombus marginatus*.

figs. 1-2. *S. m. marginatus*

figs. 3-4. *S. m. sowerbyorum* subsp. nov.

figs. 5-6 *S. m. succinctus*

figs. 7-8 *S. m. septimus*

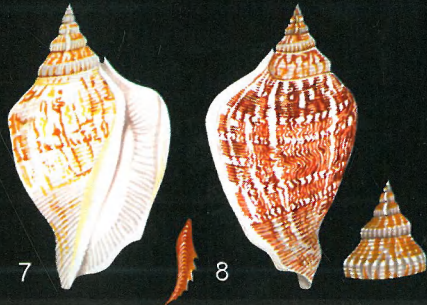
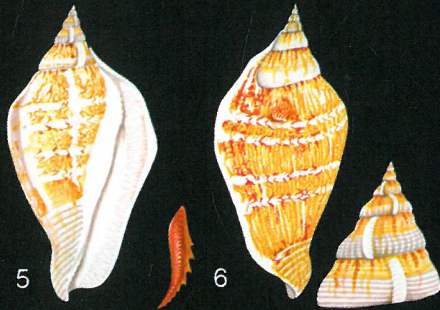
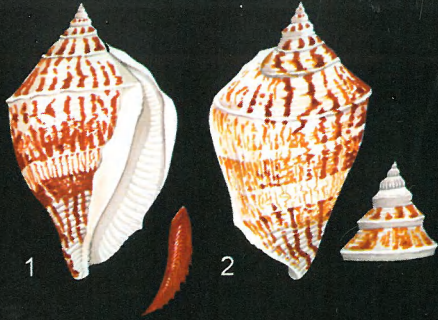
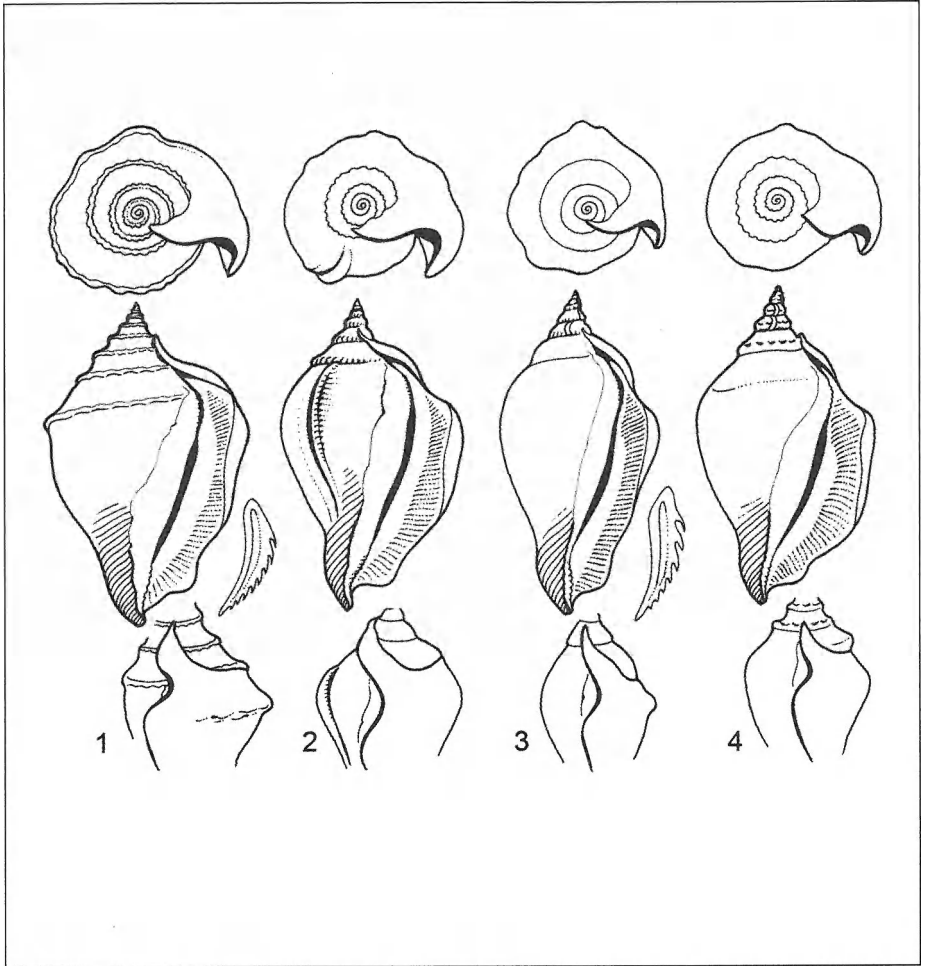


Plate 2.**Characteristics of the *Strombus marginatus*-complex**figs. 1. *S. m. marginatus*figs. 2. *S. m. sowerbyorum* **subsp. nov.**figs. 3. *S. m. succinctus*figs. 4. *S. m. septimus*



Pl. 3**The *Strombus marginatus*-complex**

figs. 1-2. *S. m. marginatus*. **neotype**
 UUZM 1229a

figs. 3-4. *S. m. sowerbyorum* **holotype**
 Borneo, Brunei, Kuala Belait, 27 July 1983, collected by J. N. J. Post
 ex. coll. LMV, to be deposited in the "Natuurmuseum, Rotterdam"

figs. 5-6 *S. robustus* Sowerby, 1874: pl. 72, figs. 5-5a

fig. 7. *S. m. succinctus*.
 India, Madras, 1989 – GVR 0305

fig. 8. *S. m. septimus*.
 Philippines, Luzon, Manila Bay, 5 Feb 1980 - LMV 959

Illustrations (Pls. 1,2): Leo Man in't Veld
Photographs and plate lay-out: Rob Vink

