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On the identity of *Nerita trifasciata* Le Guillou, 1841, previously known as *Nerita spengleriana* Récluz, 1843(Gastropoda: Neritidae)

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Dedicated to Marcel VERHAEGHE (†28 Sept. 2011)

Abstract: In the present article, *Nerita trifasciata* Le Guillou, 1841, a species within the *Nerita undata*-complex, and its different synonyms are discussed. A lectotype for *Nerita trifasciata* Le Guillou, 1841 is designated. *Nerita aurantia* Récluz, 1842 is found to be a junior synonym of *N. trifasciata*. The taxonomical status of *Nerita radiata* Récluz, 1841 remains unclear. The description of *Nerita spengleriana* Récluz, 1843 is found to be based on a juvenile specimen that did not yet exhibit all characteristics of an adult one. Later descriptions of (adult) *N. spengleriana* are found to coincide with the description of *N. trifasciata*. *N. spengleriana* is therefore considered as a junior synonym of the latter. Finally, *Nerita oleagina* Reeve, 1855, which only differs from *N. trifasciata* by its smooth surface, was found to occur sympatrically with (ribbed) *N. trifasciata*, and is therefore considered as a variety of *N. trifasciata*. A few notes on the type material of *Nerita chrysosotoma* Récluz, 1841 are added.

Introduction: In 2006, Krijnen et al. designated a neotype for *Nerita undata* Linnaeus, 1758 to end the confusion about the true identity of *N. undata* that had existed for centuries. Four years later, in 2010, the identity of *Nerita undulata* Gmelin, 1791 was discussed (Krijnen, 2010). *N. undulata* was the second species in the so-called *undata*-complex we discussed as part of an ongoing study. In the present article, a third species within the *undata*-complex, *N. trifasciata* Le Guillou, 1841, will be discussed. After the discussion of *N. trifasciata*, we will clarify the synonyms of this species.

Abbreviations museums:
BNHM British Natural History Museum, London
MHNG Muséum d'Histoire Naturelle, Genève
MNHN Muséum National d'Histoire Naturelle, Paris

Discussion of Lectotype

Nerita trifasciata Le Guillou, 1841

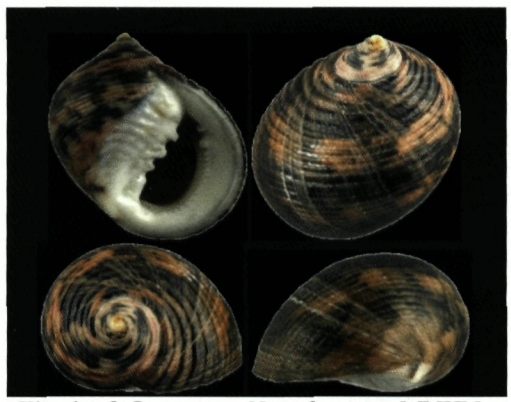


Fig. 1a-d: Lectotype *N. trifasciata*, MNHN. Pictures by R. Vink

Original description: Le Guillou, 1841. Revue Zool.: 343-344, sp. 1.
Type material: "Long. 26 m., larg.. 17 m." (Le Guillou).
Type locality: "Triton-Bay (Nouvelle-Guinée)." (Le Guillou).

Original description: Le Guillou (1841: 343-344) described this species as follows: "*Testa ovata subglobata transversim sulcata sulcis 30-33 angustis, profundis; albido-viridescente, nigro trifasciata et sub flammulata; spira brevi, laterali, su acuta; labio plano, rugoso et granuloso, margine tridentato, dentibus medianis parvulis; labro intus incrassato, breve, sulcato, unidentato.*" (trans.: Body whorl elongated, half spherical with 30-33 ribs with small but clear interstices; greenish white, with three black bands of elongated stains; short spire, sharp; flat parietal area, folded and granulated, columella with three teeth, middle tooth very small; inner part of outer lip swollen, small, crenulated, with one tooth).

Characteristics:[1] After personal examination, the lectotype (Krijnen et al., 2010: 132-134) is described as follows: globular shell with a sharp and pointed apex, a yellow protoconch and fine ribs with small interstices. At the edge of the outer lip, about 30 ribs can be counted. On the lower half of the final whorl the ribs diminish in size and finally disappear. Whorls ochre with three black bands, each of which is covering about 3 to 4 ribs, and which are interconnected by black spots. Columellar lip with 3 teeth, the first and second one from the top pointed and almost equal in size and the third, lowest one clearly smaller. No cubed tooth. Columellar area flattened and with 8 to 9 wrinkles, the so-called ruff, which touch the columellar teeth and become smaller towards the base. Below the axil a moderately strong callus that extends till above the upper columellar tooth is present. The axil points towards the apex, in contrast to *N. undata* Linné, 1758 where clearly points into a direction passing under the apex (for more differences, see Table 1). Note that the ribs start to form behind the upper half of the 8 to 9 wrinkles of the ruff, whereas behind the lower half of the ruff the whorls are almost smooth. In the upper inner part of the outer lip there are two teeth, the lowest ofwhich is the larger, downwards followed by about 14 crenations. The outer lip is sharp. The white callus inside the outer lip does not extend to the edge of it, which indicates that this lectotype is a subadult specimen. However, apart from this and the fact that adult specimens have a more wrinkled parietal area, this lectotype exhibits all characteristics of an adult specimen.

Note that the description and characteristics of *N. trifasciata* given here fully fit the current view of *N. spengleriana* as described by e.g. Von Martens (1887) (see below). The latter is thus a junior synonym of *N. trifasciata* as will be discussed below.

Comparison: At first sight *N. trifasciata* can be confused with *N. undata*, which has the same area of distribution, and *N. quadricolor*, which occurs on the east coast of Africa. Therefore, a comparison between these three species is made in Table 1.

Nerita trifasciata Le Guillou, 1841	*Nerita undata* Linné, 1758	*Nerita quadricolor* Gmelin, 1791
1. Habitus varies from globose to more elongated.	**1.** Habitus globose.	**1.** Habitus varies from globose to more elongated.
2. No pairing of ribs, secondary ribs only on upper half of last body whorl	**2.** Primary and secondary ribs pairing on last body whorl	**2.** No pairing of ribs, secondary ribs only on upper half of last body whorl
3a. Ribs getting smaller towards base.	**3.** Ribs hardly getting smaller towards base.	**3a.** Ribs getting smaller towards base.
3b. Presence of ribs varies from prominent to hardly visible.		**3b.** Presence of ribs always prominent.
4. Upper tooth on columella not cubed.	**4.** Upper tooth on columella cubed.	**4.** Upper tooth on columella not cubed.
5. Parietal area swollen.	**5.** Parietal area slightly swollen.	**5.** Parietal area flat.
6. Projection of axil pointing out to apex.	**6.** Projection of axil pointing out below apex.	**6.** Projection of axil pointing out to apex.
7. Pustulous callosity on base of apophysis.	**7.** No pustulous callosity on base of apophysis.	**7.** Pustulous callosity on base of apophysis.
8. Occurrence: Indonesian Archipelago and Philippines; and east of Fiji Islands, occasionally sympatric with *N. undata*.	**8.** Occurrence: Indonesian Archipelago and Philippines; occasionally sympatric with *N. trifasciata*.	**8.** Occurrence: Eastern Africa, from south of Red Sea to South Africa.

Table 1: Differences between three related species: *N. trifasciata, N. undata* and *N. quadricolor*

[1] For an overview of morphological terms, see appendix I.

Measurements:

Lectotype: h x w x d: 22,19 x 21,23 x 12,94 mm. (see plate 1) according to Fig. 2a,b.

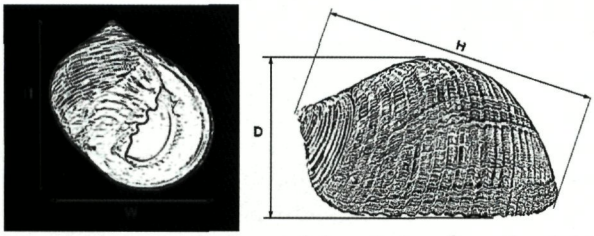


Fig. 2a-b: Ventral view and dorsal view from the right. H = height; W = width; D = depth

Studied material: Up to 39 x 36 mm.

Distribution: See Fig. 3.

Fig. 3: Distribution of *N. trifasciata* Le Guillou, 1841. The numbers in the figure refer to the specimens on plate 2 to 4, e.g. nr. 21 means plate 2, fig. 1

Remarks: The syntypes in MNHN in fact represent two different species. The syntype Moll. 23295 was selected as the lectotype of *N. trifasciata* (see plate 1). The other two syntypes in Moll. 23294, represent *N. undulata* Gmelin, 1791 (Krijnen et al., 2010: 132-134).

Discussion of synonyms and related species

In this section, true synonyms of *N. trifasciata* or (putative) species related to *N. spengleriana* (and thus to *N. trifasciata*) are discussed.

Nerita aurantia Récluz, 1842

Fig. 4a-b: Holotype of *N. aurantia* Récluz, 1842. Pictures by R. Vink

Original description: Récluz, 1842. Revue Zool.: 73, sp. 53.
Type material: "Longueur, 22 millim., larg., 27 millim." (Récluz) (holotype).
Type locality: "Les Philippines" (Récluz) (holotype).
Type depository: MHNG 15040 (1297/2) (holotype).

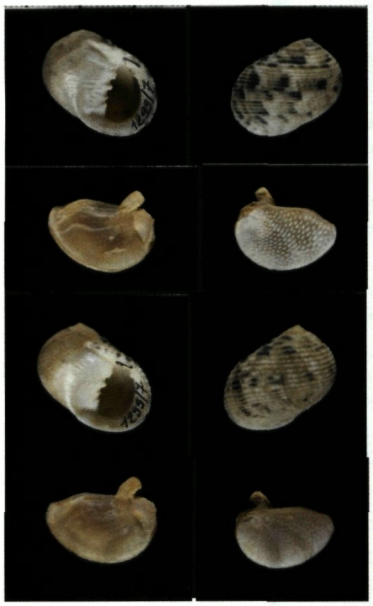
Discussion: Récluz described *N. aurantia* as follows: "*Testa semiglobosa, acuta, sulcata; sulcis 35, superioribus latioribus inferioribus angustis, luteo-aurantia, flammis cinereis obsoletes undulatisque picta; spira prominula, conico-acuta, dense et minitissime granulata; apertura lactea; labio convexiusculo rugoso ae tridentatao; labro intus incrassato, sulcato, bidentato.*". (trans.: "Body whorl semiglobose, sharp apex, with 35 ribs, near suture interstices of ribs broader than at base, with obsolete golden yellowish undulating spots; well-developed sharp spire with many small granules; white aperture; parietal shield wrinkled and slighty convex, columella with three teeth; rim of outer lip totally crenated, inside outer lip crenulated with two teeth in upper part.").

Récluz (1842: 73) remarked that this nerite is closely related to *N. quadricolor* Gmelin, 1791. Mienis (1973: 72) also noticed that *N. quadricolor* and *N. trifasciata* have a lot in common.

The holotype of *N. aurantia* was also figured by Martens (1887: pl. 7, fig. 2-3), who erroneously synonymised *N. aurantia* with *Nerita striata* Burrow, 1815. Although the taxonomical status of *N. striata* is yet unclear, it is certainly not *N. trifasciata*.

The holotype was examined by us. The characteristics of the holotype correspond with *Nerita trifasciata* Le Guillou, 1841. On the upper half of the last body whorl conspicuous ribs are present. Some secondary ribs are visible near the suture. On the lower half of the final whorl the ribs diminish in size, typical of *N. trifasciata*. The features in the aperture also fully correspond with *N. trifasciata*. Although *N. aurantia* has a very unusual colour, we synonymise this taxon with *N. trifasciata*. The holotype was measured according to height and width in fig. 2a. Height: 26.5 mm.; width: 26.2 mm.

Nerita radiata Récluz, 1841



From top to bottom:
Fig. 5a-d: Syntype MHNG 15279-1 (1299/7-1). Pictures by Y. Finet
Fig. 6a-d: Syntype MHNG 15279-2 (1299/7-2). Pictures by Y. Finet

Original description: Récluz, 1841. Revue Zool.: 149-150, sp. 14.
Type material: "Largeur, 23 mill. Longeur 20 mill." (Récluz).
Type locality: Unknown.
Type depository: MHNG 15279 (1299/7) (2 questionable syntypes).
Measurements: MHNG 15279-1 (1299/7-1): h x w: 19.5 x 20.3 mm.; MHNG 15279-2 (1299/7-2): h x w: 19.6 x 20.8 mm.

Discussion: Two questionable syntypes in MHNG, h x w: 23 x 20 mm. (Kabat & Finet, 1992: 243; Dekker, 2000: 59 and pl. 2, fig. 9a,b).

Récluz described *N. radiata* as follows: "*Testa globoso-acuta, sub epidermide lutescente albida, nigro late radiata, transversim sulcata; spira brevi, exsertiuscula, lutea, acuta; apertura alba, in fundo lutea; labio plano, concavo, laevi, margine dentibus 3 inequalibus; labro acuto, integro, intus calloso, obsolete sulcato, superne unidentato.*" (transl.: Shell globular, pointed, ground colour yellowish white, with a broad black radial pattern, transversely grooved; spira short, a little exserted, yellow and pointed; aperture white, inside yellow; parietal shield flat, concave, smooth, margin with three unequal teeth; outer lip sharp, smooth, thickened with callus within and indistinctly grooved with one apical tooth.).

Récluz compared the exterior of *N. radiata* with *Nerita versicolor* Gmelin, 1791 and *Nerita plicata* Linné, 1758. From this comparison we get a better understanding of the columellar teeth of *N. radiata*. The upper columellar tooth is cubed, the second one is smaller and more pointed and the lowest one is not very distinct and also pointed ('*...la première est plane, large et tronquée, la deuxième plus petite et subaiguë; la troisième obsolète et pointuë...*'). Moreover, *N. radiata* lacks the convex columella ('*...ouverture non grimaçante...*') that is characteristic of *N. versicolor* and *N. plicata*. Syntype 1299/7-2 fits Récluz' description best.

In 1841 the type locality was unknown, in 1850 Récluz (p. 282) added 'Mer Rouge'. Von Martens (1889: 115) wrote that he could not find the syntypes in MHNG ('*Unter den Recluz'schen Neriten im Genfer Museum konnte ich sie nicht ausfindig machen*'). Kabat & Finet (1992: 243) and Dekker (2000: 59) both noticed the doubtful locality on the label of the two syntypes ("Amboine"), which was added afterwards.

Examination of these questionable syntypes in MHNG (Oct. 2005) revealed that they are juveniles due to their size and rather smooth parietal shields. Both opercula were investigated. At our request mr. Finet (curator MHNG) separated the operculum of syntype 1299/7-1. In 2000, this operculum was still fixed in the aperture (Dekker, 2000: fig. 9b, plate 2). At the base of the apophysis on the inner side of the operculum of syntype 1299/7-2, the pustulous callosity is missing (Krijnen, 1997: 17). Thus the syntype 1299/7-2 is an *undata*-like species and it is not *N. trifasciata* nor *N. quadricolor*. The other syntype (1299/7-1) has columellar teeth more corresponding to the columellar teeth of *N. quadricolor* or *N. trifasciata*. The pustulous callosity is moderately developed. In our opinion these two questionable syntypes therefore represent two different species.

At present, it remains unclear to us which species was meant by Récluz. Although we do not know which species was meant by *N. radiata*, we definitely know that it is not *N. trifasciata*.

Nerita spengleriana Récluz, 1843

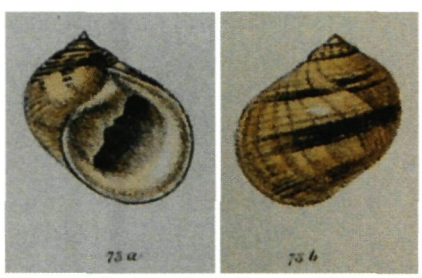


Fig. 7a-b: *N. spengleriana* from Reeve, 1855: pl. XVII, figs. 73a, b. First drawings after Récluz described this species

Original description: Récluz, 1843. Proc. Zool. Soc. London. Vol XI: 201, sp. 11.
Type material: "Long. 16 mill. ; larg. 18 mill.; convex. 12 mill. *Ouverture ext.*: long. 14 mill.; larg. 12 mill. *Spire*, haut. 5 mill.".
Type locality: "Ilo-Ilo, isle of Panay ; under stones at low water" (Récluz).
Type depository: Unknown.

Discussion: Récluz (1843: 201) described the species as follows: "*Ner. testa orbiculato-conicá, transversim laevissimè sulcatá; sulcis basi obsoletes, albidá, nigro-zonatá; spirá conico-acutá, lutescente, nigro-punctatá, sulcis profundioribus; labio albo, laevigato, margine subbidentato; labro intùs incrassato, laevissimo. Operculum pallidè fuscum, tenuissimè granulosum, subtùs pallidè rufum. Dente apicali obsolete, infimo arcuato, transversim substriato, posticè superficie dilatatá et truncatá.*"(trans.: Shell spherical to conical, transversely with slightly incised grooves; grooves hardly visible at base, with black and white bands; sharp conical spire, yellowish with black spots, with originating grooves; white columellar area, smooth, with two small teeth at margin; outer lip crenulated with smooth rim. Operculum pallid dark brown, totally granulated on a pallid brown surface. Apical tooth[2] obscure, the lowest one[3] roundish, transversely a little striated, backwards superficially dilated and truncated.).

There are several reasons to examine the taxonomical status of *N. spengleriana*. We believe that Récluz' description was based on a juvenile specimen. That explains why he did not mention the occurrence of the two teeth on the upper part inside the outer lip. Reeve's figures do not show this feature either. The measurements refer to a small shell whereas in an adult state the size of *N. spengleriana* can easily be more than 30 mm in length. Récluz mentioned a smooth columellar area as a characteristic feature while adult specimens have a heavily wrinkled columellar area. Adult specimens also have conspicuous teeth on the columella, the second one of which is the largest. All in all Récluz' description does not fit the current understanding of *N. spengleriana*. Yet, Récluz's description is in accordance with Reeve's figures 7a,b on plate XVII, published afterwards in 1855.

After Récluz and Reeve, several authors illustrated *N. spengleriana*. Martens (1887) described and showed specimens that agree more with the current view on *N. spengleriana*. In his description of the species (p. 40) he mentioned all the important features we nowadays use to distinguish *N. spengleriana* from e.g. *N. undata* Linné, 1758. Apparently Martens (1887: 40) used a growth series to connect Récluz' description (based on a juvenile specimen) to adult specimens. For some reason, however, Martens' accurate work did not prevent that nowadays a lot of confusion about the taxonomical status of this species still exists. This even remained after Mienis (1977: 71-72) had correctly distinguished *N. quadricolor* Gmelin, 1791 from *N. undata* and noted that *N. quadricolor* resembles *N. spengleriana* more, an opinion we share. Mienis also noted that in modern literature the taxon *N. undata* is often used for *N. quadricolor* (1978: 762), a problem we still meet today with regard to *N. spengleriana*. Based on Lamarck's view on *N. undata* (Lamarck, 1816: pl. 454, figs. 6a-b and Mermod, 1953: 157-159, fig. 171), we found that the taxon *N. spengleriana* is used for *N. undata* in Japanese literature (e.g. Tsuchiya (2000: pl. 51, fig. 5)).

Note that the current view on *N. spengleriana*, as e.g. described and illustrated by Von Martens (1887), completely fits the description of *N. trifasciata* that was given above. We therefore replace the taxon *N. spengleriana* Récluz, 1843 by the older taxon *N. trifasciata* Le Guillou, 1841 in order to end the above-mentioned taxonomical confusion (thereby applying ICZN art. 23.1 and 23.2, see Appendix II).

Nerita oleagina Reeve, 1855

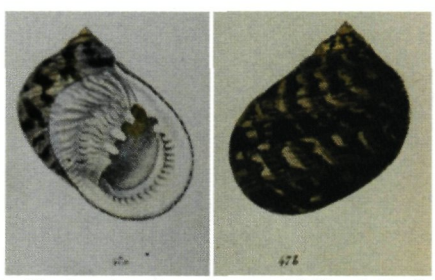


Fig. 8a-b: *N. oleagina* from Reeve, 1855: pl. X, figs. 47a, b

Original description: Reeve, 1855. Conch. Icon. - *Nerita*: sp. 47, figs. 47a-b.
Type material: Not given.
Type locality: Unknown.
Type depository: 3 syntypes in BNHM (no. 1975610), labelled "*marmorata* Hom & Jacq." on piece of paper. The hardboard reads "types of *oleagina* Rve" and "Solomon Is." (written in pencil).

Fig. 9: Putative type-material of *N. oleagina* in BNHM. Picture by A. Delsaerdt

[2] = pseudo-apophyse? Not clear from description.
[3] = apophyse? Not clear from description

Characteristics: Reeve described the species as follows: "*Ner. testá ovato-globosá, spirá exsertá, mucronatá, anfractibus convexis, spiraliter elevato-striatis, labro intus incrassato, vix crenulato, dente unico laterali, columellá convexiusculá, promiscuè verrucoso-corrugatá, fortiter dentate; nigricante-olivaceá, interdum nigro-fasciatá, maculis albidis undatis nigro-umbratis oblique variegatá.*". He translated the Latin description: "*Shell ovately globose, spire exserted, pointed, whorls convex, spirally elevately striated, lip thickened inwardly, scarcely crenulated, with a single lateral tooth, columella rather convex, promiscuously wart-wrinkled, strongly toothed; blackish-olive, sometimes banded with black, obliquely mottled with black-shaded waved white spots*".

N. oleagina has a smooth or slightly incised last whorl, usually with a beautiful cloudy pattern. All other characteristics are the same as in *Nerita trifasciata* Le Guillou, 1841. Strongly ribbed specimens have not been found on Malaita (Solomon Islands: the type locality of *N. oleagina*); smooth to ribbed specimens are known from three locations (Madura Island, northeastern Java; Bira, Sulawesi and Panimbang, West Java). We formerly regarded *N. oleagina* as a subspecies of *N. spengleriana* (= *N. trifasciata*) because only smooth specimens occur in the Solomon Islands (Krijnen et al, 2001: 41; Delsaerdt, 1996: 39-40). Others consider *N. oleagina* as a valid species due to its smooth bodywhorl. Due to the sympatric occurence of smooth to ribbed specimens at the abovementioned three locations, we now think that *N. oleagina* is a variety of *N. trifasciata*. Further research (e.g. DNA analysis) will reveal the correct status of the taxon *N. oleagina*.

In our opinion the type material in BNHM sufficiently corresponds with the figures in Reeve (see Fig. 8a-b). We noticed the differences inside the outer lip between the figures in Reeve and the type material. We also noticed that although the figures in Reeve obviously show teeth and crenulations inside the outer lip, Reeve did not mention these characteristics in his description of *N. oleagina*. In descriptions of other species, Reeve also omitted these characteristics (e.g. the description of *N. plexa* (sp. 12, figs. 12a-b = syn. of *N. textilis*)).

On the piece of paper with the type material in BNHM, someone wrote "*marmorata* Hom & Jacq.". Although the whereabouts of the type material of Hombron & Jacquinot are unknown, the pictures (see Fig. 10a-c) accompanying this description are very accurate. These pictures do not match the specimens shown in Fig. 9.

Measurements studied material: Up to 37 x 36 mm. (h x w).

Distribution: Solomon Islands; Madura Isl., N.E. Java; Panimbang, West Java; Bira, Sulawesi.

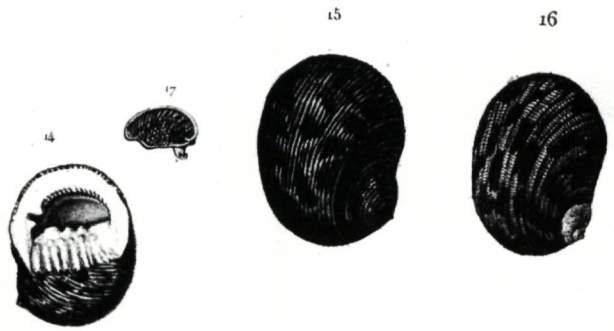
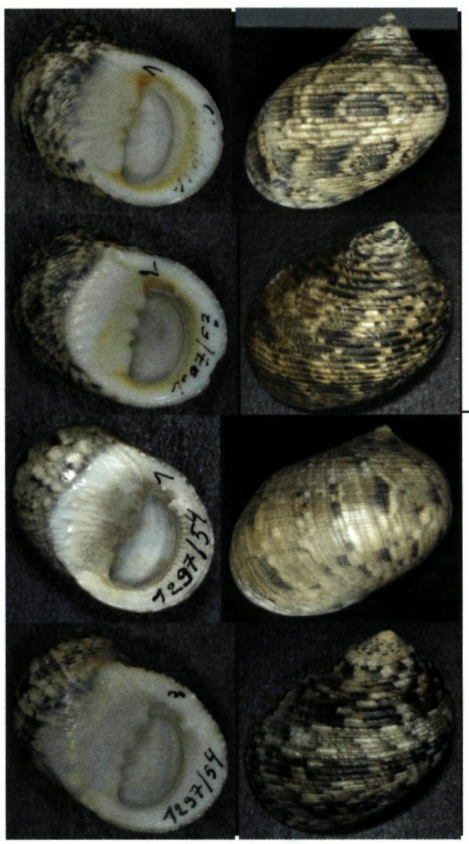


Fig. 10a-c: *N.marmorata* from Hombron et Jacquinot, 1854: pl. 16, figs.14-17

Nerita chrysostoma Récluz, 1841



← 1297/53
(2 possible syntypes)

← 1297/54
(3 questionable syntypes).

1297/54 (1) first row

1297/54 (3) second row

1297/54 (2) not shown here.

Fig. 11a-b: Syntype MHNG 1297/53-1.
Fig. 12a-b: Syntype MHNG 1297/53-2.
Fig. 13a-b: Syntype MHNG 1297/54-1.
Fig 14a-b: Syntype MHNG 1297/54-3.
(All pictures by R. Vink)

Original description: Récluz, 1841. Revue Zool.: 104-105, sp. 4.
Type material : "Longueur 31 millim., largeur 38 millim." (Récluz).
Type locality : "Les îles Philippines." (Récluz).
Type depository : MHNG 1297/53 (2 syntypes), 1297/54 (3 syntypes).

Discussion: Récluz described *N. chrysostoma* as follows: "*N. testa ovato subglobosa, transversim sulcata, luteo-fulva nigro varia seu interdum subtifasciata, spira prominula, apice lutea; aperture ovate, flava; labio tridentato, superne incrassato, rugoso, labro subprolongato, intus tenue superne bidentata.*" (trans.: Body whorl more elongated, with ribs, with dark yellowish and black spots sometimes forming bands, obvious spire, yellow apex; yellow, oval aperture; with three columellar teeth, with folded and calloused parietal shield; outer lip somewhat extended, inside outer lip with two small apical teeth."). In our opinion, Récluz' description is based on type material 1297/53 because of the yellow coloured aperture.

The three specimens of type material 1297/54 belong to *N. trifasciata* Le Guillou, 1841. The original label stating "*Bombay, Philippines*", is in fact ambiguous in. Bombay must be an error because *N. trifasciata* does not occur on the western coasts of India. By the absence of the yellow aperture and the obvious apical teeth inside the outer lip, Récluz' description does not correspond with this type material.

Taxonomical remarks: *N. chrysostoma* Karsten, 1789 is not valid (rejected work, Opinion 1877); *N. chrysostoma* Röding, 1798 (p. 18, No. 25) is a nomen nudum.

We are currently still investigating the true taxonomic status of *N. chrysostoma* Récluz, 1841. These results will be published elsewhere.

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APPENDIX I

The following morphological terms for the shell are used:

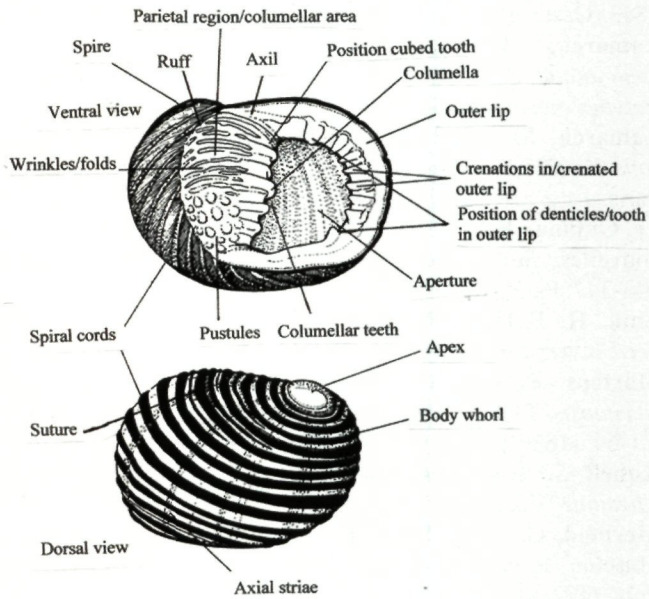


Fig 15: Morphological terms for the shell
(Free from: Hill, 1977)

APPENDIX II

Art. 23.1. Statement of the Principle of Priority. The valid name of a taxon is the oldest available name applied to it, unless that name has been invalidated or another name is given precedence by any provision of the Code or by any ruling of the Commission. For this reason priority applies to the validity of synonyms, to the relative precedence of homonyms, the correctness or otherwise of spellings, and to the validity of nomenclatural acts (such as acts taken under the Principle of the First Reviser and the fixation of name-bearing types).

Art. 23.2. Purpose. In accordance with the objects of the Code, the Principle of Priority is to be used to promote stability and it is not intended to be used to upset a long-accepted name in its accustomed meaning by the introduction of a name that is its senior synonym or homonym, or through an action taken following the discovery of a prior and hitherto unrecognized nomenclatural act (such as a prior type fixation).

On plates 1 to 5 the measurements are taken as follows:

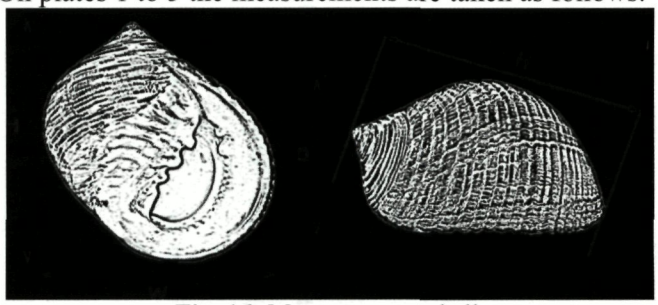


Fig. 16: Measurements shell

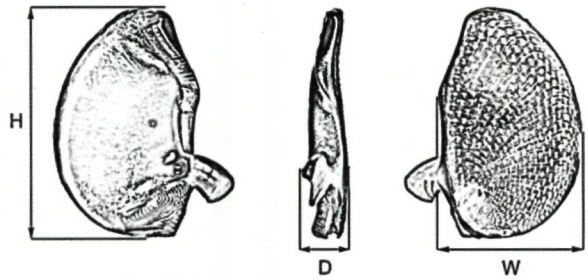
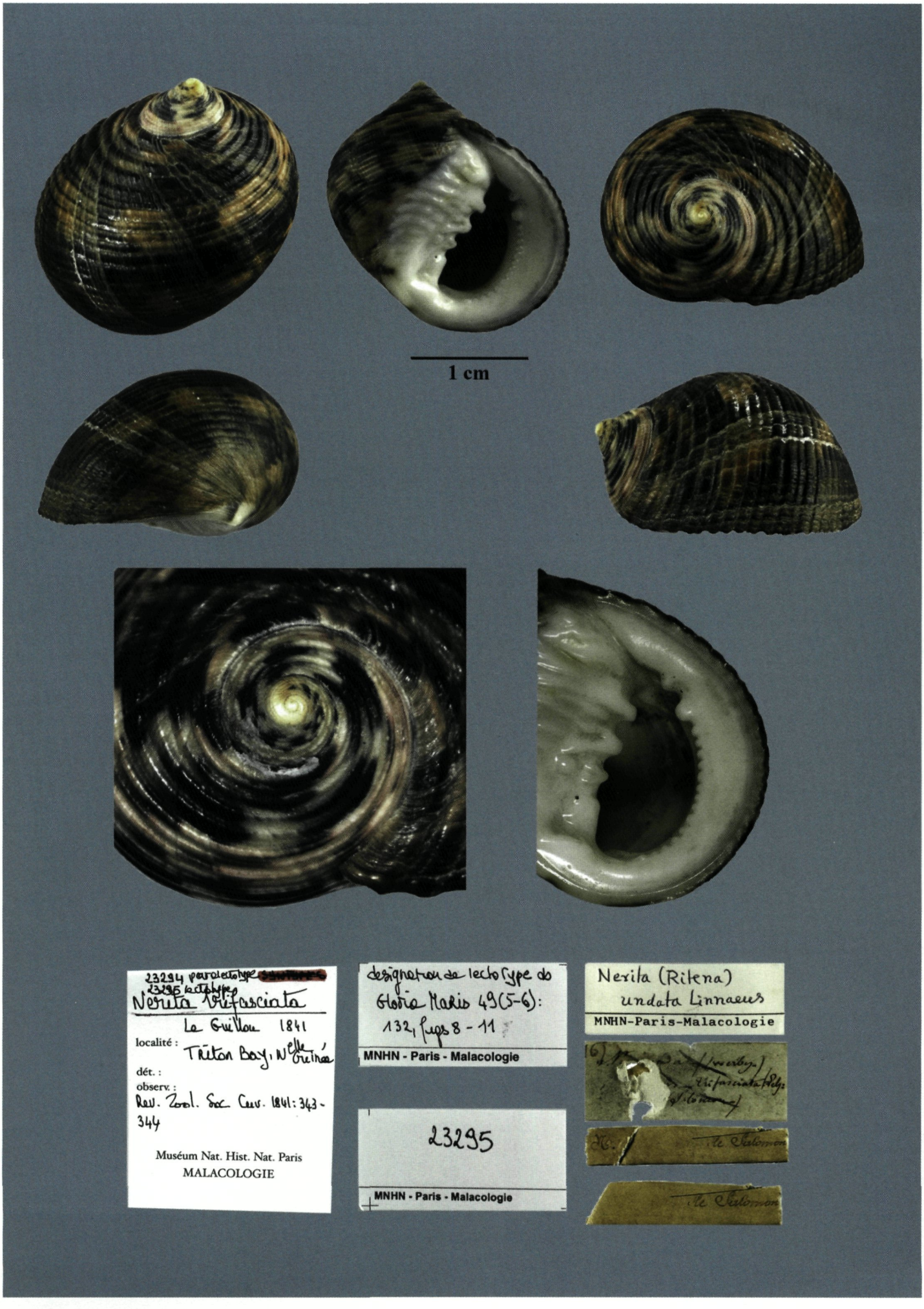


Fig. 17: Measurements operculum

PLATE 1

Nerita trifasciata Le Guillou, 1841

Original description: Le Guillou, 1841. Revue Zool.: 343-344, sp. 1.
Type material: "Long. 26 m., larg.. 17 m." (Le Guillou).
Type locality: "Triton-Bay (Nouvelle-Guinée)." (Le Guillou).
Type depository: MNHN n° Moll. 23295 (lectotype).
Measurements lectotype: h x w x d: 22,19 x 21,23 x 12,94 mm



23294 paralectotype
23295 lectotype
Nerita bifasciata
Le Guillou 1841
localité : Triton Bay, Nelle Guinée
dét. :
observ. :
Rev. Zool. Soc. Cuv. 1841: 343-344

Muséum Nat. Hist. Nat. Paris
MALACOLOGIE

designation de lectotype de
Gloria Maris 49(5-6):
132, figs 8 - 11

MNHN - Paris - Malacologie

23295

MNHN - Paris - Malacologie

Nerita (Ritena)
undata Linnaeus

MNHN-Paris-Malacologie

PLATE 2

Plate	Number	Locality + habitat	Collection	Measurements	Ref. in Fig. 3
2	1a to 1d	Okinawa, Japan.	Ch. Krijnen	Shell: 1a/b H: 26,4 mm 1 a/b W: 27,45 mm 1 a/b D: 15,48 mm Shell: 1 c/d H: 22,62 mm 1 c/d W: 22,69 mm 1 c/d D: 14,39 mm	No. 21
2	2a to 2b	Samar, Philippines, Collected by local people. 2011.	Ch. Krijnen	Shell: 2 a/b H: 33,15 mm 2 a/b W: 33,41 mm 2 a/b D: 21,31 mm	No. 22
2	3a to 3g	Bohol, Philippines. Bought by D, Sharpe from local fishermen. Spring 2008.	Ch. Krijnen	Shell: 3 a/b H: 26,40 mm 3 a/b W: 27,55 mm 3 a/b D: 17,50 mm Shell: 3 c/d H: 38,26 mm 3 c/d W: 37,77 mm 3 c/d D: 23,94 mm Operculum: 3e H: 18,40 mm 3e W: 13,58 mm 3f D: 5,06 mm	No. 23
2	4a to 4e	Davao Bay, Mindanao Island, Philippines. Nov. 2010.	Ch. Krijnen	Shell: 4 a/b H: 29,78 mm 4 a/b W: 28,65 mm 4 a/b D: 17,98 mm Operculum: 4c H: 13,16 mm 4c W: 8,09 mm 4d D: 2,40 mm	No. 24
2	5a to 5e	Bunaken, North Sulawesi, Indonesia. On rocks, supralittoral, near mangroves. Leg. R.Meijer, Aug, 1996.	Ch. Krijnen	Shell: 5 a/b H: 32,37 mm 5 a/b W: 33,88 mm 5 a/b D: 21,73 mm Operculum: 5c H: 15,95 mm 5c W: 10,56 mm 5d D: 3,84 mm	No. 25

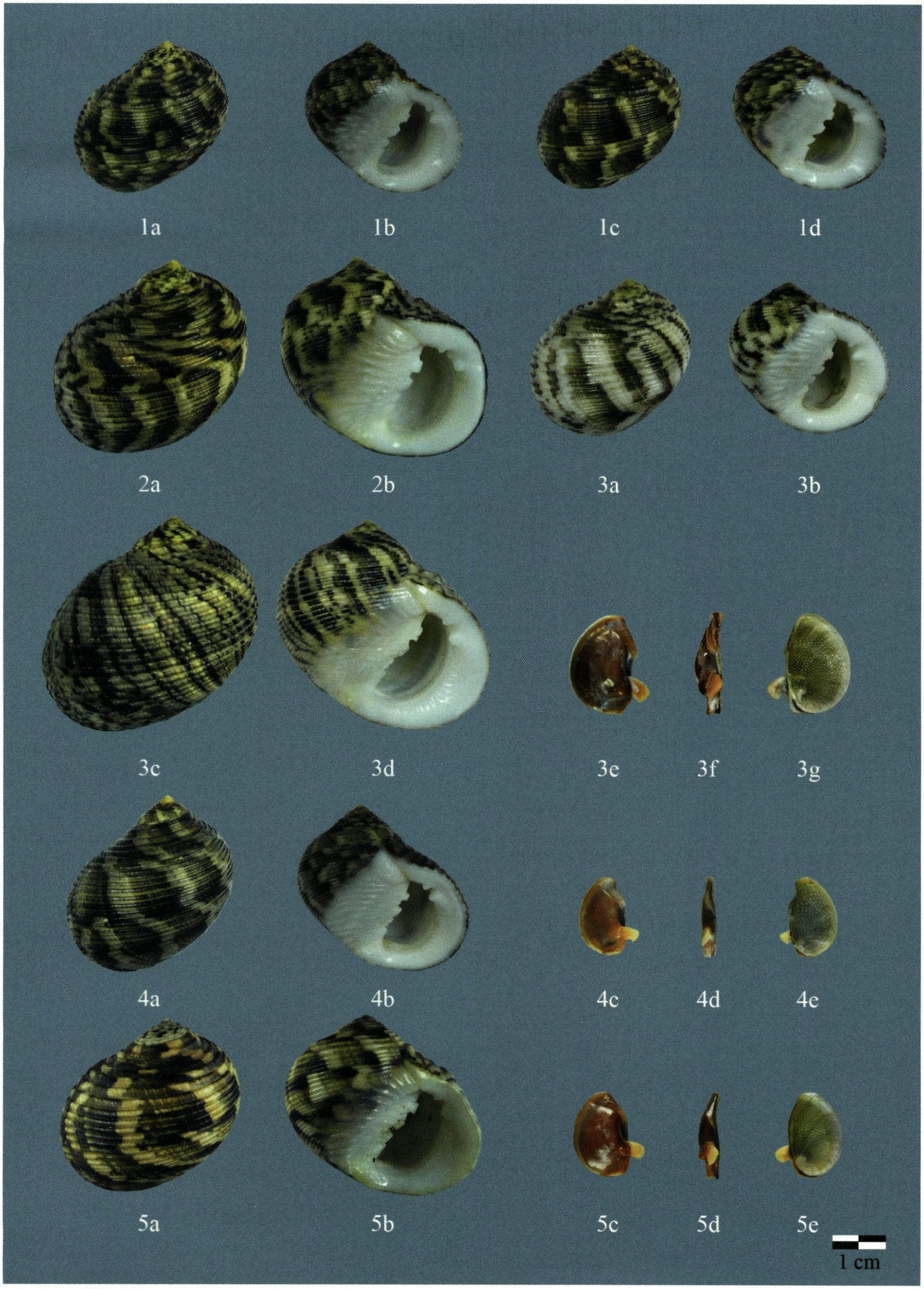

1a
1b
1c
1d
2a
2b
3a
3b
3c
3d
3e
3f
3g
4a
4b
4c
4d
4e
5a
5b
5c
5d
5e
1 cm

PLATE 3

Plate	Number	Locality + habitat	Collection	Measurements	Ref. in Fig. 3
3	1a to 1e	Station 2005-008. Near desa Dulah Islam, Pulau Dulah, Kepulauan Kei, Laut Banda, Maluku Tenggara, Maluku, Moluccas, Indonesia. S 05°32'32.5"; E 132°44'55.5". Leg. C. Heij, J. Post, R. Vink, 22-04-2005.	Ch. Krijnen	1 a/b H: 32,73 mm 1 a/b W: 33,43 mm 1 a/b D: 20,35 mm Operculum: 4c H: 15,18 mm 4c W: 9,83 mm 4d D: 3,45 mm	No. 31
3	2a to 2e	Station 4. Bira Beach, Bira, South Sulawesi province, Sulawesi, Indonesia. S 05°36'42"; E 120°27'11". On cliffs, rocks. Leg. B. Gras, W. Regter, 29-12-2009.	B. Gras	Shell: 2 a/b H: 28,00 mm 2 a/b W: 26,21 mm 2 a/b D: 14,38 mm Operculum: 2c H: 13,63 mm 2c W: 8,67 mm 2d D: 1,50 mm	No. 32
3	3a to 3e	Panimbang, West Java province, Java, Indonesia. Collected at low tide, 1-3 m. depth. Aug. 2011. Via D. Margareta,Muare Angke,Jakarta, Indonesia.	B. Gras	Shell: 3a/b H: 28,94 mm 3 a/b W: 29,31 mm 3 a/b D: 17,83 mm Operculum: 3c H: 13,77 mm 3c W: 8,59 mm 3d D: 2,74 mm	No. 33
3	4a to 4e	Panimbang, West Java province, Java, Indonesia. Collected at low tide, 1-3 m. depth. Aug. 2011. Via D. Margareta,Muare Angke,Jakarta, Indonesia.	Ch. Krijnen	Shell: 4a/b H: 26,85 mm 4 a/b W: 27,25 mm 4 a/b D: 16,50 mm Operculum: 4c H: 13,25 mm 4c W: 8,79 mm 4d D: 1,81 mm	No. 34
3	5a to 5e	Biak Island, West Irian Jaya. Intertidal on rocks in reef area. Oct. 2002.	Ch. Krijnen	Shell: 5a/b H: 25,36 mm 5 a/b W: 24,10 mm 5 a/b D: 14,84 mm Operculum: 5c H: 12,26 mm 5c W: 8,10 mm 5d D: 1,90 mm	No. 35

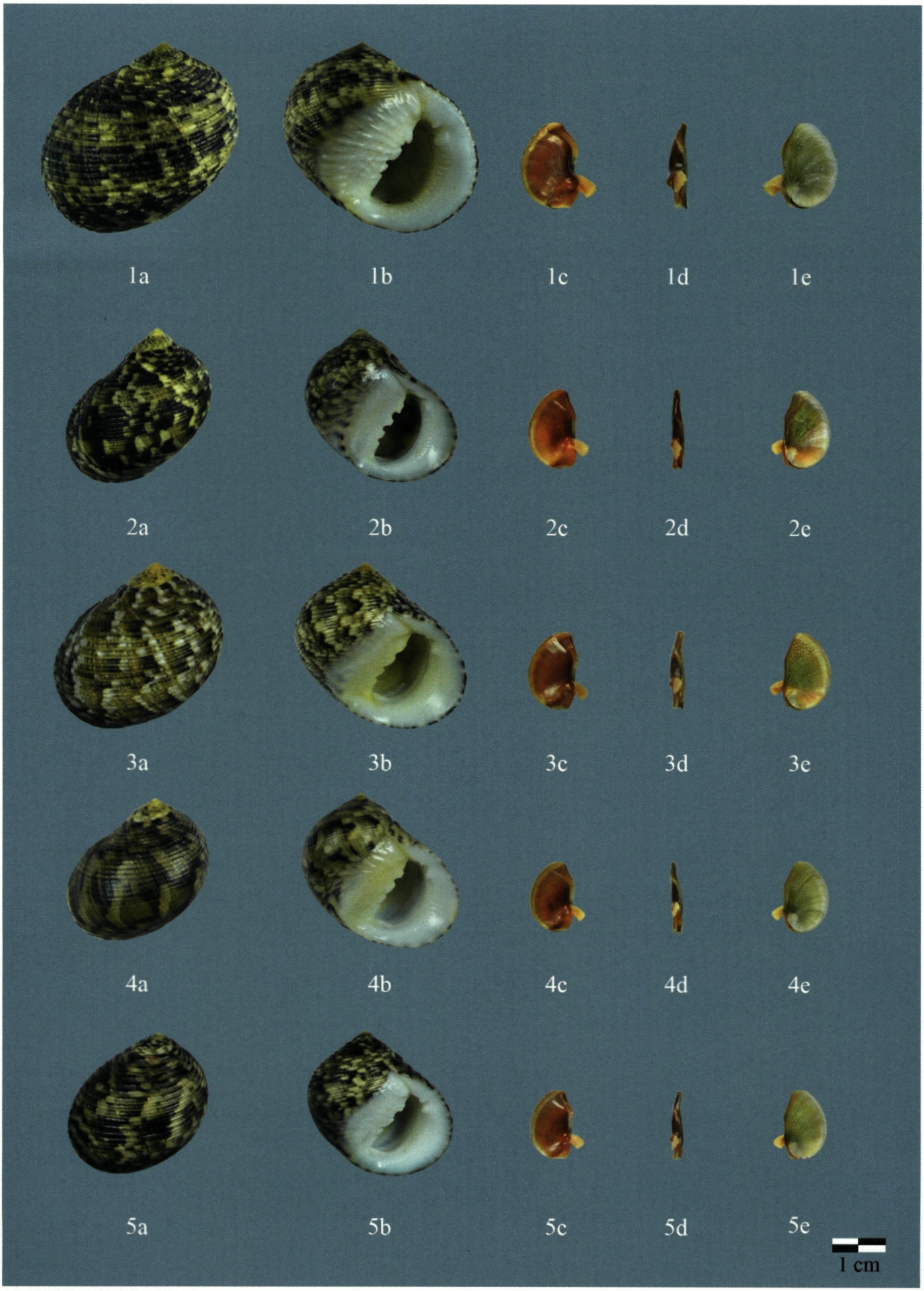
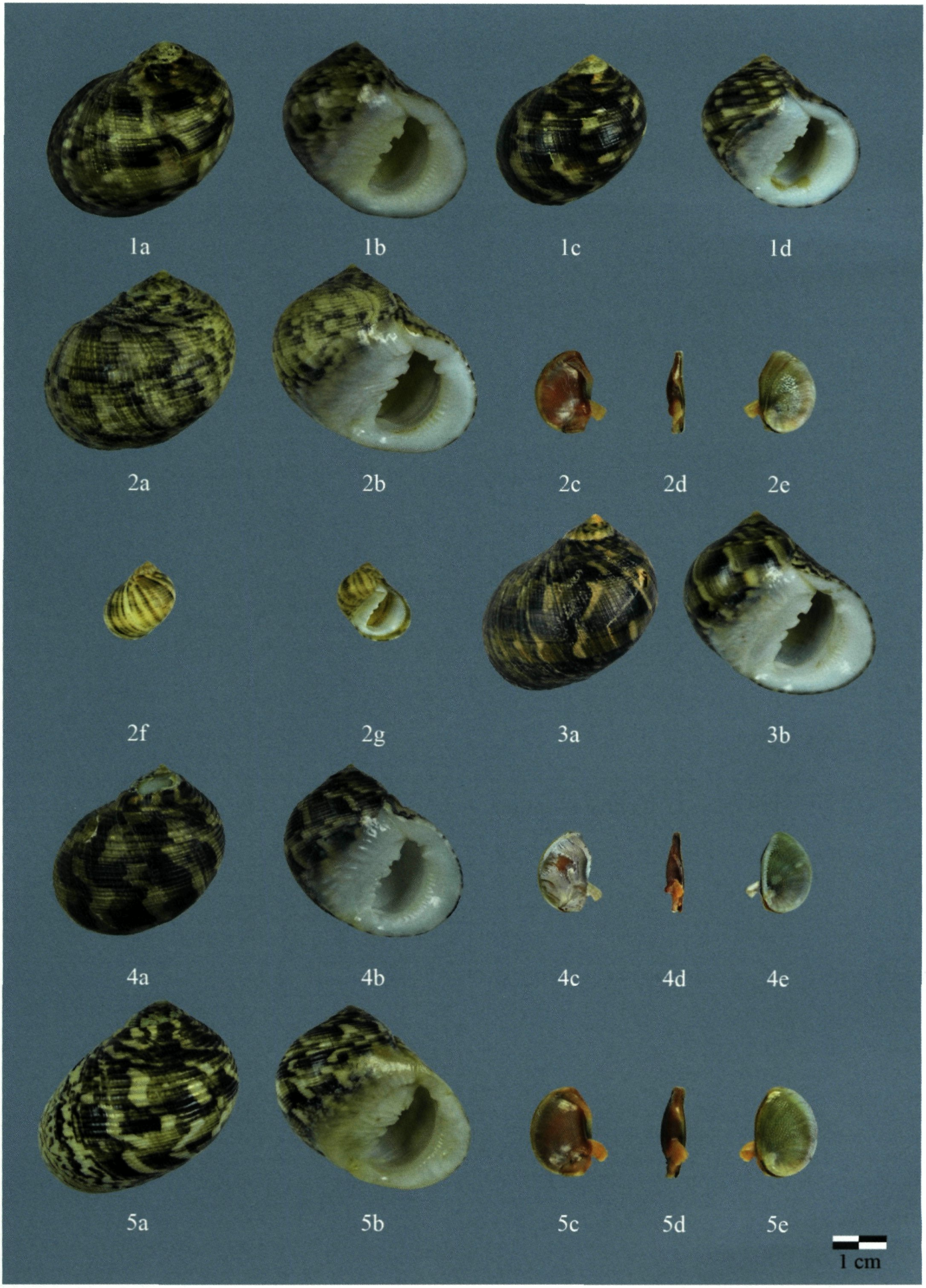

1a
1b
1c
1d
1e
2a
2b
2c
2d
2e
3a
3b
3c
3d
3e
4a
4b
4c
4d
4e
5a
5b
5c
5d
5e
1 cm

PLATE 4

Plate	Number	Locality + habitat	Collection	Measurements	Ref. in Fig. 3
4	1a to 1d	Kuta, Bali, Indonesia. Mar. 2000.	Ch. Krijnen	Shell: 1a/b H: 31,81 mm 1 a/b W: 32,03 mm 1 a/b D: 18,76 mm Shell: 1 c/d H: 26,39 mm 1 c/d W: 25,99 mm 1 c/d D: 15,79 mm	No. 41
4	2a to 2g	Near Tannah Lot temple, southwest Bali, Indonesia. On rocks. Leg. U. Begemann, Mar. 2007.	Ch. Krijnen	Shell: 2a/b H: 29,67 mm 2 a/b W: 33,65 mm 2 a/b D: 20,91 mm Operculum: 2c H: 15,58 mm 2c W: 10,45 mm 2d D: 3,29 mm Shell: 2 f/g H: 14,54 mm 2 f/g W: 13,69 mm 2 f/g D: 8,14 mm	No. 42
4	3a to 3b	Madura Island, off northeastern coast of Java, Indonesia.	Ch. Krijnen	Shell: 3a/b H: 33,74 mm 3 a/b W: 33,10 mm 3 a/b D: 20,13 mm	No. 43
4	4a to 4e	Station 41. Dusum Mumes, Mayalibit Bay, Waigeo Island, district Waigeo, Irian Jaya, Indonesia. S 00°21'05"; E 130°58'36". Leg. B. Gras, W. Regter, R. Vink, 01-02-2004.	Ch. Krijnen	Shell: 4a/b H: 31,08 mm 4 a/b W: 30,83 mm 4 a/b D: 19,43 mm Operculum: 4c H: 14,33 mm 4c W: 9,19 mm 4d D: 2,73 mm	No. 44
4	5a to 5e	Station 2004-010. ±14.8 km southwest of Waigo Hotel, Pulau Matan, district Sorong, Selat Dampier, Papua Barat, Indonesia. S 00°57'22.5"; E 131°08'49.6". Leg. B. Gras, W. Regter, K. Tindige, R. Vink, 20-01-2004.	Ch. Krijnen	Shell: 5a/b H: 32,94 mm 5 a/b W: 35,09 mm 5 a/b D: 21,10 mm Operculum: 5c H: 16,55 mm 5c W: 11,31 mm 5d D: 3,64 mm	No. 45


1a
1b
1c
1d
2a
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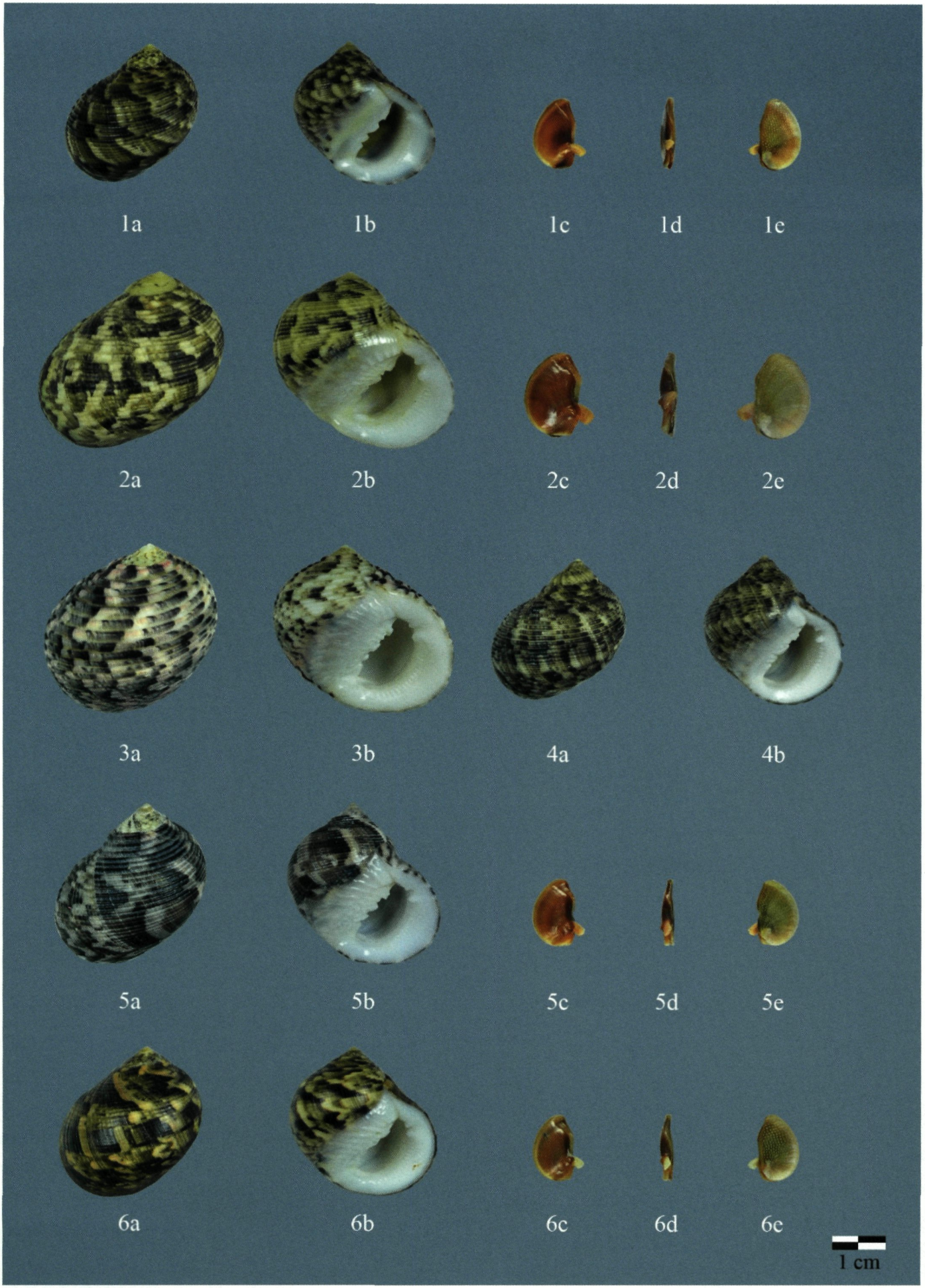
2c
2d
2e
2f
2g
3a
3b
4a
4b
4c
4d
4e
5a
5b
5c
5d
5e
1 cm

PLATE 5

Plate	Number	Locality + habitat	Collection	Measurements	Ref. in Fig. 3
5	1a to 1e	Western Kai-Tanimbar Islands, Kai Islands group in Arafura Sea, Eastern Indonesia. S 6°01'08"; E 132°25' 58". On exposed rocks at low tide.	Ch. Krijnen	Shell: 1a/b H: 25,12 mm 1 a/b W: 25,14 mm 1 a/b D: 14,35 mm Operculum: 1c H: 13,26 mm 1c W: 8,07 mm 1d D: 1,52 mm	No. 51
5	2a to 2e	Station 2005-010. Pantai Vatvur, 1.08 km (Brg. 185°) of Tanimbar Kei (guesthouse), Kepulauan Kei, Laut Banda (Banda Sea), Maluku Tenggara (south east Maluku), Molluccas, Indonesia. S 06°01'49.0"; E 132°27'00,9". Leg. R. Vink, J. Post, C. Heij, 26-04-2005.	R.J. Vink	Shell: 2a/b H: 30,19 mm 2 a/b W: 29,85 mm 2 a/b D: 19,06 mm Operculum: 2c H: 14,94 mm 2c W: 9,68 mm 2d D: 2,76 mm	No. 52
5	3a to 3b	Yap, Micronesia. On littoral rocks. June 1992.	Ch. Krijnen	Shell: 3a/b H: 29,23 mm 3 a/b W: 30,44 mm 3 a/b D: 19,05 mm	No. 53
5	4a to 4b	Off Port Hedland, WA, Austalia. On rocks. 1990.	Ch. Krijnen	Shell: 4a/b H: 24,47 mm 4 a/b W: 23,29 mm 4 a/b D: 14,42 mm	No. 54
5	5a to 5e	Front of RRE Hotel, Majuro Atoll, Marshall Islands. Taken on the rocks at thefront of hotel at night, low tide. Leg. M. Coltro (Femorale), A. Bodart, February 2005.	Ch. Krijnen	Shell: 5a/b H: 27,76 mm 5 a/b W: 26,06 mm 5 a/b D: 15,64 mm Operculum: 5c H: 12,12 mm 5c W: 7,66 mm 5d D: 2,12 mm	No. 55
5	6a to 6e	Mbuma, West Malaita, Solomon Islands. Littoral on reef. Leg. A, Delsaerdt, July 1995.	Ch. Krijnen	Shell: 6a/b H: 25,03 mm 6 a/b W: 24,44 mm 6 a/b D: 16,16mm Operculum: 6c H: 11,92 mm 6c W: 7,53 mm 6d D: 2,10 mm	No. 56


1a
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6c
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6e
1 cm