Gloria Maris	56 (3)	82 - 89	Antwerp; 10 December 2017

Description of 4 new species of Terebridae (Mollusca: Gastropoda: Conoidea) from the Indo-Pacific

Yves TERRYN

Kapiteinstraat 27, 9000 Gent, Belgium
yves@naturalart.be

Keywords: GASTROPODA, TEREBRIDAE, Indo-Pacific, *Terebra vanwalleghemi* sp. nov., *Terebra kantori* sp. nov., *Terebra tagaroae* sp. nov., *Terebra donpisori* sp. nov., *Terebra cumingii*, *Terebra fenestrata*, shell morphology.

Abstract: Four new species are described from the Indo-Pacific and compared to their allied species *Terebra cumingii* (Deshayes, 1857), *Terebra punctatostriata* Gray, 1834 and *Terebra fenestrata* (Hinds, 1844).

Introduction: Species are hypotheses; a puzzling concept well-illustrated by Pante et al. (2015), often inconclusive or even flawed, as they can be based on misassumptions, therein named 'as based on pillars of sand'. Yet, when these inaccurate assumptions themselves are based on flawed information, the chance that one formulates a sound hypothesis concerning a species concept is very slim, and one hypothesis becomes a pool of quicksand.

Number 4 of Hawaiian Shell News (Vol. I), published in April 1973, contains a very inquisitive article by Twila Bratcher which features a nice *Terebra commaculata* on the first page and starts with an attempt to 'straighten out' the complex of species surrounding the latter. The article is too long for a single page and continues on page 3 with a sub-header: 'TEREBRA PROBLEMS (Cont'd from Page 1)'. Except for the main, unfortunately misleading, title: 'SIX TEREBRA LOOK-ALIKES' - no other sentence or words are in capitalised print. Unknowingly, she summarises not only her own article, but the taxonomic difficulties within **Terebridae** as a whole, facing taxonomists and conchologists to this very day, almost 45 years after her writings.

She discusses *T. commaculata*, and its so-called allied species, in her opinion *Terebra myuros*, *Terebra anilis*, *Terebra fujitai*, *Terebra pretiosa*, *Terebra stearnsi*, *Terebra fortunei* and *Terebra lima*. At present, we would divide these species into several groups of (shell) morphologically and genetically allied species. Above all, while discussing the most significant distinctive features of *T. lima*, she deliberately or accidentally leaves out *T. cumingii*, or she probably did not possess the necessary information at that time. Together with Walter O. Cernohorsky (1987), she put forward a species definition for '*Terebra cumingii* Deshayes, 1857' in their iconographical 'Living Terebridae of the World' by giving a brief description, a picture of the complete holotype and 'a detail of the lower whorls'. In virtually all preceding publications dealing with *T. cumingii*, only a short description (distilled from the original description and adapted) and a mere simplified drawing had been given. However, sometime between the original description, which corresponds well to the lectotype, and the iconographic work of Bratcher & Cernohorsky (1987), an 'alternate definition' had emerged compared to the original description, a concept which has been carried along in literature and studied ever since. A similar confusing matter is *T. fenestrata*. A revision of these species, synonyms and allied species is in an advanced state and will be part of (a) future publication(s).

A number of years ago, Don Pisor wanted to review his entire collection so that a selection could be bundled into a book about his life, collecting and collection. From the vast collection, a few aesthetically pleasing **Terebridae** were selected, which made it into print. Among them are three shells that have remained puzzling ever since. They have remained under study for years as they belong to a group of species within *Terebra* that was morphologically unclear: the characteristics of the types were poorly defined, poorly figured types and specimens in a myriad of publications, intraspecific variability not understood, etc... The only and conservative option at the time was to keep the shells as undetermined within the wider so-called '*cumingii-lima-fenestrata*-complex' of species

pending clarification of the identity of a number of taxa. One of them is described here.

Besides the aforementioned specimens, a number of species from Madagascar, the Philippines and Thailand remained in this "complex" as well. After a number of years of study, comparison and further collecting, some results cannot be ignored and a total of four new species are hereby already described within **Terebridae**. Others will be part of (a) future publication(s).

Abbreviations:

CI: Conchology, Inc., Philippines
DP: Private collection Don Pisor, San Diego, CA, USA
FN: Private collection of Frank Nolf, Belgium
GM: Private collection of Gavin Malcolm, UK
GTP: Private collection of Guido T. Poppe, Belgium (Poppe, 2008), curated at the HMNS
HMNS: Houston Museum of Natural Science, Houston, TX, USA
MNHN: Muséum national d'Histoire naturelle, Paris, France
MSF: Molluscan Science Foundation, Owing Mills, MD, USA (molluscan-science.org)
NHMUK: Natural History Museum of the United Kingdom, London, UK
RV: Private collection of René Vanwalleghem, Belgium
SH: Private collection of Steve Hubrecht, Belgium
YT: Private collection of Yves Terryn, Belgium

SYSTEMATICS

Class **GASTROPODA** Cuvier, 1797
Order **NEOGASTROPODA** Wenz, 1938
Superfamily **CONOIDEA** Fleming, 1822
Family **TEREBRIDAE** Mörch, 1852
Genus ***Terebra*** Bruguière, 1789
Type species: *Terebra subulata* (Linnaeus, 1767)

The species are preliminary assigned to the genus *Terebra* Bruguière, 1789 pending results of molecular phylogeny. Allied species were previously considered as *Terebra* sensu Bratcher & Cernohorsky (1987) and *Cinguloterebra* Oyama, 1961 (sensu Terryn, 2007).

Terebra vanwalleghemi sp. nov.

Pl. 1, Figs 1-5

Terryn *in* Poppe, 2008: pl. 692, figs 7-8 (as *Terebra punctatostriata* J. E. Gray, 1834)

Type material: Holotype HMNS, ex coll. GTP, 61.0 mm (Terryn *in* Poppe, 2008: pl. 692, fig. 8); **Paratypes 1-2:** YT, Thailand, Phuket Island, Andaman Sea, trawled, 42.9-47.9 mm; **Paratype 3:** YT, Indonesia, Irian Jaya, Waigeo Island, dived in shallow water amongst coral rubble, 51.1 mm; **Paratypes 4-11:** YT, Thailand, S Phuket Island, Racha Island, dived in shallow water, 32.2-43.4 mm; **Paratypes 12-13:** GM, Thailand, S Phuket Island, 24-49 mm; **Paratypes 14-15:** GM, "South China Sea", 50-60 mm; **Paratypes 16-17:** RV, Thailand, S Phuket Island, Racha Island, dived in shallow water, 40.3-44.6 mm; **Paratype 18:** HMNS, Philippines, Polilio Island, 25 m, 49 mm (Terryn *in* Poppe, 2008: pl. 692, fig. 7); **Paratype 19:** YT, Thailand, Phuket Island, Andaman Sea, trawled, 33.7 mm.

Type locality: Philippines. Off Olango Island.

Description: Protoconch consists of about 3-4 whorls. Shell colour reddish orange to deep red, ranging from white protoconch and first teleconch whorls (due to erosion), followed by a few light orange whorls, with the remainder of the shell dark red. Outline of whorls straight, except for the first dozen teleoconch whorls, which are slightly concave with slightly extended or swollen subsutural band. Subsutural band swollen in early whorls, spirally decorated with punctations, gradually evolving into axial incisions, which become almost obsolete or appear as growth striae. The subsutural band is bordered by a shallow, continuous incision. The remainder of the whorl is ornamented with as many axial incisions as on the subsutural band, which tend to fade on later whorls. Spiral sculpture consists of 5-6 incisions, appearing to be continuous, set on the anterior 3/4 of the remainder of the whorl, shallower and narrower than the subsutural band demarcation. The posterior quarter of the remainder of the whorl appears as a narrower and less swollen second band of the subsutural band. The combined sculpture on the anterior 3/4 of the whorl gives a general punctate or reticulated impression, fading on later whorls to an almost smooth shell or with either the appearance of growth striae or only the spiral incisions discernable. Columella curved, aperture elongate quadrate.

Animal: Unknown.

Habitat and bathymetric range: The specimens were retrieved alive from a sand bottom at low tide or dived in shallow water down to 25 m.

Distribution: Known from Phuket and Racha Island (Thailand), Waigeo Island (Indonesia), Cebu and Olango

area and Polilllo Island (Philippines) and the South China Sea.

Derivatio nominis: The species is named for long-time friend and conchologist René Van Walleghem (Belgium), who brought these specimens to my attention now almost 25 years ago. At the time, he gave handy tips on travelling and collecting along the beaches of Phuket. I express my sincere gratitude for his relentless efforts procuring top specimens and information for the conchological community, both from the North Sea and his beloved Thailand, by naming this species in his honour.

Additional notes: Shell attains a medium size for the group; up to 61.0 mm. Most specimens were with preserved protoconch, but due to erosion and/or coralline algae overgrowth of the protoconch and first teleoconch whorls, an exact number of protoconch whorls cannot be given.

Comparison: *T. vanwalleghemi* sp. nov. has often been misidentified as *T. punctatostriata.* A closer investigation of the type of the latter reveals that its distinctive features are a heavy shell with rounded whorls and a typical sculpture of 2 spiraling punctate grooves on the remainder of the whorl, which sets it apart from other species it has been confused with. *T. punctatostriata* is uncommonly found and hence its identity was poorly understood.

Terebra donpisori sp. nov.
Pl. 1, Figs 7-10 & Pl. 3, Fig. 31

Pisor, 2015: 626, fig. 3 (as *Terebra* species)

Type material: Holotype: HMNS, ex coll. DP, 97.3 mm; **Paratype 1:** YT, Philippines, Cebu, Sugod, tangle nets at 110 m, 84.8 mm; **Paratype 2:** YT, Philippines, Balicasag Island, tangle nets at 150 m, 71.5 mm; **Paratype 3:** SH, Philippines, Cebu, Mactan, 74.9 mm; **Paratype 4:** SH, Philippines, Cebu, Oslob, tangle nets at 100-200 m, 83.2 mm; **Paratype 5:** MC, Philippines, Aliguay Island, trawled at 100 m, 83.8 mm.

Type locality: "Off Taiwan".

Description: Number of protoconch whorls unclear due to damage/erosion, but most probably consisting of about 3 elongated whorls. Shell colour white, mottled with areas of light to dark brown axially blotched flammules, either as a continuous axial blotch or as 2-3 separated blotches, reaching from the anterior subsutural band to the suture. Outline of whorls straight, appearing turreted due to the coarse general sculpture. Subsutural band somewhat swollen, decorated with as many coarse axial ribs as on the remainder of the whorl; of identical cross-section but less high as they occur on a swollen subsutural band. The subsutural band doubled, a feature less evident in early stages. The adapical one broad and somewhat swollen; spirally decorated with 4 wavy incisions, somewhat riding the axial ribs, of which the posterior second is markedly broader and deeper. The abapical band consists of beads at the intersection with the axials, with 1-2 spiral incisions in between. This feature evolves by becoming broader, yet with flattening of the beads. A similar evolution is noted for the separation between the two bands: starting out as a deep and broad pit between the two bands, evolving into a widening interspace with a single faint continuous riblet in between. Remainder of the whorl decorated with 3 sharp spiral ribs, intersecting the axial sculpture and thereby creating a crisp sculpture. Columella somewhat curved, aperture elongate.

Animal: Unknown.

Habitat and bathymetric range: The specimens were retrieved alive from a sand/mud bottom between 100 and 200 m.

Distribution: Known from off Taiwan and the southern and central Philippines.

Derivatio nominis: The species is named for long-time friend and conchologist Don Pisor (USA) who was kind enough to allow the study of these exceptional **Terebridae** in his collection, presently curated at the HMNS. His marvellous conchological career is honoured with dedicating an exceptional species of **Terebridae** to him.

Additional notes: Shell attains a large size for the genus, up to 97.3 mm (holotype).

Comparison: *T. donpisori* is distinguished from *T. cumingii* by the overall very coarse sculpture, extremely bulbous subsutural band and characteristic colour pattern.

Terebra kantori sp. nov.
Pl. 2, Figs 11-15 & Pl. 3, Fig. 29

Type material: Holotype: MNHN IM-2000-32846, 66.7 mm; **Paratypes 1-4:** MNHN IM-2000-32847, ATIMO VATAE Stn CP3584, S Madagascar, SE Point Barrow, 25°28'S-44°25'E, trawled, 203-211 m, 53.1-76.8 mm; **Paratypes 5-6:** MNHN IM-2000-32848, ATIMO VATAE Stn CP3588, S Madagascar, SE Point Barrow, 25°03'S-44°00'E, trawled, 113-135 m, 41.3-43.3 mm; **Paratype 7:** MNHN IM-2000-32849, ATIMO VATAE Stn CP3589, S Madagascar, SE Point Barrow, 25°03'S-44°00'E, trawled, 132-153 m, 42.3 mm; **Paratypes 8-11:** YT, Madagascar, "off Majenga, at approx. 200 m, 1990s", 45.9-77.2 mm.

Type locality: S Madagascar, SE Point Barrow, 25°28'S-44°25'E, trawled, 203-211 m [ATIMO VATAE Stn CP3584].

Description: Protoconch consists of about 2.5-3.0 whorls. Shell colour fawn to chestnut brown. Outline of whorls straight to slightly concave, with a somewhat protruding subsutural band, extreme in some specimens. Subsutural band swollen, decorated with swollen axial ribs, about half as wide as interspace. Spiral sculpture consists of 1-3 incisions, irregularly spaced on the posterior band, slightly cutting into the axial riblets; or absent. A secondary subsutural band appears anteriorly, only decorated with swollen beads, as many as axials ribs on the posterior band, with which they are connected by a less swollen part of the riblets on the posterior part. The remainder of the whorl is ornamented with 3 continuous spirals, one of which just above the suture; resulting in a faint beading at the intersections with the axial ribbing, which is of identical height and width. Columella curved, aperture elongate quadrate.

Animal: Unknown.

Habitat and bathymetric range: Specimens were retrieved from apparently muddy bottoms between 110 and 220 m.

Distribution: Only known from SW off Point Barrow, SW Madagascar and offshore between Tanjona Vilandro (FR: Cap St André) and Mahajanga (FR: Majunga, ENG: Majenga), NW Madagascar.

Derivatio nominis: The species is named in honour of Dr Yuri Kantor (MNHN & Severtzov Institute of Ecology and Evolution, Russian Academy of Sciences, Moscow, Russia) for his lifelong contribution to biology and ecology and malacology in particular. He was one of the leading scientists on the MYRIKI-expedition, the offshore campaign of the S Madagascar inshore expedition ATIMO VATAE, from which the majority of the specimens were collected.

Additional notes: Shell attains a medium to large size for the group (holotype 66.7 mm). The holotype and paratype 6 are the sole known specimens with partial protoconchs. The species shows a wide variety in composition of sculpture: the subsutural band can either be extremely swollen or flattened, and all other smaller characteristics vary accordingly. Within these extremes, the apical angle is rather constant.

Comparison: *T. kantori* sp. nov. is distinguished from *T. cumingii* by its broader apical angle, broader and coarser sculptured subsutural band and evidently coarser sculpture on the remainder of the whorl.

Terebra tagaroae sp. nov.
Pl. 2, Figs 16-21 & Pl. 3, Fig. 30

Terryn, 2007: pl. 21, fig. 18 (as *Terebra fenestrata* (Hinds, 1844))
Terryn *in* Poppe, 2008: pl. 697, fig. 11 (as *Cinguloterebra anilis* (Röding, 1798))

Type material: Holotype: HMNS, ex coll. GTP, 71.0 mm; **Paratypes 1-2:** YT, Philippines, Aliguay Island, trawled at 100-150 m, 49.5-54.3 mm; **paratypes 3-6:** YT, Philippines, E coast of Samar, 28.0-52.9 mm; **Paratype 7:** YT, Philippines, Cebu, Mactan, tangle nets at 150 m, 73.4 mm; **Paratypes 8-13:** MC, Japan, off S coast of Okinawa, trawled at 100 m, 42.1-68.8 mm; **Paratype 14:** SH, Philippines, Aliguay Island, trawled at 240 m, 56.7 mm; **Paratype 15:** SH, Japan, Ryukyu Archipelago, Iriomote Island, trawled at 100-120 m, 50.5 mm; **Paratype 16:** SH, Japan, Kii Peninsula, Wakayama Prefecture, Arida, off Yabitsu, trawled at 100-150 m, 65.1 mm; **Paratype 17:** HMNS, ex coll. GTP, Philippines, Aliguay Island, trawled at 50-100 m, 68.6 mm; **Paratypes 18-19:** MC, Japan, Kochi Prefecture, Tosa, trawled at 30 m, 71.9-76.1 mm; **Paratypes 20-26:** YT, Philippines, off Aliguay Island, trawled at 150 m, 31.7-57.1 mm; **Paratype 27:** CI503261, Philippines, off Balut Island, tangle nets at 150 m, 54.1 mm; **Paratype 28:** CI520237, Philippines, off Olango Island, dived at 25 m, 43.1 mm; **Paratypes 29-32:** CI626439-615085-626438-1005276, Philippines, off Mactan Island, trawled between 100-200 m, 40.3-52.7 mm; **Paratype 33:** FN

13245, Philippines, Olango Island, off Talima, tangle nets at 125 m, 61.9 mm; **Paratypes 34-37:** MSF, Philippines, Aliguay, dredged, 22.2-52.3 mm.

Additional material: YT, Philippines, Aliguay Island, 50-350 m, trawled, 6 sps, 42.7-53.7 mm; YT, Philippines, Dipolog, Aliguay Island, trawled at 200-300 m, 1 spm., 70.2 mm; YT, Philippines, Cebu, Mactan, 2 sps, 42.4-55.8 mm; MC, Philippines, Aliguay Island, trawled at 100 m, 16 sps, 35.3-64.3 mm; SH, Philippines, Mactan, dredged at 6-8 m, 2 sps, 43.5-54.2 mm.

Type locality: Philippines, off Aliguay Island.

Description: Protoconch consists of about 3.0-3.5 whorls. Shell colour chestnut brown, with occasional darker or lighter axial growth line. Outline of whorls straight, with a somewhat protruding subsutural band. Subsutural band swollen, decorated with swollen axial ribs, as wide as interspaces. Spiral sculpture consists of 2-3 incisions, limited to the top half of the band, slightly cutting into the axial riblets. A secondary subsutural band appears anteriorly, only decorated with swollen beads, as many as axials ribs on the posterior band, with which they are connected by a less swollen part of the riblets on the posterior part. The remainder of the whorl is ornamented with 3 spirals which result in round beads at the intersections with the axial ribbing. Columella curved, aperture elongate quadrate.

Animal: Unknown.

Habitat and bathymetric range: Live-caught specimens were retrieved by dredge as shallow as 6-8 m, dead-collected specimens were retrieved from depths down to 240 m. Most specimens were retrieved alive from a sand/mud bottom between 60 and 150 m.

Distribution: Known from off S Japan and the Philippines (off Cebu, Aliguay and E Samar).

Derivatio nominis: The species is named for long-time friend Ms. Sheila Tagaro (Conchology, Inc., Philippines) in gratitude for her relentless efforts in the daily work at Conchology, Inc. and her preparedness to help anyone in the conchological community.

Additional notes: Shell attains a large size for the group, up to 76.1 mm (paratype 19). Colour somewhat variable; lighter in some dead-collected specimens. The peculiarity of the species was already noted by Mr Jason Sprague in a personal communication to Mr Mitsuo Chino more than a decade before the present study; a finding herewith confirmed and acknowledged.

The species shows a wide variety in composition of sculpture: the subsutural band can either be extremely swollen or flattened, and all other smaller characteristics vary accordingly. In these extremes, the apical angle is accordingly somewhat wider, too.

Comparison: Specimens of *T. tagaroae* sp. nov. were mainly assigned to two taxa in the past i.e. *T. fenestrata* and *T. cumingii*. Based on the assessment of allied species and their current synonyms, a basic comparison can be formulated. *T. tagaroae* sp. nov. shares more common features with *T. cumingii* than with *T. fenestrata*. *T. tagaroae* sp. nov. is distinguished from *T. cumingii* by its dark brown shiny colour and characteristic sculpture on the remainder of the whorl, while *T. cumingii* is a white shell flecked with brown spots and a finer, more complex sculpture.

Acknowledgements: I would like to express my gratitude to Gavin Malcolm (UK) for the time and effort spent in the in-depth study of the *T. cumingii* and *fenestrate*-complexes, which was the key in distinguishing a number of cryptic species in the present and future papers. I furthermore thank Steve Hubrecht (Belgium), Ed Dunham (USA), Don Pisor (USA), Mrs Tina Petway (HMNS), Mitsuo Chino (Japan), José Rosado (Mozambique), Frank Nolf (Belgium), Willem Faber (The Netherlands), Guido & Philippe Poppe (Belgium) and Ms. Sheila Tagaro (Philippines) for either the use of specimens held in their private or institutional collections, information and/or for critically re-reading the manuscript. My sincere gratitude goes out to Mrs Kathie Way (ret.), Mrs Andreia Salvador (NHMUK) and Eddie Hardy (UK) for making the type collection and pictures thereof available for study. Furthermore thanks are due to the malacology team at the MNHN, especially Dr Philippe Bouchet, Dr Nicolas Puillandre, Mrs Virginie Héros, Mr Philippe Maestrati, Dr Yuri Kantor and Mrs Barbara Buge for their continuous support, SEM-photography and general help.

The ATIMO VATAE (DOI 10.17600/10110040) and MIRIKY expeditions to Madagascar (Principal Investigator, Philippe Bouchet) was part of a cluster of Mozambique-Madagascar expeditions funded by the Total Foundation, Prince Albert II of Monaco Foundation and Stavros Niarchos Foundation under "Our Planet Reviewed ", a joint initiative of MNHN and Pro Natura International (PNI) in partnership with Institut d'Halieutique et des Sciences Marines, University of

Toliara (IH.SM) and the Madagascar Bureau of Wildlife Conservation Society (WCS).

References:

Bratcher, T., 1973. Six Terebra Look-Alikes. *Hawaiian Shell News* 21 (4): 1,3, text figs

Bratcher, T. & Cernohorsky, W. O., 1987. *Living Terebras of the World.* Madison Publishing Associates, New York, NY, USA. 240 pp.

Pante, E., Puillandre, N., Viricel, A., Arnaud-Haond, S., Aurelle, D., Castelin, M., Chenuil, A., Destombe, C., Forcioli, D., Valero, M., Viard, F., & Samadi, S., 2015. Species are hypotheses: avoid connectivity assessments based on pillars of sand. *Mol. Ecol.* 24: 525-544.

Pisor, D., 2015. *Sea and Land Shells of the Don Pisor Collection.* ConchBooks, Hackenheim, Germany. 700 pp., colour pls.

Terryn, Y., 2007. *Terebridae, a Collectors Guide.* Conchbooks, Hackenheim, Germany & NaturalArt, Gent, Belgium. 57 pp. + 65 colour pls.

Terryn, Y., 2008. Terebridae. *In*: Poppe, G. T.: Philippine Marine Mollusks Vol. II. Conchbooks, Hackenheim, Germany. Pp 788-845, 14 colour pls, 21 text figs.

Plate 1

1-5: ***Terebra vanwalleghemi*** sp. nov.
- **1a:** Holotype, HMNS, 61.0 mm.
- **1b:** Detail of ultimate and penultimate whorl.
- **2:** Paratype 18, HMNS, Philippines, Polilio Island, 25 m, 49 mm.
- **3:** Paratype 1, YT, Thailand, Phuket Island, Andaman Sea, trawled, 42.9 mm.
- **4:** Paratype 10, YT, Thailand, S Phuket Island, Racha Island, dived in shallow water, 41.4 mm.
- **5:** Paratype 19, YT, Thailand, Phuket Island, Andaman Sea, trawled, 33.7 mm; Detail of protoconch, scale bar = 200 µm.

6: ***Terebra punctatostriata*** (J. E. Gray, 1834) YT, Japan, Okinawa, 64.8 mm.

7-10: ***Terebra donpisori*** sp. nov.
- **7:** Holotype, HMNS, "off Taiwan", 97.3 mm.
- **8:** Paratype 1, YT, Philippines, Cebu, Sugod, tangle nets at 110 m, 84.8 mm.
- **9:** Paratype 4, SH, Philippines, Cebu, Oslob, tangle nets at 100-200 m, 83.2 mm.
- **10:** Paratype 5, MC, Philippines, Aliguay Island, trawled at 100 m, 83.8 mm.

Plate 2

11-15: ***Terebra kantori*** sp. nov.
- **11-12:** YT, Madagascar, off Mahajanga, "dredged at approx. 200 m".
  - **11a:** Paratype 11, 77.2 mm.
  - **11b:** Detail of whorls at identical stage as **16b**.
- **12:** Paratype 9, 62.5 mm.
- **13-15:** MNHN, ATIMO VATAE Stn CP3584, S Madagascar, SE Point Barrow, 203-211 m.
  - **13:** Paratype 2, 61.1 mm.
  - **14a:** Holotype, 66.7 mm.
  - **14b:** Detail of protoconch (damaged nucleus), scale bar = 200 µm.
- **15:** Paratype 4, 76.8 mm.

16-21: ***Terebra tagaroae*** sp. nov.
- **16a:** Holotype, HMNS, Philippines, off Aliguay Island, 71.0 mm.
- **16b:** Detail of whorls at identical stage as **11b**.
- **17:** Paratype 17, HMNS, Philippines, Aliguay Island, trawled at 50-100 m, 68.6 mm.
- **18:** Paratype 13, MC, Japan, off S coast of Okinawa, trawled at 100 m, 68.8 mm.
- **19:** Paratype 15, SH, Japan, Ryukyu Archipelago, Iriomote Island, trawled at 100-120 m, 50.5 mm
- **20:** Paratype 26, YT, Philippines, off Aliguay Island, trawled at 150 m, 57.1 mm
- **21:** Paratype 32, CI1005276, Philippines, off Mactan Island, trawled between 100-200 m, 52.7 mm.
- **22:** Paratype 4, YT, Philippines, E coast of Samar, detail of protoconch, scale bar = 200 µm.


Plate 1
1b
5
3
4
6
2
1a
7
8
9
10

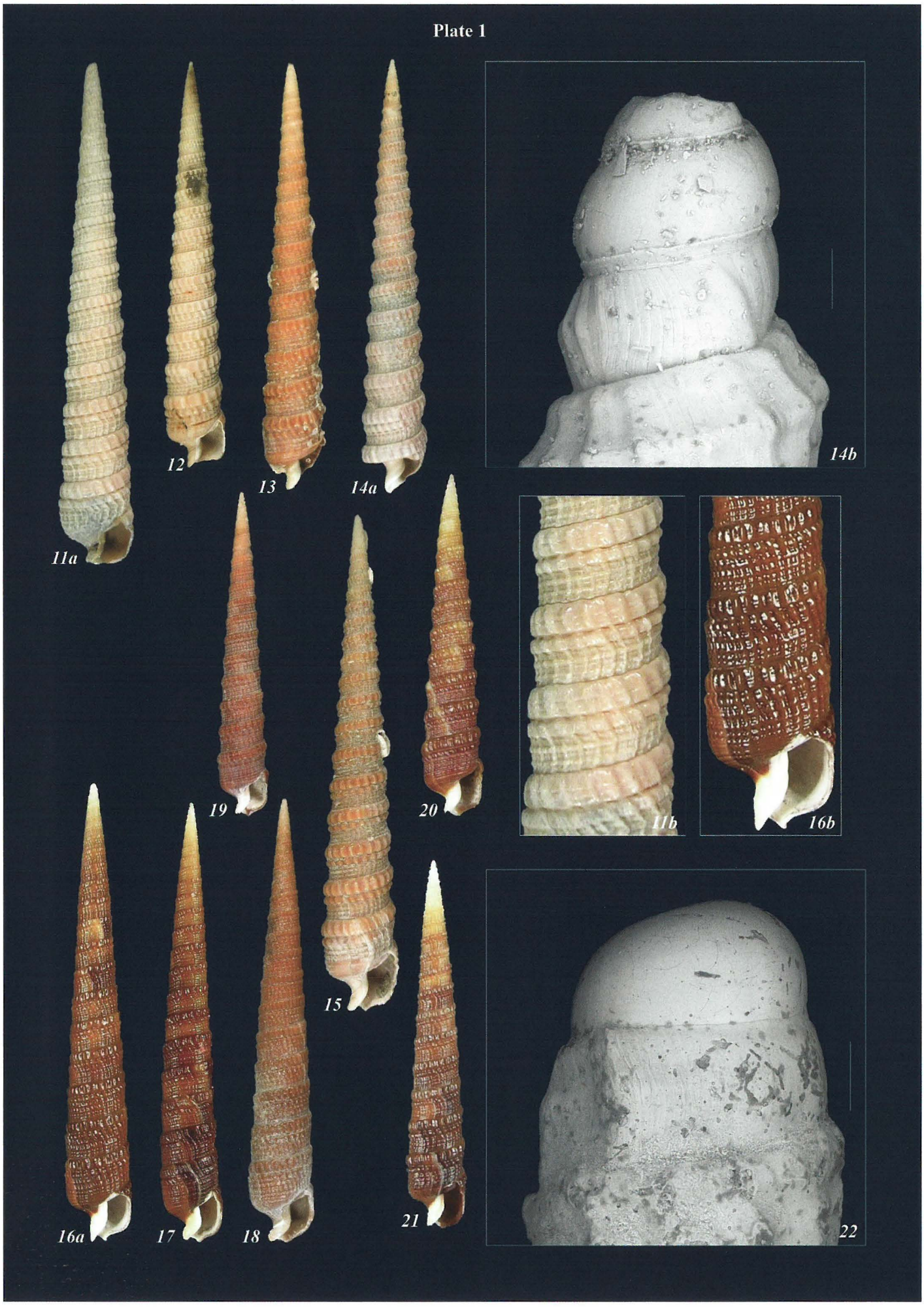
Plate 1
11a
12
13
14a
14b
19
20
11b
16b
15
16a
17
18
21
22