

## Two New Species of *Hastulopsis* (Gastropoda: Terebridae) from Oman and Somalia

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**Keywords:** TEREBRIDAE, Indian Ocean, Oman, Somalia, new species, shell morphology.

**Abstract:** *Hastulopsis mirbatensis* sp. nov. and *Hastulopsis masirahensis* sp. nov. are described as new to science and compared to their closest relatives in the Indian Ocean.

**Introduction:** The Omani shallow water habitat is medium rich in small to medium-sized species of the family **Terebridae**, yet poorer in comparison to the nearby Red Sea, Kenya and Mozambique. Often only a handful of species are found in scattered places along the coast. Nevertheless it must be noted that access to beaches and general travelling hampers a clear and continuous overview of the molluscan fauna of that part of the Arabian Peninsula. Moreover, the fauna beyond about 10 m deep remains virtually unknown. Nonetheless, the species presented in this paper are very evident in their characteristics that differentiate them from other species from the nearby Red Sea and Indian Ocean, justifying their description as new to science.

**Material and methods:** All species discussed and described here are arranged according to the preliminary system proposed in Terryin (2007). The generic status of species comprised within **Terebridae** is the subject of continuous morphological and molecular research and will be updated as information becomes available.

The second author, who is an avid naturalist diver, obtained all the material by diving in shallow water at night.

### Abbreviations:

MNHN: Muséum national d'Histoire naturelle, Paris, France  
 MCZ: Museum of Comparative Zoology, Cambridge, MA, USA  
 NHMUK: Natural History Museum of the United Kingdom, London, UK. formerly BM(NH)  
 GM: Private collection of Gavin Malcolm, England  
 HD: Private collection of Henk Dekker, The Netherlands  
 JR: Private collection of José Rosado, Mozambique  
 KVL: Private collection of Kirsten Van Laethem, Belgium  
 PV: Private collection of Philippe Vachon, France  
 SG: Private collection of Sandro Gori, Italy  
 SH: Private collection of Steve Hubrecht, Belgium  
 UC: University of Cambridge, Zoological Department, Cambridge, UK  
 YT: Private collection of Yves Terryin, Belgium

### Systematics:

Class **GASTROPODA** Cuvier, 1797

Order **NEOGASTROPODA** Wenz, 1938

Superfamily **CONOIDEA** Fleming, 1822

Family **TEREBRIDAE** Mörch, 1852

Genus *Hastulopsis* Oyama, 1961

Type species: *Terebra melanacme* E. A. Smith 1875

The species are preliminary described in the genus *Hastulopsis* Oyama, 1961 because allied species were placed in this genus by Terryin (2007). Both species are somewhat similar in shell morphology, yet we would not be surprised of them belonging to two very different and distant genera.

*Hastulopsis mirbatensis* sp. nov.

Plate 1, Figs 1-6; Text Fig. 3a-c

**Type Material: Holotype:** MNHN-IM-2000-31789, Oman, off Mirbat, dived between 6 and 10 m at night, leg. JR, 25.5 mm. **Paratypes: Paratypes 1-2:** JR, 24.3-25.4 mm; **Paratype 3:** HD 37379, 24.1; **Paratypes 4-7:** YT, 24.2-26.0 mm; **Paratypes 8-10:** SH, 21.3-23.5 mm; **Paratypes 11-17:** SG, 21.2-27.2 mm. All paratypes from type locality.

**Type locality:** Oman, Dhofar, off Mirbat, 6-10 m.

**Description:** Shell of medium size for the genus, up to 26.0 mm (paratype 7). Protoconch consists of about 2.5 whorls. Outline of whorls straight, with the exception of the somewhat protruding subsutural band, very evident in most specimens. Subsutural band swollen, decorated with fine ribs as much as on the remainder of the whorl and of identical cross-section and height. No spiral sculpture on the remainder of the whorl. The subsutural band is bordered by a shallow incision, which is deeper intercostally, giving a somewhat punctate impression. The remainder of the whorl is ornamented with axial ribs (24 on the penultimate whorl of the holotype), which tend to fade on later whorls, somewhat extended into the subsutural band demarcation. Spiral sculpture consists of 1-3 incisions, set on the anterior half of the remainder of the whorl, usually confined to the interspaces, slightly cutting the axial ribs anteriorly, rarely crossing over and forming a somewhat deeper continuous spiralling incision. Columella curved, aperture elongate-quadrate.

Shell colour white, mottled with areas of light to dark brown axially oriented flammules. Irregular number of dark brown dots present on the subsutural band, aligned with the axial brown blotches on the remainder of the whorl.

**Animal:** Although mostly collected alive, it was impossible to preserve the animal at the time of collecting.

**Habitat and bathymetric range:** The specimens were retrieved alive from a sand bottom between 6 and 10 m at night. Four specimens were retrieved simultaneously at a depth of 24 m (paratypes 11-14).

**Distribution:** Known from Oman, Dhofar, off Mirbat (approx. 16°57'N/54°44'E), S Oman. The range is probably very limited. The species was not present in

material studied from the Red Sea, Yemen, Masirah Island and other regions of Oman.

**Etymology:** The species is named for its type locality, the historical city of Mirbat (often also referred to as Marbat or Mirbet), an important ancient trading port of frankincense. Coincidentally, the colour of the highest quality of frankincense resembles the colour of the blotches on the shell (a milky brown).

*Hastulopsis masirahensis* sp. nov.

Plate 1, Figs 10-14; Tekst Fig. 1a-c

Bosch et al., 1995: 171, fig. 769 (as *Terebra loisae* Smith, 1903)

Terryn & Rosado, 2011: pl. 3, figs 9-10 (as *Hastulopsis loisae* (Smith, 1903))

**Type material: Holotype:** MNHN-IM-2000-31790, Oman, Masirah Island, Sur Masirah, collected in shallow water, leg. HD, 19.5 mm. **Paratypes:** From type locality: **Paratypes 1-7:** HD 32009, 11.7-21.0 mm; **Paratype 8:** JR, 15.8 mm; **Paratypes 9-13:** YT, 15.2-30.5 mm; From S Somalia, Lower Juba, Bajuni Islands, shallow water trawl (dead collected, eroded, all missing protoconch or protoconch and first teleoconch whorls): **Paratypes 14-19 & 21:** YT, 19.5-33.1 mm; **Paratype 20:** JR, 32.4 mm; From S Somalia, Lower Juba, off Kismayo, shallow water trawl, 1980s: **Paratypes 22-25:** GM, 11.9-17.2 mm; From Oman, Masirah Island, Sur Masirah, beach: **Paratype 26:** KVL, 24.1 mm; From Oman, E of Sada'h, 17°03'39"N -55°07'34"E, beach: **Paratypes 27-28:** KVL, 15.0-15.8 mm.

**Type locality:** Oman, Masirah Island, Sur Masirah.

**Description:** Shell of medium size for the genus, up to about 33 mm (estimated from paratype 21). Protoconch consists of about 2.0 whorls. Outline of whorls straight, slightly indented at the subsutural demarcation. Subsutural band decorated with broadened ribs as much as on the remainder of the whorl and of identical cross-section, somewhat less high. No spiral sculpture on the subsutural band. The subsutural band is bordered by a shallow incision confined to the intercostal spaces. The remainder of the whorl is ornamented with axial ribs (24 and 32 on the penultimate whorl of the holotype and paratype 13, respectively), which are continuous in dimensions throughout the teleoconch. The axial sculpture is continuous over the complete whorl, somewhat less in height at the subsutural demarcation. Spiral

sculpture consists of 3-4 punctate grooves, confined to the interspaces, somewhat riding the axial ribs anteriorly. The general sculpture intensifies (punctuation becomes deeper) and axial ribs become relatively more numerous upon maturity. Columella slightly curved, aperture quadrate (subadult) to elongately oval (adult).

Shell colour white, mottled with areas of light to dark brown blotches of axially oriented flamules. Irregular number of darker brown dots present on the subsutural band, aligned with the axial brown blotches on the remainder of the whorl.

**Animal:** Although most of the known specimens were collected alive, it was impossible to preserve the animal at the time of collecting.

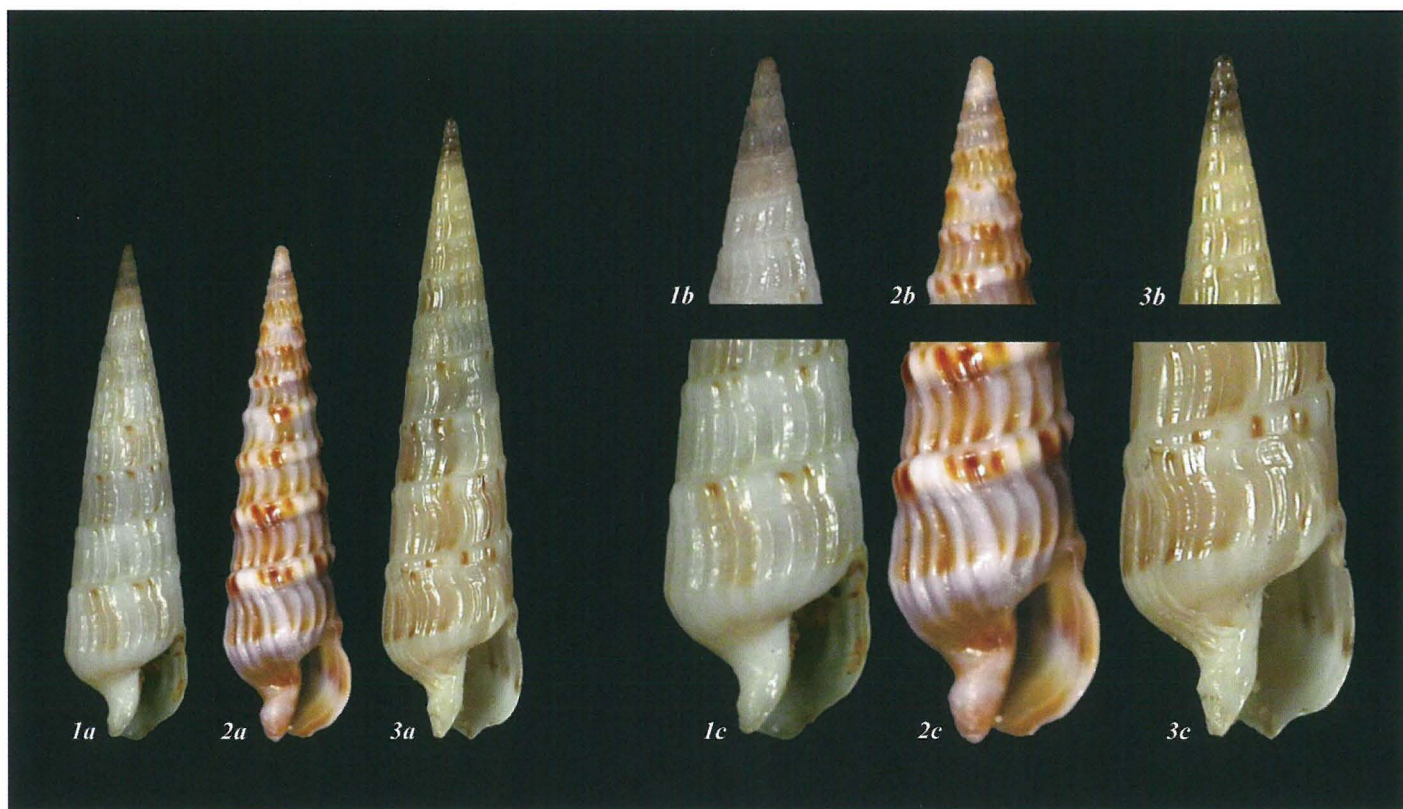
**Habitat and bathymetric range:** The specimens were retrieved alive by hand or hand dredge from a sand bottom in shallow water (0-2 m) in Oman, and trawled

dead in shallow water (up to 30 m) off Bajuni Islands, S Somalia.

**Distribution:** Known from the type locality and from off S Somalia. Earlier reports (Bosch et al, 1995; Terryn & Rosado, 2011; auct.) of the presence of *H. loisae* in the Red Sea and adjacent areas (Horn of Africa, Arabian Peninsula) are most probably erroneous and most likely concern the species described at present. This can in many cases not be positively checked as both the figures/pictures and/or text lack the mandatory distinguishing traits.

**Etymology:** The species is named after its type locality, Masirah Island, Oman; home only to a small fishing community, a camping ground and the Royal Air Force of Oman.

**Remark:** Paratype 6 was previously erroneously figured as *H. loisae* in Terryn & Rosado (2011).



1: *Hastulopsis masirahensis* sp. nov., holotype, MNHN-IM-2000-31790, Sur Masirah, Masirah Island, Oman, 19.5 mm.

2: *Hastulopsis castigata* (A. H. Cooke, 1885), PV, Ras Mohammed, Egypt, in sand at low tide, 19.1 mm.

3: *Hastulopsis mirbatensis* sp. nov., YT, paratype 4, Mirbat, S Oman, 24.2 mm.

**Comparative material:** *Hastulopsis castigata* (A. H. Cooke, 1885): lectotype, UC, Gulf of Suez, Jubal Island, Egypt, 18.5 mm (Pl. 1 fig. 7); PV, Ras Mohammed, Egypt, in sand at low tide, 19.1 mm & 18.5 mm (Pl. 1,

Figs 8-9 & Text Fig. 2a-c) and additional material from S Gulf of Suez and S Gulf of Aqaba (YT - not figured); *Hastulopsis campbelli* (R. D. Burch, 1965), MCZ 251244, off Tosa Bay, Japan, 140 m, 25.5 mm (Pl. 1, Fig.

15), and additional material from the Philippines (YT - not figured); *Hastulopsis loisae* (E. A. Smith, 1903), NHMUK 1901.9.22.81, Umkomaas, Natal, RSA, 28.4 mm (Pl. 1, Fig. 16); *Hastulopsis melanacme* (E. A. Smith, 1873), holotype NHMUK 873.8.6.11, Cape Sima, Japan, 36 m, 17.8 mm (Pl. 1, Fig. 18); *Hastulopsis melanacme* (E. A. Smith, 1873), YT, Mikawa Bay, Aidari Prefecture, Japan, trawled at 10 m, 18.5 mm (Pl. 1, Fig. 15); *Hastulopsis suspensa* (E. A. Smith, 1904), lectotype NHMUK 1903.12.19.858, Port Elizabeth, RSA, 19.8 mm. (Pl. 1, Fig. 20); *Hastulopsis suspensa* (E. A. Smith, 1904), YT, Algoa Bay, RSA, dived at 15 m, 25.3 mm (Pl. 1, Fig. 21) and additional material (YT & SH, not figured); *Hastulopsis suspensa* (E. A. Smith, 1904) SH, Algoa Bay, RSA, trawled at 80 m, 28.1 mm (Pl. 1, Fig. 22) and additional material (YT & SH, not figured); *Hastulopsis minipulchra* (Bozzetti, 2008), YT, from coral and sand debris, Lavanono, S Madagascar, 13.8 mm (Pl. 1, Fig. 23) and additional material (YT & SH, not figured); *Hastulopsis gotoensis* (E. A. Smith, 1879): holotype, NHMUK 1878.11.7.19, Japan, 25.1 mm (Pl. 1, Fig. 26) and from sand dredgings off Addington Beach, Durban, RSA, YT & SH, 27.6 & 25.56 mm (Pl. 1, Figs 24-25) and additional material (YT & SH, not figured).

**Discussion:** *Hastulopsis mirbatensis* sp. nov. was extensively compared with various species in the *Hastulopsis*-group such as *H. suspensa*, *H. gotoensis*, *H. loisae*, *H. melanacme*, *H. minipulchra* and *H. elialae* (Aubry, 1994) (here not further considered or figured; see Terryn, 2007: pl. 29 fig. 8). It was only upon the discovery of live collected specimens of *H. castigata*, at present in the collection of Mr Philippe Vachon, that a relation became evident. Both *H. mirbatensis* sp. nov and *H. castigata* are characterised by a swollen subsutural band, which is only minorly sculptured. The axial ribbing of the remainder of the whorl of *H. castigata* is quite variable ranging from very densely set and numerous (Pl. 1, Fig 8) to widely spaced (Pl. 1, Figs 7 & 9). The axials are coarse, and the shells show no macroscopical discernable spiral sculpture, in contrast to the fine spiralling incisions on the remainder of the whorls of *H. mirbatensis* sp. nov. Both have a swollen and rounded subsutural band, but this is more evident and broader in *H. castigata*.

The differential diagnosis of *H. masirahensis* is less evident. The sculpture on the first teleoconch whorls is similar to that of its allies such as *H. gotoensis* and *H. mirbatensis*, being axial ribs with a few spiral incisions restricted to the intercostal spaces (Pl. 1, Figs 12-14). In later teleoconch whorls, this sculpture evolves into a coarser one, giving the appearance of a reticulated pattern. Yet, the incisions only become deeper and wider (Plate 1, Figs 10-11). Because of its obvious coloration scheme, the species was probably identified as *H. loisae*

in the past, but the axial sculpture in *H. loisae* is densely set, leaving hardly any interspace or room for the often very faint and discrete spiral incisions (Pl. 1, Fig. 16). The subsutural band is flattened, rounded or even swollen in *H. masirahensis*. The demarcation of the subsutural band is finely and densely punctate, often continuous. *H. loisae* was described from off Natal, RSA and is most probably restricted to the Mozambique Channel area and is rarely observed in any collection. The number of whorls of the protoconchs of *H. masirahensis*, *H. gotoensis* and *H. loisae* is identical, yet the shape and coloration make them unique. Still, as most specimens of these species lack the protoconch, it is rarely a helpful feature.

**Acknowledgements:** We would like to express our gratitude to Steve Hubrecht (Belgium), Henk Dekker (The Netherlands), Gavin Malcolm (UK), Kirsten Van Laethem (Belgium), Frank Nolf (Belgium) and Philippe Vachon (France) for making their collections available to us for study; Sandro Gori (Italy) for the organisation of and participation in the expedition to the South of Oman; Christian Boernke (Germany) for the help provided during the dives; Gavin Malcolm (UK) and Willem Faber (The Netherlands) for critically re-reading the manuscript. Our sincere gratitude goes out to Mrs Kathie Way (NHMUK) and Eddy Hardy (UK) for making the type collection and pictures thereof available to us. Furthermore, we thank the malacology team at the MNHN, especially Philippe Bouchet, Virginie Héros and Philippe Maestrati for their continuous support and help.

#### References:

- Bosch, D. T., Dance, S. P., Moolenbeek, R. G. & Oliver, P.G.,** 1995. *Seashells of Eastern Arabia*. Motivate Publishing. Dubai, Abu Dhabi, London. 1-296.
- Bratcher, T. & Cernohorsky, W.O.,** 1987. *Living Terebras of the World*. Madison Publishing Associates, New York, NY, USA. 240 pp.
- Terryn, Y.,** 2007. *Terebridae, a Collectors Guide*. Conchbooks, Hackenheim, Germany & NaturalArt, Gent, Belgium. 57 pp. + 65 colour pls.
- Terryn Y. & Rosado J.,** 2011. Further terebrid discoveries from Mozambique. *Gloria Maris* 50(6): 140-152.

Plate 1

**1-6: *Hastulopsis mirbatensis* sp. nov.**

- 1-5:** Mirbat. S Oman. Dived 6-10 m.  
**1:** Holotype, MNHN-IM-2000-31789, 25.5 mm.  
**2:** Paratype 5, YT, 24.2 mm.  
**3:** Paratype 7, YT, 26.0 mm.  
**4:** Paratype 3, HD, 24.1 mm.  
**5:** Paratype 4, YT, 24.2 mm.  
**6:** Salalah. Oman. Dived 6-8 m. Paratype 10, SH, 23.5 mm.

**7-9: *Hastulopsis castigata* (A. H. Cooke, 1885)**

- 7:** Lectotype, UC, Gulf of Suez, Jubal Island, Egypt, 18.5 mm  
**8-9:** PV, Ras Mohammed, Egypt, in sand at low tide. 19.1 mm and 18.5 mm, respectively.

**10-14: *Hastulopsis masirahensis* sp. nov.**

- 10-14:** Masirah. Oman. Shallow water.  
**10:** Paratype 13, YT, 30.5 mm.  
**11:** Paratype 12, YT, 26.5 mm.  
**12:** Paratype 7, HD, 21.0 mm.  
**13:** Paratype 11, YT, 18.5 mm.  
**14:** Holotype, MNHN-IM-2000-31790, 19.5 mm.

**15: *Hastulopsis campbelli* (R. D. Burch, 1965)**

- Holotype, MCZ 251244, off Tosa Bay, Japan, 70 fms, 25.5 mm.

**16: *Hastulopsis loisae* (E. A. Smith, 1903)**

- Holotype, NHMUK 1901.9.22.81, Umkomaas, Natal, RSA, 28.4 mm.

**17: *Hastulopsis masirahensis* sp. nov.**

- Paratype 19, YT, off Badjuni Islands, Somalia, trawled, 25.2 mm.

**18-19: *Hastulopsis melanacme* (E. A. Smith, 1873)**

- 18:** Holotype NHMUK 873.8.6.11, Cape Sima, Japan, 18 fms, 17.8 mm.  
**19:** YT, Mikawa Bay, Aidari Prefecture, Japan, trawled at 10 m, 18.5 mm

**20-22: *Hastulopsis suspensa* (E. A. Smith, 1904)**

- 20:** Lectotype NHMUK 1903.12.19.858, Port Elizabeth, RSA, 19.8 mm.  
**21:** YT, Algoa Bay, RSA, dived at 15 m, 25.3 mm.  
**22:** SH, Algoa Bay, RSA, trawled at 80 m, 28.1 mm.

**23: *Hastulopsis minipulchra* (Bozzetti, 2008)**

- YT, from coral and sand debris, Lavanono, S Madagascar, 13.8 mm.

**24-26: *Hastulopsis gotoensis* (E. A. Smith, 1879)**

- 24-25:** From sand dredgings off Addington Beach, Durban, RSA.  
**24:** YT, 27.6 mm.  
**25:** SH, 25.6 mm.  
**26:** Holotype, NHMUK 1878.11.7.19, Japan, 25.1 mm.

