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**Notes on the identities *Hastula rufopunctata* (E. A. Smith, 1877),  
*Hastula diversa* (E. A. Smith 1901) and *Hastula easmithi* (Aubry, 1999)  
(Gastropoda: Conoidea: Terebridae)**

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**Abstract:** *Hastula rufopunctata* (E. A. Smith, 1877) is compared with its junior synonym *Hastula diversa* (E. A. Smith, 1801), the latter removed from synonymy based on shell morphology. Furthermore, the cryptic species *Terebra easmithi* Aubry, 1999, is discussed and re-assessed within the genus *Hastula*.

**Abbreviations:**

**JR:** Private collection José Rosado, Portugal.  
**NHMUK:** Natural History Museum of the United Kingdom, London, England.  
**SG:** Private collection Sandro Gori, Italy.  
**SH:** Private collection Steve Hubrecht, Belgium.  
**UA:** Private collection Umberto Aubry, Italy.  
**YT:** Private collection Yves Terryin, Belgium.

**Systematics:** The systematics for the species described and discussed in the present paper follow the systematics as proposed in Fedosov et al. (2020) and discussed synonymy as listed by Bratcher & Cernohorsky (1987). For information on the types held in the NHMUK, we refer to Salvador & Pickering (2017).

*Hastula rufopunctata* (E. A. Smith, 1877) &  
*Hastula diversa* (E. A. Smith, 1901)  
Pl. 1, Figs 13-16 & Pl. 1, Figs 1-12

The lectotype (NHMUK 1874.10.12.3/1) and 3 paralectotypes (NHMUK 1874.10.12.3/2-4) of *Terebra rufopunctata* from the J. E. Gray collection (Pl. 1, Figs 15-16) were indirectly designated by inference of holotype

(Cernohorsky, 1969: 219). ‘Natal, S. Africa’ was designated type locality by Bratcher & Cernohorsky (1987: 176) as Smith had originally never designated a type locality and partially because they synonymised *Terebra (Abretia) diversa* E. A. Smith, 1901 (= *Hastula diversa* (E. A. Smith, 1901), type locality: Umzinto, Natal, South Africa) with *H. rufopunctata*. Yet, in general, the likelihood that Smith described the same taxon twice is always a topic worthy of further investigation (see Terryin & Keppens herein, *Hastula bacillus* vs. *Hastula apicina*).

The original description and type specimens of *H. rufopunctata* correspond well, the species is easily recognisable; but the taxon’s features are easily interchangeable with shell-morphological similar species/specimens. The lectotype lacks the protoconch and also the paralectotypes only have eroded protoconches and additional specimens (coll. YT) have eroded protoconches. The protoconch as described in Bratcher & Cernohorsky (1987: 176) has got 1.5 whorls – a feature also taken from specimens of *H. diversa*. Moreover, Smith (1901) himself mentions the huge difference in size of the protoconches: *H. diversa*’s being much larger and blunter (broader nucleus) than that of *H. rufopunctata*. While at present, a complete protoconch of *H. rufopunctata* could not be studied, the study of the worn protoconches and often worn first teleoconch whorls, leaves no other conclusion that the width of the protoconch cannot be larger than half of that of *H. diversa*, its colour most probably dark, as opposed to white in *H. diversa*.

The syntypes (Pl. 1, Figs 4-5) of *Terebra diversa* E. A. Smith, 1901 are curated in the NHMUK (1899.4.14.1183-1186). A lectotype was selected by Bratcher & Cernohorsky (1987: 176, pl. 54, fig. 210c). However, this specimen cannot be recognised by any individual characteristics (there is no description, and the figure corresponds to a different specimen lot). Therefore this type selection was deemed invalid (*vide* Salvador &

Pickering, 2017). The syntype set of 4 specimens, of which 2 types are figured herein, is uniform and well recognisable; at this time there is no need to specifically designate a lectotype to enhance stability.

Based on the present findings, we regard *H. diversa* as a well separable and valid species, not synonymous with *H. rufopunctata*.

Authors have interchangeably applied the names *H. diversa* and *rufopunctata* to a myriad of taxa such as *Hastula strigilata* (Linnaeus, 1758) s.l., *Hastula acumen* (Deshayes, 1859), *Hastula venosa* (Hinds, 1844) and others. A quick assessment of this in literature led us to conclude that since their description, the taxon *H. rufopunctata* has in fact never been used correctly and *H. diversa* has only sporadically been used correctly, only when it dealt with conspecific specimens from the Natal-area (South Africa).

Recent efforts have revealed that *H. diversa*'s range extends well north into Mozambique, at least up to the Machangula Peninsula (Pl. 1, Figs 8-9). Live juveniles with the characteristic juvenile sculpture of widely spaced axial ribs and a large white protoconch of 1.5 whorls have been retrieved from depths between 25 and 35 m (coll. SG & JR). To our knowledge, *H. rufopunctata* is rarely encountered in any collection and judging from extensive collection efforts by MNHN and the wide conchological society, its range and/or biome is most probably very limited. Specimens studied (coll. YT) originate from the collection of Mary Saul, who intensively collected on the north shores of Borneo in the 1960s; the species has most probably got an Indo-Malay distribution.

*Hastula easmithi* (Aubry, 1999)  
Pl. 1, Figs 17-22

Originally described as *Terebra easmithi* Aubry, 1999 (p. 29) and at time of description only known from a 6-mm-holotype and 4-mm-paratype. The holotype is evidently only the first teleoconch whorls of a (much) larger specimen (thick shell visible in the broken aperture) and portraying an eroded (and/or covered with a layer of calcereous algae deposit) protoconch and eroded general appearance, evidence of it being retrieved dead from sand/shell gritt-mix.

The material examined by the author (2 specimens) for description originated from Ningaloo Marine Park, Western Australia, taken at a depth of 35 m; although later on in the text only 10 m is mentioned (35 m of depth being also applied to the species described after *T. easmithi* i.e. *Terebra ningaloensis* Aubry, 1999 (p. 31)). We assume that this is a mere typographic error and apply collection depth of 10 m for *H. easmithi* like separately

stated in the remarks; which differ from those of *T. ningaloensis*; as the depth is not explicitly noted in the type locality. It is therefore plausible that the species has a very shallow bathymetric range as dead shells end up at rather shallow depths.

*T. easmithi* portrays a somewhat similar juvenile sculpture to that of both *H. rufopunctata* and *H. diversa* i.e. straight ribs from suture to suture that fade towards the bottom, which become wider spaced with teleoconch growth. In the supposition that the holotype of *T. easmithi* is a mere juvenile specimen (7 teleoconch whorls, experience from the species discussed above teaches us that the sculpture will become more widely spaced, shorter and eventually completely disappear in maturity. Of the few features visible on the type of *T. easmithi* we can also note the whitish-coloured sub-sutural band with a darker-tinged, finer one just below. The protoconch is described as having 3.5 whorls, but noting the state of the type, this may well be erroneous and the protoconch is possibly smaller in number of whorls.

Ningaloo Marine Park is situated in Western Australia, about 100 km SW of Exmouth. A number of specimens originating from nearby Exmouth and further north Broome, Western Australia (Pl. 1, Figs 18-22) drew our attention as their juvenile sculpture was close to that of *H. rufopunctata* and *H. diversa* as mentioned above and very close in general appearance to the holotype of *T. easmithi*. The protoconches on these specimens have a peculiar feature for **Terebridae** in general, i.e. a sculpted protoconch: (1) the transition to teleoconch is not visible; (2) on the second rounded whorl (of the presumably 2-whorled brown translucent protoconch), minute axial ribs are discernable; (3) a 'third' whorl (presumably the first teleoconch whorl) is straight-sided, but composed of the same fragile and translucent material of the 'protoconch'. These features correspond with the protoconch characteristics as seen on the holotype of *T. easmithi*, albeit in eroded form; probably accounting for the observation of 3.5 whorls.

The specimens were furthermore compared with other morpho-species of for example *H. strigilata* s.l. with which they were not conspecific, neither could the protoconch feature be reproduced.

The large number of specimens studied from various localities from NW Western Australia portrayed the additional characteristics: a white subsutural spiraling band, regularly dotted with small, rounded, brownish flecks on mature whorls, a dark brown spiral band below, which gradually fades to pinkish orange, a white band at periphery and dark brown below to the columella. Axially ribbed from suture to suture, gradually fading in maturity and with only remnants visible on the white subsutural band in most mature specimens. Apical angle

slightly variable. Only known from Western Australia in the littoral zone.

Awaiting further data and based on the abovementioned findings, we tentatively conclude that the studied specimens originating from Broome and Exmouth are conspecific with the taxon *T. easmithi* and that its generic status should be altered to the genus *Hastula* i.e. as *Hastula easmithi* (Aubry, 1999) instead of in the morphological grouping as proposed by Fedosov et al. (2020).

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#### Plate 1

##### 1-12: *Hastula diversa* (E. A. Smith, 1901)

all coll. YT unless mentioned otherwise

**1:** South Africa, Transkei, beached, 23.1 mm.

**2:** South Africa, Natal, Shelly Beach, beached, 29.1 mm.

**3:** Idem, 26.4 mm.

**4:** Syntype, NHMUK, 26.8 mm.

**5:** Idem, 26.8 mm.

**6:** South Africa, Natal, Shelly Beach, beached, 22.0 mm.

**7:** South Africa, Natal, Marina Beach, beached, 28.4 mm.

**8:** Mozambique, Machangula Peninsula, Ponta St Maria, dredged at 25-35 m, 14.5 mm.

**9:** Idem, 13.9 mm.

**10:** South Africa, Natal, Shelly Beach, beached, 22.3 mm.

**11:** Idem, 25.5 mm.

**12:** Idem, 32.3 mm.

##### 13-16: *Hastula rufopunctata* (E. A. Smith, 1877)

all coll. YT unless mentioned otherwise

**13:** Indonesia, Borneo, Tanjong, Isselton, 20.6 mm.

**14:** Idem, 18.5 mm.

**15:** Paralectotype, NHMUK 1874.10.12.3, 19.3 mm.

**16:** Lectotype, NHMUK 1874.10.12.3-1, 22.5 mm.

##### 17-22: *Hastula easmithi* (Aubry, 1999)

all coll. YT unless mentioned otherwise

**17a:** *Terebra easmithi* Aubry, 1999, holotype, coll. UA, 6 mm;

**17b:** Enlarged approx. x 3.

**18:** Western Australia, Broome, at low tide in shallow water, 16.8 mm.

**19:** Idem, 16.7 mm.

**21:** Idem, 18.7 mm.

**22:** Idem, 16.4 mm.

**20:** Western Australia, Exmouth, at low tide in shallow water, 20.0 mm.

Plate 1

