

SINGAPORE MOLLUSCA: 6. THE FAMILY TRUNCATELLIDAE (GASTROPODA: CAENOGASTROPODA: TRUNCATELLOIDEA)

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ABSTRACT. — The family Truncatellidae in Singapore is represented by a single species, the widely-distributed *Truncatella guerinii*. In this review of the family, specimens of *Truncatella guerinii* from Singapore are figured and a diagnosis is provided to aid identification. Some notes of interest are added for information.

KEY WORDS. — Mollusca, *Truncatella*, Singapore, taxonomy, synonymy, synonyms, records

INTRODUCTION

The family Truncatellidae J. E. Gray, 1840, is a worldwide family of largely tropical terrestrial snails. The early whorls of adult shells are typically truncated; the broken part is sealed by a septum or plug, and the point of fracture is mechanical and remarkably consistent for each species. There is a calcareous plate on the corneous operculum of many species (Clench & Turner, 1948). The animals feed on plant detritus and algae (Rehder & Carmichael, 1981).

In Singapore, the family is represented by a single species, the widely-distributed *Truncatella guerinii* A. Villa & J. Villa, 1841. In this review, specimens of *Truncatella guerinii* from Singapore are figured and a diagnosis is provided. Taxonomical, nomenclatural, and other notes of interest are included.

MATERIAL AND METHODS

Records were collated from the available literature, and geographically-relevant material was examined. Primary synonyms and records mentioning Singapore are listed. Specimens examined in the course of this study were deposited in the Zoological Reference Collection (ZRC), Raffles Museum of Biodiversity Research, National University of Singapore. Measurements are given in the form of shell height (SH) × shell width (SW). Shell height is defined as the distance from the apex to the lowest part of the basal side of the peristome, and shell width is the distance between the edges of the widest part of the body whorl perpendicular to the coiling axis. All measurements are in millimetres (mm).

SYSTEMATIC PART

SUPERFAMILY TRUNCATELLOIDEA J. E. GRAY, 1840

FAMILY TRUNCATELLIDAE J. E. GRAY, 1840

Truncatellidae J. E. Gray, 1840: 117, 148 (type genus *Truncatella* Risso, 1826).

Genus *Truncatella* Risso, 1826

Truncatella Risso, 1826: 124 (type species *Truncatella costulata* Risso, 1826 [= *Helix subcylindrica* Linnaeus, 1767; see ICZN (1955: 78)], by subsequent designation by Lowe, 1855: 217).

Remarks. — In Opinion 1664 (ICZN, 1992: 78), the type species of *Truncatella* Risso, 1826, was corrected to *Truncatella costulata* Risso, 1826, to correct the type species erroneously given in Opinion 344 (ICZN, 1955: 326) (see also Rosenberg & Davis, 1990: 105).

***Truncatella guerinii* A. Villa & J. Villa, 1841**

(Figs. 1–3)

- Truncatella guerinii* A. Villa & J. Villa, 1841: 59 (type locality: “Insulas Bourbon” [= Réunion Island, Western Indian Ocean]).
- Truncatella valida* Pfeiffer, 1846: 182 (type locality: “insulis Philippinis [= the Philippines]”).
- Truncatella aurantia* Gould, 1847: 208 (type locality: “Mangsi Island, Borneo [= Mangsee Islet, Balabac, the Philippines]”).
- Truncatella vitiana* Gould, 1847: 208 (type locality: “Feejee Islands [= Fiji]”).
- Truncatella pacifica* Pease, 1868: 230 (type locality: “Insula Oualan [= Ovalau, Fiji (see Clench & Turner, 1948: 167)]”).
- Truncatella cristata* Crosse, 1868: 177 (type locality: none stated/traced).
- Truncatella yorkensis* Cox, 1868: 93, pl. 15, fig. 11 (type locality: “Cape York, N. E. Australia”).
- Truncatella ferruginea* Cox 1868: 94 (type locality: “Cape York, N. E. Australia”).
- Truncatella concinna* Pease, 1871: 468 (type locality: “Insula Apaiang [= Abaiang, Northern Gilbert Islands, Kiribati]”).
- Truncatella semperi* Kobelt, 1884: 52 (type locality: “Pangongon [= ? Pangangan, Bohol, the Philippine (see Clench & Turner, 1948: 167)]”).
- Truncatella fasciata* Tapparone-Canefri, 1886: 193, 194, pl. 2, fig. 24 (type locality: “Wokan, is. Aru [= Tanahbesar (Wokam), Kepulauan Aru, Indonesia]”).
- Truncatella amamiensis* Kuroda & Habe in Habe, 1961: 21, pl. 10, fig. 7 (type locality: Amami Islands, Okinawa, Japan).

Singapore records:

- Truncatella* species – Traill, 1847: 240 [first record]. — Traill, 1858: 174 (after Traill, 1847). — H. Adams & A. Adams, 1851: 63.
- Truncatella valida* – von Martens, 1867: 162. — Oostingh, 1925: 59.
- Truncatella guerinii* – K. S. Tan & Chou, 2000: 70, 1 unnumbered fig. — S. K. Tan & Woo, 2010: 37. — Wang et al., 2011: 491. — S. K. Tan et al., 2012: 69, 2 unnumbered figs.

Material examined. — **Singapore.** Changi (ZRC.MOL.5688), coastal woodland near Changi Ferry Terminal, 29 Jan.2001.

Distribution in Singapore. — See Fig. 2.

Habitat. — Beaches, coastal cliffs, coastal woodlands; usually locally common or abundant in vegetation and leaf litter near seashore, and under rocks and/or debris at the supralittoral zone (Vermeulen & Whitten, 1998; pers. obs.).

Diagnosis. — The following diagnosis is based on specimens from Singapore and information in Clench & Turner (1948). Shell small, solid, rather cylindrical, sculptured with numerous axial ribs, about 30 on body whorl; to 10 mm in shell height; spire tall, early couple of apical whorls smooth, sculpture of axial ribs gradually becoming stronger, apical whorls of mature shells typically truncated, suture impressed; aperture ovate, peristome complete, apertural rim somewhat thickened, outer lip slightly flared in mature specimens, umbilicus closed, basal ridge usually prominent; shell colour pale cream to light reddish-brown.

Remarks. — *Truncatella guerinii* A. Villa & J. Villa, 1841, is a very widely-distributed Indo-Pacific species. It has been recorded from American Samoa, Australia (including Christmas Island [Indian Ocean] and the Cocos-Keeling Islands), Fiji, India (Nicobar Islands), Indonesia, Japan, Kenya, Madagascar, Malaysia, Marshall Islands, Mauritius, Micronesia, New Caledonia, New Zealand (Cook Islands), Palau, Papua New Guinea, the Philippines, Réunion, Singapore, Taiwan, the Seychelles (including Aldabra), Sri Lanka, Thailand, Tonga, Vanuatu (Nevill, 1878; Tenison-Woods, 1888; Clench & Turner, 1948, Gerlach & Griffiths, 2002; Brook et al., 2010; Rundell, 2012).

This species was first recorded from Singapore by von Martens (1867: 162) under the name *Truncatella valida* Pfeiffer, 1846, which was the most commonly used synonym of *Truncatella guerinii* until Clench & Turner (1948: 167–168) examined the type material of most known synonyms of *Truncatella guerinii*, and concluded that that *Truncatella guerinii* A. Villa & J. Villa, 1841, is the oldest and valid (correct) name to be used for this species. Traill (1847: 240; 1858: 174) and H. Adams & A. Adams (1851: 63) recorded an unidentified species of *Truncatella* Risso, 1826, from Singapore, and we consider these to be the earliest records of *Truncatella guerinii*, as this species (and genus) is morphologically distinct and is unlikely to have been a misidentification, and it is the only verified species in Singapore to date. This is further supported by the description of the habitat by H. Adams & A. Adams (1851: 63) for their *Truncatella* species from Singapore.



Fig. 1. In situ photographs of *Truncatella guerinii* A. Villa & J. Villa, 1841, from Lily Beach, Christmas Island (Indian Ocean) showing their typical habitat and clustering habits. The animals were revealed after a rock, in the middle of a dirt track near the beach, was lifted. (Photographs by: S. K. Tan).

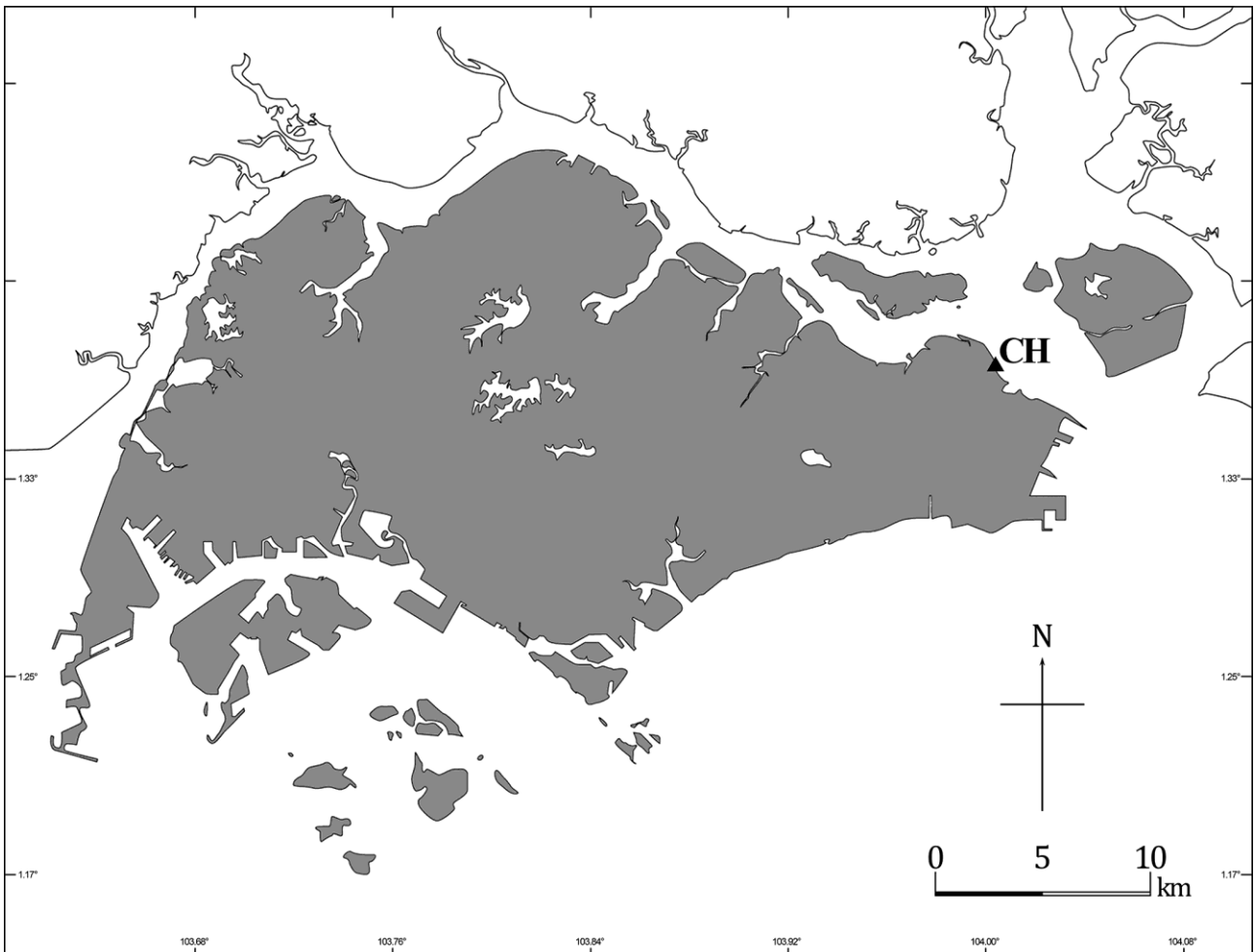


Fig. 2. The only locality in Singapore, known to us, where *Truncatella guerinii* A. Villa & J. Villa, 1841 has been found alive: ▲, coastal forest near the Changi Ferry Terminal.

The dates of publication of *Truncatella aurantia* and *Truncatella vitiana* have been cited as being published in “1848” by Gould, and “1867” for *Truncatella pacifica* by Pease (see Clench & Turner, 1948: 167), the publications of Gould and Pease were, however, respectively published in 1847 (Johnson, 1964: 178), and 1868 (verso of title-page of relevant volume).

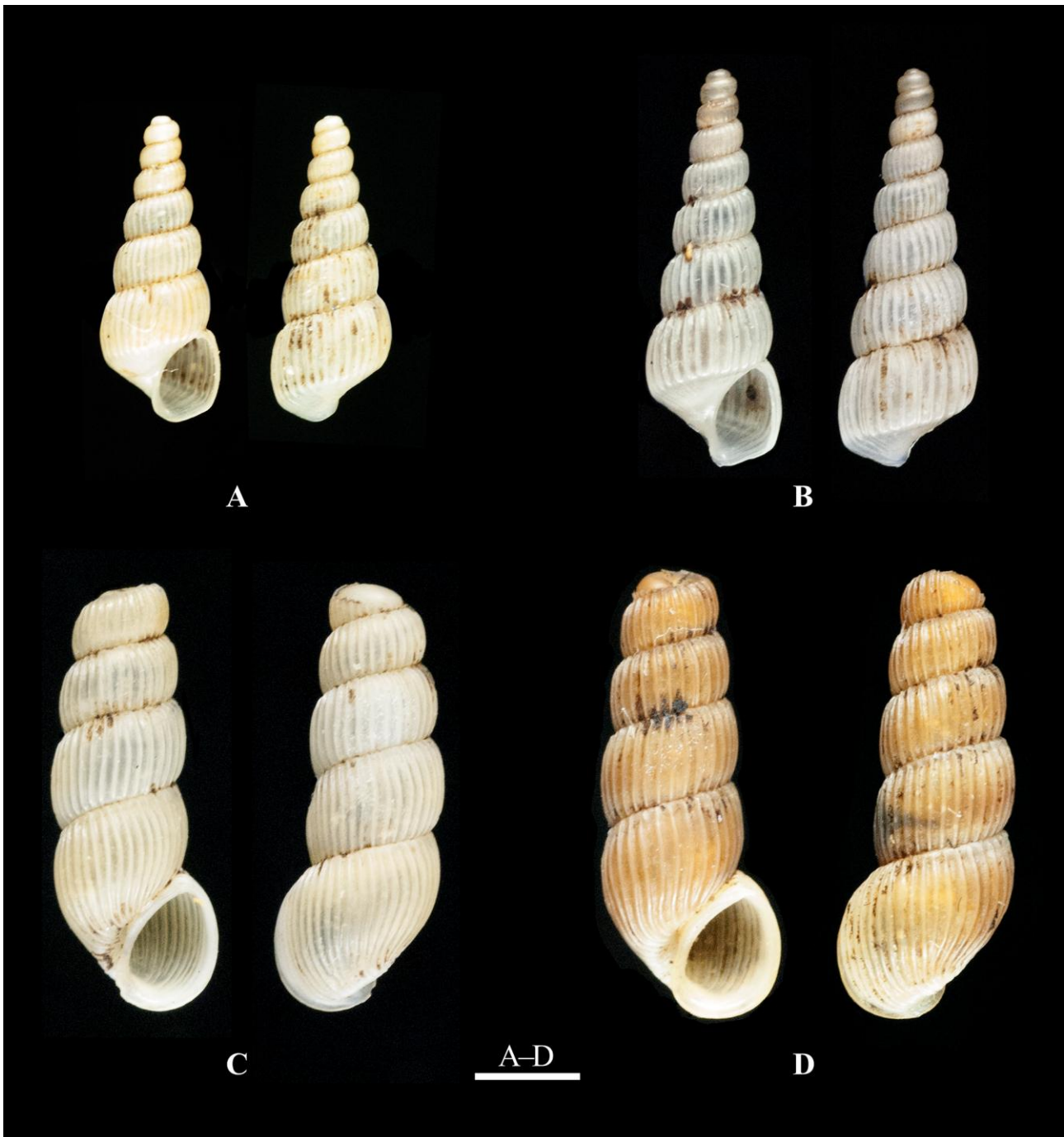


Fig. 3. *Truncatella guerinii* A. Villa & J. Villa, 1841 (ZRC.MOL.5688), from a coastal forest along Changi Coast Track, Singapore, showing variations in colouration and shell form at different stages of growth: A, SH 5.8 × SW 2.2 mm; B, SH 7.4 × SW 2.6 mm; C, SH 7.9 × SW 3.2 mm; D, SH 8.5 × SW 3.1 mm. Scale bar = 2 mm. (Photographs by: S. K. Tan).

Truncatella amamiensis Kuroda & Habe in Habe, 1961, is considered by most authors to be a junior subjective synonym of *Truncatella guerinii* A. Villa & J. Villa, 1841 (e.g., Ando & Habe, 1981: 79, 80; Kurozumi et al., 2011: 124). *Truncatella guerinii oagarensis* (Kuroda, 1960), is currently considered to be a valid subspecies restricted to the Daitō Islands in the Ryukyu Archipelago and is listed as near-threatened at that locality (Y. Azuma & M. Azuma, 1994: 163; NCD, 2005: 409).

The names *Truncatella guerinii* var. *minor*, *Truncatella valida* var. *minor*, and var. *parvicostata* were listed by Nevill (1878: 253, 254) without descriptions or figures and are nomina nuda (proposed without description), and their identity remains uncertain. Gerlach & Griffiths (2002: 671, pl. 2, figs. i, j) figured a material from the Aldabra Atoll to which they applied the names *Truncatella guerinii* A. Villa & J. Villa, 1841, and “*Truncatella* cf. *valida* [...] var. *minor* Nevill, 1878). Although Gerlach & Griffiths (2002: 671, pl. 2, fig. j) used the latter name and figured a specimen, their action does not make the name *Truncatella valida* var. *minor* available, and it remains a nomen nudum.

DISCUSSION

Truncatella guerinii A. Villa & J. Villa, 1841, is usually found several metres from the high tide mark often at the interface of forests and beaches (Rundell, 2012; unpublished data). Although classified as a species of least concern by the IUCN (“no current major threats that affect the species at the global level”), *Truncatella guerinii* A. Villa & J. Villa, 1841, may be locally threatened by the development of the coastal habitats that it inhabits (Rundell, 2012). This may be the case in Singapore, where this species has not been found alive since the only locality on Singapore Island known to us was developed in 2007. It is however likely that living populations occur in the Southern Islands, or other south facing beaches of Singapore Island, where habitats appear to be suitable.

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