

## A new species of *Gymnobela* (Gastropoda: Raphitomidae) from the Central Pacific

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### ABSTRACT

*Gymnobela midpacific* n. sp. is described from offshore Midway Island and is compared with *Gymnobela yoshidai* (Kuroda & Habe in Habe, 1961) and *G. eridmata* Sysoev & Bouchet, 2001. The closest species, *G. yoshidai* (Kuroda & Habe in Habe, 1961) differs in having a different shell shape with convex whorls as well as a less well-developed axial and spiral sculpture than does *G. midpacific*. It differs from *G. eridmata* in having a stronger and denser spiral sculpture and a less distinct and narrower siphonal canal.

Keywords: Gastropoda, turrid, Raphitomidae, *Gymnobela midpacific* n. sp., Central Pacific, Hawaii, Midway Island

### INTRODUCTION

*Gymnobela* (*s. l.*) is a widespread conoidean genus being mainly bathyal and abyssal in its bathymetric distribution. Recent scientific expeditions have brought to light a large number of Indo-Pacific *Gymnobela* (*s. l.*), mainly from the Western Pacific (*e.g.* Sysoev, 1997; Sysoev & Bouchet, 2001). Despite this, there are few *Gymnobela* records from the northern Central Pacific. Specimens reported in Kosuge (1979), and Sysoev in Severns (2011) from northern Central Pacific guyots (flat-topped submarine mountains), and around the Hawaiian Islands, and material collected by commercial trawlers northwest of Midway Island respectively, belong to an undescribed species. *Gymnobela dubia* (Schepman, 1913) is the only other species reported from the northern Central Pacific (Rehder & Ladd, 1973).

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### ABBREVIATIONS

CBM Natural History Museum and Institute, Chiba, Japan

MC Mitsuo Chino collection, Kawasaki, Japan  
MNHN Muséum national d'Histoire naturelle, Paris, France  
NSMT National Science Museum, Tokyo, Japan  
PS Peter Stahlschmidt collection, Rohrbach, Germany  
SMF Senckenberg Forschungsinstitut und Naturmuseum, Frankfurt, Germany

### SYSTEMATICS

Family: Raphitomidae Bellardi, 1875  
Genus: *Gymnobela* Verrill, 1884  
Type species: *Gymnobela engonia* Verrill, 1884 (by subsequent designation: Cossmann, 1896).

#### *Gymnobela midpacific* n. sp. (Figs. 1-2)

#### Type Material.-

Holotype: Chiba Natural History Museum CBM-ZM 163570 (height x width: 20.7 x 8.4 mm). Paratype 1: NSMT-Mo-78458 (20.8 x 8.1 mm). Paratype 2: MNH-23310 (25.3 x 10.2 mm). Paratype 3: SMF-336423 (15.8 x 6.9 mm). Paratype 4: Chiba Natural History Museum CBM-ZM 163572 (18.0 x 8.0 mm). Paratype 5: MC (14.6 x 5.9 mm). Paratype 6: MC (18.4 x 7.9 mm). Paratype 7: PS-020232 (20.7 x 8.4 mm). All types are from NW off Midway Island, 300-350 m, (collected by commercial dredging).

#### Type locality.-

Central Pacific, NW off Midway Islands (Hawaii), 300-350 m.

#### Distribution.-

A fragment of *G. midpacific* n. sp. was depicted as *Speoides* sp. in Kosuge (1979) who reported on the molluscan fauna of the Central Pacific guyots. That fragment was trawled

northwest of Midway Island (32° 04.9' N, 173° 00.6' E) at 355 m.

Description.-

Shell of moderate size for genus, attains 25.3 mm. Thin shelled but solid, broadly-biconically shaped, stout, with high turreted spire and inflated body whorl. Teleoconch with about 6-7 whorls, strongly angulated at the periphery, nearly flat abapically. Subsutural area concave with thin but well developed axials that represent the successive positions of the anal sinus. Suture is shallow and indistinct. Protoconch is small, brown, and covered by a typically finely diagonally cancellated sculpture. The protoconch I is missing in all available specimens but protoconch II consists of approximately two smooth whorls (in the Holotype).

Axial ribs are broadly rounded, 12-14 ribs per whorl, absent from subsutural area. Interspaces of axial ribs are 2-3 times wider than the axial ribs. Spiral sculpture consists of low, flattened cords separated by interspaces equal to cord width. Cords are weak on abapical part of subsutural area and obsolete on its adapical part. Penultimate whorl has 12-14 spiral cords.

Aperture is elongate-oval, smooth and white shining inside with thin white callus on inner lip. Canal is rather narrow and poorly differentiated from aperture. The outer lip of all specimens is broken but, as indicated by growth lines, the anal sinus appears to be shallow and symmetrical. Background colour is light orange-cream with two darker bands on the body whorl. Base and spirals ribs are whitish. Radula and animal unknown.

Differential diagnosis.-

Several genera such as *Spergo* Dall, 1895, *Theta* Clarke, 1959, *Speoides* Kuroda & Habe in Habe, 1961, among others, are very similar or even hardly distinguishable from *Gymnobela* (Bouchet & Warén, 1980; Sysoev & Bouchet, 2001). *G. midpacific* n. sp. is similar to *Speoides yoshidai* Kuroda & Habe in Habe, 1961 (Figs 3-4), the type species of the genus *Speoides*. However, we follow Sysoev & Bouchet (2001) and include the *yoshidai*-complex of species in *Gymnobela* until the *Gymnobela* genera complex is thoroughly revised.

The closest species, *G. yoshidai* (Kuroda & Habe in Habe, 1961) differs in having a different shell shape with convex whorls and a distinct and larger siphonal canal as well as a less well-developed axial and spiral sculpture. The new species differs also in the smaller shell size. However, considering the lower number of whorls of *G. midpacific* n. sp. (5 to 6) compared to *G. yoshidai* (7 to 8) we cannot exclude the possibility that the available material of the new species is actually represented by subadult shells. However, most specimens have a distinctly thickened columella suggesting that these specimens represent adults.

Sysoev in Severns (2011) depicted a species as *Gymnobela* sp. aff. *yoshidai* which was trawled at 300 m off Maui Island (Hawaii Islands). That species looks very similar to *G. midpacific* n. sp. but has a weaker anal sinus, lacks the thickened scars from the earlier positions of the sinus at the subsutural ramp and is of larger size. More material and a side by side comparison would be necessary to examine if they are conspecific or if they belong to two closely related species.

*Gymnobela midpacific* n. sp. is also similar to *G. eridmata* Sysoev & Bouchet, 2001, described from Norfolk Ridge, but differs in having a stronger and denser spiral sculpture, a less distinct and narrower siphonal canal and a different colouration.

Etymology.-

Referring to the distribution area of the new species.

REFERENCES

- Bellardi, L., 1875. Novae pleurotomidarum Pedimonti et Liguriaie fossilium: dispositionis prodromus. *Bullettino della Società Malacologica Italiana* 1: 16-24
- Bouchet, P. & A. Warén., 1980. Revision of the north-east Atlantic bathyal and abyssal Turridae. *Journal of Molluscan Studies, Supplement 8*: 1-119
- Clarke, A. H., 1959. New abyssal molluscs from off Bermuda collected by the Lamont Geological Observatory. *Proceedings of the*

*Malacological Society of London* 33: 231-238

Cossmann, M., 1895. Mollusques éocéniques de la Loire-Inférieure. (premier fascicule). *Bulletin de la Société des Sciences Naturelles de l'Ouest de la France* 5: 159-197

Dall, W. H., 1895. Scientific results of explorations by the US Fish Commission Steamer Albatross. XXXIV. Report on Mollusca and Brachiopoda dredged in deep water, chiefly near the Hawaiian Islands, with illustrations of hitherto unfigured species from northwest America. *Proceedings of the United States National Museum* 17: 675-733

Habe, T. 1961. *Coloured illustrations of the shells of Japan (II)*. Osaka: Hoikusha, ix+148 pp.

Kosuge, S., 1979. Report of the mollusca on guyots from the Central Pacific collected by the 2nd and 3rd cruises of R/V Kaiyomaru in 1972 to 73 with descriptions of twelve new species. *Bulletin of the Institute of Malacology, Tokyo* 1(2): 24-36

Rehder, H. A. & H. S. Ladd, 1973. Deep and shallow-water mollusks from the central Pacific. *The Science Reports, second series (Geology), Tôhoku University Special volume* 6: 37-49

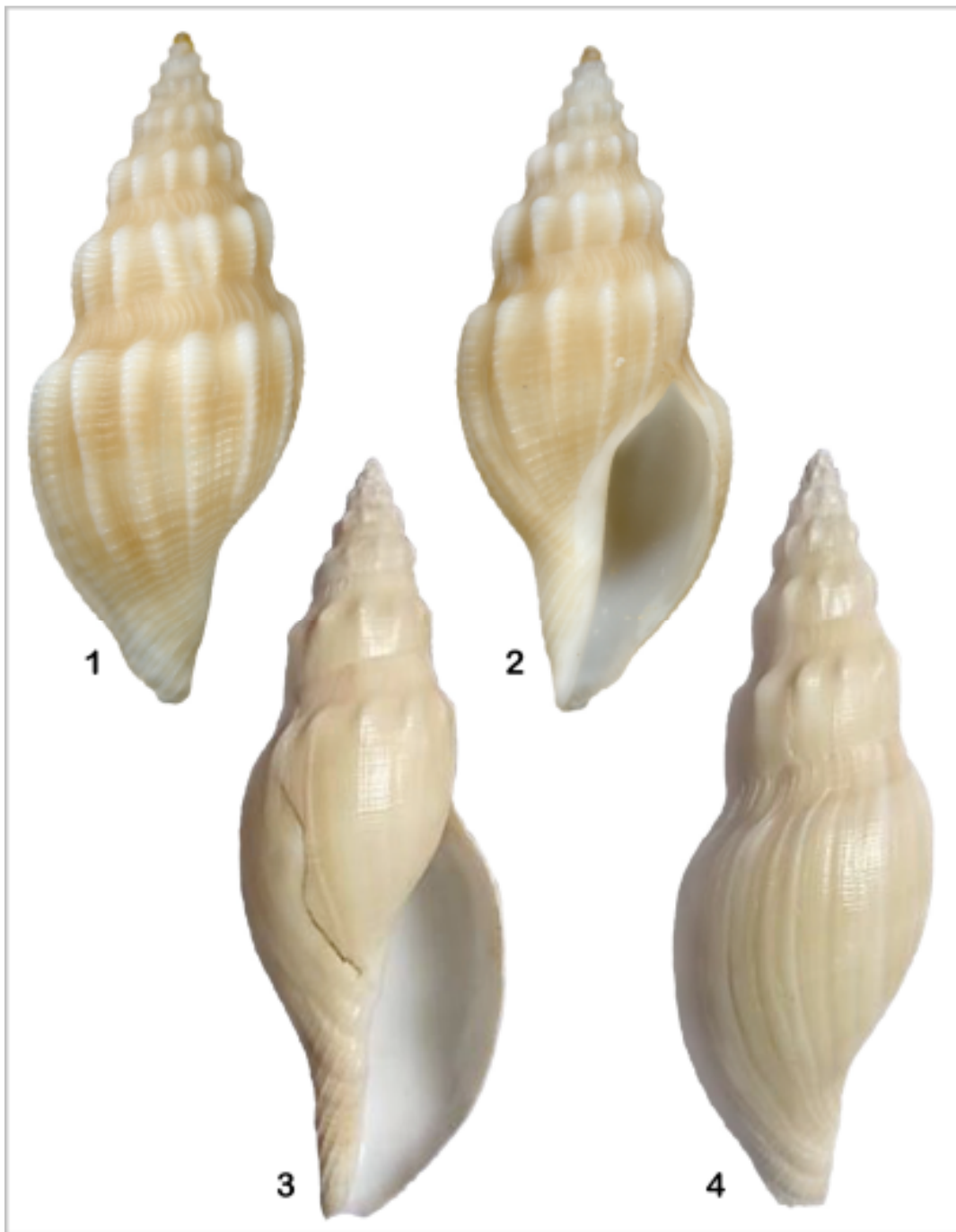
Schepman, M. M., 1913. The Prosobranchia of the Siboga Expedition. Part 5. Toxoglossa. *Resultats Siboga-Expeditie* 49-1: 365-452

Sysoev, A.V., 2011. *Raphitominae*. p. 356 in: Severns, M., 2011. *Shells of the Hawaiian Islands. The Sea Shells*. Hackenheim: ConchBooks, 562 pp.

Sysoev, A. V., 1997. Mollusca Gastropoda: new deep-water turrid gastropods (Conoidea) from eastern Indonesia. *Mémoires du Muséum National d'Histoire Naturelle, Paris, série A, Zoologie* 172: 325-355

Sysoev, A. V. & P. Bouchet, 2001. New and uncommon turritiform gastropods (Gastropoda: Conoidea) from the South-West Pacific. *Mémoires du Muséum National d'Histoire Naturelle, Paris, série A, Zoologie* 185: 271-320

Verrill, A. E., 1884. Second catalogue of Mollusca recently added to the fauna of the New England coast and the adjacent parts of the Atlantic, consisting mostly of deep-sea species, with notes on others previously recorded. *Transactions of the Connecticut Academy of Arts and Sciences* 6: 139-289



1-4. Raphitomidae, *Gymnobela* species. 1-2. *Gymnobela midpacificae* n. sp. Holotype; Chiba Natural History Museum and Institute, CBM-ZM 163570, height 20.7 mm; Hawaii, NW off Midway Island, 300-350 m; 1. dorsal view; 2. ventral view; 3-4. *Gymnobela yoshidai* (Kuroda & Habe in Habe, 1961), collection Ken-ichiro Ishii, height 49.8 mm; Japan, off Tosa-Shimizu, Kochi prefecture; 3. dorsal view; 4. ventral view.