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Notes on the Genus *Taheitia* (Truncatellidae) in New Guinea with the description of a new species

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The genus *Taheitia* is widely distributed on the Pacific Islands. Species have been recorded from the Tuamotu Islands in the Central Pacific to the Philippine Islands and New Guinea in the Western Pacific. No species have been recorded from Indonesia though it is certainly possible that members of this genus may occur on these islands but may have been overlooked owing to their small size and secretive habits. Only two species have been recorded previously from New Guinea and the closely associated islands, Waigeo and Misool — *T. wallacei* H. Adams and *T. gracilentia* E. A. Smith.

Taheitia is a genus of terrestrial species in the family Truncatellidae. Similar to other rather primitive prosobranchs, such as the Neritidae and Helicinidae (a few species in the Neritidae and all known species in the Helicinidae), *Taheitia* has become adapted to living on land. A monograph of the genus *Taheitia* is impossible at this time for the collections available for study are far too small and in most cases contain only dried specimens. The radulae of only a very few species have been figured but the differences shown suggest that further study of this organ might be of considerable aid in indicating relationships among the various species. The opercula, too, are strikingly different to judge from the relatively few species for which they are known. All consist of a paucispiral, chitinous base with a heavy, but distinctly sculp-

tured calcareous plate on the outer surface. No detailed anatomical work has ever been done on any species in this genus or even in the entire family. A discussion of the genus *Taheitia* and a summary of the known species were given by Clench and Turner (1948).

The following new species was collected at Biak, Dutch New Guinea by A. W. B. Powell while on an expedition under the auspices of the Natural Science Foundation, Academy of Natural Sciences, Philadelphia. The party consisted of Alfred Ostheimer, Virginia Orr and A.W.B.Powell. During a recent visit to the British Museum (Natural History) it was possible for me to study the type series of *T. gracilenta* Smith and topotypes of *T. wallacei* Adams. Descriptions of these species are included to allow a ready comparison of the three species now known from New Guinea. I am most grateful to Ian Galbraith and Peter Dance for their kindness to me while I was working in the Mollusca Division at the British Museum (Natural History). I am also grateful to R. T. Abbott for the loan of material from the Academy of Natural Sciences, Philadelphia.

***Taheitia gracilenta* Smith**

Plate 31, fig. 4

Truncatella gracilenta Smith 1897, Proceedings Malacological Society, London **2**, p. 289, pl. 17, figs. 16-17 (Andai, New Guinea).

Truncatella (Taheitia) gracilenta Smith. Rensch 1937, Archiv für Naturgeschichte (NF) **6**, pt. 4, pp. 629, fig. 54.

Taheitia gracilenta Smith. Clench and Turner 1948, Occasional Papers On Mollusks, Harvard Univ. **1**, no. 13, p. 191.

Description. Shell reaching 14.3 mm. (truncate specimen) in length, cylindrical, strong, imperforate and sculptured. Whorls remaining, 7 to $7\frac{1}{2}$, slightly convex with the body whorl slightly angled. Color a light golden brown. Aperture holostomatous, oval and with a broadly reflected lip. There is a distinct parietal gap. Spire extended and abruptly truncated. Sculpture consisting of numerous fine axial blades which are more or less evenly spaced and equally strong over the surface of the shell with the exception of the axial blades extending over the base of the body whorl which are stronger and higher. Young, non-truncated specimens have 10 whorls, with sculpture similar to that of the adult except that the embryonic whorls are

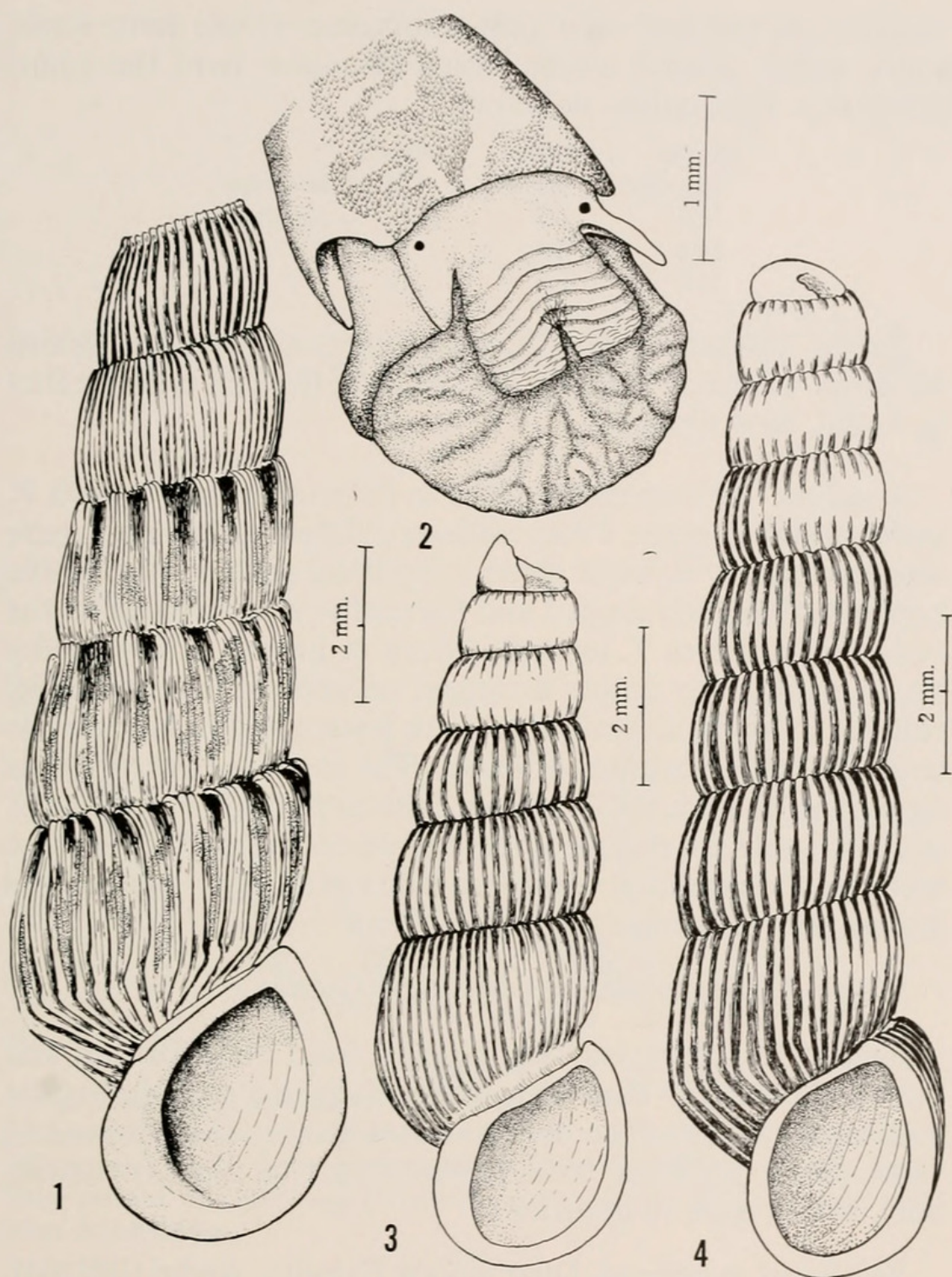


Plate 31

Fig. 1. *Taheitia orrae* Turner, Holotype, Academy Natural Sciences, Philadelphia, no. 223656. The stippled areas indicate the translucent patches.

Fig. 2. *Taheitia orrae* Turner. From a specimen which had been preserved in alcohol and relaxed with trisodium phosphate.

Fig. 3. *Taheitia wallacei* H. Adams. Topotype drawn from specimen in the British Museum (Natural History), no. 1904.12.15.56.59.

Fig. 4. *Truncatella gracilenta* Smith (= *Taheitia gracilenta* Smith). Lectotype, British Museum (Natural History), no. 98.10.25.16.

smooth and the first four post-embryonic whorls have weak, more widely spaced costae which disappear over the whorl periphery. Operculum unknown.

length	width	whorls	
14.3 mm.	3.5 mm.	7½	lectotype
11.5	2.5	7	paratype
14.2	3.5	7½	"
14.0	3.2	7½	"

Types. The lectotype of *T. gracilentia* Smith is in the British Museum (Natural History), no. 98.10.25.16. The type locality is Andai, New Guinea.

Remarks. This species is close in its relationship to both *T. wallacei* and *T. orrae*. From *wallacei* it differs in having a more elongate, nearly straight sided, cylindrical shell, in having the body whorl slightly angled and the costae less crowded on the body whorl. From *T. orrae* it differs in having a less flaring lip, in having the costae arranged as approximately parallel ridges rather than grouped to form bosses and in lacking the irregular color markings of *orrae*. The radula of *gracilentia* as figured by Rensch (1937) is very close to that of *orrae*, though unfortunately the marginal teeth were not figured. It is these teeth on the radula of *orrae* that differ strikingly from others known for this genus.

Range. Probably restricted to New Guinea.

Rensch has recorded this species from New Britain and New Ireland in the Bismarck Archipelago, but considering the restricted ranges of the better known species of *Taheitia* and *Geomelania* (its West Indian counterpart in the Truncatellidae), this is open to question.

Specimens examined. DUTCH NEW GUINEA: Andai (BMNH).

***Taheitia wallacei* H. Adams**

Plate 31, fig. 3

Truncatella (*Taheitia*) *wallacei* H. Adams 1865, Proceedings Zoological Society, London, p. 416, pl. 21, figs. 13-14 (Waigiou, New Guinea).

Taheitia wallacei H. Adams. Clench and Turner 1948, Occasional Papers On Mollusks, Harvard Univ. 1, no. 13, p. 192.

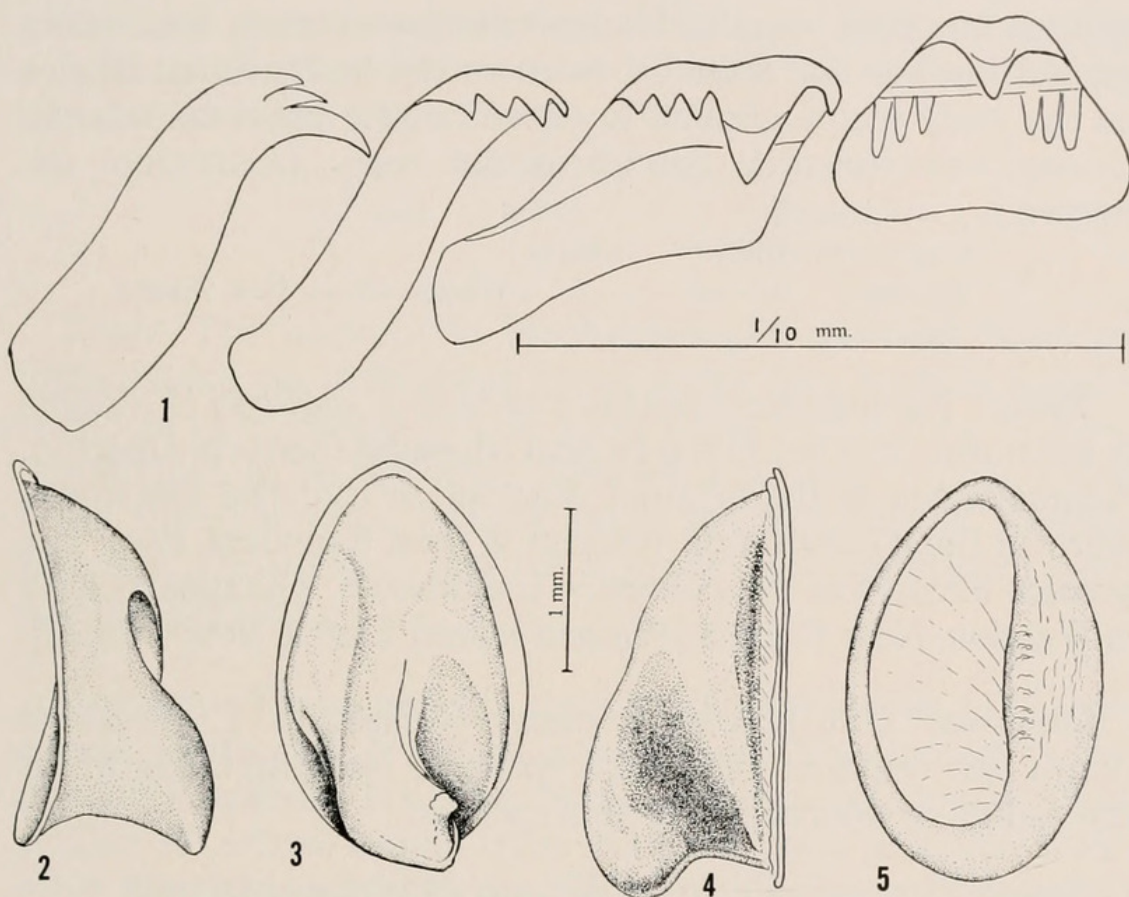


Plate 32

Fig. 1. Radula of *Taheitia orrae* Turner.

Figs. 2-5. Operculum of *Taheitia orrae* Turner. Fig. 2. View from the parietal margin. Fig. 3. Outer surface. Fig. 4. View from palatal margin. Fig. 5. Inner surface. The thin basal plate is chitinous while the thick, irregular outer plate is calcareous.

Description. Shell reaching 10.5 mm. in length (truncate specimen). Tapering, elongate, imperforate and sculptured. Whorls remaining, $5\frac{1}{2}$ and slightly convex. Color a uniform light golden brown. Aperture holostomatous with a broadly reflected lip. Gap between the parietal lip and the body whorl variable and occasionally absent. Spire extended, somewhat tapering and abruptly truncated. Sculpture consisting of numerous fine axial rounded blades which are more or less evenly spaced but become more crowded on the body whorl. Blades on the body whorl similar to those on the previous whorls. Young, non-truncated specimens not seen. Operculum unknown.

length	width	whorls	
10.5 mm.	3.5 mm.	6	Waigeo, Dutch New Guinea
9.5	3.5	$5\frac{1}{2}$	" " " "

Types. The location of the holotype of *T. wallacei* H. Adams is unknown. It is not in the British Museum (Natural History). Adams states in the original description that the specimens were in the collection of William Wilson Saunders Esq. The present location of this collection is unknown. The type locality is Waigiou, New Guinea [Waigeo Island, Dutch New Guinea].

Remarks. This species is closely related to *T. gracilentia* Smith (see remarks under that species). Nothing is known of the radula or operculum of this species.

Range. Known only from Waigeo and Misool Islands.

Specimens examined. DUTCH NEW GUINEA: Waigeo (BMNH).

Taheitia orrae, new species

Plate 31, figs. 1-2; Plate 32, figs. 1-5

Description. Shell reaching 12.8 mm. in length (truncated specimen), cylindrical, rather strongly formed, imperforate and sculptured. Whorls remaining, 5 and slightly convex. Color a light tan to medium reddish brown with irregular patches of a darker red-brown. The irregular patches are translucent, especially in transmitted light, while the light areas are opaque. Aperture holostomatous, subovate and with a broadly reflected lip. There is no parietal gap. Spire extended and abruptly

truncated. Sculpture consisting of numerous fine axial blades which are grouped to form bosses along the suture on the upper portion of the whorls. The axial blades become weak over the periphery of the whorl but much stronger at the base of the shell. Young non-truncated specimens have 10 to 11 whorls and have much stronger axial blades, particularly near the suture. The blades on the juvenile specimens are not grouped into bosses. Nuclear whorls two, and smooth. Operculum with a paucispiral, chitinous base and a heavy calcareous plate on the outer surface (Plate 32, figs. 2-5).

length	width	whorls	
12.8 mm.	4 mm.	5	Holotype
12.4	4	5	Paratype

Types. The holotype in the Academy of Natural Sciences Philadelphia, no. 223656 was found under fern roots in a large sink-hole cave behind the air strip, Biak, Dutch New Guinea, Station 503, A. W. B. Powell collector, February 7, 1956. Paratypes from the same locality are in the Academy of Natural Sciences, Philadelphia and the Museum of Comparative Zoology, no. 221170.

Remarks. This species is close in its relationship to *T. gracilenta* Smith and *T. ultima* Rensch from New Britain in the Bismarck Islands. It differs from *ultima* in being somewhat smaller (*T. ultima* ranges from 16.4 to 18.5 mm. in length while *orrae* does not exceed 13 mm. in length), in having the costae grouped to form bosses, and in having irregular color markings. See also remarks under *T. gracilenta* Smith.

Several preserved specimens of *T. orrae* were available for study but unfortunately no special care was taken in their preservation and so detailed anatomical studies were impossible. However, after soaking in trisodium phosphate it was possible to remove the anterior portion of the animal. The mantle was a grayish ivory with markings of dark chestnut brown to nearly black. The tentacles were short and broad with the black eyes at the base. The radula is similar to that of *gracilenta* as figured by Rensch though unfortunately the marginal teeth of *gracilenta* were not shown. The marginals of *orrae* are quite different from those of *T. abbotti* as figured

by Clench and Turner (1948), those of *orrae* having few large denticles while those of *abbotti* have many small ones.

Range. Known only from the type locality.

Specimens examined. DUTCH NEW GUINEA: From sink-hole cave behind the air strip, Biak.

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