

Gloria Maris	55 (4)	105 - 110	Antwerp; 1 May 2017
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A new *Kanamarua* (Gastropoda: Colubrariidae) with a remarkable shape from the Spratly Islands, South China Sea

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Keywords: GASTROPODA, COLUBRARIIDAE, *Kanamarua*, South China Sea, Spratly Islands, new taxon.

Abstract: *Kanamarua wangae* sp. nov., a species originating from the Spratly Islands, South China Sea, is described and compared with relevant species within *Kanamarua* Kuroda, 1951 and *Iredalula* Finlay, 1926.

Introduction: The continental shelf of the South China Sea is home to a unique fauna with a high biodiversity. The vast biomass with faunal influences from the East China Sea and Pacific Ocean is partly connected to the rich biodiversity of the Philippines (Luzon) and the nutritious, rich upwellings offshore Vietnam. Those rich fishing grounds are intensively fished by vessels from surrounding countries and interesting shells are caught as bycatch. The material reported on in the present study originates from shells collected by Chinese fishing vessels that operated in the southern part of the South China Sea in 2016. The material is of particular interest because no fishing activities are conducted at the type locality anymore today as the area is subject to political conflicts. This species has a peculiar shape and sculpture, with affinities to more than one species within the genus *Kanamarua*, but it also shares conchological characteristics with *Iredalula* Finlay, 1926. We compare those similarities and differences without producing a decisive conclusion on the relation between *Kanamarua* and *Iredalula*. We hereby describe the new species and add it to the fauna of the South China Sea as *Kanamarua wangae* sp. nov.

Abbreviations:

MNHN: Muséum national d'Histoire naturelle, Paris, France
DM: collection David Monsecour, Belgium
KF: collection Koen Fraussen, Belgium
WF: collection Wu Fei, China

SYSTEMATICS:

Family: COLUBRARIDAE Dall, 1904

Genus: *Kanamarua* Kuroda, 1951

Type species: *Colus adonis* (Dall, 1919), as *Colus (Aulacofusus) adonis* Dall, 1919, by original designation.

For a discussion on the taxonomy and systematics of the genus *Kanamarua* and its species we refer to Fraussen & Lamy (2008: 129-140).

Kanamarua wangae sp. nov.

Figs 1-9, 13-15, 23-26

Type material: **Holotype** MNHN-IM-2000-33071, 32.8 x 9.8 mm. **Paratype 1:** WF, 32.7 x 9.4 mm; **Paratype 2:** KF, 31.9 x 10.0 mm; **Paratype 3:** DM, 30.0 x 9.6 mm; **Paratype 4:** WF, 33.0 x 9.7 mm.

Type locality: South China Sea, off Spratly Islands, 113°38'E, 07°N, trawled by fishermen at 500-600 m deep.

Material examined: The type material listed above.

Description: Shell medium-sized for the genus, up to about 33 mm in length, thin, semi-translucent, slender, elongate with a high spire and a very short siphonal canal; uniformly ocre coloured, except for the off-white suture and sometimes white area near the outer lip. Teleoconch consisting of 6-6 1/2 whorls, suture well-marked, weakly incised. Protoconch of about 1 3/4 whorls, diameter 1.4 mm, adorned with microscopic pits, pale ocre. Transition to teleoconch ill-defined, only marked by the gradual appearance of the upper shell layer present in the teleoconch. Spiral sculpture consisting of 10-12 broad, flat spiral cords on the first teleoconch whorl, interspaces shallow and narrow; 15-17 somewhat more rounded spiral cords on the second whorl, 19-22 on the third whorl, 28-30 on the fourth whorl, 35-38 on the penultimate whorl and about 80 on the last whorl (including the siphonal canal). One or two subsutural spiral cords are slightly stronger. On the siphonal canal, the cords are clearly stronger and the interspaces wider. Axial sculpture only microscopically discernable and consisting of some occasional fine lines, especially in the uppermost whorls of the teleoconch. Aperture elongate, narrow, without constriction towards the siphonal canal. Outer lip thin, smooth, without lirae within (spiral sculpture of the teleoconch shining through, but smooth within). Columella straight, smooth. Aperture and siphonal canal combined account for about 40% of total shell length.

Periostracum thin, smooth, greenish brown.

Operculum thin, translucent, corneous, tear-shaped, nucleus terminal, pale yellowish brown.

Comparison: *K. wangae* sp. nov. is characterised by its large, slightly flattened protoconch, the rather obscure spiral sculpture of broad and flattened cords in combination with fine interspaces, the high number of such spiral cords, the slender shape, the lens-shaped aperture without constricted base and the weakly incised suture.

Kanamarua hyatinthus Shikama, 1973 (Figs 10-12) (type locality: Taiwan; = *K. rehderi* Kilburn, 1977, type locality: southern Mozambique = *Metula vicdani* Kosuge, 1989, type locality: Philippines) is similar in shape and appearance, but differs by its smaller protoconch, the smooth shell without spiral sculpture, the slightly flatter shape of the upper spire whorls, the weakly constricted base resulting in a more defined siphonal canal, the brightly coloured pattern and the larger adult size. All specimens studied, even juvenile specimens, have a broken protoconch. (Fig. 10) But the first remaining whorl is small and suggests a small protoconch, much smaller than the protoconch of other *Kanamarua* species, including *K. wangae*. Many specimens offered to collectors have a repaired tip with a conical apex added by "shell-doctors" (Figs 11-12).

Kanamarua narcissisma Fraussen & Lamy, 2008 (Figs 16-18) has a similar suture, but differs by its smaller protoconch, the broader shape with wider aperture, the broader spiral cords that are fewer in number (about 17 on the penultimate whorl, rather than more than 35), the prominent, deep spiral interspaces and the more concave base resulting in a somewhat more defined siphonal canal.

Kanamarua adonis (Dall, 1919) and *Kanamarua tazimai* Kuroda, 1951 (Figs 19-22) both differ by their much smaller protoconch, the broader shape with wider aperture, the broader spiral cords that are fewer in number and the more concave base resulting in a somewhat more defined siphonal canal.

Species belonging to *Iredalula* Finlay, 1926 (type species: *Iredalula striata* (Hutton, 1873), as *Bella striata* Hutton, 1873, by original designation, fossil, Pleistocene, New Zealand) have a moderately blunt protoconch that is quite large, compared to shell size, similar to the one observed in *K. wangae* sp. nov.. The distinguishing conchological features listed in the comparison of *Iredalula* with *Kanamarua* by Fraussen & Lamy (2008: 132) are also applicable to characteristics that are present in the new species. Further study may prove a closer relationship between *Kanamarua* and *Iredalula* than yet expected.

In particular *Iredalula groschi* Fraussen & Monsecour, 2007 (Figs 27-30) from Mozambique -the only *Iredalula* species known that is not endemic to New Zealand- has a similar shape, an outer apertural lip with a similar outline when laterally viewed and an equally large and blunt proto-conch, but differs by its spiral sculpture with broad spiral interspaces, the more angulate shoulder and a shorter base in combination with a broader siphonal canal.

Remarks: The conchological characteristics that we describe in *K. wangae* sp. nov. are typical of the genus, but the combination of those familiar conchological characteristics in a single species, however, is atypical. The species that belong to the genus *Kanamarua* are quite diverse in appearance, ranging from slender shells with a glossy and patterned surface (the *hyatinthus*-“group”) to lens-shaped shells covered with fine spiral grooves and a rather dull colour (*adonis*-“group”). Even though these groups are readily recognisable and well-defined, they were all assigned to a single genus in the revision by Fraussen & Lamy (2008: 129-140), together with the *Metula*-like *K. boswellae* (Kilburn, 1975) from eastern Africa. A first intermediate species, *K. magnifica* Fraussen & Chino, 2012, combining the shape and sculpture of the *adonis*-“group” with the pattern of the *hyatinthus*-“group”, was discovered in the southern Philippines. The present species, *K. wangae* sp. nov., is

a second so-called “intermediate” species, combining characteristics of *K. hyatinthus* with the *K. adonis*-“group” and the genus *Iredalula*. The general appearance in shell structure and colour is typical of the *adonis*-“group”, the smooth fusiform spire in combination with a short base is typical of the *hyatinthus*-“group”, while the big, flattened protoconch has not been observed in either of these groups, yet. It is therefore not appropriate to assign genus or subgenus names to the *hyatinthus*-“group”, the *adonis*-“group” or any other group or species with a distinct appearance.

Etymology: *Kanamarua wanae* sp. nov. is named in honour of 王巧群, Qiaoqun Wang, wife of the third author, for supporting and helping her husband in the field of conchology.

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Plate 1 (p. 108)

- 1-9:** *Kanamarua wanae* sp. nov., all from type locality.
1-3: Holotype, 32.8 mm, MNHN-IM-2000-33071.
4-6: Paratype 1, 32.7 mm, WF
7: Paratype 2, 31.9 mm, KF-7711.
8: Paratype 3, 30.0 mm, DM.
9: Paratype 4, 33.0 mm, WF.

Plate 2 (p. 109)

- 10-12:** *Kanamarua hyatinthus* Shikama, 1973
10: 57.9 mm, Somalia, off Ras Hafun, deep water, KF-1224;
11-12: 58.1 mm, with repaired apex, Philippines, off Balicasag Island, deep water, KF-2748.
- 13-15:** *Kanamarua wanae* sp. nov., paratype 1
 32.7 mm, from type locality. WF.
- 16-18:** *Kanamarua narcissisma* Fraussen & Lamy, 2008
 Holotype, 31.8 mm, Indonesia, Tanimbar Islands, N/O “Baruna Jaya 1” KARUBAR stn CP75, 08°46’S, 131°36’E, 451-452 m, MNHN-20892.
- 19-20:** *Kanamarua tazimai* Kuroda, 1951
 47.0 mm, East China Sea, 150-400 m, KF-4917.
- 21-22:** *Kanamarua adonis* (Dall, 1919)
 32.2 mm, Japan, Mie Prefecture, 200-300 m, KF-0109;
- Plate 3 (p. 110)**
- 23-26:** *Kanamarua wanae* sp. nov.,
 Holotype, 32.8 mm, MNHN-IM-2000-33071..
- 27-30:** *Iredalula groschi* Fraussen & Monsecour, 2007
 Holotype, 19.7 mm, off southern Mozambique, trawled, 250 m deep, MNHN-MOLL 7046.
- 31-34:** *Iredalula venusta* (Powell, 1934)
 20.1 mm, New Zealand, Bay of Plenty, 150 m, KF-1945.





