

## Conchylia

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## A new species in the genus *Cuspidolva* CATE, 1973. (Mollusca: Gastropoda: Ovulidae)

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With 3 text-Figs and 1 Plate

### Keywords

Gastropoda, Ovulidae, *Cuspidolva paulwatsoni*, new species, Sri Lanka, Malaysia, Philippines, Japan

### Abstract

*Cuspidolva paulwatsoni* n. sp. from Sri Lanka, Japan, Malaysia and the Philippines is distinguished from *Cuspidolva tigris* (YAMAMOTO, 1971) by its coloration, mainly by two darker wavy lines dorsally, and from *Cuspidolva draperi* AZUMA & CATE in CATE, 1973 by having coarser mid-dorsal striae and a less keeled shell. The animals of the three species differ considerably.

### Zusammenfassung

*Cuspidolva paulwatsoni* n. sp. von Sri Lanka, Japan, Malaysia und den Philippinen unterscheidet sich von *Cuspidolva tigris* (YAMAMOTO, 1971) durch unterschiedliche Färbung, vor allem zwei dunkleren Wellenlinien auf dem Gehäuserücken, und von *Cuspidolva draperi* AZUMA & CATE in CATE, 1973 durch stärkere Striae und ein weniger gekieltes Gehäuse. Die Tiere der drei Arten unterscheiden sich erheblich voneinander.

### Introduction

On a shelling trip to Sri Lanka in 2010, the well-known Ovulid-hunters SVEN KAHLBROCK and ALEXANDER "BROWNIE" BRÖTZ collected a number of specimens of an Ovulid that appeared to be a new species related to *Cuspidolva draperi* AZUMA & CATE in CATE, 1973. Few shells were available, so the description was put off until now. The recent collecting of shells in more remote islands of the Philippines continuously produced a variety of new species of gastropods. Among them, a set of colorful Ovulids that subsequently were offered as *Cuspidolva tigris* (YAMAMOTO, 1971). That species was formerly rare in the Philippines, and among the rich material now available, our undescribed species appeared. Another specimen was collected by the second author, on Sipadan Is., N.E. Sabah, in 2007, back then identified as *C. tigris*. Finally, a typical shell was found among material from Japan. The new species is described and discussed herein.

### Abbreviations

CLSF	collection CHIAPPONI LORENZ Seashell Foundation, Lecco, Italy
DFB	collection DIRK FEHSE, Berlin, Germany
FL	collection FELIX LORENZ, Buseck, Germany
MAM	collection MICHAEL A. MONT, Owings Mills, Maryland, USA
MNHN	Muséum National d'Histoire Naturelle, Paris, France
ZSM	Zoological State Collection, Munich, Germany

### Material

Holotype:	L = 10.1 mm, W = 4.7 mm, H = 4.2 mm (ZSM, No. 20120176), Bongao, Philippines
Paratype 1:	L = 10.6 mm, W = 4.8 mm, H = 4.2 mm (DFB, No. 10888-1), Bongao, Philippines
Paratype 2:	L = 11.9 mm, W = 5.6 mm, H = 4.7 mm (DFB, No. 10888-2), Bongao, Philippines
Paratype 3:	L = 10.1 mm, W = 5.1 mm, H = 4.4 mm (DFB, No. 10887), "Olango Is.", Philippines
Paratype 4:	L = 11.2 mm, W = 5.2 mm, H = 4.6 mm (DFB, No. 10885-1)
Paratype 5:	L = 10.6 mm, W = 4.9 mm, H = 4.3 mm (DFB, No. 10885-2)
Paratype 6:	L = 13.0 mm, W = 6.0 mm, H = 5.1 mm (CLSF), Beruwela, Sri Lanka
Paratype 7:	L = 11.6 mm, W = 5.6 mm, H = 4.5 mm (MAM), Beruwela, Sri Lanka
Paratype 8:	L = 10.1 mm, W = 5.3 mm, H = 4.3 mm (FL), Beruwela, Sri Lanka
Paratype 9:	L = 11.5 mm, W = 5.3 mm, H = 4.6 mm (FL), Miura, Kanagawa, Japan
Paratype 10:	L = 9.5 mm, W = 4.5 mm, H = 3.9 mm (DFB, No. 10886), Bongao, Philippines

One of the paratypes of the senior author will be deposited later on in the collection of the MNHN.

### *Cuspidolva paulwatsoni* n. sp.

Pl. 1, Figs. 1-6

### Description

The shell is small sized, rhomboid, and solid. The posterior terminal is short and slightly pointed, with a spatulate tip. The anterior is produced, truncate, with a slightly indented tip. The dorsal elevation is greatest in the posterior third, roundly

keeled, sloping evenly to the front. The shell is covered with numerous, wavy and incised transverse striae overall, and with longitudinal growth lines. The base is callused, slightly convex, and slopes into aperture, narrowed towards the anterior portion. The funiculum is small, callused and projecting, with coarse crenulation. The columella is narrow, flattened, straight, and curved anteriorly. The fossula is slightly concave, almost obscured. A sharp inner adaxial carinal ridge is broad, projecting, and well developed. The terminal ridge is indistinct. The labrum is broad, flattened, sloping, its inner margin sharply edged. The inner labral margin is slightly sinuous, its posterior portion curved, and coarsely, irregularly denticulated. The denticles are extending and coarse, forming irregular folds on the labrum. Denticles and folds are obscured towards the siphonal canal. The aperture is straight and narrow midways, curved posteriorly, widened evenly in the fossular section. The siphonal canal is shallow. The anal canal is tapering, deeply indented, and turned to the right.

The shell is red-brown, with darker longitudinal clouds left and right of the dorsum. There is an indistinct paler suture line above the darker marginal callosities. The labrum is orange-brown, the terminal tips orange. Funiculum and carinal ridge are white.

In the paratypes, the ground color of the dorsum varies from rich purple to pale grey. Light colored shells possess a light violet or a plain white labrum, and may have grey to white dorsal dashes contrasting the darker wavy zones. The callosities vary from rich purple to nearly white. The anterior labral portion is often smooth. The posterior tip varies in the degree of rostration.

The animal of the paratypes from Sri Lanka had a grey, semi-transparent mantle with large circular black spots that are loosely arranged in transverse rows (Fig. 3).

### Etymology

Named in honour of PAUL WATSON (\*1950), Canadian/American professor of ecology, founding member of Greenpeace and founder of the Sea Shepard Conservation Society. He is the leading warrior against nuclear testing, whaling, and shark finning. His thoroughgoing engagement, considered aggressive by some, lead to legal persecution by many countries involved in such activities: Canada, Norway, Costa Rica, and Japan. He recently got arrested in Germany on behalf of Costa Rica, for taking action against shark finning

in 2002. He escaped, and now Interpol and also Japan are after him. We hope that naming an Ovulid in his honour will be well received by the Ovulid-lovers community, especially that in Japan.

### Distribution

Type locality: Bongao Island, Tawi Tawi, Mindanao, Philippines (5°50'N 119°45'E); dived at 20-50 m. Paratypes are from Sipadan Is., N. E. Sabah, Malaysia (4°07'N 118°37'E) on *Euplexaura* sp. at 28 m; Beruwala, S.W. Sri Lanka, on *Euplexaura* sp. at 20-35 m. Miura, Kanagawa, Japan, by diver at 30 m.

At the time the Bongao specimens appeared on the market, numerous other shells surfaced, claimed to come from other places in the Philippines, such as Olango Island, Cebu and Mindanao. This is obviously a product of shell dealer's creativity. On numerous dives made in search of Ovulids, by the second author and his associates over the past seven years, no *C. paulwatsoni* or its sister *C. tigris* have been found in the vicinity of Cebu, Mactan, Bohol or Olango Islands, even though the host coral *Euplexaura* is abundant in these areas.



**Text Fig. 1:** *Cuspidolva tigris*, living animal, Sri Lanka. Photo: SVEN KAHLBROCK.

### Discussion

The genus *Cuspidolva* comprises a number of conchologically similar species that live on *Euplexaura* sp. The closest allies of the new species are *C. tigris* (YAMAMOTO, 1971) and *C. draperi* AZUMA & CATE in CATE, 1973. These are widespread Indo-Pacific taxa inhabiting depth of 10 to over 200 m. While *C. tigris* is moderately common in scattered spots throughout its distribution, *C. draperi* is very rare except for the Port Stephens area in New South Wales. Together with and *C. paulwatsoni*, they form a species complex

of similar sized, shaped, and colored shells that all have rather striking animals, that do not mimic their host (see LORENZ & FEHSE, 2009). These three species are exclusively found in association with *Euplexaura* sp.



**Text Fig. 2:** *Cuspivolva draperi*, living animal, Port Stephens, NSW. Photo: DAVE HARASTI.

*C. tigris* is distinguished from *C. paulwatsoni* n. sp. by the uniformly yellow to orange shell that rarely shows faint darker dashes dorsally. In *C. paulwatsoni* n. sp., the longitudinal waves of darker coloration are conspicuous, and the shell has a grey to purple ground color. The callosities are paler, and the tips are often tinted with yellow-orange. The crenulation on the posterior labral portion is usually more developed and coarser in the new species. Looking at shells only, *C. tigris* and *C. paulwatsoni* n. sp. can be confusingly similar. These two species occur alongside in Sri Lanka, and the material collected in Bongao Is. suggests that also in the Philippines these two are sympatric sister species.



**Text Fig. 3:** Front: *Cuspivolva paulwatsoni*, back: *C. tigris*, living animals, Sri Lanka. Photo: SVEN KAHLBROCK.

The darker longitudinal waves of *C. paulwatsoni* n. sp. closely resemble the color-pattern of *C. draperi*, whose ground color, however, is paler orange to white. *C. draperi* is less distinctly striate or smooth towards the mid-dorsal portion of the shell, which is more distinctly keeled. The labral dentition of *C. draperi* is much less developed and the posterior extremity is slightly more pointed than in *C. paulwatsoni* n. sp.

The most obvious differentiating feature between the three taxa is the coloration of the animal. *C. tigris* has black transverse stripes with a fine white frame (Fig. 1, 2 back). The mantle and the siphon are bright yellow. In *C. draperi*, the semi-transparent grey mantle is covered with small brown rings and the siphon is pale brown with a black frame along the edge (Fig. 2). In *C. paulwatsoni* n. sp., the mantle shows large black spots which are not framed or forming rings (Fig. 3 front). The siphon is yellow, without a darker frame. The original description of *C. tigris* points out the wasp-like stripes of the animal as distinguishing feature from "*C. renovata*" CATE, 1973, which we consider a nomen dubium based on a much narrower, poorly preserved shell that most likely belongs to the genus *Crenavolva*. Based on the description of the "*renovata*"-animal, there is good reason to believe that YAMAMOTO was comparing his *C. tigris* with an animal of *C. paulwatsoni* n. sp.

Interestingly, the two wavy lines left and right of the dorsum are found in several other species of Ovulidae: *Cuspivolva formosa* (G. B. SOWERBY II in A. ADAMS & REEVE, 1848), *C. platysia* CATE, 1973, *Primovula roseomaculata* (SCHEPMAN, 1909) and the recently described *Dentiovula lorenzi* FEHSE, 2011. Having this feature in unrelated genera throughout the Ovulidae suggests that it developed convergently, and obviously has selectivity value.

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**Plate 1** on opposite p. 123

**Fig. 1** *Cuspidolva paulwatsoni* n. sp. Holotype, ZSM. Bongao Island, Mindanao, Philippines; dived at 50 m.

**Fig. 2** *Cuspidolva paulwatsoni* n. sp. Paratype 10, DFB, coll. No. 10886. Bongao Island, Mindanao, Philippines; dived at 50 m.

**Fig. 3** *Cuspidolva paulwatsoni* n. sp. Paratype 1, DFB, coll. No. 10888-1. Bongao Island, Mindanao, Philippines; dived at 50 m.

**Fig. 4** *Cuspidolva paulwatsoni* n. sp. Paratype 3, DFB, coll. No. 10887. “Olango Island”, Philippines.

**Fig. 5** *Cuspidolva paulwatsoni* n. sp. Paratype 11, DFB, coll. No. 10885-1. Bongao Island, Mindanao, Philippines; dived at 50 m.

**Fig. 6** *Cuspidolva paulwatsoni* n. sp. Paratype 6, CLSF, Beruwela, Sri Lanka.

**Fig. 7** *Cuspidolva draperi* AZUMA & CATE *IN* CATE, 1973, FL, Port Stephens, New South Wales, Australia.

**Fig. 8** *Cuspidolva tigris* (YAMAMOTO, 1971). DFB, coll. No. 10884-2. Nocnocan Island, Bohol, Philippines; dived at 25 m on soft coral.

**Plate 1**

