

The systematic position of *Strombina (Cotonopsis) lindae* Petuch, 1988 (Gastropoda: Columbelloidea)

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ABSTRACT

The systematic position of *Strombina lindae* Petuch, 1988, is discussed and revised. The species should be allocated in the columbellid genus *Cotonopsis* Olsson, 1942. The shell characteristics that define the two known *Cotonopsis* subgenera, *C. (Cotonopsis)* and *C. (Turrina)*, are itemized and contrasted. The holotype of *S. lindae* is re-illustrated and the protoconch figured for the first time.

INTRODUCTION

In his revision of the *Strombina* group, Jung (1989) gave *Cotonopsis* Olsson, 1942, generic status and recognized two subgenera, *Cotonopsis sensu stricto* Olsson, 1942, and *Cotonopsis (Turrina)* Jung, 1989. *Cotonopsis* is represented by 18 species, two of them known only as fossils, and 16 extant. The majority of the living species (12) are found in the eastern Pacific. Two species are found in the Caribbean Sea (Houbrick, 1983; Petuch, 1988); one species in West Africa (Emerson, 1993); and a fourth species in the Andaman Sea (Kosuge, Roussy and Muangman, 1998; Kronenberg and Dekker, 1998, 1999). As noted by Kronenberg and Dekker (1998), this distribution might indicate an earlier origin of this genus, i.e. prior to early Pliocene as proposed by Jung (1989). On the other hand, both the West African and the Asian species may be part of separate lineages, the rank of which can only be addressed pending anatomical and molecular data.

The aims of this paper are to correct the systematic position of *Strombina (Cotonopsis) lindae* Petuch, 1988, to discuss the subgeneric position of this species, and to re-illustrate the holotype deposited in the National Museum of Natural History, Smithsonian Institution (USNM 859942), with special attention to the protoconch. This latter task was prompted by both the poor quality of the original illustrations and the lack of infor-

mation on the morphology of the protoconch in the original description.

SYSTEMATICS

Family Columbelloidea Swainson, 1840

Genus *Cotonopsis* Olsson, 1942

Cotonopsis Olsson, 1942: 227 (75). Type species (by original designation): *Strombina (Cotonopsis) panacostaricensis* Olsson, 1942 (Olsson, 1942: 75, pl. 10, fig. 10).

Description: Shell small to large (11–56 mm), general shell shape varying from fairly stout to slender. Most species lightly sculptured with axial ribs predominantly on early teleoconch whorls. Outer lip usually weakly thickened, both columellar and parietal callus usually present, weakly to well developed. Parietal ridge and posterior canal present, prominent in several species. Recurved and well-developed anterior canal. Protoconch smooth with 1½ to 3 whorls. (according to Jung, 1988.)

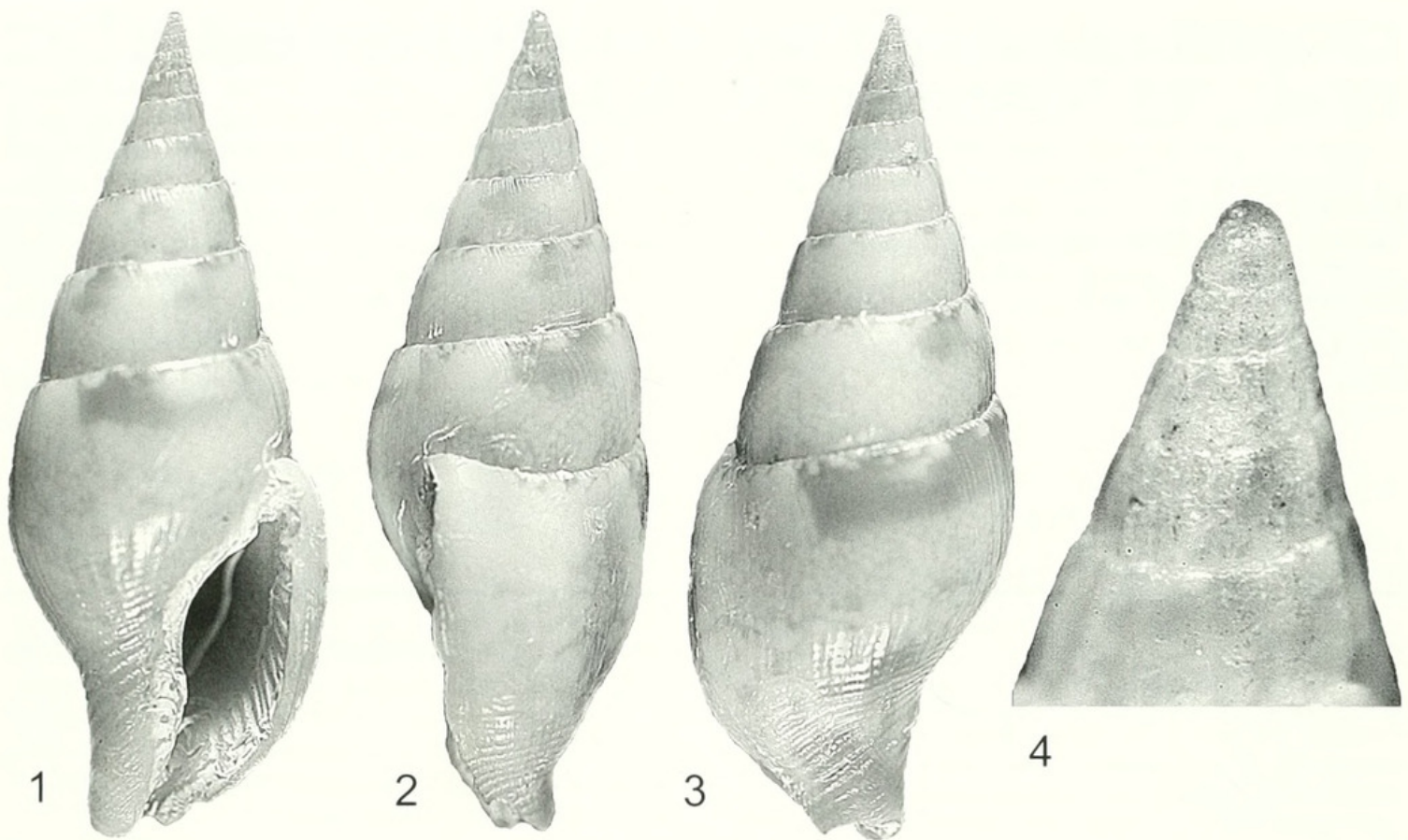
Subgenus *Cotonopsis sensu stricto*

Description: Stout shells, inflated body whorl, axial ribs on early teleoconch, well developed parietal and columellar callus, weakly developed parietal ridge and posterior canal, and smooth protoconch with 1½ to 3 whorls.

Cotonopsis (Cotonopsis) lindae (Petuch, 1988) new combination
(Figures 1–6)

Strombina (Cotonopsis) lindae Petuch, 1998: 161–162, pl. 38, figs. 15–16 (Off St. James, Barbados, trawled 70 m depth.)

Description: Shell small, stout, up to 22.9 mm in length, inflated body whorl, axial ribs on the early teleoconch, relatively well developed columellar and parietal



Figures 1–4. *Cotonopsis (Cotonopsis) lindae*, holotype, USNM 859942, height 22.88 mm, width 9.00 mm. **1.** Apertural view. **2.** Lateral view, right side. **3.** Abapertural view. **4.** Protoconch and early teleoconch whorls.

calluses. Protoconch smooth, with $1\frac{3}{4}$ whorls and about 700 μm diameter.

Discussion: The two subgenera recognized by Jung (1988) differ in several morphological features. In contrast to the characters above described for *Cotonopsis sensu stricto*, species of *Cotonopsis (Turrina)* have smooth, mostly slender shells, with well- and sometimes heavily developed parietal ridge and posterior canal; parietal and columellar calluses missing or very weak, and a smooth protoconch with $2\frac{3}{4}$ to 3 whorls. Based on shell characteristics, *C. lindae* is best placed in the subgenus *Cotonopsis sensu stricto*.

Cotonopsis (Turrina) seems to be restricted to the eastern Pacific and has no known fossil record. *Cotonopsis sensu stricto* has a much wider distribution, including the eastern Pacific, the Caribbean Sea, the West African coast and the Andaman Sea. Stratigraphically, the latter ranges from the early Pliocene of Esmeraldas, Ecuador, and Charco Azul, Peninsula Burica, Costa Rica, through the Recent. As mentioned above, the recent distribution of this subgenus seems to indicate an origin older than the Pliocene.

This is the smallest of all four species reported from

outside the eastern Pacific. *Cotonopsis lindae* resembles *C. phuketensis* (Kosuge, Roussy and Muangman, 1998) from the Andaman Sea in its reduced sculptural elements, but the latter is a much larger species, with an incised suture and a protoconch with a larger number of whorls. *Cotonopsis argentea* Houbrick, 1983, from the Dominican Republic and *Cotonopsis monfilsii* Emerson, 1993, from Senegal are also much larger, with heavier sculptured teleoconch whorls. Besides, *C. monfilsii* lacks axial ribs, bearing instead spiral lines. Its protoconch has three whorls. The protoconch of *C. argentea* is similar to that of *C. lindae* in size, but the former has a weaker columellar callus.

Among the eastern Pacific species, the dimensions of *C. lindae* are similar to *Cotonopsis mendozana* (Shasky, 1970) from the Gulf of Fonseca, El Salvador, but the latter has a much less recurved siphonal canal, more heavily sculptured early teleoconch whorls, well-developed columellar callus, and inconspicuous lirae on its outer lip. Similarly to *C. lindae*, *Cotonopsis esmeraldensis* (Olsson, 1964) from the Esmeraldas province, Ecuador, also lacks heavy sculpture and has almost the same dimensions; but its siphonal canal is longer and it has a more strongly developed columellar callus.



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Figures 5–6. *Cotonopsis (Cotonopsis) lindae*, holotype, USNM 859942. **5.** SEM of protoconch, showing a slightly sigmoid lip, and the sculpture of the early teleoconch whorls. **6.** Same, apical view. Scale lines = 200 μ m.

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