

'Charopa' lafargei (Gastropoda, Pulmonata, Charopidae), a new, presumed narrowly endemic species from Peninsular Malaysia

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31

'Charopa' lafargei spec. nov. is described. It is apparently restricted to the isolated limestone hill Gunung Kanthan in Peninsular Malaysia. The hill is scheduled for quarrying by the Lafarge Malaysia cement company, which has a high likelihood of resulting in the extinction of the species.

Key words: Gastropoda, Pulmonata, Charopidae, taxonomy, conservation, Malaysia.

IUCN Red List (Clements, 2013; Whitten et al., 2013). The third endemic species was recently described by Grismer et al. (2014) the Gua Kanthan Bent-toed Gecko, *Cyrtodactylus guakanthanensis*. We judged it important to formally describe a fourth apparently endemic species, *'Charopa' lafargei*, as early as possible so that an IUCN threat assessment can be undertaken and published as a further important factor to be considered in the future management of the site and of other isolated limestone hills in Malaysia and beyond.

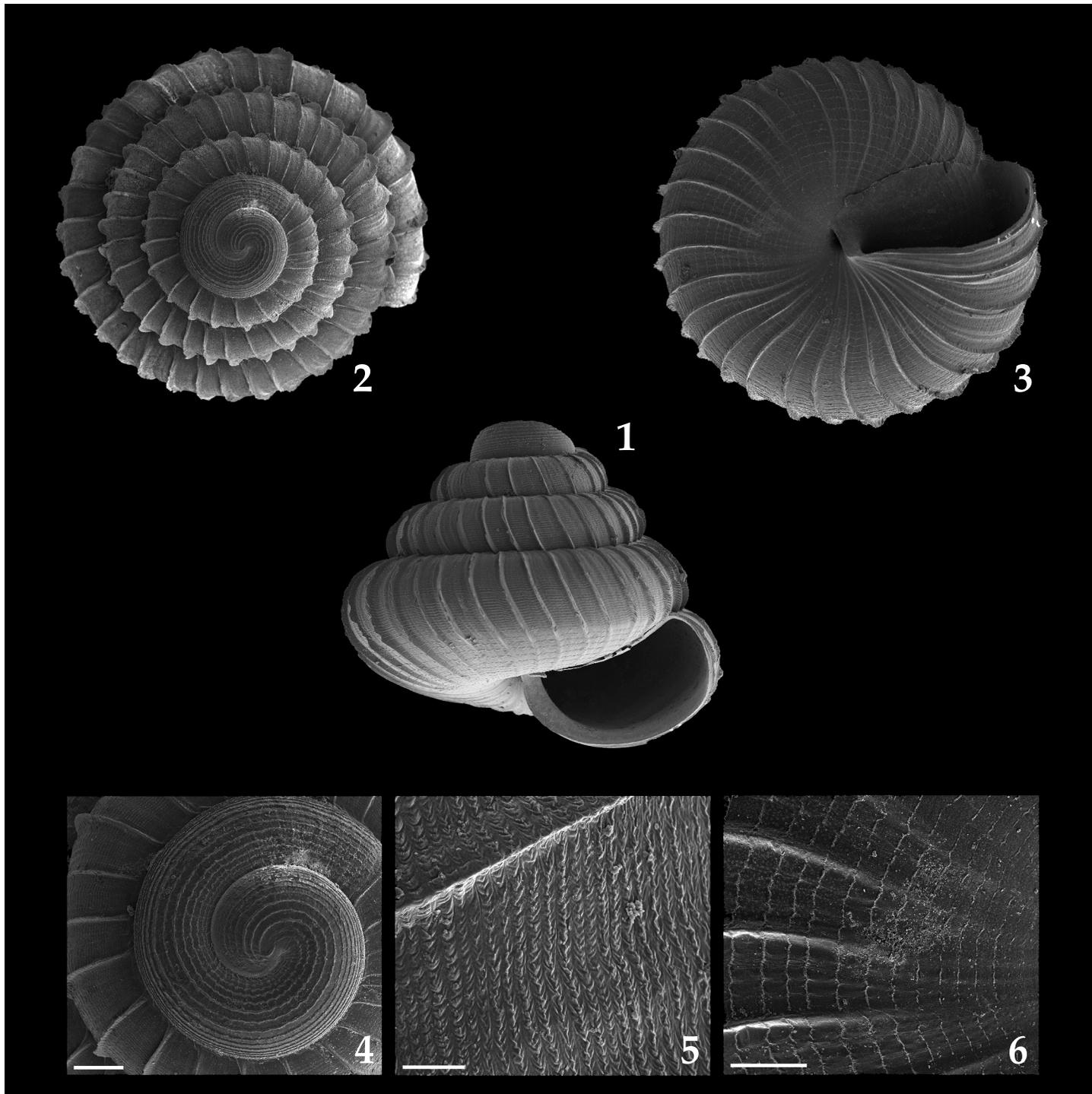
INTRODUCTION

Gunung Kanthan has become somewhat of a *cause célèbre* for limestone biodiversity conservation. It is the sole known locality for the ancient trapdoor spider *Liphistius kanthan*, and the diplommatinid snail *Opisthostoma trapezium*, both of which have been assessed as Critically Endangered in the

SYSTEMATIC PART

'Charopa' lafargei spec. nov. (Figs 1-6)

Material. – Malaysia, Perak, Gunung Kanthan, near limestone quarry 3.5 miles SW of Sungei Siput, 4°46'53.58"N, 101°7'15.99"E (leg. M.E. Marzuki & T.S. Liew 438/42, May 26, 2011, including holotype RMNH.MOL.335216.



Description. – Shell minute, rather thin, somewhat translucent, creamy white, conical with approximately flat sides. Surface with a silky lustre. Whorls regularly rounded. Protoconch whorls convex; spiral threads predominant, c. 16 near the transition towards the teleoconch, distinct, much coarser than the spiral sculpture on the teleoconch, moderately spaced, but more densely placed below the suture, nearly absent around the periphery; spiral threads below the suture somewhat wavy where crossing the subordinate radial sculpture which consists of irregular growth lines only.

Teleoconch whorls convex, slightly angular at the periphery on the last whorl. Radial ribs predominant, c. 30 on the last whorl including the one near the peristome, prosocline, distinct, high, thin, slightly sinuous lamellae with a sharp crest, interstices with a few inconspicuous growth lines. Fine spiral threads which are partly interrupted and consist of rows of minute, somewhat raised, irregular protuberances; these threads densely placed above the periphery, widely spaced below the periphery and almost disappearing towards the umbilicus. Umbilicus rimate. Aperture widely ovate-lunulate. Peristome neither thickened nor widened; parietal callus thick.

Height c. 1.4 mm; width 1.6-1.7 mm; diameter of the first three whorls 0.47-0.48 mm, 0.75-0.76 mm, c. 1.00 mm, respectively; number of protoconch whorls $1\frac{3}{8}$, total number of whorls up to $4\frac{1}{2}$, height aperture c. 0.5 mm; width aperture c. 0.8 mm.

Ecology. – On leaf litter at the base of a limestone cliff at the northern extremity of the hill. The primary limestone forest in this area might be protected by virtue of the nearby Hindu temple, but Lafarge Malaysia is currently in negotiation with the various temples around the hill and continued presence of the temples is not guaranteed. Unfortunately,

Figs 1-6. '*Charopa*' *lafargei* spec. nov., holotype. 1, Shell, frontal view, H = 1.8 mm; 2, apical view; 3, umbilical view; 4, sculpture on protoconch (scale bar = 100 μ m); 5, sculpture on penultimate whorl (scale bar = 20 μ m); 6, sculpture on last whorl, below the periphery (scale bar = 100 μ m). [Plate assembled from SEM micrographs by Liew Thor Seng]

the forest near the type locality was found to be contaminated with adventitious oil palm seedlings from the adjacent plantations which may affect the original habitat.

Distribution. – Presumed endemic to Gunung Kanthan, a limestone hill 3.5 miles Southwest of Sungei Siput.

Remarks. – Because of the present state of the taxonomy of West Malesian Charopidae it is not possible to assign this species with certainty to a known genus. Morphologically, it seems closest to the genus *Pilsbrycharopa* Solem, 1958, but it differs by having a white, conical shell. *Teracharopa* Maassen, 2000, has flat, well rounded radial ribs, and a spiral sculpture consisting of fine grooves. The genus *Rahula* Godwin-Austen 1907 (? Helicarionidae) is also superficially similar, particular the single species lacking the typical peripheral thread, i.e. *Rahula daflaensis* Godwin-Austen, 1907, from India. This species, however, is widely umbilicate and has a brown shell.

We describe the present new species as a *Charopa* Albers, 1860, using this old generic name as a temporary receptacle for charopid species of unknown affinity.

On species level, it is uniquely identified among West Malaysian Charopidae by its conical shell, and the high, lamella-shaped radial ribs.

We name this species '*Charopa*' *lafargei* after Lafarge whose declared goals for biodiversity include minimising and avoiding damage to important habitats, minimising and avoiding species mortality and stress, and minimising and reversing habitat fragmentation (Lafarge/WWF 2012), and whose biodiversity 'aspiration' is to have a Net Positive Impact on biodiversity (Lafarge, 2014). The decisions the company makes regarding Gunung Kanthan will determine the future existence of this snail.

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