

TWO NEW SPECIES OF *DIPLOMMATINA* BENSON, 1849 (GASTROPODA, CAENOGASTROPODA: DIPLOMMATINIDAE) FROM BORNEO

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ABSTRACT: Two new species of *Diplommatina* from limestone hills on Borneo are described: *D. heteropleura* sp. nov., from Sarawak (Malaysia) and *D. stenoacron* sp. nov., from East Kalimantan (Indonesia). The first is uniquely identified among the Bornean *Diplommatina* by the arrangement of radial ribs: widely spaced on all whorls except the last 1.5, where they are closely spaced; the second belongs to a small group of species without radial ribs but is larger than any of them.

KEY WORDS: land snails; Malaysia; Indonesia; Borneo

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INTRODUCTION

Bornean *Diplommatina* was revised by VERMEULEN (1993). Species were subsequently added by VERMEULEN (1996), VERMEULEN et al. (2015), and MARZUKI (2019). In the present paper, we describe two new species: *Diplommatina heteropleura* sp. nov. from Sarawak (Malaysia) and *D. stenoacron* sp. nov. from East Kalimantan (Indonesia). We assume that both

are Bornean endemics (as are most Bornean species of the genus). The first is likely to have a very limited distribution in submontane forest on limestone bedrock of the Mulu area, the range of the second is impossible to assess because of very limited collecting in East Kalimantan.

MATERIAL AND METHODS

The material studied derives from the private collection of the first author ('V' in the lists of examined material below). The holotypes are stored at the Zoological Museum (MZU) of the Universiti

Malaysia Sarawak (UNIMAS). The illustrations are by the first author, with the aid of a Leica Wild M8 stereo microscope with a Camera Lucida device.

SYSTEMATIC PART

Family Diplommatinidae L. Pfeiffer, 1857

Diplommatina heteropleura sp. nov.

Figs 1–2

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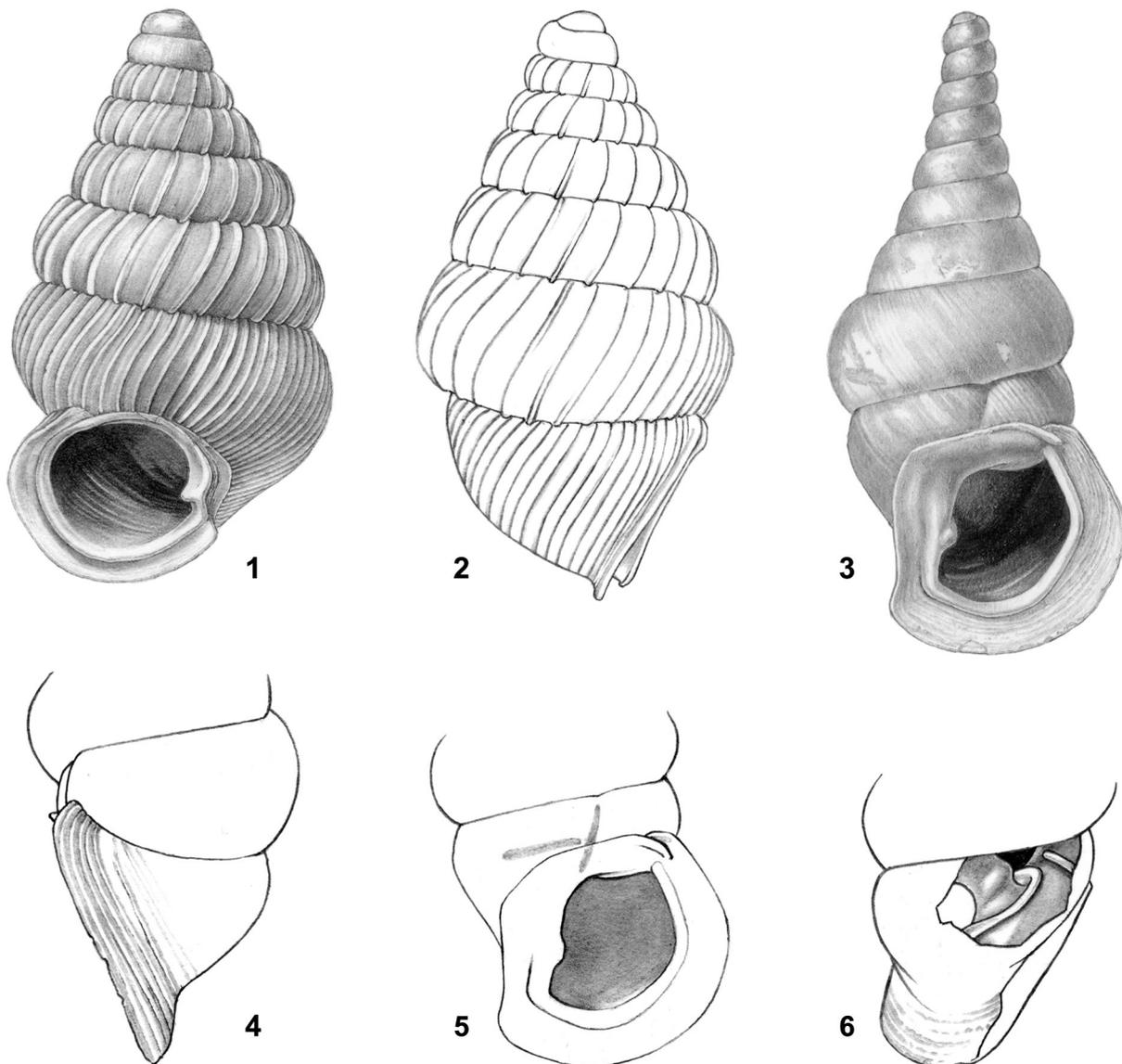
Type material. Malaysia: Sarawak, Miri (4th Division), Gunung Mulu N.P., Gunung Api (holotype: MZU.MOL.21.01, paratypes: V 5638/2 shells).

Cross diagnosis. Among the sinistral species of *Diplommatina* of Borneo, *D. heteropleura* is uniquely identified by the arrangement of radial ribs: widely spaced on all whorls except the last 1.5, where they

are closely spaced. In general, it resembles *D. moluensis* E. A. Smith, 1893, also from the Mulu area which, however, has roughly evenly spaced radial ribs.

Besides, *D. heteropleura* resembles *D. jonabletti* Greke, 2017 (from Indonesia, Flores), and *D. tweediei* Laidlaw, 1949 (from Peninsular Malaysia) in its general shape and distribution of radial ribs on the shell; it differs in its larger size (shell height 4.0–4.4 mm, versus 2.7–3.4 mm) and its more prominent radial ribs; it also differs from *D. tweediei* in the less distinctly angular edge of the outer peristome.

Description. Shell very small, sinistral, ovoid-fusiform with the body whorl widest. Spire conical with



Figs 1–6. *Diplommatina heteropleura* Vermeulen et Khalik: 1 – holotype, frontal view, shell height 4.4 mm, 2 – same, left lateral view; *Diplommatina stenoacron* Vermeulen et Khalik: 3 – holotype, frontal view, shell height 5.0 mm, 4 – same, right lateral view, 5 – same, frontal view with the internal teeth indicated, 6 – paratype, back view with part of the shell wall removed to show internal teeth. Drawings © J. J. Vermeulen

slightly convex sides. Whorls convex. Suture impressed. Constriction level with the parietal side of the peristome, with four lamellae: one rather short parietalis which starts as a rather high lamella but then gradually disappears, one slightly oblique longitudinal palatalis rather close to the suture, one transverse palatalis much lower down, close to and approx. parallel to the constriction, one distinct, high columellaris which continues to the aperture. Sculpture: radial ribs prosocline, prominent, approx. straight but those above the aperture somewhat sinuous, high, narrow, those from the second whorl to half-way down the penultimate whorl widely spaced (3–4 ribs/0.5 mm on the first half of penultimate whorl), rather closely spaced on the last 1.5 whorl (8–9 ribs/mm above the aperture); spiral striation absent. Aperture tilted at c. 30° in relation to the coiling axis; columellaris distinctly visible in the aperture, deflected downwards. Peristome double, expanded; palatal side not or hardly sinuous, rounded; basal side broadly rounded; basal edge not sinuous, narrowly rounded; outer peristome expanding beyond the inner one on the palatal and basal side, at the basal edge abruptly folded backwards and covering the umbilical area; inner peristome slightly separated from the outer, without a palatal lip, not expanded over the shell on the columellar side, little expanded on the parietal side. Umbilicus closed.

Dimensions: shell height 4.0–4.4 mm; shell width 2.3–2.6 mm; h/w 1.6–1.8; number of whorls 7–7 3/8, including a tuba of c. 7/8 whorl; aperture height and width 1.0–1.1 mm.

Ecology. Lower montane primary forest on limestone bedrock. Altitude 900–1,400 m a.s.l.

Distribution. Malaysia, Sarawak, Gunung Mulu N.P.

Etymology. From Ancient Greek 'ἕτερο-', as prefix, 'different', and 'πλευρά', 'rib'.

Other material. Malaysia: Sarawak, Miri (4th Division), Gunung Mulu N.P., Gunung Api, secondary peak of crest (V 5435/1).

Diplommatina stenoacron sp. nov.

Figs 3–6

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Type material. Indonesia: Kalimantan Timur, Sangkulirang Peninsula, Gua Ambulabung in the Baai River valley (holotype: MZU.MOL.21.02, paratypes: V 12049/4 shells).

Cross diagnosis. Among the Bornean *Diplommatina*, *D. stenoacron* is uniquely identified by the oblique ridge in the angular corner of the outer peristome. It resembles *D. oedogaster* Vermeulen, 1993, and *D. niahensis* Godwin-Austen, 1889, particularly in its smooth shell (without radial ribs) and the presence of a long palatal lamella near the constriction. It differs from both species in its larger size (shell height 4.9–5.0 mm, versus 3.0–4.2 mm), in the simple (versus double) peristome, and in the higher whorl count (9 1/2 – 9 3/4 whorls, versus 6 1/2 – 7 7/8 whorls). *D. stenoacron* also resembles *D. calvula* Vermeulen, 1993 in the absence of radial ribs, but it is distinctly larger (shell height 4.9–5.0 mm, versus 2.7–2.8 mm) and has a shorter tuba (7/8 whorl, versus 1 1/2 whorl).

Description. Shell very small, dextral, ovoid-fusiform with the penultimate whorl widest. Spire distinctly drawn-out, with distinctly concave sides. Whorls convex. Suture impressed. Constriction level with the parietal side of the peristome, with three lamellae: one distinct, long longitudinal palatalis, and two columellares: one lower, distinct from the constriction to the aperture, and one upper, inconspicuous, short, approx. half-way the tuba. Sculpture: radial prosocline growth lines only; spiral striation absent. Aperture tilted at 20–25° in relation to the coiling axis; lower columellaris rather distinctly visible in the aperture, slightly downwards deflected. Peristome simple, widely expanded; angular corner with a ridge which starts at the peristome edge on the parietal side, then obliquely continues inwards but ends well before reaching the peristome edge on the palatal side, palatal side not sinuous, rounded but more narrowly so at the level of the periphery; basal side broadly rounded; palatal and basal side with a low, rounded lip bordering the aperture; basal edge not sinuous, obtusely angular. Umbilicus closed.

Dimensions: shell height 4.9–5.0 mm; shell width 2.2–2.4 mm; h/w 2.0–2.3; number of whorls 9.5–9.75, including a tuba of c. 7/8 whorl; aperture height 1.0–1.1 mm; sperture width 0.9–1.0 mm.

Ecology. In moderately disturbed to degraded woodland on limestone bedrock. Altitude 0–100 m a.s.l.

Distribution. Indonesia, Kalimantan Timur, Sangkulirang peninsula.

Etymology. From Ancient Greek 'στενός', 'narrow', and 'ἄκρος', top.

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