


Checklist of land snail species of Gua Rumbang, Sarawak, Malaysian Borneo (Mollusca, Gastropoda), with a description of a new species, *Diplommatina rumbangensis* sp. nov.

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Abstract

The current study presents an annotated checklist of the land snail species in the vicinity of the limestone hill of Gua (= cave) Rumbang, an outcrop located at the district of Padawan, Sarawak, Malaysian Borneo. The sampling was conducted at the surrounding areas and near the cave's entrance. A total of 62 species, involving 19 families and 38 genera, were recorded. Comparison with previous surveys made in the Bau limestone hills revealed similarities with respect to the species-rich families Diplommatinidae and Cyclophoridae, and the genera *Kaliella* and *Diplommatina*, highlighting the regional consistency of the land snail diversity of the Bau-Padawan-Serian cluster. Possibly because of its smaller size, Gua Rumbang is home to two endemic species, while there are eight endemic species in the Bau limestone karsts. This suggests a potential for a significant species diversity within the areas of the limestone ranges that remain to be explored. Nonetheless, the occurrence of endemic species in Gua Rumbang highlights the need to conserve certain areas within the Padawan limestone range since hitherto no protected areas have been proposed in this region. In this checklist, a new species for science is also described, namely, *Diplommatina rumbangensis* sp. nov.

Key words: Endemism, habitat types, limestone outcrop, species abundance, species diversity



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Introduction

Borneo's karst areas are renowned for their diverse and abundant biodiversity, including species that are endemic to specific sites or regions (Vermeulen and Whitten 1999). The species abundance is mainly caused by the multitude of different ecological niches which typically occur in karst areas, ranging from sun-drenched, bare rock faces to damp, and dark caves (Clements et al. 2006). These ecosystems are characterised by high calcium carbonate deposits and serve as habitat for numerous calcium-dependent organisms, including land snails.

Gua (= Cave) Rumbang (1°16.77'N, 110°15.69'E) is located to the north of Gunung Temugan, a limestone outcrop in the Padawan district. Gua Rumbang

is part of a long belt of limestone ranges in the south of Kuching division called the 'Bau-Padawan-Serian' cluster (see Fig. 1) between the town of Bau in the west, and the Serian district in the east (Liew et al. 2021). This cave has been explored and documented for the first time by Spencer St. John in the 1800s (John 1862). Five species of land snails were described from Gua Rumbang in 1894–1895, namely *Georissa everetti* E. A. Smith, 1895, *Kaliella rumbangensis* (E. A. Smith, 1895), *Ditropopsis everetti* (E. A. Smith, 1895), *Plectostoma pumilio* (E. A. Smith, 1894a), and *Plectostoma austeni* (E. A. Smith, 1894a). Since then, this limestone hill was not further inventoried. Therefore, this study presents the first checklist of the malacofauna of Gua Rumbang after almost 130 years.

Recently, Marzuki et al. (2021) documented the land snail fauna in the south of Bau district, in the western part of the Kuching limestone ranges. The study listed 122 land snail species including 46 species that are endemic to these ranges. According to Vermeulen (1993, 1994) limestone ranges are areas of endemism, with species occurring restricted to the ranges or parts of them. Despite collecting efforts have focused on the more accessible hills of the ranges, it is probable that some species are endemic to only limited parts of the ranges (Foon et al. 2017; Phung et al. 2018; Foon and Marzuki 2023; Lee et al. 2024). Hence, land snails are a suitable indicator group for limestone biodiversity studies (Vermeulen 2003; Vermeulen and Junau 2007; Liew et al. 2014; Marzuki et al. 2021; Vermeulen and Liew 2022).

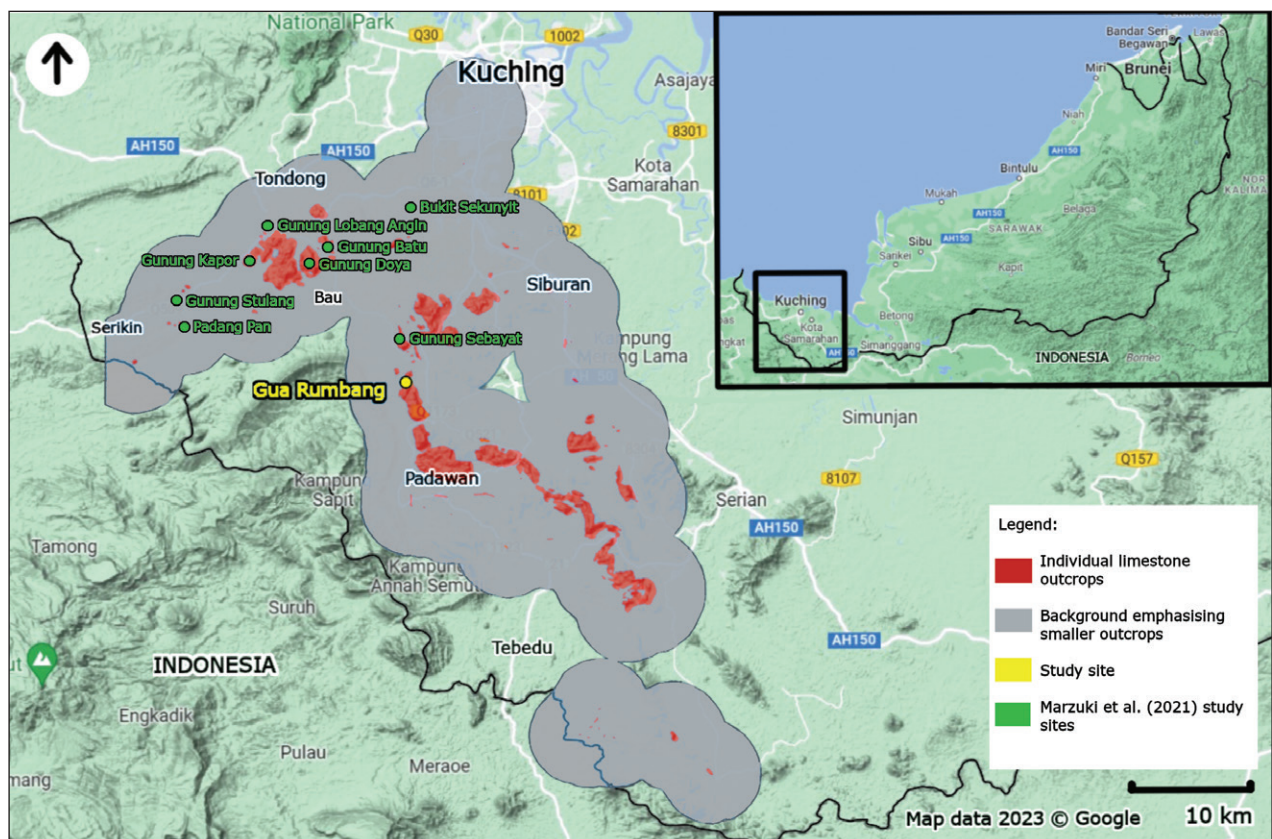


Figure 1. Map showing the location of Gua Rumbang (yellow) on top of an overlay of limestone outcrops in the districts of Kuching, Bau, Siburan, Padawan, Serian, and Tebedu extracted from Liew et al. (2021). The green locations are the hills surveyed by Marzuki et al. (2021). The map highlights individual limestone outcrops with red, whereas grey areas around the limestone outcrops are background to emphasise outcrops that are too small to discern on the map.