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Systematic review of diplommatinid land snails (Caenogastropoda, Diplommatinidae) endemic to the Palau Islands. (3) Description of eight new species and two new subspecies of *Hungerfordia*

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Abstract

Hungerfordia Beddome, 1889 is a land snail genus of the family Diplommatinidae, which shows extensive endemic radiation in the Palau (Belau) islands. Although 42 species or subspecies of the genus have been named to date, many species remain to be described. In this article, we describe ten new taxa of the genus: *H. goniobasis exserta* subsp. nov., *H. ngereamensis* sp. nov., *H. spiroperculata* sp. nov., *H. fragilipennis* sp. nov., *H. brachyptera* sp. nov., *H. elegantissima anomphala* subsp. nov., *H. nodulosa* sp. nov., *H. irregularis* sp. nov., *H. chilorhytis* sp. nov., *H. globosa* sp. nov.

Keyword: Pacific islands, speciation, biodiversity, shell morphology, taxonomy

Introduction

Land snails of the family Diplommatinidae are highly diversified within the Palau (Belau) islands (Rundell 2008, 2010). *Hungerfordia* Beddome, 1889 is one of two diplommatinid genera which occur in Palau (Yamazaki et al., 2013). Although *Hungerfordia* had long been known as a monotypic genus, represented by a peculiar-shaped species, *H. pelewensis* (Beddome 1889; Kobelt & Moellendorff 1898; Kobelt 1902; Thiele 1929; Wenz 1939), the genus is now demonstrated to be a very species-rich group comprising more than 60 species (Yamazaki et al., 2015). Morphological diversity within the genus is very high and is paralleled by those found in radiation of *Plectostoma* and *Diplommatina* from Borneo (Vermeulen 1991, 1993, 1994). A total of 42 species or subspecies have been named to date (Crosse 1866; Beddome 1889; Yamazaki et al. 2013, 2015), however, many species still remain to be described. In this article, we describe eight new species and two new subspecies of the genus.

Materials and methods

The diplommatinid specimens were collected from 150 localities, encompassing a broad expanse of the Palau Islands, between May 2003 and March 2011. Detailed data on the collection sites are shown in Yamazaki et al. (2013). All voucher specimens, including type specimens, were deposited in the Department of Zoology, the University Museum of the University of Tokyo (UMUTZ), Japan.

For each species collected from a collecting site, soft parts of 1–30 snails were carefully extracted without breaking the shells, and the remaining snails from the same lot were dried or preserved in 70% ethanol. Detailed methods of sample treatment, observation of morphology, sex identification, and measurement of shell dimensions were in accordance with methods described by Yamazaki et al. (2013). Shell length and diameter include ribs and peristomes. We carefully confirmed that the conchological differences between taxa were not associated with sexual dimorphism. For every identified taxon, we consistently confirmed the presence of both sexes. The