

Uncovering Local Endemism in the Kimberley, Western Australia: Description of New Species of the Genus *Amplirhagada* Iredale, 1933 (Pulmonata: Camaenidae)

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ABSTRACT. In this work twenty-six species of the camaenid land snail *Amplirhagada*, which is endemic to the Kimberley region in Western Australia, are newly described. In addition, the anatomy of two further species, *A. katerana* and *A. combeana*, is described and a further, yet undescribed species is reported from Boongaree Island based on dry shell material. Most of these species occur on islands of the Bonaparte Archipelago off the mainland coast. The patterns of distribution and differentiation of these island species are comparable, however, with those found on the mainland. Mainland species are usually restricted to single rainforest patches. Frequently, single patches harbour only one or two congeneric species. Similarly, smaller islands usually support one endemic *Amplirhagada* species whereas on larger islands up to four species are found to occur in sympatry. Species are distinguishable particularly by the characteristic anatomy of the inner penial wall. Sympatric species generally exhibit marked morphological differences in shells and genital anatomy. A molecular phylogeny based on partial sequences of the mitochondrial cytochrome c oxidase unit 1 gene (COI) reveals a basal polytomy among species of the genus, which are generally genetically well differentiated. Relationships among species in the molecular tree mainly reflect geographical patterns.

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Camaenid land snails of the genus *Amplirhagada* Iredale, 1933, are endemic to the Kimberley region of Western Australia, where they have radiated extensively. Thirty species are currently considered valid, most of which usually occupy small distributional ranges along the Kimberley coast from the Buccaneer Archipelago in the south to Kalumburu in the north as well as in inland areas of the Napier, Harding, and King Leopold Ranges, the Drysdale

River Reserve, Mt Elizabeth Station and the region south of Wyndham (Solem, 1981a, 1988). Many of these species are restricted to single localities, such as rainforest patches or more open woodlands (Solem, 1991). Supposed exceptions, with species occupying larger ranges, are likely to result from the inadequate delimitation of morphologically cryptic species (Solem, 1981a). Earlier accounts were predominantly based on dry shells (e.g., Smith, 1894; Iredale, 1933,