OCCASIONAL MOLLUSCAN PAPERS 2008 **1**: 1 – 5.
Date of Publication: 8th October 2008
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ISSN 1793-8708 (print edition)
ISSN 1793-8716 (online edition)

ON A NEW SPECIES OF *AMPHIDROMUS* (*SYNDROMUS*) (GASTROPODA: PULMONATA: CAMAENIDAE) FROM ROTTI ISLAND, INDONESIA

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ABSTRACT

A new species of polymorphic and colourful arboreal snail belonging to the family Camaenidae is described from Rotti Island (off southwestern end of Timor), southeastern Indonesian Archipelago. *Amphidromus (Syndromus) rottiensis* new species is diagnosable using shell morphology and geographically close congeners of the subgenus *Syndromus*, namely *A.* (*S.*) *contrarius* Müller, 1774 and *A.* (*S.*) *poecilochrous* Fulton, 1896 are used for comparison. The new species being described here appears distinct enough to justify a specific status, and suggests an ancestral affiliation closest to *A.* (*S.*) *contrarius* and *A.* (*S.*) *poecilochrous*.

KEYWORDS

Systematics, taxonomy, Gastropoda, Camaenidae, *Amphidromus*, *Syndromus*, subgenus, new species, Rotti, Samau, Timor, Lesser Sunda Islands, Nusa Tenggara, Indonesia.

INTRODUCTION

The Camaenidae is a large and diverse family of terrestrial snails with more than a hundred known genera (Vaught, 1989) occurring in tropical Australasia and the Americas (Abbott, 1989). The *Syndromus*, a subgenus of *Amphidromus*, evolved and radiates into some of the most colourful and distinctive forms in the Lesser Sunda Islands of eastern Indonesia. Based on the checklist of Laidlaw & Solem (1961), *A.* (*S.*) *contrarius* was the only recorded *Syndromus* from Rotti Island. Primarily, *A.* (*S.*) *rottiensis* can be differentiated from *A.* (*S.*) *contrarius* by the lack of a small calloused nodule on the parietal wall near the posterior angle of the aperture (see Laidlaw & Solem, 1961; Pilsbry, 1900). The three colour forms (patterned, unpatterned and pink) of *A.* (*S.*) *rottiensis* within an isolated population demonstrates a classic example of the intra-population variability concept.

MATERIALS AND METHODS

Geologically, Rotti Island (=Pulau Rote) of 1214 square kilometers is located about 20 kilometers southwest of the southwestern end of Timor, belonged to the Australian continental plate, and of limestone in origin (Monk et al., 1997). Sawu, Rotti, Samau (=Pulau Semau) and

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Timor are termed under the western Outer Banda Arc and sit on a subducted Australian Crust (Hall, 2001). Rotti island is separated from main island of Timor by a narrow strait (Rotti Straits) and was connected during low sea levels (Monk et al., 1997). The naturally dominant vegetation is deciduous monsoon forest occurring mainly in the north-eastern (Tapuafu Peninsula) and central southwestern inland plateau of the island. The remaining vegetation are of dry grasslands, savannas and agriculture lands like rice fields.

Description of *A.* (*S.*) *rottiensis*, new species, is based solely on shell characters which the majority of known Indonesian landsnail species were positively described upon (Vermeulen, 1996). Available information related to anatomical investigations of the *Amphidromus* spp. are also far too few for reasonably viable comparisons to be made and no wet preserved specimens were available in the present study. Abbreviations used in the text are as follows: BMNH (British Museum Natural History) and CSY (Collection of Chan Sow-Yan).

SYSTEMATICS

CAMAENIDAE

Amphidromus (*Syndromus*) *rottiensis*, new species (Figs. 1).

Material examined. - Holotype - BMNH20080621, southwestern central plateau portion (Busalangga) of Rotti Island, coll. John Abbas, April 2008.

Paratypes. - 2 ex. BMNH20080622 & 8 ex. CSY409.003amph048.00/01-08 - same data as holotype.

Diagnosis. - Shell dominantly sinistral, quite solid and robust, opaque, smooth with glossy lustre and oblong-conic. Whorls (about 5.5 - 6) rather rounded giving the shell a generally round sided stout profile. Tip of apex with a black spot, early whorls are not darkened (as in *A.* (*S.*) *poecilochrous*) (Fig. 4). No distinct dark axial bands marking interruptions in shell development (resting stages or varices) were present in all 32 examined specimens. Parietal wall very thin and transparent, showing the bands through. The outer lip thin and slightly reflected. No callous nodule or subtriangular tubercule (a distinct character of *A.* (*S.*) *contrarius*) (Fig. 2) was found on the parietal wall near the posterior angle of the aperture adjoining the outer lip. Columella white, rounded and reflected without folds. Umbilicus perforated, partially covered by columella and usually surrounded by a pink-purple spiral band. Aperture relatively large, height slightly less than half that of total shell height, oblong-ovate, peristome white, outer lip profile flat when viewed horizontally and basally rounded. Ground colour light yellow or white, and three main colour morphs observed. Predominant form with typical pattern (Fig. 1.1) decorated with variegated or broken (crossed or bisected by a consistent yellow spiral band) black radial streaks or dashes in the antepenultimate and penultimate whorls, black spiral line present at suture and a pinkish subsutural spiral band which may fade with age are present in most of the specimens inspected. The unpatterned colour form (Fig. 1.2) is devoid of any radial streaks or spiral dashes except the consistent central yellow and body whorl black bands on a white or yellow ground

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colour. The rare colour form (Fig. 1.3) is faint pink on the body whorl with mainly spiral dashes. In all the three forms the black and white pattern shines through on the inside of the aperture clearly. The black spiral line at suture is also present in all specimen examined. Dimensions of holotype: height = 27.8 mm, width = 14.2 mm, aperture height = 13.9 mm.

Distribution.- Known so far only from the type locality, a hilly part of a moist deciduous forest in the central plateau southwest of the Island where open and dry deciduous, grasslands, savannas, marshlands, swamps and rice fields dominate much of the landscape.

Ecology.- This tree snail was found on low lying shrubs and trees along a seasonal stream in mesic hilly forest right behind a village where children are not allowed to enter except hunters. The forest is humid deciduous with little sunlight reaching the forest floor although Rotti island has distinct short wet (December to March) and long dry (April to November) seasons.

Etymology.- This species is named after the island of Rotti where the snail was first found.

Remarks.- Geographically, Rotti Island is closest to main island Timor. *A.* (*S.*) *contrarius* was the only *Syndromus* listed by Laidlaw & Solem (1961) and Rensch (1932) on Rotti without a precise location, and *A.* (*S.*) *contrarius* was first described by Müller in 1774 without assigning a type locality (see Laidlaw & Solem, 1961). *A.* (*S.*) *rottiensis* can be separated from *A.* (*S.*) *contrarius* by a lack of the callous nodule, black line at suture, glossier and a consistently shorter and stouter shell. To the north (volcanic islands of Komodo, Sumbawa, Flores, Adonara and Lembata) of Rotti island where *A.* (*S.*) *poecilochrous* (Fig. 4) dominates, *A.* (*S.*) *rottiensis* differs in having a consistent black dot at its apex, white ground colour and a total absence of varices (resting stages). The black dot in the protoconch and pinkish subsutural spiral band of *A.* (*S.*) *rottiensis* are reminiscent of Samau's *A.* (*S.*) *contrarius* (Fig. 2) which lacks the black line at suture; this last feature being common in *A.* (*S.*) *poecilochrous*. Moreover, the unpatterned colour form (Fig. 1.2) of *A.* (*S.*) *rottiensis* appear close to *A.* (*S.*) *poecilochrous candidus* (Fig. 3) and may be mistaken for the latter if not for the black dot. These characters suggest that the lineage of *A.* (*S.*) *rottiensis* were derived from ancestral stocks of *A.* (*S.*) *contrarius* and *A.* (*S.*) *poecilochrous* that has evolved or drifted (genetically) into a distinct species due to prolonged isolation, and is most likely an endemic. However, much further study and samplings are needed to establish anything conclusive on the actual distribution range of *A.* (*S.*) *rottiensis* and the more elusive *A.* (*S.*) *contrarius* on Rotti especially in the north-eastern (Tapuafu Peninsula) part of the island.

ACKNOWLEDGEMENTS

We are most grateful to Mr. Jonathan Ablett, Curator of Non-Marine Mollusca and Cephalopoda of the British Museum Natural History for his help in depositing the type materials on the 2nd of October 2008. We would also like to thank the reviewers for their constructive comments and suggestions on improving this study.

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Figs. 1. *Amphidromus* (*Syndromus*) *rottiensis* n. sp. Fig. 1.1 - Holotype (patterned - 27.8 mm). Fig. 1.2 - Paratype (unpatterned - 29.1 mm). Fig. 1.3 - Paratype (pink morph – 30.4 mm). Figure 2. *A.* (*S*) contrarius - 34.2 mm. Fig. 3. *A.* (*S.*) *poecilochrous candidus* – 34.8 mm. Fig. 4. *A.* (*S.*) *poecilochrous* - 34.7 mm.

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