OCCASIONAL MOLLUSCAN PAPERS 2008 **1**: 6 – 10.
Date of Publication: 18th October 2008

ISSN 1793-8708 (print edition)
ISSN 1793-8716 (online edition)

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

Chan, Sow-Yan* and Tan, Siong-Kiat**
** VBox 888313, Singapore 919191. Email: chansowyan@gmail.com*
***Raffles Museum of Biodiversity Research, Blk 6, Science Drive 2, Singapore 117546. Email: dbstsk@nus.edu.sg*

ABSTRACT

A new species of polymorphic arboreal snail belonging to the family Camaenidae is described from Sumba Island (East Nusa Tenggara), eastern Indonesia. *Amphidromus (Syndromus) abbasi*, new species, is diagnosable using shell morphology and closest congeners of the subgenus *Syndromus*, namely *A.* (*S.*) *contrarius* Müller, 1774 and *A.* (*S.*) *filozonatus* von Martens, 1867 are used for comparison

KEYWORDS

Systematics, taxonomy, Gastropoda, Camaenidae, *Amphidromus*, *Syndromus*, subgenus, new species, Java, Sumba, Samau, Timor, 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 genus *Amphidromus* ranges from Assam, India (Laidlaw & Solem, 1961) to northern Australia (Solem, 1983; Wilson et al., 2006) and the shells of *Amphidromus* (*Amphidromus*) spp. are well known for their randomly dimorphic coiling (amphidromine) which is unusual among gastropods but this phenomenon is not inclusive of that in the subgenus *Syndromus* which are predominately sinistral although rare dextral specimens are known (see Dharma, 2005; Laidlaw & Solem, 1961). The exceptions seemed to be of *A.* (*S.*) *kruehni* which is the only normally dextral *Syndromus* (see Laidlaw & Solem, 1961; Zilch, 1953) and *A.* (*S.*) *glaucolarynx* which is normally amphidromine (see Dumrongrojwattana et al, 2006; Sutcharit et al, 2006). Based on the checklist of Laidlaw & Solem (1961), valid *Amphidromus* (*Syndromus*) species from Sumba are *A.* (*S.*) *latestrigatus* and *A.* (*S.*) *floresianus*. Species diversity in *Amphidromus* (*Syndromus*) spp. is believed to have advanced furthest around the Lesser Sunda Islands especially in the isolated oceanic islands of eastern Indonesia (see Severns, 2003 & 2006; Dharma, 2008), we report here a species from Sumba Island, East Nusa Tenggara, Indonesia that does not match any of the known species of the region in shell characters.

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MATERIALS AND METHODS

Sumba Island, southeast of Bali and just south of the Komodo Island, is believed to be a continental fragment of the Asian continental plate that was separated some 20 million years ago, much earlier than its neighbouring Timor which belongs to the Australian Plate (Monk et al., 1997). Naturally dominant vegetation of the island is deciduous monsoon forest and the southern hill slopes along the southern coasts, which remain moist during the dry season, are covered with lowland evergreen rain forest (Monk et al., 1997). The new species being described here was collected at Langgaliru on the south west.

Description of *Amphidromus* (*Syndromus*) *abbasi*, new species, is based solely on shell characters. Although anatomical characteristics can be used to differentiate genus as well as species within the Camaenidae (see Sutcharit & Panha, 2006), the majority of known landsnail species were described using shell characters and can be positively identified based on this. Furthermore, two-thirds of the Indonesian landsnail species are only known from their shells and are presently grouped into families and genera according to external shell morphology alone (Vermeulen, 1996), thus present information related to anatomical investigations are too few for creditable comparisons to be made. Moreover, the shell characteristics of the new species being described here are quite peculiar and a description based on this should suffice. Nonetheless, three preserved specimens were deposited in the Zoological Reference Collection (ZRC), Raffles Museum of Biodiversity Research (RMBR), National University of Singapore (NUS) as material for anatomical analysis should the opportunity arise. Other abbreviations used in the text are as follows: BMNH (British Museum Natural History), MZB (Muzium Zoologicum Bogoriense) and CSY (Collection of Chan Sow-Yan).

SYSTEMATICS

CAMAENIDAE

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

Material examined. - Holotype – MZB.Gst. 14.232, Langgaliru 9°45'44"S 119°38'33"E, South West Sumba, coll. John Abbas, September 2007.

Paratypes. - 5 ex. ZRC.MOL. 2832-2836, 10 ex. MZB.Gst. 14.233, 2 ex. BMNH20080623 & 8 ex. CSY409.003amph048.00/01-08 - same data as holotype.

Diagnosis. - Shell smooth with somewhat silky lustre, shell height up to 41.3 mm, width to 16 mm, aperture height to 21.2 mm, sinistral, slender ovately conical and covered with a thin periderm. Whorls (6.5 - 7) rather flat giving the shell a generally straight sided profile. Tip of apex faintly pinkish-brown, some individuals with a brown-black spot . No distinct dark axial bands marking interruptions in shell development (resting stages) were present in all examined specimens. Parietal wall thin and transparent, aperture light yellow to brown, outer lip thin, slightly expanded outwardly but not reflected. Columella white, thin, slightly curved, without folds. Umbilicus perforated or nearly closed. Aperture relatively large, height about half that of

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shell, oblique, peristome basally rounded with a "tear-drop" shape. Ground colour light yellow (Figs. 1.4-1.6) or light to dark brown (Figs. 1.1-1.3), decorated with variegated radial streaks or flames in the antepenultimate and penultimate whorls and an alternately blotched (somewhat checkered) subsutural spiral band.

Distribution.- Known thus far only from the type locality, a small lowland semi-evergreen rain forest South West of Sumba Island where open and dry grasslands or savannas dominate much of the landscape.

Ecology.- This arboreal snail was found on low lying bushes and trees along a stream in a small mosquito-infested damp forest just above sea level, about 1.2km from the coast, population density drops significantly further from the stream (pers. ob. J. Abbas). This suggests an affinity to humidity and according to Monk et al., (1997), this limitation implies that the species is likely prone to be affected by drought or environmental change and obvious threats to the species' existence will be forest clearing for agriculture.

Etymology.- This species is named after Mr. John Abbas, the naturalist who alerted the authors about its potential novelty status.

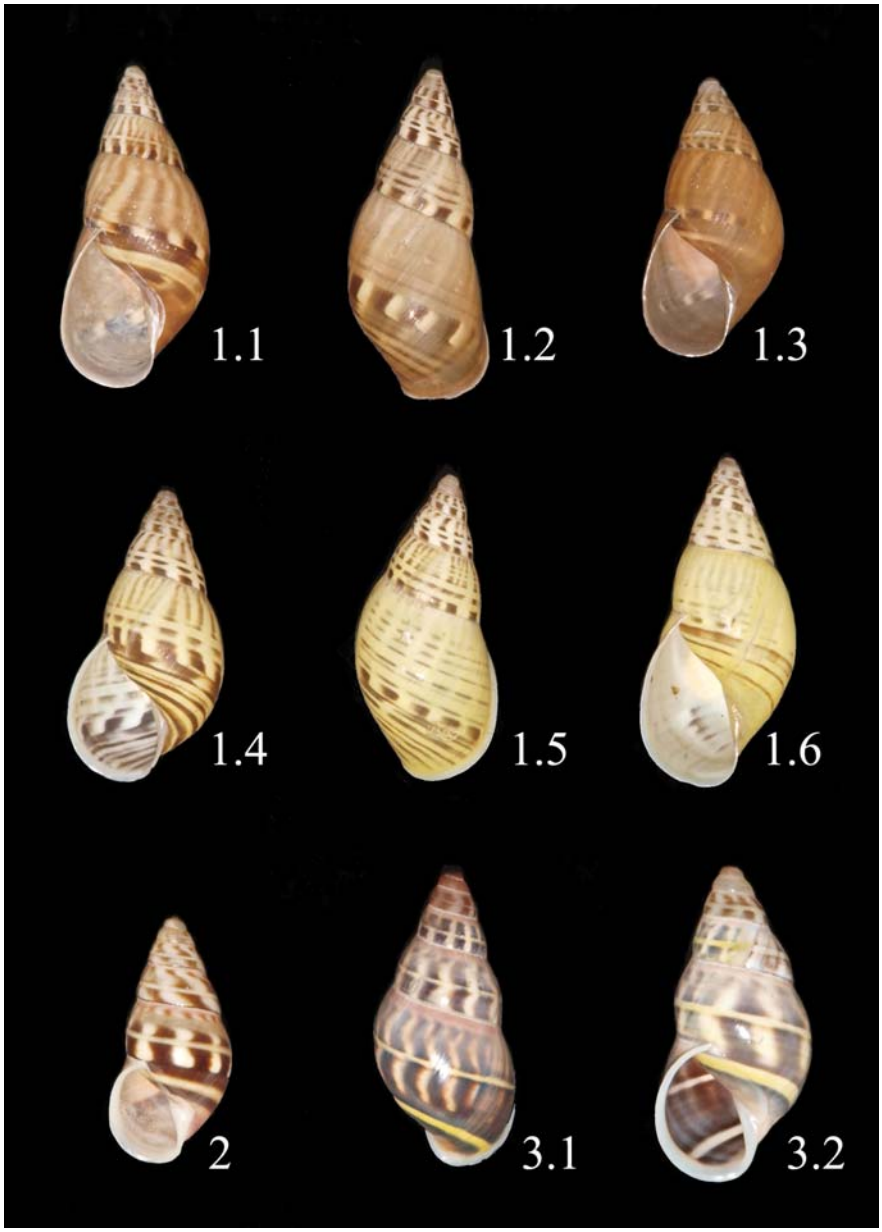
Remarks.- The alternately blotched (somewhat checkered) subsutural patterned band appears most prominently on the last whorl just above the periphery and specimens with light yellow ground colour resemble *A.* (*S.*) *contrarius* (Figs. 3.1-3.2) from Samau Island, southwest of Timor. However, this new species lacked the callous nodule (see Pilsbry, 1900) typical of *A.* (*S.*) *contrarius*. The radial band and pattern are consistent in most of the specimens examined but some are only faintly marked and others, rather monotonous. These bands and patterns, and the general light brown ground colour forms are reminiscent of that in *A.* (*S.*) *filozonatus* (Fig. 2) of east Java which have thicker and glossier shells with a relatively smaller aperture to shell height ratio. Because of their morphological similarities, the *Amphidromus* (*Syndromus*) species of Sumba, as well as Sumbawa and Flores and possibly Bali are suggested to have been derived from ancestral stocks of Javanese *A.* (*S.*) *filozonatus* by Laidlaw & Solem (1961). Other than the type location, separate populations of *Amphidromus* (*Syndromus*) *abbasi* new species have not been found and the species could possibly be endemic. Although lacking in inter-population variability sensu Goldberg & Severns (1997) and Panha et al (2001) for comparisons, the distinct shape and peculiar aperture of *Amphidromus* (*Syndromus*) *abbasi* new species does not appear to be affiliated to any other known *A.* (*S.*) species and placement of this species does not seem comfortable in the subgenus *Syndromus* sensu stricto. However, a conservative approach is adopted here until further investigative work coupled with corroborative anatomical studies warrants description of a new subgenus.

ACKNOWLEDGEMENTS

We are most grateful to Mr. John Abbas from Lihue, Kauai, Hawaii (presently residing in Jakarta) for giving us this opportunity to describe this new tree snail and for donating some empty types and three wet specimens to ZRC, RMBR, NUS. Special thanks goes to Mrs. Ristiyanti M. Marwoto for letting Mr. John Abbas verify some reference materials at MZB in

ISSN 1793-8708 (print edition)
ISSN 1793-8716 (online edition)

early April 2008. The authors are very grateful to John for all the important comparative specimens sent for this study and good descriptions of Sumba. We would also like to thank an anonymous reviewer for suggestions on how to improve this paper.



Figs. 1 - *Amphidromus (Syndromus) abbasi*, new species. Figs. 1.1-1.3 – Brown morphs. Figs. 1.4-1.6 – Yellow morphs. Fig. 1.1 - Holotype (37.3 mm). Fig. 1.2 – Paratype (38.3 mm). Fig. 1.3 – Paratype (32.8 mm).Fig. 1.4 – Paratype (34.1 mm). Fig. 1.5 – Paratype (35.9 mm). Fig. 1.6 – Paratype (38.7 mm). Fig. 2 - *A.* (*S.*) *filozonatus* (28.6 mm). Figs. 3.1-3.2 - *A.* (*S.*) *contrarius*. Fig. 3.1 – 34.9 mm. Fig. 3.2 – 36.9 mm.

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