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NOTES ON *RIVOMARGINELLA ELECTRUM* (REEVE, 1865) FROM LAMPUNG, SOUTH SUMATRA

(GASTROPODA, MARGINELLIDAE)

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ABSTRACT

Specimens of the freshwater marginellid *Rivomarginella electrum* (Reeve) were collected in South Sumatra. The erroneous spelling of the type locality is corrected into Lake Jepara. The animal, radula and ecology are described for the first time; living specimens were observed in an aquarium. The species is compared with *R. morrisoni* Brandt from Thailand. Differences in shell, animal and radula prove that the two are distinct species. The genus *Rivomarginella* seems to be related to *Volvarina*.

INTRODUCTION

The first freshwater species, within the otherwise marine Marginellidae was mentioned by Annandale (1916: 92) from Bangkok, Tale Sap at Patalung, in Thailand. This record was repeated by Ellis (1926: 34) and Suvatti (1938: 38; 1950: 82). The species was identified as *Marginella* spec.

Brandt (1968: 275-277) described the genus *Rivomarginella* for these Siamese freshwater marginellids, *R. morrisoni* Brandt being the type species by monotypy. More information about this species was published later by Brandt (1974: 204-205).

After studying the type material of *Marginella electrum* Reeve, 1865, in the British Museum (Natural History) (BMNH) at London, and additional

specimens from South Sumatra and Southeast Borneo (= Kalimantan), Indonesia, present in the Zoological Museum at Amsterdam (ZMA), this species was also assigned to *Rivomarginella* by Coomans & Clover (1972).

Since then more material of *R. electrum* was studied. Djajasasmita made two fieldtrips to Lampung in Southern Sumatra, where specimens were collected alive and observed in an aquarium. In addition more specimens were found amongst unidentified material from South Sumatra in the ZMA by the second author.

Genus *Rivomarginella* Brandt, 1968

Description.-

Shell small, maximum length about 11 mm, piriform-conoidal, translucent, smooth and glossy, sandy yellowish, spire short with 3-4 whorls, apical angle about 90°; body whorl large; aperture elongate, narrow above, widening at the base; outer lip thickened and smooth; columella with 4 plaits; a thin secondary enamel-like layer covers the shell. No operculum. The radula consists of rows of combshaped rachidian teeth, each tooth with 20-30 cusps.

Type species.-

R. morrisoni Brandt, 1968, by monotypy, from freshwater in Thailand.

Other species.-

R. electrum (Reeve, 1865), from freshwater in Indonesia.

Remarks.-

According to Brandt the genus *Rivomarginella* is related to *Eratoidea* Weinkauff, 1879, a Caribbean genus with a thick shell, narrow aperture and denticulate outer lip. The present authors consider *Rivomarginella* closer to *Volvarina* Hinds, 1844, with its thin shell and smooth outer lip, and circumtropical distribution (cf. Coomans, 1976).

Rivomarginella morrisoni Brandt, 1968

Brandt, 1968: 276; Brandt, 1974: 205.

Description.-

Shell: length 8.5 - 11.3 mm, width 5.5 - 8.3 mm. Ratio width/length > 60%, angle of spire > 90°

Animal: light grey with large black dots on head and back; foot rounded triangular; tentacles moderately long and without pigmentation; proboscis long and cleft in front; mantle edges dotted.

Radula: about 40 combshaped teeth, each tooth (fig. 1) with 28 - 29 cusps.

Type locality.-

Maenam Mae Klong near Ban Pong, Ratburi.

Distribution.-

Thailand (cf. Coomans & Clover, 1972: fig. 9).

Rivomarginella electrum (Reeve, 1865)

Reeve, 1865: pl. 22, spec. 118; Coomans & Clover, 1972: 69-75.

Description.-

Shell: length 5.4 - 10.7 mm, width 2.9 - 6.5 mm. Ratio width/length < 56%, angle of spire < 90° Shell (fig. 3) ovate triangular, constricted anteriorly, smooth and polished, somewhat transparent. Generally coarsely granulated on the spire and near the vicinity of the parietal area. Brownish straw colour. Spire shortly elevated, 4 whorls, a little convex. Suture impressed. Aperture narrow elongate, becoming wider anteriorly, about four-fifth of total length. Peristome with thickened outer lip, lighter in colour than the last whorl, smooth and not dentated. Parietal callus thin. Columella with 4 whitish folds. The secondary layer, which covers the shell, forms false sutures.

Animal: light violaceous grey to light pinkish grey; foot and tentacles pigmented with dark and yellowish dots, more crowded on siphon and middle of the hind part of foot; mantle thick and covering the shell almost completely, with blackish brown and yellowish brown blotches; foot wide, front margin truncated, thickened and slightly notched at the centre, tapering posteriorly; tentacles long, at the end sometimes without pigment; eyes at the base of tentacles on slightly distinct swellings; proboscis retractile, when fully

expanded about half the length of the shell, its front tip widened and cleft.

Radula: between 38 and 47 rows of comblike teeth, each tooth (fig. 2) has 18 - 21 cusps of different sizes.

Type locality.-

Reeve did not mention a type locality for *Marginella electrum*. Coomans & Clover (1972: 72) designated the freshwater lake near Kampung (= village) Djupan, Lampongs District, Sumatra, type locality. This locality was indicated with specimens present in the ZMA. However, the spelling of "Djupan" is erroneous, it should read, "Djupara", also written as "Djepara", and presently as "Jepara". The freshwater lake near Kampung Jepara is known as Lake Jepara, which means that "Lake Jepara, Lampung, South Sumatra" is the modern spelling of the type locality of *Rivomarginella electrum*.

New localities of *Rivomarginella electrum*.-

Next to the type locality, *R. electrum* was also mentioned from S.E. Borneo (at present Kalimantan), Tanah Laut, freshwater near Pleihari (Coomans & Clover, 1972: 72, fig. 9). Some new localities in South Sumatra became known since.

The first author visited Lampung in February 1974, where specimens of *R. electrum* were collected from Wai (= river) Jepara (table I), the outlet river of Lake Jepara. In November 1974 the species was found in Wai Gerem, a tributary to the river Wai Sekampung. All specimens were living on roots of the water hyacinth *Eichhornia crassipes* (Mart.) Solms, which were floating in great numbers along the river banks.

In the collection of the ZMA more specimens were found (fig. 3) amongst unidentified material, collected in 1939 by M.A. Liefstinck, at the time zoologist at Bogor. The locality is Wai Tebu (table II), close to Gisting in the Gunung (= mountain) Tanggamus, S.W. Lampung, at a height of 600 m above sea level, in primeval forest, 20 km from the sea. According to Liefstinck (in litt. to Mrs. Dr. W.S.S. van der Feen-Van Benthem Jutting) "they live in crowds between rootbundles of banktrees in heavily shaded swift flowing water. The water is very clean".

Observations on live specimens.-

Some specimens were kept in an aquarium with a muddy bottom and some water plants. They stayed mostly in the mud, sometimes the tip of the proboscis was protruding a little out of the mud. At other times they crawled actively on the mud surface, aquarium walls and water plants.

One specimen has been seen suspended on the underside of the water surface.

The animals are able to form a slime thread, by which they hang with the head downward, and with undulating foot movements they gradually descend from the leaf of a water plant. This behaviour, although not in water, is also known from the land slug *Deroceras*.

They were fed with earthworms. The movements of the squirming worm on the mud attracted the snails. Keeping the siphon a little upward, they searched the location of the squirming worm. Several snails may attack one worm. A small worm can be grabbed by a single snail with the front part of its foot and dragged below the mud. Sometimes the worm was devoured by the snail lying in an upside down position.

ACKNOWLEDGMENTS

The National Biological Institute of the Indonesian Institute of Sciences at Bogor made possible the fieldtrips of the first author to Lampung. Mrs. Dr. W.S.S. van der Feen-Van Benthem Jutting, former curator at ZMA, supplied the information about the material collected by Liefstinck.

The drawings were made by Mr. J. Zaagman, the photographs by Mr. L.A. van der Laan, both of the ZMA.

REFERENCES

- ANNANDALE, N., 1916. Preliminary report on the fauna of the Tale Sap or inland Sea of Singora.- J. nat. Hist. Siam Soc., 2 (2): 90-102.
 BRANDT, R.A.M., 1968. Description of new non-marine mollusks from Asia.- Arch. Moll., 98 (5-6): 213-289.
 -----, 1974. The non-marine aquatic Mollusca of Thailand.- Arch. Moll., 105 (1-4): 1-423.
 COOMANS, H.E., 1976. Historie en systematiek van de Marginellidae (Gastropoda).- IN: Malacologische

Opstellen: 7-18.

COOMANS, H.E. & P.W. CLOVER, 1972. The genus *Rivomarginella* (Gastropoda, Marginellidae).- *Beaufortia*, 20 (263): 69-75.
 ELLIS, A.E., 1926. British snails. A guide to the non-marine Gastropoda of Great Britain and Ireland. Pliocene to Recent: 1-275 (Clarendon,

Oxford.) - Reprinted 1969.

REEVE, L.A., 1864-1865. Monograph of the genus *Marginella*.- *Conch. Icon.* 15: pls. 1-27.

SUVATTI, Ch., 1938. Molluscs of Siam: 1-91. (Bureau of Fisheries, Bangkok).

-----, 1950. Fauna Thailand, Mollusca: 32-126 (Dept. Fisheries, Bangkok).

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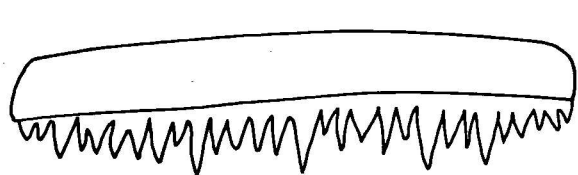
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Table I. Measurements of 13 specimens of *Rivomarginella electrum* from Wai Jeparu (coll. ZMA, leg. Djajasmata).

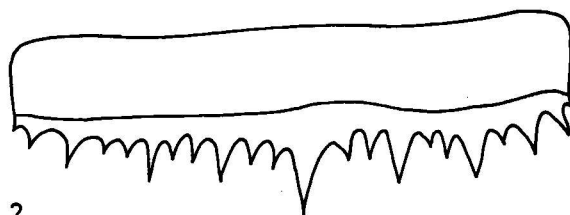
length in mm	width in mm	width/length in %
6.7	3.5	52
6.9	3.4	49
6.9	3.5	51
7.0	3.6	51
7.0	3.6	51
7.1	3.8	54
7.1	3.9	55
7.2	3.6	50
7.6	3.7	49
7.7	3.9	51
7.8	3.9	50
7.9	3.9	49
8.7	4.4	51

Table II. Measurements of 12 specimens of *Rivomarginella electrum* from Wai Tebu (coll. ZMA, leg. Liefstinck).

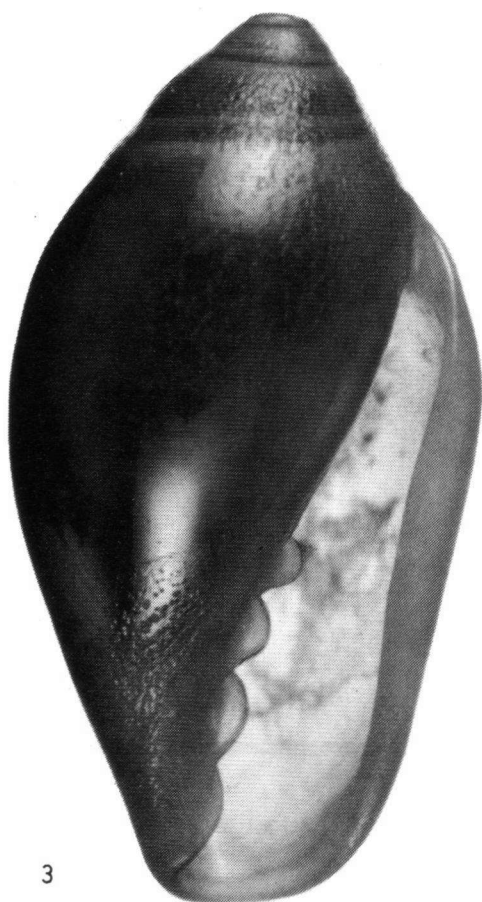
length in mm	width in mm	width/length in %
5.4	2.9	54
5.9	3.3	56
6.0	3.3	55
6.2	3.4	55
6.6	3.5	53
6.7	3.7	55
6.8	3.5	51
7.0	3.8	54
7.1	3.5	49
7.2	3.8	53
7.3	3.9	53
7.5 (fig. 3)	4.0	53



1



2



3



Fig. 1. Radula of *Rivomarginella morrisoni*, after Brandt, 1968.

Fig. 2. Radula of *Rivomarginella electrum* (Reeve).

Fig. 3. *Rivomarginella electrum* (Reeve). Sumatra, Lampung, Wai Tebu. Length 7.5 mm (coll. ZMA).