Notes on Bulimulidae (Gastropoda, Euthyneura), 2.\footnote{Notes on Bulimulidae. 1, see Basteria 38: 13-15, 1974.}

On a small collection of Simulopsis Beck, 1837, from southern Brazil, with description of three new species

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Recently Van Mol (1971: 223) has shown that Simulopsis Beck, 1837, belongs to the Bulimulidae instead of to the Amphibuliminae (cf. Zilch, 1960).

During work for a generic revision of the Bulimulidae a small collection of Simulopsis, collected in southern Brazil, came to my hands. The only species previously known to occur in this region is Simulopsis (Simulopsis) sulcicola (Férussac). The material at hand was collected by Mr. Fritz H食mann in 1936-1938 near Nova Teutonia. The labels of the material indicate that the geographical position of this locality is $25^\circ1'3'S$ $52^\circ23'W$, which is in south-central Santa Catarina.

For making this material available to me I am most grateful to Dr. A. Andersson and Mr. R. Olerå of the Naturhistoriska Riksmuseet, Stockholm (NRS). Fig. 13 was made with a Cambridge scanning electron microscope with the co-operation of Messrs. W.C. Laurijssen and F. van Sandijk. The other photographs were made with the co-operation of Mr. A. J. Hoof. Due to technical difficulties the quality of the photographs is not up to standard.

Simulopsis (Simulopsis) sulcicola (Férussac, 1821)

Three lots with representative specimens of this species were collected on 3-15.IX.1936 (NRS 2367, 4 specimens) and VII.1937 (NRS 2445, 9 specimens; NRS 2447, 5 specimens) respectively. This species was hitherto known from State São Paulo, Itapetinga and Taguara (cf. Pilsbry, 1899: 214); the record of this species from Botafoho, Rio de Janeiro, State of Guanabara (Hidalgo, 1899) needs confirmation.
Fig. 2. Outline of shell of *Simpulopsis* (S.) *psuedosulicola* sp.n., palatal margin slightly inwardly deformed, NRS 2503 (holotype).

Genitalia (fig. 1) — Penis distally U-shaped, with pseudo-sheath. Epiphallus slender, about as long as penis. Main retractor muscle attached at transition from epiphallus to flagellum, which latter is about one third of the length of the epiphallus. Second retractor muscle inserted at genital atrium. Vagina comparatively short. Spermathecal duct branched at about three quarters of total length; one branch

continues as a very narrow duct with the spermatheca at the distal end, the other is a blind sac. Araujo (1971: 79, fig. 12) was the first to describe this feature of the spermathecal duct, which seems to be typical for *Simpulopsis*. I here propose the name spermathecal appendix for the blind branch of the spermathecal duct. In *Simpulopsis sulicola* the spermathecal appendix is short-globose.
Simpulopsis (Simpulopsis) pseudosulculella sp.n.

Diagnosis — A species of *Simpulopsis* s.str. which closely resembles *S. sulculella* but differs in the following respects: (1) the surface of the shell lacks the "numerous revolving dull and lustreless bands about as broad as the glossy intervals" (Filsbry, l.c.); (2) the surface of the shell has stronger wrinkles; (3) the protoconch has both spiral striae and axial, very fine wrinkles. Description — Shell up to 11.3 mm long, 1.23 times as long as wide, imperforate, thin. Colour yellowish-brown, paler on the upper whorls. Surface slightly shining, sculptured with strong axial, hardly sinuous wrinkles and close, very delicate spiral striae. Protoconch sculptured with dense spiral striae and axial, very fine wrinkles (about equally dense). Whorls four, rather convex. Suture well impressed. Aperture ovate, whitish coloured inside, 1.37 times as long as wide. Peristome and columellar margin thin and simple.

Type locality — Brazil, Santa Catarina, Nova Trinitaria.


Measurements — Shell height 11.3 mm, diameter 9.2 mm, aperture height 8.0 mm, width 5.8 mm.

Genitalia (fig. 3) — Penis swollen, except basal part which is slender, constricted at transition to epiphallus, which is slender and about 1½ times length of penis. Main retractor muscle inserted at distal end of epiphallus. Second retractor muscle inserted at genital stria. Flagellum slender, about one third of the length of the epiphallus. Vagina and oviduct comparatively short. Spermathecal appendix elongated-triangular.

Remarks — The following differences may be noted in the genitalia:

<table>
<thead>
<tr>
<th>S. sulculella</th>
<th>S. pseudosulculella</th>
</tr>
</thead>
<tbody>
<tr>
<td>penis</td>
<td>U-shaped</td>
</tr>
<tr>
<td>penis length</td>
<td>about 6 x vagina</td>
</tr>
<tr>
<td>epiphallus length</td>
<td>as penis length</td>
</tr>
<tr>
<td>spermathecal appendix</td>
<td>short-globose</td>
</tr>
</tbody>
</table>

Simpulopsis (Simpulopsis) wiebesi sp.n.

Diagnosis — A species of *Simpulopsis* s.str. characterized by cretikoid epidermal striae on surface, last whorl angular at periphery and protoconch with irregular, axial wrinkles and spiral striae.

Description — Shell 8.1 mm, 1.1 times as long as wide, rimate, rather thin. Colour pale tawny. Surface hardly shining, sculptured with few, obsolete wrinkles and numerous spiral striae. Epidermal striae restricted to upper part, in part interrupted and cretikoid. Protoconch with axial, somewhat irregular wrinkles and spiral striae of same strength. Whorls three and a half, slightly convex. Suture well impressed. Last whorl angular at periphery in front. Aperture ovate, whitish coloured inside, 1.2 times as long as wide. Peristome thin and simple, straight. Margins joined by a thin, whitish callus. Columellar margin reflexed and dilated above; whitish.
Fig. 5. Genitalia of *Simulopsis* (S.) *wielchi* sp., NRS 2505 (holotype).

Type locality — Brazil, Santa Catarina, Nova Teutonia.
Measurements — Shell height 8.1 mm, diameter 7.1 mm, aperture height 5.2 mm, width 4.4 mm.
Genitalia (fig. 5) — Penis swollen, S-shaped, constructed at transition to epiphallus, which is about as long as penis. Retractor muscle inserted at distal end of epiphallus. Second retractor muscle not observed. Flagellum about half as long as epiphallus. Vagina rather short. Oviduct moderately long. Spermathecal appendix elongated-globose.
Etymology — I have much pleasure in naming this species after Prof. dr. J.T. Wiebes, incumbent of the chair of Systematic Zoology and Evolutionary Biology at Leiden University.

*Simpulopsis (Eudipterus) cf. citrinonvirea* (Moricand, 1836)

Two lots with specimens tentatively identified as *Simpulopsis citrinonvirea* were collected on 22. VIII. 1936 (NRS 2368, 5 specimens) and VII. 1937 (NRS 2443, 10 specimens) respectively. The specimens, which are slightly immature, differ from typical *Simpulopsis citrinonvirea* as follows:

1. Smaller, with a lower shell height/whorls ratio: 2.48 vs. 3.33;
2. Surface with both growth lines and numerous, delicate spiral striae;
3. Aperture not oblique.

The genitalia (fig. 7) are as described for *Simpulopsis citrinonvirea* (Araujo, 1971: 78, figs. 11-14).

Fig. 7. Genitalia of *Simpulopsis (Eudipterus) cf. citrinonvirea* (Moric.). NRS 2443.

Fig. 8. Outline of shell of *Simpulopsis (Eudipterus) araujo sp.n.*, NRS 2371 (holotype).
Simulopsis (Endioptus) araujoi sp. n.

Diagnosis — A species of Simulopsis (Endioptus) characterized by its brownish color, elongated spire, protoconch with axial riblets, subovate aperture.

Description — Shell up to 15.2 mm long, 1.63 times as long as wide, perforate, sides nearly straight, rather elongate, thin. Colour brownish to light yellowish-brown. Surface lustreless, sculptured with growthlines and numerous, delicate spiral striae. Protoconch sculptured with axial riblets, the intervals 3-4 times as broad as the riblets, and dense spiral striae, the latter being slightly more prominent than the former. Whorls 4.7, slightly convex. Suture well impressed. Aperture subovate, faintly brownish to whitish inside, about 1.5 times as long as wide. Peristome thin, not expanded. Columellar margin hardly reflexed, dilated above, whitish.

Type locality — Brazil, Santa Catarina, Nova Teutonia.

Material — NRS 2371, 2 specimens, F. Plaumann leg., 28.VIII.1936 (includes holotype); NRS 2442, 4 specimens, F. Plaumann leg., VII.1937; NRS 2504, 2 specimens, F. Plaumann leg., 1.1938, RMNH 55076, 1 specimen (duplicate ex NRS 2371).

Measurements — The following measurements are in mm:

<table>
<thead>
<tr>
<th>Shell height</th>
<th>Shell diameter</th>
<th>Aperture height</th>
<th>Aperture width</th>
<th>Height last whorl</th>
<th>Number of whorls</th>
</tr>
</thead>
<tbody>
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<tr>
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<td>8.8</td>
<td>4.7</td>
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<td>5.9</td>
<td>3.9</td>
<td>8.3</td>
<td>4.6</td>
</tr>
</tbody>
</table>

Genitalia (fig. 9) — Penis elongated, with sheath. Epiphallus about as long as penis. Flagellum one and a half times the length of the epiphallus. Retractor muscle distally inserted at flagellum. Second retractor muscle inserted at body wall near genital atrium. Vagina comparatively long. Spermathecal duct without spermathecal appendix but with median swelling.

Fig. 12. Simulopsis (S.) pseudosulcata sp.n., protoconch, NRS 2503 (holotype).

Fig. 13. *Simpulopsis* (Eudipterus) *araui* sp.n., protoconch, NRS 2442 (paratype).

Fig. 14. *Simpulopsis* (Eudipterus) *araui* sp.n., sculpture of perultimate whorl, NRS 2371 (holotype).
REFERENCES


