Trachycystis montissalinarum spec. nov., a new charopid from the Soutpansberg complex in the Northern Province, South Africa (Mollusca: Gastropoda Pulmonata: Charopidae)

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Key words: Mollusca; Gastropoda; Pulmonata; Charopidae; *Trachycystis;* South Africa; taxonomy.
A new species of *Trachycystis* s.l. (Charopidae) from the Hanglip Forest in the Soutpansberg complex in the Northern Province of South Africa is described. Absence of anatomical data precludes more precise classification. The shell is characterized by a spirally sculpted apex and a somewhat irregular flange-like costulation on the later whorls.

Introduction

During field work in the then northern Transvaal (South Africa) more than a third of a century ago the author and his wife obtained some shells of a striking, small land snail which appeared to represent a species of *Trachycystis* Pilsbry, 1893, sensu lato (family Charopidae Hutton, 1884). A scrutiny of the relevant literature (at that time only Connolly, 1939) did not provide a lead nor did a subsequent visit to The Natural History Museum in London in 1967. The matter was left in abeyance until the specimens turned up recently when it was decided to restudy the matter and formally describe the taxon in order to draw attention to it.

Abbreviations used are museum acronyms BMNH for The Natural History Museum, London [formerly British Museum (Natural History)], NMP for Natal Museum, Pietermaritzburg, South Africa, and RMNH for Nationaal Natuurhistorisch Museum, Leiden (National Museum of Natural History, formerly Rijksmuseum van Natuurlijke Historie); l/d stands for the ratio length (in this particular case: height)/major diameter as an indication of the shape of the shell (this ratio is calculated from micrometer readings and may therefore differ from that calculated when these measurements are first converted into mm). Acknowledgements are due to the staff of the Mollusca Section of The Natural History Museum, London (BMNH) and the invertebrate department of the Musée Royal de l'Afrique Centrale, Tervuren, Belgium, for continued vital access to their valuable African holdings. Figures 1-3 are due to the professional skill of museum staff artist Mrs Inge M. van Noortwijk (RMNH).

Description

Trachycystis montissalinarum spec. nov.
(figs 1-3)

Material.— Holotype (NMP V9932/T1885), **South Africa**, Northern Province, Soutpansberg complex, Hanglip Forest near Louis Trichardt, picnic spot area, in leaf litter, c. 1500 m.s.m., 8-9.ii.1965, leg. A.C. & W.H. van Bruggen. Paratypes: 8 (5 NMP V9933/T1886; 1 BMNH; 2 RMNH 92259), with same data as holotype.

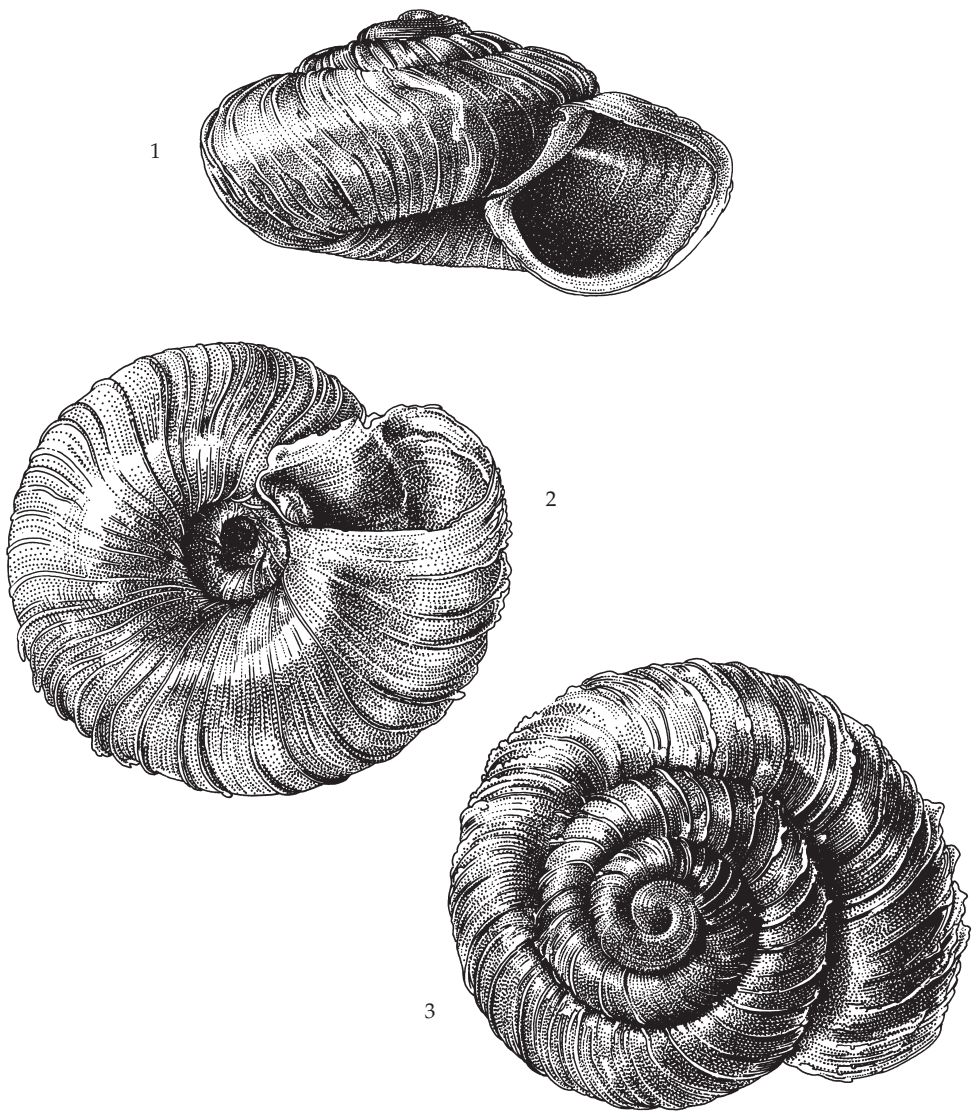
Diagnosis.— A species of *Trachycystis* sensu lato with a shell characterized by medium size (about 4 whorls and a major diameter of less than 5 mm), wide open umbilicus, spirally sculpted apex and prominent, flange-like costulation on the later whorls.

Description of shell.— Shell (figs 1-3) medium-sized for the genus sensu lato, depressed subconical, more than twice as wide as high, widely umbilicate, thin, somewhat transparent, dull, costulate, dark corneous, with partly deciduous periostracum. Spire little exserted, depressed, apex flattened, submamillate. Whorls less than four to four and a quarter, gradually increasing, flattish, slightly inflated, bluntly shouldered at periphery (= weakly carinate), first one to one and a quarter markedly spirally striate (which sculpture increasingly weakens thereafter to disappear almost completely on the body whorl), the remainder with marked costulation consisting of irregular, major, widely spaced, sharp, curved, oblique transverse costae, the wide interstices filled with minor transverse costulae, seemingly increasing in number with the widening of the interstices; basal sculpture similar, though somewhat weaker, the ribs converging into the umbilicus. All major costae are prominent and more or less arranged perpendicularly to the surface of the shell, projecting flange-like beyond the periphery. Umbilicus wide and deep, revealing almost all whorls, about one quarter to more than one third of the major diameter of the shell. Aperture obliquely squarish but with smoothly rounded base, labrum thin and sharp, somewhat receding in profile, columella short, weak and slightly concave, margin very narrowly expanded and hardly overhanging umbilicus.

Table 1. Measurements in mm of the shells of the type series of *Trachycystis montissalinarum* spec. nov. All specimens in NMP, except for nos. 2 and 8 (RMNH), and 5 (BMNH). No. 4 (marked by an asterisk) is the holotype. For the umbilicus the major diameter is given, which, however, is not sharply delimited; for the aperture figures for height × major diameter are given. The approximate number of major ribs on the body whorl is indicated as r.

No.	height × major diameter	l/d	umbilicus	aperture	r	number of whorls
1	2.4 × 3.9	0.60	1.1	1.4 × 1.7	35	4+
2	2.4 × 3.9	0.60	1.1	1.5 × 1.7	38	<4
3	2.2 × 4.1	0.53	1.1	1.6 × 1.9	41	<4
4*	2.5 × 4.2	0.59	1.2	1.6 × 2.0	36	4+
5	2.6 × 4.4	0.60	1.1	1.6 × 2.0	39	>4
6	2.6 × 4.4	0.60	1.2	1.5 × 2.0	41	4+
7	2.7 × 4.4	0.61	1.2	1.8 × 2.0	36	<4 1/4
8	2.7 × 4.7	0.57	1.2	1.7 × 2.0	38	4 1/4
9	2.8 × 4.9	0.58	1.2	1.7 × 1.9	38	>4 1/4

Measurements of shell (see table 1): height × major diameter 2.2-2.8 × 3.9-4.9 mm, l/d 0.53-0.61, diameter of umbilicus 1.1-1.2 mm, aperture height × major diameter 1.4-1.8 × 1.7-2.0 mm, <4-4 × whorls. The diameter of the umbilicus is not sharply delimited so that it is impossible to give exact measurements. The number of major ribs on the body whorl varies from c. 35 to c. 41.



Figs 1-3, *Trachycystis montissalinarum* spec. nov., holotype (NMP V9932/T1885), shell highly enlarged (actual size 2.5 × 4.2 mm). Inge M. van Noortwijk del.

Anatomy.— Unknown.

Distribution.— South Africa, Northern Province, Soutpansberg complex, Hanglip Forest near Louis Trichardt (type locality).

Derivatio nominis.— The new species has been named after the Soutpansberg complex: *mons,* genitive *montis,* Lat. = mountain, *salinae,* genitive *salinarum,* Lat. = saltpan, i.e. literally: *montissalinarum* = 'of the saltpan mountain'.

Discussion

The costulation is decidedly irregular so that the shells are sometimes individually markedly different. At times two or even three costulae are close together, at other times these are seemingly regularly spaced.

Checking through Connolly (1939: 187-248), the only species in southern Africa classified with *Trachycystis* of which the shell somewhat resembles that of the new species is *Trachycystis metallakter* Connolly, 1912 (Connolly, 1912: 140, pl. 2 fig. 6; 1939: 202). It has about the same size and also the ornamentation more or less looks like that of *T. montissalinarum* spec. nov. However, the apex of *T. metallakter* is smooth, the flange-like costulae are deciduous (normally not observed beyond the third whorl), and the periphery is smoothly rounded. Moreover, it has only been recorded from Caledon (Western Cape) in the Cape fold mountains, where it may be extinct at the type locality (fide Connolly, 1939: 202), although it may survive elsewhere in the neighbourhood of this town. Since Connolly's treatise (1939) only four more species of *Trachycystis* s.l. have been described from southern Africa: (1) *T. (Dendrotrichia) sylvicola* van Bruggen & Verdcourt, 1965, from the eastern escarpment on the borders of Zimbabwe and Mozambique; (2-3) *T. contrasta* Sirgel, 1980, and *T. leucocarina* Sirgel, 1980, both from the Hottentots Holland Mts. (Western Cape); (4) *T. langi* van Bruggen, 1994, from the KwaZulu-Natal Drakensberg range. Only *T. sylvicola* does show some resemblance to the new species as regards size and surface sculpture, but it is easily discriminated by the peculiarly branched bristles on the shell. In addition, there are no taxa further north (Angola, Zambia, D.R. Congo, East Africa) that have shells similar to that of the newly described species.

Looking through Zilch (1959), Solem (1976, 1982) and Schileyko (2001) one finds few genera with such prominent ribbing among the endodontoids, e.g. *Acanthoptyx* Ancey, 1888 (Zilch, 1959: 211, New Caledonia), *Paryphantopsis* Thiele, 1928 (ibidem: 223, New Guinea, Louisiades), *Cookeoconcha* Solem, 1976 (1976: 218, only one species, Hawaiian Is.), *Zyzzyxdonta* Solem, 1976 (1976: 466, Fiji Is.), *Amphidoxa* Albers, 1850 (Solem, 1982: 65, Juan Fernandez Is.), *Egestula* Iredale, 1915 (Schileyko, 2001: 985, Australia, New Zealand). All are easily differentiated from *Trachycystis montissalinarum* spec. nov.

Absence of anatomical data unfortunately precludes classification with described subgenera/subgeneric units in *Trachycystis* s.l. Schileyko (2001) has raised all subgenera of *Trachycystis* as found in Connolly (1939) and van Bruggen & Verdcourt (1965) to generic rank: *Lyrocystis* Watson, 1934; *Liparocystis* Watson, 1934; *Chalcocystis* Watson, 1934; *Phortion* Preston, 1910; *Psichion* Gude, 1911; *Chilocystis* Watson, 1934; *Phaulocystis* Watson, 1934; *Cyclocystis* Watson, 1934; *Dendrotrichia* van Bruggen & Verdcourt, 1965; *Xerocystis* Watson, 1934. For all these anatomical data are available, i.e. one or a few

species of these genera have been dissected and published and the remaining species have been classified with these on account of conchological similarity. As regards shell characters *Trachycystis montissalinarum* spec. nov. cannot be included in any of the above genera and is therefore simply described as a species of *Trachycystis* s.l.

The new species almost certainly is endemic to the forests of the Northern Province of South Africa and also perhaps Mpumalanga, and may even be restricted to the Soutpansberg range in the Northern Province.

The specimens were collected in leaf litter under logs and stones, in humus and decaying wood on the forest floor, accompanied by land snails representing eight families (the family Subulinidae being conspicuous by their absence), ten genera and at least 14 species (six of which, representing five families, are featured in van Bruggen, 1967, another species/family is added by Van Mol & van Bruggen, 1971). Only nine shells of *T. montissalinarum* spec. nov. were obtained and field notes reveal that at that time no slugs and very few live snails were observed. In addition some other invertebrates non-molluscs and a rare *Breviceps* frog were also collected for the Natal Museum. The relative humidity in this microhabitat was still fairly reasonable, but the preceding summer (1963/1964) was characterized by a drought when only about 1/6 of the normal average rainfall was registered (fide Chief Forestry Officer, Louis Trichardt, in conversation, 8.ii.1965). The Hanglip Forest may be classified with what White (1978) terms Afromontane forest.

The periostracum is semi-deciduous, but normally the costulation is permanent. This sculpture easily collects dirt particles of the leaf litter on the forest floor resulting in perfect camouflage to outwit visually active predators such as ground dwelling or foraging birds. It is known that guineafowl, bulbuls, thrushes, etc. do feed on land snails in the leaf litter. Indeed, one species from the D.R. Congo [*Maizaniella (Spiruloza-nia) chapini* (Bequaert & Clench, 1936)] was even described from crop contents of the crested guineafowl (*Guttera edouardi*) (van Bruggen, 1982: 191; see also Pilsbry & Bequaert, 1927: 475-479).

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