

Dr William ADAM's iconography of Central and West African *Gulella* species (Gastropoda Pulmonata: Streptaxidae).

Part 2: *Gulella (Wilmattina) guilielmi*, a new species from the eastern D.R.Congo¹

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Abstract

Gulella (Wilmattina) guilielmi sp.n., described from the Virunga National Park on the eastern borders of the Democratic Republic of Congo, is characterized by a small shell with a large apex and peculiar four-fold apertural dentition. Attention is drawn to the somewhat limited distribution of *Wilmattina* in Central-East Africa which might suggest it to be a monophyletic taxon.

Key words: Gastropoda, Pulmonata, Streptaxidae, *Gulella*, *Wilmattina*, Africa, systematics.

Résumé

Gulella (Wilmattina) guilielmi sp.n., décrit du Parc National des Virunga dans l'est de la République Démocratique du Congo, est caractérisé par une petite coquille pourvue d'un grand apex et une dentition particulière dans l'ouverture, composée de quatre plis. La répartition plutôt limitée du genre *Wilmattina* en Afrique centrale et orientale pourrait indiquer que ce taxon soit monophylétique.

Mots-clefs: Gastropoda, Pulmonata, Streptaxidae, *Gulella*, *Wilmattina*, Afrique, systématique.

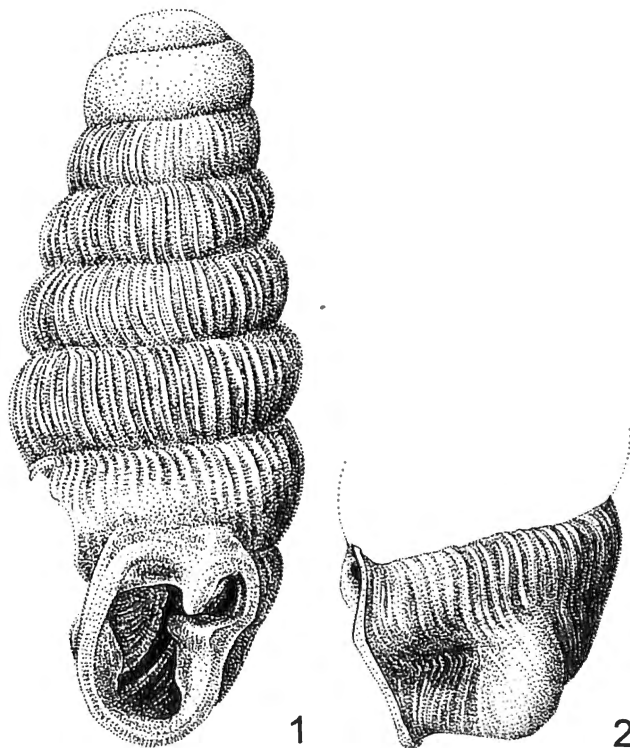
This is the second paper on a series of figures of African Streptaxidae by Mrs J. VAN MELDEREN-SERGYSELS; these illustrations were found among the papers of the late Dr William ADAM (1909-1988) in the Royal Belgian Institute of Natural Sciences (RBINS). Unfortunately there were no notes accompanying these figures, although the specimens in question were carefully labeled and kept separate. Among the depicted *Gulella* material (see VAN BRUGGEN & VAN GOETHEM, 1997), there is a curious single, small and partly defective, shell from the Virunga National Park (PNV = Parc National des Virunga, formerly Parc National Albert) on the eastern borders of the Democratic Republic of Congo (formerly Zaïre). Although a singleton, it obviously represents a very characteristic, hitherto undescribed, taxon, reason why we have no hesitation to base a new species on this specimen. The shell wall to the left of the aperture is partly destroyed;

while this is to be regretted, it on the contrary allows a clear view from the inside of the apertural dentition.

Gulella (Wilmattina) guilielmi nov.spec. (Figs 1-2)

Diagnosis. - A species of the taxon *Wilmattina* with a small and slender, somewhat tapering shell with a large smooth apex and the aperture with a four-fold dentition and a sizeable outside depression and bulge behind the labrum.

Description. - Shell (Figs 1-2) small and slender, clavate or conically elongate, somewhat tapering, greatest width at the penultimate whorl, the largest among the whorls, creamy white. Umbilicus closed. Protoconch compara-



Figs 1-2. - *Gulella (Wilmattina) guilielmi* n.sp., holotype, D.R.Congo, PNV 801c, 2.7 x 1.1 mm (RBINS). Mrs J. VAN MELDEREN-SERGYSELS del.

¹ Part 1 of this series (Nominal Taxa) was published in Bull. I.R.Sc.N.B., Biol., 67: 5-30, 1997.

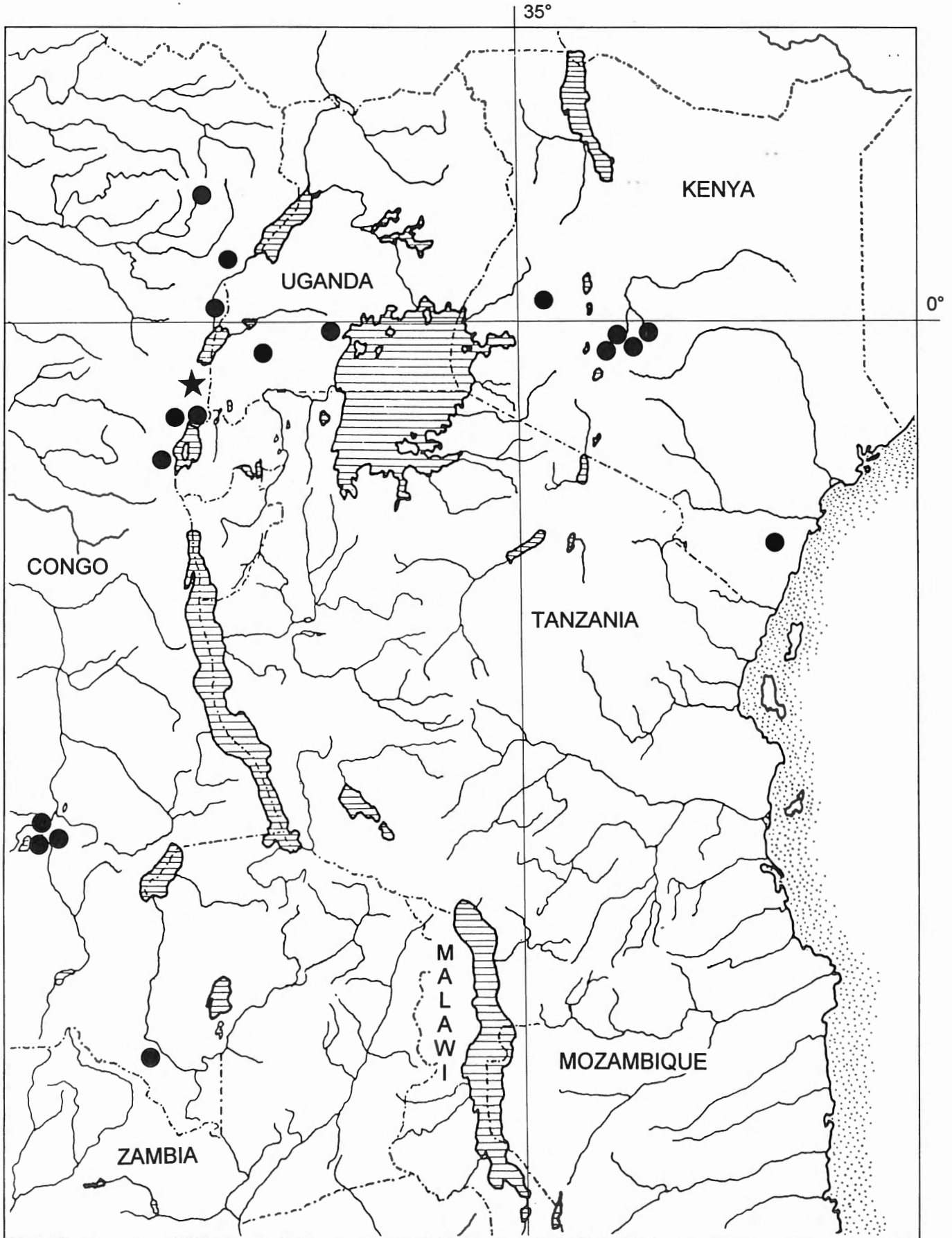


Fig. 3. – Approximate distribution of the taxon *Wilmattina* (data extracted from the literature; the type locality of *G. (W.) guilielmi* n.sp. has been indicated by a star). The westernmost locality, Gemena in the D.R.Congo (3°13'N 19°48'E), cannot be shown in this map. H. VAN PAESSCHEN del.

tively very large, almost swollen, smooth and very slightly pitted, with 2 1/4 convex whorls, second whorl even higher than first whorl of teleoconch. Teleoconch with noticeably convex whorls, separated by deeply impressed subcrenellate sutures; whorls closely covered with fairly prominent axial, almost perpendicular and somewhat sinuous costulae, the interstices about as wide as the costulae; there is also a faint spiral striation. Aperture obliquely subquadrate, moderately obstructed by dental processes, peristome thickish, somewhat reflected, white and glossy, dentition four-fold. On the right of the paries a fairly large, vertical inrunning angular lamella, connected with apex of labrum, with the labral complex forming a prominent, almost circular sinus; labral complex large and triangular; behind the labral complex there is a short suprapalatal lamella which continues in an axial fold towards the base; there is no basal denticle; columellar process in the form of a thin lobe with a free and rounded margin deep inside the aperture. Behind the labrum there is a deep depression corresponding to the labral complex (Fig. 2) behind which the shell forms a very large, rounded bulge; behind this bulge the shell is rather flattened.

Measurements of shell: 2.7 x 1.1 mm, ratio length/major diameter (l/d) 2.39 (calculated from micrometer readings), last whorl 1.1 mm, aperture 0.7 x 0.6 mm, 7 1/2 whorls (holotype).

Distribution. - Democratic Republic of Congo, Virunga National Park.

Material examined. - Democratic Republic of Congo, Virunga National Park, Kalivina, 28 August 1953, leg. G.F. DE WITTE (loc. PNV 801c): holotype (partly damaged, RBINS).

Etymology. - The new species is named in honour of Dr. William ADAM in recognition of his valuable contributions to African terrestrial malacology. Since there is already a *Gulella adami* (vide VAN BRUGGEN, 1994), we here propose to latinize Dr ADAM's Christian name, William = *Guilielmus*, genit. *guilielmi*.

Differential diagnosis. - The combination of small size, peculiar apex, and apertural dentition, particularly its consequences behind the labrum, makes the new species outstanding among its congeners.

The taxon *Wilmattina*. - Taxa at the generic level are poorly defined in the Streptaxidae. Genera and subgenera are solely characterized by their shells, which, admittedly, supply abundant potentially suitable features. However, recurrent patterns, particularly in apertural dentition suggest convergent evolution. A number of scattered anatomical data (almost only radula and genitalia) is available throughout the literature, but many type species have never been dissected [e.g. *Gulella menkeana* (L. PFEIFFER, 1853), the type species of *Gulella* L. PFEIFFER, 1856]. Also, unfortunately, the limited amount of known anatomical details is unevenly divided over the family. The time is not yet ripe to collate such data for proper evaluation. At present the general aim should be to generate as much anatomical data as possible simply for their heuristic value. Incidentally, most of the authors of

papers treating Streptaxidae have dwelt upon the value of the various recognized genera.

The suprapalatal lamella in the new species is exactly as in the 'subgenus' *Wilmattina* PILSBRY & COCKERELL, 1933, reason why we have provisionally placed *Gulella guilielmi* n.sp. in this taxon. Much has been written about *Wilmattina* and its validity as a (potentially monophyletic) taxon. Originally described as a subgenus of *Ptychotrema* L. PFEIFFER, 1853 (PILSBRY & COCKERELL, 1933; VERDCOURT, 1962, footnote on p. 16), it has also been treated as a subgenus of *Parrennea* PILSBRY, 1919 (e.g., ZILCH, 1960; VAUGHT, 1989; MILLARD, 1997), but VERDCOURT (1958: 718) has suggested affinities with true *Gulella* spp. and ADAM & VAN GOETHEM (1978: 5, 52, 57) have treated it as a subgenus of *Gulella*, which has been followed by VERDCOURT (1983: 234) and VAN BRUGGEN & VAN GOETHEM (1997: 16). RICHARDSON (1988: 134) has even synonymized *Wilmattina* with *Parrennea*.

None of the species currently classified *sub Wilmattina* has been analyzed as regards its anatomy. Such data may be decisive to establish whether it is a monophyletic taxon or not. However, distribution data may be of assistance in this quest. It appears that *Wilmattina* as presently understood occupies a limited area in East-Central Africa, encompassing the countries of D.R.Congo, Uganda, and Kenya (Fig. 3; the westernmost locality, Gemena, D.R.Congo, 3°13'N 19°48'E, is beyond the confines of the map). In view of this distribution it may be expected to turn up in Rwanda and Burundi, and perhaps also in continental Tanzania. It transpires that the majority of the known localities is in the uplands. Does this point to *Wilmattina* being a natural unit? Incidentally, Dr. A.J. DE WINTER (National Museum of Natural History, Leiden) has intimated to the senior author that so far he has not encountered representatives of *Wilmattina* in his West African material.

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