Two new Scolodontidae from the Pantepui region in Venezuela (Gastropoda, Eupulmonata)

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Abstract. We discuss the slow progress within Scolodontidae taxonomy since the contributions of H.B. Baker in 1925. The confusion about the identity of genera and species-specific taxa is likely the cause of this. However, the recent revisions at the generic level in this family and other papers have made it doable to describe new species based on the external shell morphology. This makes it possible to describe new species of which further investigation seems impossible for the time being. This is especially important if they are occurring in areas where field work is difficult or impossible, like in the Pantepui Region in Venezuela. Here, we describe two new species based on material from an expedition in 2015, and from museum material collected in the 1950s.

Key words. Venezuela, Pantepui Region, Scolodontoidea, *Systrophiella*, *Tamayoa*, taxonomy.

Résumé. Nous discutons de la lenteur des progrès réalisés dans la taxonomie des Scolodontidae depuis les contributions de H.B. Baker en 1925. La confusion qui règne autour de l'identité des genres et des taxons spécifiques aux espèces en est probablement la cause. Cependant, les récentes révisions au niveau générique dans cette famille et d'autres articles ont rendu possible la description de nouvelles espèces sur la base de la morphologie externe de la coquille. Cela permet de décrire de nouvelles espèces dont l'étude approfondie semble impossible pour le moment. Cela est particulièrement important si elles se trouvent dans des zones où le travail sur le terrain est difficile, voire impossible, comme dans la région de Pantepui au Venezuela. Nous décrivons ici deux nouvelles espèces à partir de matériel provenant d'une expédition menée en 2015 et de matériel muséal collecté dans les années 1950.

Mots clés. Venezuela, Pantepui Region, Scolodontoidea, *Systrophiella*, *Tamayoa*, taxonomie.

https://zoobank.org/References/3b265b3f-a228-4fc3-b5db-2f8f32fb5239

INTRODUCTION

The Neotropical family Scolodontidae is a diverse family of flat to depressed shells. Aside from the contributions of H.B. BAKER (1925a, b), TILLIER (1980), HAUSDORF (2006) and the thesis of RAMIREZ (1993) on this group, little progress has been made on the taxonomy of this family, description of new species and also the insights in the evolutionary history of this group are lagging behind. We have almost finished a revision of the genera of Scolodontidae (ROOSEN & BREURE, 2024a,b, ROOSEN *et al*., 2025a,b) and other authors have also noticed that many taxa in this family seem to be undescribed (WENDEBOURG & HAUSDORF, 2019; RAMIREZ & HAUSDORF, 2022). We regret this 'stand-still' in the species level taxonomy of this group, as also in the Neotropics the current biodiversity crisis is still ongoing and species level taxa are often used in conservation biology and ecology (see also Discussion). Maybe a more pragmatic approach to 'salvage' as many species apparently new to science should be used, especially when these species were found in areas that are currently inaccessible for further studies.

During an expedition in 2015, led by Jan Schlögl (Comenius University, Bratislava) to the Pantepui Region in Venezuela, some interesting material was collected that was recently donated to Naturalis Biodiversity Center, Leiden. This area (Fig. 1) is a geologically ancient part of northern South America, dominated by massive table mountains (tepuis), composed of quartzites and sandstones from the Guayana Shield. The tepuis, of which more than 100 can be found in the area encompassing parts of Venezuela, Brazil and Guyana, tower over surrounding rain forests and savannahs. These massifs provide a wealth of habitats

both for plants and animals, thus forming a biodiversity hotspot of endemic species (AUBRECHT et al., 2012; RULL et al, 2019; STEYERMARK *et al*., 1995–2005).

Based on the material collected by the expedition and additional material from museums, we describe in this paper two new Scolodontidae. These descriptions are complimentary to another paper on the land snails of the Pantepui (BREURE & ROOSEN, 2026).

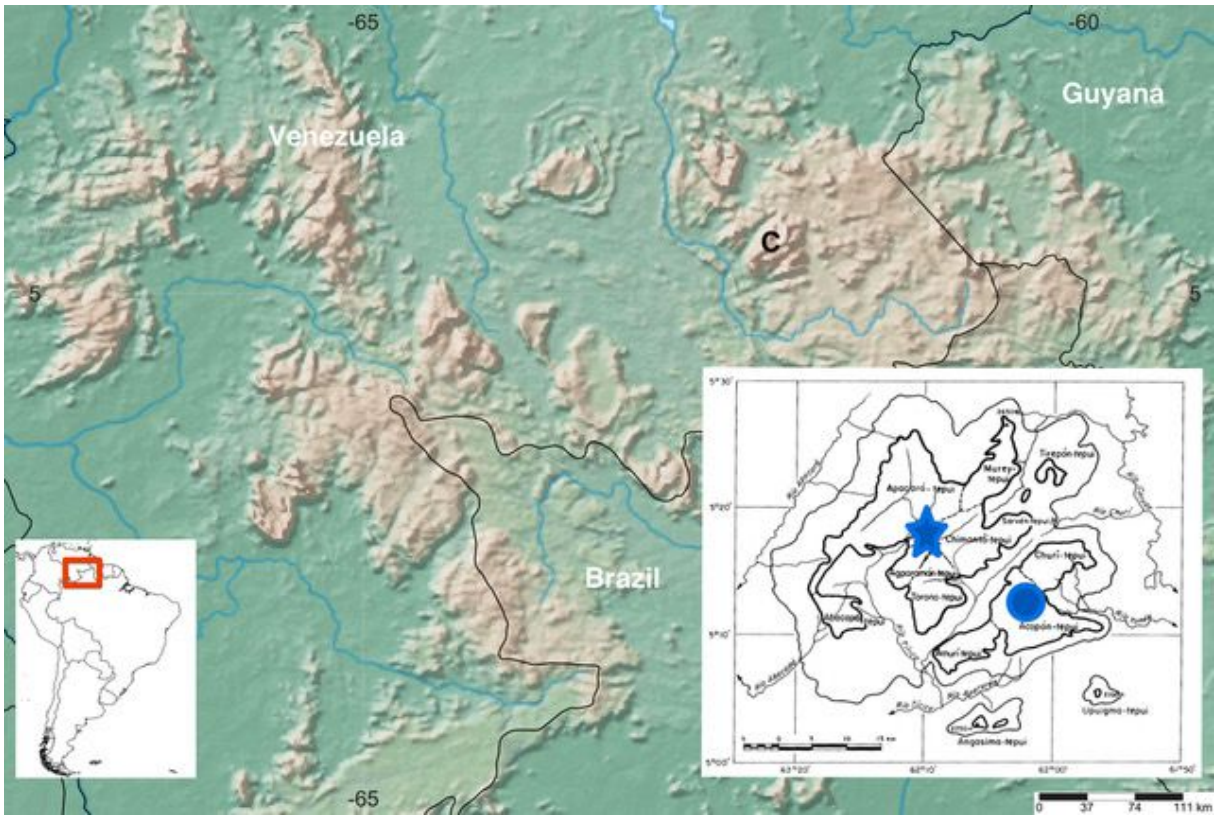

Figure 1. Study area; C is the Chimantá massif with the details in the right-hand figure. Blue dot, *Systrophiella tepui* spec.nov.; blue star, *Tamayoa chimantana* spec.nov. Insert at left-hand shows location of Pantepui in South America.

MATERIAL AND METHODS

Besides the material collected by the Comenius University expedition we also studied a specimen mentioned by HAAS (1955) as "*Happiella* sp.". Abbreviations for depositories of this material are: FMNH, Field Museum of Natural History, Chicago, U.S.A.; RMNH, Naturalis Biodiversity Center, former collection of Rijksmuseum van Natuurlijke Historie, Leiden, the Netherlands. Other abbreviations used: D, diameter of the shell; H, shell height (both in mm); UW, width of the umbilicus (in percentage of the diameter).

SYSTEMATICS

Superfamily Scolodontoidea H.B. Baker, 1925

Family Scolodontidae H.B. Baker, 1925

Genus *Systrophiella* H.B. Baker, 1925

***Systrophiella tepui* sp. nov.**

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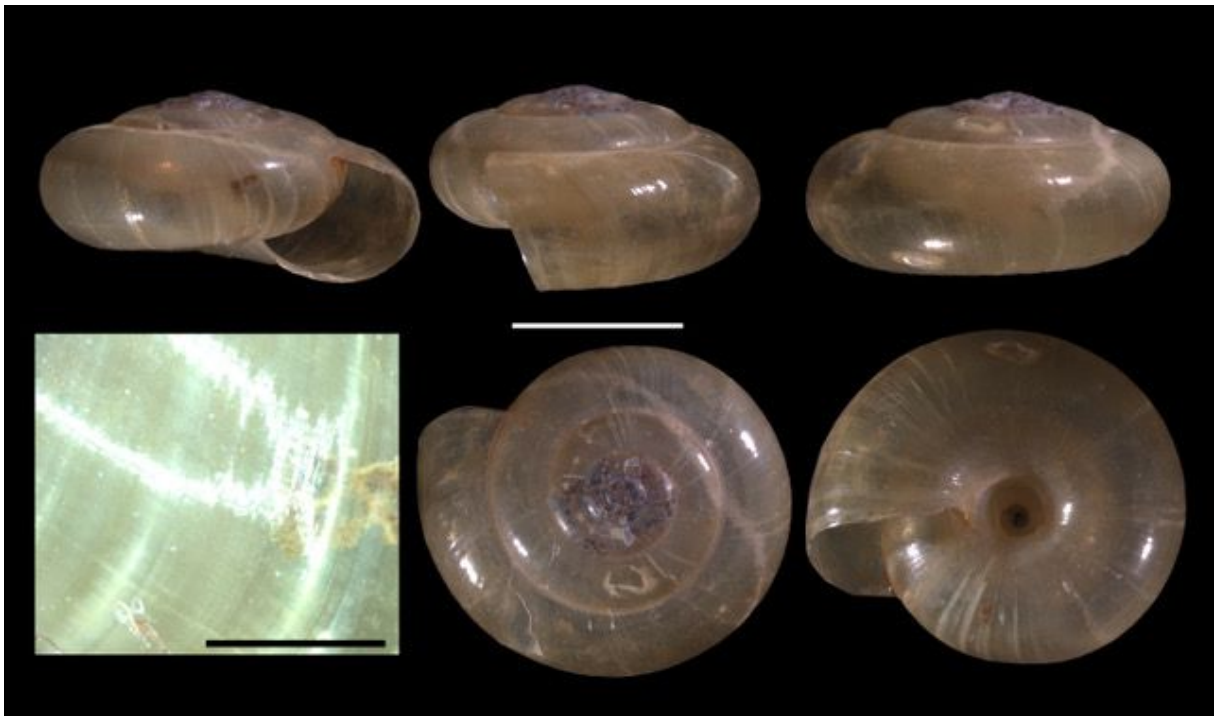

Figure 2. *Systrophiella tepui* spec.nov.. Akopán-tepui. Holotype RMNH.MOL.641171. Scale 5 mm. Detail is from the penultimate whorl, close behind the aperture. Scale 1 mm.

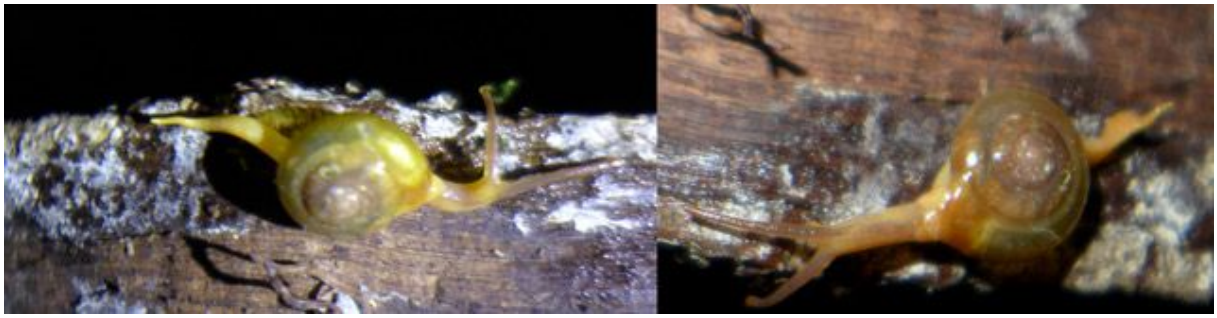

Figure 3. *Systrophiella tepui* spec.nov. Akopán-tepui. Living specimens. No scale.

Type locality. Venezuela, Estado Bolívar, Chimantá massif, Akopán-tepui. J. Schlögl leg., 2015.

Type material. RMNH.MOL.641171 (holotype, dry shell); RMNH.MOL.641172 (paratypes, three specimens, on alcohol).

Measurements. H: 5.6 mm; D: 11.1 mm; UW: 18.5%; Whorls: 4 ¾

Description. Shell of medium size, strongly depressed conical globular in shape, with a yellow periostracum. Protoconch to teleoconch transition not defined. Sculpture limited, consisting of indistinct straight growthlines, intersected by numerous spiral grooves that are only visible under high magnification. Suture shallow, but noticeably impressed. Aperture subcircular, slightly elongated. Peristome neither thickened nor reflected. Umbilicus medium wide, 18.5% of the total shell diameter.

The body is yellow, with two purple brown streaks that continue from the tip of the eye stalks to the shell when the snail is extended. The images of the living animal are of insufficient quality for further description and the preserved specimens have been degraded beyond being able to study them.

Geographic range. Only known from the Akopán-tepui in Venezuela.

Etymology. The specific epithet refers to the local name for the type of mountains the species was found on. It is used as a noun in apposition.

Comparisons. No other Scolodontids have been reported from the Pantepui region, besides the much smaller, imperforate *Tamayoa chimantana* nov. spec. which is described below. However, several *Systrophiella* species have been described from other parts of Venezuela. *Systrophiella eudiscus* (H.B. Baker, 1925) differs from *S. tepui* spec. nov. by its larger size, nearly discoid shape and large umbilicus (47% of total width). *Systrophiella lobaterita* (H.B. Baker, 1925) and *S. viridis* (H.B. Baker, 1925) are smaller than *S. eudiscus*, but also have a low spire and an umbilicus that is close to 50% of the total width. It was also compared to species from Brazil (SIMONE, 2006), of which only *Systrophiella snethlagei* (F. Baker, 1914) is close to *S. tepui* sp. nov. However, *S. tepui* sp. nov. has a higher spire and a less circular (wider) aperture.

Remarks. The small umbilicus could be interpreted as indications that it belongs to a different genus than *Systrophiella*. This option cannot be investigated without collecting fresh specimens for anatomical and genetic analysis. However, in *Systrophia* L. Pfeiffer, 1855 nearly discoid species with a wide umbilicus, like *S. ortoni* (Crosse, 1871), are united with species with a smaller umbilicus and raised spire, like *S. systropha* (Albers, 1854), as well. We have to assume that *Systrophiella* can show a similar variation.

We attempted to obtain the radula, but even after softening the head with NaOH it was impossible to locate the buccal mass in the single better-preserved specimen we had.

Genus *Tamayoa* H.B. Baker, 1925
***Tamayoa chimantana* spec. nov.**

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Type locality. Venezuela, Estado Bolívar, Chimantá massif, "forest below the summit of Chimantá-massif, along the trail of Río Tiraca and the summit camp", J. A. Steyermark and J. J. Wurdack leg., 26-01-1955.

Type material. FMNH 295271 (holotype).

Measurements. H: 2.2 mm; D: 3.5 mm; UW: closed; Whorls: 4 ¼.

Description. Shell of small size, depressed spire and transparent periostracum. Protoconch to teleoconch transition not defined. Sculpture limited, consisting of indistinct straight growth lines. Suture shallow, partially overlapping the preceding whorl. Aperture subcircular, almost perfectly lunulate. Peristome partially damaged, but in lateral view neither thickened nor reflected. Umbilicus closed, but an umbilical cavity is visible through the transparent ultimate whorl.

The body is unknown.

Geographic range. Only known from the Chimantá massif in Venezuela.

Etymology. The specific epithet refers to the type locality, the Chimantá massif.

Comparisons. Even though the new taxon has a very simple shell, it can easily be distinguished from its congeners and other Scolodontids because of its closed umbilicus. Only '*Occultator*' *olssoni* Pilsbry, 1926 from Costa Rica has a closed umbilicus, but this species is nearly discoid in shape.

Remarks. In general size and shape, the new species fits well in *Tamayoa*. The strong cord-like spiral in the umbilicus, a character that BAKER (1925) considered to be typical for the genus, cannot be observed in the current species as the umbilicus is closed.

HAAS (1955) considered the specimen at hand to be juvenile, but Scolodontids with this type of shell are always adult or nearly adult at 4–5 whorls. Thus, we consider the holotype to be (sub)adult.

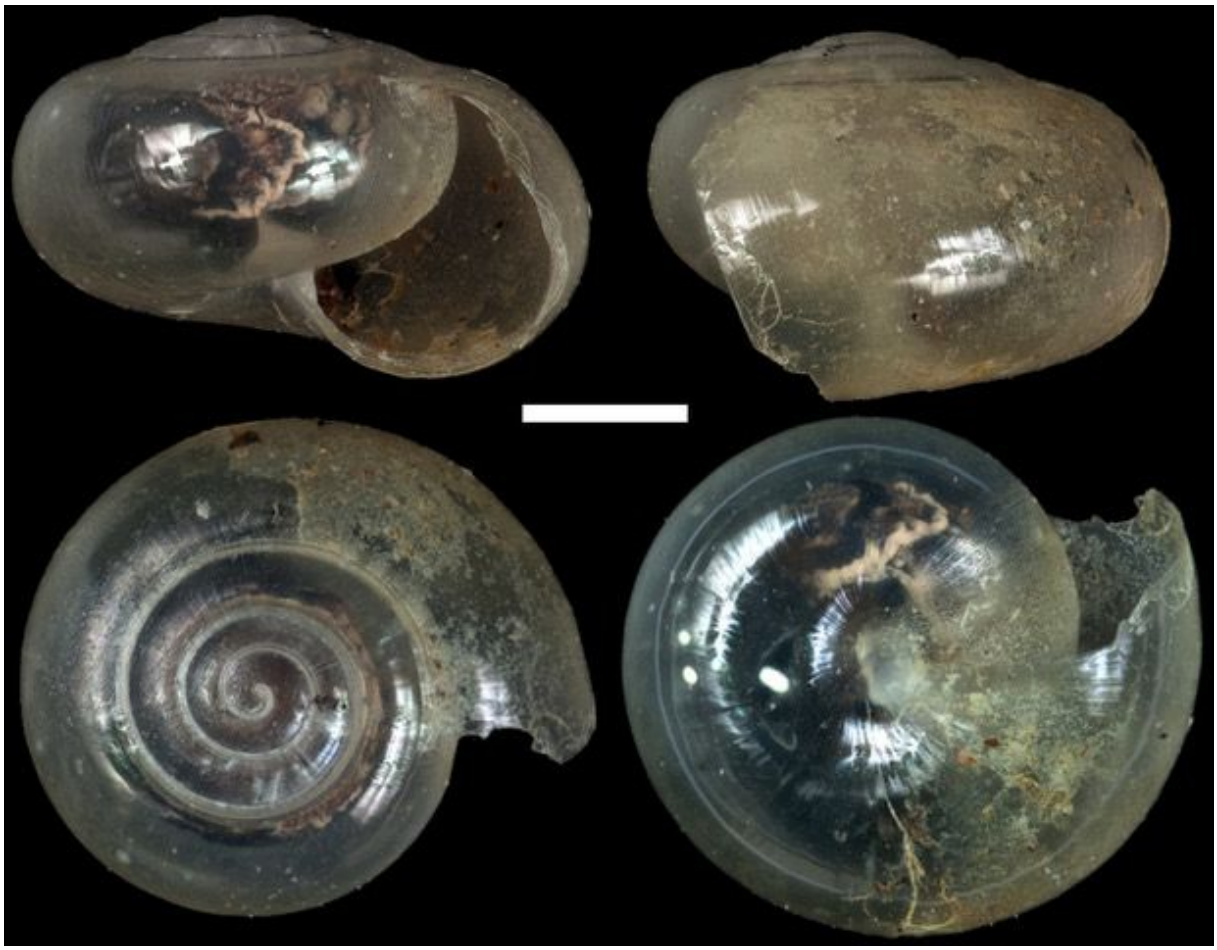

Figure 4. *Tamayoa chimantana* spec.nov. Chimantá-tepui. Holotype FMNH 295271. Scale 1 mm.

DISCUSSION

Thus, in the current paper two species of Scolodontidae from the Pantepui region are described. We had doubts about whether these species could be published, as many researchers are of the opinion that Scolodontidae can only be described and correctly assigned based on their anatomy and genetic makeup. This idea probably originated from the confusion around many taxa, like the problem with the type species of *Happia* Bourguignat, 1889, which resulted in five genera and many species being confused with another for at least 130 years (ROOSEN & BREURE 2024a). If species and genera are not well defined and distinguishing characters are unknown, it is indeed impossible to correctly identify and describe species. However, recently a lot of these issues were resolved by redescribing the species that play a key role in this confusion, enabling description and proper genus allocation for most species based on shell characters alone (ROOSEN & BREURE, 2024a,b, ROOSEN et al., 2025a,b).

This is important, as research into the Scolodontidae has reached a bit of a stand-still. Between 1985 and 2020 only 12 new species were described that are currently placed in the Scolodontidae without being considered a synonym (DOURSON et al., 2018, HAUSDORF, 2003, HAUSDORF & MEDINA, 2006, PALL-GERGELY & ASAMI, 2014, MIQUEL & BUNGARTZ, 2017, MIQUEL & RODRÍGUEZ, 2016), while other papers indicate that in tropical South America as many as 37 unidentified species of Scolodontidae might be present per area (WENDEBOURG & HAUSDORF, 2019, RAMIREZ & HAUSDORF, 2022). For the proper protection of all these species and to communicate that tropical South America harbours even more biodiversity than currently assumed it is essential that new taxa are described more quickly than currently done (e.g. BRABY & WILLIAMS, 2016, LIU et al., 2022). In the absence of funding and time for elaborate DNA studies for all species, traditional descriptions based on shell morphology form a possible alternative for the time being, now that more characters are properly defined. Moreover, tangible morphological differences are easier to use for field ecologists and thus likely more important at the current stage of research. That said, we do not argue against

anatomy and genetic studies. These should still be conducted on selected species to figure out the phylogeny of the group and disentangle cryptic species.

It might be noted that the subfamilies are explicitly not used in the current paper. TILLIER (1980) based his division between the Scolodontinae H.B. Baker, 1925 (as *Systrophiini* Thiele, 1927) and Tamayoinae Tillier, 1980 (as *Tamayoini*) at least in part on '*Tamayoa*' *decolorata* (Drouët, 1859), which he examined himself. We do not believe this species is true *Tamayoa*, which is an issue we intent to resolve in the next and final part of the revision of genera of Scolodontidae (ROOSEN et al., *in preparation*). It is clear that the Scolodontidae can likely be divided in different subfamilies, but which clades are present and what the correct nomenclature would be requires further research. In any case, to which subfamily a species belongs is of minor importance for the conservation of a species.

Another consideration that advocates for the description of the new species is the political and economic situation in Venezuela during recent years, which has made the ongoing scientific research in the Pantepui Region so far impossible. Whenever a new expedition to the Pantepui region can be organised, researchers should also pay special attention to small gastropod species. Right now, only 24 species are known, of which 19 are Orthalicoids and all but one are above 10 mm in size (BREURE & ROOSEN, 2026, this paper). Given the diversity of small taxa in other, better studied Neotropical areas (e.g., WENDEBOURG & HAUSDORF, 2019), it is unlikely that so few smaller species have adapted to the Pantepui habitat.

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