

Revision of the genera of Scolodontidae, part 4: *Miradiscops* H.B. Baker, 1925 and *Mayadiscops* gen. nov.

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Abstract. The revision of the genera of Scolodontidae by our team continues, reaching its fourth instalment. In this paper, the species traditionally included in *Miradiscops* H.B. Baker, 1925 are discussed. *Miradiscops* is retained for all species with a pitted protoconch and pitted teleoconch sculpture and discoid shells with a wide umbilicus. Species with a striate teleoconch sculpture, smooth protoconch, and more lenticular shell with a narrower umbilicus are classified in *Mayadiscops* gen. nov. The type material of all species allocated to these two genera are figured here to assist future studies. Some species formerly assigned to *Miradiscops* are here reclassified into other Scolodontidae genera. The following new combinations are made: *Scolodonta andivaga* Pilsbry, 1932; *Mayadiscops balboa* (Pilsbry, 1930) comb. nov.; *Tamayoa* (*Tamayops*) *bladenensis* (D.S. Dourson, Caldwell & J.A. Dourson, 2018) comb. nov.; *Scolodonta florezi* (Weyrauch, 1967) comb. nov.; *Mayadiscops hovestadti* (van Leeuwen & Salvador, 2024) comb. nov.; *Tamayoa* (*Tamayops*) *implicans* (Guppy, 1868) comb. nov.; *Mayadiscops maya* (Pilsbry, 1920) comb. nov.; *Mayadiscops opal* (Pilsbry, 1920) comb. nov.; *Mayadiscops ridiculus* (Pilsbry, 1930) comb. nov. Finally, *Miradiscops striatae* D.S. Dourson, Caldwell & J.A. Dourson, 2018 is considered a junior synonym of *Mayadiscops maya* comb. nov.

Key words. Land snails, neotropics, new genus, Scolodontoida, Stylommatophora, type specimens

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INTRODUCTION

The ongoing revision of the genera of Scolodontidae (Roosen & Breure 2024a, b; Roosen *et al.* 2025) has brought some clarity to the delimitation of taxa in the family. The remaining genera to address include some of the more taxonomically complex groups having few taxonomically informative conchological characters, and these have traditionally been used to house many species with simple shells that are unlikely to be congeneric.

A good example of this is *Miradiscops* H.B. Baker, 1925, a genus currently used to house nearly every scolodontid with a minute shell with a somewhat raised spire. Ravalo *et al.* (2023) and van Leeuwen & Salvador (2024) already indicated that this group is polyphyletic but did not have enough information at the time to separate the different genera.

Thus, all species of *Miradiscops* have been reassessed for the current revision. This yielded several shell characteristics that can be used to satisfactorily delimit two genera at the current stage of research: *Mayadiscops* gen. nov. (Figs 1, 2) and *Miradiscops* (Figs 3–5). In addition, a few species previously assigned to *Miradiscops* are reclassified into other scolodontid genera, and one species is synonymized.

MATERIALS AND METHODS

To revise the known *Miradiscops* species, we undertook a comprehensive study of all literature available to us containing information on this genus and examined all the type specimens that could be traced in museum collections. We also made use of the new information and conchological characters obtained from new species described by Ravalo *et al.* (2023) and van Leeuwen & Salvador (2024) and build

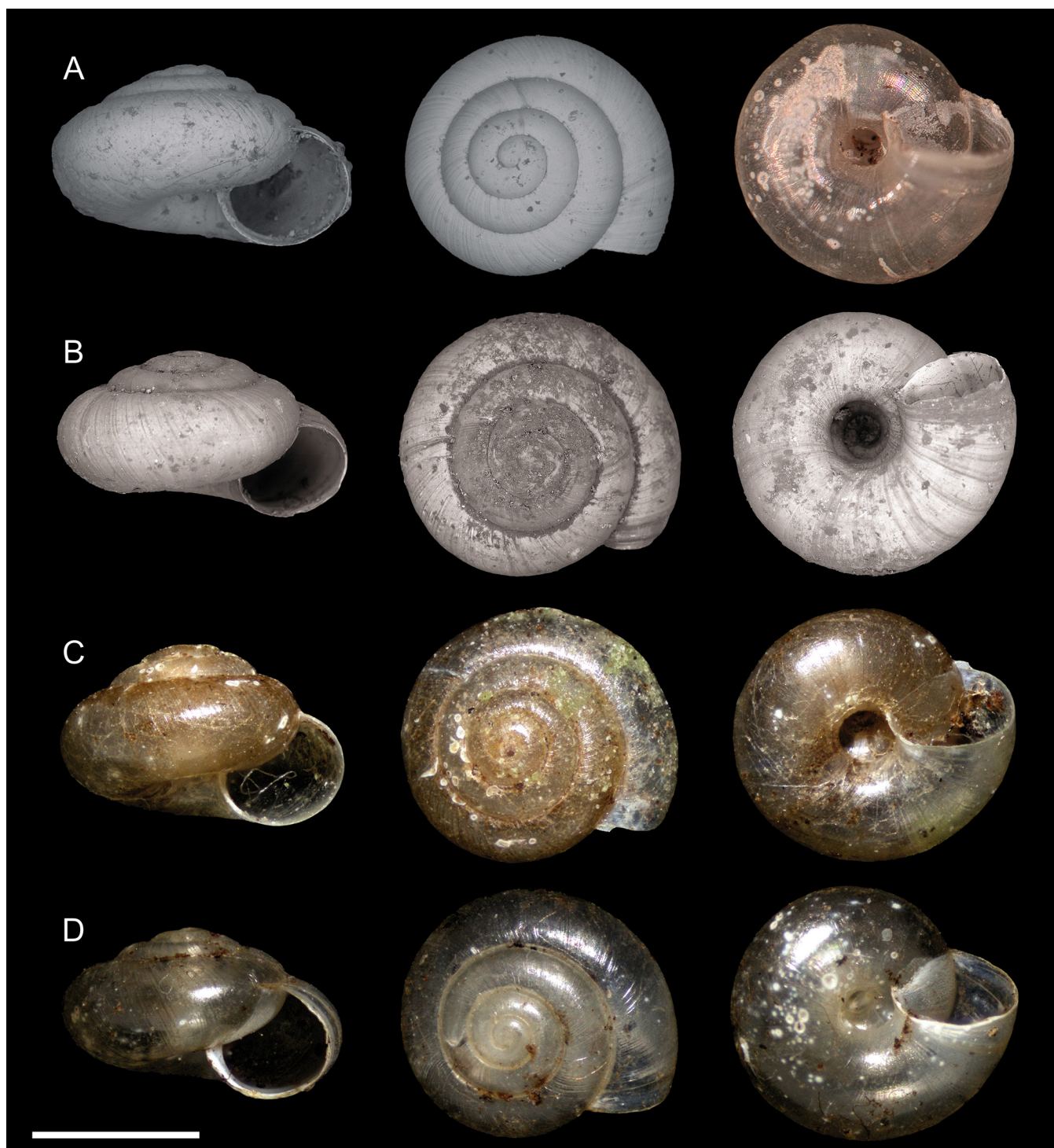


Figure 1. Species of *Mayadiscops* gen. nov. **A**, *Mayadiscops hovestadti* (van Leeuwen & Salvador, 2024) comb. nov.; apertural view: paratype RMNH.MOL.610038; apical view: holotype RMNH.MOL.610037; umbilical view: paratype #1 van Leeuwen collection (shell width 1.8 mm). **B**, *Mayadiscops maya* (Pilsbry, 1920) comb. nov., holotype ANSP107511 (shell width 1.7 mm). **C**, *Mayadiscops maya* (Pilsbry, 1920) comb. nov., holotype FLMNH 505449 of *Miradiscops striatae* D.S. Dourson, Caldwell & J.A. Dourson, 2018 (shell width 1.7 mm). **D**, *Mayadiscops maya* (Pilsbry, 1920) comb. nov., paratype FLMNH 505450 of *Miradiscops striatae* D.S. Dourson, Caldwell & J.A. Dourson, 2018 (shell width 1.7 mm).

upon their studies to redefine *Miradiscops*, describe one new genus, and reassess the classification of all species previously assigned to *Miradiscops*.

Specimens were imaged with scanning electron microscopes (SEM) and stereomicroscopes at the institutes where the specimens are housed or at the Naturalis Biodiversity Centre (Leiden, The Netherlands). Measurements were taken to the nearest 0.1 mm during imaging process or with vernier callipers. The shell height was measured from the apex to the lower lip of the aperture, width at the widest section perpendicular to the coiling axis, height of the aperture from the lowest point of the peristome to the upper part of the whorl, and umbilical width at the widest section. Whorls were counted to the nearest ¼ whorl following Gittenberger *et al.* (2004).

The studied type specimens are housed in the following natural history collections: ANSP, Academy of Natural Sciences of Drexel University (Philadelphia, USA); FLMNH, Florida Museum of Natural History (Gainesville, USA); FML, Fundación Miguel Lillo (Tucumán, Argentina); MCZ, Museum of Comparative Zoology, Harvard University (Cambridge, USA); MNHN, Muséum national d'Histoire naturelle (Paris, France); NHMUK, Natural History Museum (London, UK); MZH, Finnish Museum of Natural History (Helsinki, Finland); RMNH, Naturalis Biodiversity Center (Leiden, The Netherlands); SMF, Senckenberg Naturmuseum (Frankfurt, Germany); UMMZ, Museum of Zoology, University of Michigan (Ann Arbor, USA); ZMB, Museum für Naturkunde (Berlin, Germany).

Material analysed. *Hyalinia* (*Polita*) *fruhstorferi* O. Boettger, 1889: SMF225593 holotype. *Hyalinia sublenticularis* O. Boettger, 1889: SMF225594 syntype. *Microhappia brasiliensis* Thiele, 1927: ZMB102999 holotype. *Miradiscops balboa* Pilsbry, 1930: ANSP151362 lectotype, ANSP151363 paralectotype, ANSP151364 paralectotype, ANSP464695 paralectotype [= *M. implicans*]. *Miradiscops hovestadti* van Leeuwen & Salvador, 2024: RMNH.MOL.518383 paratype, RMNH.MOL.610037 holotype, RMNH.MOL.610038 paratypes [4], RMNH.MOL.610039 paratype, van Leeuwen collection paratypes [15]. *Miradiscops madinina* Ravalo, Gargominy & Salvador, 2023: MNHN-IM-2000-38056 holotype, MNHN-IM-2012-21275 paratypes [30]. *Miradiscops panamensis* Pilsbry, 1930: ANSP151365 lectotype. *Miradiscops ridiculus* Pilsbry, 1930: ANSP150163 holotype. *Miradiscops striatae* D.S. Dourson, Caldwell & J.A. Dourson, 2018: FLMNH 505449 holotype, FLMNH 505450 paratype, D.S. Dourson collection representative specimen figured in the original description. *Miradiscops variolata* H.B. Baker, 1925: UMMZ-MOL-121104 holotype,

ANSP140968 paratype, UMMZ-MOL-47947 paratype. *Miradiscops youngii* D.S. Dourson, Caldwell & J.A. Dourson, 2018: FLMNH-IZ-505451 holotype. *Pseudohyalina maya* Pilsbry 1920: ANSP107511 holotype, ANSP 454336 paratypes [25]. *Pseudohyalina opal* Pilsbry, 1920: ANSP48523 syntypes [2]. *Pseudohyalina puncticipitis* Pilsbry, 1926: ANSP45656 holotype. *Scolodonta andivaga* Pilsbry, 1932: ANSP159893 holotype. *Scolodonta punctata* H.B. Baker, 1925: UMMZ-MOL-121103 holotype, ANSP140965 paratype, UMMZ-MOL-121101 paratype. *Systrophia* (*Scolodonta*) *florezi* Weyrauch, 1967: FML10621a holotype. *Zonites implicans* Guppy, 1868: MCZ136011 paratype [= *M. lunti*], NHMUK1875.2.8.1 potential syntype. *Zonitoides parana* F. Baker, 1914: ANSP109314 holotype.

SYSTEMATICS

Family Scolodontidae H.B. Baker, 1925

Genus *Mayadiscops* gen. nov.

Figures 1, 2

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Type species. *Miradiscops hovestadti* van Leeuwen & Salvador, 2024.

Etymology. The genus name borrows the suffix “-discops” from *Miradiscops* and joins it with “Maya”, referring to the first described species of the genus, *Mayadiscops maya* (Pilsbry, 1920) comb. nov. Grammatical gender: masculine.

Species included in the genus. *Mayadiscops hovestadti* (van Leeuwen & Salvador, 2024) comb. nov., *Mayadiscops balboa* (Pilsbry, 1930) comb. nov., *Mayadiscops maya* (Pilsbry, 1920) comb. nov. (= *Miradiscops striatae* Dourson *et al.*, 2018), *Mayadiscops opal* (Pilsbry, 1920) comb. nov., *Mayadiscops ridiculus* (Pilsbry, 1930) comb. nov.

Description. Shell minute (width c. 2 mm), discoid to lenticular, generally c. 3¾–4¼ whorls, with slightly raised spire, deep suture and rounded body whorl profile. Shell translucent, usually whitish to light yellowish. Protoconch with c. 1¼ whorls, smooth except for faint axial striation on the apical portion of the whorl (Fig. 6C). Transition between proto- and teleoconch marked by beginning of teleoconch sculpture pattern: light axial striae (growth lines) crossed by regular and very faint spiral lines (the latter difficult to observe and often obfuscated in adult shells) (Fig. 6A, B). Umbilicus deep, narrow to moderately wide (⅙–¼ of shell width); with protoconch visible in umbilical view. Aperture D-shaped. Peristome simple.



Figure 2. Species of *Mayadiscops* gen. nov., cont. **A**, *Mayadiscops balboa* (Pilsbry, 1930) comb. nov., lectotype ANSP151362 (shell width 2.0 mm). **B**, *Mayadiscops opal* (Pilsbry, 1920) comb. nov., lectotype ANSP48523 (shell width 1.9 mm). **C**, *Mayadiscops ridiculus* (Pilsbry, 1930) comb. nov., holotype ANSP150163 (shell width 1.44 mm). Scale bar = 1 mm.

Geographic range. Southern Mexico, along continental Central America (Belize, Nicaragua, Guatemala, Panama), to Colombia, Curaçao, and Venezuela.

Differential diagnosis. Ravalo *et al.* (2023) noted that the species classified in *Miradiscops* could be divided in two groups: *Miradiscops* sensu stricto, diagnosed by the discoid shell with characteristic rows of microscopic pits on the protoconch; and a second group, characterized by rounder shells with smooth protoconchs. In a subsequent study, van Leeuwen & Salvador (2024) argued that *Miradiscops* sensu stricto likely represents a monophyletic lineage, considering

their unique protoconch sculpture, while the second group, based on a smooth protoconch, could be artificial. We agree with the assessments of those authors and thus, we redefine *Miradiscops* based on the punctate protoconch sculpture (Fig. 6D; see below) and erect *Mayadiscops* gen. nov. to house the species with rounder shells and smooth protoconchs. More importantly, however, is that shells of *Mayadiscops* gen. nov. present a unique sculpture pattern: besides the smooth protoconch, the teleoconch presents faint axial striae (growth lines) crossing over regular and very faint spiral lines (see van Leeuwen & Salvador 2024). Another notable difference between the two genera is the width of

the umbilicus, which is noticeably shallower and wider in *Miradiscops* ($\frac{1}{3}$ – $\frac{2}{5}$ of shell width), while it is narrower and deeper in *Mayadiscops* gen. nov. ($\frac{1}{6}$ – $\frac{1}{4}$ of shell width).

The sculpture can be difficult to see without special equipment (see van Leeuwen & Salvador 2024; see also the Remarks topic of *Mayadiscops maya* comb. nov. below). Thus, for easier identification and diagnosis of eroded shells, it ought to be easier to pay closer attention to shell shape, smooth protoconch, and umbilicus.

Finally, as predicted by van Leeuwen & Salvador (2024), a few species from the second “*Miradiscops*” group cannot be classified in *Mayadiscops* gen. nov. Even though they have shells that are superficially similar in shape, they do not display the unique sculpture pattern. See the Discussion for a reassessment of their classification.

Remarks. *Mayadiscops hovestadti* comb. nov. was chosen as type species due to being the single species with known genetic data (van Leeuwen & Salvador 2024). We provide a brief overview of this species below, but considering that it has been described so recently, we refer the reader to the original description for more information.

Furthermore, one case of synonymy was verified and thus, we provide a discussion on the species *Mayadiscops maya* comb. nov. below.

***Mayadiscops hovestadti* (van Leeuwen & Salvador, 2024) comb. nov.**

Figure 1A

Miradiscops hovestadti van Leeuwen & Salvador 2024: 174, figs 2–5.

Type specimens. RMNH.MOL.610037 (holotype, 1 dry shell), RMNH.MOL.518383 (paratype, 1 dry shell), RMNH.MOL.610038 paratypes (paratypes, 25 dry shells), RMNH.MOL.610039 (paratypes, 2 ethanol-preserved specimens), MZH HT.45331 (paratype, DNA extract), van Leeuwen collection (paratypes, 15 dry shells).

Type locality. Curaçao, Christoffel National Park, Christoffel Mountain, “over halfway up the climb”, 12.33845°N 069.12390°W, ~259 m a.s.l.

Description. See van Leeuwen & Salvador (2024).

Shell measurements. Height c. 1.1 mm; width c. 1.8 mm; whorls $3\frac{3}{4}$.

Geographic range. Curaçao (Christoffel National Park).

Remarks. The sculpture pattern and its visibility under different types of microscopes and on different specimens was fully discussed by van Leeuwen & Salvador (2024), although Ravalo *et al.* (2023) also discussed this for *Miradiscops*.

Genetic sequences can be found on GenBank under the following accession numbers: PP700683 (COI barcode marker), PP702453 (16S mitochondrial marker), PP810986 (5.8S+ITS2+28S nuclear markers).

***Mayadiscops maya* (Pilsbry, 1920) comb. nov.**

Figure 1B, C

Pseudohyalina maya Pilsbry 1920: 216, pl. 11, fig. 5—Baker, 1925: 12.

Miradiscops maya—Thompson 2011: 202; Dourson *et al.* 2018: 274, fig.; van Leeuwen & Salvador 2024: 176, fig. 6.

Miradiscops striatae D.S. Dourson *et al.* 2018: 272, text fig. **New synonym.**

Type specimen. ANSP 107511 (holotype, 1 dry shell), ANSP 454336 (paratypes, 3 dry shells).

Type locality. Guatemala, Izabal Department, Quiriguá, Maya farms.

Redescription. As genus, but umbilicus moderately wide (c. $\frac{1}{3}$ shell width) and aperture more rounded.

Measurements. Shell height c. 1 mm; width c. 2 mm; whorls $3\frac{3}{4}$ –4.

Comparisons. Within the genus, *Mayadiscops maya* comb. nov. can be easily diagnosed by its wider umbilicus (see also van Leeuwen & Salvador, 2024). The most similar species is *M. opal* comb. nov., whose type locality is Nicaragua but also recorded from Mexico and Venezuela (Pilsbry 1920; Baker 1925, 1929; Pérez & López 2002; Thompson 2011; Pérez 2015), from which it can be distinguished by the wider umbilicus, less raised spire, and rounder aperture.

Geographic range. Belize, Guatemala, and Venezuela (Pilsbry 1920; Baker 1925; Thompson 2011; Dourson *et al.* 2018). Records from Venezuela could represent other similar appearing *Mayadiscops* spp. and need to be confirmed.

Remarks. *Miradiscops striatae* was described as an endemic species to Belize (Dourson *et al.* 2018). It cannot be distinguished from *Mayadiscops maya* comb. nov. based on conchological features. The only difference noted between the two species in the original description of *M. striatae* was the presence of the faint spiral lines on the teleoconch (Dourson *et al.* 2018), which the authors considered variable within their new species. That feature is variably observed in (sub)adult shells of *Mayadiscops* gen. nov. either due to erosion of periostracum and shell surface or due to the stronger axial striae obfuscating the much weaker spiral lines (cf. van Leeuwen & Salvador 2024). The spiral lines are more easily observable in juvenile specimens (van Leeuwen & Salvador 2024) and can be seen in the type specimens of *Mayadiscops maya* comb. nov. Furthermore, *Miradiscops striatae* occurs

only 50 km away from the type locality of *Mayadiscops maya* comb. nov., with no obvious geographical barrier separating them. Therefore, we consider *Miradiscops striatae* as a junior synonym of *Mayadiscops maya* comb. nov.

Genus *Miradiscops* H.B. Baker, 1925

Figures 3–5

Type species. *Miradiscops variolata* H.B. Baker, 1925, by original designation. The grammatical gender of *Miradiscops* is masculine, as per ICZN Article 30.1.4.3: “A compound genus-group name ending in -ops is to be treated as masculine, regardless of its derivation or of its treatment by its author” (ICZN 1999).

Synonyms. *Scolodonta* (*Punctodiscops*) H.B. Baker, 1925; type species *Scolodonta punctata* H.B. Baker, 1925 (from La Fría, Venezuela), by original designation. *Microhappia* Thiele, 1927; type species *Microhappia brasiliensis* Thiele, 1927 (from “Gorduras”, Brazil), by original designation. For further information on these synonyms, see Weyrauch (1967a) and Ravalo *et al.* (2023).

Redescription. Shell minute (width <2 mm), discoid, generally c. 4–4½ whorls, with flattened, step-like spire. Shell translucent, whitish to ochre to light brown. Protoconch with c. 1¼–1½ whorls, sculptured with multiple (number variable among species) closely spaced spiral rows of microscopic pits (punctae) (Fig. 6D); greater number of rows closer to the end of protoconch in comparison to its beginning. Transition to teleoconch marked by a gradual appearance of axial sculpture. Teleoconch sculptured with spiral rows of microscopic pits (that continue from protoconch) and well-marked axial rib-like striae. Umbilicus shallow and wide (⅓–⅔ of shell width); with protoconch visible in umbilical view. Aperture D-shaped to circular. Peristome simple.

Species included in the genus. *Miradiscops variolatus* H.B. Baker, 1925, *Miradiscops brasiliensis* (Thiele, 1927), *Miradiscops haplocochlion* F.G. Thompson, 1967; *Miradiscops lunti* (E.A. Smith, 1898), *Miradiscops madinina* Ravalo, Gargominy & Salvador, 2023, *Miradiscops panamensis* Pilsbry, 1930, *Miradiscops punctatus* (H.B. Baker, 1925), *Miradiscops puncticipitis* (Pilsbry, 1926), *Miradiscops youngii* D.S. Dourson, Caldwell & J.A. Dourson, 2018.

Species removed from the genus. *Miradiscops andivaga* (Pilsbry, 1932): *Scolodonta andivaga* Pilsbry, 1932; *Miradiscops balboa* Pilsbry, 1930: *Mayadiscops balboa* (Pilsbry, 1930) comb. nov.; *Miradiscops bladenensis* D.S. Dourson, Caldwell & J.A. Dourson, 2018: *Tamayoa* (*Tamayops*) *bladenensis* (D.S. Dourson, Caldwell & J.A. Dourson, 2018) comb. nov.; *Miradiscops florezi* (Weyrauch, 1967):

Scolodonta florezi (Weyrauch, 1967) comb. nov.; *Miradiscops hovestadti* van Leeuwen & Salvador, 2024: *Mayadiscops hovestadti* (van Leeuwen & Salvador, 2024) comb. nov.; *Miradiscops implicans* (Guppy, 1868): *Tamayoa* (*Tamayops*) *implicans* (Guppy, 1868) comb. nov.; *Miradiscops maya* (Pilsbry, 1920): *Mayadiscops maya* (Pilsbry, 1920) comb. nov.; *Miradiscops opal* (Pilsbry, 1920): *Mayadiscops opal* (Pilsbry, 1920) comb. nov.; *Miradiscops ridiculus* Pilsbry, 1930: *Mayadiscops ridiculus* (Pilsbry, 1930) comb. nov.; *Miradiscops striatae* D.S. Dourson, Caldwell & J.A. Dourson, 2018: *Mayadiscops striatae* (D.S. Dourson, Caldwell & J.A. Dourson, 2018) comb. nov. [= *Mayadiscops maya*].

Unassessed species. The Brazilian species “*Miradiscops*” *fruhstorferi* (O. Boettger, 1889), “*Miradiscops*” *parana* (F. Baker, 1914), and “*Miradiscops*” *sublenticularis* (O. Boettger, 1889) do not belong in *Miradiscops* (Salvador *et al.* 2024) but represent a more complex mixture of supraspecific taxa to be treated in a subsequent study.

Geographic range. Southern Mexico (record of the problematic *M. haplocochlion*), along continental Central America (Belize, Nicaragua, Guatemala, Panama) to Venezuela and Trinidad. The only verified record from the Caribbean islands (besides Trinidad, which shows a lot of affinities with mainland fauna) is from Martinique (Ravalo *et al.* 2023). After a gap in distribution, there are records from Paraguay, southern Brazil, Uruguay and northern Argentina (all *M. brasiliensis*). Records from Peru of *M. brasiliensis* (in Weyrauch 1967a) and *M. variolatus* (in Ramírez *et al.* 2003) are biogeographically doubtful and need further verification.

Remarks. As explained above in the discussion of *Mayadiscops* gen. nov., *Miradiscops* as previously understood was a polyphyletic assemblage (Ravalo *et al.* 2023; van Leeuwen & Salvador 2024). Here, we restrict *Miradiscops* to contain only those species that share the same discoid shell shape and the same proto- and teleoconch sculpture as the type species.

There is overall little variation in shell morphology among the species of *Miradiscops*. Some species are easily diagnosable by a combination, such as the flat spire of *M. punctatus*, the relatively flatter spire and narrower aperture of *M. madinina*, and the wider spire and short whorls of *M. brasiliensis*. Other species, however, have similar morphology, and often neighbouring or overlapping distributions, and should be reassessed, preferentially in a study that also includes genetic data.

We could not examine the type material of the larger-shelled *Miradiscops haplocochlion*, but we have retained it in *Miradiscops* due to the “radial striations” described from



Figure 3. Species of *Miradiscops*. **A**, *Miradiscops variolatus* H. B. Baker, 1925, holotype UMMZ-MOL-121104 (shell width 1.3 mm). **B**, *Miradiscops brasiliensis* (Thiele, 1927), syntype ZMB102999 (shell width 1.8 mm). **C**, *Miradiscops lunti* (E. A. Smith, 1898), potential syntype NHMUK1898.12.5.32 (shell width 1.5 mm). Scale bar = 1 mm.



Figure 4. Species of *Miradiscops*, cont. **A**, *Miradiscops madinina* Ravalo, Gargominy & Salvador, 2023; apertural and umbilical view: paratype MNHN-IM-2012-21275 (shell width 1.6 mm); apical view: holotype MNHN-IM-2000-38056 (shell width 1.7 mm). **B**, *Miradiscops panamensis* Pilsbry, 1930, lectotype ANSP151365 (shell width 1.4 mm). **C**, *Miradiscops punctatus* (H.B. Baker, 1925), apertural and umbilical views: holotype UMMZ-MOL-121103 (shell width 1.6 mm); apical view: paratype ANSP140965 (shell width 1.36 mm). Scale bar = 1 mm.



Figure 5. Species of *Miradiscops*, cont. **A**, *Miradiscops puncticipitis* (Pilsbry, 1926), holotype ANSP45656 (shell width = 1.5 mm). **B**, *Miradiscops youngii* D.S. Dourson, Caldwell & J.A. Dourson, 2018, holotype FLMNH-IZ-505451 (shell width c. 1.8 mm); image is a courtesy of Dan Dourson. Scale bar = 1 mm.

its protoconch (Thompson 1967: 241). The spiral rows of pits on the protoconch can seem like striae under insufficient magnification; likewise, such rows on the teleoconch can become invisible under the same circumstances (Ravalo *et al.* 2023). Indeed, Thompson (1967: 241) noted that there was “[n]o spiral sculpture present” on the teleoconch; thus, the allocation of this species in *Miradiscops* should be reassessed in the future through analysis of its type material.

***Miradiscops variolatus* H.B. Baker, 1925**

Figure 3A

Miradiscops variolata Baker, 1925: 34, pl. 8 figs 44, 45, pl. 9 fig. 51—Thompson 2011: 202.

Type specimens. UMMZ-MOL-91278 (holotype, 1 dry shell); ANSP 140968 (paratype, 1 dry shell).

Type locality. Venezuela, Quebrada La Fría, in abandoned cacao plantation.

Redescription. Shell minute, discoid, c. 4 whorls; translucent, light brown. Protoconch (1¼ whorls) sculptured with multiple closely spaced spiral rows of microscopic punctae; c. 22 close to teleoconch transition. Transition to teleoconch marked by a gradual appearance of axial sculpture. Teleo-

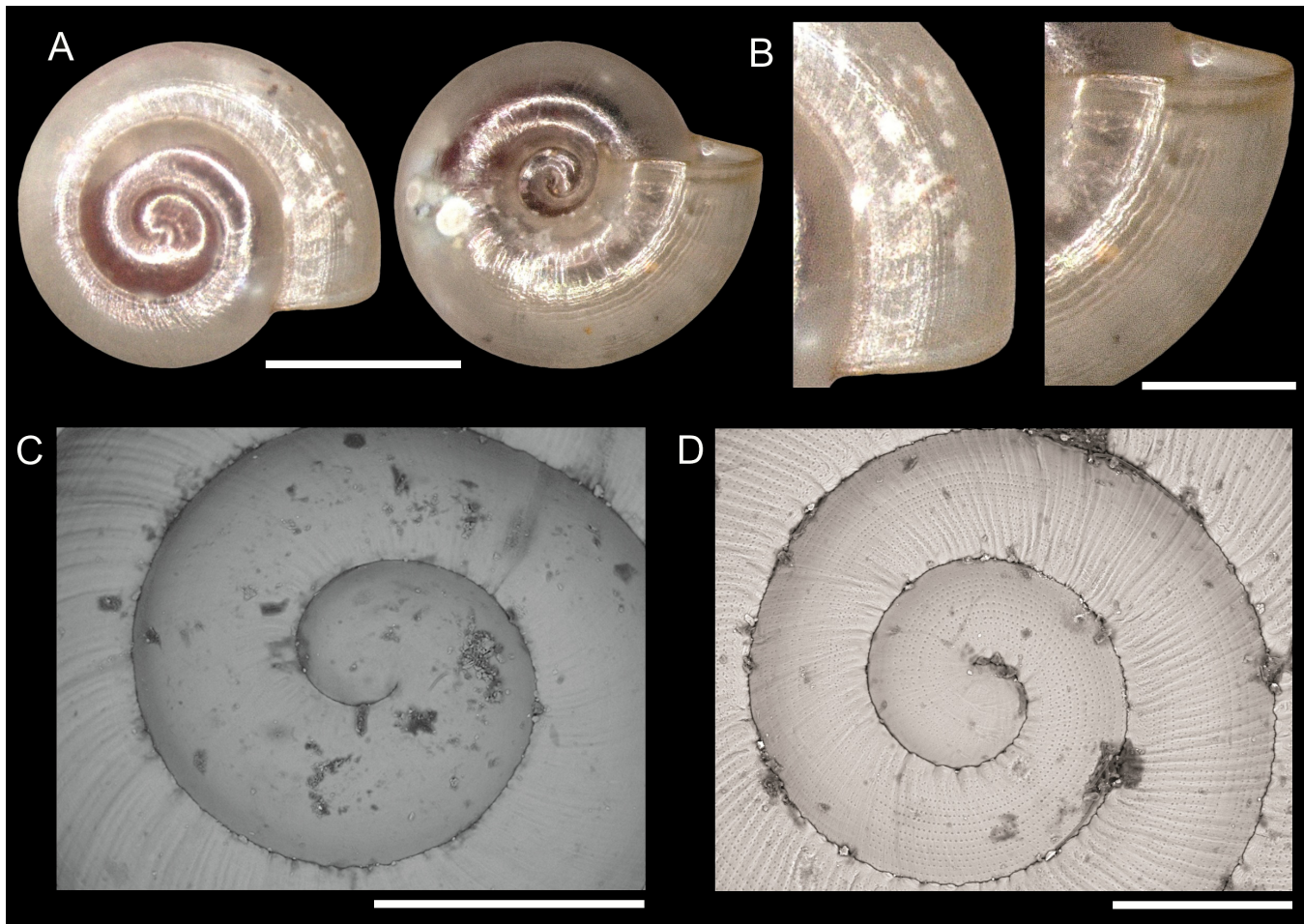


Figure 6. **A–C.** *Mayadiscops hovestadti* (van Leeuwen & Salvador, 2024) comb. nov. **A**, Paratype RMNH.MOL.518383, teleoconch sculpture is more easily observed under light microscopy in juvenile specimens. Scale bar = 500 µm. **B**, Close-ups of the shell depicted in **A**, in the same orientation (apical and umbilical, respectively). Scale bar = 250 µm. **C**, Holotype RMNH.MOL.610037, close-up of the protoconch. Scale bar = 300 µm. **D**, *Miradiscops madinina* Ravalo, Gargominy & Salvador, 2023, holotype MNHN-IM-2000-38056, close-up of the protoconch. Scale bar = 200 µm.

conch sculptured with spiral rows of microscopic pits (that continue from protoconch) and well-marked rib-like axial striae, the latter closely packed together (space between ribs equal to one- or two-times rib width). Spire lightly raised, step-like. Suture well marked. Whorl profile convex, rounded. Umbilicus deep, wide (c. 30% shell width). Aperture D-shaped. Peristome simple. Radula (described by Baker 1925: 34): “exceedingly minute, long and narrow, with chevron-shaped transverse rows. Formula: 10-0-10.”

Shell measurements. Height c. 0.6 mm; width c. 1.3 mm; whorls 4.

Comparisons. *Miradiscops variolatus* belong to the group within the genus that display relatively higher spires. It has a rounder shell profile when compared to *M. puncticipitis* and a less prominent spire and narrower umbilicus compared to

M. youngii. However, *M. variolatus* is not easily diagnosable from geographically close species *M. lunti* from Trinidad or *M. panamensis*. This trio of species would benefit from a dedicated revision including genetic data from populations in the different countries.

Geographic range. Venezuela (Baker 1925).

Remarks. Baker (1925) noted that the animals are ovoviparous.

DISCUSSION

As proposed by Ravalo *et al.* (2023) and van Leeuwen & Salvador (2024), the former genus *Miradiscops* could be split in two taxa with consistent shell morphology. The genus *Miradiscops* is here restricted to species with discoid

shells bearing rows of microscopic pits on the protoconch. The second taxon removed from *Miradiscops*, *Mayadiscops* gen. nov., contains species with a smooth protoconch and a teleoconch bearing faint axial striae crossed by regular, very faint spiral lines.

Following our reassessment, *Miradiscops* includes eight species and occurs from southern Mexico (record of the problematic *M. haplocochlion*) to Venezuela and Trinidad, including Martinique, and there are disjunct records of a single species (*M. brasiliensis*) from Paraguay, southern Brazil, Uruguay, and northern Argentina. Future analysis must consider this disjunct distribution. *Mayadiscops* gen. nov. contains five species, distributed from southern Mexico to Colombia and Venezuela, and including Curaçao. Table 1 summarizes the information for each genus.

As predicted by van Leeuwen & Salvador (2024), a few “odd” species previously lumped in *Miradiscops* do not belong in either *Miradiscops* or *Mayadiscops* and must be reclassified. Our ongoing revision of Scolodontidae genera (Roosen & Breure 2024a, b; Roosen et al. 2025) allows us to tentatively place this species in other genera based on shell

morphology and thus provide a workable genus-level allocation for future studies to use. Based on the typical scolodontid shell shape, size, and lack of sculpture, *M. andivaga* and *M. florezi* can be transferred to *Scolodonta* Doering, 1875. That means the former returns to its original combination *Scolodonta andivaga* Pilsbry, 1932, while the latter is classified as *Scolodonta florezi* (Weyrauch, 1967) comb. nov. the latter being in fact originally described as *Systrophia* (*Scolodonta*). *Miradiscops bladenensis* and *M. implicans* can be moved to *Tamayoa* (*Tamayops*) H.B. Baker, 1928 based on their minute shell with an indistinct suture, low spire, open umbilicus lacking a carina, and absence of brown periostracum. These genera will be treated in more detail in upcoming studies in our revision series. The Brazilian species “*Miradiscops*” *fruhstorferi* (O. Boettger, 1889), “*Miradiscops*” *parana* (F. Baker, 1914), and “*Miradiscops*” *sublenticularis* (O. Boettger, 1889) are a complex mixture of supraspecific taxa (Salvador et al. 2024) that will be treated on a subsequent study.

One other matter that requires attention is the identification of several fossil and sub-fossil shells from the Quaternary of Argentina as *Miradiscops brasiliensis*. Very few images

Table 1. List of species accepted in each of the genera studied here, *Mayadiscops* gen. nov. and *Miradiscops*, and information on average shell size and geographic distribution, with references to the main taxonomic literature.

Species	Shell width (mm)	Distribution	References
<i>Mayadiscops</i> gen. nov.			
<i>balboa</i> (Pilsbry, 1930) comb. nov.	1.9–2.0	Panama	Pilsbry 1930b
<i>hovestadtii</i> (van Leeuwen & Salvador, 2024) comb. nov.	c. 1.8	Curaçao	van Leeuwen & Salvador 2024
<i>maya</i> (Pilsbry, 1920) comb. nov.	1.7–1.8	Belize, Guatemala, Venezuela	Pilsbry 1920; Baker 1925; Thompson 2011; Dourson et al. 2018
<i>opal</i> (Pilsbry, 1920) comb. nov.	1.9–2.0	Mexico, Nicaragua, Venezuela	Pilsbry 1920; Baker 1925, 1929; Pérez & López 2002; Thompson 2011
<i>ridiculus</i> (Pilsbry, 1930) comb. nov.	1.5–1.9	Colombia (Providencia I.)	Pilsbry 1930a
<i>Miradiscops</i>			
<i>brasiliensis</i> (Thiele, 1927)	1.8–2.0	Paraguay, southern Brazil, Uruguay, northern Argentina	Thiele 1927; Simone 2006
<i>haplocochlion</i> F.G. Thompson, 1967	c. 2.4	Mexico	Thompson 1967
<i>lunti</i> (E.A. Smith, 1898)	c. 1.5	Trinidad	Smith 1898
<i>madinina</i> Ravalo, Gargominy & Salvador, 2023	1.6–1.7	Martinique	Ravalo et al. 2023
<i>panamensis</i> Pilsbry, 1930	1.4–1.5	Panama	Pilsbry 1930b
<i>punctatus</i> (H.B. Baker, 1925)	c. 1.6	Venezuela	Baker 1925
<i>puncticipitis</i> (Pilsbry, 1926)	1.5–1.6	Guatemala	Pilsbry 1926
<i>variatus</i> H.B. Baker, 1925	c. 1.3	Venezuela	Baker 1925
<i>youngii</i> D.S. Dourson, Caldwell & J.A. Dourson, 2018	c. 1.8	Belize	Dourson et al. 2018

are published of these specimens, but from the information available it seems that at least two very different fossil species were mistakenly identified as *M. brasiliensis*: 1) A nearly discoid species without punctate sculpture, but with a fully circular aperture and wide umbilicus (Aguirre et al. 2011); and 2) one or more small species with a more ovate aperture of which often only the apical whorls are imaged but that also seems to lack the punctate sculpture and axial sculpture on the teleoconch (Blasi et al. 2020; Miquel & Aguirre 2016; Pisano & Fucks 2016; Steffan et al. 2014). These fossils have been used for environmental reconstructions or as an indicator fossil in the above cited studies, but before that can be reliably done, they must be reassessed and properly identified.

The present revision of the genera was also an opportunity to illustrate all species of *Mayadiscops* gen. nov. and *Miradiscops* together in one place, which we hope will be helpful to both taxonomists and field biologists. As remarked by Ravalo *et al.* (2023), such minute soil and leaf-litter snails are hard to find and are often ignored by most surveys focusing on the larger and colourful Neotropical snails. Thus, it is likely that additional species of these genera will be found in more locations, including also on the Caribbean islands. More detailed revisions of all known Scolodontidae might even reveal already described species as members of *Mayadiscops* gen. nov. and *Miradiscops*, hiding in plain sight. Similarly, we expect that investigation of the many “Scolodontidae indet.” in museum collections worldwide should reveal additional species.

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