

# HELIX EXCISA L. PFEIFFER, 1855 IS A SPECIES OF HIRTUDISCUS HYLTON SCOTT, 1973 (GASTROPODA: SCOLODONTIDAE)

MARIJN THOMAS ROOSEN

Malacology, Natural History Museum of Rotterdam, Netherlands (e-mail: [marijn.roosen@gmail.com](mailto:marijn.roosen@gmail.com));  
 <https://orcid.org/0000-0001-7651-6685>

ABSTRACT: *Helix excisa* L. Pfeiffer, 1855 is moved to the genus *Hirtudiscus* Hylton Scott, 1973, based on conchological characteristics. This decision has implications on scolodontid taxonomy, as several major papers used *Helix excisa* to redefine *Drepanostomella* Bourguignat, 1890.

KEY WORDS: Colombia; *Drepanostomella*; *Hirtudiscus*; Scolodontidae; Systrophiidae; taxonomy

## INTRODUCTION

The genus *Hirtudiscus* was introduced by HYLTON SCOTT (1973) for a peculiar micro gastropod from Colombia: *Hirtudiscus hirtus* Hylton Scott, 1973. After the genus had been described, it was further discussed in three papers, two of which sought to clarify its higher taxonomy and describe new species (HAUSDORF 2003, HAUSDORF & MEDINA BERMUDÉZ 2006, WENDEBOURG & HAUSDORF 2019). These publications make *Hirtudiscus* one of the better known, more properly described genera of Scolodontidae, along with the recently redescribed scolodontids *Polygyratia* Gray, 1847, *Ridleyconcha* Christensen, 2020, *Scolodonta* Doering, 1875 and *Zilchistrophia* Weyrauch, 1960 (HAUSDORF 2006, PÁLL-GERGELY & ASAMI 2014, CHRISTENSEN 2020, SALVADOR & CAVALLARI 2020, SALVADOR 2021). However, most other genera are still poorly defined and often confused with each other.

To solve this issue a paper redescribing all scolodontid genera is in preparation (ROOSEN & BREURE in prep.). During the preparation of this manuscript, the syntypes of *Helix excisa* L. Pfeiffer, 1855, which reside in the collection of the Natural History Museum

of London (NHMUK), were also studied, because *Helix excisa* was used by BAKER (1925a) to redefine the genus *Drepanostomella* Bourguignat, 1890. Baker's description influenced later interpretations of *Drepanostomella*, like the interpretation in RAMÍREZ (1993) and the comparison of *Drepanostomella* to *Hirtudiscus* in HAUSDORF (2003).

Further examination of these syntypes, however, revealed that *H. excisa* shows shell characteristics of a *Hirtudiscus* species rather than those of true *Drepanostomella* as discussed by CUEZZO & MIRANDA (2009). Because of the important role this species has in several prominent papers on Scolodontidae, it is essential to rectify this taxonomic error before untangling all scolodontid genera in a subsequent paper.

Therefore, in this paper *Helix excisa* (L. Pfeiffer, 1855) is redescribed and detailed Scanning Electron Microscope (SEM) images of the syntypes are published for the first time. Based on characteristics revealed by these SEM images, it is moved to *Hirtudiscus* and the implications of this taxonomic decision are discussed.



## MATERIAL AND METHODS

The syntypes of *Helix excisa* L. Pfeiffer, 1855 were examined under a Scanning Electron Microscope (SEM). These images were compared to the pictures and descriptions of *Hirtudiscus* Hylton Scott, 1973 in HAUSDORF (2003) and HAUSDORF & MEDINA BERMUDÉZ (2006) and *Drepanostomella* Bourguignat, 1890 in CUEZZO & MIRANDA (2009). In addition, detailed images of the type species of both genera were

requested and are published in this paper to enable easy comparison.

The specimens described or figured in this paper are present in the collection of the Natural History Museum of London, London, United Kingdom (NHMUK) and Museo de La Plata, La Plata, Argentina (MLP).

## SYSTEMATIC PART

**Family:** Scolodontidae Baker, 1925b

**Genus:** *Hirtudiscus* Hylton Scott, 1973

Type species: *Hirtudiscus hirtus* Hylton Scott, 1973, by original designation

**Diagnosis.** The body and anatomy were thoroughly described by HAUSDORF (2003). The shell is characterised by the presence of spiral sculpture on the protoconch, thin, waved axial ribs on the teleoconch and its periostracal hairs, combined with the generally discoid to sub-discoid outline of the shell, drop shaped to trapezoid aperture and incision near the suture.

**Remarks.** Several papers have served to define the genus (HYLTON SCOTT 1973, HAUSDORF 2003, HAUSDORF & MEDINA BERMUDÉZ 2006). The diagnosis above is based on these publications.

Although the spiral sculpture on the protoconch is more typical for genera currently included in the Charopidae or Cystopeltidae, HAUSDORF (2003) placed *Hirtudiscus* in the Scolodontidae based on anatomical characteristics. This placement is followed herein.

***Hirtudiscus excisa* (L. Pfeiffer, 1855)  
comb. nov.**

Figs 1–3

*Helix excisa* Pfeiffer – REEVE 1854: pl. CLXXXII, fig. 1260.

*Helix excisa* PFEIFFER 1855: p. 54.

*Patulastra excisa* (Pfeiffer, 1855) – PFEIFFER & CLESSIN 1881: p. 89.

*Drepanostomella excisa* (Pfeiffer, 1855) – BAKER 1925a: pp. 24–25, pl. 8, figs 36–37.

*Happia excisa* (Pfeiffer, 1855) – RICHARDSON 1989: p. 119.

*Drepanostomella excisa* (Pfeiffer, 1855) – RAMÍREZ 1993: p. 22.

*Drepanostomella excisa* (Pfeiffer, 1855) – BREURE et al. 2022: p. 103, fig. 127.

**Studied material.** NHMUK 20130191 (Syntypes, four dry shells) “New Granada”, leg. Hugh Cuming.

**Type locality.** “Santa Ana, New Granada” (PFEIFFER 1855).

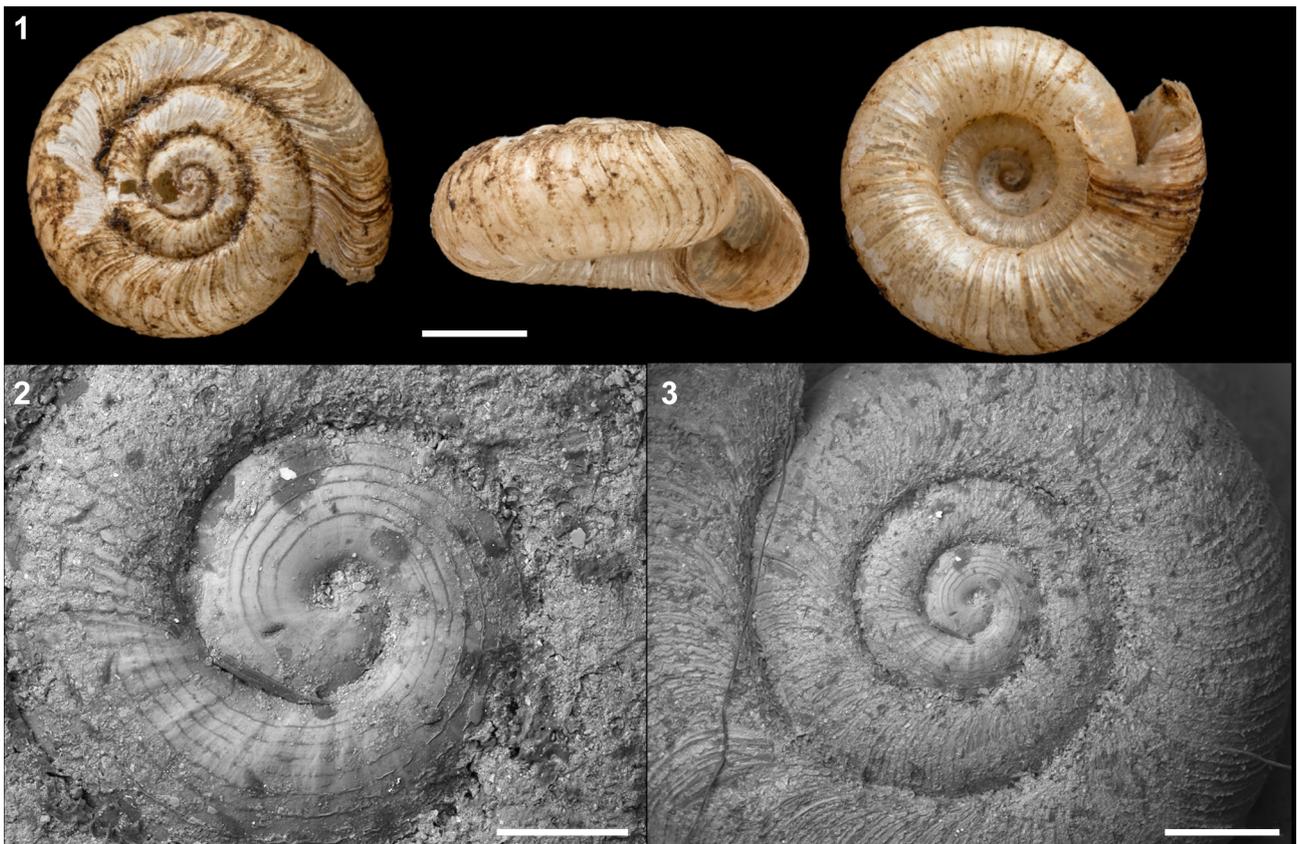
**Redescription.** Shell nearly discoid; spire slightly elevated; with 3.75 whorls; protoconch 1.5 whorls, with distinct spiral striae; teleoconch with dense growth-striae carrying damaged periostracal hairs of up to 0.05 mm; body whorl rounded; aperture narrow near the suture, widening near the base (saccate); peristome sharp, neither expanded nor thickened; with an incision in the parietal angle of the aperture near the suture; suture deeply impressed; umbilicus wide, occupying about 40% of shell width.

**Dimensions.** Diameter major 3.9 mm.

**Cross-diagnosis.** Even though all six currently known *Hirtudiscus* species were described from Colombia and introduced to science without comparing them to *H. excisa* comb. nov., none of them appear to be synonyms of this species. The only other species with an elevated spire are *H. boyacensis* Hausdorf, 2003 and *H. curei* Hausdorf, 2003. *Hirtudiscus excisa* comb. nov. differs from these species mainly by its stronger spiral sculpture on the protoconch and its less circular aperture. That said, as the protoconch sculpture is a rather variable feature (see HAUSDORF 2003), synonymy with *H. boyacensis* cannot be excluded.

*Hirtudiscus hirtus* Hylton Scott, 1973 (Fig. 4; HAUSDORF 2003) on the other hand, is a species that differs a lot from *H. excisa* comb. nov. The shell of *H. hirtus* is nearly discoid and the axial ribs are much less prominent than in *H. excisa* comb. nov. Nevertheless, the spiral sculpture on the protoconch, presence of (vestiges of) periostracal hairs and the incision at the parietal angle of the aperture includes both species in the same genus.

*Drepanostomella ammoniformis* (d’Orbigny, 1835), the type species of *Drepanostomella* (BOURGUIGNAT 1890: fig. 5), is much larger, only has growth lines on early teleoconch whorls and minute spiral striae on younger whorls. The axial ribs seen on the teleoconch



Figs 1–3. *Hirtudiscus excisa* (L. Pfeiffer, 1855) comb. nov., syntype (NHMUK 20130191), „New Grenada”, leg. HUGH CUMING, images made by JONATHAN ABLETT: 1 – apical, frontal and adapical views, scale bar 1 mm; 2 – SEM image of the protoconch of another shell from the syntype lot, scale bar 100 µm; 3 – SEM image of the same syntype as Fig. 2, showing teleoconch sculpture and some small periostracal hairs, scale bar 200 µm



Figs 4–5. Scolodontid species: 4 – *Hirtudiscus hirtus* Hylton Scott, 1973, holotype (MLP 3965), Colombia, Cundinamarca department, Monte Redondo, scale bar 1 mm, images made by BERNHARD HAUSDORF; 5 – *Drepanostomella ammoniformis* (d’Orbigny, 1835), syntype (NHMUK 1854.12.4.105), Bolivia, Yungas province, scale bar 3 mm, images made by JONATHAN ABLETT



of *Hirtudiscus* are absent in *Drepanostomella*. Moreover, the peculiar way in which younger whorls cover older parts of the shell in *Drepanostomella* causes the shells to have a somewhat flattened outline in apical view whereas all *Hirtudiscus* species are subcircular as seen from above. Last, the whorl diameter increases faster. **Distribution.** Colombia: Marmato (ANSP 23774, FMNH 78864). Other records are doubtful. Because many locations in former New Granada are named Santa Ana, the type locality cannot be traced.

**Remarks.** RAMÍREZ (1993) identified several lots in the ANSP and FMNH collection as *H. excisa* comb. nov. ANSP 23774 and FMNH 78864 are still listed as *H. excisa* comb. nov. in the collection database of their institute (as *Drepanostomella excisa* or *Happia excisa*). The identification of these shells is also corroborated

by BAKER (1925a). The other records are doubtful as ANSP 105208 was identified by BAKER (1925a) as a juvenile specimen of an unknown species of *Radiodiscus* which is “in too poor condition for description” and ANSP 322270 is currently listed in the ANSP database as an unidentified *Drepanostomella* species. The record from Ecuador presented by BREURE et al. (2022) was also based on ANSP 322270. For the current paper, the ANSP and FMNH specimens were not studied.

Hitherto *H. excisa* comb. nov. has been most often included in *Drepanostomella*, which is much larger, does not have spiral sculpture on the protoconch, has no hairs on the periostracum and has much less prominent growth striae (Fig. 5; CUEZZO & MIRANDA 2009).

## DISCUSSION AND CONCLUSION

Thus, as demonstrated above, *Helix excisa* L. Pfeiffer, 1855 is a member of the genus *Hirtudiscus* Hylton Scott, 1973. This means that the description of *Drepanostomella* Bourguignat, 1890 s. str. in BAKER (1925a), based on *Hirtudiscus excisa* comb. nov., should be interpreted as the first detailed account of a species of *Hirtudiscus*. It is also the first proof that a *Hirtudiscus* species was mixed-in with the material RAMÍREZ (1993) used to define *Drepanostomella*.

The description of BAKER (1925a) also influenced more recent literature. For instance, *Hirtudiscus excisa* comb. nov. was included in *Drepanostomella* recently by BREURE et al. (2022). Moreover, in HAUSDORF (2003) *Hirtudiscus* was compared to *Drepanostomella* in the discussion. This discussion was clearly influenced by BAKER (1925a), as the paper was cited several times and shell surface structures typical for *Hirtudiscus* are attributed to *Drepanostomella* as well.

To make matters more complicated, characters of *Helix ammonoceras* L. Pfeiffer, 1855 were also used by BAKER (1925a), RAMÍREZ (1993) and HAUSDORF (2003) to define *Drepanostomella*, while this species is the type species of *Happia* Bourguignat, 1890 (MOLLUSCABASE 2021). This possibly has implications for the higher taxonomy of *Drepanostomella*, as many species are currently included in *Happia* and

the base of this error predates the replacement of *Ammonoceras* L. Pfeiffer, 1855 (not Lamarck, 1822) by *Happia* in BOURGUIGNAT (1890). This issue will be addressed thoroughly in a forthcoming paper on all scolodontid genera (ROOSEN & BREURE in prep.).

That said, for now CUEZZO & MIRANDA (2009) and the current paper can be used to reliably identify a species as *Drepanostomella* s. str., until the redescription of all type species and genera of Scolodontidae is available (ROOSEN & BREURE in prep.). This paper is a solid first step towards clarification of the genera of Scolodontidae that have not been redescribed yet.

## ACKNOWLEDGMENTS

I am grateful to JONATHAN ABLETT for providing detailed (SEM) images of the type material of *Helix excisa* L. Pfeiffer, 1855 and *Helix ammoniformis* d’Orbigny, 1835 in the NHMUK collection. In addition, this paper would not have been possible without DIEGO EDUARDO GUTIERREZ GREGORIC from the MLP and BERNHARD HAUSDORF from the Leibniz-Institut zur Analyse des Biodiversitätswandels (LIB), who provided detailed images of *Hirtudiscus hirtus* Hylton Scott, 1973.

## REFERENCES

- BAKER H. B. 1925a. The mollusca collected by the University of Michigan-Williamson expedition in Venezuela, Part 3. Pupillidae to Oleacinidae. Occasional papers of the Museum of Zoology 156: 1–58. <https://deepblue.lib.umich.edu/bitstream/handle/2027.42/56595/OP156.pdf?sequence=1>
- BAKER H. B. 1925b. Agnathomorphous Aulacopoda. The Nautilus 38: 86–89. <https://www.biodiversitylibrary.org/page/8525067#page/100/mode/1up>



- BOURGUIGNAT J. R. 1890. Mollusques de l'Afrique équatoriale de Moguedouchou à Bagamayo et de Bagamayo au Tanganika. Dumoulin, Paris.  
<https://www.biodiversitylibrary.org/page/12909251>
- BREURE A. S. H., ROOSEN M. T., ABLETT J. D. 2022. Land and freshwater molluscs of mainland Ecuador: An illustrated checklist. *Iberus* 40: 1–290.
- CHRISTENSEN C. C. 2020. *Ridleyconcha* Christensen, gen. nov., a replacement name for the land snail genus *Ridleya* Ancey, 1901 (Mollusca: Scolodontidae), a junior homonym of *Ridleya* Delage & Hérouard, 1899 (Porifera: Polymastiidae). *American Malacological Bulletin* 38: 66–67.  
<https://doi.org/10.4003/006.038.0107>
- CUEZZO M. G., MIRANDA M. J. 2009. Systematic position and anatomy of *Drepanostomella tucma* Hylton Scott, 1948 (Stylommatophora: Scolodontidae). *Journal of Conchology* 39: 683–692.
- DOERING A. 1875. Apuntes sobre la fauna de moluscos de la República Argentina (Segunda parte). *Boletín de la Academia Nacional de Ciencias Exactas en Córdoba, Buenos Aires* 1: 424–460.  
<https://www.biodiversitylibrary.org/page/45693203>
- GRAY J. E. 1847. A list of the genera of recent Mollusca, their synonyma and types. *Proceedings of the Zoological Society of London* 15: 129–219.  
<https://biodiversitylibrary.org/page/12862913>
- HAUSDORF B. 2003. Systematic position and taxonomy of the genus *Hirtudiscus* from Colombia (Gastropoda: Scolodontidae). *Journal of Molluscan Studies* 69: 179–186.  
<https://doi.org/10.1093/mollus/69.3.179>
- HAUSDORF B. 2006. The systematic position of *Scolodonta* Döring, 1875 and Scolontidae H. B. Baker, 1925 (Gastropoda: Pulmonata). *Zoologischer Anzeiger* 245: 161–165.  
<https://doi.org/10.1016/j.jcz.2006.05.007>
- HAUSDORF B., MEDINA BERMÚDEZ C. I. 2006. Two new *Hirtudiscus* species from Colombia (Gastropoda: Scolodontidae). *Malacologia* 49: 211–215.
- HYLTON SCOTT M. I. 1973. Endodontidos neotropicales V (Gastropoda Pulmonata). *Neotropica* 19: 126–131.
- LAMARCK J.-B. M. de 1822. *Histoire naturelle des animaux sans vertèbres*. Tome septième. Published by the Author, Paris.  
<https://www.biodiversitylibrary.org/item/47433#page/9/mode/1up>
- MOLLUSCABASE (eds) 2021. *MolluscaBase: Happia*. Accessed at: <http://www.marinespecies.org/aphia.php?p=taxdetails&id=996730> on 2023-04-07
- D'ORBIGNY A. 1835. Synopsis terrestrium et fluviatilium molluscorum, in suo per Americam meridionalem itinere collectorum. *Magasin de Zoologie* 5: 1–44.  
<https://www.biodiversitylibrary.org/page/2633132>
- PÁLL-GERGELY B., ASAMI T. 2014. Description of two new Ecuadorian *Zilchistrophia* Weyrauch, 1960, with the clarification of the systematic position of the genus based on anatomical data (Gastropoda, Stylommatophora, Scolodontidae). *Zookeys* 453: 1–17.  
<https://doi.org/10.3897/zookeys.453.8605>
- PFEIFFER L. 1855. Descriptions of forty-two new species of *Helix*, from the collection of H. Cuming, Esq. *Proceedings of the Zoological Society of London* 22: 49–57.  
<https://www.biodiversitylibrary.org/item/96679#page/335/mode/1up>
- PFEIFFER L., CLESSIN S. 1881. Nomenclator heliceorum viventium: quo continentur nomina omnium hujus familiae generum et specierum hodie cognitarum, disposita ex affinitate naturali / Opus postumum Ludovici Pfeiffer. Theodori Fischeri, Casselis.  
<https://www.biodiversitylibrary.org/item/47266#page/5/mode/1up>
- RAMÍREZ R. 1993. A generic analysis of the family Systrophiiidae (Mollusca: Gastropoda): taxonomy, phylogeny and biogeography. Unpublished M. A. thesis, University of Kansas, Kansas City, 218 pp.
- REEVE L. A. 1854. *Conchologia iconica, or, Illustrations of the shells of molluscous animals, vol. 7, containing a monograph of the genus Helix*. John Edward Taylor, London.  
<https://www.biodiversitylibrary.org/item/41739#page/7/mode/1up>
- RICHARDSON C. L. 1989. Streptaxacea: Catalog of Species, Part 2. *Tryonia* 18: 1–154.
- SALVADOR R. B., CAVALLARI D. C. 2020. Taxonomy and distribution of the enigmatic “helicoid” *Polygyratia* Gray, 1847 (Gastropoda, Stylommatophora). *Zoosystematics and Evolution* 96: 91–101.  
<https://doi.org/10.3897/zse.96.51047>
- SALVADOR R. B. 2021. Phylogenetic position of the genus *Ridleyconcha* (Gastropoda, Stylommatophora). *American Malacological Bulletin* 38: 63–71.  
<https://doi.org/10.4003/006.038.0212>
- WENDEBOURG B., HAUSDORF B. 2019. The land snail fauna of a South American rainforest biodiversity hotspot: the Panguana conservation area in the Peruvian Amazon. *Journal of Molluscan Studies* 85: 311–318.  
<https://doi.org/10.1093/mollus/eyz014>
- WEYRAUCH W. K. 1960. Zwanzig neue Landschnecken aus Peru. *Archiv für Molluskenkunde* 89: 23–48, pl. 3–6.

Received: February 25th, 2023

Revised: April 7th & 30th, 2023

Accepted: May 1st, 2023

Published on-line: May 24th, 2023

