

New records of *Helicina schereri* (Gastropoda: Helicinidae) from the states of Bahia, Minas Gerais, and Mato Grosso do Sul, Brazil

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Abstract. New records for *Helicina schereri* Baker, 1913, are reported. It was a species previously restricted to the states of Ceará, Rio Grande do Norte, Paraíba, Alagoas and Tocantins in Northeastern Brazil, and State of Santa Catarina, much further south. The new occurrences reported herein fill distribution gaps and also significantly expand the range of the species ca. 970 km westwards. The new records are from the following locations: Bahia State (Ituaçu and Itaquara municipalities) in Northeast Brazil; Mato Grosso do Sul State (Bonito Municipality) in the Midwest; and Minas Gerais (Lagoa Santa municipality) in the Southeast.

Key-Words. Land snails; Neritimorpha; Range expansion; South America.

INTRODUCTION

Lamarck introduced the genus *Helicina* in 1799 (type species *Helicina neritella*, Lamarck 1801, by monotypy) and vaguely characterized it by its subglobose shell, semi-oval aperture, and corneous operculum. Though knowledge of the helicinids as a whole is scarce, it is a speciose group with up to 750 species (Richling & Glaubrecht, 2008). The genus is highly diverse in South America, with at least 33 species recorded so far (Simone, 2006, 2018). In 1913, Baker described and illustrated *Helicina schereri* with rich detail. According to the author, the species stood out for its small (~ 5 mm), subglobose and thin shell, with slightly convex whorls and a distinct suture; yellowish to reddish bronze color; sculpture mainly consisting of spiral "keels" (which are actually very delicate spiral sulci, as seen in Baker, 1913: pl. 1, figs. 1-2) with much broader interspaces; semilunar aperture with thickened (not reflected) outer lip; and a short, nearly vertical columella. A part of the original specimens studied by Baker are currently held at the Academy of Natural Sciences of Drexel University (ANSP) and were illustrated by Simone (2006: p. 40, fig. 28). A few additional types are deposited in the collection of the Museum of Comparative Zoology (MCZ), Harvard University. These samples were collected by Baker

at the Ceará-Mirim municipality, in Rio Grande do Norte State, Brazil, on different occasions. The currently region harbors Atlantic Forest and Caatinga biomes, which cover most of its area, and local climate consists of periodic droughts and irregular rains, with an average temperature of 26-28°C (Prado, 2003).

The subsequent papers that included *H. schereri* consisted of faunal surveys and catalogs such as the general list of Brazilian species by Morretes (1949), and other works and catalogs by Jaeckel (1952), Salgado & Coelho (2003) and Simone (2006). Agudo-Padrón (2014) reported new records based on six specimens collected in Santa Catarina, and Salvador *et al.* (2015) listed a new record from Tocantins. Herein we report new records of *H. schereri* based on empty shells collected in northeastern Brazil (Bahia State); mid-western Brazil (Mato Grosso do Sul State); and southeastern Brazil (Minas Gerais State), which considerably expand the geographical distribution of the species.

MATERIAL AND METHODS

The specimens studied herein are strictly empty shells and were collected at the municipality of Ituaçu, Bahia State, among rocks and dead leaves

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on the outside of cave areas. Samples were deposited in the malacological collection of the Museu de Zoologia da Universidade de São Paulo (MZSP). New records from the Municipality of Itaquara, in Bahia, and other localities in

the states of Minas Gerais and Mato Grosso do Sul were also based on the MZSP collection. Identification was based on Simone (2006), as well as on the original description by Baker (1913), and examination of type specimens.

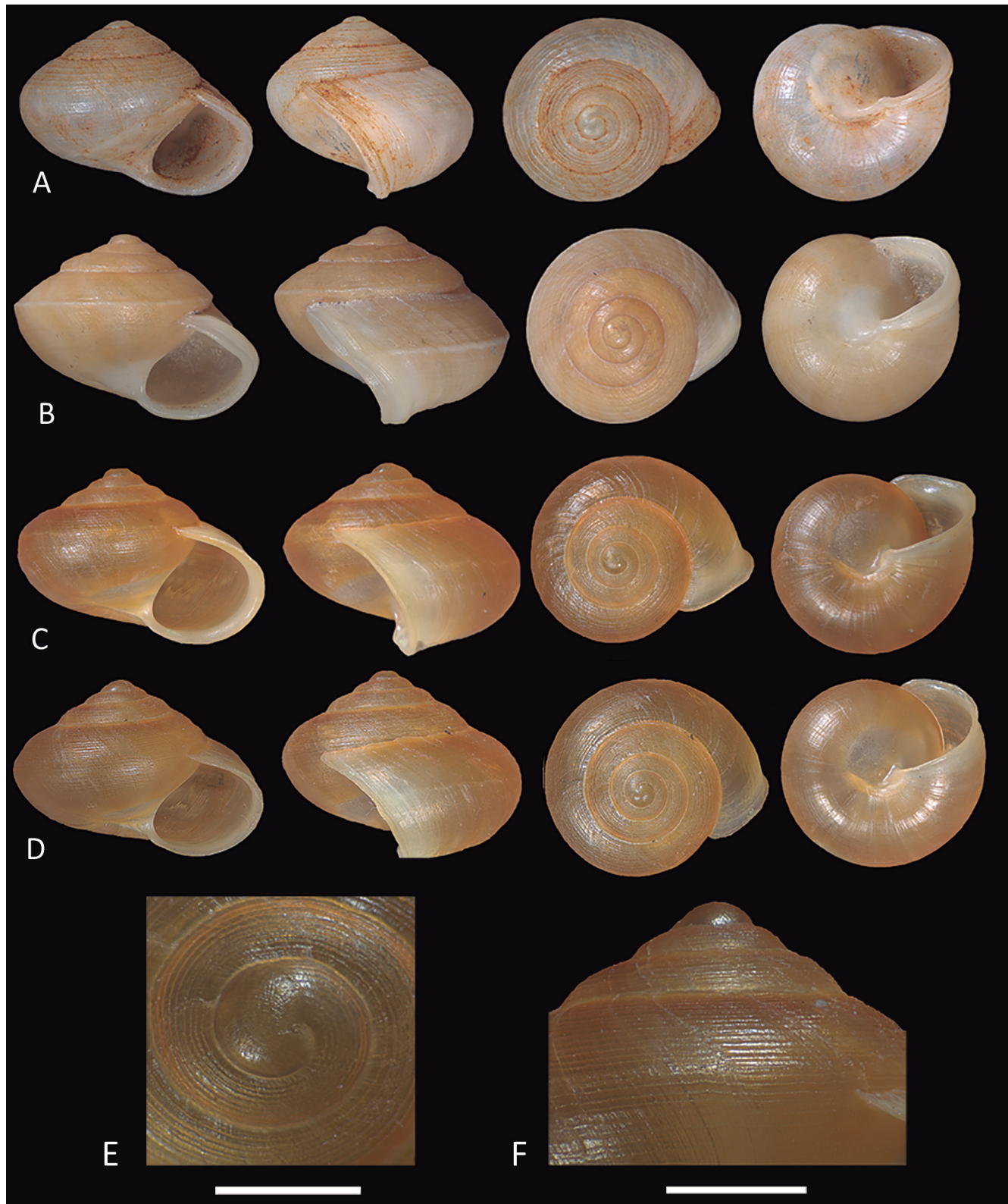


Figure 1. Shells of *Helicina scherer*; (A) = Specimen from Itaquara, Bahia State, MZSP 103041 (SD = 5.61 mm, H = 4.25 mm, w = 2.04 mm, h = 2.06 mm); (B) = Specimen from Bonito, Mato Grosso do Sul MZSP 110689 (SD = 5.26 mm, H = 3.99 mm, w = 2.07 mm, h = 1.66 mm); (C) = Specimen from Ituaçu, Bahia MZSP 129346 (SD = 6.02 mm, H = 3.86 mm, w = 2.04 mm, h = 1.91 mm); (D) = Specimen from Ituaçu, Bahia, MZSP 131296 (SD = 5.61 mm, H = 4.34 mm, w = 2.38 mm, h = 2.01 mm); (E) = same, protoconch, apical view; (F) = same, detail of spire (scales = 0.5 mm).



Figure 2. Map of Brazil showing the previously known records (black dots) and the new records (red dots) of *Helicina schereri*. Abbreviations of the neighboring states: AL = Alagoas; BA = Bahia; CE = Ceará; MG = Minas Gerais; MS = Mato Grosso do Sul; RN = Rio Grande do Norte; SC = Santa Catarina; TO = Tocantins.

Abbreviations: Shell measurements: D = shell diameter; H = shell height; w = aperture width; h = aperture height.

Taxonomy

Helicina schereri Baker, 1913 (Figures 1A-F)

Helicina schereri Baker, 1913: 625, pl. 21, figs. 1,2; Morretes, 1949: 64; Jaekel, 1952: 5; Salgado & Coelho, 2003: 152; Simone, 2006: 40, fig. 28; Agudo-Padrón, 2014: 10; Salvador, et al., 2015: 68; Salvador, et al., 2018: 147, figs. 3H-J.

Alcadia (Alcadia) schereri: Haas, 1939: 264.

Type material: Lectotype: ANSP 109341, Brazil, Ceará Mirim, Rio Grande do Norte, 05°38'S, 35°25'W (Baker, F. leg., ix.1913). Paralectotypes: Ceara Mirim, Rio Grande do Norte, 05°38'S, 35°25'W, MCZ 9285, 2 shells (Baker, F. leg., i.1927); same locality, 2 shells, ANSP 358657 (Baker, F. leg., vii.1984).

Type locality: Brazil, Rio Grande do Norte state, Ceará Mirim municipality, 05°38'S, 35°25'W.

Material examined: Types. *Additional material:* BRAZIL.

Bahia: Itaquara, 13°27'23.68"S, 39°52'45.69"W, 1 shell, MZSP 103041 (M.E. Bichuette & M. Uchoa leg., 21.vi.2009); Ituaçu Municipality, 13°49'08.14"S, 41°21'31.60"W, 10 shells, MZSP 129346 (A. Bianchi leg., i.2013); 1 shell, MZSP 131296. **Minas Gerais:** Lagoa Santa Municipality, 19°37'45.13"S, 43°53'55.99"W, 1 shell, MZSP 37518 (date and collector unknown). **Mato Grosso do Sul:** Bonito, 21°10'35.50"S, 56°26'57.86"W, 1 shell, MZSP 110689 (M.B. Silva leg., 14.iv.2012).

Measurements: 4 whorls, D = 6.02 mm, H = 3.34 mm, w = 2.38 mm, h = 2.06 mm (largest specimen).

DISCUSSION

The characteristic yellowish-reddish bronze color and sculpture consisting of well-marked, thin spiral sulci (Fig. 1A-F) are easily verified among the individuals in the studied assembly. The same is true for the semilunar aperture and thickened outer lip (older specimens, Fig. 1A-B), and well-marked suture. The specimen on Fig. 1A has a paler color due to erosion, though a faint original reddish-bronze pigmentation still remains. It also retains the sculpture consisting of spiral sulci, which are visible on the uppermost portion of the body whorl and on the spire whorls. The specimen on Fig. 1B presents a well-marked peripheral carina, as opposed to the usually rounded outline. The specimens on Fig. 1C and 1D are from the same municipality and are probably not fully developed, showing stronger coloration, a glossy surface, and a thin, sharp outer lip. Nevertheless, some of the differences observed here may represent geographical variations, though any assertions depend on more samplings. A single specimen from Lagoa Santa (MZSP 37518, not illustrated) is fragmentary but still retains enough characters that allowed its identification. The records presented herein greatly expand the distribution of *H. schereri* ca. 970 km to the west. There are still wide gaps in its range, and investigating nearby localities that harbor the same biomes may reveal novel and important records.

A wide geographic range for a small and slow-moving snail is enigmatic. The known occurrence of *H. schereri* is shown in Fig. 2, and a restriction to the east is clear in the Atlantic Rainforest and the Cerrado biomes. On the other hand, we have noticed minor conchological differences among samples coming from different regions within the range of the species. This could either indicate the presence of multiple species with somewhat similar shells, or a single, variable entity. This problem can only be solved with further samplings aimed at obtaining whole specimens for anatomical and molecular investigations. In both scenarios, *i.e.*, several species with similar shells, or a single species with somewhat variable shells, it is still possible to infer that the examined samples belong to a single taxon – a species or a subdivision of *Helicina* that harbors similar specimens.

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