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# DISTRIBUTION EXTENSION AND FIRST FEMALE RECORD OF THE DATA-DEFICIENT SPECIES *BACHIA MICROMELA* (SQUAMATA: GYMNOPHTHALMIDAE) IN NORTHERN BRAZIL

## AMPLIAÇÃO DA DISTRIBUIÇÃO GEOGRÁFICA E PRIMEIRO REGISTRO DE FÊMEA DA ESPÉCIE COM DADOS INSUFICIENTES *BACHIA MICROMELA* (SQUAMATA: GYMNOPHTHALMIDAE) NO NORTE DO BRASIL

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Species distribution data are often the basis of conservation assessments, providing crucial insights into the range and habitat preferences of a species (La Marca et al., 2019). For data-deficient species, however, the lack of distributional information can significantly hinder accurate evaluations of their conservation status (Morais et al., 2013). In the Cerrado, the world's most biodiverse savanna, this challenge is particularly acute. Home to a high diversity of endemic squamates, this unique landscape harbors species specially adapted to its distinct habitats (de Mello et al., 2015). Among these are the cryptozoic and psammophilic gymnophthalmids, which are tightly associated with distinct environments characteristic of the Cerrado ecosystem (Vitt, 1991). Documenting the distribution of these elusive lizards is essential for understanding their ecological requirements and improving their conservation assessments, which are often underestimated due to limited data.

The fossorial gymnophthalmid lizards of the genus *Bachia* Gray, 1845 comprise 31 species (Teixeira Jr et al., 2013; Uetz et al., 2024). These species are characterized by elongated bodies and tails, significantly reduced or absent limbs, degenerated eyes, the absence of external ear openings, and a transparent, unsegmented lower eyelid (Murphy et al., 2019). In Brazil, specifically, 16 species are recorded, of which 11 are endemic to the country (Guedes et al., 2023). Among these, *Bachia micromela*, belonging to the *B. bresslaui* group, is distinguished by imbricate, lanceolate dorsal and lateral scales, quadrangular and juxtaposed scales, and smooth ventral scales except those near the cloaca, which are keeled (Rodrigues et al., 2007). Despite its similarity to other species in the group, *Bachia micromela* can be distinguished by the absence of prefrontal scales and the presence of six supralabial scales, with the fifth in contact with the parietal. It also features an elongated postocular scale nearly as large as the fifth supralabial, a single distinct apical scale without claws on the forelimb, and two apical scales on the hind limbs (Vanzolini, 1961; MacLean, 1973; Castrillon & Strüssmann, 1998; Rodrigues et al., 2007; Rodrigues et al., 2008; Freitas et al., 2011; Teixeira Jr et al., 2013).

*Bachia micromela* is classified as Data Deficient (Silveira et al., 2021), and its distribution is poorly understood, having been recorded only at its type locality at Fazenda Marupiara (8.641111° S, 48.423333° W), municipality of Guaraí, state of Tocantins, Brazil (Rodrigues et al., 2007). Given the limited distribution record and lack of information, we present here a new record of *B. micromela* in the municipality of Araguaína, Tocantins, including data on a female specimen, previously undocumented.

Specimens were collected using Y-shaped pitfall traps with 30-liter buckets spaced five meters apart (Cechin & Martins, 2000). The traps were installed during field expeditions at the Unidade de Medicina Veterinária e Zootecnia (EMVZ) unit of the Universidade Federal do Norte do Tocantins-UFNT (7.103776° S, 48.204383° W; elevation 254 m a.s.l.) in Araguaína (Fig. 1). The specimens were fixed in 10 % formaldehyde and subsequently preserved in 70 % alcohol (Auricchio & Salomão, 2002).

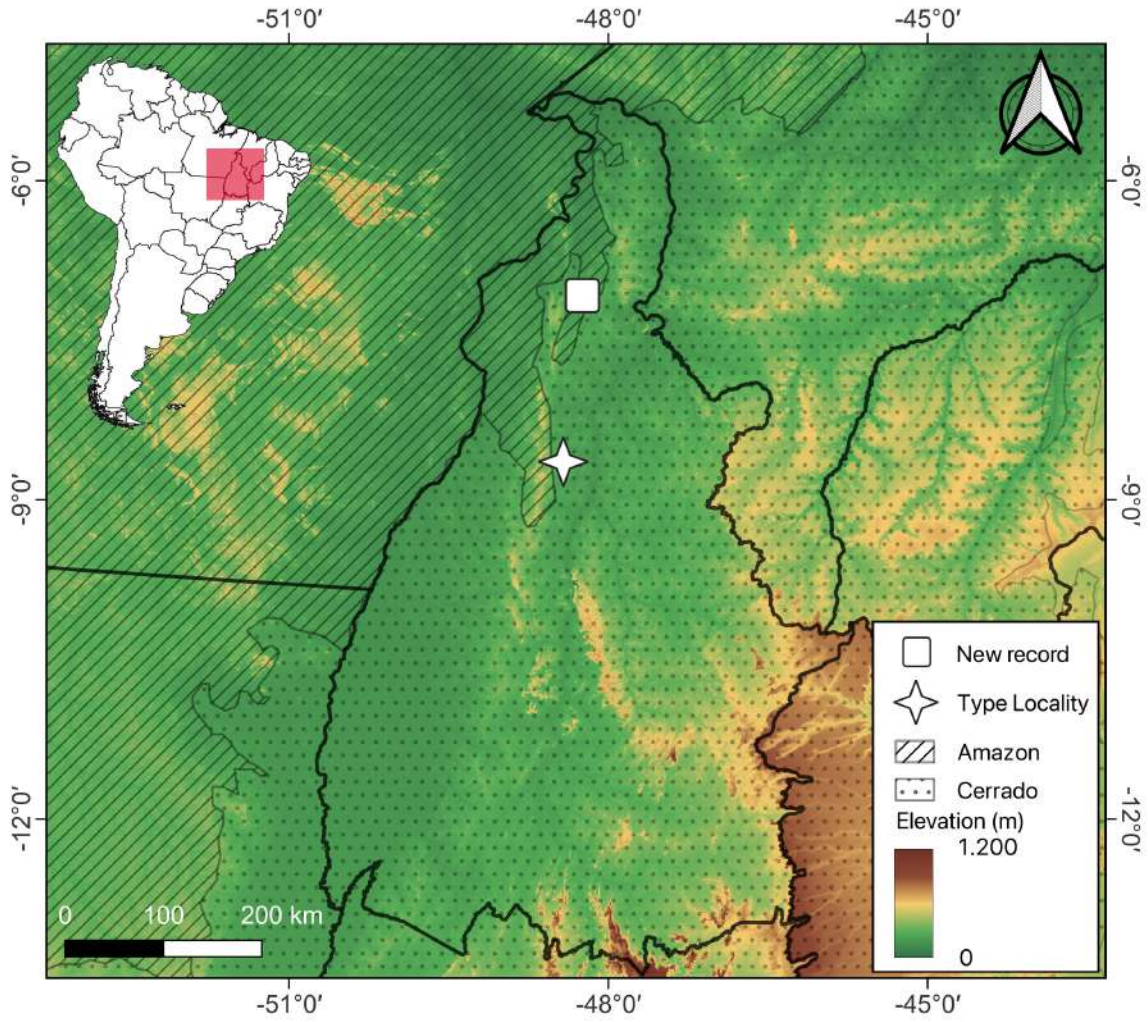


**Figura 1.** Distribuição geografica de *Bachia micromela* no estado de Tocantins, norte do Brasil.

**Figura 1.** The geographic distribution of *Bachia micromela* in the state of Tocantins, north Brazil.

Additionally, they were sexed through longitudinal cuts at the base of the tail, exposing the reproductive organs.

The first specimen (Fig. 2A), a male with a snout-vent length (SVL) of 79.8 mm, 49 dorsal scales, 38 ventral scales and 39 scales around the mid-body, six supralabials with fifth in contact with the parietal, has a tail length damaged of 106.7 mm, and it was collected on November 4, 2013, in a gallery forest area bordered by pasture, approximately 80 m from the nearest stream. It is housed in the Museu Nacional do Rio de Janeiro (MNRJ-24895). The second specimen, a female housed in the Zoological Collection of the Universidade Federal de Mato Grosso do Sul (ZUFMS-REP 02563), with an SVL of 71.2 mm, 48 dorsal scales, 37 ventral scales, and 40 scales around the mid-body, has a tail length of 124.6 mm, and it was collected on April 24, 2015. This is the first recorded female of this species, which, in addition to a smaller SVL compared to previously described males, lacks pores—a sexually dimorphic trait also seen in *B. psamophila* (Rodrigues et al., 2007).

Other species exhibit varying pore presence: females of *B. oxyrhina* (Rodrigues et al., 2008) have only pre-anal pores, while *B. bresslaui* (MacLean, 1973) and *B. scolecoides* (Vanzolini, 1961) possess both femoral and pre-anal pores. *B. didactyla* has only pre-anal pores (Freitas et al., 2011), and *B. cacerensis* exhibits both, with femoral pore presence varying (Castrillon & Strüssmann, 1998). *B. geralista* shows femoral and pre-anal pores, with no specified sex-based differences (Teixeira Jr. et al., 2013).

The new record of *Bachia micromela* in Araguaína has significant implications for its conservation assessment and understanding of its ecological range. Previously known only from its type locality, this record extends its distribution approximately 170 km north. As a species currently classified as Data Deficient (Silveira et al., 2021), each new record is crucial for estimating its range and potential vulnerability to habitat loss, particularly given rapid changes in the Cerrado and its transition zone to the Amazon (Morais et al., 2013). The Cerrado-Amazon ecotone, especially along gallery forests associated with the Tocantins River, likely serves as a critical habitat corridor for *B. micromela*. These gallery forests not only provide refuges for moisture-dependent species but also support species requiring specific soil types and microhabitats found within this transitional landscape.

Given the habitat where both populations of *B. micromela* were located, it is likely that additional populations may exist within gallery forests along the Tocantins and Araguaia rivers and their tributaries. This preference suggests that targeted surveys upstream and downstream along these forested corridors could reveal further populations, contributing to the understanding of its range and population dynamics. In summary, this record underscores the need for comprehensive surveys across the

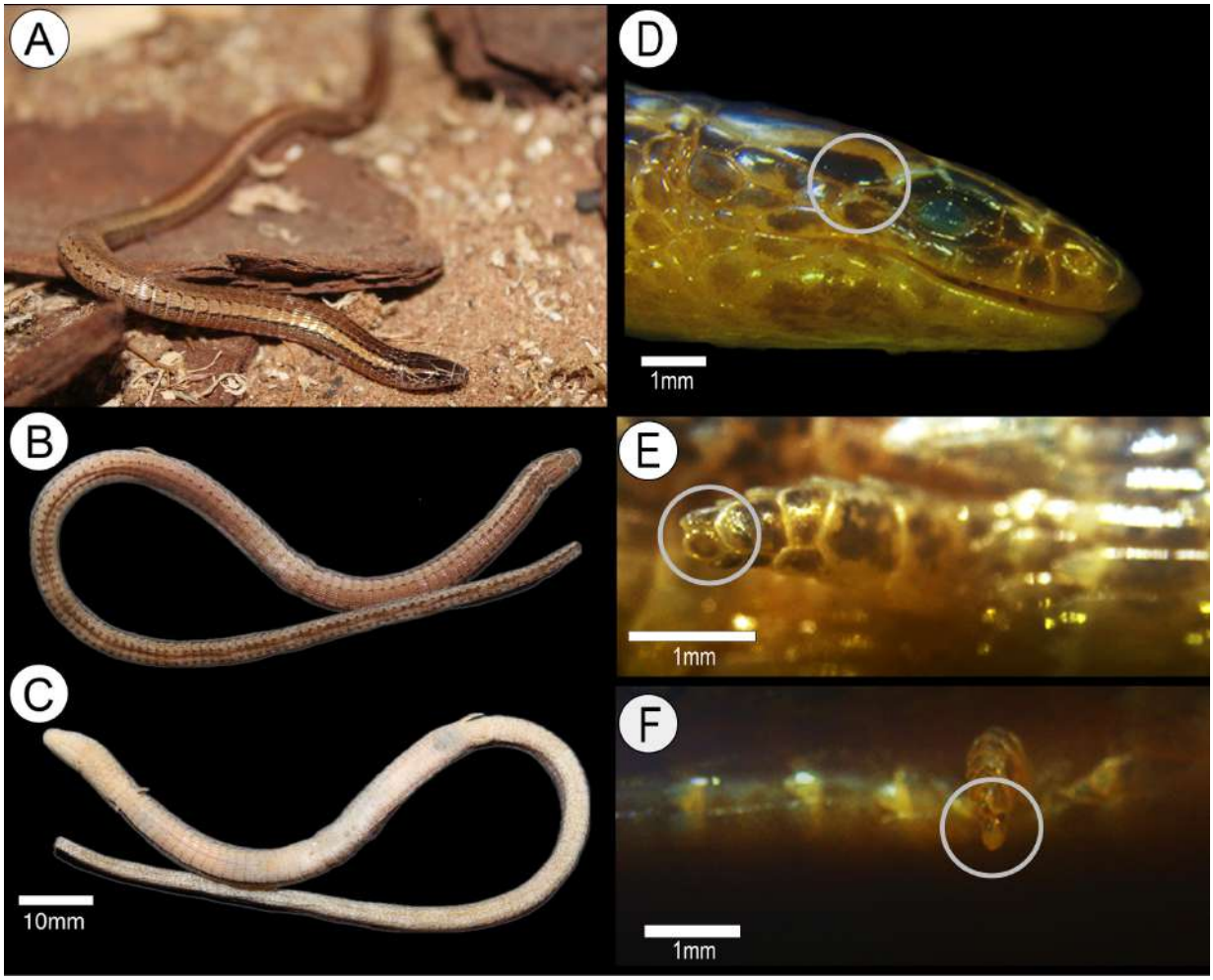


**Figura 2.** (A) Fêmea de *Bachia micromela* (ZUFMS-REP 02563) em vida; (B) vista dorsal e (C) vista ventral de um macho de *B. micromela* (MNRJ-24895). (D–F) Detalhes morfológicos diagnósticos com base na fêmea de *B. micromela*. (D) Vista lateral da cabeça evidenciando o contato da quinta escama supralabial com a parietal; (E) vista do membro posterior, destacando a presença de duas escamas apicais; (F) vista do membro anterior, mostrando a presença de uma única escama apical. Fotos: Silionamã Pereira Dantas (A), Matheus Soares França (B-C), Alvaro Aragão de Lima (D-F).

**Figure 2.** A) Female *Bachia micromela* (ZUFMS-REP 02563) in life; (B) dorsal view and (C) ventral view of a male *B. micromela* (MNRJ-24895). (D–F) Diagnostic morphological details based on the female specimen of *B. micromela*. (D) Lateral view of the head showing the contact between the fifth supralabial and the parietal scale; (E) view of the hindlimb highlighting the presence of two apical scales; (F) view of the forelimb showing a single apical scale. Photos: Silionamã Pereira Dantas (A), Matheus Soares França (B-C), Alvaro Aragão de Lima (D-F).

Cerrado-Amazon ecotone, especially in gallery forests linked to major river systems like the Tocantins. These efforts are essential for filling knowledge gaps on *B. micromela* distribution, ecological requirements, and conservation needs, facilitating a more accurate assessment of its conservation status and informing protective measures adapted to its habitat.

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