

After four decades, a new record of the rare *Ceratophrys aurita* (Raddi, 1823) (Anura, Ceratophryidae) for the state of Rio de Janeiro, Brazil

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Locality.— Brazil: Rio de Janeiro state, municipality of Cambuci, area of rural properties near secondary forest fragment (21°29'32.7"S, 41°53'56.7"W; WGS84, 865.37 m above sea level). Collected on 8 January 2024 by D. M. Silva and H. A. P. B. Lima. Voucher specimen deposited in the Coleção Herpetológica do Norte Fluminense, at the Universidade Estadual do Norte Fluminense Darcy Ribeiro (CHNF 1326).

Comments.— The global decline of amphibians is a well-documented and alarming phenomenon, driven by the synergistic effects of habitat degradation, emerging diseases, climate change, and invasive species (Stuart *et al.*, 2004; Wake & Vredenburg, 2008; Scheele *et al.*, 2019). In the Brazilian Atlantic Forest, considered one of the most biodiverse and threatened biomes in the world, amphibians have experienced severe declines, frequently associated with the chytrid fungus (*Batrachochytrium dendrobatidis*), in addition to historical and recent environmental changes (Becker and Zamudio, 2011; Toledo *et al.*, 2023). Despite the extensive documentation of these threats, sampling gaps hinder the accurate assessment of declining populations and species considered rare, especially in poorly explored areas (Augusto-Alves *et al.*, 2023).

Similar to other horned frogs (Ceratophryidae), *Ceratophrys aurita* is emblematic due to its rarity and cryptic habits (Jorge *et al.*, 2015). The species typically inhabits well-conserved forest fragments, burying itself in the leaf litter on the forest floor (Heyer *et al.*, 1990; Izecksohn and Carvalho-e-Silva, 2001). Its distribution spans coastal rainforest from Rio

Grande do Sul to southern Bahia, with a few records extending into eastern Minas Gerais (Faivovich *et al.*, 2014; Vieira *et al.*, 2018; Augusto-Alves *et al.*, 2023).

Although *C. aurita* is the only species of the genus occurring in the Atlantic Forest (Faivovich *et al.*, 2014), the geographically closest congener to our record is *C. joazeirensis*, and distinguishing both species may be relevant in transitional areas of eastern Minas Gerais. *C. aurita* can be readily differentiated by its markedly larger body size, a well-developed digitiform palpebral crest, and a non-cornified inner metatarsal tubercle (Lynch, 1982; Mercadal, 1986). In contrast, *C. joazeirensis* is considerably smaller, exhibits a less pronounced triangular palpebral crest, and possesses an inner metatarsal tubercle with a distinctly darkened cornified and keratinized margin (Mercadal, 1986).

Despite this wide distribution, *C. aurita* faces a dramatic decline in confirmed records during recent decades, particularly within the state of Rio de Janeiro (Augusto-Alves *et al.*, 2023). According to Toledo *et al.* (2023), the last voucher-collected specimen of *C. aurita* from the state of Rio de Janeiro dates from 1984 (voucher ZUFRJ 3168). The same voucher is listed by Augusto-Alves *et al.* (2023) but assigned to 1982. Despite this discrepancy, all available records indicate that no additional occurrences have been documented in the state after a field visual and auditory observation made in 1989 (see supplementary material of Toledo *et al.*, 2023).

The new record from Cambuci extends the species' known range by approximately 150 km northwards from historical localities in Rio de Ja-



Figure 1. Adult male *Ceratophrys aurita* (CHNF 1326) photographed *in situ* in Cambuci, Rio de Janeiro, Brazil. Photo by Diego Moura da Silva.

neiro state and represents its northernmost known occurrence to date. The region is considered under-sampled for amphibians (Augusto-Alves *et al.*, 2023), reinforcing the significance of this finding. Other nearby locality records include the municipalities of Araponga, Minas Gerais, and Santa Leopoldina, Espírito Santo, at about 110 km and 211 km, respectively.

On 7 January 2024, a local resident informed the authors about a large frog observed during a motorcycle trail ride and provided photographs and videos of the encounter. The following day, we located an adult male *C. aurita* (snout–vent length 185 mm) ~20 m from the originally reported site. The frog was found alive but appeared lethargic, emaciated, and presented multiple cream-white, oval subcutaneous cysts, especially visible along the hind limbs. It died within 24 hours, was necropsied, and subsequently deposited in CHNF. Necropsy findings included cachexia and widespread parasitic cysts in skeletal muscle, liver, and gastrointestinal tissues, indicating prolonged starvation and severe parasite load.

The site of collection corresponds to a disturbed landscape near banana plantations, pastures, and human settlements, at the edge of a secondary

Atlantic Forest fragment. The record was made in the rainy season, and no calling males or additional individuals were observed. Although the precise cause of death remains uncertain, the deteriorated condition of the specimen may reflect weakening associated with a high parasitic load, maybe related to environmental pollution (Toledo *et al.*, 2023).

This rediscovery of *C. aurita* in Rio de Janeiro state highlights the value of citizen involvement in detecting rare species, an approach that has proven effective for other *Ceratophrys* species such as *C. ornata* in Argentina (Deutsch *et al.*, 2017). It underscores the urgent need for conservation strategies beyond protected areas, especially in historically overlooked regions of the Atlantic Forest. Targeted surveys and monitoring efforts in Cambuci and surrounding areas may yield further insights into the species actual distribution and conservation status.

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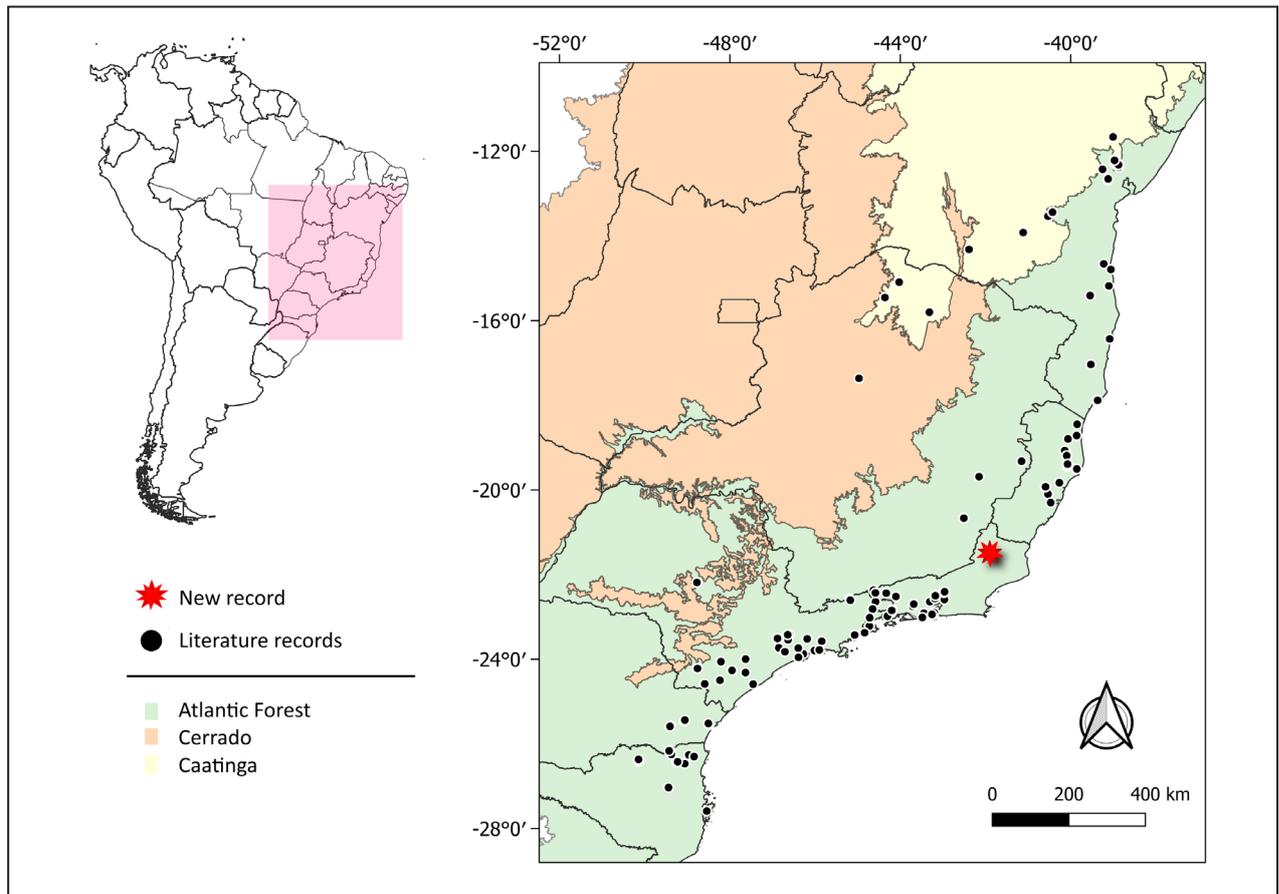


Figure 2. Distribution map of *Ceratophrys aurita*, including the new record from Cambuci, Rio de Janeiro, Brazil. Historical records based on supplementary material of Augusto-Alves *et al.* (2023).

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De-Oliveira-Nogueira *et al.* — Rediscovery of *Ceratophrys aurita*

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