

First record of giant anteater (*Myrmecophaga tridactyla* - Myrmecophagidae) in Campos das Vertentes, Minas Gerais

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Abstract

The species *Myrmecophaga tridactyla*, Myrmecophagidae, is widely distributed in the Neotropics regions and is popularly known as the giant anteater. It is considered a generalist species regarding habitat and can be found in human-modified areas such as pastures and crops. However, there is limited information about the species in agricultural ecosystems. Due to its threatened status and the absence of records in the Campos das Vertentes region, which has only 1.04% of its area included in Conservation Units, this study aimed to report the unprecedented occurrence of *M. tridactyla* in the municipality of Ritópolis, Campos das Vertentes, Minas Gerais, in a transitional region between the Atlantic Forest and the *Cerrado*. Two occasional records were made on a rural road in this municipality. Therefore, this record increases our knowledge about the spatial distribution of *M. tridactyla* in the state of Minas Gerais, provides information about the species in human-modified landscapes, and supports the need for more Conservation Units in the Campos das Vertentes region.

Keywords: Ecotone. Endangered Species. Insectivore. Mammal. Pilosa.

Introduction

The *Myrmecophaga tridactyla* L. 1758 is one of the two species of medium and large-sized mammals that make up the taxon Myrmecophagidae, the family of anteaters, which is present in Brazil (GAUDIN *et al.*, 2018). Popularly known as the giant anteater, *M. tridactyla* is a solitary, large terrestrial mammal, measuring from 1.8 to 2.1 m in length and weighing over 40 kg (MIRANDA *et al.*, 2015). Its diet is specialized and consists strictly of insects, such as termites and ants (NAPLES, 1999; MEDRI *et al.*, 2003).

The species has a wide distribution in the Neotropical region, from Belize in Central America to northern Argentina in South America (GARDNER, 2007). Although the giant anteater may be found in all major Brazilian biomes, it is possibly extinct in the *Pampas* and has rare occurrences in the *Caatinga*, with only two confirmed records (DIAS *et al.*, 2019).

M. tridactyla is considered a generalist species regarding habitat use and can be found in human-modified areas such as pastures and crops (MIRANDA *et al.*, 2015; GAUDIN *et al.*, 2018). However, there are knowledge gaps regarding this species in agricultural landscapes with human interference, as studies on the giant anteater are mostly focused on Conservation Units (BERTASSONI, RIBEIRO, 2019).

Despite being a generalist species, *M. tridactyla* is sensitive to environments with extreme temperatures due to its physiological constraints resulting from a relatively low metabolism (MCNAB, 1984). As a result, these animals rely on remnants of native habitats for resting, shelter, and thermal protection (CAMILO-ALVES, MOURÃO, 2006; DI BLANCO *et al.*, 2015) since these environments provide a milder climate (CAMILO-ALVES, MOURÃO, 2006).

Conservation units play a crucial role in safeguarding biodiversity, landscapes, and natural

resources (SALVIO, 2017). However, in the Campos das Vertentes region in south-central Minas Gerais, only 1.04% of its area is protected within conservation units, such as the Ritópolis National Forest, Serra de São José Protection Area, and the Wildlife Refuge for Dragonfly Protection (SALVIO, 2017). Biodiversity studies in this region have revealed a rich fauna (SOUZA *et al.*, 2013; COELHO *et al.*, 2022) and flora (MENINI-NETO *et al.*, 2004), as well as areas of archaeological significance (TEOFILO-GUEDES *et al.*, 2021). Therefore, there is an evident need to establish new conservation units based on these biological attributes (ZAMBALDI *et al.*, 2011; OLIVEIRA *et al.*, 2021) to ensure the conservation and protection of the biota in the Campos das Vertentes.

M. tridactyla is classified as a vulnerable species (VU) according to the International Union for Conservation of Nature (UCN) and the Chico Mendes Institute (ICMBio) (MIRANDA *et al.*, 2014; ICMBIO, 2018; IUCN, 2023). The giant anteater is considered endangered in Brazil (MMA, 2014), including in the state of Minas Gerais (DRUMMOND *et al.*, 2009). Despite its ecological significance, previous faunal studies in Campos das Vertentes have not documented the presence of *M. tridactyla*. It is estimated that the population of *M. tridactyla* has declined by approximately 30% in recent decades, primarily due to habitat loss, deaths caused by fires and roadkill (DE MATOS DIAS *et al.*, 2019), and predation by domestic animals, such as dogs (LACERDA *et al.*, 2009). Therefore, data on its geographical distribution are crucial for monitoring and developing effective conservation strategies for this species. Thus, this study aims to report the first recorded occurrence of *M. tridactyla* in Ritópolis, within the Campos das Vertentes region of Minas Gerais.

Material and methods

Campos das Vertentes is a mesoregion in the state of Minas Gerais consisting of three microregions: Barbacena, Lavras, and São João

del-Rei. Ritópolis (21°01'10"S 44°23'04"W) is a municipality located in the south-central region of Minas Gerais, specifically in the microregion of São João del-Rei. It is situated in a transitional region between two important biodiversity hotspots: the Atlantic Forest and the *Cerrado* (SOUSA *et al.*, 2010). The municipality has altitudes ranging from 800 to 1,300 m and a Cwb climate type according to the Köppen classification, with average annual temperatures around 19.4°C and an average annual precipitation of 1,500 mm (IBAMA, 2005).

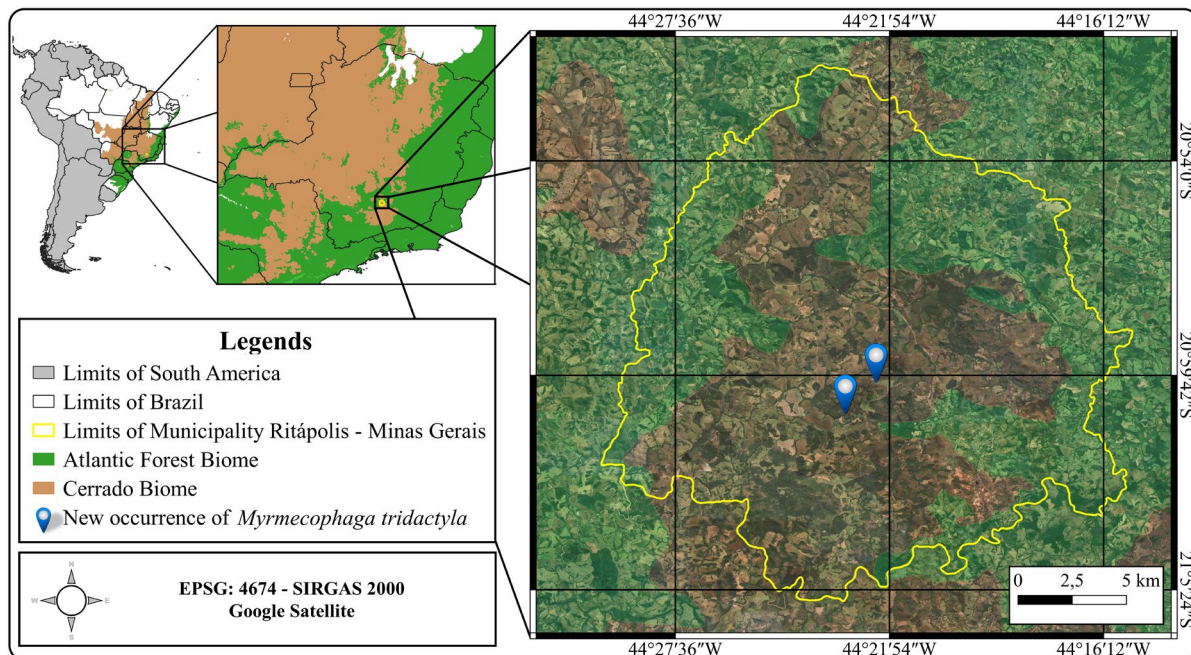
The record considered for this study was incidentally obtained by a local farmer in two different days using a mobile device (LG K10) on a vicinal road in the municipality of Ritópolis (Figure 1).

Results and discussion

Two records were made by the same farmer (21°00'20"S 44°22'15"W): the first, on June 15, 2021, at approximately 7:00 p.m., when a *Myrmecophaga tridactyla* was seen crossing a country lane (Figure 2); and a second, on August 18, 2021, at approximately 5:00 a.m. However, the farmer could not make photographic or video recordings of this second meeting, nor could he determine if they were different individuals. It was impossible to determine its sex in both records, but apparently it was an adult individual.

The fact that the animal was observed on an unpaved road appears to be common for the giant anteater (TROLLE, KÉRY, 2005), as it is believed that they use these roads as a more efficient route to move faster and/or over longer distances, making travel time between feeding and resting areas shorter (VERSIANI *et al.*, 2021). Furthermore, the fact that the observation occurred during dry season may be related to an increased activity period of anteaters on unpaved roads (VERSIANI *et al.*, 2021), as food becomes scarcer during this period (REDFORD, 1985). Country lanes also serve as alternative foraging areas for these

Figure 1. *Myrmecophaga tridactyla* L. 1758 record area in the municipality of Ritápolis, Minas Gerais.



Source: Prepared by the authors (2023).

Figure 2. *Myrmecophaga tridactyla* L. 1758. **A.** Front view, **B.** Back view, and **C.** Side view of the animal, recorded in the municipality of Ritápolis, Minas Gerais. Photographs taken by Jaderson Fuzatto.



Source: Image scheme prepared by the authors (2023).

animals, as a higher abundance of ants, one of their main food sources, have been observed along the edges of unpaved roads (TERRANELLA *et al.*, 1999; FORYS *et al.*, 2002). However, the higher use frequency of these routes may increase the incidence of roadkill (VERSIANI *et al.*, 2021), as evidenced by Zanzini *et al.* (2018), who observed seven deaths in a 12-month period, a scenario that transforms roads into ecological traps (HALE, SWEARER, 2016).

The region where the anteater was observed is located within a complex of different vegetation types, including fragmented forest patches, pastures, and areas of commercial forestry. Therefore, this sighting, in addition to its importance for the region's biodiversity and conservation of giant anteaters, may also be significant for local farmers. Ants of the *Atta* genus, one of the main agricultural pests (DELLA LUCIA *et al.*, 2014), are insects that are part of the giant anteater's diet (BRAGA *et al.*, 2014). Thus, the presence of anteaters in these environments can be an ally in biological pest control, which should be better investigated.

There have been only three surveys of medium- and large-sized mammals covering the São João del-Rei microregion: one was conducted during the management plan preparation for Ritópolis National Forest (IBAMA, 2005), and two were conducted in the São João del-Rei and Lavras microregions (MACHADO *et al.*, 2017; 2018). These three studies, when combined, document a total of 65 species. The total number of species reaches 67 when we add the sighting of *Molossus aztecus* in the municipality of Lavras (Gregorin *et al.*, 2011) and this new record of giant anteater.

Then, the microregion of São João del-Rei records the presence of two species from the Myrmecophagidae family, as the occurrence of the southern tamandua (*Tamandua tetradactyla* L. (1758)) has been previously reported (IBAMA, 2005; MACHADO *et al.*, 2018). The region has been considered strategic for conservation, as

it connects two important biodiversity centers, the Espinhaço Complex, Cerrado biome, and the Mantiqueira, Atlantic Forest biome (KAMINO *et al.*, 2008; Meireles *et al.*, 2008). In this context, Roberto (2017) identified the ecotone between the Cerrado and Atlantic Forest as a priority area for the conservation of *M. tridactyla* via spatial distribution modeling.

The closest site with confirmed occurrence of *M. tridactyla* was presented by Moura *et al.* (2017), in the Serra da Boa Esperança State Park, which was the only occurrence in the southern region of Minas Gerais, approximately 200 km away from this record. Therefore, further studies should investigate this species, especially in the south- central and southern regions of the state of Minas Gerais.

Conclusion

The occurrence of *Myrmecophaga tridactyla* L. 1758, an endangered native fauna species, has been recorded in Campos das Vertentes region, southern Minas Gerais, Brazil.

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