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FIRST RECORD OF BROWN HOWLER MONKEYS IN SÃO PEDRO DA ALDEIA, RIO DE JANEIRO, BRAZIL

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Introduction

The discovery of a threatened species in a new locality provides important information to reassess its extent of occurrence, area of occupancy, and conservation status (IUCN, 2019). In times where human-induced defaunation in forest fragments is of major scientific concern (Canale et al., 2012; Dirzo et al., 2014; Galleti et al., 2016) and outbreaks of yellow fever virus are severely impacting populations of wild non-human primates in Brazil's Atlantic Forest (Holzmann et al., 2010; Almeida et al., 2012; Bicca-Marques et al., 2017), the discovery of a group of threatened primate species in a small fragment of Atlantic Forest should be celebrated.

We report here the first record of a group of brown howler monkeys, *Alouatta guariba clamitans,* in São Pedro da Aldeia, Rio de Janeiro, Brazil. *A. guariba* is the primate species with most records and with the largest distribution in the Atlantic Forest (Culot et al., 2019). In Rio de Janeiro state brown howlers inhabit the coastal and the northern regions (Gregorin, 2006), with populations occurring in at least 23 protected areas (Bicca-Marques et al., 2018). The deforestation and fragmentation of the southern and southeastern forests have played an important role in decreasing its current distribution compared to its historical occurrence (Bicca-Marques et al., 2018). It is currently listed as a Vulnerable species on the IUCN Red List of Threatened Species, with ongoing population decline (Jerusalinsky et al., 2020).

Study site

Our study site (22°43'20.02"S, 42°07'25.37"W) is a small patch of lowland seasonal semideciduous forest with 36 ha. It has an elliptical shape, with altitude varying from 7 to 35 m above sea level. Locally known as Ilha dos Macacos (Monkeys' Island), it is connected to other fragments of Atlantic Forest totaling about 418 ha (Fig. 1). The site lies in a swampy plain bordered by two small rivers that drain northward up to the basin's main river, Rio Una. Grassy fields characterize the landscape. The rainy season (December-May) turns most of the plain into wetlands. The forest fragment studied lies in a higher terrain so that waters reach only part of its border. Cattle ranching, eucalyptus forestry and agriculture characterize local land use around the fragment (Bastos, 2020). The local climate is an interface between two Köppen-Geiger climate classes, Aw and BSh (Barbiéri, 1984, 1997), and the precipitation is between 900-1,000 mm per year (Pinto et al., 2011).

Results and discussion

During our survey focused on floristic and phytosociological data collection (Bastos, 2020), we unexpectedly heard howls at the study site. Therefore, we decided to collect *ad libitum* data (Altmann, 1974) on all monkey observations during every visit. We registered howler vocalizations in 10 of 31 visits. The records encompassed two years, from May 2018 to February 2020. The only visualization was in January 2020. We observed an

adult male and a juvenile of *Alouatta guariba clamitans* howling at the top of a canopy tree (Fig. 2). No other mammal species were registered during our survey. We found only two fecal samples on the forest litter and they were dry. Seeds identified in the feces were from small fleshy fruits of the arboreal species *Oxandra* sp. (Annonaceae), *Erythroxylum pulchrum* (Erythroxylaceae), and *Pradosia lactescens* (Sapotaceae), in addition to unidentified Fabaceae seeds.

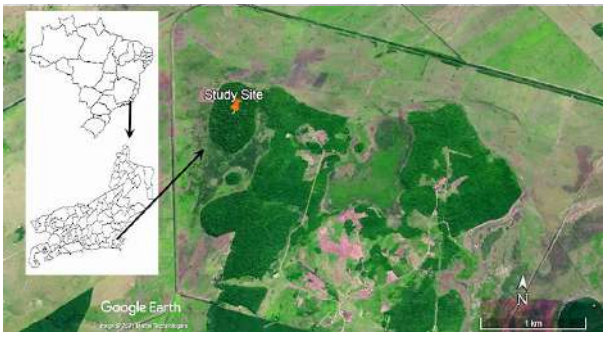

Figure 1. Study site (Ilha dos Macacos) in São Pedro da Aldeia, Rio de Janeiro, Brazil.

Figure 2. Brown howlers at the study site (*Ilha dos Macacos*) in São Pedro da Aldeia, Rio de Janeiro, Brazil.

Our study site and other small patches of forest were the few natural vegetation fragments present in the landscape around December 1984. After that time the area experienced broad natural forest regeneration. It is possible that the 36-ha mature forest with a high richness of shrub-arboreal species (~175), an abundant supply of fleshy fruit, and a connection to other forest fragments (Bastos, 2020), has favored the survival of this group of brown howler monkeys. The species can live in forest fragments of 1.8 ha up to large mature and continuous forests (120,000 ha), with the home range varying from 1.8 to 69.9 ha – the average home range is 13 ha (Fortes et al., 2015). Despite the tolerance of individuals to spatial limitation in habitat fragments the long-term conservation of the species is threatened at the regional scale (Bicca-Marques et al., 2020).

Short-term threats to the howlers at Ilha dos Macacos include yellow fever and deforestation. Yellow fever is a dangerous disease for *Alouatta* spp. (Silva et al., 2020). Recent outbreaks drastically affected populations of *A. guariba clamitans* both in Brazil and in Argentina (Holzmann et al., 2010; Almeida et al., 2012). A fatal epizootic case of yellow fever in a brown howler individual was recently confirmed in the municipality of Casimiro de Abreu (Abreu et al., 2019), 20 km northeast from our study site. The second threat is land use change at Ilha dos Macacos; over 25 ha of native vegetation were destroyed in the first half of 2020, 2 km east from the study site, probably for agriculture or cattle ranching (Bastos, 2020). Another threat is inbreeding depression (Lande, 1988; Fortes and Bicca-Marques, 2008) as this group seems to be isolated, with the nearest known population 20 km distant to the northwest, at Poço das Antas Biological Reserve (Araújo et al., 2008).

The presence of 20 threatened plant species in the study site (Bastos, 2020) and a Vulnerable primate species (Bicca-Marques et al., 2018; Jerusalinsky et al., 2020) reinforces the importance of conserving this habitat. These findings have been used to subsidize the ongoing creation of a protected area at Ilha dos Macacos by the municipality of São Pedro da Aldeia (Daiana Cabral, pers. comm.). The record reported here opens a pathway for more detailed studies on the brown howlers at Ilha dos Macacos, such as their role in forest regeneration, composition and structure by seed dispersal, daily diet, amount of biomass ingested/food item, home range, space used, population density and size and, particularly, a study assessing the long-term viability of this group to design management strategies for its conservation.

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RECONOCIMIENTO DE LA POBLACIÓN DEL TITÍ CABECIBLANCO (*SAGUINUS OEDIPUS*) EN LA RESERVA FORESTAL PROTECTORA EL PALOMAR, DEPARTAMENTO DEL ATLÁNTICO, COLOMBIA

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Introducción

El bosque seco tropical es uno de los ecosistemas más amenazados de Colombia, debido a la transformación excesiva que han generado las acciones humanas a lo largo de los años; actualmente solo resta el 8 % de su cobertura original (González-M et al., 2018). Desafortunadamente la destrucción del bosque ha afectado hábitats críticos para muchos primates nativos como *Saguinus oedipus*, cuya distribución en el noroccidente del país se sobrepone actualmente en apenas 4.3 % con los remantes de hábitat boscoso existente (Soto y Roncancio, 2020). *S. oedipus* es un primate carsimático, endémico de Colombia y críticamente amenazado de extinción debido a la reducción poblacional, en más de un 80 % en los últimos 18 años (Savage y Causado, 2014; Ministerio de Ambiente y Desarrollo Sostenible, 2017).