



NOTAS SOBRE
MAMÍFEROS
SUDAMERICANOS

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Sociedad Argentina para el Estudio de los Mamíferos

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First record of *Chrysocyon brachyurus* (Illiger, 1815) (Mammalia: Canidae) in the municipality of Ubatuba, São Paulo, Brazil

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Citation: MUSCAT E., E. L. ROTENBERG, M. PEDROZO, & R. M. TANAKA. 2021. First record of *Chrysocyon brachyurus* (Illiger, 1815) (Mammalia: Canidae) in the municipality of Ubatuba, São Paulo, Brazil. Notas sobre Mamíferos Sudamericanos 3:e21.2.3

ABSTRACT

The number of occurrences of maned wolf in the Atlantic Forest has increased in the last decade. However, records of *Chrysocyon brachyurus* for lowland Atlantic Forest localities are rare. Here, we present an unprecedented record of a maned wolf in the northern coast of the state of São Paulo, Brazil, victim of vehicle collision on the Rio-Santos road. This record is related to habitat loss due to changes in the use of the Cerrado's soil and to the increase in open areas in the Atlantic Forest. These changes facilitate the dispersion of the maned wolf and bring it closer to humans, increasing the chances of accidents such as collisions with motor vehicles.

Key words: Atlantic Forest, dispersion, maned wolf, roads, road-kill

RESUMO – Primeiro registro de *Chrysocyon brachyurus* (Illiger, 1815) (Mammalia: Canidae) no município de Ubatuba, São Paulo, Brasil

O número de ocorrências de lobo-guará na Mata Atlântica tem aumentado na última década. No entanto, para as regiões de planície da Mata Atlântica os registros de *Chrysocyon brachyurus* são raros. Registramos pela primeira vez um lobo-guará no litoral norte do estado de São Paulo, Brasil, vítima de atropelamento na rodovia Rio-Santos. Esse registro está relacionado com a perda de habitat decorrente das modificações no uso do solo do Cerrado e com o aumento das áreas abertas na Mata Atlântica. Tais alterações facilitam a dispersão do lobo-guará e o aproxima de habitações humanas, aumentando as chances de acidentes como atropelamentos.

Palavras-chave: atropelamiento, dispersão, estradas, lobo-guara, Mata Atlântica

The maned wolf *Chrysocyon brachyurus* (Illiger, 1815) is the largest South American canid, with length between 95 and 115 cm (plus a 38-50 cm-long tail), and weighing between 20 and 30 kg (Rodden et al. 2004). It is a generalist and opportunistic omnivorous species whose diet varies seasonally (Dietz 1984; Motta-Junior et al. 1996; Jácomo et al. 2009). It consumes a large variety of fruits and small vertebrates

Recibido el 10 de septiembre de 2020. Aceptado el 16 de octubre de 2020. Editor asociado: João Oliveira.

such as rodents, marsupials, armadillos, birds, reptiles and even arthropods (Motta-Junior et al. 1996; Rodrigues 2002; Santos et al. 2003, Rodrigues & Diniz-Filho 2007). The species is considered Near Threatened (NT) according to the IUCN red list criteria (Paula & De Matteo 2015). In Brazil *C. brachyurus* is considered Vulnerable (VU) in the last national evaluation under criteria A3c; E (ICMBio 2018).

Historically, maned wolves used to be widely distributed in the fields and savannas of central South America, ranging up to the limits with the Brazilian Northeast, Peruvian southwest, north and east of Bolivia, south to the Paraguayan Chaco, central and northeastern Argentina in Chaco and Paraná Atlantic Forest ecoregions (Dietz 1985; Queirolo et al. 2011; Nigro et al. 2020). In Brazil, maned wolves occur mostly in Cerrado and its transition with Caatinga, but also in the eastern part of the Pantanal and grasslands in the south (Reis et al. 2006). The southernmost limits of its range in Brazil once extended to the extreme south of Rio Grande do Sul; the northern, eastern and southern limits were the transition from Cerrado to Caatinga, the Atlantic Forest and the Pantanal, respectively.

Recently, the number of records of maned wolf in the Atlantic Forest biome has increased, especially in the states of São Paulo, Minas Gerais, Rio de Janeiro, and Paraná (Moreira et al. 2008; Queirolo et al. 2011; Rogério et al. 2013; Aximoff et al. 2015; Bereta et al. 2017; Xavier et al. 2017). This distribution expansion is directly associated to habitat fragmentation and the conversion of native Cerrado vegetation areas into pasture and agricultural lands (Myers et al. 2000; Klink & Machado 2005; Vynne 2014). Additionally, forest fragmentation and vegetation loss due to the expansion of agribusiness and encroaching urban occupation in the Atlantic Forest increased the number of open areas, favoring the occurrence of the maned wolf (Freitas et al. 2015; Xavier et al. 2017). However, coming closer to urban areas in search of food and territory increases the chances of conflicts with humans, collision with vehicles on highways, and facilitates infection with diseases from domestic dogs (Queirolo & Motta-Junior 2000).

On January 16, 2012, we found a female maned wolf victim of a vehicle collision on the Rio-Santos road, km 27.5, in the northern coast of the state of São Paulo (latitude -23.36197; longitude -44.94867; WGS-84; Fig. 1). After confirmation of death, the carcass was weighed (28 kg), and hairs, skin, and muscular tissue samples were collected, fixated in isopropyl alcohol, and frozen. The tissue samples and the carcass were deposited in the mammal collection of the Museu de Zoologia da Universidade de São Paulo under registry number MZUSP 35314.

This is the first record of maned wolf in the lowland area of the state of São Paulo. Previous records in the state were limited to montane areas (e.g., Serra da Bocaina National Park, Chiarello et al. 2008). Xavier et al. (2017) recently recorded *C. brachyurus* on the coastal areas of the state of Rio de Janeiro, considering it an invasive species in the northern coast of the state. However, given the long-term availability of natural open habitats in the region, Xavier et al. (2017) also considered the alternative hypothesis that the maned wolf population in Rio de Janeiro may be a relict. Our finding suggests that the “spillover” hypothesis, in which landscape modifications



caused by anthropic actions facilitate the dispersion of a species from one biome to another (Tschardt et al. 2012), is currently influencing maned wolf dispersal. However, we are unable to assess the probable causes that led this individual to use the road in the municipality of Ubatuba. Another important factor to consider is the large home range of the maned wolf (25–80 km²; Jácomo et al. 2009), and that it needs extensive open areas to forage (Dietz 1984; Rodrigues 2002). As other omnivores, maned wolves in search of food are attracted by garbage and carcasses. These can lead them to highways (Forman et al. 2003), facilitating the occurrence of accidents. According to Rodrigues (2002), deaths caused by motor vehicles are one of the most harmful anthropic pressures on small populations of *C. brachyurus*. The victims are mostly young individuals in the dispersion phase; in some populations, it is estimated that these accidents are responsible for the death of one third to half of the annual offspring (Rodrigues 2002).

Understanding the way in which fauna responds to anthropic changes in the landscape is important, especially in the case of vulnerable species such as the maned wolf. This knowledge could result in the implementation of mitigation measures to reduce the impact on fauna, and to the creation of conservation programs that take these factors into account.



Figure 1: Location in which the female of *Chrysocyon brachyurus* was found in the municipality of Ubatuba, São Paulo, Brazil. On the bottom right, the female found dead on the Rio-Santos road, km 27.5.

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