

# Mammalia, Myrmecophagidae, *Myrmecophaga tridactyla* (Linnaeus, 1758) and Cervidae, *Ozotoceros bezoarticus* (Linnaeus, 1758): Contribution to the knowledge of the historical distribution in Santa Catarina, southern Brazil

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**ABSTRACT:** The present study reports historical records of *Myrmecophaga tridactyla* and *Ozotoceros bezoarticus* from the north plateau of Santa Catarina state, southern Brazil, thus contributing to the knowledge about the distribution of these species. The possible causes of the extinction of *Ozotoceros bezoarticus* are also discussed as well as management tactics to conserve these species in southern Brazil.

Studies concerning the geographical distribution of mammals in southern Brazil are rare (Cáceres *et al.* 2007) and little available information is available regarding the current and historical occurrence of large species such as *Myrmecophaga tridactyla* (Linnaeus, 1758) and *Ozotoceros bezoarticus* (Linnaeus, 1758). According to Cherem *et al.* (2004), it is possible that *Myrmecophaga tridactyla* occurs in Santa Catarina state although there are no confirmed records as it was considered rare for this state in the early 20th century (Vieira da Rosa 1905 *apud* Cherem *et al.* 2004). *Ozotoceros bezoarticus* is confirmed to occur in Santa Catarina state (Cherem *et al.* 2004), and there are recent records of this species for the major grasslands of the state (Miranda *et al.* 2008; Mazzolli and Benedet, 2009).

In this study, historical records are reported for these two species, contributing to the knowledge of their geographical distribution in a grassland area of Santa Catarina state. In addition, possible causes for the extinction of *Ozotoceros bezoarticus* in the north plateau are discussed.

Data were collected during 10 visits between 2006 and 2008 in the Fazenda Campo Grande, located at municipalities of Rio Negrinho and Itaiópolis in the north plateau of Santa Catarina state, Brazil (26°39'13" S, 49°42'10" W, 908 m.a.s.l.). The ranch has a total area of 800 ha, and it has Araucaria Forest with natural grassland formations (Figure 1). As shown by the phytogeographical map of the state, the study area consists of Araucaria forest, however sometimes this vegetation type can be interrupted by grasslands (Klein 1978). The current status of this land is better described by Rupp *et al.* (2008).

The records were obtained through observation of biological material and interviews with officers and hunters, all local residents that have lived in the region for over 30 years.



**FIGURE 1.** Remaining area of native grassland at Fazenda Campo Grande, located in the municipalities of Itaiópolis and Rio Negrinho, Santa Catarina, southern Brazil.

In interviews, *Myrmecophaga tridactyla* was described as nocturnal and solitary. Its footprint was described by one interviewee as being similar to a child footprint. All this information is consistent regarding the available literature (*e.g.* Medri *et al.* 2006; Becker and Dalponte 1991). It was also reported by the cowboys, as being used for mounting equipment since its leather is considered durable.

*Ozotoceros bezoarticus* was described as a trophy animal in the region over the past century. The confirmation of this species in this location was made by a horn of an adult male (Figure 2), kept by a local hunter. Only local residents have reported the occurrence of this species for the region.

Regarding the status of *Myrmecophaga tridactyla* in Santa Catarina, it is considered extinct in the municipality of Três Barras (Cherem and Perez 1996) and also in all Santa Catarina state by Cimardi (1996). The occurrence

of this species in the studied region is dubious. However, because it is not only restricted to open habitats (Eisenberg and Redford 1999) and the region still contains large forested areas, it may be precipitated to consider *M. tridactyla* extinct, since it occurs in the neighboring states. In the state of Paraná, the species has two records in municipalities bordering the north plateau region of Santa Catarina (Margarido and Braga 2004) and the lack of recent records for Santa Catarina may be explained by biological factors such as low population density, consequently a low probability of detection, and limited number of studies involving mammals, particularly in grassland formations. Little is known about the natural history of *Myrmecophaga tridactyla* in southern Brazil and it is important to increase the studies about this species to support management tactics and strategies for its conservation (Braga 2003).



**FIGURE 2.** Horn of *Ozotoceros bezoarticus* hunted around the year 1975 in Fazenda Campo Grande, located in the municipalities of Itaipópolis and Rio Negrinho, Santa Catarina, southern Brazil.

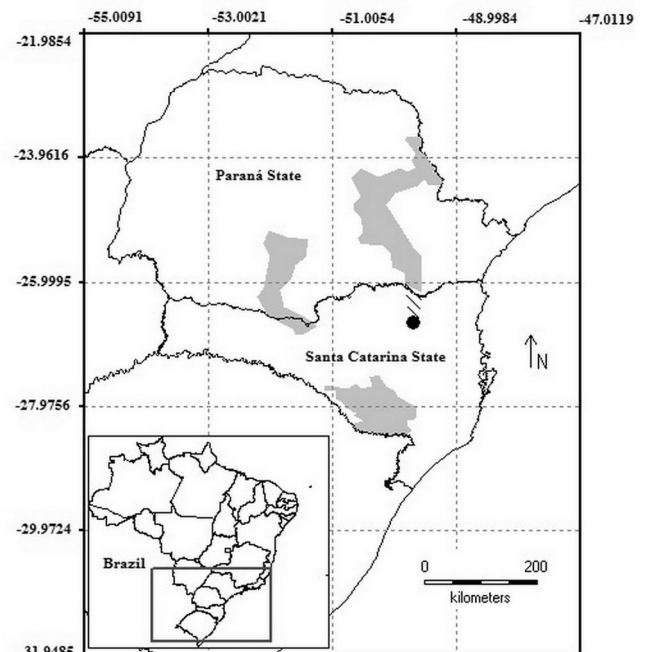
The historical records of *O. bezoarticus* presented in this study were confirmed in a relict of grasslands in Santa Catarina plateau, unlike other open areas with confirmed records of *O. bezoarticus*, as in the region of Coxilha Rica (Mazzolli and Benedet, 2009) and Campos de Palmas (Miranda *et al.*, 2008), which are extensive grassland formations. Based on data found in the literature (Braga 2001; Miranda *et al.*, 2008; Mazzolli and Benedet, 2009) overlapped with grassland areas in Santa Catarina and Paraná states, a map was elaborated showing the historical distribution of *O. bezoarticus*, including an increase in the distribution range due to the record found in this study (Figure 3).

*Myrmecophaga tridactyla* and *Ozotoceros bezoarticus* are considered critically endangered in the states of Rio Grande do Sul (Marques *et al.* 2002) and Paraná (IAP 2010). On a national scale, only *Myrmecophaga tridactyla* is considered an endangered species (MMA 2003), however Tiepolo and Tomas (2006) report that *Ozotoceros bezoarticus* is threatened in southern Brazil.

The reduction of their natural habitat followed by overhunting are threat factors for *Ozotoceros bezoarticus* (Braga *et al.* 2000) while the absence of native grassland and protected areas also contribute to the decline of this species in Santa Catarina (Mazzolli and Benedet 2009). According to local residents, this species was found in the region until the year 1975. Concerning the adult male for which the horn was kept, the local resident said it was the

last individual hunted in the region. Besides hunting, other factors such as habitat loss and the contagion of zoonosis from domestic animals may have contributed to the local extinction of this species.

According to Braga (2003) and Mazzolli and Benedet (2009), the application of a legislation through the implementation of legal reserves and non-use of permanent preservation areas may be fundamental for the maintenance of remnant populations of *Myrmecophaga tridactyla* and *Ozotoceros bezoarticus*. The creation of new protected areas, especially in areas with natural grasslands may contribute to the conservation of these species in southern Brazil.



**FIGURE 3.** Map showing the historical distribution of *Ozotoceros bezoarticus* for the states of Santa Catarina and Paraná. The distribution based on the studies of Braga (2001), Miranda *et al.* (2008) and Mazzolli and Benedet (2009) is highlighted in grey. Diagonal lines show the extension of the distribution proposed by the current study. The black circle represents the locality of the current record.

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