

## **PRELIMINARY SURVEY OF TERRESTRIAL MAMMALS IN A CONSERVATION UNIT – SETE PASSAGENS STATE PARK, BAHIA**

Rosana da Silva Peixoto

*Universidade do Estado da Bahia – UNEB, [rpeixoto@uneb.br](mailto:rpeixoto@uneb.br)*

### **Introdução**

The State Park of Sete Passagens is a conservation unit located in the Caatinga (semiarid scrub area), an endemic biome of northeastern Brazil. The area is recovering from antropogenic pressure due to agriculture and mining from two decades ago, being at present a sanctuary for wildlife. Nevertheless, its current faunal diversity is still unknown.

Biodiversity surveys are important to document patterns of species richness, diversity and composition in different areas, as well as in different forest conditions, in order to enable sound decisions regarding biodiversity conservation. Camera-trapping is an increasingly popular method to study biodiversity, especially wildlife. Despite that camera-trapping may be biased towards detecting mainly terrestrial species (Wilting et al., 2010), this technique has been shown to be highly effective in biodiversity surveys in areas where long term studies via direct observation and live-trapping are difficult for logistical reasons, such as remote and dense forest areas (Mohd-Azlan, 2006). This technique is also very effective for detecting wildlife that is rare, secretive or elusive, such as many mammal species (Bernard et al., 2012; Samejima & Semiadi, 2012; Bernard et al., 2013). Mammals are important taxa for study given that many species fill key ecological roles in the forest ecosystem, including predation, herbivory and seed dispersal, some of which can potentially influence forest regeneration and recovery (Nakashima et al., 2010). Some species are also excellent environmental bioindicators and their presence may reveal a good ecosystem conservation status.

Among the Caatinga protected areas, the Sete Passagens State Park (PESP) is one of the best preserved. At the time of its creation in 2000 it was still severely degraded by gold mining. Currently it is covered by a beautiful secondary forest with primary forest remnants, Forest patches, rocky fields, logged and seasonal forest creating a mosaic of ecosystems. Its location close to a priority conservation area called Morro do Chapéu, let us hypothesize that PESP was not included in the list of relevant areas of the biome due to the absence of systematic studies on the biodiversity in the region. The lack of studies became evident in the report of the "Project for Conservation and Sustainable Use of Brazilian Biological Diversity (PROBIO)" released in 2002.

Considering the relevance of the Caatinga as a unique bioma, and its high level of fragmentation, the goal of this study was to fill up gaps in current knowledge about the occurrence of mammal species in this conservation unit, through an inventory of terrestrial mammal species. This baseline information is necessary and very relevant once it contributes to knowledge about the distribution of mammals and is a first step towards the establishment of species conservation strategies (Costa *et al.* 2005; Ferregueti et al., 2014).

### **Method**

This study was carried out in the State Park of the Sete Passagens, located in the municipality of Miguel Calmon (11 ° 39'02 " S and 40 ° 53'16 " W) in the North of Chapada Diamantina. It belongs to the "Piemonte da Diamantina" Economic Region and comprises an area of 2,821 ha. The park is

located within the Caatinga, but includes areas of Atlantic Forest, rocky fields, logged and seasonal forest. The PESP is within the basin of the river Itapicuru, and has high quality water sources.

Two sampling methods were used, camera trapping and linear transect. The field work was conducted during the months of March to June 2016. Given the shortcomings of camera trapping to detect arboreal and small terrestrial mammals, we aimed at detecting medium to large-sized terrestrial mammals by this survey method. We used four automatic remote motion-triggered digital camera traps of two commercial brands (two Bushnell 12 mp; two Moultrie 10 mp). Six camera stations were positioned in areas that appeared to be frequently travelled by animals, according to the presence of mammal tracks and the experience of park guides. Two cameras were placed at each station for 15 consecutive days and were active during 24 hours per day. The cameras used either infrared or white flash at night, and were positioned facing one another at an average distance of 4 m allowing to detect individual identification marks. Cameras were set at high sensitivity to take three shots in quick sequence at each trigger with a time delay of 10 seconds between triggers.. Baits of bacon, banana, mango and wheat have been placed in the first day to attract mammals. The time and date of all photos were recorded automatically. Photographs of animals that could not be identified with certainty because of poor lighting, blurred photographs, or when only parts of the animals were caught by the camera were excluded.

A line transect was made every 15 days along the park trails during the camera installation. As visual observations of mammal are rare, indirect evidence such as parts of carcasses, feces, tracks and bones were collected and identified according specialized literature (Becker and Dalponte, 2013; Dias and Mikich, 2006). Direct observations by the Park guides were also incorporated into the data set.

## Results and Discussion

The total camera trapping effort summed up 7900 hours, but one of the cameras malfunctioned at the end of the study period. We recorded a total of 11 native mammal species belonging to 8 families and 6 orders. The most diverse order was Carnivora with 5 species and Didelphimorphia with 2 species (Table 1). Two felids recorded, Puma (*Puma concolor*) and Jaguar (*Panthera onca*), are classified as Vulnerable in the Red List of Brazilian mammals.

As expected, all species detected in the present survey were terrestrial mammals or arboreal mammals that spend at least some time on the ground. The Crab-eating fox (*Cerdocyon thous*) (Figure 1) was photographed in most of the stations and also with the highest photographic rate recorded. The Crab-eating Raccoon (*Procyon cancrivorus*) (Figure 1) and the Common Brown Brocket (*Mazama gouazoubira*) were photographed once each. The low number of mammal species recorded may be attributed to the study failing to cover a larger area and distributing camera traps over all representative habitats in the study area. Some mammal species may be restricted to specific habitat types and therefore could have been missed if that habitat type was not represented in the sampling (Bernard et al., 2014). But in spite of that, the identification of the listed species, especially the felids, in such a short time shows the importance of the PESP for the conservation of the habitat.

Field surveys will continue for a longer period to ensure that all major habitats are sampled in order to increase the probability of photo-capturing additional

species in the PESP so far undetected.

Table 1. List of mammal species identified in Sete Passagens State Park. PH (photo), DO (direct observation) and FE (feces).

Order	Family	Scientific Name	Common name	Record
<b>ARTIODACTYLA</b>	Cervidae	<i>Mazama gouazoubira</i> Fischer, 1814	Common Brown Brocket	PH
<b>CARNÍVORA</b>	Felidae	<i>Puma concolor</i> Linnaeus, 1771	Puma	DO
		<i>Panthera onca</i> Linnaeus, 1758	Jaguar	DO
	Canidae	<i>Cerdocyon thous</i> Linnaeus, 1766	Crab-eating Fox	PH/DO
	Procyonidae	<i>Procyon cancrivorus</i> , Cuvier, 1798	Crab-eating Raccoon	PH
<i>Nasua nasua</i> Linnaeus, 1766		South American Coati	FE	
<b>LAGOMORPHA</b>	Leporidae		Common Tapeti	FE
<b>PRIMATES</b>		Cebidae	<i>Sylvilagus brasiliensis</i> Linnaeus, 1758	Guianan Brown Capuchin
<b>RODENTIA</b>	Dasyproctidae	<i>Cebus apella</i> Linnaeus, 1758	Brazilian Agouti	DO
<b>MARSUPIALIA</b>	Didelphidae	<i>*Dasyprocta leporine</i> Linnaeus, 1758	White-eared Opossum	PH
		<i>Didelphis albiventris</i> Lund, 1840	Opossum	
		<i>Didelphis sp.</i>		

\*Previously designated as *D. aguti*

Figure 1. Recorded images of *Cerdocyon thous* (A) and *Procyon cancrivorus* (B) at Sete Passagens State Park

(83) 3322.3222  
contato@conidis.com.br

**www.conidis.com.br**



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