Original Article

# MEDIUM AND LARGE-SIZED MAMMALS OF A FRAGMENT OF CERRADO IN THE TRIÂNGULO MINEIRO REGION, SOUTHEASTERN BRAZIL

## *MAMÍFEROS DE MÉDIO E GRANDE PORTE DE UM FRAGMENTO DE CERRADO NA REGIÃO DO TRIÂNGULO MINEIRO, SUDESTE DO BRASIL*

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**ABSTRACT:** This work was developed to determine the species richness and composition of medium and large-sized mammals and to evaluate spatial and seasonal distribution of the more frequent of these species in a fragment of Cerrado. The fieldwork was conducted at the Gloria Experimental Farm, a property of the Federal University of Uberlândia, from August, 2008 to October, 2009. Four sample sites were investigated including three physiognomies: gallery forest, cerrado *sensu stricto* and semi-deciduous forest. The surveys were conducted during the day and mammals were recorded through direct (visualizations and vocalizations) and indirect (tracks, feces, bones and fur) evidences. A total of 18 species was recorded (seven Orders and fourteen families) and the majority of them was classified as medium mammals. The highest relative frequencies were registered for *Procyon cancrivorus*, *Dasypus novemcinctus*, *Myrmecophaga tridactyla* and *Chrysocyon brachyurus*. The gallery forest showed the highest species richness. However, most species roamed over several physiognomies, indicating a generalist use of habitat. There was no significant difference in the seasonal distribution of the majority of the analyzed species. *M. tridactyla*, *C. brachyurus*, *Lontra longicaudis* e *Pecari tajacu* are endangered mammal species in the State of Minas Gerais. We conclude that the study area has a representative mammalian fauna and great potential for conservation biology, as indicated by the presence of threatened species.

**KEYWORDS:** Mammal community. Inventory. Richness. Tracks.

## INTRODUCTION

The Cerrado, the second largest biome of Brazil, is considered one of the thirty-four biodiversity "hotspots" of the world (MITTERMEIER et al., 2005). Over the past 35 years, this biome has been gradually replaced by pastures and crops (KLINK; MACHADO, 2005). In the State of Minas Gerais, the Cerrado represents more than fifty percent of the land area. However, it has been deteriorated significantly (SCOLFORO et al., 2008). In addition, information on its biodiversity is sparse, indicating the need to investigate the flora and fauna (DRUMMOND et al., 2005).

Mammals are widely distributed in the Cerrado (FONSECA; REDFORD, 1984; LYRA-JORGE et al., 2010). In fact, the mosaic formation of this biome offers excellent conditions for studies of habitat use by these animals. It is thought that complex habitats (forests) shelter a wide variety of mammals as opposed to open habitats, due the number of niches (AUGUST, 1983; SANTOS-FILHO; SILVA, 2002).

The remnants of Cerrado, in Triângulo Mineiro region, are limited to small areas that, individually, do not exceed 100 hectares (CAVALCANTE; JOLY, 2002). Although there has been some research in the area (BELENTANI, 2005 a and b; BRUNA et al., 2010; AZEVEDO; LEMOS, 2012), there is a little knowledge about medium and large-sized mammals composition and distribution in the region. The Cerrado, has, however, been classified as an area of potential biological importance (DRUMMOND et al., 2005). In this context, the present study was developed to determine the species richness and composition of medium and large-sized mammals in a fragment of Cerrado, located in the municipal region of Uberlândia and to evaluate spatial and seasonal distribution of the more frequent species.

## MATERIAL AND METHODS

### Study area

The Gloria Experimental Farm (GEF), belonging to Federal University of Uberlândia, is located in the municipal region of Uberlandia, State of Minas Gerais (18°57' S e 48°12' W), in Triângulo Mineiro region. With an area of 680 hectares, the farm is bordered by two highways (BR-365 and BR-050), as well as rural agricultural development and expanding urban sprawl. A majority of the area of GEF is used for pasture and



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agriculture land. Other activities include fish and frog culture and poultry production. The climate of region is classified as Cwa, according to the Köppen classification (humid subtropical). It is characterized by dry winters (April to September), and rainy summers (October to March) (ROSA et al., 1991).

Four samples sites, characterized by native vegetation or secondary regeneration of vegetation were selected. These sites include three physiognomies of the Cerrado: gallery forest (N=2), cerrado *sensu stricto* (N=1) and semi-deciduous forest (N=1) based on Ribeiro; Walter's classification (1998) (Figure 1). It should be noted that cattle frequently pass through the gallery forest in search of water.

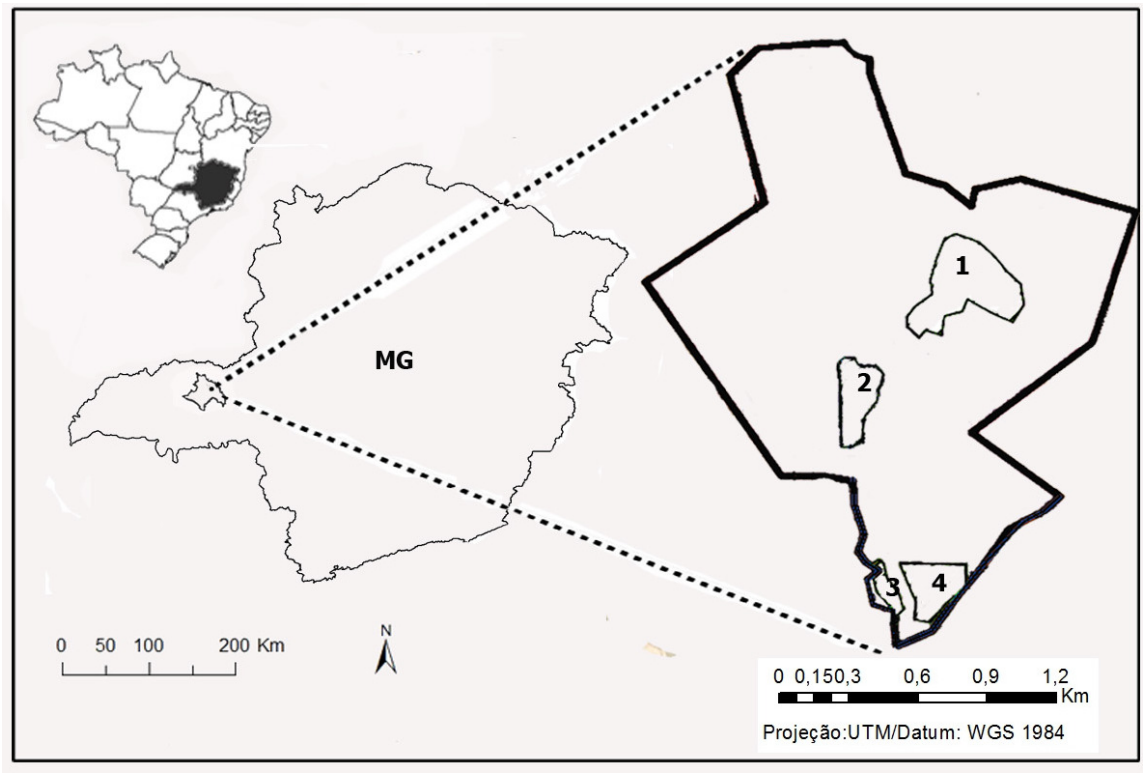


**Figure 1.** Localization of the municipality of Uberlândia, State of Minas Gerais, showing the Gloria Experimental Farm and sample sites: 1. semi-deciduous forest; 2 e 3. gallery forest and 4.cerrado *sensu stricto.*

**Sampling**

The data were collected from August, 2008, to October, 2009, totaling 320 hours of sample effort (80 hours per site). One hundred nineteen visits were conducted, beginning at 7:30 am. Each visit lasted a minimum of two hours. Samples were not taken at night. Trails, into and around the sample sites, were investigated on foot. At each site, we established the longest irregular transect possible, limited by topography and the size of the habitat patches, totaling 143,51 km traversed.

Mammals were recorded through direct (visualization and vocalizations) and indirect (tracks, feces, bones and fur) observations. In the semi-deciduous forest, wherein the litter complicates the identification of footprints, we used a supplementary method. This technique consisted in the localization of sand plots along the trails (DIRZO; MIRANDA, 1990). Thirteen plots (50X50 cm) were mounted maintaining a minimum distance of 50 meters from one to the next. Each was filled with three centimeters of sand. The thirteen sand plots were divided among three transects localized in semi-deciduous forest. After inspections, the parcels were cleaned and sand churned to permit new tags.

Tracks were measured, catalogued photographically and molded in fast drying plaster casts for later identification with the help of field guides (BECKER; DALPONTE, 1991; MAMEDE; ALHO, 2008). To avoid overestimating a relative frequency, footprints observed in the same day in each trail were treated as a single record.

The classification of medium and large-sized mammals was based on the body mass of adults presenting more than 1 kg (EMMONS,

1987). The taxonomic nomenclature followed Gardner (2008) for the marsupials and xenarthrans and Wilson; Reeder (2005) for the other mammals. The species were also classified in trophic categories based on Reis et al. (2006).

The distribution of medium and large-sized mammals found in GEF was based on the presence or absence of the species in the sample sites. The relative frequency of recorded medium and large size mammals was calculated based on Crooks' (2002) model. Data from the semi-deciduous forest were not included in this analysis because the impossibility to map trails continuously due to litter accumulation.

The use of vegetation physiognomies by the most frequent species was analyzed using the relative frequency recorded. In this manner, possible associations between environmental characteristics and the presence of these species were identified. A description of the sampled habitats includes environmental characteristics: canopy cover, canopy height, distance from the center of the plot to the nearest body of water and the presence or absence of lianas and grasses. Five plots of 25 $m^2$ were established with some reduction in number on trails shorter than 250 m. In total, 58 plots, 50 m apart, were chosen randomly along the trail (left or right sides). The canopy cover was measured with the aid of a hand-held spherical densiometer and canopy height was estimated with the help of a bamboo rod of one meter in length. The center point of each plot was georeferenced (latitude and longitude) with GPS Garmin Etrex® and the distance from plot center to nearest water was obtained by analysis of satellite images from Google Earth®. The presence or absence of lianas and grasses were categorized as absent (1); variations between 1 and 25% (2); variations between 25 and 50% (3); variations between 50 and 75% (4) and variations between 75 and 100% (5). The environmental characterization of the sampled vegetation types can be found in Table 1.

**Table 1.** Environment characteristics (canopy cover, canopy height, distance from water, presence or absence of liana and grasses) sampled in Gloria Experimental Farm. The values correspond to the mean (± standard deviation). SM- semi-deciduous forest; C- cerrado *sensu stricto*; GF- galerry forest.

| Caracteristics | SM | C | GF |
|---|---|---|---|
| Canopy cover (%) | 0.93 (0.03) | 0.24 (0.22) | 0.92 (± 0.05) |
| Canopy height (m) | 18.85 (4.43) | 2.87 (2.02) | 14.5 (± 5.37) |
| Distance to water (m) | 95.52 (95.67) | 129.17 (67.65) | 21.70 (± 14.53) |
| Lianas | 4 | 1 | 5 |
| Grasses | 3 | 5 | 2 |

**Data Analysis**

The Boostrap Method (SMITH; VAN BELLE, 1984) was used to assess the estimated richness of medium and large species with 1,000 randomizations. To verify the quality of the sampling, a rarefaction curve of the farm as a whole was conducted (also randomized 1,000 times). Each visit was considered a sample. In order to develop these curves we used the data lumped from all methods. The EstimateS 7.5 program (COLWELL, 2005) was used to generate these curves.

Chi-square ($\chi^2$) for goodness of fit was planned to compare the distribution of the number of records of species between the rainy season and dry season. This analysis took into account only data collected in the last eight months of the study (four months during the rainy season and four months in the dry season), using the BioEstat 5.0 program (AYRES et al., 2007). A small number of register (less than five) for the majority of the mammals, made it impossible to apply Chi-square (ZAR, 1999). This analysis was applied for the following species: *Dasypus novemcinctus*, *Myrmecophaga tridactyla*, *Chrysocyon brachyurus*, *Procyon cancrivorus, Pecari tajacu* e *Lontra longicaudis*. The level of significance for the tests conducted was $p < 0.05$.

## RESULTS AND DISCUSSION

Eighteen species of wildlife mammals were recorded in GEF (seven Orders and 14 families) (Table 2). Of these species, ten were medium size mammals, six were large and the presence of *Lutreolina crassicaudata* and *Callithrix penicillata*, small mammals, was also recorded. This richness represents approximately thirty-five percent of the medium and large-sized species recorded in the Cerrado biome (MARINHO-FILHO et al., 2002; PAGLIA et al., 2012), placing in evidence the relevance of the study area for the occurrence of wildlife mammals in the municipal region of

Uberlândia. The occurrence of *Lycalopex vetulus*, a canid considered endemic for the Cerrado, was especially notable (MARINHO-FILHO et al., 2002).

**Table 2.** Mammals recorded at the Gloria Experimental Farm, Uberlândia, Minas Gerais, showing the type of record, diet (based in REIS et al., 2006) and threatened status in the State (DELIBERAÇÃO NORMATIVA COPAM, 2010), national (CHIARELLO et al., 2008) and worldwide (IUCN, 2011). Notes: 1.Type of record: t – tracks, vi – visualizations, b – bones, vo – vocalizations, f – faeces; 2. Environment: C- cerrado *sensu stricto*, GF- gallery forest; SM- semi-deciduous forest; 3. Diet: fr – frugivorous, on – omnivorous, in – insectivorous, fo – folivorous, ca – carnivorous, he- herbivorous; 4. Status of threat: DD – deficient on data, NT – near threatened, VU – vulnerable, EN- endangered and CR – critically endangered. Common name were based in Paglia et al., 2012.

| Taxa | Common name | Register[1] | Environment[2] | Diet[3] | Conservation Status[4] | | |
|---|---|---|---|---|---|---|---|
| | | | | | MG | BR | IUCN |
| **DIDELPHIMORPHIA** | | | | | | | |
| **Didelphidae** | | | | | | | |
| *Didelphis albiventris* Lund, 1840 | Opossum | t | C-GF | fr-on | - | - | - |
| *Lutreolina crassicaudata* (Desmarest,1804) | Lutrine Opossum | t | GF | on | - | - | - |
| **PILOSA** | | | | | | | |
| **Myrmecophagidae** | | | | | | | |
| *Myrmecophaga tridactyla* Linnaeus, 1758 | Giant Anteater | t-vi-f | C-GF | in | VU | VU | VU |
| **CINGULATA** | | | | | | | |
| **Dasypodidae** | | | | | | | |
| *Dasypus novemcinctus* Linnaeus, 1758 | Nine-Banded Armadillo | t | SM-C-GF | on-in | - | - | - |
| *Euphractus sexcinctus* (Linnaeus, 1758) | Six-Banded Armadillo | t-b | C | on | - | - | - |
| **PRIMATES** | | | | | | | |
| **Cebidae** | | | | | | | |
| *Callithrix penicillata* (É. Geoffroy, 1812) | Black-Tufted Marmoset | vi | GF | on | - | - | - |
| **Atelidae** | | | | | | | |
| *Alouatta caraya* (Humboldt, 1812) | Howler Monkey | vi-vo | SM-GF | fo-fr | - | - | - |
| **CARNIVORA** | | | | | | | |
| **Canidae** | | | | | | | |
| *Chrysocyon brachyurus* (Illiger, 1815) | Maned Wolf | t-f | C | on | VU | VU | NT |
| *Cerdocyon thous* (Linnaeus, 1766) | Crab-Eating Fox | t | SM-C-GF | on | - | - | - |
| *Lycalopex vetulus* (Lund, 1842) | Hoary Fox | t | C-GF | in-on | - | - | - |
| **Procyonidae** | | | | | | | |
| *Procyon cancrivorus* (G. Cuvier, 1798) | Crab-Eating Raccoon | t | SM-C-GF | on | - | - | - |
| **Felidae** | | | | | | | |
| *Puma yagouaroundi* (É. Geoffroy Saint-Hilaire, 1803) | Jaguarundi | t-vi | C-GF | ca | - | - | - |
| **Mustelidae** | | | | | | | |
| *Lontra longicaudis* (Olfers, 1818) | River Otter | f-t | GF-C | on | VU | - | DD |
| **Mephitidae** | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Conepatus semistriatus* (Boddaert, 1785) | Hog-Nosed Skunk | t | C | on | - | - | - |
| **ARTIODACTYLA** | | | | | | | |
| **Tayassuidae** | | | | | | | |
| *Pecari tajacu* (Linnaeus, 1758) | Collared Peccary | t-f | SM-GF | on | VU | - | - |
| **Cervidae** | | | | | | | |
| *Mazama goauzoubira* (G. Fischer, 1814) | Brown Brocket Deer | t | C-GF | fr-he | - | - | - |
| **RODENTIA** | | | | | | | |
| **Caviidae** | | | | | | | |
| *Hydrochoerus hidrochaeris* (Linnaeus, | Capybara | t-b | SM-GF | he | - | - | - |
| **Dasyproctidae** | | | | | | | |
| *Dasyprocta azarae* Lichtenstein, 1823 | Agouti | vi-t | SM | he | - | - | DD |
| **TOTAL** | **18** | | | | **04** | **02** | **04** |

The sample effort approached the asymptote after 90 visits and the estimated species richness was 16.19 species (SD= 0.03) (Figure 2). This rarefaction curve suggests that the sampling was appropriate to survey medium and large-sized mammals of the GEF. Fifteen species were identified by footprints and only five were visualized. The use of footprints in surveys of mammals has advantages over the method of linear transects (CARRILLO et al., 2000).

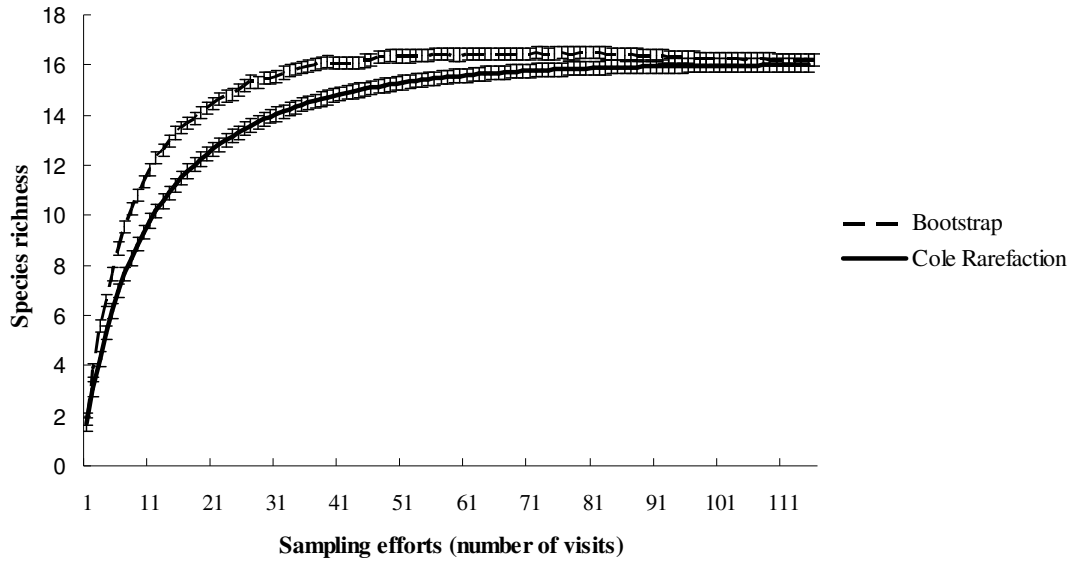


**Figura 2.** Rarefaction curve and curve obtained by Bootstrap from the sampling effort (number of visits) of medium and large sized mammals for the Gloria Experimental Farm, MG. Vertical lines represent the standard deviation.

The Carnivora Order showed the highest richness (seven species) at the GEF. According to Paglia et al. (2012), Rodentia, Chiroptera, Primates and Didelphimorphia are responsible for 84% of the species occurring in the country, followed by Carnivora. In the Cerrado biome, we can found 21 of the 25 carnivore species occurring in the country, excluding the marine families Otariidae and Phocidae (PAGLIA et al., 2012). Other studies have indicate Carnivora as the richest Order of mammals in the Cerrado (RODRIGUES et al., 2002; BOCCHIGLIERI et al., 2010). The prevalence of carnivores in the fragments of the GEF may be the result of the great mobility of the majority of the species since they are generalists in the use of their

habitats and are able to explore anthropogenic environments (LYRA-JORGE et al., 2010).

The mammalian fauna of the GEF includes mainly omnivore species (Table 2). Chiarello (2000) has suggested that a more flexible diet contributes to the survival of animals where agriculture is predominant. Gheler-Costa (2002) proposed that agricultural land that is degraded harbors more omnivore species and more herbivores, as opposed to frugivores and carnivores, given that the last ones need larger areas in which to forage. Additionally, many of omnivorous species recorded in this study had fruit in their diets, favoring the dispersion process in the area. As examples, canids, *Chrysocyon brachyurus* and *Cerdocyon thous* have diets with a predominance of vegetable matter due to the large amount of fruit eaten (JUAREZ; MARINHO- FILHO, 2002). This is also true for *Callithrix penicillata* and *Pecari tajacu* (KEUROGHLIAN; EATON, 2008). The consequent dispersal and frugivory are positive for mammalian and plant. They prevent medium and long term depletion of plant communities and promote the maintenance of diversity among vertebrates (RODRIGUES et al., 2002; MARINHO-FILHO et al., 2002).

A total of 239 records were completed at the GEF and 75% of these records (N=178) were obtained from footprints. *Procyon cancrivorus*, *Dasypus novemcinctus*, *Myrmecophaga tridactyla, Chrysocyon brachyurus and Mazama goauzoubira* presented the highest relative frequencies, while the most infrequent species were *Conepatus semistriatus*, *Euphractus sexcinctus* and *Lycalopex vetulus* (Table 3). Five species were visualized (*Alouatta caraya*, *Callithrix penicillata*, *Dasyprocta azarae*, *Myrmecophaga tridactyla* and *Puma yagouaroundii*) (Table 2). The possible occurrence of three other mammal species (*Leopardus pardalis*, *Tamandua tetradactyla and Coendou prehensilis*) was mentioned by workers and residents of the GEF. These species were not included in the list. Only dogs and cattle's tracks were registered in sand plots localized in semi-deciduous forest.

**Table 3.** Relative frequency of mammals species recorded by tracks in physiognomies of Cerrado at the Gloria Experimental Farm, Uberlândia, Minas Gerais. NR= number of records; NRWS= number of records in wet season; NRDS= number of records in dry season; FR= relative frequency; FRWS= relative frequency in wet season; FRDS= relative frequency in dry season; C= cerrado *strictu sensu*; GF= gallery forest. NR indicates the total number of tracks records in the study.

| **Species** | **NR** | **FR (%)** | | **NRWS** | **FRWS (%)** | | **NRDS** | **FRDS (%)** | |
|---|---|---|---|---|---|---|---|---|---|
| | | C | GF | | C | GF | | C | GF |
| *Didelphis albiventris* | 4 | 1.0 | 4.0 | 1 | - | 3.8 | 1 | - | 2.6 |
| *Dasypus novemcinctus* | 27 | 3.9 | 31.1 | 16 | 7.9 | 50.0 | 9 | 1.8 | 21.1 |
| *Euphractus sexcinctus* | 3 | 2.9 | - | 2 | 5.3 | - | 1 | 1.8 | - |
| *Myrmecophaga tridactyla* | 18 | 16.4 | 1.4 | 3 | 7.9 | - | 11 | 19.6 | - |
| *Chrysocyon brachyurus* | 15 | 14.4 | - | 6 | 15.8 | - | 8 | 14.3 | - |
| *Cerdocyon thous* | 8 | 5.8 | 2.7 | 3 | 5.3 | 3.8 | 5 | 7.1 | 2.6 |
| *Lycalopex vetulus* | 3 | 1.9 | 1.4 | 1 | 2.6 | - | 2 | 1.8 | 2.6 |
| *Procyon cancrivorus* | 54 | 29.8 | 31.1 | 24 | 44.7 | 27.0 | 25 | 17.9 | 39.5 |
| *Puma yagouaroundi* | 5 | 4.8 | - | 0 | - | - | 5 | 8.9 | - |
| *Lontra longicaudis* | 7 | 1.0 | 8.1 | 0 | - | - | 6 | 1.8 | 13.2 |
| *Conepatus semistriatus* | 2 | 1.9 | - | 0 | - | - | 2 | 3.6 | - |
| *Pecari tajacu* | 4 | - | 5.4 | 1 | - | 3.8 | 2 | - | 5.3 |
| *Mazama gouazoubira* | 19 | 16.4 | 2.7 | 5 | 10.5 | 3.8 | 13 | 21.4 | 2.6 |
| *Hydrochoerus hidrochaeris* | 9 | - | 12.1 | 2 | - | 7.8 | 4 | - | 10.5 |
| **Total NR** | **178** | | | **64** | | | **94** | | |
| **NR/sample sites** | | **104** | **74** | | **38** | **26** | | **56** | **38** |

The highest relative frequency of *Procyon cancrivorus* at the GEF (Table 3) can be explained by the fact that these animals travel great distances (ARISPE et al., 2008). Thus, one or only a few

individuals may be responsible for the tracks found at the GEF. The expressive frequency of records of *Dasypus novemcinctus* can be explained by the wide distribution of this species and by the fact that it is a generalist, thus taking advantage of crops grown in the area to supplement its diet (CHIARELLO, 2000). *Chrysocyon brachyurus* and *Myrmecophaga tridactyla* species also presented high relative frequencies, probably because they move actively in search of food and have large home ranges (COELHO et al., 2008; LYRA JORGE et al., 2010). In general, the higher relative frequencies recorded for *P. cancrivorus*, *C. brachyurus* and *M. tridactyla* may have resulted from the displacement of these animals between the sample sites and other areas within GEF and its surroundings. These areas were not involved in the research due to the mosaic composition and small size of the habitat patches, which have different availabilities of resources.

Fifty percent of the recorded species were found both in the forest and in the cerrado; 33.3% were found only in the forests and 16.7% only in the cerrado (Table 2). These results suggest that the mammal fauna of medium and large size of the GEF are predominantly generalist species in terms of habitat selection. Although usually a habitat generalist, *D. novemcinctus* was found more frequently in the gallery forest vegetation, which was in proximity to bodies of water and characterized by higher levels of humidity. Goulart et al. (2008) found that *D. novemcinctus* prefer to inhabit areas with wet soils. Possibly this feature facilitates the foraging of this species. At the GEF, both *C. brachyurus* as *M. tridactyla* were more frequently found in the cerrado *sensu stricto*, probably due to their foraging behavior (MOURÃO; MEDRI, 2007; COELHO et al., 2008). These animals search for food in clear areas, where food is more abundant due the presence of termites and rodents.

The species *Chrysocyon brachyurus*, *Conepatus semistriatus, Euphractus sexcinctus*, *Callithrix penicillata* and *Dasyprocta azarae* were found in only one of the physiognomies analyzed. The first three species were recorded in the cerrado *sensu stricto,* while *C. penicillata* was found in the gallery forest and *D. azarae* in the semi-deciduous forest. On the other hand, *Cerdocyon thous*, *Dasypus novemcinctus* and *Procyon cancrivorus* occurred in all of the physiognomies.

The highest richness of species were found in the gallery forest (N= 14; Table 2). *Dasypus novemcinctus* showed the highest frequency of records in the gallery forest, an environment closest to bodies of water (Tables 1 and 3), while *Myrmecophaga tridactyla* and *Chrysocyon brachyurus* had higher frequencies of records in cerrado *sensu stricto* (Table 3), a habitat that differs from others in that it has less coverage and lower canopy height (Table 1). Although *C. brachyurus* was not recorded in the forest fragment in the study area, fur of this species was found in a gallery forest area of a neighboring farm. *Procyon cancrivorus* used both the cerrado as the gallery forest with similar relative frequencies, although there were variations in the use of physiognomies depending on the seasons (Table 3). Some species of mammals have been found to demonstrate a preference for specific habitats while others, generalists, are amply distributed throughout the Cerrado (SANTOS-FILHO; SILVA, 2002). The results of the present study support this finding. The majority of recorded species represented generalists and opportunists and were found in more than one physiognomy of the GEF.

The presence of a large numbers of mammals species in the gallery forest has been noted in other studies dealing with mammalian fauna distribution in different physiognomies of the Cerrado (FONSECA; REDFORD, 1984; JOHNSON et al., 1999). This finding can be explained by the presence of species restricted to this habitat as well as the presence of generalist species seeking shelter, water and foraging areas in this environment.

There were no differences in distribution between the dry and wet season ($p > 0.05$) for *C. brachyurus*, *D. novemcinctus*, *M. tridactyla*, *P. cancrivorus, P. tajacu*. However, the presence of *L. longicaudis* was prevalent during dry season ($\chi^2 = 7.14$; GL = 1; $p = 0.02$). Rocha et al. (2006) also found no significant differences in seasonal abundance of most mammals species recorded in a study conducted in the State of Mato Grosso. However, the result found to *D. novemcinctus* was different than evidenced in this study. Rocha et al. (2006) recorded greater abundance of *D. novemcinctus* in rainy season. This difference among the studies can be related to population density of each site.

A uniform pattern of distribution has been reported for *Chrysocyon brachyurus* and *Myrmecophaga tridactyla*, being related with high mobility and specific behavior in terms of environment exploration (REDFORD; FONSECA, 1986, MOURÃO; MEDRI, 2007). The differential distribution pattern of *Lontra longicaudis* between seasons is associated to the physical characteristics of the gallery forest. This environment has superficial groundwater and generally floods during

the rainy season (RIBEIRO; WALTER, 1998), thus it was not possible to locate faeces or footprints. On the other hand, in the dry season the dry soil makes it possible to locate traces of this species. In conformity with Brandt (2004), working in coastal areas, this species was recorded throughout the year in the same sites, reflecting its territorial behavior.

Of the recorded species, four are threatened in the State of Minas Gerais (DELIBERAÇÃO NORMATIVA COPAM, 2010). Two species, *Myrmecophaga tridactyla* and *Chrysocyon brachyurus*, are "vulnerable" in Brazil. A worldwide basis (IUCN, 2011) the same two species are classified as being "vulnerable" and "near threatened", respectively (Table 2).

Approximately one third of the species recorded in the GEF are threatened. These species represent 20.7 percent of the endangered mammals species of the entire state of Minas Gerais (DELIBERAÇÃO NORMATIVA COPAM, 2010). Chiarello et al. (2008) has suggested that the principal threats to mammalian fauna are the destruction and loss of habitat, road kill, fires, agricultural contaminants released in the environment and, for some groups, such as carnivores, the extensive home ranges and reduced population density.

This survey, in conclusion, suggests that the GEF harbors a considerable richness of mammalian fauna, although lacking top predators, it has a great biological potential for conservation due to the presence of species that are threatened. These results provide support for the hypothesis that many of the Cerrado mammal species may be able to persist in landscapes that are a mosaic of natural areas and agriculture. Consequently, the distribution of mammals species in diverse vegetation formations and the preference for certain environments by some species indicate the need to conserve the mosaic physiognomy of the Cerrado that is still a part of the GEF, in order to preserve wildlife species and the accompanying bio-ecological processes.

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**RESUMO** Este trabalho foi desenvolvido para determinar a riqueza de espécies e composição de mamíferos de médio e grande porte e avaliar a distribuição espacial e temporal das espécies mais freqüentes em um fragmento de Cerrado. O trabalho de campo foi conduzido de Agosto de 2008 a Outubro de 2009, na Fazenda Experimental Gloria, uma propriedade da Universidade Federal de Uberlândia. Quatro sítios de amostragem foram investigados, incluindo três fito-fisionomias: mata de galeria, cerrado *sensu stricto* e floresta semi- decídua. Os registros foram realizados durante o dia e mamíferos foram registrados através evidência direts (visualizações e vocalizações) e indiretas (trilhas , fezes , ossos e pele ). Um total de 18 espécies foi registrado (sete ordens e quatorze famílias), sendo a maioria delas classificada como mamíferos de médio porte. As maiores freqüências relativas foram registradas para *Procyon cancrivorus*, *Dasypus novemcinctus*, *Myrmecophaga tridactyla* e *Chrysocyon brachyurus*. A mata de galeria a maior riqueza de espécies. No entanto, a maioria das espécies percorria várias fisionomias, indicando um uso generalista de habitat. Não houve diferença significativa na distribuição sazonal da maioria das espécies analisadas. *M. tridactyla*, *C. brachyurus*, *Lontra longicaudis* e *Pecari tajacu* são espécies ameaçadas de mamíferos no Estado de Minas Gerais. Conclui-se que a área de estudo tem uma fauna de mamíferos representativa e grande potencial para conservação biológica, como indicado pela presença de espécies ameaçadas.

**PALAVRAS-CHAVE:** Comunidades. Inventário faunístico. Riqueza. Pegadas.

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