The Lowland Tapir in the Caraça Reserve, Minas Gerais State, Brazil: Preliminary Results

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Abstract

Due to hunting and habitat destruction, the lowland tapir, *Tapirus terrestris*, is now endangered over much of its range. This paper presents the preliminary results of a study of the distribution and relative abundance of tapirs, using track surveys and camera traps, in the Private Natural Heritage Reserve, Serra do Caraça. By monitoring footprints it was observed that *T. terrestris* apparently occupies all habitat types in the study area. Five photographic records of tapirs were obtained from camera traps, thus representing a capture success of 6.5% and Relative Abundance Index (RAI) = 2.71. No photographic records were obtained during the day and most were during the period from 20:00 to 24:00 hours. Some photographic records were damaged by the dense mist, an effect usually observed in the coldest, driest months of the year. Despite the short monitoring period, the results presented here reinforce the importance of the reserve as a refuge for wild tapir stocks.

Introduction

The tapir, *Tapirus terrestris*, is the largest terrestrial mammal in Brazil, with a length of around 2 meters and weight of 250 kg (Emmons & Feer 1997). Due to its herbivorous diet, the tapir plays an important role in the maintenance of vegetation, being an important seed disperser in its habitat (Olmos 1997). The tapir is threatened in a large part of its range, with several cases of local extinction caused by hunting and habitat destruction. Habitat destruction is principally responsible for the decline of the populations in the state of Minas Gerais (Costa 1998).

The efficiency of track surveys (Naranjo 1995; Affonso 1998) and camera traps (Holden 2003; Noss *et al*. 2003) in estimating tapir populations has been demonstrated previously. These data, therefore, represent the preliminary results of a study of the distribution pattern of *Tapirus terrestris* in the Private Natural Heritage Reserve, Serra do Caraça.

Study Area

The Private Natural Heritage Reserve, Serra do Caraça (10,187.89 ha), is located in the southern portion of the Espinhaço mountain range (20º05' S; 43º29' W), Minas Gerais State, Brazil. This orographic system is represented by a mountainous complex that delineates a zone of contact between the "Cerrado" (savannas) and the Atlantic Forest, in its southern portion, and transition zones of "Cerrado", Atlantic Forest, and "Caatinga" (tropical deciduous forest), at its central and northern edges (Giulietti & Pirani 1988; Harley 1955; Giulietti *et al.* 1997). The reserve comprises three main types of vegetation represented by seasonal semi-deciduous forests, "campos de altitude" (high altitude grasslands), and "campos rupestres" (rocky grasslands), which occur at elevations of between 850 and 2,072 m. The regional climate is rainy in summer (October-March) and dry in winter (April-September) with mild temperatures throughout the year (18º to 19º C). The maximum temperature rarely surpasses 30º C and the minimum temperature can reach negative values. "Campos rupestres" consist of grasslands surrounded by rocky outcrops, as well as shrubs and small trees (Fig. 1). Vegetation patches in different stages of ecological succession are present in the region as a consequence of timber extraction and the "slash-and-burn" practice used in the past. The reserve represents a rich artistic, cultural and historical heritage resulting from over two centuries of human occupation (Andrade 2000).

Methods

To investigate the distribution of *T. terrestris* in the reserve, footpaths, roads and watercourses were surveyed from April to August 2003 recording footprints indicating tapir presence in the area. Geographic coordinates of tracks were recorded using UTMs (Universal Transverse Mercator), with GPS Garmin II, in the locations where footprints were encountered. Each location in the study area was sampled just once per month, to ensure independence of samples (Swihart & Slade 1985). After collection, all of the footprints were erased to avoid multiple recordings.

The coordinate was then plotted on a map of the study area, scale 1:10,000, with the different vegetation types, topography and hydrology. The data was analysed using the programme Arcview 3.2 (Environmental Systems Research Institute, ESRI, Redlands, California, USA).

Camera trap monitoring was carried out between April and September 2003 with a sampling effort of 184 trap days, using only two camera traps in the two last sampling efforts. The camera-traps were located in a trail near the forest

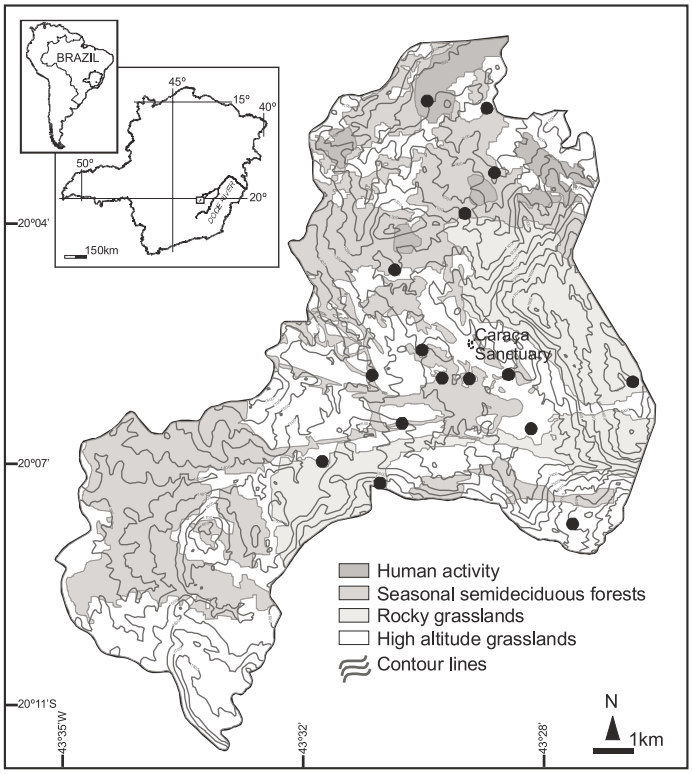

Figure 1. Map of the distribution of Tapirus terrestris tracks in the Private Natural Heritage Reserve Serra do Caraça, Minas Gerais State, Brazil.

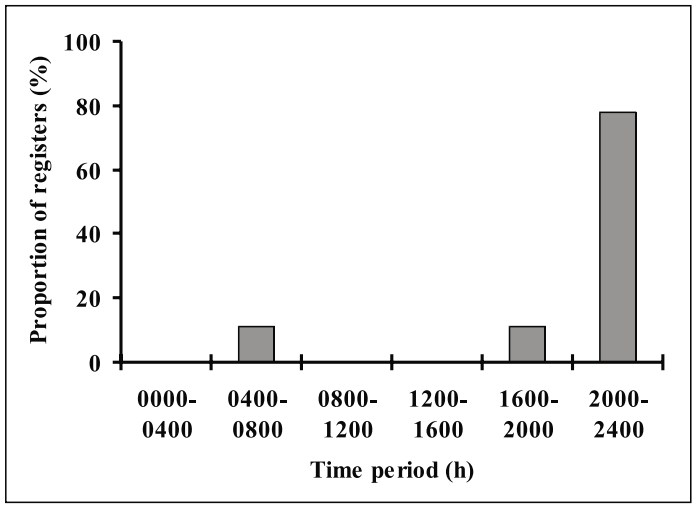

Figure 2. Preliminary results of activity patterns for T. terrestris according to camera-traps in Reserve Serra do Caraça.

edge. To calculate the success rate of capture and Relative Abundance Index (RAI) we considered an effective recording to be a photo of an animal in a camera trap during a 24-hour period. Sequential photographs of the same individual were excluded. RAI was calculated as the total number of tapir photos X 100/total number of cameras/nights (TEAM Protocol; Center for Applied Biodiversity Science, 2002).

Results and Discussion

Track surveys have revealed that *T. terrestris* apparently occupies all of the habitat types in the study area (Fig. 1). The different types of vegetation and, principally, the abrupt variations in relief do not appear to restrict the movement and habitat use of tapirs in the Serra do Caraça Reserve. The use of track surveys to assess the distribution pattern of species can be hindered by various factors such as terrain type, rain intensity and the movements of humans.

Five effective photographic recordings of tapirs were obtained from the camera traps, with a capture success rate of 6.5% and RAI = 2.71. No recording was obtained during the day (06:00-18:00 h) and most were during the period 20:00-24:00 h (Fig. 2). The tapirs appear to have exclusively nocturnal habits – perhaps due to the large number of tourists who visit the area.

Two individuals were recorded (an adult female and a sub-adult) in the same capture station, on different days (Fig. 3a,b). Some photographic records were damaged by dense mist in the locations of capture stations (Fig. 4), an effect usually observed in the coldest, driest months (June - July). Despite the short sampling period, the results presented here reinforce the importance of the reserve as an essential refuge for fauna, particularly as all of the surrounding area is occupied and degraded (principally by mining activities, common in all areas south of the mountain range of Espinhaço). Therefore, studies of long duration, with a larger number of camera traps or using radio-telemetry, should be conducted to generate information on the population status of tapirs in the Serra do Caraça Reserve. This will supply sufficient information to guide management decisions and aid the conservation of species in the mountainous regions of Minas Gerais State.

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Figures 3. (a) Picture of an adult female individual of lowland tapir;

(b) a sub-adult individual captured on film by the same camera-trap.

Figure 4. Picture of a lowland tapir, in dense mist, taken by a camera-trapping system.

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