THE FRAGMENTED ATLANTIC FOREST, RIO DE JANEIRO, BRAZIL: LANDSCAPE MOSAICS AND MAMMAL POTENTIAL OCCURRENCE.

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1. Introduction

In southeastern Brazil the former intense use of soil for coffee plantation and the present increase of exotic forests and pastures lead to Atlantic forest degradation. Consequence of such processes is an intensive forest fragmentation and natural habitat reduction to several mammal species of medium to great body size. Regarding mammal fauna the study area (Paraíba do Sul and Capivari river basins) is still incomplete inventoried. Mammals and their habitats are strongly influenced by processes originating outside fragment boundaries. The matrix of modified habitats surrounding fragments act as a selective filter. Arboreality is expected to be particularly restrictive for movement, and the species are clearly affected by the nature of modified habitats surrounding fragments. Matrix tolerance emerged as an overriding correlate of vulnerability. The research intend to estimate the potential occurrence of native mammal species regarding forest fragmentation in southeastern Brazil; to assess the importance of fragment size on species assemblages; and to identify fragment and landscape features that probably affect mammal species abundance and occurrence.

2. Methods

The identification and the interpretation of the vegetation sucessional stages were made through SPOT PAN/XS satellite images (resolution 20m) and by soil covering maps. The spatial analysis of the vegetation cover remnants was made through the MGA Analyst module (to Modulate GIS Environment).
The "mass-density" relationships model was generated according to ARITA *et al.* (1990) through the equation:

$$D = aM-b$$

for estimate the capacity of fragments to support mammal populations of 100 and 500 individuals of "matrix-intolerant" species.

3. Results and Conclusions

The relation between the area and the dimensions of mammal species suggests a threshold for population viability based on the dimensions of the fragments observed in the mosaic of the landscape in southeastern Brazil. By other hand, the results show that approximately 70% of the forest fragments in the studied river basins present a maximum area of 40 hectare. Only 10% of the total forest fragments present an area bigger than 100 hectare, usually located in higher altitudes zones. A mass extinction is expected for mammals of certain classes of body size in the current conditions of the region. The species tolerance in relation to the matrix is a facilitative factor of population's viability. Even in fragmented landscapes populations are commonly observed. Informations regarding mammals' species of the Atlantic forest and their relationships with the matrix of the degraded landscapes are scarce. This suggests that expressive efforts should be made for the evaluation of the internal conditions (composition and structure) of patches. An appropriate identification of habitat specialists and matrix-tolerant species should be developed in the sense of ordering conservation efforts. On the other side, human intolerance may be a key factor in extinctions prevailing over habitat features or patches sizes for an important set of the Atlantic forest mammal fauna.

4. Reference

ARITA, H.T.; ROBINSON, J.G. & REDFORD, K.H. 1990. Rarity in neotropical forest mammals and its ecological correlates. Conservation Biology, 4(2):181-192.