A Contribution to the Study of the Arboreal Vegetation of the Caetetus Ecological Station, São Paulo, Brazil

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Introduction

The Caetetus Ecological Station is in the north-west of the state of São Paulo, in the municipalities of Gália and Alvinlândia. With an entirely forested area of 2,178 ha, it is forms the largest single block of forest in the region. The forest is semi-deciduous, at altitudes ranging from 550 to 700 m. The climate is seasonal, with a hot rainy season, and a cooler dry season. Much of the Reserve is dissected by streams and swampy areas.

Here we report on the first study of the phytosociology of the forest in the Ecological Station, in a region where most has already been destroyed, reflecting the situation throughout the state of São Paulo where only about 3% of the forests still stand. Although being an important study in itself, the primary objective of the survey was to evaluate the distribution and abundance of food resources for the black lion tamarin, *Leontopithecus chrysopygus* (see Passos, 1992).

Material and Methods

The quadrant method (Martins, 1991) was used for the vegetation survey due to the rapidity and ease of data collection, and its adequacy in terms of supplying the information needed for an understanding of food availability for the *L.chrysopygus* groups in the Reserve. Data was obtained on the density, dominance and absolute frequency of the tree species. Quadrants (N = 157) were marked at 40 m intervals along eight trails, totalling about 6 km. All tree species in each quadrant which had a diameter at breast height $\geq$25 cm were marked and identified. The study was carried out from August 1993 to February 1994. The plant species are being identified by specialists at the Herbarium of the State University of Campinas, the Forestry Institute of São Paulo, and the Botany Institute of São Paulo.

Results

A total of 628 trees (528 identified to species), with heights ranging from 1.5 to 30 m, have been marked. The maximum circumference recorded was 2.7 m. One hundred species have been identified to date, distributed among 36 families. The most abundant families in terms of individuals recorded are, in order, Euphorbiaceae (N = 170 individuals), Myrtaceae (N = 49), Lauraceae (N = 47), and Rutaceae (N = 42) (Fig.1). In terms of species richness, the most speciose families recorded were Myrtaceae (10 spp.), Rutaceae (8 spp.), Fabaceae (7 spp.), Euphorbiaceae (6 spp.), Mimosaceae (5 spp.) and Moraceae (5 spp.) (Fig.2).

The most abundant species were two representatives of the Euphorbiaceae: *Securinega guaraiuva* (N = 113) and *Croton floribundus* (N = 35). These were followed by *Aspidosperma polyneuron* (Apocynaceae, N = 19), *Piptadenia gonoacantha* (Mimosaceae, N = 17), *Astronium graveolens* (Anacardiaceae, N = 16), and *Alchornea triplinervia* (Euphorbiaceae, N = 15). All of these species were used by the lion tamarins for sleeping holes.

A number of other species which were recorded in the survey have been found to be important as food resources for the lion tamarins. Those providing fruits include: *Chrysophyllum gonocarpum* (N = 11), *Syagrus romanzoffiana* (N = 10), *Protium widgrenii* (N = 10), *Inga* spp. (N = 7), *Duguetia lanceolata* (N = 6), *Cordia ecalyculata* (N = 6), *Rhamnidium elaeocarpum* (N = 5), and *Tapirira guianensis* (N = 3). *L.chrysopygus* differs from the other lion tamarins in its more extensive use of tree exudates (Passos and Carvalho, 1991; Rylands, 1993). Species they use to obtain gums were also represented: *Croton floribundus* (N = 35), *Piptadenia gonoacantha* (N = 17), *Euterpe edulis* (N = 11), *Pilocarpus pauciflorus* (N = 11), and *Esenbeckia leiocarpa* (N = 9).

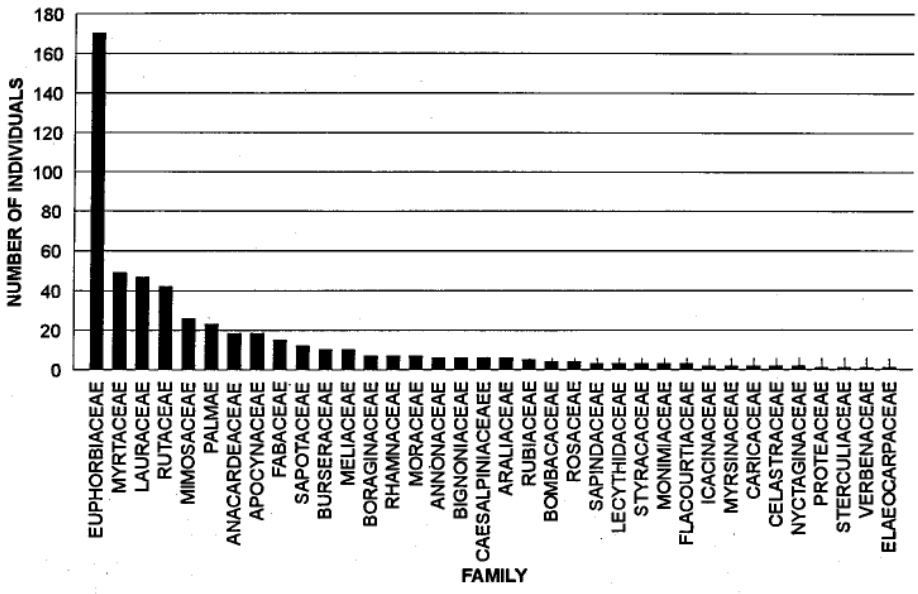

Figure 1. Relative abundance of trees in terms of the number of individuals of each family identified in the Caetetus Ecological Station, São Paulo, Brazil.

Discussion

Although the results presented here are only partial, they indicate a forest with a high degree of similarity to others studied in the state of São Paulo (César and Leitão-Filho, 1990; Pagano and Leitão-Filho, 1987). There are of course local and regional variations in floristic composition (Pagano *et al.*, 1987), but the overall pattern conforms to the conclusion of Leitão-Filho (1987) that the semi-deciduous forests of the upland plain of São Paulo typically demonstrate a marked presence of Fabaceae, Rutaceae, Euphorbiaceae, Lauraceae, and Myrtaceae.

The continuation of this study will permit a better understanding of the ecology and behavior of the black lion tamarin, notably in terms of understanding its group size, ranging behavior and seasonality in reproduction. A knowledge of the floristic composition, and the distribution and abundance of the food resources available to and exploited by *L. chrysopygus* is also an invaluable tool for the translocations and meta-population management proposed by Valladares-Padua *et al.* (1994), and will hopefully provide us with a better understanding of the differences in the ecological and behavioral parameters of the four species (Rylands, 1993).

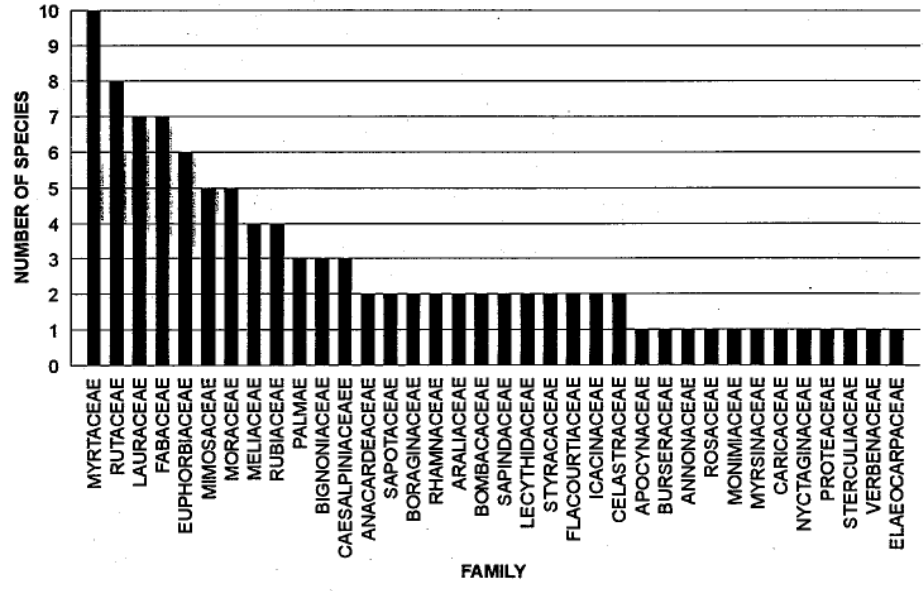

Figure 2. Tree species richness for the families identified in the Caetetus Ecological Station, São Paulo, Brazil.

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Black lion tamarin (*Leontopithecus chrysopygus*). Photo by R. Mittermeier.