Metapopulation theory is widely used to analyze dynamics of populations in fragmented habitats. Empirical studies testing predictions of metapopulation theory at regional scales, which are appropriate for conservation, are still rare. Likewise, predictions resulting from modeling in landscape ecology, which emphasizes a more spatially explicit approach, have rarely been tested empirically on real landscapes at a large scale. The objectives of this study are to evaluate the role of dispersal in the distribution of a habitat specialist in fragmented habitat, and to determine the effects of the landscape structure on dispersal. The study focuses on the mountain vizcacha (*Lagidium viscacia*), a rabbit-sized rodent restricted to patches of rocky habitat in the Patagonian steppe of Argentina. I evaluate the relationship between habitat structure, population structure, and social system, and explore the role of dispersal at a local scale. Then I examine the relative importance of patch-level and landscape-level factors in determining the pattern of patch occupancy by mountain vizcachas. Finally, I determine the role of landscape connectivity in the distribution of the species at a regional scale, over a 12,000 km² area. The approach I use to determine landscape connectivity combines molecular genetic estimates of gene flow as an analog of movement rates and cost-distance analysis with GIS to model landscape resistance and facilitation of movement.

The results indicate that spatial structure of habitat affects distribution of mountain vizcachas at several scales. Within patches, mountain vizcachas are more likely to be found where rock crevices are deep and numerous. Presence of mountain vizcachas in a particular patch with appropriate rock depends on the distance and connectivity between the patch and other occupied patches. Distribution at the regional scale is a result of the pattern of connectivity at the landscape level. Connectivity for mountain vizcachas is defined by the spatial pattern of surface geology and the barrier effect of some rivers. The dependence of distribution on connectivity implicates dispersal as the key process determining distribution at the regional scale. The study emphasizes the necessity of incorporating the concept of landscape connectivity into metapopulation analyses.

BATS OF PARANÁ STATE, BRAZIL (MAMMALIA, CHIROPTERA)

Michel Miretzki

This study contains two chapters of information about the bat fauna (Chiroptera, Mammalia) in the State of Paraná, Brazil. The first part of this work comprehends a historical and bibliographical update that provides for the second chapter a wide view of the progress in bat studies. The second part is a summary of the current information on the existence and distribution of the occurring bat species in Paraná and also includes a summary of the present knowledge about the group, identifying priority areas for additional surveys in the State.

The bat science begins in Paraná in the first part of the XIXth century with the description of *Nyctinomus brasiliensis* (= *Tadarida brasiliensis*) and *Plecotus velatus* (= *Histiotus velatus*) by Izzidore Geoffroy de Saint Hilaire. Following, there are contributions of famous personalities in the international field of mastozoology, from Michael R. Oldfield Thomas up to a present-day active group of researchers.

The bibliography lists and comments 79 references on bats in Paraná. Of these, approximately 70% have been produced in the State itself. Since 1980 the research activities have increased significantly due to the establishment of vertebrate research centres in Paraná: Federal University of...
Paraná (Universidade Federal do Paraná, UFPR), State University of Londrina (Universidade Estadual de Londrina, UEL) and the Capão da Imbuia Natural History Museum (Museu de História Natural Capão da Imbuia, MHNCI).

The analysed data were obtained from the collection of Capão da Imbuia Natural History Museum in Curitiba and from an extensive bibliographical updating. Fifty-three species of 5 families were identified: Phyllostomidae present the highest abundance of species (25; 47% in total), Molossidae (13; 24%), Vespertilionidae (12; 23%), Noctilionidae (2; 4%) and Emballonuridae (1; 2%). The results indicate that only 55% of the species belong to the Biome of the Atlantic Forest, and show as well the relative predominance of Vespertilionidae and Molossidae over Phyllostomidae. These results reveal a poor fauna regarding the number of species, thus confirming the subtropical character of the region of Paraná. The distribution of the species is irregular. Significant differences occur between the compositions of species in the three principal forest formation of Paraná. The Sazonal Forest contains the highest abundance (39; 74%) and the highest number of exclusive species (10). It is followed by the Mixed Ombrophylous Forest or Araucaria Forest (36; 68%), with 6 exclusive species, and last, the Dense Ombrophylous Forest (= Atlantic Forest sensu stricto) with 33 species (62%) of which only 3 are exclusive.

The degree of knowledge was estimated with the Method of Squares. The area is subdivided using a grid drawn at intervals of 30' longitude and 30' latitude forming 93 small squares. Of these, 53% (49 small squares) do not contain any bats and the average per square is 3.4 species, much less than the 24 species that would be considered satisfactory for Paraná. Only three small squares reach this amount, two surveys done in the eastern (Curitiba) and one in the northern (Londrina) regions. Approximately 2/3 of the territory of Paraná can be considered poorly explored and must be classified as areas requiring additional surveys, since only 11 bat species have been identified so far.