

2005 Bacardi Award for Advances in Tropical Conservation

In 2005, the Association for Tropical Biology and Conservation initiated a new award for young conservation scientists, the Luis F. Bacardi Advances in Tropical Conservation Award. This honor is designed to foster high-quality conservation science in the tropics, and is awarded to the individual who gives the best oral presentation on this topic at the ATBC annual meeting. Eligibility is limited to those who received their Ph.D. no more than 5 years before the meeting date. The winner receives a certificate from the ATBC and a \$300 award provided by the Lubee Bat Conservancy, an international organization based in Gainesville, Florida, that is devoted to the preservation of fruit- and nectar-feeding bats, and that was founded in 1989 by the late Luis F. Bacardi.

The inaugural winner of the Bacardi Award is Dr. Cecília P. Alves Costa, for her outstanding presentation entitled "Effects of Mammal Defaunation on the Plant Community in the Atlantic Forest of Southeast Brazil." Her abstract follows:

All judges agreed that Cecília's talk demonstrated an excellent experimental design, clear hypotheses and predictions, large sample sizes, robust conclusions, a visually attractive and compelling presentation, and a high degree of relevance for real-life conservation.

Cecília received her doctorate at the Universidade Estadual de Campinas in southeastern Brazil, focusing on the impacts of habitat fragmentation on plant-animal interactions in the highly imperiled Brazilian Atlantic forests.



Cecília P. Alves-Costa¹

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Effects of Mammal Defaunation on the Plant Community in the Atlantic Forest of Southeast Brazil.

In Neotropical forests, populations of several species of medium- and large-sized herbivorous mammals (such as tapirs, deers, peccaries, pacas, and agoutis) are negatively affected by hunting and habitat reduction. These animals represent the largest part of the terrestrial mammal biomass and feed mainly on fruits, seeds, and leaves. A decrease in their populations could affect the plant community through reduction of seed dispersal, seed predation, and/or herbivory. I tested the hypotheses that mammal defaunation leads to an increase in recruitment and in plant density, and a reduction in mortality rate, herbivory, and species richness. The study was conducted in five Atlantic semideciduous forest fragments with different biomass of herbivorous mammals >1 kg (high biomass fragments had 2.5 times higher biomass than low biomass fragments). In each fragment, I set up ten pairs of 2 m × 2 m plots: open (control) and exclusion plots (closed by an 8 cm × 12 cm mesh to exclude mammals >1 kg). In highly defaunated fragments, there were more plants in the smaller size class and the herbivory levels were lower. Such fragments presented 63–90 percent higher density of plants, three times more recruitment, and 13–28 percent higher density of species, but a 53 percent lower "number of species/plant" rate than fragments with a lower defaunation. After 30 months of mammal exclusion, plant mortality was 25 percent lower in the exclusion plots than in open plots. The plots will be monitored for a longer time to know if the differences in the plant mortality between plots will affect the other parameters in the same way as the differences among fragments. Defaunation of medium- and large-sized herbivorous mammals clearly affected the plant community in forest fragments of the Atlantic forest.

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2006 ATBC President

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