

Mapping Forest Fragments in Atlantic Coastal Moist Forest of Bahia, Brazil: A Case Study for Conservation and Biodiversity

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Abstract

The rain forests of the Atlantic coast of Brazil are one of the most biologically diverse regions in the world. However, only 9 percent of the original forest cover remains. Most of the remaining northeastern Atlantic forest, though highly fragmented, is in the southern part of the state of Bahia. Several animal species are in danger of extinction in this region, including three endemic primates. The fate of these species and the conservation of the biodiversity in the region hinges upon identifying and preserving the remaining patches of forest from disturbed and converted areas. These forest patches will be used as priority sites for protection as well as to develop conservation strategies compatible with local economic activities. Remote sensing techniques such as imaging radar, with the capability to provide data regardless of cloud cover (a serious limitation for using optical sensors in the region), can be used for delineating forest fragments and monitoring land-use changes important for conservation and biodiversity studies. In this study, we used a series of images acquired by SIR-C/X-SAR polarimetric multifrequency radar system aboard space shuttle Endeavor in October 1994 to map the land cover types in a region centered around the Una Biological Reserve in southern Bahia. We employed a maximum *a posteriori* classification scheme in conjunction with the SAR texture information to separate patches of primary forests from other land cover types such as mangrove, restinga forest, pasture, cocoa and various plantations. As a result, primary forest patches were mapped and several potential forest corridors for conservation studies were identified. The results were verified using existing maps and ground survey data collected by the during and after the shuttle mission.

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