



XIII Congresso de ECOLOGIA

III International Symposium of Ecology and Evolution

Múltiplas ecologias: evolução e diversidade

08 a 12 de outubro de 2017 • UFV - VIÇOSA | MG

LAND USE AND LAND COVER DYNAMICS OF AN ATLANTIC FOREST REMNANT IN A PERI-URBAN LANDSCAPE

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Tema/Meio de apresentação: Ecologia Urbana/Oral

The establishment of protected areas is a key strategy to safeguard natural resources from anthropogenic threats that lead to landscape modification. Dois Irmãos State Park (PEDI) is a peri-urban protected area located in Recife, Northeast Brazil, composed of two patches: Dois Irmãos Forest (P1), protected for a hundred years; and Brejo dos Macacos (P2), a former farm abandoned 40 years ago. Together, they make up an area of 1157.72 ha. We analyzed spatiotemporal changes in the landscape where PEDI is placed, in addition to changes in vegetation cover within the Park and its surroundings. We mapped the landscape and calculated configuration metrics in broad-scale (1:25.000) and composition metrics in fine-scale (1:10.000) for three moments (1968, 1981 and 2014), based on aerial photographs and satellite imagery. We defined seven classes to fine-scale mapping (secondary, mature and open forest, soil, urban, water and flooded areas), and two classes for broad-scale mapping (habitat and non-habitat). We noticed an overall loss of open forest (12.4%) and growth in urban areas (13%) in the landscape through the years, with a peak of urbanization between 1981 and 2014, matching the years of intense industrialization in the state. P1 presented steady and homogeneous composition through the years (up to 88.5% of mature forest), contrasting to its highly dynamic surroundings. Conversely, we noticed a shift of open forest cover into secondary forest in P2, despite its stable surroundings (mainly composed of forests). Vegetation cover of broader landscape reduced from 47.5% to 32.7%, with increase in mean distance between fragments (101.2m to 199m) and decrease in number (125 to 87 patches). This habitat loss and increase in isolation may lead to connectivity reduction in the landscape, threatening the biodiversity. However, results in fine-scale highlight the contribution of protected areas to the maintenance of forest remnants on dynamic peri-urban landscapes.

Authors thank CNPq/PPBio for the research grant 457483/2012-1; CAPES, for M.M.B. Aguiar MSc scholarship; and MEC/PET/SESu, for ACB Lins-e-Silva scholarship.