

The effect of highways on native vegetation and reserve distribution in the state of São Paulo, Brazil

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Abstract body: Highways affect the environment in different distances and intensities. Thus, it is important to evaluate areas which are ecologically affected by highways, perhaps including highway distance as criteria to define priority spaces for conservation and restoration. This work aims to: 1) estimate areas which have been ecologically affected by highways, in the whole state of São Paulo, for each type of vegetation, and in all reserves; 2) investigate the influence of highway distance on the native vegetation cover and on the reserve distribution; and 3) discuss the possibility of including roads as additional factors to define priority areas for conservation and restoration. The area of study was the state of São Paulo (southeastern Brazil), where two biodiversity hotspots biomes occur: the Brazilian Atlantic Forest and the Brazilian Cerrado. About 10% of São Paulo has been ecologically affected by highways, being the dense ombrophylous forest and most reserves greatly impacted. Native vegetation and reserve areas have increased with the increase of highway distance. Priority areas defined by species abundance, fragment size and proximity have shown low correlation to highway distance, and highways have been considered a threat to the vegetation cover and its biodiversity; therefore, we considered relevant to include highway distance as a criterion to define top priority conservation and restoration areas. Ninety-four fragments have been specified as top priority for conservation and restoration, and were ranked according to distance to nearest highway. In conclusion: in order to improve conservation and restoration strategies, we suggest that highways be carefully considered, prioritizing remote areas.