The gain of habitat-generalist species does not compensate for the loss of forest-dependent species across a gradient of forest cover

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1- INTRODUCTION

2- AIMS

•Evaluate how the amount of forest cover determines the richness and composition patterns of birds.

•Verify the threshold for the change in species distribution along a forest cover gradient.

3- METHODS

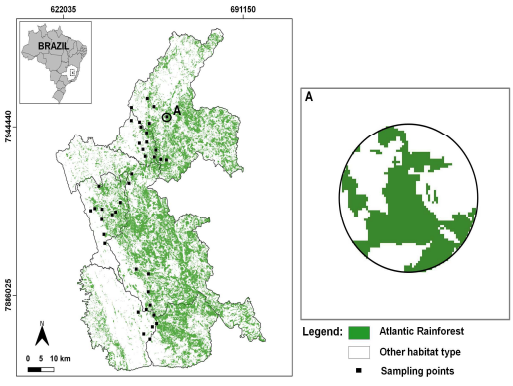

Figure 1: Study sites in the Brazilian Atlantic Forest. Highlighted (A) is one 1000 m-radius buffer around a sampling point (forest fragment) used to calculate the forest cover area.

4- RESULTS AND DISCUSSION

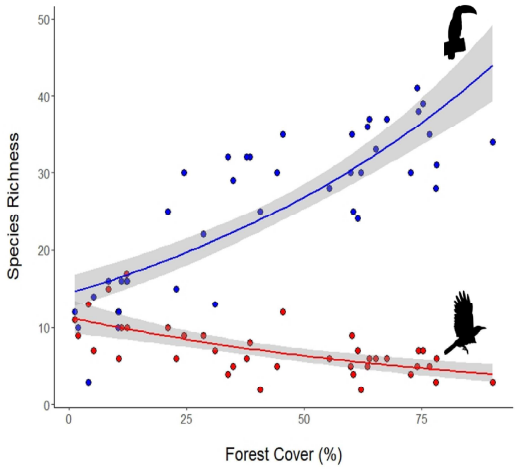

Figure 2: Effects of forest cover on the richness of forest-dependent (blue dots) and habitat-generalist (red dots) bird species. Solid line: $p < 0.05$; no line: $p > 0.05$

•Species gain did not compensate for the loss.

•Decrease of 10% in forest cover: loss of four forest-dependent-birds and the gain of only two habitat-generalists-birds.

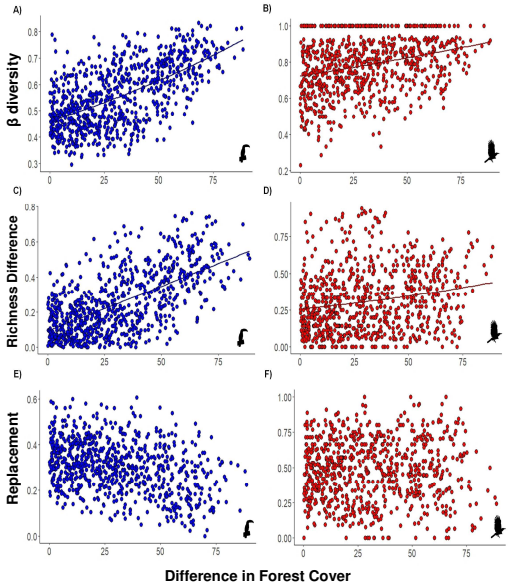

Figure 3: Relationships between the difference of forest cover percentage and the β diversity (A and B) and its components – richness difference (C and D) and species replacement (E and F) – in forest-dependent (red dots) and habitat-generalist (blue dots) bird species. Solid line: $p < 0.05$; no line: $p > 0.05$.

•The loss of forest-dependent birds and the gain of habitat-generalists were the primary causes of increased differences in β-diversity.

•Landscapes subjected to structural changes due to decreased forest cover tend to be inadequate for forest-dependent birds, but friendlier to habitat-generalist birds, , promoting colonization.

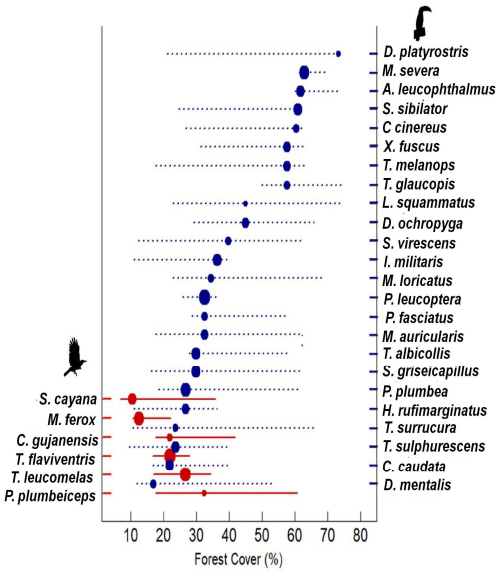

Figure 4: Threshold Indicator Taxa Analysis (TITAN) of 30 bird species that showed significant changes in frequency and abundance across a forest cover gradient.

• Below 30% of forest cover: decrease of 23% in forest-dependent-bird richness.

5- CONCLUSION

•The amount of forest cover is a deterministic factor for the structure and dynamics of bird communities.

•Evaluating the thresholds at the species level proved to be a more effective tool for setting conservation guidelines.

•Essential for devising more effective environmental policies in tropical forests to maintain ecosystem integrity.