

## **Plant functional groups as a tool for assessment of ecological sustainability in restored riparian forest**

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The success of the recovery of degraded areas should consider the restoration of ecological processes responsible for construction and maintenance of forests. Thus, assuming that a natural area is self-sustainable, the set of species in a restored area must play the same functions as those of the native forest. One way to assess this is the plant functional groups (PFG) approach, which considers the species interaction potential by using its ecological characteristics, independently of their phylogenetic relations. Thus, we investigated how PFG were represented in restored forests of different ages and how these groups could change along the restoration process. We tested the hypotheses that in planted areas in a more advanced successional stage are more similar to natural forests in composition and quantity of PFG than newer ones. This study was done in restored riparian forests of three different ages comparing to a natural remnant of the Brazilian Atlantic Forest. The species distribution (2087 individuals of 216 species) in PFG was defined by using structural and reproductive characteristics. Thirteen consistent biological groups were found using the Twinspan method and were confirmed in PCA which presented a reasonable explanation of the data, considering the large number of variables used in this study. The four areas analysed showed a similar number of PFG, while the number of species per PFG varied between areas, these being larger in native forest than in restored areas. Our results indicated that restored areas had the same PFG as natural areas however the richness and abundance within each group were larger in natural and older restored areas than in newer ones. The functional diversity is a useful analytical tool that could be used to integrate diversity of plant and their environmental role in the evaluation of restored areas.