



# 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

### HOW DISTURBANCES CHANGE THE PLANT DIVERSITY OF FRAGMENTED CERRADO?

Alex Josélio Pires Coelho<sup>1\*</sup>, Nayara Mesquita Mota<sup>1</sup>, Fernando da Costa Brito Lacerda<sup>1</sup>, Luca Rodrigues de Aquino<sup>1</sup>, Luiz Fernando Silva Magnago<sup>2</sup>, João Augusto Alves Meira-Neto<sup>1</sup>

1. Laboratório de Ecologia e Evolução de Plantas, Universidade Federal de Viçosa, Viçosa, 36570-000, Brasil; 2. Departamento de Biologia, Setor de Ecologia e Conservação, Universidade Federal de Lavras, 37200-000, Brasil. \*Correspondence to alex.pires@ufv.br

Tema/Meio de apresentação: Biologia da Conservação/Oral

Cerrado is the most diverse tropical savanna and has experienced habitat loss and a recent intensification of disturbances. These are the main causes of diversity loss in tropical biomes. However, little is known about their effect on the Cerrado diversity, especially in relation to conservation of evolutionary history and ecosystem functionality. Thus, the objective of this work was to verify the influence of the main disturbances present in the Cerrado on its taxonomic, phylogenetic and functional diversity. Woody vegetation of 12 remnants of Cerrado *stricto sensu* was sampled. We evaluated fire intensity, cattle circulation, earthworm extraction and Pequi (*Caryocar brasiliense* Camb.) extraction in Cerrado fragments. In addition to the number of species, phylogenetic diversity index (PD), functional richness (FRic), functional evenness (FEve), functional divergence (FDiv) and functional dispersion (FDis) were also considered. We used eight traits to calculate functional diversity: maximum height (Hmax); maximum diameter (Dmax); Hmax/Dmax; wood density; size and diameter of the fruits and seeds. For the statistical analyzes, we used Generalized Linear Models and multi-model inference approach to identify the best models according to the Akaike's information criterion of second-order. As main results we have that earthworm extraction positively influences species richness and phylogenetic diversity, while the cattle circulation decreases these indices. Earthworm extraction also modifies functional diversity indices, increasing FRic, but decreasing FEve and FDiv. Soil revolving caused by the action of earthworm extractors may enhance the permanence of more species, diversifying niches. However, the earthworm extraction decreases functional evenness and divergence, which indicates an increase in the dominance of some functional traits in the community after that disturbance. Cattle circulation might select phylogenetically conserved traits, that confer physical resistance to plants, decreasing PD and species richness, but functional diversity index was not influenced. Therefore, Cerrado communities are undergoing changes in biodiversity attributed to frequent disturbances.

The authors thank CNPq, CAPES e FAPEMIG for grants, financial supports and scholarships.