Influence Of Prescribed Burning On Biological Attributes Of The Soil In Natural Pasture From Pantanal

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ABSTRACT – Natural pastures are an indispensable natural resource for the Pantanal. They form the basis of the feeding of beef cattle and herbivores, being renewed by the alternation of flood and drought period. Controlled burning, as a pasture management practice, is employed in the Pantanal in a selective and localized manner, trying to eliminate or contain the expansion of undesirable species and promote the regrowth of low acceptability fodder plants. In this regard, soil fauna can be used to assess the degree of modification an area is undergoing due to its rapid response to environmental change. Thus, the objective of this work was to evaluate the effect of the prescribed burning on the soil fauna in natural pasture of the Nhecolândia sub-region of Pantanal. The study was conducted in September and October 2018 on natural pasture composed mainly by *Aristida* sp., a coarse fodder of high areas and low fertile sandy soils. Pitfall traps were installed to capture epigeic fauna in pasture areas as follows: I - control area (no burning and n = 5); II - area that would be burned adjacent to control (before burning and n = 5); III - control area after the burning (n = 5) and IV - area adjacent to control after burning (n = 5). In total 1652 individuals were found distributed in 14 groups. Data from the four treatments were subjected to analysis of variance followed by Tukey test. Next, because data from treatments I, II and III, were not subjected to burning (n = 15), they were grouped and the Student's t test against treatment IV (after fire and n = 5) was conducted. Tukey test indicated that only treatment I and IV were significantly different from each other ($p < 0.05$), with the latter presenting less diversity. The t-test between the group without burning against the group with burning showed a reduction in diversity ($p<0.01$; average diversity without burning 1.19; average diversity with burning 0.68). There was also a change in species composition; while treatments before burning presented a predominance of Colembolla, treatments after prescribed burning showed dominance of Coleoptera.

Keywords: soil invertebrates, fire effect, soil fauna richness, diversity.