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DOES CATTLE GRAZING IN THE BRAZILIAN PANTANAL AFFECT THE DUNG BEETLE COMMUNITY AND ITS ECOLOGICAL FUNCTIONS?

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Dung beetles perform important ecological functions in pastures, such as dung removal, nutrient cycling and parasite control. Livestock farming is the dominant economic activity in the Brazilian Pantanal. However, the impact of cattle grazing on the native dung beetle community is still unknown. Therefore, we evaluated the effects of cattle grazing on dung beetle communities and its ecological functions in the Pantanal. In January/February 2016, we sampled dung beetles in 16 areas of native grasslands in Aquidauana (Mato Grosso do Sul state - Brazil), 10 regularly grazed by cattle and six control ungrazed areas (> 20 years abandonment). In each area, we marked a transect with three sampling points 250 m. In each sampling point, we first installed an arena with 300 g of cattle dung left for 24 h to assess dung beetle ecological functions (dung removal and soil excavation). We then set up two pitfall traps, one baited with cattle dung and other with carcass, which remained in the field for 48 h to sample the dung beetle community. We collected 1169 individuals belonging to 31 species of dung beetles (30 native and 1 introduced species). The abundance, species richness and biomass of dung beetles, as well as the ecological functions measured (dung removal and soil excavation) did not differ between cattle grazed and ungrazed systems. Species composition differed among systems: large roller beetles were absent while the abundance of medium roller beetles increased in ungrazed systems. Cattle grazing did not affect the diversity and abundance of dung beetles, probably due to the rich community of native mammals in the Pantanal. Despite causing changes in species composition, a density compensation of functional groups in grazed pastures seems to have conserved the ecological functions.

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