



THE EFFECT OF WILDFIRE ON THE STRUCTURE OF THE DORMANT PLANKTON COMMUNITY IN A NEOTROPICAL FLOODPLAIN LAKE

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Climate change and shifts in land use are increasing the frequency of wildfires. These disturbances affect biodiversity and have been widely studied in terrestrial environments, whereas their impacts on aquatic environments remain poorly understood. Here, we evaluate the effect of a wildfire on the structure (species richness and composition) of the dormant plankton community (phytoplankton, ciliates and zooplankton) in a Neotropical floodplain lake in Brazil. Sediment samples, were collected from Ventura Lake in the Upper Paraná River floodplain, one week after a wildfire. During the fire, parts of the lake shores were completely burned, and few areas remained unburned. Thus, five sediment samples were collected at three points in the burned area (treatment) and at three points in the unburned area (control), totalling 30 samples (microcosms). The samples were hydrated with distilled water, maintained in a germination chamber at a constant temperature of 25°C and under a 12-hour light/dark photoperiod for 56 days. We used specific sorting procedures for each biological group. A total of 84 taxa of aquatic organisms hatched from the sediment: 35 phytoplankton, 34 ciliate and 15 zooplankton species. The highest richness of ciliate and phytoplankton species was recorded in the burned treatment, while



no significant differences were observed for zooplankton. Significant differences in species composition between the control and fire treatment were also observed only for ciliates and phytoplankton. These results indicate that wildfires affect the structure of dormant communities differently depending on the biological group. Ash derived from the burning of organic material can alter limnological conditions (e.g. by increasing nutrient availability). This process probably occurred in the microcosms, acting as a trigger for the hatching of the dormant structures, especially in phytoplankton and ciliates. The findings may provide valuable insights for conservation and restoration in areas affected by natural wildfires.

Palavras-chave: *fire, egg bank, phytoplankton, ciliates, zooplankton.*