A non-soil seed bank dependent on the size of clonal plants: the case of Carex cespitosa, a guerrilla species in an unmown meadow

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ABSTRACT
Long-lived clonal plants provide an optimal place for the natural storage of seeds as a ‘non-soil seed bank’. We tested the hypothesis that the size and species diversity of a non-soil seed bank deposited within the clonal plant Carex cespitosa depends mainly on the plant’s size. To verify this hypothesis, an experiment was conducted on an unmown meadow in the Białowieża National Park. The emerging seedlings of different species originating from C. cespitosa tussocks of different size (large and small) were observed under greenhouse conditions for four years. The size of a non-soil seed bank was evaluated based on the number of seedlings. Significant differences in the seedling number were found between large and small sedge tussocks (Mann-Whitney test Z = 3.96, P < 0.001). However, the number of recorded species was independent of tussock size. Both types of tussocks were dominated by meadow, forest and swamp species (in decreasing order). Some of these species are no longer present in the studied area, or their occurrence is limited to small groups at the meadow’s edges. A non-soil seed bank within the tussock cores of C. cespitosa may be, similar to a soil seed bank, a tool for studying the changes occurring in plant communities.

INTRODUCTION