
A multi-treatment experiment for floodplain grassland restoration in Bordeaux: hypotheses and preliminary results

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Abstract

All over the world and especially in floodplains, there is a growing concern about the necessity to restore grasslands that have been converted to cultures for long. The early stages of restoration are known to be of great importance at least for the short-term dynamics of the restored grassland. In particular, the modification of soil properties and the complexity of the biological input are likely to influence the establishment of the desired community. In order to test the combined effect of soil treatment and biological input complexity on restoration dynamics, we set up, in 2017, a field experiment on a former crop culture. We combined two modalities of soil treatment (no treatment and 40 cm-deep ploughing) with five modalities of biological input (common grassland species seeds, specific grassland seeds, hay transfer, soil blocks and control) tested on 100 plots of 16 m². On the one hand, we assume that soil treatment will reduce the soil seed bank, thereby decreasing interspecific competition by undesirable species, and diluting the trophic levels inherited from fertilizers input during the agricultural period. On the other hand, by introducing a more complete species pool and even associated micro-organisms, we assume that more complex biological inputs will accelerate the initiation of the ecological restoration. The effect of the interaction between soil treatments and biological input complexity will be evaluated by the means of floristic monitoring during spring 2018. We expect a greater change in plant species composition and richness along the gradient of biological input complexity and especially for ploughed plots. This first monitoring will enable us to identify the processes involved in the very first stages of the dynamic of alluvial wetlands.

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