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WETLAND PLANTS IN POND NETWORKS: THE SAME RESTORATIVE ACTION LEADING TO DIFFERENT OUTCOMES IN TWO LOCATIONS

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Sessions

3.0. Restoration of wetland ecosystems

To compensate for the loss and degradation of wetlands, and subsequent decline of wetland species, networks of ponds can be created as a restorative measure. Recently, it has become clear that ponds are surprisingly biodiverse, host rare and protected species and can function as stepping stones and refugia for wetland dependent biodiversity. Moreover, it was found that under certain conditions created ponds can provide the same ecological functions as natural wetlands. Nevertheless, knowledge on how spatial and environmental factors drive biodiversity in pond networks, which is essential for effective pond network creation, is still inadequate.

Macrophytes shape the physical structure of the environment, regulate water quality and provide habitat for the animal metacommunities living in pond networks. We investigated macrophyte communities in two pond networks that were created to provide habitat for the declining and threatened European pond turtle (*Emys orbicularis)* and protected amphibians. Both networks were created about ten years ago on former agricultural land and are part of protected nature areas. One network is located on the French-German border in the former floodplain of the Upper Rhine, and the second in the Latvian Sitas lake area close to the Belarus border.

In two consecutive summers, we surveyed the macrophyte communities in 34 ponds of the two networks. Although similar restorative actions were performed at both locations, the outcomes in terms of macrophyte biodiversity are very dissimilar. Two separate analyses assessing the relationships between environmental, pond morphological and spatial variables and the macrophyte communities in the two networks will be presented. Furthermore, the networks are compared in terms of macrophyte functional diversity since functional approaches complement taxonomic approaches in the assessment of restoration success.

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