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# Temporal turnover in weed biodiversity in highly anthropogenic habitats

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## Abstract

During the last decades, agricultural intensification has led to a loss of biodiversity in farmland landscapes, with a decline in all taxa. Despite a general increase in yields, this intensification has also affected ecosystem functioning and the provision of services such as pollination and pest regulation. In this context, studying the temporal dynamics of weed diversity in farmland landscape is interesting as weeds are the basis of food webs, providing resources to many living organisms. In this study, we address two questions: (1) what is the underlying level of weed temporal turnover in a community, and (2) is weed biodiversity changing relative to this background turnover, due to a local management in fields (e.g. herbicides use or crop rotation) and/or to change in landscape composition and structure (e.g. loss of semi-natural habitats or presence of organic fields) ? We use flora surveys performed in arable fields in the LTSER Zone Atelier 'Plaine & Val de Sèvre' from 2006 up to now (more than 2000 surveys). Since distinguishing among the various sources of change is challenging, we assess weed temporal turnover through combining several diversity indexes such as Simpson index, species-exchange ratio and dissimilarity matrices. We discuss our results in the context of global change.

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