



Role of the cultivated mosaic and its heterogeneity for biodiversity conservation in farming landscapes

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Terre, Écosystèmes et Sociétés

Role of the cultivated mosaic and its heterogeneity for biodiversity conservation in farming landscapes

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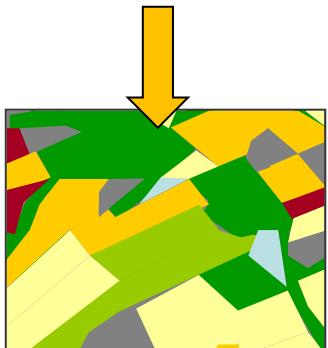
Promotion of natural enemies of crop pests in farming landscapes

□ Wildlife friendly farming practices

□ Semi-natural elements



Complexity linked to
semi-natural
elements vs. matrix.



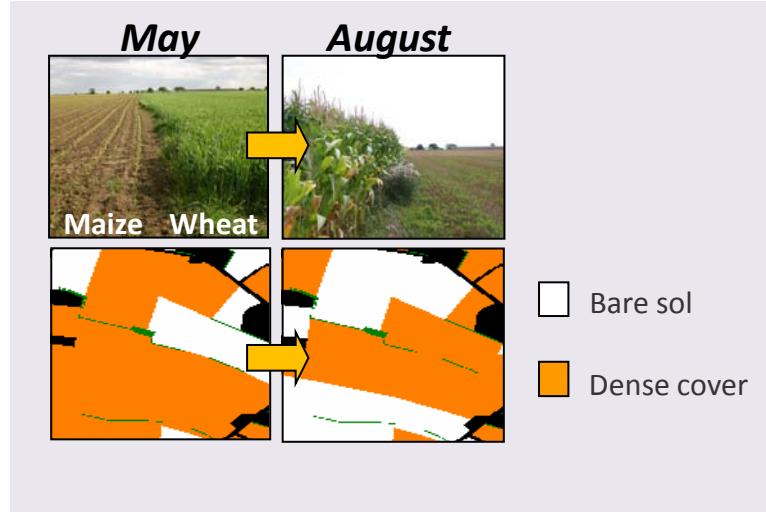
Matrix or heterogeneous
mosaic of resources for
natural enemies ?



The cultivated mosaic is heterogeneous

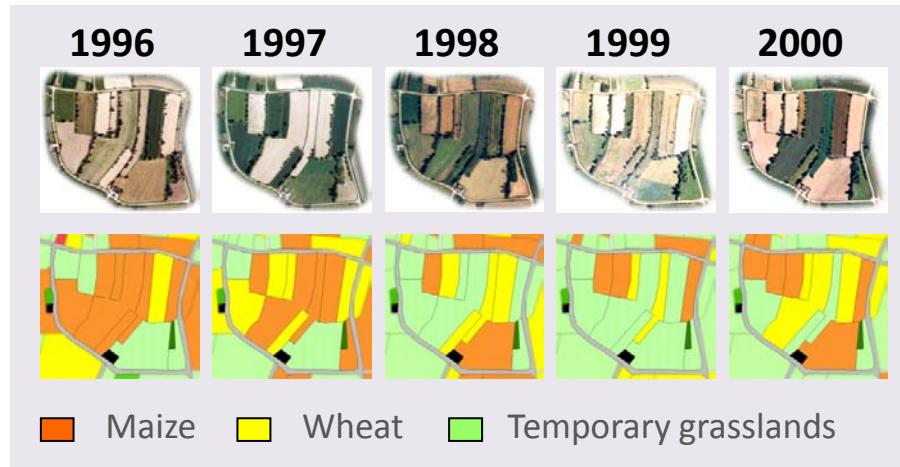
□ Within a year...

- Asynchronous resources (crop cover state, farming practices)
- Fast-changing distribution of resources



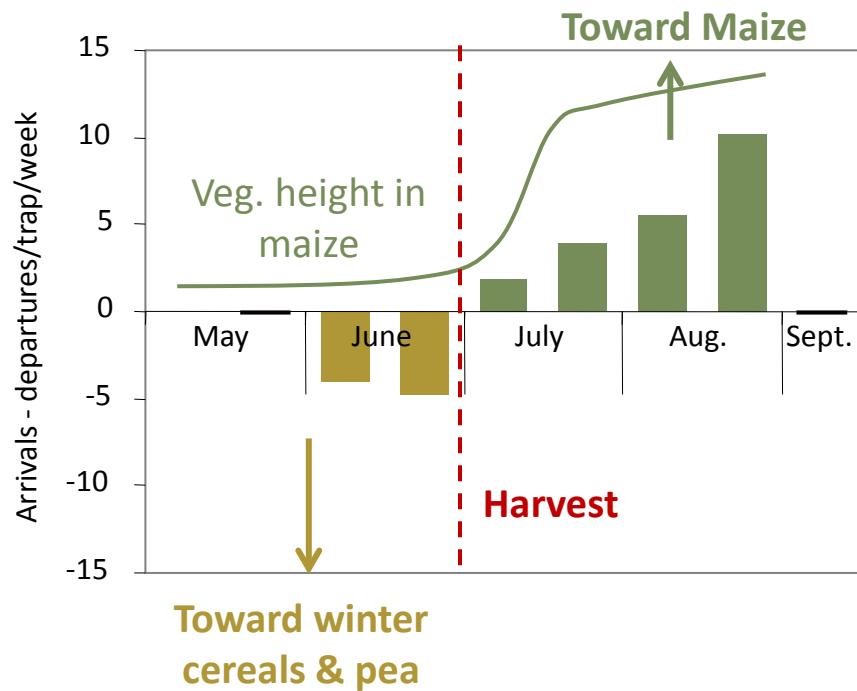
□ Over years...

- Changing distribution of resources from one year to another (crop rotation)



Effect of seasonal changes in crop covers on the local dynamics of predatory arthropods

□ Orientation of carabid movement at crop edges

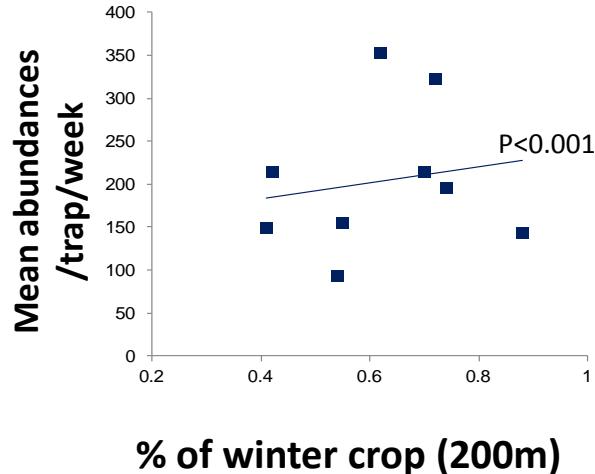


- Frequent movements between crops, from unsuitable to dense covers
→ **complementary role** of spring & winter crops

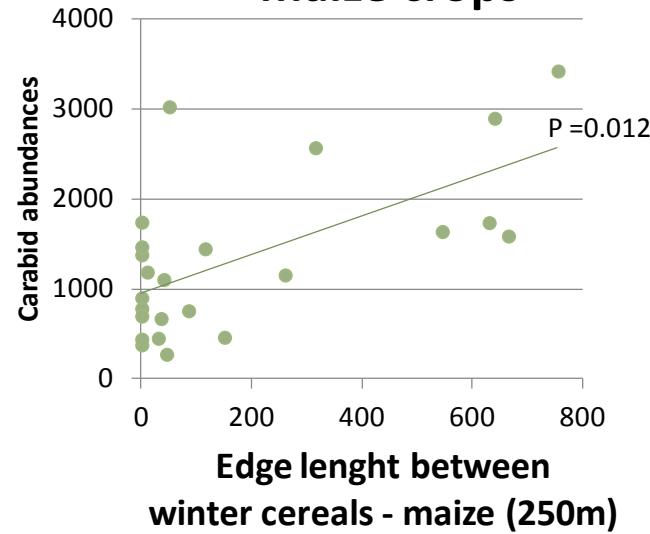
Effect of spatial organisation of complementary crops on predatory arthropods



Carabid abundances in organic wheat crops



Carabid abundances in maize crops



- **Spatially heterogeneous crop pattern** : positive effect on seasonal carabid abundances in crops

Conclusions & perspectives

- **The heterogeneity of the cultivated mosaic has a potential effect** that should be further explored (crop types, farming practices e.g. organic farming...).
- **The efficiency of AES** might also vary according to the complexity of the cultivated mosaic .
- **Interdisciplinary research (agronomy...)** is needed to understand how farmers contribute to this heterogeneity, and whether the design of the cultivated mosaic could be feasible according to their production objectives and constraints.



Thank you