

Pratiques agricoles et processus écologiques déterminant les communautés de bords de champs: approches fonctionnelles et multi- échelles

ISIS POINAS

Directrice de thèse: Christine Meynard (CBGP)

Co-directeur: Guillaume Fried (ANSES)

Introduction

Climat

**Pratiques
agricoles**

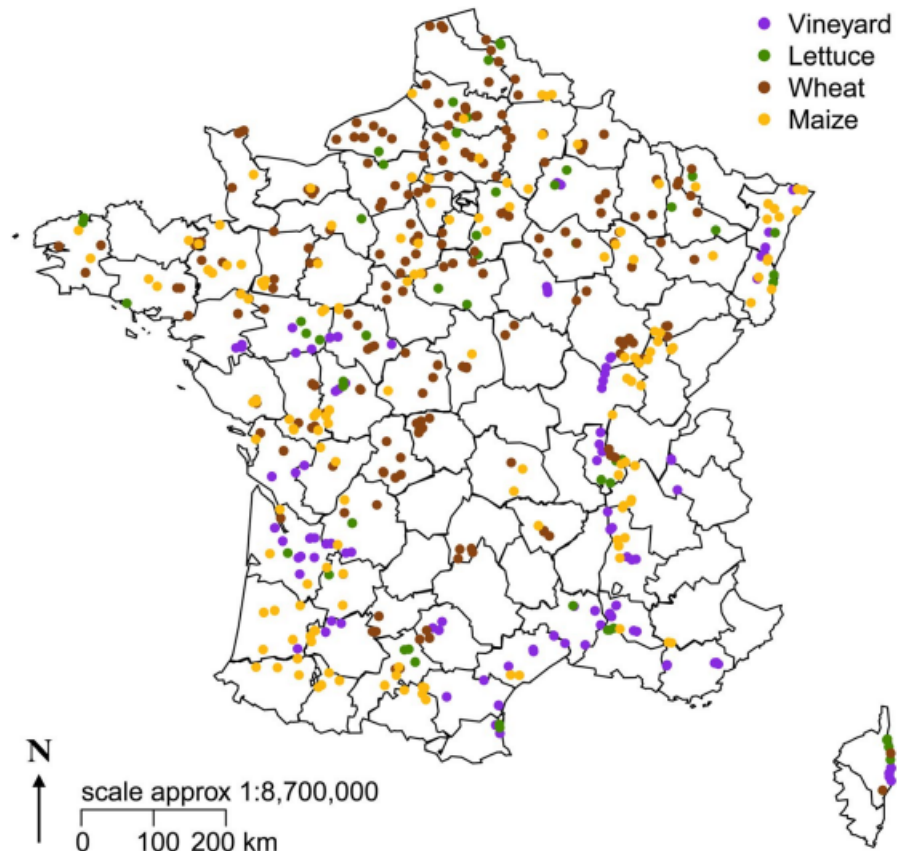
**Flore des bords
de champs**

Diversité
Composition

Paysage

Gestion de la bordure

Réseau 500 ENI

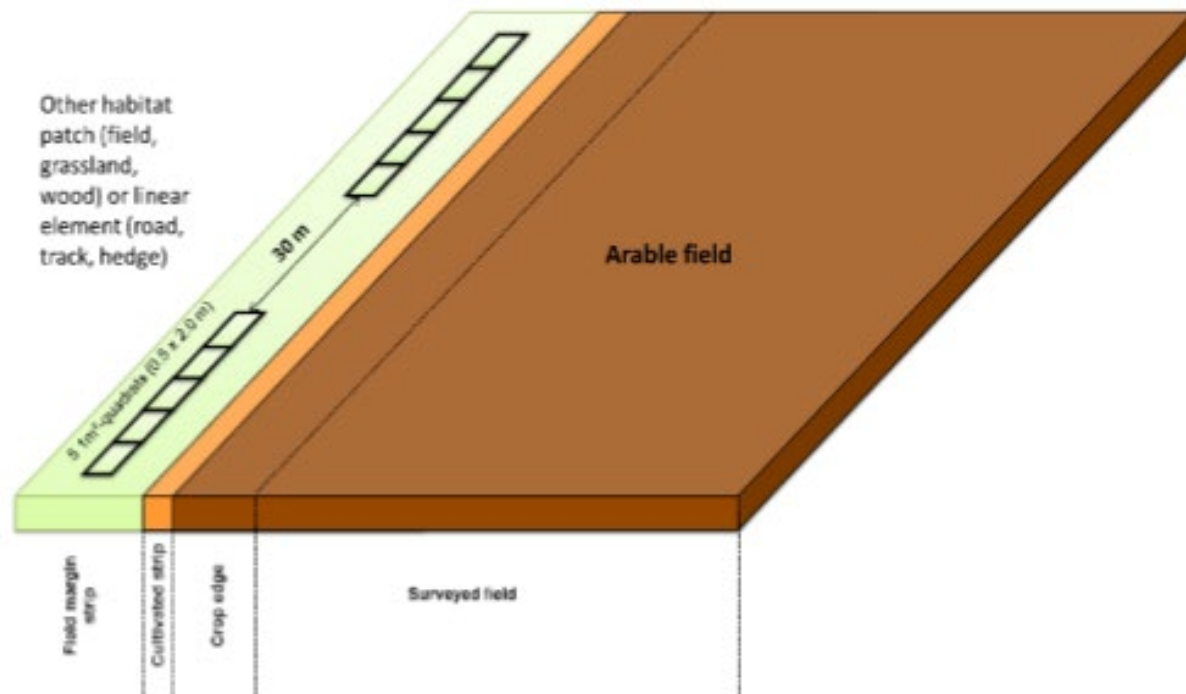


- **543 parcelles**
- 4 types de cultures
- 20% AB
- BDD pratiques agricoles



Réseau 500 ENI

2013  2019

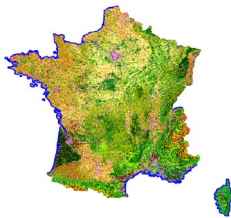
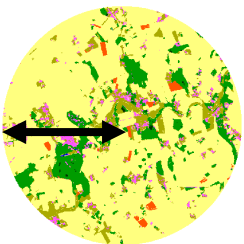


- 1 relevé / an
- 10 quadrats / bordure
- 689 espèces

Données externes au réseau

- Climat  Chelsa 

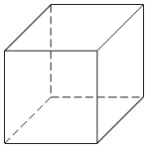
- Sol 

- Paysage  1 km  OSO

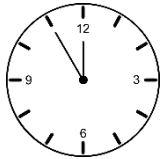
- Cultures dans le paysage 1 km  RPG + BD TOPO

Indice de diversité
de Shannon (SHDI)

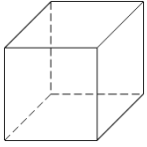
Plan



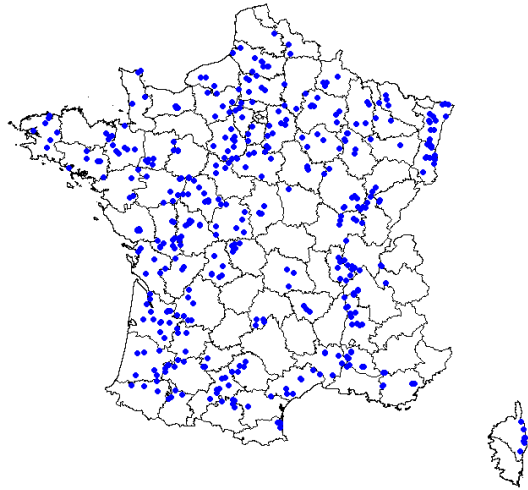
Axe 1: Variations spatiales (influence de l'échelle)



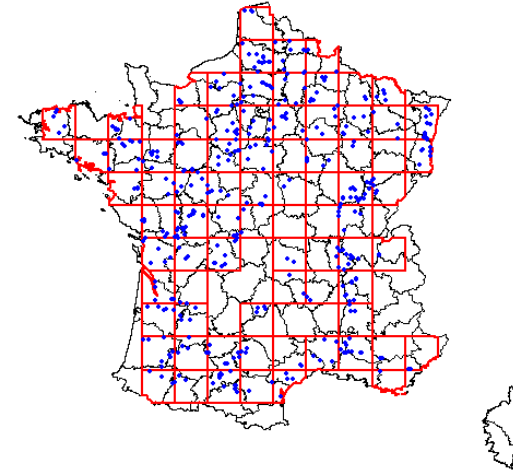
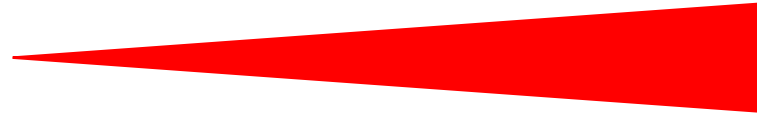
Axe 2: Variations temporelles



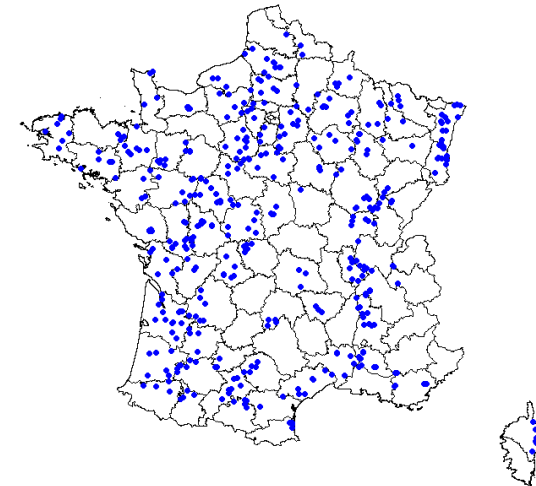
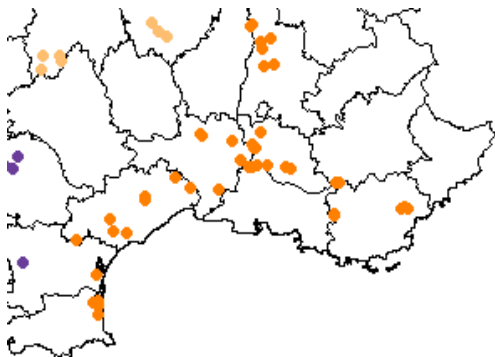
Introduction

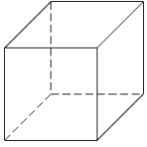


RESOLUTION SPATIALE



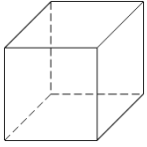
ETENDUE SPATIALE





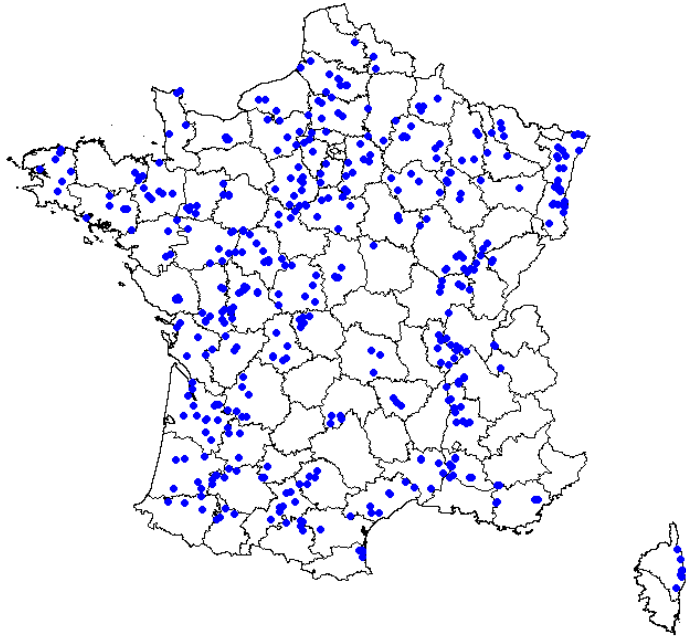
Questions – Axe spatial

A quelle résolution et étendue spatiale peut-on détecter le mieux les effets des pratiques agricoles sur la composition et la diversité des plantes de bords de champs ?

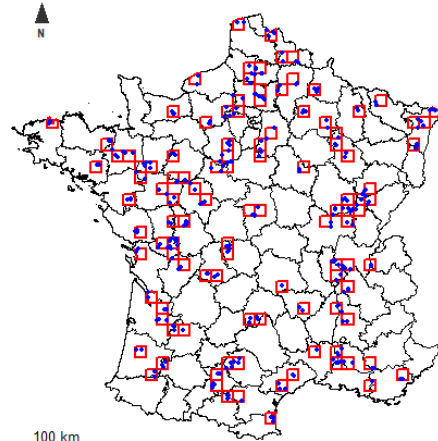


Méthodes

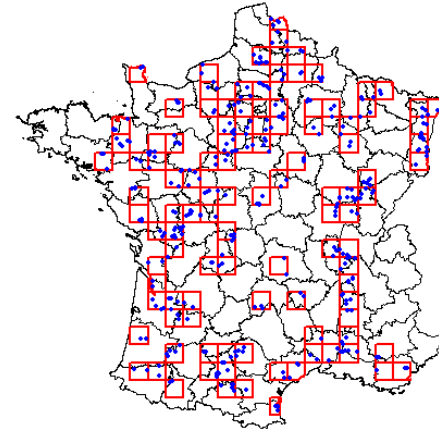
Parcelle



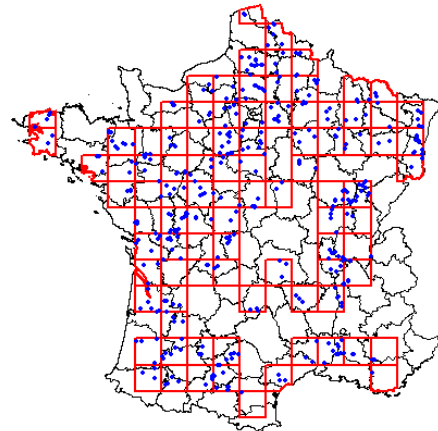
25 km



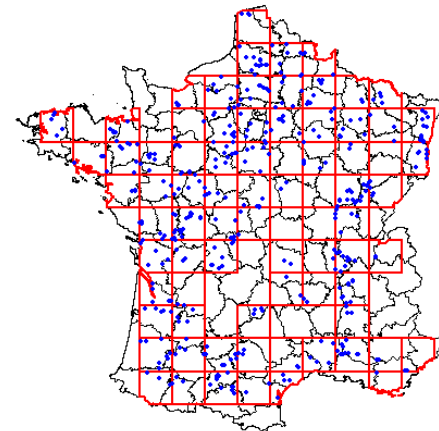
40 km

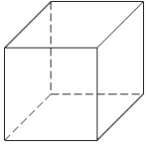


60 km

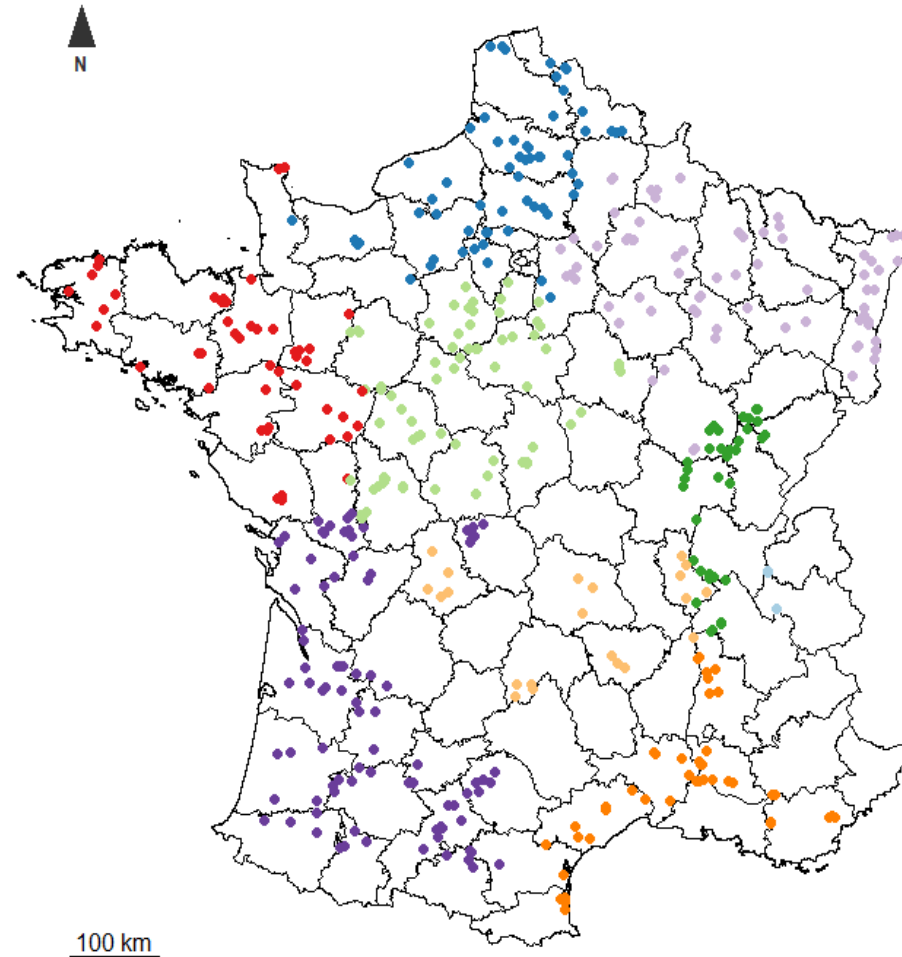


75 km





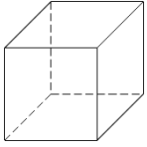
Méthodes



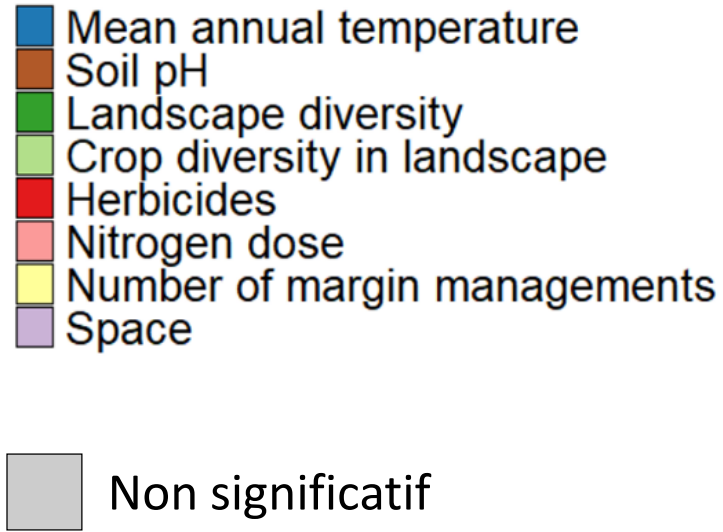
Régions biogéographiques

- ~~Alpes~~
- Bassin Parisien Nord
- Bassin Parisien Sud
- ~~Bassin Rhône-Saône-Jura~~
- ~~Corse~~
- Massif Armoricain
- ~~Massif Central~~
- Zone méditerranéenne
- Zone Nord-Est
- Zone Sud-Ouest

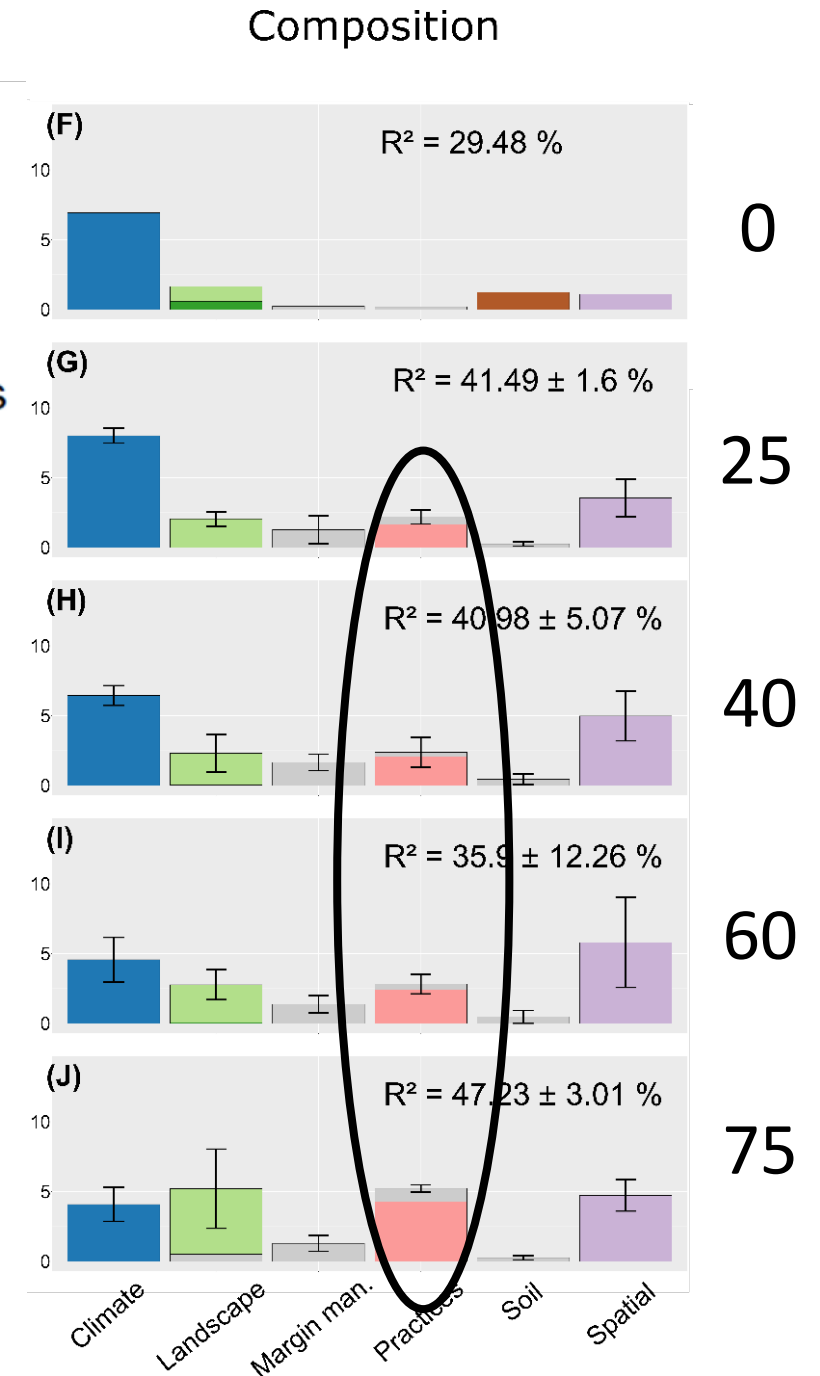


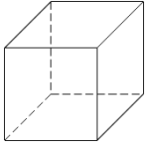


Résultats



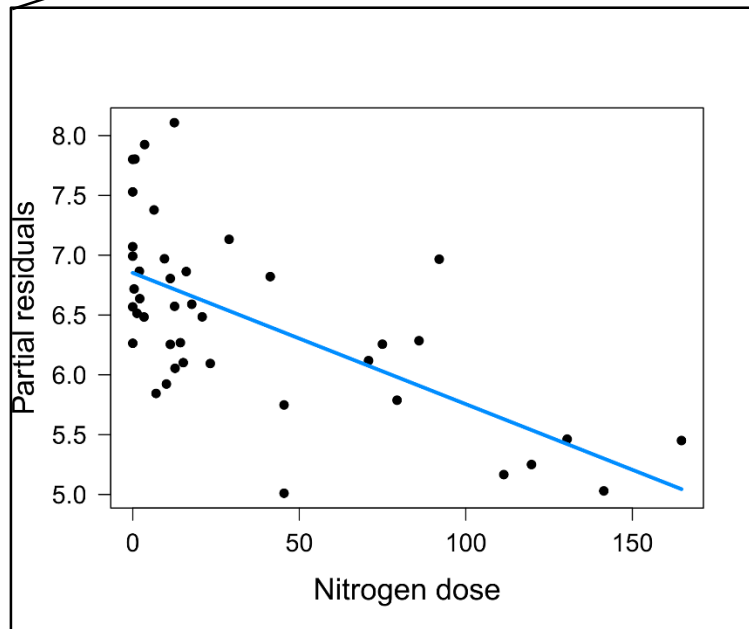
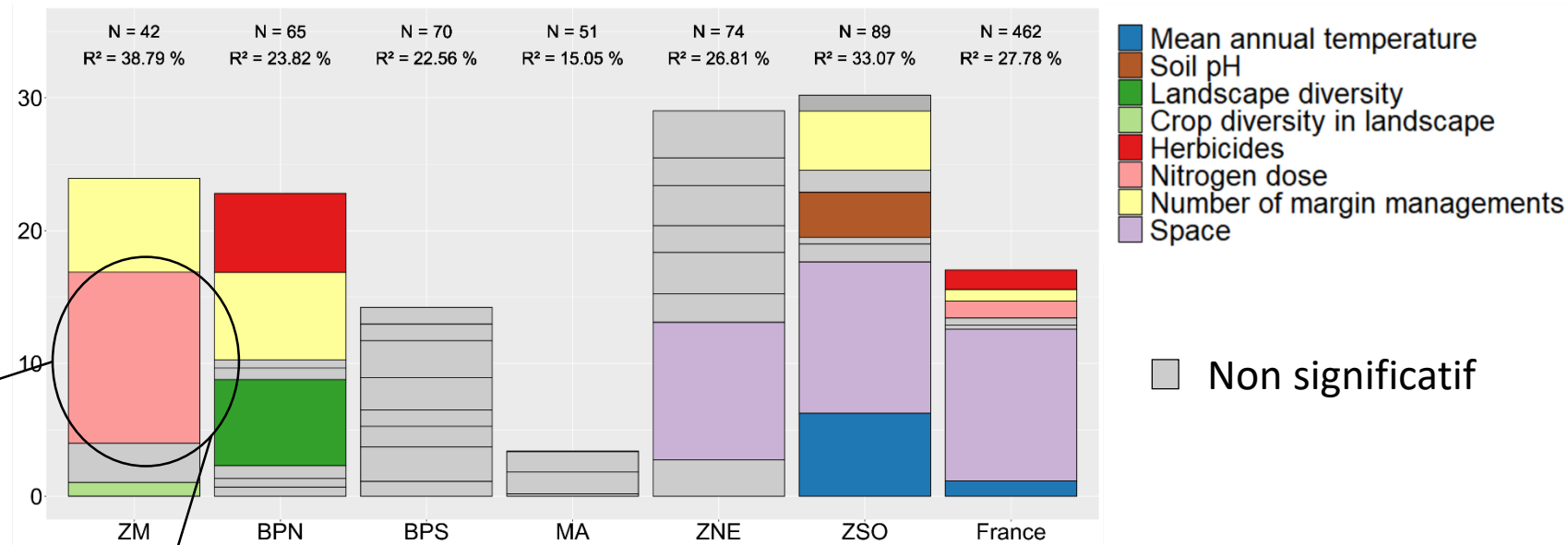
La fertilisation azotée impacte les assemblages d'espèces à large échelle





Résultats

Species richness



Des impacts agricoles spécifiques à chaque région

➤ implications pour les décisions de réduction des impacts agricoles

1 **Scale dependence of agricultural effects driving field margin communities:**
2 **influence of spatial resolution and extent**

3 **Isis Poinas^{1,2*}, Guillaume Fried², Laura Henckel³, Christine N Meynard¹**

4 ¹CBGP, INRAE, CIRAD, Institut Agro, IRD, Univ Montpellier, Montpellier, France

5 ²Anses, Laboratoire de la Santé des Végétaux, Unité Entomologie et Plantes invasives, 755 avenue du
6 campus Agropolis, CS30016, 34988 Montferrier-sur-Lez Cedex, France

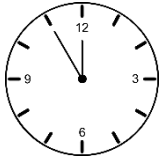
7 ³INRAE Dijon, UMR Agro-écologie, 17 rue Sully, 21000 Dijon, France

8 * Corresponding author : Isis Poinas (isis.poinas@inrae.fr)

9



Axe 2 – Variations temporelles



Objectifs

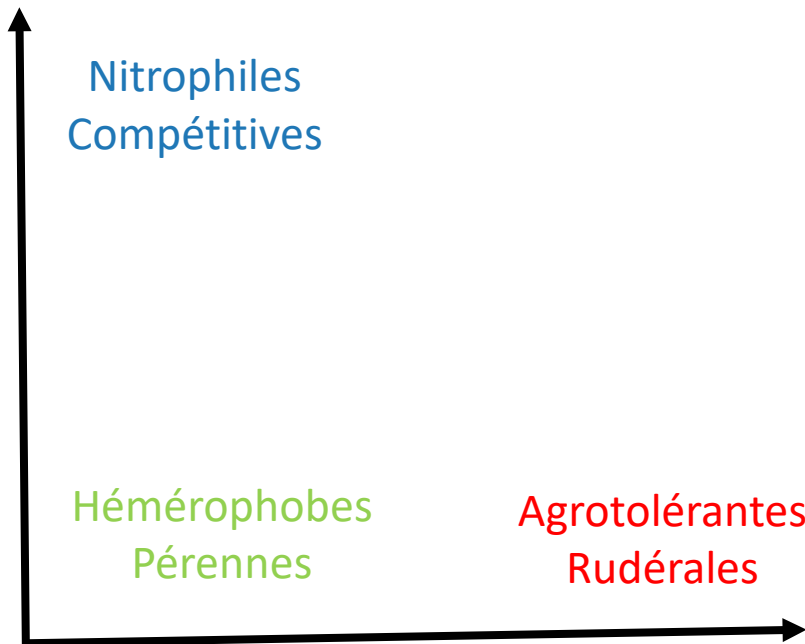
Stratégies fonctionnelles



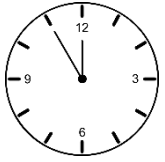
Pratiques agricoles



Ressources



Perturbations



Objectifs

Stratégies fonctionnelles



Pratiques agricoles

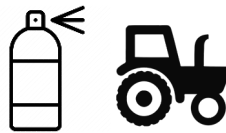


Ressources

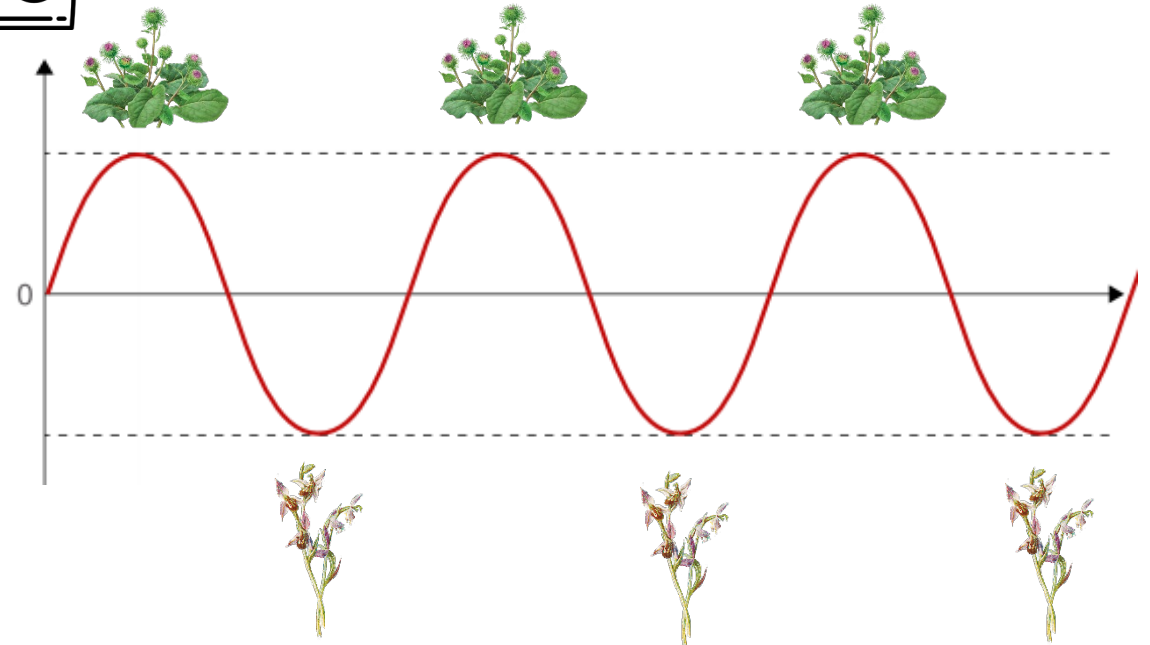
Nitrophiles
Compétitives

Hémérophones
Pérennes

Agrotolérantes
Rudérales

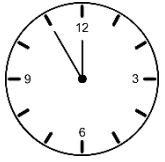


Perturbations



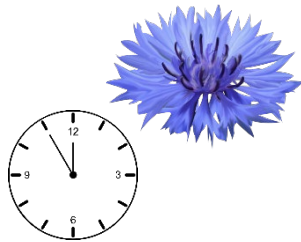
Coexistence temporelle

(Adler et al., 2013)



Objectifs

- Intégrer les traits fonctionnels



Durée floraison



Surface spécifique foliaire



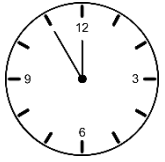
Masse graine



Mode pollinisation

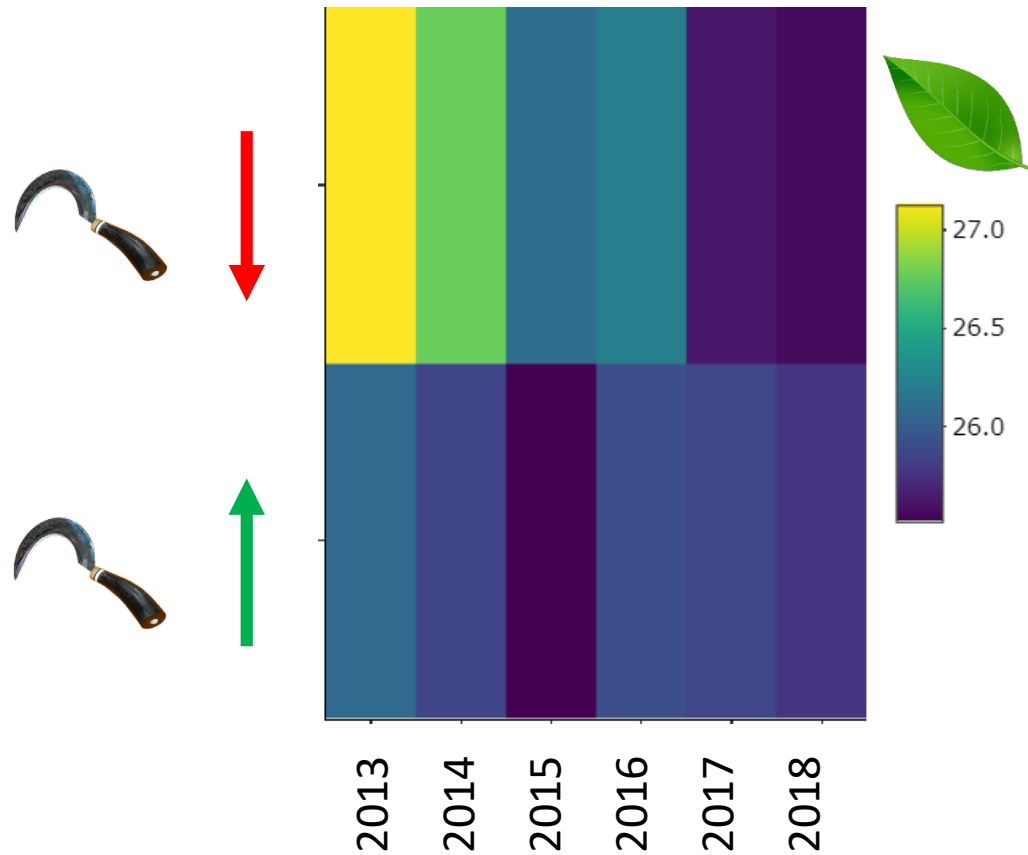


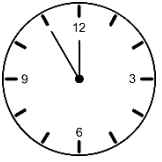
Taille



Objectifs

- Intégrer les traits fonctionnels





Perspectives – Analyses

Variations temporelles de pratiques



Composition taxonomique et fonctionnelle



Compétition, filtrage environnemental et dynamique neutre

- Analyse de structure de métacommunauté (nestedness et co-occurrences)
- Modèles multivariés

Remerciements



Laura Henckel



Christine Meynard



Guillaume Fried

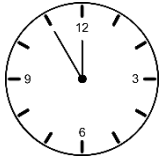


Merci également au réseau 500 ENI et à ses observateurs !



Biodiversité
Agriculture
Alimentation
Environnement
Terre
Eau





Objectifs

- Analyse de la dynamique temporelle



Relevés



Fertilisation



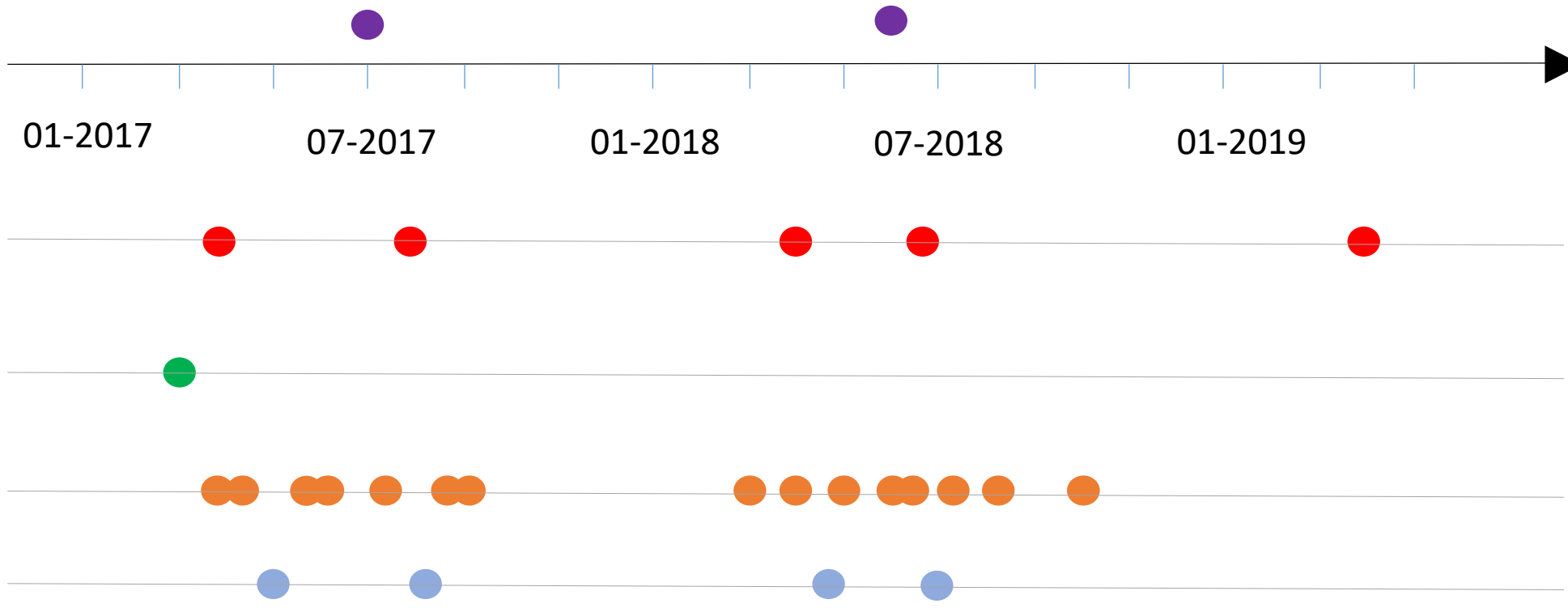
Herbicides

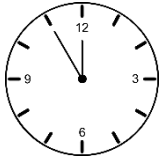


Désherbage
inter-rangs



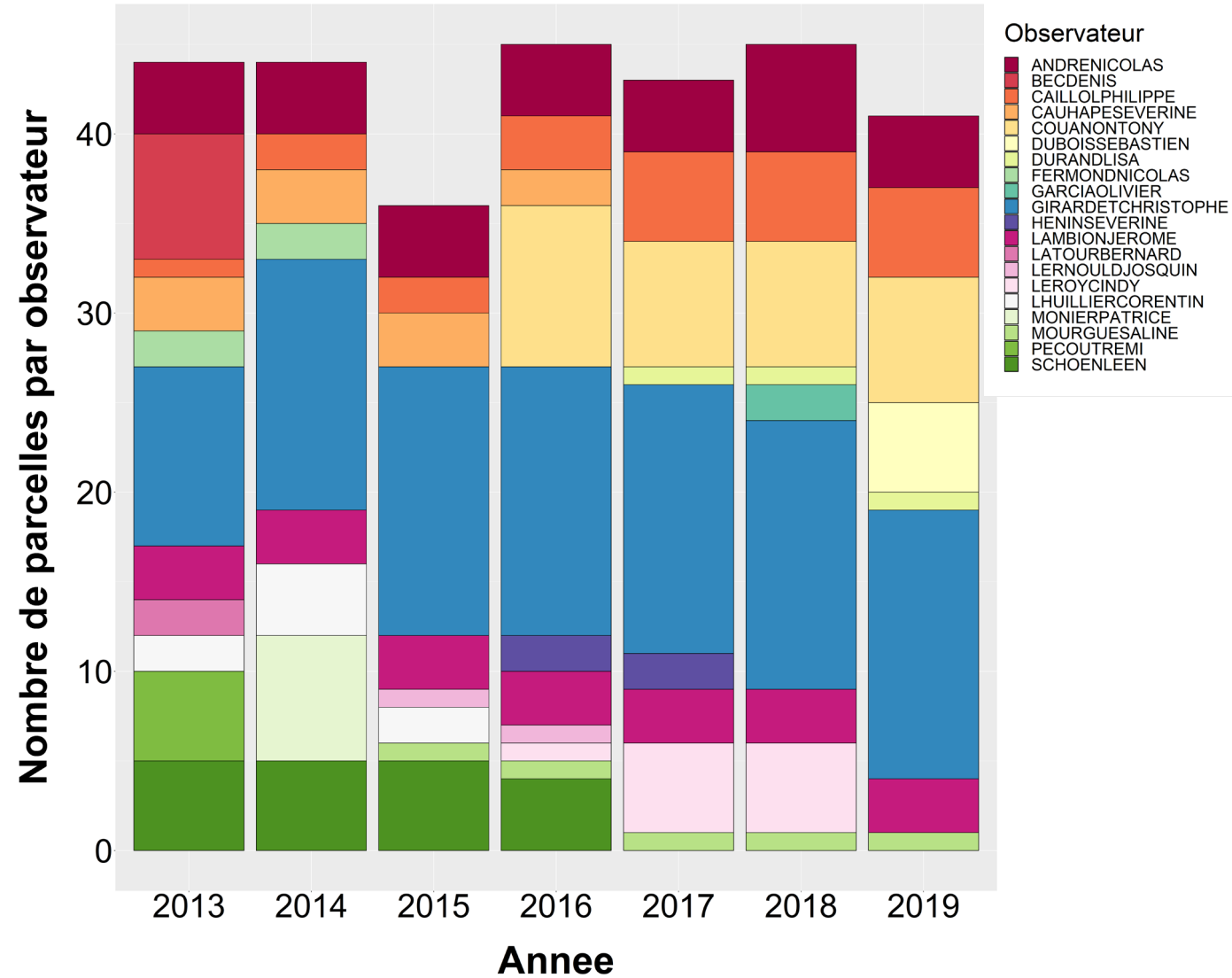
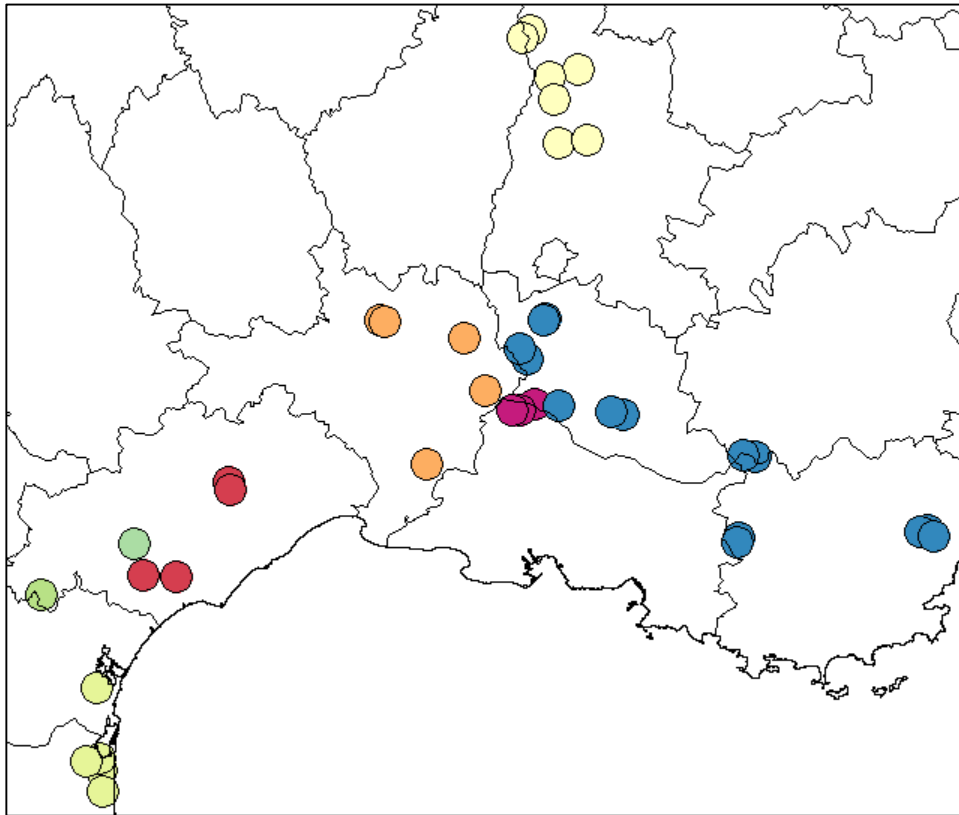
Gestion bordure

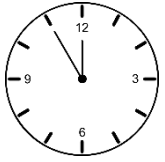




Objectifs

- Intégrer l'effet observateur

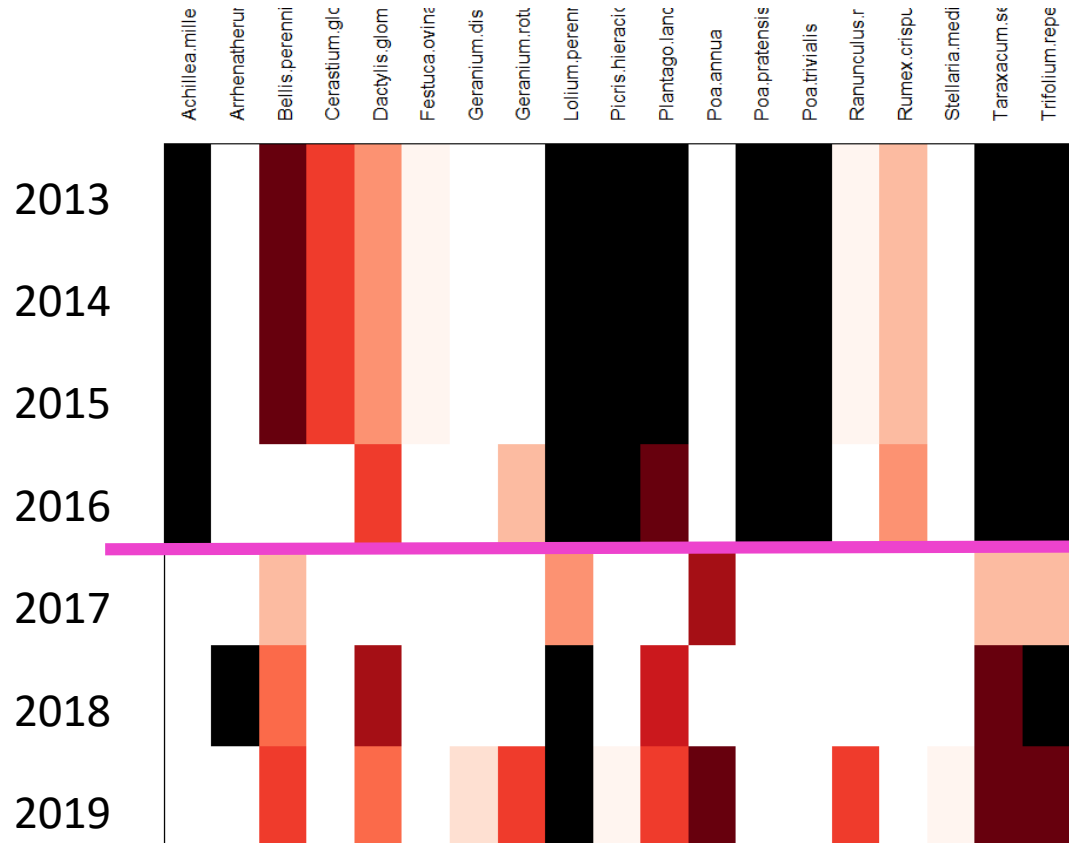
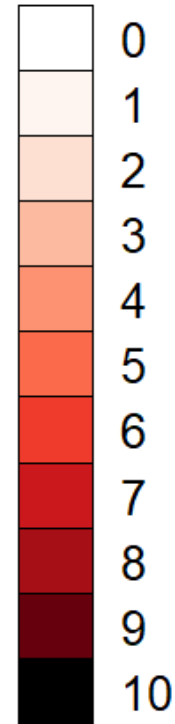




Objectifs

- Intégrer l'effet observateur

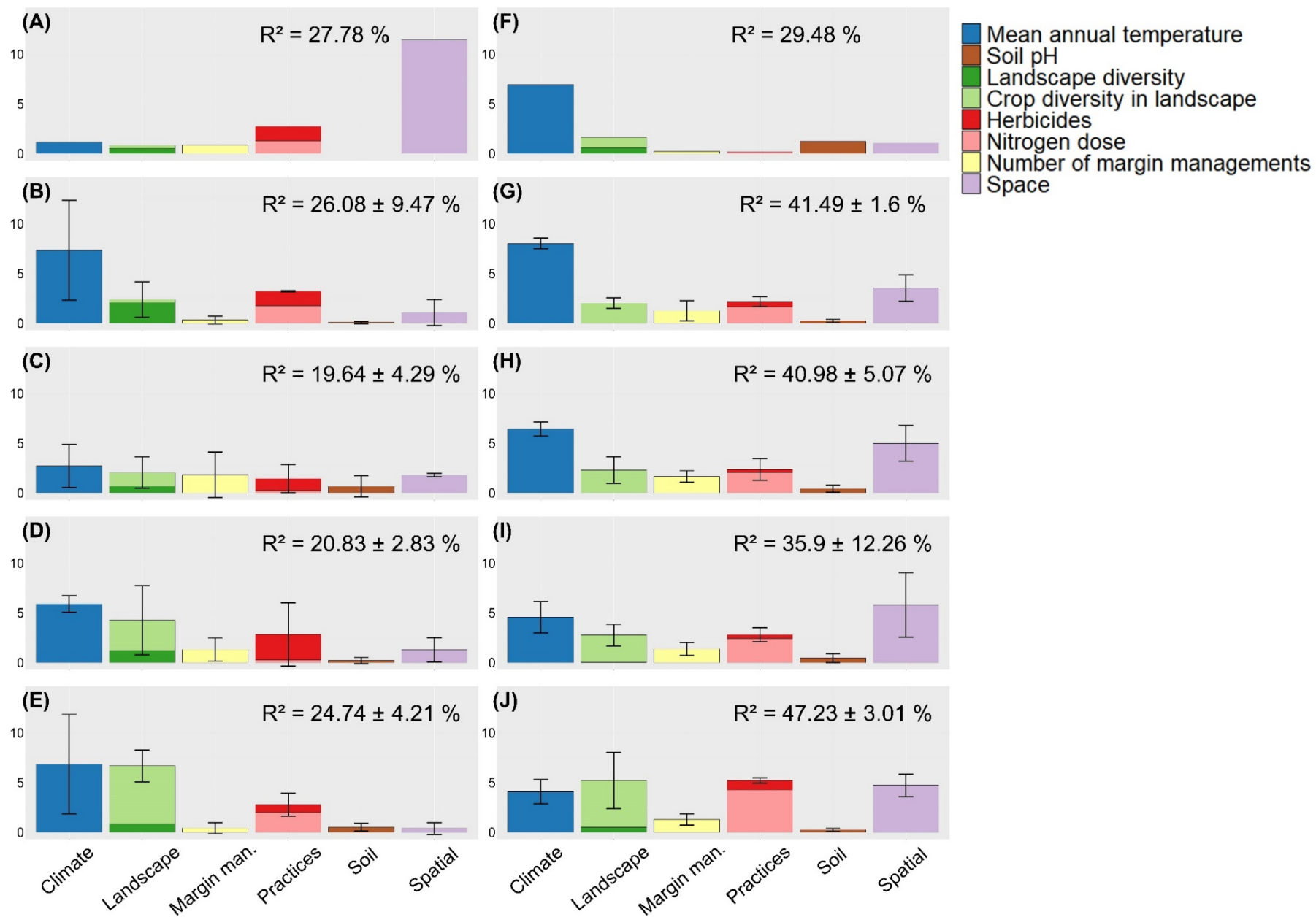
Abondance



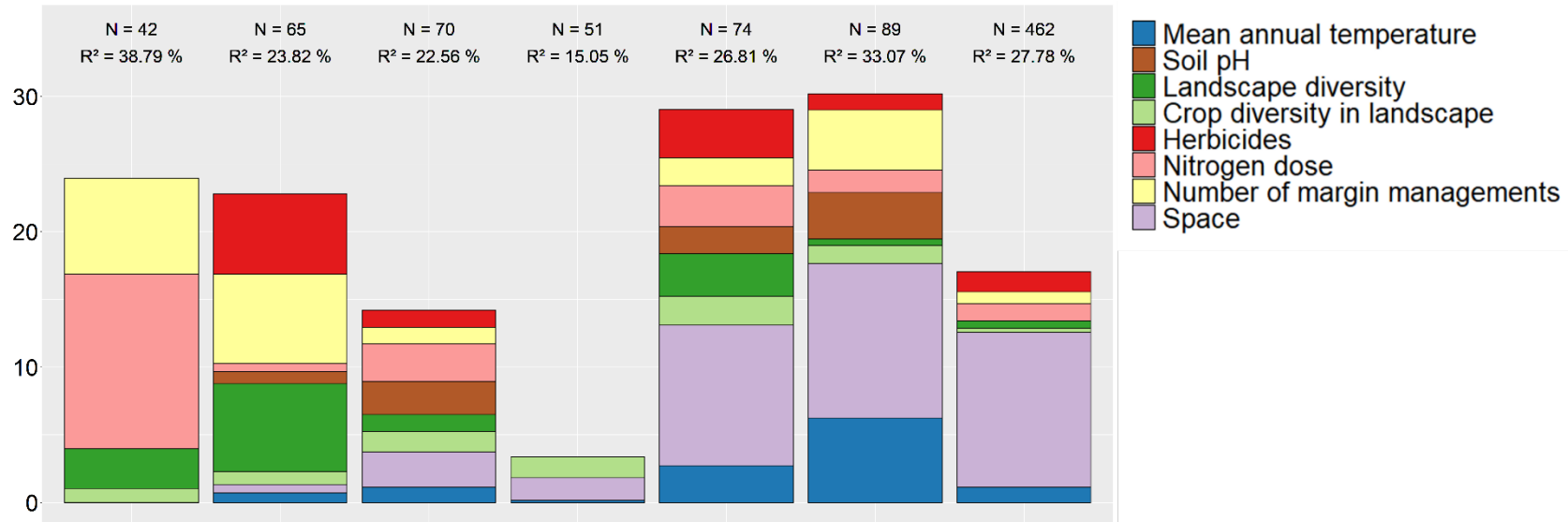
Changement d'observateur

Species richness

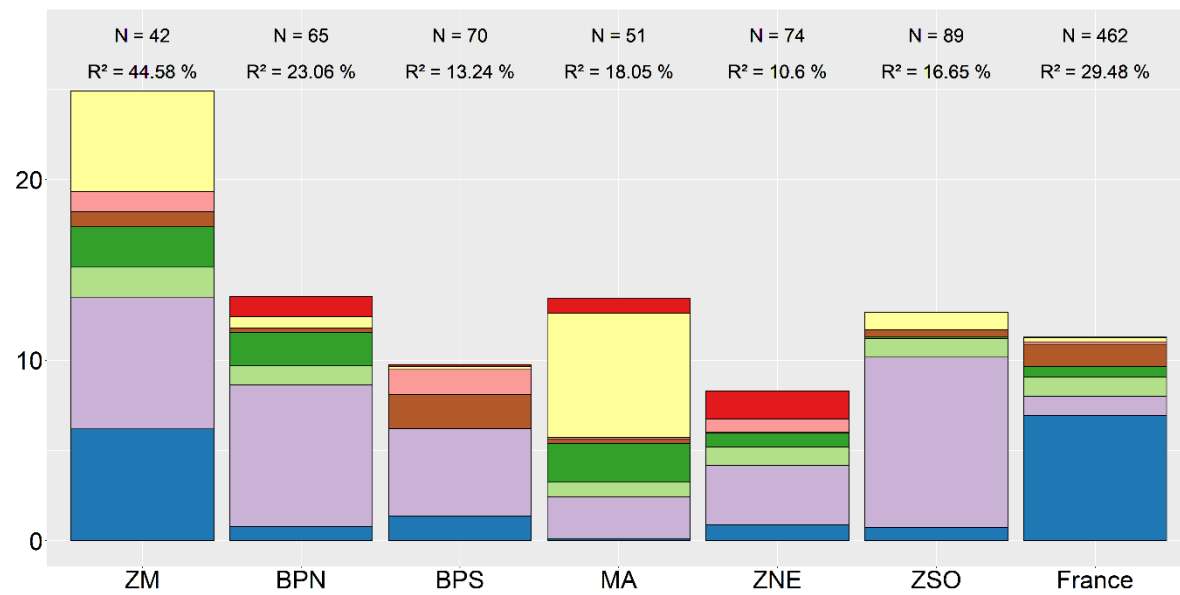
Composition



Species richness



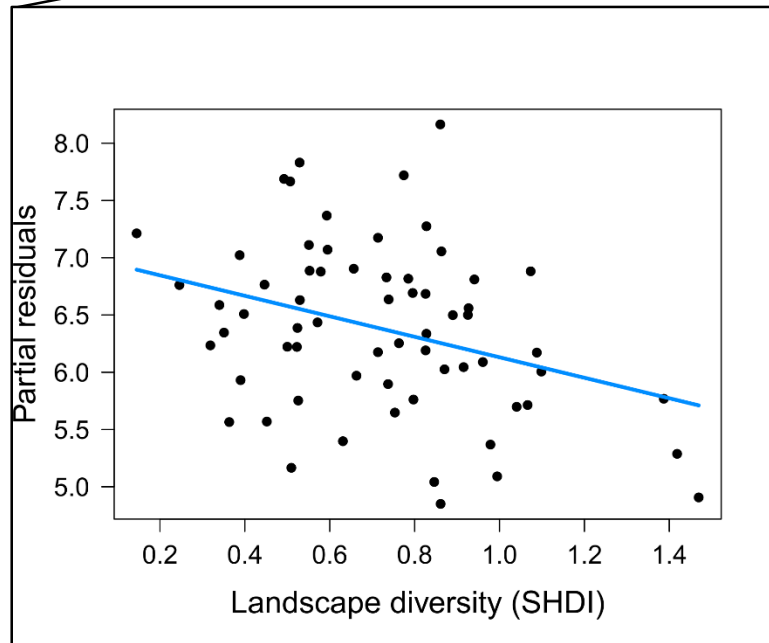
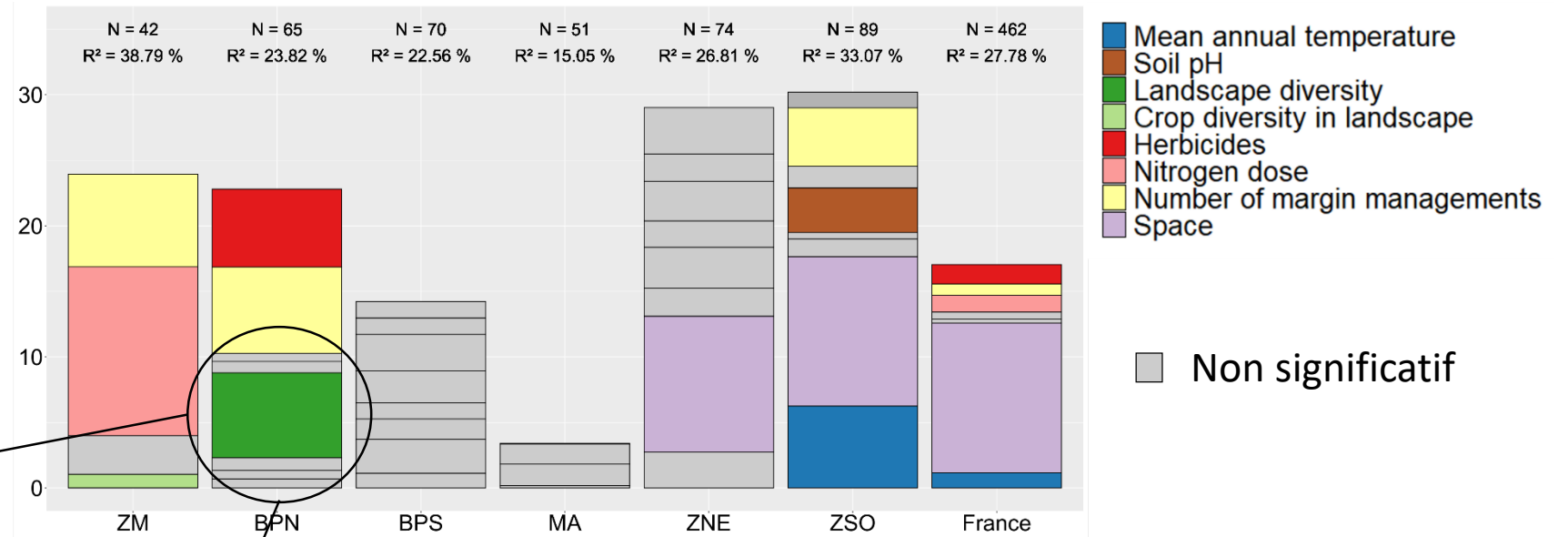
Composition



Résultats

Q2: Etendue spatiale

Species richness



ACP sur les données pratiques

