

Discover the impact of grassland management on local plant and pollinator biodiversity: Lessons from LIFE PollinAction.



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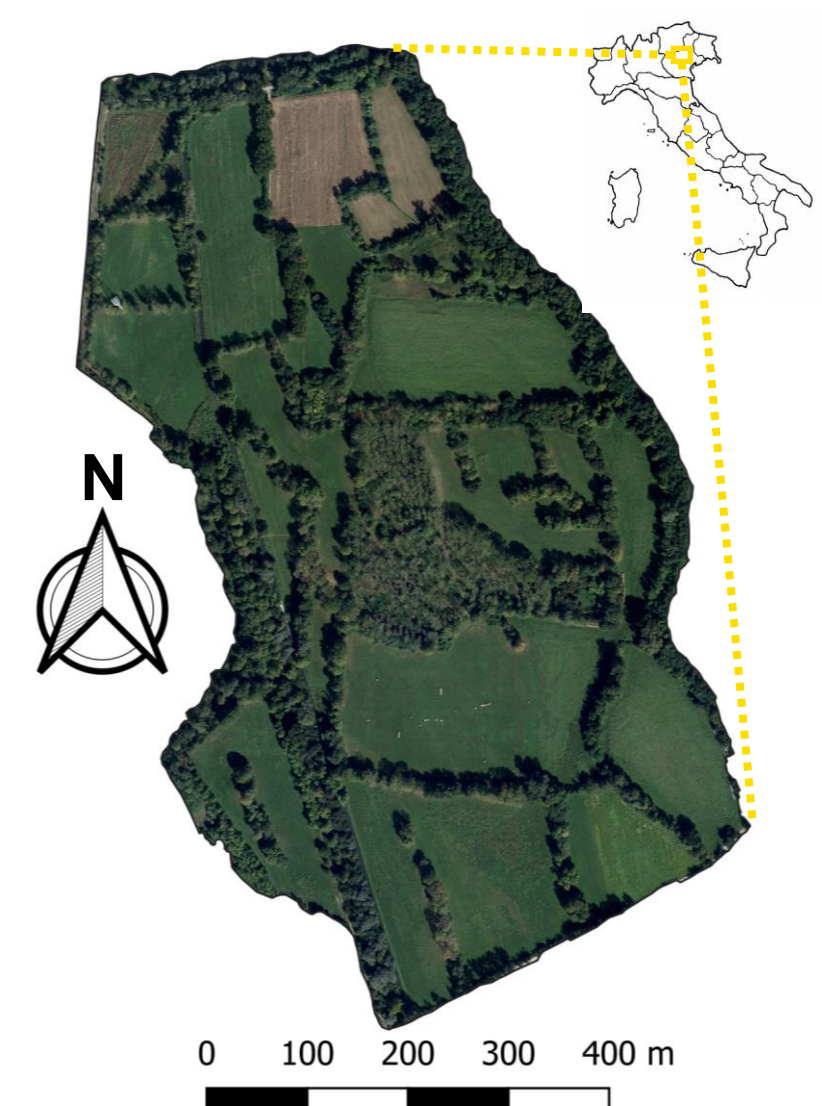
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Introduction

- **Extensive grassland ecosystems** are a **biodiversity hotspots** for plant and pollinator communities;
- In Europe, agricultural intensification has led to a **decline in extensive grassland extent and quality**;
- Understanding **how changes in grassland management affect plant and pollinator communities** is increasingly important for grassland conservation and the provision of pollination service.

Study site

- Natura 2000 site: «Basse del Brenta», Cartigliano (VI), Italy;
- Characterized by “**bocage**” of perennial grasslands divided by hedges with different grassland management.



Does grassland management affect plant and pollinator communities?

Materials & Methods

Intensive grasslands



N° of grasslands = 6
3 mowing events every year. Fertilized.

Extensive grasslands



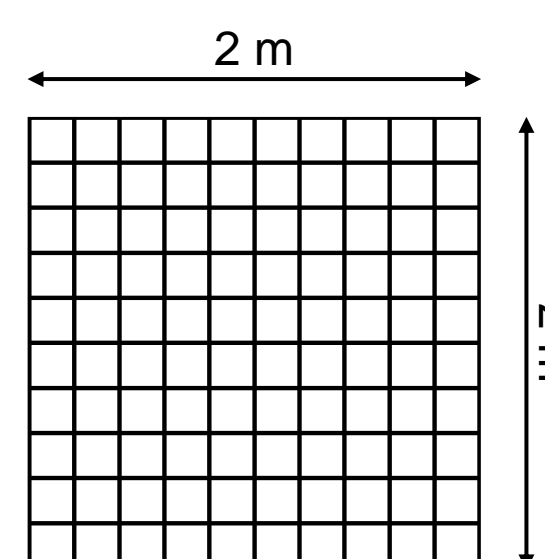
N° of grasslands = 6
2 mowing events every year. Not fertilized.

Abandoned grasslands



N° of grasslands = 4
1 mowing rarely. Not fertilized.

- Observation plots from March to September;
- Once per month: 8 minutes of observation replicated in the morning and in the afternoon;
- N° of surveys = 32.



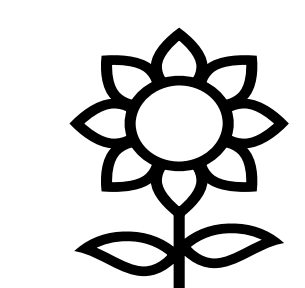
Spatial attributes:

- Area of grasslands;
- Length of woody hedges along their perimeter.



Pollinator community attributes:

- Richness of pollinator species;
- Richness of pollinator orders (coleopterans, lepidopterans, hymenopterans, dipterans, orthopterans, hemipterans);
- Number of pollination contacts accounting for pollinator order.



Plant community attributes:

- Richness of entomophilous species;
- Number of floral displays.

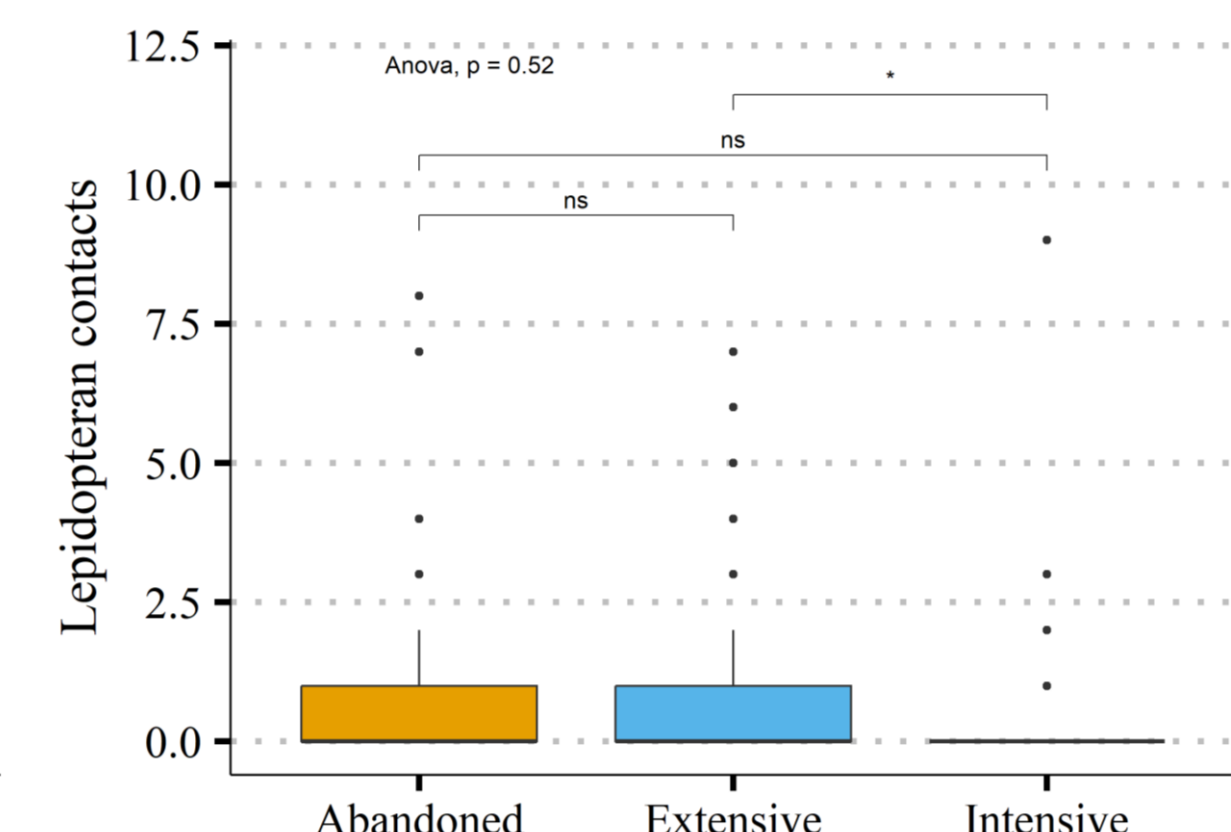
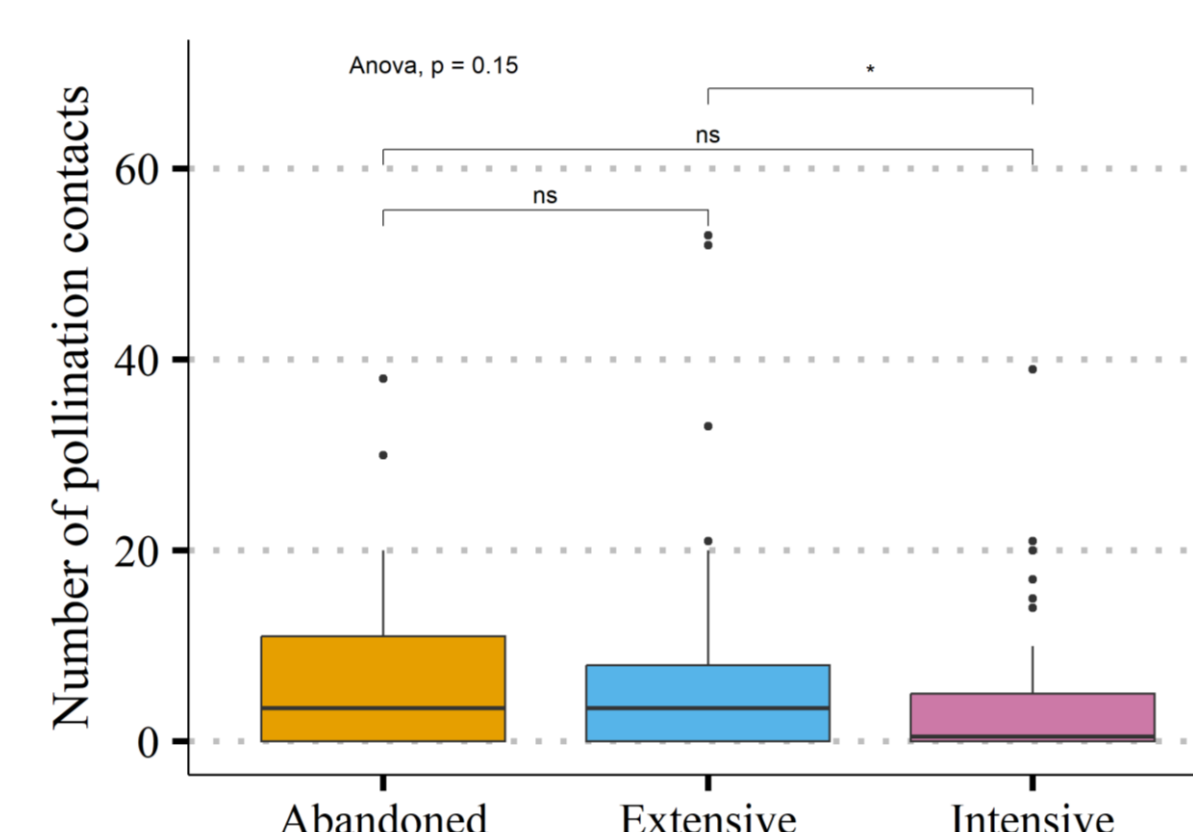
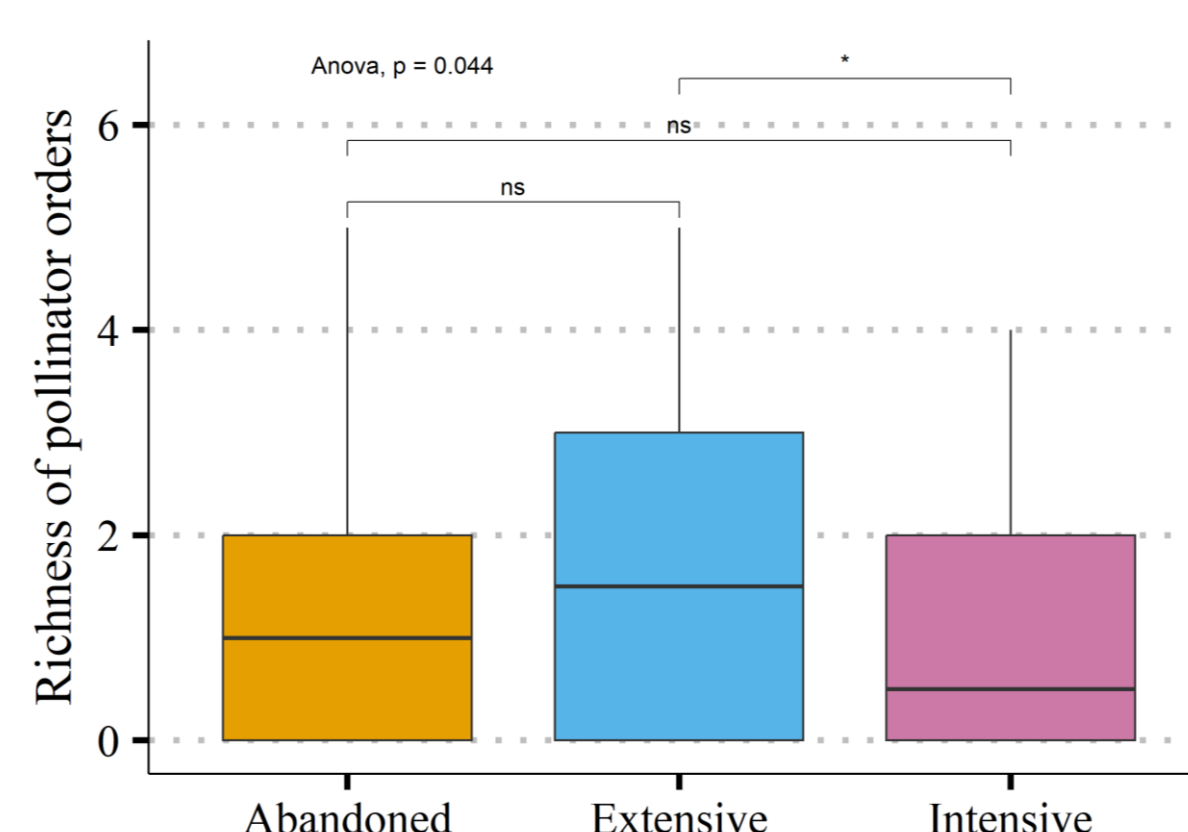
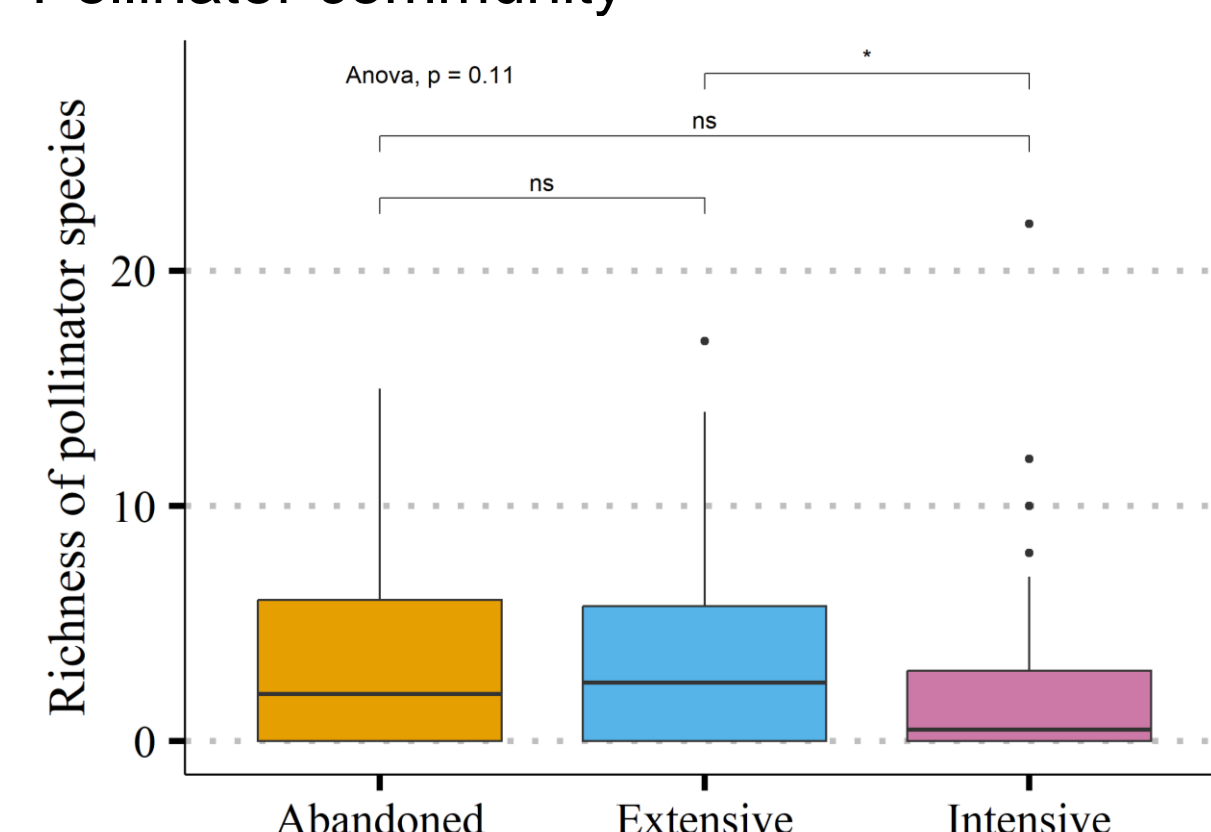
ANOVA and Tukey analysis:

Grouping variable:

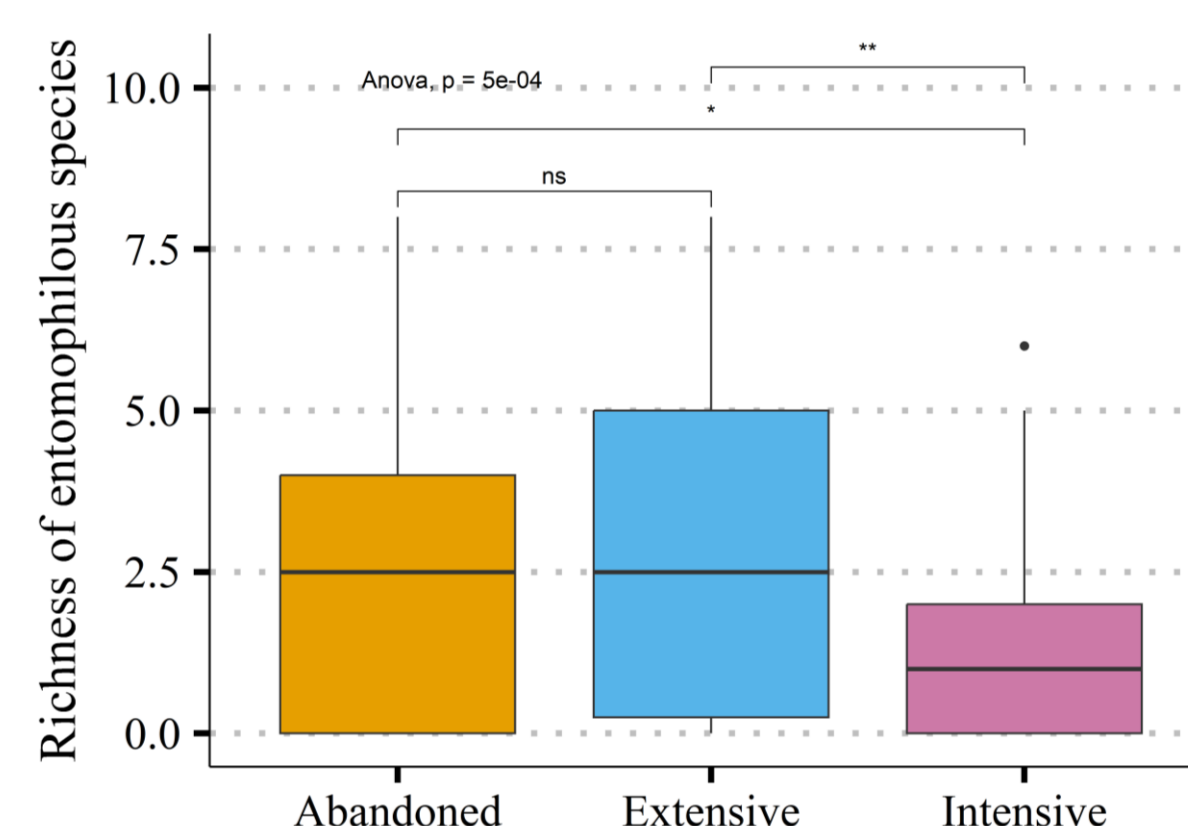
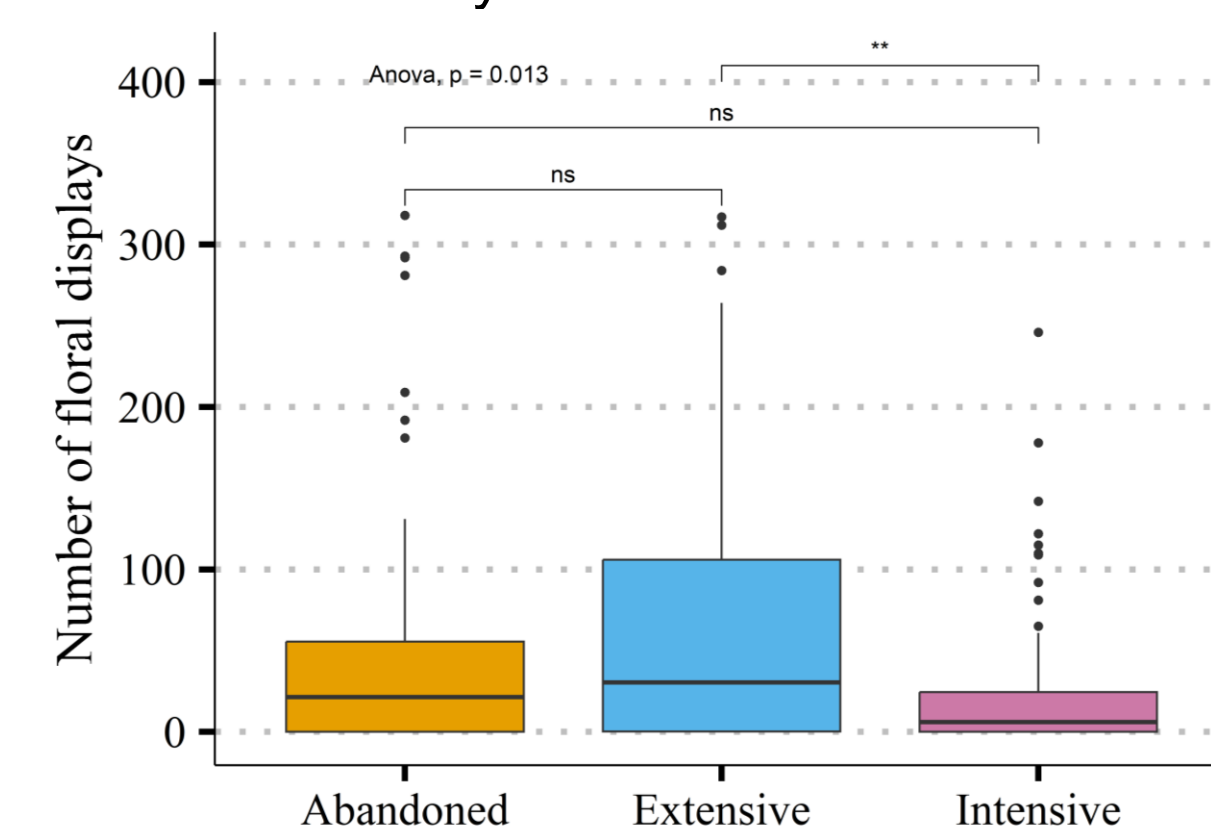
- Grassland management;
- Dependent variables:*
- Pollinator community attributes;
 - Plant community attributes.

Results

Pollinator community



Plant community



- 1) **No significant differences were found between extensive and abandoned grasslands** for pollinator and plant community attributes (richness of pollinator species, richness of pollinator orders and number of pollination contacts for any pollinator order);
- 2) **Intensively managed grassland had significantly lower values** for the number of floral displays and the richness of entomophilous species **than extensively managed grassland**. In addition, **intensively managed grasslands had significantly lower values** for richness of pollinator species, richness of pollinator orders, number of pollination contacts and lepidopteran contacts **compared to extensive management**.

Extensive and abandoned grasslands have a higher number of plant species and floral displays, as well as a higher number of pollinator orders and species