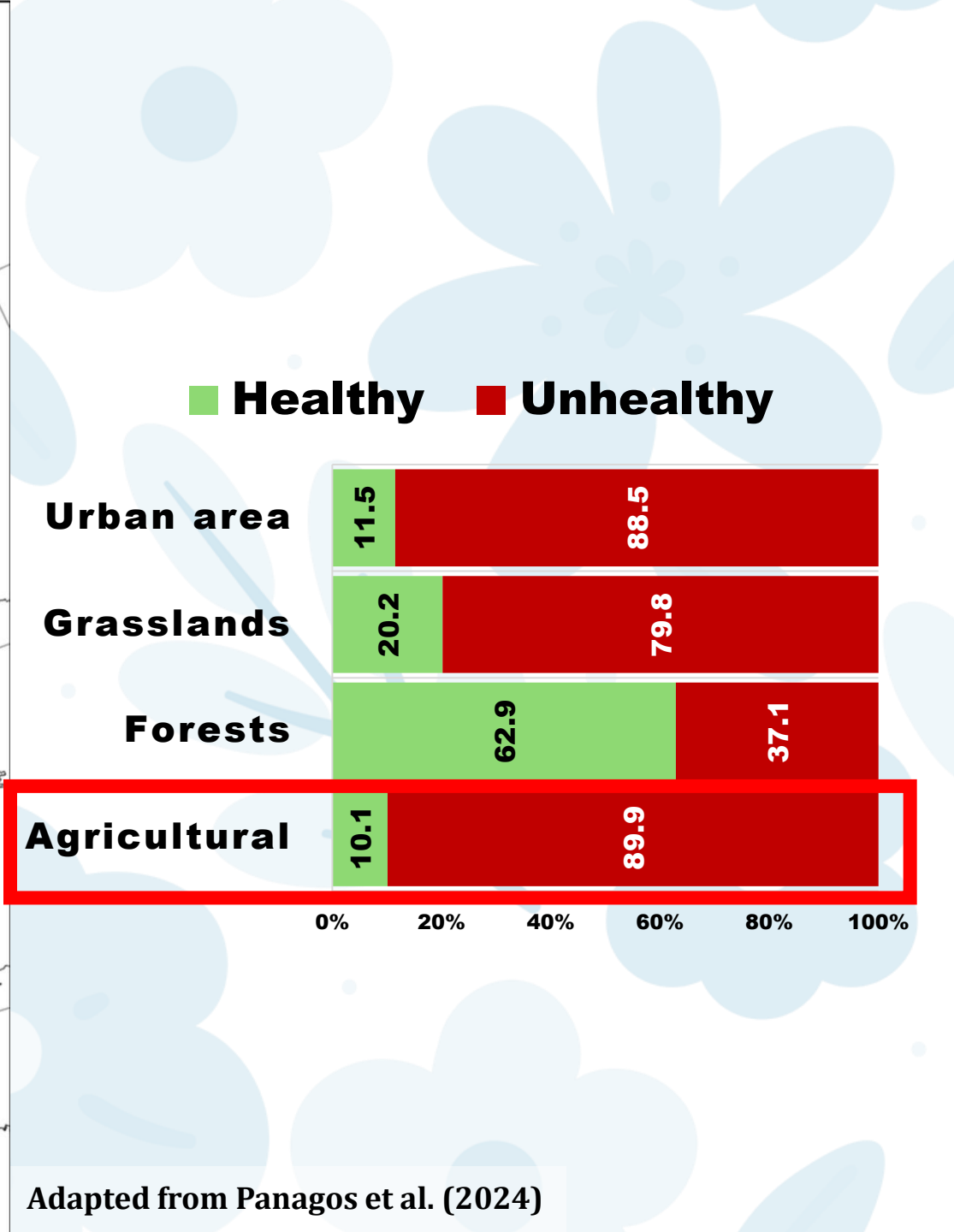
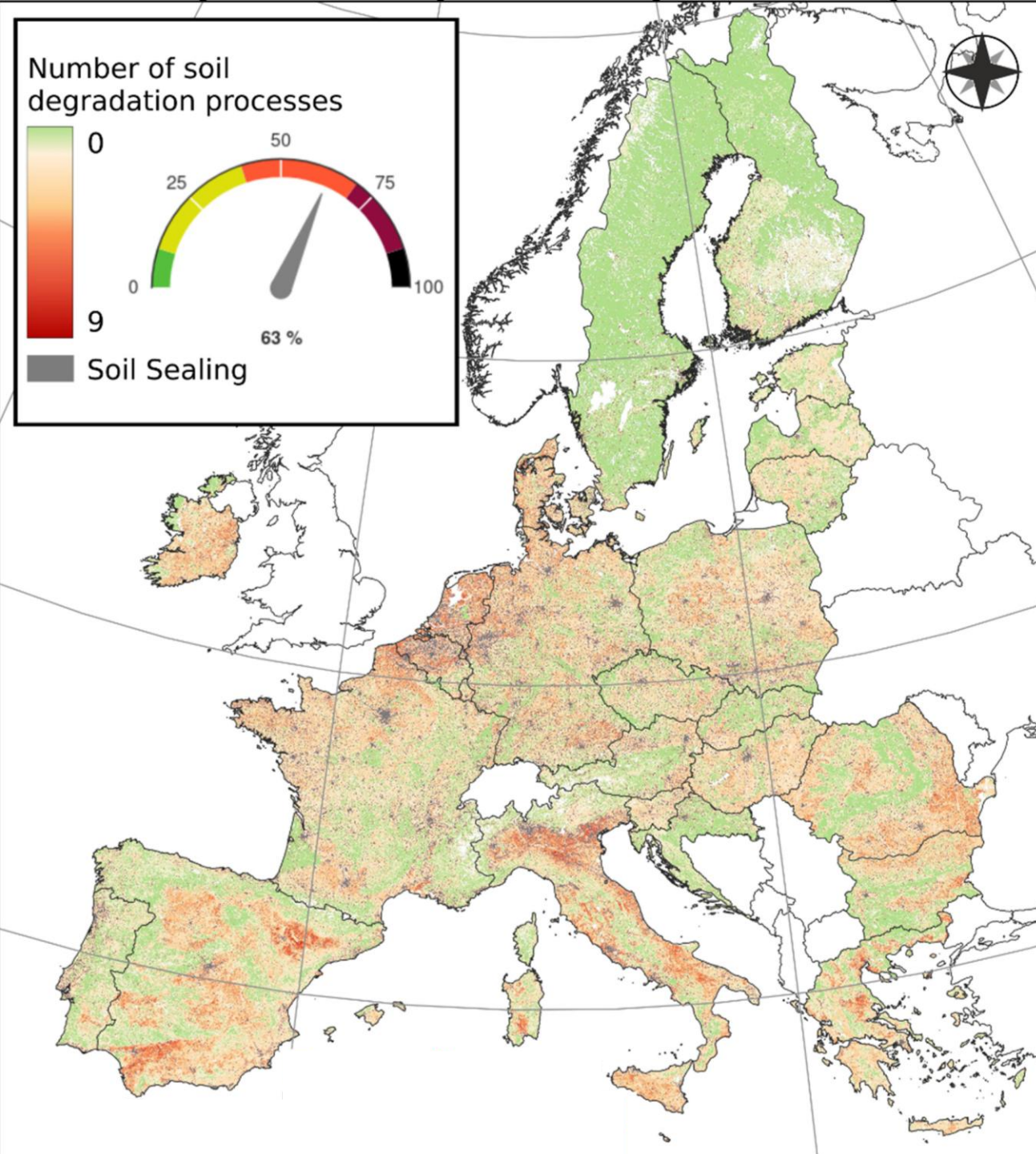




# Wildflower strips and soil fauna: multi-taxa responses to management and consequences for decomposition

Alfredo Ventura & the Insect Ecology Group





Adapted from Panagos et al. (2024)

# Wildflower strips

- Small natural ecosystems
- Growing policy tool in the EU
- Focus on aboveground biodiversity



Credit: Jaroslav Kocourek

# Knowledge gaps

Soil fauna 

Ecosystem services 

Soil tillage risks 

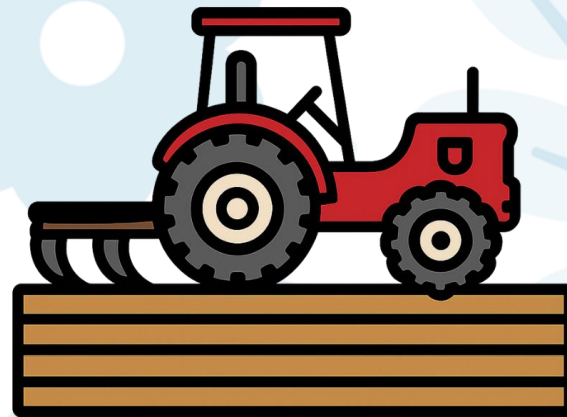


**Wildflower strip**

**VS.**



**Crop control**



**Tillage**

**VS.**



**Herbicide**

Czech Republic  
González et al. (2025)



**Ground-dwelling arthropods**



**Pitfall traps**



**Soil arthropods**



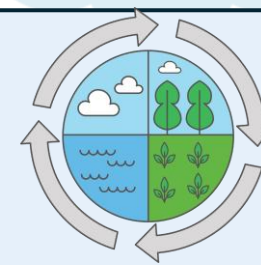
**Tullgren extractor**



**Earthworms**



**Hand sorting**



**Carbon cycle**



**Tea bag method**

**Materials and methods**

Czech Republic  
González et al. (2025)

## Green tea

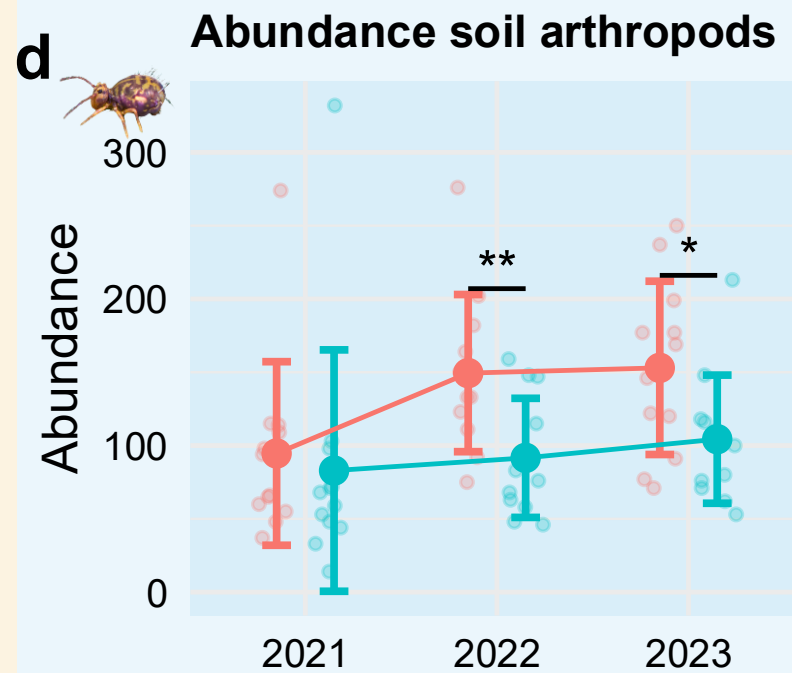
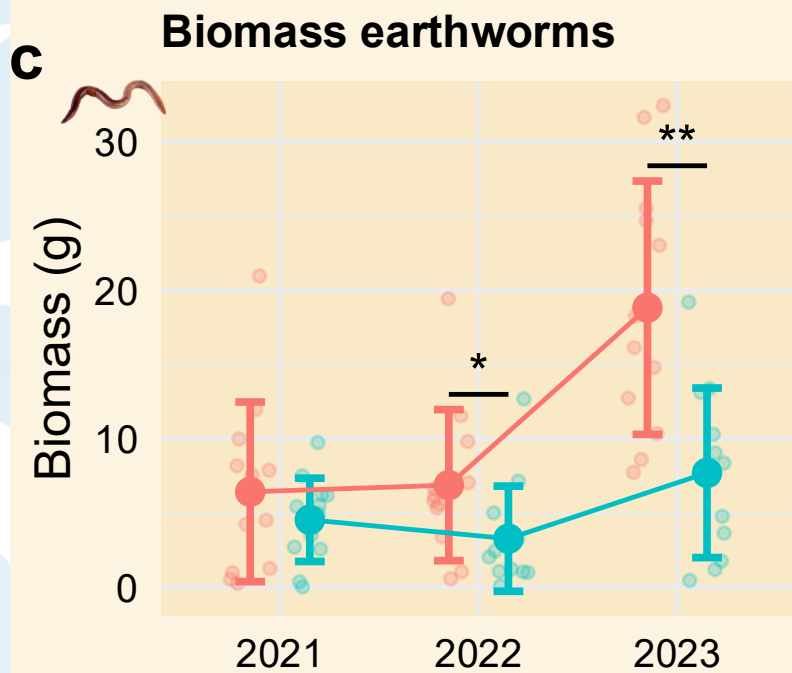
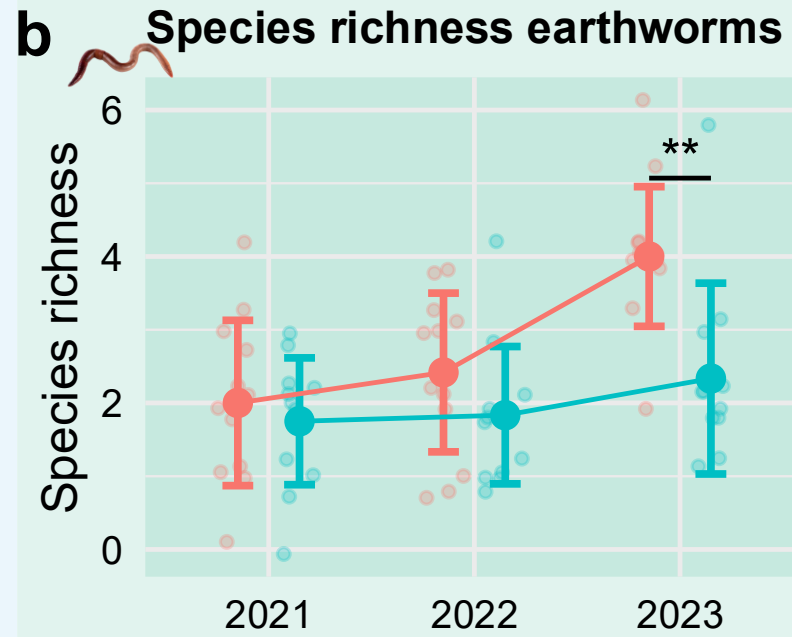
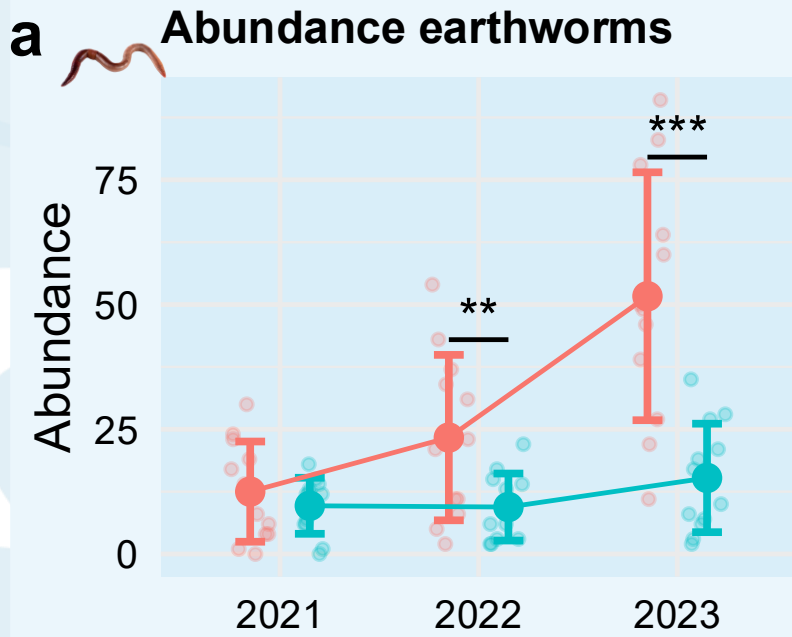


- Fast decomposing (~14 days)
- Low C:N ratio
- Cellulose-rich

## Rooibos



- Slow decomposing (>90 days)
- High C:N ratio
- Lignine-rich

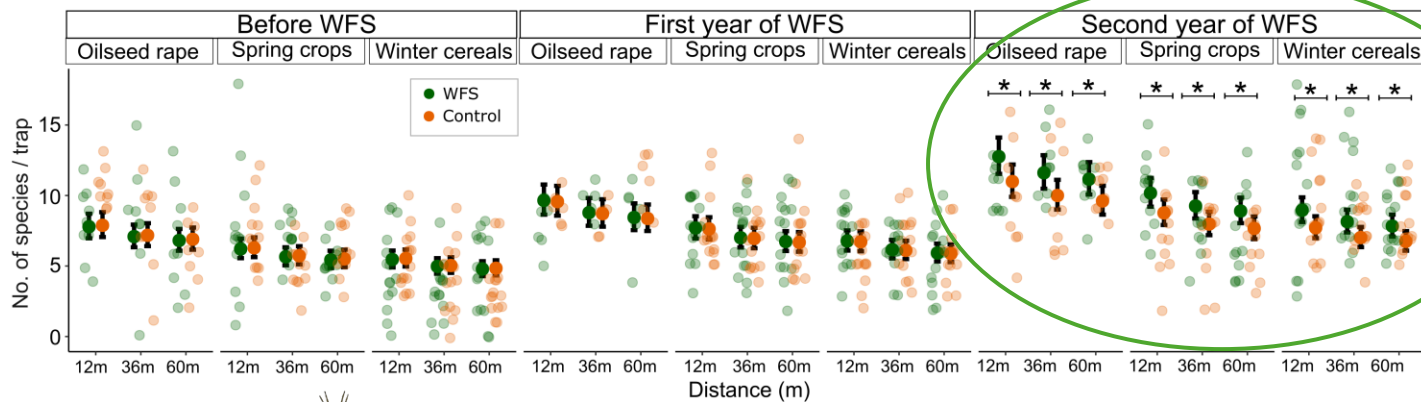


● WFS ● Control

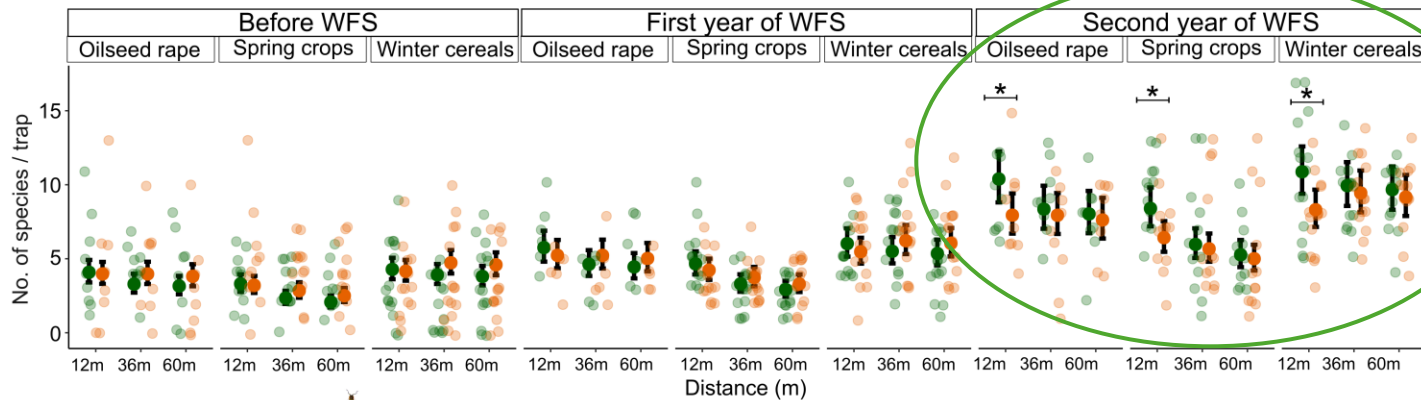
Venturo et al.  
(in preparation)



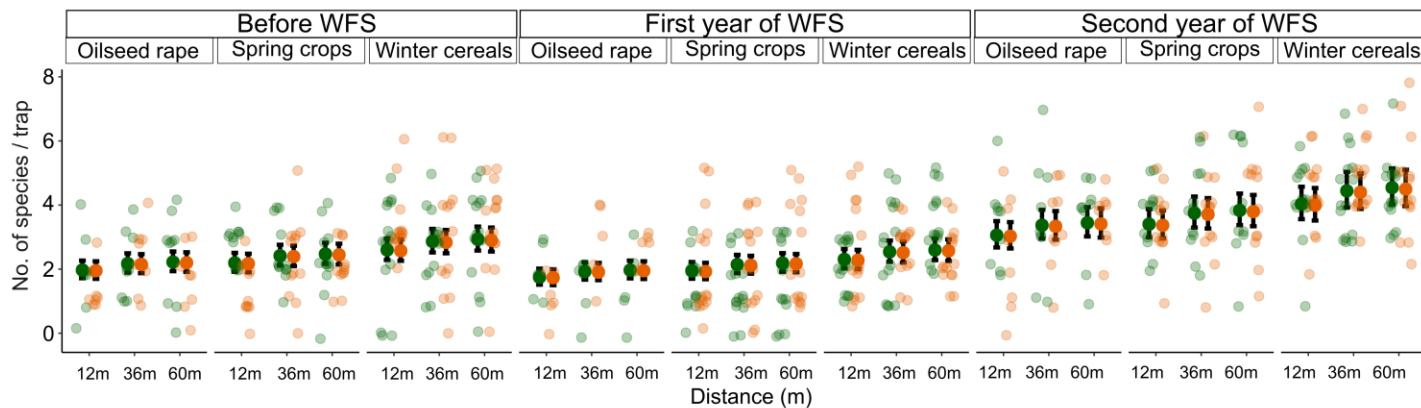
A) Carabid richness

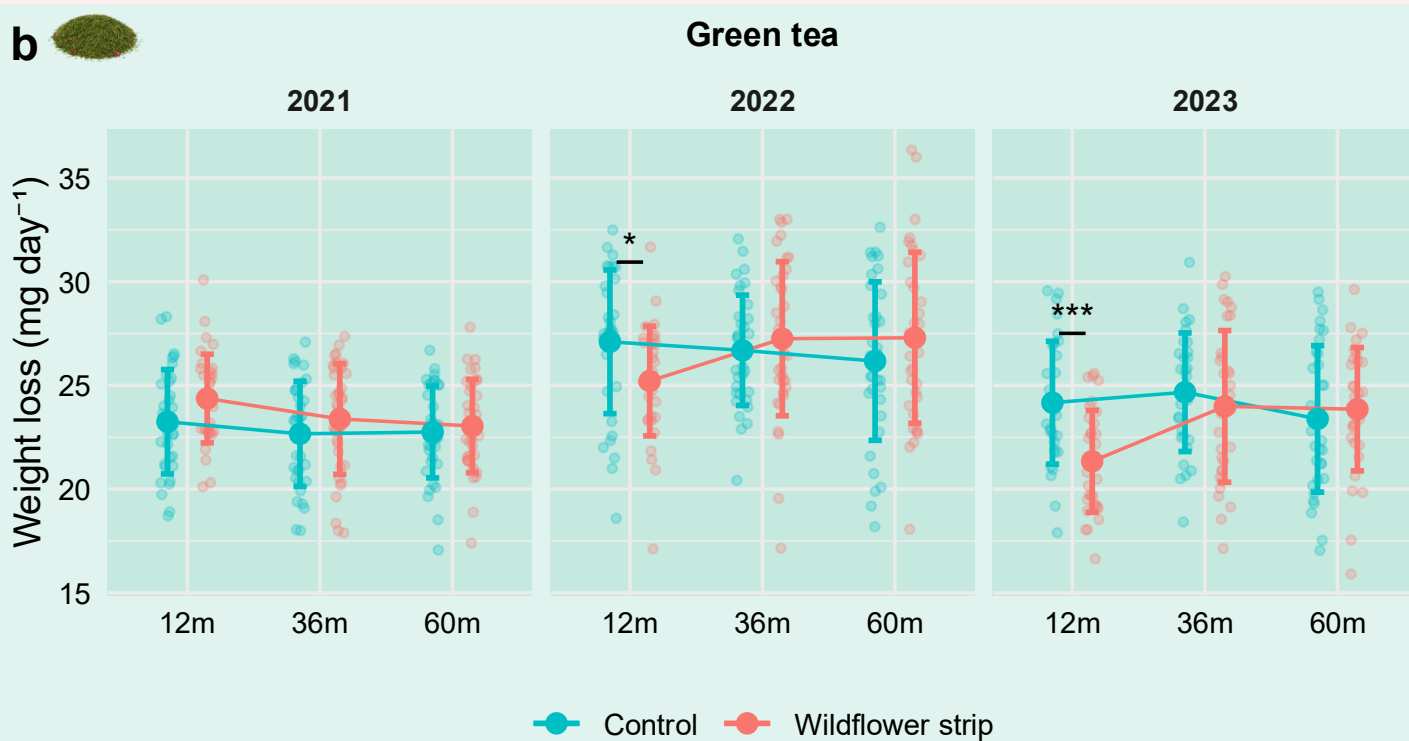
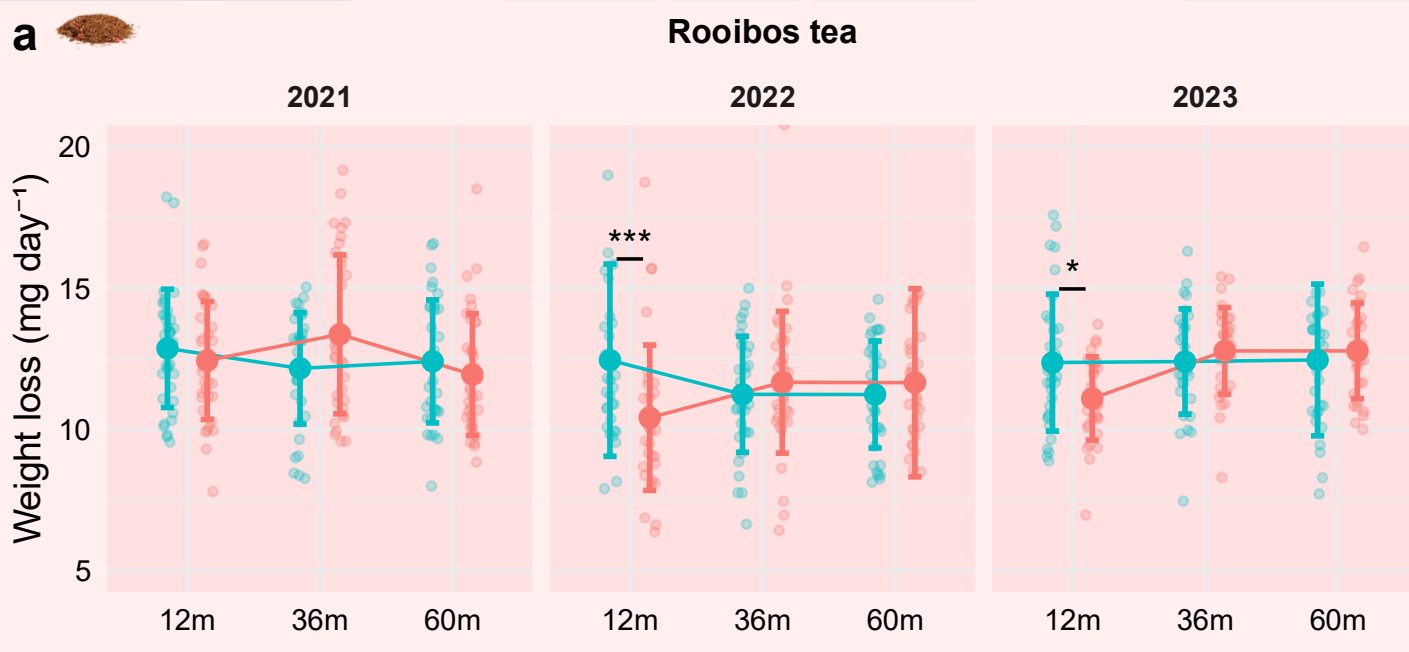


B) Spider richness



C) Myriapod richness





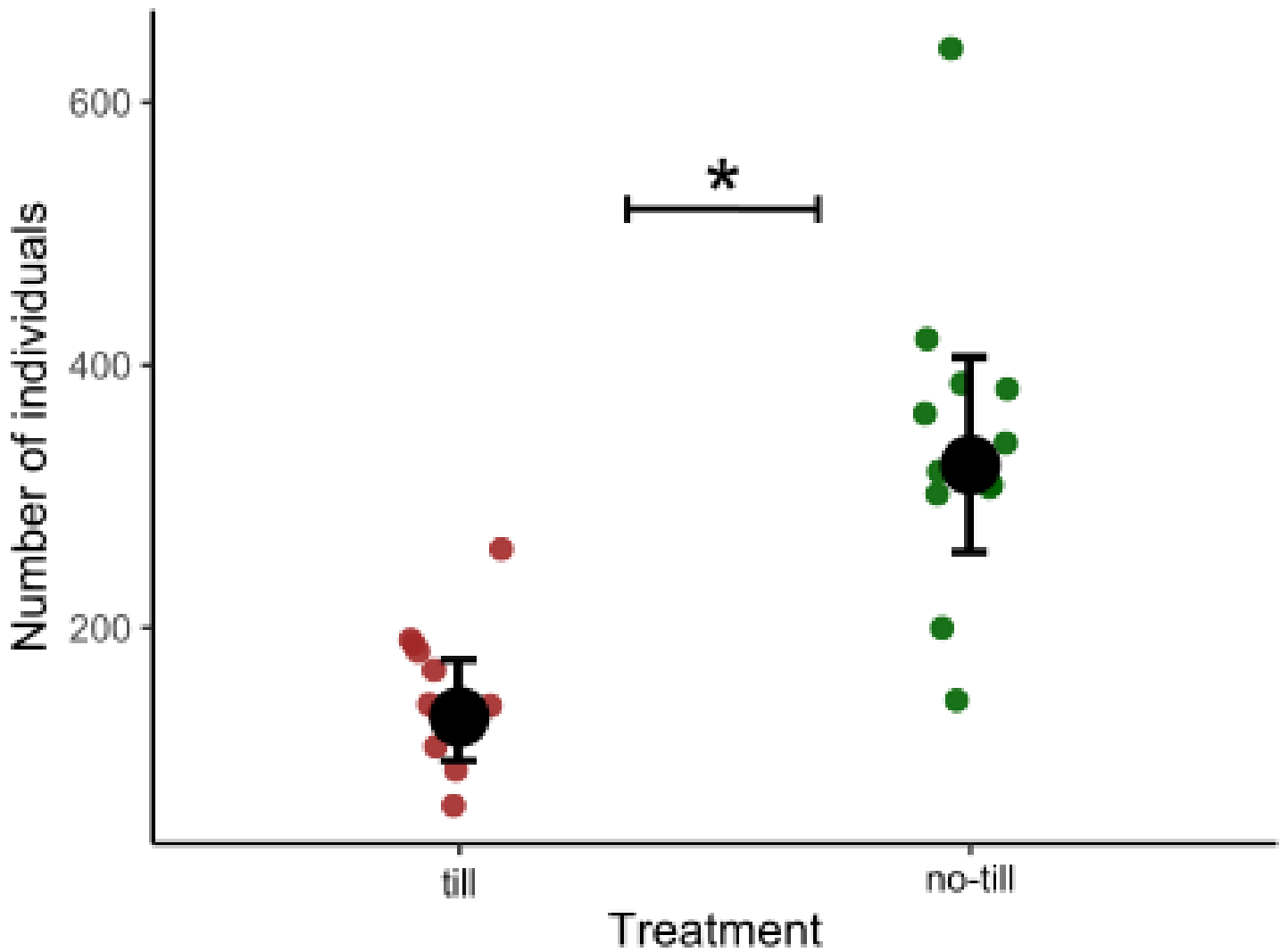
- Wildflower strips slow down decomposition
- Adjacent field not affected
- Effects visible only after 2 years
- Increased soil carbon storage

Venturo et al.  
(in preparation)





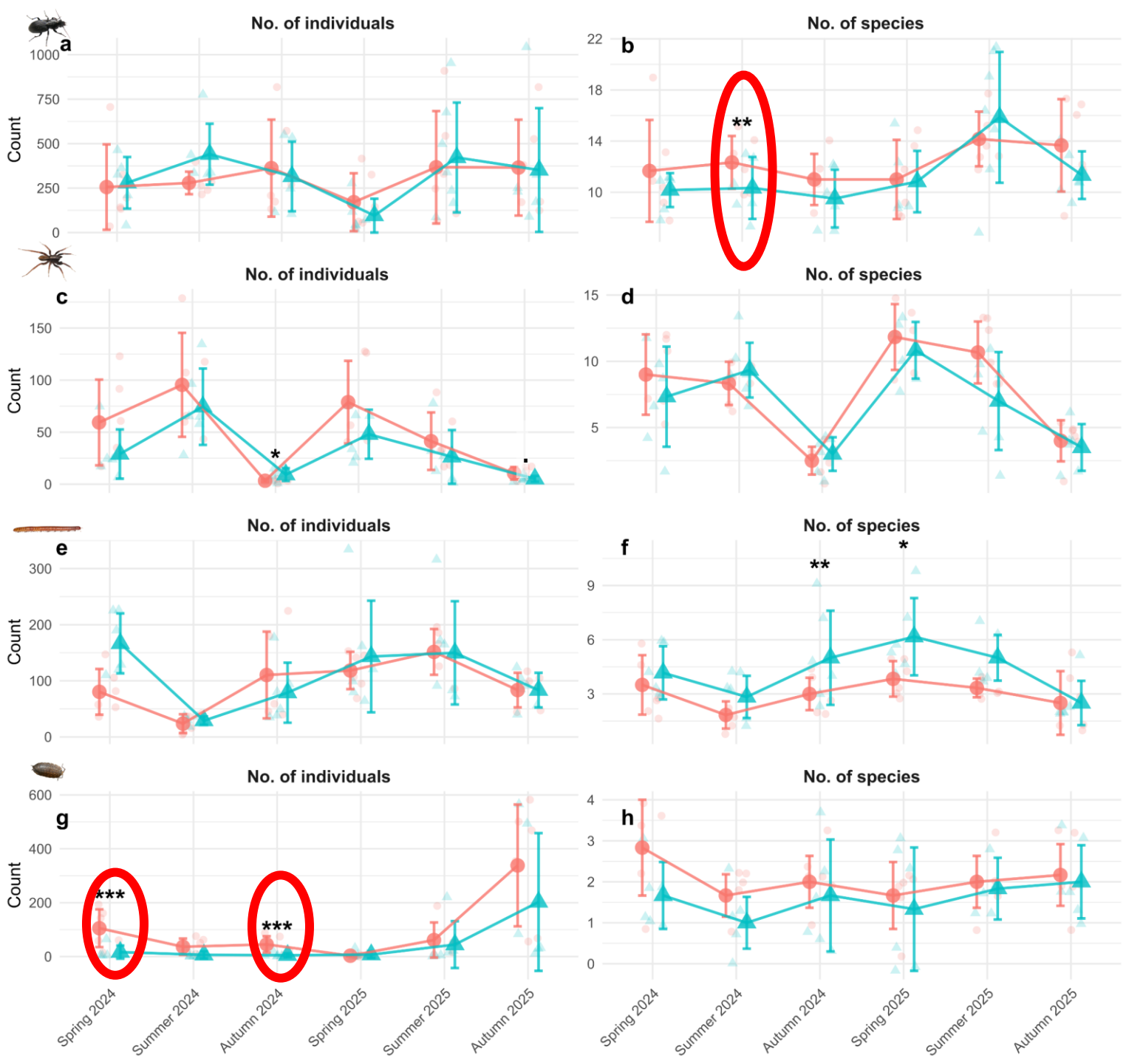
# Soil arthropod abundance



treatment

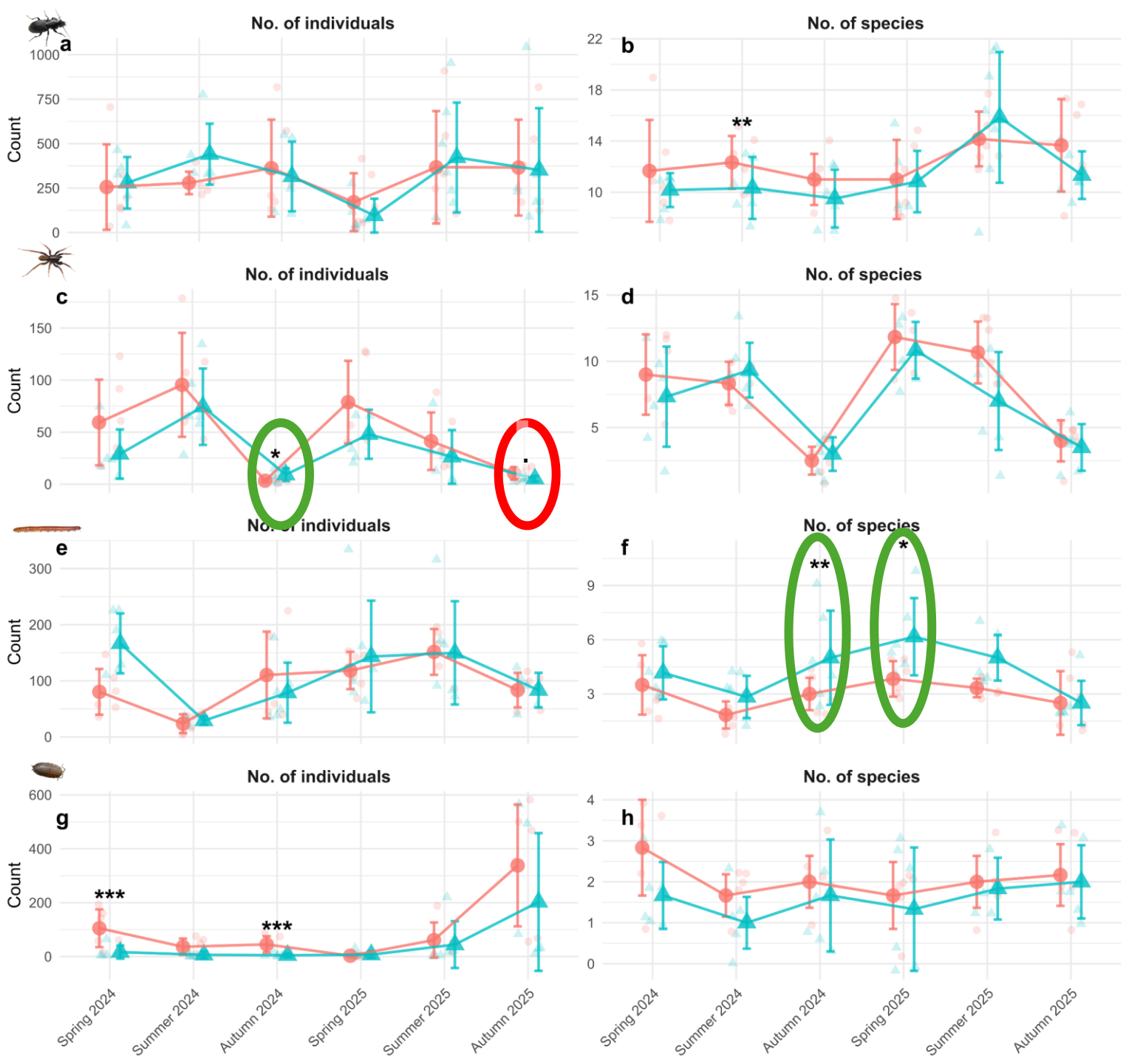
- no-till
- till

González et al.,  
(in preparation)



Tillage ● no-till ▲ till

- Tillage effects are taxa- and time-specific
- Negative effects on carabids and woodlice



Tillage ● no-till ▲ till

- Tillage effects are taxa- and time-specific
- Negative effects on carabids and woodlice
- Positive effects on myriapods
- Rebound effect on spiders

Wildflower strips promote soil macrofauna, but the effects are visible only after 2 years



Decomposition rate decreases in wildflower strips after 2 years



Tillage may represent an ecological trap for some groups of soil fauna



Further research on measuring soil health in wildflower strips





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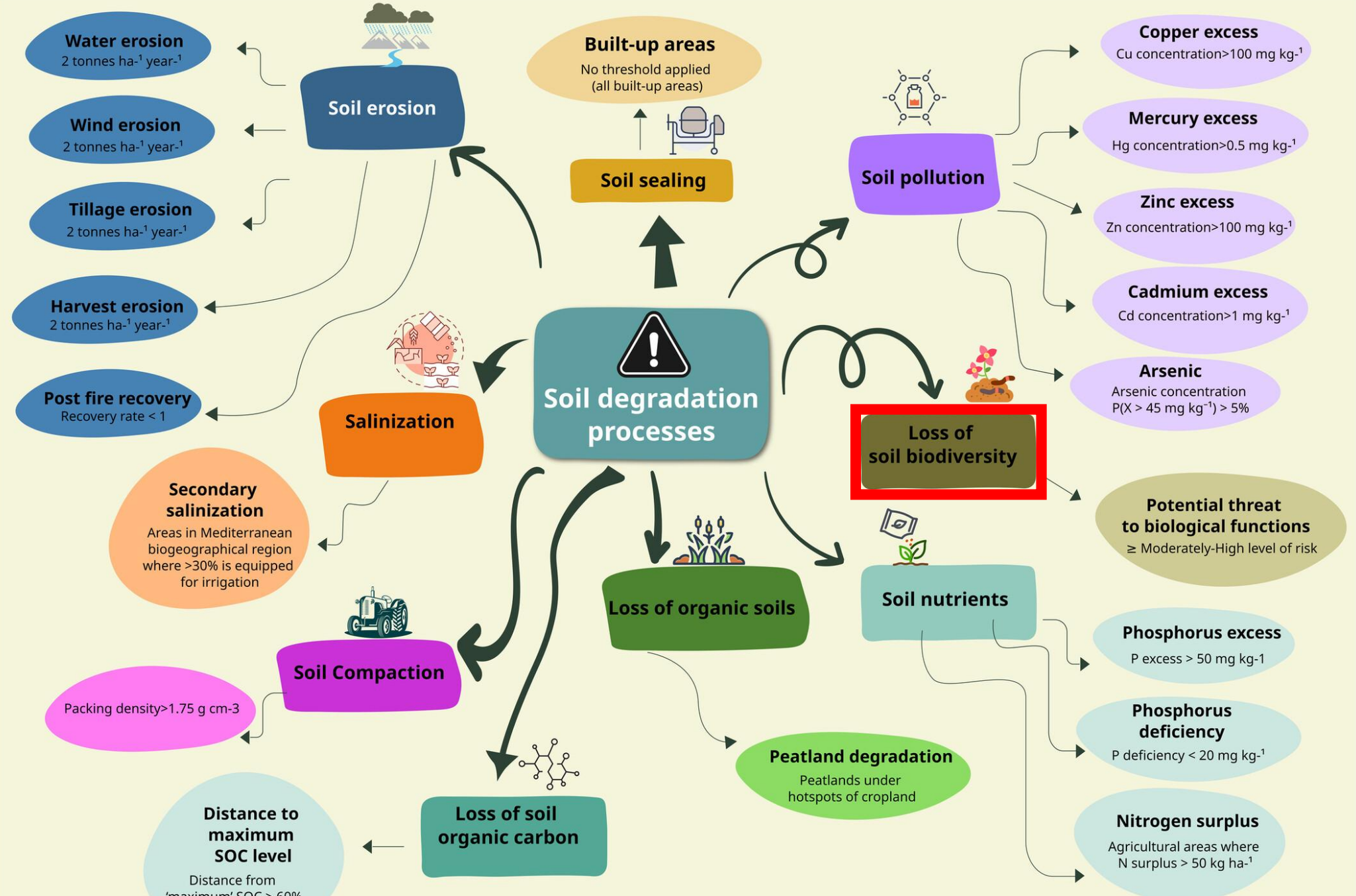
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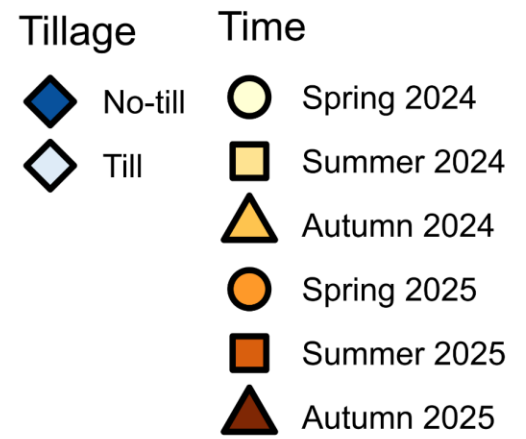
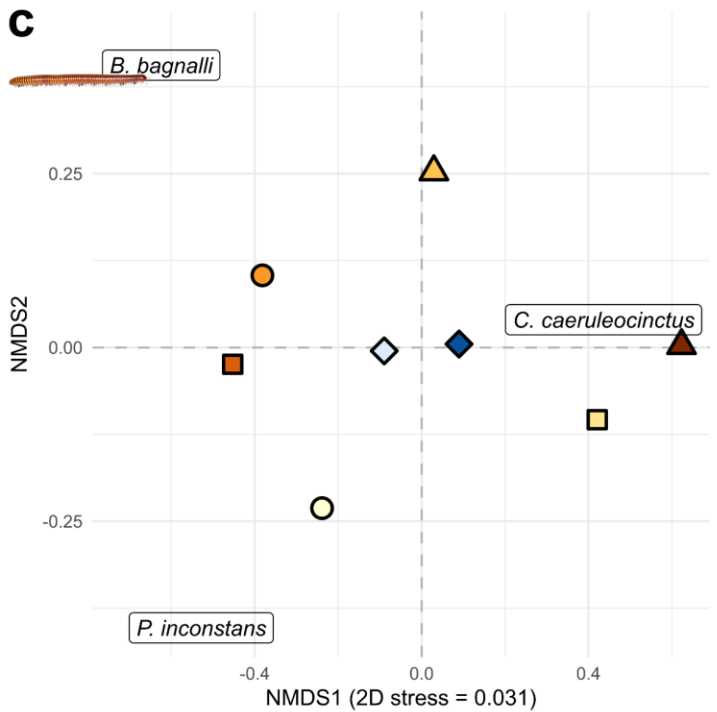
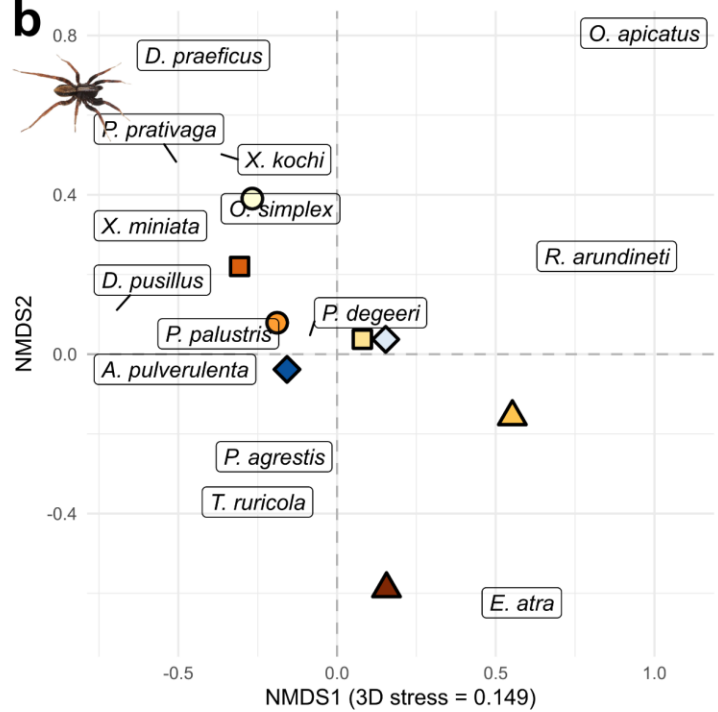
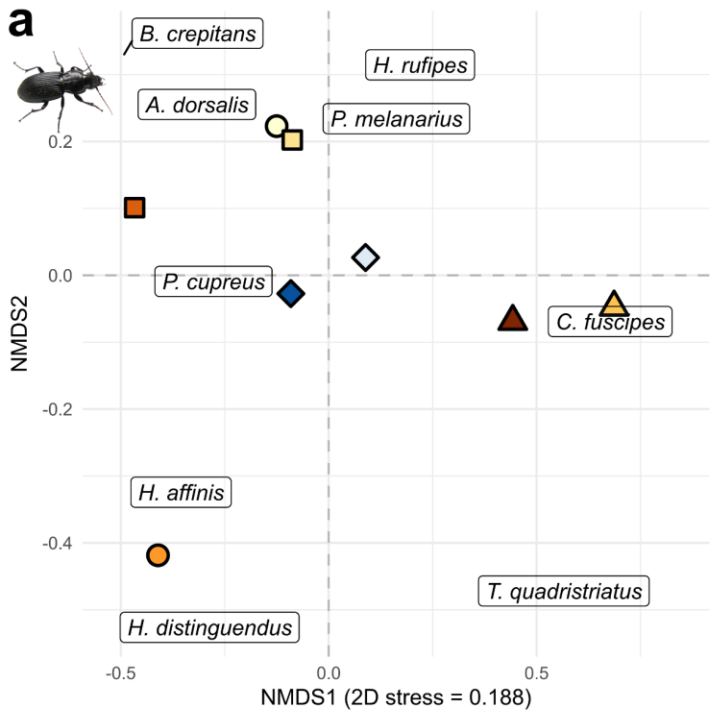
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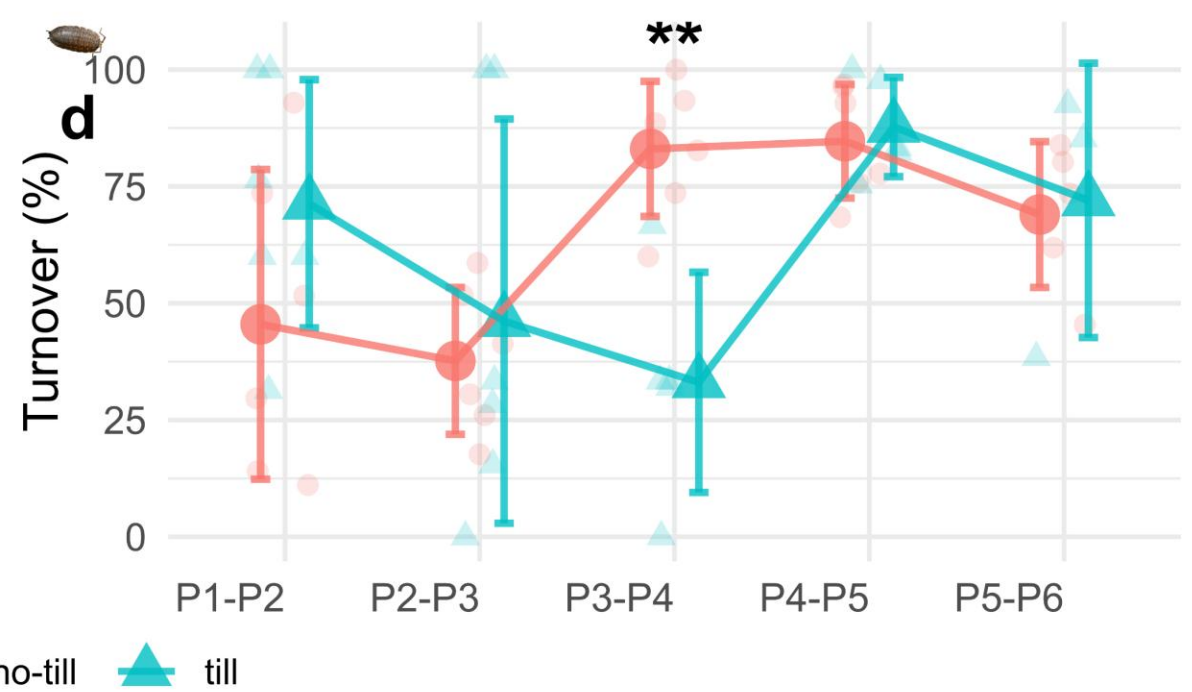
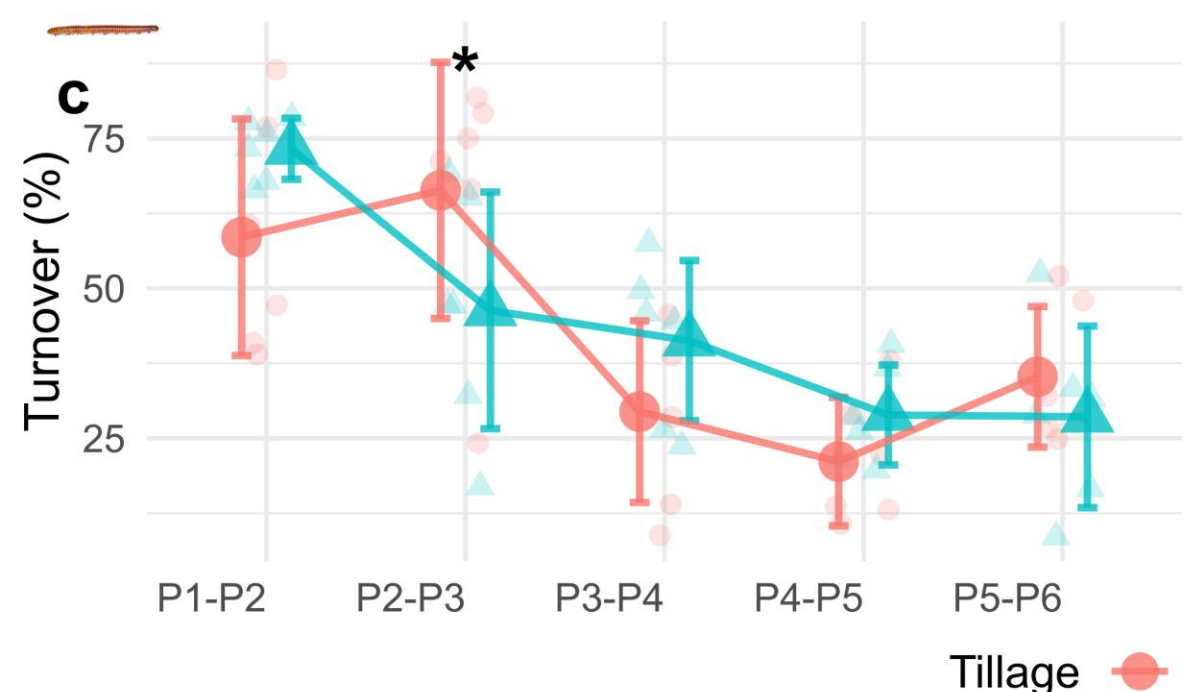
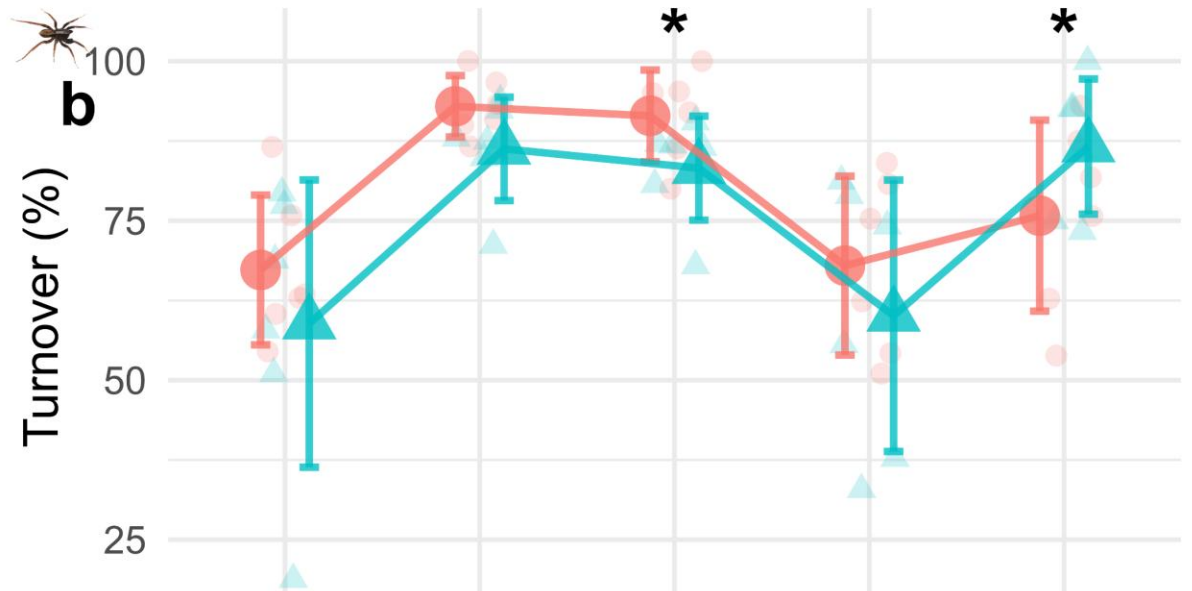


# Annual vs. Perennial

- Establishment, flowering, seed mix
- Maintenance, continuity, overwinter, costs, disturbance









**a**

80%

40%

0%

Juvenile proportion

Spring 2024

Summer 2024

Autumn 2024

Spring 2025

Summer 2025

Autumn 2025

\*\*\*

Extra slide

Opletalová et al., (in preparation)

