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## Habitat loss outweighs fragmentation

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# HABITAT LOSS OUTWEIGHS FRAGMENTATION EFFECTS

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First insights from a landscape-scale  
experiment on ground-dwelling arthropods



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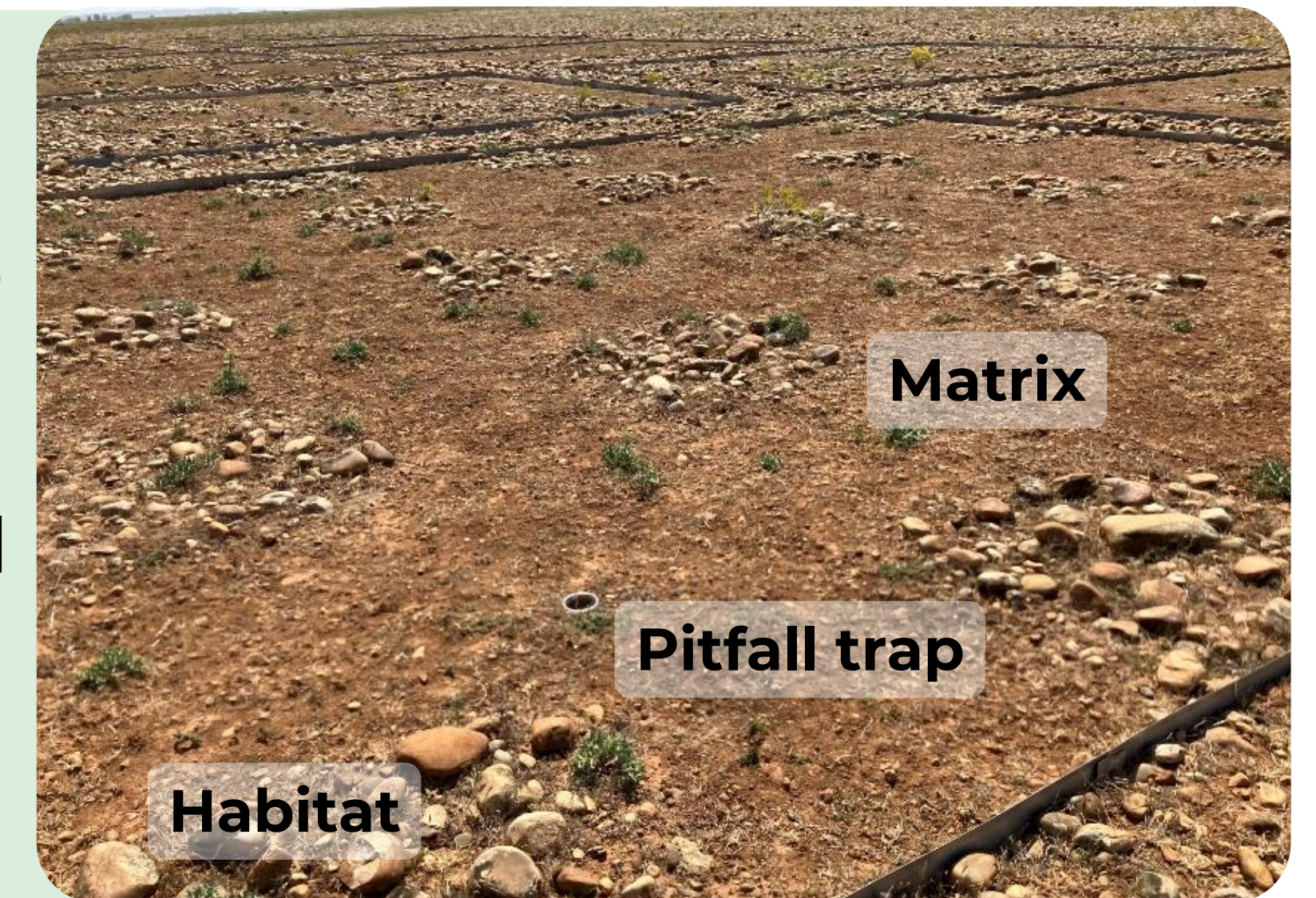
## 1 Context & objectives

- Test the effects of habitat loss (stones create favorable microclimatic conditions)
- Test the effects of habitat configuration at fixed habitat amount
- Monitor the response of the non-flying arthropod community

## 2 Methods

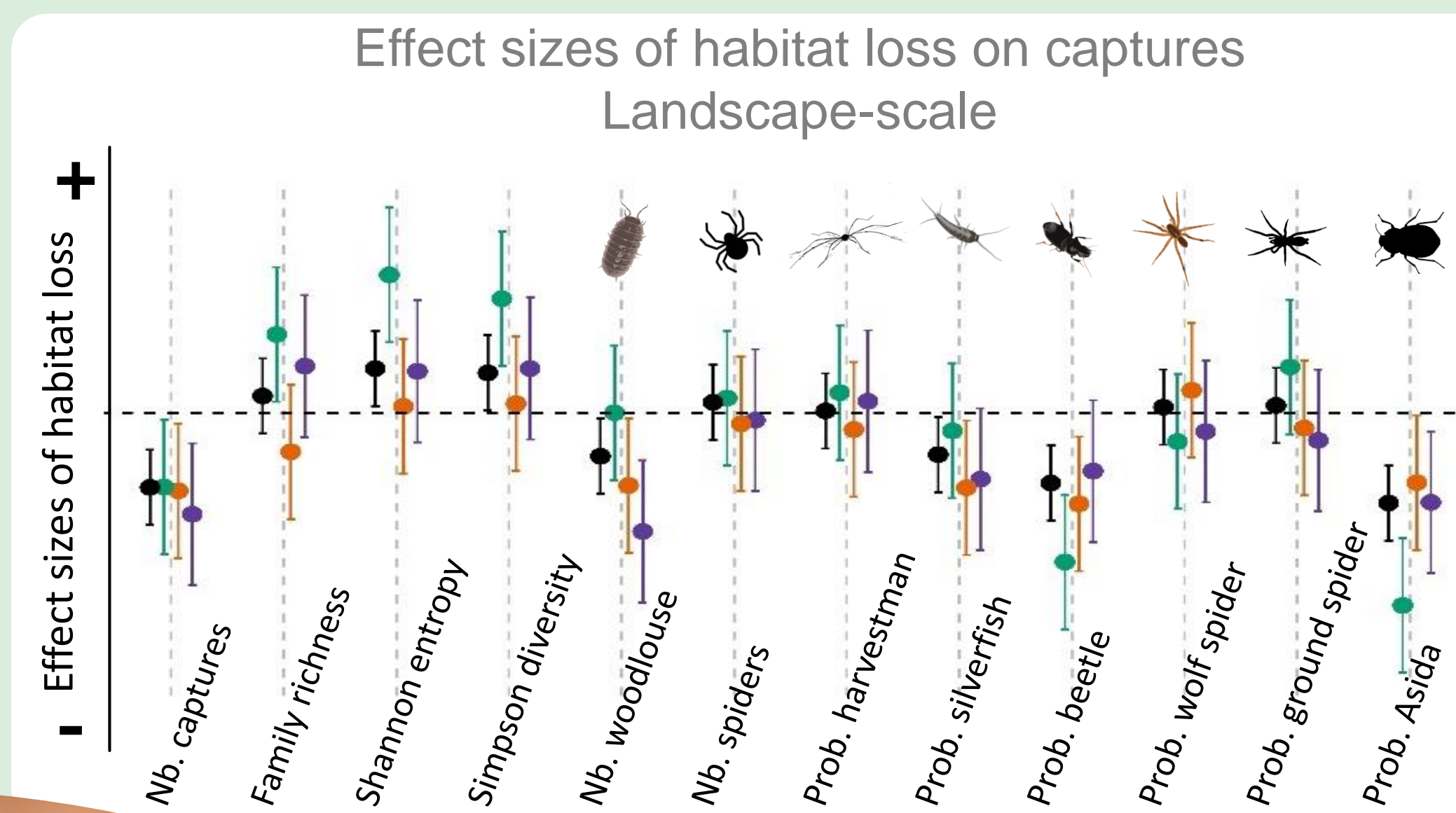


- 23 landscapes (10 x 10 m)
- 0-99% loss x 3 frag. Levels
- 60t. of stones removed + raked
- 273 dry pitfall traps
- Annual monitoring:  
2022, 2023, 2024



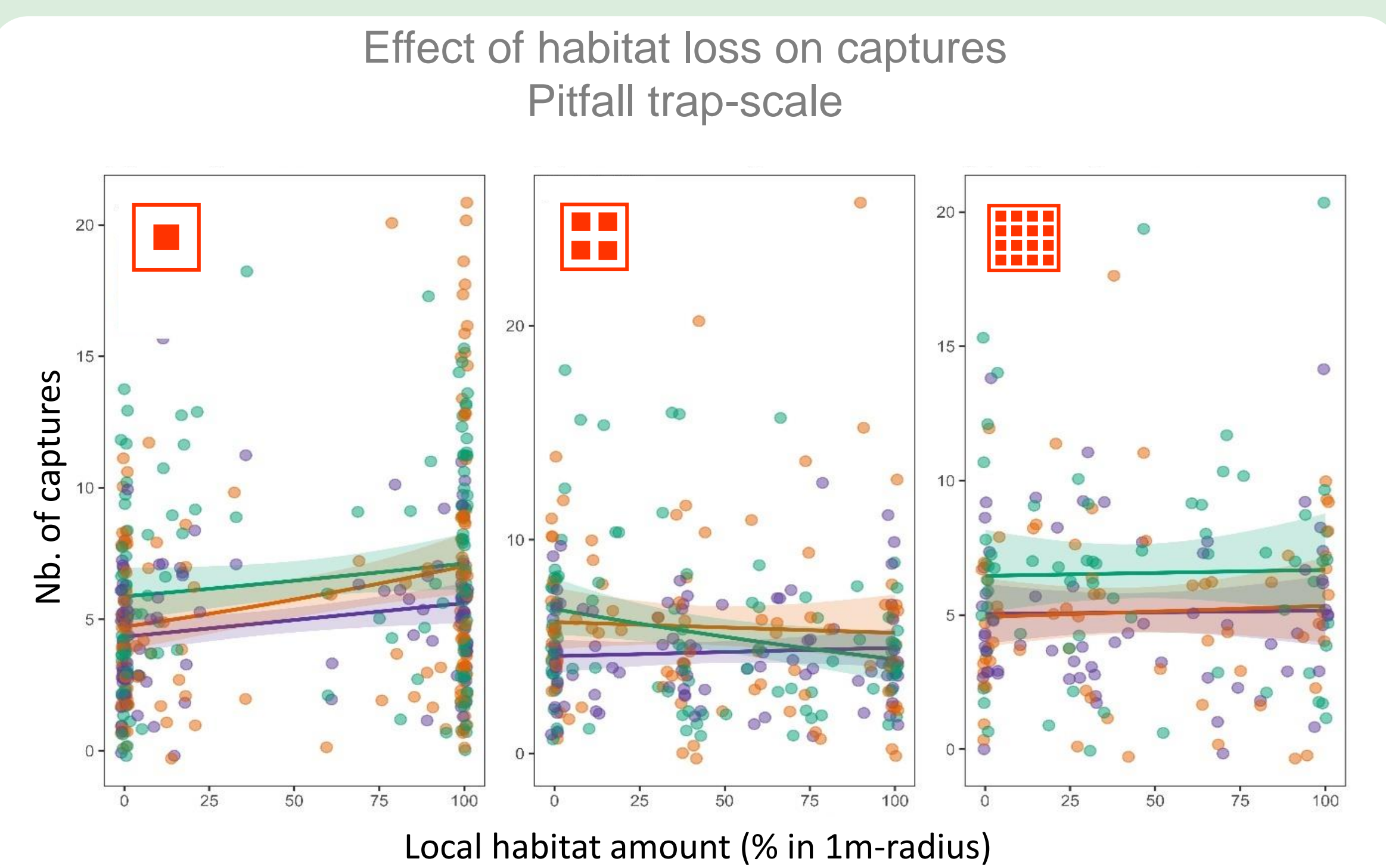
## 3 Results

- 3045 captured animals (3 yrs.)  
37 % woodlouse  
33 % spiders (ex. *Lycosa tarentula*)  
13 % harvestmen  
7 % beetles (ex. *Asida sericea*)



- Habitat loss determines arthropod abundance
- No effect of fragmentation at landscape scale
- Effects mostly consistent from one year to the next
- Differences between taxa (Habitat specialists? Mobility?)

Year  
2022  
2023  
2024  
All years



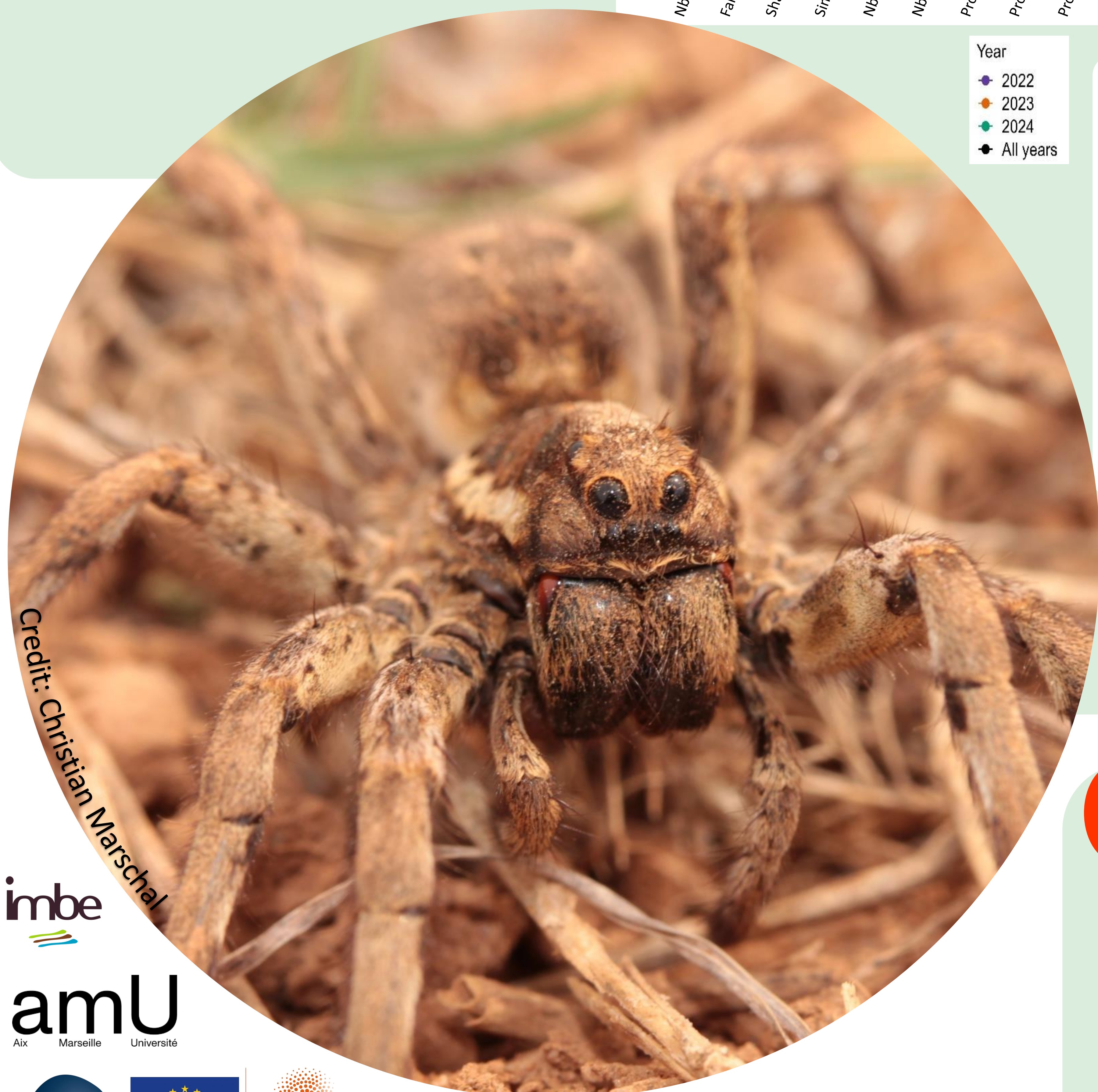
- Local habitat amount and fragmentation interact at the scale of pitfall-traps
- Fragmentation reduces the positive effect of habitat amount around the traps

## 4 Discussion & next steps

- In the short term, the effects observed are mainly those of habitat loss
- Fragmentation plays a role at trap scale
- Effects depend on design (range of loss)
- Next years monitoring: longer-term response
- Account for species mobility: RFID tracking

## References

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Fletcher RJ, Smith TAH, Kortessis N, et al (2023) Landscape experiments unlock relationships among habitat loss, fragmentation, and patch-size effects. *Ecology* 104:e4037. doi: 10.1002/ECY.4037  
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Credit: Christian Marschal



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