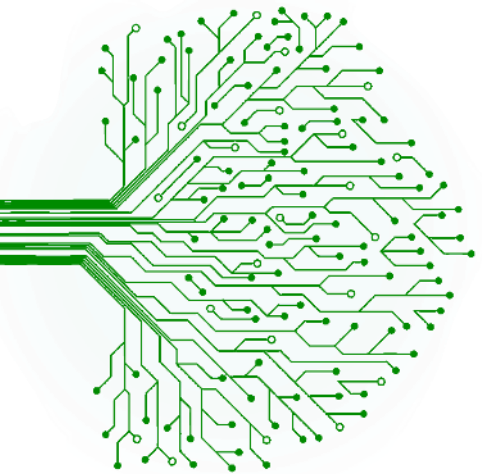
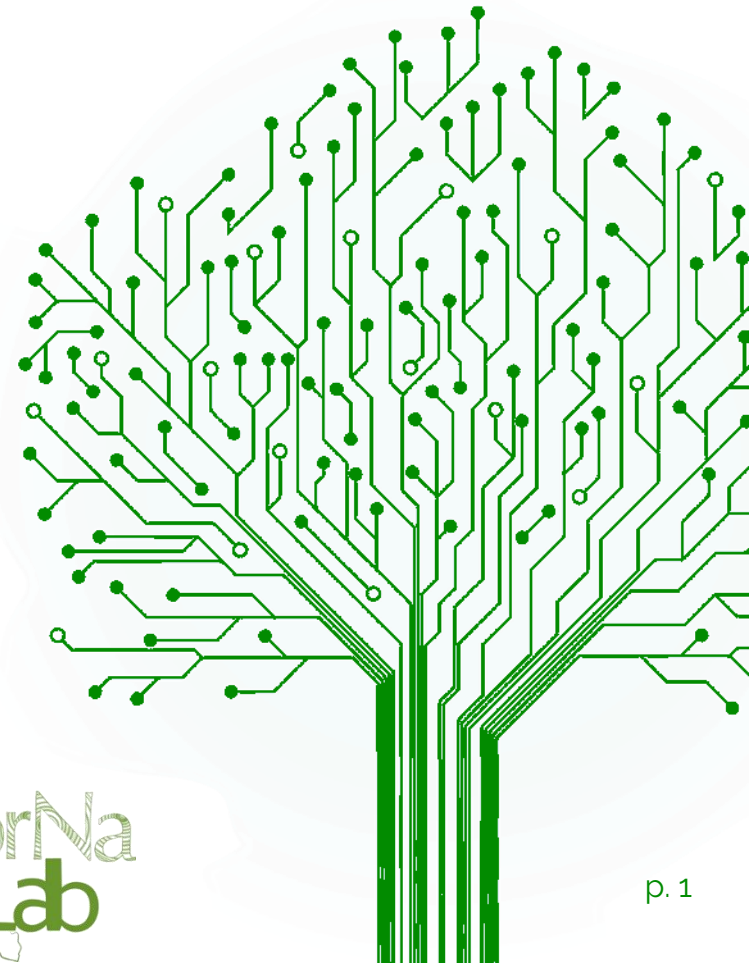




Determining the effects of agroforestry on multitaxa biodiversity in Europe

A fieldwork protocol



Vandendriessche, J. *, Eeraerts, M., De Frenne, P., Verheyen, K.

Forest & Nature Lab, Department of Environment, Ghent University, Geraardbergsesteenweg 267, Melle (Gontrode), 9090, Belgium.

*: email: jari.vandendriessche@ugent.be

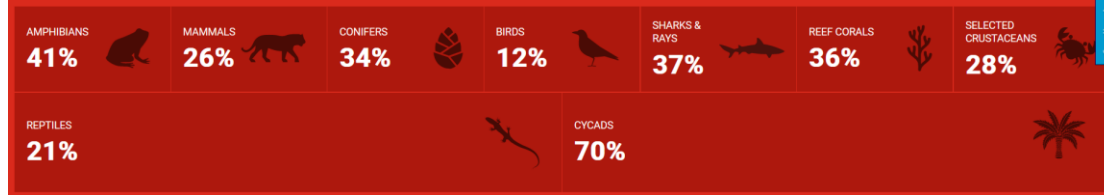


Biodiversity under threat

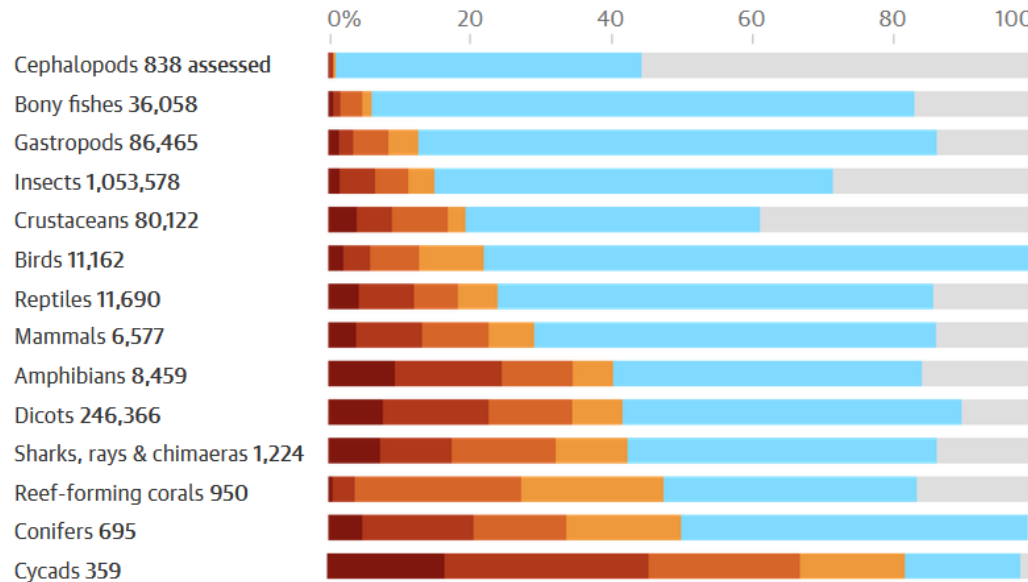
More than 44,000 species
are threatened with extinction

(IUCN Red List, 2024)

That is still 28% of all assessed species.

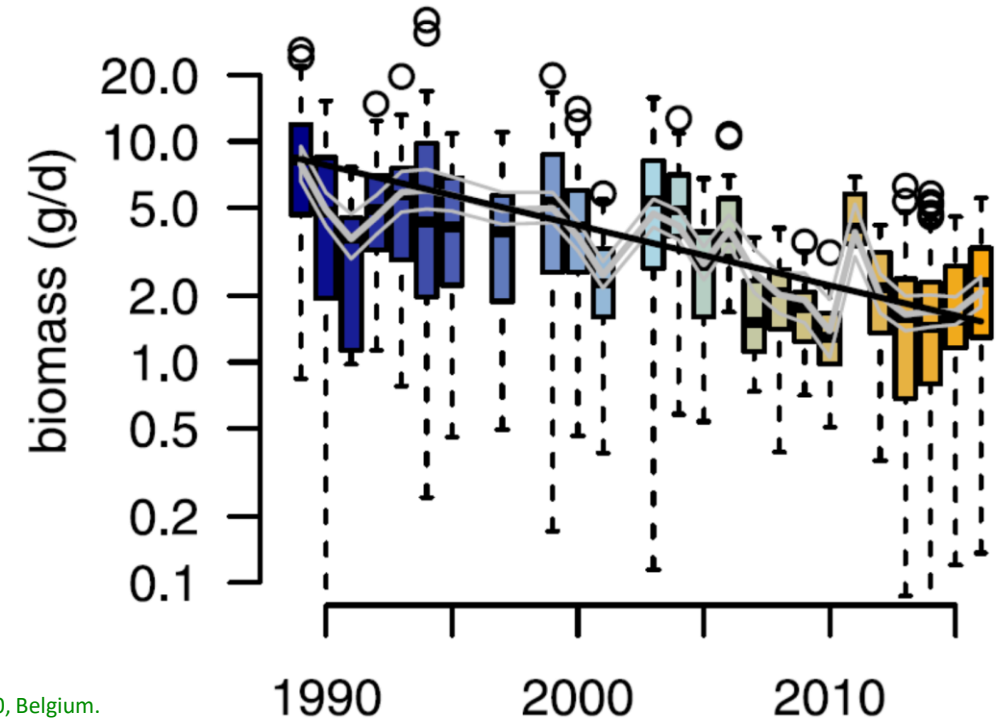


■ Critically endangered ■ Endangered ■ Vulnerable ■ Near threatened ■ Least concern ■ Data deficient



More than 75 percent decline over 27 years in total flying insect biomass in protected areas

Caspar A. Hallmann^{1*}, Martin Sorg², Eelke Jongejans¹, Henk Siepel¹, Nick Hofland¹, Heinz Schwan², Werner Stenmans², Andreas Müller², Hubert Sumser², Thomas Hören², Dave Goulson³, Hans de Kroon¹



Agroforestry & biodiversity



Agriculture, Ecosystems & Environment

Volume 230, 16 August 2016, Pages 150-161



Review

Do European agroforestry systems enhance biodiversity and ecosystem services? A meta-analysis

Mario Torralba ^a  , Nora Fagerholm ^{a b}, Paul J. Burgess ^c, Gerardo Moreno ^d, Tobias Plieninger ^a

Research article | [Open access](#) | Published: 23 October 2021

European agroforestry has no unequivocal effect on biodiversity: a time-cumulative meta-analysis

[Anne-Christine Mupepele](#) , [Matteo Keller](#) & [Carsten F. Dormann](#)

[BMC Ecology and Evolution](#) **21**, Article number: 193 (2021) | [Cite this article](#)

Vandendriessche, J. *, Eeraerts, M., De Frenne, P., Verheyen, K.

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Agricultural Systems

Volume 176, November 2019, 102676



Review

Evaluating the effects of integrating trees into temperate arable systems on pest control and pollination

Tom Staton ^a  , Richard J. Walters ^{b c} , Jo Smith ^d , Robbie D. Girling ^a 



Agriculture, Ecosystems & Environment

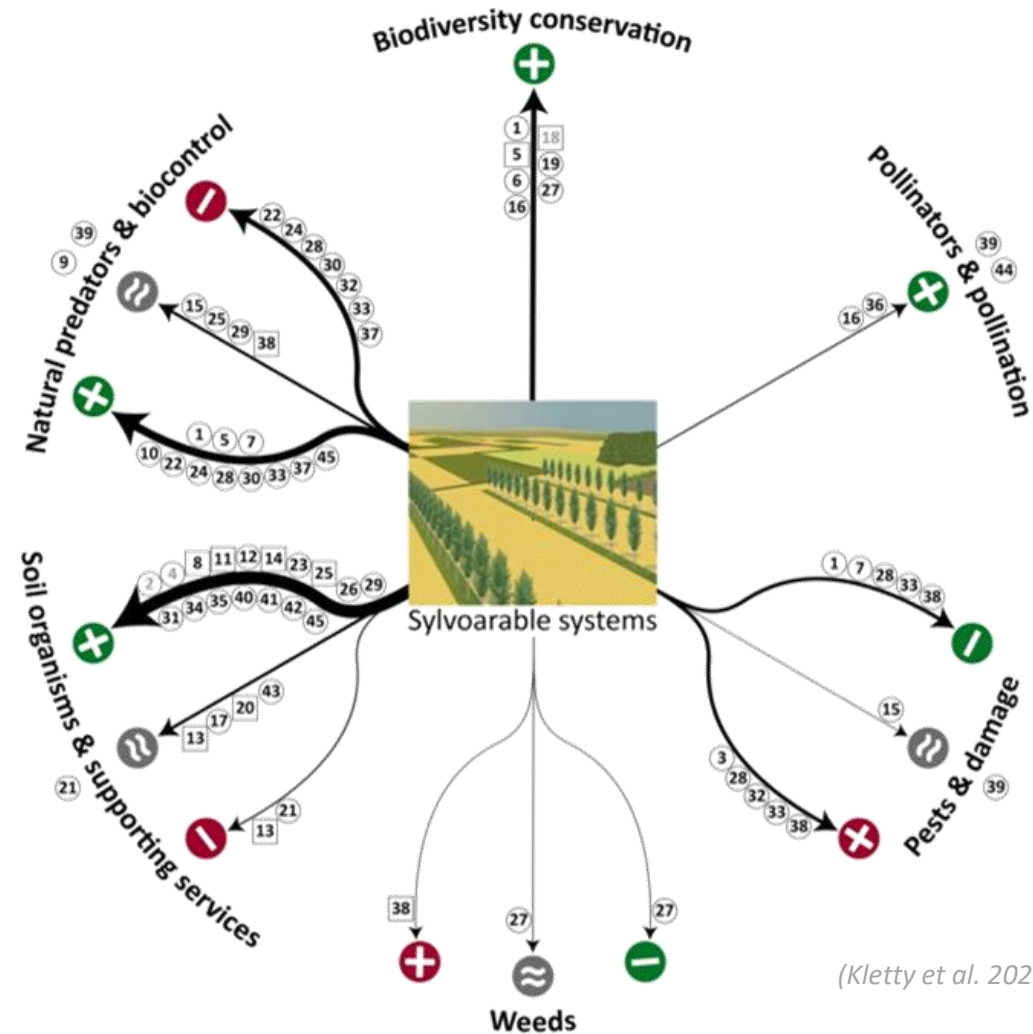
Volume 351, 1 August 2023, 108480



Biodiversity in temperate silvoarable systems: A systematic review

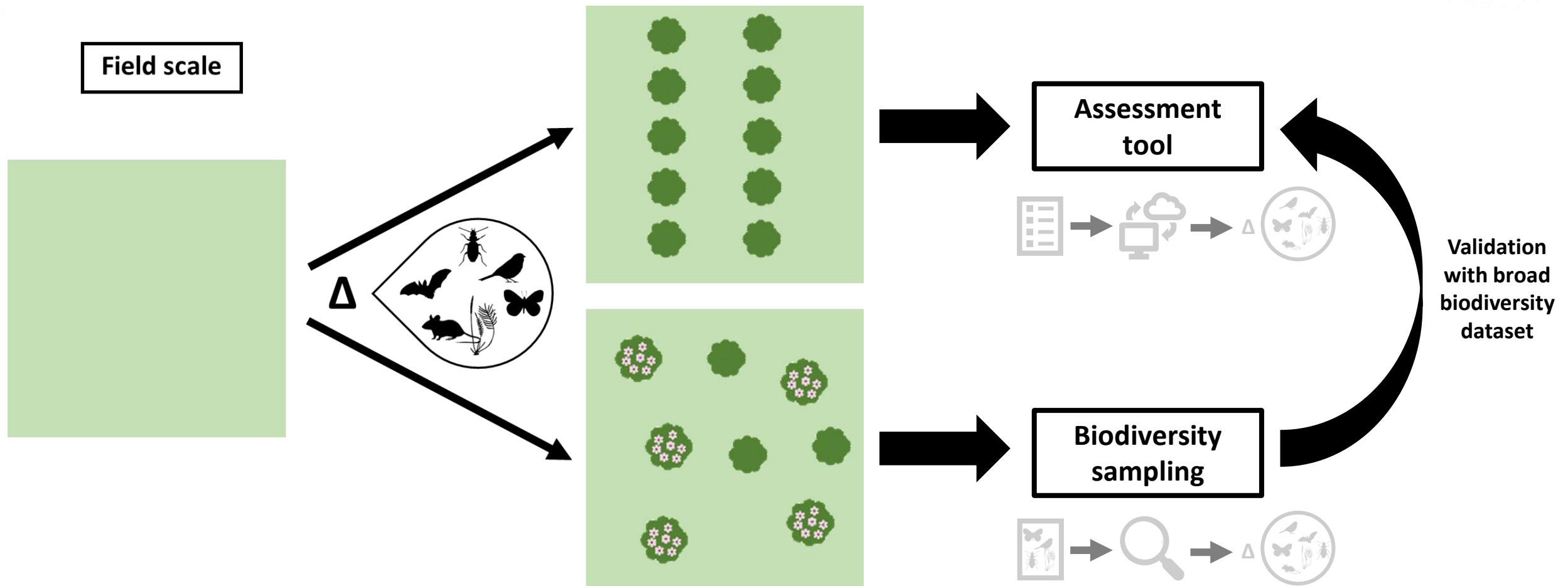
Florian Kletty ^{a b c}  , Anne Rozan ^{c d}, Caroline Habold ^b

Agroforestry & biodiversity



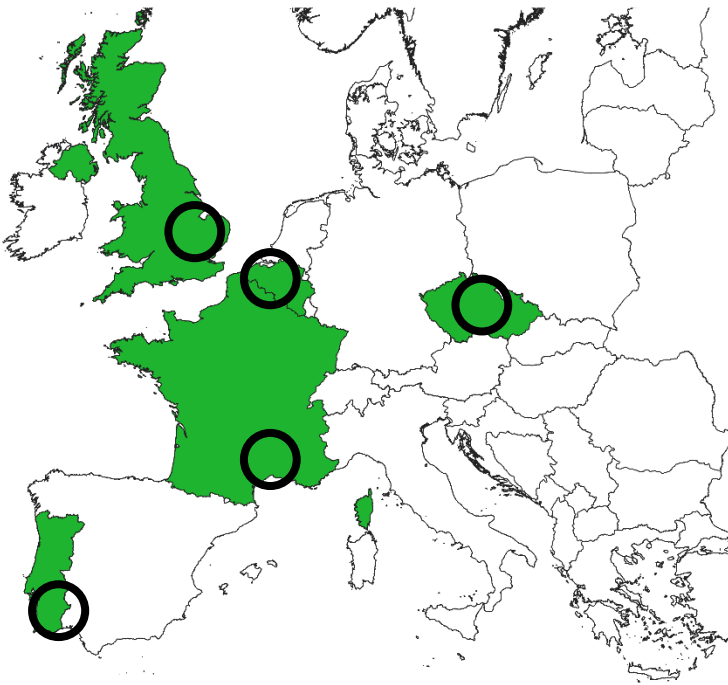
(Kletty et al. 2023)

Target



Experimental design

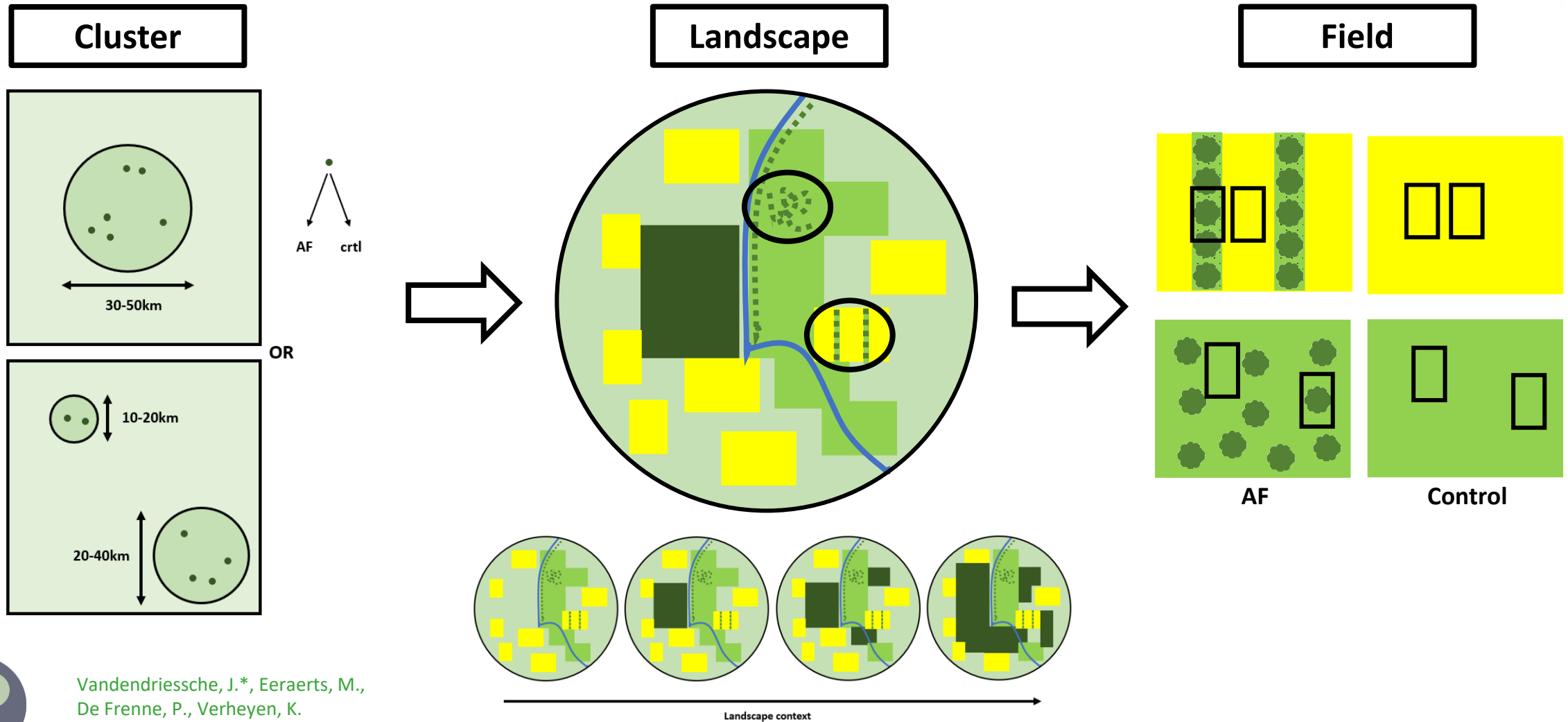
European context



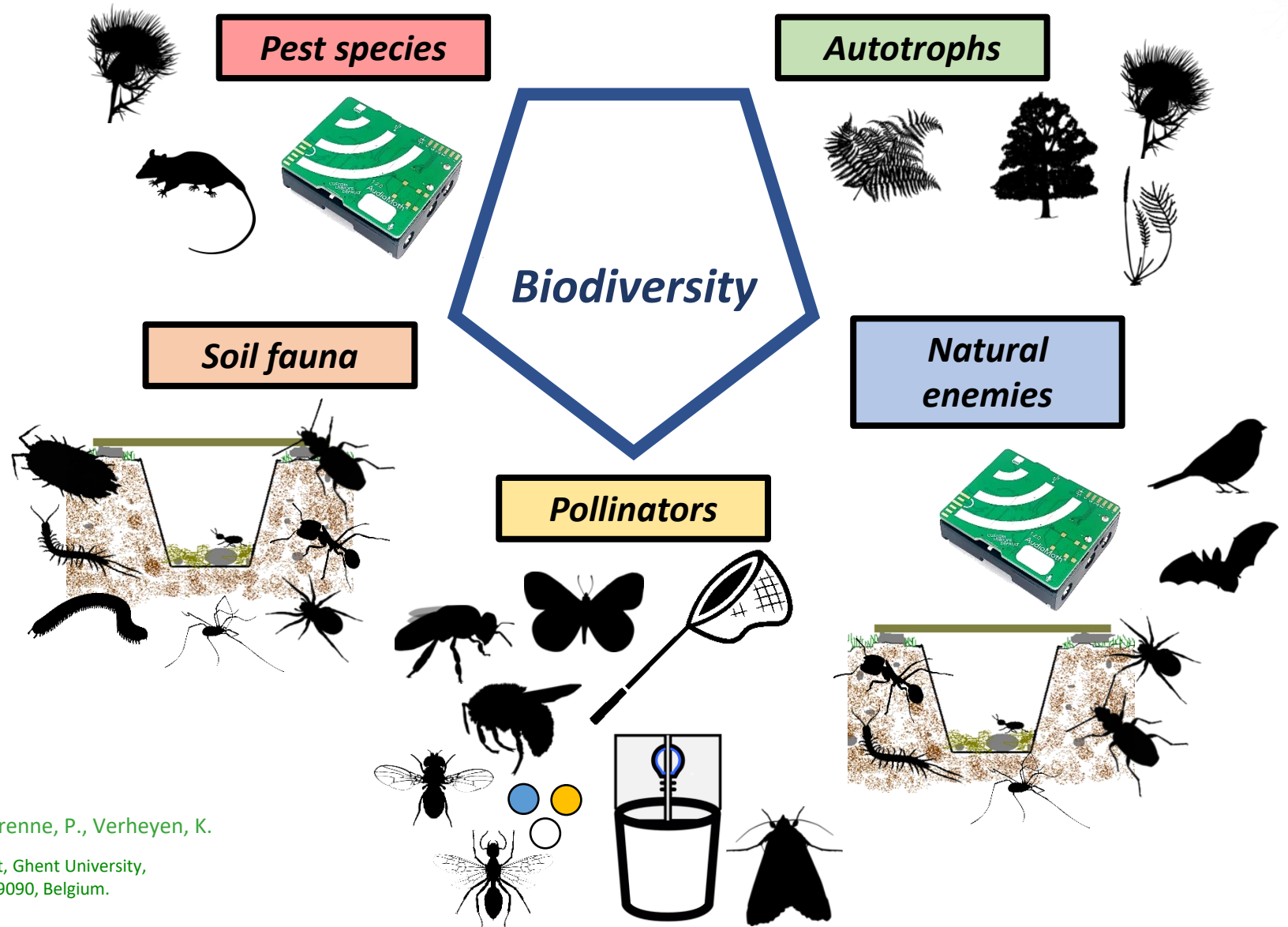
Criteria

- ✓ **6 sites**
 - 1 agroforestry field
 - 1 control field
- ✓ **1km distance between sites**
- ✓ **Agroforestry age: ~10y or older**
- ✓ **Well-in-reach due to intensive ad-hoc campaign**

Experimental design



Functional biodiversity

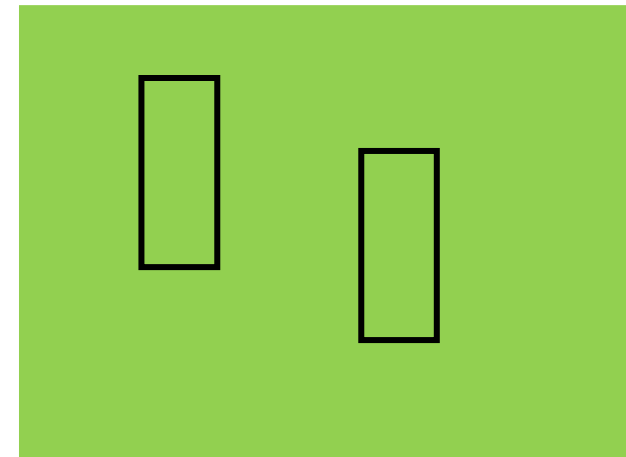
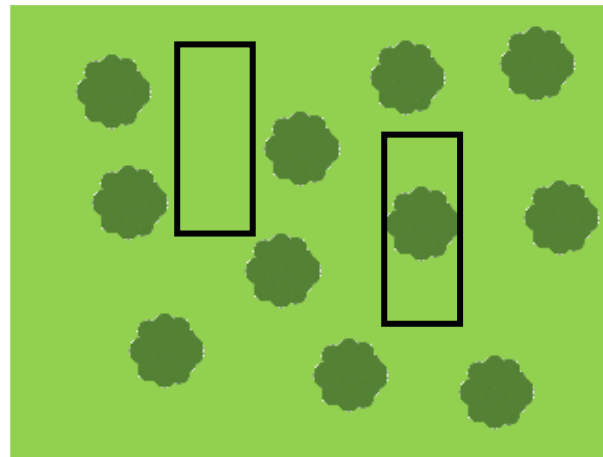
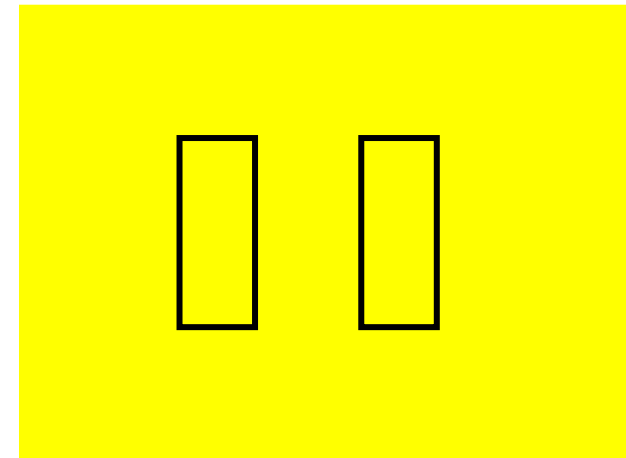
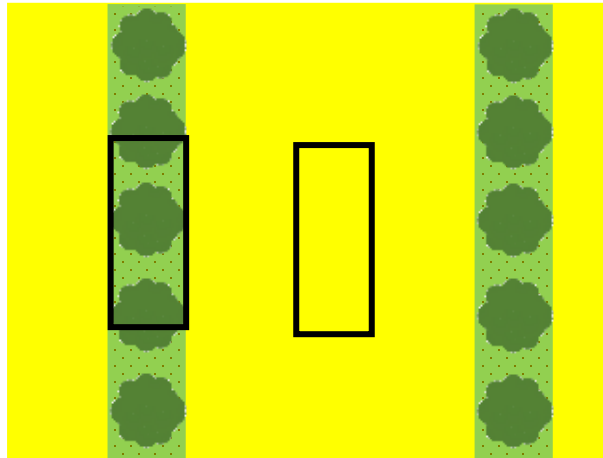


Protocols - Plants

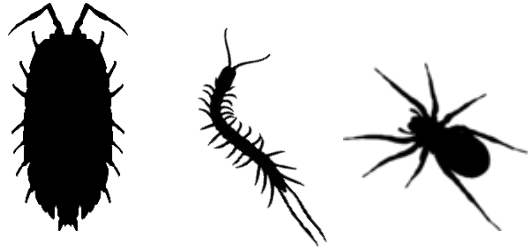


Quadrats

~ 10m²
2x5m/1x10m



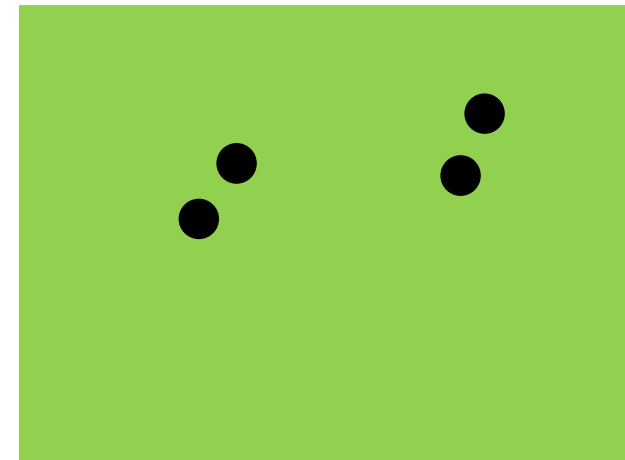
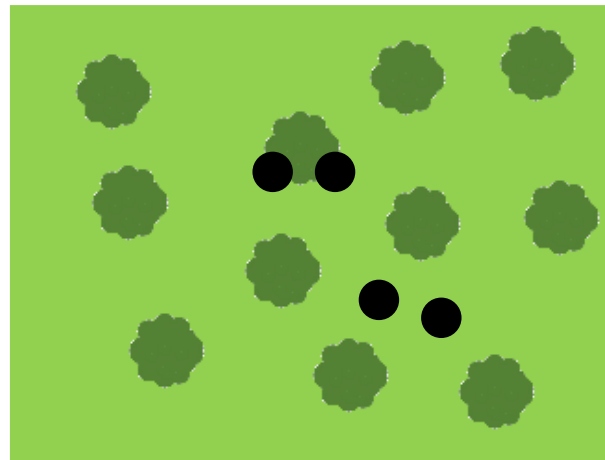
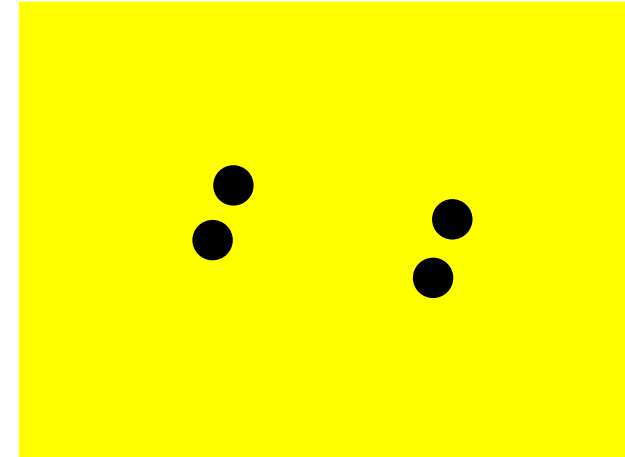
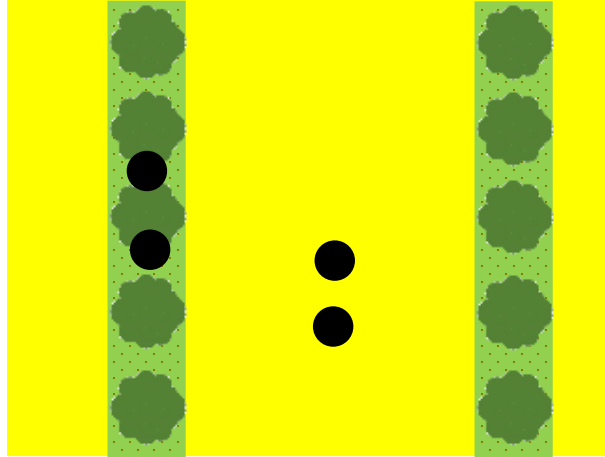
Protocols – Soil dwelling organisms



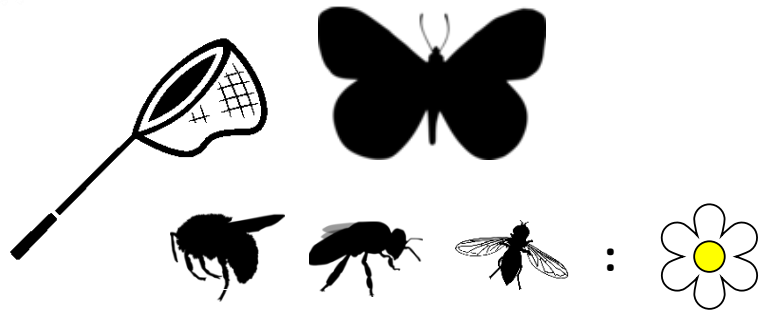
Pitfall traps

2 replicates
(which are pooled)

7 days

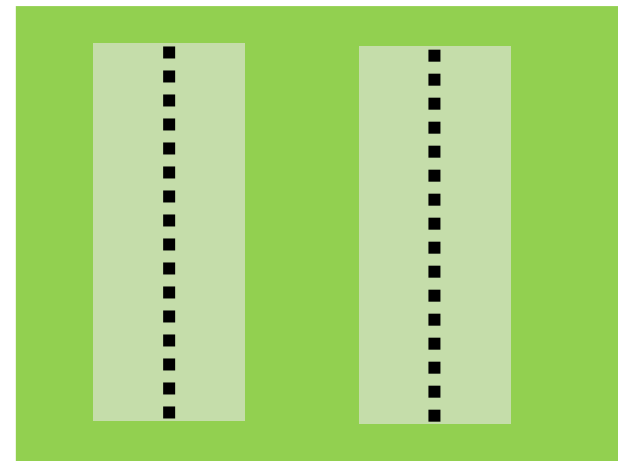
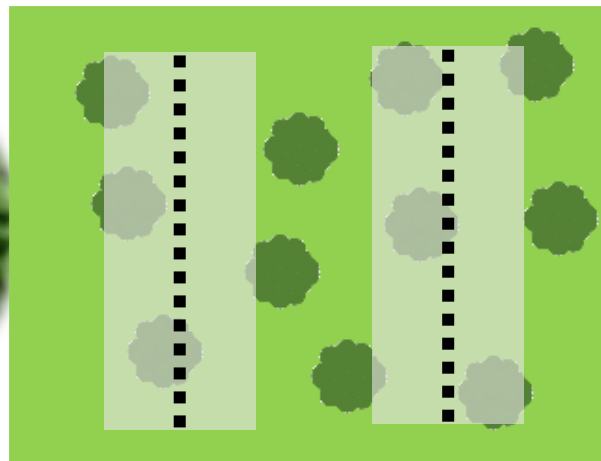
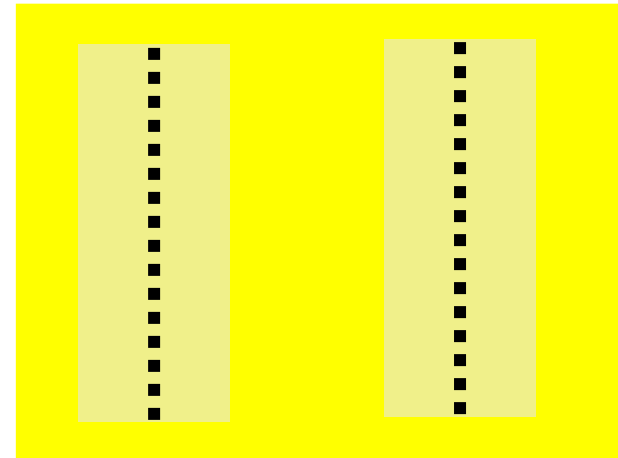
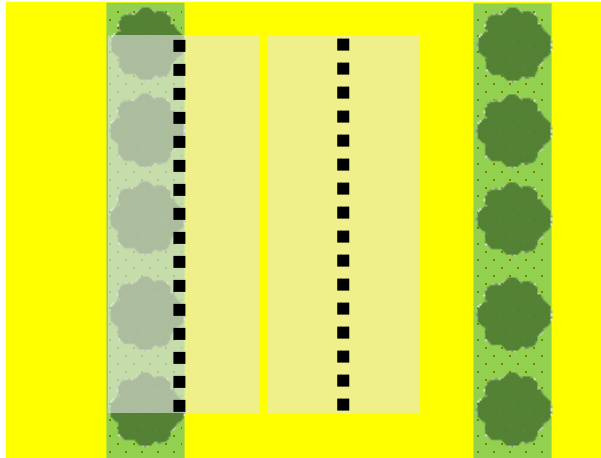


Protocols - Pollinators

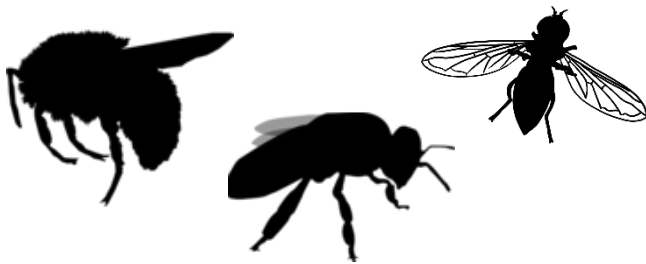


Transect

⌚ 15'
~ 50m

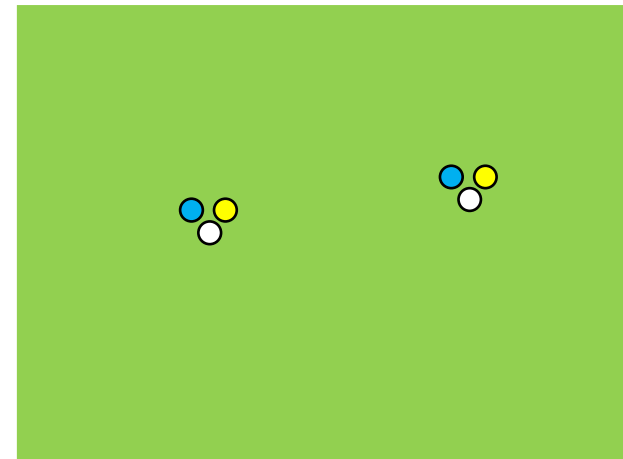
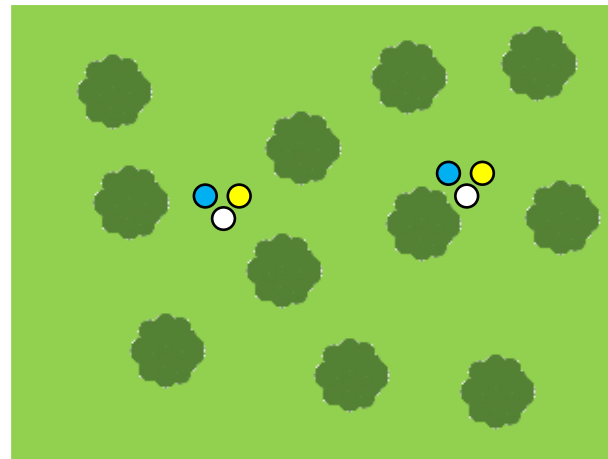
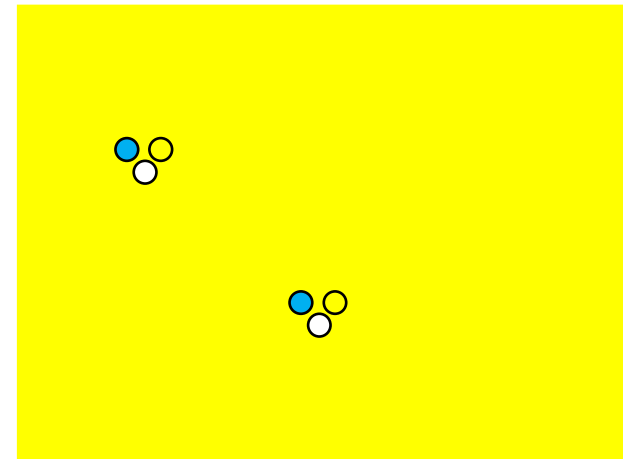
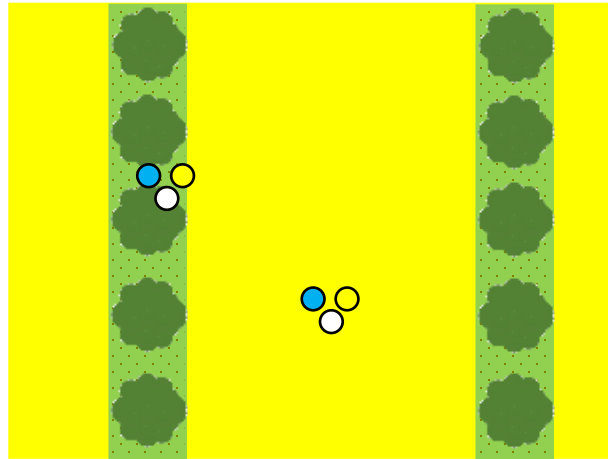


Protocols - Pollinators

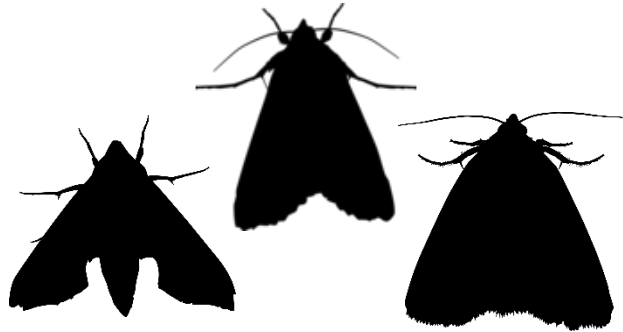


Pan traps

3 replicates
(which are pooled)
2 days

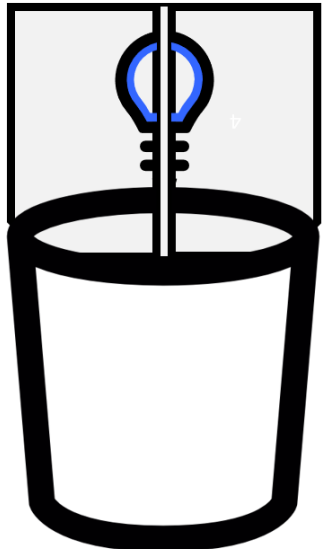


Protocols - Pollinators

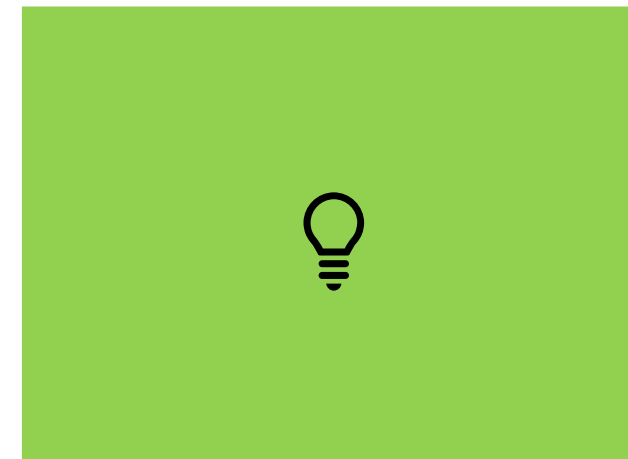
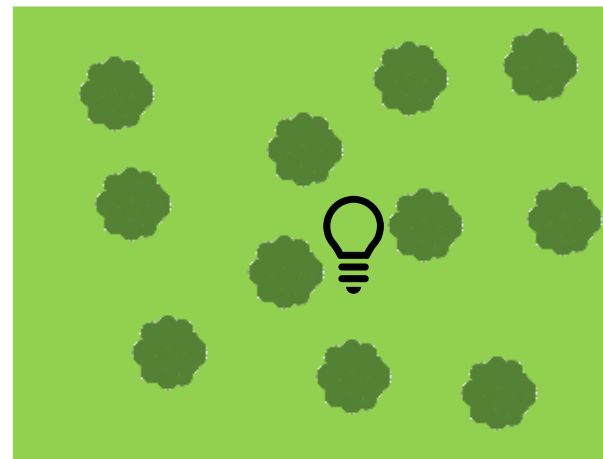
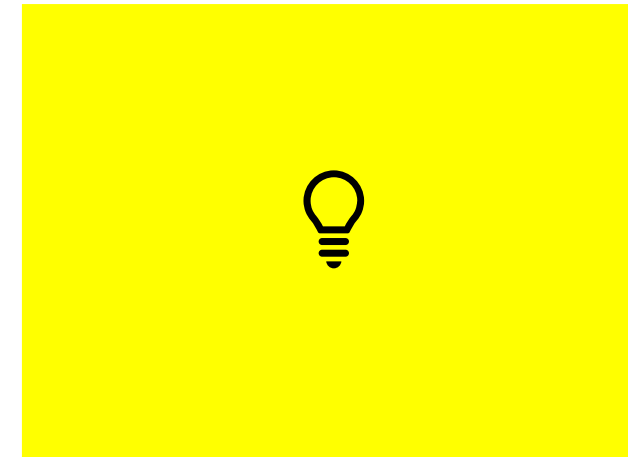
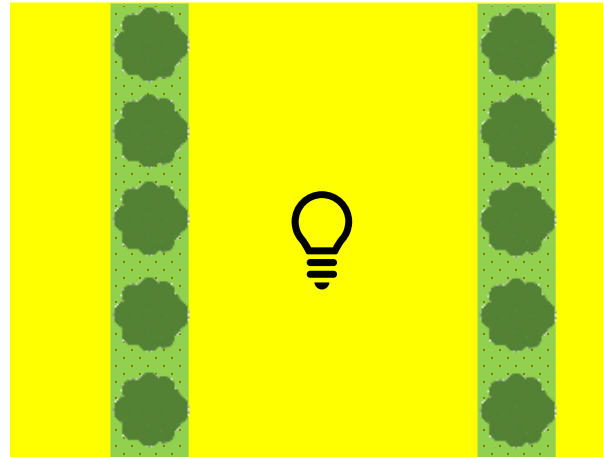


Led buckets

1 night



[https://www.vlinders
tichting.nl/ledbucket](https://www.vlinders
tichting.nl/ledbucket)



Protocols - Pollinators



Protocols – Birds & Bats

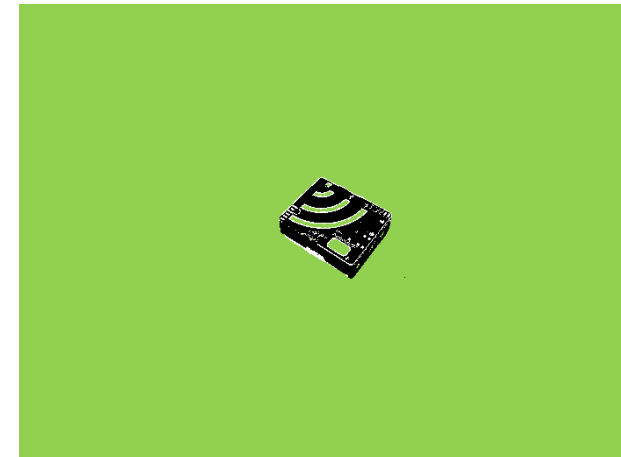
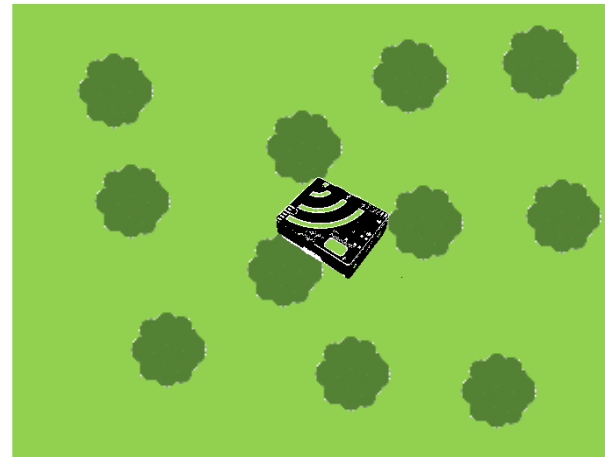
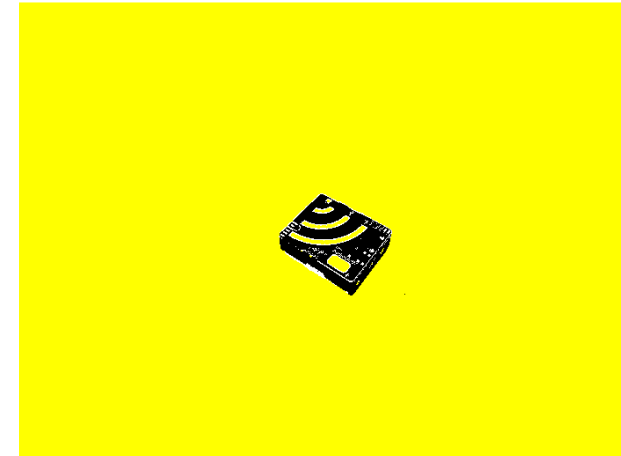
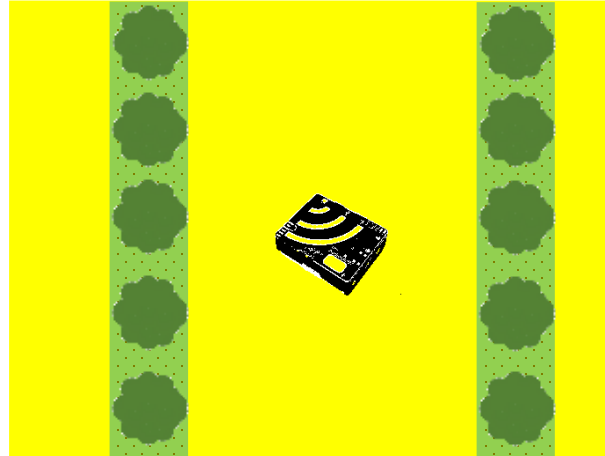


AudioMoths

2 days

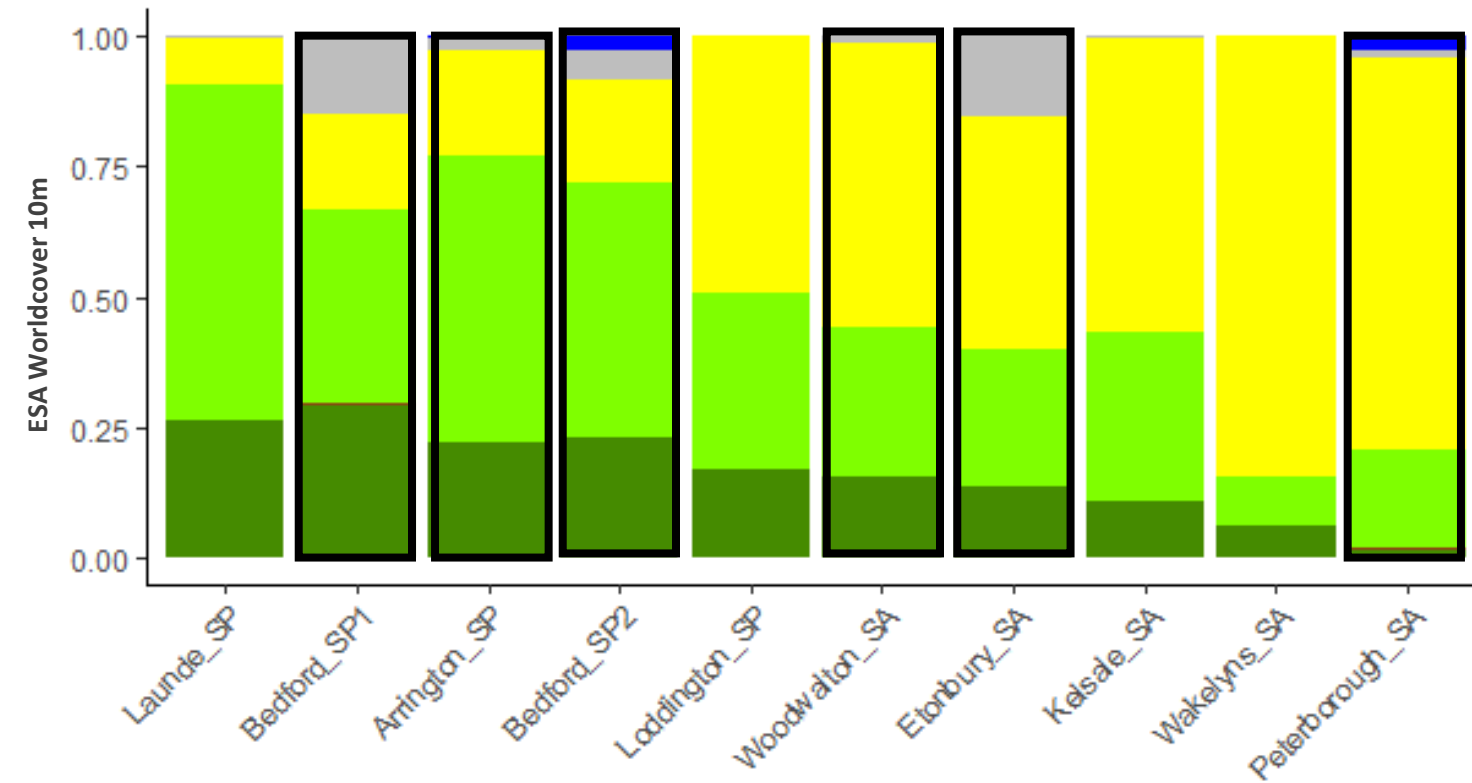


<https://www.openacousticdevices.info/audiomoth>



UK cluster

Landscape composition UK TRIAL - 1km

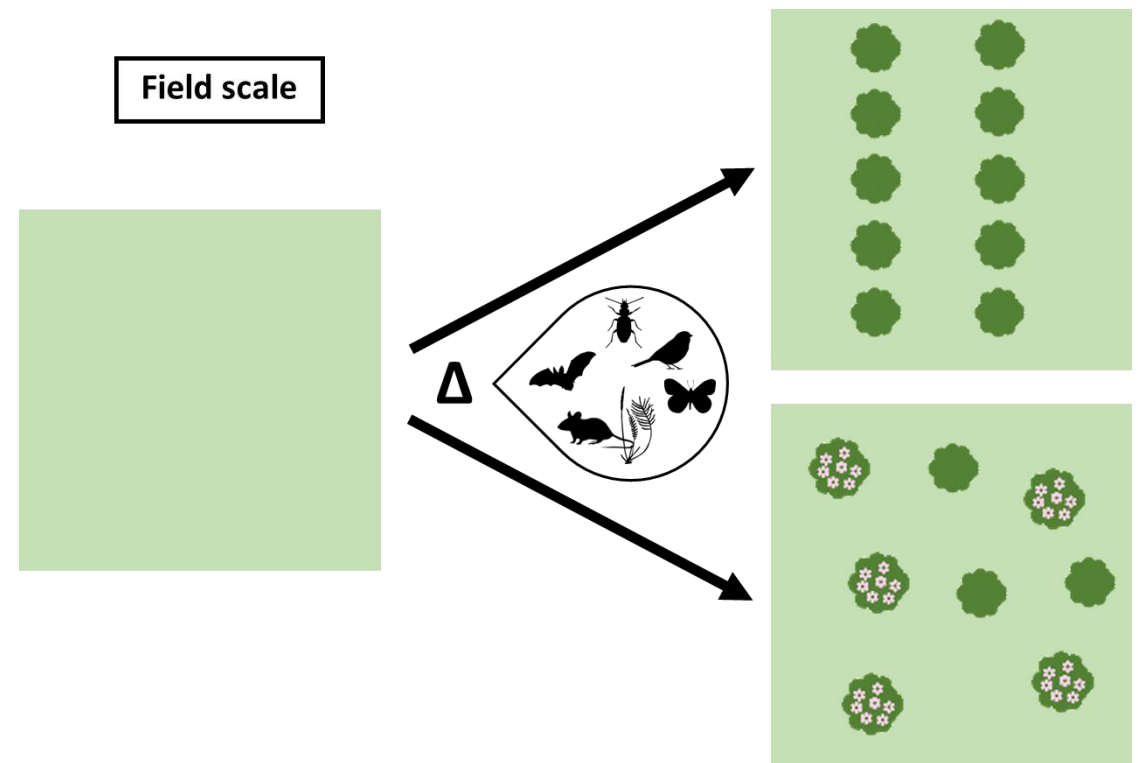


Next steps

- **Digital Biodiversity Assessment Tool**

Aiming for:

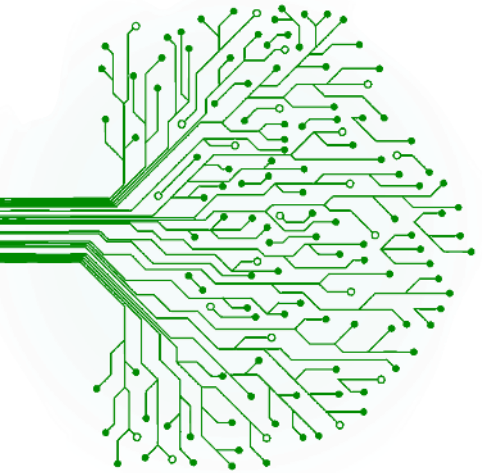
- Multiple functional groups
- Different systems
- Different contexts
 - Landscape
 - Tree age
 - ...



Thank you!

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Grant agreement: 101059794



Co-funded by the
European Union

