ECO METRIC

A concept for a dynamic habitat-based farmland biodiversity index

Yoko L. Dupont, Anne K. H. Rasmussen, Nina B. Birkedal, Trine Poulsen[1]

Bent Rasmussen, Julie M. Søby[2]

[1] Social-Ecological Systems Simulations Centre, Aarhus University

[2] Innovation Centre for Organic Farming, Denmark

Photos: Rasmus Due Nielsen, Yoko L. Dupont

Nordic Baltic Organic Conference

15-17 June 2026

Contact: Yoko L. Dupont, *yoko.dupont@agro.au.dk*

SESS

Innovationscenter for Økologisk Landbrug

ICROFS Organic RDD

Ministry of Food, Agriculture and Fisheries of Denmark

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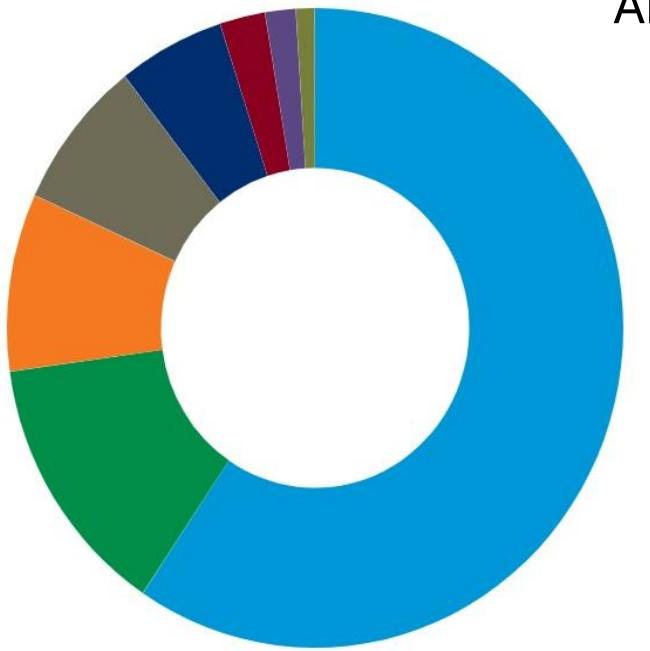
Landscapes in Denmark



Statistics Denmark, 2021

1.6 % Protected Nature
Biodiversity Council 2023

11.5% Organic farming
Statistics Denmark 2024

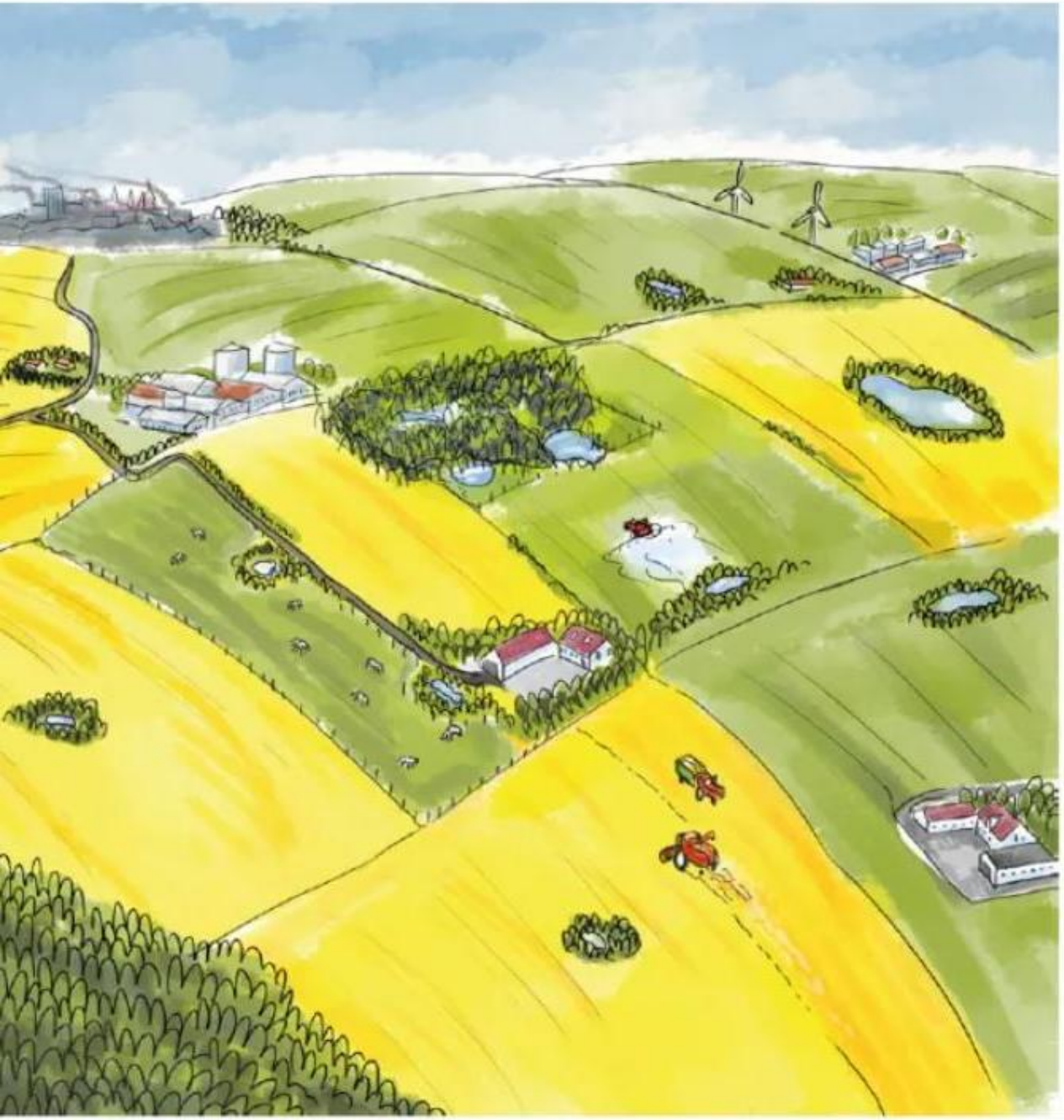
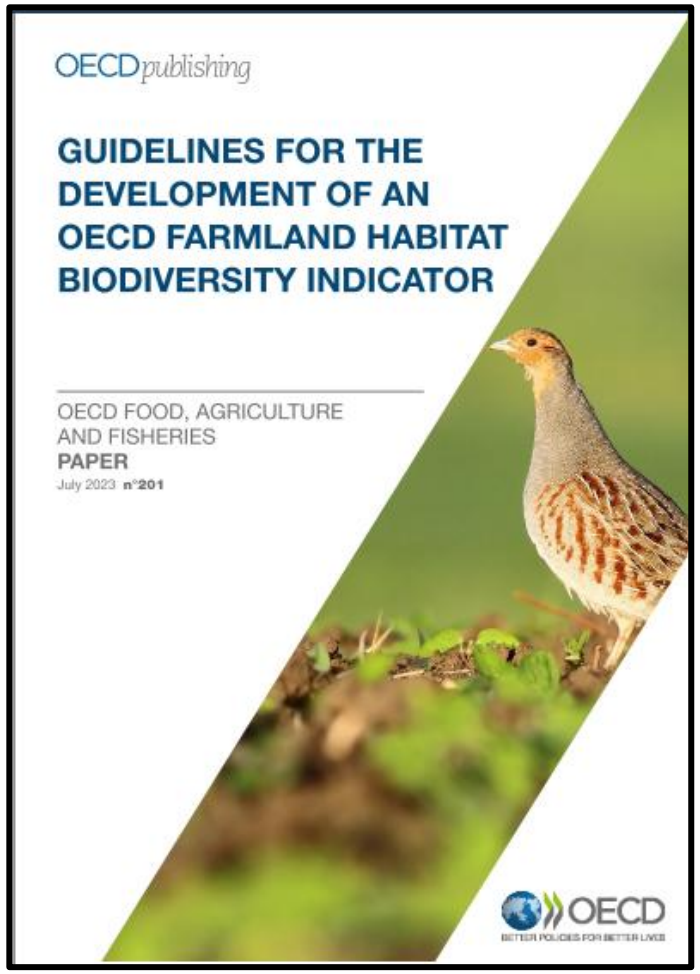


Illustration: Morten Telling

Habitats for biodiversity in agricultural landscapes

OECD habitat indicator – measures habitat diversity rather than species richness



OECD = Organisation for Economic Co-operation and Development

Quantifying (efforts for promoting) biodiversity in farmland?

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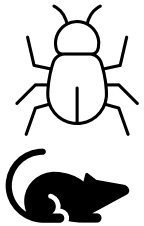

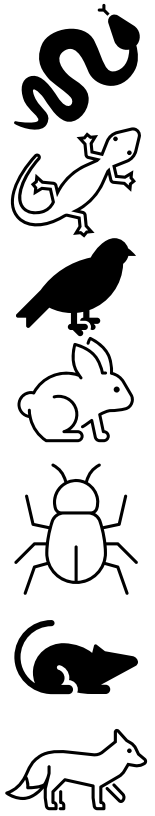

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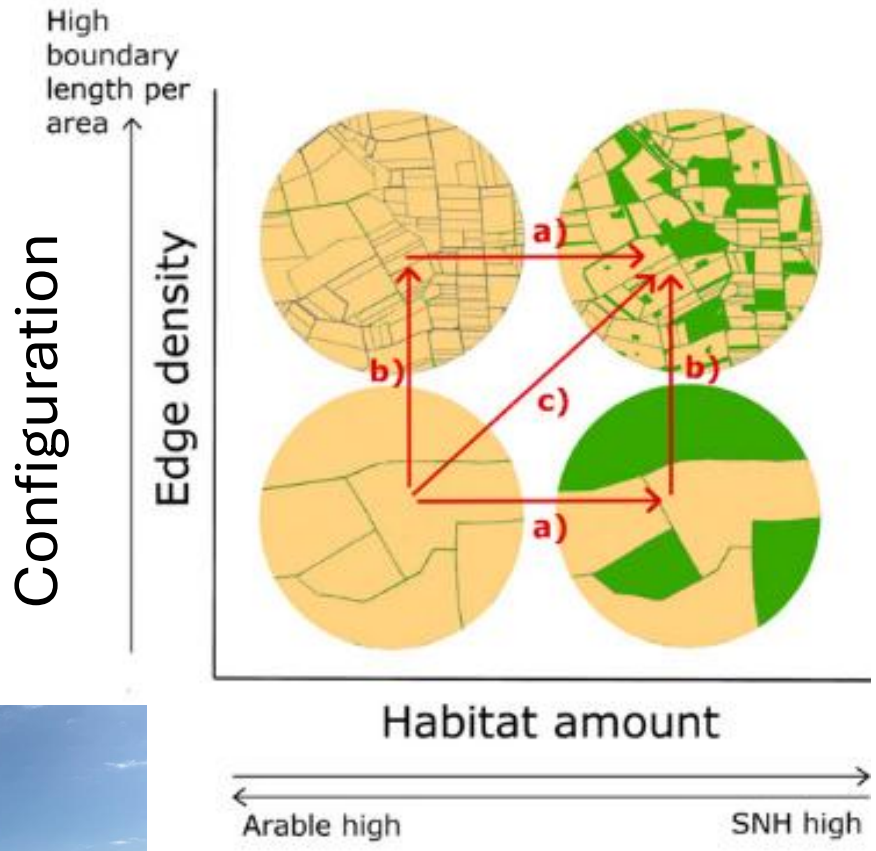
Photos: Yoko L. Dupont, Hans Fynbo

Measuring landscape heterogeneity



ECOLOGY LETTERS

Ecology Letters, (2019) **22**: 1083–1094 doi: 10.1111/ele.13265

LETTER

The interplay of landscape composition and configuration: new pathways to manage functional biodiversity and agroecosystem services across Europe

Emily A. Martin,[1]* Matteo Dainese,[2] Yann Clough,[3] András Báldi,[4] Riccardo Bommarco,[5] Vesna Gagic,[6] Michael P.D. Garratt,[7] Andrea Holzschuh,[1] David Kleijn,[8] Anikó Kovács-Hostyánszki,[4] Lorenzo Marini,[9] Simon G. Potts,[7] Henrik G. Smith,[3,35] Diab Al Hassan,[10] Matthias Albrecht,[11]

Abstract

Managing agricultural landscapes to support biodiversity and ecosystem services is a key aim of a sustainable agriculture. However, how the spatial arrangement of crop fields and other habitats in landscapes impacts arthropods and their functions is poorly known. Synthesising data from 49 studies (1515 landscapes) across Europe, we examined effects of landscape composition (% habitats) and configuration (edge density) on arthropods in fields and their margins, pest control, pollination and yields. Configuration effects interacted with the proportions of crop and non-crop habitats, and species' dietary, dispersal and overwintering traits led to contrasting responses to landscape variables. Overall, however, in landscapes with high edge density, 70% of pollinator and 44% of natural enemy species reached highest abundances and pollination and pest control improved 1.7- and 1.4-fold respectively. Arable-dominated landscapes with high edge densities

Martin et al 2019 *Ecol Letters*
Photos: Yoko L. Dupont

Habitat mapping

Field Ecospace Tool

Crop field

Permanent grass

Permanent elements

Photos: Bent Rasmussen

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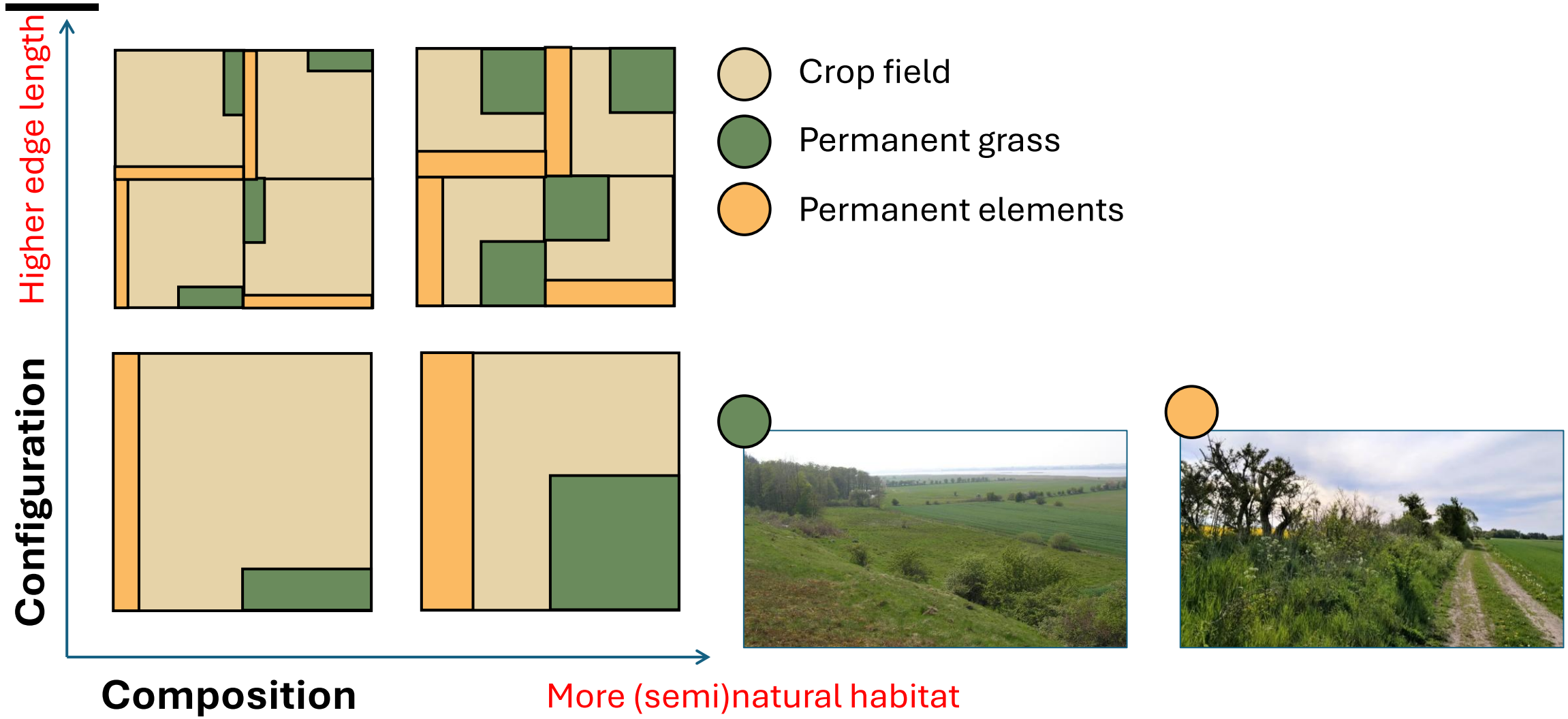
Integrating habitat mapping in the landscape heterogeneity framework

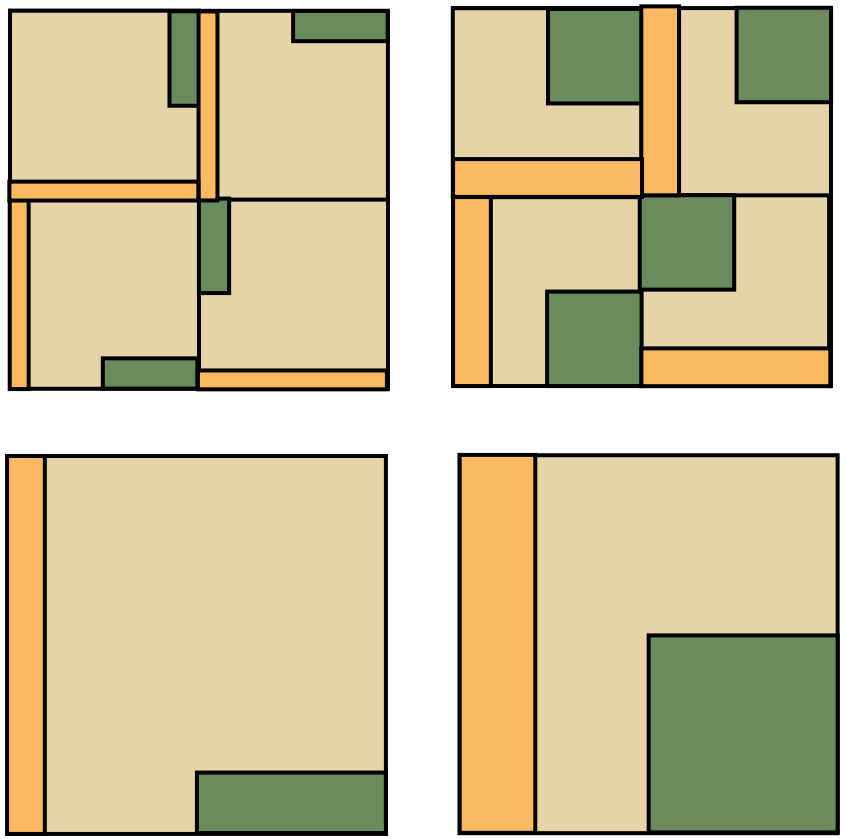


Martin et al 2019 *Ecol Letters*

Photos: Bent Rasmussen

Simulations to predict biodiversity effects

96 landscapes

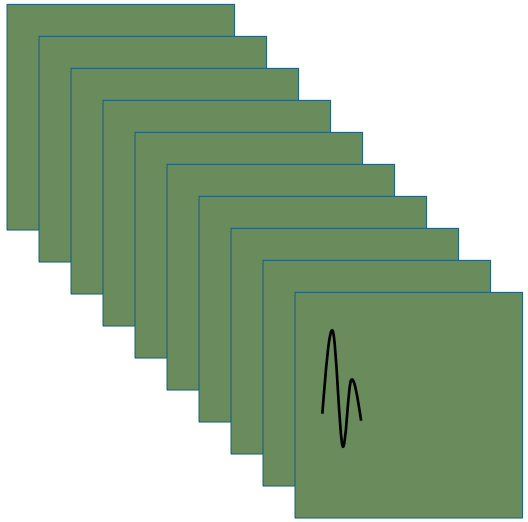


x

7 species

x

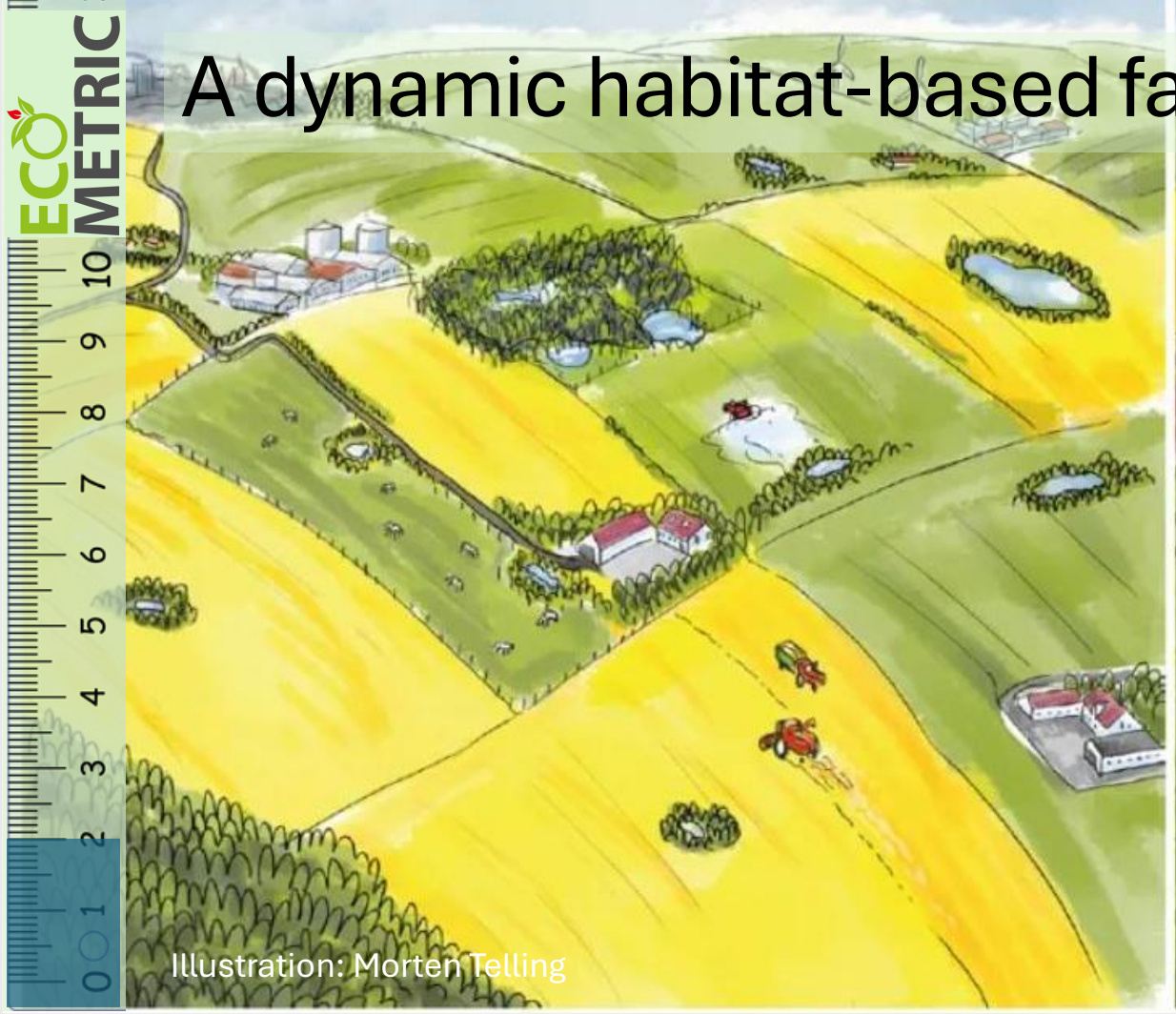
10 replicates
(20 for hare)

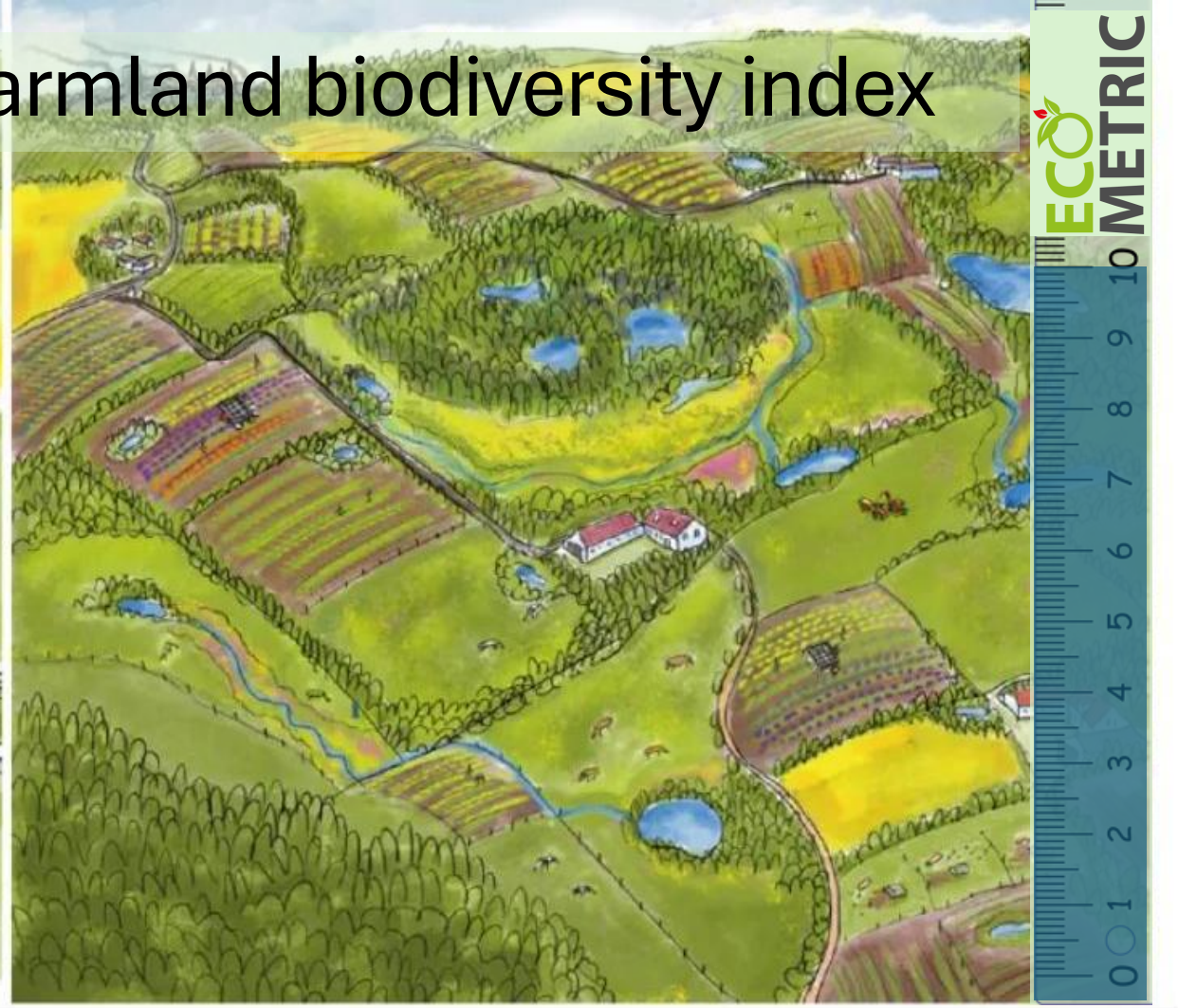


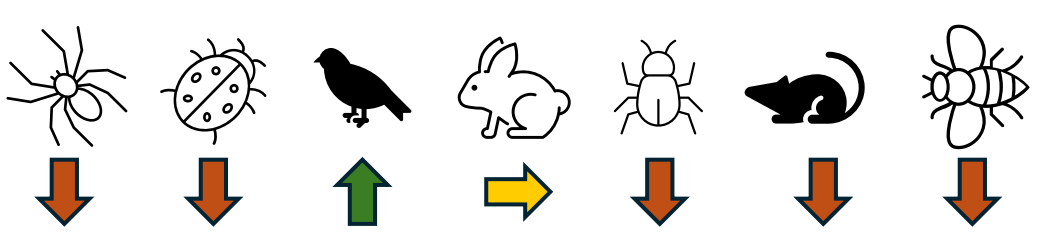
=

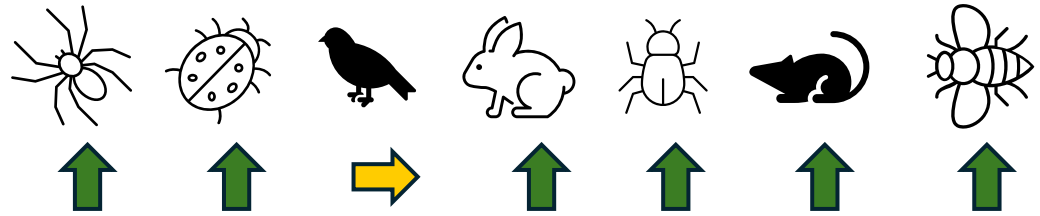
7680 simulerings

A dynamic habitat-based farmland biodiversity index









AARHUS UNIVERSITET

- Yoko L. Dupont
- Trine Poulsen
- Chris Topping
- Astrid Holm Andersen
- Xiaodong Duan
- Geoff Groom
- Mikkel Birkedal Nielsen
- Luna K. Marcussen
- James Henty Williams
- Natasha Nielsen Mølgaard
- Gabriele Torma
- Gwen F. Fox
- Anne K. H. Rasmussen

Thise

- Anne Berg Olsen
- Thise landmænd

- Dorthe Mette Jensen
- Hans Fynbo

Innovationscenter for Økologisk Landbrug

- Bent Rasmussen
- Mie Falck
- Linda M. Handrup
- Maja E. Pedersen
- Julie Marie Søby
- Christoffer Grønne

GRAM SLOT

- Svend Brodersen
- Sanne Brodersen

ORGANIC+

ECO METRIC

ICROFS: https://icrofs.dk/forskning

SESS: https://projects.au.dk/sess/projects

Contact: Yoko L. Dupont,
yoko.dupont@agro.au.dk

ICROFS International Centre for Research in Organic Food Systems

Ministry of Food, Agriculture and Fisheries of Denmark

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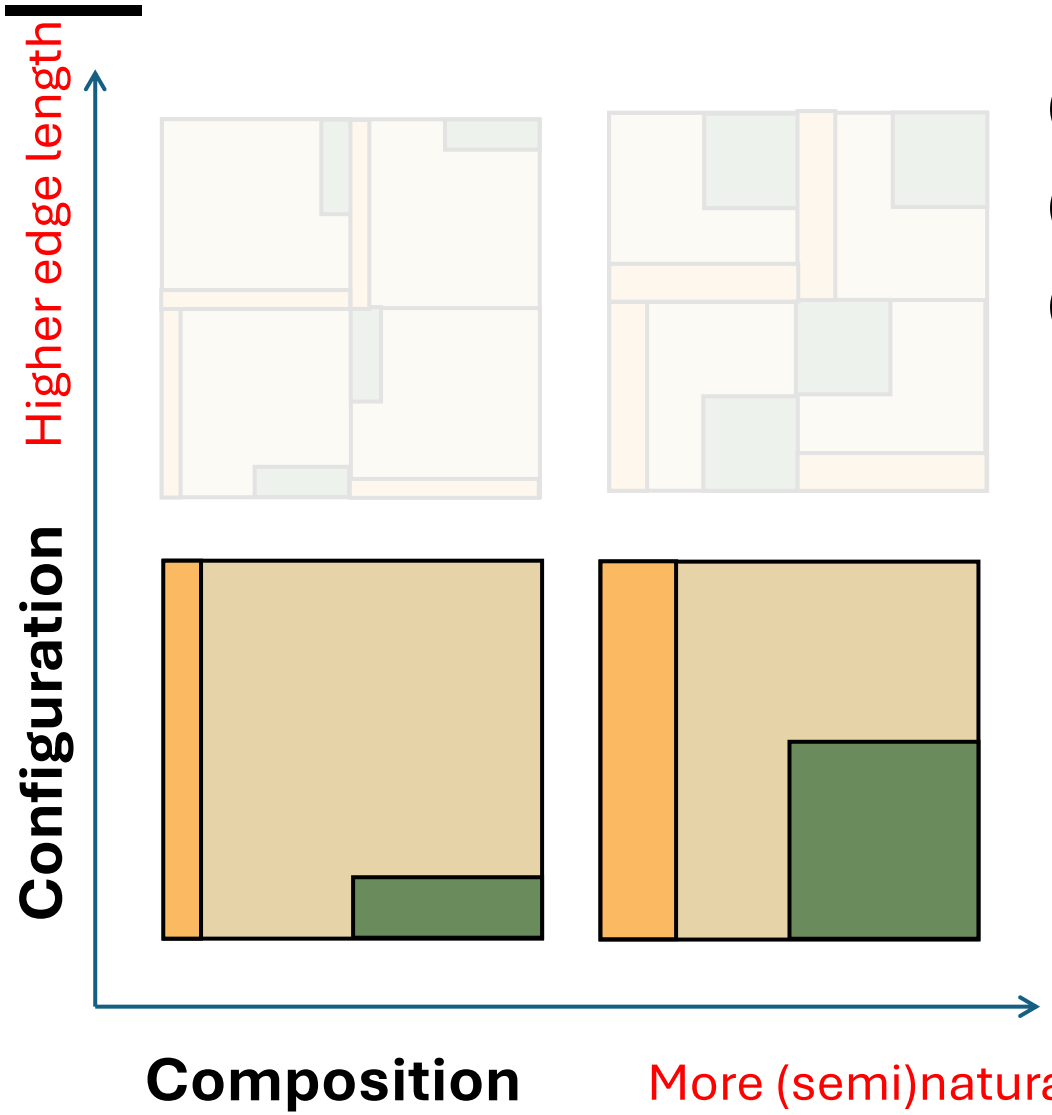
Results



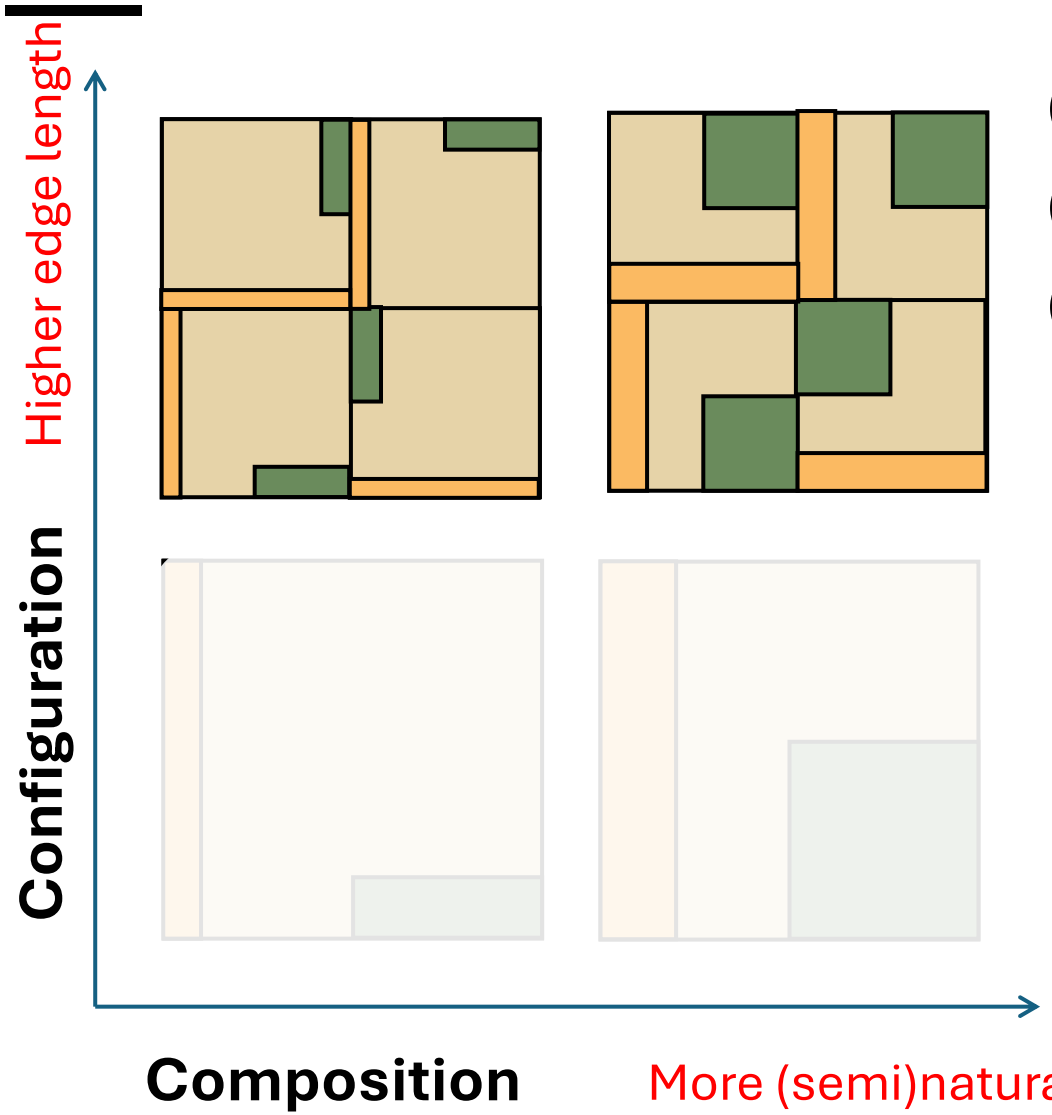
Crop field

Permanent grass

Permanent landscape element

Skylark prefers large fields

Results



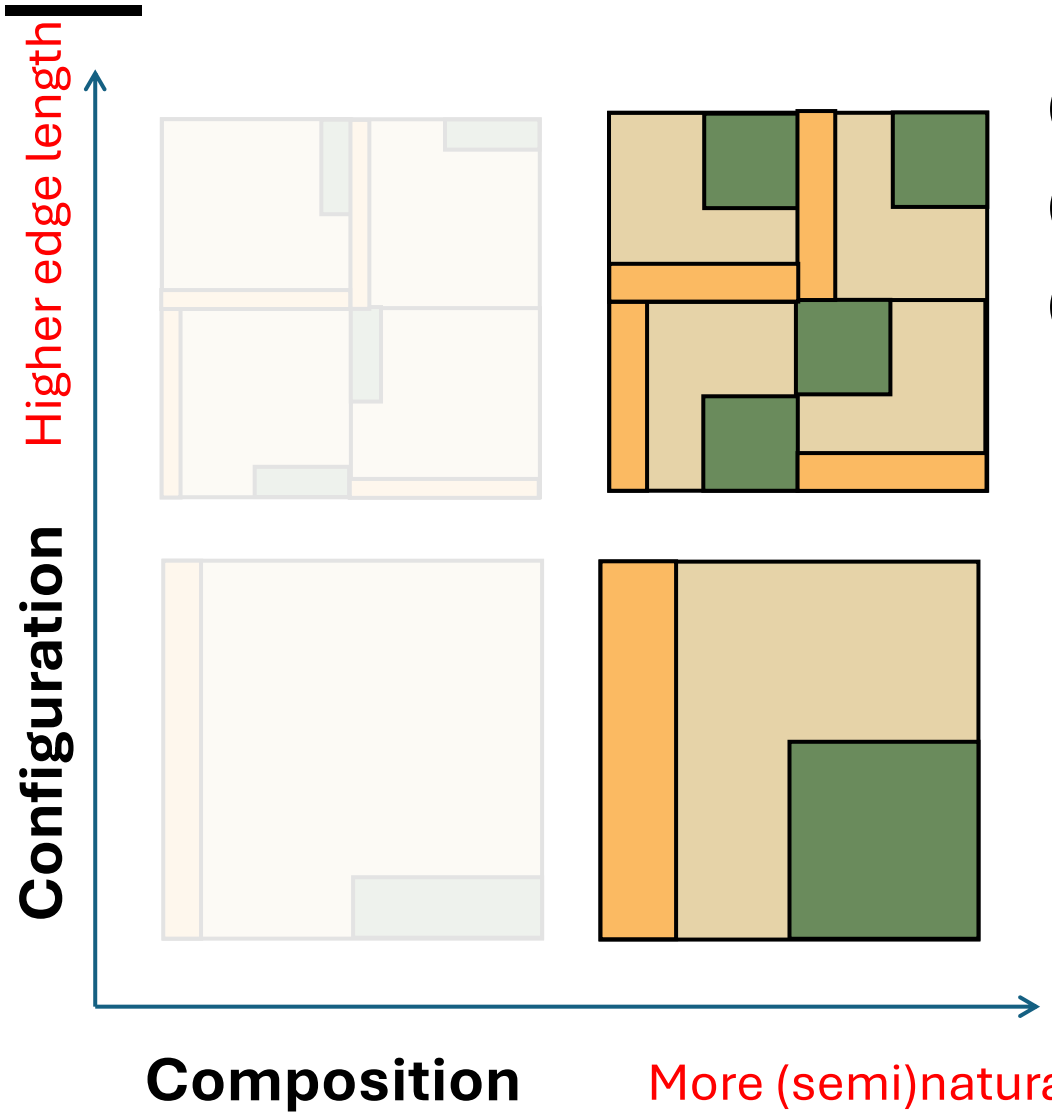
Crop field

Permanent grass

Permanent landscape element

Hare prefers small fields

Results



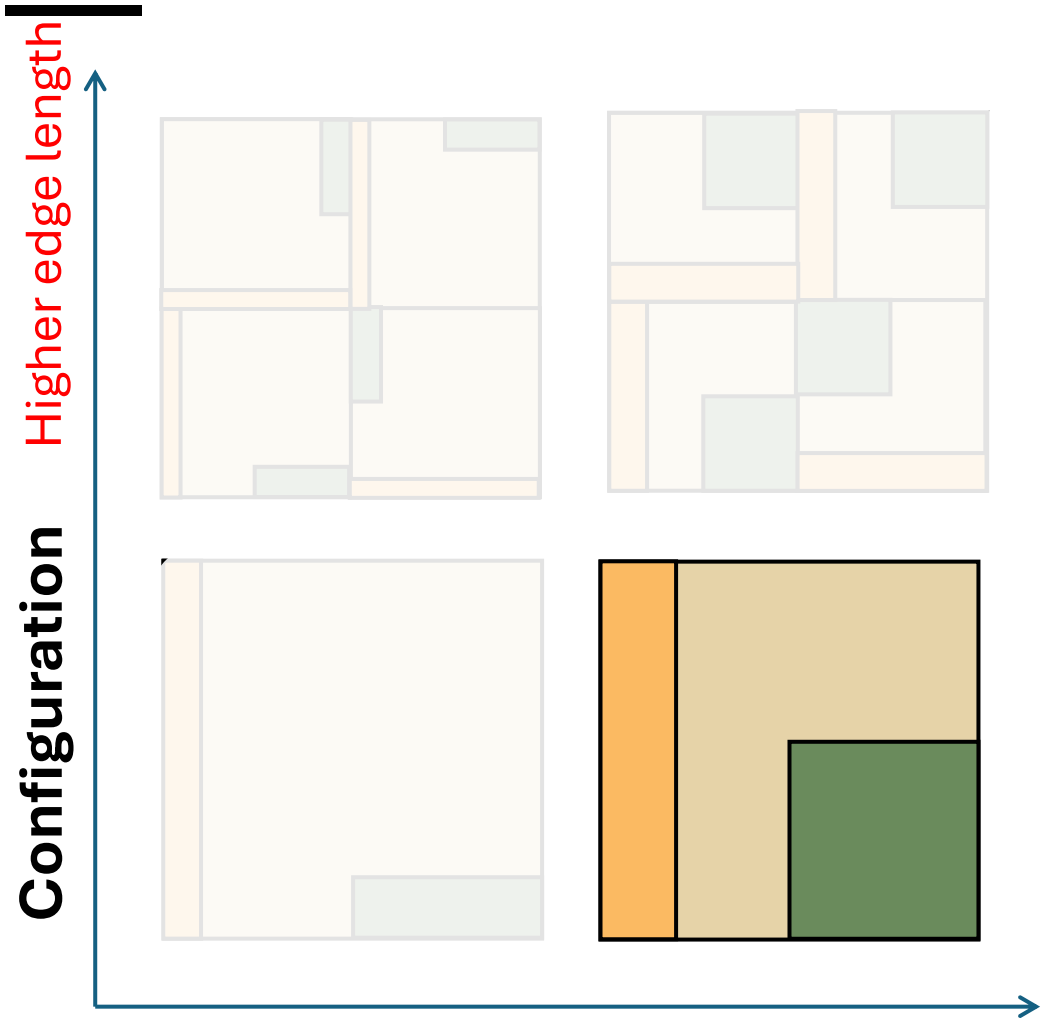
Crop field

Permanent grass

Permanent landscape element

Spider prefers many landscape elements

Results



Crop field

Permanent grass

Permanent landscape element

Red mason bee prefers large area of landscape elements