

# BEYOND ORGANIC: TARGETED ACTIONS FOR FARMLAND BIODIVERSITY

Trine Poulsen and Yoko Dupont



**TRINE POULSEN**

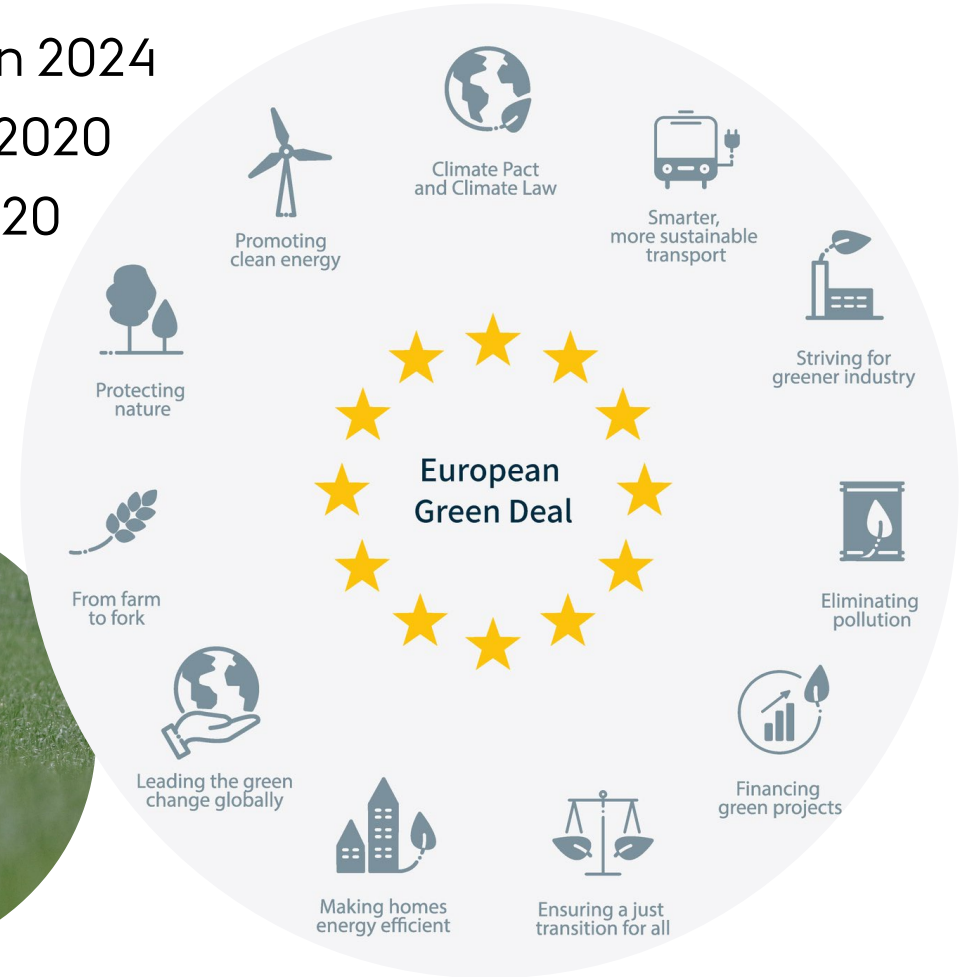
tp@agro.au.dk  
Postdoc

**Agricultural biodiversity**  
Department of Agroecology  
Aarhus University

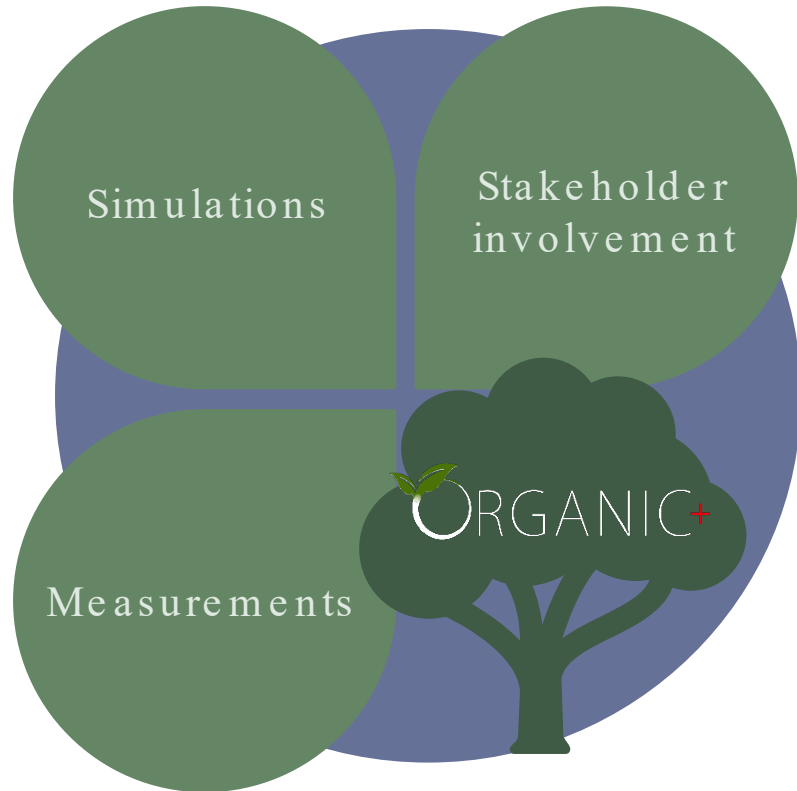


# FARMLAND BIODIVERSITY

Nature Restoration Regulation 2024  
EU Biodiversity strategy 2020  
Farm to Fork strategy 2020



# ORGANIC+



## Goal:

Understand which management **actions** have the biggest long-term effect on **biodiversity** indicator species in **organic** farming



AARHUS UNIVERSITET



Innovationscenter  
for Økologisk Landbrug

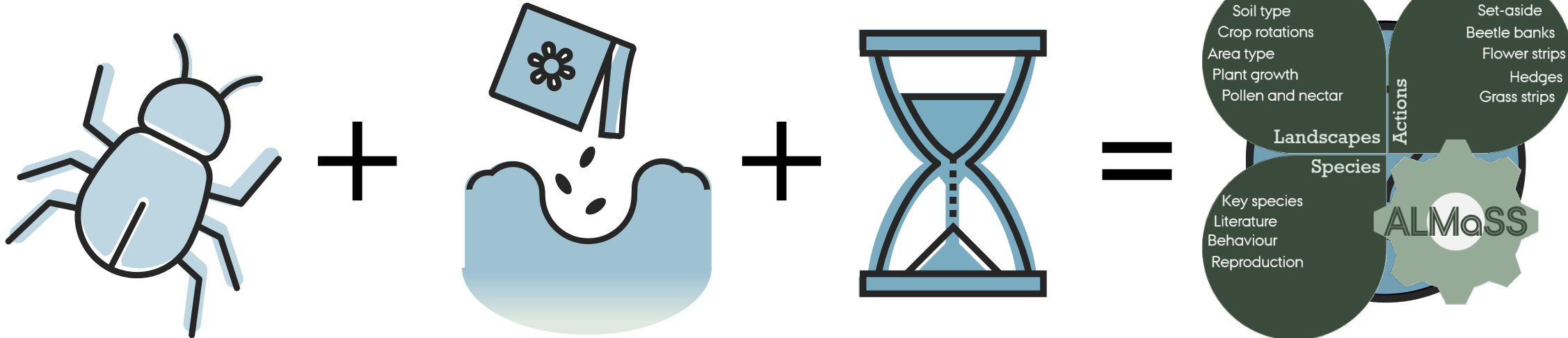


**Thise**  
MEJERI MED PASSION

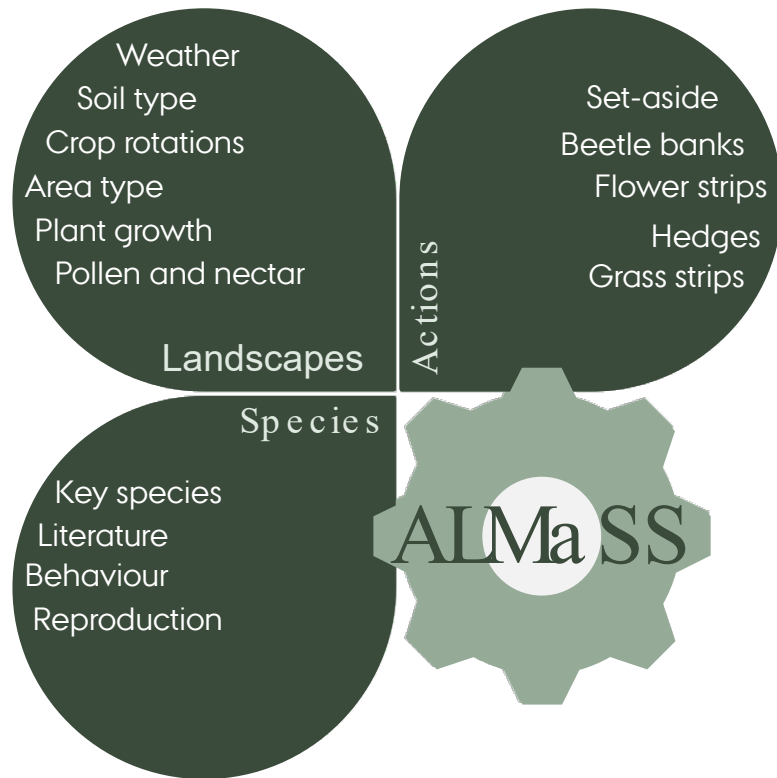


Stenalt Gods

# SIMULATIONS: WHY?

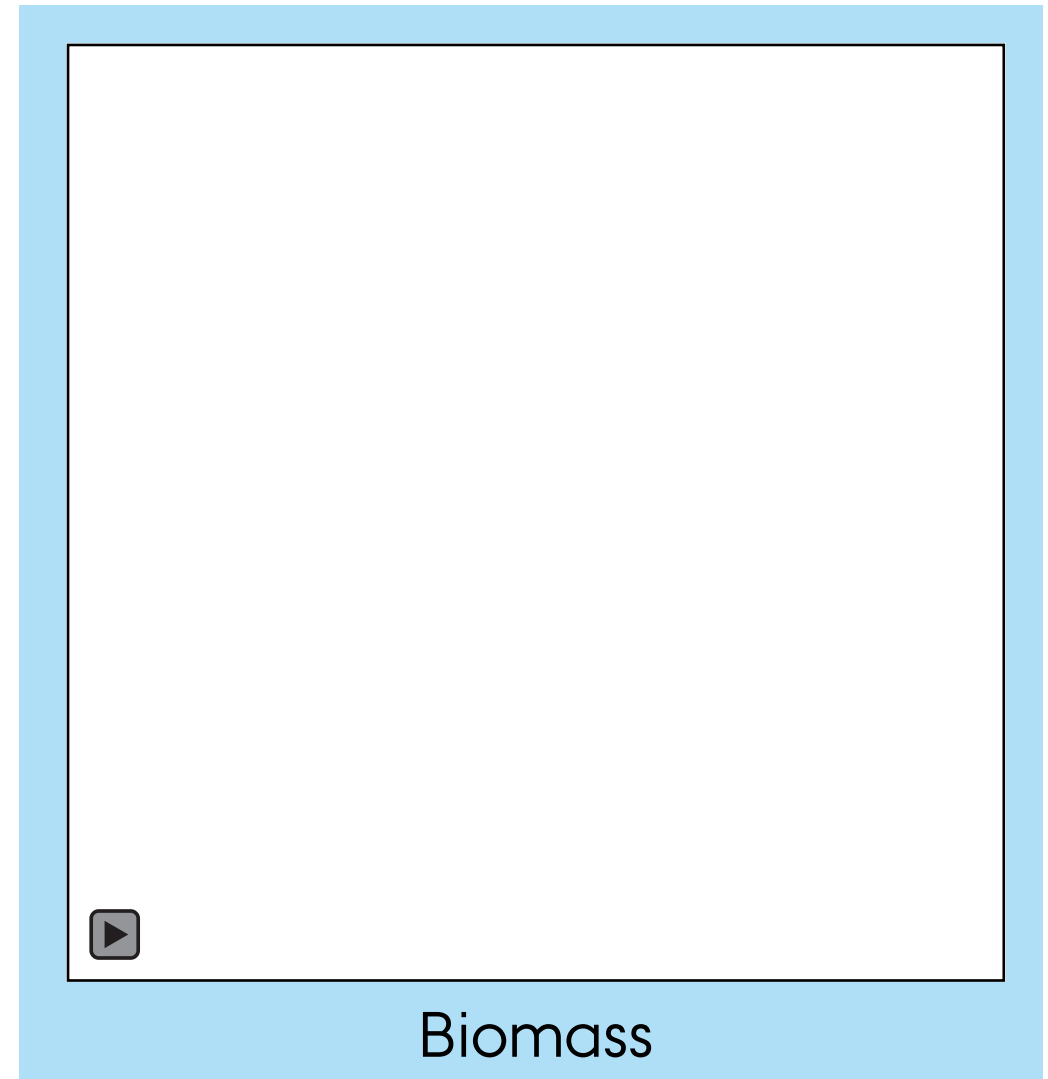
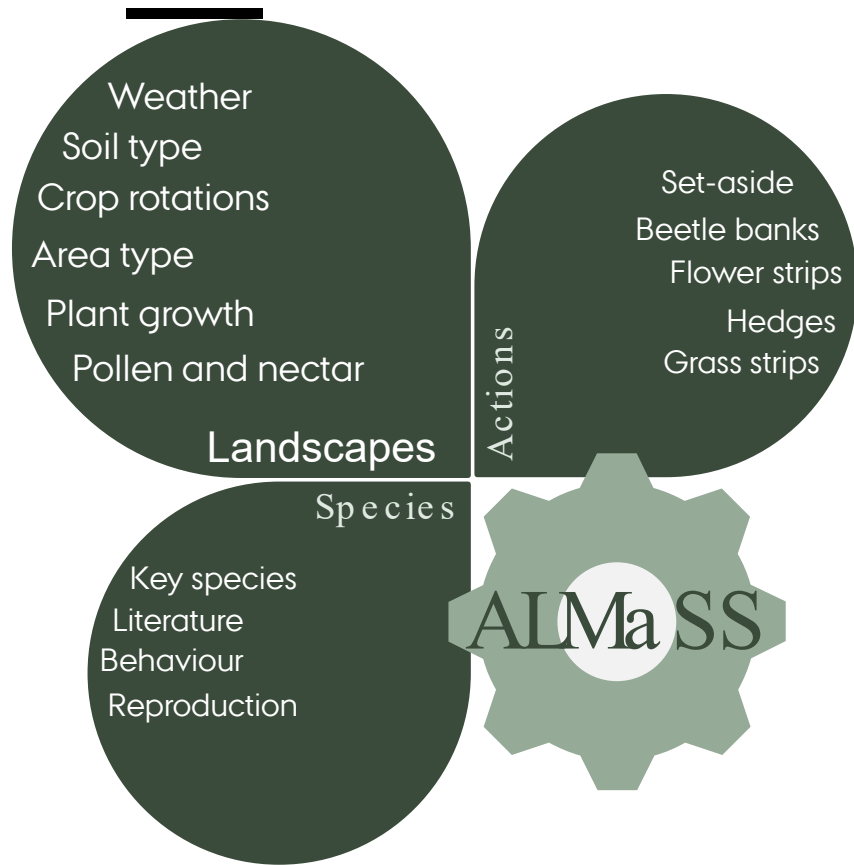


# SIMULATIONS

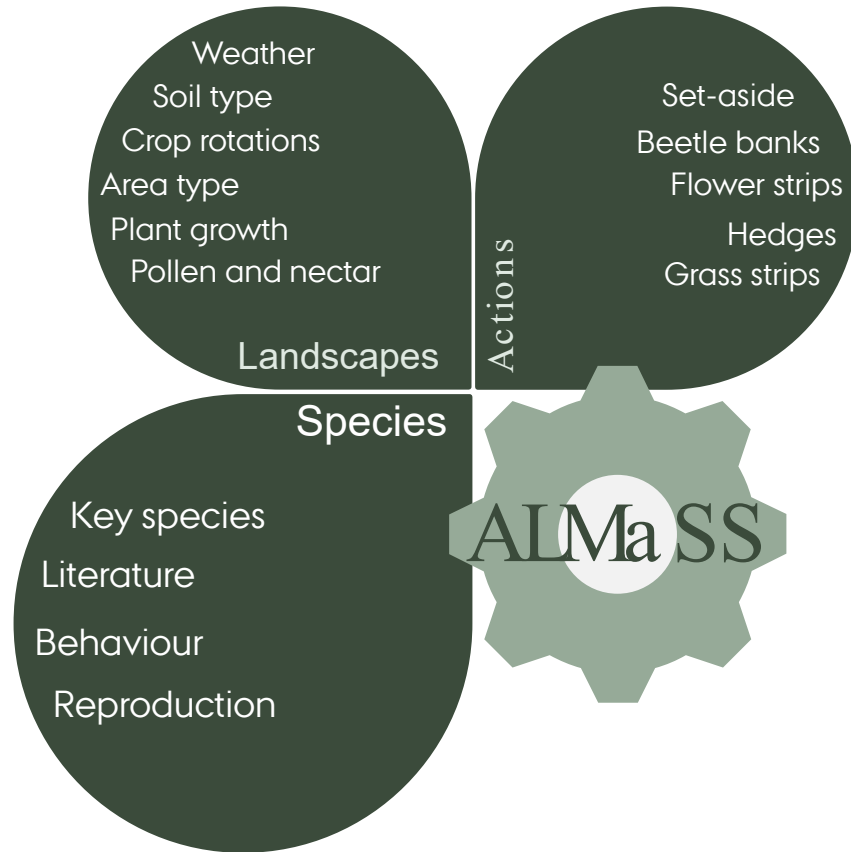


Animal, Landscape and Man Simulation System

# SIMULATIONS



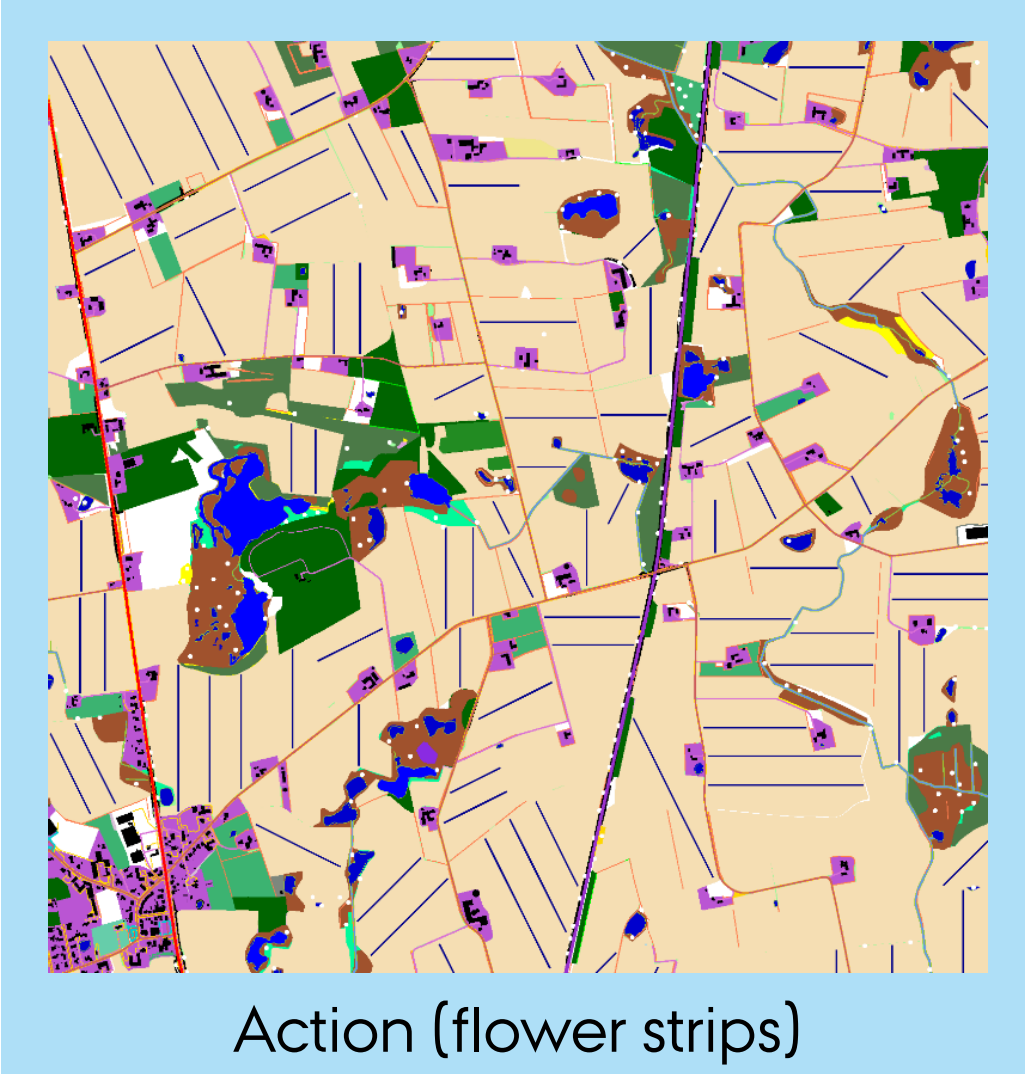
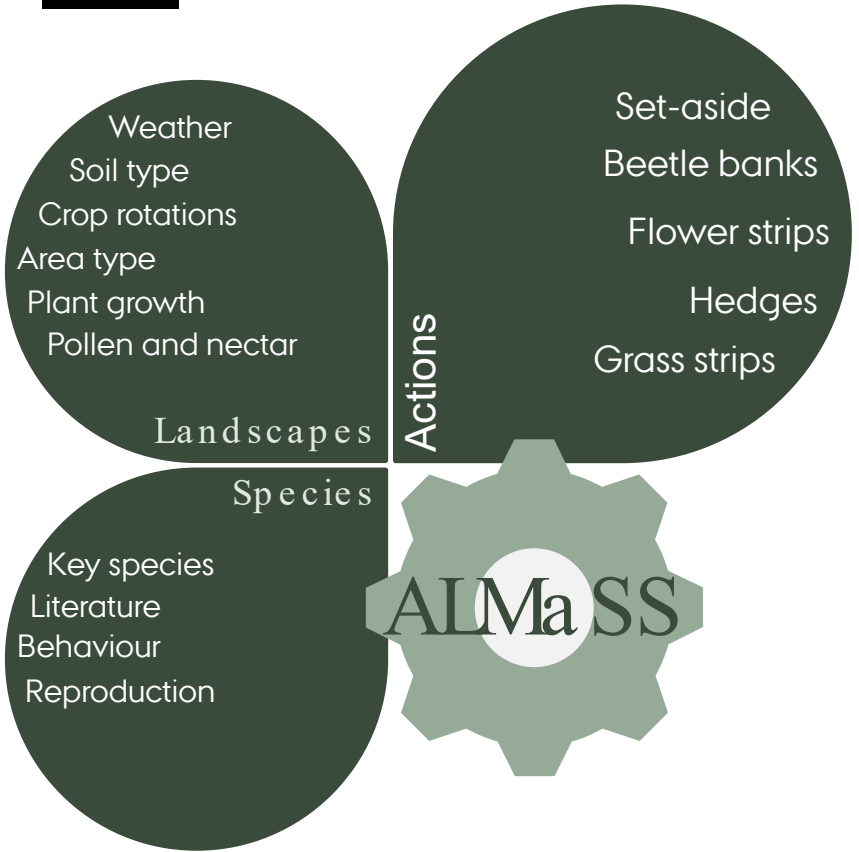
# SIMULATIONS



A large rectangular frame with a light blue border, intended for a video. A play button icon is located in the bottom-left corner of the frame.

Key species (beetle)

# SIMULATIONS



# WHAT DID WE INVESTIGATE?

---

- We investigated the effect of:
  - Area
    - 2, 4, 7, 10% of non-productive area
  - Types of management actions
    - Set-aside fields, flower strips, patches and hedgerows
  - Regional variation
    - 25 Danish landscapes
  - Species
    - Beetle, spider, bee, skylark and hare

# WHAT DID WE INVESTIGATE?

---

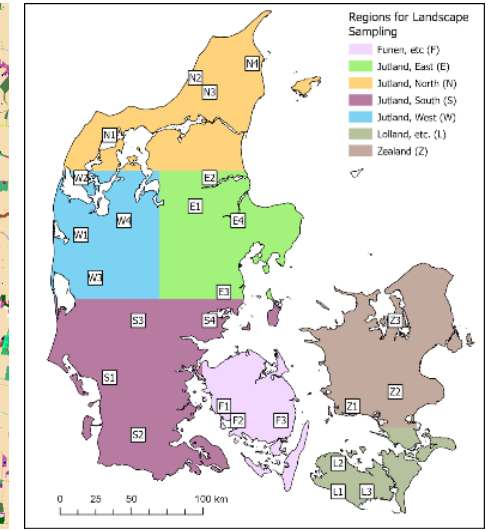
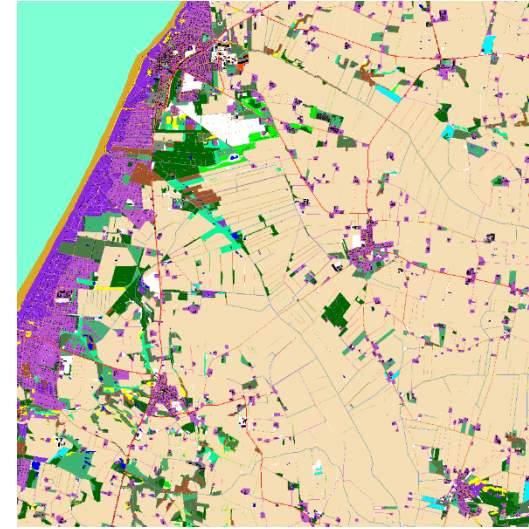
- We investigated the effect of:
  - Area
    - 2, 4, 7, 10% of non-productive area
  - Types of management actions
    - Set-aside fields, flower strips, patches and hedgerows
  - Regional variation
    - 25 Danish landscapes
  - Species
    - Beetle, spider, bee, skylark and hare



# WHAT DID WE INVESTIGATE?



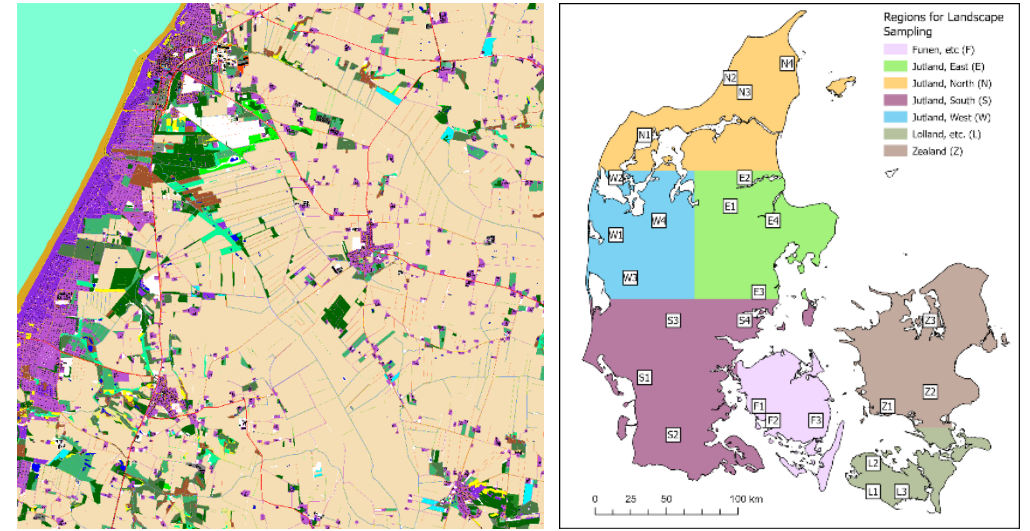
- We investigated the effect of:
  - Area
    - 2, 4, 7, 10% of non-productive area
  - Types of management actions
    - Set-aside fields, flower strips, patches and hedgerows
  - Regional variation
    - 25 Danish landscapes
  - Species
    - Beetle, spider, bee, skylark and hare



# WHAT DID WE INVESTIGATE?

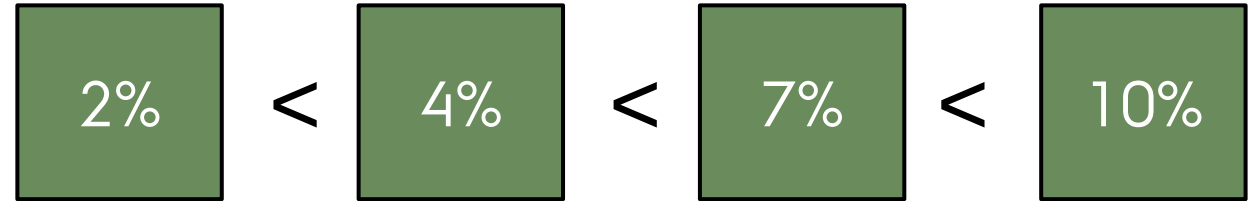


- We investigated the effect of:
  - Area
    - 2, 4, 7, 10% of non-productive area
  - Types of management actions
    - Set-aside fields, flower strips, patches and hedgerows
  - Regional variation
    - 25 Danish landscapes
  - Species
    - Beetle, spider, bee, skylark and hare



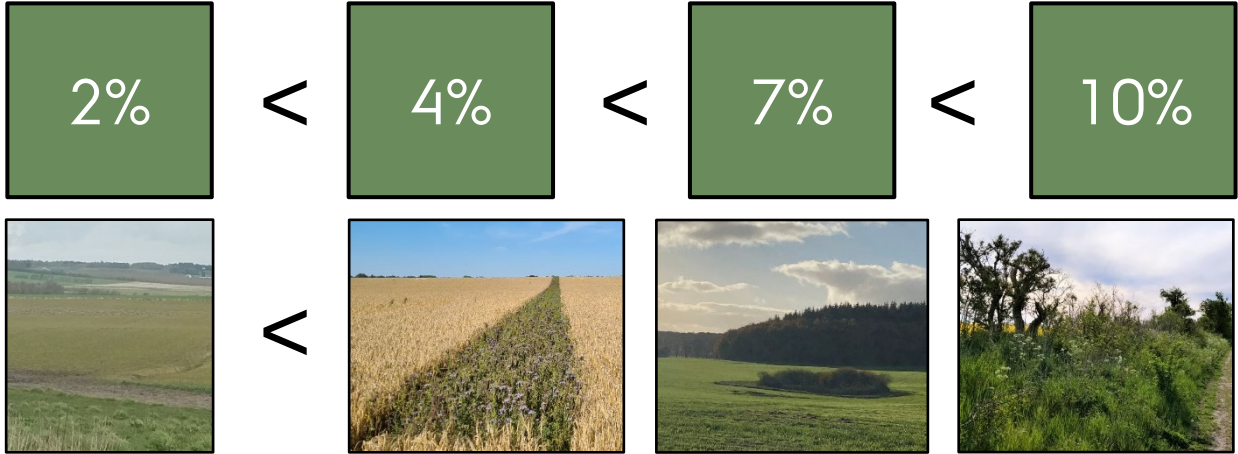
# WHAT DID WE FIND?

- The more area, the greater the effect
- Flower strips, patches and hedgerows are generally better than set-aside
- BUT the effect depends on the species
- And the landscape



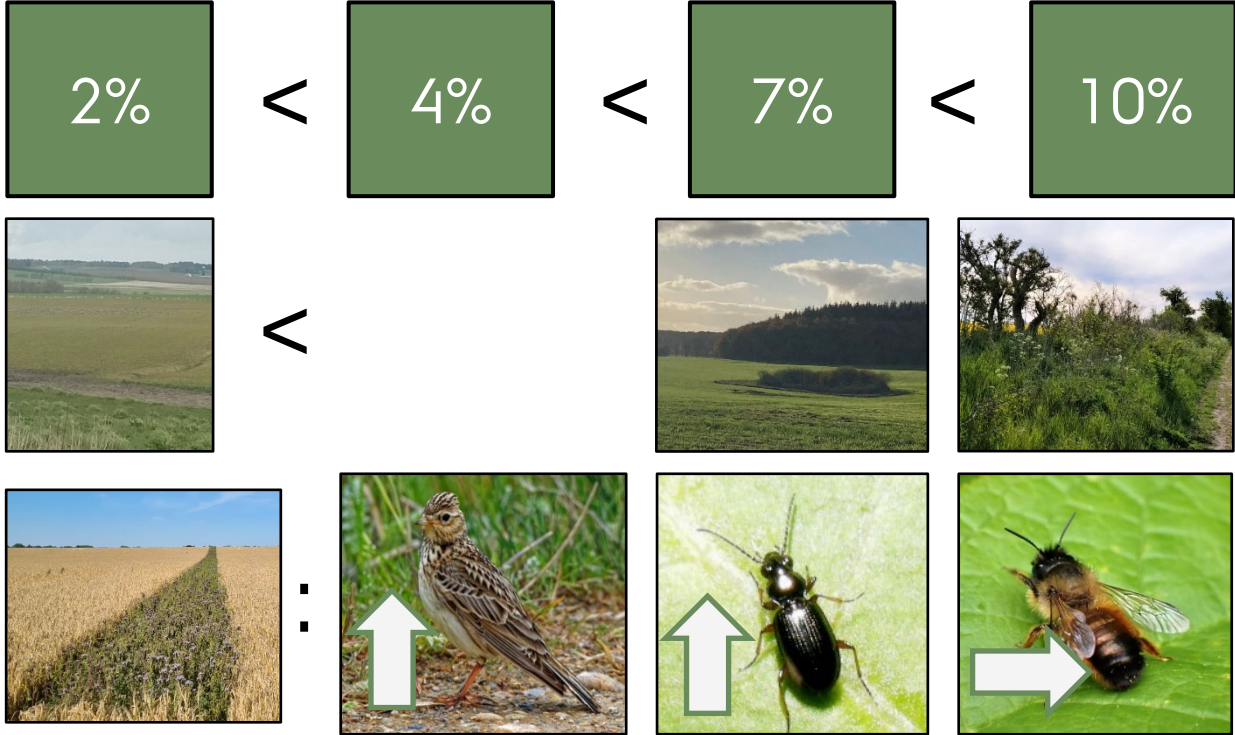
# WHAT DID WE FIND?

- The more area, the greater the effect
- Flower strips, patches and hedgerows are generally better than set-aside
- BUT the effect depends on the species
- And the landscape



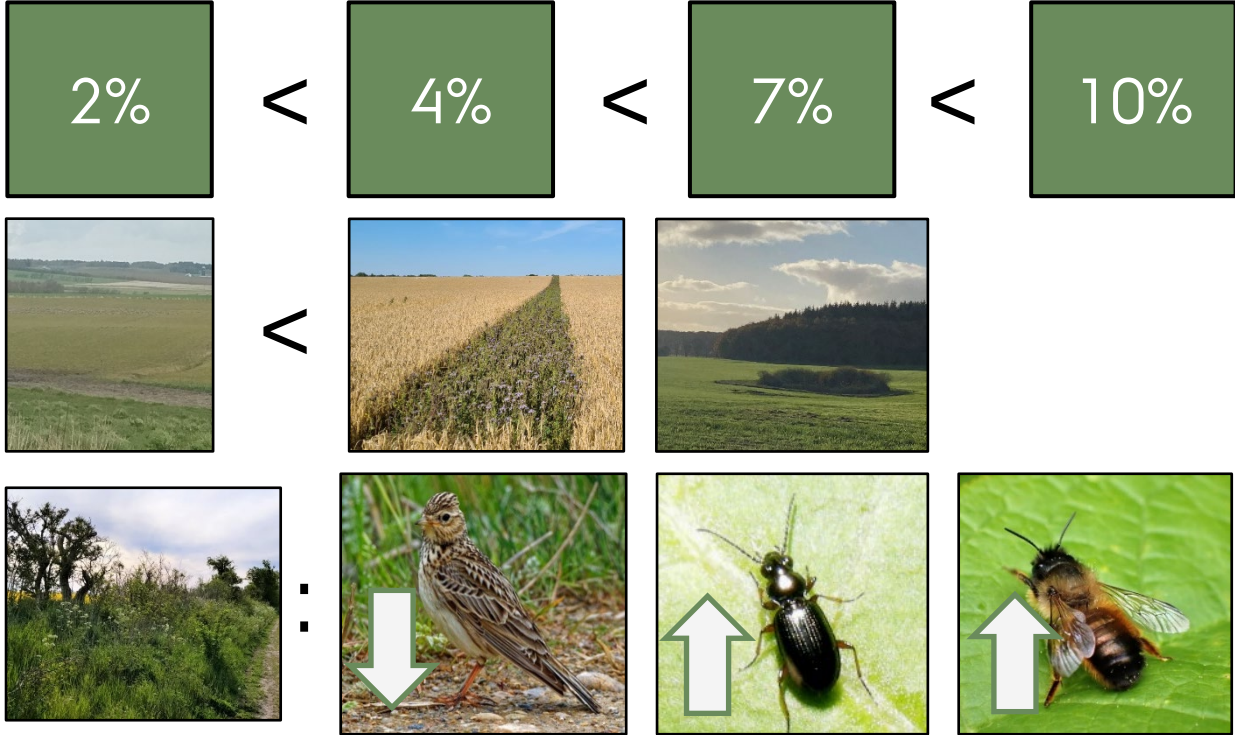
# WHAT DID WE FIND?

- The more area, the greater the effect
- Flower strips, patches and hedgerows are generally better than set-aside
- BUT the effect depends on the species
- And the landscape



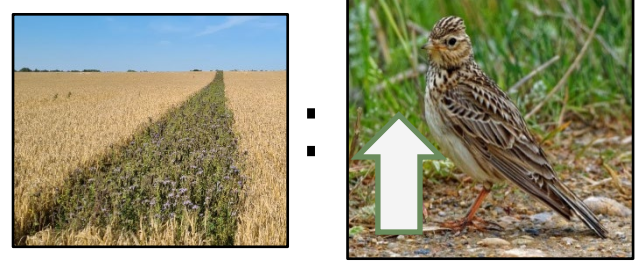
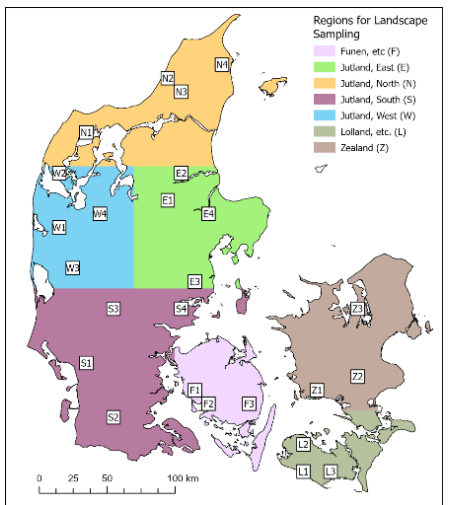
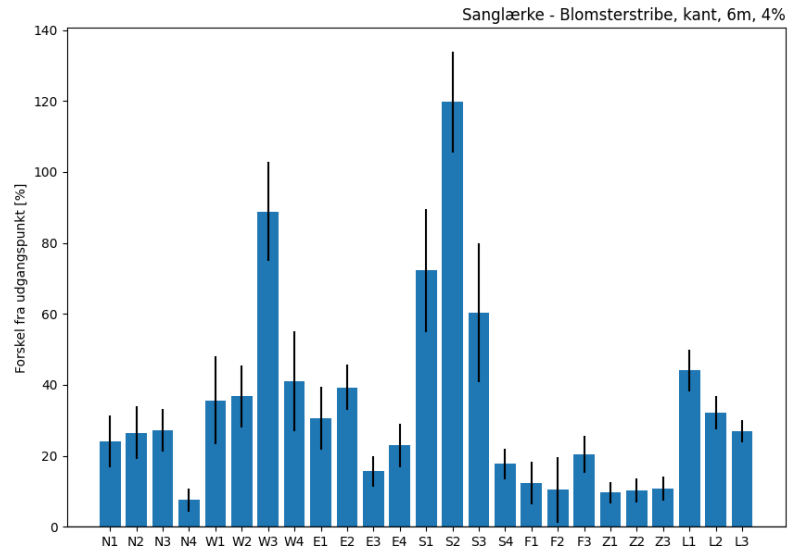
# WHAT DID WE FIND?

- The more area, the greater the effect
- Flower strips, patches and hedgerows are generally better than set-aside
- BUT the effect depends on the species
- And the landscape



# WHAT DID WE FIND?

- The more area, the greater the effect
- Flower strips, patches and hedgerows are generally better than set-aside
- BUT the effect depends on the species
- And the landscape



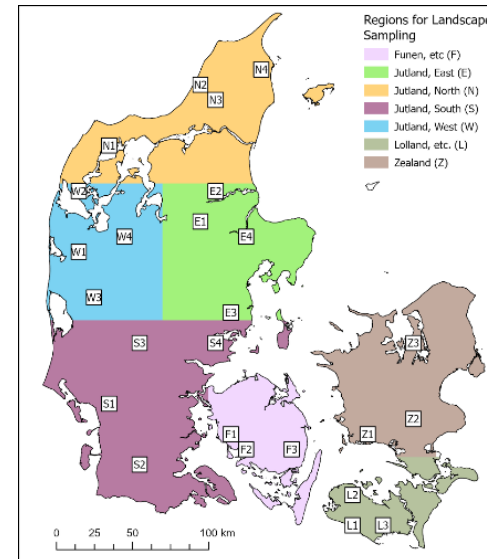
# ORGANIC VS NON-PRODUCTIVE AREA

Organic farm area in Denmark: 11% → 25%  
Compare to adding 4% non-productive area

- Flower set-aside
- Flower strips

Four species

Seven landscapes



# ORGANIC VS NON-PRODUCTIVE AREA

Organic farm area in Denmark: 11% → 25%

Compare to adding 4% non-productive area

- Flower set-aside
- Flower strips

Four species

Seven landscapes



# ORGANIC VS NON-PRODUCTIVE AREA

Organic farm area in Denmark: 11% → 25%

Compare to adding 4% non-productive area

- Flower set-aside
- Flower strips

Four species

Seven landscapes



# ORGANIC VS NON-PRODUCTIVE AREA

Organic farm area in Denmark: 11% → 25%

Compare to adding 4% non-productive area

- Flower set-aside
- Flower strips

Four species

Seven landscapes



# ORGANIC VS NON-PRODUCTIVE AREA

Organic farm area in Denmark: 11% → 25%

Compare to adding 4% non-productive area

- Flower set-aside
- Flower strips

Four species

Seven landscapes



# CONCLUSION

---

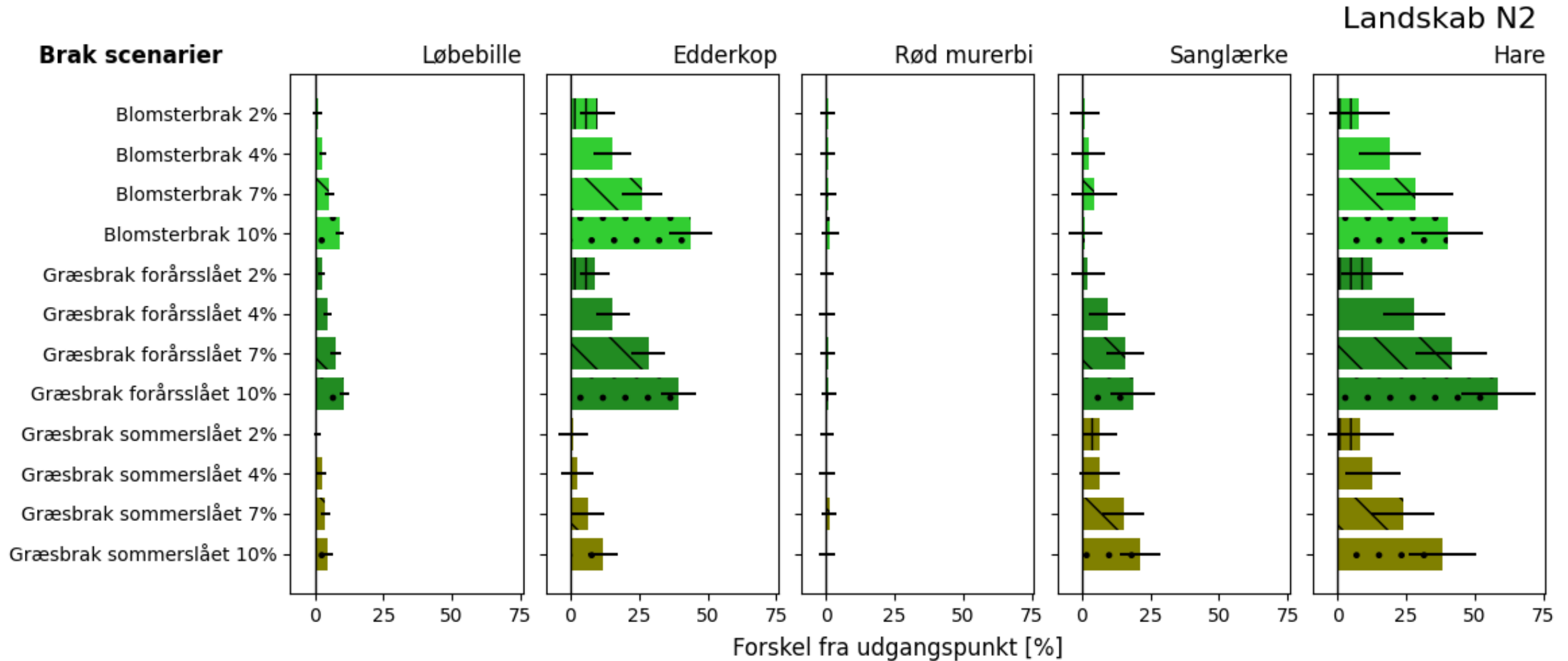
## How can we improve farmland biodiversity on organic farms?

- **More space:** Even a few percent makes a difference, and larger areas have greater impact
- **There is no single solution:** Different species require different measures
- **It depends on the landscape:** Local conditions are crucial
- **Organic is not enough:** 4% non-productive area has a bigger impact

Thank you for your attention

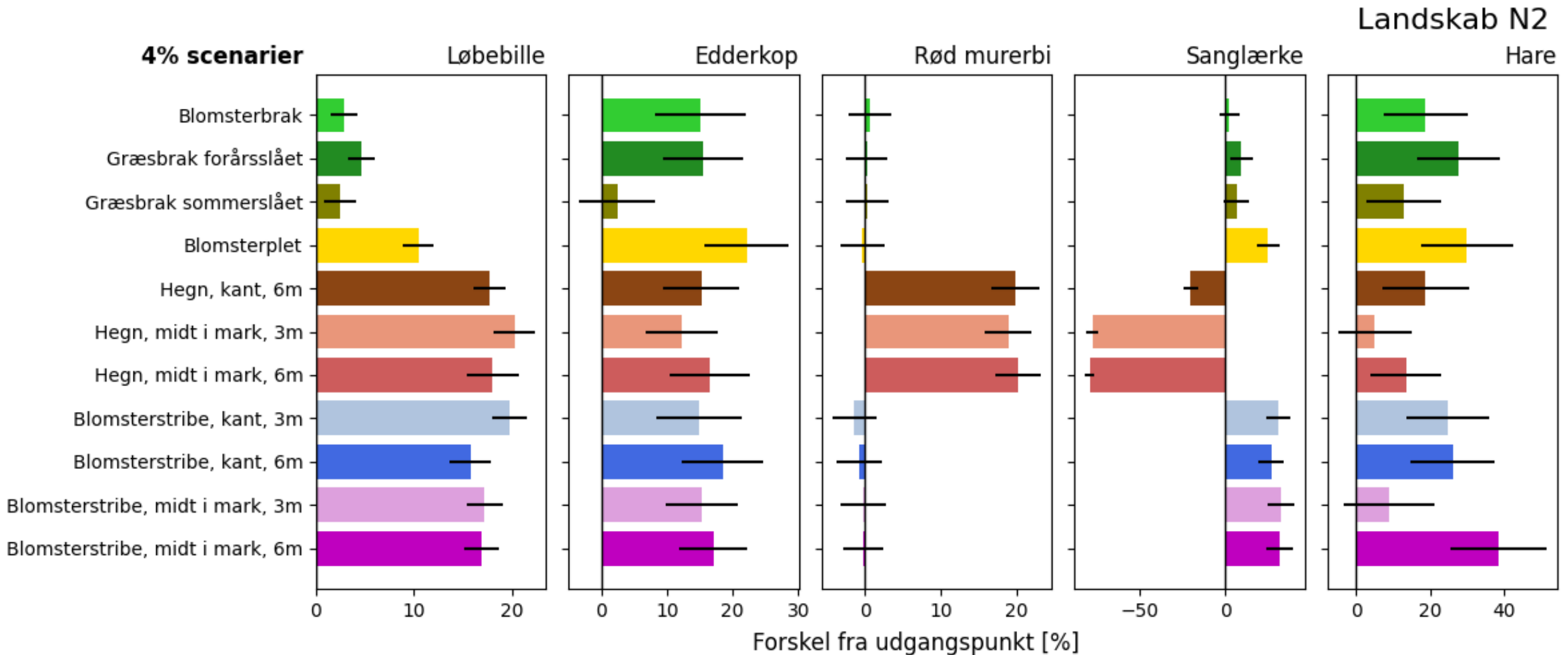
# RESULTS

The more area, the bigger effect



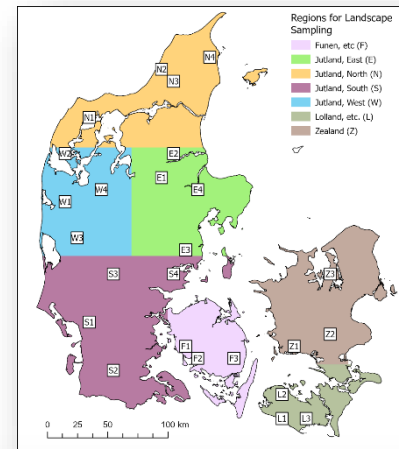
# RESULTS

The best action depends on the species

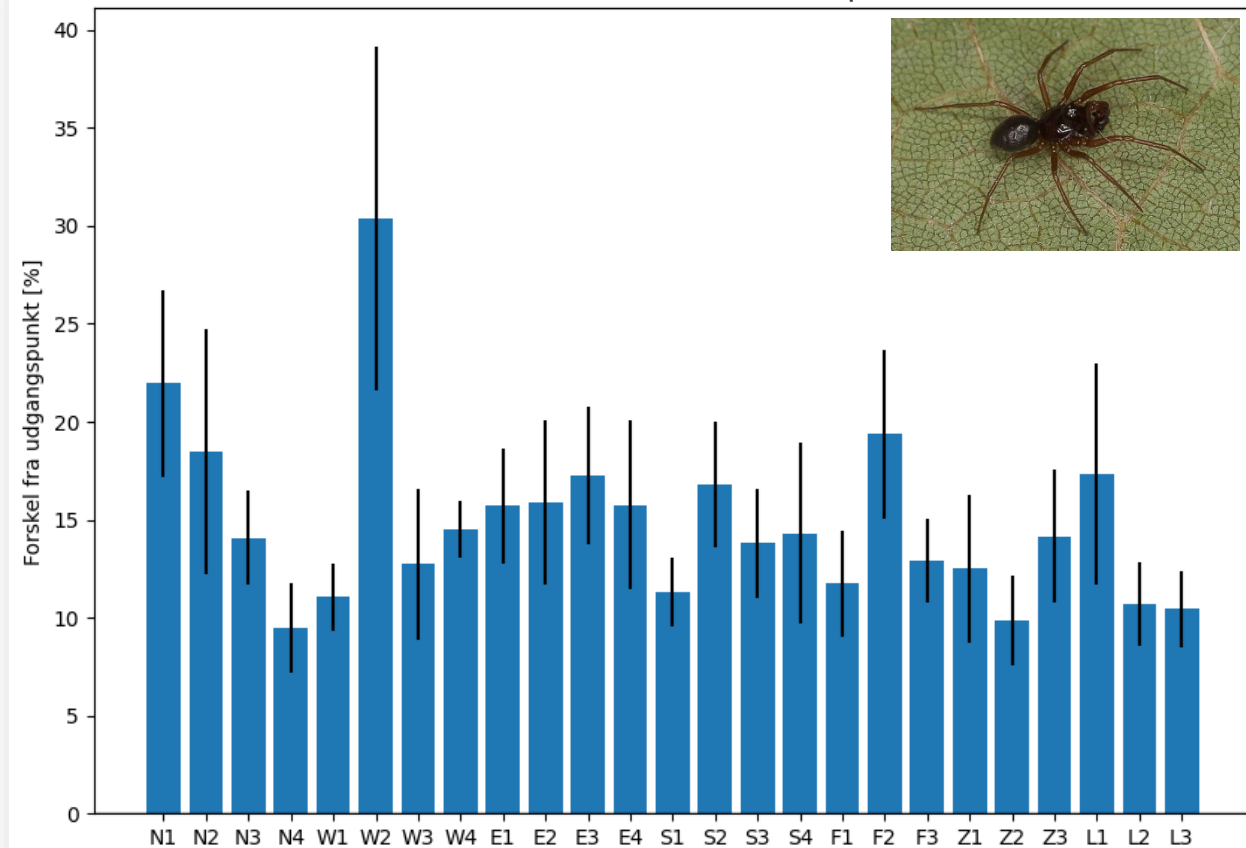


# RESULTS

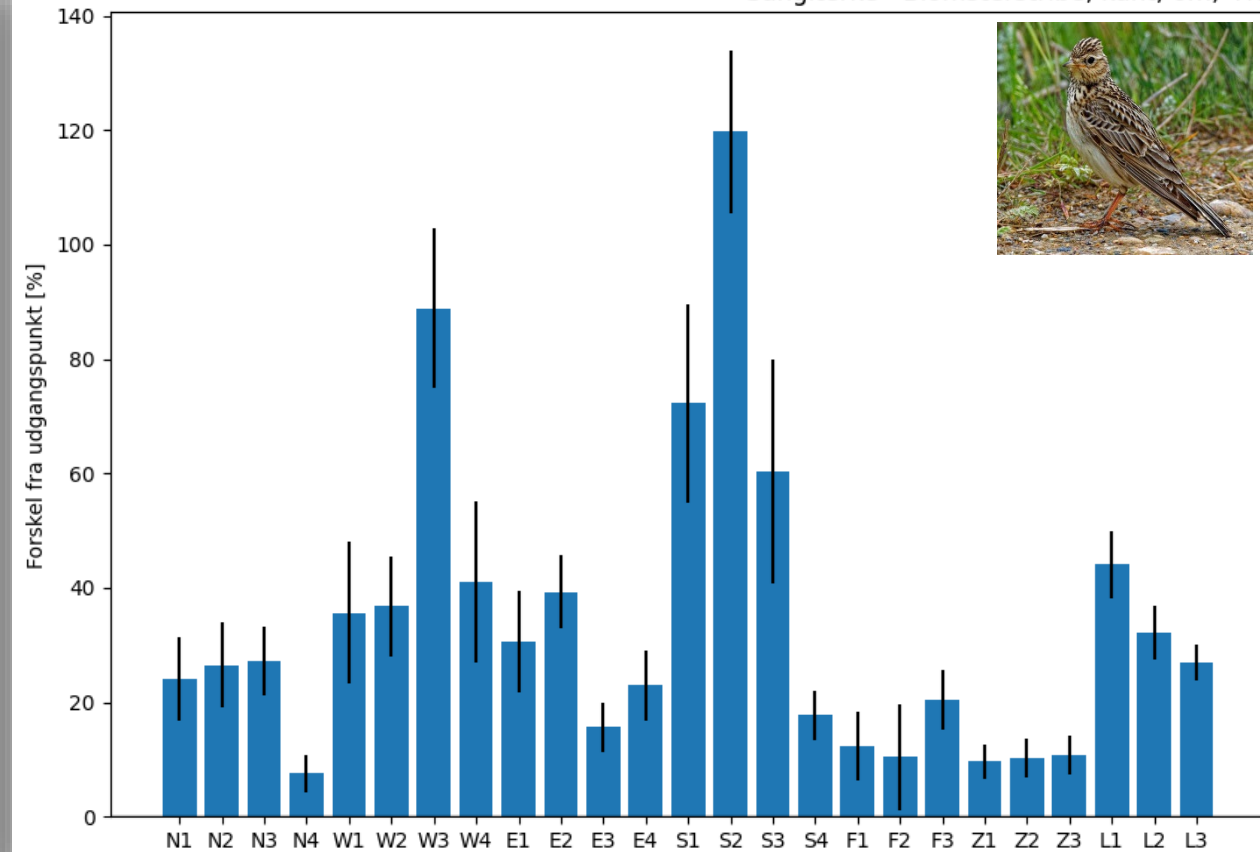
The effect depends on the landscape



Edderkop - Blomsterstribe, kant, 6m, 4%



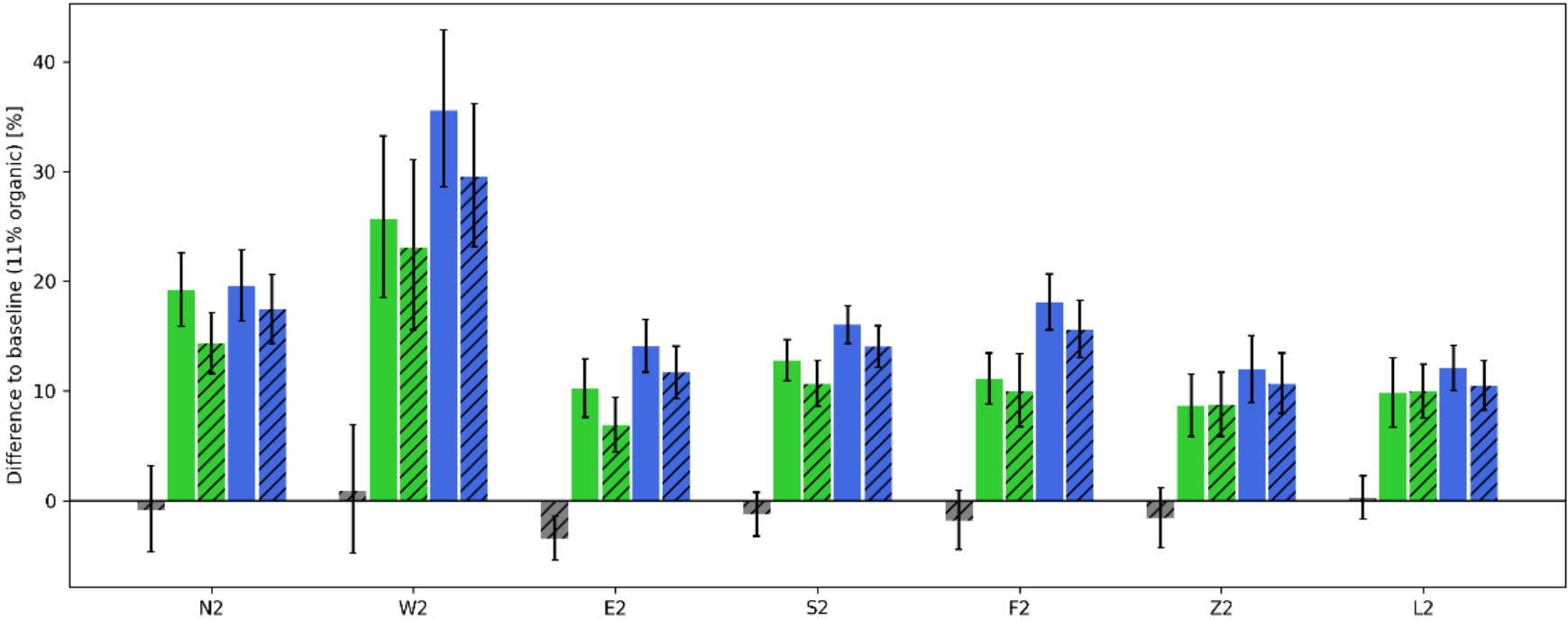
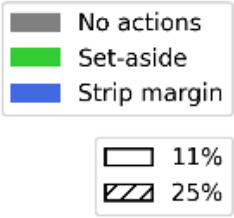
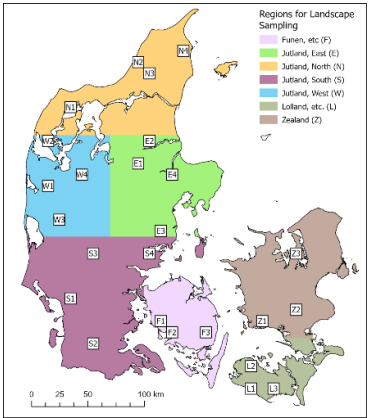
Sanglærke - Blomsterstribe, kant, 6m, 4%



# ORGANIC VS NON-PRODUCTIVE AREA

Organic farm area in Denmark: 11% → 25%

Compare to adding 4% non-productive area

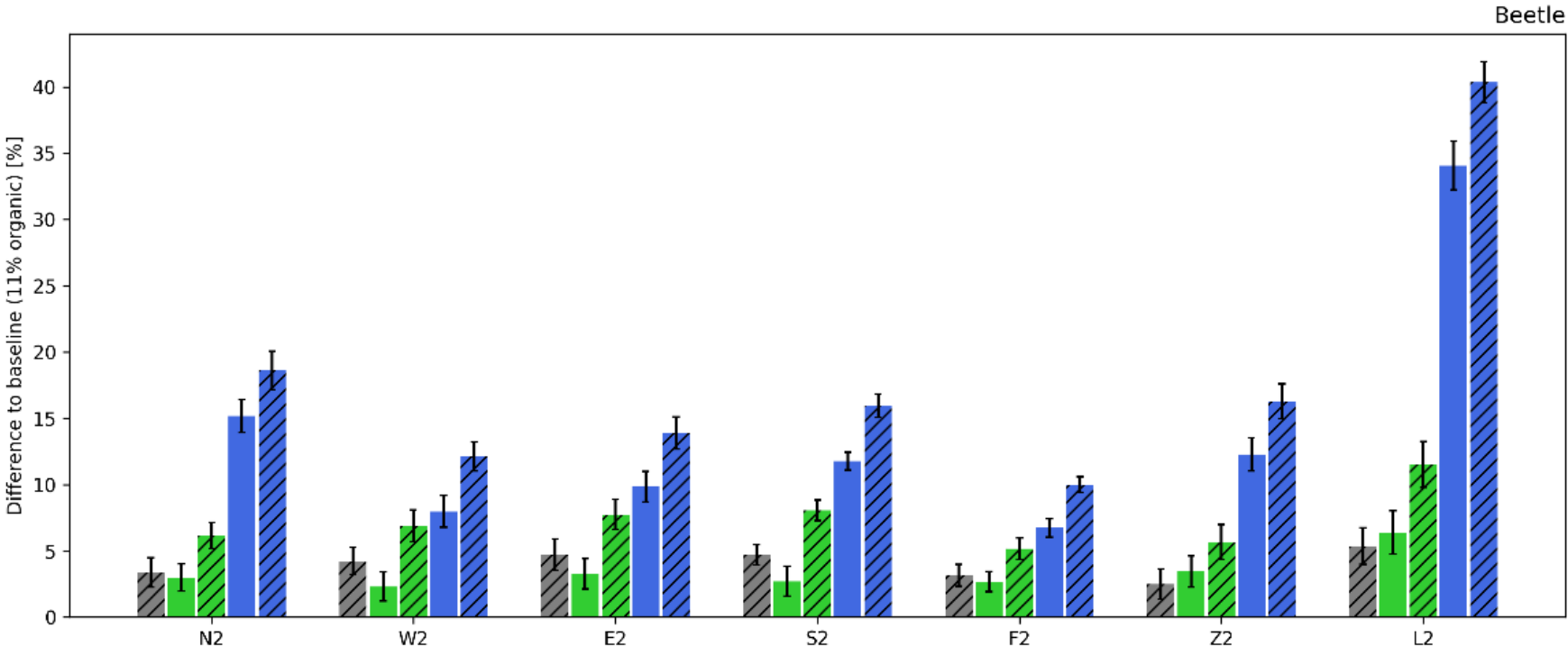
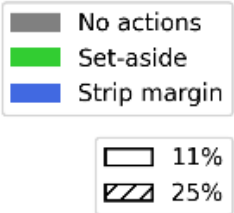
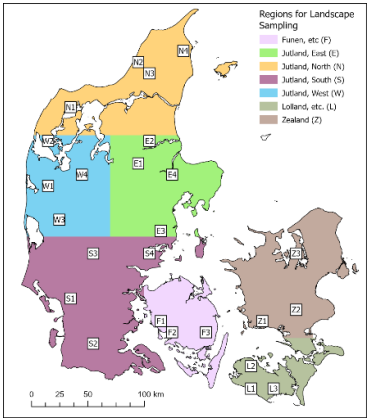


Spider

# ORGANIC VS NON-PRODUCTIVE AREA

Organic farm area in Denmark: 11% → 25%

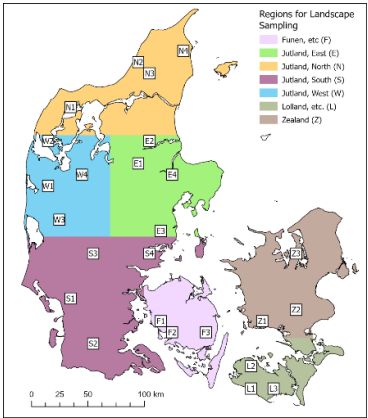
Compare to adding 4% non-productive area



# ORGANIC VS NON-PRODUCTIVE AREA

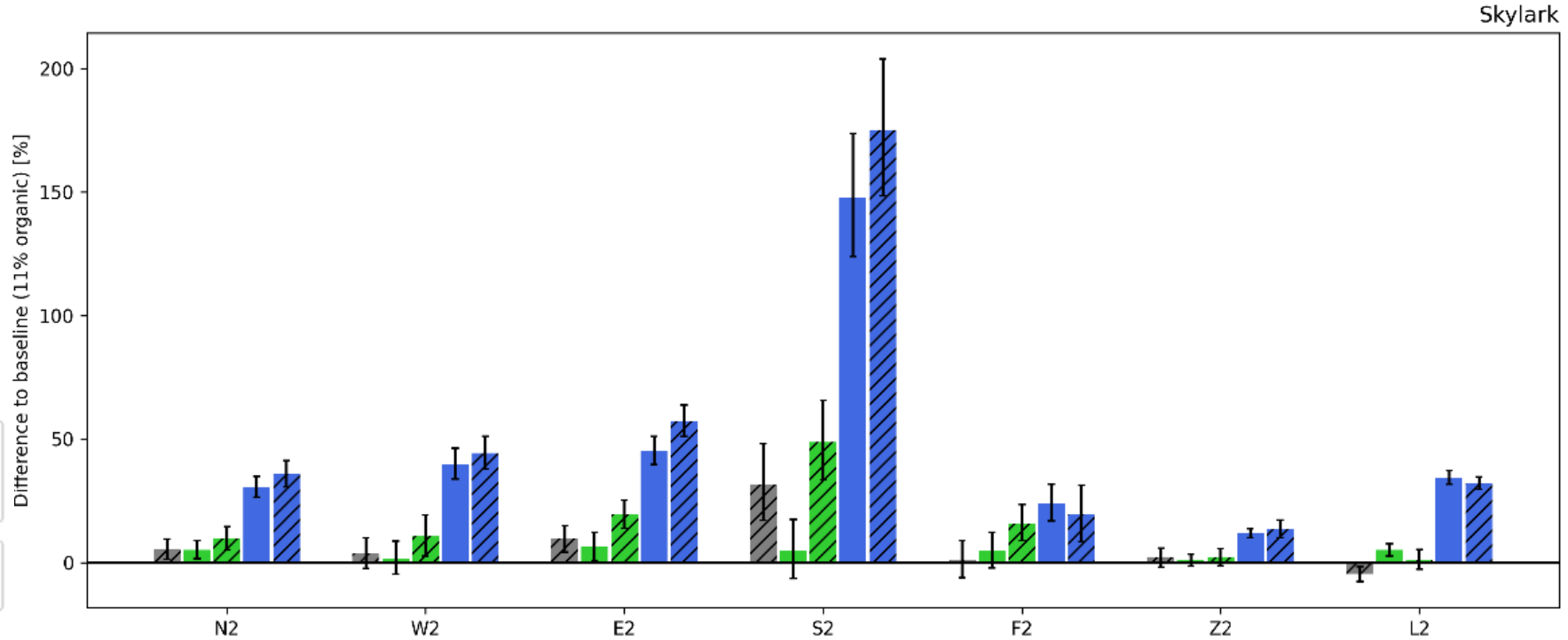
Organic farm area in Denmark: 11% → 25%

Compare to adding 4% non-productive area



No actions  
 Set-aside  
 Strip margin

11%  
 25%



Skylark

# ORGANIC VS NON-PRODUCTIVE AREA

Organic farm area in Denmark: 11% → 25%

Compare to adding 4% non-productive area

