# A TALE OF TWO LANDSCAPES

## Evaluating high nature value of agricultural and rewilding areas

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Integrated International Projectwork
MSc Geography & Geomatics
Odsherred/Roskilde (DK) – 11 to 19 May 2024

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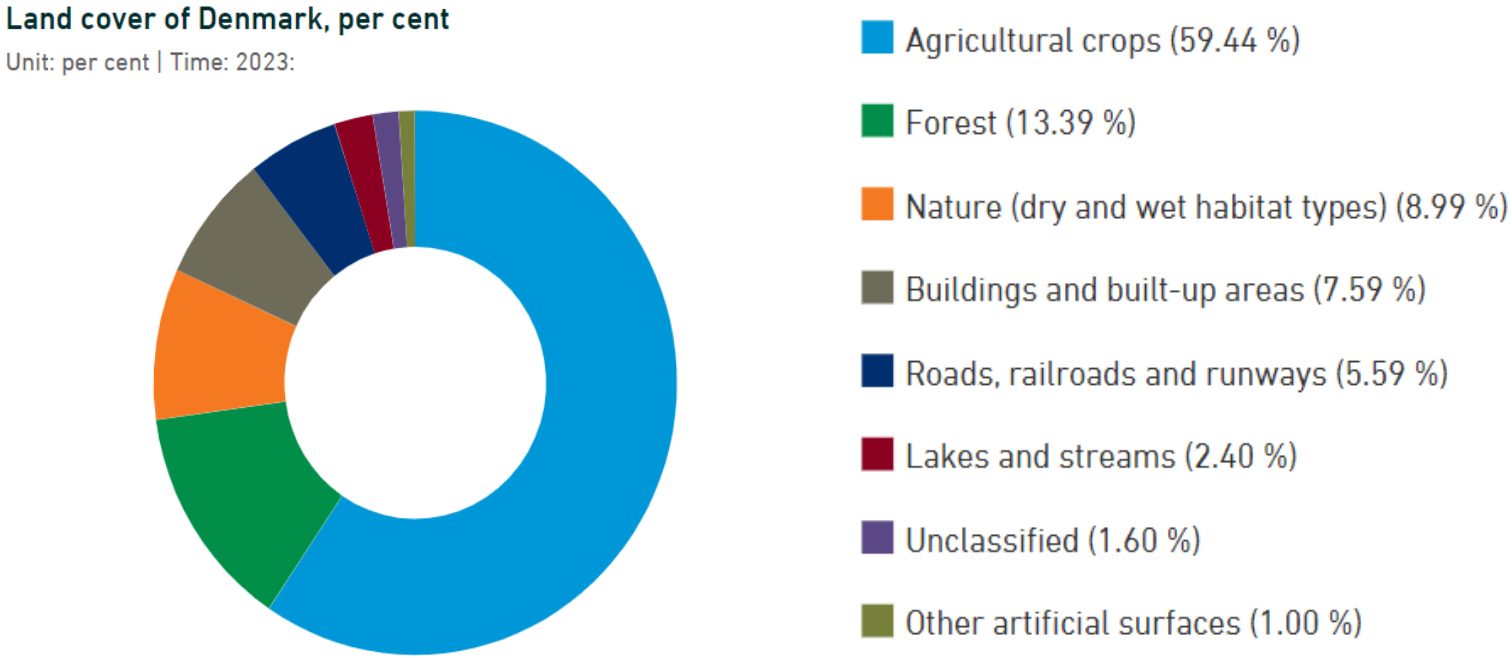
Roskilde Universitet

# CONTEXT

60% of the land is used for agricultural crops → Biodiversity under pressure




Source: Statistics Denmark

# STUDY AREA

Rewilding area, Kattrup

Agricultural area, Sønderød

Source: Google Earth

# THEORETICAL APPROACHES FOR BIODIVERSITY

High nature value (HNV) between 2012 - 2024

Evolution of small biotopes

# RESEARCH QUESTIONS

How do the high nature value and the small biotopes in the two study areas change between 2012 and 2024?

Sub-research questions:

- What is the evolution of the high nature value of the agricultural and rewilding area?
- What are the differences between the agricultural and rewilding areas in terms of high nature value?
- How suitable is the chosen methodology for both areas?

# METHODOLOGY

# DATA

Literature study to determine the variables of the high nature value and the small biotopes

Land use data obtained from the Danish Agency for Agriculture

Satellite images of the study area obtained from the Danish environment portal

# CALCULATION OF THE HNV SCORE

3 approaches

- Land cover
- Species
- **Farming system approach with 3 indicators**

Crop diversity
Score on 10

+

Extensive practices
Score on 5

+

Small biotopes
Score on 5

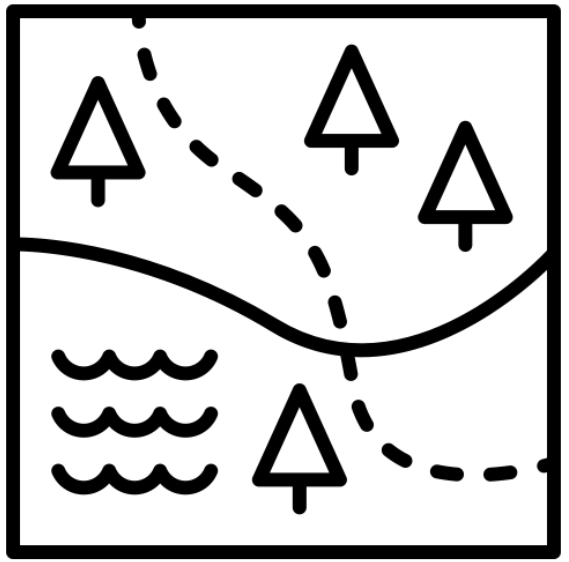
# SELECTED VARIABLES

| Indicators | Variables |
|---|---|
| Crop diversity | Cereals |
| | Corn |
| | Rapeseed |
| | Other crops |
| | Intensively managed grassland |
| Extensive practices | Pastures |
| | Extensively managed grassland |
| | Extensively managed crops |
| Small biotopes | Area of hedges |
| | Area of wood edges |
| | Number of farm ponds |

# EVOLUTION OF THE SMALL BIOTOPES

Mapping the small biotopes

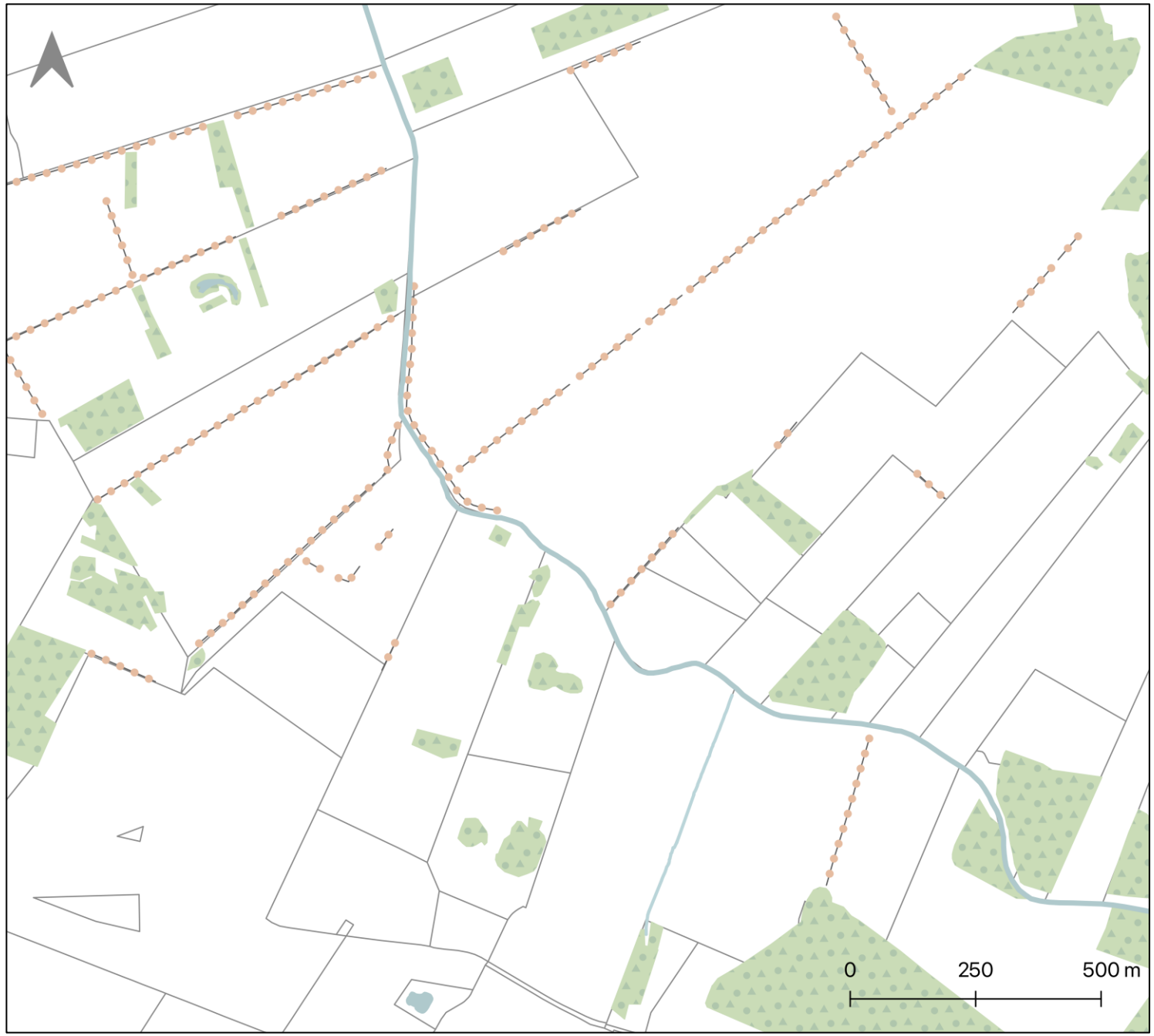
- 2012 until 2020: orthophotos
- 2024: orthophotos and field work



| Conditions soil | Shape | Functional | Symbol |
|---|---|---|---|
| Dry | Linear | Tree row |  |
| | | Shrub row |  |
| | | Thicket |  |
| | | Hedgerow |  |
| | | Dikes |  |
| | | Hollow road |  |
| | Patch | Deciduous forest |  |
| | | Coniferous forest |  |
| | | Mixed forest |  |
| | | Shrubs |  |
| Wet | Linear | Ditch |  |
| | | River |  |
| | Patch | Puddle |  |
| | | Marl pit |  |

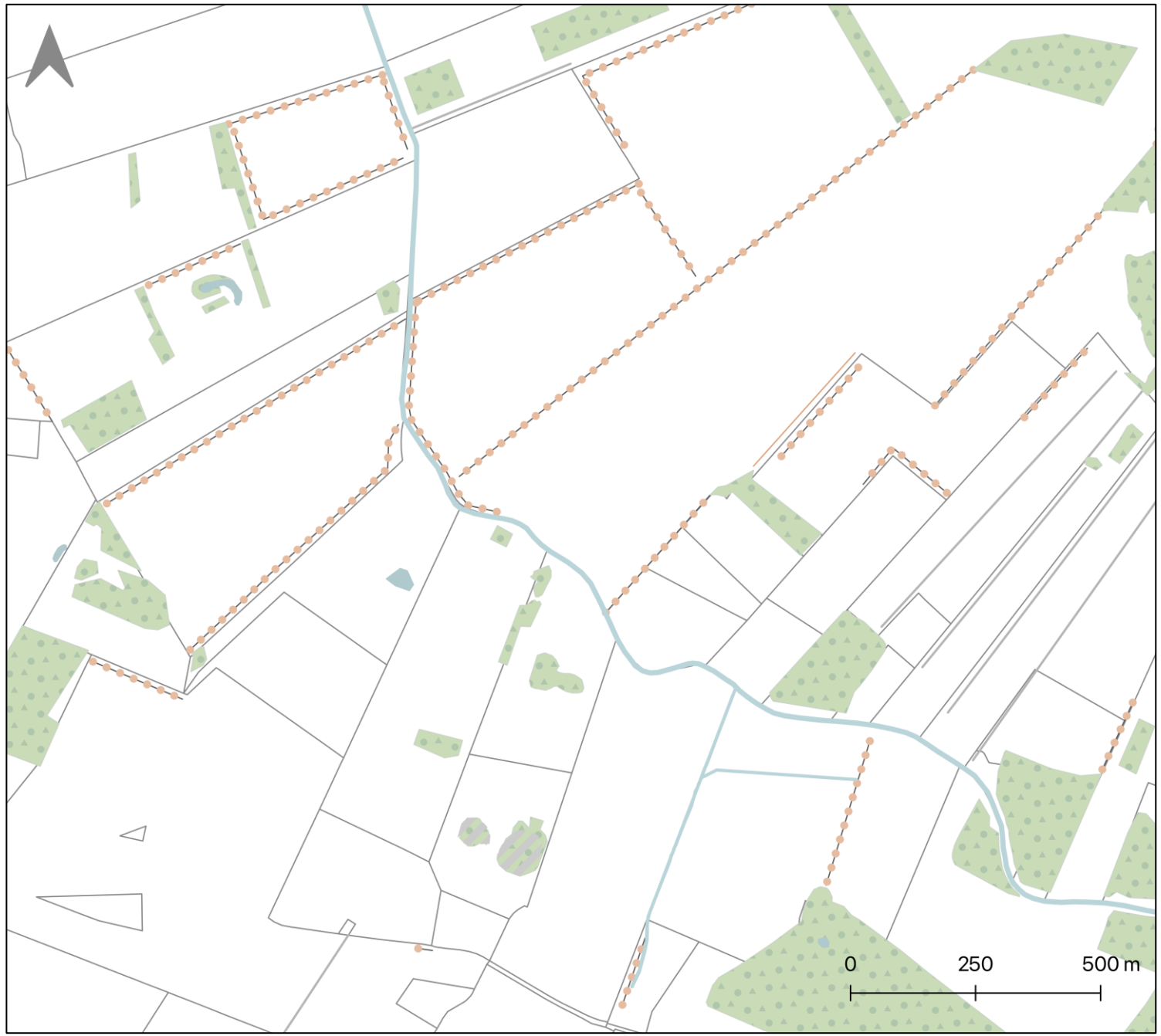
# RESULTS: EVOLUTION OF THE SMALL BIOTOPES IN THE AGRICULTURAL AREA (SØNDERØD)

# 2012




Tree row
Shrub row
Thicket
Hedgerow
Dikes
Hollow road
Deciduous forest
Coniferous forest
Mixed forest
Shrubs
Ditch
River
Puddle
Marl pit

# 2016


Tree row
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Thicket
Hedgerow
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Hollow road
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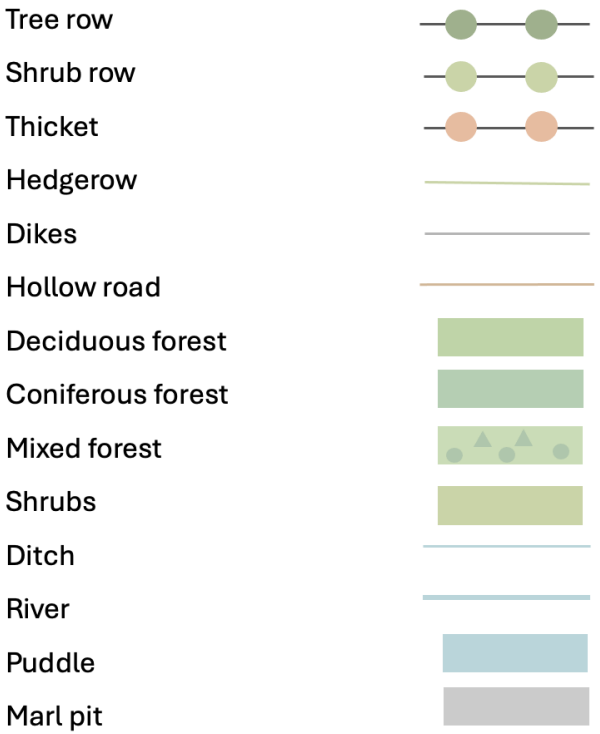
Coniferous forest
Mixed forest
Shrubs
Ditch
River
Puddle
Marl pit
0
250
500 m

# 2020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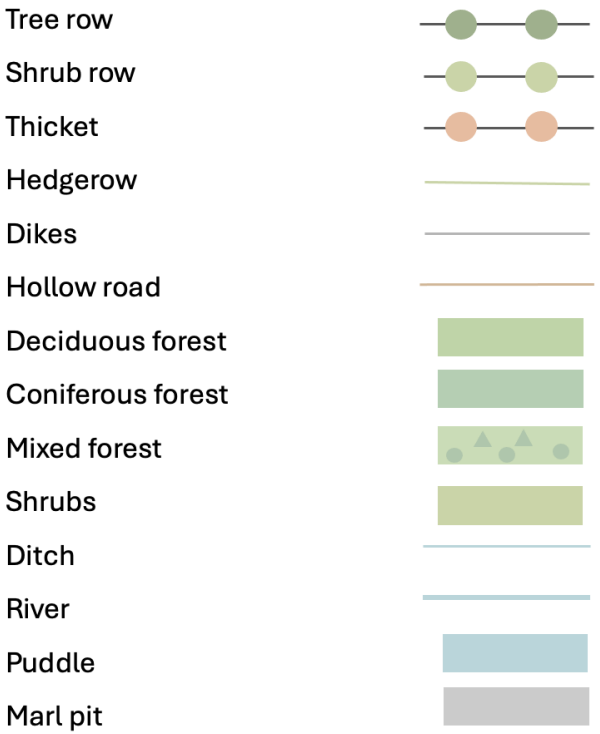
Marl pit


0
250
500 m

# 2024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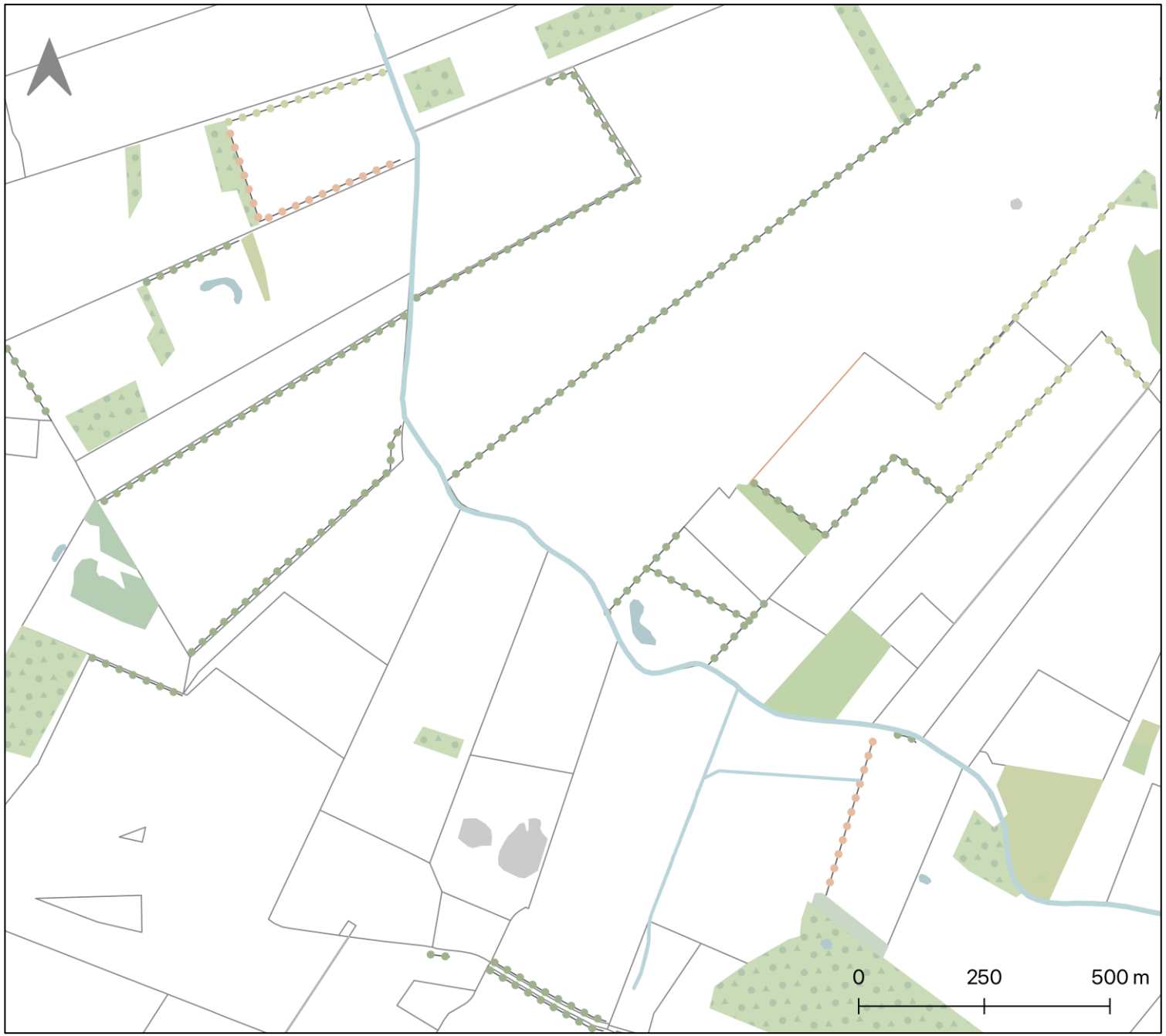
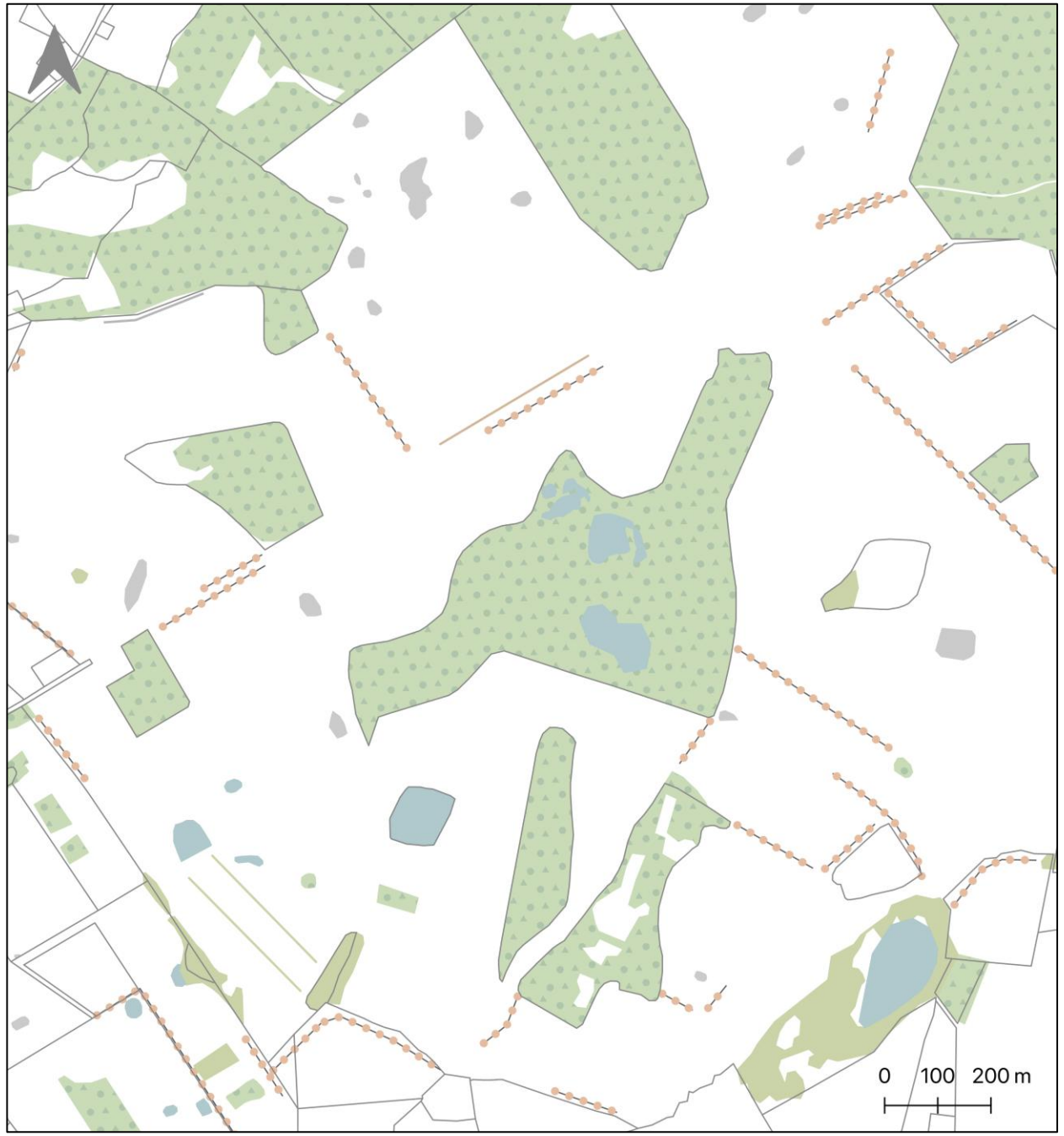
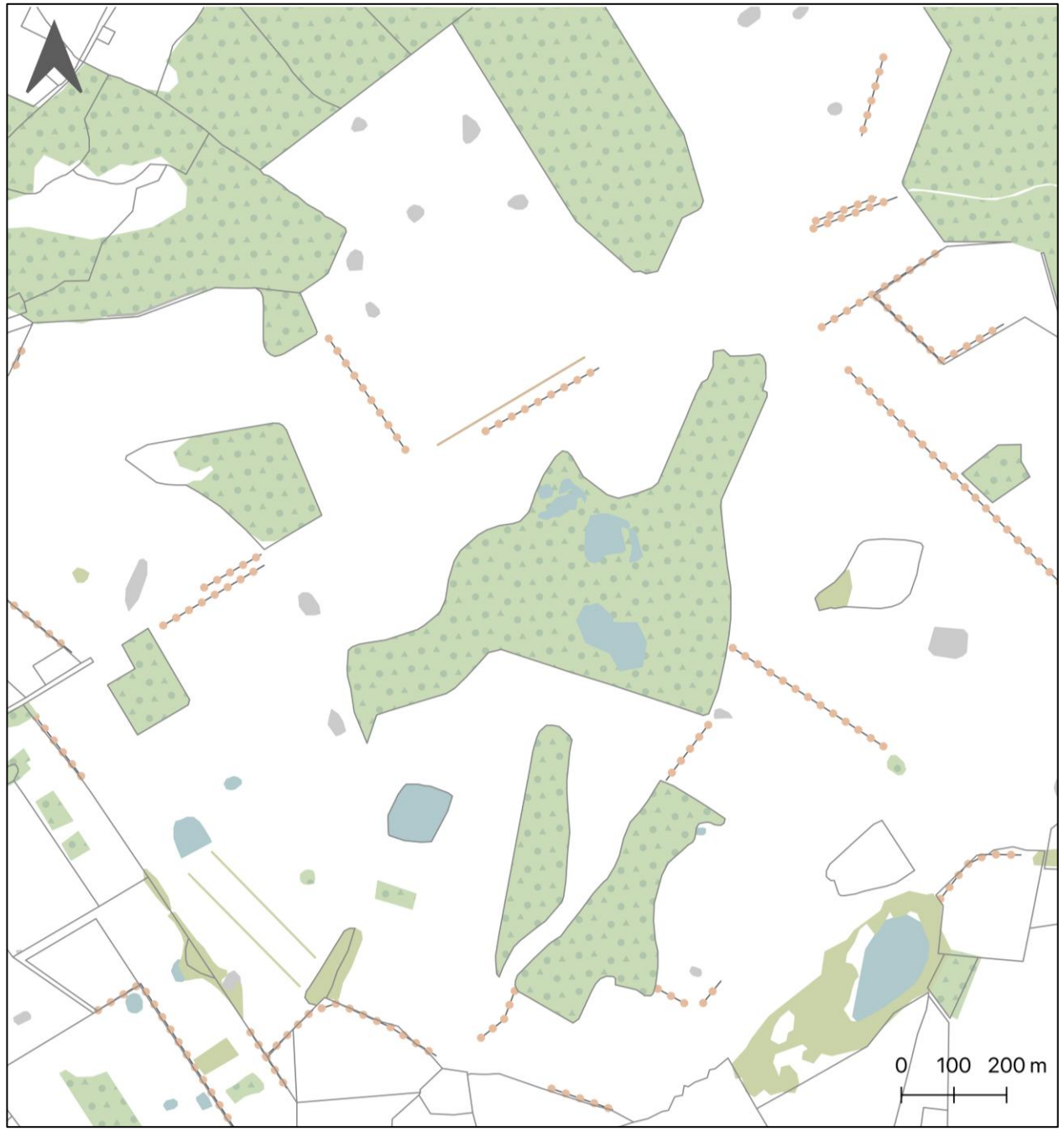

0
250
500 m

# RESULTS: EVOLUTION OF THE SMALL BIOTOPES IN THE REWILDED AREA (KATTRUP)

# 2012


Tree row
Shrub row
Thicket
Hedgerow
Dikes
Hollow road
Deciduous forest
Coniferous forest
Mixed forest
Shrubs
Ditch
River
Puddle
Marl pit
0
100
200 m

# 2016

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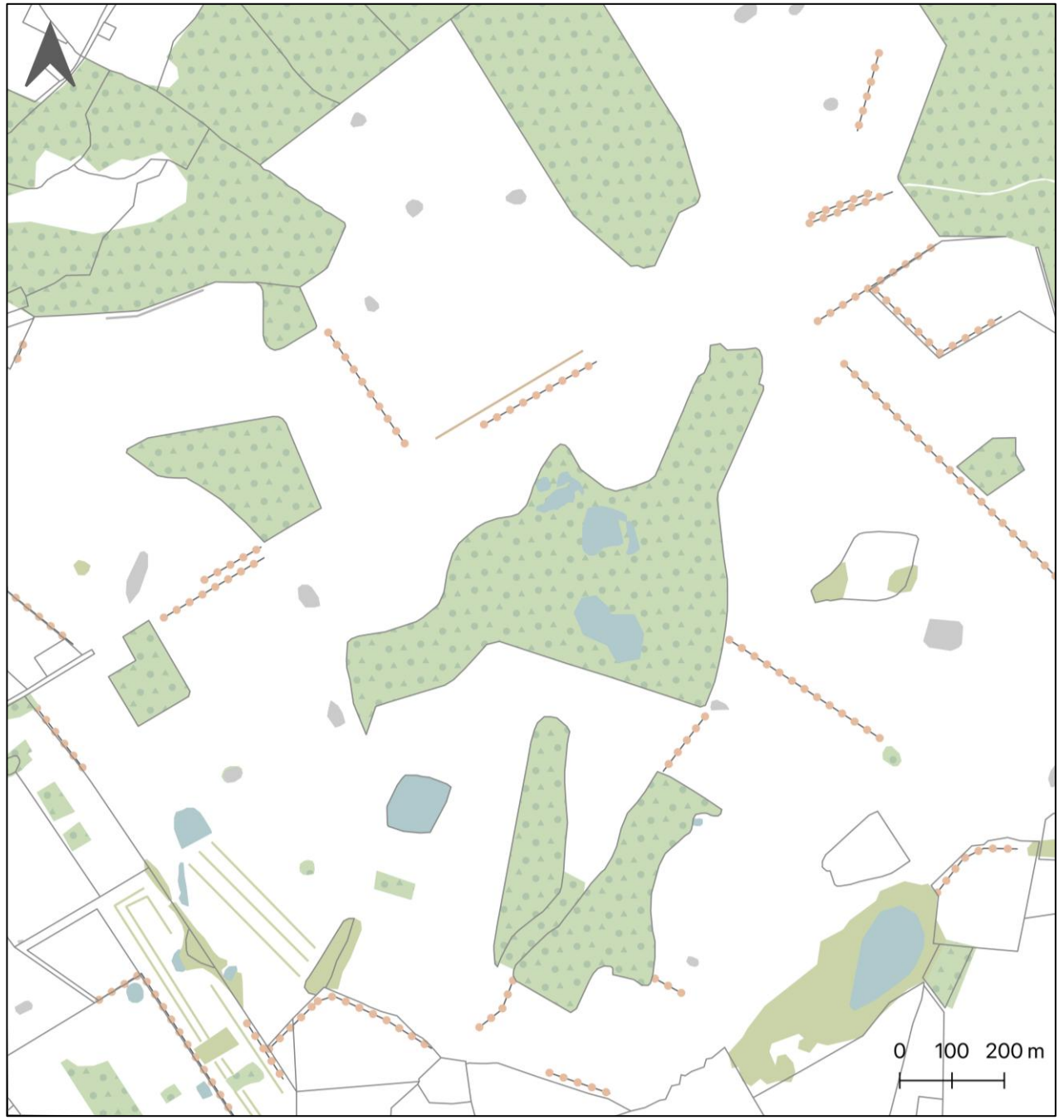
Shrubs
Ditch
River
Puddle
Marl pit

# 2020

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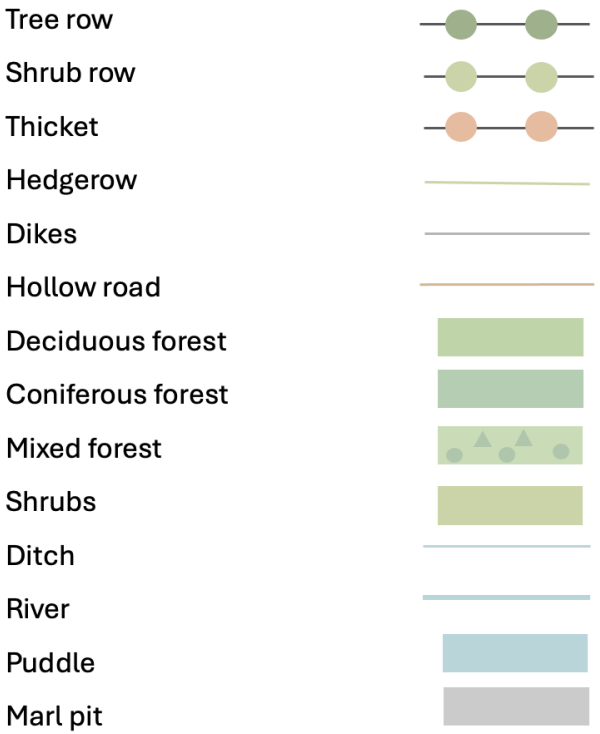
River
Puddle
Marl pit

# 2024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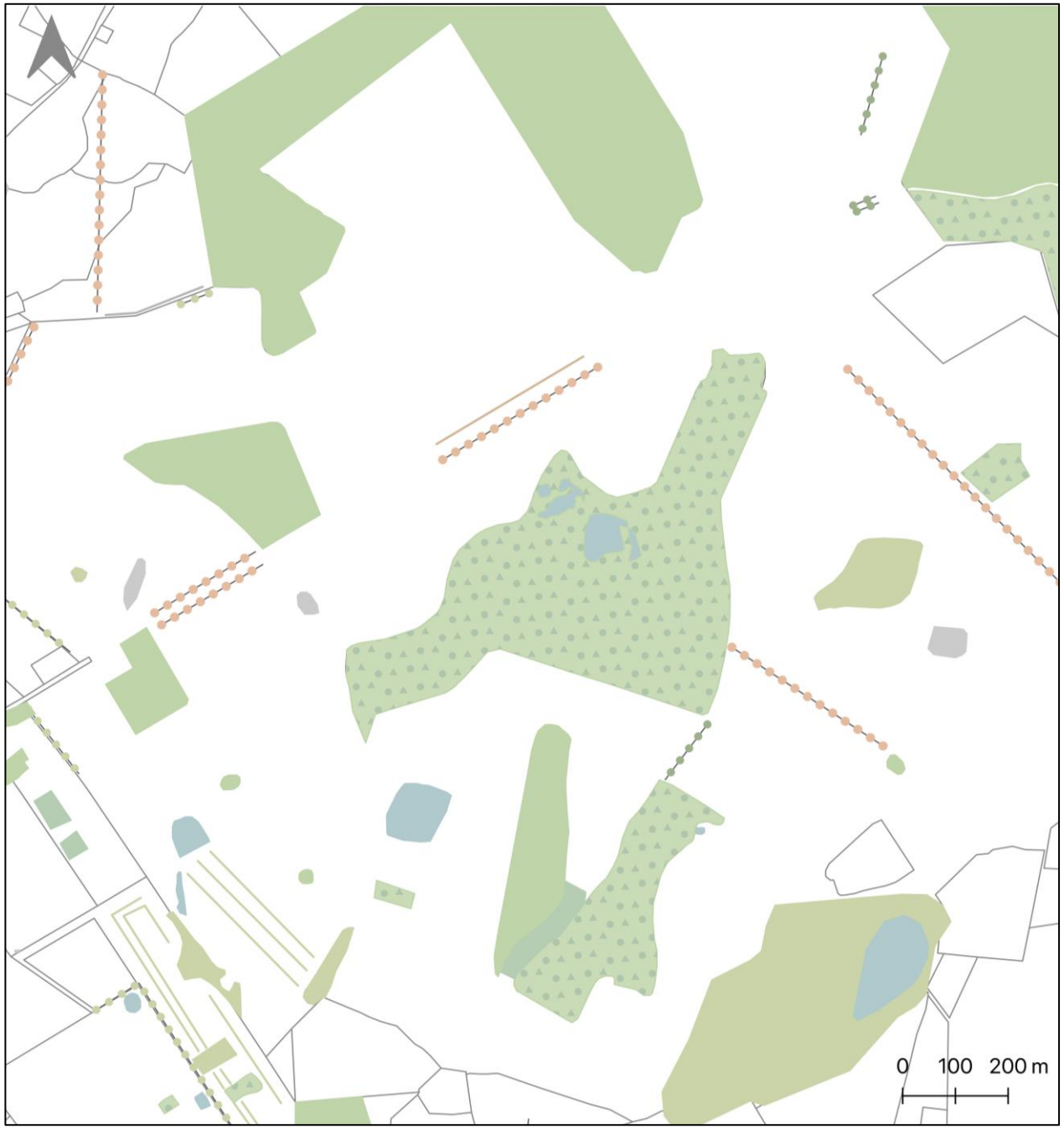
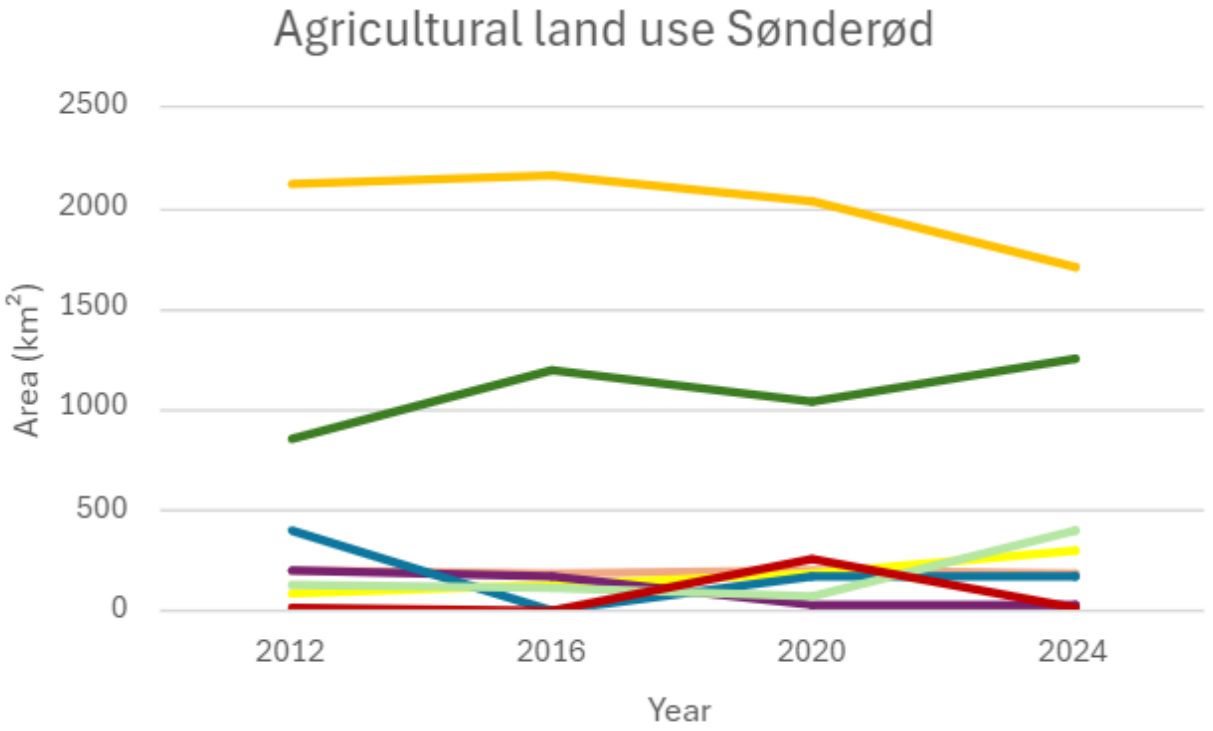
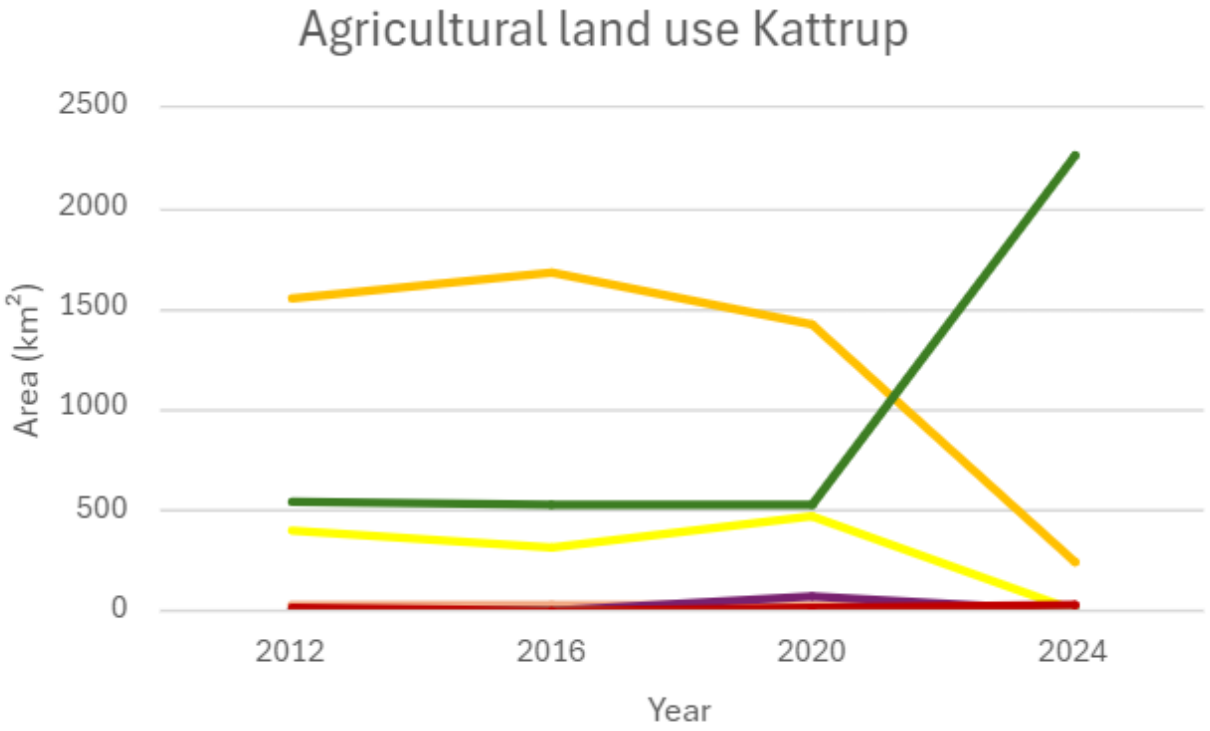

0 100 200 m

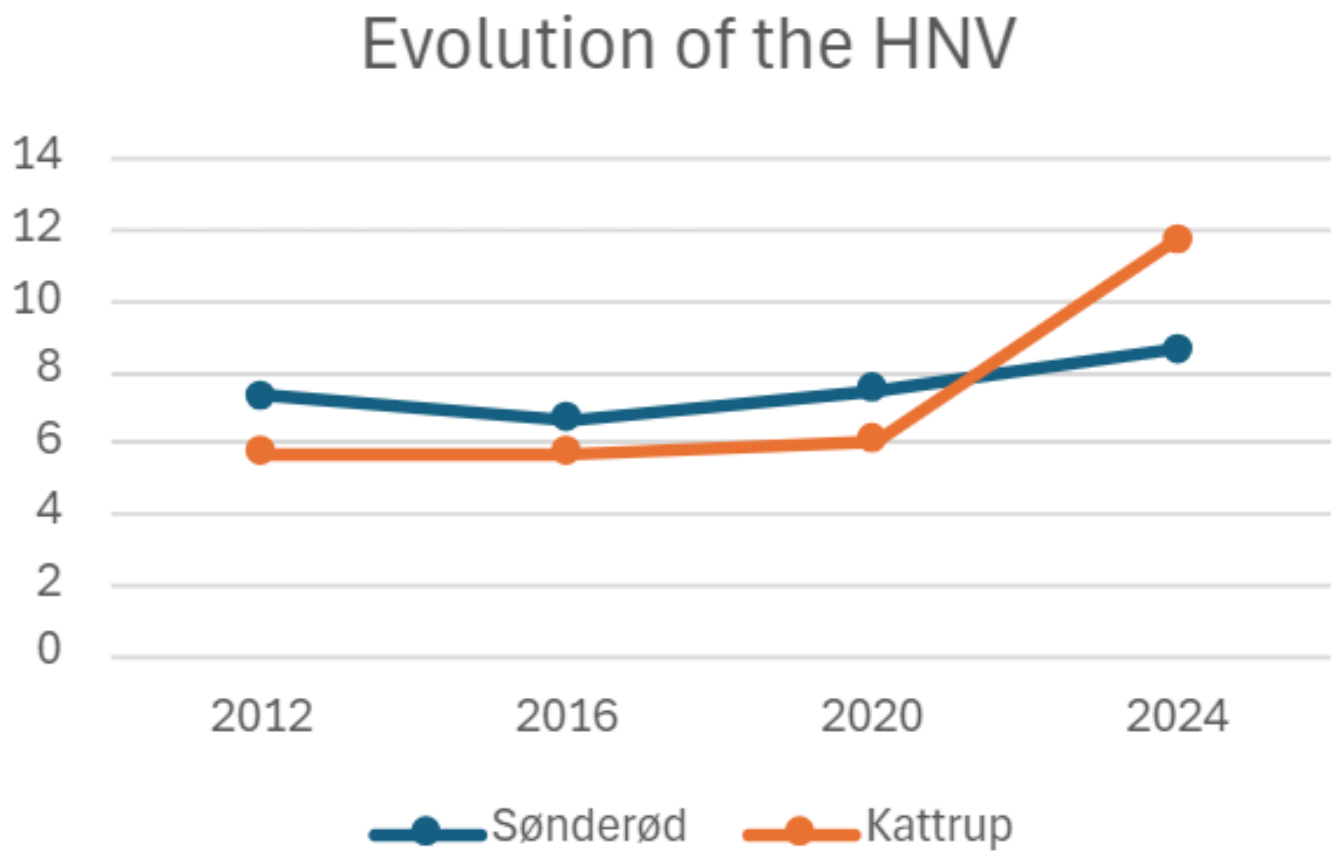
# EVOLUTION OF THE LAND USE



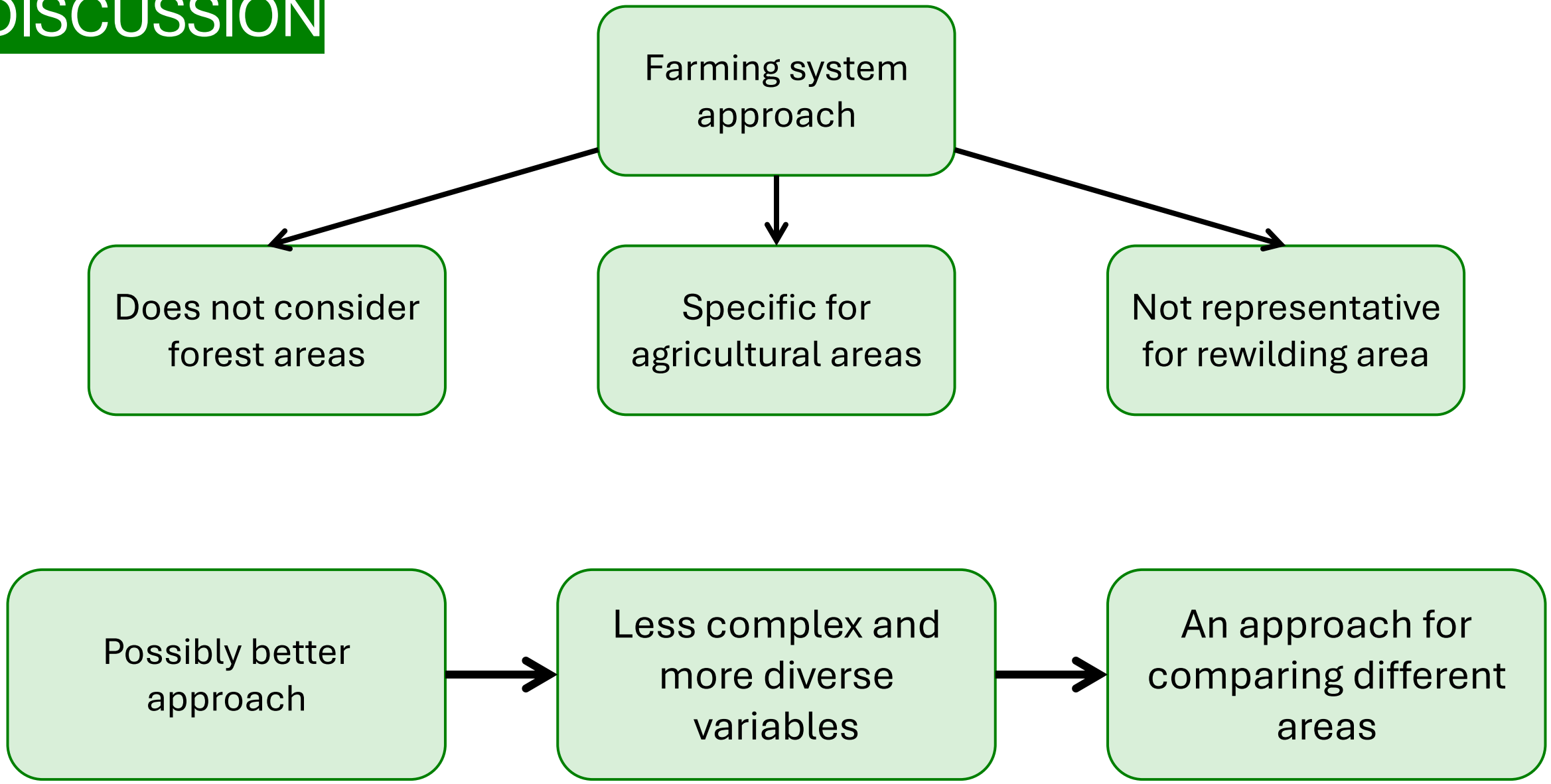




Cereals
Corn
Rapeseed
Other intensively managed crops
Extensively managed crops
Intensively managed grass
Extensively managed grass
Pastures

# EVOLUTION OF THE HNV SCORES



# DISCUSSION


Farming system approach
Does not consider forest areas
Specific for agricultural areas
Not representative for rewilding area
Possibly better approach
Less complex and more diverse variables
An approach for comparing different areas

# CONCLUSION

## Agricultural area

- Rising HNV
- Little change small biotopes

## Rewilding area

- Significantly rising HNV
  - → Rewilding initiatives since 2020
  - → More extensively managed grasslands
- Little change small biotopes
  - → More divers habitat

=> Farming system approach not the most suitable methodology for comparing areas

# ANY QUESTIONS?