

An aerial photograph of a coastal landscape. The foreground and middle ground are filled with a patchwork of agricultural fields in various shades of green and brown. A dark, winding body of water, likely a fjord or a bay, borders the land on the left and top right. The sky is a deep, dark blue. The title text is overlaid in the center in a large, white, sans-serif font.

Nature developments in Danish agricultural landscapes

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Course: Integrated International Project
Master of Science in Geography and Geomatics



Introduction

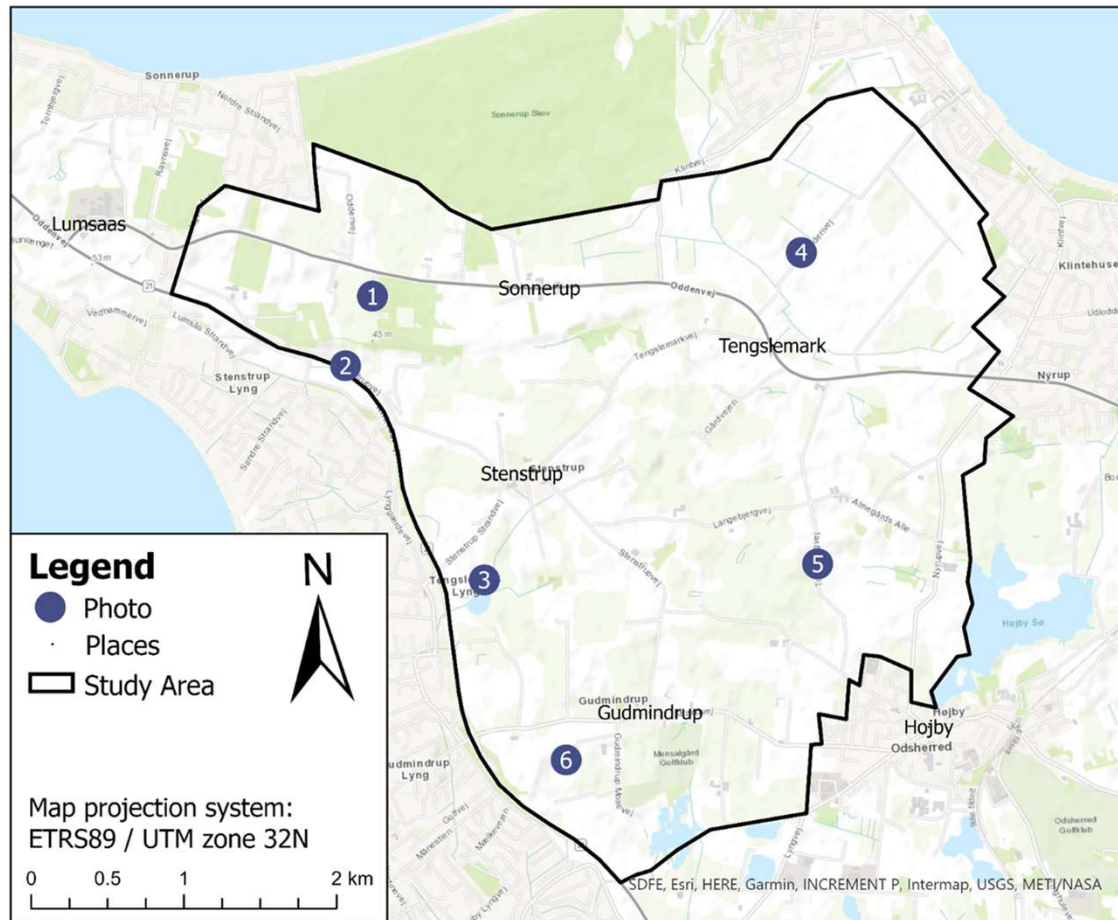
- Research question

*How can ecological values and biodiversity be improved in
Danish agricultural landscapes?*

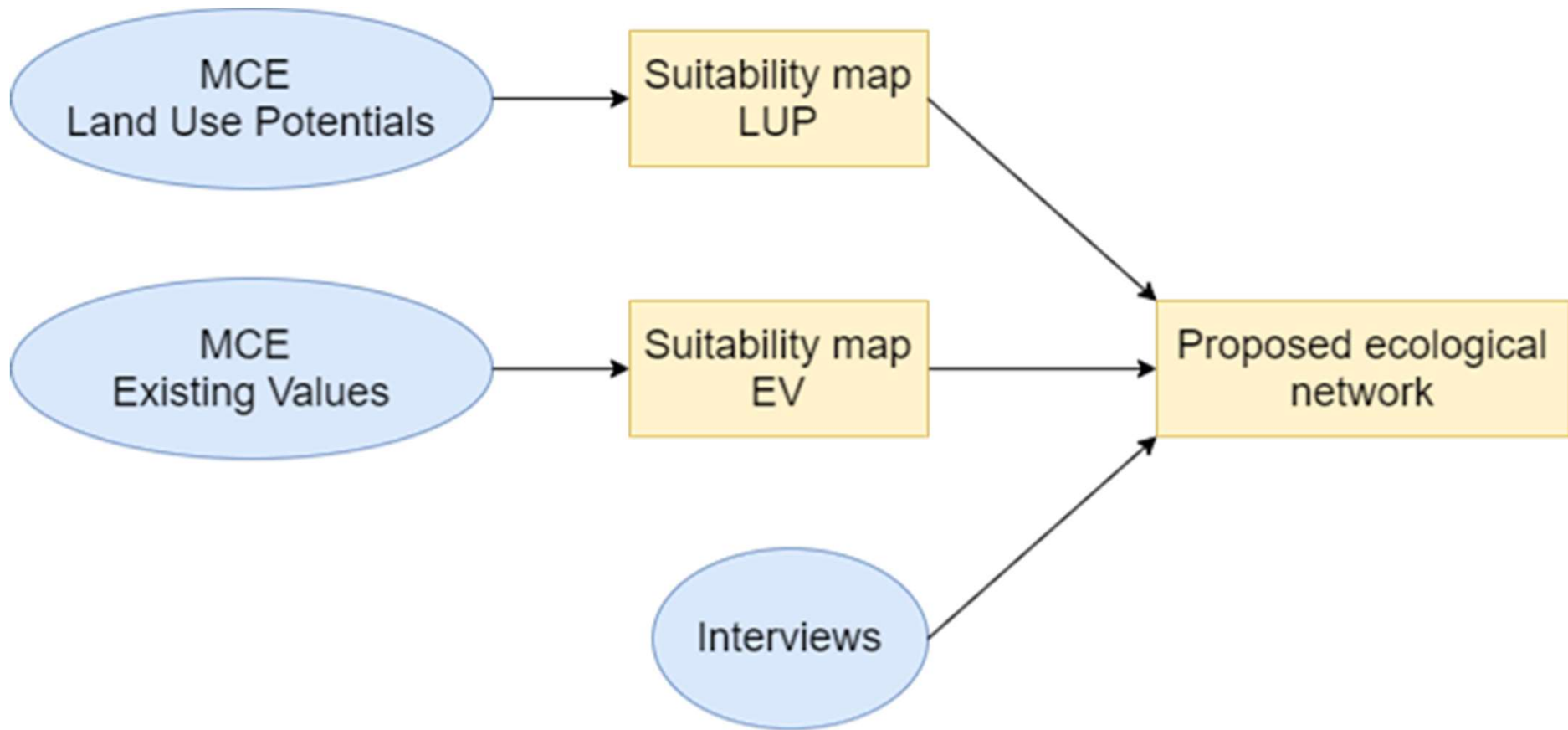
- Objectives
 - Creating an unbiased ecological network map
 - Considering the opinion of local stakeholders
 - Comparing results with existing future plans

Study area

Study area: Stenstrup and surroundings



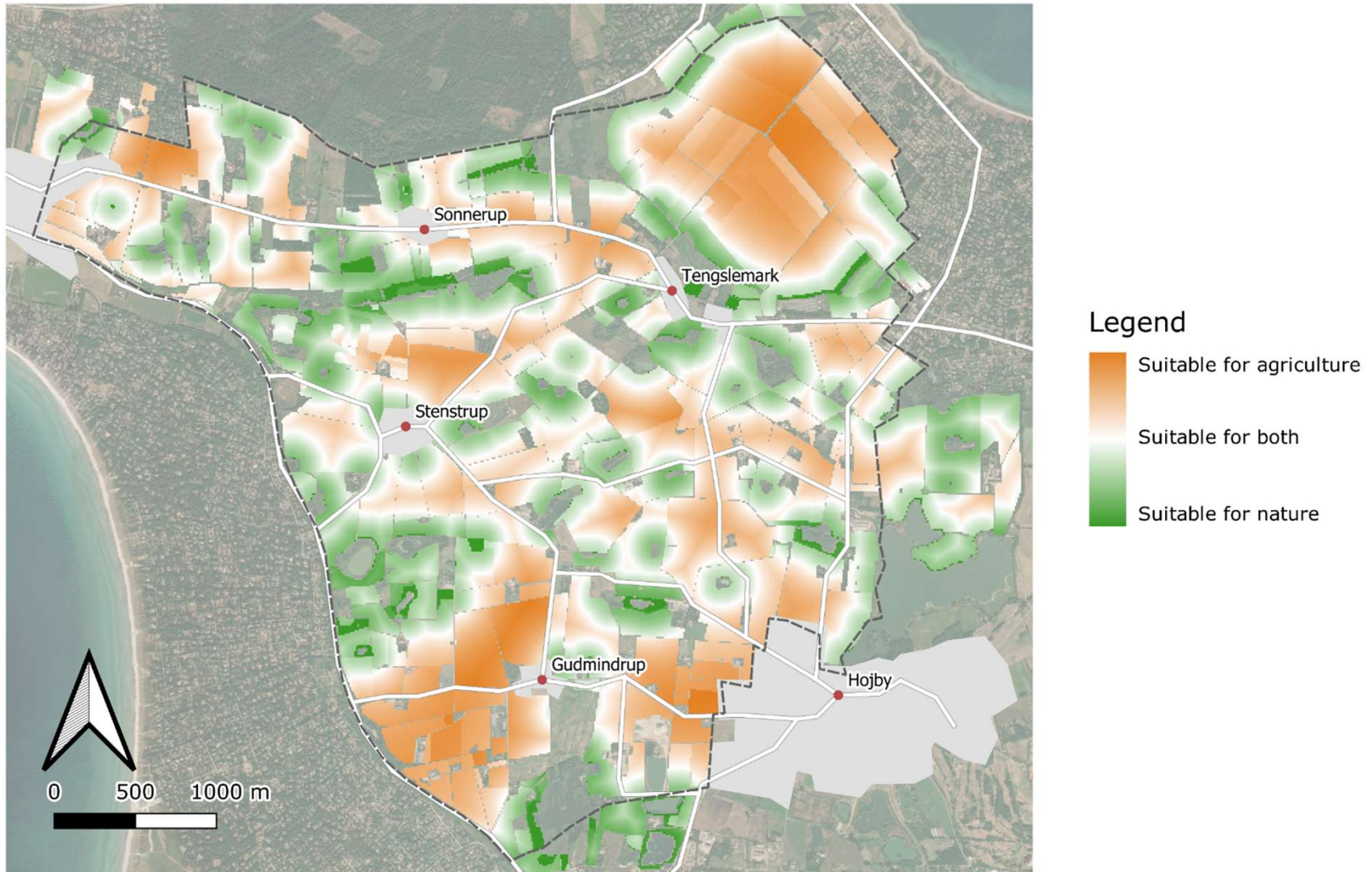
Methodology



Modelling Existing Values

- Existing Values
 - Factors:
 - Distance to existing nature
 - Parcel size
 - Parcel complexity
 - Constraints:
 - Existing nature

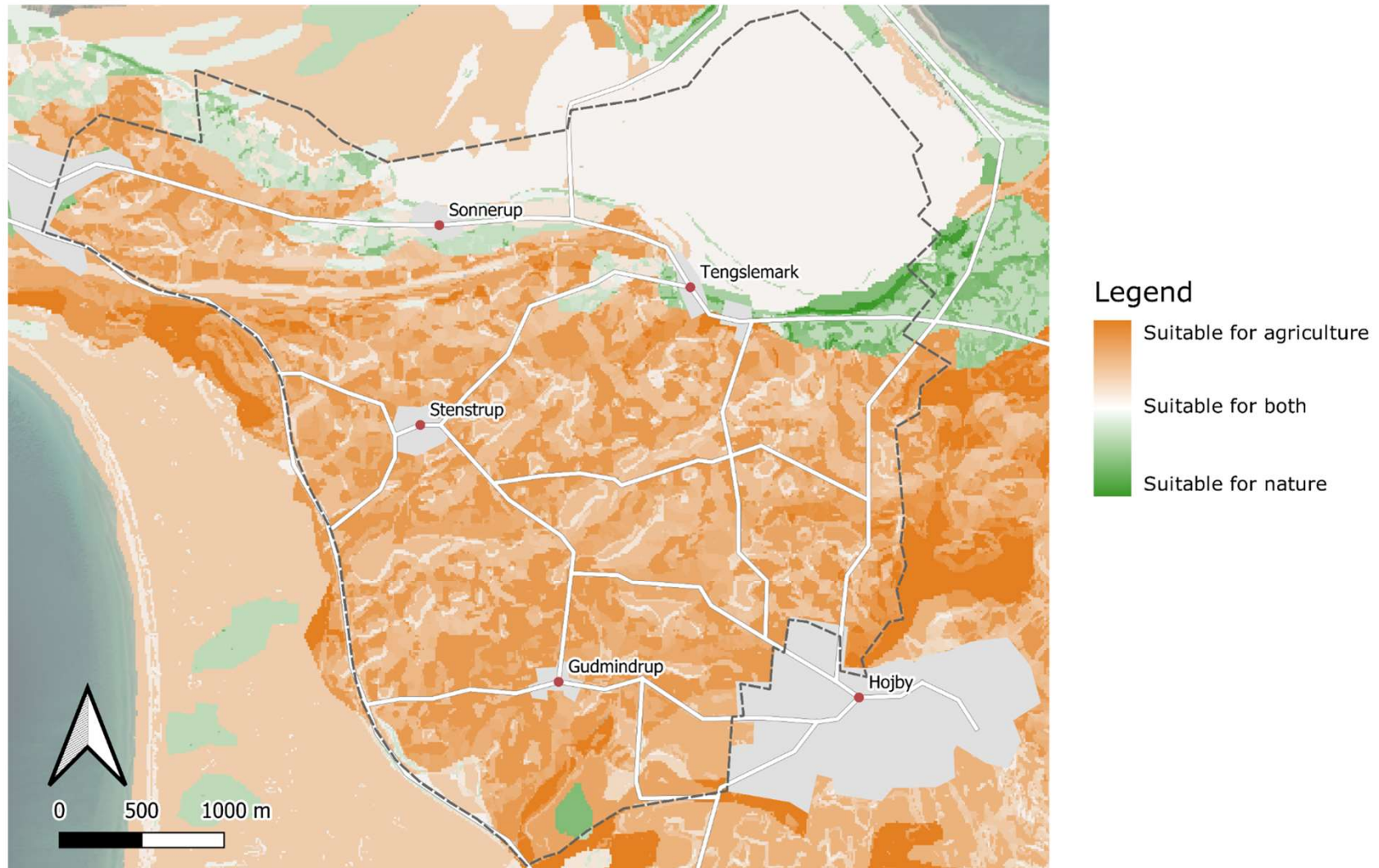
Existing values



Modelling Land Use Potential

- Factors
 - Slope-Aspect
 - Historical wetlands
 - Soil quality map

Land Use Potential

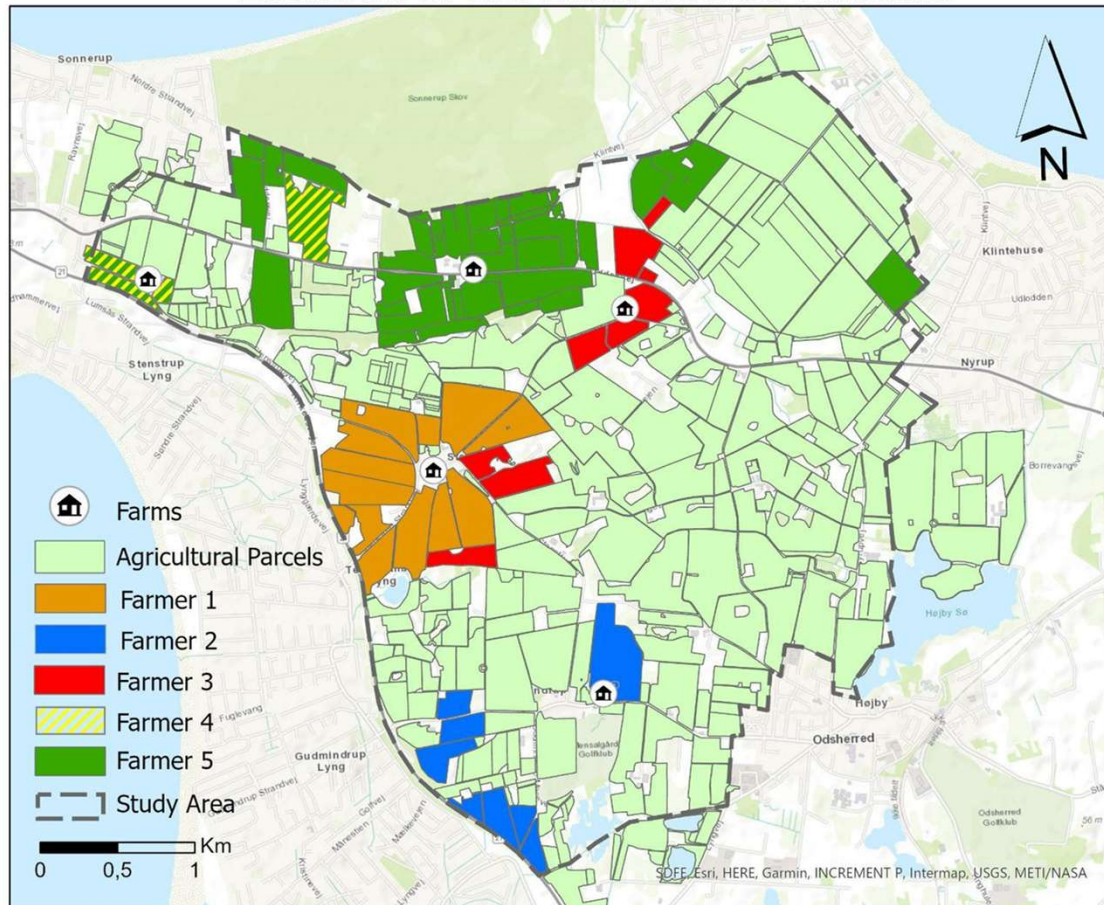







Interviews: methodology

- Qualitative interviews
- Interviewees:
 - Five farmers
 - Chairman of the local farmers union
 - Agricultural consultant of a non-profit organisation
- Themes:
 - Contextual information
 - Nature measures and regulations
 - Willingness to enhance ecological values

} Other stakeholders

Location of the Interviewed Farmers



				
61 y	65 y	57 y	69 y	35 y
Organic crops	Crops	Crops	Dairy	Organic dairy
100 ha	60 ha	50 ha	(85 ha)	300 ha
Part-time	Fulltime	Part-time	Retired	Fulltime
Former livestock farmer	Former livestock farmer	Former livestock farmer	/	/

Results: Interviews farmers

Current nature initiatives (Voluntary)

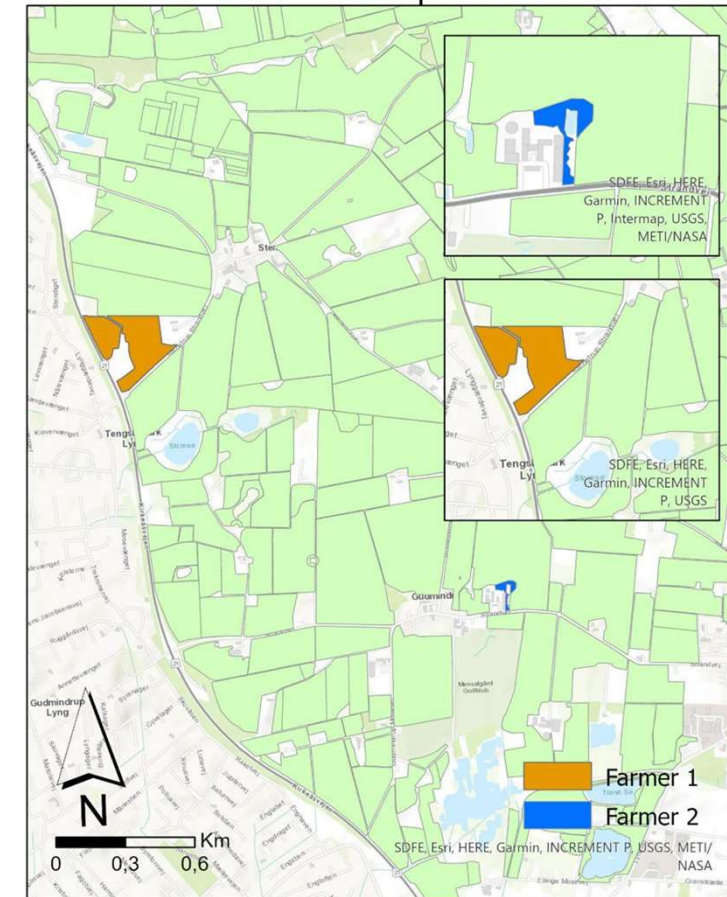
- Organic farming
- Nature strips
- Creating a pond

Future plans (Voluntary)

- More nature strips
- Transforming parcels into nature



Small nature initiatives or plans



Results: Interviews farmers

Willingness

Swapping

- Interested
- Realistic (?)

Selling

- Low willingness
- Attached to the land

Small nature patches

- Financial compensation
- Afraid to lose land
- Administration

“Sounds logical but not so easy, plans need to be good for the farmer.”
- Farmer 1

“We want to create nature but are afraid of doing it, because then we risk that the government will turn it all into nature.”
- Farmer 5

Results: Interviews policy-makers

Role of governments

Municipality: not much action

National government: follow EU-agricultural regulations (e.g. decrease use of fertilizers and nitrogen)

Swapping parcels

Common over time, only parcels with good quality and swapping mostly for practical reasons (e.g. parcel closer to farm)

Encouraged by Danish government: > three persons no additional taxes have to be paid

Farms fewer and larger

Stimulating farmers in creating nature

= Informing farmers to improve biodiversity
> better for crop growth

Examples: giving workshops or providing seeds to plant on the parcel (increasing biodiversity)

Results: Interviews policy-makers

Small biotopes

Often created for hunting activities

Biodiversity is a convenient
'accidental
consequence'

Municipality buys less productive soils

No short-term
economical value

Expensive:
buying land + making
nature

Other remarks

Agriculture is the main economic sector:
Conserving nature popular but few actions due
to budget shortages

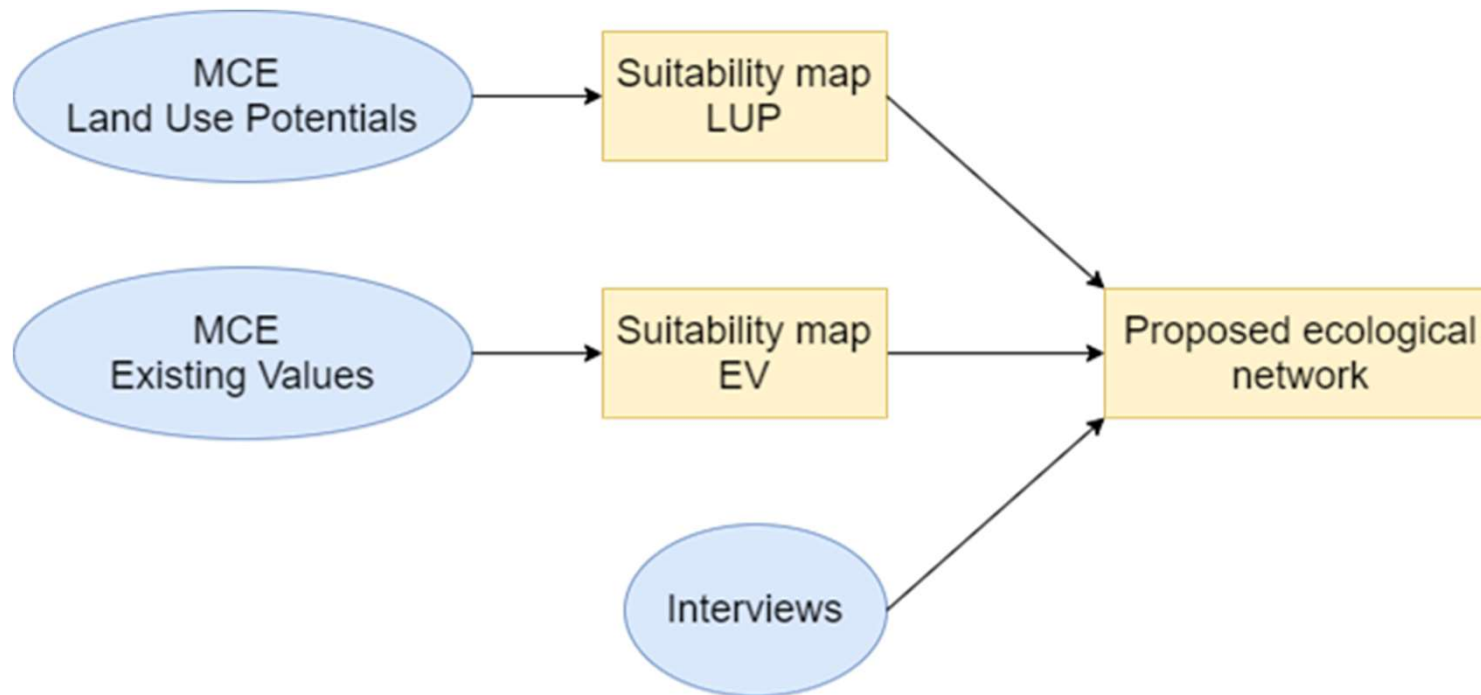
Agricultural economy produces more than
needed for the population:

- + Export difficult due to rel. high prices
- + 'Farming for farming' is not a good idea

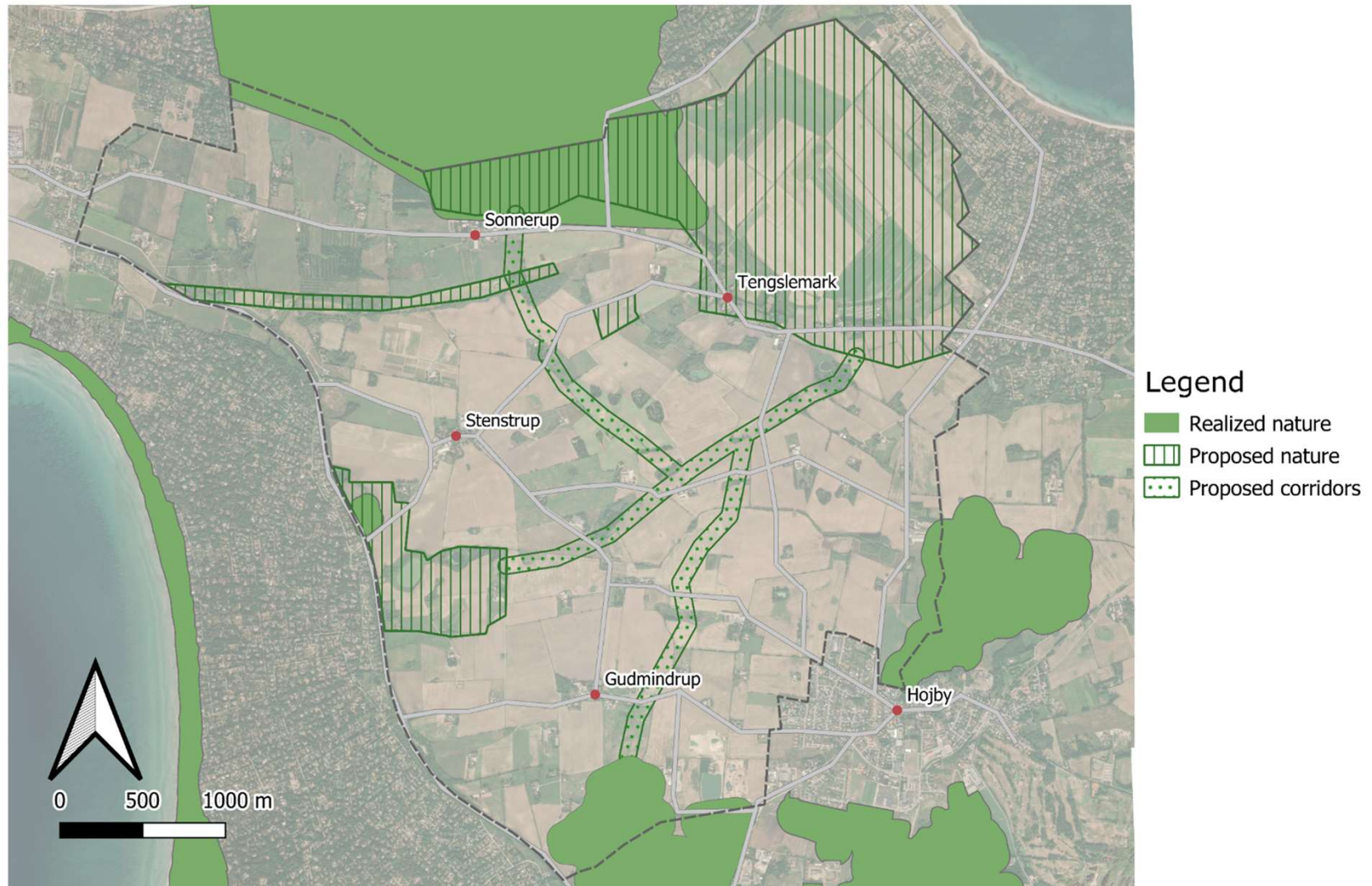
Local farmers: initiative in improving biodiversity

Results

- Proposed ecological network



Proposed ecological network



Green Map Odsherred



Discussion

- Improve interaction between policymakers and farmers
- Use other data in MCE
 - Topographic Wetness Index (TWI)
 - Soil map with more detailed observations (DSPM06)
- Future research
 - Reforming the outdated parcel structures
 - Quantifying ecological values
 - Comparing TWI with historical wetlands
 - Take into account other values

Take-home messages

- Opinion of local stakeholders is crucial
- Challenge to think beyond existing parcel structure
- Solving a spatial ecological research question is an iterative process (there is not one perfect final solution)

Thank you for your attention!

