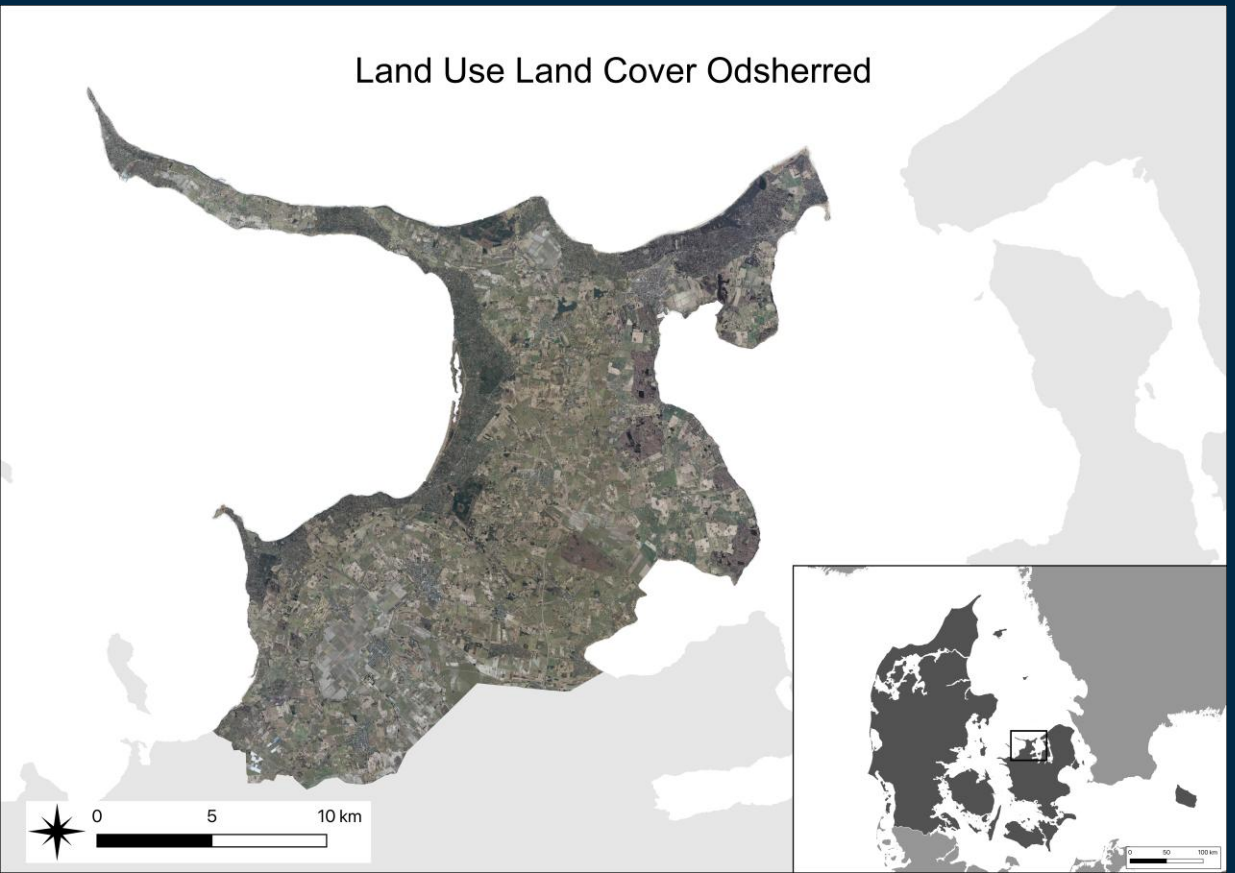
Searching relations between LULC and (bio)physical variables in Odsherred

Research Problem

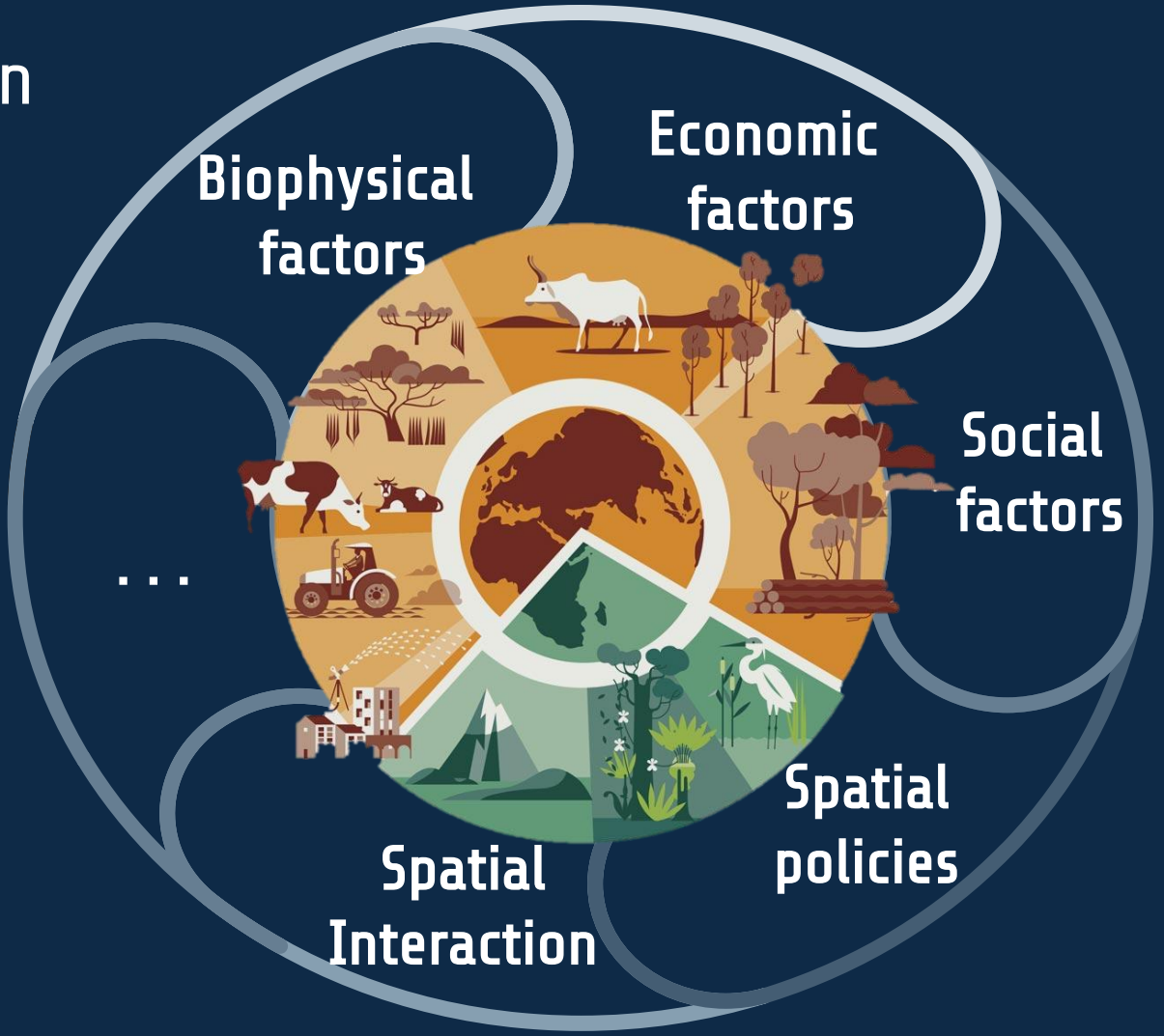


Traditionally, landscapes had clear relations between land qualities and the way how people organized the landscape.

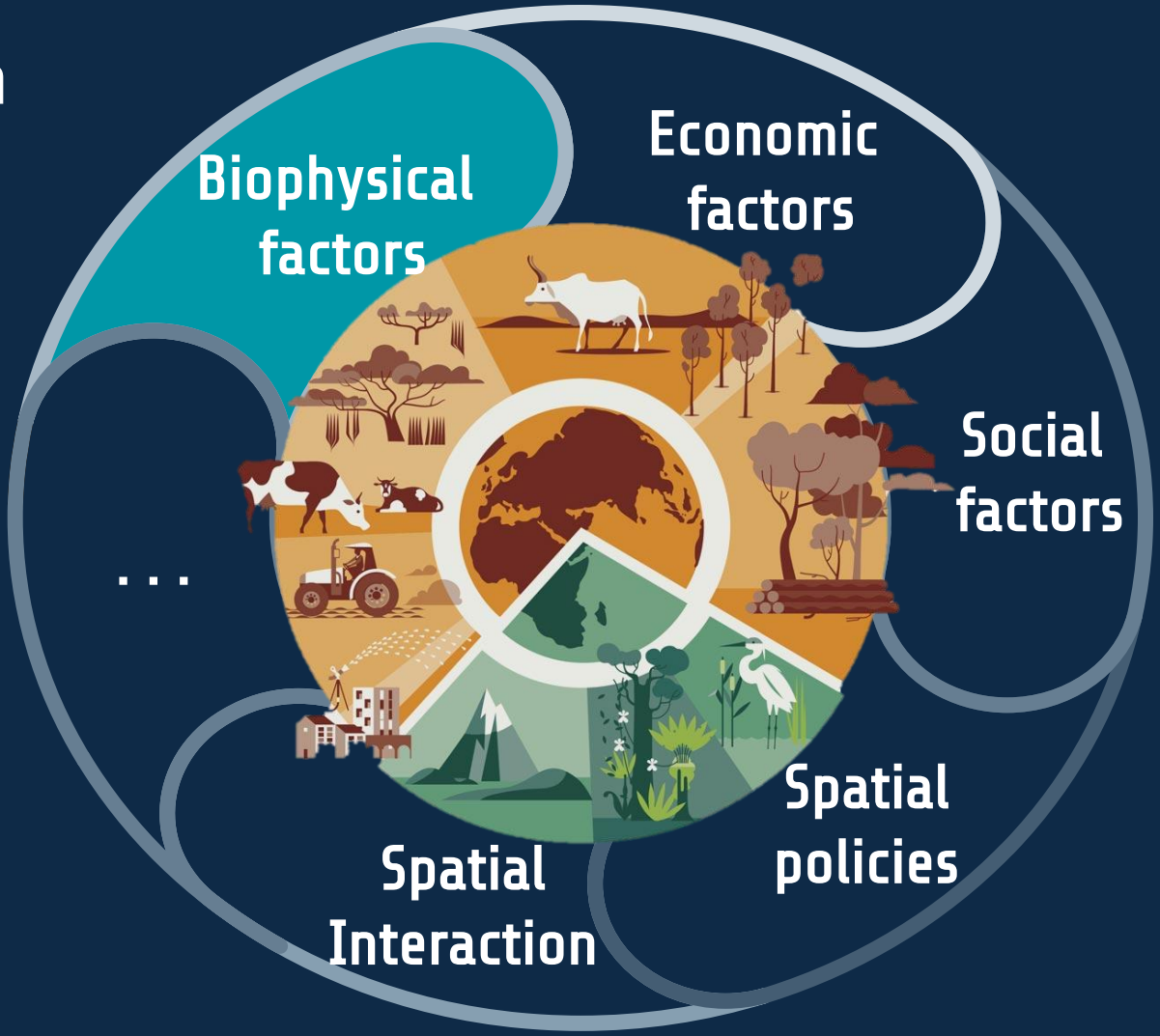
What are these relations in the landscape of Odsherred today?

Introduction

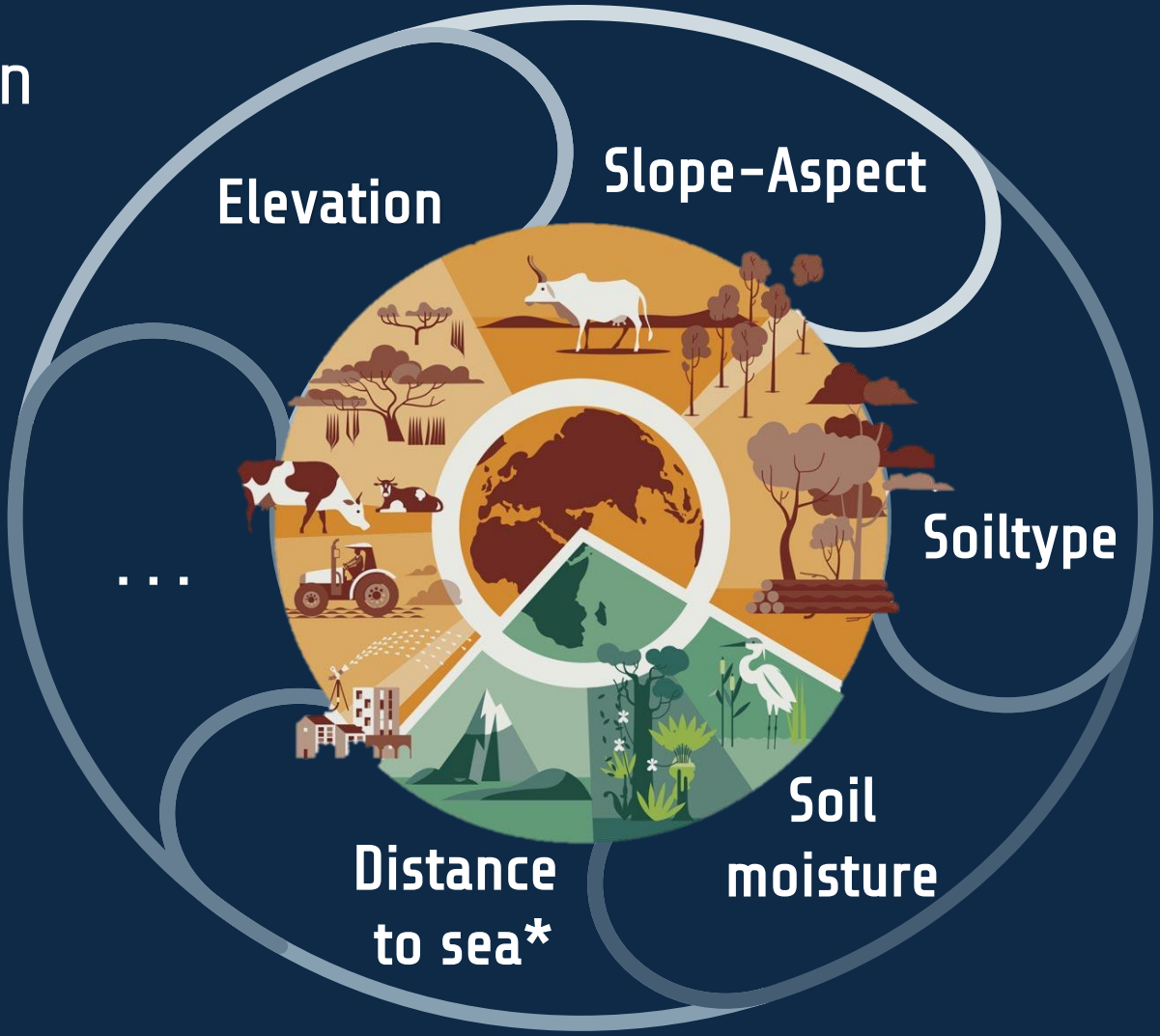
Introduction



Intoduction



Introduction



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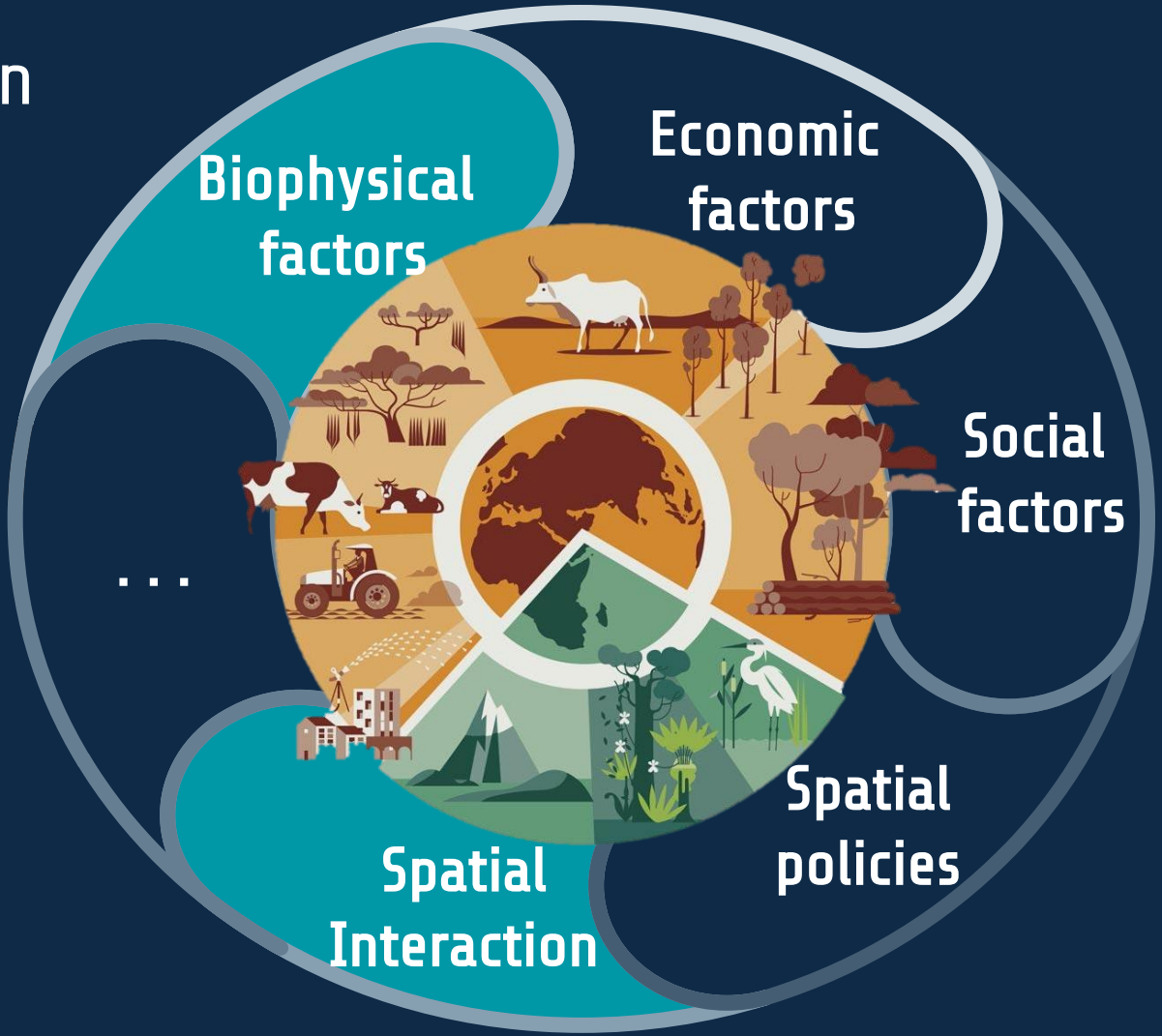

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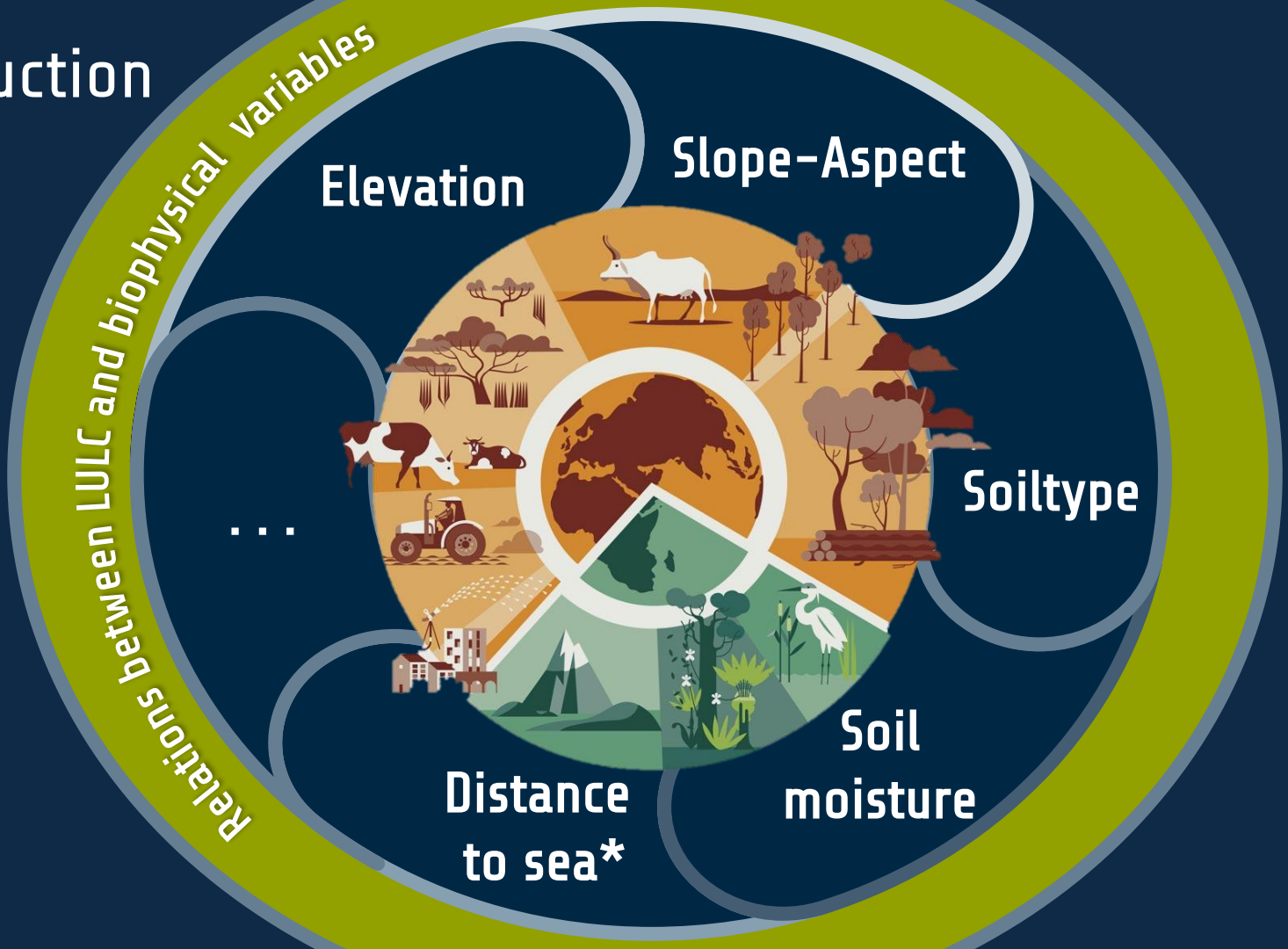
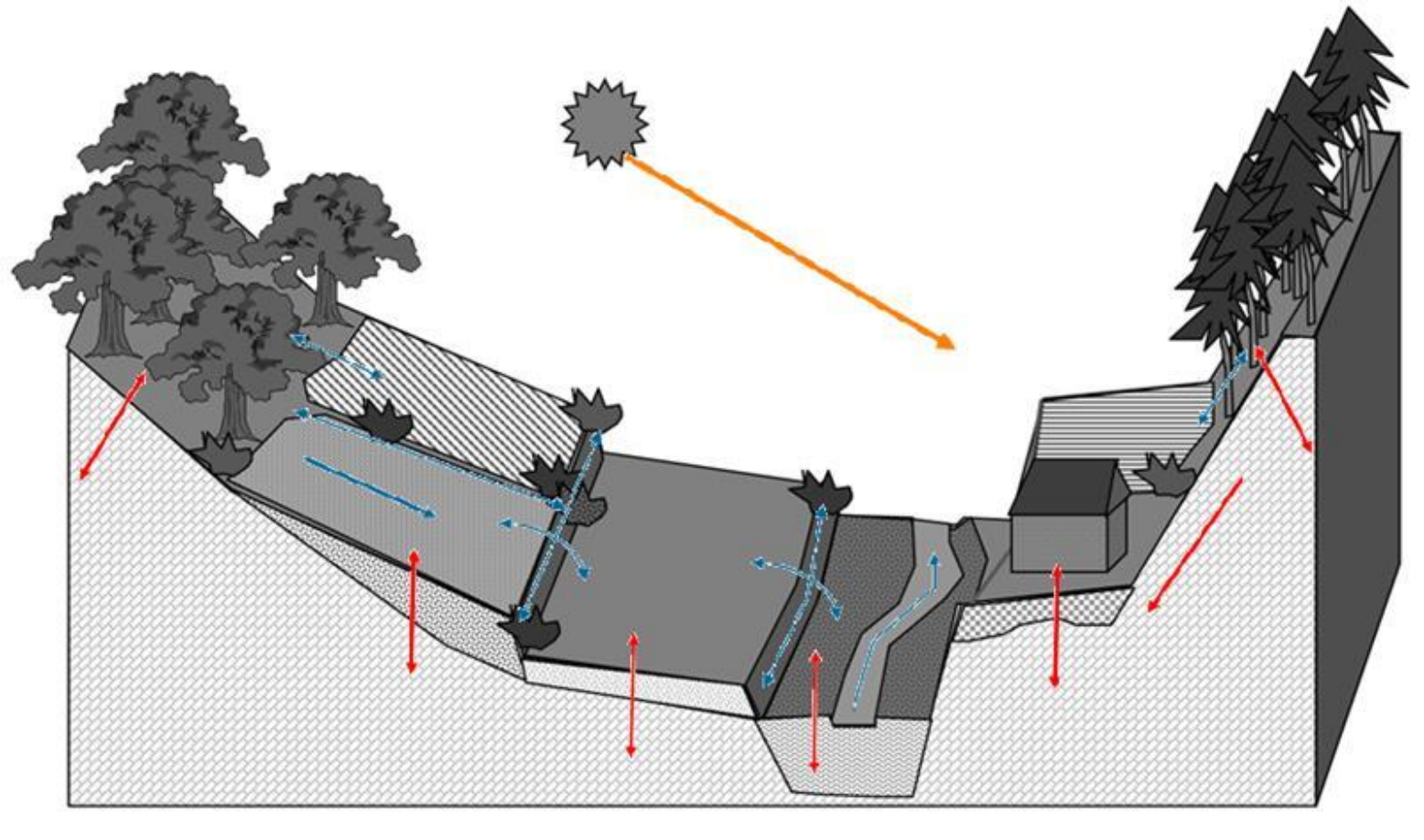


Horizontal and vertical relations

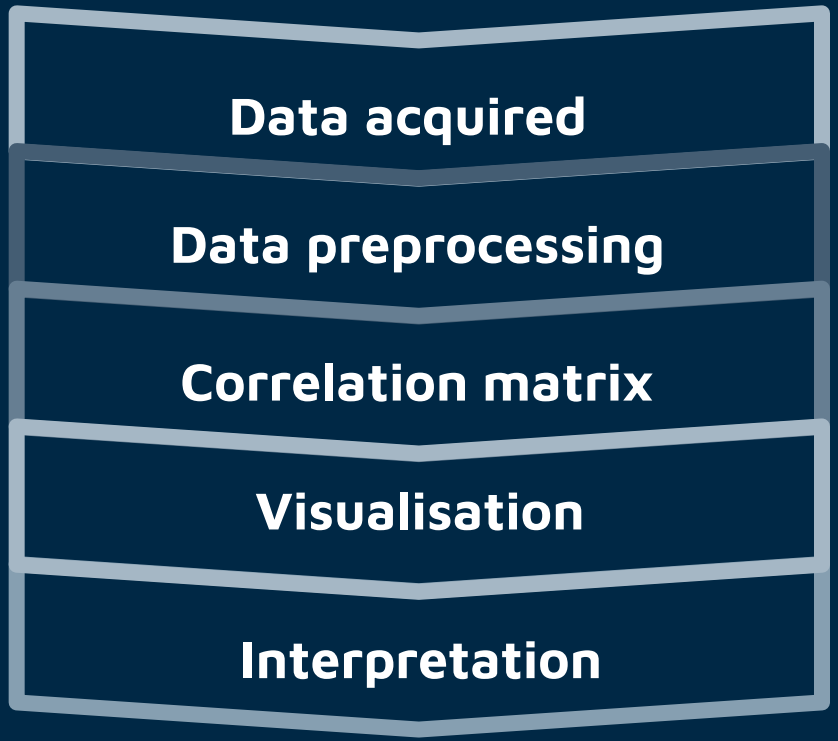


Research Questions

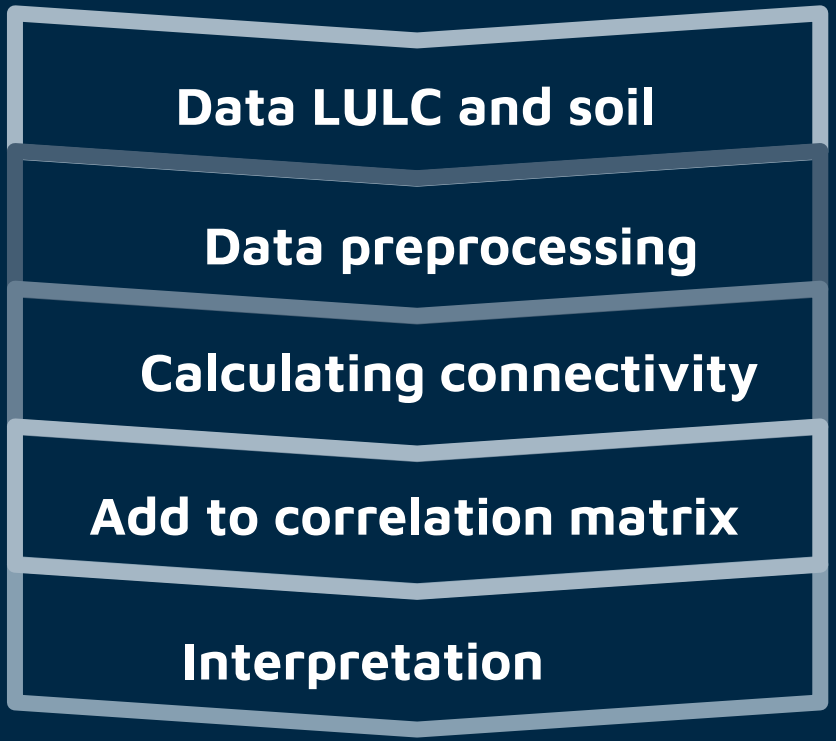
- What is the vertical relation between current LULC and the (bio)physical variables?
- What are the horizontal relations in LULC and (bio)physical variables?
- What are the recurrent patterns in the landscape?
- How can we understand and explain the current LULC in Odsherred?

Research methods: collecting data

Research methods: vertical relations



Research methods: horizontal relations



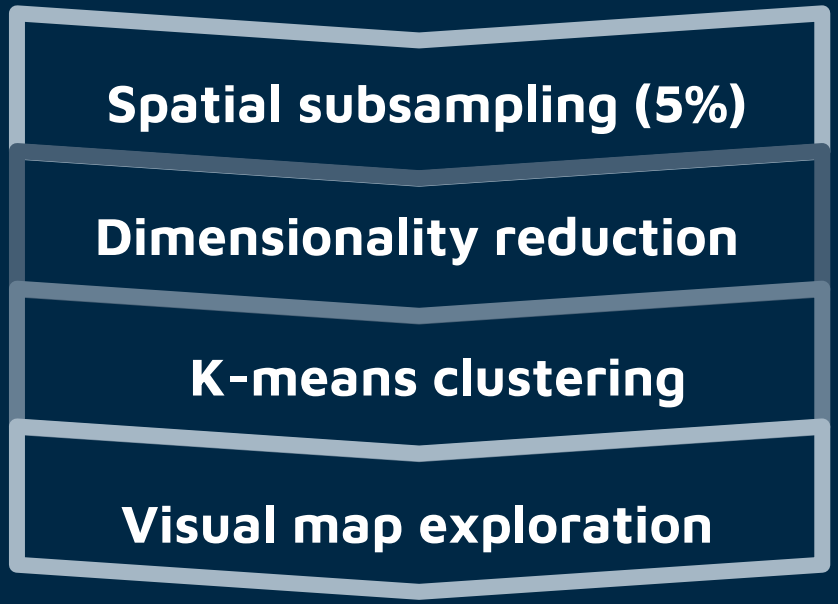
Vertical relations

Horizontal relations

Decisionmaking for significant variables

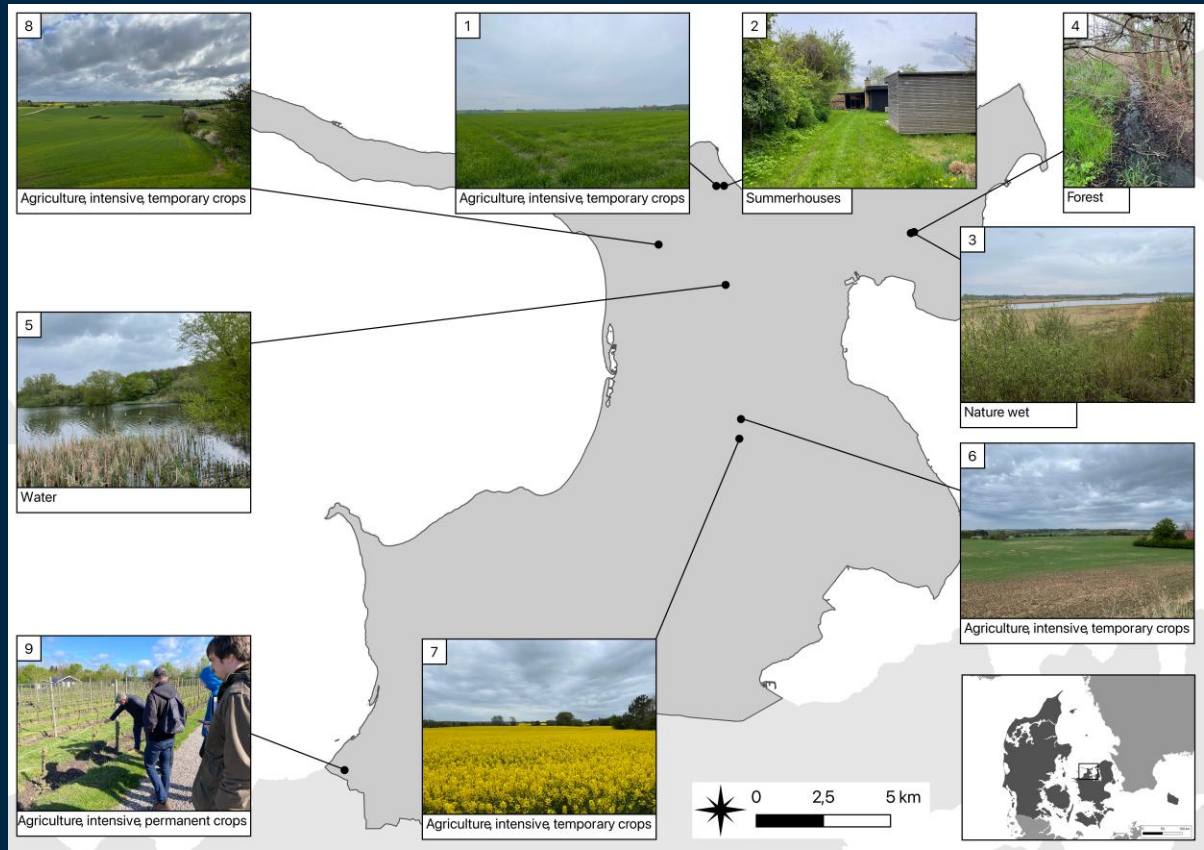
Correlation analysis between relevant variables

Research methods: cluster analysis

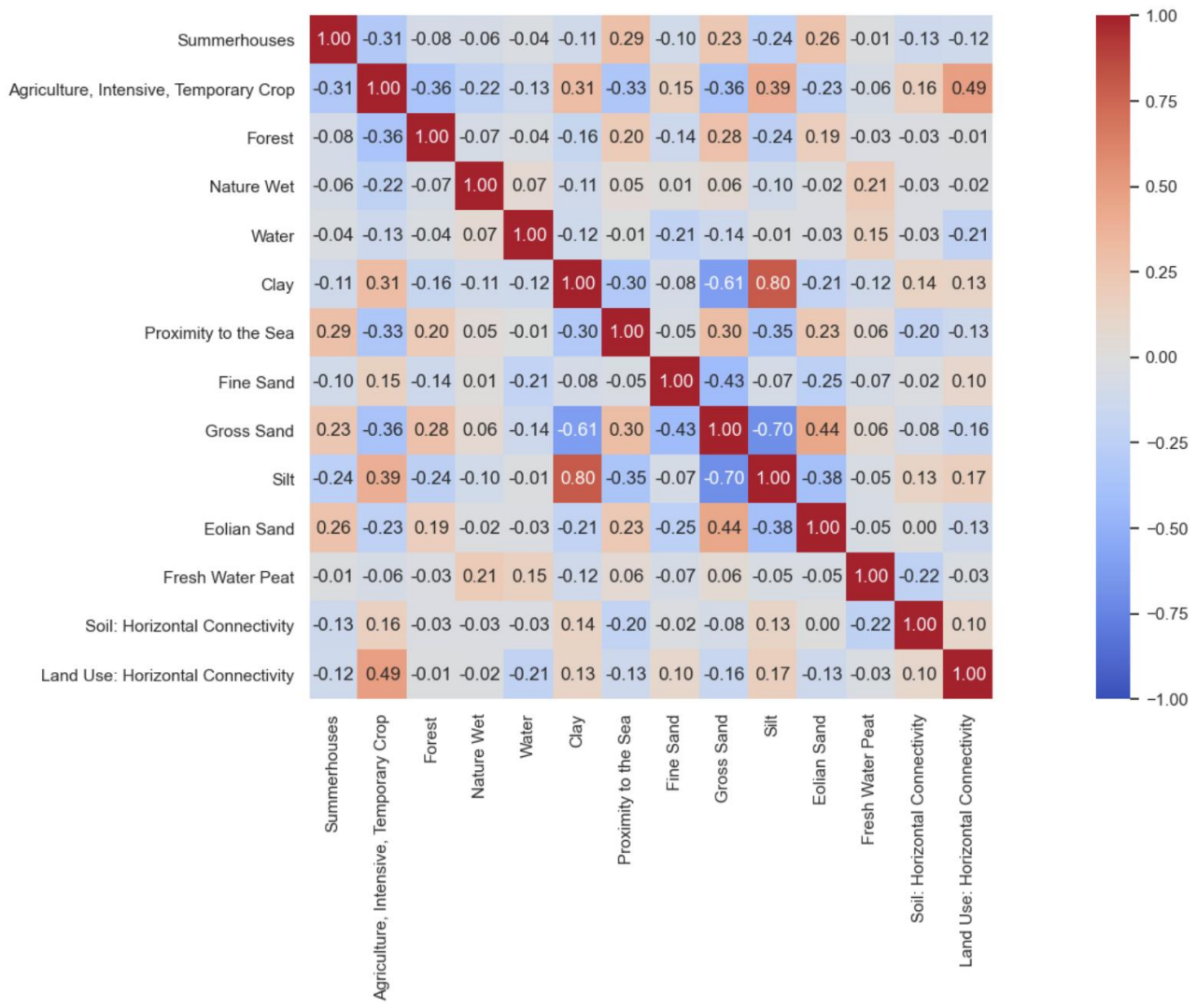


Research methods: fieldwork

- Searching for noice in the database by visiting the landscape
- Visiting areas where LULC-types interact and highly correlate with the significant variables

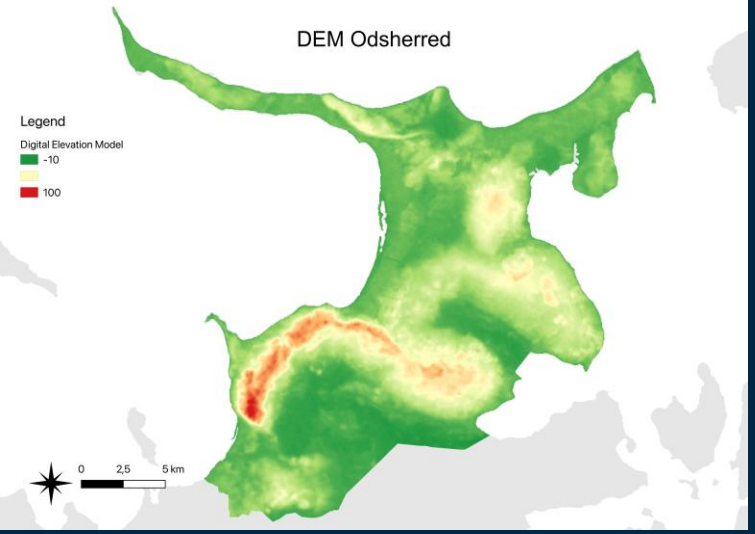


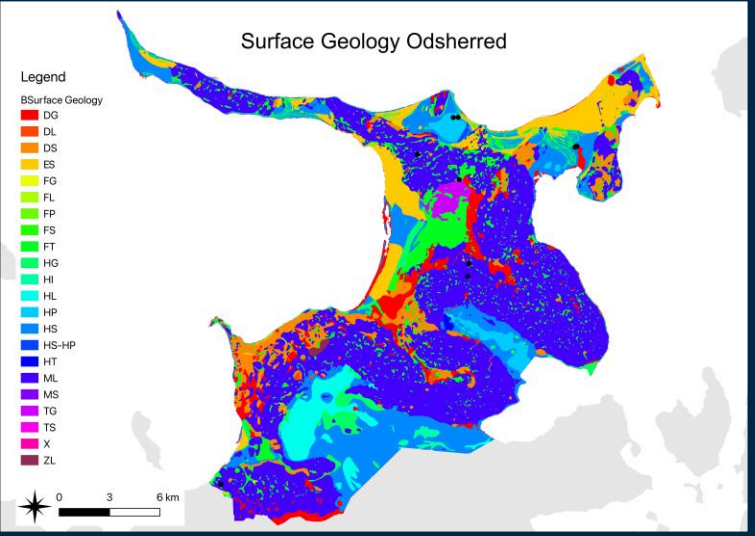
Results: Correlation analysis between relevant variables

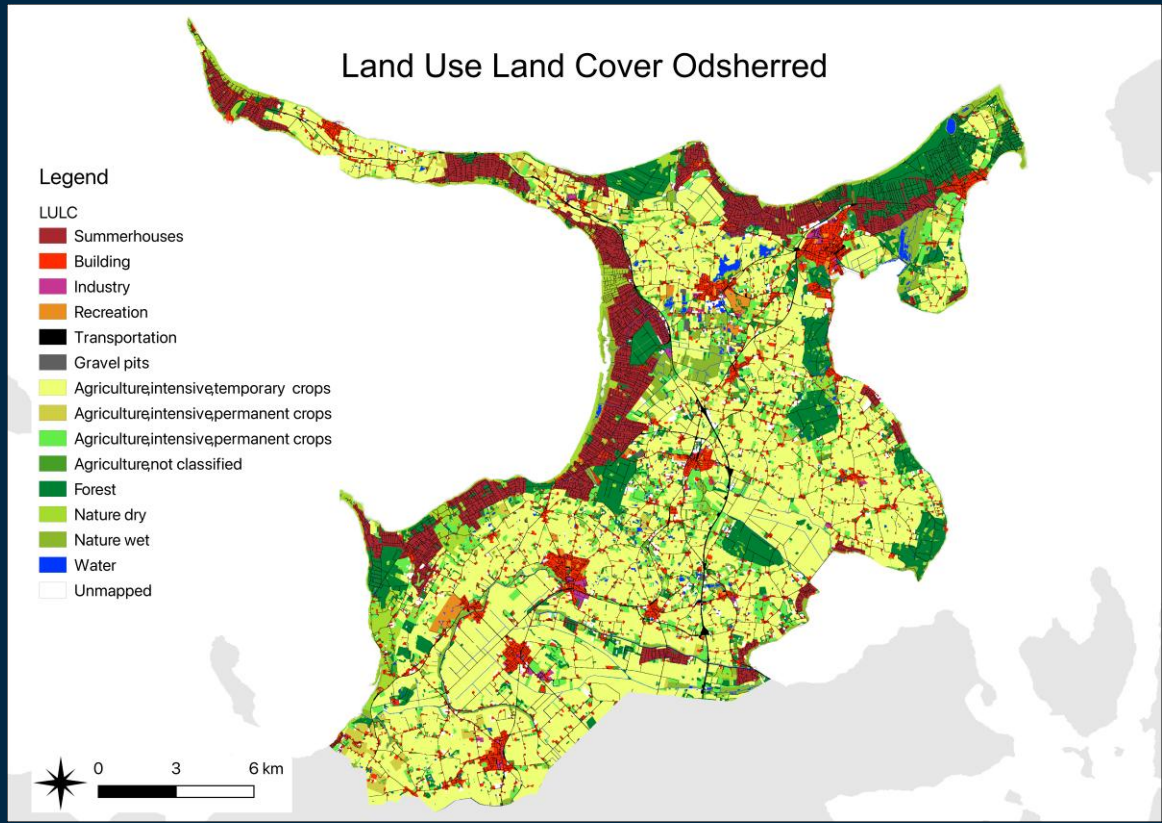


Results: fieldwork

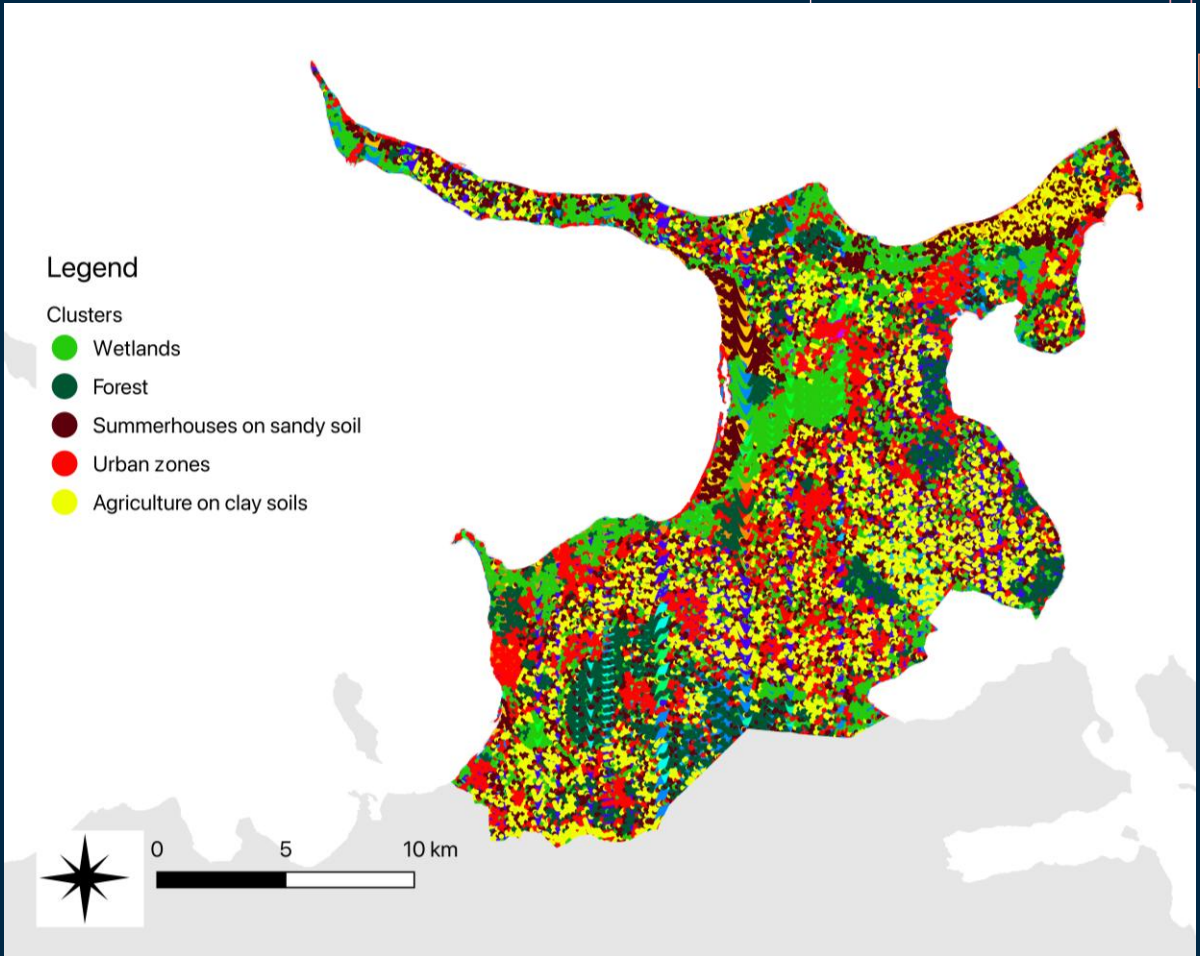
	Correlations GIS 30,4x30,4								
	clay	Distance to sea	Eolian sand	Fine sand	Fresh water peat	Gross sand	Silt	soil	Seasight / close to sea
Agr_int_temp_crop	0,31065	-0,33053	-0,22809			-0,36188	0,39316	sandy loam, with help	1
								silt	0
								sandy loam	0
								sandy loam	0
Forest		0,20381				0,27557	-0,24045	sand humus	1
Nature_wet					0,20692			humus	1
Summerhouse		0,28529	0,25843			0,23429	-0,24356	gross sand	1
Water				-0,20626				clay	0
Agr_int_perm_crop								clay	1


DEM Odsherred
Legend
Digital Elevation Model
-10
100
0
2,5
5 km


Surface Geology Odsherred
Legend
BSurface Geology
DG
DL
DS
ES
FG
FL
FP
FS
FT
HG
HI
HL
HP
HS
HS-HP
HT
ML
MS
TG
TS
X
ZL
0
3
6 km


Land Use Land Cover Odsherred
Legend
LULC
Summerhouses
Building
Industry
Recreation
Transportation
Gravel pits
Agriculture,intensive,temporary crops
Agriculture,intensive,permanent crops
Agriculture,intensive,permanent crops
Agriculture,not classified
Forest
Nature dry
Nature wet
Water
Unmapped
0
3
6 km

Results: cluster analysis



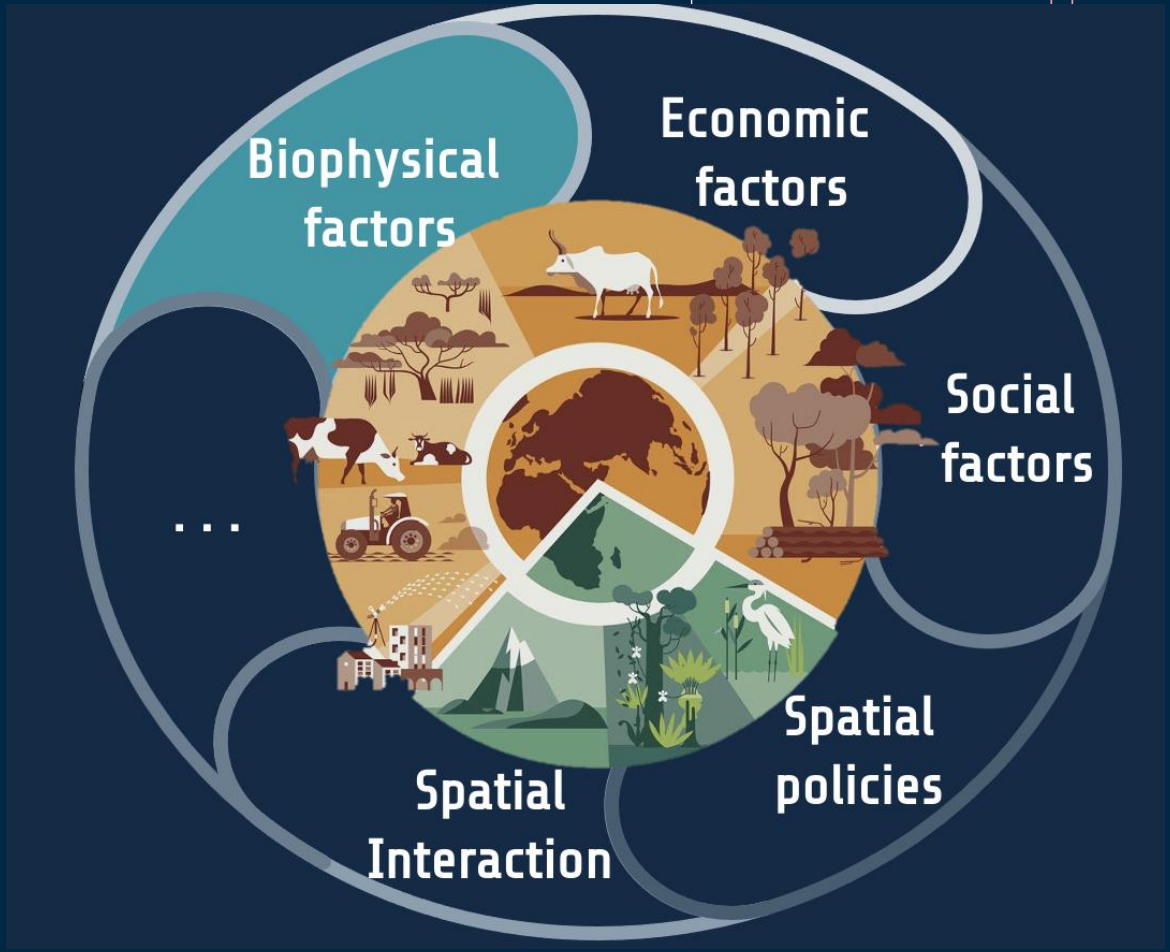
Discussion

- Limitations of the research
  - Multicollinearity was not taken into account
  - Computational limits (5%)
  - Clusters only visually interpreted
  - Limited field work

Discussion

Suggestions for future research

- Include more factors (eg. Social, spatial)
- A landscape genetic approach to compare the traditional landscapes with the current
- Optimizing the cluster analysis



Conclusions

- Vertical relations:
  - Less and smaller correlations than expected
  - But, still visible in the landscape
- Recurrent landscapepatterns:
  - Visible areas with similar (bio)physcial factors and LULC
  - Very high resolution

Conclusions

- (Bio)physical conditions show clear relations with LULC
- The visual noise in the clusters could be filtered by other variables (social, economic, etc.)