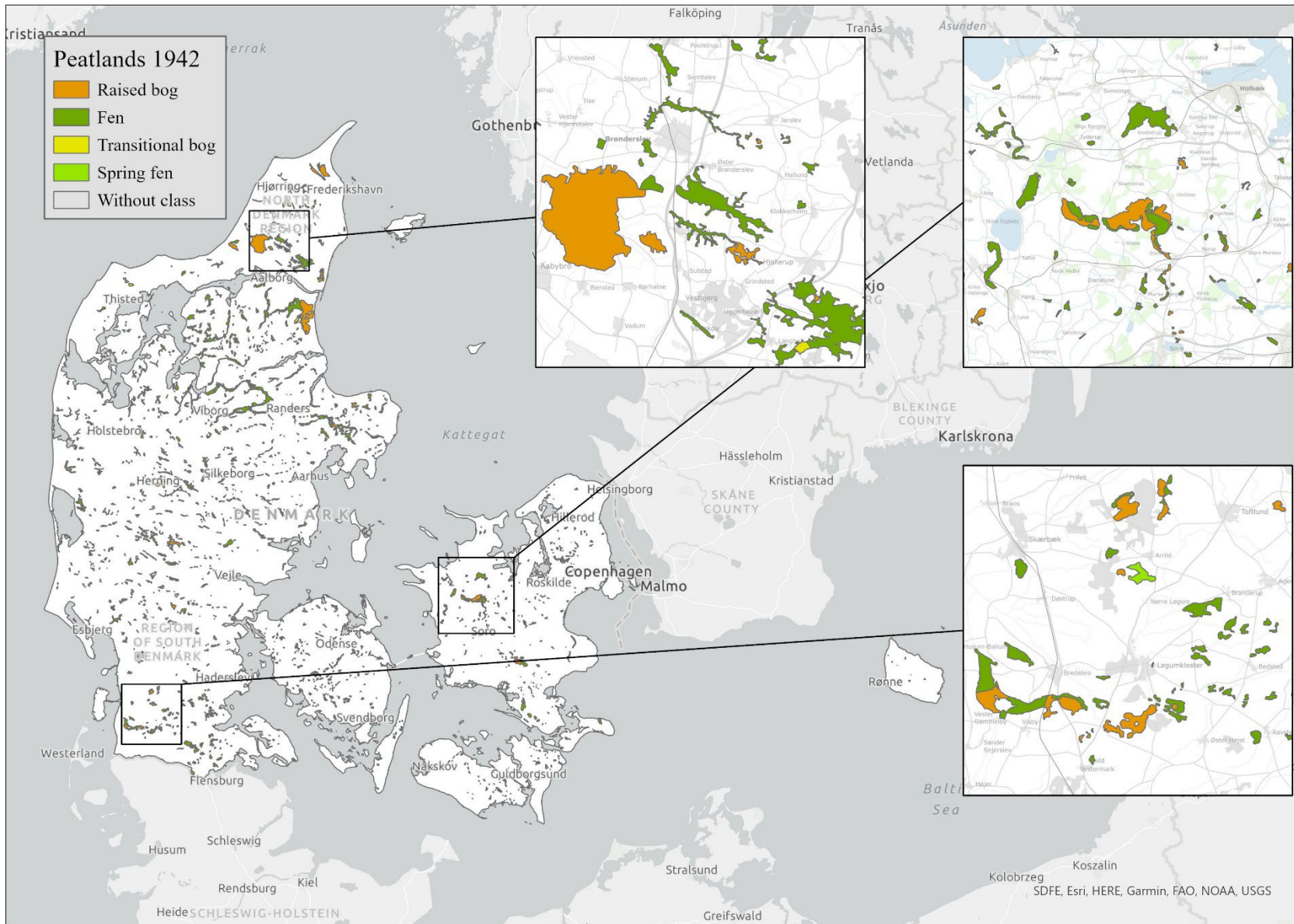


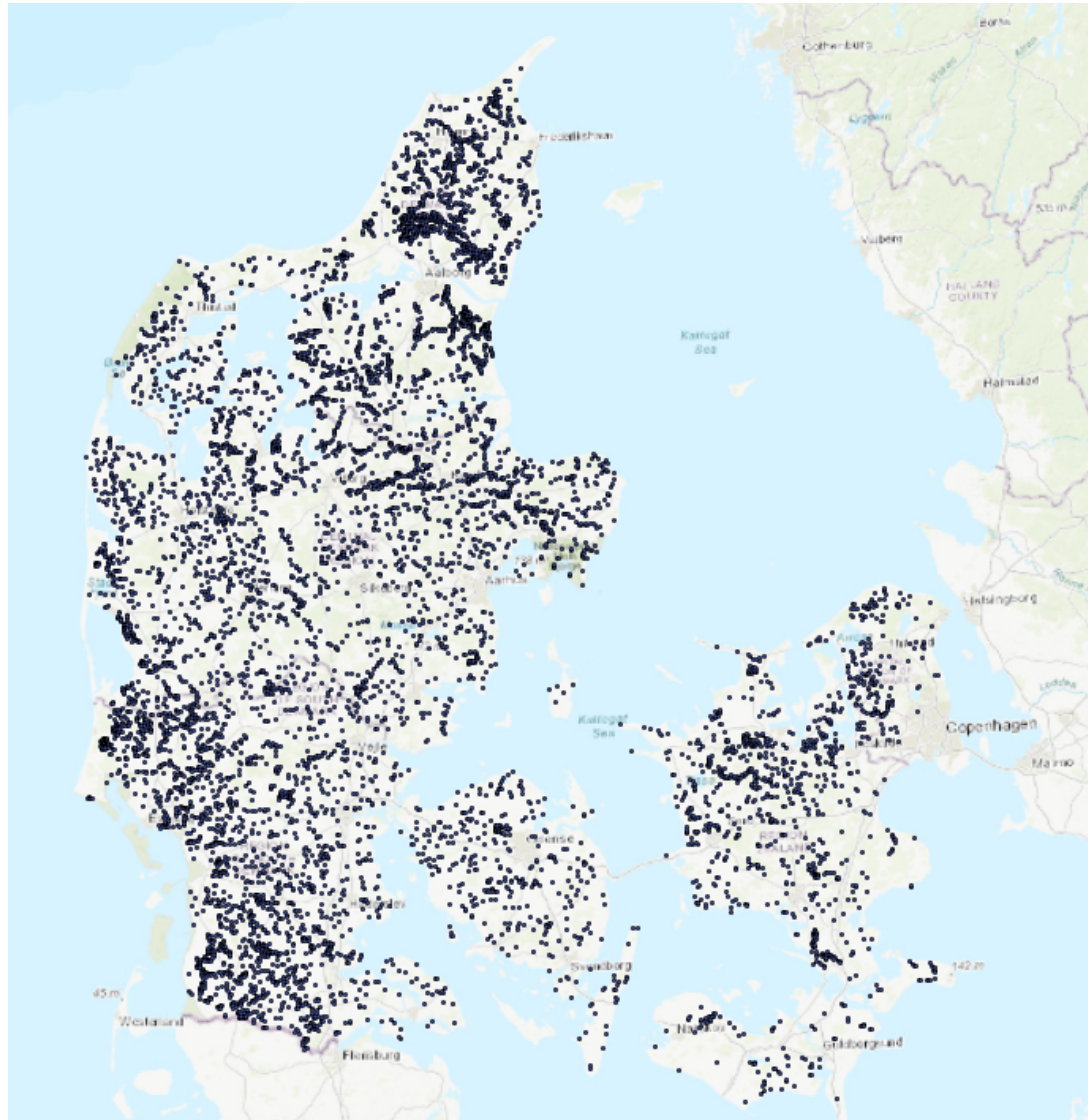
MAPPING AND MONITORING OF DANISH AGRICULTURAL PEATLANDS.

Mogens H. Greve





2009/10 SAMPLING OF 10000 NEW POINTS



WHAT DID WE REGISTER IN THE FIELD?

— DGPS Coordinate(~ 20cm)

Detailed sample description

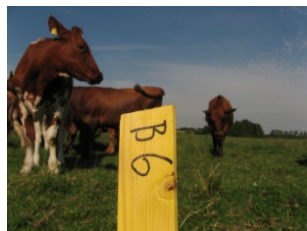
geology, color, von Post, field pH

Four samples from each location, (max)

0-30cm, 30-60 cm, 60-90 cm 90-120 cm+ total peat thickness

5 pictures from each location

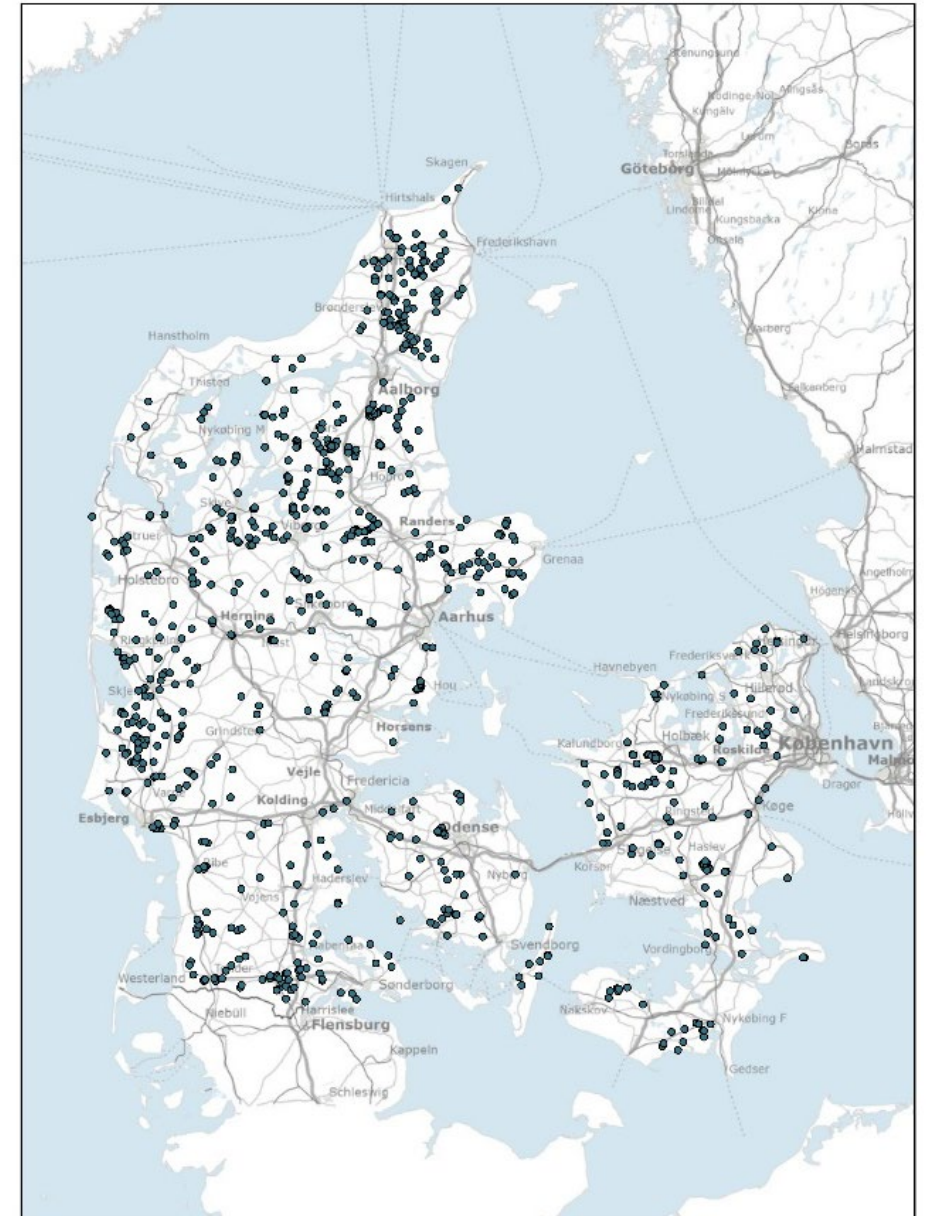
Analysis; bulk density, N, P, Fe, AL

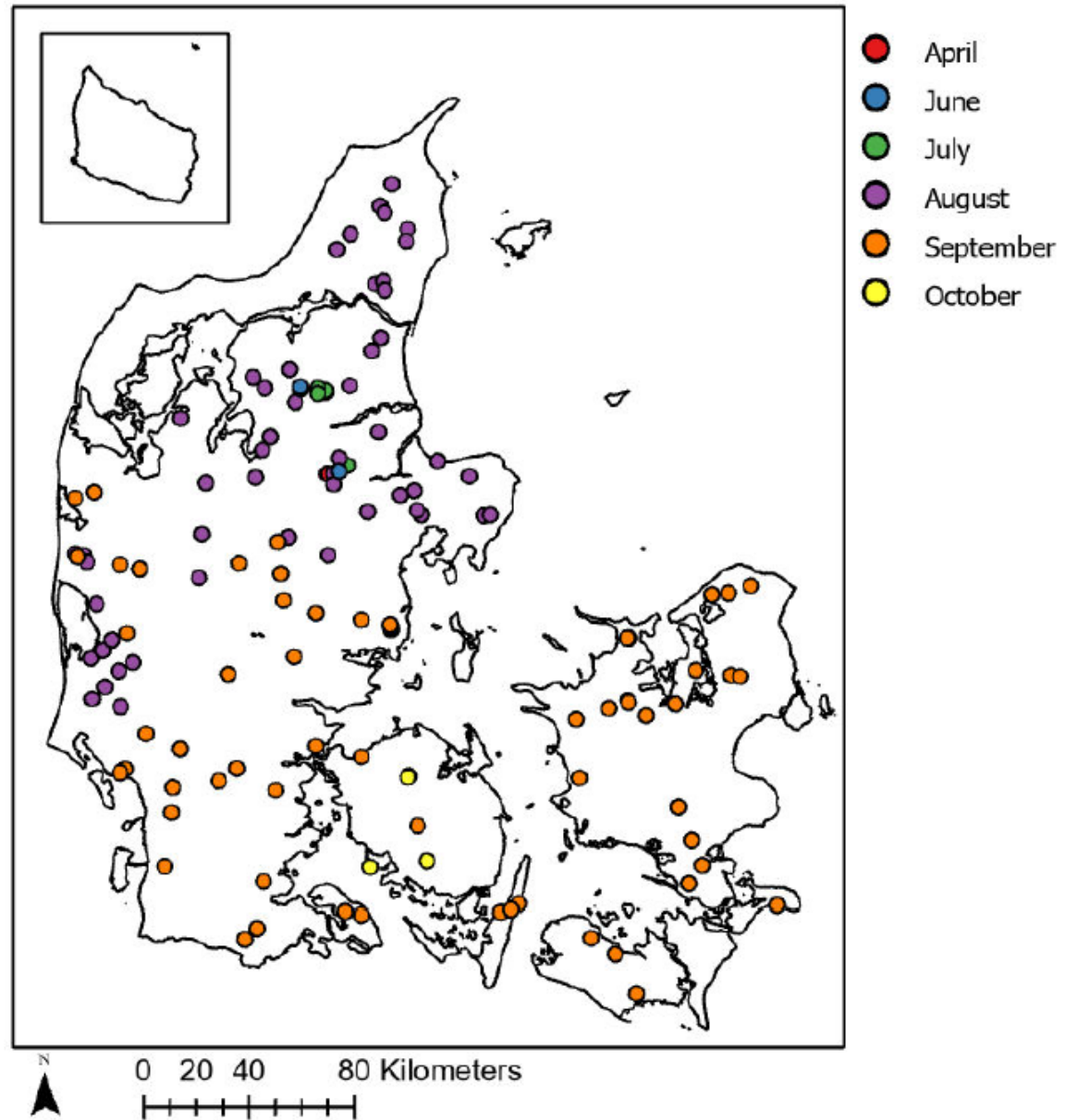


Resampling of 1000 points

❖ Formål:

- ❖ At udvikle en tørvemineraliseringsmodel baseret på data for 1000 genbesøgte punkter.
- ❖ At opdatere det nuværende tørvkort





Grass, corn, maize, rape, potatoes, vegetables, or fallow.



Above-ground plant diversity

Ground water depth



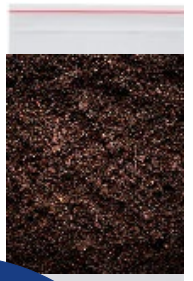
Up to 4 Volume samples



Peat depth



Soil properties



- Aggregate stability
- Microbial enzyme activity
- Texture (clay, silt, sand)
- pH, EC
- NIR, LIBS
- P-Al-Fe
- Hydrophobicity

- Bulk density
- OC, N
- Peat decomposition
- Colour, material
- pH, EC

Below-ground microbial diversity

- Water retention
- Gas diffusion + permeability
- Saturated hydraulic conductivity
- CO2 + CH4 (potential)

Peat to 110 cm

120 cm

136

Peat Sand

EXTENT COMPARISON

Tema	Distribution (ha)
1975 > 6 % OC	332 785
1975 > 6 % OC, agricultural land only	243 000
2010 > 6 % OC	291 262
2010 > 6 % OC, agricultural land only	171 603
2022 > 6 % OC	218 180
2022 > 6 % OC, agricultural land only	118 304

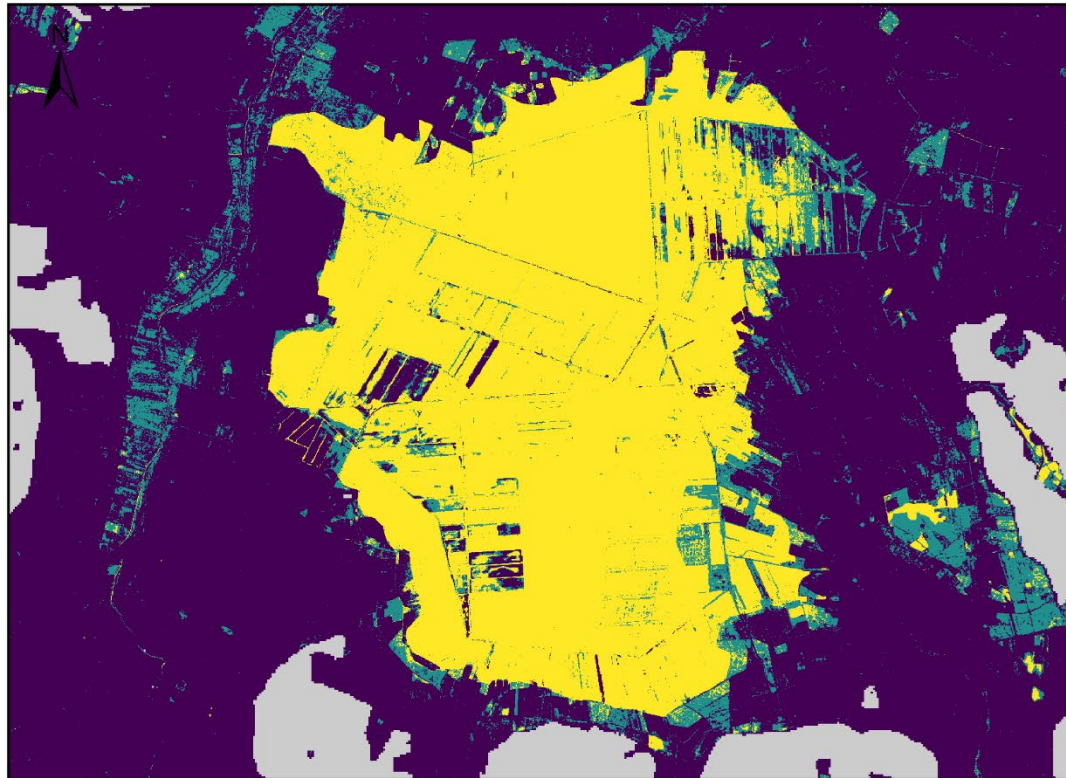
Variation in extent due to

- Peat mineralization
- New soil data: 1000 revisited locations and 750 new locations
→ better representativity of the actual peatland status
- More environmental covariates, providing more information to the model (e.g., remote sensing data)
- Finer resolution (10 m)

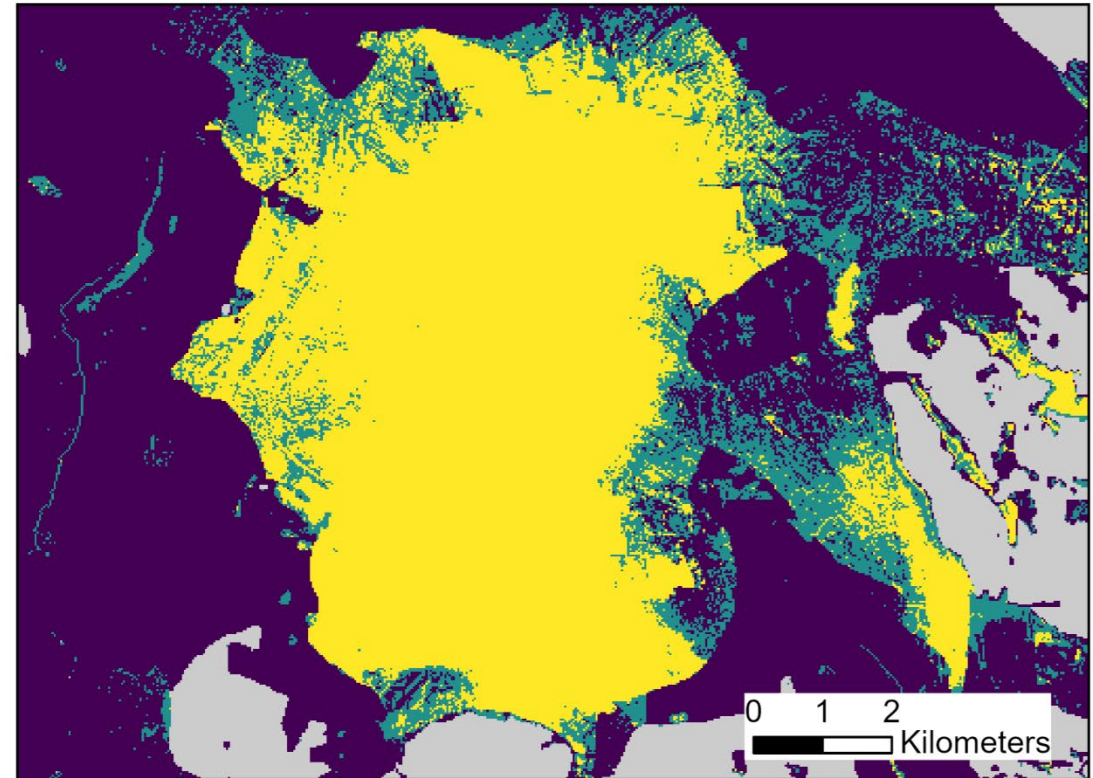


COMPARISON OLD VS NEW MAP

SOC maps for the topsoil layer (0-34 cm depth) – Store Vildmose



Peat 2022



Tekstur 2014

Topsoil organic carbon concentration (%)
predicted with a Cubist model

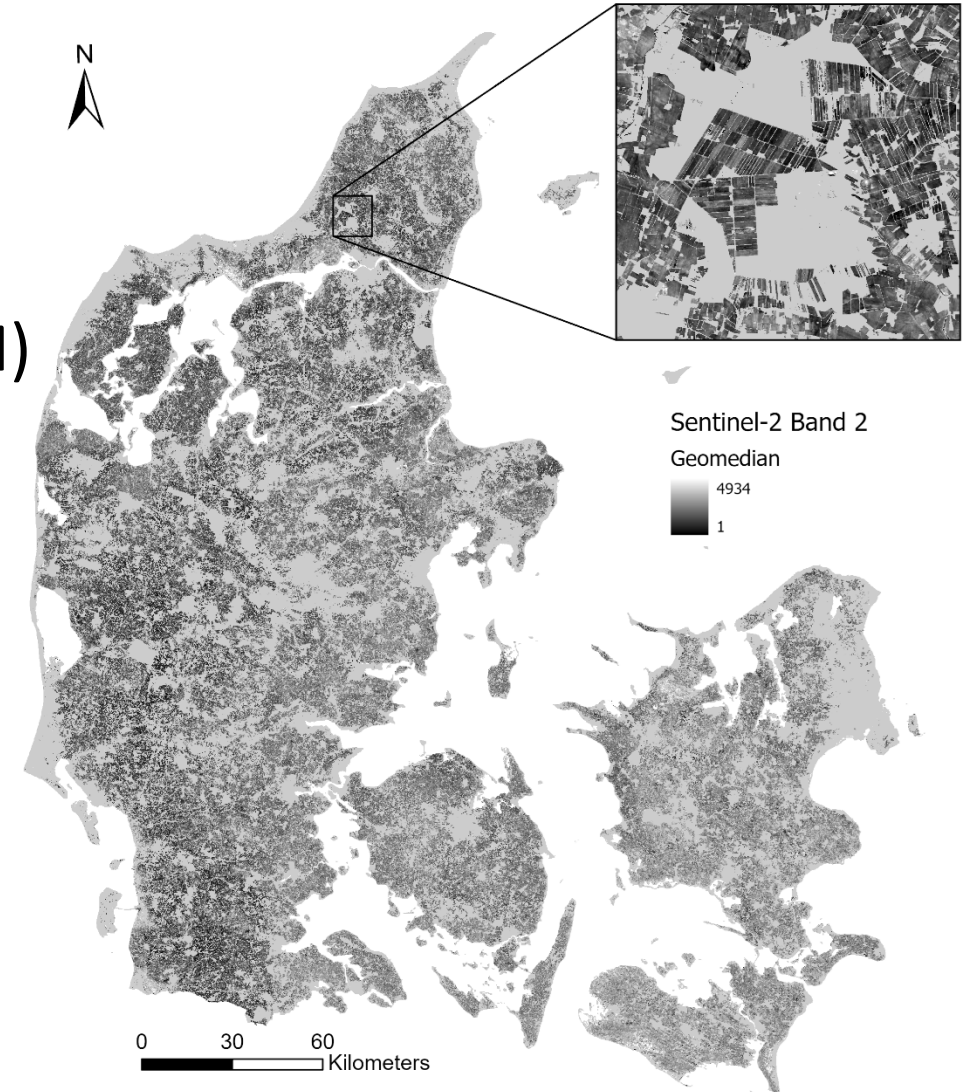


INPUT DATA

Covariates – 10-m resolution

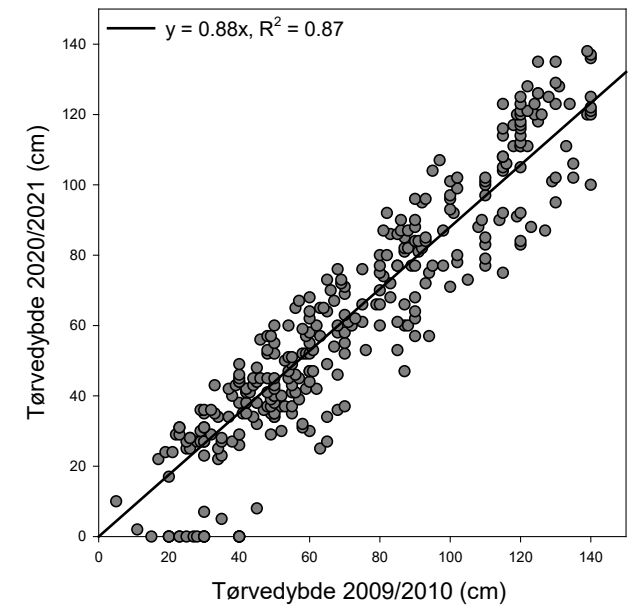
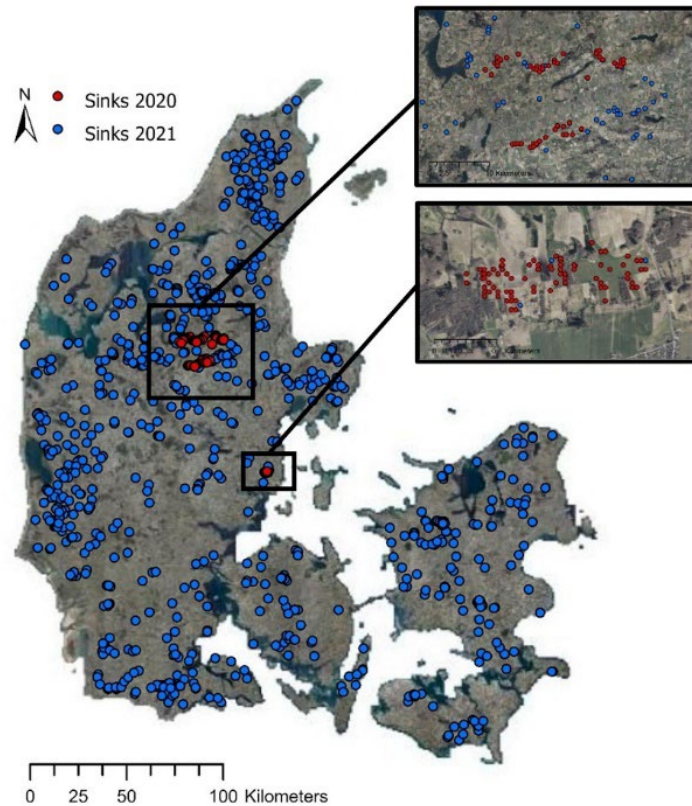
- Topography: digital elevation model (DEM) + terrain attributes
- Soil: Geology, landscape, land use
- Climate: precipitation, temperature
- Groundwater table depth

+ Sentinel-1 and Sentinel-2 data

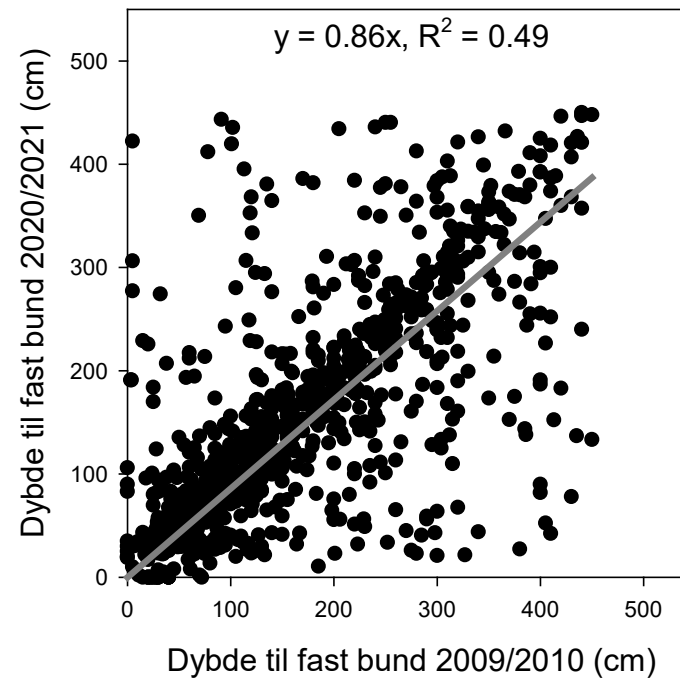


TØRVEDYBDE FRA 2009/2010 TO 2021

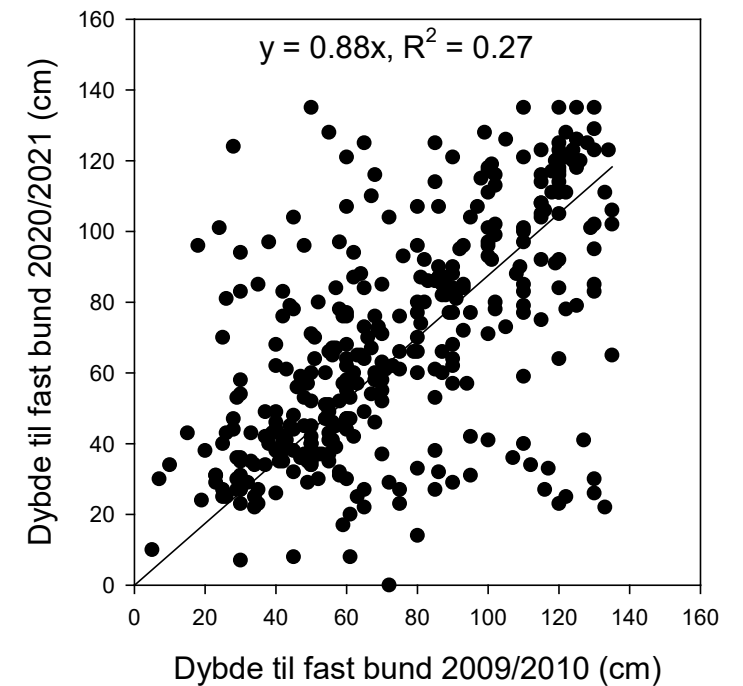
Indledende resultater



Alle data: 0-450 cm



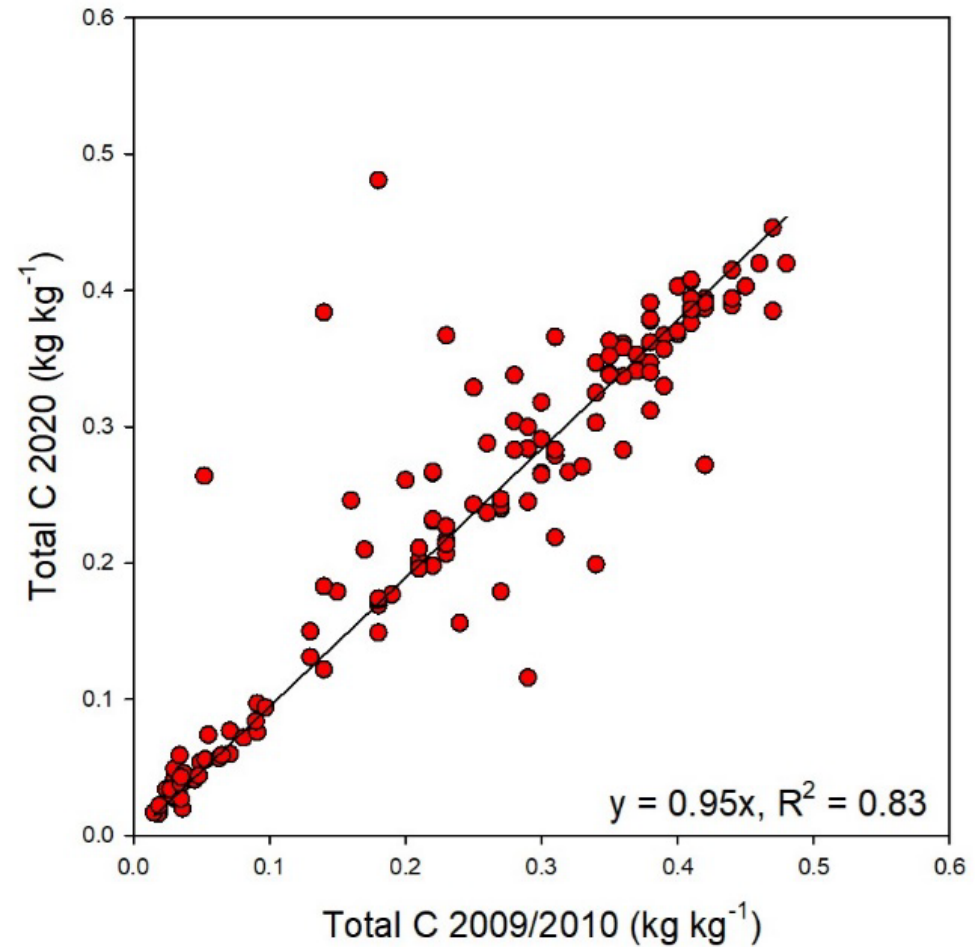
Data: 0 - 135 cm



DROP IN CARBON % FROM 2009/2010 TO 2020

Indledende resultater

For 136 punkter udtaget i 2020 ses der gennemsnitligt et fald i C koncentration på 5%.





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