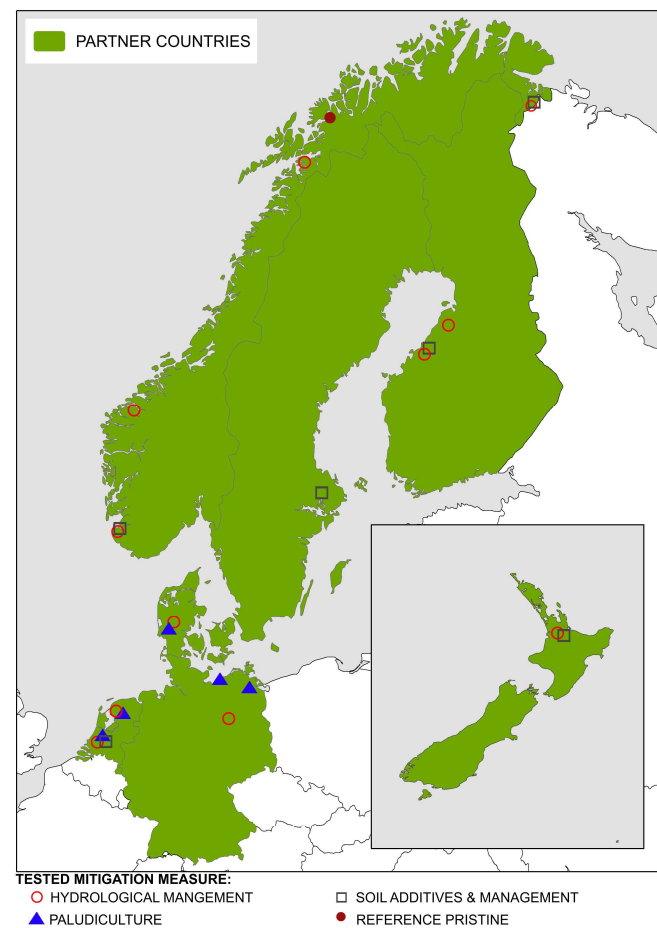
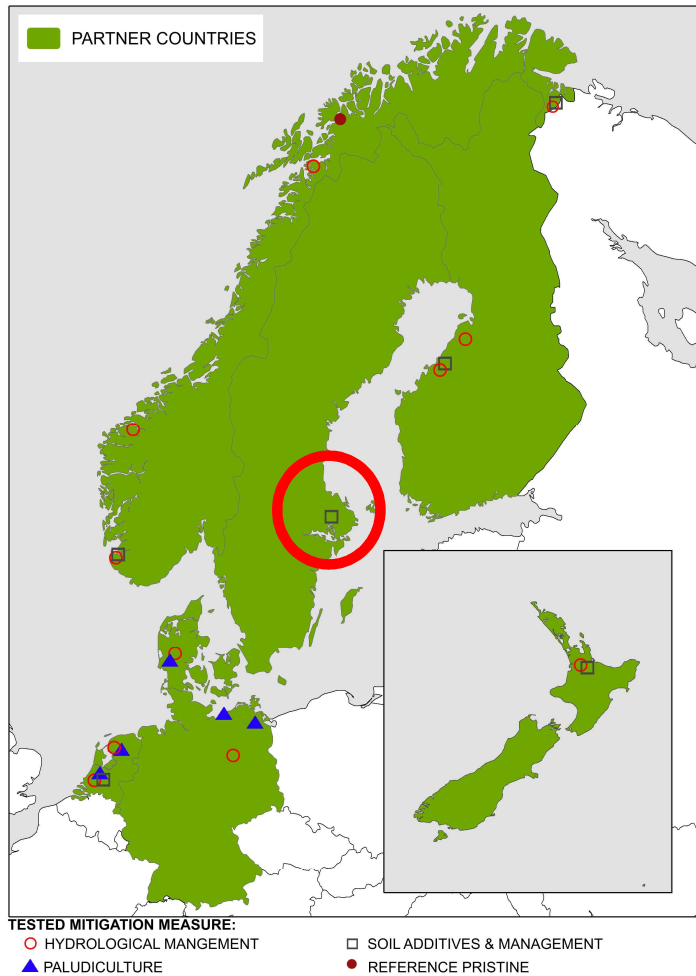




PEATWISE

Case study, Sweden





Broddbo, Sweden

Site type:

Grassland on organic soil

Mitigation measure tested:

Foundry sand addition to improve traficability and lower CO₂ emission



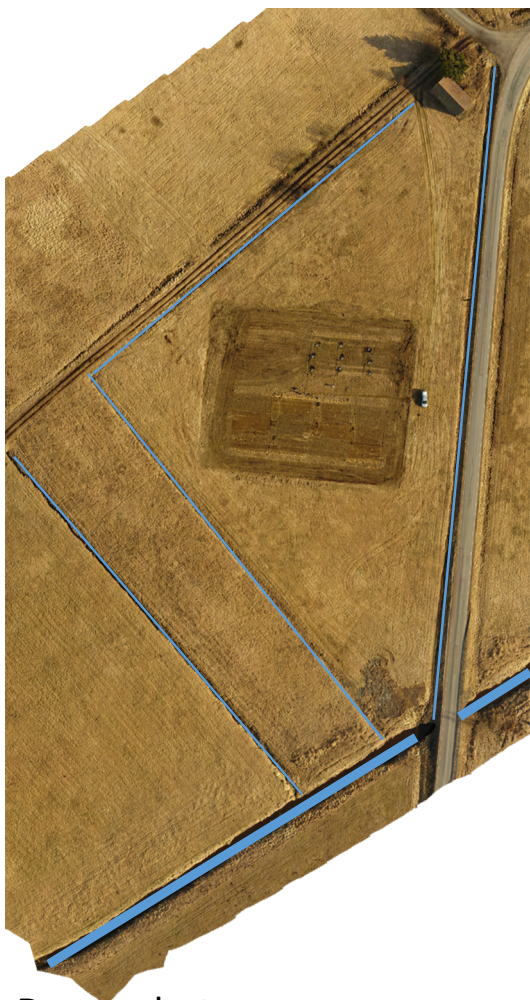
Broddbo, Sweden

Contact person: Kerstin Berglund (Kerstin.Berglund@slu.se)

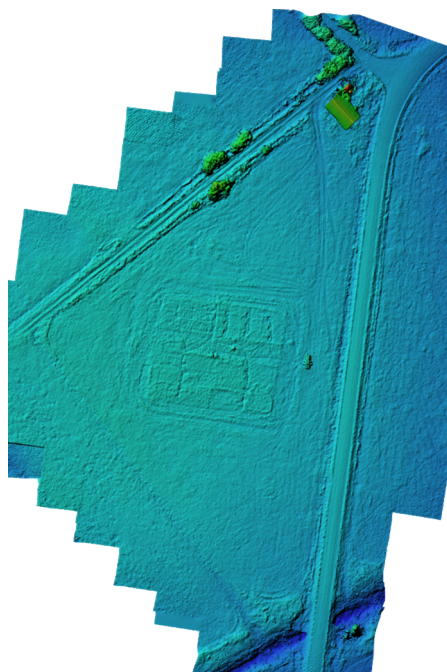
Description, land use history: The peatland has been cultivated (grassland) since 1904, situated 30 km north of SLU Ultuna, Uppsala.

| Climate | | Soil quality and agronomy | | Hydrology and drainage | |
|---|-----------------------|--|-----------------------------|---|------------|
| Location | 60°01'39"N 17°26'39"E | Peat thickness (cm) | 70-130 | Drainage started | 1904 |
| Mean annual precipitation (mm y ⁻¹) | 563 | Humification (von post) | 8-10 | Drain depth past (cm) | 100 |
| Mean annual T (° C) | 7.4 | Underlying soil | Clay gyttja | Drain depth present (cm) | 60 |
| Mean length of growing season | 6-7 months | Crops | Grassland (Phleum pretense) | Drain spacing (m), open ditches | 75 |
| | | Rotation | No rotation | WTL depth (m) | 0 to -1.30 |
| | | Fertilization Kg N ha y ⁻¹ | 100 | Hydrological Conductivity (cm h ⁻¹) | 10 |
| | | Harvests | 2 | | |

Site location and information



Drone photo

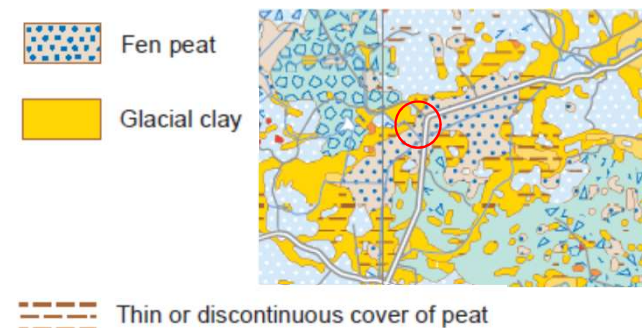


DEM (or cross section map)



Profile description:

| Depth (cm) | |
|------------|--|
| 0-20 | Fen peat, dd H9-10, plough layer, black 5YR 1.7/1 |
| 20-30 | Fen peat, dd H9-10, plough layer, black 5YR 1.7/1 |
| 30-50 | Carex-Amblystegium (sedge/brown moss peat, fen peat), dd H8-9, black 5YR 1.7/1 |
| 50-100 | Carex-Amblystegium (sedge/brown moss peat, fen peat) with tree remains (Alnus and Betula), dd H8-9 |
| 100-150 | Carex-Amblystegium (sedge/brown moss peat, fen peat) with a few tree remains (Alnus and Betula), dd H7-8 |
| 150-170 | Carex-Amblystegium (sedge/brown moss peat, fen peat), dd H8, increasing gyttja content with depth |
| 170- | Clay gyttja gradually changing over to clay |



Soil type map

Experimental set-up

Objective: To study the impact of foundry sand addition on CO₂ emissions and agronomic production on fen peat in Sweden.

The field experiment is set up in a randomized block design
Three treatments (A-C), repeated in three blocks.

A = 0 cm foundry sand
B = 2.5 cm foundry sand
C = 5 cm foundry sand

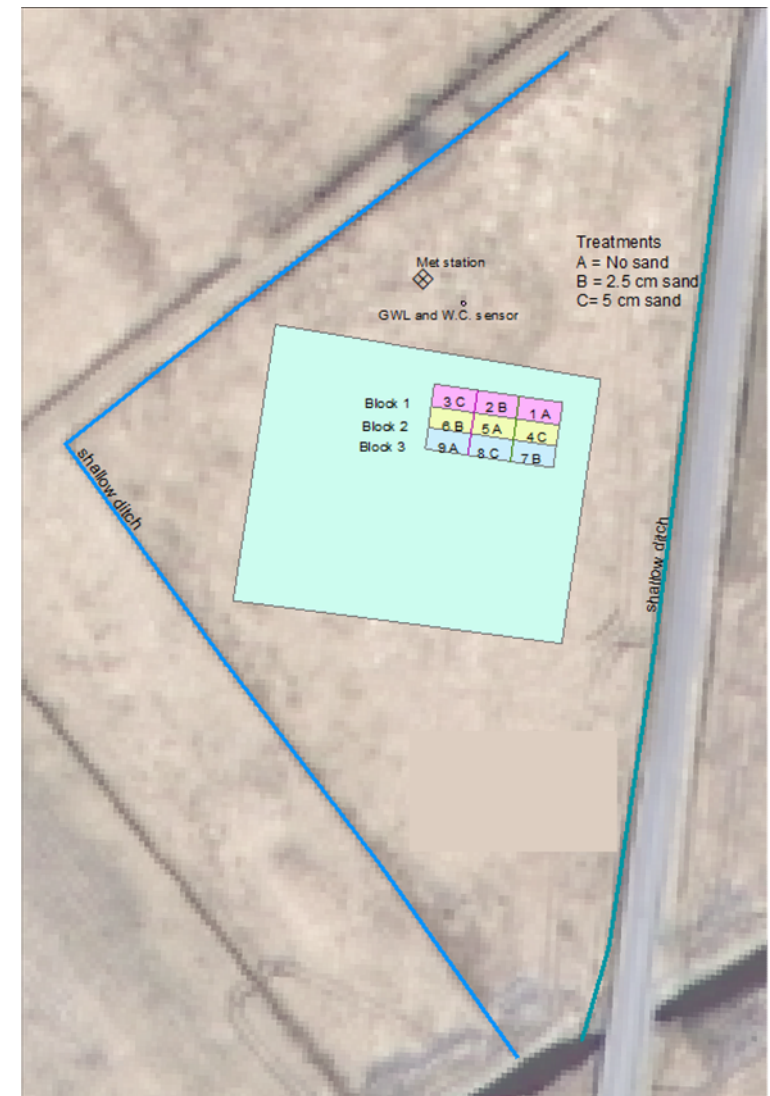
The sand is mixed into the topsoil (15 cm depth).

Monitoring 2015-2021

Continuous: Air T, air humidity, wind speed and direction, precipitation

Frequent (0.5/h): CO₂, soil temp, soil moisture, [oxygen]

Seasonal: yield (biomass production and sometimes nutrient uptake)



- Picture A: Foundry sand
- Picture B: Spreading of foundry sand
- Picture C: Field trial



A



B



C