

Land use on humic soils - different outcomes

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Current situation

Humic soils in Denmark

Area with humic soil (i.e. $\geq 12\%$ organic matter) is decreasing dramatically:
Historically 243,000 ha has been humic soil,
From 1975 to 2010 the area has decreased from 118,000 ha to 68,000 ha

'New Wet Nature' political plan 2010 – 2015

13,000 ha humic soil along rivers shall be converted to 'wet meadows' to clean drain water from agricultural areas and surface water before the water meets rivers

Land use on humic soils in Denmark:

- Scattered nature areas, which are protected physically by law (§ 3 areas) - including areas with a management history as meadow/pasture. However, more than 50 % of these nature areas is not managed appropriately any longer, i.e. loss of biodiversity
- 'Permanent' grassland, which is ploughed at least every 5th year. Drainage applied, and a high risk of mineralization and leaching
- Large areas managed by annual crops

Possible future situations

Risky option

'New Wet Nature' inundated by surface and drainage water

Loss of resources: Energy in organic matter and nutrients (N_2 to air and P to river water)

High emission of climate gasses, CH_4 and N_2O

Loss of nature quality when rich fens are affected by surface water

New nature: Eutrophic swamps with only a few common species able to grow in anaerobic soil environment

Safe option

Alternative land use on humic soils

Continuous grassland without ploughing

Harvest of resources: Biomass for biogas and nutrients collected in biomass. Aftermath is possible

Low emission of climate gasses, if summer water table is kept below the upper root layer

Sequestration of C in peat at moist conditions

Improved living conditions for wild plant species



Reference: Hald, A.B. 2011. Hydrologi og terrestrisk vådbundsnatur i lyset af Vand- og Naturplaner. URT 35 (1): 37-43.

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