

**MONITORING OF FOUR DUTCH PEAT SOILS IN USE AS PERMANENT PASTURE IN THE EUROPEAT PROJECT**

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EUROPEAT is the acronym of a European project that started end of 2002 in the Quality of Life and Management of Living Resources programme. The full title of the project is "Tools and scenarios for sustainable management of European peat soils to protect associated landscapes and natural areas in relation to agricultural production". Six countries are involved in the project: The Netherlands, United Kingdom, Norway, Sweden, Poland and Germany. The main objective of the project is to elucidate the processes determining the rate of subsidence, oxidation and release of nutrients and greenhouse gasses from peat soils, to develop tools to improve the prediction of the effect of landuse and water management and global climatic change on these processes, and to assess the socio-economic impact that environmentally driven changes in peat soil management will have. Part of the project is the collection of available data and new measurement results of different peat soils under different landuse, climate and water management in Europe. In the Netherlands the monitoring of the subsidence started in the years 1967 – 1972 when ditch water levels in peat land areas were lowered from a mean of 20 – 30 cm minus surface prior to 1970 to 60 cm minus surface in the Western peat areas and up to 120 – 150 cm minus surface in the Northern peat areas. The effect of the lowering of ditch water levels was that in the Western peat areas the subsidence rate was doubled and in the Northern peat areas became about 4 times higher than in the past. Oxidation proves to be the main factor responsible for subsidence over the long term. The groundwater level at the end of the summer proves to be the best indicator for the rate of subsidence. About half of the peat soil areas in the Netherlands have a thin clay layer on top of the peat. This diminishes the subsidence with 20 - 50 %. The subsidence ranges between 2 – 25 mm/year, and is on average 8 mm/year. The subsidence is causing increasing costs of water management, damage to buildings and infra structure and nature reserves. Moreover the oxidation of peat results in an estimated mean CO<sub>2</sub> emission of 18 Mg CO<sub>2</sub> per hectare per year. Therefore to study this problem and find solutions the EUROPEAT project was started and the monitoring intensified. The results of the more than 35 years of monitoring of subsidence of peat soils in The Netherlands and the results of the detailed monitoring of the hydrological situation since 2003 are presented and evaluated.