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Distribution of abandoned former cultivated peat soil in sweden

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Peat soils are a large emitter of greenhouse gases (Berglund 2011). Digitized maps of Quaternary deposits and the EU Integrated Agricultural Control System databases (IACS) were used in a GIS analysis to estimate the distribution and land use of agricultural peat and gyttja soils in Sweden and was estimated to be about 300.000 ha (Berglund and Berglund 2010). Due to the focus on mitigating GHG emissions, there has been increased interest in finding peat areas suitable for rewetting. The aim of the project was to find abandoned formerly cultivated peat soils which could be considered suitable for rewetting.

To find the abandoned peat soils we digitized historical land use maps from 1940-1950 using the HistMapR package (Auffret, Kimberley et al. 2017). Other factors important when selecting suitable sites for rewetting are the acreage of non-peat soil affected when rewetting, ground coverage, availability of water and the size of the peat area. To estimate these properties we used digital elevation maps and the new Swedish land coverage map. We also used data on precipitation, evapotranspiration and runoff information from the Swedish Institute of meteorology and hydrology. ESRI ArcGIS was used to calculate the ratio between peat and other affected soil, water balance, size of peat area, then each area was associated with a land-use. This was done for the whole of Sweden except for the 4th most northern regions. The total area of abandoned formerly cultivated peat soil was 50 700 ha and the land use was mostly wet conifer forest. This information can be used in a GIS to find the most suitable areas to rewet.

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