



Peatlands under cultivation for arable crops; a new area estimate for Ireland

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Peatlands cover 20% of the Irish landscape and store between 53% and 61% of total soil carbon stocks. Eighty percent of these have been drained for peat cutting, afforestation and conversion to agricultural use. As a signatory to the United Nations framework Convention on Climate Change, Ireland is required to make an annual inventory of greenhouse gas emissions and sinks in the agricultural sector. While guidelines on the compilation of such inventories are provided by the IPCC 2006 Guidelines, reporting at higher Tiers requires the collection of national specific information including the accuracy of inventories. Total land area (including accuracy estimates) and national emission factors are lacking for agricultural activity on drained organic soils i.e. converted peatlands.

Locations of organic (peat) soils under cultivation were identified using a map overlay analysis and existing geographic data on peat habitats and agricultural activities. The result was 3688 ha of land cultivated for arable crops overlaid areas classified as peatland.

A design-based accuracy assessment and probability sampling method were chosen to assess the accuracy of the overlay. The focus of the analysis was on the accuracy of the peat data. The agricultural data was considered quite robust, so it was used to limit the area included in the assessment. Ground truthing was carried out at randomly chosen locations within areas mapped as 1) areas cultivated for arable crops and 2) peat habitats or a 100m buffer surrounding those areas. Sixty-nine sites were sampled and an error matrix was constructed comparing the map classification at the sample location to the samples taken there. The overall accuracy was 77%. There was a high producer's accuracy (84%) and a low user's accuracy (28%) for the peat category. Area estimate of peatlands under cultivation for arable crops was 1235 ± 784 ha.

Future policies will require the identification of strategies to reduce greenhouse gas emissions and enhance sinks. A vital prerequisite to this will be a clear understanding of the nature and extent of agricultural activity on organic soils and this project will contribute to the closure of this information gap.