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Mapping peatland drains using high-resolution satellite imagery

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Peatlands contain most of Ireland's soil organic carbon (SOC) stock. In pristine peatlands carbon dioxide (CO₂) is sequestered and stored however Ireland's peatlands are extensively disturbed. They have been and are used for many various activities including fuel and electricity production, forestry and agriculture. The primary method of preparing a peatland for these activities is to drain it. Drainage lowers the water table and converts the peat from an aerobic to anaerobic environment leading to increased CO₂ emissions. This research uses an object oriented approach to map peatland the extent of peatland drains on a low level Atlantic blanket bog area in North West Mayo. The bogs, particularly those located to the west of Bangor Erris were drained by Bord na Mona for the purpose of extracting peat for fuel in the Bellacorrick powerstation. The peatland drainage network in this area is dense, each drain is ~1 meter in width and the drains are about 15 m apart. High resolution Geoeye-1 imagery is used. The image was acquired on the late August 2010. The image was analysed using the ArcGIS extension; Feature Analyst (FA), a black-box object oriented method.

The result was the delineation of drains throughout the image. The development of this method could be useful for the identification of drains over large areas of remote peatlands.