

Hydrology of undrained peatlands is often affected by drainage of surrounding areas

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Aapa mires are wet peatland ecosystems in the north. The picture is from Ilajansuo mire, Ilomantsi. Credit: Pasi Korpelainen

Finnish peatlands are under a bigger pressure from land use than has generally been realised. More than half of the peatland area has been drained, and most of the remaining undrained peatlands are bordered by drained areas.

A study by the University of Eastern Finland and the Finnish Environment Institute investigated the current status of undrained peatlands. The research is part of the SHIFTMIRE project funded by the Academy of Finland, led by docent Teemu Tahvanainen from the University of Eastern Finland.

The discharge of water from the [catchment area](#) to the [peatland](#) is an important part of peatland hydrology. According to the results, 85 percent of the undrained peatland area is at least partly bordered by drained areas. The drainage of the margins of a peatland can cut off [water flow](#) from the catchment and cause major changes in vegetation and ecosystem.

Hydrological disturbances are most common in the middle boreal zone, with high abundance of peatlands and peatland use. On average, 42 percent of the catchment area of an undrained peatland is hydrologically disconnected from the catchment by ditches in the peatland margin, in the middle boreal zone. Possible implications of such disturbance include vegetation change and likely loss of biodiversity, but there is also potential for increased peat growth and [carbon sequestration](#).

In Finland, the area comparisons between drained and undrained peatlands are well known. This new study shows that even undrained peatlands are usually not hydrologically natural, however. "Disruptions in hydrology are a threat to biodiversity but changed mires still have significant natural values, and there are cases where margin drainage is found to enhance carbon sequestration in the mire", says project researcher Antti Sallinen.

The study also updated data on areas of mires and peatlands in Finland. The total area of peatlands is 8.3 million hectares, of which 58 percent has been drained. The undrained area consists of 219,200 separate patches of peatlands. Area of undrained open mires is two million

hectares. Of this, 70 percent is in Lapland, north of the Rovaniemi-Kuusamo line. In south, peat-covered areas are mostly drained woodlands that are predominantly classified as forests in international typologies.

More information: Undrained peatland areas disturbed by surrounding drainage: a large scale GIS analysis in Finland with a special focus on aapa mires. *Mires and Peat*, 24 (2019), 38, [DOI: 10.19189/MaP.2018.AJB.391](https://doi.org/10.19189/MaP.2018.AJB.391)

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