

## Best Biodiversity Presentation at Environ 2023

### Winner Hannah Mealy, University College Cork

#### Carbon sequestration of a native woodland established on a cutaway peatland site in Ireland.

Over the past three years, all industrial peat extraction has ceased and there has been significant government funding allocated towards the restoration of peatlands across Ireland. These are positive steps for restoring our peatland habitats. However, there is now an abundance of cutaway peatland sites across the country. These are the aftermath of industrially harvested peatlands (image below). Although some degraded peatland sites have been



successfully restored by rewetting, cutaway sites are so severely damaged they may not recuperate their ability to absorb carbon with this approach. Therefore, there is an urgent need to understand optimal management practices for severely

*Cutaway Peatland site Co. Offaly*  
degraded peatlands to remediate their carbon sink (absorb) function and to improve biodiversity across Irish rural landscapes.

This research project aims to provide an account of carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>) emissions from a naturally established woodland on a former cutaway peatland site, with the hope of providing evidence that this may be an optimal land strategy to implement on cutaway peatlands. The site is located in Lullymore,



*Eddy Covariance tower, Lullymore Kildare*

County Kildare. Harvesting peat ceased over two decades ago from the site and it has since naturally established a native woodland dominated with Birch, Willow and Scots pine tree species.



*Instruments mounted on EC tower*

The Eddy Covariance technique is implemented to monitor CO<sub>2</sub> and CH<sub>4</sub> emissions from a tower structure extending above the tree canopy. A static chamber is also used to estimate the below canopy contribution to the net ecosystem exchange of CO<sub>2</sub>.

Preliminary data collected is showing a strong uptake of CO<sub>2</sub> emissions throughout the growing season, with very low values of CH<sub>4</sub>

emissions overall. It is hoped on analysis of a full annual data set, that the site will be a sink for carbon. This research will help establish sustainable management strategies to implement on unsuccessfully restored peatland sites and cutaway sites to improve biodiversity and help achieve our net zero carbon emissions by 2050.



*Static chamber measurements from below canopy*

For More information:



Hannahmealy93@gmail.com



@hannahmealy