



Carbon Budgets in UK Upland Peatlands

The Project

Associate Professor Andreas Heinemeyer from the University of York leads a long-term research project (see [Peatland-ES-UK](#)) examining three peatlands in northern England to investigate the merits of different heather management approaches, comparing prescribed burning to alternative cutting or no heather management. The project assesses impacts on carbon budgets and greenhouse gas emissions, water storage and water quality, vegetation composition and other biodiversity aspects.

Key Findings

The research has found that, so far all three management approaches can support active, healthy peatlands in the right conditions. Carbon fluxes were upscaled based on hourly Skye weather station data. Heather burning and cutting both release considerable amounts of carbon during or after management from fire combustion and brash decomposition, but this is counteracted by increased carbon uptake later on. For burning this also includes charcoal and ash fertilisation aspects. Management also supports biodiversity and maintains higher water tables in the longer term compared to unmanaged heather.

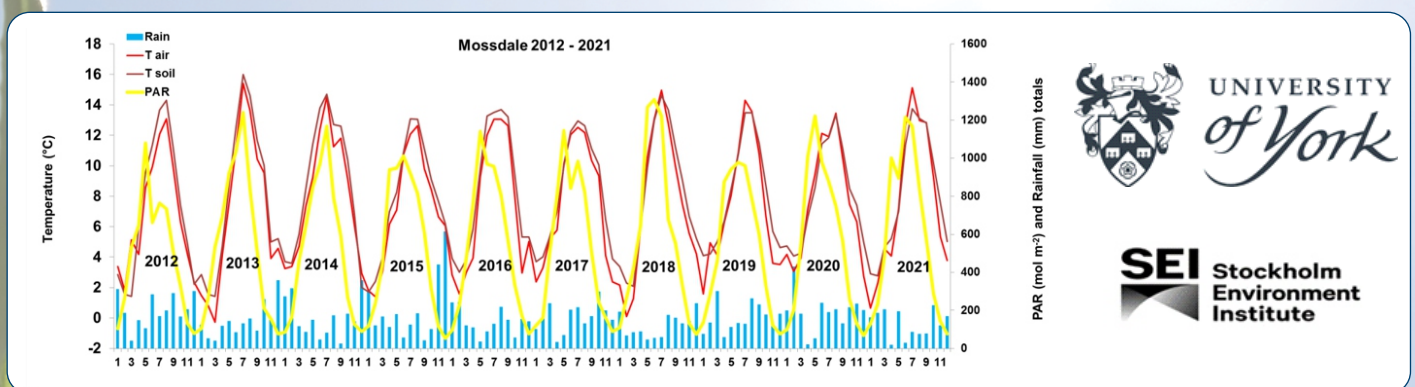
Wider Implications

The 10-year report (see [SEI.org](#)) indicated that cutting and controlled burning should both be considered alongside unmanaged heather areas, and practitioners should have all three methods available to choose from depending on site conditions (e.g. wetness). Wet sites (those with a water table of 12 cm below the surface or less) potentially benefit from prescribed burning, but drier sites likely benefit from cutting, as this keeps the peat wetter over the first years. Active management also very likely reduces the risk of dangerous wildfires. Many previous findings reporting negative findings were short-term, did not capture recovery or long-term trajectories, and no other study included a

'Before versus After' management comparison allowing a 'like with like' comparison. This project continues and aims to cover one complete heather management cycle of approximately 20 years.



The below graph shows the monthly time series for total rainfall (Rain), mean air and soil temperatures (T_{air} & T_{soil}, respectively) and total of photosynthetic active radiation (PAR) over the 12 years for the Mossdale (wettest) site.



Acknowledgements and Contacts

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