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# The Hidden Half: Linking microbial communities to habitat condition and vegetation management in UK blanket bogs

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Peatlands are globally valued for the ecosystem services they deliver, including water quality regulation and carbon sequestration. In the UK, blanket bogs are the main peatland habitat and previous work has linked blanket bog management, especially rotational burning of heather vegetation on grousemoors, to impacts on these ecosystem services. However, we still lack a mechanistic, process-level understanding of how peatland management and habitat status is linked to ecosystem service provision, which is mostly driven by soil microbial processes.

Here we examine bacterial and fungal communities across a spectrum of “intact” to degraded UK blanket bogs and under different vegetation management strategies. Sites included grousemoors under burnt and alternative mown or uncut management along with further locations including 'near intact', degraded and restored sites across a UK climatic gradient ranging from Exmoor (South UK), the Peak District (Mid) to the Flow Country (North). Moreover, an experiment was setup at the University of York with peat mesocosms taken from all sites and management/habitat conditions to allow a comparison between field and controlled conditions and assessing root-mediated processes. Using a structural equation model, we linked grousemoor management to specific fungal/bacterial functional groups, and have started to relate this to changes in water quality provision and carbon cycle aspects. This represents a significant step in the effort to use microbial communities as indicators of peatland habitat condition in UK upland blanket bogs.