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Trajectories of water table recovery following the re-vegetation of bare peat

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The hydrological status of blanket peat influences a wide range of peatland functions, such as runoff generation, water quality, vegetation distribution, and rates of carbon sequestration. The UK supports 15% of the world's blanket peat cover, but much of this vital resource is significantly degraded, impacted by industrial pollution, overgrazing, wildfire, and climatic shifts. These pressures have produced a unique landscape characterised by severe gully erosion and extensive areas of bare peat. This in turn has led water tables to become substantially drawn down, impacting peatland function and limiting the resilience of these landscapes to future changes in climate.

The restoration of eroding UK peatlands is a major conservation concern, and landscape-scale interventions through the re-vegetation of bare peat is becoming increasingly extensive in areas of upland Britain. Water table is the primary physical parameter considered in the monitoring of many peatland restoration projects, and there is a wealth of data on individual monitoring programmes which indicates that re-vegetation significantly raises water tables.

This paper draws on data from multiple restoration projects carried out by the Moors for the Future Partnership in the Southern Pennines, UK, covering a range of stages in the erosion-restoration continuum, to assess the trajectories of water table recovery following re-vegetation. This will allow us to generate projections of future water table recovery, which will be of benefit to land managers and conservation organisations to inform future restoration initiatives.