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Can carbon offsetting pay for upland ecological restoration?

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Upland peat soils represent a large terrestrial carbon store and as such have the potential to be either an ongoing net sink of carbon or a significant net source of carbon. In the UK many upland peats are managed for a range of purposes but these purposes have rarely included carbon stewardship. However, there is now an opportunity to consider whether management practices could be altered to enhance storage of carbon in upland peats. Further, there are now voluntary and regulated carbon trading schemes operational throughout Europe that mean stored carbon, if verified, could have an economic and tradeable value. This project has developed a model for calculating carbon fluxes from peat soils that covers all carbon uptake and release pathways. The model has been developed so that the impact of common management options within UK upland peats can be considered. The model was run for a decade from 1997-2006 and applied to an area of 550 km2 of upland peat soils in the Peak District. The study estimates that the region is presently a net sink of –62 Ktonnes CO2 equivalent at an average export of – 136 tonnes CO2 equivalent/km2/yr.. If management interventions were targeted across the area the total sink could increase to –160 Ktonnes CO2/yr at an average export of– 219 tonnes CO2 equivalent/km2/yr. This study can show that carbon offsetting from peatland restoration could result in financial profit. However, it shows that this would only occur in a limited range of highly damaged areas where revegetation was possible and that some restoration could result in enhanced greenhouse gas emissions.