

**An assessment of long-wall mining subsidence on internationally important floodplain meadows: I. Plant communities and their response to increase in wetness<sup>1</sup>**

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**Abstract:** The floodplain meadows of the River Derwent are of international importance and designated as a Special Area of Conservation for their floristic composition and a Special Protection Area for the over wintering and breeding wetland bird assemblages they support. The meadows of the Lower Derwent Valley are of particular importance as they have the most extensive *Alopecurus pratensis* – *Sanguisorba officinalis* (MG4) type of mesotrophic grassland in the UK and one of the most extensive of the type in Europe. The maintenance of their conservation status is dependent on the degree and duration of waterlogging events. Long-wall mining induced subsidence differentially lowers the ground surface and is known to alter hydrological regime of the floodplain and its floristics. This first paper defines the plant communities present, including MG4, their susceptibility and response to increases in wetness using both experimental and observational techniques with the aim of informing assessments of the impact of long-wall mining.

Additional Key Words: MG4 grassland, inundation grasslands, Lower Derwent Valley

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