



## **Soil piping and woody plants in peats: cause or effect**

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Soil piping is common in many soils and particularly in peats. This paper presents for the first time, evidence to show that *Calluna* species are one causative factor of piping in blanket peat catchments. Ground penetrating radar survey on 960 plots illustrated that piping was prevalent throughout blanket peats. However, soil pipe occurrence was significantly higher where bare peat (149 pipes per km) or *Calluna* (87 pipes per km) were present compared to other species (67 pipes per km). A case study catchment where there was an altitudinal limit to *Calluna* provided some control over potential factors that may lead to an association between piping and *Calluna*. Under the controlled conditions of topographic index, peat depth and water table, piping was greater under the *Calluna*-covered peat than under other vegetation covers. Laboratory experiments demonstrated that 10 years worth of rainfall was enough to almost double the proportion of macropore flow occurring in recently colonised *Calluna* peatlands. This suggests that given enough water and time, the woody *Calluna* plants result in water being preferentially channelled through the upper peat. Improvements are therefore required in our understanding of the relationships between peatland plant nutrient and water supply, and the feedbacks between ecosystem functioning and landform development. These results are also important given the propensity to encourage *Calluna* growth for game bird enhancement in many northern peatlands.