The Flow Country peatlands of Scotland

FOREWORD

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In the far north of Scotland, a vast and varied expanse of blanket peatland (Figure 1) extends across an area of 4,000 km^2 within the historic counties of Caithness and Sutherland, from the foot of the mountains in the west to the coast in the east. It is the largest expanse of blanket mire in Europe (Lindsay *et al*. 1988) and the largest single terrestrial carbon store in the UK (Chapman *et al*. 2009). It is known as the Flow Country. The Flow Country has high conservation value, being of particular importance for its suite of breeding birds which includes the Common Scoter (*Melanitta nigra*), Greenshank (*Tringa nebularia*), Dunlin (*Calidris alpina*), Golden Plover (*Pluvialis apricaria*) and Hen Harrier (*Circus cyaneus*), and a refuge for many species normally found closer to the Arctic (Lindsay *et al.* 1988). The nature conservation importance of this area is reflected in the designation of over 1,300 km^2 as Natura 2000 sites under the European Habitats and Birds Directives, including the largest terrestrial Special Area of Conservation (SAC) in the UK, and the current consideration of the Flow Country for World Heritage Site status.

Figure 1. Areas of open water, known as ‘dubh lochans’ (meaning ‘black pools’ in the Gaelic language), are common features of the Flow Country peatlands. Photo: © Roxane Andersen.

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Although some areas are in good condition compared to many UK peatlands, the Flow Country still bears the imprint of thousands of years of human influence. Peat cutting, drainage, burning, grazing and afforestation have all taken place and affected the peatlands. More recently, wind farm developments have replaced some of the forestry plantations, and a peatland site within the Flow Country 'protected area' has been highlighted as the potential location of a satellite launch pad. Climate change is likely to further impact on peatland hydrology through altered precipitation and potentially increased evapo-transpiration, adding further uncertainty to our ability to predict future peatland processes. Understanding how often-competing land uses can co-exist, the true costs of compromises, and how to anticipate and mitigate the impacts of changes in environmental conditions and climate requires a holistic understanding of peatland function.

Despite its size and importance, the Flow Country was under-studied and poorly represented in the scientific literature for many years, largely as a consequence of its remoteness and inaccessibility. In an attempt to redress the balance, a network of researchers and stakeholders gathered together under the umbrella of the 'Flow Country Research Hub' in 2012. By promoting co-ordinated, collaborative research and focusing resources on key sites, the network aspires to deliver the underpinning evidence that is needed to improve our understanding of how blanket bog landscapes have changed over time under different pressures and how they are likely to respond to future changes in land use and climate. In doing so, the Hub contributes to achieving Scotland's vision "to see peatlands valued much more highly and prized for their many benefits […] supported by evidence and research" (SNH 2015). This special volume of *Mires and Peat* will present some of the research evidence gathered within the Hub for the first time.

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