

The Flow Country Peatlands of Scotland

A volume dedicated to the memory of Dr Richard John Payne, 14 September 1978 – 26 May 2019

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 km² 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 km² 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.

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 evapotranspiration, 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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Submitted 01 Oct 2018, updated 19 Aug 2019
Editor: Olivia Bragg

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Figure 2. The remaining authors have been deeply saddened by the tragic death of our close friend and colleague Richard J. Payne during the currency of this volume, which will now be dedicated to his memory. Richard’s research interests spanned peatlands, volcanoes and nitrogen deposition and he was a central collaborator in the Flow Country Research Hub from its inception. His group’s three contributions to the volume reflect some of his excellence in combining disciplines in sometimes unexpected ways, and in rapidly converting ideas into projects and publications. However, we remember him especially as a real team player who genuinely cared about making a difference for peatlands through research and training of aspiring young researchers. Here he is captured in gentler pursuit of his other passion - for mountaineering - in the English Peak District. Photo: Derek Littlewood, September 2008.



Appendix

Richard Payne's contributions to *Mires and Peat*

The Flow Country Research Hub have dedicated this volume of *Mires and Peat* to the memory of Richard Payne who was a co-author of the Foreword and other contents of the volume, a key player in recent Flow Country research and a dear friend to principal collaborators. Richard's untimely death in the accident that befell eight members of the British-led Nanda Devi East expedition to the Himalayas on 26 May this year was a shocking blow not only for family, friends and the mountaineering community but also for Richard's many contacts in peatland research both in the UK and around the world. Over the last decade he made significant contributions to the development of *Mires and Peat* which cannot be allowed to pass without mention, and I attempt to put those on record here.

Richard introduced himself to *Mires and Peat* on 08 September 2008 by submitting a manuscript arising from his PhD research on *Peatlands, Volcanoes and Climate* in Alaska and Scotland. I recall the approach he had adopted was challenged by a reviewer, but Richard defended his work robustly and the article was published after only a short delay. The following year (disconcertingly, on 26 May 2009) he became our first totally spontaneous volunteer for the editorial team, explaining that he believed the journal was much needed and would not like to see the initiative abandoned for want of editorial capacity. He came with degrees from the universities of Southampton, Lancaster and London and about three years' postdoctoral experience mostly based at the University of Manchester but partly spent studying testate amoebae in Greece, Israel and Lebanon. When it turned out that there wasn't much for him to do on the journal initially, because the submission rate had slowed down after a surge created by the first (experimental) special volume, he decided to organise another one themed on a Mediterranean peatland system and obtained funding to revisit the Middle East to get it going. Submissions started arriving in late 2010, Richard edited most of them, and the volume opened a year later. This (Volume 9) turned out to be pivotal in establishing the pattern of alternating standard and special volumes that would eventually enable *Mires and Peat* to attain the minimum publication rate required for the journal to have an Impact Factor. Overall, in the five years 2010 to 2014 inclusive, ten of the articles we published across five volumes bore Richard's name as editor or co-editor and (of course) he handled other manuscripts that were eventually declined and additionally undertook some reviewing.



Figure A1. Richard Payne in Torridon (north-west Scotland), August 2013. Photo: Chris Sangwin.

Ironically, it was the 'special volumes' series that also ended this phase of Richard's involvement. The submissions for Volume 13 included several on totally new topics for all three of the regular editors, so everybody had to take at least one that was of lesser personal interest. Richard was resourceful in locating the most appropriate reviewers nonetheless, but when the author stopped responding at revision stage his enthusiasm waned uncharacteristically. There was perhaps an element of 'post-doc. fatigue' – he must by then have been one for about seven years and be wondering when he would finally get a 'proper job' and whether the energy he focused on *Mires and Peat* might be better directed towards securing that. We discussed and agreed he would revert to being an ordinary member of the Editorial Board, but still manage specific manuscripts in his own research field occasionally. He got the job in 2015 (can't remember how I heard but do remember feeling delighted for him) and I guessed he would need unencumbered time to establish himself as a university lecturer in York, so didn't ask him to edit again until 2017 when he returned to the role almost as if he had never been away.

The editing relationship with 'spontaneous volunteers by email' can be a somewhat surreal slow-motion business, involving working together closely on third-party material in spurts with long gaps in between. Of course that is the way a free open-access journal has to work – it may be intense at the centre but should always fit comfortably alongside real life for a volunteer helper. It does not automatically

provide opportunities to meet in person. I did manage to identify and briefly meet Richard face-to-face in the yard outside Durham Castle to which the 2010 IUCN UK Peatland Programme conference dinner was evacuated owing to a fire alert; and thereafter occasionally spotted him, usually busy in the distance, at other conferences. From time to time he moved apparently seamlessly between bases. Soon after joining us it was ‘just along the road’ to Manchester Metropolitan University and in November 2012 there was mention of an imminent transfer to Stirling appended to a piece he had written to encourage submissions to *Mires and Peat* from members of the British Ecological Society. Latterly his emails listed dual affiliations, to one of his UK universities and Penza State University in Russia. Of course these were small clues to the development of an immensely promising research career, for which he would be required to publish in established discipline-focused commercial journals. Yet he still managed to contribute often-read articles to our journal biennially; at first co-authoring with his PhD supervisor, then writing alone or with a collaborator and latterly with his students. In 2016 he couldn’t deal with proofs because he received them whilst passing through Istanbul en route to fieldwork in the land of mires and volcanoes that is Kamchatka. His ‘peatniks’ blog at <https://peatniks.wordpress.com/> helps to explain how some of these snippets arose, how they fitted into the plan and something of Richard’s boundless energy and research aspirations, alongside which he still maintained a commitment to *Mires and Peat*.

I probably saw more of Richard in the last autumn of his life than during the whole of our previous association. When the (by then more numerous) *Mires and Peat* editors met officially for the first time in Leeds on 11 October 2018 he came over from York for the day. Then later in the month we both attended the conference in the Flow Country that this volume was timed to coincide with. There Richard was as busy as ever, staying in a cottage out of town with his students and multi-tasking between conference participation and supervising ongoing projects. I have a lasting image of him pedalling away from Thurso Cinema on a folding bicycle one lunchtime, presumably to fit in an essential errand heedless of the buffeting Caithness wind. We found ourselves face-to-face again once during that trip, on the bog at Munsary on 02 November. We almost managed a conversation but there was too much else going on to allow such distraction for long. My next enquiry about Richard’s availability for editing (04 May 2019) triggered an autoreply saying he was taking a sabbatical term and would be in India and China

without email during the period 09 May to 11 June. But he still took the trouble also to reply in person, suggesting I should try again in a couple of months.

News of the avalanche and missing climbers on Peak 6477 arrived before the first of those months was up. Richard’s full life ended abruptly in one of the wildest and remotest places on Earth, bathed in sunshine under a vast blue sky and so close to that unscaled summit. He probably wasn’t even halfway to the pinnacle of his academic career and we’ll never know exactly what it would have looked like. But he was on the way and leaves, around the unfillable gap, a valuable legacy of knowledge and next-generation expertise in peatland research of which just a sliver is woven into the fabric of *Mires and Peat*. His diverse authored contributions to the journal (7,242 downloads in total at 10 August 2019) are listed below.

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16 August 2019