

Peatlands In Balance: a Taster of the 14th International Peat Congress

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FOREWORD

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The International Peat Congress (IPC), held every four years, is always a mecca for peatland and peat businesses, managers, scientists, students and the curious. The 14th IPC in Stockholm (3–8 June 2012) lived up to the high standards set in previous years, with over 600 participants from 33 countries. 440 abstracts of oral and poster presentations were submitted within the 10 major and 28 subsidiary themes of the meeting. Following the review process, 337 were ultimately presented at the Congress. Abstracts (~1500 words) were published beforehand and provided to participants at registration. The standard of presentations was high, and a number of the highest quality contributions were chosen for publication in a special issue of *Mires and Peat*.

The purpose of this volume is not only to illustrate the range of research shared with the international peatland community at IPCs, but also to test the possibility of making the ‘higher level’ publication of suitable presentations a regular feature of future Congresses. This is a new and exciting departure for both for the International Peat Society and *Mires and Peat*, and has involved authors extending and adding new material to their IPC presentations to make original papers that are scientifically acceptable to a discerning international audience (i.e. fully peer reviewed).

The selection of papers covers a wide range of topics, from subsidence and greenhouse gas emissions in tropical and temperate peatlands; through restoration rewetting and carbon mitigation, peatland forestry management and the role of peatlands as sinks for nitrogen pollution; to the use of humic acids from peat in a UV-protective lipstick.

Wilson *et al.* show that rewetting of drained industrial peatlands may reduce greenhouse gas emissions and promote recolonisation of peat-forming plant species. In terms of global

warming potential (GWP) the microsites studied had either a cooling effect (*Eriophorum*), a near neutral effect (*Juncus-Sphagnum*, *Sphagnum*) or a warming effect (bare peat) on the climate.

In Finland, ditch network maintenance (DNM) is carried out annually on 60–70,000 hectares of drained peatland to promote tree growth for forestry purposes. **Sarkkola *et al.*** show that the evapotranspiration of mature peatland forests dominates the site water balance on drained peatlands during the growing season and DNM is not needed to sustain satisfactory conditions for tree growth in highly stocked stands.

Klößing *et al.* describe a novel use of humic acids from peat as ingredients for a UV-protective lipstick, which is being developed to minimise and even prevent recurrences of UV-induced herpes.

Urbanova *et al.* measured carbon gas exchange during wet and dry years in pristine, drained and restored mountain bogs in the Czech Republic. They found that CH₄ emissions decreased in the order pristine>restored>drained sites.

The role of different types of peatland in the UK as sinks of nitrogen pollution and the magnitude of nitrate leachates from them is evaluated by **Field *et al.***, who found that upland heaths with a microbially active *Calluna* litter layer leach less nitrogen than *Sphagnum*-rich ombrotrophic bogs.

Long term (up to 23 years’) subsidence and CO₂ emissions in a tropical peatland in Thailand are described by **Nagano *et al.*** They used a model that treats the position of the water table as a proxy for estimating CO₂ efflux resulting from substrate respiration.

The reader is invited to judge the interest, importance and relevance of this selection of articles from the numerous presentations made at IPC14 in Stockholm. The editors of the Special Volume hope that this small experiment will lead, in the future, to publication of larger numbers of the high quality original presentations made at International Peat Congresses in the fully peer reviewed international scientific format of *Mires and Peat*.

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