

PEATLAND RESTORATION FOR ECOSYSTEM SERVICES – THE IUCN UK
COMMISSION OF INQUIRY ON PEATLANDS

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SUMMARY

Peatlands provide vital ecosystem services to society, globally, nationally and locally. The IUCN UK Commission of Inquiry on Peatlands has brought together over 300 contributors from over 50 organisations drawing on a wide range of expertise from science, policy and practice. It comes at a crucial time, with high level strategic decisions being made at a national and international level on climate change, biodiversity, water and agriculture, which will impact on the way we manage our peatlands and how we pay to keep them in a healthy state. The Inquiry's findings clearly demonstrate the value of healthy peatlands to society, the damage which has been done to them, and the huge liability of doing nothing to repair this damage.

KEYWORDS: Peatland ecosystem services, biodiversity, conservation, climate change adaptation and mitigation

INTRODUCTION

Peatlands provide vitally important natural capital. While covering only 3% of the global land surface, peatlands store 30% of all soil carbon, more than twice that of the world's forest biomass. Peatlands support important wildlife habitats, collect and supply much of our drinking water, contribute to flood alleviation and provide living archives of archaeological and environmental information. In addition, they offer breathing spaces and a sense of place for millions of people.

The special importance of peatlands to society, particularly in relation to climate change mitigation and adaptation has been highlighted by the United Nations Environment Programme and international commitments. A loss of just 1.6% of global peat would equate to the total global annual anthropogenic greenhouse gas emissions. With many peatlands damaged from land use and land use change, urgent steps are needed to ensure sustainable peatland management. Peatland restoration is among the most cost-effective options for climate change mitigation and adaptation.

MATERIAL & METHODS

The IUCN UK Commission of Inquiry on Peatlands (Bain *et al.* 2011) brought together over 300 contributors from over 50 organisations from science, practice and policy. The process was inclusive, open and transparent and assessed the state of UK peatlands, the impact of different activities on peatlands and highlighted best practice and successful cross-sector partnership working for restoration. A wide range of sectors engaged in the production of scientific reviews and responded to an open consultation process (for all documents see www.iucn-uk-peatlandprogramme.org). The Inquiry process was supported by discussions at the two IUCN UK Peatland Programme conferences along with contributions of written and oral evidence from the Open Inquiry event. Land management organisations have been closely involved in the Inquiry, and opportunities were given to those with practical peatland management experience to input to the findings, which in itself has helped to foster joint action for peatland conservation and restoration.

Opportunities for action are identified with regards to policy, funding and coordination of restoration action.

RESULTS

Peatlands are found in at least 175 countries - from the tropics to the poles – and cover around 4 million km² or 3% of the world's land area (Parish *et al.* 2008). The UK is amongst the top ten nations of the world in terms of its total peatland area. The UK has between 9-15% of Europe's peatland area and about 13% of the world's blanket bog – one of the world's rarest habitats. The assessment focused on blanket bog and raised bog peatlands as they represent over 95% of all UK peatland habitat and offer an opportunity to make early and substantial progress in delivering a combination of economic, social and biodiversity gains.

The international importance of the peatlands found in the UK give it an especial responsibility for their management and conservation. The main findings of the Commission of Inquiry can be summarised for the UK:

- 1) **Peatlands are vitally important in the global carbon cycle and UK greenhouse gas budgets.** They represent the single most important terrestrial carbon store in the UK. Blanket and raised bog peatlands cover around 23,000 km² or 9.5% of the UK

land area, with current estimates indicating they store at least 3.2 billion tonnes of carbon. A loss of only 5% of UK peatland carbon would equate to the total annual UK anthropogenic greenhouse gas emissions. Healthy peat bogs have a net long-term ‘cooling’ effect on the climate.

- 2) **Peatlands include the largest remaining semi-natural habitats in the UK.** UK peatland habitats host nationally and internationally important biodiversity. Many of the typical peatland species, however, are showing marked population declines. The best available evidence suggests that less than 20% of the UK’s peatlands are undamaged. The remaining peatlands are eroded, modified or destroyed through extraction or conversion to other land uses. Even the best protected sites (under EU wildlife legislation) have suffered, with less than 50% in a favourable condition. However, much of the damage could still be reversed. British Overseas Territories also support large areas of peatlands, particularly in the Falkland Islands, with estimates of over 5,470 km² of deep blanket peat.
- 3) **Peatlands are important for drinking water.** In the UK, 70% of all drinking water is derived from surface water that comes predominantly from upland catchments, which are generally peat dominated. Healthy peatlands provide high-quality water that is much cheaper to treat for drinking - damaged peatlands produce higher concentrations of organic ‘brown water’ carbon, which has to be removed at high cost.
- 4) **Peatlands are national treasures.** They provide a sense of place for many communities. As waterlogged soils, peat deposits provide a rich archive of cultural and environmental change stretching back over 10,000 years. Peatlands have preserved some of the oldest and most intriguing archaeological remains including roads, tracks, houses and settlements, monuments, artefacts and bog bodies. The archive, that is peat itself, has contributed greatly to our understanding of global climate change.
- 5) **Peatlands have been identified as a priority for action under international agreements.** Global agreements such as the UN Convention on Biological Diversity (CBD), the UN Framework Convention on Climate Change (UNFCCC) and the Ramsar Convention on Wetlands include obligations and opportunities for countries to maintain and restore peatlands. These agreements highlight the need for policies and funding to better reflect the value of peatland habitats for the services they provide. At an EU level, legislation on wildlife and water also recognises the importance of peatlands. By drawing on the work of a wide range of public-body and private partnerships, the UK Government and devolved administrations have an opportunity to demonstrate good practice in peatland protection and restoration to other European countries and globally.
- 6) **Peatlands rely on water.** When drained, peatlands waste away through oxidation, adding carbon dioxide to the atmosphere – then, they are a liability. A variety of activities have resulted in peatlands being damaged including drainage for agriculture or forestry, track building and peat extraction. Fire, overgrazing, climate change and atmospheric deposition can exacerbate the effects of drainage. Lowered water tables on peat bogs encourage the growth of plant species, that do not easily form peat or

that actively degrade the existing peat stock, resulting in losses of soil carbon and emissions of carbon dioxide to the atmosphere.

- 7) **Damaged peatlands are expensive.** Damaged and degraded peatlands place a substantial financial burden on society because of increased greenhouse gas emissions, poorer water quality and loss of other ecosystem services. Damaged peatlands may also exacerbate costly flood events, when water is rapidly conveyed from peatlands through drainage ditches and erosion gullies into downstream areas.
- 8) **Peatland restoration is cost-effective.** Peatland restoration is cost-effective in reducing emissions of carbon to the atmosphere, improving water quality and conserving biodiversity. Funding for peatlands under current government schemes, particularly through the Common Agricultural Policy (CAP), can be an effective means of supporting management and restoration, but there is no doubt that more could be done through current funding instruments. Peatland restoration also presents new funding opportunities through links with business and industry, carbon markets and payments for delivery of ecosystem services within agri-environment schemes. This in turn could lead to better support for rural communities and the creation of green jobs.
- 9) **The UK has world leading expertise in peatland restoration.** The UK has world-leading examples of peatland restoration and considerable land management expertise in tackling different forms of peatland damage, with many demonstrable successes. This creates an opportunity for peatland restoration to make a positive contribution towards meeting the UK's biodiversity objectives and ambitious targets to reduce greenhouse gas emissions.
- 10) **Damaged peatlands are substantially less resilient to climate change than healthy ones.** Given rapid climate change, which is likely to impact widely and adversely on biodiversity, soils, water supply and quality, there is an even more urgent need for action to protect and restore peatlands. Available evidence suggests that a healthy peatland is a more resilient peatland in the face of environmental change. Good management and restoration therefore helps to safeguard important goods and services into the future and, at the same time, can help to meet the UK's emission-reduction targets. Not restoring peatlands will lead to increased greenhouse gas emissions from damaged peat carbon stores under a changing climate.
- 11) **Peatland natural capital is not fully represented in national accounting.** The fact that the true value of peatlands and the costs of damaging them are not reflected in the resources available to conserve them represents a clear example of market failure. The value of peatlands as a carbon store and in mitigating climate change is not yet fully taken into account in the national greenhouse gas inventory. In addition, there are monitoring gaps in relation to the state of peatlands, progress towards biodiversity objectives, delivery of ecosystem services and application of policy measures such as agri-environment schemes. Improvement in these areas would allow better accounting and reporting of progress against government objectives and international obligations.

CONCLUSIONS

The Inquiry's findings clearly demonstrate the value of healthy peatlands to society, the scale of damage, and the huge liability of doing nothing to repair this damage. The Inquiry calls for the multiple benefits of peatlands to be understood and appreciated. There should be no further loss of near-natural peatlands, and all recoverable peatlands should be restored to a peat forming state, resilient to climate change and with long-term safeguards. The four-pronged peatland strategy comprises:

- **Conserving** peatlands in good condition, through management that maintains a favourable state, and preventing further damage to healthy peatlands.
- **Restoring** partially damaged peatlands through land-use changes and active habitat management to return them to a peat forming state with typical peatland vegetation and animal species (including blocking drainage ditches, altering livestock numbers or adjusting burning management).
- **Intervening** to repair severely damaged peatlands through major operations, such as woodland removal, gully blocking and re-vegetating bare peat.
- **Communicating** the contribution peatlands make to meeting environmental, economic and social goals – critically, to help combat climate change and to halt the loss of biodiversity.

We need strong public and business policy responses to achieve this, focused on three actions:

- **Introducing a policy framework** to protect and maintain existing peatlands and ensure restoration of damaged areas.
- **Ensuring the necessary funding** is in place to protect and restore peatlands, eg. through EU agri-environment schemes and the EU Environment – LIFE+ Programme, with additional core government funding and development of business investment in ecosystem services.
- **Coordinating action** to encourage partnerships to secure an effective evidence base, with monitoring and reporting on progress, along with knowledge exchange, education and advice.

Securing the benefits we derive from peatlands requires an urgent step-change in action to redress past damage. A speedy response to protect and restore our peatlands under a changing climate is challenging – but will cost us dear if we delay.

REFERENCES

Bain, C., Bonn, A., Stoneman, R., Chapman, S., Coupar, A., Evans, M., Geary, B., Howat, M., Joosten, H., Keenleyside, C., Lindsay, R., Labadz, J., Littlewood, N., Lunt, P., Miller, C., Moxey, A., Orr, H., Reed, M.S., Smith, P., Swales, V., Thompson, D.B.A., Van de Noort, R., Wilson, J.D. & Worrall, F. (2011) *Commission of Inquiry on UK Peatlands*. IUCN UK Peatland Programme, Edinburgh. www.iucn-uk-peatlandprogramme.org

Parish, F., Sirin, A., Charman, D., Joosten, H., Minayeva, T., Silvius, M. & Stringer, L. (2008) *Assessment on Peatlands, Biodiversity and Climate Change: Main Report*. Global Environment Centre, Kuala Lumpur and Wetlands International, Wageningen.
<http://www.wetlands.org/LinkClick.aspx?fileticket=rrsz0gGwYfA%3d&tabid=56>.