

# Climate Change Mitigation & Adaptation Potential

Draft Scientific Review  
August 2010

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This is a draft scientific review, commissioned by the IUCN UK Peatland Programme's Commission of Inquiry into Peatland Restoration. The IUCN UK Peatland Programme is not responsible for the content of this review and does not necessarily endorse the views contained within.

## Summary

1. Peatlands probably represent the single most important terrestrial carbon store in the UK biosphere and store carbon equivalent to many times annual UK atmospheric emissions of CO<sub>2</sub>.
2. The greenhouse gas (GHG) budget of a peatland consists of the direct release of carbon gases (CO<sub>2</sub> and CH<sub>4</sub>) as well as mineralisation of fluvial carbon (eg. from dissolved organic carbon – DOC) and nitrous oxide (N<sub>2</sub>O). The GHG budget of a peatland is not the same as the carbon, not only because there are non-carbon greenhouse gases but also because the different components of the GHG budget have different greenhouse gas warming potentials.
3. Unlike many areas of peat soils in the northern hemisphere those of the UK have been heavily impacted by a legacy of intense management, atmospheric deposition and visitor pressure. This means that UK peats represent both a threat and an opportunity with respect to greenhouse gas emissions because correct management and restoration could lead to enhanced storage of GHG in these soils while mismanagement or neglect could lead to net sinks becoming net sources of greenhouse gases.
4. This review considers both the carbon and the GHG budgets of UK peatlands across the management spectrum from the almost pristine, low impacted peatlands to most impacted and considers the probability that a range of land uses or land use changes will bring benefit to both greenhouse gas or carbon budgets. This component of the review draws upon the more extensive review prepared by the JNCC.
5. This review assesses the potential for additional GHG storage in UK peatlands and how resilient our peatlands will be to climate change.
6. The meta-analysis from the JNCC review shows that many interventions on managed peatlands will not necessarily result in an improvement in the GHG balance of peat soils.
7. Potential capacities for additional GHG storage are considerable (in one example more than doubling present sink size) but only when well targeted and even then they may require subsidy above and beyond that which might be available from carbon offsetting or trading.

8. Peatland restoration, when appropriately targeted, can offer considerable resilience against ongoing climate change, the example used here suggests that almost 60 years of additional GHG storage could be gained by acting now.
9. At present there is no policy mechanism for claiming financial support for the additional storage of GHG from peatland restoration.