



SCOTTISHPOWER
RENEWABLES

Peatlands and Forestry

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Acknowledgements

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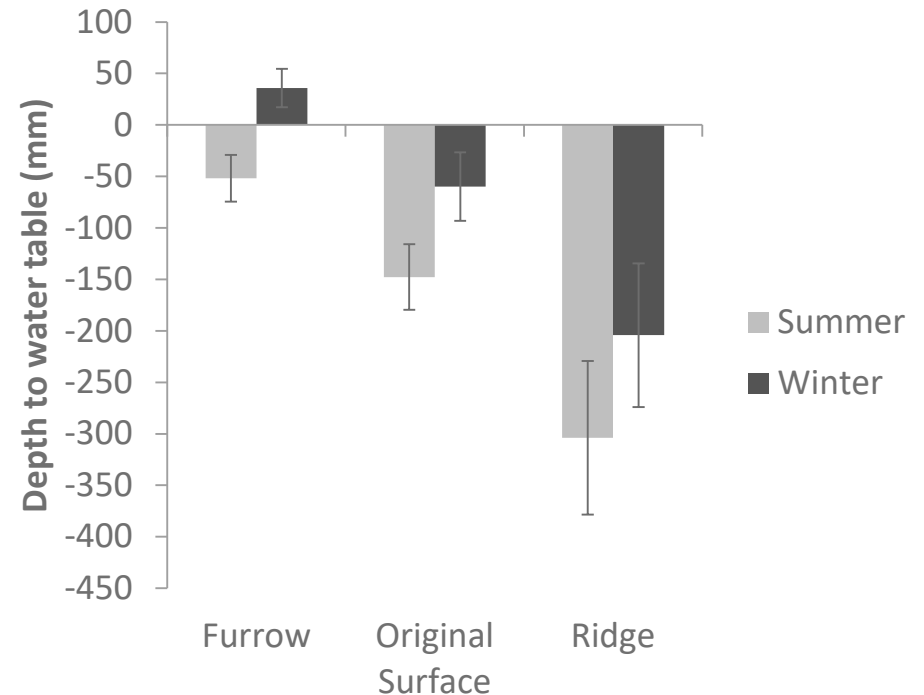
Introduction

1. 'Forestry to bog' restoration
2. Climatic implications



'Forestry to bog' restoration

- i. The challenge of restoring blanket bog from forestry requires different approaches to those generally used for open peatland restoration.
- ii. Restoration projects must reverse the impact of the ridge-furrow cultivation process which continues to persist post-felling, as well as raising the bog water table within the underlying peat mass which have been damaged by the afforestation process.



‘Forestry to bog’ restoration

- iii. Methods comprising various surface smoothing techniques, and furrow/drain blocking or a combination of both have shown good potential in restoring active blanket bog habitat. Mitigation measures to manage surface runoff (particularly water quality) from restored sites may be required, in the short-term, depending on the method used, site conditions and sensitivity of receptors.



‘Forestry to bog’ restoration

- iv. The timescale for specialist bog plants to fully re-colonise following treatment - and for bare peat to be re-colonised - is likely to be 3-10 years.



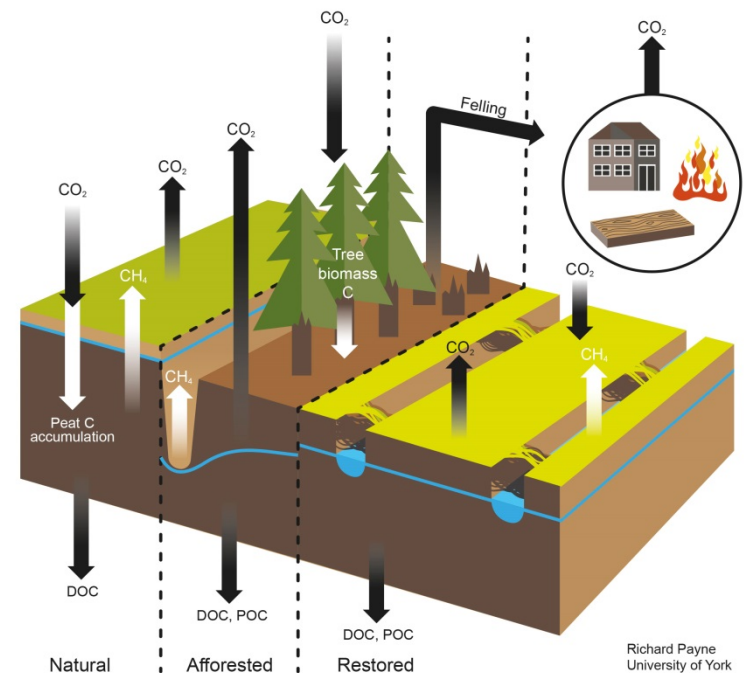
‘Forestry to bog’ restoration

- v. Conifer regeneration can be dealt with by surface smoothing methods, but otherwise must be removed by additional treatment depending on size and density.
- vi. Treatment costs for surface smoothing, once sites have been felled, can be as low as £800/ha depending on the machine specification employed and ground conditions. Costs for other restoration methods are in the order of £800 – £1500/ha.



Climatic implications

- i. The afforestation of peatland, and the subsequent options for either continued forestry or removal of forestry plantations and restoration of peatland vegetation, have significant implications for carbon cycling and hence for addressing climate change.
- ii. The main principles and processes involved have been studied in forestry and peatland ecology research. However, while there is agreement over the main processes operating, differences of opinion remain over the way these processes operate in afforested peatlands. More empirical evidence from UK forestry on peatlands is needed to understand how the carbon cycling of these systems responds to different types of restoration in different contexts.



Climatic implications

The reasons for the paucity of data and confusion surrounding interpretation were considered due to:

- iii. Forestry to bog is almost unique to UK and Ireland, and the climate differs from Fennoscandia
- iv. Following afforestation there is a loss in peat carbon and a gain in tree carbon. The net balance in <50cm peat soils is likely positive into the second rotation, but for a >50cm peat soil the net effect is unclear.
- v. Part of the confusion is the role methane plays in the carbon budget, as it is a potent GHG. Data is limited for restoration sites over time periods sufficient to draw conclusions.
- vi. In addition, the fate of harvested wood products has not been fully assessed as part of a wider Life Cycle Analysis to determine the security of carbon sequestered into timber.
- vii. - ix. Given these uncertainties, it is currently difficult to quantify the climate benefit from forest-to-bog restoration. Modelling approaches are not yet sufficiently mature to help fill evidence gaps nor provide a new category for the Peatland Code.