Forest Research

An assessment of the afforested peat land in England and opportunities for restoration

Forest Research

Peat assessment project

Forest Research is the Research Agency of the Forestry Commission and is the leading UK organisation engaged in forestry and tree related research. The Agency aims to support and enhance forestry and its role in sustainable development by providing innovative, high quality scientific research, technical support and consultancy services.

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Executive summary

Background

As set out in the Open Habitats Policy (OHP), open habitat restoration is necessary to create a balance of the right habitats and trees in the right places. We need to make balanced decisions to minimise potential negative impacts on greenhouse gas emissions, local community participation, timber supply to local processors and costs of land management.

The UK Forestry Standard requires woodland managers to consider options to extend and improve priority habitats. The Biodiversity Strategy for England aims for an increase in the overall extent of priority habitats by at least 200,000 hectares. The area of restoration of PAWS and open habitat is one of the FC Impact Indicators in the government's 2013 Forestry and Woodlands Policy Statement. Forest Enterprise England has published a strategy for Open Habitat Policy delivery on the Public Forest Estate but no strategy exists for open habitat restoration from other woodland. Of the priority open habitat proposals coming in, peatland restoration proposals present the biggest challenges, including assessing the significance of the contribution of a site to national aspirational outcomes, judging whether a site represents one of the better opportunities for restoration, agreeing among the main stakeholders where to focus restoration efforts, and establishing if sites are viable for restoration.

Project tasks

This project addressed three main tasks:

1. producing improved maps of England's peaty soils and woodlands on deep peat

2. providing maps to help prioritise sites by GIS-based implementation of the Open Habitats Policy decision criteria

3. developing a field assessment tool to assess the viability and relative merits of sites for restoration.

National mapping

Natural England produced the Peaty Soils Location Map in 2009 by combining NSRI 1:250,000 soils data with BGS 1:50,000 drift geology and its own blanket bog BAP habitat mapping. In the current project, this best available peat mapping for England, was used as a basis and improved by overlaying 1:10,000 FC soil maps, which exist in a digitised form for 29% of the Public Forest Estate, approximately 74,000 ha. Obtaining other, more detailed, local peat mapping proved more difficult than anticipated so

potential further improvements were not made. The total of 1.40 million ha of peaty soils on the improved map, is 1% less than the 1.42 million ha on the NE Peaty Soils Location Map. However this difference resulted from improved mapping over a relatively small area and a bigger difference could be expected if further improved mapping became available. The total of 680,000 ha of deep peaty soils on the improved map was only 0.4 % less than on the NE Peaty Soils Location Map. Maps for four case study areas are presented to illustrate the improvements to the mapping.

The 2012 National Forest Inventory, the best available national data on woodland location, which includes all woodlands more than 0.25 ha in extent, was overlaid on the improved peaty soils map to produce a national map of woodland on deep peat. There was a total of 51,447 ha of woodland on deep peat. Of this, 47% was on blanket bog and upland valley mire and the rest was fairly evenly distributed between raised bogs, lowland fens/reedbeds (deep) and lowland fens/reedbeds (wasted). There was an approximate 60:40 split between plantation woodland and native woodland. Woodlands not on the Public Forest Estate accounted for 58% of all woodland on deep peat. SSSIs hold 18% of all woodland on deep peat, two thirds of this in internationally designated sites (i.e. Ramsar, SPA or SAC).

Strategic prioritisation

To help with prioritisation of sites for restoration, the decision framework criteria in sections 5.2.1 (sites we may support) and 5.2.2 (sites we may not allow) of the Open Habitats Policy were, as far as possible, implemented using simple models on a GIS and maps for each criterion were produced.

'Sites we may support' criteria

Of the 51,447 ha of woodland on deep peat, 20,152 ha, if restored, would extend or buffer high quality habitat (blanket bog, lowland fen or lowland raised bog on the NE Priority Habitats layer). The same area, if restored, would contribute to connecting these high quality habitats. 20,216 ha of woodland on deep peat is on SSSIs and might potentially safeguard their open habitat interests features if restored. The relative potential of wooded deep peat sites, if restored, to form, together with adjacent open peatland, a viable patch of peatland priority habitat is shown by a colour-coded map.

'Sites we may not allow' criteria

1,105 ha of woodland on deep peat is on sites in the England Ancient Woodland Inventory so would normally be unsuitable for restoration. Of the 51,447 ha total, 19,109 ha is broadleaved woodland, presumably mostly native but it is not known how

much of it falls into the may-not-allow-restoration category 'mature native woodland'. A colour-coded map is used to show the relative significance that restoration would have in relation to the existing area of open priority peatland habitat in the locality. 3,378 ha of woodland on deep peat is likely to be under high pressure for access (i.e. within 5 km of the homes of 100,000 people) and therefore needs to have the impact on access assessed if considered for restoration. A colour-coded map was produced showing the relative isolation of individual areas of woodland on deep peat to inform the may-not-allow-restoration criterion 'isolated sites'.

For each of the Open Habitats Policy criteria that could be implemented on GIS, a binary variable field was added to the table of attributes for the woodland on deep peat data set. This allows different combinations of the criteria to be used for strategic targeting of restoration. Two different combinations of the criteria are used as examples. Target option 1 combines 'extending or buffering high quality open habitat' with 'designated areas' and the constraints 'not ancient woodland', 'not native woodland' and 'no likely access issues'. This option identifies 8,562 ha as suitable for restoration. Target option 2 combines 'extending or buffering high quality open habitat' with 'designated areas' with the constraint 'not ancient woodland'. This more inclusive option identifies 13,856 ha as suitable for restoration. Five new criteria are suggested for use in prioritising sites that neither emerge as sites where restoration 'is likely to be allowed and may be supported' nor as sites where restoration 'may not be allowed and is unlikely to be supported'.

Field assessment

A field assessment tool developed for assessing the suitability of wooded deep peat sites for restoration to open habitats in Wales was tested to see how well it worked at a range of sites in England. Some shortcomings were identified. It would be difficult to use at many sites due to there being no Forestry Commission soil map for the site. An alternative scoring for the soil type component score was devised so that Soilscape soil mapping, which is freely available, could be used in the absence of FC soil mapping. The need to deduct points for sites where the peat is severely cracked was confirmed but difficulty in detecting peat cracking on sites that are not ploughed was a problem that needs to be solved. The range of sites used for testing included some severely and long degraded sites. To get an appropriate score for such sites, a points adjustment based on presence or absence of remnant bog or mire vegetation was added to the scoring system. A method for favouring restoration in some National Character Areas and not others by adding a 'favoured NCA bonus' to the site's score is discussed.