

A Summary of ‘Native Woodland Development in the North York Moors and Howardian Hills’.



In 2002 the Forestry Commission in partnership with the North York Moors National Park, the Howardian Hills AONB, English Nature and the Royal Forestry Society commissioned George Peterken to review options for expanding and strengthening the region’s native woodland resource. Peterken’s report ‘Native Woodland Development in the North York Moors and Howardian Hills’ is available on the North York Moors National Park Authority website: <http://www.northyorkmoors.org.uk/uploads/publication/4852.pdf>

Introduction

Peterken’s report is based on the concept of Forest Habitat Networks (FHN). This recognises that the current extent of semi-natural woodland in Britain is much reduced and heavily fragmented. The remaining small and isolated fragments contain vulnerable relics of native wildlife. Restoration of an interlinked network of forest habitats makes the wildlife populations that depend on woodland habitats less isolated and more resilient. The concept has previously been applied on the landscape scale in the Cairngorms, the Middle Clyde and around Loch Sunart. Peterken’s report is the first specific landscape scale analysis of forest habitat networks in England.

The report considers forest pattern, forest management, treatment of trees outside forested land, linkage between woodland and the role of non-woodland habitat within a forest habitat network. A unified approach to native woodland development is outlined, in which recommendations and priorities for action are presented for the entire region and each of its diverse landscape elements.

The Concept of Forest Habitat Networks

The Forest Habitat Network concept recognises that Britain’s woodland resource has been heavily depleted over time. This results in the ecological isolation of forest species and has negative implications for components of biodiversity. The habitat network approach addresses this situation and considers options for the strategic expansion and reconnection of woodland.

Peterken outlines three main assumptions that underlie the concept of the forest habitat network;

1. Ecological isolation is severe and limiting for wildlife.
2. If more woodland were created and a network were to be generated, populations would expand, ranges would adjust to changing circumstances, and biodiversity would be more resilient.
3. Woodland expansion and greater species resilience is a positive development.

Existing ancient semi-natural woodlands are recognised as highly significant as they contain the range of woodland species expected to colonise and expand into a restored FHN. Many of these species are 'rare or localised, and a high proportion are poor colonists'. All ancient woods should therefore be retained and restored, and new woods created as expansions of existing woods.

Specific thresholds of woodland cover in the landscape are important in determining the ecological resilience of woodland habitat. Peterken suggests 'Ecological isolation is minimised when woodland cover exceeds 30% of the land area, edge habitats are maximised at about 50% cover, and from above 60% woods form the habitat matrix, within which other habitats take the form of nodes or islands'. Interior forest conditions only develop when 70-80% cover and above is achieved. A size threshold of 30ha is important; woodland of this size is widely considered to be the smallest within which 'all growth stages of a natural forest are likely to be maintained in non-intervention reserves'. Between about 3ha and 30ha there is an increasing probability a wood will contain permanent and transitory open space and thus an increasing structural and species diversity.

Separation between woods is also an issue. Even poor colonists may be able to cross separations of 200m if semi-natural vegetation occupies the land between, but may be unable to jump gaps of 100m if the intervening land is cultivated. Peterken suggests that the most effective links are probably associated with watercourses. Riparian woodland forms a 'complex mosaic of different woodland types on irregular terrain, within which there are far fewer internal barriers than in wooded corridors that cut across the main topographical lines'.

Peterken proposes that within the FHN, 'forest' should be a patchwork of various habitats within a generally wooded matrix. This equates to the medieval pattern of land use where forests were made up of a patchwork of wooded and open semi-natural habitats. The idea that a multi-habitat matrix be part of the FHN is especially important where the rest of the landscape is intensively farmed. In the Howardian Hills and some peripheral parts of the North York Moors, open spaces within forests represent the best or only opportunity to maintain examples of semi-natural grassland.

Quantification of Land Types and Patterns

In order to take account of the distinctive landscapes that occur across the North York Moors and Howardian Hills Peterken's analysis divides the area into six zones; these are based on geology, topography, drainage, and the pattern of woodland, farmland and land use. The landscape zones are comprised of; the moorland zone, the moorland valleys, the coastal plain and valleys, the western fringe, the southern hills and the Howardian Hills.

In order to assess landscape patterns in relation to the network thresholds outlined above, the landscape zones were quantified across the following parameters. Total forest cover, major forest types, size distribution of individual woods, origins of woods, and spatial relationships were calculated in each of the landscape zones. Of relevance for the multi-habitat FHN concept, the connectivity of woods with other semi-natural habitats was also assessed. This was very much lower in the Howardian Hills than in the North York Moors.

Ecological Issues

Peterken addresses a number of the issues that are relevant to the design and management of the forest habitat network. He suggests that the native status of tree species should be considered in terms of 'a spectrum of attributes'. The strictest definition is relevant in nature reserves and important ancient woodlands. In other situations the definition can be widened to recognise 'regionally native' species and 'site native' species. The definition can be widened further to accommodate those species introduced to the region but now naturalised and self supporting, some of which may have developed a land race genetically adapted to the region.

The same spectral approach can be applied to definitions of native woodland. Peterken provides the basis for a classification of native woodland within the North York Moors and Howardian Hills.

The age class structure of within forests and woodlands is another important consideration, as many woodland species are restricted by particular site conditions. Two specialist groups must be considered: (i) young-growth specialists and (ii) old-growth specialists. In order to maintain both groups of specialised species in a forest habitat network, stand types suitable for both groups must be provided. For individual woods or groups of woods the concept of a 'normal forest' should be applied; which requires all age classes well distributed throughout the area. Long rotation stands and minimum intervention stands should also be created.

Evaluation of Forest Pattern and Condition

For each of the six landscape zones, Peterken analysed the existing pattern of forest type and condition against the criteria outlined for a Forest Habitat Network. This concentrated analysis identified the needs and priorities that form the basis of the report's recommendations.

As a whole, forests cover over 20% of the land area. This is high by national standards but 'significantly short of the 30% threshold' so important in effectively limiting ecological isolation. Furthermore the total forest cover conceals the strongly clustered distribution of the region's woodlands.

As a result there is a need to target new woodland and specific management interventions to those districts and locations where it will be most beneficial. The degree to which forested ground can be connected is inevitably limited, e.g. by the moorland core, but the links between unwooded semi-natural habitats and forested ground are generally exceptionally good.

Developing a Forest Habitat Network in the North York Moors and Howardian Hills

The measures required to facilitate the development of a forest habitat network in the North York Moors and Howardian Hills are summarised as; creating new native woodland, diversifying homogenous plantations, managing ancient semi natural and native woodland, enhancing the quality of non-forest habitat for forest species, limiting biotic damage and developing linkage with the surrounding district.

Location specific recommendations for increasing the area of native woodland outside plantations are provided together with more general management strategies. Suggested establishment techniques include the use of both planting and natural regeneration to achieve

structural diversity and the creation of new oak parkland, especially on some moorland fringes.

The large plantations are identified as important reserves, free from the 'influence of intensive agriculture'. These areas offer the best opportunities for the restoration of Plantations on Ancient Woodland Sites (PAWS) to native woodland, and the expansion of native stands in secondary plantations. Old growth stands could be developed in the interior of large forest blocks as could a range of stand structures within a block of managed forest.

The restoration of PAWS is particularly important because a considerable proportion of ancient woodland is under plantations, many of which are approaching the end of rotation and these woodlands form part of an ecologically rich and diverse area.

The priorities for PAWS restoration focus on substantial restoration in the Southern Hills and the consolidation of large blocks of native woodland combined with limited native retentions scattered through the remaining areas. In the Howardian Hills the most advantageous pattern would concentrate native habitats in riparian zones passing through both woodland and farmland as part of multi-habitat networks. Elsewhere the more important groups of ancient woods should form the focus for restoration, for example the riparian concentrations in the Esk valley.

Enhancing the effectiveness of the forest habitat network can also be achieved through treatment of the non-forest habitats. Creating conditions with opportunities for forest species creates larger more resilient populations. Measures to improve matrix quality in this way include maintaining wood pasture, maintaining pastured woodland on moorland fringes, renewing the succession of farmland trees and developing wood meadow structures.

Both deer and squirrel control is highlighted as essential if woodland conditions are to be maintained favourably. The need to develop linkages with areas outside the North York Moors and Howardian Hills is also important. These measures underpin the ten main priorities of the report.

Priorities for action

The report identifies ten priorities as both important and practical directions for native woodland development in the region;

1. Link new woodland with existing woods.
2. Diversify moorland fringes and marginal sheep pasture through tree planting.
3. Restore plantations on ancient woodland sites to native woodland.
4. Develop riparian multi-habitat corridors in and between woodlands.
5. Develop and manage open space habitats within large woods and plantations.
6. Control Rhododendron infestations.
7. Manage ancient woods to produce a wider variety of forest structures.
8. Restore and regenerate woodland pasture.
9. Control deer populations at levels that allow natural regeneration.
10. Link forest habitats within the North York Moors and Howardian Hills with habitat restoration on the Rye-Derwent floodplain.

These actions provide a basis for prioritising the planning and development of the region's native woodland resources.