

English Nature Research Report 528

The implications of climate change for the conservation of beech woodlands and associated flora in the UK

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Introduction

The next fifty years may see marked changes to our climate that may affect the distribution of our native wildlife. Outputs from the MONARCH project suggested that conditions for beech *Fagus sylvatica* may become increasingly marginal in south-east England. Beech is a dominant tree in a woodland type for which protected sites have been identified; so what might be the implications for future conservation approaches of a decline in the abundance of beech?

What was done

Beech woodland is more than just the beech trees. Ground flora lists associated with beech woodland types were prepared from the National Vegetation Classification (types W12, 14, 15). These were then compared with the county floras for two counties in the current beech zone (Kent and Oxfordshire (Chilterns)) and two where beech is currently considered not to be native (Derbyshire and Cumbria). The results should suggest whether there was the potential to 're-assemble' a beech flora in the north-west under future climate conditions.

A limited field survey of six beech woods in the Chilterns and in Cumbria was carried out to explore the degree of similarity in composition between woods within and outwith the native zone that already exists.

Twenty experts in the forestry and conservation field completed a questionnaire on issues related to the present and future treatment of beech woodland, both inside and outside its current deemed 'native range'.

Results and conclusions

Most of the species associated with beech woodland (based on the NVC lists) already occur in the north-western counties: species migration at the regional scale is not an issue in terms of the impact of climate change on beech woodland floras, except for a small number of rare species.

The field survey was limited in extent, but broadly confirmed the findings from the study of the regional species pools. There was a clear division into acid and base-rich beech woodland in Cumbria, as in the Chilterns, although in Cumbria the more base-poor geology and higher rainfall lead to higher occurrences of species such as *Oxalis acetosella* and *Deschampsia flexuosa*. The woods differed in structure, because the Chilterns stands were older, whereas the Cumbria stands were mainly young plantations.

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The expert survey suggested that there was a growing consensus at a national level that there would need to be a shift in conservation policies and practice to take account of climate change. However this is not always reflected at local levels yet.

There is a need to consider whether beech woodland in the north and west should be being maintained (and not cut back) as potential future natural stands under the future changed climate.

The nature of beech woodland in the north and west in future will not be an exact copy of that that currently exists in the south-east. Classification and descriptive tools such as the National Vegetation Classification may need to be revised to cope with these changes.

Table 1. Results from the beech woodland habitat consultation showing the number of responses (of 20 total) towards future beechwood conservation, where 1=strongly agree, 2=agree, 3=neither agree nor disagree, 4=disagree, 5=strongly disagree. The highest score for each question is in **bold**.

Statement	1	2	3	4	5
We should strive to maintain beech woodlands in areas of current conservation focus in southeast England (Kent, Chilterns)	6	4	4	4	2
The existence of beech in the north of England is undesirable because it is considered to be non-native to that area			3	10	7
The current conception of the beech's native range will hinder efforts to conserve this habitat type in future	3	12	4	1	
Beech woodland should be actively encouraged as a future natural woodland type in Cumbria and the Peak District	1	8	8	2	

English Nature's viewpoint

English Nature accepts that climate change in the next 50-100 years means that we must review our conservation policies and practice. The issue of beech woodland conservation beyond its current native range provides a good example of what may be involved. In some cases reversal of past recommendations will be needed.

Selected references

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Further information

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