ENGLISH NATURE

Research information note

English Nature Research Report 530

What might a British forest-landscape driven by large herbivores look like?

Report Authors : K J Kirby 2003

Keywords: large herbivores, wildwood, natural forest, model, UK

Introduction

The general accepted view of the natural forests that once covered much of Britain has been of largely closed-canopy woodland, with many mature trees: regeneration was in gaps created by the death or destruction of small groups of trees, or occasional catastrophic blowdowns. An alternative view has recently been promoted in which large herbivores such as aurochs grazed open areas that eventually went through scrub and woodland phases before breaking down to form open areas again. There is evidence for and against both views, but if the herbivore-model did apply to parts of Britain what sort of landscape structure would it have produced?

What was done

A simple model was developed based on the principles set out in Frans Vera's book *Grazing Ecology and Forest History*. Assumptions were made about the likely length of time that different parts of the cycle might need and these were applied to 1 ha cells in a 5 x 5 km model landscape. Changes over time were then applied to these cells.

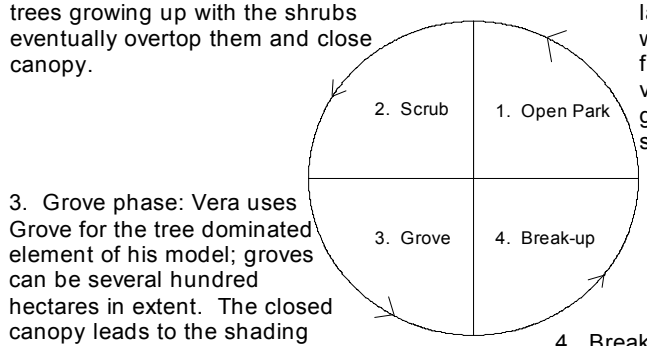
Results and conclusions

Different assumptions produce different combinations of open space and closed woodland, all of which are compatible with Frans Vera's cyclical change of vegetation driven by large herbivores. This includes a predominantly woodland landscape (50% closed woodland, 10% as stands that are breaking down, 15% scrub and only 25% as real open space. Continuity of both open conditions and old trees over time and space are maintained in this landscape over time, with an intimate mix of habitats at the scale of a few hundred metres.

A relatively closed landscape seems to be more consistent with the pollen and fossil beetle remains than a more open savannah (50% open park-like landscape) suggested by Frans Vera.

continued >>>

Figure 1. Vera's four stage cycle



English Nature's viewpoint

The results do not prove or disprove the Vera hypothesis as such: different outcomes are possible depending on the assumptions fed into the model. However they do show that it cannot be assumed that the landscape was very open even if large herbivore effects have been underestimated.

In practice it seems likely that overall Britain was a mixture of areas where small-scale gap-dynamics determined regeneration patterns, some areas where large herbivores were the dominant driver and other areas which might have been permanently open.

Further research has been commissioned to explore the historical evidence in more detail and to look at what is the potential for applying naturalistic grazing systems to modern landscapes for conservation.

Selected references

ANON. 2002. *Grazing and grazing animals.* Vakblad Natuurbeheer Special issue. May 2000.

KIRBY, K.J. In press. *What might a natural wooded-landscape look like?* Forestry.

PETERKEN, G.F. 1996. *Natural woodland.* Cambridge: Cambridge University Press.

RACKHAM, O. 2003. *Ancient woodland* (revised edition). Dalbeattie: Castlepoint Press.

VERA, F.W.M. 2000. *Grazing ecology and forest history*. Wallingford: CABI publishing.

Further information

For the full report or other publications on this subject, please contact the Enquiry Service on 01733 455100/101/102 or email enquiries@english-nature.org.uk

For further information about the work of English Nature, please visit our website at: www.english-nature.org.uk