FOREST RESTORATION IN A NATIONAL PARK: MODELLING SUITABILITY OF NATIVE WOODLAND USING GIS AND SPATIAL DATA

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EXTENDED ABSTRACT

The need to restore and enhance rare and threatened habitats has been recognised within the European Union under the EU Habitats and Species Directive. The United Kingdom has responded through the UK Biodiversity Action Plan (BAP) that lists 59 actions to be taken, among them to continue to protect ancient semi-natural woodlands and to encourage a steady expansion of woodland and forest cover. There is now an increasing interest and commitment to safeguard and expand the native woodland resource in Britain for landscape and natural heritage value and its restoration is a conservation priority.

Unfortunately very little is known about the potential distribution and extent of different woodland types to guide native woodland expansion at regional and local levels. Here we developed a site suitability model that predicts and maps the distribution of existing National Vegetation Classification (NVC) woodland sub-communities and communities for current environmental conditions using a Geographical Information System (GIS) as a tool. The NVC is currently the main classification system used by the statutory and voluntary conservation organisations to describe British woodland. The Snowdonia National Park in Wales, UK, was used as a pilot area for developing and testing the methodology, but it could be used in any analysis modelling native woodland potential at a regional or large-district scale.

The approach taken was to define the environmental spaces occupied by the fragments of NVC woodland types currently present in the National Park. The environmental spaces were then used as a template to produce maps of similar, potentially suitable sites for the occurrence of each NVC type. The results were not as clear-cut as had been hoped because of overlaps in the predicted occurrences of various woodland types. Independent verification of the predictions using non-spatial data revealed that the model produced was very poor. This was not, however, a fault of the modelling but a reflection of the fact that some of the environmental data were at too coarse a scale and that NVC types are not solely determined by environmental factors.

Key words: Distribution of native woodland fragments, Site suitability modelling, Decision rules, Environmental space, Forest expansion, Wales, GIS.