

Increasing species movement

Glasgow Clyde Valley: Integrated Habitat Network

Background

The Glasgow and Clyde Valley Green Network vision is 'to connect all quarters of the Glasgow metropolitan region with the range and quality of green space that is required of a vibrant growing city in the 21st Century for the benefit of people, visitors and wildlife'.

The Glasgow and Clyde Valley (GCV) catchment contains a wide of range of diverse habitats and landscape types. A long history of intensive land-use throughout the area has resulted in the loss and fragmentation of semi-natural habitats and a subsequent reduction in biodiversity. Conservation policy and practice now seek to reverse the effects of fragmentation by combining site protection and rehabilitation measures with landscape-scale approaches that improve connectivity and landscape quality.

Objectives

The Integrated Habitat Network (IHN) aimed to support the GCV structure plan by providing a strategic framework for habitat networks across the area, focusing on three key habitat types. A habitat network is a configuration of habitats that allows species to live in and move through the landscape.

The objectives of the study were to identify:

- Focal species appropriate for the region and to research and describe their interaction with habitat and the matrix of the wider landscape.
- Key areas for native woodland and open habitat restoration and expansion, in order to link core woodland habitats within the GCV and between neighbouring networks (e.g. in the Lothians and Falkirk) to maintain their ecological function and viability.
- Conflicts and opportunities for habitat networks associated with development proposals, historic landscapes and landscape character.

Materials and Methods

Study area

The GCV Green Network area encompasses Greenock to Lanark and Cumbernauld to East Kilbride, and includes eight local authorities.

Method

The selection of the habitats to be modelled, and the focal species used to set the parameters for running habitat networks for each habitat, were identified through a series of expert stakeholder workshops. A limited number of species were selected and used to represent the array of other species that use the selected habitats and could benefit from reduced fragmentation. Data regarding species habitat requirements and dispersal through the landscape is lacking, so the group of expert stakeholders were called upon to estimate species' needs. The habitat network maps were generated in ArcMap GIS. The habitat network model takes account of habitat distribution, minimum patch size, maximum dispersal distance and the permeability of intervening habitats in order to work out which patches could function as a group and support a population.

Priority Enhancement Areas were identified; these were the key areas for habitat restoration chosen on the basis that they contain:

1. the largest encompassing networks;
2. the greatest area of habitat within these networks; and
3. the largest number of the contained habitat networks.

Results

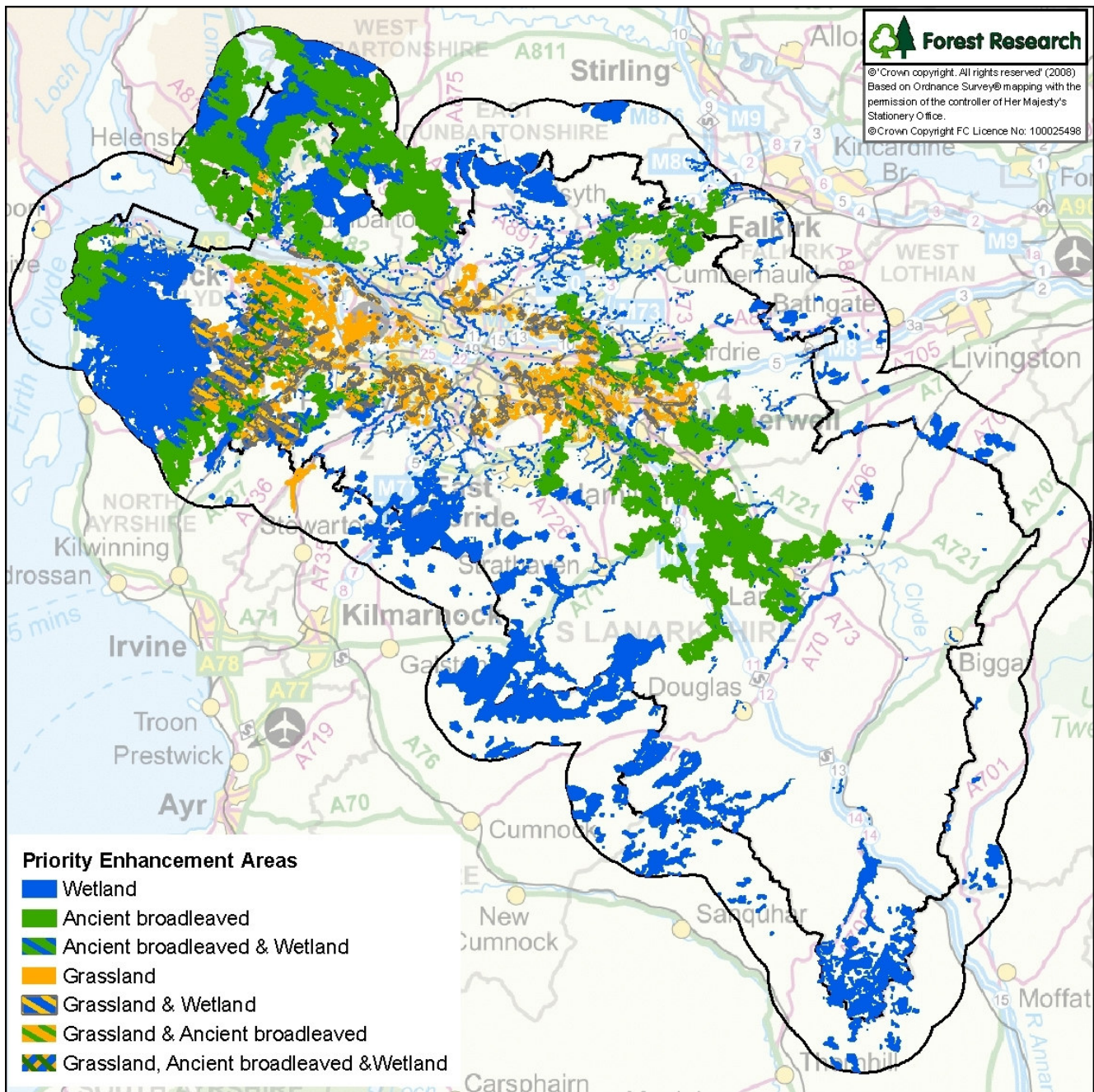
As shown in the figure, the Priority Enhancement Areas included the Clyde Valley and Kilpatrick Hills woodlands, the wetlands of the Kelvin and Forth Clyde canal and the unimproved grasslands of Renfrewshire.

Discussion

Integrated Habitat Networks are intended to support the planning process, help prioritise conservation effort, prevent further fragmentation of biodiversity and aid connectivity of semi natural habitats. The application of IHNs within the GCV was the first time that a multiple habitat network approach had been used to solicit planning and development programmes.

The strength of the approach lies in taking account of local conservation priorities and making best use of local expertise. Engaging with local stakeholder groups has been a vital part of this process and enables the networks to relate to local ongoing projects. The IHN could be used to help with the spatial targeting of urban planning, agri-environmental schemes and river basin management plans, while also guiding actions for consolidating designated sites.

The successful implementation of habitat networks requires the integration of local and national policy conservation priorities and planning mechanisms with network modelling and 'on-the-ground' advice and execution. Engaging with local stakeholder groups is a vital part of the process of identifying and developing habitat networks.



The Priority Enhancement Areas resulting from the Integrated Habitat Network analysis.

Reference

Smith, M., Moseley, D., Chetcuti, J. and de Ioanni, M. (2008). Glasgow and Clyde Valley Integrated Habitat Networks. Forest Research contract report to Glasgow & Clyde Valley Green Network Partnership. Available to download from http://www.gcvgreennetwork.gov.uk/publications/reports_strategies.php