

GLASGOW & CLYDE VALLEY GREEN NETWORK PARTNERSHIP

Glasgow and Clyde Valley Integrated Habitat Network: Project Brief

1. Introduction

The Integrated Habitat Network (IHN) project is a strategic initiative being led by the Biodiversity & Environment Group of the Glasgow and Clyde Valley (GCV) Green Network Partnership.

The purpose of the project is to create a strategic framework for the development of functioning habitat networks across the whole of the Glasgow and Clyde Valley area, focusing on three key habitat types. For each habitat, the project will inform the development of an action plan to protect, enhance and expand the resource, as appropriate. The priorities for early action will be identified.

2. Context

The IHN project is designed to address Aim d) of the GCV Green Network Partnership as described in the organisation's 2007-10 business plan:

- *to reinforce and enhance the biodiversity value of green and open space across the Glasgow metropolitan area.*

Within this context the project explicitly will promote Objective d):

- *creating a network of linked habitats.*

The project will span the entire area of the 8 unitary authorities that form the Glasgow and Clyde Valley (Inverclyde, East Renfrewshire, Renfrewshire, West Dunbartonshire, East Dunbartonshire, Glasgow, North Lanarkshire and South Lanarkshire). This area is wider than that covered by the GCV Green Network but provides the geographic scale necessary for analysis. Subsequent stages of work by the Partnership will focus on delivery of those parts of the action plan relevant to the Green Network programme.

The creation of a scientifically robust model of habitat networks will enable the GCV Green Network Partnership to adopt and promulgate a clear position on the location and value of these resources, improving significantly the information and guidance available to planners, land managers and developers to inform decisions on greenspace creation and management.

In delivering habitat networks on the ground, the Partnership will seek to maximise the contribution of the project towards other Green Network objectives, addressing issues of accessibility, quality of life, community engagement and treatment of vacant and derelict land. A range of outcomes will be sought, including enterprise development, health improvement and stronger communities.

2. Project Scope

Habitat networks can enlarge and reconnect existing habitat by helping to alleviate the ecological problem of fragmentation caused by reduction in habitat size and increased distance between habitat patches in the landscape. The implementation of habitat networks can provide a significant positive contribution to local landscape character, and allow improved public access and recreational enjoyment of a series of networked areas.

Habitat networks can also provide a valuable tool to deliver Local Biodiversity Action Plan targets for related habitats and species.

Initial work to identify conservation issues of concern across the area and identify three key habitats that would benefit from networking has been completed. This involved a stakeholder consultation workshop with representatives of interested organisations within the region – the workshop report is appended (Annex 1).

Three key habitat types have been selected for modelling:

- unimproved grassland;
- floodplain management wetlands;
- woodland habitats (using a range of woodland types).

Each habitat type will be looked at in terms of:

- functional connectivity;
- relationship to designated sites;
- balancing priorities/resolving conservation conflicts;
- planning issues; and
- potential for targeting of agri-environmental incentives.

3. Project Aims

The aims of the project are to identify:

- appropriate focal species for the 3 selected habitats, researching and describing elements of their autecology to define the functional interaction between habitat and the matrix of the wider landscape;
- key areas for habitat restoration and expansion in order to link core areas of habitats within and outwith the region (where appropriate);
- the land-use conflicts and the trade-offs required to deliver an integrated habitat network that combines several specific habitat types;
- conflicts and opportunities for habitat networks associated with development proposals, historic landscapes, and landscape character; and
- the opportunities to enhance and develop the Integrated Habitat Network associated with development, and the prescriptions required for development to contribute towards creation of a functioning network.

4. Issues to Consider

Experience elsewhere in Scotland indicates that habitat network plans can help to inform wider land-use planning process, contributing information and ideas to discussions during the detailed master planning of growth areas in both the Structure and Local Plans. Habitat network plans contribute information relating to the location, specification and types of habitat needed to complement and mitigate development impact, and

protect and enhance biodiversity. These issues are critical for the GCV Green Network policy of the GCV Structure Plan to be successfully implemented.

To obtain the most from this project and to assist in the planning process, the historic landscape, archaeological records and landscape character within habitat network plans will be assessed as resources allow. It will be important to show how habitat networks link to National Planning Policy Guidance 14 (NPPG 14) (The Scottish Executive Development Department, 1999), Planning and Open Space (PAN65) (Scottish Executive, 2004), Enhancing Urban Green Space (National Audit Office, 2006) and the Nature Conservation (Scotland) Act 2004 (Scotland, 2004).

A technology transfer and stakeholder liaison component is an essential part of the project, to inform land managers, planners and developers of the opportunities to implement the components of a habitat network. This liaison will help highlight the links to the Nature Conservation (Scotland) Act 2004; develop themes suggested in the NPPG 14 and other statutory planning documents; use the plan effectively; understand and appreciate the contribution of habitat networks to sustainable development.

A series of further consultation and engagement exercises should to be designed into the network development process to ensure ownership of the process and product.

5. **Project Outputs**

The outputs of the project will comprise:

- stakeholder workshops to guide and refine the modelling process;
- research report and executive summary with appendices as appropriate providing detailed data; the report must include:
 - a. a summation of the scientific justification in non-technical language;
 - b. a description of the methodology in non-technical language listing the species data used in the modelling exercises.
 - c. identification of opportunities for development of 3 priority habitat networks contributing to a regionally integrated network;
 - d. prioritisation of the expansion scenarios taking into account the planning issues such as historic landscapes and landscape character;
 - e. a description of how the network connects with other regional networks where they occur; and
 - f. guidance for planners and developers to promote the contribution specific developments, associated with growth areas within the Green Network, can make in delivering habitat networks
- an action plan detailing project proposals and associated priorities;
- presentation of the findings to the project steering group and wider Green Network Partnership at appropriate stages.

Note: Data generated through the project will remain the property of GCV Green Network Partnership and may only be used with their permission.

6. Reports

The structure and format of all reports must be agreed with the project Steering Group prior to production.

The consultants are required to provide 5 bound and 1 unbound copies of the final report, together with an electronic version of the document and any accompanying maps and appendices on CD.

7. Project Timetable

The project must be completed and the final report disseminated by 31 March 2008. Specific interim outputs and milestones will be agreed with the successful consultant.

8. Budget

The costs of the project must not exceed a maximum budget of £40,000.00 (ex VAT). The budget includes provision for both fees and expenses.

Consultants are invited to propose an appropriate set of staged payments linked to the production of identified outputs.

9. Steering Group

A Steering Group will be established to oversee delivery of the project and assist with the supply of background information and reports. Steering Group members comprise representatives of the following organisations:

- GCV Green Network Partnership;
- Scottish Natural Heritage;
- Forestry Commission Scotland;
- GCV Green Network Partnership : Biodiversity and Environment Group

10. Contract Management

The contract will be let and managed on behalf of the Biodiversity and Environment Group by the GCV Green Network Partnership. Contact details are:

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Glasgow and Clyde Valley (GCV) Integrated Habitat Network Stakeholder workshop

Mike Smith & Darren Moseley, Forest Research

06/02/07 Nye Bevan House, Glasgow

Introduction

Aim of workshop

The aim of the workshop was to identify the key conservation issues within the Glasgow and Clyde Valley (GCV) case study area (Figure 1) and to tease out the most important species and habitats that could be used in the BEETLE model to develop an Integrated Habitat Network (IHN). (A list of attendees is appended (refer to appendix 1)).

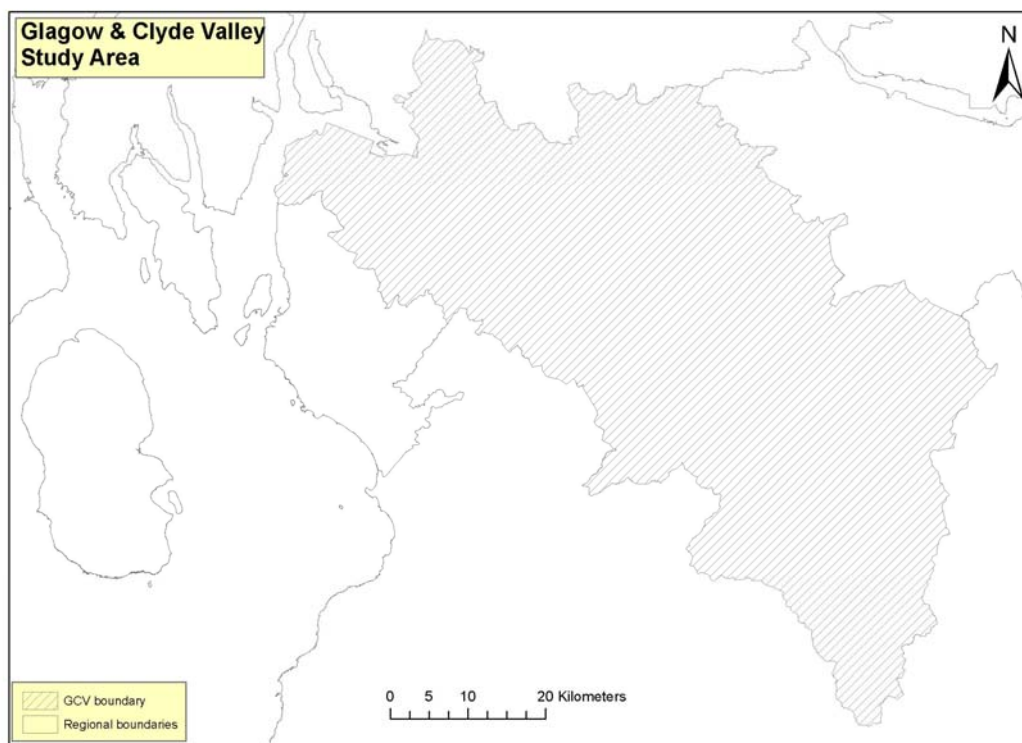


Figure 1. Study area for the Glasgow & Clyde Valley Integrated Habitat Network.

BEETLE modelling presentation

Darren Moseley and Mike Smith presented the principles of the accumulated-cost distance application of the BEETLE suite of tools, with some examples of how these can be applied to address conservation and biodiversity issues. One of the objectives was to show that species autecology is a very important component in determining the focal species used to construct a robust model to define IHNs using the BEETLE approach.

There then followed a more general description of the modelling process, which proved useful as it allowed those with little knowledge of the modelling process to become more familiar with the concept and its potential applications. It is thought that this is an area where more detail could be added to future presentations.

Other GIS tools / remote sensing applications were then looked at to see how to target areas for potential restoration within network areas. For example, the OS 1st edition map can be used to highlight areas of past habitat where restoration is likely to

be more successful. Another methodology was the use of coincidence mapping of species based on information held on Recorder by the environmental record centre based on the work carried out on unimproved grasslands in Fife. This also showed how the IHN approach could be used to target Land Management Contracts and the consolidation of Designated sites

Workshop on developing an Integrated Habitat Network

The workshop was split into three groups, which were led by Penny cousins Bob Frost and Darren Moseley, with Mike Smith moving between the groups. Initially each participant was asked to identify 3 issues of conservation concern, which were then discussed within the workshop group to see if there was relationship between these issues and the development of an IHN. Species and habitats that were of thought to be of relevance to an IHN were then discussed and whether there was the expert knowledge (and who held this knowledge) on these for use within the BEETLE modelling approach.

Each Group had a set of maps showing

- ◆ AO format map of case study areas
- ◆ Case Study designated sites
- ◆ Wetland areas (open water, swamp, marshy grasslands, etc.)
- ◆ Unimproved and semi-unimproved grasslands
- ◆ Peatlands (dry/wet heaths and blanket bog)
- ◆ Woodlands

These maps of areas were used to identify issues and information that would be useful for the development of an IHN and also allowed this information to be located geographically. Contact details of relevant experts were also included on this map (IHN contacts database is in the process of being constructed). This information was then collated and is summarised below:

Highlighted Conservation issues of concern.

The first element of the workshop asked each the participants to identify 3 areas of conservation concern within the case study area. Although these could be ordered by strategic level (national, local or habitat network) or by issue, the latter is probably more useful as the main part of the workshop was to examine these issues and relate them to the concept of IHNs.

Wetland management

This is the biggest issue raised in the GCV area and encompasses a wide range of topics that come together under the Floodplain Management banner

- Loss/fragmentation/lack of lowland floodplain wetland features.
- Loss/fragmentation/lack of riparian/wet woodland
- Distribution of ponds
- Loss of habitat for breeding waders
- Potential for further wetland expansion
- Flood Control

These topics are all inter-related through ecological succession in that ponds become wetlands which will eventually become wet woodlands. It is proposed that these successional relationships are investigated both spatially and temporally through using the BEETLE model. This may help with decision making that allows for management of ecologically functional floodplains.

Potential wetlands focal species were members of the Odonata family and the water vole. It may be more useful to use Newt species as there is good autecology for these species and the fact they use a range of wetland habitats at different stages of the year.

Flood Control

Flood prevention and mitigation is high on the public agenda. It is becoming increasingly clear that the problem can no longer be solved by building ever higher flood defences and instead the emphasis must be on restricting development in the floodplain and pursuing 'softer', more sustainable methods of flood control. One aspect that has been attracting increasing attention is the potential for land use, and woodland in particular, to mitigate damaging floods. Wetlands, woodlands and woodland management practices have long been associated with affecting both the quantity and timing of stream flows, and there is a widespread belief that wetlands and woodland can help to reduce and smooth flood peaks. There are four main ways that wetland habitats could assist flood control:

1. Delayed Floodplain Flows
2. Delayed Channel Flows
3. Delayed Soil Runoff
4. Increased Water Use

The development of habitat networks is seen as an important mechanism for reversing the effects of fragmentation on biodiversity while delivering a range of other environmental benefits: in this case flood control. There is the potential to develop a more integrated approach to planning land-use change, which takes account of conservation objectives for the full suite of habitats and species associated with different types of land use while also addressing environmental issues. The aim would be to develop more sustainable methods of flood control that are also ecologically functional.

Woodlands

The woodlands of GCV are varied, comprising narrow shelterbelts, estate woodlands, ancient woodland remnants in river gorge settings, and more recent conifer plantations. Woodlands with high biodiversity are typically the remnants of what was once a more extensive cover, which has become fragmented over centuries as a result of land clearance for farming. This process has accelerated over recent decades with the adoption of more intensive farming practices, and the spread of settlements and transport infrastructure. Management and expansion of existing woodlands are now needed to conserve the remaining woodland biodiversity, and ensure its future viability and integrity. This is particularly urgent, as pressures of climate change will require some species to move to avoid local extinction.

It is thought that woodland should be split into different habitat types either by management type or by Habitat Action Plan types.

Orchards and Wood pastures

The orchards, wood pasture and their often high biodiversity value trees are under recorded across GCV, modelling of these unrecognised and under-valued habitats could investigate the inadequate/discontinuous supply of deadwood for hole-nesters and saprophytes and the continuity of veteran and orchard trees.

Farm woodlands

Shelterbelts in the agricultural landscape have the potential to contribute greatly to wooded habitat networks and their importance should not be undervalued.

Hedgerows and hedgerow trees can also contribute in a similar way.

Wet woodlands

These are important in relation to the wetland networks as well as the woodland ones.

Ancient woodland

These long-established woodlands are important sources of biodiversity, often providing nodes for future dispersal events.

Conifer woodland

Conifer woodland constitutes a large component of the wooded landscape and is important for red squirrel issues.

Unimproved grassland

This is a key habitat in the case study area and had been in serious decline as a result of agricultural improvement over the last 60 years. Some species and issues:

- Hare
- Grass margins
- Small patch size
- Coincidence mapping list spp.
- Core 2nd 3rd level sites within networks and supporting existing sites
- Amenity grassland management issues

Peatlands

These were raised as important habitats of the upland fringe.

1.1.1 Other Issues

Planning Process

Semi-natural habitats can fill the important role of softening new urban areas, providing a natural link between the urban and the surrounding landscape, and bringing wildlife into urban settings. Design criteria set down in Local Plans and in Habitat Network principles will guide developers to achieve robust landscape frameworks as well as detailed landscape and access requirements for the new communities. Planning applications will be expected to address these issues, and the guidelines provided will apply in all circumstances.

IHNs can potentially influence the planning process in a number of ways, including:

- Guidance for planners
- Master plans
- Vacant and Derelict land

Climate change

The BEETLE model can be used to address some of the issues that relate to species and habitats in relation to climate change these could include sea level changes, coastal erosion, and identifying suitable areas for managed retreat.

Species management in relation to climate change can also be addressed using the BEETLE model. There are several issues that relate to this, including whether a

proactive or reactive approach should be taken to address species change as a result of climate change. For example:

- Species predicted to have an extended northern distribution e.g. nuthatch, certain butterflies spp. Should we look to be accommodating potential new arrivals?
- Species that are southern end of their distribution. Should we target these species as they are likely to disappear anyway?

Or should we look to creating checks in the system as and when changes are seen to be occurring and react as a result of these.

Invasive species

These are riparian issues in many ways but are being treated separately since the use of the modelling tools may well be able to address these issues but it is thought that this is not within the scope of this project – indeed it is a project all of its own.

- Invasive non-native plant species in the riparian zone.
- Japanese knotweed,
- Himalayan balsam
- Giant hogweed
- water vole
- mink
- riparian/ WFD River corridors

Balancing Priorities

It is envisaged that investigation into the relationship between different habitat networks to derive an IHN. While the BEETLE cannot resolve issues relating to the interaction between these habitats, it will highlight where these issues occur. In this way woodland, wetland, heathland, and other habitat networks can be overlaid to see where the interactions between networks exist.

1.1.2 Agri-environment issues

Targeting of Agri-environment grants was raised by several of the participants and, while it is a broader national issue, it is one the modelling will hope to be able the help with and is part of the wider remit of the project. The case studies will investigate how this could be achieved in differing lowland situations related to:

- Change in agriculture/agri economics will result in changes in land use and habitat change. It will be possible to look at different scenarios in an attempt to predict how this might affect connectivity between different habitats

Data issues

The importance of good, reliable, species autecology and land cover data cannot be over emphasised, as it is this aspect that will give the model credibility. Data issues were discussed and the collation of this will be a very important part of the ongoing IHN project in the GCV.

Conclusions

There will not be time to run the BEETLE model on all of the above and so there will need to be a targeting exercise in consultation with stakeholders and steering group to select a reasonable number that can be investigated within the context of the project.

It is suggested that the following be selected for BEETLE modelling

- ◆ Unimproved grassland
- ◆ Floodplain management wetlands using newts as the focal species
- ◆ Woodland Habitats using different woodland types

That these will be looked at in terms of

- ◆ Functional connectivity
- ◆ Targeting of agri-environmental incentives
- ◆ Their relation to designated sites
- ◆ Balancing priorities/resolving conservation conflicts
- In relation to the planning process

Appendix 1: Attendees

Name	Organisation
Emilie Wadsworth	CSFT
Lesley Scott	East Dunbartonshire Council
Petrina Brown	East Renfrewshire Council, Renfrewshire Council & Inverclyde Council
Mike Smith	Forest Research
Darren Moseley	Forest Research
Bob Frost	Forestry Commission Scotland
Penny Cousins	Glasgow and Clyde Valley Green Network Partnership
Max Hislop	Glasgow and Clyde Valley Green Network Partnership
Keith Watson	Glasgow City Council
Iain Gibson	Glasgow City Council
Jim Coyle	Glasgow City Council
Richard Sutcliffe	Glasgow City Council - Local Biological Record Centre
Laura Whyte	North Lanarkshire Council
Jenny Gough	Renfrewshire Council
Toby Wilson	RSPB
Jimmy Hyslop	SNH
Zeshan Akhter	SNH (Biodiversity Implementation Team - urban issues)
Malcolm Muir	South Lanarkshire Council
Chris Waltho	South Lanarkshire Council
Hamish Neilsen	South Lanarkshire Council
Scott Riddell	South Lanarkshire Council
Simon Jones	SWT
Colin Anderson	West Dunbartonshire Greenspace
Gillian Neil	West Dunbartonshire Countryside Ranger Service