Ecological Network for Cheshire East

November 2017

Working in partnership

Contents

1. Introduction

National Planning Policy Framework (para 117) states that planning policies should:

- plan for biodiversity at landscape scale and across local authority boundaries;
- identify and map components of ecological networks
- promote the preservation, restoration and recreation of priority habitats and networks

The Cheshire East Council Local Plan Site Allocations and Development Polices Document will contain detailed policies to protect and enhance the natural environment, including a map of the ecological network within the borough. This report sets out the ecological network for the borough and methodology used to identify it.
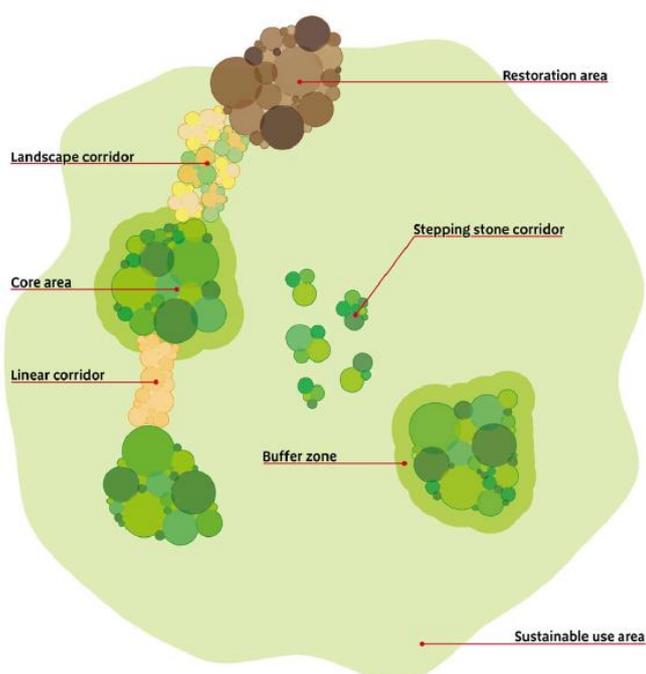
There is no definitive guidance on the methodology on developing an ecological network. Components of an ecological network are explained in 'Making Space for Nature' (Lawton et al 2010), section 2.12 of the Natural Environment White Paper and relevance evidence is listed within the Natural Environment guidance of the Planning Practice Guidance.

An ecological networks briefing note produced on behalf of the North West Local Nature Partnerships (2014) acknowledged that different mapping models and methodologies can be used, tailored to the particular needs, priorities and circumstances of the local authorities and their partners.

2. Components of the ecological network

The ecological network for Cheshire East draws on 'Making Space for Nature' (Lawton et al 2010) and the methodology developed as part of the Life ECOnet project (1999-2003) for the ecological network for Cheshire (Clarke & Boothby, 1999).

Fig 1. The components of ecological networks from 'Making Space for Nature'

The ecological network for the borough (Fig. 3) has five main components:

- Core areas
- Corridors and Stepping Stones
- Restoration Areas
- Buffers Zones
- Sustainable Land Use Areas

It is based on the best available data from national and local data sources, collated and analysed by the Mersey Forest Team, to create the network map.

(i)   Core Areas – areas of high nature conservation value

The core areas contain concentrations of habitats that are rare or important because of the wildlife they support.   This includes areas of irreplaceable natural habitat such as ancient woodland, glacial meres and peatlands that are impossible to re-create.

The core areas include statutory protected wildlife sites:

- Special Areas of Conservation (SAC);
- Special Protection Areas (SPA);
- Ramsar sites;
- Sites of Special Scientific Interest (SSSI);
- National Nature Reserves (NNR);
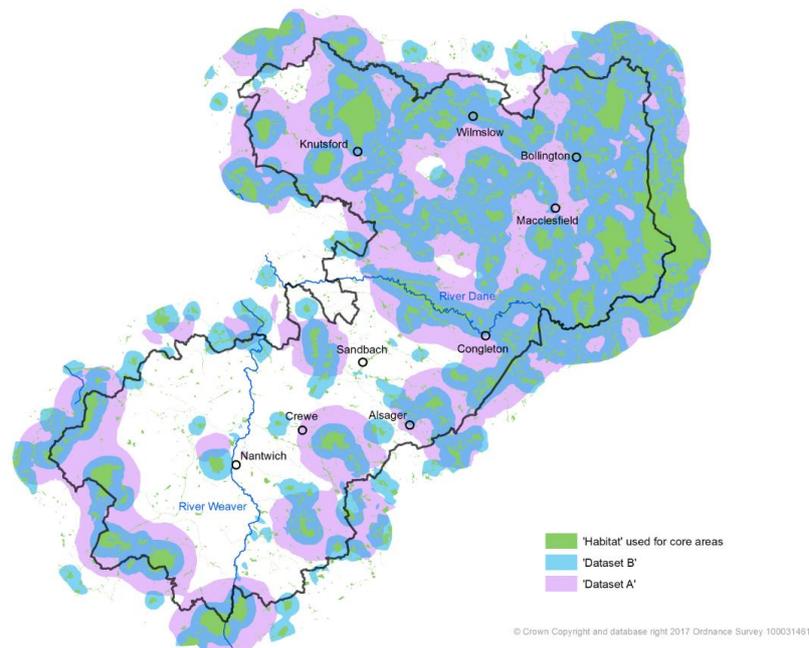- Local Nature Reserves (LNR);

   &

- non statutory Local Wildlife Sites (LWSs) ;
- UK priority habitats[1] (see Appendix 2).

Concentrations of habitats and sites are selected within the borough, as opposed to individual habitats/sites given the fragmented nature of the habitat within the borough. Spatial analysis was undertaken on similar lines to the development of core areas in Cheshire by Clarke and Boothby (1999). The datasets available for protected sites and priority habitats for Cheshire East and the neighbouring authorities were merged together and overlaps removed to produce a general 'habitat' dataset.

Analysis was undertaken using the Focal Statistics (spatial analyst) Geographic Information System (GIS) tool. For each 10m x 10m cell, the density of 'habitat' within 3km was calculated; areas where this density was greater than $7.5ha/km^2$ forming a dataset (dataset A). For each 10m x 10m cell, the density of 'habitat' within 1km was calculated; areas where this density was greater than $7.5ha/km^2$ formed dataset B (Fig. 2). Shapes in dataset B that intersected shapes in dataset A formed the core areas. The combination of methods takes into account both spatial distribution and more tightly defined landscape ecology principles.

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[1] These are Habitats of Principal Importance in England and are listed in Section 41 Natural Environment and Rural Communities Act 2006.

Fig. 2 Habitat Density Mapping

7.5ha/km^2 was selected as an appropriate threshold as it produced a plan which mostly readily reflected the concentrations of sites and habitats in the landscape. (NB The threshold is consistent with the approach adopted in neighbouring Cheshire West and Chester Council where views had been previously sought from Local Nature Partnership (LNP) members).

The protection and improved management and quality of the statutory sites, non-statutory sites and priority habitats is a key objective within the core areas.

(ii)   Corridors and Stepping Stones

The corridors and stepping stones enable mobile species to move between core areas and the wider landscape. Connectivity does not necessarily mean linear continuous habitats. A number of small sites can act as stepping stones between core areas.

Areas identified as corridors and stepping stones include non-statutory sites and priority habitats outside core areas, as well as watercourses, canals and greenways.

(iii)   Restoration areas

Restoration areas are designed to enhance connectivity, resilience and the functioning of the ecological network.

Options for restoration areas as part of the network include:

- Increasing the size of core areas
- Increasing the quality and quantity of priority habitat within core areas
- Creating buffers within/around core areas
- Increasing structural connectivity between stepping stones (and may eventually form further core areas)
- Creating new priority habitat that can act as stepping stone or corridors

Areas which have the potential to become new 'core areas' and 'stepping stones' are identified with 250 metres of existing sites and habitats (using GIS). It is acknowledged that these are 'generalised'/indicative areas and the extent may vary according to the type of existing habitats and the dispersal distances of fauna and flora they support.

(iv)   **Buffer zones** – areas within the identified core areas around the individual component sites and habitats (as selected during the habitat density mapping) which protects the sites/habitats from external adverse impacts such as pollution and disturbance.
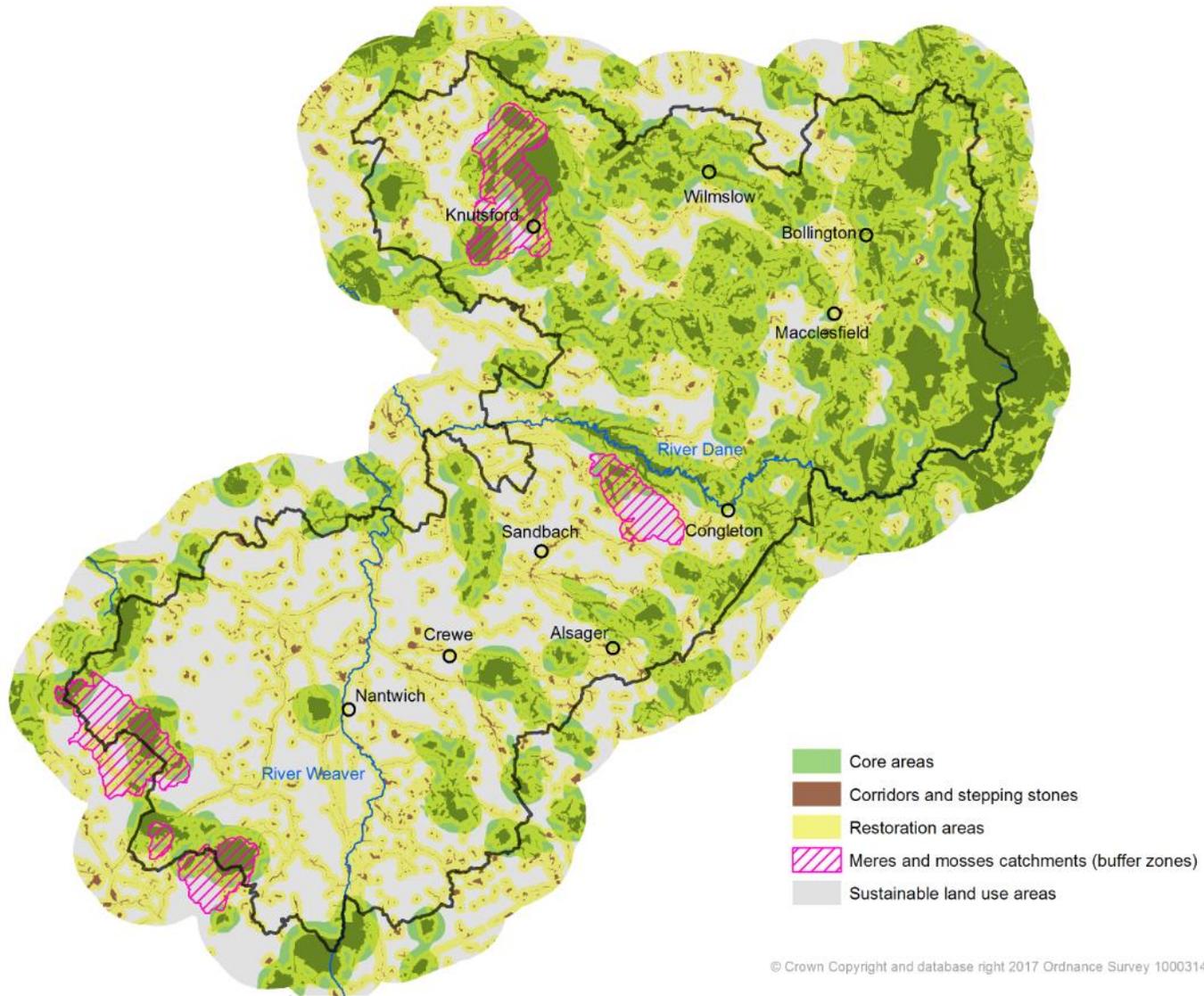
Surface water catchments of statutory protected meres and mosses wetlands are also identified (based on Natural England data). The internationally and nationally important meres and mosses are particularly sensitive to changes in water quality resulting from land management and development within their catchments.

(v)   **Sustainable land use areas** – areas within the wider landscape, focussed on the sustainable use of natural resources and appropriate economic activities which assist in the delivery of ecosystem services.

"These are areas within the wider landscape focussed on the sustainable use of natural resources and appropriate economic activities, together with the maintenance of ecosystem services (Bennett and Mulongoy 2006). Set up appropriately, they help to 'soften the matrix' outside the network and make it more permeable and less hostile to wildlife, including self- sustaining populations of species that are dependent upon, or at least tolerant of, certain forms of agriculture. There is overlap in the functions of buffer zones and sustainable use areas, but the latter are less clearly demarcated than buffers, with a greater variety of land uses". Lawton et al (2000)

Sustainable land use areas relate to areas of the borough outside of the main components of the network and provide opportunities for organisations, landowners, farmers and communities to enhance biodiversity. In urban settings this could include the provision of green infrastructure or habitat creation within new developments that complement the existing ecological networks. In rural areas agri-environment schemes can help deliver environmentally sensitive agriculture.

Fig. 3 Ecological Network for Cheshire East Council

Core areas
Corridors and stepping stones
Restoration areas
Meres and mosses catchments (buffer zones)
Sustainable land use areas

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3. Update & review

The ecological network will be subject to review as new information from surveys becomes available. This could include the identification of new core areas and other components of the network which currently do not meet the required thresholds of existing habitat and may result from long term habitat creation or changes in management.

4. Policy Implications

The ecological network for the borough is not intended to restrict development or growth but rather provide a tool to inform and guide development and support a 'net gain' in biodiversity.

Cheshire East Local Plan Strategy 2010-2030 (adopted 27 July 2017) Policy SE 3 Biodiversity and Geodiversity provides for the protection and enhancement of areas of high biodiversity and geodiversity value, and recognises the need to increase the total area of valuable habitat in the borough and linking up areas, creating stepping stones and wildlife corridors.

Development should be expected to protect, conserve, restore and enhance the components of the ecological network for the borough. The existing designated sites (statutory and non-statutory) and priority habitats are essential components of the network and need to be protected and conserved.

Within Core Areas, or Corridors and Stepping Stones there is a need to increase the size, quality and quantity of priority habitat.

Within Restoration Areas there is a need to increase the structural connectivity between stepping stones as well as contribute to increasing the size, quality or quantity of priority habitat.

Areas within the identified core areas around the individual component sites and habitats should buffer the sites from adverse impacts such as pollution and disturbance. Land use within the catchments around the meres and mosses needs sensitive management to avoid adverse impacts on the aquatic ecosystems.

Within Sustainable Land Use Areas there is a need to enhance the wider environment by actively contributing to the integration and creation of appropriate green infrastructure and habitats within a development.

The ecological network can be used to inform neighbourhood plans and land management decisions and priorities such as agri-environment schemes, river catchment partnership plans and NGO (non-government organisation) landscape scale initiatives.

References

Anon. North West Local Nature Partnerships Ecological Networks Briefing Note (2014)

Cheshire East Local Plan Strategy 2010-2030 (adopted 27 July 2017)

Clarke, S.A. and Boothby, J. (2000). The Use of GIS in Determining the Core Areas of a Regional Ecological Network. Quantitative Approaches to Landscape Ecology. Proceedings of the ninth Annual Conference of the International Association for Landscape Ecology (UK Region). University of Wales, Bangor, Gwynedd.

Department for Communities and Local Government. (2012) National Planning Policy Framework

Lawton, J.H., Brotherton, P.N.M., Brown, V.K., Elphick, C., Fitter, A.H., Forshaw, J., Haddow, R.W., Hilborne, S., Leafe, R.N., Mace, G.M., Southgate, M.P., Sutherland, W.J., Tew, T.E., Varley, J., & Wynne, G.R. (2010) Making Space for Nature: a review of England's wildlife sites and ecological network. Report to Defra.

Appendices

Appendix 1 – Datasets used to compile the ecological network map

Core Areas	Designated Site/habitat type	Data source
	Special Areas of Conservation (SAC)	www.magic.gov.uk
	Special Protection Areas (SPA)	www.magic.gov.uk
	Ramsar	www.magic.gov.uk
	National Nature Reserve(NNR)	www.magic.gov.uk
	Sites of Special Scientific Interest (SSSI)	www.magic.gov.uk
	Local Nature Reserves (LNR)	www.magic.gov.uk
	Local Wildlife Sites (LWS)	Cheshire East Council
	Ancient Woodland	www.magic.gov.uk
	Peatland with semi-natural habitat	Cheshire East Council
	Meres	Cheshire East Council
	UK priority habitat (see Appendix 2)	www.magic.gov.uk
	Inland rock outcrops	OS Mastermap Topography Layer
	Rivers	Open Source Rivers
Corridors and Stepping Stones	National Inventory of Woodland and Trees	www.magic.gov.uk
	Rivers	Environment Agency
	Canals	EA Canals Data (WFD)
	Dismantled railway line)	Digitised from OS 1:25K raster mapping/aerial photography
Buffer zones	Surface water catchments of the meres and mosses (statutory sites)	Natural England

Appendix 2 - Priority Habitat Dataset

Priority Habitats: source www.magic.gov.uk	Datasets utilised
Grassland	Coastal and Floodplain Grazing Marsh Good quality semi-improved grassland Lowland calcareous Lowland dry acid Lowland meadows Purple Moor Grass & Rush Pasture Grass moorland No main habitat but additional habitats
Heathland	Lowland Heath Fragmented Heath
Marine	Intertidal Substrate Foreshore (England & Scotland) Intertidal Substrate (Wales – includes whole Dee)
Wetland	Lowland Fens Lowland Raised Bogs Blanket Bog Reedbed Upland flushes, fens and swamps
Woodland	Ancient Woodland Deciduous Woodland Traditional Orchards Woodpasture and Parkland
Priority Habitats: other sources	
Eutrophic Standing Water	Natural and man-man still water (lakes & reservoirs) but excludes pools and pond
Inland Rock Outcrop & Scree Habitat	Mastermap/RIGS - hardrock
Mesotrophic Lakes	Lakes of glacial origin
Rivers	Environment Agency

It should be noted that data does not exist for all priority habitats eg hedgerows, arable field margins