The Wildlife Trusts in Yorkshire and the Humber

The Wildlife Trusts form the largest UK voluntary organisation dedicated to conserving the full range of the UK's habitats and species. Our mission is to rebuild biodiversity and engage people with their environment.

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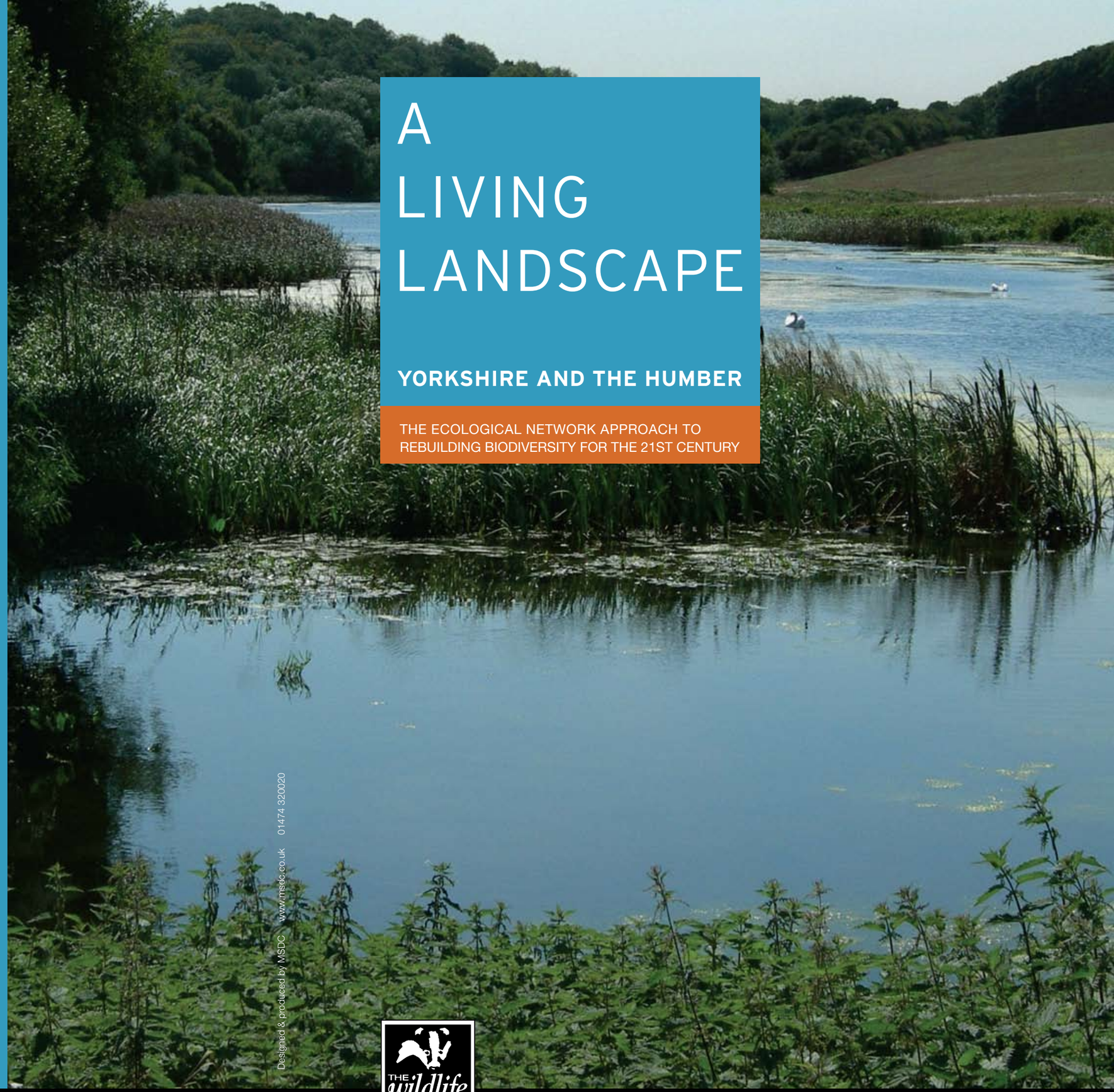


A LIVING LANDSCAPE

YORKSHIRE AND THE HUMBER

THE ECOLOGICAL NETWORK APPROACH TO REBUILDING BIODIVERSITY FOR THE 21ST CENTURY

Designed & produced by MSDC www.msdc.co.uk 01474 320020

Protecting **Wildlife** for the Future

IMAGINE...

Southerscales Nature Reserve *Paul Miguel*
Here typical features of a limestone landscape - the scars, potholes, limestone pavement and limestone grassland can be seen.

... recharging your batteries, away from the hustle and bustle of cities and towns, in vast areas of wilderness, managed by nature.

... huge and exciting new wetlands, alive with wild birds, and holding back the water which might flood our homes.

... nature reserves where flower-rich meadows and shady, inviting woodlands stretch as far as the horizon.

... being able to walk from your front door into a continuous stretch of wildlife-rich countryside which goes on for miles.

... a countryside which is as rich in wildlife as it was in yesteryear, but helps maintain our climate, produces our food, and replenishes our spirits - a countryside for the 21st Century.

This is what the ecological network approach to rebuilding biodiversity is all about, and this document presents a vision of how it could be achieved in Yorkshire and the Humber. It has been put together to:

Present a model for rebuilding the region's natural environment.

Bring this important, new approach higher up the land-use planning and conservation agendas.

Stimulate further discussion and action to rebuild the natural environment of Yorkshire and the Humber.

Woodhouse Washlands Nature Reserve *Peter Wolstenholme*

WE CAN'T EXIST WITHOUT NATURE

IDEAS...

We need an Ecological Network Approach

Nature conservation in Britain has **traditionally focused on the protection of special sites,** whether designated as Sites of Special Scientific Interest (SSSIs), protected as nature reserves, or highlighted as locally important wildlife sites. This has been essential to slow the huge loss of wildlife across the British landscape over the last century.

This approach has proved successful, at least to some extent, in defending wildlife where it remains. But it does not give us a way to restore and rebuild the natural environment in the wider countryside, to bring wildlife into our towns and cities, or to address the challenge of conserving marine wildlife:

- We need to increase the ability of the environment to protect us from flooding and to soak up carbon dioxide ('ecosystem services'). This will demand the restoration of extensive areas of natural habitat, particularly peatlands, wetlands and woodlands.
- Better access to the natural environment helps improve mental and physical health, and improves quality of life. We need to bring wild places to more people, and bring more people into wild places.
- Isolated nature reserves and other protected sites are unlikely to be able to sustain wildlife in the long term. Sites will need to be buffered, extended and linked if wildlife is to be able to adapt to climate change.
- Outside protected sites, once common and widespread species are in catastrophic decline. Reversing this decline needs a new approach.

It is still not clear how much land is needed to conserve rare species and habitats. But we do know that wildlife restricted to isolated patches in an otherwise hostile environment is vulnerable and unstable. Wildlife needs large, functional areas or networks which give it room to adapt, resilience to change, and opportunity to spread.

Restore, recreate, reconnect

This document presents a technique for describing a landscape-scale network of wildlife habitat that would ensure the long term ecological functioning of Yorkshire and the Humber's unique natural environment. It expands horizons beyond the protection of existing wildlife sites, and offers a new and exciting agenda for habitat restoration and creation.

People connected by nature

Living landscapes are vital to conserve the wildlife of Yorkshire and the Humber; they are also vital to maintain and improve the quality of life for people and link closely to the development of the region's green infrastructure network. Green infrastructure provides a green and pleasant backdrop to the places that people work and live in.

A connected network of wildlife-rich greenspace, especially in and around towns and cities improves people's health, through exercise for example, provides walking and cycling transport options, provides a range of 'free' ecosystem services such as pollution amelioration and flood prevention, and acts as a stimulus to economic growth through increased house prices and higher value economic activity.

Some key ideas

A number of important principles and concepts must underpin the creation of an ecological network for Yorkshire and the Humber.

- Protected sites, including Natura 2000 sites, SSSIs, Local Wildlife Sites and nature reserves will remain critically important and at the heart of the network. Their continued protection and effective management is essential to maintain the base upon which the region's biodiversity can be rebuilt.
- There is an essential role for sensitive and multifunctional land management by a wide range of public and private land owners. A functioning ecological network does not depend on the entire network being owned or managed by nature conservation bodies.
- The ecological network stems from Biodiversity Action Planning (BAP). Establishment of ecological networks must be guided by the need to protect, restore and recreate BAP priority habitats, and to rebuild populations of BAP priority species.
- Large, interconnected areas of habitat are more likely to be sustainable in the long term. In large areas, natural processes can act to maintain habitats and species, and there is less need for deliberate (and costly) habitat management.
- Large habitat areas must be connected to each other, so that species can move through the landscape and so that habitats can evolve, change and respond to environmental change.
- The built and farmed landscape around these large and interconnected habitat areas needs to be managed in a way that is more sympathetic to wildlife (indeed, this is already happening on a significant scale, particularly through Environmental Stewardship and similar schemes). This will help ensure that the wider landscape is more permeable to species movement.
- Ecological networks should work for people as well as for wildlife. Networks must support local communities and economies, connecting into towns, cities and villages.

Common blue *Peter Nash*

Spurn National Nature Reserve *Les Stubbs*

Curlew *WildStock*

NATURE CAN'T EXIST IN A BOX

INFLUENCE...

Policy support for Ecological Networks

There is a **compelling, scientific and logical case for nature conservation at a landscape scale,** including through the promotion of ecological networks. This approach is increasingly supported by government policy, guidance and strategies. Here are some examples:

The Habitats Directive (European Council Directive 92/43/EEC)

Article 10 obliges Member States to endeavour, in their land-use planning and development policies, to encourage the management of features of the landscape which are of major importance for wildlife, especially with a view to improving the ecological coherence of the Natura 2000 network. This specifically includes linear features (such as rivers) or 'stepping stones' (such as ponds or small woods) which are essential for the migration, dispersal and genetic exchange of wild species.

PPS1 – Delivering Sustainable Development

This has an explicit commitment to protection and enhancement of the natural environment; planning authorities should seek to enhance the environment as part of development proposals (para. 19).

PPS9 – Biodiversity and Geological Conservation

Sets out (para. 5ii) that Local Development Frameworks should "identify any areas or sites for restoration or creation of new priority habitats which contribute to regional targets, and support this restoration or creation through appropriate policies". Further (para. 12), "Local authorities should aim to maintain networks by avoiding or repairing the fragmentation and isolation of natural habitats through policies in plans. Such networks should be protected from development, and, where possible, strengthened by or integrated within it."

PPS12 – Local Development Frameworks (LDFs)

Clearly states that Local Planning Authorities should take into account a range of relevant strategies and programmes when preparing Local Development Documents. These include strategies for biodiversity and environmental protection (para. 1.9). LDFs should be led by a spatial vision and an environmental vision should be part of this. Para. 2.1 points out that "policies must be based on a clear understanding of the economic, social and environmental needs of the area". The environmental needs of Yorkshire and the Humber, as accepted in the England Biodiversity Strategy, the Regional Spatial Strategy and PPS9, include the reversal of biodiversity loss and habitat fragmentation.

The Yorkshire and Humber Plan

In Policy ENV 8, the Plan states that "the Region will safeguard and enhance biodiversity and geological heritage, and ensure that the natural environment functions as an integrated network of habitats. Plans, strategies, investment decisions and programmes should aim to maintain and enhance, restore or add to distinctive elements of the natural environment in line with international, national, regional, sub regional and local importance for biodiversity, to:

- Maintain and restore natural processes.
- Protect geological and geomorphological features and processes.
- Support the recovery of priority species and restore and enhance priority habitats and functional networks of biodiversity.
- Retain and incorporate biodiversity in development and encourage networks of green infrastructure and ecological corridors."

The Plan implicitly recognises the need to create ecological networks to conserve Yorkshire and the Humber's biodiversity noting a clear outcome for the Plan: "There will have been a significant improvement in the functional ecological networks of the Region's core biodiversity/ green areas through a more integrated network of habitats."

Linked to this aspiration are other policies that set out how living landscapes should be used to cope with climate change noting that the region should "provide flood storage, habitat creation and managed realignment in areas around the Humber, and other river corridors as required and provide positive land management for flood alleviation, particularly in the upland areas of the Yorkshire Dales, the North York Moors, the Howardian Hills and the Pennines."

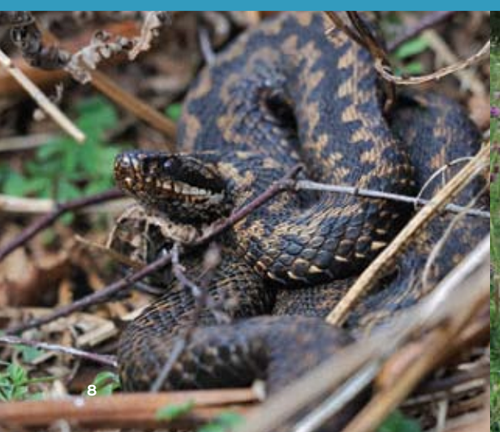
Spurn National Nature Reserve *Josephine Harding*
A unique coastal reserve; habitats found here include chalk grassland, mature grey sand dunes with sandy beaches on the seaward side and mud flats on the estuary side.

INITIATE...

Otter *WildStock*

top left
Flamborough Cliffs Nature Reserve *Kirsten Smith*
Large numbers of seabirds nest here in the spring and summer, with fantastic views of puffins, razorbills, guillemots, kittiwakes and fulmars from the cliff-top path.

top right
Puffin *WildStock*



Sherburn Willows Nature Reserve *Nabil Abbas*

left
Adder *Des Ong*

IT'S TIME TO THINK OUTSIDE THE BOX

Making it happen

Having a vision for an ecological network for Yorkshire and the Humber is just the beginning. Putting it into practice will require:

- Finer scale mapping and modelling work (for example, at a district scale for land-use planning).
- An understanding of ecological principles and current best practice (to ensure that ecological links and corridors really work for wildlife).
- A partnership approach (because an ecological network can only be achieved by different organisations and individuals working together).

The time is now

Our understanding of the science behind ecological networks and landscape-scale habitat restoration is improving all the time. Our vision for the Yorkshire and the Humber's ecological network may also change over time, not just as our knowledge increases, but as different elements of the network are delivered and new opportunities identified.

However, it is essential that we start putting in place an ecological network straight away, based on the best data we have to hand. The continued decline of much of our wildlife and the rapid process of climate change means that we cannot afford to waste any time before we get under way.

Working together

The vision for a Yorkshire and Humber ecological network set out in this document is being developed by the Wildlife Trusts in discussion with a range of partner organisations.

Each Living Landscape is unique and only these Wildlife Trusts - Lincolnshire, Sheffield and Yorkshire can provide more detail and background information. This will help provide a clearer understanding of how the network can be put in place at a local level.

A wide range of bodies will have a role to play in making a Yorkshire and Humber ecological network a reality.

- Local Planning Authorities can identify and safeguard the ecological network in LDFs.
- Local Strategic Partnerships can engage and inspire local people about landscape-scale conservation.
- Environmental enhancement associated with new development might include putting in place elements of the ecological network.
- Nature conservation bodies can use their own land acquisition policies and their work with other land-owners to enlarge and reconnect wildlife habitats.
- Agri-environment and forestry schemes could be used to encourage wildlife-friendly management of land around and between elements of the ecological network.
- Synergies should be sought between the ecological network and other land-management schemes, such as flood-risk management projects, rural diversification and environmental tourism, to simultaneously deliver social, economic and environmental benefits.
- Public and private land-managers could use the network to target their own environmental management and enhancement projects.

River Hull, a classic chalk stream *Jon Traill*

Water vole *Kenny Crooks*

IDENTIFY...

IT IS TIME TO FILL IN THE GAPS

How the Ecological Network Map was created

A number of methods have been proposed for **mapping an ecological network,** some of which use relatively complex analysis or require a level of background data which may not be available in many areas.

However, the availability of data and understanding of analytical techniques are less important than:

- Using the best available data but understanding its limitations.
- Having a sound understanding of ecological principles, especially current thinking on ecological networks and the functioning of large habitat areas.
- Minimising the number of assumptions required to make up for gaps in data, and clearly understanding how and why these assumptions were made.

The ecological network presented in this document has been constructed using a relatively simple methodology. Essentially, this consisted of three stages:

1. The existing ecological resource was mapped using the best available data in each district.

2. The core areas (where there is greatest opportunity for reconnecting habitats and creating large habitat areas) were identified as, those areas on the map where there were clusters of key wildlife habitats (BAP priority habitats and/or ancient woodland) or sites (designated sites and/or nature reserves or other land in conservation management). This involved a certain amount of subjective judgement, though in practice clusters of habitats and sites are generally quite obvious.

3. Identifying where links could be created to connect the identified core areas. This was also partly subjective and partly objective, depending on the available, mapped data. For example:

– A river and its flood-plain make a logical corridor between blocks of wetland habitat.

– A clear route for a network linking core areas of chalk grassland would follow the appropriate geology and topography.

– Areas of intensive agriculture, or of existing or proposed development, might form significant discontinuities in the network.

The key assumptions behind this process are that:

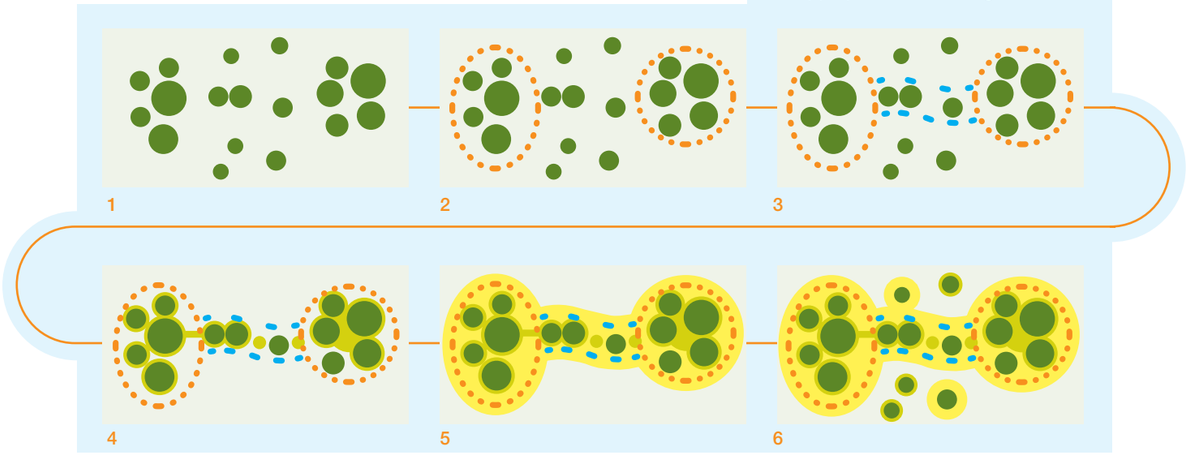
- The smaller the gap between two areas of wildlife habitat, the more likely it is that they are already functionally linked. This probably holds true in most cases, though in practice the ability of a species to move between two blocks of habitat varies with distance, the type of land-use between the two habitat blocks, and the characteristics of the species concerned.
- The smaller the gap between two areas of wildlife habitat, the easier it will be to create a functional, ecological link between them. Again this probably holds true as a general assumption, though it will vary depending on a range of factors, including, for example, the presence of roads or other features which might act as barriers for certain species.
- It is essential to create links between core areas. The assumption is often made that wildlife 'corridors' are needed so that individual animals can move in response to changing climate conditions. However, most species are unlikely to be able to move across the landscape fast enough – even with appropriate corridors – to keep pace with climate change. In fact, the importance of links between core areas lies in creating linked populations of species across a broad area; such large, linked populations will be less vulnerable to extreme climate events, and it is the populations, not individual animals, which will shift with changes in climate.

'Stepping-stone' habitats

The links between blocks of habitat within core areas, and between core areas, may be direct, physical links ('corridors') but might also be 'stepping stone' blocks of habitat. Many species are able to cross gaps between blocks of suitable habitat, though their ability to do so depends on the distance involved, the type of land-use between the habitat blocks (the more 'wildlife-friendly' this land-use, the easier it is likely to be to cross), and the characteristics of the species concerned.

For example, a relatively immobile, woodland species might require a direct, physical link between two woodlands (i.e. a wildlife 'corridor'). Conversely, a mobile, grassland species might be able to cross a few hundred metres of unsuitable habitat between grassland blocks; in this case, closely spaced 'stepping-stone' habitats would serve to link more widely spaced habitat blocks.

1. Map the existing habitats and designated sites.
2. Identify the clusters of habitats/sites which form the core areas.
3. Identify where network links can be formed between core areas.
4. Buffer and link habitats to create large habitat areas, and to create functional links between these. This is the ecological network.
5. Wildlife-friendly management of built or farmed land around and within the network will improve the ecological network's effectiveness.
6. Outside the network, wildlife habitats and sites should still be managed, and can be buffered by habitat creation and/or appropriate land management.



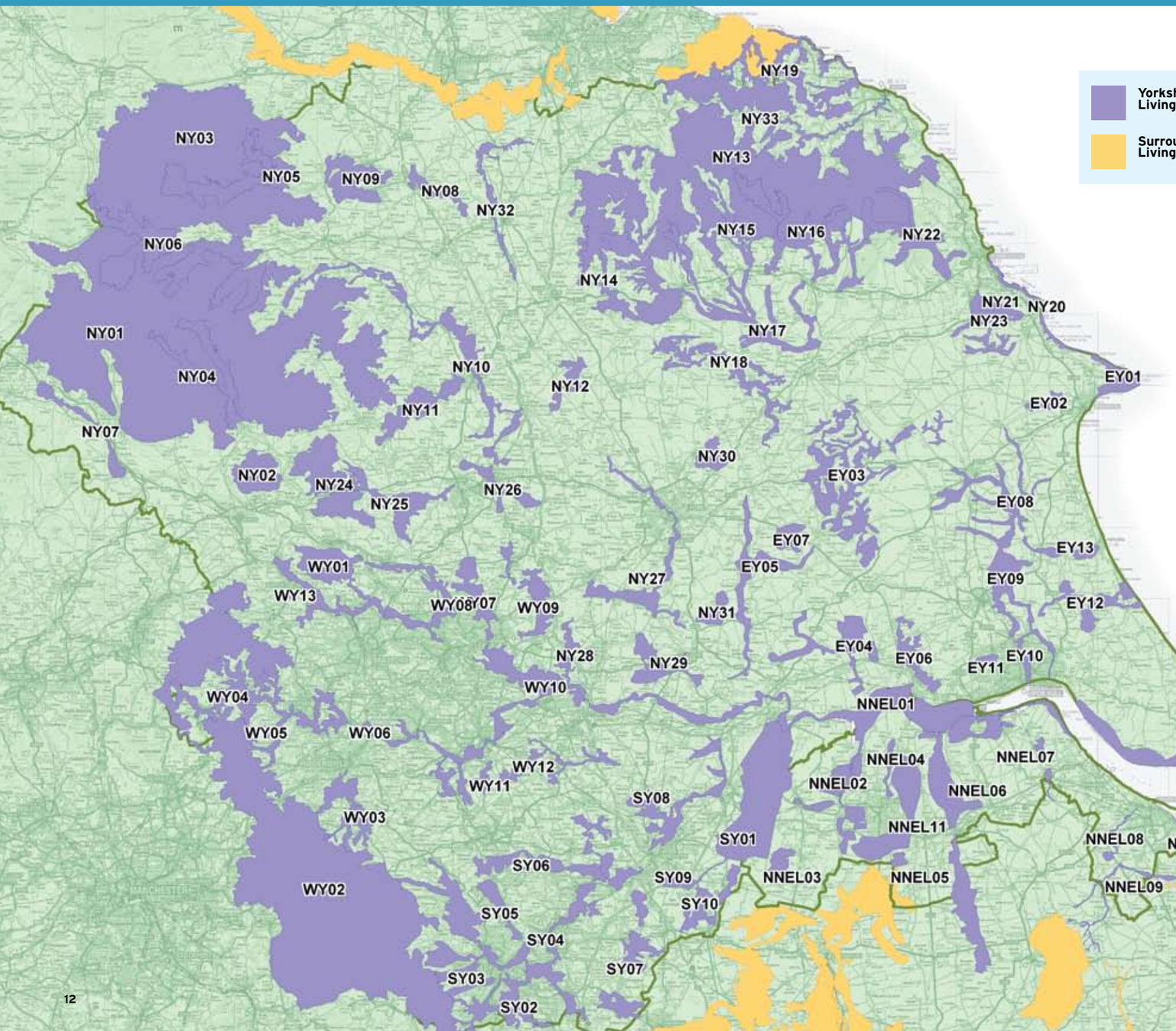
Yorkshire and the Humber's Ecological Network

A model for rebuilding the region's biodiversity, in a way which will:

- Increase the ability of the environment to deliver eco-system services.
- Link places where people live to wild places and the wider countryside.
- Link and extend important wildlife sites and habitats, and buffer wild species against the impacts of climate change.

MAPPING THE FUTURE FOR PEOPLE AND WILDLIFE

IMPLEMENT...



Yorkshire and the Humber Living Landscape

Surrounding Counties Living Landscape

Each area has its own landscape and habitat characteristics. The table below identifies each of these numbered areas.

North Yorkshire

NY01 Central Dales Uplands
NY02 Barden Moor
NY03 Northern Dales Uplands
NY04 Upper Wharfedale
NY05 Upper Swaledale
NY06 Wensleydale
NY07 Austwick Mosses and Upper Ribble Washlands
NY08 Swale Washlands
NY09 Catterick Garrison
NY10 River Ure Corridor
NY11 East Nidderdale
NY12 Pilmoor
NY13 The North York Moors
NY14 Upper Ryedale
NY15 Farndale
NY16 Rosedale & Dalby
NY17 Ryedale Washlands
NY18 Howardian Hills
NY19 Staithes Coast Gill Woodlands
NY20 Scarborough Soft Cliffs
NY21 Cayton and Flixton Carrs
NY22 Upper Derwent Tributaries
NY23 North East Wolds Scarp
NY24 Nidderdale Moors
NY25 Blubberhouses Reservoir Moors
NY26 Knaresborough Nidd Woodlands
NY27 Wharfe-Ouse corridor
NY28 Elmet magnesian limestone
NY29 Bishop Wood
NY30 Strensall Common
NY31 Skipwith Common
NY32 River Wiske Corridor
NY33 River Esk Corridor

East Yorkshire

EY01 Flamborough Head
EY02 Rudston – Boynton Wolds Scarp
EY03 Thixendale
EY04 Foulness and North Cave
EY05 Lower Derwent Valley
EY06 Ellerker Wolds Slopes
EY07 Allerthorpe Common
EY08 River Hull Headwaters
EY09 River Hull Floodplain
EY10 Hull Green Corridors
EY11 Priory Meadows
EY12 Lambwath Valley
EY13 Brandesburton and Hornsea Mere
EY14 Outer Humber

West Yorkshire

WY01 Rombalds Moor
WY02 South Pennines and Dark Peak
WY03 River Colne Valley
WY04 Upper Calder Valley
WY05 Mid Calder Valley
WY06 Lower Calder Valley
WY07 Harewood - Wykebeck green corridor
WY08 West Leeds Green Corridor
WY09 Elmet magnesian limestone
WY10 Lower Aire Valley Corridor
WY11 SW Wakefield
WY12 River Went Corridor
WY13 Mid Aire Valley

South Yorkshire

SY01 Humberhead Peatlands
SY02 South Sheffield Greenway
SY03 Rivelin, Loxley and Porter Valleys
SY04 River Don Corridor
SY05 Blackburn Valley
SY06 Dearne Valley
SY07 South Yorkshire magnesian limestone
SY08 North Doncaster Levels
SY09 Potteric - Torne Corridor
SY10 Finningley Cover Sands

North and North East Lincolnshire

NNEL01 Inner Humber
NNEL02 Lower Trent Grasslands
NNEL03 Axholme
NNEL04 Dragonby Pits
NNEL05 Manton
NNEL06 Ancholme Valley
NNEL07 Spring Line Blow Wells
NNEL08 Laceby Beck
NNEL09 Waithe Beck
NNEL10 Outer Humber south
NNEL11 North Lincolnshire Coversand

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Planning Policy

Planning Policy Statements can be viewed and downloaded from the website of the Department for Communities and Local Government (www.communities.gov.uk/index.asp?id=1143803).

PPS1 Delivering sustainable development

PPS9 Biodiversity and geological conservation

PPS12 Local development frameworks

Cover photography

Sprotbrough Flash Nature Reserve *Karen McDiarmid*