West Norfolk District Ecological Network Mapping

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Ecological Network Topic Group
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1 Introduction

This report is put forward to foster further discussion about the development of an ecological network in West Norfolk District. The report is based on initial inputs received from the Norfolk Biodiversity Partnership's Ecological Networks Topic Group and other interested organisations..

The overall aim is to take forward the findings of the county-level ecological network report[1] and to apply these at the District level. Specifically, the report seeks to:

- Identify the key statements contained in the county econet report pertaining to the District;
- Present recommendations on how these ecological network priorities can be further developed and implemented at the District level.

There are considerable limitations in the information base required to develop the ecological network and suggestions are made on how these can be addressed.

2 Ecological features and BAP habitats

2.1 Summary of key ecological characteristics

The District comprises several distinctive landscapes.

- The coastal plain comprising the low lying north coast with intertidal habitats, sand dunes and freshwater wetlands; the Wash and the largely drained and arable hinterland.

- The Fens comprising an arable landscape but with many miles of waterways and drainage ditches including the Cut Off Channel, the Wissey, Nar, Great and Little Ouse rivers as well as the Ouse Washes comprising lowland wet grassland.

- The major river valleys especially chalk streams and rivers of the Wissey, Nar, Burn, Heacham, Babingly and Gaywood. These also have a range of wetland habitats in their floodplains – wet grassland, lowland meadows, wet woodland, reedbed and fen.

- Relatively extensive areas of woodland, former wood pasture and heathland associated with the Greensand between Hunstanton and King's Lynn

- An area of Breckland with grass heath but primarily conifer plantation

- Arable landscape often associated with large estates and parkland. In the north the landscape of the Goodsands is open with few roads. This area is of importance for a number of BAP species associated with the farmed landscape. Semi natural habitats are highly fragmented. In the south the arable landscape comprises more woodland with old hedgerows, veteran trees and ponds being more prominent.

- The urban area of Kings Lynn dominates the District but there are other urban areas at Downham Market and a string of settlements north of King's Lynn. These are all identified as being deficient in areas of accessible greenspace.

[1] Report of the Ecological Network Mapping Project for Norfolk. 2006. Norfolk Wildlife Trust, on behalf of the Norfolk Biodiversity Partnership.

2.2 BAP habitats of County and District importance

The Econet Report identified the following components of the ecological network for the District

- Core area of coastal habitat including the low lying reclaimed coastal plain surrounding the Wash
- Core area based on the Greensand comprising heathland, woodland and chalk streams
- Core area comprising the rivers Nar, Wissey, Burn, Heacham, Ingol, Babingley and Tat along with their tributaries (all chalk rivers) and also the Ouse washes.
- Zone of heath-grass-woodland creation along the chalk scarp
- Zone of general habitat enhancement in north of the District based on the Goodsands and along the fen margins. Whilst the Goodsands area has been identified as an area of general habitat enhancement there are a number of areas where there is high biodiversity interest or potential eg Syderstone Common and other areas where the creation of grassland-heath type habitats could be envisaged. The area is also of extreme importance for biodiversity associated with the farmed landscape eg farmland birds and this is made all the more important by the low levels of development and infrastructure such as roads.
- Zone of large scale wetland creation covering the Fens and the Wash hinterland
- Area of urban greenspace deprivation based on King's Lynn, Downham Market and Hunstanton.

The Econet Report identified the following BAP habitats as being County priorities

- Coastal habitats especially sand dune, intertidal habitats, coastal cliff, reedbed and coastal grazing marsh
- Lowland wet grassland, reedbed, fen and wet woodland– all these largely associated with the rivers Nar, Wissey and Ouse Washes.
- Chalk rivers as mentioned above
- Chalk grassland in highly fragmented remnants
- Wood pasture in the Greensand area
- Heathland centred on the Greensand, a number of sites between King's Lynn and Swaffham, Syderstone and at Feltwell in Breckland.
- Naturally fluctuating water bodies (pingos) confined to a relatively small zone between Narborough and Gayton.

An objective of the current exercise was to identify additional components of the econet that were not identified at the County level. Amongst those identified are

- Areas of Parkland (possible BAP habitat) often associated with woodland eg Houghton and Hunstanton Parks. These are not shown on the accompanying map.
- The Fenland drainage network comprising open water, grassland and scrub habitats (especially on the Cut-Off Channel). The total area and length of this habitat make it extremely important for biodiversity. The ditch system is not shown on the accompanying map due to its complexity and lack of knowledge as to the most important areas for biodiversity.
- Traditional orchards near Wisbech. This is probably the most important part of the county for traditional orchards.
- Other features including mineral workings between King's Lynn and Downham Market. This area is not shown on the accompanying map.
- A distinctive landscape area around Downham Market characterised by a concentration of landed estates (Parkland BAP and associated woodland) as well as areas of ridge and furrow and old pasture (lowland meadow BAP),

3 Developing an ecological network for the District

In the section below, the key actions for econet implementation are outlined. It is important to note that the strategy does not cover the actions required to protect and maintain existing BAP habitats; it refers only to actions required for habitat creation and/or buffering.

3.1 Econet priorities

The county Econet Report recommended that the following key measures be taken within the District in order to contribute toward the establishment of an ecological network;

- Enhance main waterways and tributaries especially chalk rivers and Fenland drains
- Enhance and create new greenspace in the King's Lynn fringe
- Enhance and create heathland and wood pasture in Greensand area, Syderstone and between King's Lynn and Brecks and orchards near Wisbech.
- Create intertidal habitats in the coastal zone
- Create large scale freshwater and coastal wetlands in Fenland and Wash hinterland

3.2 Strategy for econet implementation

The econet priorities for the District are also shown in the attached map.

Objective	**Strategy**	**Delivery**
Restore natural functioning and wetland habitats to major rivers and tributaries	1. Produce river restoration plans. 2. Create new wetland BAP habitats in floodplain to expand sites 3. Create habitat ecotones from wet to dry habitat 4. Buffer floodplains by encouraging low input agricultural systems and semi natural habitats 5. Enhance connectivity by creating new wetland linkages and enhancing the matrix (land uses surrounding a wetland)	FC Wet woodland project S106 agreements Environmental Stewardship
Create greenspace in urban areas and urban fringe.	1. Produce a biodiversity plan for the King's Lynn green infrastructure plan 2. Provide more accessible greenspace 3. Ensure core areas of BAP habitats in urban fringe are connected with wider countryside	Green infrastructure project implementation
Create new wetland habitats in Fens and Wash hinterland	1. Identify potential areas for wetland creation including large scale potential 2. Increase connectivity between wetlands and improve buffering by enhancing the management of the drainage ditch system	Wetland creation projects EA Regional Habitat Creation Project Water level Management Plans and IDB management
Enhance coastal zone habitats	1. Create habitat ecotones from coastal habitats to upland 2. Enhance connectivity and buffering of habitats along coast 3. Encourage natural processes where appropriate	Shoreline Management Plans
Significantly increase the area of traditional orchards	1. Create traditional orchards using local appropriate varieties 2. Create new habitats associated with orchards, such as scrub and grassland	S106 agreements Environmental Stewardship
Increase the area of calcareous grassland-heathland-wood pasture in suitable areas.	1. Produce heath-wood pasture creation plan particularly for the Greensand region 2. Expand existing heathland where possible to minimum 50 ha 3. Create new heathland or grassland adjacent other habitats or on in association with mineral extraction restoration 4. Buffer heathland by restoring or creating habitats adjacent to sites or encouragement of low input agricultural systems 5. Enhance connectivity by creating new grass/heath/wood pasture linkages and enhancing the matrix (land uses surrounding a heath/wood pasture)	S106 agreements for minerals restoration and other development Environmental Stewardship

4 Other actions

There are a number of specific actions that could help establish an ecological network in the District. These are a mixture of practical projects and policy development. In particular, it is suggested that consideration be given to the following.

4.1 Strategic measures

- **Local Development Frameworks**: It is recommended that West Norfolk District Council incorporate the econet concept in its Local Development Framework. This should include specific policies in the Core Strategy as well as the identification of habitat creation areas within Site Specific Proposals and Area Action Plans based on the attached map.

- **Section 106 Agreements**: The potential for using Section 106 agreements to promote habitat creation through development gain should be actively explored. Specific examples include the provision of urban greenspace that contributes towards an agreed green infrastructure plan; restoration of habitats in river valleys and creation of heathland and woodland. In addition opportunities for creating areas of rough grassland and scrub habitats close to villages, in order to replace historical 'lost commons', should be encouraged.

- **Linking econet to linear routes**: There are numerous linear routes throughout the district that can act as a focus for the development of the econet at the local scale. Routes include the public footpath network, disused railway lines and cycle routes. When developing or enhancing these routes consideration should be given to the development of semi natural habitats alongside. This will not only encourage wildlife but add to the appeal of routes to the public.

- **Green infrastructure plans** should be developed for King's Lynn and the market towns incorporating the ecological network requirements. These could incorporate the idea of creating an area of 'common land' adjacent each village thus providing biodiversity and access benefits.

4.2 Gaining further information

The following actions are considered necessary to provide information to facilitate conservation planning and development of implementation projects:

- **Mapping of BAP habitats**. There is a need to map information on the distribution of BAP habitats in the District. There is also a need to identify opportunities for the creation of calcareous grassland and wood pasture in particular

- **CWS study and survey**. There is a need to assess CWSs to ascertain the opportunities for enlargement or buffering. CWS sites will occur throughout the District as well as in many core areas. It is important that they are recognised for their biodiversity value within the general matrix of the countryside. In addition there is a need to continue to survey sites to identify new County Wildlife Sites. These are an important component of the ecological network and it is important to identify as many as possible.

- **Survey of the biodiversity of Fenland drainage system**. This habitat is a refuge for biodiversity and is likely to be of significant importance for conservation. Virtually nothing is known however about the wildlife that inhabits these drainage systems. There is a need for survey work to identify the wildlife they support and the key areas for conservation.

- **Ecological modelling** can be used to identify where habitats need to be created in order to increase connectivity between BAP habitats. This will aid targeting of habitat creation. Initially it is suggested that a study is undertaken of a distinctive geographical area such as the Greensand to identify the current and desired level of connectivity.

- **A study of the Greensand area**. This is an area of high biodiversity importance with a wide range of habitats. It is recommended that a detailed study be undertaken of the area and a

habitat restoration and creation plan devised that looks at woodland, wood pasture and heathland and associated wetland habitats.

- **River restoration plans** need to be produced identifying opportunities for the creation and expansion of habitats and how to restore natural functioning. In addition since rivers valleys represent important corridors across the county it would be beneficial to identify headwaters of rivers where there are opportunities to create a more wildlife friendly landscape. A study could be undertaken of a river to look at the feasibility of restoration and the potential for connectivity across watersheds.

5 Explanation of District ecological network map

5.1 GIS layers provided

The following layers make up the West Norfolk District ecological network map. The information is based on the County ecological network map but has been refined and expanded after consultation with representatives from Natural England, Broads Authority, Norfolk Coast Partnership, Forestry Commission, Environment Agency, RSPB, Norfolk Wildlife Trust, Norfolk County Council, North Norfolk Council.

NB. Some features have not been shown on the map. They are, however, considered as important in a District or even County context and are mentioned in the text. Their omission is primarily based on the need to maintain the clarity of the map.

5.2 District ecological network map

1. Landscape Description Unit (LDU) 1:50000 layer from Norfolk County Council
2. West Norfolk District boundary
3. Coastal habitat zone based on the County ecological network map but extended by including all LDUs with a coastal frontage. It is assumed that this will incorporate the majority of area available for the creation and enhancement of the following BAP habitats – all intertidal habitats, sand dune, shingle beach, saline lagoon as well as grazing marsh and reedbed where appropriate.
4. Wetland habitat enhancement zone based on the LDUs that are classified as 'wetland' and the 1:100 flood risk area from Environment Agency. It is assumed that this incorporates the majority of the area available for the creation and enhancement of the following BAP habitats – wet woodland, reedbed, fen, chalk river, grazing marsh, mesotrophic waters and to a great extent eutrophic waters.
5. Large scale wetland creation zone – peat soils. The LDUs with peat dominated soils are shown to distinguish this area from the wetland habitat enhancement area. The LDUs adjoining the Wash have been assigned to the 'coastal habitat zone'.
6. Heathland core area defined as the priority areas for heathland and heathland creation in the North Norfolk Heaths Re-creation Strategy[2].
7. Calcareous grassland core area as shown in the County ecological network report and based on LDUs with calcareous soils. Because of difficulties in defining an area for this habitat at the District level, the county map has been used.
8. Brecks core area defined as the area covered by the Breckland Special Protection Area and Special Area of Conservation.
9. Zone of grass-heath-wood enhancement. Based on the County ecological network map but part of this zone has been assigned to a new category named Breckland core area.
10. Zone of general habitat enhancement. Based on the County ecological network map but part of this zone has been assigned to the Breckland core area zone. Part has also been assigned to the zone of grass-heath-woodland enhancement to incorporate the wood pasture zone
11. Traditional orchards core area defined as the core area for this habitat as defined by the Norfolk Phase 1 Orchard Survey 2006
12. Fluctuating waterbodies core area defined as a zone around the main pingo and mere sites

[2] North Norfolk Heathland Re-creation Strategy English Nature 2002…….

13. Downham Market landscape zone. Defined as a zone of parkland and farmland around the town with a characteristic landscape and remnant BAP habitats
14. Coast habitat buffer zone of 1km along the North coast to highlight the extreme importance of this area and the need to consider adjacent land use
15. Brecks buffer zone of 400m highlighting the importance of buffering the Breck heaths
16. Urban areas of King's Lynn, Downham Market, Hunstanton
17. Core habitat corridors. Indicative arrows showing desirable connectivity between heathland core habitat areas