

Making Space for Wildlife and People



Creating an Ecological Network for Norfolk

Making Space for Wildlife and People was prepared by Reg Land, Norfolk Wildlife Trust, on behalf of the Norfolk Biodiversity Partnership and its Ecological Networks Topic Group.

Copies can be downloaded from the Norfolk Biodiversity Website (www.norfolkbiodiversity.org). A limited number of copies can also be obtained free-of-charge from the Norfolk Wildlife Trust or the Norfolk Biodiversity Partnership, at the following addresses:

Norfolk Wildlife Trust
Bewick House
22 Thorpe Road
Norwich NR1 1RY

Norfolk Biodiversity Partnership
C/o Planning & Transportation Department
County Hall
Martineau Lane
Norwich NR1 2SG

Tel: 01603-625540
Email: admin@norfolkwildlifetrust.co.uk

Tel: 01603-222112
Email: environment@norfolk.gov.uk

Cover photo credits:

Otter - S. Henson
Glaven Valley - S. Henson
Water Vole - Simon Booth Photography
Children pond dipping - Alan Howard
Wetland - Norfolk Wildlife Trust

If you need this document in large print, audio, Braille, alternative format or in a different language, please contact the Biodiversity Co-ordinator on 01603-222112 and we will do our best to help.

Date: October 2005



Printed on 100 per cent recycled paper, made from 100 per cent post-consumer waste.

Produced by the Norfolk Biodiversity Partnership and the Norfolk Wildlife Trust.



Summary

Apart from a few notable exceptions such as the north coast, much of Norfolk has suffered a dramatic reduction in biodiversity. A significant cause of this decline has been the rise of intensive agriculture over the past 60 years alongside the development of housing and infrastructure. The result is that much of Norfolk now comprises a landscape dominated by intensive agriculture. Once extensive areas of habitat such as heathland now comprise small remnants isolated from each other and surrounded by relatively inhospitable land-use. As a result, there are significant consequences for the long-term survival of biodiversity.

The process of habitat fragmentation has a number of consequences that affect the ability of wildlife to survive into the longer term:

- Firstly, small and isolated sites may become too small to support viable populations of a particular species or may be adversely impacted by surrounding land-uses;
- Secondly, many ecological processes are now largely human controlled with the result that small, fragmented habitats are often unable to function naturally;
- Thirdly, a particular concern that has emerged in recent years is how our wildlife and habitats can respond to climate change.

In order to safeguard wildlife in the long-term there are a number of measures that need to be taken. Firstly, valued wildlife sites must be protected from damage and destruction. Secondly, they should be properly managed. Thirdly, there is the need to expand and re-connect the existing areas and restore habitats where they have been destroyed. The large-scale restoration and linking up of habitats – a ‘landscape scale’ approach – is increasingly seen as necessary to safeguard our wildlife and to ensure sustainable development. One approach that provides the conceptual basis for achieving this outcome is that of the Ecological Network.

An Ecological Network in Norfolk would comprise the following elements:

- Clusters of high value wildlife sites forming **core areas**;
- **Buffer areas** surrounding these sites to reduce the adverse impacts from adjacent land-uses;
- **Enhancement areas** where there would be a focus on habitat creation;
- **Corridors and stepping stones** designed to promote connectivity between the sites and through the wider landscape.

An Ecological Network can operate at any scale from the local to the international. An example of an international network is the system of protected wetlands established to safeguard migrating waterfowl between the Arctic and Africa. On a local scale, for example, a network could be developed to protect and enhance a population of great crested newts.

Planning Policy Statement 9 supports the principles that underpin an Ecological Network. Regional policy supports the Ecological Network approach by seeking to conserve, restore and re-establish habitats and create corridors. The preparation of Local Development Frameworks offers the opportunity to integrate the concept of an Ecological Network into local planning.

An Ecological Network could provide multiple benefits, by:

- Contributing significantly to sustainable development and spatial planning;
- Improving the targeting of Biodiversity Action Plans;
- Providing enhanced and more accessible socio-economic benefits.

Opportunities now exist to plan for a radically different countryside. Changes in agricultural policy and greater recognition of the need for sustainable development mean that new approaches are required. We are in a position to pass on to future generations a landscape richer in wildlife and valued by people. This new landscape would reverse the losses of recent decades and create a new relationship between people and wildlife based on the principles of sustainable development and harmony with nature.

Introduction

Apart from a few notable exceptions such as the north coast, much of Norfolk has suffered a dramatic reduction in biodiversity. Despite many successes in safeguarding habitats and species, the picture is one of catastrophic loss and decline of once common habitats and species. A significant cause of this decline has been the rise of intensive agriculture over the past 60 years alongside the development of housing and infrastructure. A further contributory factor has been the breakdown of long established forms of land management, such as mixed farming and woodland coppicing.

The result is that much of Norfolk now comprises a landscape dominated by intensive agriculture and characterised by relatively small and fragmented natural habitats. Many of our wildlife sites and nature reserves are just a few hectares in size and even a large site may only be a few hundred hectares. Once extensive areas of habitat such as heathland now comprise small remnants isolated from each other and surrounded by relatively inhospitable land-use.

Despite this, there still survive a few extensive areas supporting a rich and varied wildlife. These include much of the coastline, the Broads and the Brecks. These areas contribute significantly to Norfolk's character and for many they define it. They are an important economic resource especially for tourism. Even here, however, intensive agriculture and other factors have reduced the wildlife value such that their full potential is not realised.

With so much of the region's wildlife fragmented in small and isolated habitats, there are significant consequences for its long-term survival.

Why does fragmentation put wildlife at risk?

Wildlife habitats in Norfolk have been undergoing a process of fragmentation for centuries, primarily as a result of land clearance for agriculture and latterly urban and transport development. The process of fragmentation has three components: an overall loss of habitat; a reduction in the size of remaining blocks of habitat; and increased isolation as new land-uses occupy the intervening gaps. This process has a number of consequences that affect the ability of wildlife to survive into the longer term.

Firstly, these small and isolated sites may become too small to support viable populations of a particular species or may be heavily impacted by surrounding land uses, e.g., nutrient enrichment of wetlands resulting from agricultural runoff. The surrounding land may also present a barrier to the movement of species through the landscape, thus restricting re-colonisation of habitats.

Secondly, many ecological processes are now largely human controlled with the result that small, fragmented habitats are often unable to function naturally. This is most obviously seen in our floodplains, which are highly regulated so that flooding is often a rare and short-lived event. Small woodlands have a different microclimate to large woodlands; hence, shade loving species may be lost. The most obvious example of where natural processes still contribute to creating wildlife rich areas is the coast. The north Norfolk coast illustrates the value of natural processes with its wildlife rich sand dunes, mudflats and saltmarsh.

Thirdly, a particular concern that has emerged in recent years is how our wildlife and habitats can respond to climate change. As the climate changes, habitats will tend to change at a given location. If the climate becomes drier then permanently wet areas, for example, may become seasonally wet or even dry with consequences for the wildlife they support. At a larger geographical scale, broad habitat zones may shift. Types of woodland found in warmer latitudes may shift northwards, with consequent changes in the wildlife they support. In a highly fragmented landscape, many species may not be able to shift their distribution in response to climate change, thus making them susceptible to local extinction (see Boxes A and B).

Box A - Some impacts of habitat fragmentation on wildlife

- Fragmentation of habitats results in smaller and isolated habitats surrounded by a more or less inhospitable landscape. Species' responses will vary depending on their ecological requirements;
- Small habitat patches tend to hold fewer rare and specialised species (those adapted to very specific habitat requirements), often because they have a less diverse range of microhabitats than a larger area;
- Small habitat patches are less likely to support viable populations of wildlife because they may not contain all the requirements a species needs for breeding, feeding and dispersal;
- Isolated populations of species may be affected by in-breeding resulting in potentially damaging genetic traits that may lead to population decline and local extinction;
- Small and isolated habitats are prone to environmental impacts such as flood, drought and fire that can change the habitat and result in local extinction of species;
- Natural ecological processes are severely restricted. Processes such as dispersal of species, flood regimes and sediment transport that create diversity in the landscape are altered;
- In many cases, the small and fragmented habitats that remain are adversely affected by adjacent land uses such as roads, diffuse pollution and spray drift.

Box B - An example of fragmentation of habitats – Breck heathland

The map below illustrates the loss of heathland habitat in Breckland from development, agriculture and forestry. Sites become smaller and more isolated. A consequence of this is that these habitats often cannot support viable populations of species over a long time period. It will be important to enlarge and reconnect these habitats.



Source: English Nature

How can we protect wildlife in the long term?

There are a number of key requirements to safeguard wildlife in the long term. Firstly, valued wildlife sites need to be protected from damage and destruction. Secondly, existing habitats need to be properly managed. Thirdly, there is the need to expand and re-connect the existing areas and restore habitats where they have been destroyed. The first two are the basis for the current 'site based' approach to nature conservation. This has had some success in recent years in protecting and managing relatively small areas and their associated wildlife. However, the consequences of fragmentation explained above demonstrate the shortcomings of this approach in the long term.

An approach based on the large scale restoration and linking up of habitats – a so called 'landscape scale' approach – is increasingly seen as being necessary to safeguard our wildlife and to ensure sustainable development.

In this approach, existing wildlife habitats would continue to be protected and managed but in addition they would be enlarged and linked together to create an interconnected landscape. The intervening landscape would be made more amenable for species to move through it by being more sympathetically managed.

Larger areas of habitat would suffer less from species loss, would enable large and therefore more sustainable populations to survive and would be affected less by external impacts, for example, from surrounding agriculture. In addition, as these large areas are linked together, it will give wildlife a better opportunity to move between different sites and to adapt more easily to environmental change. It would also go some way toward allowing natural processes to function with a beneficial impact on wildlife. This approach is seen as a pragmatic response to securing a better future for wildlife in an intensively populated and managed countryside, where it is unrealistic to create vast areas for wildlife.

One approach that provides the conceptual and strategic basis for achieving this outcome and which is increasingly being developed and implemented is that of the Ecological Network.

What is an Ecological Network?

An Ecological Network in Norfolk would comprise the following elements:

Clusters of high value wildlife sites would form **core areas**. These sites currently harbour the critical habitat that supports the bulk of our biodiversity. They could, for example, include SSSIs or County Wildlife Sites or Biodiversity Action Plan (BAP) habitats such as chalk grassland.

Buffer areas would help protect these sites from the surrounding intensively managed countryside to reduce adverse impacts from adjacent land-uses. The buffering of the core areas would need to be based on local need and opportunities, but would invariably include restoration of habitats, the establishment of low input agriculture such as grassland or other sympathetic land-uses and management.

The spatial distribution of habitats within the county needs to be addressed. **Enhancement areas** should be identified where wildlife is currently impoverished and where there would be a focus on **habitat creation**, for example, new wetlands in the Fens or the restoration of rivers. This would invariably occur on areas that are currently under intensive agriculture or even brown-field sites in urban areas.

Central to the concept of an Ecological Network is **connectivity** between the core areas and restored areas. Increased connectivity or the removal of barriers enables wildlife to move through hostile environments. Continuous corridors of habitat could be created, such as along river valleys. However, connectivity need not be a continuous, unbroken chain of habitat; a series of sites or stepping stones between core areas can also be effective. (See Boxes C and D for examples of the different elements of an Ecological Network.)



Saltmarsh

The expanse of habitats on the coast acts as a wildlife corridor. In some areas, the coastal plain is used for agriculture. There is potential to create new habitats on this to allow the coast to adjust to rising sea levels.

Photo credit: Norfolk Wildlife Trust

Waterway with canoes

Wetland creation can benefit people as well as wildlife. Plans to develop tourism in the Fens could be linked to wetland creation.

Photo credit: Norfolk Wildlife Trust



Heathland

Heathland occurs in restricted areas because it requires specific soil types. Surveys have been undertaken to identify locations for heathland creation.

Photo credit: Bill Boyd

Wetland

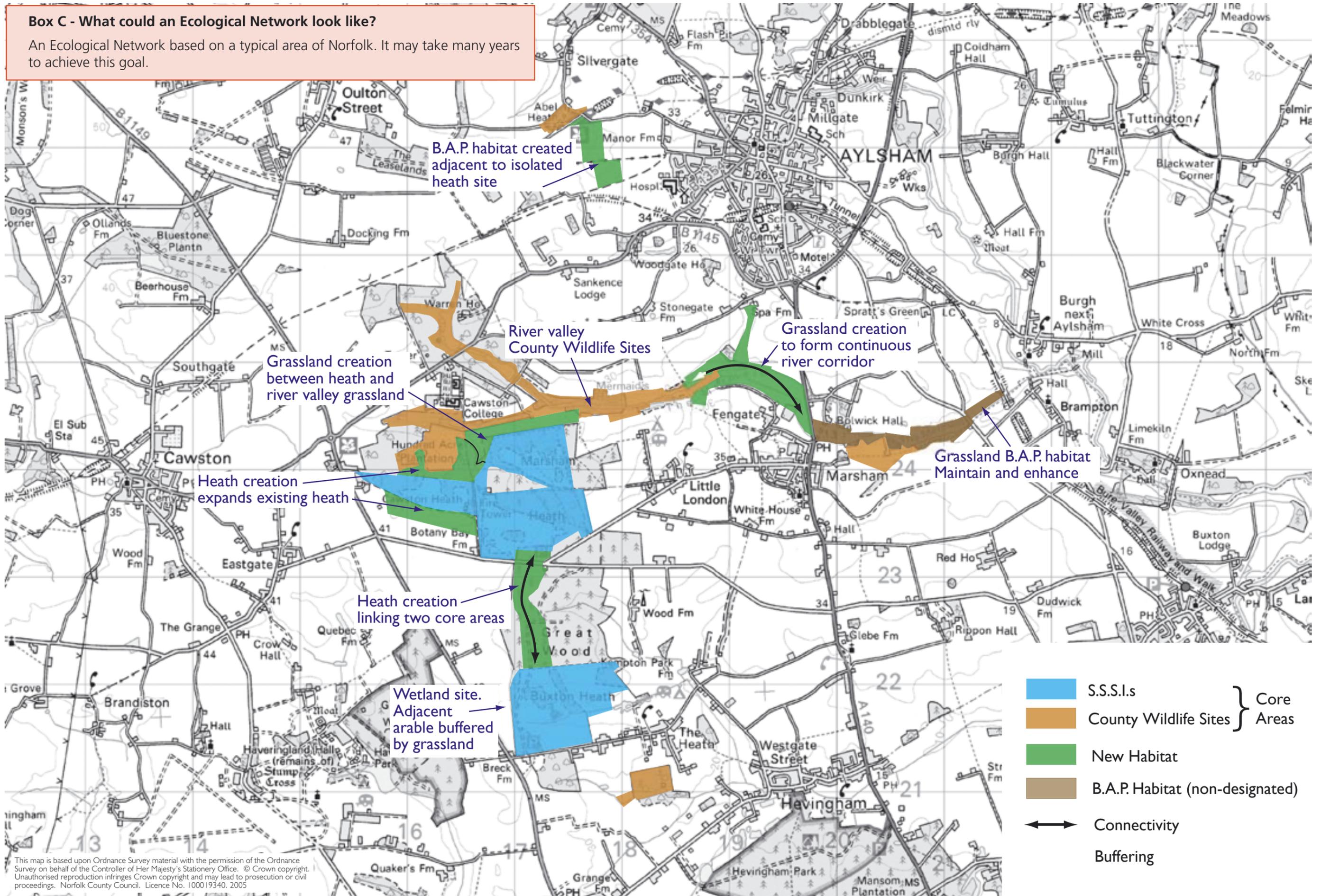
Large scale wetland creation will be increasingly required to make up for losses on the coast caused by sea level rise and changes in coastal flood defence policy. It is important to ensure that new wetlands are located in the best position to maximise the benefits.

Photo credit: Norfolk Wildlife Trust



Box C - What could an Ecological Network look like?

An Ecological Network based on a typical area of Norfolk. It may take many years to achieve this goal.



This map is based upon Ordnance Survey material with the permission of the Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Norfolk County Council. Licence No. 100019340. 2005



Glaven Valley

The numerous small valleys in Norfolk often form a corridor of wildlife habitat through the farmed landscape. They are rich in wildlife and can help species like otter to move through the landscape.

Photo credit: S Henson



Drain in Fens

In the Fens, drainage channels separating the fields are often important corridors for wildlife and support populations of water vole.

Photo credit: S Henson



Otter

Photo credit: S Henson



Watervole

Photo credit: Simon Booth Photography

Wetland Management

Wildlife habitat often requires management in order to secure its long-term future. Support for this management can help raise farm incomes and create rural employment.

Photo credit: Norfolk Wildlife Trust



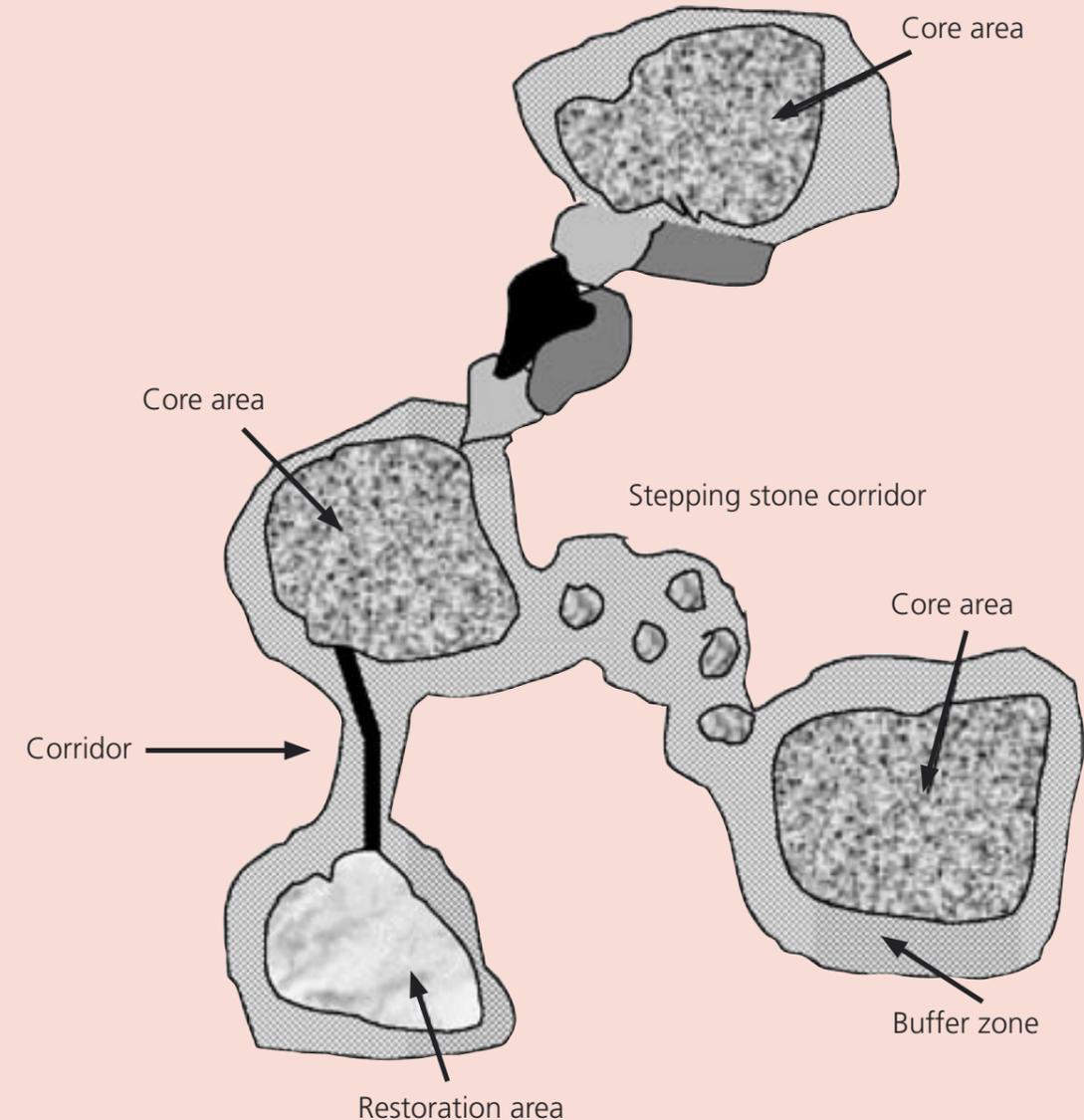
An Ecological Network can operate at any scale from the local to international. An example of an international network is the system of protected wetlands established to safeguard migrating waterfowl between the Arctic and Africa. On a local scale, a network could be developed to protect and enhance a population of great crested newts.

Even with an Ecological Network, there will still be a requirement to manage the surrounding countryside more sustainably to maintain ecological processes. This would include reductions in diffuse pollution, regulation of water use and sympathetic management of agricultural land for wildlife.

The basic principle of an Ecological Network is straightforward. The difficulty comes in deciding how big the network and its components should be and what needs to be incorporated in order to secure the County's wildlife.

Box D - Schematic representation of an Ecological Network

The diagram illustrates the key components of an Ecological Network. Not all components may be required within a particular area or to achieve the aim of securing a long term future for wildlife in a fragmented landscape.



What would an Ecological Network look like in Norfolk?

Fundamentally, the aim of an Ecological Network is to ensure the long-term survival of wildlife. A wide range of criteria depending on individual species' requirements, their spatial distribution and the potential within the existing landscape to create new habitats and corridors will determine the exact nature of a network. The Ecological Network approach is a flexible tool. It can develop alongside traditional land ownership and need not introduce new layers of landscape designation. It is envisaged as an incremental process whereby individual decisions by landowners, conservation bodies, business, developers and planners are made within the framework of the Ecological Network with each initiative contributing towards its realisation. As knowledge and information grow, it may be that some elements of the network change to adapt to new circumstances (see Box C).

In Norfolk, we are fortunate in that in some areas a strong basis for an Ecological Network already exists. Much of the coastline is relatively close to fulfilling its role as a Core Area. Similarly, the Broads and Breckland contain a high proportion of valued wildlife habitats, although these need expanding and many existing habitats need better management

There are large areas of Norfolk, however, where much needs to be done to restore wildlife and where habitat creation could be undertaken. Large-scale wetland creation in the Fens would go a long way to restoring the losses of these habitats that have occurred over centuries. Many priority BAP habitats such as heathland, chalk grassland, reedbeds and fens exist as small and isolated sites; however, there is often the potential to expand these and link them together.

River valleys often contain a relatively high proportion of wildlife habitat and could be developed as corridors across the county. Rivers themselves could be managed more sensitively and restored so that they are reconnected with their floodplains. Within the farmed landscape, Ecological Networks could be developed based on current features such as hedgerows, verges and field margins to help species such as great crested newt (see Box E).

Many of these actions are based on approaches already applied by landscape advisers and conservationists. A number of regions and counties are beginning to implement Ecological Networks or similar approaches (see Box G). To achieve a functioning Ecological Network will inevitably take many years. By adopting the Ecological Network concept, these approaches are unified, given a guiding objective and prioritised in terms of spatial location. They inform us of the scale of effort required but also the vast potential to restore our landscape for the benefit of wildlife and people.

Box E - Applying the Ecological Network approach to a species

Great crested newts occur widely through Norfolk. They are a protected species and a BAP species.

The UK population of this species is important in a European context but is generally considered to be declining. They are one of the widespread species typical of the farmed landscape that could benefit from the implementation of Ecological Networks.

Habitat - Great Crested Newts inhabit ponds during the breeding season but require other habitats such as grassland, scrub and woodland in which to find suitable feeding and hibernation sites. Small numbers of newts will travel over one kilometre in search of new ponds.

Objective - How can an Ecological Network help great crested newts?

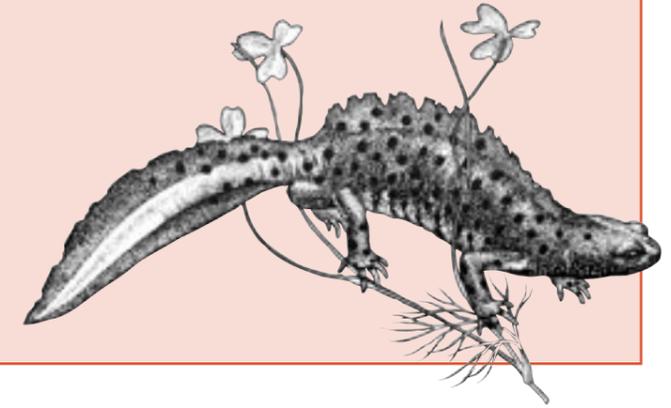
Newt ponds are often isolated from one another and can be in poor condition (e.g., heavily silted, heavily shaded or subject to intensive grazing by livestock). There may be a lack of suitable habitat around ponds, for example, a lack of grassland or scrub. Arable cultivation may reach to the edge of the pond. There may be barriers to movement so that newts cannot colonise new ponds making the population susceptible to local extinction. Barriers can include land-use such as roads and large

expanses of arable land with little semi natural habitat.

The traditional approach involving pond restoration is inadequate to protect this species in the above scenario.

Applying the principles of the Ecological Network, we would need to ensure that the core areas (existing breeding ponds) are protected and managed. The ponds would need to be buffered by establishing areas of grass and scrub around them and by isolating them from harmful activities (e.g., grazing). New habitat would need to be created to help boost the population. Finally, in order to enhance connectivity between ponds, new ponds could be created in between existing ones; hedgerows could also be planted and grass verges created to allow movement between ponds.

Many of these activities could be undertaken by landowners through agri-environment schemes. Many of the actions could also be achieved through planning conditions.



What are the benefits of an Ecological Network?

An Ecological Network would need to be achieved by a multiplicity of agencies working creatively together with all sectors of society, particularly in the field of land-use planning and management. Private landowners would need to be encouraged to participate in the creation of the network and it would require strong public support. There are many policies and initiatives already in existence that are helping to put the building blocks of an Ecological Network in place, even if this is not their explicit objective.

The development of an Ecological Network would need to integrate with other policy areas such as landscape protection, and demonstrate benefits in terms of social welfare, access and economic development. Given the contribution of the existing wildlife resource to many of these areas already, the potential for an Ecological Network to provide multiple benefits to society is considerable.

An Ecological Network could provide multiple benefits such as:

A major contribution to sustainable development and spatial planning. An Ecological Network would make a significant contribution toward ensuring the long-term protection of wildlife and natural resources. It would provide a robust framework within which many actions identified in the Regional Environment Strategy for the East of England could be delivered. These include guiding the location of development, reducing the vulnerability of the region to climate change, promoting the environmental economy and enhancing biodiversity. An Ecological Network will of necessity be implemented by local decisions. The approach offers great scope for planning and identification of local requirements. At the local level, communities can be encouraged to identify what is of value to them within a wider framework.

Larger areas of habitat will provide greater opportunities for the sustainable use of resources such as flood control using natural floodplains, larger areas of habitat to 'take up' diffuse pollution from farmland and the provision of natural products such as timber and game.

There are many plans and projects being developed by central and local government, statutory agencies and voluntary bodies ranging from implementation of the Water Framework Directive to individual attempts to enlarge nature reserves. Within Norfolk, landscape, archaeological and cultural

heritage objectives could be integrated with biodiversity planning with enhanced benefits resulting for all; where potential conflicts occur, innovative solutions can be developed.

Targeting of Biodiversity Action Plan actions. The UK BAP aims to achieve no net loss of priority habitats and the expansion of scarce habitats. Many widespread BAP species are still declining according to English Nature and require conservation action at the landscape scale and not on individual sites. The Ecological Network would provide a framework within which habitat creation targets can be linked to wider benefits.

Providing economic benefits. Currently, natural landscapes such as the coast and Broads contribute significantly to rural incomes. Tourism development based on natural areas such as the Norfolk coast is an obvious example. It could be envisaged that a larger area of natural habitat might redistribute tourist pressure, thereby spreading the benefits, reducing local problems and contributing towards increased sustainability. Benefits could arise by linking rural regeneration and farm diversification to achieving the objectives of the Ecological Network.

Enhancement of physical, mental and social well-being. A wide range of recreational opportunities can be envisaged if planned as part of the objectives of an Ecological Network. Areas such as Thetford Forest currently support many recreational activities planned as part of the wider forest management. The importance of creating greenspace in rural and urban areas is widely recognised for a whole range of health related issues. Increased housing in Norfolk will need to be accompanied by high quality greenspace where people can find recreational opportunities. In many areas of rural Norfolk, there is a lack of easily accessible natural greenspace. Linking the provision of this greenspace to an Ecological Network would bring multiple benefits.

Delivering the network

The policy framework

Working with the Grain of Nature, the government's biodiversity strategy for England, has as a priority policy "the joining up of matrices of semi-natural habitats in a way that will enable wildlife to thrive". It also seeks to ensure that conservation sites sit within a wider, 'wildlife-friendly' landscape that reduces fragmentation of habitats – that is, an Ecological Network.

Regional policy support for the Ecological Network approach is found in Policy ENV3 on biodiversity in the draft Regional Spatial Strategy. This seeks the conservation, restoration and re-establishment of key resources and specifically the identification and safeguarding of areas for habitat restoration. It also seeks appropriate management of wildlife corridors and establishment of networks of semi-natural greenspace in built up areas. It is expected that the approved Regional Spatial Strategy will contain specific reference to the creation of an Ecological Network (see Box F).

The planning framework

The preparation of Local Development Frameworks (LDFs) offers the opportunity to integrate the concept of an Ecological Network into local planning. This could act as a catalyst to stimulate local initiatives on the ground. With the current emphasis on community participation, there is also the potential to involve local people in a process that could have a profound impact on rural character. PPS12 on Local Development Frameworks states that LDFs may show areas where biodiversity will be enhanced. In addition, it sets out government's stated approach to climate change and sea level rise, which recognises the need to consider the impacts of climate change on the movements of species.

Planning Policy Statement 9 on Biodiversity and Geological Conservation also supports the principles that underpin an Ecological Network. Specifically, it recognises that networks of natural habitats provide a valuable resource for wildlife by enabling migration, dispersal and genetic exchange of species. Planning authorities are encouraged to avoid and repair the fragmentation and isolation of habitats and that this may be done as part of a wider strategy.

An Ecological Network as described above would not be created and managed as a single entity and would inevitably be developed over time. Implementation could be through planning gain on the back of major developments or planning conditions such as after-use on aggregate extraction sites. It could be delivered as an integral part of regeneration initiatives such as the creation of wetlands in the Fens as part of tourism initiatives. The targeting of Environmental Stewardship funding could help deliver part of the network by providing incentives for landowners to manage their land in a way that contributes toward strategic objectives of linking and expanding key wildlife sites.

Expertise and partnerships

The role of landowners is crucial, as without their support it will not be possible to establish a functional network. In order to achieve the multiple benefits that are described above, sectors of the community traditionally divorced from involvement in countryside management (eg, business and health and welfare sectors) should be more fully engaged. There will undoubtedly be a large commitment required in terms of advice and management expertise. Finally, there will be a need to develop expertise in this landscape scale approach with its multi-disciplinary objectives.

The existing delivery of management would at least initially be met through innovative use of agri-environment funding. However, as mentioned above, much could be achieved if other 'development' projects incorporated the Ecological Network idea into their planning based on a realisation of its value. Inevitably, new sources of funding would be required to develop ideas, provide information and encourage public participation.

Opportunities now exist to plan for a radically different countryside. Changes in agricultural policy and greater recognition of the need for sustainable development mean that new approaches are required. We are in a position to pass onto future generations a landscape richer in wildlife and valued by people. This new landscape would reverse the losses of recent decades and create a new relationship between people and wildlife based on the principles of sustainable development and harmony with nature.

Box F - The East of England Biodiversity Mapping Project

An Ecological Network for Norfolk could be based on the principles established by the East of England Biodiversity Mapping Project. A consortium of government agencies and conservation groups produced this. It sets out a broad spatial framework for developing a network. It identifies core areas for wildlife on a regional scale and areas for enhancement. The latter are identified based on regional landscape characteristics. Major river corridors are identified that provide linkages across the region's landscape. In addition, the map identifies large towns subject to major development pressures over the coming years and seeks to integrate them into the Ecological Network through the provision of accessible greenspace and links to the countryside.

In providing the framework, the map leaves scope for local interpretation and development of the Ecological Network, thus allowing flexibility in its interpretation.

Box G - Further information and references

Policy

1. East of England Plan. Draft revision to Regional Spatial Strategy. EERA, 2004.
2. Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System. ODPM, 2005.
http://www.ecnc.nl/EuropeanEcologicalNe/Index_6.html
3. Our Environment, Our Future. Regional Environment Strategy for the East of England. EERA/EEEF, 2003.
4. Planning Policy Statement 9: Biodiversity and Geological Conservation. ODPM, 2005.
http://www.odpm.gov.uk/stellent/groups/odpm_planning/documents/page/odpm_plan_030964.hcsp
5. Planning Policy Statement 12: Local Development Frameworks. ODPM, 2004.
http://www.odpm.gov.uk/stellent/groups/odpm_planning/documents/page/odpm_plan_031155.hcsp
6. Working with the Grain of Nature – a biodiversity strategy for England. DEFRA, 2002.
<http://www.defra.gov.uk/wildlife-countryside/biodiversity/biostrat/>

Examples of Ecological Network planning

7. Cheshire County Council – an Ecological Network for people and wildlife.
http://www.cheshire.gov.uk/Planning/SREP/NHE_ECONet_Ecointro.htm
8. East of England Biodiversity Mapping Project. Land Use Consultants & Terra Consult, 2005.
<http://www.eastspace.net/biodiversity>
9. European Centre for Nature Conservation – background information on Ecological Networks.
http://www.ecnc.nl/EuropeanEcologicalNe/Index_6.html
10. Huntingdonshire Council. LDF core strategy showing biodiversity map and potential habitat creation sites. http://consultation.limehouse.co.uk/huntingdonshire/drafts/1/chapter_30.html
11. Rebuilding biodiversity in the South West. Details on how one region is creating an Ecological Network. <http://www.swbiodiversity.org.uk/framesets/Option4.htm>
12. 'Opportunity maps' for landscape-scale conservation of biodiversity: A good practice study. English Nature Research Report Number 641. Gavin Saunders and Alison Parfitt. English Nature, 2005.

General

13. Norfolk Biodiversity Partnership website. <http://www.norfolkbiodiversity.org/>

