

A living landscape for the south east

**The ecological network approach to
rebuilding biodiversity for the 21st century**

Imagine ...

... 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 the South East. 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 the South East.

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), set aside 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 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 the South East Region'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

An ecological network in the South East would not stand in isolation, but would integrate with other regional and national programmes to enlarge and reconnect areas of wildlife habitat. Indeed, the close links which the South East Wildlife Trusts have with European nature conservation bodies would bring potential cross-channel links to growing networks in France and The Netherlands.

Some key ideas

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

- 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 concept does not represent a departure 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.

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 the South East, as accepted in the England Biodiversity Strategy, the Regional Spatial Strategy and PPS9, include the reversal of biodiversity loss and habitat fragmentation.

The draft South East Plan

States that “Opportunities for biodiversity and habitat enhancements at a range of scales need to be identified and realised”, and highlights “areas of strategic opportunity for biodiversity improvement”. The plan states that local authorities, government agencies and other organisations should work together to:

- Identify areas of opportunity for biodiversity improvement in Local Development Documents and other strategies affecting land-use and management.
- Ensure that opportunities for biodiversity improvement are realised as part of development schemes, including creation and enhancement of green corridors and networks.
- Pursue joint projects on areas that cross administrative boundaries, particularly where this enables a more strategic approach to fragmented sites.

This is backed up by policy NRM4 (Conservation and Improvement of Biodiversity) which mandates Local Authorities and other bodies to seek to avoid net loss of biodiversity, and actively pursue opportunities to achieve net gain across the region by:

- Identifying areas of opportunity for biodiversity improvement and pursuing opportunities for biodiversity improvement, in particular large-scale habitat restoration, enhancement and recreation in the areas of strategic opportunity for biodiversity improvement.
- Establishing accessible green networks and open green space in urban areas.

Initiate

Making it happen

Having a vision for an ecological network for the South East 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 South East 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 South East ecological network set out in this document is being developed by the Wildlife Trusts in the South East in discussion with a range of partner organisations. Each Wildlife Trust will be able to provide more detail and background on the network in their own county. 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 South East 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.

Identify

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 county.
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.

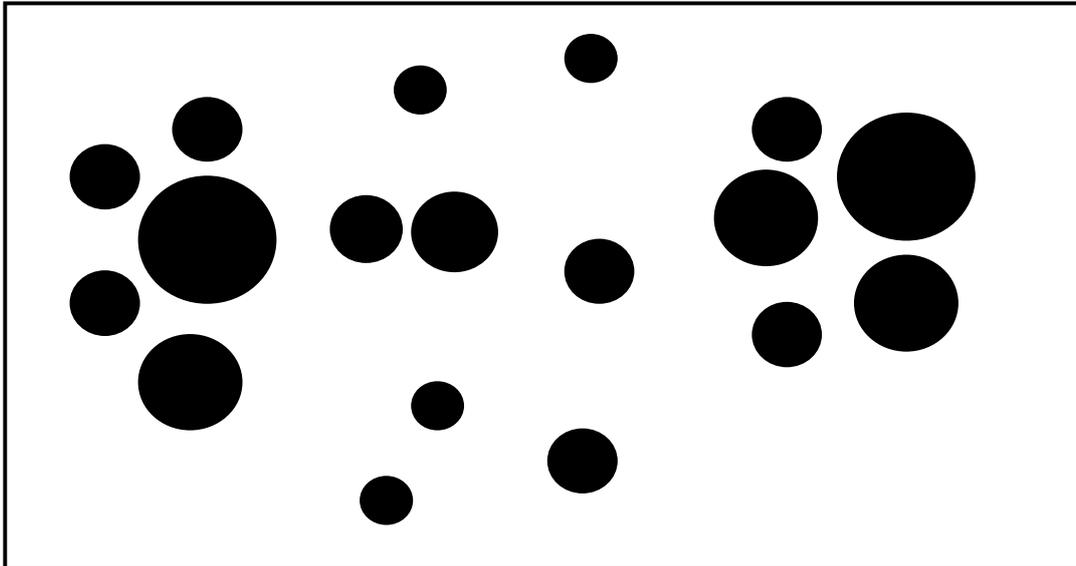
‘Stepping-stone’ habitats

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.

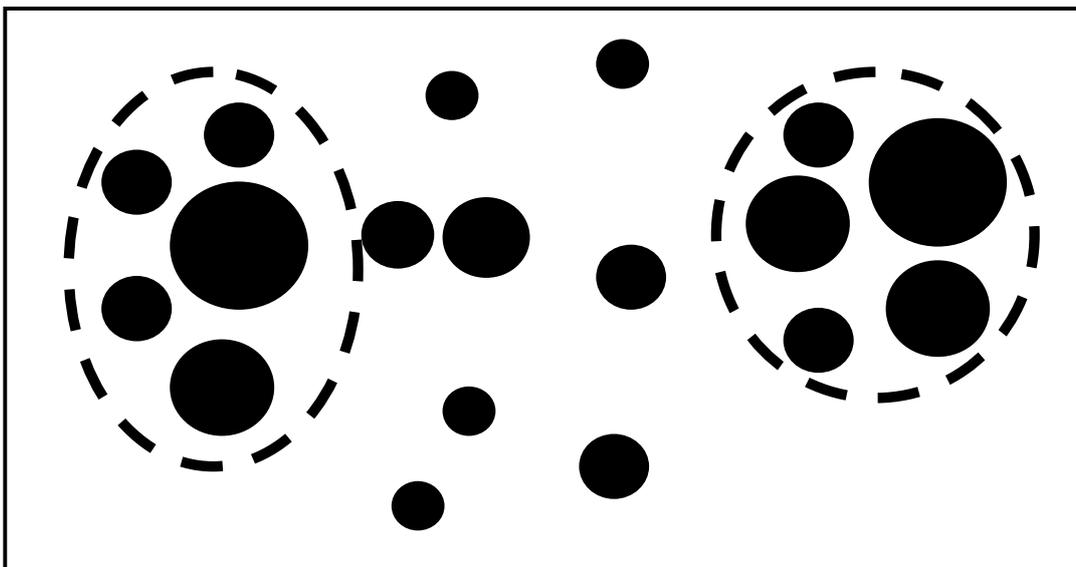
For example, a relatively immobile, woodland species might require a direct, physical link between two woodlands (i.e. a wildlife ‘corridor’). Conversely, a mobile, grassland species might be able to cross a few hundred metres of unsuitable habitat between grassland blocks; in this case, closely spaced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

How the ecological network was created

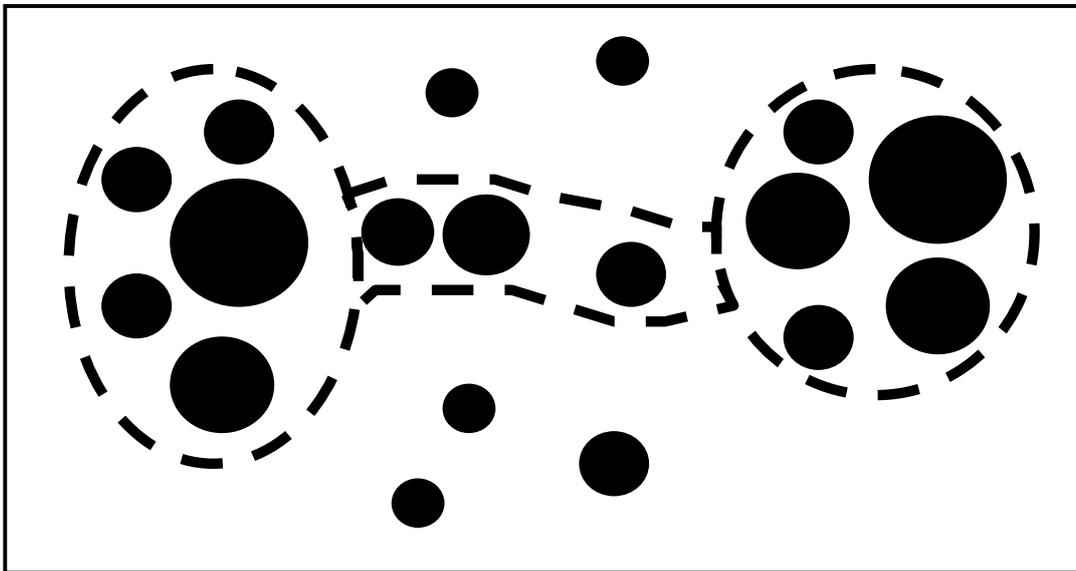
1 Map the existing habitats and designated sites.



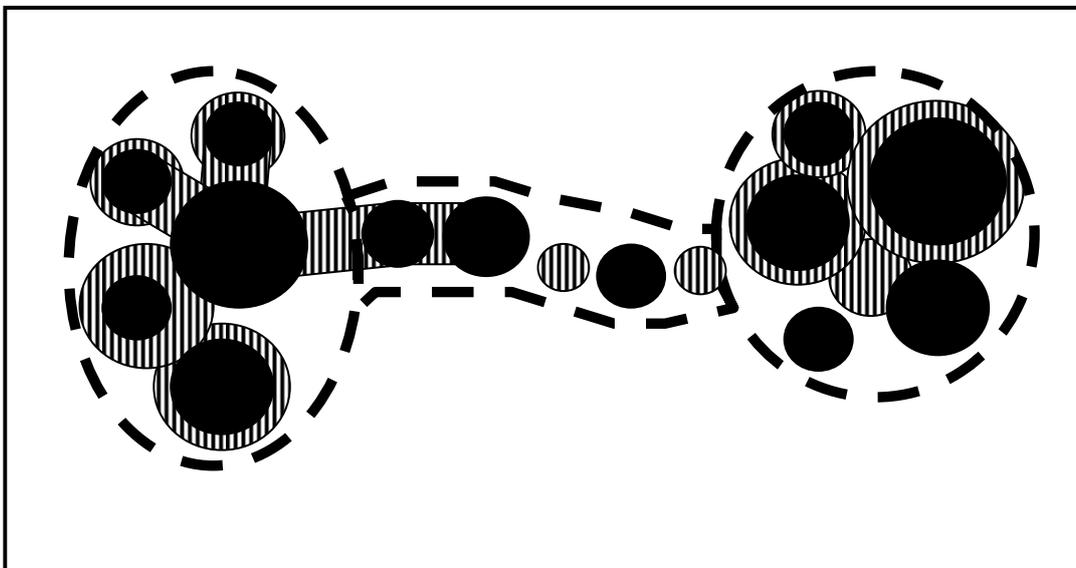
2 Identify the clusters of habitats/sites which form the core areas.



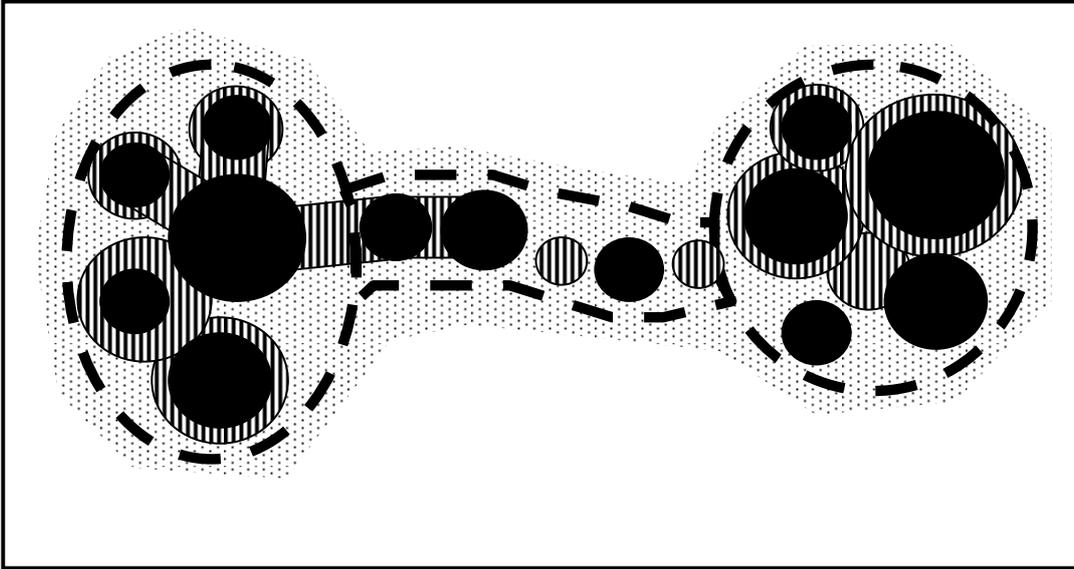
3 Identify where network links can be formed between core areas.



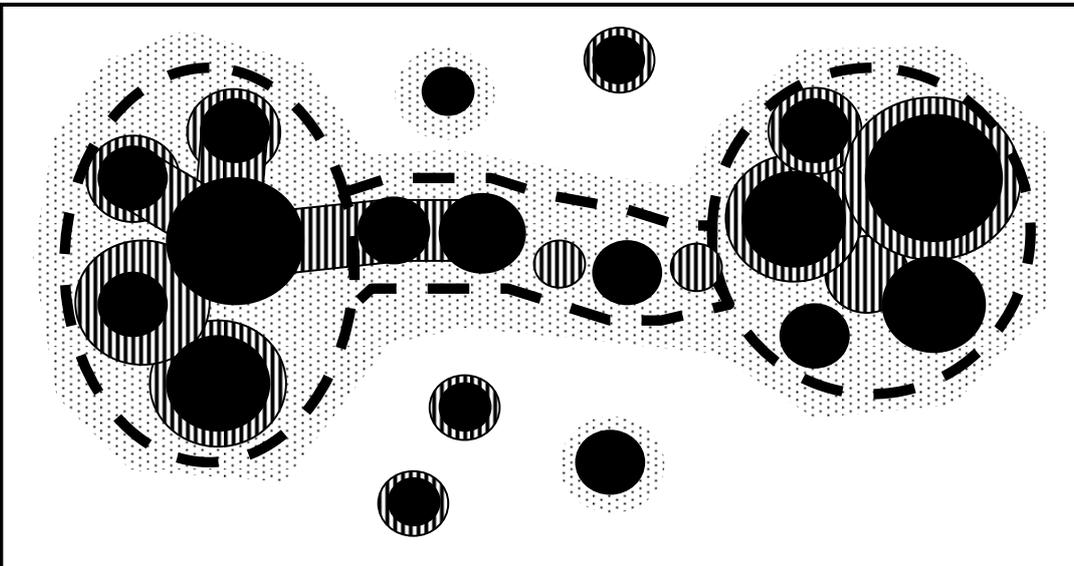
4 Buffer and link habitats to create large habitat areas, and to create functional links between these. This is the ecological network.



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.



Implement

South East Ecological Network

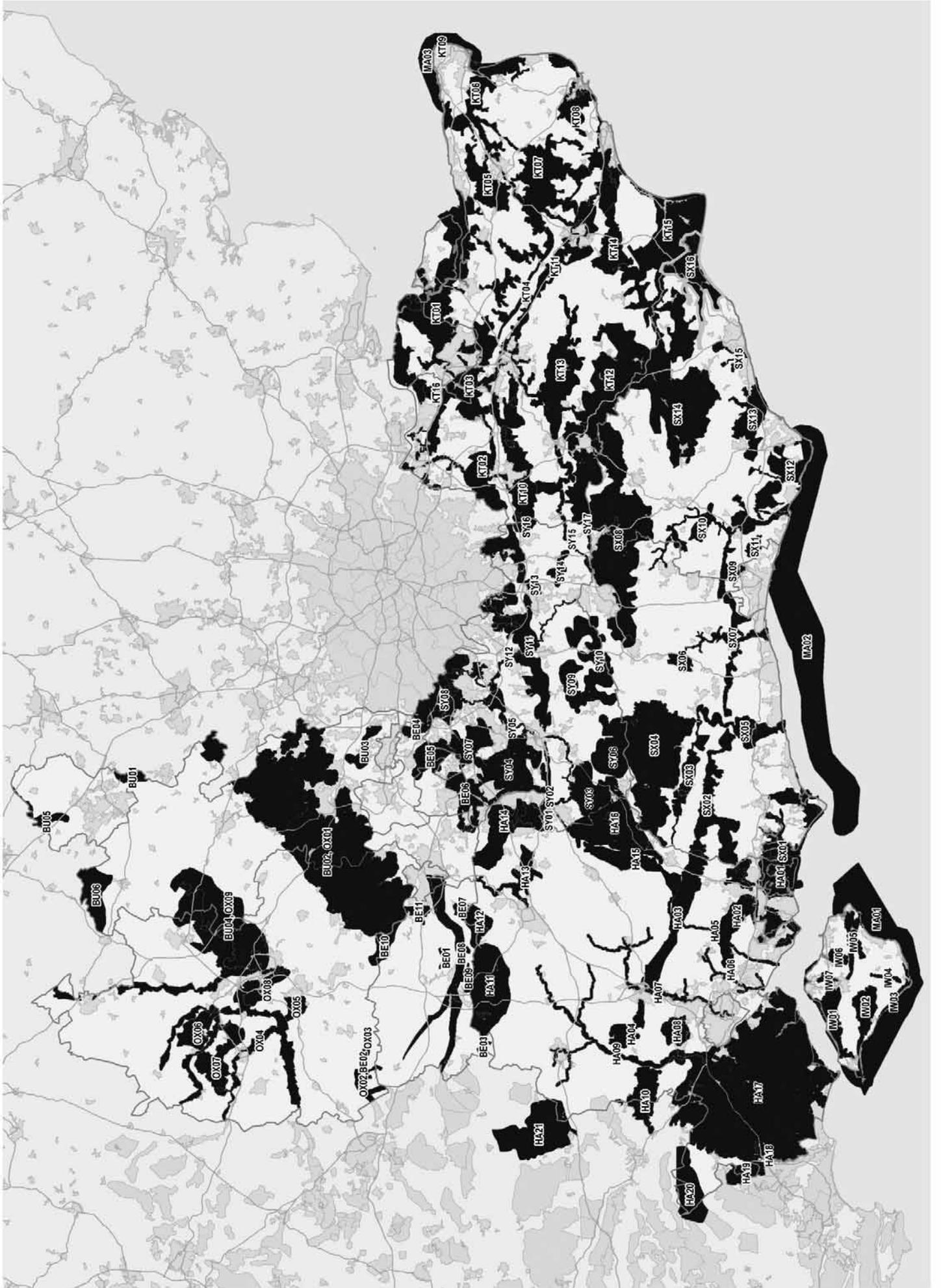
The map on the next page shows a model for rebuilding the region's biodiversity, in a way which will

- Increase the ability of the environment to deliver ecosystem 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.

Map produced by Sussex Biodiversity Record Centre. Data supplied by the Wildlife Trusts in the South East, South East Marine Programme, and English Nature.

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Map is a high definition image which can be enlarged on a screen.



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

Berkshire

- BE01** Buckleberry Common
- BE02** North Wessex Downs (Lambourn)
- BE03** Inkpen to Walbury Hills
- BE04** South West London Open Water & Wetlands
- BE05** Windsor Great Park & Heathlands
- BE06** Thames Basin Heaths
- BE07** Decoy to Pamber
- BE08** Kennet & Lambourn Floodplains
- BE09** Greenham to Brimpton Heaths, Woods & Reedbeds
- BE10** Berkshire Downs to Goring Gap
- BE11** Moor Copse to Sulham Woods & Meadows

Buckinghamshire

- BU01** Greensand
- BU02** Chilterns
- BU03** Burnham Beeches
- BU04** Bernwood and the Upper Ray
- BU05** Yardley to Whittlewood Ridge (Buckingham)
- BU06** Yardley to Whittlewood Ridge (Linford)

Hampshire

- HA01** Harbours area
- HA02** Forest of Bere
- HA03** South Downs (Butser Hill to St Catherine's Hill)
- HA04** Hampshire Downs
- HA05** River Meon Valley

HA06 River Hamble Valley
HA07 River Itchen Valley
HA08 Emer & Baddesley
HA09 River Test Valley
HA10 Tytherleys & West Dean
HA11 North Wessex Downs
HA12 Pamber Forest
HA13 Rivers Loddon & Lyde
HA14 Thames Basin Heaths
HA15 East Hants Hangars
HA16 Wealden Heaths & Woods
HA17 New Forest
HA18 Avon Valley
HA19 Ringwood Forest
HA20 Cranborne Chase
HA21 Eastern Salisbury Plain

Isle of Wight

IW01 North-west Coast & Parkhurst
IW02 Western Chalk
IW03 South West Coast
IW04 Cridmore to Niton
IW05 Eastern Chalk
IW06 Briddlesford
IW07 Medina Valley

Kent

KT01 North Kent Marshes

- KT02** Central North Downs
- KT03** Medway Gap & North Kent Downs
- KT04** Mid Downs Woods & Scarp
- KT05** The Blean
- KT06** Lower Stour Marshes
- KT07** East Kent Woodlands & Downs
- KT08** Dover & Folkestone Downs & Cliffs
- KT09** Thanet Cliffs & Shore
- KT10** Greensand Heaths & Commons
- KT11** Mid Kent Greensand & Gault
- KT12** High Weald
- KT13** Medway & Low Weald Wetland & Grassland
- KT14** Low Weald Woodlands
- KT15** Romney Marsh & Rye Bay
- KT16** Thames-side Green Corridors

Marine areas

- MA01** South Wight & Solent Maritime
- MA02** Sussex Marine Sites
- MA03** Thanet Chalk Coast & Reefs

Oxfordshire

- OX01** Chilterns
- OX02** North Wessex Downs
- OX03** Moulsoford Downs to Whitehorse Hill
- OX04** Upper Thames Tributaries
- OX05** Cothill
- OX06** Ditchley Park

- OX07** Wychwood Forest
- OX08** Wytham to Bagley Woods
- OX09** Bernwood

Surrey

- SY01** North Farnham Heathland & Grassland
- SY02** River Blackwater Valley
- SY03** Wealden Heaths
- SY04** North West Surrey Heathland
- SY05** River Wey Valley
- SY06** West Weald Woodland
- SY07** North Surrey Heathland
- SY08** N W Surrey Open Water, Reedbed inc. RiverThames Valley
- SY09** Lower Greensand Heath, Woodland, Wood Pasture & Parkland
- SY10** Wealden Woodland, Open Water & Wetland
- SY11** North Downs Chalk Downland, Wood Pasture & Parkland
- SY12** River Mole Valley
- SY13** East Wealden Woodland & Farmland
- SY14** High Weald Woodland
- SY15** Eden Brook & River Valleys
- SY16** Greensand Heath
- SY17** Wealden Forest Ridge

Sussex

- SX01** Chichester & Pagham Harbours
- SX02** Western Downs
- SX03** Rother Valley & Greensand Heathlands
- SX04** West Weald

- SX05** Arun Valley
- SX06** Knepp Estate
- SX07** Adur Valley
- SX08** Wealden Forest Ridge
- SX09** Arun to Ouse Downland Scarp
- SX10** Ouse Valley & Lewes Downs
- SX11** Castle Hill
- SX12** Cuckmere Valley & Eastern Downland
- SX13** Pevensey Levels
- SX14** High Weald Woods & Meadows
- SX15** Combe Haven
- SX16** Pett Levels, Rye & Brede

References

The Wildlife Trusts' Vision

A Living Landscape – a call to restore the UK's battered ecosystems, for wildlife and people. The Wildlife Trusts, 2006. Summary version and the full report are available as downloads from the 'free publications' page of The Wildlife Trusts' website www.wildlifetrusts.org.

The Scientific Case

Bennett, A.F. 2003. Linkages in the landscape: the role of corridors and connectivity in wildlife conservation. Cambridge, IUCN.

Catchpole, R.D.J. 2006. Planning for Biodiversity – opportunity mapping and habitat networks in practice: a technical guide. English Nature Research Reports, No 687. Peterborough, English Nature.

Dawson, D. 1994. Are habitat corridors conduits for animals and plants in a fragmented landscape? A review of the scientific evidence. Peterborough, English Nature.

Donald, P.F. 2005. Climate change and habitat connectivity. Assessing the need for landscape-scale adaptation for birds in the UK. Sandy, RSPB.

Kirby, K. 1995. Rebuilding the English countryside: habitat fragmentation and wildlife corridors as issues in practical conservation. Peterborough, English Nature.

Opdam, P. and Wascher, D. 2004. Climate change meets habitat fragmentation: linking landscape and biogeographical scale levels in research and conservation. *Biological Conservation* 117: 285-297.

Rohde, C.L.E. and Kendle, A.D. 1994 *Human well-being, natural landscapes and wildlife in urban areas*, English Nature, Peterborough.

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

The South East Plan – ‘a clear vision for the south east’ – is the Regional Spatial Strategy and can be found at www.southeast-ra.gov.uk/southeastplan.

The Wildlife Trusts in the South East

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.

The Wildlife Trusts in the South East currently have 122,000 members and manage 245 nature reserves with a total area of over 15,000 hectares (38,000 acres).



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