



A 50-YEAR VISION FOR WETLANDS

England's Wetland Landscape: securing a future for nature, people and the historic environment



LIFEBLOOD OF THE NATURAL WORLD

Freshwater wetlands are among the most important natural resources on Earth. They store and filter water and help control and buffer the effects of flooding. They also give us food, fuel and plant fibre; they capture carbon from the air and lock it up and support a wealth of fascinating and uniquely adapted wildlife. They form living landscapes giving enjoyment to millions of people, and contain a unique record of our past where the best-preserved archaeological remains exist.

Although wetlands were once common in the English landscape, a long history of drainage, development and pollution means only about 10% of the area present 1,000 years ago remains. Much of this loss has occurred since the Industrial Revolution with 100,000 hectares per year drained between 1840 and 1880 alone. Drainage continued into the 20th century, and impacts such as pollution continue to damage the precious remnants. Our impoverished and fragmented wetlands, and the wildlife they support, are struggling to survive just as we are beginning to understand how vital they will be in helping people and wildlife adapt to an uncertain future.

The Wetland Vision looks forward 50 years to a future where freshwater wetlands full of wildlife are found across the urban and rural landscapes, and where they are valued by society for the services they provide.

THE VISION

Our Vision is of a future in which wetlands form a significant feature of the landscape, where wildlife can flourish. It will be a future in which wetland heritage is recognised and safeguarded; where everyone can enjoy wetlands for quiet recreation and tranquillity. Vitally, it will be a future where wetlands are valued both for the roles they play in helping us deal with some of the challenges of the 21st century and in improving and sustaining our quality of life.

To realise this Vision we need to:

- Place existing wetlands at the heart of our vision; enabling them to adapt in the face of climate change by linking new and existing wetlands across the landscape.
- Restore degraded wetlands in the uplands and lowlands (including peatlands, rivers and lakes), so that, in functioning more naturally, they can provide enhanced benefits to society.
- Extend, in some cases double, lowland wetland habitats such as reedbed, ponds and grazing marshes.



- Preserve the unique and fragile record of our historic environment by keeping the most important former wetland sites wet.
- Create and restore wetlands wherever they can support wildlife, reduce run-off and pollution, and provide wildlife-rich green spaces for people to enjoy.
- Make wetlands more relevant to people's lives by better understanding and harnessing the benefits provided by naturally-functioning rivers and wetlands – that can slow and store flood waters, protect water quality, recharge groundwaters and store carbon – and then by communicating these benefits widely throughout society.

Our Vision is supported by maps that illustrate how fragmented and threatened wetlands are today and just how extensive they once were. We show, at a national

scale, where freshwater wetlands could potentially be restored and created to protect and enhance wildlife, to preserve our wetland heritage and to deliver valuable services to society. Case studies of successful wetland projects demonstrate that our ambitions are achievable. Other maps show areas where a range of different habitat types could be sustained.

The maps form one tool to help make choices about where new wetlands could be most effective and desirable. They should be used together with more detailed local information that identifies opportunities and constraints, prior to initiating wetland projects. For those who want more specific data and maps, more information is available on the enclosed CD-Rom.

THE VISION MAPS

The wetlands that once covered large areas of England were dynamic landscapes, continually subject to change. In lowlands, rivers flowed through landscapes of reeds, fen, marsh and woodland. Until relatively recently these wetlands changed in character and extent in response to sea level rise and climate change, as well as human impacts through drainage and enclosure. Without efficient land drainage, or river and coastal flood defences, our landscape would be much wetter, with more naturally functioning floodplains and a coastal environment more susceptible to change.

The historic extent of wetlands: Map 1

Wetlands were much larger and more numerous in the past. Drainage, in particular over the last 500 years, has significantly reduced their area. Before then, a variety of habitats would have existed; wet, or sometimes only seasonally wet, and in many cases around the coast subject to saline or brackish conditions.

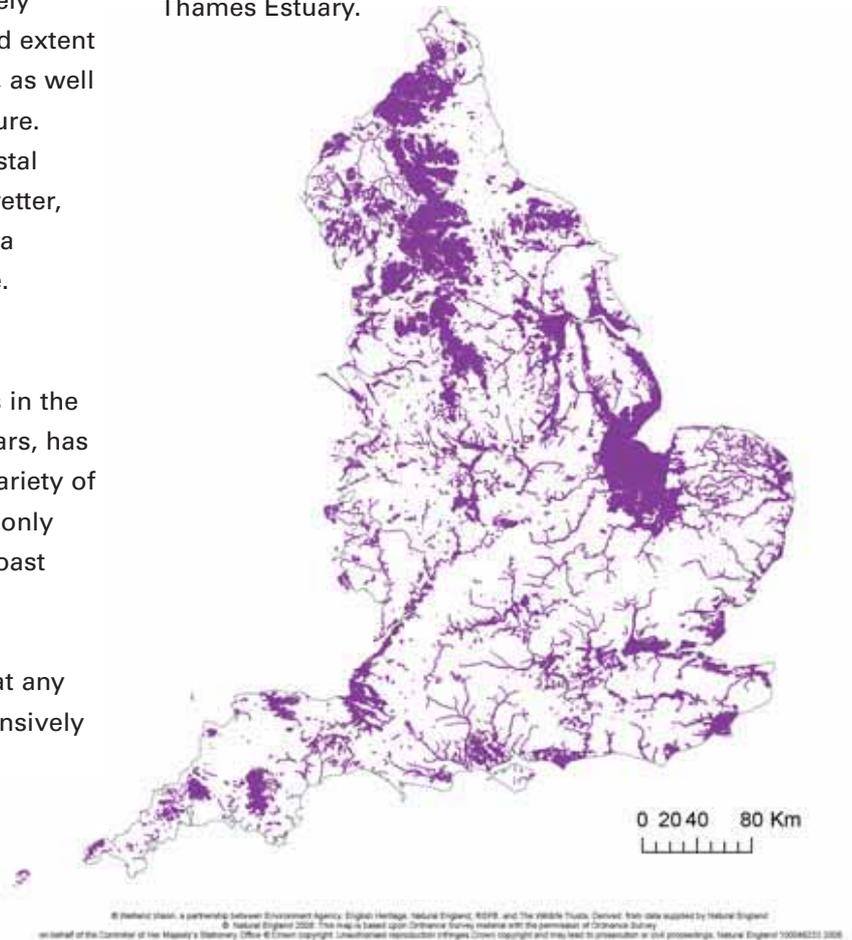
This map cannot show where wetlands existed at any given time because they have fluctuated so extensively

Map 1

The historic extent of wetlands

 Landscapes that featured large and expansive wetlands

over the centuries. It is not a definitive record of previous extent, but is based on underlying soil characteristics, and shows the maximum former extent of wetlands. A case study in this document describes the progressive loss of wetlands from the Thames Estuary.



The current extent of wetlands: Map 2

Our current wetlands are very different from those of previous millennia, both in function and form. They have a much-reduced presence in the English landscape, being smaller, more fragmented and isolated. Designated sites cover a fraction of the total extent of freshwater wetlands that remain today.

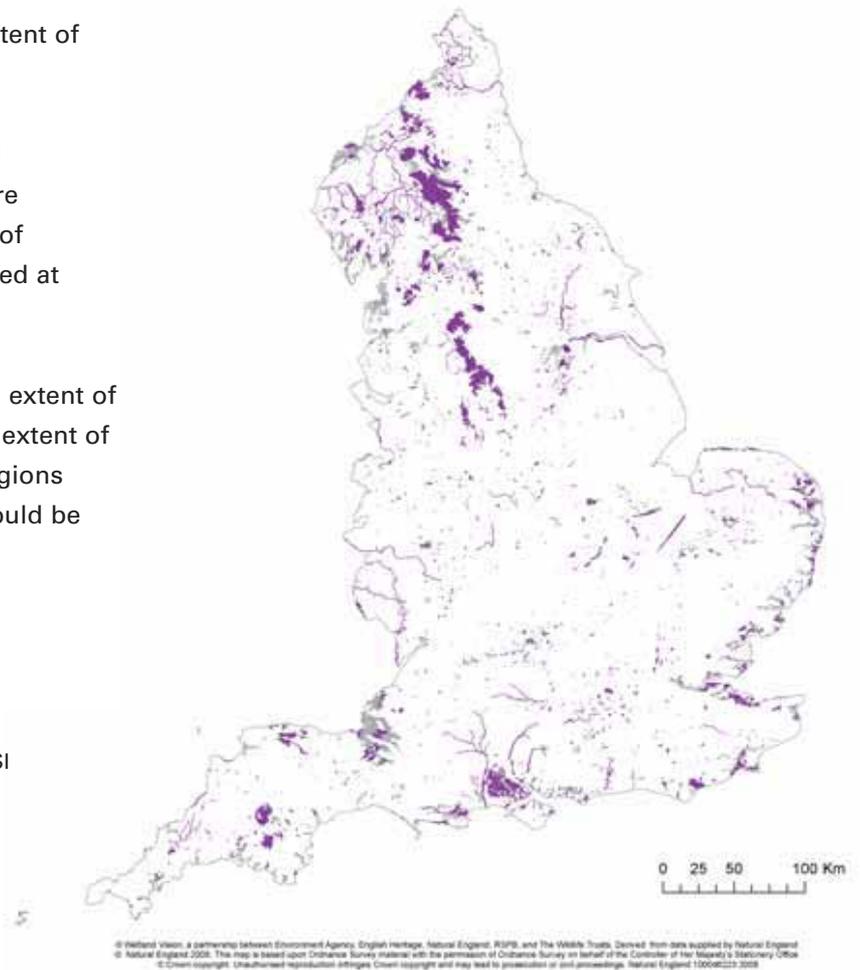
We have used the best nationally available and complete information. Data presented here were derived from statutory site data, and elements of national habitat inventories, which can be viewed at www.natureonthemap.org.uk.

This map almost certainly under-represents the extent of some wetland habitats, and over-estimates the extent of coastal and floodplain grazing marsh. Some regions have more up-to-date information, and this should be consulted where it exists.

Map 2

Current extent of wetlands

-  Current freshwater wetlands designated as SSSI
-  Current freshwater wetlands not protected by SSSI designation

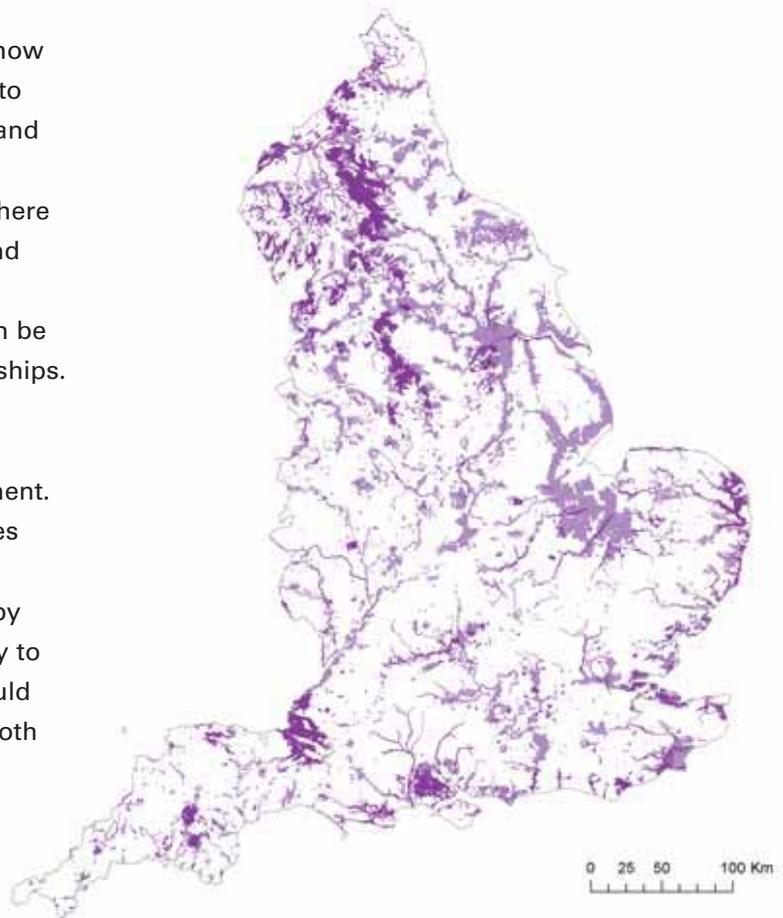


Future areas for delivery of the Wetland Vision: Map 3

Our Vision is to restore wetlands for the benefit of society through the conservation of their biodiversity, the preservation of the historic environment and other benefits such as flood mitigation and carbon sequestration. The pale purple areas on the map show where future wetlands have the greatest potential to benefit biodiversity and the historic environment, and where we should look for a range of other socio-economic benefits. These will be the main areas where we will look for significant opportunities for wetland creation and restoration, but other opportunities outside these areas should not be ignored, and can be informed and developed by local data and partnerships.

The data shown are based on an amalgamation of priority areas for wildlife and the historic environment. The current wetland extent (in dark purple) provides context, and in our Vision this will be restored and managed sustainably. Our coast will be impacted by rising sea levels. Adjacent land is therefore unlikely to support new freshwater wetlands in future, but could support more naturally functioning wetland with both

freshwater and brackish habitats. This map indicates priorities, but should not be viewed in fine detail.



Map 3

Map of potential for habitat creation

-  Current extent of wetlands
-  Future potential of wetlands

© Wetland Vision, a partnership between Environment Agency, English Heritage, Natural England, RSPB, and The Wildlife Trusts. Derived from data supplied by the Environment Agency and Database Rights (the Environment Agency) 2008. Derived from data supplied by Natural England © Natural England 2008. This map is based upon Ordnance Survey material with the permission of 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. Natural England 10046223 2008

WHO IS OUR VISION FOR?

The Wetland Vision was developed to help visualise the action needed to deliver sustainable wetland biodiversity and conserve the historic environment. The consensus achieved through our partnership adds weight to the use of this Vision in informing policy makers. The maps also provide a national context for those planning and acting locally, such as landowners, local communities or conservation organisations.

Our Vision was developed to work with current delivery mechanisms and partnerships, such as agri-environment schemes and the Environment Agency's Regional Habitat Creation Programme. It complements Regional plans, strategies and local projects, and provides guidance for those who would like to develop such initiatives.

Our Vision also complements *One future – different paths*, the UK's framework for sustainable development, which recognises the importance of living within environmental limits to conserve biodiversity. An underlying principle for sustainable development and the conservation of biodiversity is the ecosystem approach – a strategy for the integrated management of land, air, water and living resources that promotes conservation and sustainable use, and which recognises that people are an integral part of ecosystems. Key to its delivery is the enhancement and conservation of ecosystem structure and functioning, in order to maintain ecosystem services and the wider benefits they bring society.

VISION MESSAGES

Why we need more wetlands

Wetlands and their wildlife are in trouble. Many once widespread and familiar wetland species have declined markedly. Wetland plants such as fen violet, fen ragwort and fen orchid are now found at only a handful of locations. One third of lowland breeding wading birds in England are now confined to just five sites.

Archaeological deposits within former wetlands are also at risk. More than 100,000 wetland archaeological sites may have been lost or damaged in the last 50 years. Our past is decaying and literally blowing away, along with the peat soils in which it is buried.

Wetlands have the potential to play an effective role in absorbing floodwaters, recharging aquifers and capturing carbon. They are now much less able to provide these services because they are no longer connected to the river floodplain, more prone to drying out and vulnerable to pollution.

As the climate changes, there is more reason than ever to work with our environment's natural capacity to regulate the impacts of extreme weather events such as floods and storm surges. This will become more difficult if natural habitats such as wetlands are not restored, so that they can provide essential services to society and enable wildlife to adapt to very different conditions. Our



The snipe requires shallow water and soft mud in which to probe for food.



Vision is for a wider understanding of the importance of wetlands and of their relevance to people's lives.

WHAT SCALE OF WETLAND RESTORATION DO WE NEED?

We envisage a future where freshwater wetlands cover a much larger area of the landscape than they do today. We can achieve this by working together with landowners, using natural processes to recreate or restore wetlands where they will provide benefits to both wildlife and society.

Delivering targets for wetland creation and restoration by 2020 under the UK Biodiversity Action Plan (BAP) will do much to safeguard the immediate future of wetlands, but will not meet the challenges of the next 50 years. We need to double the area of some wetlands, such as reedbeds, to secure the future of some of our most threatened bird species, such as the bittern. We need to increase the area of habitats that support species such as snipe far above existing targets. This increase in area will also boost the protection afforded to the important archaeological legacy buried in our wetland soils.

Our Vision stresses the importance of large-scale and small-scale wetlands because of the wide range of benefits they can bring to society. Our maps suggest that individual locations can often support a range of different wetland habitat types. Advocating precisely

where habitats should be located is not appropriate at a national scale. Local knowledge and considerations are essential for making such decisions. We have chosen to present a map of wetland *potential* which should help to inform answers to these questions at a regional and local scale. Local considerations may include such issues as water availability or the locations of airports. We have produced maps that are intended to assist such local initiatives.

Preserving the historic environment

Wetlands are fragile archives of history. Their waterlogged soils help to preserve organic materials such as plant remains, pollen, wood, textile and leather, providing our most complete picture of past societies and the environments in which they lived. This archaeological evidence is unique and irreplaceable. Many of the deep deposits of clay and peat, which built up over thousands of years, have been destroyed in decades by agriculture and drainage.

Those impacts threatening the survival of wetland habitats and species often pose an equal threat to the historic environment. A future shared by both interests presents a more compelling message about the need to restore wetlands. A wetland protected for its biodiversity will be beneficial to its buried archaeology, and securing areas for their historic environment can deliver significant rewards for wildlife.

What about climate change?

Climate change will have a profound effect on people and wildlife. We acknowledge that our existing wetlands will change significantly. There are considerable uncertainties about the steps we should take in response to this, but we have tried to ensure that the methods we have used to produce our future wetland map are consistent with the UK BAP principles of ecological adaptation to climate change. Our Vision advocates wetlands that are more resilient to climate impacts. This will require making space, where appropriate, for our coasts and rivers to re-align and function naturally. It also means recreating landscapes that allow migration and relocation of species, by linking natural areas with wildlife corridors. In the right locations, such naturally functioning wetlands can help to protect people and property from the impacts of increased rainfall and sea-level rise by storing flood waters and slowing flood flows.

Our existing wetlands form an important carbon store. The National Trust has estimated that the UK's uplands contain some 3 billion tonnes of carbon, equivalent to 20 years of UK CO₂ emissions. It is vital that we stabilise this resource by restoring water levels together with sensitive management of our uplands.



The benefits provided by future wetlands

Our Vision seeks to integrate opportunities for future wetland wildlife with those of the historic environment, as well as delivering wider benefits to society. Our future wetlands will be diverse, supporting habitats and species of current and future conservation concern (www.ukbap.org.uk). They will often be part of large mosaics of semi-natural habitat, and contain significant areas of transition to other terrestrial and coastal habitats. Some rare wetland habitats, such as fens and raised bogs, are difficult to recreate but our Vision will help to secure these too.

Protecting wetlands and the archaeological evidence they contain for future discovery is a positive choice for the benefit of society in the future. We look to increase the public enjoyment of wetlands, and the appreciation of the functional benefits of rivers and their floodplains. Restoring floodplain wetlands and natural river flows can help restore to catchments their capacity for absorbing rainfall, slowing floodwaters and reducing surface water run-off.

The Wetland Vision Project examined a range of benefits provided by a selection of current wetland restoration projects. These have demonstrated, for example, that wetlands can also be economically productive supporting livestock grazing, harvesting of reed, sedge and willow for traditional craft activity or biomass, helping to sustain water resources, increasing tourism

and enhancing freshwater fish stocks. As an example, achieving the Vision for the Great Fen Project will deliver the following benefits:

- nature conservation
- education for children and adults
- access and enjoyment for local communities
- income generation for local businesses through tourism opportunities
- flood water storage to protect farmland.

Rivers and lakes in the Wetland Vision

Rivers and their restoration are core to the delivery of this Vision. Natural channel forms such as braided streams, meanders or ox-bow lakes are created by rivers moving across floodplains, and all provide particular habitat niches for freshwater wildlife. Restoration of these floodplain features can help to slow and store river flows. In our Vision, rivers will be free from avoidable human impacts and wherever possible connected physically and functionally with their floodplains, permitting the development of an enhanced and characteristic variety of habitats and wildlife. This will enhance the natural functions and processes that occur within rivers, ranging from thriving fish populations, to water purification, maximising the range of benefits that they provide for society. Our 'future wetland' map starts to show areas where river protection and restoration could enhance the development of

other wetlands and maximise public benefit. Major pressures on lakes, such as inadequate water levels and pollution will be managed, and lakes will operate naturally where possible within their wetland or floodplain setting.

Freshwater wetlands at the coast

The English coast supports some of our most important freshwater habitats, many of which are protected from inundation by the sea by artificial defences. Often these sites were reclaimed from intertidal habitats to create coastal grazing marshes, or have survived simply because they proved too difficult to drain. Some were created more recently as wartime defences, whilst others were once part of the coastal floodplain and are now protected by man-made sea defences.

Many of these sites will become brackish or inter-tidal as rising sea levels make artificial defences environmentally or economically unsustainable, and we will need to recreate lost coastal freshwater habitats simply to maintain their current extent. European and domestic law provides a framework for ensuring action is taken to help protected habitats and species adapt to this change. Our Vision maps indicate those areas where it might be appropriate to relocate vulnerable habitats and simultaneously deliver large-scale habitat gain. Rolling back lines of defence could help offset losses of saltmarsh and mudflat while freeing dunes, shingle ridges and other features to function more naturally,

helping to sustain those habitats into the future. Most wetland sites at the coast will remain important semi-natural areas albeit for a different range of habitats and species.

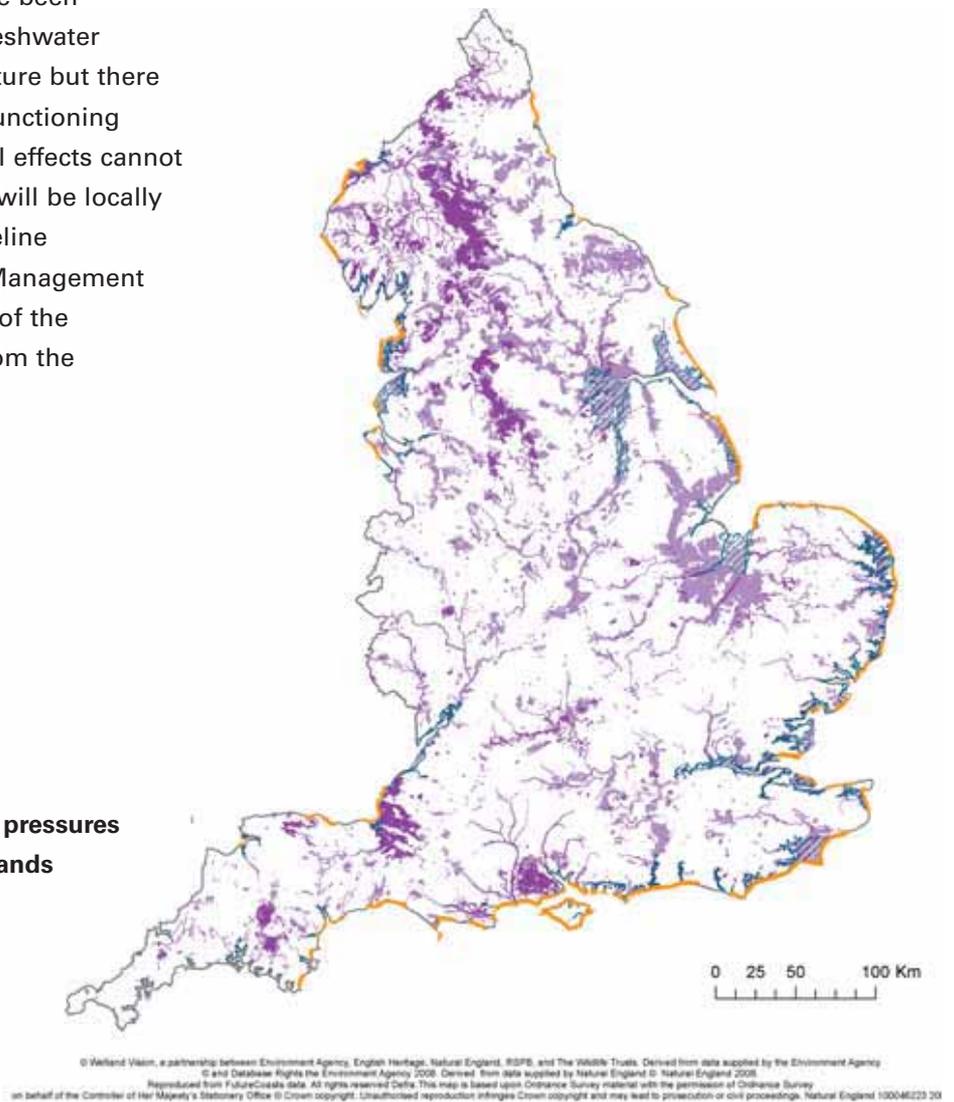
It would be inappropriate to promote the expansion of freshwater habitats in coastal areas, especially where there would be long term reliance on artificial sea defences, unless very specific conditions are met. For instance, the decision may have been made to hold a line of defence on wider socio-economic grounds. The need for adaptation is recognised in the strategic coastal management framework established by Shoreline Management Plans (SMPs) and Coastal Habitat Management Plans (CHaMPs). The latter were developed to consider the future and sustainability of existing freshwater wetlands at the coast in the face of ongoing losses of coastal habitats.

This map shows the future potential map (Map 3) overlain by information showing pressures impacting the coast, and areas that would once have been naturally saline. Where these coincide, freshwater habitats may not be sustainable in the future but there will be opportunities for more naturally functioning freshwater and brackish wetlands. The full effects cannot be accounted for within this project, and will be locally determined using the outputs from Shoreline Management Plans and Coastal Habitat Management Plans. Data are derived from the outputs of the Futurecoasts project and an extraction from the Environment Agency Floodmap (2001).

Map 4

The potential impact of coastal and tidal pressures on the delivery of future freshwater wetlands

-  Current extent of wetlands
-  Future potential of wetlands
-  Highest risk of coastal erosion
-  Tidal floodplain



WETLAND LOSS AT THE LOCAL LEVEL

The changing picture of the grazing marshes of the Thames Estuary: a case study

Between the 1930s and 1980s, two thirds of the coastal and floodplain grazing marsh in the Thames Estuary was lost. Of 44,000 ha of grazing marsh within the North Kent, East Essex, Foulness and Inner Thames area, 28,000 ha were converted to other land uses.

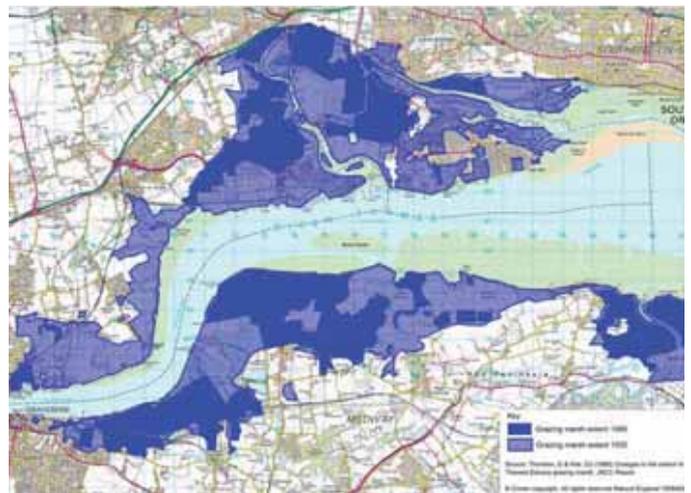
Improvements to flood defences after the 1953 storms, coupled with government incentives to increase food production, led to widespread drainage of wet grassland and cultivation for arable cropping. This was particularly evident in the Thames Estuary area where the greatest cause (around two-thirds) of land use change was the conversion of wet grassland to arable. Most of the rest was lost to industrial and residential development.

The area of loss was dramatic, and led to severe fragmentation of the area's wetland habitats and landscape. This land-use change also caused significant damage to a well-preserved prehistoric landscape (which is buried beneath later flood deposits), containing archaeological deposits spanning the last 6,000 years.

Today the picture is more optimistic. In recognition of the loss of habitat and species, the Essex Coast and North Kent Marshes were made Environmentally Sensitive Areas in the early 1990s. Under these schemes, more than 3,000 ha of arable land has been returned to wet grassland habitat and thousands of hectares of drained grassland have been made wet again.

Building on this progress, partnerships on both banks of the Thames are now working towards sustainable regeneration, recreating large areas of wetland habitat, visitor attractions and 'green lungs' for the Thames Gateway area. This is part of a landscape-scale vision for

Extent of grazing marsh along the Thames Estuary in 1935 and 1989



the area covering not only the network of nature reserves and protected sites, but also the wider landscape around the Thames Estuary, which will need to take into account the pressures of sea level rise, and of the new Growth Areas.

References

Thornton, D & Kite DJ (1990) *Changes in the extent of Thames Estuary grazing marsh*. NCC Report

Ekins, R (1990) *Changes in the extent of grazing marshes in the Greater Thames Estuary*. RSPB Report

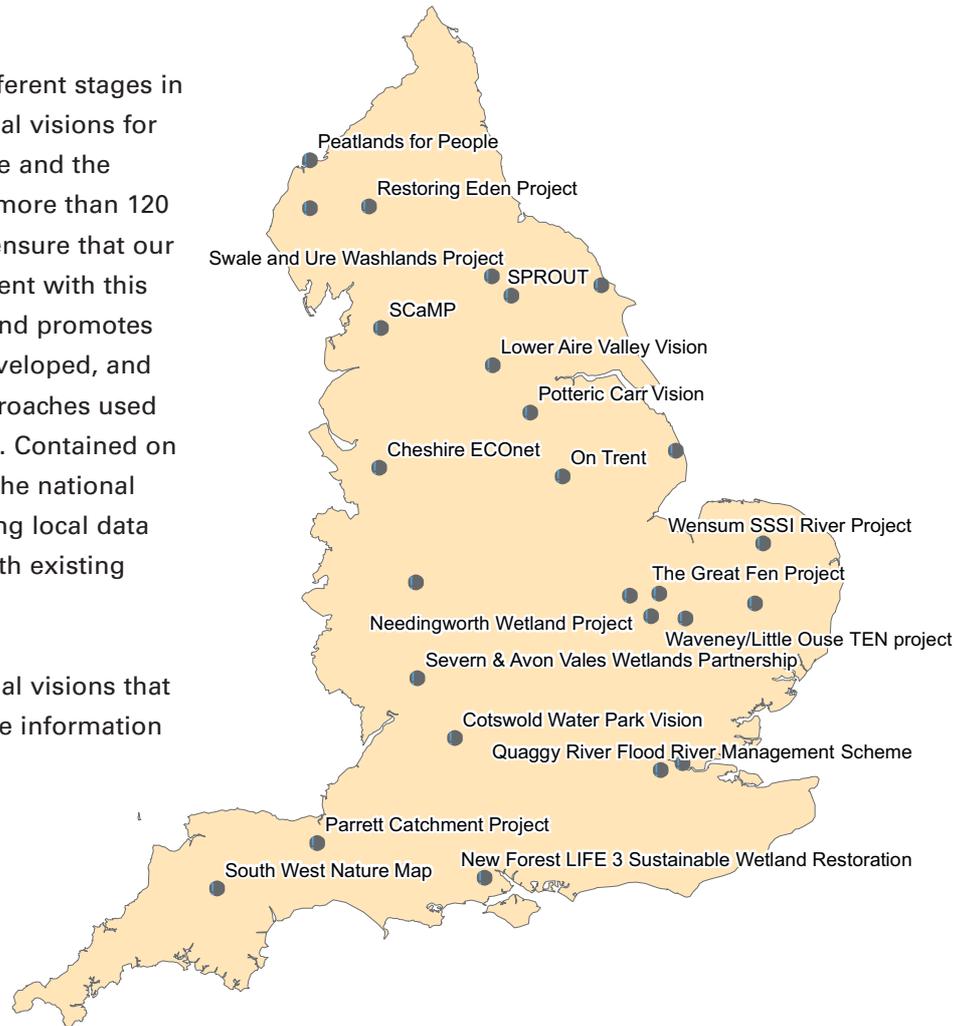
Wilson, A M, Vickery, J A, Brown, A, Langston, R H, Smallshire, D, Wotton, S & Vanhinsbergh, D 2005. Changes in the numbers of breeding waders on lowland wet grasslands in England and Wales between 1982 and 2002. *Bird Study*, 52, 55-69.



Wetland visions across the country

Partnerships across the country are at different stages in developing and realising local and regional visions for wetlands for the benefit of people, wildlife and the historic environment. We have looked at more than 120 regional or local scale vision projects to ensure that our guidance is helpful and our maps consistent with this local work. The Wetland Vision supports and promotes local visions which have already been developed, and provides information on some of the approaches used in the development of area-based visions. Contained on the CD-ROM is guidance on interpreting the national material for use at a more local level, using local data sources, and using the Vision together with existing regional biodiversity maps.

Here is a selection of the local and regional visions that we have examined – more comprehensive information on these is on the vision website.



* Wetland Vision, a partnership between Environment Agency, English Heritage, Natural England, RSPB, and The Wildlife Trusts, 2007. This map is based upon Ordnance Survey material with the permission of 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. Natural England 100046223 2008

TAKING THE VISION FORWARD

Creating this Vision is just a starting point. The partnership is committed to collectively making a real change on the ground. We need to work with others to develop and realise the aspirations of our Vision.

As a partnership, we will:

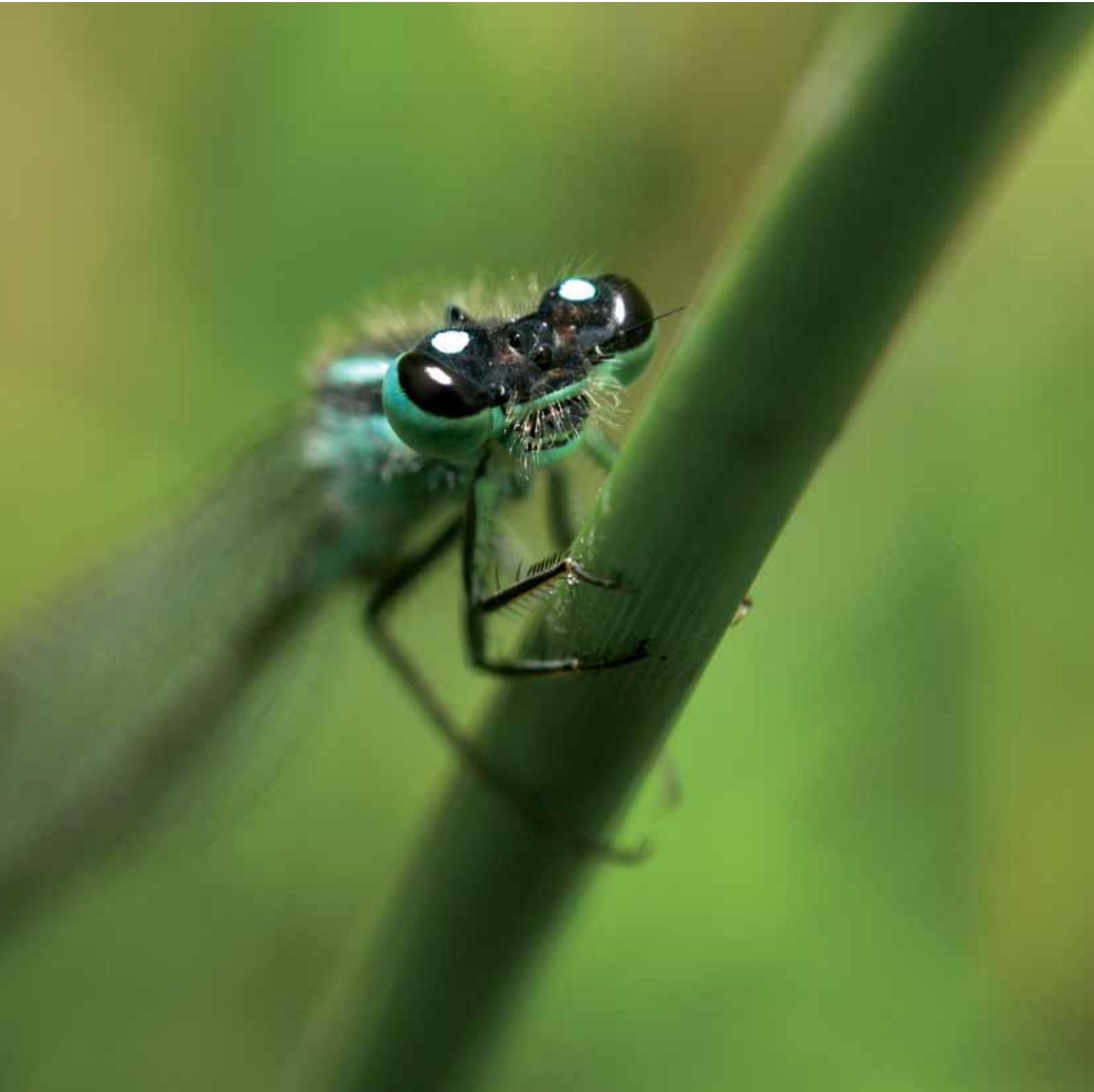
- use the Wetland Vision maps to inform our conservation, restoration and creation work so that effort and resources are targeted to the areas with the most potential
- secure the funding for large-scale wetland habitat creation within a modern landscape
- deliver the Wetland Habitat Action Plan target for landscape-scale naturally functioning wetland ecosystems, extending them where appropriate
- ensure where we can that these areas provide multiple benefits – for recreation, health and the historic environment as well as wildlife.

Promote the Vision by:

- raising awareness of the importance of wetlands
- encouraging more people to experience wetland green spaces
- providing information to farmers, landowners and planners
- supporting new partnerships locally and nationally.

Develop the Vision further by:

- working with others to set new long-term targets for wetland restoration and creation to increase the resilience of wetland wildlife to change, and to provide valuable ecosystem services for people.



EACH PARTNER ORGANISATION WILL ALSO:



ENGLISH HERITAGE

English Heritage will develop priorities for the historic environment elements of the vision, and identify those sites where immediate (short term) change will have the most benefit. We will use the Vision, on a policy and practical level, to advocate where biodiversity and historic environment interests coincide.



The Environment Agency will work to share the outputs from the Wetland Vision with our own Habitat Creation work to explore collaborative opportunities for landscape scale habitat creation.



Natural England will use the outputs from this Vision to inform agri-environment targeting and to help identify potential areas for Natural England funding to restore or create wetland habitats. It will be valuable in informing our work on climate change adaptation, including the development of habitat networks. The Vision outputs will also help to inform the development of our wider vision for the natural environment, which fully integrates the conservation and enhancement of landscapes, wildlife and benefits to people.



The RSPB will use the Vision to inform priorities for reserve acquisition and the large-scale wetland partnership projects we take forward under our Futurescapes programme. We will use the outputs to champion wetland restoration and creation as part of a modern, wildlife-rich countryside, and develop partnerships through our advocacy and advisory work on the ground.



The Wildlife Trusts will use the work to inform our 'Living Landscapes' initiatives at a national, regional and local scale. The tools and concepts of the Wetland Vision will be used to add value to existing local partnerships championed by local and regional Wildlife Trusts across England.

Development of the Vision

This Vision has been developed using an objective and where possible, scientific approach. We involved a wide-range of stakeholders whose input is documented in the CD enclosed. We established a Technical Advisory Group to help shape our Vision. This benefited from representatives from the following organisations: Wildfowl & Wetland Trust; Pond Conservation ; National Trust; WWF; Centre for Ecology & Hydrology; Natural England; Environment Agency; RSPB; The Wildlife Trusts; English Heritage.

For more information about the development of the project, including a record of stakeholder engagement, please consult the contents of the inserted CD-Rom, or our website www.wetlandvision.org.uk

Contact details for the project:

Wetland Vision Project
c/o Water Policy Team
The RSPB,
The Lodge
Sandy
Beds SG19 2DL

Front cover image by Carrie Hume, pg 2 by Richard brunning, Pg 8-9 Snipe by Michael Gore (rspb-images.com), pg 11 by Carrie Hume, pg 16 Excavating the SweetTrack, Somerset. Copyright Somerset Levels Project, pg 18 by Evan Bowen-Jones, pg 23 by Andy Hay (rspb-imges.com)

Maps: Crown copyright. All rights reserved.
Natural England licence no: 100046223 2008.



Wetland Vision Project

c/o Water Policy Team
The RSPB,
The Lodge
Sandy
Bedfordshire
SG19 2DL

English Heritage	www.english-heritage.org.uk	Tel: 020 7973 3000
Environment Agency	www.environment-agency.gov.uk	Tel: 08708 506 506
Natural England	www.naturalengland.org.uk	Tel: 0845 600 3078
The RSPB	www.rspb.org.uk	Tel: 01767 680551
The Wildlife Trusts	www.wildlifetrusts.org	Tel: 01636 677711



The Royal Society for the Protection of Birds (RSPB) is a registered charity:
England & Wales no. 207076, Scotland no. SC037654
Front cover image by Carrie Hume 350-0888-07-08