



# Investing in the East of England's natural assets:

state, value and vision

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# Foreword

In challenging financial times it is all too easy to re-focus our attention solely on the economy, whatever the long-term costs. We believe we must continue to champion economic success but as part of a wider set of goals to achieve a high quality of life for the people living, working in and visiting the East of England.

Natural England wants to see our unique natural environment protected and improved in ways that help people to enjoy, understand and access it. In the East of England we are working to ensure a vibrant, healthy and well-managed countryside that is sustainable, economically viable and accessible to all. But we face significant challenges. Food production, housing growth, coastal protection, water use and climate change all create pressures on the natural environment.

We need to appreciate the importance of a healthy natural environment to modern day life, particularly for those people who cannot currently enjoy regular access to either countryside or urban green space. We must recognise the benefits and services that nature provides.

This report brings together a selection of evidence about the natural environment in the East of England, drawing on both our national *State of the Natural Environment 2008* report (Natural England, 2008) and other sources of regional data.

Chapters 1 and 2 describe the natural environment in the East of England in terms of 'Our Savings Account'. They explain how the natural world in this region is special in national and even global terms. Chapter 3

describes our 'Current Account' - the state of the region's natural environment and its accessibility. The case studies in Chapter 4 highlight its importance to the needs of modern society.

The report ends with a call to action, in Chapter 5, setting out our vision and the investment priorities that will achieve it. We are not just thinking about financial investment, important though that is. We need to build partnerships and all invest effort over the next decade to achieve this bolder future. Wildlife-rich land and seascapes are not 'extras'. They make a real difference to people's lives, are the bedrock of sustainable economies and are vital for a healthy planet. It is possible to move to a greener economic model that conserves the natural environment and provides new jobs, cleaner energy, sustainably-produced food, greener housing and climate security.

We will work tirelessly with others to help make this change.



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Shaun Thomas,  
Regional Director

# Executive summary

## Introduction

The East of England has some wonderful natural assets that we need to protect and enhance. Highlights include our coastline, the freshwater wetlands and river valleys, and unusual arid landscapes.

The natural environment can improve quality of life in the region: by contributing to the rural economy and tourism; by making distinctive places where people will want to live and work; by providing environmental services to help adapt to climate change; and by contributing to positive health outcomes.

We need to maintain and enhance this special environment in the context of challenges such as housing growth, land and water constraints, and climate change.

### The state of our natural environment

The condition of our nationally important Sites of Special Scientific Interest (SSSIs) has improved significantly over the past eight years. But we still have 28,000 ha (about 20%) in poor condition, mainly because of coastal squeeze, water pollution and water abstraction.

Changes in farming practices and incentives in the past few years have been largely beneficial for the natural environment, but biodiversity in the wider countryside remains in a fragile state and appears to be in significantly poorer condition than the SSSIs. It seems we have not yet reversed the general decline of the past century.

We are seeing some excellent habitat restoration projects, but overall the natural resource in the countryside is very fragmented.

We have some good examples of new Green Infrastructure but need to make these more widespread.

We have very good opportunities for outdoor recreation in some parts of the region but gaps elsewhere, often in areas close to large populations. In line with the national picture, the region's physical activity levels are low.

Finally, helping our rarer wildlife survive climate change may be especially difficult in this region.



Minsmere-Walberswick Heath & Marshes SSSI

## Our agenda for action and investment

Natural England has recently embarked on a three year project to develop a national long term vision for the natural environment. In the meantime we offer our current thinking about what our natural asset base needs to look like in this region in 10-15 years time, and how it will contribute to people's quality of life in the 21<sup>st</sup> century.

We propose an agenda of nine priority areas for action and investment in this region to help achieve our vision of a healthy natural environment:

- 1 Achieving growth in ways which protect and enhance the natural environment;
- 2 Bringing the natural environment to everyone's doorstep for access, enjoyment and wellbeing;
- 3 Taking account of coastal change and physical processes;
- 4 Ensuring enough clean water for wildlife;
- 5 Encouraging more sustainable land management;
- 6 Investing in distinctive landscapes and healthy, functioning habitats;
- 7 Helping the natural environment adapt to climate change;
- 8 Creating protected areas for our marine life; and
- 9 Appreciating the value of our natural assets.

Natural England believes that this investment in improving the natural environment is important for its own sake and also because of the contribution it makes to our economy and quality of life.

# Chapter 1 Our savings account: The special character of our region's landscape and nature

The East of England has much of the most productive land in the UK, as the level topography, fertile soils and continental climate combine to produce very good land for farming. In the fens, for example, 88% of the land is cultivated and 90% of these exceptionally-productive rich black soils are judged to be the best and most versatile in England (NFU 2008).

The region's contribution to food production is impressive (Cabinet Office 2008): for example, it produces more than one-third of all the country's potatoes and vegetables. This also secures rural jobs: the £3 billion generated by farming and food processing in the region supports at least 50,000 jobs, with 167,000 more people employed in rural tourism (NFU 2008).

In between fields intensively producing food and fuel, habitats including hedges, woodlands and wetlands still remain. These remaining fragments of older, ancient landscapes give the intensive farmland of the East its local and distinctive characteristics.



Big skies and waterland are two natural features of our region.



The East of England is generally low-lying and much of the fens and central lowlands are at or below sea level. The region is dominated by large-scale expansive landscapes which give a feeling of space.

Water is a significant feature of the region's landscape and identity:

- the fens provide one of England's largest river drainage basins;
- there is over 400 km of magnificent low-lying and soft coastline in Norfolk, Suffolk and Essex with beaches, dunes and saltmarsh. The coastline is punctuated by creeks and estuaries such as the Wash, Stour and Orwell, Colne, Blackwater, Crouch and Roach, and Thames;
- the Broads has over 200 km of waterways, five rivers and around 50 shallow lakes or 'broads', largely in Norfolk;
- the Halvergate marshes is Europe's largest river valley and grazing marsh complex of its type, and was the pioneer site internationally for what is now England's agri-environment programme; and finally
- our beautiful river valleys, which include the Waveney-Little Ouse, Wensum, Stour, Blackwater, Lee and Colne.

As well as the wetlands, we have very arid areas like the Brecks that are the nearest thing England gets to desert. Then there are: the important heathlands of Norfolk, Suffolk and Bedfordshire; the distinctive chalk downlands of the Chilterns at the region's western edge; the more rolling chalk-lands of north Hertfordshire, north-west Essex and south-eastern Cambridgeshire; and finally the arable landscapes of mid Suffolk and Essex.

Some other highlights of the region's nature and landscape are:

- the internationally significant bird populations, including around 40% of the world's pink-footed geese in winter;
- the best saltmarsh site in the country, at the North Norfolk coast;
- one of the best complete chalk rivers in the country, the Wensum;
- freshwater sites which are pioneering the recovery of rare species like the bittern;
- a significant proportion of the country's remaining 'natural' fen habitat;
- nationally important populations of rare arable weeds and aquatic plants;
- important sites for fossils and geological education; and
- two National Trails in the region.

## A resource for people to enjoy

The East of England contains some unique and biodiversity-rich recreational opportunities set in high-quality landscapes. These include: The Peddar's Way and Norfolk Coast Path National Trail; the Broads; four Areas of Outstanding Natural Beauty; the Norfolk & Suffolk Heritage Coasts; extensive ancient and post-war forests; three Community Forests; and 48 National Nature Reserves.

In addition, there are 57 Country Parks in the region, the second largest number after the South East. In recent years local access provision has been improved through the creation of 27 Millennium Greens and 24 Doorstep Greens, each of which help to bring the natural environment to people's doorsteps.



The gentle lowland landscapes of the region make it ideally suited to recreational activities such as walking and cycling. Flat landscapes also make the countryside more easily available to people with different access needs.

The East of England region also has extensive routes and trails including 24,544 km of Public Rights of Way and 14,461 ha of 'CROW' (Countryside and Rights of Way Act) access land<sup>1</sup>

In addition, voluntary provision through agri-environment schemes managed by Natural England has provided 1,280 km of linear permissive access (eg footpaths and bridleways) and 1,276 ha of permissive access area. The charity Sustrans has provided more than 2,630 km of cycle routes in the region.

The region also contains some significant forest areas, including both post-war plantations such as Thetford and ancient woodlands such as Hatfield and Epping. These wooded areas provide a wonderful recreation resource for local people and visitors alike. Thetford forest is a valuable off-road resource for adventure activities such as mountain biking and husky racing. Opportunities exist within the region for local people to engage in woodland activities through seed collection and the propagation of young trees with local provenance.

The long coastline in the region offers wonderful opportunities for people to enjoy and understand this unique environment. Added to this there are significant water resources inland, including 800 km of navigable waters (EA 2008a).

If you would like to read some more examples of the special character of the region's natural environment, these are set out in the next chapter. Otherwise, turn straight to Chapter 3 for a review of its current state.

<sup>1</sup>Chapter 37 of the Countryside and Rights of Way Act, 2000 details changes to access provision in the English countryside including the provision of access to mountain, moor, heath and downland.



# Chapter 2 A tour of the natural features of the East of England

**This chapter describes a selection of areas in more detail, to illustrate just why the landscapes and nature of the East are so special.**

## Our natural foundations

The East of England encompasses 160 million years of geological history. From the oldest rocks in the north west to the youngest in the south east the region's geology documents rising and falling sea levels, tropical to ice age climates and past life from dinosaurs to the earliest evidence of human occupation of Britain. This geological diversity provides the foundation to the region's landscape, underpinning habitats such as the chalk grassland and Thetford Heaths. The geology controls the supply of water and provides the raw materials for building and the economy from rich agricultural production to the quarrying industry.

Fringing the north western edge of the region is the Jurassic Lincolnshire Limestone escarpment, a source of stone for many buildings including Peterborough and Norwich cathedrals. To the south is the Jurassic Oxford Clay, famous for its marine reptiles, and the basis for the brick industries of Peterborough and Bedfordshire.

Marine environments persist into the overlying Cretaceous rocks. Initially a mix of sandstones and clays including the prominent Greensand Ridge of Cambridgeshire and Bedfordshire and the distinctive orange carstone used for building in northwest Norfolk. The Cretaceous is best known for the chalk, deposited in a vast shallow sea

that once covered much of Northern Europe, which stretches from the chalk cliffs at Hunstanton to the Chilterns in Hertfordshire. The chalk crosses all the counties of the region creating the characteristic downland landscape and chalk grassland, a source of flint for tools and building and a vital aquifer supplying water to the region.

The majority of the coastline, and the south eastern half of the region is dominated by an underlying sequence of Tertiary clays and sands deposited in a mix of marine and estuarine environments, perhaps most notable on the Suffolk and Essex Coasts where the fossiliferous marine London Clay and the shell rich Red Crag is exposed. This is all overlain by a thick sequence of Pleistocene clays and gravels deposited over the last two million years by the advance and retreat of ice sheets and the associated evolution of the river systems, such as the Thames. These river gravels contain the earliest evidence of human occupation of the British Isles some 700,000 years ago.

Not only does the region's geology play a significant role in the character of the region, its landscape, habitats, buildings and the way we utilise the land, it is also vital for understanding how the region and the rest of Britain has evolved over millions of years. Critically, the region provides some of our most important evidence of how climates and environments have changed in the more recent past in response to dramatic changes in temperature and sea level in the ice ages. This helps us understand how our present day environment may respond to changes in climate.

Reflecting the importance of the region's geology there is a network of geological SSSIs and a growing number of Local Geological Sites, which all piece together to tell this geological story.

## Our coastline

The **Norfolk Coast Area of Outstanding Natural Beauty (AONB)** covers 450 km<sup>2</sup> of varied land and seascape. Stretching from the huge mudflats of the Wash, it extends through sandy beaches, coastal marshes and soft cliffs to the dune systems at Winterton.

The saltmarshes of the **North Norfolk Coast SSSI** are the finest in Britain, and among the best in Europe. The whole coast is of great ornithological interest with nationally and internationally important breeding colonies of several species. The geographical position of the area makes it a critical location for migratory birds, such as brent and pink-footed geese. The peak count of pink-footed geese of 112,777 was recorded in early January 2006. This represented almost half of the world population.

The **Suffolk Coast and Heaths AONB** is a coastal area of great beauty, covering 400 km<sup>2</sup>. It combines shingle beaches, sandy cliffs, saltmarsh and estuaries, with grazing marsh, reedbeds, heathland, farmland and woodland.

**Benacre to Eastern Bavenets SSSI**, in Suffolk, has a complex sequence of mobile shingle ridges with relict dunes and lagoons. It is of high educational and research value. The site has yielded a unique vertebrate fossil fauna of considerable importance, including extinct species of horse, elephant, deer and mastodon.

The **Crouch and Roach estuaries SSSI**, in Essex, is a complex of saltmarsh, grazing marsh and intertidal habitats of great importance especially as feeding and roosting sites for large numbers of waders and waterfowl. Wintering dark-bellied brent geese regularly occur in internationally important numbers, and wintering black-tailed godwit, shelduck, shoveler and other species regularly occur.

## Our undersea landscapes

The seas off the East of England support undersea 'landscapes' as dramatic and diverse as anything on land. Off the north Norfolk coast, for example, there are vast hills and valleys of sand and gravel, often tens of metres high. They support a wealth of plants and animals in their sheltered areas. To the east of Cromer, there are deep, steep-sided canyons of chalk, a relict of previous glaciations. Offshore from Great Yarmouth there are living reefs, built from the many thousands of tubes that provide a home for the ross worm, and which in turn provide a micro-habitat for a range of plants and animals. Alongside the Suffolk and Essex coasts, there are 'heaths' of brittlestars, Venus clam beds, and 'gardens' of sea fir beds. These extraordinary species look like plants but are actually animals. These rich and varied environments, acknowledged in the Marine Bill, should soon be recognised and protected through a series of new Marine Protected Areas.

Figure 1 Undersea landscapes of Eastern England



Source: Natural England, 2008

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## Our wetlands

Our expanses of freshwater grazing marsh and reedbed, often in coastal locations, provide very important habitats for birds. The East of England region is spearheading the recovery of the bittern: 32 of the 39 UK nests in 2008 were in this region with numbers boosted by the creation of new habitats. Over 40% of England's fen habitat is in the East of England.

**The Norfolk and Suffolk Broads** are Britain's largest protected wetland and the third largest inland waterway. The Broads have the status of a National Park. Five rivers flow through the Broads, an 'enchanted' land of fens, slow-flowing waterways, wet woodlands, together with many hectares of marshland.

**Ant Broads and Marshes SSSI**, in Norfolk, supports one of the most extensive remaining areas of undeveloped primary fen habitats in Britain, and is considered to be the finest example of unpolluted valley fen in Western Europe.

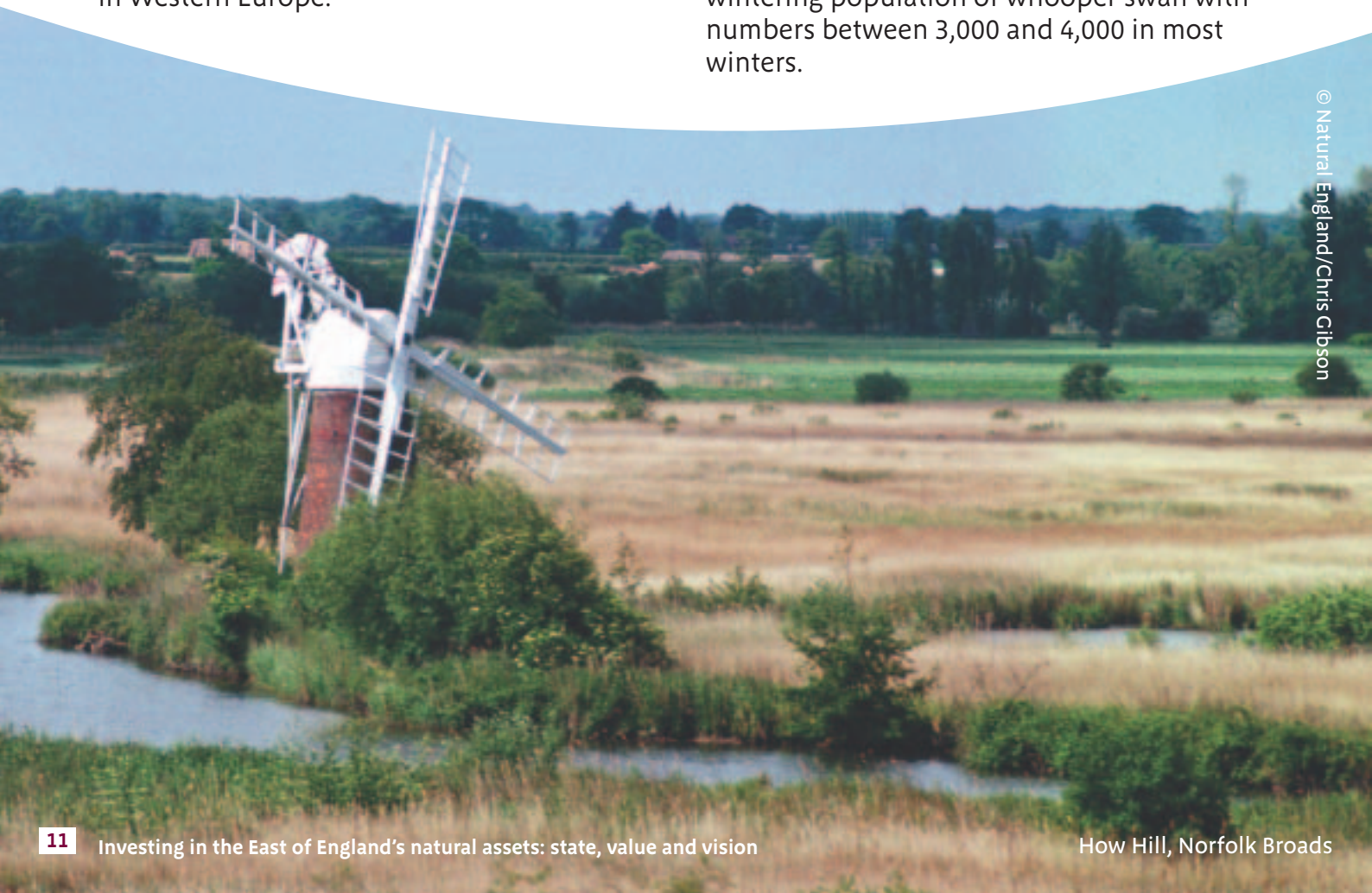


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Ouse washes

**The Ouse Washes SSSI**, in Cambridgeshire and Norfolk, is one of the country's few remaining areas of extensive washland habitat. It is of international importance for the large numbers of wildfowl and waders which it supports, for the large area of unimproved neutral grasslands which it holds and for the richness of its aquatic fauna and flora.

Wetlands in the East of England, particularly the Ouse Washes, hold around 40% of the UK wintering population of whooper swan with numbers between 3,000 and 4,000 in most winters.



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Freshwater habitats within the region also support a number of nationally-rare and scarce plant species including the water soldier, whorled water milfoil, broad-leaved pondweed, Loddon pondweed and fen pondweed. The Broads support the only British populations of the holly-leaved naiad, a rare plant, and the Norfolk hawker dragonfly.

## Our 'deserts'

Breckland is an area of light, sandy soils overlying free-draining chalk that straddles the county boundary in west Suffolk and Norfolk. The combination of free-draining soils and a semi-continental climate with low rainfall and high soil moisture deficit in summer produces habitats that are the closest thing to desert in the UK. These conditions favour drought-adapted organisms including rare lichens and plants. Reptiles including adders and slow worms are characteristic of the Brecks, and there are significant numbers of invertebrate species. The area is home to more than two-thirds of the UK population of stone-curlews.

**Breckland Forest SSSI** provides suitable breeding habitat for woodlarks and nightjars, which occur in nationally important numbers. 10% of the UK nightjar population use this site, which supports an exceptionally rich invertebrate fauna and rare plants.

Indeed, the Brecks is a stronghold for rare arable plants. The dry soils support large numbers of range-restricted, scarce, specialist species.

England's lowland heathland is a very important resource in an international context. Heathland of this type occurs only in north west Europe and Britain has approx 20% of the global resource (UK Steering Group 1995).

We have tracts of remaining heathland, mainly in Norfolk and Suffolk, 7,000 ha of

which are SSSIs; relatively isolated heaths occur elsewhere, including in Essex and on the Greensand Ridge in Bedfordshire (598 ha).

## Our woodlands

There are about 140,000 hectares of woodland in the East of England, or 7.3% of the total land area. In addition, there are approximately 13.5 million trees outside woodland in the countryside, 14,000 kilometres of hedgerows with a high proportion of trees and an immense but unquantified urban tree stock. All told, trees and woodlands are a vital part of the character of the East of England, both rural and urban.

The area of woodland in the region has increased steadily and significantly over the last 100 years, with the most obvious examples being the mainly coniferous woodlands established from the middle of the 20th century.

The majority of the woodland is broadleaved, with the main species being oak and ash. The percentage of this that has been designated as Ancient Semi-natural (ie it has existed relatively unchanged in species composition since at least 1600) is higher than the national average. As well as being a very important nature conservation resource, ancient woodland is the repository of significant quantities of archaeological artefacts.

The region's woodlands encompass a rich diversity. Cambridgeshire's woodlands include oak-ash on the clay soils and ash-hazel-field maple on the chalkier soils, both of which are associated with distinctive ground flora. Norfolk has important wet woodlands and uncommon woodland species such as spotted flycatcher. Suffolk has a heritage of wood-pasture and parkland, Staverton Thicks being the prime example. Essex is noted for its ancient hunting forests of Epping, Hatfield and Hainault, as well as the native black poplar. Bedfordshire has a



series of ancient woodlands along the Greensand Ridge. Hertfordshire includes part of the Chilterns beechwoods and is important for many species that depend on a long continuity of woodland cover, particularly plants, fungi and invertebrates.

The woodlands of the region provide a very important recreational resource, with an estimated 55 million day visits per year (FC 2003).

### The chalk and the clay lands

The **Chilterns AONB** covers over 800 km<sup>2</sup>, with much of this lying outside the East of England region. The gently rolling hills are covered in beech woodland and chalk downland as well as large areas of intensive arable cultivation.

**Therfield Heath SSSI**, in Hertfordshire, is a very good example of the East Anglian type of chalk grassland. This habitat type has suffered severe losses throughout its range during the post-war period, mainly as a result of agricultural intensification or the cessation of sheep grazing, so the remaining examples are of high conservation value.

The **South Bedfordshire Chalk SSSIs** hold spectacular arrays of wild flowers, rare plants, invertebrates and the nationally significant populations of rare butterflies, including the small blue, chalkhill blue and the Duke of Burgundy.

The **Wensum SSSI**, in Norfolk, is a fine example of a lowland chalk river with more than 100 species of plants, a rich invertebrate fauna and a relatively natural corridor.

The clay-lands across the region are characterised by gently undulating topography and plateau areas, divided by broad and shallow valleys.

The **Dedham Vale AONB** is a nationally important example of a clayland landscape. It is immortalised by the paintings of John Constable. This traditional English lowland landscape consists of picturesque villages with attractive vernacular buildings and impressive churches, rolling farmland, river, meadows and a wide variety of wildlife.

**Orton Pit SSSI**, in Peterborough, is a former brick clay workings which supports the largest known population of great crested newts in the UK and possibly in Europe.

# Chapter 3 Our current account: the state of the natural environment in the region

**We published our national *State of the Natural Environment* report in May 2008: alongside that we produced some regional statistics on our website. This report now provides a fuller picture for this region. The headlines for the East of England are:**

- SSSI condition has improved significantly over the past eight years;
- we still have 28,000 ha of SSSI in poor condition, mainly because of coastal squeeze, water pollution and water abstraction;
- changes in farming practices and incentives in the past few years have been largely beneficial for the natural environment, but biodiversity in the wider countryside remains in a fragile state and appears to be in significantly poorer condition than in SSSIs;
- we are seeing some excellent habitat restoration projects, but overall the natural resource is very fragmented;
- we have some good examples of new Green Infrastructure but need to make these more widespread;
- we have very good opportunities for outdoor recreation in some parts of the region but gaps elsewhere, often in areas close to large populations; and
- in line with the national picture, the region's physical activity levels are low.

This chapter describes our 'Current Account' - the state of the region's natural environment and its accessibility.

## The overall state of our wildlife

The UK index of wild bird populations is part of the Government's set of indicators for sustainable development. Bird populations are considered to be a good indicator of the broad state of wildlife and countryside because they occupy a wide range of habitats, they tend to be near or at the top of the food chain, and there are considerable long-term data sets on bird populations.

Whilst overall wild bird populations have remained broadly stable in England from 1970 to 2007, farmland birds have not fared so well. Farmland bird numbers are now 52% lower than in 1966. Farmland birds have been adversely affected by changes in farming practices, particularly during the 1970s and 1980s. The recently published regional sustainable development indicators confirm the assessment that farmland birds had declined in the East of England in the decade to 2005 (Defra 2008a).

Recent reports (Eaton *et al.*, 2008; Risely *et al.*, 2008) reveal a series of sobering facts for farmland birds nationally and in the region. Between 1970 and 1994, farmland bird numbers in the East of England declined by 44% (Defra 2008a). From 1994 to 2006, the decline in the region was less marked (7%)<sup>2</sup> and was comparable with national figures.

<sup>2</sup>There are differences in species composition and methodology used between the two periods, therefore comparisons should be approached with care.

Figure 2 draws upon data published by the British Trust for Ornithology (Risley *et al.*, 2008) and illustrates the decline in key farmland bird species in the region, including the turtle dove whose numbers fell by 69% in the period 1994-2007.

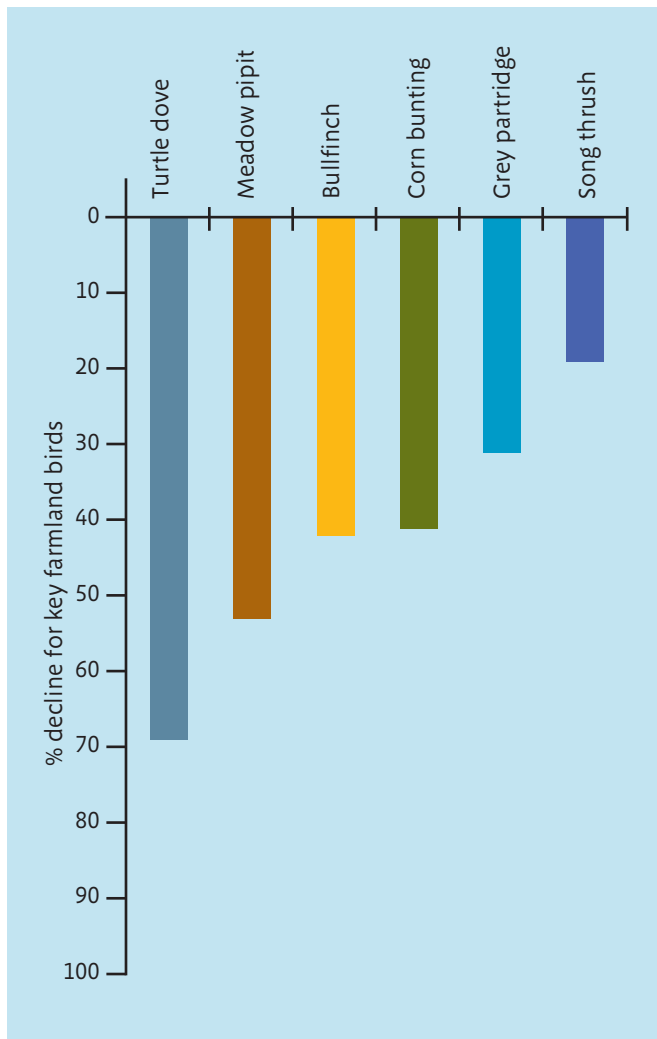


Figure 2: Population trends of declining farmland birds in East of England region during 1994-2007 (Risely *et al.*, 2008). Note: this chart focuses on the declining species. Some species have increased in number.

But there are some success stories. The rare stone-curlew was reduced to very low levels by the 1990s. However, positive efforts by farmers and conservation organisations have helped these birds to reach a conservation milestone, seven years ahead of target. The population count in the summer of 2008 revealed that 351 pairs nested in the UK. This means that the stone-curlew has met its 2015 Biodiversity Action Plan target of 350 pairs, well ahead of time. It is one of the few species of birds achieving this level of success.

The Biodiversity Forum’s audit of the region’s actions plans did not assess the condition of the wider countryside *per se*, but it did assess the conservation importance of the region’s habitats and species. This showed that 49 out of 88 species studied were of ‘high’, ‘major’, or ‘critical’ conservation concern in a national context, and that this also applied to 12 out of 36 habitats studied (EEBF 2002).

Those county councils that have designated a biodiversity indicator in their Local Area Agreements have reported baseline figures to the Government Office. Though this data should be treated with caution as they are approximate estimates, it indicates that in most of these authorities less than half of county wildlife sites are currently benefitting from positive management.

We need more measures of biodiversity in the region, but the limited data above seems to back up the judgment in our national report that the wider countryside is not faring as well as in the SSSIs.



## Land use and land management pressures

In recent decades, the wider countryside has been affected across a broad area by two particular trends: land use development pressures, and changes in the way that land is farmed.

### Land use development

While being predominantly rural in nature, this region is subject to significant levels of land development and is set to experience high growth levels, with at least 508,000 new homes planned in the period up to to 2021. The planning system now provides strong protection policies overall for designated sites. Nevertheless there remain significant pressures from development, which need to be assessed and taken account of to avoid impacts. Natural England advises on around 3,000 planning consultations per year in the region to safeguard nationally designated sites and protected species. The planning system also has a key role in protecting and encouraging the restoration of landscape character and priority habitats.

### Farming and sustainable land management

Farming systems that balance renewable inputs with outputs in order to maintain soil health and fertility can persist for centuries. Highly specialised and intensive farming systems, however, often operate in isolation from the functional constraints of the natural environment.

The impressive production record of the region's farms has come at a cost to the natural environment. As the functional

connectivity of the landscape has declined leaving small and isolated fragments of habitat, so the capacity of the landscape to support biodiversity has fallen. Loss of the habitat matrix is a particular problem in the East of England (GOEE 2008). Too often wildlife must depend upon the remaining 'fragments of habitat in the cracks between commercial use' (Adams *et al.*, 1992:247). Adaptation to climate change then becomes difficult for species isolated by intensively-farmed land because they find it harder to find suitable habitat to move to.

The modernisation of farming methods over many years has involved a reduced range of crop types within rotations, cropping in larger blocks, and a loss of fallow land. As well as simplifying the previous habitat mosaic, intensive farming is now known to contribute to changes in wetland ecology through water pollution. Recent efforts to curb pollution have made 'substantial improvements' to water quality (Defra 2005; 2008b:43; UKWIR 2007). However, the overwhelming majority of the region's surface water bodies are not at the 'good status' quality level required by the Water Framework Directive by 2027. Phosphorus pollution remains a very significant, and often the only, reason for this, and comes from both farming and water treatment sources (EA 2008b).

Farmers are currently engaging with a range of government initiatives to improve the sustainability of their land management, such as new regulations, the Catchment Sensitive Farming initiative, and agri-environment incentives.

## The state of our SSSIs

The condition of our SSSIs, which cover 7% of the land area, is similar to other regions throughout the country, with 77% by area being in favourable or recovering condition at the end of 2008. There has been great improvement in SSSI condition over the past decade

as a result of an intensive national programme of action including both landowners and conservation organisations. This region is unusual in that much of the remaining area in unfavourable condition is caused by very complex coastal and freshwater issues that will depend on the help of a variety of organisations and individuals to resolve (EN 2005).

**Table 1 East of England SSSI extent and condition, November 2008**

	Extent (ha)	Favourable or recovering condition (ha)		Unfavourable condition (ha)	
			%		%
Coastal	39,650	22,793	57	16,857	43
Woodlands:	24,959	23,019	92	1,940	8
Coniferous woodland	20,598	20,598	100	0	0
Broadleaved, mixed and yew woodland	11,312	9,387	83	1,925	17
Arable and horticulture	13,647	13,632	100	15	0
Grassland:	18,151	14,241	78	3,910	22
Neutral grassland	11,252	8,398	75	2,854	25
Acid grassland	3,424	2,941	86	483	14
Calcareous grassland	2,703	2,130	79	573	21
Improved grassland	772	772	100	0	0
Lowland heath	4,166	3,545	85	620	15
Freshwater:	12,788	8,058	63	4,729	37
Fen, marsh and swamp	6,578	3,691	56	2,886	44
Lakes, ponds and canals	5,920	4,342	73	1,578	27
Rivers and streams	290	25	9	265	91
Other habitats	716	600	84	116	16
Geological features	1,296	1,191	92	106	8
<b>Total</b>	<b>122,324</b>	<b>94,045</b>	<b>77</b>	<b>28,278</b>	<b>23</b>

In 2000 the Government introduced a Public Service Agreement (PSA) target to bring 95% of the land area of SSSIs into favourable or recovering condition by December 2010.

Table 1 above gives details of SSSI extent and condition. It highlights the remaining areas that are in unfavourable condition:

- 17,000 ha (43%) of coastal habitat;
- 5,000 ha (37%) of freshwater SSSIs, including 91% of river area;
- 4,000 ha (22%) of our grasslands; and
- 2,000 ha (17%) of our broadleaved woodlands.

Table 1 illustrates the extent and condition of the region's SSSIs. Table 2 below identifies the reasons for adverse condition and highlights the importance of coastal squeeze for the East of England.

As the figures show, we now need to work with partners especially to resolve the complex problems affecting our coastal and freshwater SSSIs.

## Coastal squeeze

This region has 402 km of predominantly low-lying coastline, with extensive tracts designated as having importance to wildlife. Saltmarsh and mudflats have been eroded against hard flood defences and other developments. This is a major reason for the poor quality of the SSSI resource in the East of England.

Erosion of these habitats means they have less capacity to buffer the waves' energy. This feeds back into greater erosion and flood risk and higher flood protection costs.

Measures to defend one part of the coast can have an effect on other parts by causing disruption to coastal processes, such as a reduced supply of sediment.

Coastal communities have a long history of living with, and adapting to, coastal erosion and flooding but they currently face increasing challenges from the effects of climate change, such as sea level rise.

**Table 2 Adverse condition of SSSIs in the region: main reasons, November 2008**

Reason for adverse condition*	% of total area (28,278 ha) in unfavourable condition	Area unfavourable (ha)
Coastal squeeze	58	16,540
Water pollution – discharge	24	6,917
Water pollution – agriculture/run off	21	5,882
Water abstraction	14	3,888
Insufficient water levels	10	2,848
Disturbance from public access	6	1,779
Lack of scrub control	5	1,355
Undergrazing	5	1,284
Drainage	3	803

\*More than one adverse condition reason may be affecting the same area.

## Saltmarsh losses

Loss of saltmarsh is occurring in southern and eastern England because sediment accretion cannot keep pace with sea level rise. This is exacerbated by coastal squeeze due to flood defences protecting reclaimed land. In south Suffolk, Essex and north Kent estuaries, 10% to 44% of the saltmarsh area was lost during the period 1973 to 1988. Further work has confirmed the ongoing loss of saltmarsh habitat in south Suffolk and Essex since 1988. In the 25 years between 1973 and 1998, over 1,000 ha of saltmarsh in south Suffolk and Essex was lost to coastal squeeze and development (see below). It is estimated that saltmarsh has been lost at a rate of over 1% annually since 1994 in parts of southern and eastern England.

**Table 3 Saltmarsh losses in south Suffolk and Essex between 1973 and 1998**

	Area (ha)			Area (%) lost
	1973	1988	1997/98	1973-1997/98
Orwell	100	70	54	45 (45)
Stour	264	148	107	157 (59)
Hamford Water	876	765	621	255 (29)
Colne	792	744	695	97 (12)
Blackwater	880	739	684	196 (22)
Dengie	474	437	410	64 (14)
Crouch	467	347	308	159 (34)
North Thames – Essex	366	197	181	185 (51)
<b>Total</b>	<b>4,219</b>	<b>3,447</b>	<b>3,060</b>	<b>1,160 (27)</b>

(Source: Cooper *et al.* 2001)

## Water pollution and abstraction

Freshwater sites are very sensitive to pollution, reduced water levels, changes to river form, and invasive species. In common with other regions, our rivers are generally the habitat type with the greatest proportion of sites in poor condition.

Water pollution problems are caused especially by excess nutrients (ie particularly phosphorus, but also nitrates) in the water supply. Nutrients cause changes to the natural plant communities and threaten species, particularly those that rely on naturally low nutrient conditions. These excess nutrients come from sewage treatment

and from diffuse sources, mainly run-off from farmland. For example, the valley of the river Waveney has a number of wetland sites of European importance along its length. Currently water quality is not good enough to meet the needs of these designated sites, and we are working with the water industry to reduce pollution by improving four sewage treatment works.

Our freshwater wetlands also depend on maintaining natural water levels, but many have suffered from the impacts of drainage or low water flows resulting from development and other pressures. The Norfolk Valley Fen SSSIs, for example, rely on the maintenance of groundwater in the form of springs.

Abstraction of groundwater from the aquifers feeding these sites can reduce these springs and damage the sensitive fen vegetation. Options are currently being investigated to reduce this abstraction impact and hence bring about restoration of these sites. The Environment Agency report on the region (EA 2009) describes these issues in more detail.

## Climate change

The impact of inevitable climate change on the natural environment is one of the major challenges ahead. Even the most optimistic predictions show us locked into at least 50 years of changing climate. Evidence from the UK Climate Impacts Programme (UKCIP 2002) shows that the climate in the region over the coming century is likely to become warmer and wetter in winter and hotter and drier in summer, while sea levels will rise. In addition, rainfall intensity will probably increase. Extreme events such as heat waves and storms are predicted to increase in frequency and severity.

Climate change may pose particular challenges for the natural environment in this region for the following reasons:

- the potential for long term changes to our coastline as a result of sea level rise, affecting communities and coastal and freshwater habitats;
- potential changes to freshwater environments. In an already dry region facing climate change, it is likely that water-dependent wetlands in the region will be significantly affected. There are a range of other potential impacts on freshwater, affecting the ecological balance of rivers and lakes; and
- on land, species will want to move, broadly northward, to maintain their climatic niche. They will face barriers where the original networks of habitats have been broken up. In an especially fragmented landscape like parts of this region, adapting to climate change in this way will be more difficult unless we can re-build some habitat networks.



## Trends in access and recreation

Access resources vary across the region. Designated landscapes and National Trails are concentrated in the north and east of the region and are remote from the bulk of the population who live in the south and the west. Yet the south and west of the region are two of the largest growing areas in the country and are set to increase further with the designated growth areas of Milton Keynes and the Thames Gateway. The Office for National Statistics (ONS 2006) estimated that between 2006 – 2031 the population of the East of England will increase by 1.4 million.

Regional access network maps are being prepared by Natural England to help identify priority areas for delivering new or improved public access and recreation provision.

Although there are extensive routes and trails in the region there is a trend away from participation in the outdoors. Physical activity at a level that promotes health is low across the region, with striking differences in participation rates relating to geographical and socio-economic factors. Sport England (SE 2006) have found that only 20.5% of the UK adult population take part regularly in sport and active recreation, about the same as the national average in England. There are also rising levels of obesity in both adults and children (ERPHO, 2004). As the most popular form of exercise in England is walking (SE 2007/2008) the creation and maintenance of high quality green space will play a crucial part in facilitating that activity.

Obesity is an important problem across the region and is linked to diabetes, heart disease and strokes. Obesity decreases life expectancy by up to nine years. On average there are approximately 25,000 obese adults per primary care trust in the East of England (ERPHO, 2004). The estimated annual cost of diseases related to over-weight and obesity in the region was £1.4 billion in 2007, and is predicted to rise to £1.5 billion by 2010 (DoH 2008). Providing high quality green space for outdoor activities and a network of safe routes and trails for active travel can help to address this.

### The overall picture

Our overview of the evidence indicates the long term effects of land management and development pressures. These are similar to the rest of the country, but have left especially fragmented ecosystems in this region. This also means we have gaps in our recreational resource in significant parts of the region, with potential implications for the health of our population. There are some positive trends for our wildlife, but concerns about its overall state across the region – it seems we have not yet reversed the general decline of the past century. Our SSSIs have improved significantly in the past decade, in line with national trends, but difficult problems relating to coastal and water pressures affect the remaining sites. Finally, adapting to climate change is likely to be especially challenging in this region.

# Chapter 4 The value of our natural assets

The previous chapters showed that, while we have some magnificent and inspiring landscapes and biodiversity in this region, this resource is impoverished compared with 50 years ago because of the pressures of modern life on the natural environment. We want to reduce current impacts and regain some of what we have lost. We believe that a healthy, functioning natural environment is vitally important to our modern society. In this chapter we show a few examples of the relevance and contribution of natural areas to life in the region.

## Making attractive places to live and work

The Regional Economic Strategy recognises that 'The nature and quality of places are becoming ever more significant. Sustainable built and natural environments are key factors in attracting investment, a well-skilled labour force, businesses and visitors' (EEDA 2008).

The Stort valley north of Harlow is highlighted as a key Green Infrastructure asset for this Growth Area in the 2008 East of England Plan and the Regional Economic Strategy. A successful partnership has led to a plan which makes sure we have sufficient Green Infrastructure designed into the growth area by:

- enhancing the value and management of existing sites of ecological importance, including three SSSIs and a Local Nature Reserve;
- encouraging the uptake of agri-environment schemes by farmers;
- purchasing and creating new accessible natural green space to improve the Green Infrastructure network;
- improving and creating paths for people along and into the valley with associated signage and information; and
- organising promotional activities to encourage greater usage and enjoyment of the valley by existing and future new residents.

## Developing a natural health service

Growing evidence shows that access to the natural environment improves health and wellbeing, prevents diseases and helps people recover from illness (SDC 2008). Experiencing nature in the outdoors can help to tackle obesity, coronary heart disease, stress and mental health problems. Health walks are the perfect entry-level activity for sedentary patients. In the East of England there are currently 42 Walking for Health Initiative schemes which give people access to their natural environment for the benefit of their health and wellbeing. These schemes offer 225 walks per week for 2,850 regular walkers.

### **Tiptree Heath, Essex**

Tiptree Heath is a 25 ha SSSI. It is the largest remaining fragment of heathland in Essex, but represents only a small fragment of a huge heathland that once covered thousands of hectares. The heath is a privately-owned common land and is managed as a protected area by the Friends of Tiptree Heath and the Essex Wildlife Trust.

Public access to the heath is an important management objective. Easy access gates, allowing pushchair and disabled access, have been placed on the most frequently-used paths, and there is also a full perimeter path. These networks allow for a well-supported Walking for Health initiative. Walkers take part for a variety of reasons including health related issues such as heart disease and diabetes, and for mental health issues, general improvement of wellbeing and for social reasons.

## A major resource for recreation and tourism

Tourism in the protected landscapes of the East of England was worth over £844 million in 2006, which accounts for 16% of the total value of tourism to the region.

Research, led by East of England Tourism (EET 2007), looked at the economic impact of tourism in the region's AONBs, the Broads and the Brecks. The report concluded that the protected landscape designation is of enormous value in attracting visitors. People who visit are interested in responsible tourism and want to enjoy the natural beauty by walking, cycling, boating and using public transport.

As well as the direct expenditure on food, drink and accommodation by visitors, which accounts for £691 million, supplier and associated spend in the protected landscapes amounted to an additional £152 million. Tourism-related employment totaled 17,313 jobs.

In addition, in 2006, there were over 13 million day and overnight trips to the East of England's protected landscapes. AONB landscapes are also important for the environmental assets they support, and this is recognised by targeted spending of agri-environment schemes, such as Environmental Stewardship.

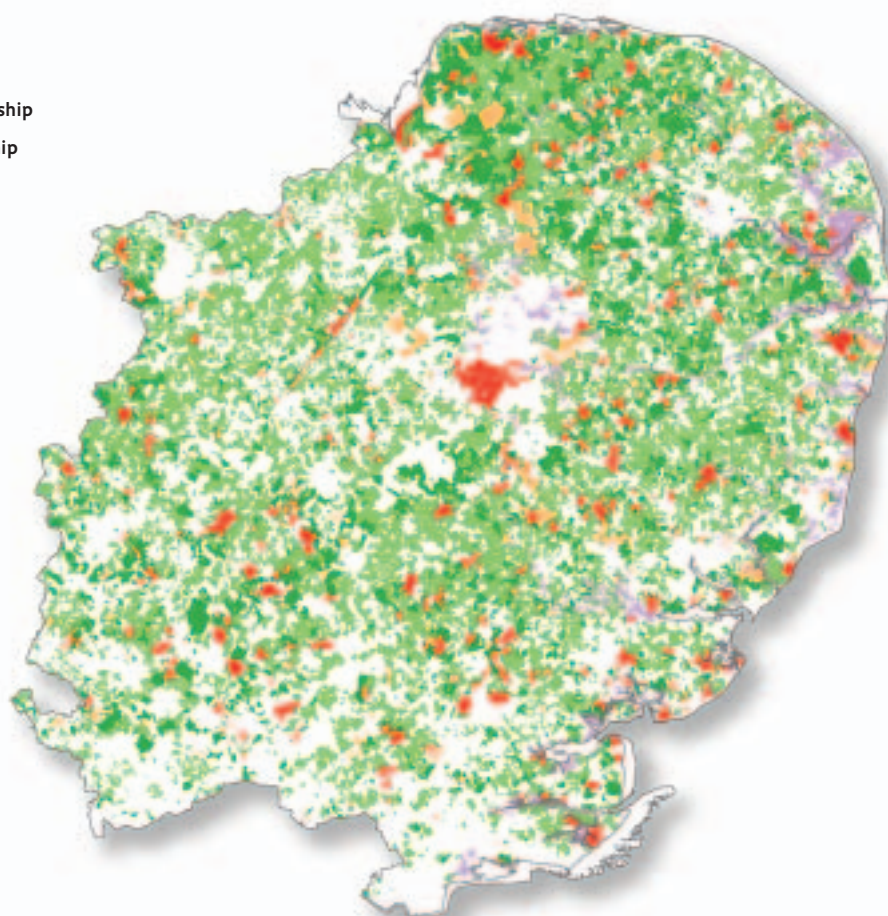


## Environmental improvements contributing to the rural economy

The region's farmers have taken up Environmental Stewardship with enthusiasm. Positive environmental management on 67% of land in the East of England is supported by over 7,500 Environmental Stewardship agreements which pay for the public benefits that are not paid for in food prices. Agri-environment support from this scheme provides over £53 million to the region's farm businesses each year.

Natural England has also worked with the regional Grazing Forum to support local product marketing through the Aldeburgh Food and Drink Festival, Feast East and the first East Anglian Food Festival.

**Figure 3 Agri-Environment Schemes**



0 50 Km

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## Providing opportunities for volunteering



Norfolk Coast Path National Trail

The Peddar's Way & Norfolk Coast Path National Trail has up to 100 people that volunteer along the route. Each volunteer will inspect a three to four mile section of the trail throughout the year. During inspections they help to maintain the route by carrying out vegetation clearance or small repairs. Faults that cannot be dealt with during inspections are reported to National Trail staff who will deal with the issues before they affect users of the Trail. The volunteers also act as ambassadors for the National Trails by facilitating links with the local community and parish councils. Several times a year the volunteers will meet up to carry out larger practical tasks such as laying boardwalks, surface repairs, furniture repairs and management of roadside nature reserves alongside the Trail.

## Our insurance plan: resilient natural assets providing environmental services

Recent research by the Open University, funded by the East of England Development Agency (Great Fen 2008), has shown that the Great Fen project has the potential to reduce climate change emissions from land. When peat is drained, air gets into the soil, oxygen reacts with the carbon in the soil to form carbon dioxide, which leaks into the atmosphere. By re-wetting the peat and establishing permanent vegetation cover, the Great Fen project will halt the process of peat erosion and subsequent release of carbon dioxide. The research calculates that this project has the potential to avoid the loss of 325,000 tons of CO<sup>2</sup> per year.

The project may also help our response to climate change in other ways. Big sites like this include a range of environmental conditions. As England's climate changes and becomes less predictable, wildlife will need larger protected habitats to survive.

Climate change will also increase the number of storm events, which increases the risk of flooding. The project is currently identifying the best locations in the project area to store flood water, providing protection for surrounding land and property.



Cattle grazing on the Great Fen

# Chapter 5 Our agenda for action and investment

**This chapter sets out our investment priorities for the natural environment in this region, including the actions that we and others need to take to achieve this vision.**

## **Our vision for the natural environment and its contribution to quality of life**

Natural England has recently embarked on a three year project to develop a national long term vision for the natural environment. In the meantime we offer our current thinking about what our natural asset base needs to look like in this region in 10-15 years time, and how it will contribute to quality of life in the 21<sup>st</sup> century:

- we will have a better understanding of how the character of all our landscapes can enhance the region's sense of place and distinctiveness;
- the natural beauty of the region's designated landscapes will continue to be afforded the highest level of protection to ensure the conservation, and where necessary enhancement, of their special qualities;
- 95% of our SSSIs will be in favourable or recovering condition and we will have found long term solutions to the pressures from coastal development, water quality and water abstraction;
- the decline in biodiversity in the wider countryside will be reversed. This will include significant improvements in farmland bird populations, improvements in the management of county wildlife sites, and achievement of regional priority habitat and species targets;



Barton Hills SSSI, Bedfordshire

© Natural England/Peter Wakely

- the benefits from regional agri-environment schemes will be clearly demonstrated. Agri-environment schemes will help farmers to farm productively and sustainably. Natural England's land management and advice programmes will contribute to regional food markets, local identity and tourism;
- the region's landscapes and habitats will be less fragmented. Instead, larger-scale 'ecological landscapes' will provide a wide range of environmental services, particularly greater resilience to the impacts of climate change. This will make the region a better and safer place to live and work and will boost the contribution of the natural environment to the regional economy;
- Green Infrastructure will be of high quality and established permanently with financial support. It will be given the same priority as other infrastructure development. It will include accessible natural green space and corridors within communities and larger sites in the urban fringe and wider countryside;
- the region will have a network of high quality routes and local green spaces suitable for leisure use, low carbon travel, educational use and free exploration and play by children and young adults. Provision of space for people will be made close to where people live or visit. The outdoors will be promoted and managed in new ways that help to facilitate visits from those people who currently do not access the countryside; and
- more people will understand why the natural environment is important, understand its recreational and health-giving possibilities, treasure it as a place in which to work, visit, play and explore, and take action to conserve it.



## Getting there: our agenda for action

We propose an agenda of nine priority areas for action and investment to help achieve our vision of a healthy environment for the region's enjoyment:

### 1 Achieving growth in ways which protect and enhance the natural environment.

We want to see the following environmental outcomes from the planning system in this region:

- carefully planned development which protects our best sites;
- making better use of landscape character assessment as a tool to ensure that regional character diversity and local distinctiveness are recognised in decision making;
- sustainable construction standards including those which encourage wise use of water;
- sufficient provision of natural 'Green Infrastructure';
- development plan policies that promote habitat restoration and creation; and
- more environmental gain from planning permissions.

### 2 Bringing the natural environment to everyone's doorstep for access, enjoyment and wellbeing.

Everyone in the region should have access to high quality natural green space to benefit their health and wellbeing. We want people to participate as active guardians and improvers of the environment by enjoying their local green space through walking and green exercise. Natural England will ensure our National Nature Reserves do more to connect the public with the natural environment, and will work with partners to develop the Great Fen and other projects for community access. We also need to see:

- schools, hospitals, offices and housing developments including high quality natural green space to connect people and nature;
- local authorities delivering their published strategies to improve rights of way and connect people to their natural environment; and
- the health service and local authorities investing further in healthy walking schemes.



### 3 Taking account of coastal change and physical processes.

We want coastal policy to work with physical processes – not against them – to meet the needs of people and nature. Sustainable and more robust management of flood and erosion risk is best achieved by solutions that work with the physical processes that shape coastal environments. There is a need to conserve, manage and sustain sediment supplies that feed coastal systems and the landscapes and habitats they support.

In the right places, managed realignment of flood defences is the right decision for society. We will influence shoreline management plans, estuary strategies and the regional coastal initiative to achieve this aim.

Strategic management of the coast needs to anticipate climate change and support partnerships that join up different community interests. The challenge of coastal change and rising sea levels also requires new measures to help communities adapt. Planning for coastal infrastructure must take account of coastal processes and sea level rise.

### 4 Ensuring enough clean water for wildlife.

We need to ensure that there is sufficient water for our wetland habitats as well as to meet domestic, industrial and agricultural needs.

We need more sustainable levels of water abstraction and will therefore encourage water resource plans that will deliver the government's new long term targets for reduced *per capita* water consumption. We also need to be more ambitious in our regional plans for reducing diffuse source pollution.



Norfolk hawker

Our national wetland vision, developed jointly with the Environment Agency, RSPB, Wildlife Trusts and English Heritage (Wetland Vision 2008) traces the historical coverage of wetlands in this country and their subsequent decline. It calls for a programme to develop our wetland resource over the next 50 years. This would involve doubling the number of ponds and amount of reedbeds, together with a 50% increase in the amount of grazing marsh.

## **5 Encouraging more sustainable land management.**

We want to develop long-term partnerships with farm businesses to assist landowners to manage land more sustainably and provide the full range of public benefits. We want diverse and profitable farming and food systems that value and reward the benefits that flow from high standards of stewardship; we also want the benefits of this stewardship to be more widely recognised.

Close, trusting relationships between farmers and high-calibre advisers will encourage farmers and advisers to work together for more sustainable land management (eg through our advice service and the Catchment Sensitive Farming initiative). Ultimately, the region must develop diverse, healthy and resilient agro-ecosystems capable of surviving the shocks and stress of climate and other environmental changes (Chatham House 2009).

The aim is for 70% of eligible farmland to be funded by agri-environment agreements by March 2011. Higher Level Stewardship will be increasingly focused on target areas (which cover about 25% of the region) and themes. Agri-environment schemes will focus delivery on achieving the objectives of wildlife conservation, maintenance and enhancement of landscape quality and character, natural resource protection, protection of the

historic environment and promotion of public access and understanding of the countryside.

## **6 Investing in distinctive landscapes and healthy, functioning habitats.**

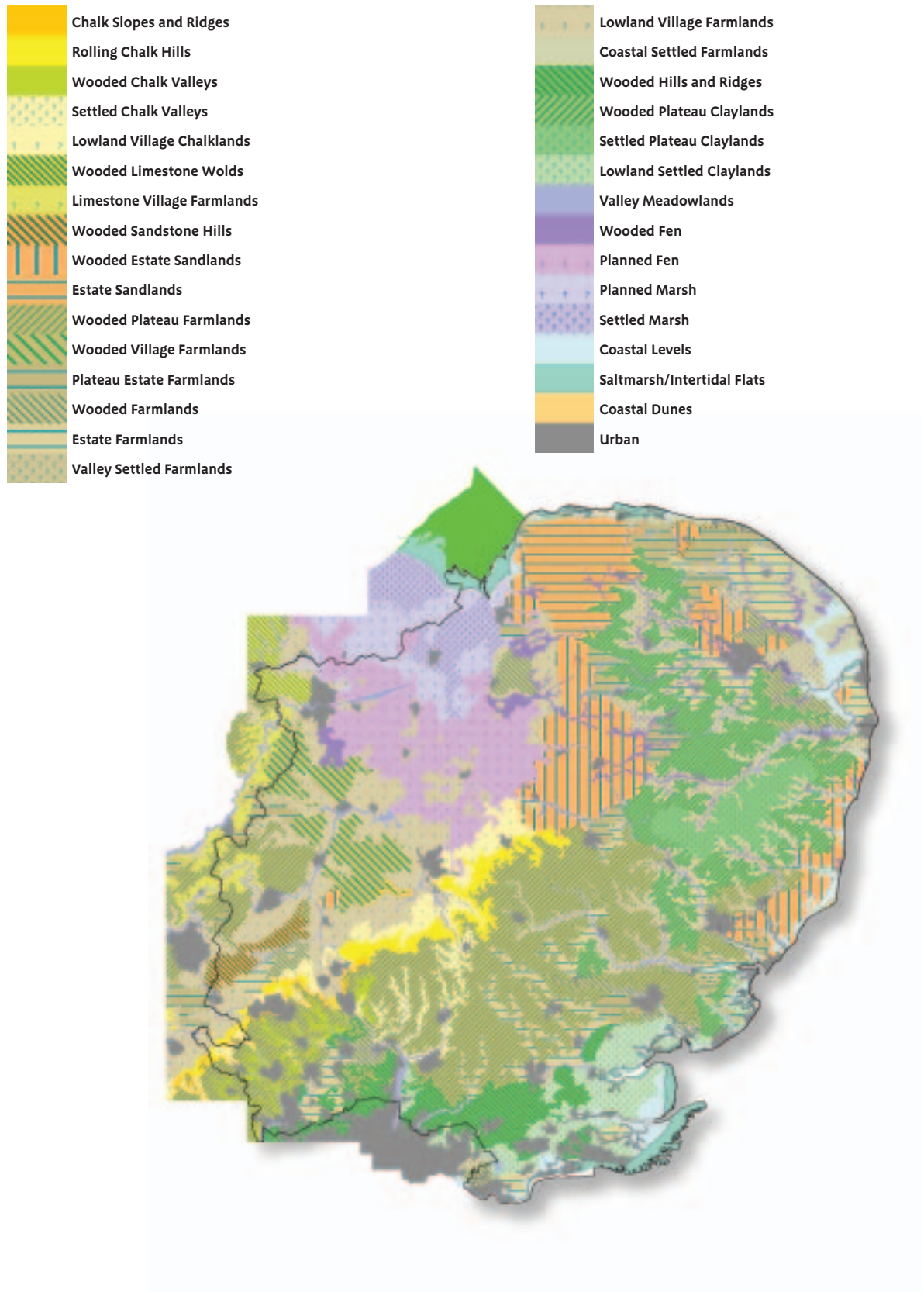
England is a signatory to the European Landscape Convention. Our focus is not only on designated landscapes, but maintaining the character of the whole fabric of our everyday environment as well. As landscapes change and evolve they should be sustainably managed, distinctive and highly valued. Natural England has supported the development and use of a Regional Landscape Framework in partnership with the East of England Landscape Forum. A draft map and listing of regional character types was produced in January 2009. (See Figure 4 overleaf).

Habitat fragmentation affects the structure and functions of the natural ecosystems. We need to take a larger-scale approach to conservation, by linking existing sites of high biodiversity and managing those processes (eg hydrological processes) that operate throughout the whole landscape. There are many examples of landscape-scale projects in the region, for example, the Wicken Fen Vision is an ambitious plan to create a new nature reserve covering around 56 square kilometres between Cambridge and Wicken Fen.

We will therefore:

- support the work of the Biodiversity Forum to deliver Local and Regional Biodiversity Action Plans; and also support the geological conservation fora in the region;
- support the Biodiversity Forum's new delivery plan (EEBF 2008 - see Figure 5 overleaf); and
- implement the new targets within the national biodiversity programme that have been assigned to the region.

**Figure 4 Landscape Character Types**



Source: Natural England/East of England Landscape Forum, 2008

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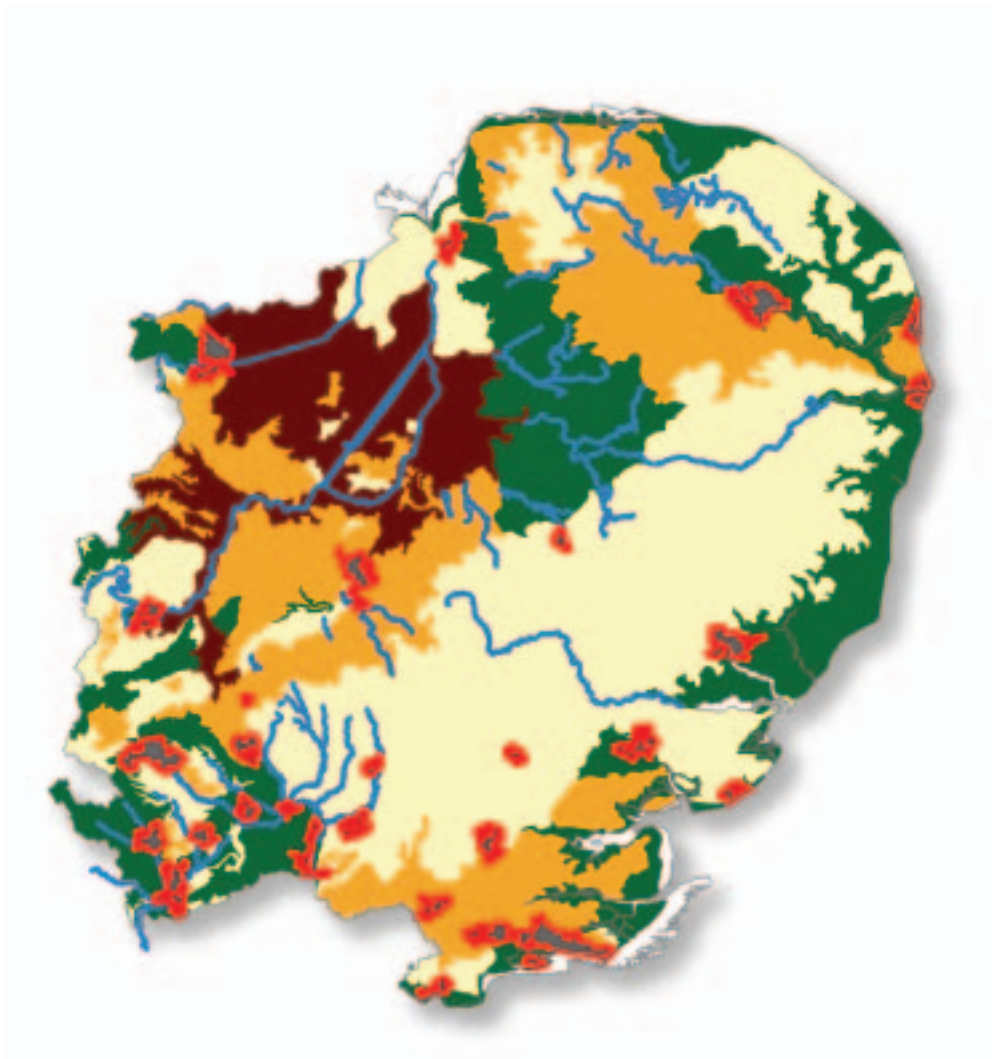


**Figure 5 Biodiversity opportunities**

- Urban Biodiversity Deprivation Area
- Strategic River Corridors
- Core Biodiversity Area

**Biodiversity Enhancement Areas**

- Buffer fragmented habitats
- Extend and link fragmented habitats
- Large-scale habitat re-creation and restoration



0 50 Km

Source: EEBF, 2008  
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## **7 Helping the natural environment adapt to climate change.**

By working with natural coastal processes, conserving water resources, developing larger scale natural areas, and encouraging more sustainable land management.

## **8 Creating protected areas for our marine life.**

Natural England is working with government to support the Marine Bill. We are looking to develop a stronger network of marine protected areas in the region. This will include a new network of Marine Protected Areas (MPAs), including new Marine Conservation Zones (MCZs) and Marine Special Areas of Conservation (MSACs). The last of these will be aimed particularly at sandbanks and biological reefs. We will also develop our relationships with marine industries, particularly the fishing, energy and aggregates industries.

## **9 Appreciating the value of our natural assets.**

We want to communicate the relevance of the natural environment to our modern society. We want to help people to understand and value the contribution of the natural environment to everyone's quality of life and wellbeing. This needs a commitment to change the way we value and treat the environment. We need to work with regional bodies to develop our evidence base.

Investing in the natural environment is important for its own sake and also because of the contribution it makes to our economy and quality of life. In the East of England, we believe the natural environment has a particular contribution to make to in a variety of ways: to the rural economy; to tourism; by building distinctive places where people will want to live and work; by making a contribution to positive health outcomes; and finally, by helping the region adapt to climate change.

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## Front cover photograph

Dunwich Heath

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