State of the natural environment in the West Midlands

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Contents

Foreword

The West Midlands has a rich and varied natural environment ranging from the Peak District National Park and the five Areas of Outstanding Natural Beauty to areas with no formal designation such as waterways, gardens, green corridors, and street trees.

The state of the natural environment matters to everyone in the West Midlands. It is an essential regional asset that provides the foundations for our economic and social wellbeing. A healthy natural environment provides essential public services, such as:

- clean air, clean water and productive soils
- support for economic activity and sustainable energy production
- security against the impacts of climate change
- a natural health service, contributing to people's health and wellbeing
- places to experience and enjoy the nature.

This report brings together a selection of evidence about the natural environment in the West Midlands. It shows that our natural environment is not well placed to withstand the challenges posed by multiple demands on land and the predicted effects of climate change. It recognises the absence of accessible guidance to help people make informed sustainable choices.

We still have much work to do to conserve our wildlife and landscapes in the long term. Our approach to conservation, over the last 60 years, has focused on protected areas such as National Parks and Sites of Special Scientific Interest. Within these areas we have had some success in protecting the natural environment.

But outside these areas the natural environment is increasingly under threat. Efforts to protect it have not been effective enough to prevent ongoing and rapid decline. Urgent and substantial action is now required to arrest and reverse these declines. If left unchecked, we could face unprecedented environmental damage, with consequent knock-on effects for the whole of society.

The signs are that political and economic decisions taken in the past are threatening the health, wealth and happiness of people now and in the future. Over the last 20 years the concept of sustainable development has entered the mainstream. Sadly, all too often the reality fails to live up to the rhetoric. Short term expediency has dominated decision making and the natural environment is still, on the whole, treated as something to be spoiled now and cleaned up later – if at all.

It should no longer be considered acceptable to take decisions that damage the natural environment. The unprecedented scale and rate of change posed by the current challenges means that coordinated action is needed now, not just by Government but by a stronger coalition of our stakeholders and partners, business and communities.

We believe wildlife-rich landscapes are not 'extras'. A healthy natural environment is the key to solving many of the problems that confront us in the 21st century. We need an approach that reconnects people with the natural world and creates a landscape where nature can adapt to a changing climate. It is not too late to take the difficult decisions needed to direct this region towards a greener, healthier and, in the long term, wealthier and sustainable future.

Roger Owen, Regional Director

Landscapes

We value our landscapes because of their inherent quality, their contribution to our national identity and our local distinctiveness, and their pivotal role in our quality of life.

The West Midlands region contains a wide range of landscapes as a result of the diverse underlying geology. This determines not only the terrain and the habitats that develop, but also the human use of the landscape, past and present. To the west, merging into the more rugged landscapes of Wales, are uplands and intimate pastoral landscapes of hills and woodland. These contrast markedly with the central and eastern areas, which are mainly lowlands, with broad river floodplains, dominated by arable farming. There are large urban conurbations around the industrial heartlands of Birmingham, the Black Country, The Potteries and Coventry.

Our finest landscapes, some 9% of the region, are protected within parts of five Areas of Outstanding Natural Beauty and a National Park. These areas provide invaluable inspiration for the region and its visitors.

Current state

England's landscapes have been described and characterised through 159 National Character Areas. In the West Midlands, we have more detailed analysis through Landscape Character Assessments, which inform local planning policies and guide landscape management.

Natural England, English Heritage and Defra have established the Countryside Quality Counts (CQC) project to review landscape change in the National Character Areas

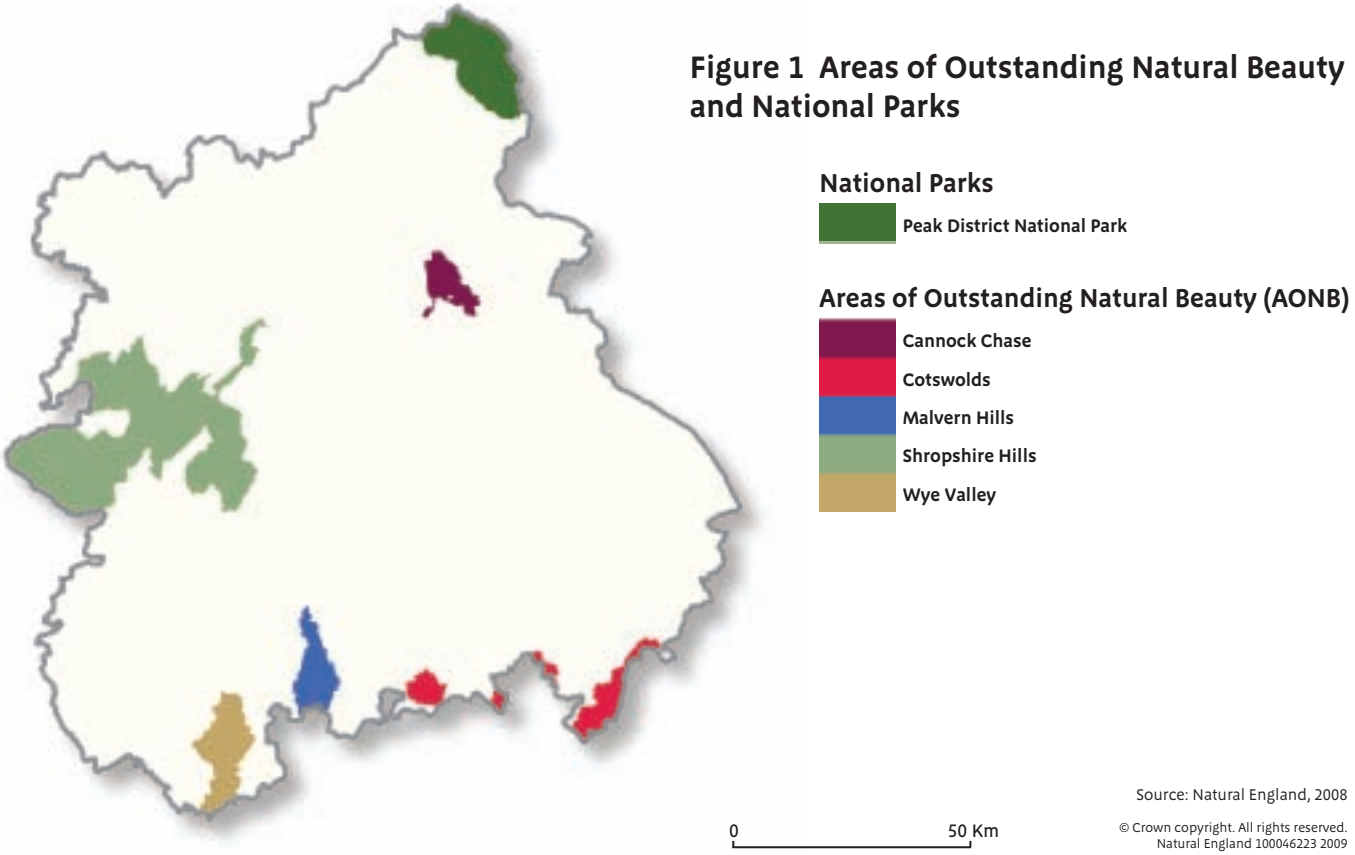


Figure 1 Areas of Outstanding Natural Beauty and National Parks

Source: Natural England, 2008

© Nigel Jones

This intimate landscape includes some of England's most rural and picturesque countryside.

and its impact on local distinctiveness. Changes in character between 1998 and 2003 have been assessed within four categories: maintained, neglected, diverging and enhancing.

The analysis also looks at changes in key elements of the landscape. Key facts from the West Midlands are:

- 63% of our Landscape Character Areas (LCAs) are neglected or diverging from existing character.
- None of our LCAs was assessed as enhancing.
- National Parks and Areas of Outstanding Natural Beauty have largely maintained their character.

The region has a major concentration of agricultural landscapes that are neglected or showing diverging patterns of change, particularly in the eastern valleys and floodplains.

Challenges

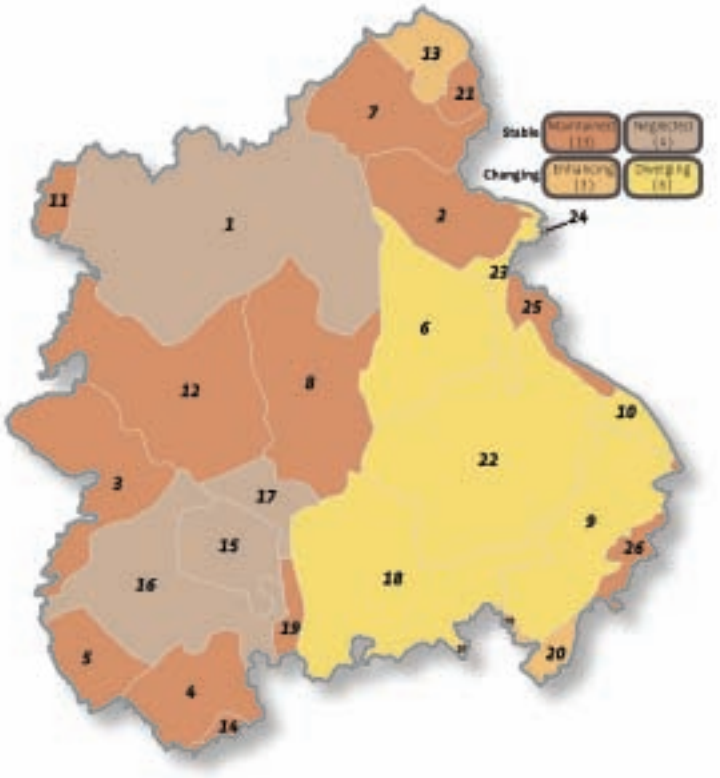
All landscapes matter: protected, rural and urban. The European Landscape Convention promotes this view and England's Implementation Framework recommends national and local Action Plans to encourage positive management of all landscapes.

Natural England, working through the Regional Landscape Partnership, will encourage partners to create and implement local Action Plans. These should set out priority actions that will maintain locally distinctive landscape character, and encourage people to learn about and take action for all our landscapes.

Landscapes in the West Midlands face pressure from changes in farming systems, climate change and development. Natural England will work with stakeholders and partners to ensure that our landscapes continue to evolve in ways that are distinctive and remain highly valued. They must be managed, protected and planned to deliver the goods and services that sustain the region's biodiversity, quality of life, prosperity and cultural identity and to allow for adaptation to climate change. Natural England will work with farmers to ensure that agri-environment scheme options have the potential to reinforce the distinctive character of landscapes across the region.

We will encourage stakeholders and partners to manage protected landscapes using best environmental practice, including adaptation to climate change.

Figure 2 National Character Areas (NCA)



1 Shropshire, Cheshire and Staffordshire Plain
2 Needwood and South Derbyshire Claylands
3 Clun and North West Herefordshire Hills
4 South Herefordshire and Over Severn
5 Black Mountains and Golden Valley
6 Cannock Chase and Cank Wood
7 Potteries and Churnet Valley
8 Mid Severn Sandstone Plateau
9 Dunsmore and Feldon
10 Leicestershire Vales
11 Oswestry Uplands
12 Shropshire Hills
13 South West Peak
14 Forest of Dean and Lower Wye
15 Herefordshire Plateau
16 Herefordshire Lowlands
17 Teme Valley
18 Severn and Avon Vales
19 Malvern Hills
20 Cotswolds
21 White Peak
22 Arden
23 Trent Valley Washlands
24 Melbourne Parklands
25 Mease/Sence Lowlands
26 Northamptonshire Uplands

Source: Natural England, 2008

0 50 Km

Our changing agricultural landscape

Over 70% of West Midlands region is agricultural land. Changes in the distribution, rotation cycles and cropping methods can have dramatic, often unforeseen, effects.

- The area of sugar beet has dropped by 50% since 2002, a decline accelerated by the closure of sugar beet factories in the region. The loss of sugar beet production, and the associated crop rotations with spring cereals, will be one of the most significant changes to the region's cropping in recent years and will put species such as brown hare and lapwing under further pressure through loss of habitat.
- The area of potatoes grown in the region has not changed significantly, but the need for 'clean' ground has shifted production to traditional livestock areas such as Herefordshire. Here, unimproved floodplain grasslands have been ploughed up and the resultant arable cropping practices have increased soil and phosphate run-off, which causes serious pollution of our water courses and rivers.
- There has been a shift from extensive farming to more intensive practices, shown by falling numbers of suckler cows and breeding ewes and increased dairy herd sizes. This has implications for maintaining extensively grazed habitats and traditional hay meadows.
- While plastic agricultural polytunnels can support agriculture, boost local employment and reduce food miles, they can be detrimental in terms of diffuse pollution, biodiversity and visual landscape impacts.

Intensive farming in the floodplains is causing soil run-off which pollutes our rivers

Geology

The West Midlands has an incredibly rich and diverse geological heritage, which inspired early geologists to carry out pioneering work into rock types, understanding fossils and their environments and developing the geological timescale. The Wren's Nest was the first geological National Nature Reserve, declared in 1956. The region's fascinating geological heritage has the potential to be a significant driver of economic activity.

Current state

The region now has two geological National Nature Reserves and 122 geological Sites of Special Scientific Interest. The interest features have been destroyed in two of these sites. Of the rest, 87% are in favourable condition and 13% are unfavourable. There are 648 Regionally Important Geological/ geomorphological Sites but, at present, there is no information on their condition.

The European Geoparks Network has been established to acknowledge the internationally important status of key areas, and their contribution to the local culture and economy. In the West Midlands, The Black Country has recently applied for recognition as a European Geopark.

Challenges

Natural England seeks to conserve our geological heritage for future generations; for research, education and enjoyment by all. We will work to bring geological National Nature Reserves, Sites of Special Scientific Interest and Regionally Important Geological/ geomorphological Sites into favourable condition.

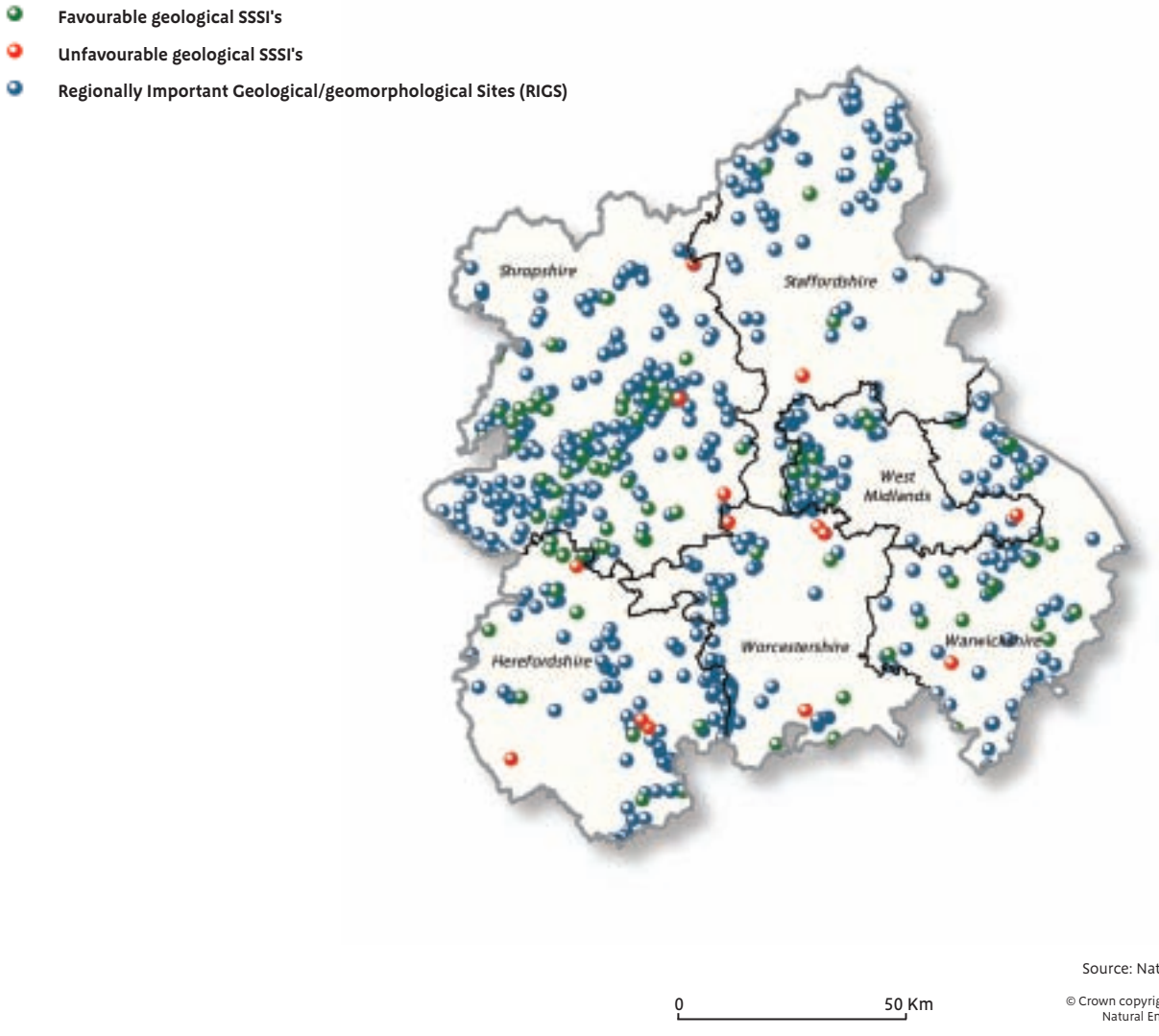
Natural England will support the Regional Geodiversity Partnership, and constituent geo-conservation groups, in delivering their objectives, and will work to improve knowledge and awareness of regional geodiversity.

Here at Wenlock Edge, the limestone ridge strikes a course through the Shropshire landscape.

West Midlands Geodiversity Partnership
West Midlands was the first English region to establish a Geodiversity Partnership of geoconservation groups. The partners are working together to advise and influence policy makers on geodiversity and to identify, agree and implement regional priorities, including those of national and local Geodiversity Action Plans. They will improve delivery of geodiversity objectives by promoting joint working, establishing common standards and sharing best practice and experience. A key challenge will be to raise public awareness of, and interest in, geodiversity, for example through the development of a partnership website, and to promote it as a key constituent of sustainable development.

An early success has been to draw together information to map the Regionally Important Geological/geomorphological Sites. This highlighted varying standards in the selection, recording and monitoring of these sites, which the partnership will try to resolve, starting with a project to develop a common protocol for monitoring the condition of the RIGS.

Figure 3 Geological Sites of Special Scientific Interest



Source: Natural England, 2008

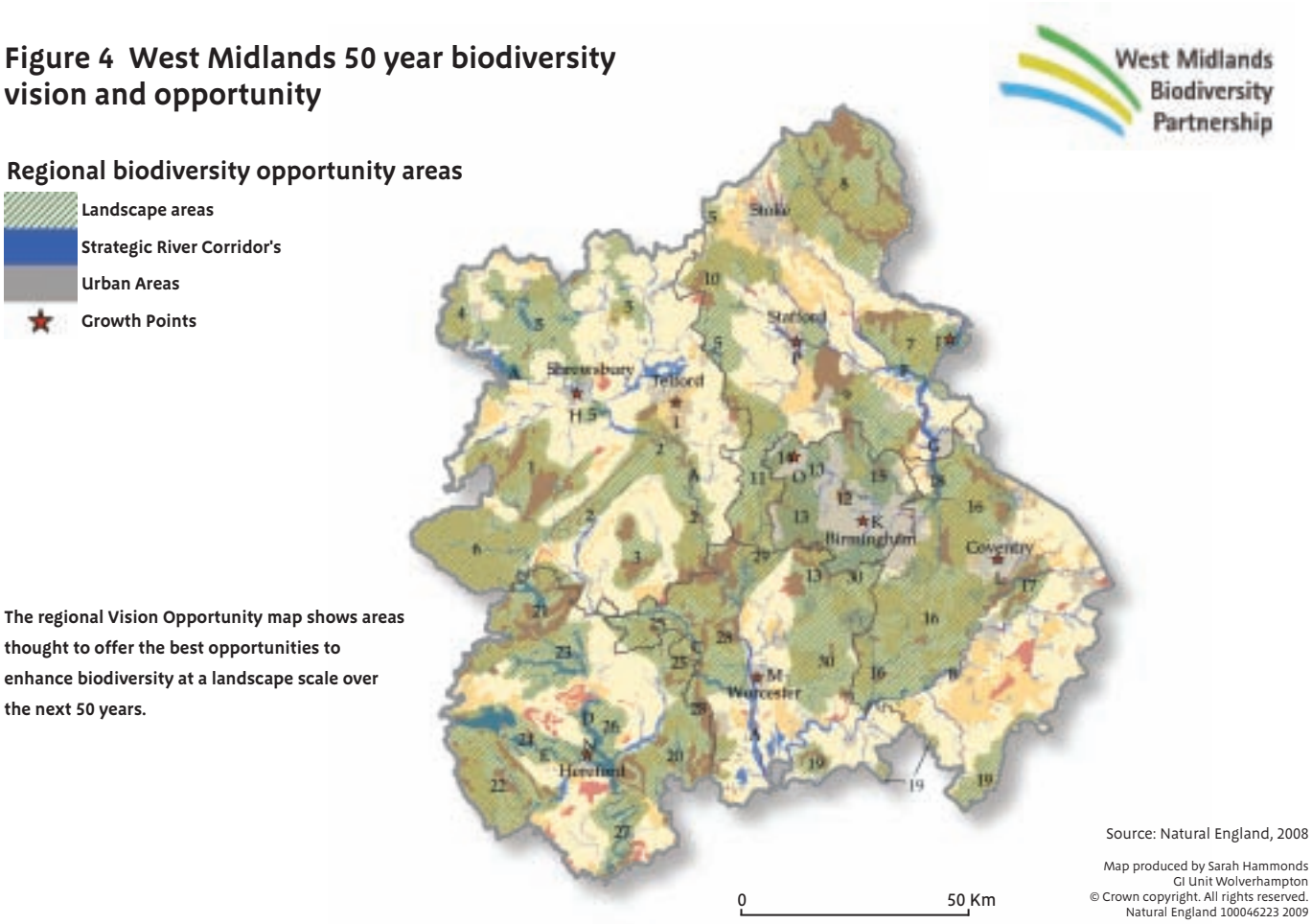
Biodiversity

We value our biodiversity for its intrinsic value, because it enriches our lives and for the services that healthy ecosystems provide for us. However, our habitats and species are vulnerable to a range of threats and pressures, including the effects of climate change. This can only be addressed by developing a long-term, integrated, sustainable approach, to improve habitat connectivity and resilience and create healthy ecosystems that can adapt to climate change.

As a landlocked region with limited upland areas and 75% agricultural land, we have a very low cover (6%) of semi-natural habitat; only London region has less. Despite this, we have nationally significant proportions of several important habitats, including 20% of England's lowland meadows, 10% of England's broadleaved woodland and 9% of the wood pasture and parkland, lowland heathland and acid grassland.

Moccas Park, though small, ranks fifth in England for the rarity and diversity of its saproxylic insects.

Figure 4 West Midlands 50 year biodiversity vision and opportunity



The regional Vision Opportunity map shows areas thought to offer the best opportunities to enhance biodiversity at a landscape scale over the next 50 years.

Source: Natural England, 2008

Most of the best wildlife sites are small and isolated, but there are better connected networks of habitats in the upland regions, along the river valleys, in wooded landscapes such as the Wyre Forest, and in the heathlands of Cannock Chase. Fourteen such areas, including the Malvern Hills, Woolhope Dome and Staffordshire Moorlands, are identified in the West Midlands Regional Spatial Strategy as Biodiversity Enhancement Areas.

The West Midlands has some extensive tracts of woodland, such as the Wyre Forest. It has notable ancient parks and wood pastures, such as Moccas, and landscapes with high concentrations of hedgerows, veteran trees and traditional orchards. These habitats are all particularly important for a wide range of species that depend on dead and rotting wood.

The wetlands and rivers of the West Midlands are internationally important for their habitats and associated species. Fenn's and Whixall Mosses is England's third largest lowland raised bog. The Meres and Mosses of north Staffordshire form an important complex of lowland raised bogs, fens and open water, including Aqualate Mere National Nature Reserve – important for its wintering waterfowl and breeding waders. The rivers are internationally important for otters, freshwater pearl mussels and migratory fish. The wet woodlands, reedbeds, wet grasslands and river floodplains support vulnerable breeding waders. The extensive network of canals adds to the diversity of open water habitats.

The urban environment includes over 900 brownfield sites and a wide range of habitats and species. In and around Birmingham and Stoke-on-Trent, mosaics of open habitat on previously developed land are a refuge for scarce butterflies and moths, and birds such as black redstart and peregrine falcon use urban sites.

Current state

We do not have definitive figures for the extent of biodiversity 'priority habitats' in the West Midlands. There are at least 50 different datasets that can be drawn on, but they vary in their habitat classifications, and the coverage and accuracy of their data. The Regional Habitat Data Project is collating information from these to prepare a definitive regional habitat map. Once validated, this should provide a definite 'baseline' against which we can monitor habitat losses and gains.

Similarly, we have limited information on the condition of habitats outside protected areas in the region and there is currently no formal monitoring programme to assess changes in the condition of these habitats.

Across England, the 2007 Countryside Survey found that the condition of a wide range of habitats had continued to decline. Overall species richness in the wider countryside declined by 8% since 1998. Linear features and habitat patches, usually regarded as 'reservoirs' of biodiversity within the wider countryside, were sampled by targeted plots. They showed declines since baseline of 15% and 17% respectively, greater than declines shown in the random plots.

© Dave Grundy

Results from the Garden Moth Scheme in the West Midlands have shown a steady decline for the autumn flying lunar underwing moth over the last five years. The 2008 figures show a further decline of 53%.

© Nigel Jones

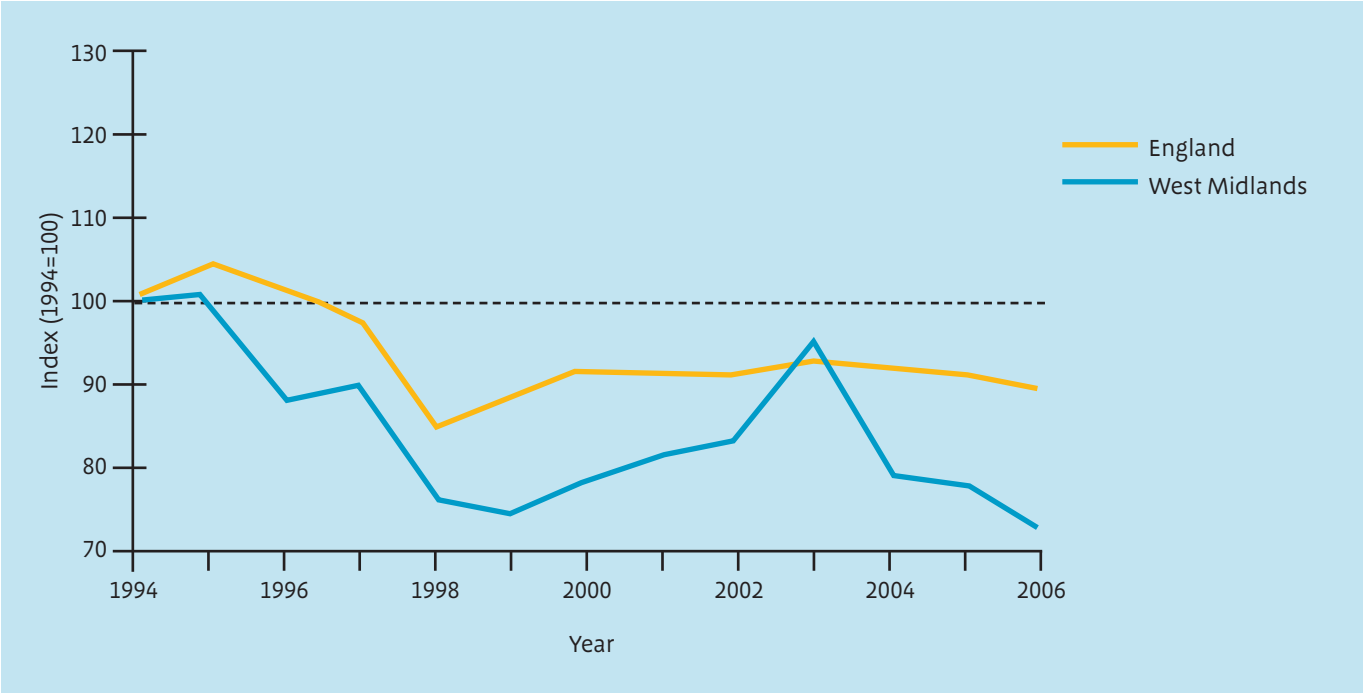
Small pearl bordered fritillary – a BAP priority species that has declined severely in the West Midlands

Declines in condition can be attributed to a range of factors, including inappropriate grazing regimes, agricultural intensification, inappropriate development, and high levels of phosphates and nitrates from both point and diffuse sources.

The UK Government is committed to internationally agreed targets to halt the loss of biodiversity by 2010. In 2007 the national and regional targets for BAP habitats were revised. Forecasts by the West Midlands Biodiversity Partnership suggest that the region will meet assigned targets for lowland meadows, lowland acid grassland, purple moor-grass, floodplain grazing marsh, fen/bog and woodland expansion. We are forecast not to meet targets for lowland heath, lowland calcareous grassland and wood pasture and parklands and are unlikely to meet targets for freshwater and the restoration of woodlands.

There is better evidence, from a range of long-running monitoring programmes, for the status of individual species across England and the region. Across England these show major, some near-catastrophic, declines in

Figure 5 Farmland species 1994 – 2006



The West Midlands is one of only two regions with a continued significant decline in populations of farmland bird species, with the Farmland Bird Index falling 28% between 1994 and 2006.

many groups over the last 20-40 years. These include native plants of arable land, amphibians, butterflies, moths, bumblebees, and birds of woodland and farmland. Although there is some levelling off in long term declines for some groups, the trend is still downwards for many. This is mirrored in the range of many species, with 28% of plants, 71% of butterflies and 54% of birds showing declining ranges.

Both the ring ouzel and the black grouse have been lost from the region in the last few years. There have also been large reductions in the breeding success of wetland birds such as lapwing, snipe and curlew, now restricted to just a few sites across the region. The decline in breeding birds is also seen in urban areas, with results from the RSPB's Big Garden Birdwatch survey showing that house sparrows have fallen by 64% in Birmingham & the Black Country since 1979.

Challenges

Outside designated sites, many habitats and species are still in decline. Climate change poses new threats with rising temperatures and changing weather patterns. We need to develop a long-term, integrated, sustainable approach to improve habitat connectivity and resilience and create healthy ecosystems that can adapt to climate change.

We need to ensure that we maintain effective management of habitats and species within protected areas to protect the core biodiversity resource. We need to improve connectivity across the landscape by expanding and linking areas of good quality habitat to allow species to adapt to the effects of climate change. We also need to ensure that the remaining areas of the landscape are managed sympathetically and do not become barriers to climate change adaptation.

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Despite the scale of expenditure on agri-environment schemes, and our ability to catalogue the management outputs, we need better understanding of the conservation outcomes.

© Natural England/Nick Watts

A recent BTO study shows that farmland birds are still going hungry in February and March. Environmental Stewardship has options to address declines in farmland birds, but has not yet delivered the scale and quality of management interventions needed.

Regional partners and stakeholders must work together to deliver relevant regional Biodiversity Action Plan targets. We need collective commitment to deliver, and record, regional biodiversity targets and embed actions to deliver these targets into organisational delivery plans.

Further work is needed to establish a definitive baseline for the extent of different habitats across the region. We need monitoring programmes to keep the habitat inventories up to date and to start to assess the condition of the habitats outside the Sites of Special Scientific Interest. We need better surveillance of some species groups including mammals, fish, invertebrates, lower plants and fungi, and better evidence of the links between habitat condition and species survival.

We need better analysis of long term trends in habitats and species to inform conservation effort. This must include developing the sustainable development indicators for biodiversity that are required to assess the impact of policies, plans and strategies across the region.

Sites of Special Scientific Interest and National Nature Reserves

The most important habitats for biodiversity in England are protected through legal site designations. Only 28,281 ha (2%) of the West Midlands are notified as Sites of Special Scientific Interest (SSSI), although the sites selected do represent the full range of biological habitats, species and geological features of the region. Although they cover a smaller area than in any other region, by number (442) they account for 10% of all England's SSSIs. Many of the SSSIs are small and isolated, reflecting the fragmentation of the wider biodiversity resource and making them particularly vulnerable to external pressures.

Sixteen of these special sites, representing the region's very best wildlife and geological sites are managed as National Nature Reserves. Natural England and a number of other 'approved' organisations such as Wildlife Trusts manage National Nature Reserves to demonstrate the highest standards of conservation land management and show how nature reserves can contribute to the wellbeing of local communities and provide fantastic opportunities for public enjoyment.

Current state

Currently 80%, by area, of the region's SSSIs is in 'favourable or recovering condition' – being managed well to secure conservation of the habitats, species or features of geological interest for which the site was chosen. Figure 6 gives a breakdown of habitat condition across the main SSSI habitats. The condition of our rivers and freshwater habitats remains one of the most significant challenges for the future.

Active management has brought 94% of land in National Nature Reserves into favourable or recovering condition, with notable successes in scrub and tree removal on the peatlands at Fenn's and Whixall Mosses, woodland management in Wyre Forest, and scrub and bracken control on the heathland of the Stiperstones.

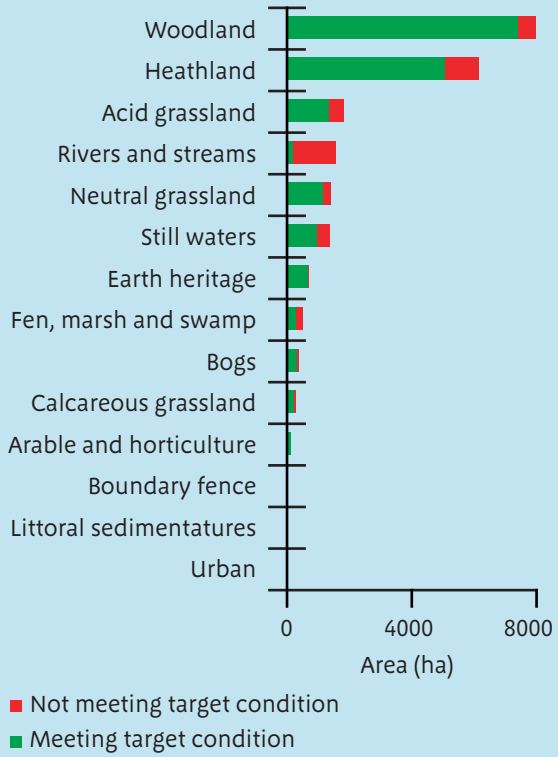
Challenges

The challenges are substantial and will require a collective response from landowners, stakeholders and Natural England to improve the management condition of SSSIs and achieve the target of 95% in favourable or improving condition by 2010.

Natural England will complete the Favourable Condition Tables which set out condition monitoring statements for each SSSI. We will make condition assessments of sites at greatest risk of adverse change to their quality and management. Where appropriate, we will promote Environmental Stewardship to achieve favourable management.

Natural England is working with the Forestry Commission (FC) on a site by site basis, to put woodlands back into active management, but needs to work on a landscape scale with FC and the Deer Initiative to address grazing damage by deer.

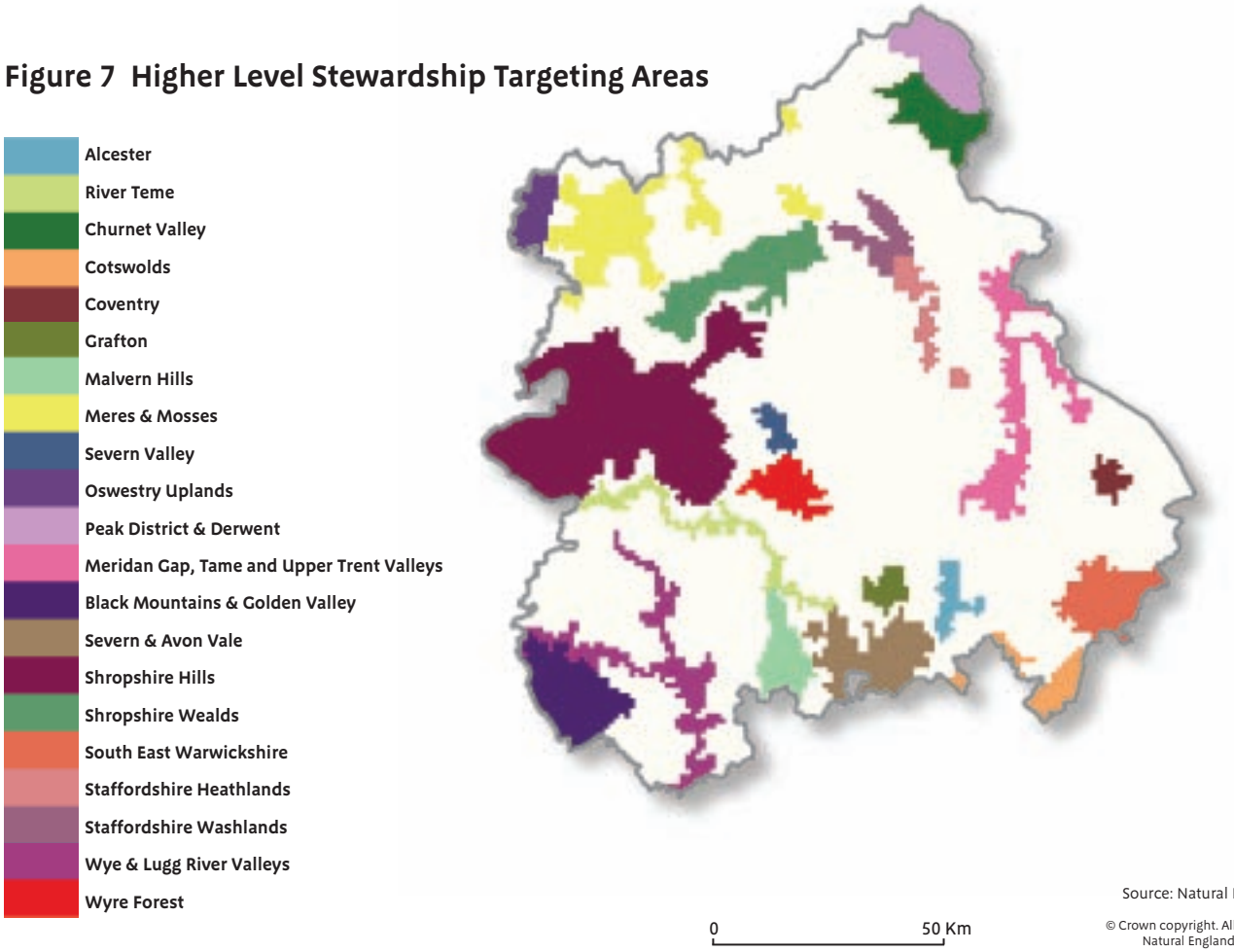
Figure 6 Condition of SSSI habitats



Heathland

28% by area of our SSSIs, covering 6,137 ha, is heathland. 17% is in unfavourable condition. On a number of upland sites this is due to historical overgrazing. On lowland heathland sites such as Cannock Chase and Sutton Park the heather is often over mature. Higher Level Stewardship schemes are a key mechanism for introducing appropriate cutting or grazing regimes to improve the age structure. On the Black Mountains, the solution involves joint working with the Welsh Assembly and its agencies, and the Brecon Beacons National Park.

Figure 7 Higher Level Stewardship Targeting Areas



Source: Natural England, 2008

Agri-environment schemes
Currently 60% of the West Midlands agricultural land area is under an agri-environment scheme.

Environmentally Sensitive Areas and Countryside Stewardship Schemes were first introduced in the 1980s to assist and reward those land managers working to improve the natural environment on their farms. Agri-environment schemes have come a long way since then. We are working closely with agreement holders, as their 'classic' schemes expire, to convert them into Environmental Stewardship to enable the maintenance and enhancement of the environmental gains achieved.

Entry Level Stewardship (ELS) is open to all landowners with land on the Rural Land Register. It includes a range of options designed to help protect the environment. We are considering ways to improve the effectiveness of this scheme by encouraging land managers to take up the options which are most appropriate to their area.

Higher Level Stewardship (HLS) is a more targeted scheme, intended to achieve multiple objectives. Natural England has identified 21 target areas (see Figure 7), covering some 35% of the region, where agreements are most likely to achieve protection of important habitats and species, maintaining landscape character, natural resource protection, protection of the historic environment and additional educational or public access. We will actively seek agreements that meet some or all of these objectives.

Berrington Pool SSSI – management of bankside vegetation and catchment is funded under two Countryside Stewardship agreements

Outside these target areas, we are also developing 'themes' which will enable locally important sites, such as Biodiversity Action Plan habitats, features of historic interest and farmland bird habitats, to be brought under agreement. In addition we are working to enhance educational access facilities.

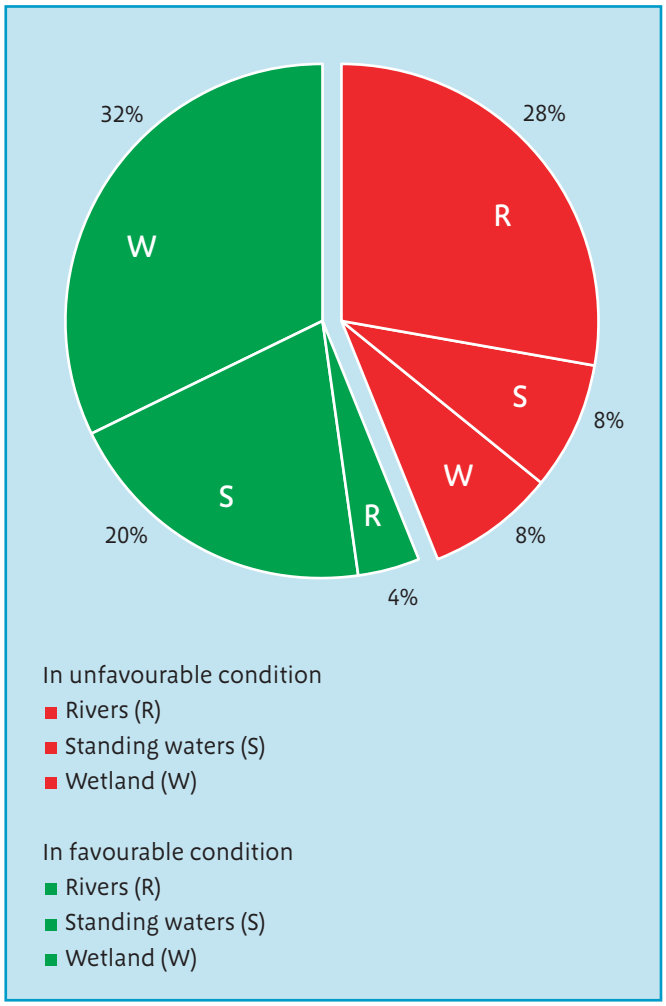
Natural England has been reviewing the effectiveness of current agreements, particularly looking at access provision, hay meadow management, and options for farmland birds and the historic environment. As a result, we have amended some agreements to ensure that they achieve better results.

In many cases the causes of unfavourable condition lie beyond the boundary of the SSSIs. Natural England is working with a range of stakeholders and partners to try to address these issues. The following section takes an in-depth look at our efforts for freshwaters.

The water environment

In the West Midlands, 4,867 ha of freshwater habitats are Sites of Special Scientific Interest, 22% of the total SSSI area. Of this, 40% are wetlands (bogs, fens, reedbed, wet heath and wet grassland), 32% are rivers and 28% are standing waters (lakes, canals and ponds). These habitats and their associated species are an important part of the region's biodiversity and provide important recreational assets.

Figure 8 Condition of water and wetland habitats within West Midland SSSIs at December 2008



Current state

In the West Midlands, wetland and freshwater habitats continue to give us particular concern. 44% of our freshwater habitat is in unfavourable condition, with rivers forming the largest proportion (See Figure 8).

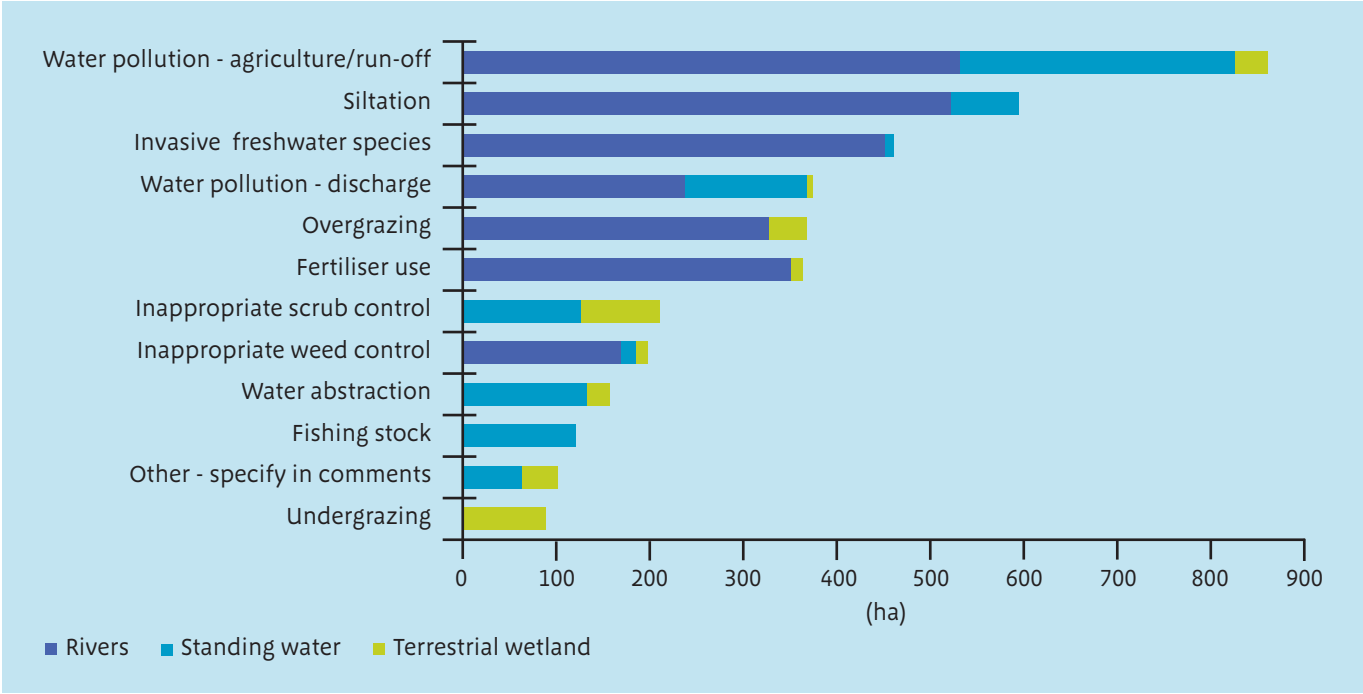
The reasons for the unfavourable condition of freshwater habitats are wide ranging (Figure 9), but are largely due to water quality and quantity problems, the effects of invasive species, and land management issues.

The Environment Agency has undertaken a draft analysis of the 3,566 km of 'natural' river water bodies in the West Midlands (in 393 river sections) against standards set by the Water Framework Directive. This reveals that only 51 (11% by length) achieve 'good ecological status' – that is where all monitored parameters meet target levels. Most failures are due to a single parameter, most commonly phosphate enrichment.

The General Water Quality Assessment of the chemical status of the water in the region's rivers has improved following regulatory action to control water pollution from industry. However, these standards do not meet the conservation requirements of most freshwater species protected under the Habitats Directive. For example, 70% of rivers across England fail to meet conservation requirements for salmon.

This illustrates that the condition of our rivers needs to improve significantly in order to achieve their full value for wildlife and ancillary public benefits.

Figure 9 Factors resulting in poor condition of water and wetland SSSIs in the West Midlands



Challenges

The region needs a significant programme of open water, wetland and floodplain restoration. Integrated action at a water catchment scale will bring greatest rewards for key wildlife sites, the wider natural environment and people.

Actions at a catchment scale

Natural England has assisted in drafting the Severn and Humber River Basin Management Plans to achieve, by 2015, the Water Framework Directive objectives for good ecological status and enhanced naturalness and biodiversity of rivers, lakes and ground waters.

Point source water pollution

Discharges of sewage effluent and other kinds of point source pollutants raise nutrient levels and cause other toxic effects which harm freshwater ecology and biodiversity. Natural England is working with the Environment Agency and the water companies through their Asset Management Planning process to reduce these impacts. In the period 2005–2010 improvements will be made to 45 sewage treatment works in the region, which will benefit 10 freshwater SSSIs.

Diffuse water pollution

Phosphorus, nitrogen, pesticides and silt derived both from farmland and urban sources are a pervasive and severe constraint on the ecology and naturalness of rivers and standing waters. Natural England is promoting sustainable drainage through planning advice to local authorities to reduce pollution from urban run-off and is addressing agricultural sources.

Since 2006, Natural England and the Environment Agency have deployed Catchment Sensitive Farming (CSF) project officers in five priority catchments in the region. They encourage better management of soil, water and nutrients on farms through targeted advice, best practice demonstrations, capital grants and funding for 10 year agri-environment agreements. This is facilitating a voluntary shift in the way land managers operate, initially where the water environment stakes are greatest. Monitoring of CSF scheme outcomes is in place, but better evidence of effectiveness is vital.

Water abstraction
At both local and landscape scales, abstraction has dried out wetlands, reduced levels in standing waters and reduced flows in rivers. Locally it is a major nature conservation problem, particularly where it threatens wetland Sites of Special Scientific Interest such as Hurcott and Podmore Pools in Worcestershire and Checkhill Bogs in Staffordshire. Growth in demand for water and the effects of climate change are adding to these pressures.

Natural England is working with the water companies through their Asset Management Planning process, and the Environment Agency, through their Review of Consents and the Restoring Sustainable Abstraction programmes, to reduce abstraction impacts on designated sites. Natural England is working with water companies, the Environment Agency and local and regional planning bodies to develop policy, practice and evidence for sustainable water supplies.

Flooding
Drainage of lowland farmland, intensive agricultural practice in uplands and lowlands and urban drainage combine to increase and accelerate water run-off, causing flooding and related problems.

These challenges must be addressed at a large scale to integrate conservation practice with key aspects of land and water use and management. Natural England promotes strategic flood management policy at the catchment scale that works with the natural environment. We are working with the Environment Agency to embed this within their Severn, Trent and Wye catchment flood management plans.

Good example of best practice in Catchment Sensitive Farming. 137 agri-environment agreements have specific resource protection options, covering almost 2,420 ha. 95 Higher Level Scheme agreements have specific wetland options, covering over 1,330 ha.

In our advice on planning cases we support sustainable drainage schemes that attenuate water run-off. We also support and enable partnerships, and provide incentives to landowners to change floodplain land use, create or restore wetlands and store floodwater in the Severn, Trent and Warwickshire Avon catchments.

Flooding erodes soil and riverbanks, with adverse impacts on vulnerable habitats and declining species.

Climate change

There is now widespread scientific consensus that climate change is accelerating and that human activities are the principal cause. Even if we make significant reductions in emissions now, there will be a lag in the response of the climate system, as emissions already in the atmosphere will continue to affect the climate for several decades to come. Climate change is the most serious long term threat to the natural environment, its ecosystems, their biodiversity and landscape value and the environmental services it provides to society.

Current state

Table 1 shows bioclimatic variables for the West Midlands, as predicted by the United Kingdom Climate Impacts Programme 2002 Climate Change Scenarios. These predictions will be updated and presented at a finer geographical scale later in 2009.

In the West Midlands, climate change is likely to bring warmer, drier summers and milder, wetter winters. Extreme weather events, such as heat waves and storms, are also predicted to increase in frequency and intensity and are likely to have significant impacts on the natural environment.

Table 1 Bioclimatic variables for the West Midlands under high and low emission scenarios

Climatic Variable (temperatures in °C)	Annual average value for West Midlands region					
	2020s		2050s		2080s	
	High	Low	High	Low	High	Low
Increase in absolute maximum temperature	1.44	1.21	3.43	2.16	5.95	3
Increase in absolute minimum temperature	0.72	0.61	1.71	1.08	2.97	1.53
Expected increase in minimum temperature over 20 years	0.96	0.81	2.31	1.44	4.01	2.06
Change in Growing Degree Days >5°C	294	245	753	456	1,340	667
Increase in mean temperature of the coldest month	*	0.59	1.67	1.05	2.9	1.49
Increase in mean temperature of the warmest month	*	0.94	2.71	1.68	4.88	2.4
Percentage increase in total potential evapotranspiration	*	21.2	62.5	38.4	114	55.4
Percentage decrease in moisture availability	47.9	40.2	116	72.3	207	104
Percentage decrease in total precipitation	3.3	2.7	7.8	4.9	13.4	6.9

* No predictions available

In the Shropshire Hills, Natural England has started a debate about the impacts of climate change on the natural world. The Shropshire Hills climate change adaptation response strategy predicts the most significant impacts to be:

- Changes in the species and communities that make up habitats.
- Changing seasonal timing of species' activities.
- Differences in the ability of woodland species to adapt to a longer growing season.
- Increased storm frequency, reducing the ability of habitats to recover.
- Reduction in water resources available for habitats, agriculture, recreation and drinking water supply.
- Change in viable crop species and livestock breeds.
- Increased erosion in winter, resulting in more nutrients being washed into rivers.
- More frequent droughts and increased fire risk.
- Loss of mature trees in the landscape as these succumb to more severe droughts and storms.
- Increased visitor numbers and increased popularity of woodland based recreation.

We must develop strategies to enable the natural environment to adapt to these impacts over the coming decades, maximising the opportunities and minimising the threats that climate change brings. We are fast running out of time. Natural England is committed to developing and implementing a range of adaptation responses to maintain and enhance biodiversity and landscape diversity in the face of climate change. These will include:

- Habitat protection, restoration and creation to develop ecological networks that will maintain the existing range and ecological variability of habitats and species, improve ecological connectivity and increase resilience to climate change.
- Promoting approaches that work with natural river processes to improve water retention, reduce downstream flooding and improve water storage (for example re-establishing wet grassland, native woodland or new wetlands next to water courses and in naturally functioning floodplains).

Primroses may suffer with increased periods of drought

Challenges

To avoid the potentially catastrophic impacts of climate change, we must change the way our lives are fuelled – from fossil fuels to low carbon ones. We must promote an ambitious programme of energy efficiency measures, renewable technologies, better land use and management, and shifts in personal behaviour.

Natural England will continue to work actively in the Climate Change Office to help deliver the cross sectoral actions in the West Midlands Climate Change Action Plan. We will work to embed climate change adaptation into all aspects of policy making, with adaptation of the natural environment as a major underpinning element, and the ecosystem services it provides properly valued and accounted for. Natural England will work with stakeholders and partners to ensure that:

- The new regional governance arrangements give equal weight to social, environmental and economic sustainability.
- The planning system can anticipate climate change and provide for the adaptation of the natural environment, in both urban and rural areas.
- Freshwater planning and management factors in the impact of climate change and the need to adapt to it. Sustainable energy infrastructure is developed in a way that is not detrimental to the natural environment.
- Programmes of action are informed by rigorous assessments of risk to, and vulnerability of, the natural environment.
- Losses and gains are audited to ensure that there is no net loss.

Natural England will work with key partners, including Local Strategic Partnerships, to develop environmental indicators for climate change adaptation and mitigation, and to measure and monitor our collective regional efforts.

Restoring peat and heathland, as shown here at Fenn's and Whixall Mosses is a priority action in mitigating climate change.

Natural England will continue to conserve and enhance the region's high value biodiversity and landscapes, including vulnerable protected areas. We will work with partners and stakeholders to develop clear, specific statements of what we need to achieve for the natural environment in the future. Where there is a natural response to climate change, we will work to accommodate the changes and offset any losses through habitat creation, for example by careful targeting of our Environmental Stewardship schemes.

Natural England is working to reduce its own carbon footprint and will work with land managers, who have an important role to play as carbon managers, to help them reduce the impact of their operations. We expect to see high and demonstrable levels of achievement by others, including progress by local authorities against their new performance indicators on climate change.

Planning, land use and sustainable development

A high quality, natural environment improves quality of life by creating greener, living landscapes. It provides people in cities, towns and villages with space to relax and exercise, natural cooling, and water storage to help prevent flooding. It also supports the economy by attracting employers, visitors and inward investment.

Current state

The Government is seeking an additional three million homes by 2020 and has pledged that at least 60% of these will be built on brownfield land, leaving a substantial number to be provided elsewhere.

In the West Midlands, the Regional Spatial Strategy is currently under review, with the preferred option identifying a requirement for 365,600 houses in the period 2006-2026.

A recent Government study has recommended three additional options for a further 51,500, 54,000 or 80,000 houses. Such a level of expansion would have significant implications for the natural environment. However, undertaken in the right way, housing growth can also provide opportunities to develop more sustainable communities with substantial benefits for the natural environment and people.

Challenges

Housing growth must be accommodated with the minimum impact on, and deliver maximum benefits for, the natural environment. Green Infrastructure must be an integral component of any new development if our region is to meet its new housing quota without detriment to its natural environment and landscapes.

Green corridors in Shrewsbury

Green Infrastructure
Green Infrastructure is the network of green spaces and natural elements that intersperse and connect our cities, towns and villages. It is the open spaces, waterways, gardens, woodlands, green corridors, wildlife habitats, street trees, natural heritage and open countryside.

Green Infrastructure should be designed and managed as a multi-functional resource that provides a range of environmental services and quality of life benefits such as:

- The high quality of environment that encourages economic investment and attracts people to live in an area.
- Scope for specific business opportunities such as renewable energy generation – eg biomass growing and use.
- Opportunities for informal recreation and contact with nature that can improve physical health and mental wellbeing.
- A setting for social interaction and community activities.
- Mitigation and adaptation to a changing climate and the means to address specific issues such as flood alleviation.
- Healthy and diverse wildlife and ecosystems.

Consequentially, it is essential that Green Infrastructure is planned, delivered and managed in a co-ordinated and consistent manner across the region, with appropriate levels of investment. It should be planned within new communities, and provided alongside other infrastructure, from the outset.

Green space in Stoke on Trent can be linked to provide green access routes across the city

Natural England will work to ensure that regional, sub-regional and local policies, strategies and frameworks deliver sustainable development and support sustainable lifestyles. We will use our role as a statutory consultee on spatial plans and development proposals to protect valued sites and habitats, and influence both the location and sustainability of new development.

Growth Areas, Growth Points and Eco-towns must be genuine exemplars of environmentally sustainable development and be built to stringent environmental standards. Green Infrastructure planning can provide a strategic framework to achieve these aims – see box.

The changes announced in the Sub-National Review, particularly the emergence of single regional strategies to integrate economic, social and environmental policies with those for spatial planning, will require close engagement at the sub-national level. Natural England will work with regional stakeholders and partners under the new regional governance arrangements to ensure due recognition is given to the value of the natural environment to regional environmental, social and economic prosperity. In particular, we will contribute to the review of the Regional Spatial Strategy, the implementation of the Regional Spatial and Economic Strategies, and the development of the new Regional Strategy to ensure that environmental sustainability remains a priority.

Natural England will work with Government Office and other stakeholders to deliver Public Service Agreement target 28 (PSA28): to 'secure a healthy natural environment for today and the future'. We will work to embed an 'ecosystem approach' into regional policy and ensure that this genuinely informs decisions about how best to deliver sustainable development.

A key requirement, in order to achieve sustainable development, is to monitor changes in natural ecosystems, so that we can identify and react to the adverse impacts of key environmental pressures. Natural England will work with partners to develop the evidence base required to apply the ecosystem approach.

Key constraints in the West Midlands are:

- The lack of baseline information on the extent and quality of many habitats and the distribution and numbers of species.
- The lack of information on the responses of habitats and species to different environmental pressures.
- Insufficient capacity to monitor key components of ecosystems and their interactions.
- Lack of appropriate environmental indicators to monitor, through sustainability appraisals and strategic environmental assessment, the impacts of plans, programmes and policies.
- Lack of resources to monitor those indicators that are fit for purpose.

Further work is also needed to define the cumulative impacts of development. Where understanding is limited, Natural England will advocate the use of the precautionary approach.

Natural England will also provide informal advice and formal comments on statutory and non-statutory casework. In all responses, we will seek to protect and enhance statutory protected sites and species, minimise adverse effects on the environment and maximise opportunities for the delivery of Biodiversity Action Plan habitats and species. We are considering how best to monitor the outcome of this advice.

The ecosystem approach

In order to achieve PSA 28, Defra aims to embed the 'ecosystem approach' into policy making and delivery.

This will provide a framework for making decisions by:

- Identifying the environmental limits of habitats and species and the environmental capacity of ecosystems.
- Setting real values for the services they provide (air, water, food, fuel, source of recreation, feelings of wellbeing, climate and flood regulation, air and water purification, pollination, pest and disease control, primary production, soil formation).
- Setting objectives that maintain healthy and resilient ecosystems, habitats and species.
- Designing policies that enable us to live within environmental limits and to cope with pressures on the natural environment, including climate change.
- Monitoring and adjusting policies as needed.

Defra has commissioned an ecosystem assessment for England, to collate and synthesise existing evidence.

Health and wellbeing

The environment in which we live is one of the most important factors that affect health. Regular contact with a healthy natural environment, at every stage of our lives, can play a key role in meeting some of the fundamental needs of society. It can:

- help children develop their potential;
- reduce stress in adults, increase their wellbeing and make their lives more fulfilling;
- prevent disease in older people and promote independent and healthy living; and
- create healthy communities and a lasting legacy that will benefit the health of future generations.

Natural England promotes 'green exercise' – informal activity, such as walking, cycling, gardening or conservation tasks, that takes place in green space. Health walks make a perfect start to introduce sedentary people to outdoor activity. They can also encourage people to consider other forms of outdoor exercise such as voluntary conservation work.

Current state

Nationally, the health gap between rich and poor persists and, despite huge investment in deprived communities, people in less affluent areas still have poorer health. Poor mental health affects 30% of people in this country, costing the National Health Service and the tax payer around £7 billion each year. Sedentary lifestyles are a growing concern, creating avoidable health problems such as obesity, diabetes, heart disease and some cancers. Not only does this reduce wellbeing, it is also associated with poor physical health, health inequalities and lower productivity.

Walking the Way to Health

Natural England's *Walking the Way to Health* programme uses the natural environment to improve health and wellbeing. In the West Midlands there are 87 schemes, offering 320 walks every week for over 3,000 regular walkers. They provide short, local and free guided walks to increase the physical activity of those who are sedentary or don't do enough activity to benefit their health.

Primary Care Trusts, local authorities and the voluntary sector deliver these schemes. Natural England supports them through training, networking and insurance.

Taking part in a regular health walk is an excellent way to improve fitness while enjoying being sociable and out-of-doors

Contact with nature improves health
Access to the natural environment helps people to re-connect with nature and boosts people's physical and mental health. Outdoor exercise reduces obesity and so reduces associated conditions such as heart disease, blood pressure and diabetes.

Contact with nature reduces stress in 88% of people. It creates an improved sense of wellbeing and self worth and acts as a good motivator for physical activity. In particular it reduces short and long term stress, two key factors in the development of illness.

Access to local green space, particularly through community projects, also brings social and community benefits by allowing more people to socialise with each other, and improving inter-generational activity.

West Midlands region has England's lowest measured level of physical activity and sports participation, with 69% of adults not doing enough physical activity to benefit their health. There are high levels of obesity in the region with recent figures suggesting as many as 17% of the region's children, 23% of men and 29% of women are obese. Tackling obesity is the most significant public health challenge facing our society with the estimated cost per year of £3.7 billion. There is a clear association between deprivation level and the proportion of respondents classified as obese.

Health inequities remain a major challenge in the region. The gap in life expectancy between the worst and the best local authorities in the Region is 5.0 years for men and 3.7 years for women. Communities with high Index of Multiple Deprivation scores consistently have low quality environments, including higher density housing and a lack of well planned, accessible green space. Where green space exists, it may be underused due to its poor quality, a perception of crime, or because residents don't know where it is.

Awareness of the potential of the natural environment to promote and maintain good health is growing and the National Institute for Clinical Excellence (NICE) is developing recommendations for planners on designing environments that promote physical activity.

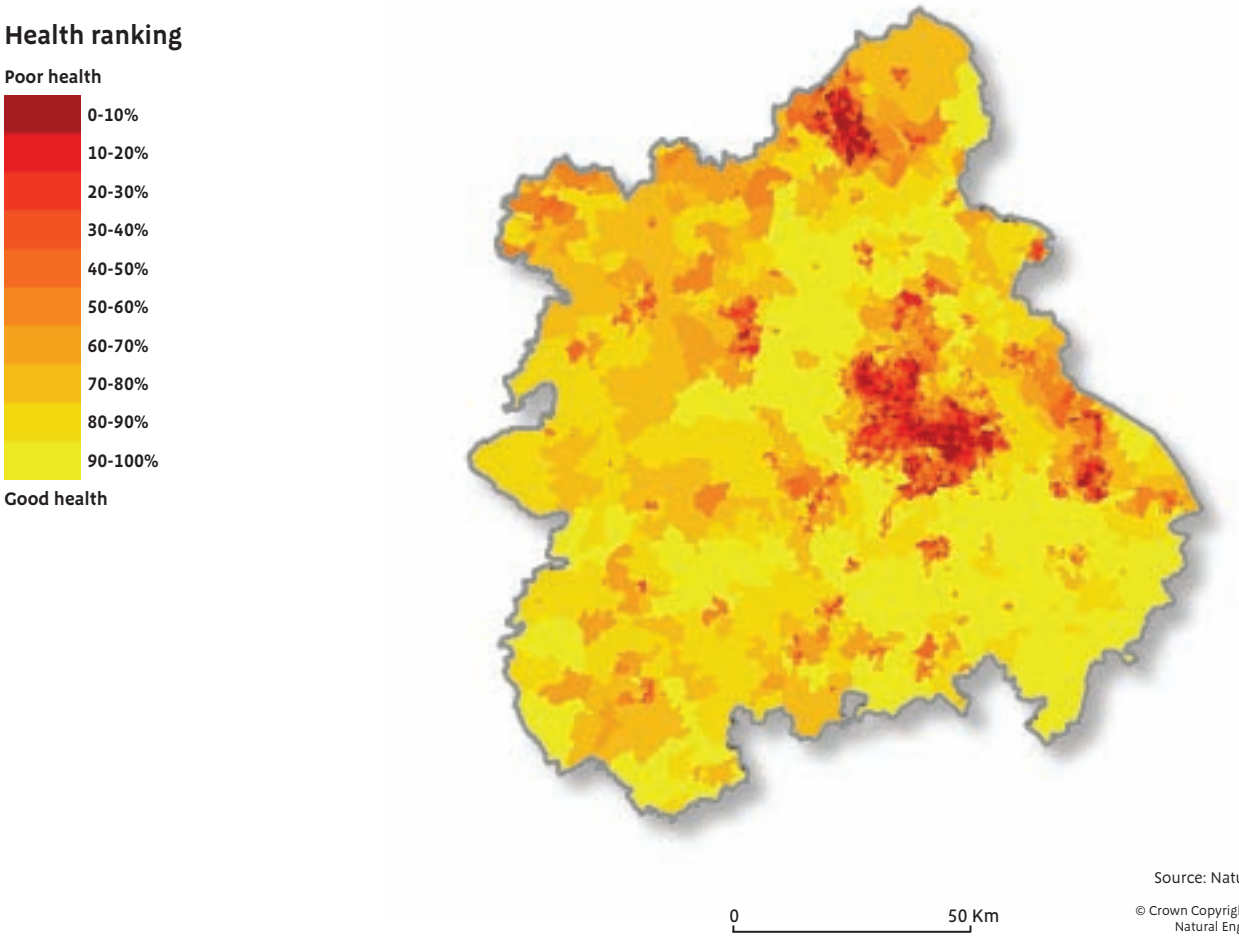
Challenges

The natural environment has a key role to play, both regionally and nationally, in improving health outcomes and securing social and economic benefits.

There is increasing interest in promoting contact with the natural environment to improve health and wellbeing. Natural England will work with other environmental organisations to promote common messages about the benefits of a diverse natural environment and green space in our communities for encouraging active healthy lifestyles.

The escalating cost of health care means there will have to be an increasing emphasis on prevention rather than cure, with people becoming more responsible for their own health. Natural England has a key role to play in developing this emerging agenda. Natural England will promote opportunities for contact with nature and deliver effective programmes to encourage people to enjoy active recreation in the natural environment. We will work with the Primary Care Trusts, local authorities and the voluntary sector to target and promote health walks for a wide range of users, including black and ethnic minority groups, adults with learning difficulties, mental health groups and people with specific health problems such as stroke and cardio-vascular problems, diabetes and

Figure 10 Health ranking based on disability, morbidity and premature death statistics from the English Indices of Deprivation 2007



Source: Natural England, 2009

obesity. We will work with local authorities, government departments, sports and leisure organisations and institutional landowners to boost the appeal and usability of the natural environment they own or manage.

Natural England is encouraging accreditation of *Walking the Way to Health* schemes to set and maintain high standards. This will give potential partners, funders and participants confidence in their quality. A key element of accreditation is systematic recording of data on participants, to provide reliable information which meets the high standards set by NICE. Over 50% of the West Midlands schemes are already accredited.

Natural England will share the *Walking the Way to Health* database with policy makers, health professionals and the public. The data will provide a foundation for further research in the field. Natural England will encourage academics and researchers to find answers to the most important outstanding research questions about the health benefits of contact with the natural environment.

Enjoying the natural environment

People enjoy the natural environment, in the freedom of the open countryside in an Area of Outstanding Natural Beauty or communing with nature in a local green space. They do so directly – by walking, cycling, birdwatching, or picnicking – or second hand through art, literature, television and the internet.

Current state

The West Midlands has plenty of opportunities for people to get out and about, with an extensive network of access routes connecting a wide variety of accessible green spaces (see Table 2).

Offa's Dyke, running up through the Welsh Marches and a key route since 785 AD, is now a National Trail, a flagship of the rights of way network. The West Midlands has an estimated 22,046 km of footpaths, bridleways and Byways Open to All Traffic (BOATs), representing nearly 12% of the England total of all rights of way. There are 821 km of legally navigable rivers and canals – about 19% of the England total.

By contrast we have only 2% of England's commons and open access land (generally mountain, moor and heath).

Table 2 Access information for the West Midlands

Access type	West Midlands	% England resource	England total
Footpaths	18,005 km	13%	141,576 km
Bridleways	3,325 km	10%	33,788 km
Byways Open to All Traffic (BOATs)	167 km	4%	4,115 km
Navigable rivers	821km	19%	4,308 km
Open access land	18,852 ha	2%	865,250 ha
National Trails	69 km	2%	3,787 km
Common land	9,643 ha	2%	459,477 ha
Permissive Paths	375 km	9%	4,096 km
Open Access Fields	240 ha	2%	9,620 ha
National Nature Reserves	2,909 ha	4%	95,748
Local Nature Reserves	3,321 ha	10%	34,941
Country Parks	30	9%	319
Millennium Greens	37	15%	245
Doorstep Greens	20	10%	194

Local residents on the Hay Meadow Walk, Mottey Meadows National Nature Reserve

Natural recreational assets in the region include part of the Peak District National Park, five Areas of Outstanding Natural Beauty, 30 Country Parks and 16 National Nature Reserves. We also have the Forest of Mercia, one of the original group of national Community Forests, and parts of the National Forest, both started in the 1980s and both in Staffordshire.

These routes and sites combine to make up an invaluable complex of regional access assets, many of which also have a high ecological value.

As well as encouraging more contact with the natural environment active travel such as walking and cycling, can contribute to a healthy lifestyle, tackle obesity and improve mental wellbeing for all ages. Where this reduces traffic impacts on the natural environment, it also reduces our carbon footprint.

The vast majority of these regional access assets are managed by professional teams working for Natural England, the Environment Agency, the Forestry Commission, the highway authorities, local authorities and other bodies. They are backed up by enthusiastic user groups such as the Ramblers' Association, the British Horse Society and legions of volunteers. The highway authorities are responsible for preparing Rights of Way Improvement Plans and are now liaising with Local Access Forums, Local Strategic Partnerships and a range of other stakeholders and partners in order to implement these Plans.

Natural England encourages visitors and volunteers on our National Nature Reserves (NNRs). In 2005/06, the West Midlands region had 2,906,000 visits to NNRs – at 18% of the total across England this is the highest level of visitors to NNRs outside London. In 2007/08, 365 volunteers spent 1,284 days on the NNRs. Of these about 250 days were spent carrying out research, survey and monitoring, providing critical data for management. This activity alone has a monetary value to Natural England of about £62,000.

Challenges

The public rights of way network is the key way that people access the natural environment. We would like to see improved connectivity between our access routes and green spaces to meet the needs of local communities, create opportunities for low carbon travel and contribute to the creation of health promoting environments.

Natural England is currently building an access evidence database based on Geographical Information mapping and using qualitative assessment methods such as the Accessible Natural Greenspace Standards.

Once this has been tested with regional local authority partners, we will:

- Complete and keep under review a comprehensive and detailed map of the regional access assets.
- Assess the extent, quality and condition of accessible natural green spaces and the routes that connect them in order to ascertain if they are in the right place, and of the right type and quality.
- Work to improve integration of these access assets with natural assets – water, landscape, biodiversity, habitats and farming programmes.

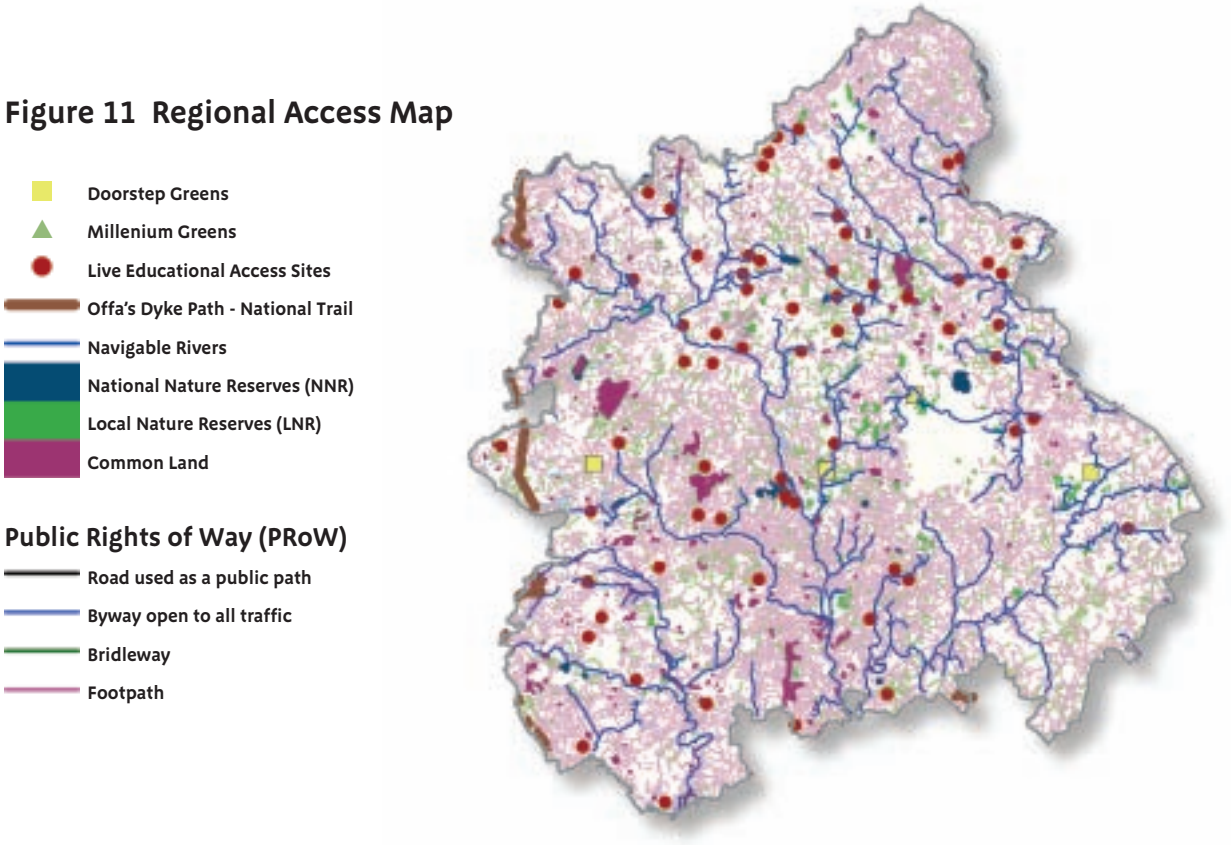
This will to help us to understand, manage and improve the regional green space and access networks.

Natural England will produce a plan to improve regional access assets, to meet emerging standards for accessible local green space, as guidance for Local Development Frameworks and the Growth Points.

We want more people to experience and enjoy the natural environment, especially those who have limited opportunities and poor access to quality green space. Natural England will contribute towards this objective by:

- expanding the Walking the Way to Health programme;
- improving visitor facilities on selected National Nature Reserves;
- getting more volunteers involved in practical site management work; and
- getting more schoolchildren on farm visits near our towns and cities.

Figure 11 Regional Access Map



Source: Natural England, 2008

Front cover photograph
Long Mynd from Ragleth

NATURAL ENGLAND

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