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This document has been designed to be read as a pdf on a computer screen. You can navigate through the document by using the arrows on each page, or by clicking on one of the listed items in the table of contents.
Climate change is one of the greatest challenges facing the world today. The English National Park Authorities believe that the management of our National Parks has a major contribution to make in mitigating the effects of climate change and adapting to the inevitable changes ahead. This will be crucial to the future of National Parks themselves, but it is equally important nationally and indeed globally. National Parks are the nation’s breathing spaces and we need to keep them healthy.

National Park Authorities are charged with helping to look after these unique places, which make up 8% of England’s land area and are recognised as special, inspirational landscapes, rich in wildlife and cultural heritage. This is a task that we undertake with many partners. We believe there are four key areas where National Park Authorities and their partners have a major contribution to make in mitigating and adapting to climate change in National Parks.

These are:
- a sustainable approach to land management;
- the development of rural low carbon communities;
- adaptation to climate change on a landscape scale; and
- engagement with the public on the issues and solutions around climate change.

In this document we set out how National Park Authorities are playing a leading role in responding to the challenges posed by climate change, and describe our plans for taking action in the future. Continuing to work in partnership – not only with other statutory agencies, but equally with those who live, work and visit our National Parks – will be vital for success. The problems associated with unmanaged climate change are unprecedented. In recognising the scale of the problem, it is important to recognise too the scale of the challenge that this represents to National Park Authorities and others.
“A healthy, sustainable environment to be enjoyed now and in the future”

Stewardship of nationally important carbon stores

National Park Authorities will champion and actively support work to prevent further carbon dioxide emissions by maintaining and, where needed, restoring peatlands, fens, moors and woodlands. These habitats store large volumes of carbon and it is vital that this is safeguarded.

119 Mt of carbon is held in the 449,000 ha of peat soils in National Parks alone – this is equivalent to England’s entire carbon dioxide emissions for one year. The 143,300 ha of woodland in National Parks store a further 7 Mt of carbon.

At present it is estimated that over 50% of deep peat soil habitats are out of condition and require restoration work.

Woodlands are also vulnerable and require careful management. National Park Authorities have been working with land managers to tackle these issues for many years – climate change makes action ever more urgent.
Increasing natural carbon storage

National Park Authorities will actively support appropriate land management techniques that help absorb more carbon from the atmosphere.

Carbon dioxide is absorbed as new peat is formed on well-maintained peatlands. If all of the peatlands in England’s National Parks were in pristine condition they could absorb in the region of 200 kt of carbon per year.

Current science suggests however that because re-wetted peatland emits other greenhouse gases the net absorption will be reduced. Even so, peatland restoration, both in the uplands and in lowland fens, has multiple environmental benefits ranging from locking in the existing carbon stores to improving water management and habitats.

Woodlands also have an important role in carbon absorption. Currently 285 ha of woodland are planted in National Parks per year. If this continues, 125 kt of carbon will have been absorbed by 2020 through new woodland planting.
National Park Authorities, alongside partners such as Natural England and the Environment Agency, will work with farmers to help them adapt their farming methods to reduce emissions.

Low carbon farming

Farming is one of the most important activities within National Parks, and makes a major contribution to the special qualities we value in National Park landscapes. However farming and land use also gives rise to significant greenhouse gas emissions, estimated at 410 kt of carbon dioxide per year across England’s National Parks – 9% of the total National Park emissions.

National Park Authorities, alongside partners such as Natural England and the Environment Agency, will work with farmers to help them adapt their farming methods to reduce emissions.

CASE STUDY

Mire restoration in Exmoor National Park

The Exmoor Mire Restoration Project is working to re-wet dry and damaged peatlands in the uplands of Exmoor. The 4 year partnership project started work in 2006 and involves Exmoor NPA, the Environment Agency, South West Water, Natural England, English Heritage and local farmers and landowners. The project aims to address the problems caused by peat degradation, which include habitat and species loss; carbon emissions; damage through drying to archaeology and palaeo-ecology; and damage to moorland river hydrology and ecology.

This is achieved by blocking drainage ditches which results in rainwater staying on the moors for longer leading to re-wetted peat, reduced flood risk downstream, improved river quality, a reduction in wildfire risk and a summer drinking water source for livestock on the moor. The restoration work can also improve access through making pathways dryer by diverting water away from them. To date over 40 km of ditches have been blocked with 12,000 bales and 3,500 dams. As a result over 270 ha of damaged mire has been re-wetted, which will now accumulate peat instead of losing it through erosion.

The project’s achievement in helping to devise a new way of reducing flooding has been recognised nationally by the water industry in a prestigious award for the best “Sustainable Urban Drainage & Flood Management Initiative of the Year - 2009”.

The aim is to expand the project across Exmoor, Dartmoor and other areas in the South West through a south-west moorlands partnership.
This will involve initiatives such as Catchment Sensitive Farming to reduce fertiliser use, as well as new and evolving techniques including reduced tillage and using the outputs from anaerobic digestion to replace artificial fertiliser.

We also recognise the need for food security. For livestock farming, we believe this should be linked to a sustainable yield of high-quality, low-intensive meat, for example through raising traditional upland cattle breeds without the use of additional fertilizer or feed. Where possible we would also advocate the use of local marketing.

CASE STUDY

Farm carbon audits in Dartmoor National Park

A joint Farming Wildlife Advisory Group, Duchy of Cornwall and Dartmoor NPA project is offering reduced price sustainability audits to 35 Dartmoor farms to examine their carbon footprint and to explore how these could be lowered while also making financial savings.

The audits are using the new CALM (Carbon Accounting for Land Managers) toolkit developed by the Country Land and Business Association and look at energy, fuel, fertiliser and manure use. Advice is being offered on how to minimise costs, reduce emissions and maximise the effectiveness of fertiliser and manure applications. Water and waste management are also discussed, with advice offered on viable renewable energy generation schemes. Where applicable, soil sampling to optimise fertiliser applications is being offered.

All Duchy of Cornwall farms on Dartmoor have been invited to take part in the audit, along with 15 holdings off the high moor. To date 20 farms have been audited, and an open day has been held. If successful it is hoped this pilot scheme can be rolled out across other farms in the coming years.
“National Park communities are a powerful blend of new ideas and traditional culture – we will work closely with these communities and rely on their commitment to make this transition happen.”

**Planning**

Spatial planning is of fundamental importance in delivering sustainable development and has a pivotal role to play in climate change mitigation and adaptation. As planning authorities, we will continue to use our planning powers to safeguard natural resources, promote appropriate renewable energy and energy efficiency measures and shape future development within National Parks. There is a general recognition that large-scale developments, such as wind farms, do not have a place in National Parks. National Park Authorities will continue to make a strong, positive contribution to energy management in protected landscapes through the promotion of solutions that do not compromise landscape, heritage and biodiversity.
Strategic planning

NPA planning policies set the framework for sustainable development, through ensuring development is in the right place to reduce the need for travel and avoid flood risk areas, encouraging the use of appropriate renewable energy and, where possible, requiring a proportion of a development’s energy needs to be met from low-carbon sources.

Development management

NPAs will maintain their positive planning approach towards energy efficient new builds, and use their powers to ensure that climate change is taken into account in the design and position of new housing and other developments. Our design guides encourage the use of local and sustainable materials. We support sustainable rural communities through the development of affordable local-needs housing and by using our planning role to help maintain essential rural services.

Community planning

We will be proactive in engaging with residents and community groups about energy efficiency and the potential for renewable energy. We will advocate solutions that are most suitable for providing sustainable energy in a protected landscape. Of the 453 planning applications NPAs have received for renewable energy (mainly small-scale), 77% have been approved.

CASE STUDY

Sustainability guide in the Broads

In 2006 the Broads Authority adopted a new Sustainability Guide to aid property owners, designers and local residents when designing new buildings. The innovative document, which is designed to be used online, was prepared by LSI Architects in conjunction with the Broads Authority following initial research funded by the Broads Authority Sustainable Development Fund.

The booklet has sections on designing buildings to adapt to climate change (including advice on flood risk), energy efficiency (insulation and air-tightness), choosing materials which have a low impact on resource depletion and energy consumption (such as local timber and straw bale construction), making use of acoustic and thermal insulation (including rammed earth walls), natural daylight and ventilation (for example wind catcher systems to direct fresh air into the building) and understanding the importance of conserving limited natural resources and minimising consumption (such as by harvesting rainwater from roofs).

Recycling, renewable energy (including advice on solar, ground source heat pumps, wind turbines and biomass), redevelopment of existing buildings, limiting exposure to sun and wind and reducing pollution are also covered.

The aim of the Sustainability Guide is to raise awareness of true sustainable development, demonstrating that this approach brings benefits to people, the landscape and biodiversity. It won a national award from the Royal Town Planning Institute.
CASE STUDY

Community Renewable Energy in the North York Moors National Park

The North York Moors Community Renewable Energy Project was launched in June 2004 and now supports local communities in Appleton, Spaunton, Castleton, Danby, Commondsale, Westerdale, Bransdale and Botton. The project is supported by the NPA and Yorkshire Forward (the Regional Development Agency).

The project aims to assist local communities to reduce their carbon dioxide emissions and reliance on fossil fuels in order to help create more sustainable communities. It has helped support a range of initiatives and activities including training of local energy champions, reducing the energy requirements of individual homes and organising public events about renewable energy technologies. The target is to reduce the carbon footprint of these communities by 20% by 2010.

The project has enabled the setting up of two not for profit community companies. One of these voluntary organisations will manage a local woodland, produce wood fuel and facilitate improvements to biodiversity and access; the other is looking to develop hydro power on the River Esk. This company will sell energy via the local electricity network and profits will be used to further develop hydro power in the North York Moors as well as assist with energy efficiency measures and other renewable energy projects.

Energy

Innovative solutions to rural energy efficiency and sustainable energy supply will continue to be one of the main focuses for the Sustainable Development Fund which is administered by the nine Authorities. Since its start in 2002, over £2.8 million of SDF has been spent on 237 ground-breaking projects.

Rural energy efficiency

The built heritage is a significant part of what makes National Parks such special places, but we also recognise that much of the housing stock is not energy efficient. On average the emissions from domestic energy use for people living in National Parks are currently 60% higher than the average for England. National Park Authorities will work with communities and partners, such as the Energy Savings Trust, to advocate energy efficiency measures that are appropriate for a protected landscape.
Renewable energy in protected landscapes

National Park Authorities will take the lead in facilitating renewable energy supply, helping to deliver solutions that do not compromise landscape, heritage and biodiversity. We have supported a number of demonstration projects including biomass (linking woodland management and wood fuel supply), micro-hydro (generating electricity without affecting river ecology) and small-scale wind and solar.

Micro-hydro feasibility studies across five National Parks have already identified 26 kt of carbon savings per year, and interest in anaerobic digestion as a solution to both energy supply and waste disposal is growing.

Our vision is to move from isolated demonstration projects to a situation where renewable energy and energy efficiency is the norm in remote rural areas. To that end, National Park Authorities set a challenge for us and our communities to work together to make National Parks ‘zero-carbon’ in terms of electricity consumption and heating.

CASE STUDY

Sustainable energy in Northumberland National Park

The entrepreneur-owner of Battlesteads Hotel in Wark, Northumberland, has decided that investing in sustainable energy is a sound business decision, as well as having a positive impact on climate change.

Northumberland National Park Authority, through its Sustainable Development Fund, assisted in the installation of a 12 m² solar panel that provides in excess of 25 kW per day of heat into the hot water system. This system is a state of the art biomass woodchip boiler which provides enough hot water for the entire hotel. Woodchip is sourced from local woodland only a mile away, minimising the delivery carbon footprint. Any surplus heat generated is used to heat two polytunnels, which provide herbs and salad vegetables even in winter months. Coupled with the outside herb gardens and salad gardens, soft fruits and root vegetable patch, this local produce reduces the need for outsourced goods so reducing the hotel’s procurement carbon footprint.

These measures have resulted in the owner being able to increase hotel occupancy by 730% while at the same time reducing the carbon footprint per room-night by 88%.
National Park Authorities will work to increase understanding of how climate change, and society’s response to it, will affect National Parks.

“We will engage with residents and visitors on the future of our National Parks to ensure that we all plan for the inevitable changes ahead.”

**Planning for change**

National Park Authorities will work to increase understanding of how climate change, and society’s response to it, will affect National Parks. By the 2080s, under the medium emissions scenario, England could see average temperatures rise by 2 to 4 °C, increases in winter rainfall and significantly drier summers, as well as sea level rises of 25 to 35 cm. We will engage with all who have an interest in the future of National Parks to discuss what changes are likely and how we should respond to them. National Park Authorities will be volunteering to report under the Climate Change Act on the risks from climate change and how we plan to adapt, which will be an important part of this process.

Habitat surveying on Dartmoor.

Jacob’s Ladder in the Peak District – one of the species under threat from climate change.
Habitat networks

National Park Authorities will continue to work to protect and develop resilient habitat networks that allow natural environment adaptation, providing ecological links both within National Parks and across the wider countryside. This is a priority in the Local Biodiversity Action Plans that we work on with partners. We recognise that stewardship of carbon stores is also about adaptation: the maintenance of healthy, well-linked habitats includes managing upland water, which has the potential to provide benefits to downstream urban areas through the alleviation of flooding and improvement to water quality. Wildfire management during dry periods is also vital to protect these carbon stores.

CASE STUDY

Woodland habitat networks in the Yorkshire Dales National Park

The Yorkshire Dales National Park Authority and its partners (notably the Forestry Commission, Yorkshire Dales Millennium Trust and Natural England) have a shared objective to plant 450 ha of upland ash woodland over the six years up to the end of 2010. In the last three years, over £600,000 has been provided to fund the planting of over 200 ha of native woodland. As well as producing significant carbon benefits, much of this planting occurs in gills and on the steeper valley sides – helping to reduce water flow, soil erosion and sediment delivery to the rivers.

In 2007, the Authority mapped the Forest Habitat Network in the National Park to identify those areas where new woodland planting could most effectively link the existing woods together – making the woodland more robust to changes in climate and improving the conditions for species to feed, breed and spread through the landscape. This is now being used to target new planting, including the creation of a specific woodland corridor in Lower Wensleydale to support expansion of the recently-reintroduced dormouse population.
National Park Authorities will ensure that we maintain good public access across National Parks by repairing eroded footpaths and bridleways and flood-proofing bridges.

**CASE STUDY**

**Wildfire risk management in the Peak District National Park**

The Peak District Fire Operations Group has been established to reduce the incidents and impact of wildfires on important peatland habitats in the Peak District National Park. It is a partnership of the 6 different fire authorities, 3 Water Companies, the National Trust, private estates and the National Park Ranger Service. A major moorland fire in the Bleaklow area of the Park in August 1997, which burned for over two weeks, served as a catalyst for the formation of the group. The group is working together to improve the preparation, planning and training of staff in advance of the fire season to help reduce the risk of wildfires, which is expected to increase in future with hotter, drier summers.

A fire risk plan has been produced by the Moors for the Future Partnership in collaboration with The University of Manchester. This identifies 11 locations on the moors where a fire is likely to break out. These sites are closely observed through a series of ‘Firewatch’ observations, triggered by the National UK Fire Severity index reaching its maximum level. Observers are on duty from early afternoon until dusk, equipped with radio and mobile phone communications, binoculars and the relevant section of the fire plan.
As part of the process of producing a new Shoreline Management Plan for the North Solent (a significant section of which lies within the National Park), New Forest District Council and the Channel Coast Observatory / National Oceanography Centre have undertaken a project to accurately map the predicted changes in coastal landforms along the coast in relation to sea level rise. The New Forest NPA has developed this work and produced a user-friendly sequence of map overlays of what it may mean for certain sections of the coast and local communities. This information will be used as evidence to underpin discussions with local communities about how we can adapt and respond to these changes.

The findings of the study show that if there is no intervention then by 2115 all 1343 ha of current salt marsh habitat will be lost, 57 properties will be lost to the sea with a further 640 properties in a flood zone. Overall 3.2% of National Park area will be underwater.
Communicating Climate Change

We will promote understanding of the mitigation and adaptation work that is taking place or is planned in National Parks.

We will use our education service to inform young people about the issues around climate change and explain the value of National Parks now and in the future.

“National Parks are home to thousands and visited by millions – we will be proactive in communicating both the issues and solutions to climate change to this audience.”

Helping people understand our work

National Park Authorities have an exceptional national communication infrastructure in place. This includes 33 National Park visitor centres and 82 Park Information Points, as well as websites, guided walks, education services and National Park newspapers.

We will promote understanding of the mitigation and adaptation work that is taking place or is planned in National Parks:

- to our 210,000 residents, so they understand what is happening in the landscape they live in, and so they can get involved via the community links we have;
- to our 75 million visitors to help inform them about National Parks and local climate change issues; and
- to other organisations, such as Local Authorities, to share ideas and best practice to facilitate widespread change.

Young people

The next generation is the one likely to be most affected by climate change. We host over 61,000 young people on school visits each year, while many more visit informally or through their school. We will use our education service to inform young people about the issues around climate change and explain the value of National Parks now and in the future.
Engaging people to influence their behaviour

Addressing climate change requires a shift in attitudes and behaviours across society. National Park Authorities will be part of this transition. Our visitors may be receptive to new ideas when visiting a National Park on holiday; we will engage with them on energy efficiency measures, promote sustainable transport options and local food, and explore how the transition to a low carbon society could happen. Our drive towards low carbon rural communities will also have a strong communication element; we will engage with local communities and provide the information they need to make these changes.

CASE STUDY

Climate change education in the Lake District National Park

The Lake District NPA education partnership with the Field Studies Council provides access to environmental education for hundreds of young people every year. Many of the courses include aspects of climate change – for example the popular What About Water module for younger children encourages pupils to reduce their own water consumption after they have explored the costly effect water treatment has on the environment. This module is endorsed by United Utilities and is delivered free to schools in the company’s catchment area.

The learning service, which is led by specialist teachers with experience and knowledge of both the national curriculum and the outdoors, has also worked with the North West Regional Assembly to create a climate change resource to be used in local schools. This is used to stimulate ‘big picture thinking’ about how we manage our lives and use resources in the context of a changing climate. It encourages young people to recognise that change will happen and to envision change as a positive force towards a low carbon future.

We will engage with our visitors on energy efficiency measures, promote sustainable transport options and local food, and explore how the transition to a low carbon society could happen.
Citizen engagement and volunteering

National Park Authorities will continue to engage people through offering excellent volunteering activities. We recognise that our volunteers value National Parks greatly and that they can be powerful advocates in their communities on National Park climate change issues. Many of the practical tasks undertaken by volunteers, such as footpath erosion repair and invasive vegetation clearance, are directly linked to climate change.

CASE STUDY

Communicating climate change in Dartmoor National Park

Dartmoor National Park Authority is running a sustained public awareness climate change communication campaign called “Climate Change: I can change the future.”

The NPA undertook research and outreach preparation behind the campaign to enhance understanding of climate change issues in the local and wider context. The overall communications theme is global concern and local understanding. The main emphasis is on explaining how the issues impact on the local environment and how people can still help to mitigate and/or adapt to the consequences of climate change in practical and effective ways.

Since starting in 2007, the touring exhibition has visited twelve venues and reached 85,000 people. An additional 20,000 people have accessed information from the Dartmoor NPA website. The project is part-funded by the Defra Climate Challenge Fund.

CASE STUDY

Volunteering in the Lake District National Park

The Lake District has always been known for its rainfall, but there has been a noticeable trend towards increased spate events which can cause significant erosion of upland paths. The key to avoiding damage is regular clearing of drains so they can cope with the quantity of water. In 2007, the Fix the Fells Project started a voluntary lengthsman scheme to encourage the fell-using community to get involved in solving the problem and to help spread the word.

Volunteer lengthsmen are recruited and then trained in the practical skills of path maintenance, as well as subjects such as navigation, first aid and talking with the public. Once trained, volunteers can go out on any of the listed paths that are known to need maintenance on any day without the need for supervision. The scheme is a great success and has attracted a wide range of volunteers, with participation increasing all the time. In 2008, the first full year of operation, there were 157 volunteer days on drainage clearance, rising to 316 in the first nine months of 2009.
Images courtesy of:
Broads Authority, Dartmoor NPA, Exmoor NPA, Lake District NPA, New Forest NPA, Northumberland NPA, North York Moors NPA, Peak District NPA, Yorkshire Dales NPA, Moors for the Future (Peak District), Chris Ceaser (North York Moors), Mark Denton (North York Moors), S. Fraser (Northumberland), Chris Gascoigne (Northumberland), A. Hayward (Northumberland), Mike Kipling (North York Moors), Martin O’Neill (New Forest), Robert Thompson (Dartmoor), Torrs Hydro New Mills Ltd (Peak District).

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