# OUR HERITAGE AND THE CHANGING CLIMATE

SOUTH WEST

National Trust's photovoltaic cells on the roof of Dunster Castle, Somerset.

Climate change is widely considered to be one of the most important global challenges of our time.

There is strong scientific consensus that human actions are causing significant additional and rapid changes to the climate.

This supplement to *Heritage Counts 2008* is a brief summary of the issues in the South West region, and reflects recent regional and national discussions about climate change and the historic environment. It is intended for the heritage sector in the region, and other sectors such as tourism and development, who may be interested to know more about the impacts and implications of climate change on heritage assets.

The historic environment will need to:

- adapt now to inevitable changes in climate. This is likely to test conservation philosophy, require acceptance of loss of and irreversible change to some historic assets, and a willingness to take calculated risks;
- mitigate against future climate change by reducing emissions;
- accommodate other mitigation technologies;
- develop knowledge about impacts and mitigation through working with others.

## HOW WILL CLIMATE CHANGE AFFECT THE SOUTH WEST'S HISTORIC ENVIRONMENT?

**The region's historic environment has several unique characteristics many of which are, or will be, threatened by climate change. The high quality historic environment is important to the regional economy and quality of life, therefore any impacts will have social, economic and environmental consequences. Some impacts are already apparent:**

**Volume** – a quarter of England's listed buildings, a third of its scheduled monuments, four of its sixteen World Heritage Sites, half its designated wreck sites.

**Outstanding examples** of cultural heritage from prehistoric remains to 20th Century town planning.

**Diverse geology and landform** gives a wealth of local vernacular building styles.

Internationally significant **uplands and wetlands** including Dartmoor, Exmoor and the Somerset Levels.

**The coast**, its character and its influence on trade, culture, and identity.

- Absolute sea level in the South West has risen by 1mm/year over the 20th Century. With increased storminess and coastal erosion, this is affecting a range of historic assets like St Michael's Mount in Cornwall and forcing a rethink of approaches to management.
- Extremes of wetting and drying are affecting Exmoor's internationally important peatlands, and the characteristic chalk downlands in the east of the region (see case studies).
- Increased precipitation in the South West in the last 40 years has already had dramatic impacts on historic villages (Boscastle, 2004) and towns (Gloucester, Tewkesbury 2007). Wind-driven rain accelerates decay of historic stonework and high winds may threaten historic buildings and designed landscapes.
- Changes in vegetation patterns (particularly increased scrub and bracken growth) affect the fabric and visibility of the high number of scheduled monuments in the region (see English Heritage *Scheduled Monuments at Risk South West*, 2008).
- The increase in the region's average daily mean temperature between 1961 and 2006 has been more marked in winter than summer. This is changing the seasonality of heritage visitor attractions in the region – both a challenge in terms of management, but also an opportunity to promote sustainable tourism and boost revenue.
- Hot, dry weather affects the stability of older, larger native trees in designed landscapes.
- Altered distribution of pests threaten the high number of England's historic parks, gardens and historic collections.

**A more detailed analysis of impacts may be developed when the UK Climate Change Impacts Programme publishes a new set of climate change scenarios by the end of 2008.**

# Adapting to a changing climate – The historic environment is an important resource for information on past climate change events and our responses to them. It can inform ways we adapt in the future.

The South West Climate Change Impacts Partnership (**www.oursouthwest.com/climate**) was established in 2001 to investigate, inform and advise on the environmental, social and economic impacts of climate change in the region.

The Partnership produced a regional scoping study on the impacts of climate change in 2003. *Warming to the Idea* included an assessment of the key threats and opportunities for the historic environment – possibly the first attempt to look at impacts on the historic environment in the region in a policy report.

The heritage sector assessment has informed some recommendations for the Partnership's tourism sector group, which has been set up to explore adaptive responses relevant to this key regional economy.

## The Exmoor Mire Project

WWW.EXMOOR-NATIONALPARK.GOV.UK/INDEX/LOOKING_AFTER/LOOKING_AFTER_LANDSCAPE

Mires – peatland habitats – are global rarities, covering less than 3% of the planet and are important carbon sinks. Those on Exmoor have been dried out by centuries of moorland reclamation, agricultural drainage and domestic peat-cutting. Climate change is likely to increase the degradation and threaten wetland habitat and associated species, archaeology and palaeo-ecology and moorland river hydrology and ecology. It will also release carbon back into the atmosphere.

The Exmoor Mire project is a joint agency initiative to re-wet and restore peatland habitats to prevent such losses. By July 2008, work had taken place at seven locations on Exmoor, and further work is planned.


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## Rising sea levels in the South West

WWW.NATIONALTRUST.ORG.UK/CLIMATECHANGE **No 1**

The National Trust protects nearly 40% of the coastline of Devon and Cornwall. The effects of rising sea levels and of more frequent and violent storms are already apparent, with increasing risks of flooding, coastal erosion, loss of habitats and species, and damage to structures. Working with nature and accepting that the coast will move inland, will sometimes be the only long-term solution.

The exposed breakwaters at Mullion Harbour, Cornwall (above, right) need regular and costly repair. A pioneering study involving the local community has recommended that the Trust should only continue maintenance until the harbour suffers major storm damage; from then on there will be a process of managed retreat towards the open cove that it was 150 years ago.

**Image:** Mullion Harbour © National Trust.


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# Mitigation – A key regional challenge

*'The South West's renewable energy sector is now worth £215 million a year to the regional economy and has seen a massive 37% year-on-year growth in employment over the last 3 years'* (South West Regional Development Agency)

The heritage sector recognises the need to reduce greenhouse gas emissions, increase energy efficiency and exploit low carbon technologies and renewable energy sources. The region benefits from high levels of tidal, wave and solar resources and a warm climate and is naturally placed to develop and lead on renewable energy technology. The development of this sector is a priority in the Regional Economic Strategy. **NO 4**

Whilst some renewable energy schemes will clearly have unacceptable impacts on the historic or natural environment, some may have positive benefits (for example, re-use of existing coppiced woodland). Some schemes may not directly impact on an historic building or area, but could affect the local landscape character. The challenge will be to develop integrated solutions that are environmentally sound, economically viable and socially just.

## Energy efficiency and traditional homes

WWW.HELM.ORG.UK/CLIMATECHANGE. **No 5**

The South West *Climate Change Action Plan* reflects the Climate Change Bill's requirement for significant reductions in $CO_2$ emissions from dwellings, which make up one fifth of all $CO_2$ emissions. However, there is a perception that traditional homes present a significant problem in the South West, which has over 476,000 pre-1919 buildings (over 88,000 are listed).

Not all these buildings are 'hard to treat' or less energy efficient – some, characterised by thick walls and small windows – are relatively energy efficient. A recent Building Research Establishment report considered that 55% of 'hard to treat' homes were in fact post-1919 stock, indicating that 'problem' dwellings are not exclusively or even predominantly traditional homes.

English Heritage's *Hearth and Home* project is gathering evidence about the energy efficiency of traditional homes which will help make a more robust case for the historic environment in this debate. Alongside this, *Climate Change and Your Home* has been launched to inform home-owners about the ways climate change impacts on houses of traditional construction. It offers practical solutions and advice based on date and location of property.

**Image:** The South West developed the UK's first commercial windfarm. Below wind turbines at St Breok's Down, Cornwall.



## Green Tourism Business Scheme

WWW.GREEN-BUSINESS.CO.UK **No 2**

Can historic attractions run sustainably? Evidence from Scotland suggests that they can, and English Heritage is now testing the Green Tourism Business Scheme (GTBS) on one of its own properties.

The GTBS helps tourism businesses adopt measures to reduce waste and energy consumption, and to promote sustainable operational practices. All Historic Scotland and National Trust for Scotland visitor attractions have been involved in the scheme for a number of years; all have achieved 'green grading' and some have now achieved 'gold' status for meeting strict criteria for sustainability.

English Heritage will pilot the GTBS at Pendennis Castle in Cornwall. The findings will help establish whether the scheme can be rolled out more widely across English Heritage's estate.

## Hydropower from historic mills

WWW.SOUTHSOMERSET.GOV.UK/INDEX.JSP?ARTICLEID=18214. **No 3**

Hydropower is considered to have the least visible impact of all renewable energy technologies, and the South West has more hydropower plants than any other region. Due to the enthusiasm and commitment of pioneering individuals and community groups, there are a number of hydro power projects in development in historic mill buildings across Cornwall, Devon, Dorset and Somerset.

Gants Mill in Bruton, Somerset is a Grade II* listed former Building at Risk. It was repaired in 1996 and in 2003 a new turbine and electricity generator was installed above the historic turbine. The project was driven by the owner's wish to reduce $CO_2$ emissions, and was part of a wider partnership of owners of historic mill sites set up by the local authority, South Somerset District Council, to develop renewable electricity generation.

The county has since exceeded its hydro power energy production target and is developing links with owners and suppliers in Devon and Dorset, where there are historic mill sites suitable for development.

**Image:** Gants Mill, Bruton, Somerset © Brian Shingler.

## Dorset Downs and Cranborne Chase Character Area Climate Change Pilot Project

Natural England is working to deliver an environment that is healthy, enjoyed by people and used in a sustainable manner. Dorset Downs and Cranborne Chase is one of four character area climate change pilot study areas. It contains iconic monuments including the Dorset Cursus, Maumbury Rings and the hillforts at Maiden Castle and Hambledon Hill, and provides important evidence about the early practice of archaeology itself.

The project has identified significant environmental assets, assessed probable climate change impacts and developed potential adaptive responses.

Impacts could include altered growth patterns of downland flora and fauna; adverse effects on some tree species; changed agricultural patterns; increased gorse, bracken and scrub growth and increased soil erosion from slopes due to heavier precipitation. Clearly these will have a large impact on the historic environment, not only on features which may become ploughed up, covered in scrub or eroded, but on the nature of the historic landscape character.

Responses will require agencies, land managers and policy makers to work together to maximise adaptation potential whilst minimising damage or destruction of historic assets. Solutions may include the reversion of arable land back to chalk downland, particularly on steeper scarp, to protect historic features from soil erosion.

## Shaper South West

WWW.SHAPERSW.NET

The Shaper South West heritage module (**www.shapersw.net**) was launched in October 2008 to help people living and working in the historic environment assess the sustainability of their activities against the region's ten sustainability principles.

It provides examples of good practice from the region, and links to useful sources of guidance and information. The module will help endorse important messages about the inherently sustainable nature of much of the sector's work. As our understanding of climate change impacts in the region develops, the Shaper module will also help heritage practitioners keep up to date with information and practices from other sectors, and inform regional policy makers of the important role heritage can play in this agenda.

It will include updated links to key sector guidance and provide a link with new research from other sectors.

### Developing knowledge and evidence

The sector is on a steep learning curve in terms of climate change impacts and responses. New research projects, pilot initiatives and shared examples of good practice, such as those illustrated here, are helping to develop knowledge, techniques and approaches. However, there is a need for more evidence, and for the sector to share learning with, and from other sectors, through partnership working and good networking, and to be more prepared to take calculated risks. For further information go to **www.helm.org.uk/climatechange**.

### KEY MESSAGES FROM THE HERITAGE SECTOR

- The historic environment has been shaped by past responses to a changing climate. Local Authority Historic Environment Records are a good source of information
- Reuse of historic buildings is an inherently sustainable thing to do: conversion is a sustainable form of development.
- Reducing carbon impacts through energy conservation is vitally important.
- Older buildings are not primarily responsible for carbon emissions – and from them we can learn about past good design.
- Heritage assets can generate their own energy.
- Traditional methods and materials of construction are inherently more sustainable and should be championed.
- Knowledge about impacts, adaptive responses and effects of mitigation is developing all the time.

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E-mail: customers@english-heritage.org.uk

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South West Climate Change Impacts Partnership (SWCCIP)

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