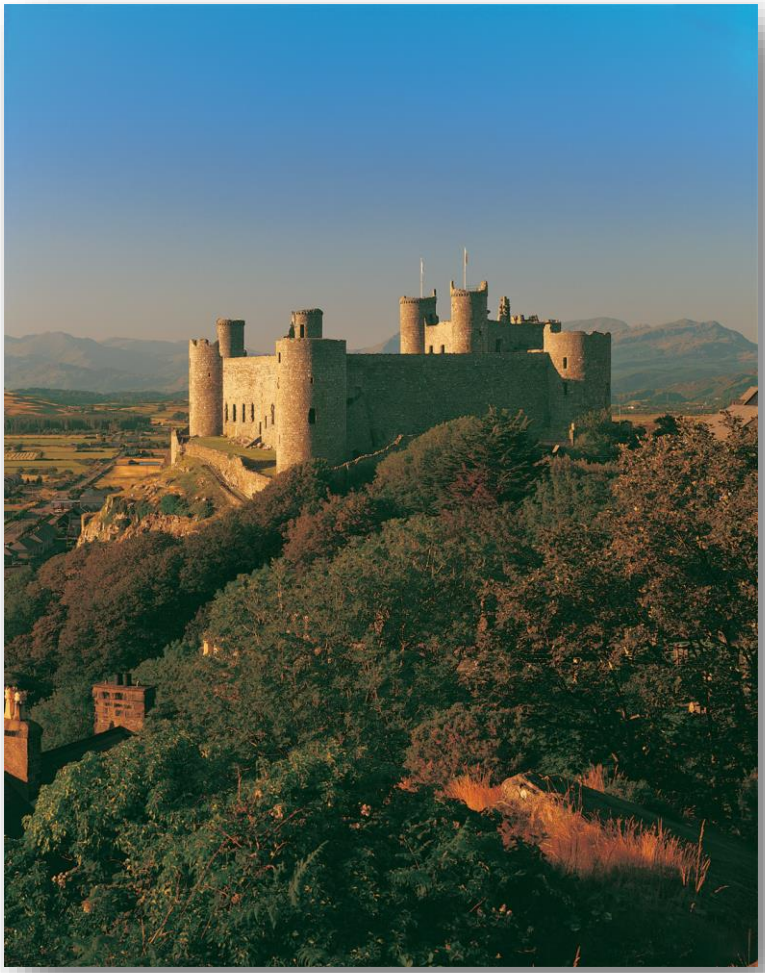


Climate Change

Preparing the Historic Environment to Meet the Challenges of Climate Change

Gwilym Hughes, Chief Inspector of Ancient Monuments and Historic Buildings & Assistant Director of Historic Environment, Cadw

Cadw
Llywodraeth Cymru
Welsh Government
Culture and Heritage Added value to Regional policies for Tourism Sustainability
INTERREG IVC
European Union

Introduction

The Wales Approach

1. Key classes of historic asset
2. Key predicted changes in the climate
3. How might these challenges impact on each of the classes of historic asset identified.
4. Developing an implementation framework action plan

Climate Change in Wales

Latest predictions:

- Warmer mean temperatures
- Hotter drier summers
- Warmer wetter winters
- More frequent extreme weather events

Climate Change in Wales

Responses to climate change

- The impact of mitigation to reduce the threat of climate change

- The impact of some adaptive responses to climate change

The Direct Impact of Climate Change

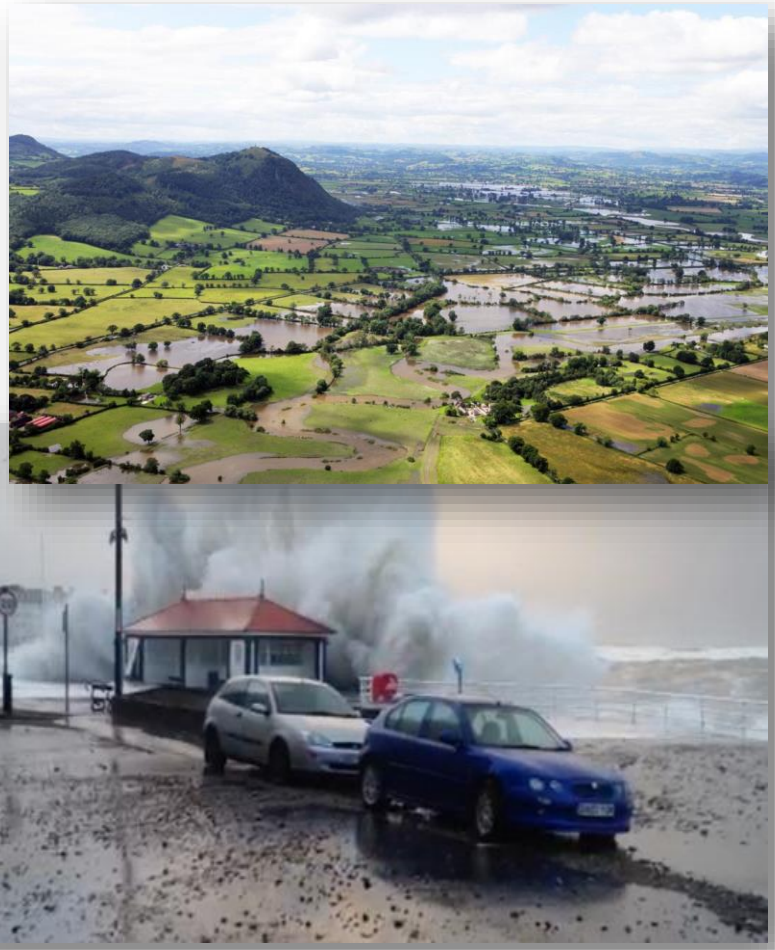
First steps

- Considering the consequences or challenges of climate change
- Considering the broad classes of historic asset that might be affected

Direct Impact of Climate Change

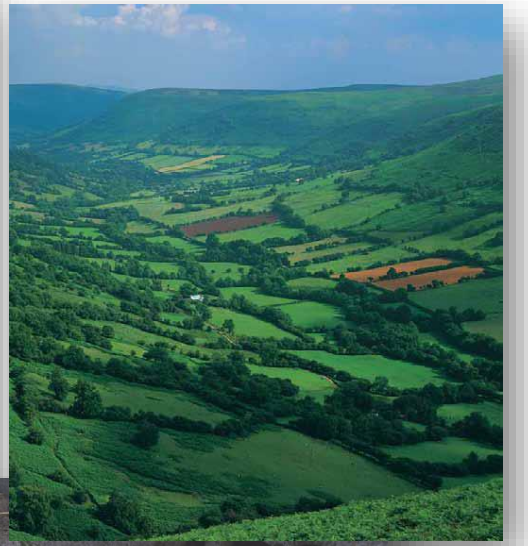
Challenges

- Rise in sea levels
- Frequent high winds/storms
- More frequent flooding events
- Drying out of wetlands
- Drying and shrinking of clay soils
- Longer growing season
- Stress on some trees and plants
- Migration of pests and diseases into Britain



Classes of Historic Asset Affected

- Historic landscapes
- Historic parks and gardens
- Historic forestry and woodland
- Historic buildings

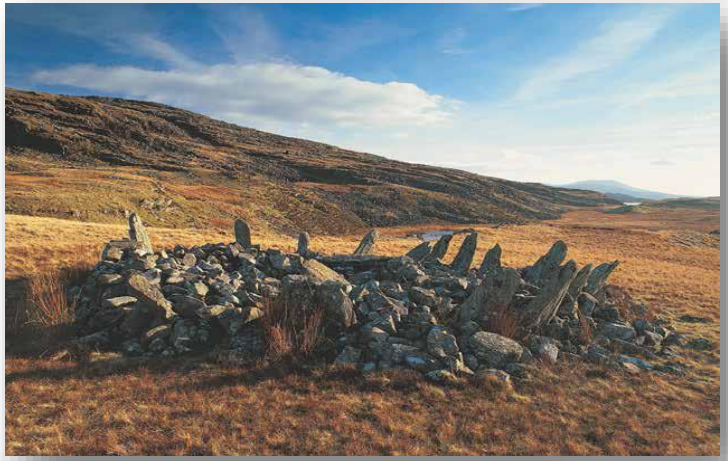


Classes of Historic Asset Affected

- Historic assets below the 1.0m contour
- Historic assets on floodplains and valley bottoms
- Historic assets located in coastal and marine environments

Classes of Historic Asset Affected

- Archaeological sites on peat, peaty soils and blanket bog
- Archaeological sites in upland areas
- Archaeological sites on farmland



The Risk Assessment

By assessing :

- The **extent** of the impact
- The **severity** of the impact
- The **sensitivity** of the asset

Significance of impact = extent x severity x significance

Overall Risk Matrix

Description of change	Warmer mean temperatures			Hotter, drier summers			Warmer wetter winters/wetter summers	More frequent extreme weather
Outcome of change	Seal level	Growing season	Pests / diseases	Drying out wetlands	Plant Stress	Shrinking Soils	More flooding	Frequent winds/storm
Historic landscapes								
Parks and gardens								
Historic buildings								
Peat, peaty soils, blanket bog								
Upland Arch. Sites								
Below 1.0m								
Floodplains & valleys								
Foreshore								
Coast edge								
Sand dunes								
Arch. on farmland								
Forestry & woodland								

Key

High negative/highrisk	Moderate negative/low risk	Small negative/low risk	Neutral	Postive

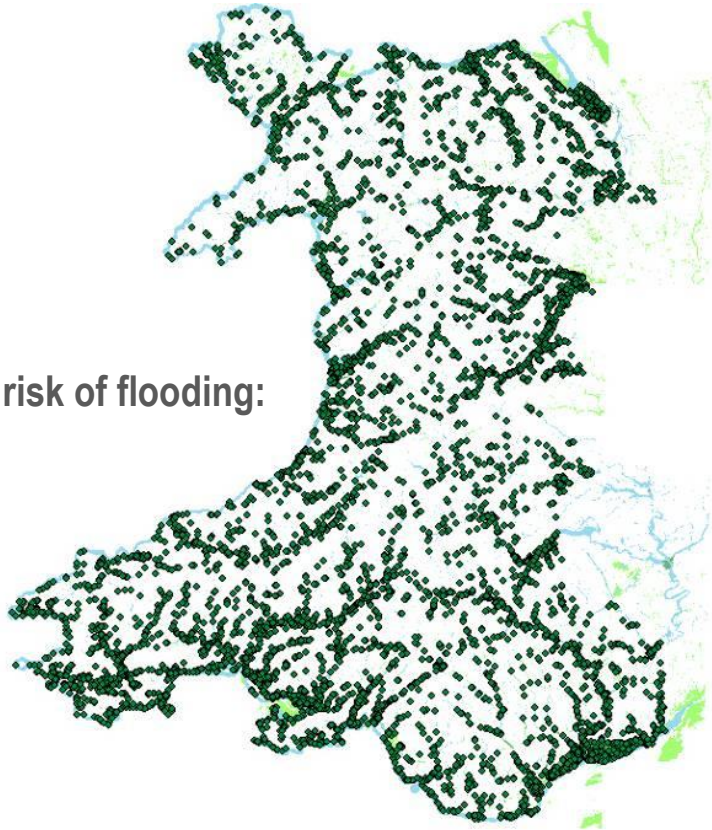
Summary of Risks

- Rising sea levels – endangering historic landscapes, buildings and archaeology in the coastal zone
- Coastal Erosion – affecting historic sites on the coast

Sites below 1m: 312

Summary of Risks

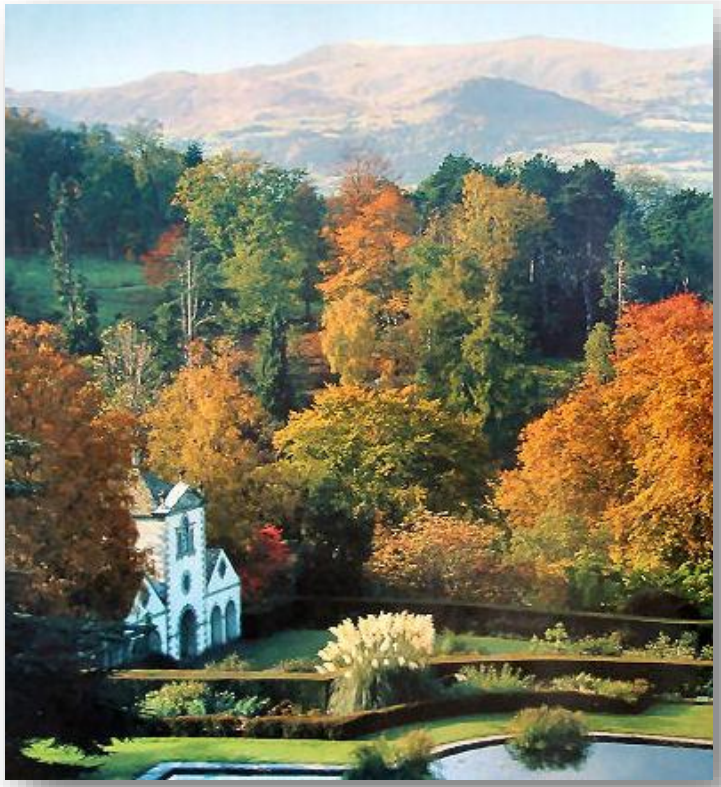
- Extreme weather – damage to historic landscapes and buildings
- More frequent intense rainfall – erosion of archaeological sites and damaging flooding historic settlements



Sites at risk of flooding: 12,745

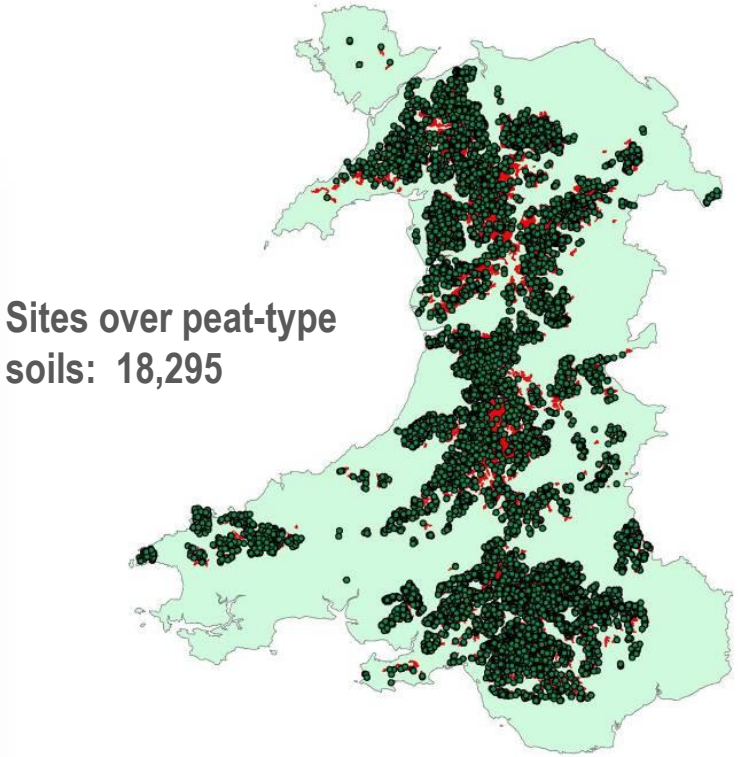
Summary of Risks

- Changes in vegetation patterns – affecting landscapes and parks and gardens
- Pests - affecting historic buildings



Summary of Risks

- Drying out of soils – such as upland peat and wetlands



Implementation Framework

Recording and surveying sites at risk

Implementation Framework

Rescue excavation

Implementation Framework

Arfordir: coastal survey

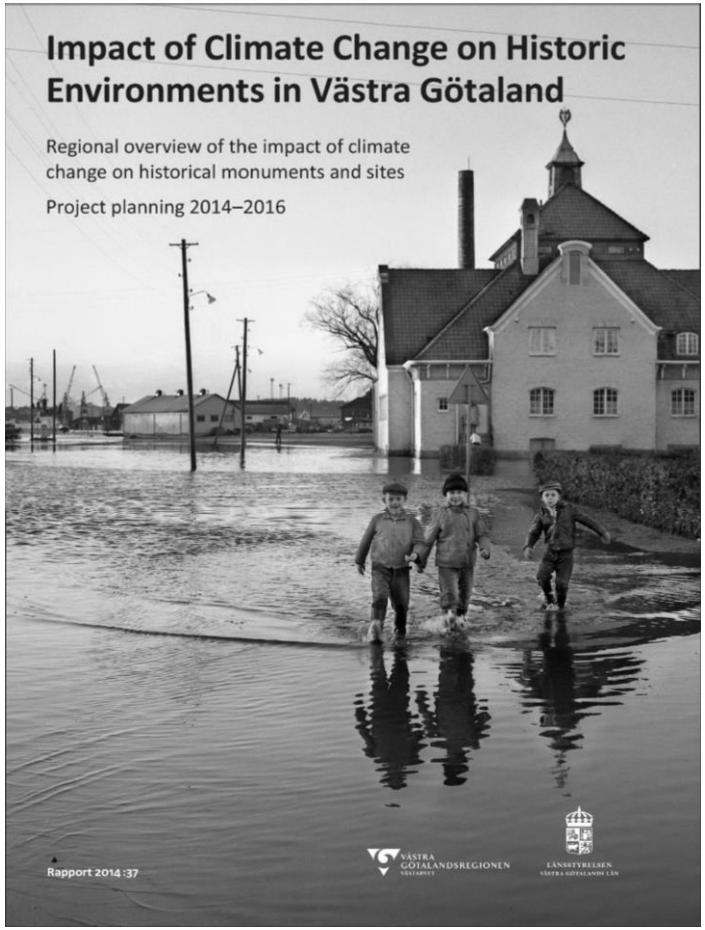
Transferring the Approach

1. Define the assets
2. Group these assets into categories
3. Define the challenge that climate change will bring
4. Undertake the risk assessment
5. Develop implementation framework

Transferring the Approach

Impact of Climate Change on historic environments in

Västra Götaland



The Workshop Exercise

For your region:

- identify three or four heritage sites or groups of heritage assets that might be impacted by climate change
- consider three or four challenges that climate change poses
- Map these challenges against your defined heritage assets, consider the extent and severity of the impact and the sensitivity of the assets/s concerned
- Consider actions that might form part of the implementation framework