

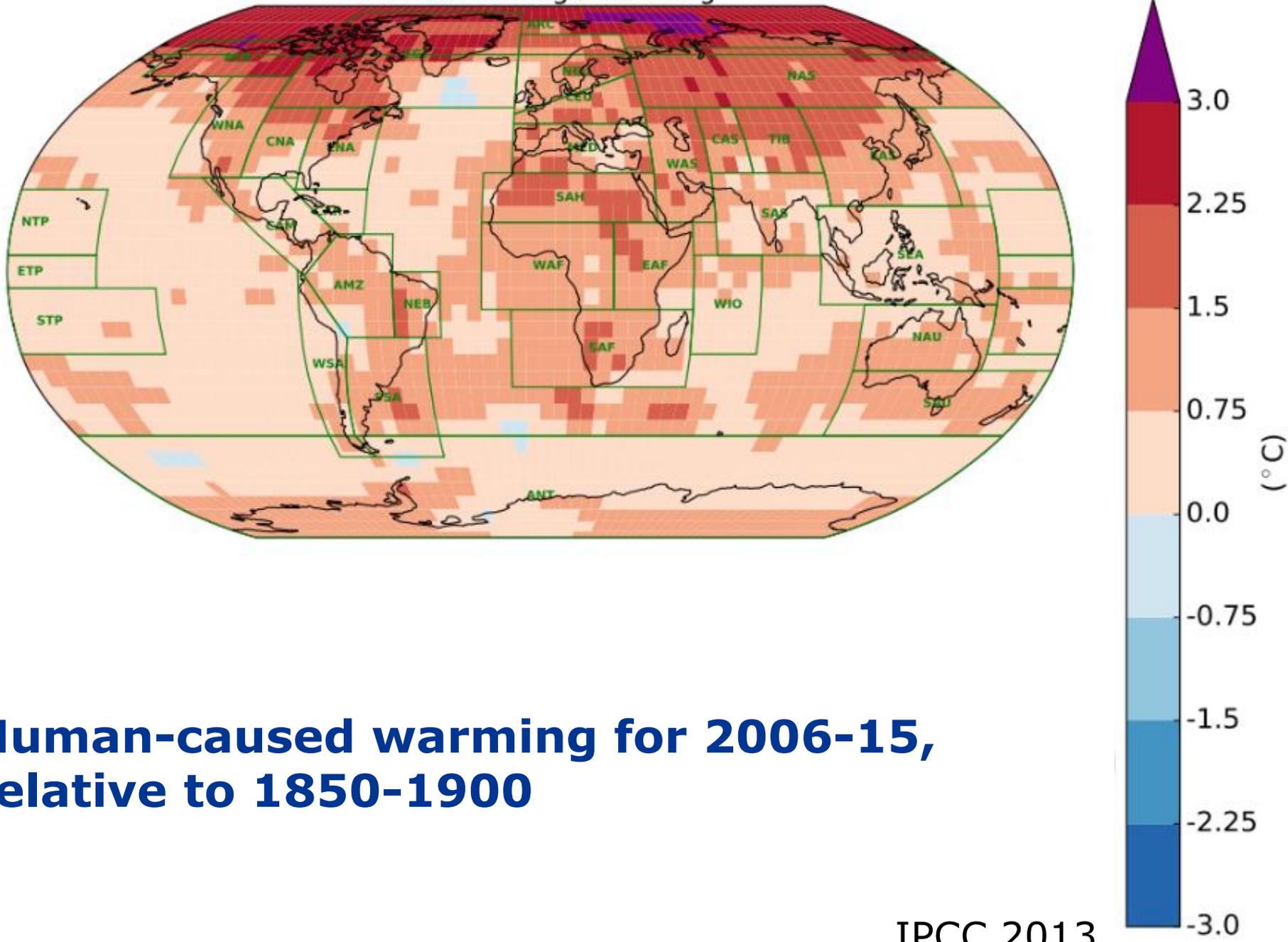
Climate change and the natural environment

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Annual average warming



**Human-caused warming for 2006-15,
relative to 1850-1900**

What we are increasingly having to deal with

- Warmer temperatures
- Drier summers
- Wetter winters
- Heavier rainfall during storms
- Increased risk of drought, flood and wildfire
- Increased coastal erosion and saline intrusion
- New pests and diseases
- Changing world markets
- Changing policy responses



direct

indirect

- Increased uncertainty

There is strong evidence that climate change is affecting UK biodiversity

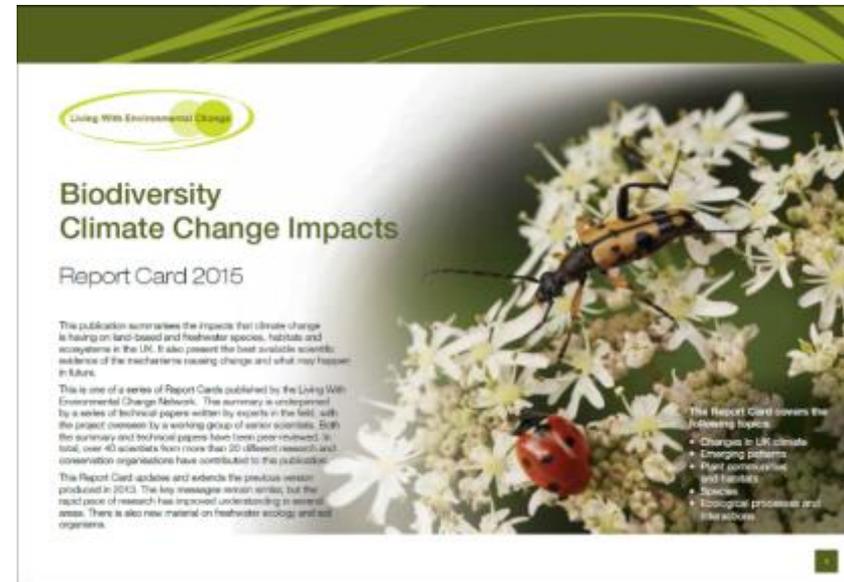


Risks

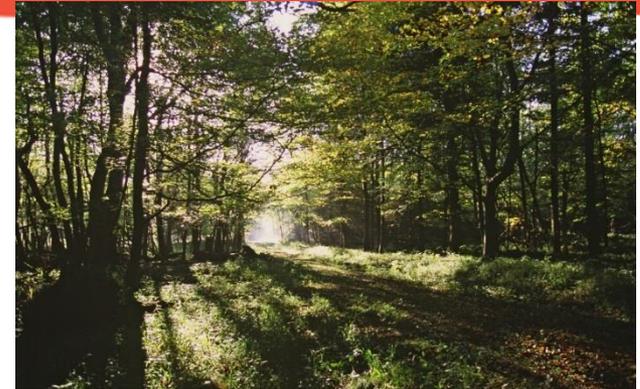
- Cold adapted species
- Montane, wetland, coastal habitats
- Extreme events: drought, wildfire, flood
- Interactions with habitat fragmentation and degradation

Opportunities

- Warm adapted, mobile species



- Degradation and fragmentation have increased vulnerability
- Protected areas increase the chances of species persisting or expanding under climate change
- Potential to build resilience and adapt
- Management may need to change



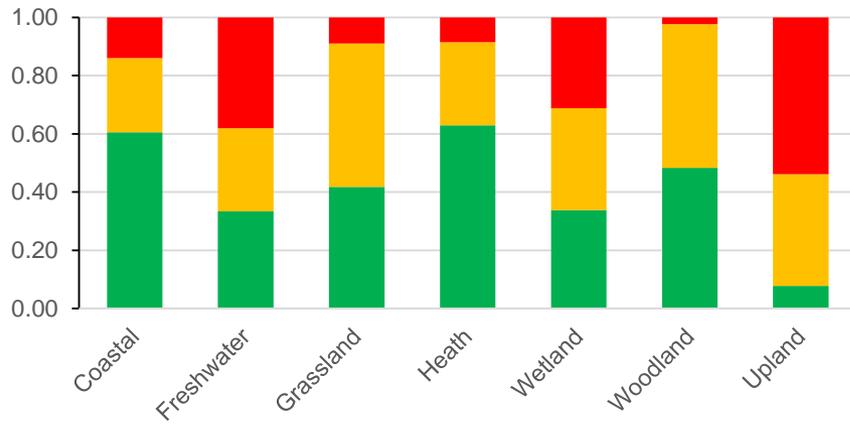
Impacts are place and habitat specific



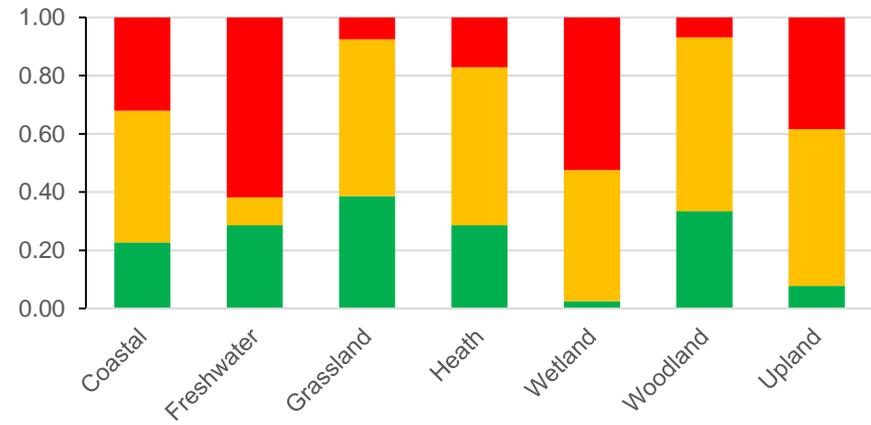
National Nature Reserves: Risks to species, habitats, assemblages



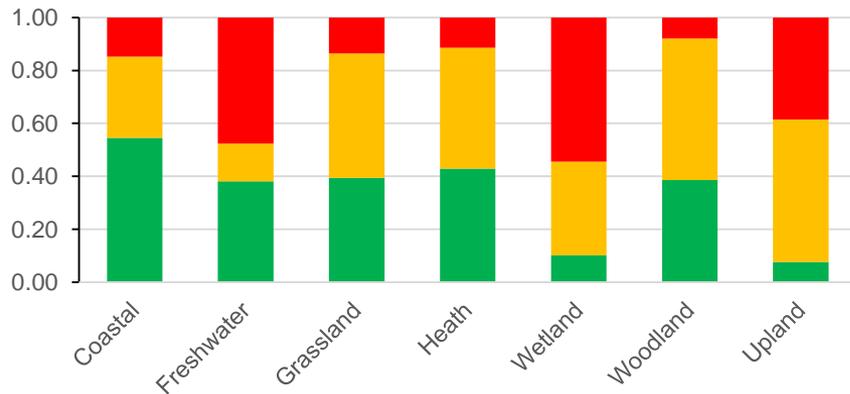
Temperature



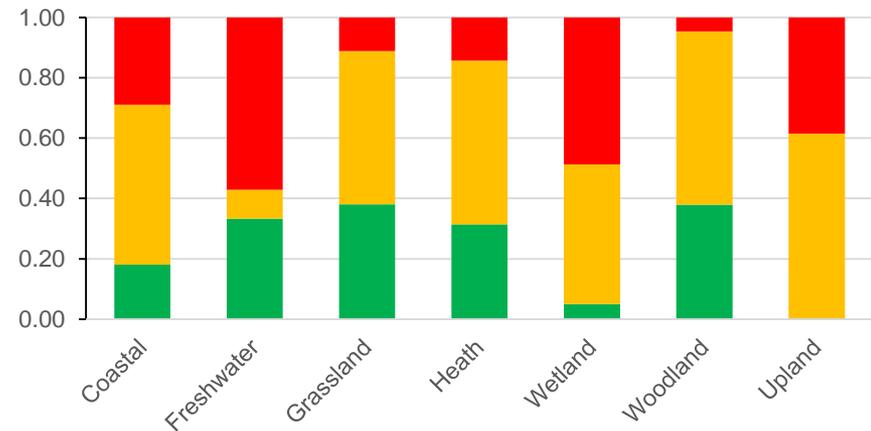
Extreme Events



Rainfall



In Combination



Mitigation

Tackling the causes

- Reducing emissions
- Sequestering carbon

Adaptation

Dealing with effects

- Reducing vulnerability
- Adjusting to change

Resilience, accommodation or transformation?

Changing approach as the climate changes

1° C > 2° C > 3° C > 4° C

resilience

accommodation

transformation

enable persistence → accept change → promote change

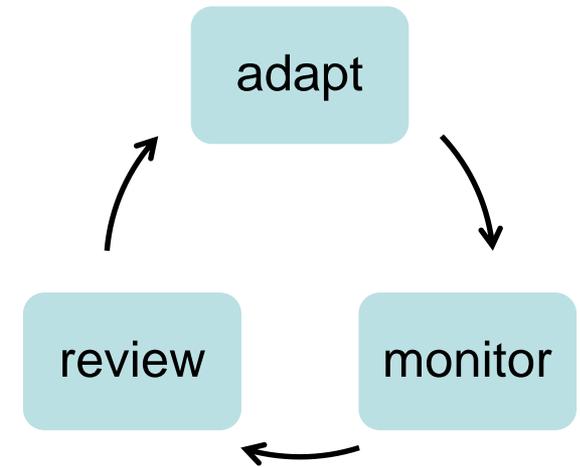
Resilience principles

- Protect our most important sites
- Optimal management
- Recover the network - Bigger, better, more, joined
- Restoring ecosystem processes
- Maximise heterogeneity in microclimate/soils
- Identify and protect refugia
- Address specific climate change impacts e.g. planting drought tolerant species.
- Reducing other pressures



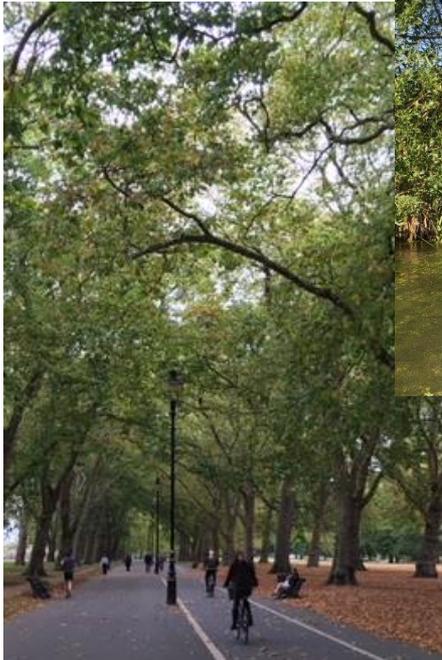
Accommodating change principles

- Adjusting objectives to changing distributions
- Managed realignment
- Flexibility in operations
- Changes in management to reflect new conditions
- Practice adaptive management
- Welcoming 'near native' colonisations
- Increase landscape permeability to allow species to move
- Translocation



Nature-based Solutions

*Actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing **human well-being and biodiversity benefits**.*
(IUCN 2016)



2nd Edition just published on the Natural England Access to Evidence Website

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Climate Change Adaptation Manual

Evidence to support nature conservation
in a changing climate

2nd edition published 2020

www.gov.uk/natural-england

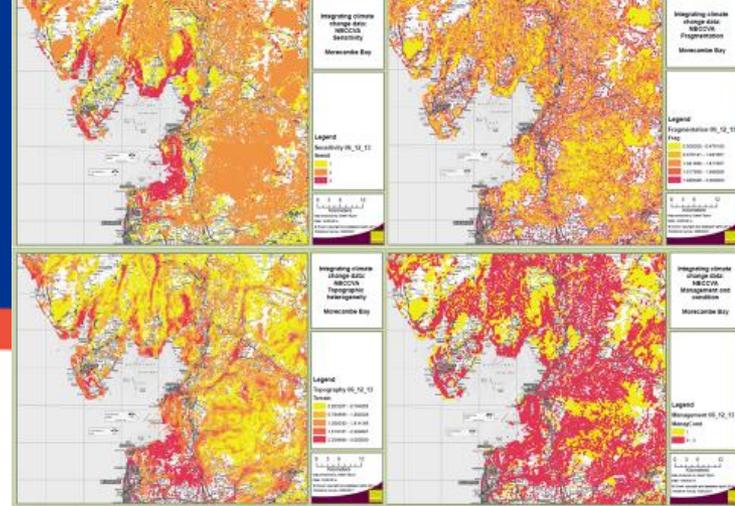


giving
nature
a home

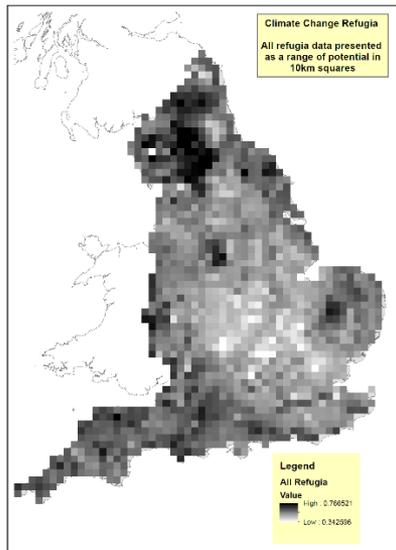


Natural England spatial data

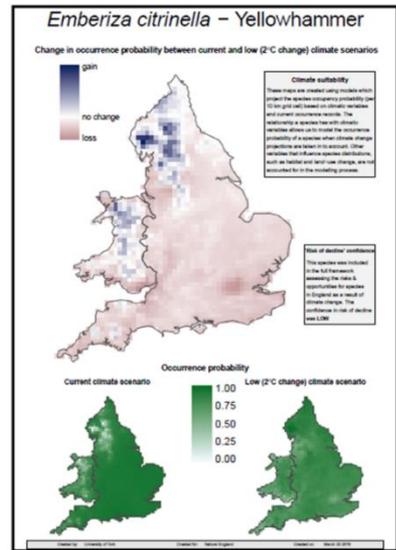
- National Habitat Network
- National Biodiversity Climate Change Vulnerability Assessment (NBCCVA)
- Species risks and opportunities maps – climate envelope modelling (Pearce-Higgins et al, 2015)
- Climate change refugia (10km x10km) (Suggitt et al, 2014)
- Carbon storage and sequestration mapping



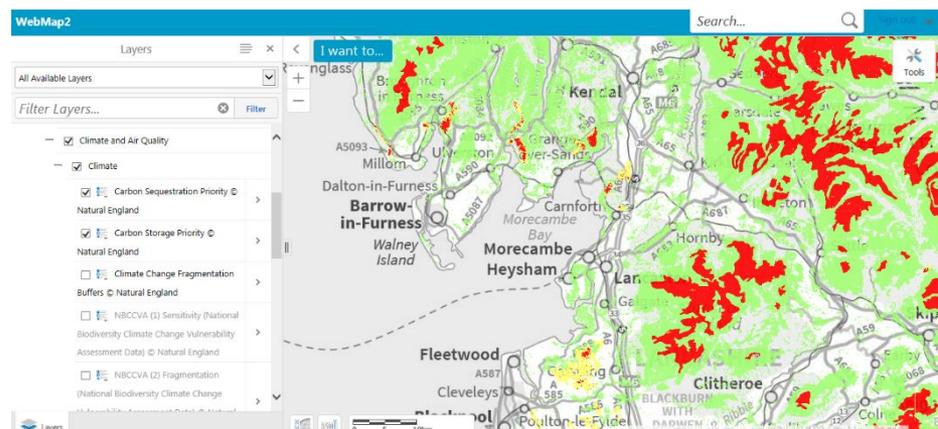
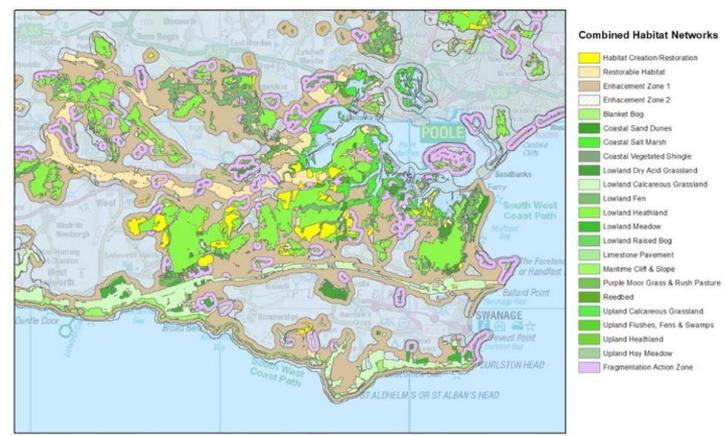
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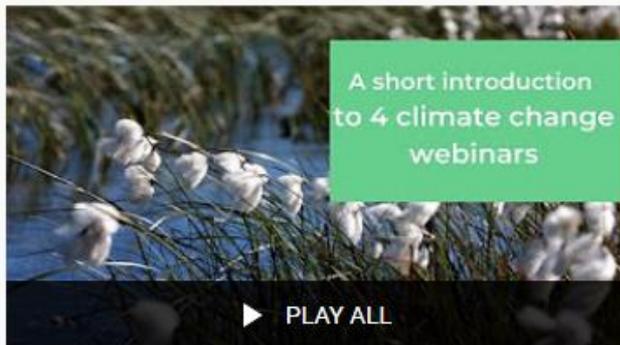


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Climate Change webinars 2020

5 videos • 115 views • Last updated on Jun 11, 2020



Four webinars presented by climate change experts here at Natural England in May 2020. Aimed at conservationists and land managers who want to share ideas and learn more about how we need to adapt and change our approaches to climate change.



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SUBSCRIBED



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Mike Morecroft, Climate Change Principle Specialist introduces 4

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1. What impact will climate change have on biodiversity?

Natural England

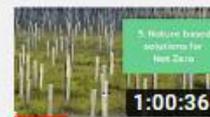
3



2. How can we adapt nature conservation techniques to cope

Natural England

4



3. Nature Based Solutions for Net Zero

Natural England

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4. How can nature based solutions help people adapt to

Natural England

- Impacts are happening now and will increase in future
- To adapt to climate change we need to build resilience and increasingly manage change
- Nature-based Solutions offer opportunity to tackle climate change and nature recovery together
- There are lots of resources available: the NE/RSPB Adaptation Manual is a good starting point