

Climate change and ecosystems

Any cause for hope?

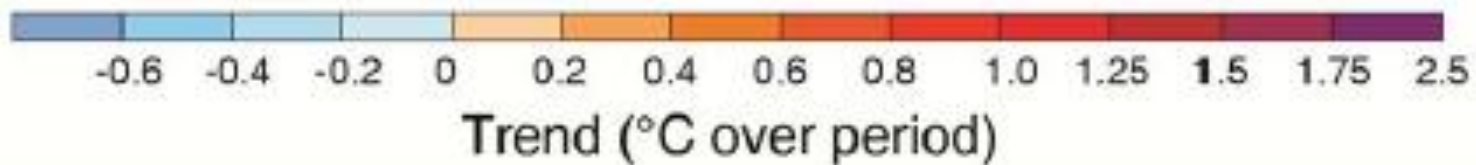
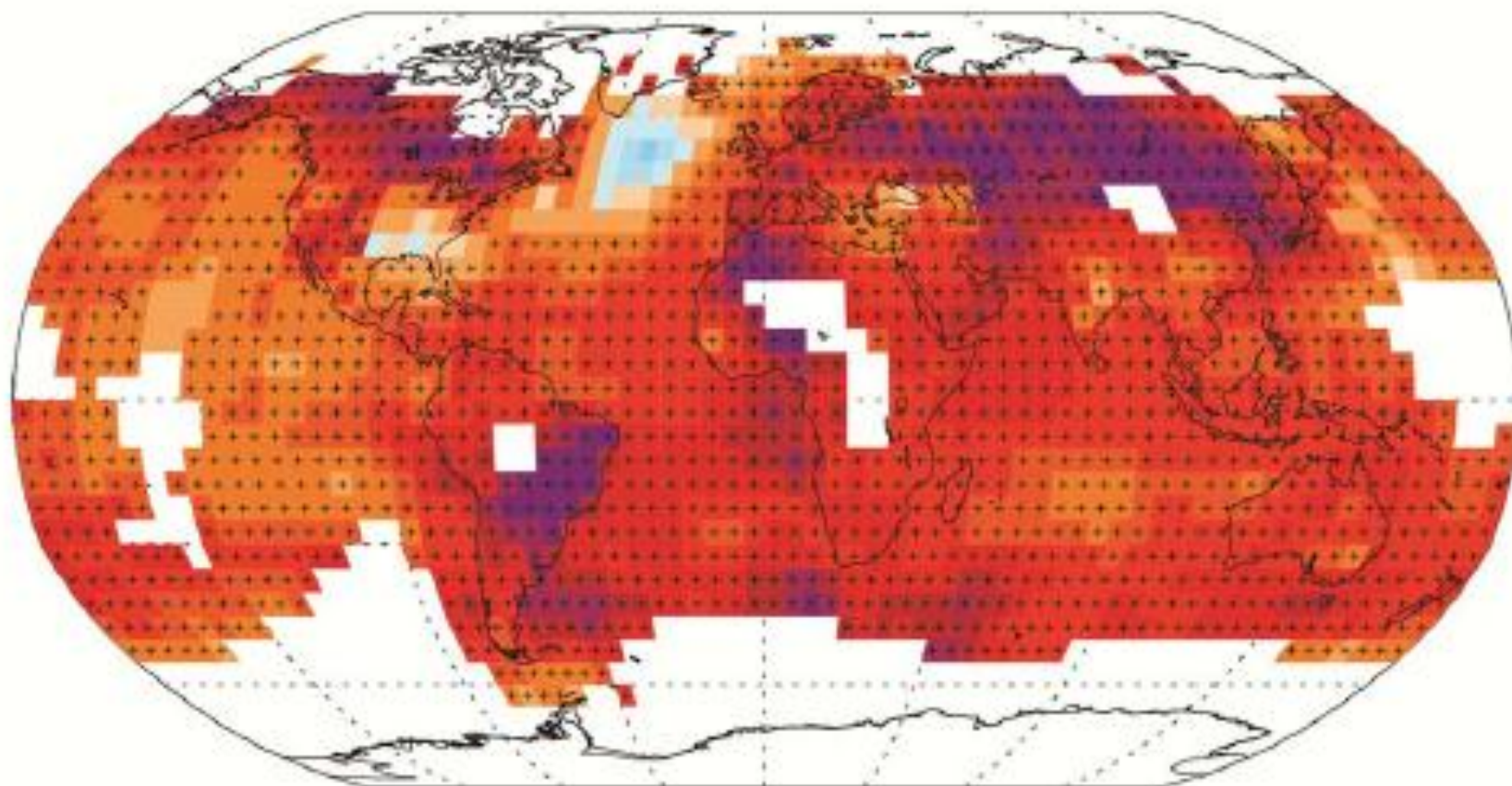
Mike Morecroft

Natural England

University of Oxford

St. Lawrence's Church, Hungerford

Observed change in average surface temperature 1901–2012



Terrestrial Biodiversity Climate Change Impacts

Report Card 2012 -13

The Terrestrial Biodiversity Climate Change Impacts Report Card provides an overview of how climate change is affecting UK biodiversity and potential future changes based on the latest scientific evidence and understanding.¹ The project has been overseen by a working group of senior scientists, and both the card itself and the review papers that support it have been peer-reviewed to ensure scientific rigour and that the consensus view of the scientific community is represented. In total over 40 scientists from more than 20 different research and conservation organisations have contributed to this Report Card.

The Report Card shows where observed changes in UK biodiversity are likely to have been caused by changes in the UK climate over recent decades ('What is happening'). It also assesses potential future impacts of climate change on biodiversity ('What could happen').

¹ The Report Card is based on 15 technical review papers, each commissioned to provide in-depth analysis of specific topics. The key findings from these papers are presented in the Report Card.

Biodiversity Climate Change Impacts

Report Card 2015

There is strong evidence that climate change is affecting UK biodiversity.

This publication summarises the impacts that climate change is having on UK biodiversity and habitats. It provides evidence of the mechanisms causing change and what may happen in future.

This is one of a series of Report Cards published by the Living With Environmental Change Network. This summary is underpinned by a series of technical papers written by experts in the field, with the project overseen by a working group of senior scientists. Both the summary and technical papers have been peer-reviewed. In total, over 40 scientists from more than 20 different research and conservation organisations have contributed to this publication.

This Report Card updates and extends the previous version produced in 2013. The key messages remain similar, but the rapid pace of research has improved understanding in several areas. There is also new material on freshwater ecology and soil organisms.

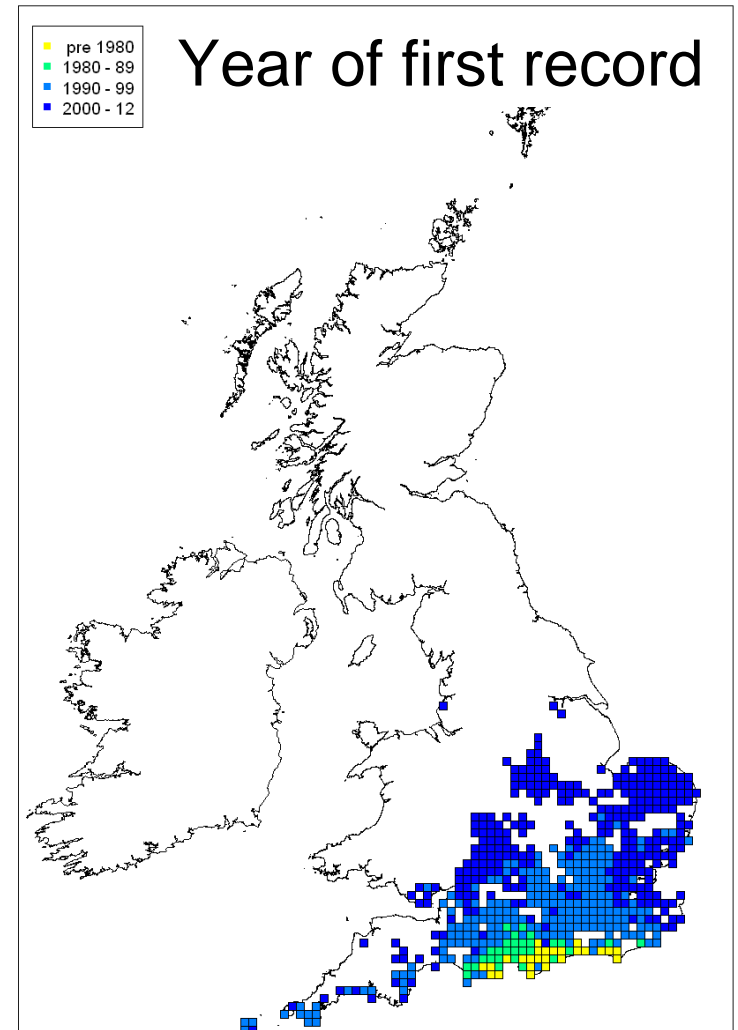
The Report Card covers the following topics:

- Changes in UK climate
- Emerging patterns
- Plant communities and habitats
- Species
- Ecological processes and interactions

Change is happening: shifting species



Long-winged conehead
Conocephalus discolor



Change is happening: shifting coasts

Salthouse
Shingle Ridge

**CAR
PARK
CLOSED**

MOTORISTS
DO NOT DRIVE ONTO
THE SHINGLE

IF YOU DO, YOU WILL BE
GROUNDED AND UNABLE
TO GET YOUR CAR OUT.

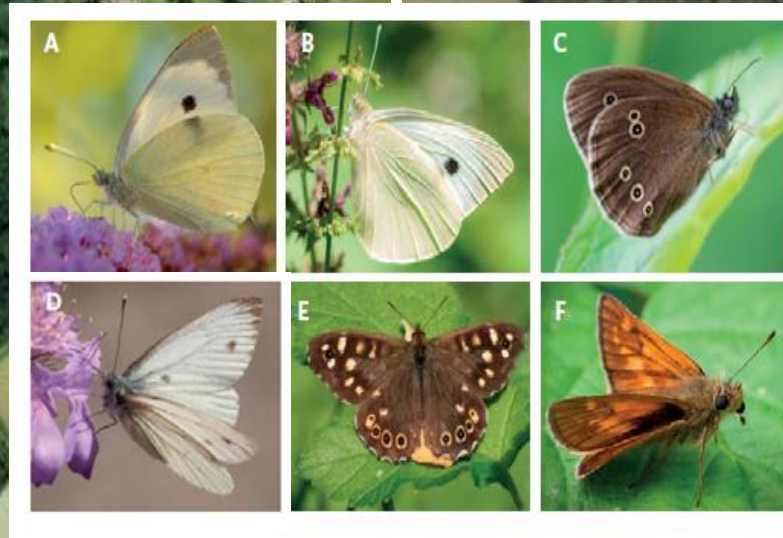
YOU WILL NEED TO BE
RESCUED BY SOMEONE
WITH A SUITABLE VEHICLE
AND EQUIPMENT.

THIS WILL INVOLVE INCONVENIENCE & EXPENSE.

IT WILL ALSO DAMAGE THE
REMAINS OF THE SHINGLE BANK
WHICH IS NOW OUR ONLY DEFENCE
FROM FURTHER FLOODING.



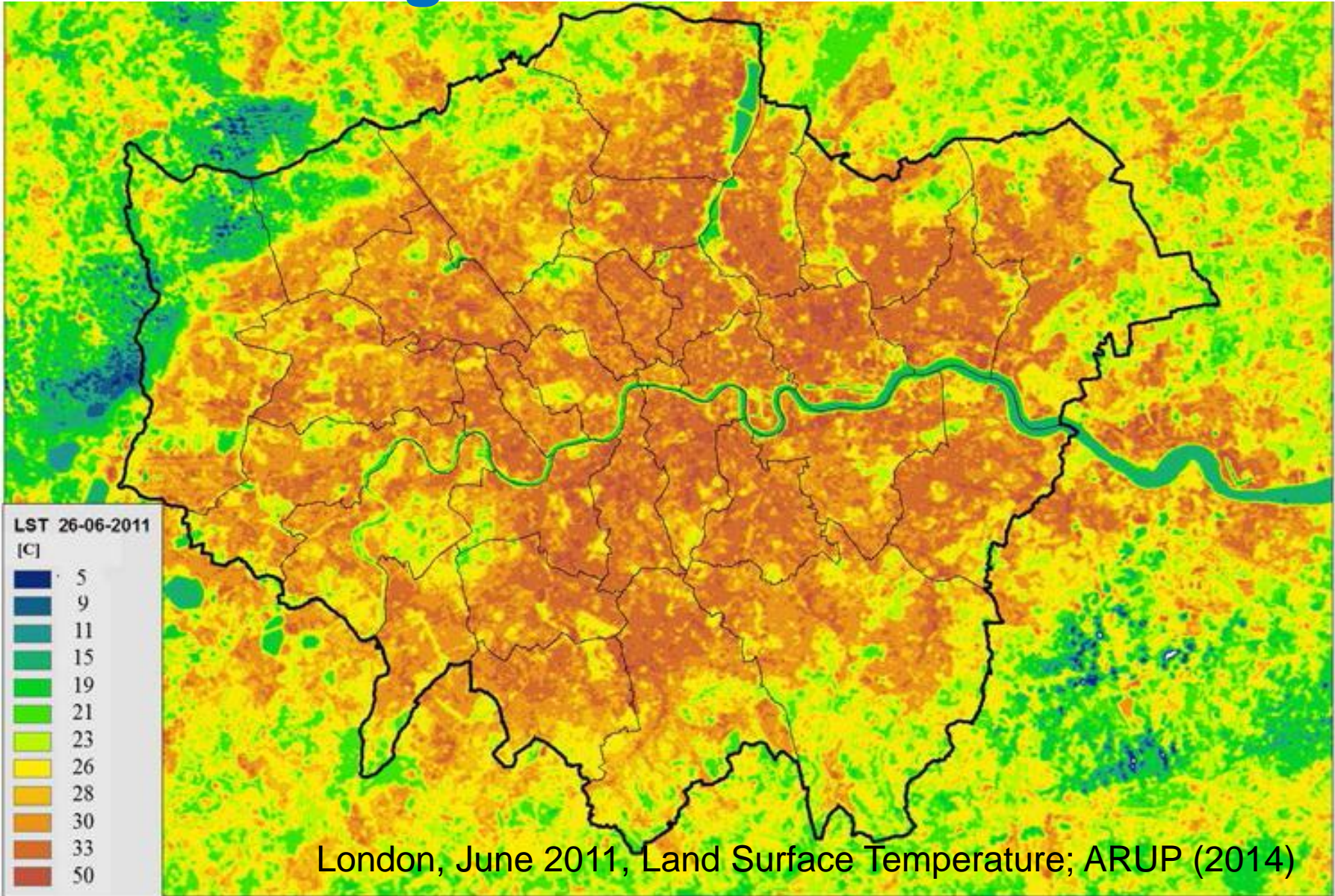
Increasing resilience – larger areas



Increasing Resilience: Restoring blanket bog



Ecosystem based adaptation: Urban cooling



Ecosystem based adaptation: Natural flood risk management



📷 The National Trust's Holnicote Estate near Minehead, Somerset. Photograph: Adrian Sherratt

Conclusions

- Climate change is changing the UK's biodiversity and ecosystems
- We can't recreate the past, but....
- Working with nature can increase resilience of both wildlife and people

Genesis 2:15

And the Lord God took the man, and put him into the garden of Eden to dress it and to keep it. (AV)

The Lord God took the man and put him in the garden of Eden to till it and keep it. (NRSV)

And Jehovah God taketh the man, and causeth him to rest in the garden of Eden, **to serve it, and to keep it.**

(Young's Literal Translation, 1898)