



CLASP - Understanding Landscape Vulnerability

18th May 2011 - Preston

www.naturalengland.org.uk



An Assessment of the vulnerability of the Natural Environment to climate change in North West England using the National Character Areas.

Ian Crosher

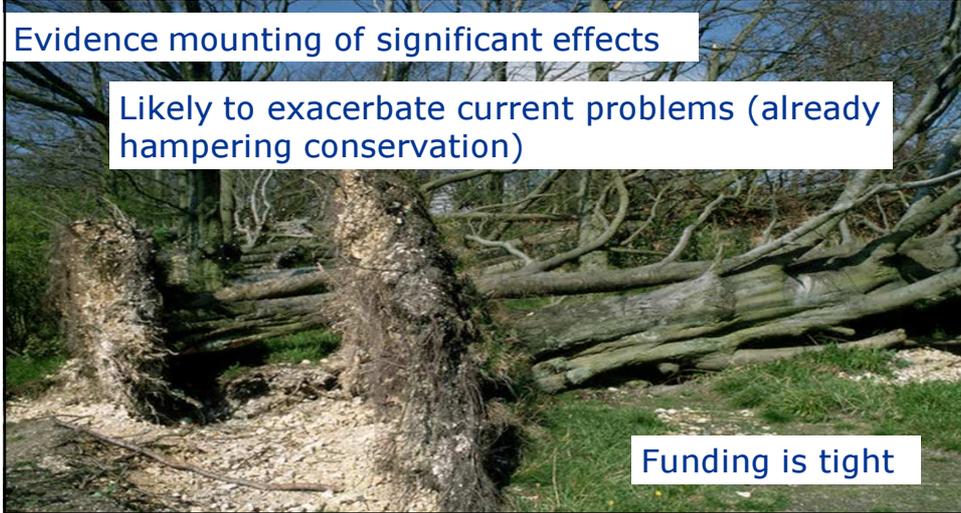
www.naturalengland.org.uk

Climate change will affect the Natural Environment,
and resources to respond are limited



Evidence mounting of significant effects

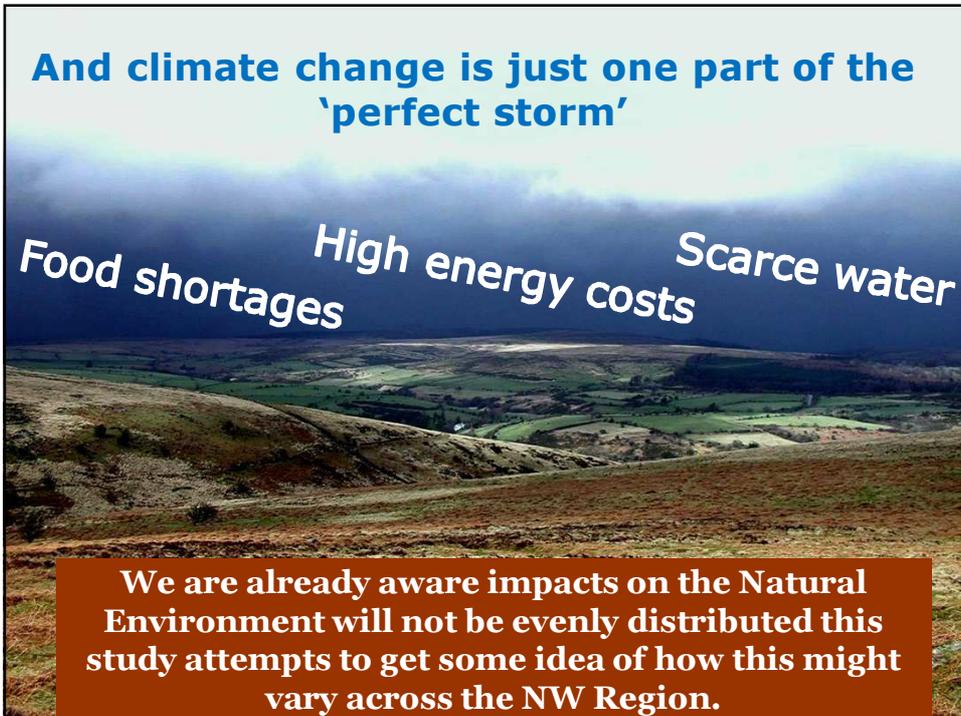
Likely to exacerbate current problems (already hampering conservation)



Funding is tight

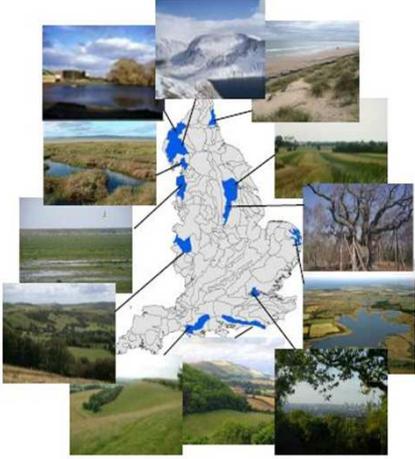
And climate change is just one part of the
'perfect storm'

Food shortages
High energy costs
Scarce water



We are already aware impacts on the Natural Environment will not be evenly distributed this study attempts to get some idea of how this might vary across the NW Region.

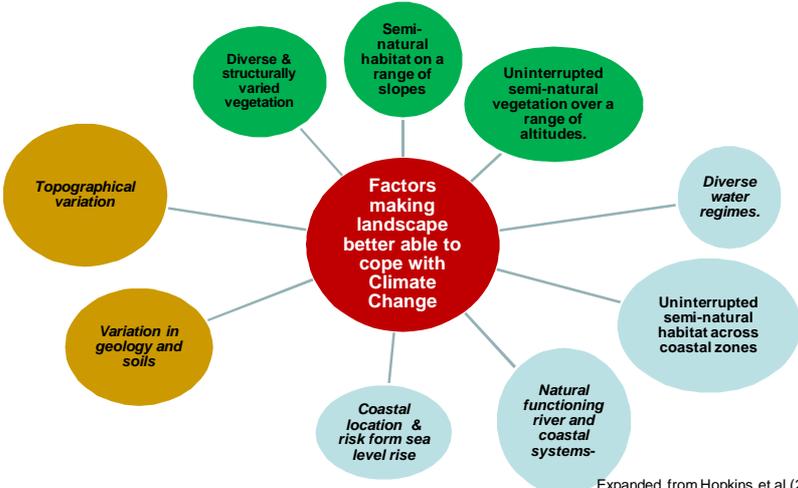
National Character Areas Climate Change Project

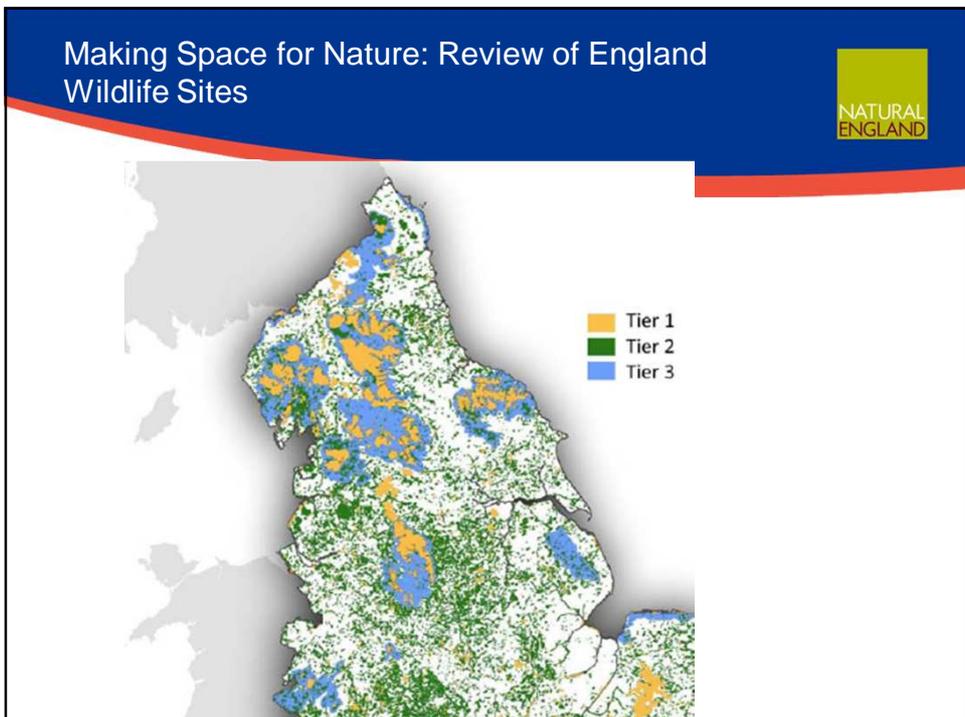
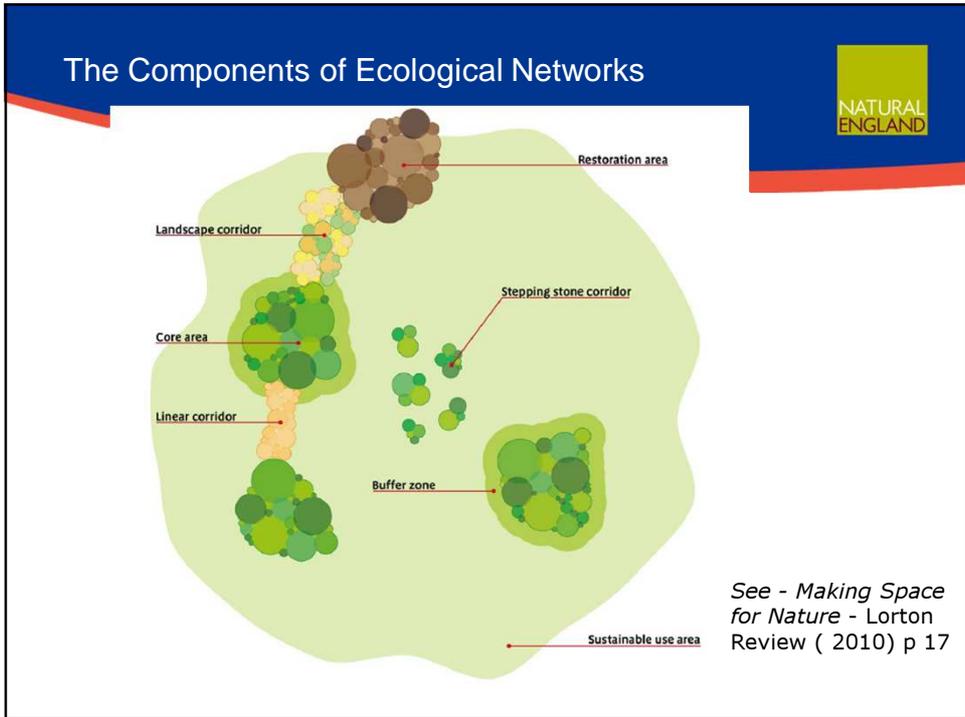
This vulnerability assessment builds on the approach that was applied to 'the Cumbria High Fells' investigation in the NW and the other phase 1 (see link below) & 2 (expected date of published in Jan 2011) NCA as illustrated

<http://www.naturalengland.org.uk/ourwork/climateandenergy/climatechange/adaptation/naturalengland.aspx>

What makes one area more likely to cope with climate change than another ?

Expanded from Hopkins et al (2007)



Methodology overview

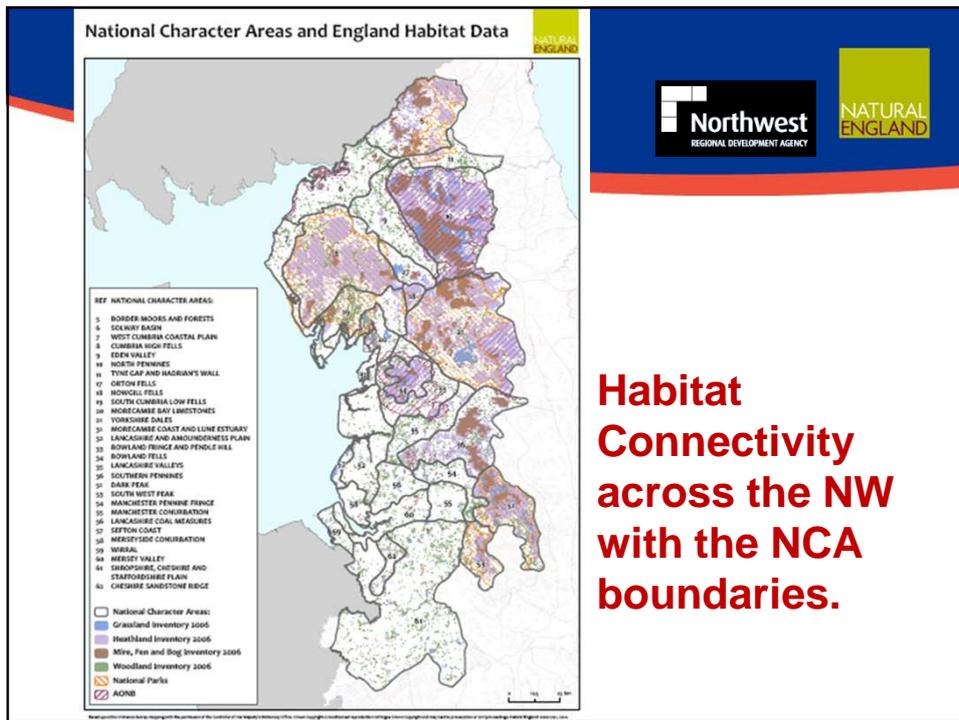


- Considered and scored a range of factors considered to be relevant to vulnerability/resilience (Mixture of 'exposure', 'sensitivity' and 'adaptive capacity', not differentiated)
 - Coastal location, elevation, topography, vegetation diversity, land variation soil diversity, agriculture type,
 - Percentages of open countryside, woodland and cultivated land, land under agri-environment agreements
 - Presence/absence of networks of different habitats
- Produced vulnerability scores for each area

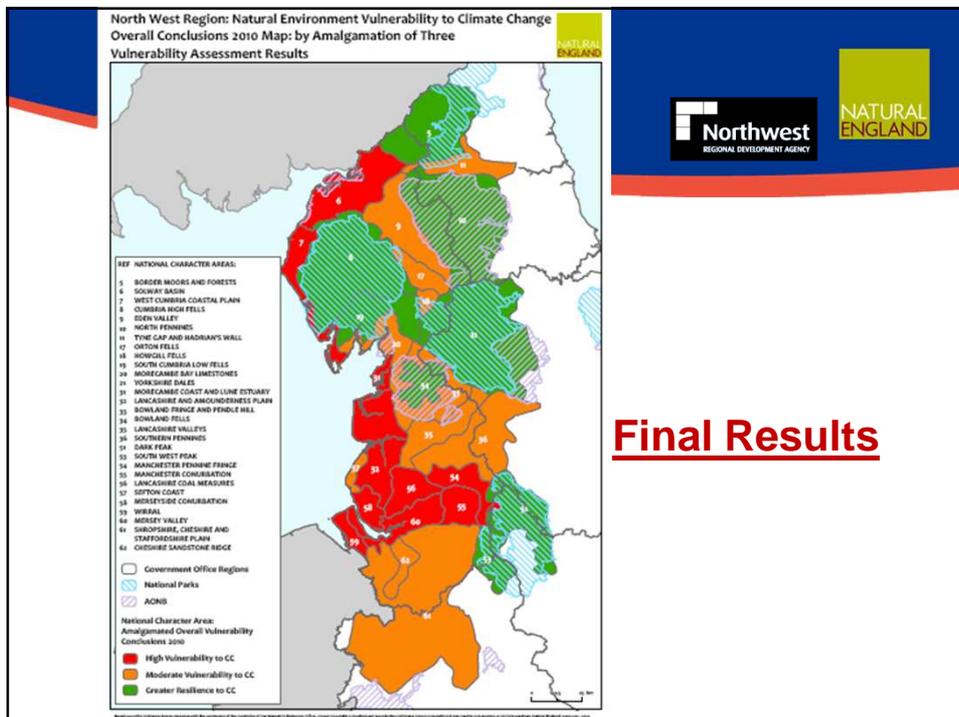
Methodology



- 1. Determine features which make areas of the North West vulnerable to the impacts of climate change.**
- 2. Identify significant climate change impacts in the region**
- 3. Screen Character Areas using qualitative data**
- 4. Screen Character Areas using quantitative data**
- 5. Screen Character Areas to look at Habitat Connectivity.**
- 6. Produce combined regional vulnerability scores for each NCA.**



Habitat Connectivity across the NW with the NCA boundaries.



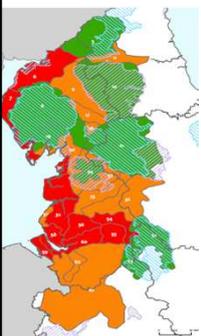
Final Results



- Relatively simple approach to identify general factors influencing vulnerability of the natural environment in each of the region's 29 National Character Areas
- Assign relative vulnerability to each area
- A learning by doing approach
- A first base layer of understanding to work from.



Strengths and weaknesses of the approach

- Very simple, coarse scale model;
- Broadbrush approach – vulnerability of an undifferentiated 'natural environment' (not species or even individual habitats)
- Relatively quick and easy to do
- Advantages in simplicity: limitations of model are clear and it's easy to understand scoring
- Quick snapshot of some important factors that might affect vulnerability/resilience

General conclusions



Some clear limitations

- Significant gaps in data and knowledge (esp. sensitivity)
- Limited number of factors considered
- Very broad level assessment of habitat vulnerability

Obviously don't give a complete answer, and need to be complemented by more detailed studies,

but...

- Will add to broader understanding of climate vulnerability; start to identify areas for attention for future study – inform but not determine prioritisation of effort
- Provide some initial practical frameworks for conservation planning to use and improve

Recommendations



The natural environment is changing in the light of climate change. This change is now unavoidable and as such we need to **work with these changes** and not against them.

To achieve this there is a need to:

- ❖ Retain what habitats presently exist, getting them in the best condition possible as quickly as possible.
- ❖ Allow rivers and coast to operate in as natural a way as possible by providing space, within unavoidable constraints.
- ❖ Minimise non climate pressures such as pollution and development onto habitats.
- ❖ Expand the amount of naturally functioning natural habitat to reduce the areas vulnerability.

Recommendations Cont.



- ❖ Create a long term view of how habitat connectivity can be improved and strengthened within the North West Region.
- ❖ Recognise that adapting our natural environment will have wider benefits to society, through greater green infrastructure as a whole and help to improve our ecosystem services functions.
- ❖ That to understand the changes that we will be seeing from climate change we need good long term data sets that monitor species & habitat change at the same site and over time.

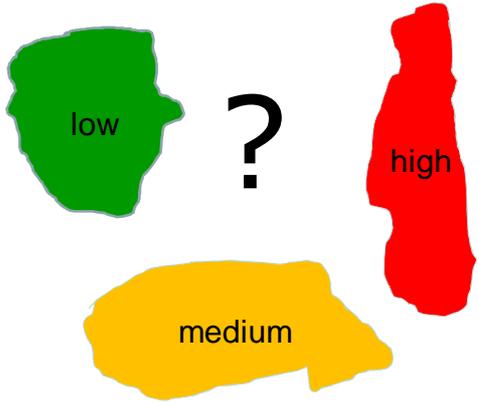
Habitat Connectivity proposals in the NW



Need Natural Environment Pathways for species movement within the NW.

- Such as:
 - A coastal route from North Wales up through the Wirral and Sefton Coast on through the Fylde and on into Morecambe Bay for terrestrial species associated with the coastal zone.
 - A route that builds on the Cheshire Econet project focusing on the Cheshire sandstone ridge and on through the Mersey valley and Lancashire.
 - A route up the western side of the Pennine chain.

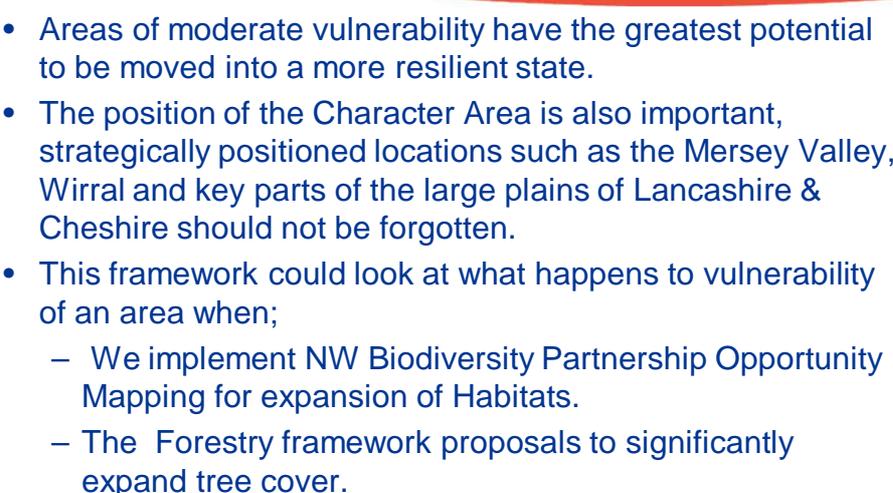
Where should effort be focused?



The diagram illustrates three levels of vulnerability: 'low' (green), 'medium' (yellow), and 'high' (red). A large question mark is placed between the 'low' and 'high' categories, suggesting a focus on understanding the transition between these states.

Logos for Northwest Regional Development Agency and Natural England are visible in the top right corner.

Conclusions from the findings



- Areas of moderate vulnerability have the greatest potential to be moved into a more resilient state.
- The position of the Character Area is also important, strategically positioned locations such as the Mersey Valley, Wirral and key parts of the large plains of Lancashire & Cheshire should not be forgotten.
- This framework could look at what happens to vulnerability of an area when;
 - We implement NW Biodiversity Partnership Opportunity Mapping for expansion of Habitats.
 - The Forestry framework proposals to significantly expand tree cover.

Logos for Northwest Regional Development Agency and Natural England are visible in the top right corner.

Closing Remarks



This project has tried to bring together readily available information and apply it to the National Character Areas of the North West to make an initial assessment of how vulnerable the natural environment is to climate change. This is the first time such an assessment has been taken in England in any region. We are still in the early stages of building our understanding to how our natural environment will change and adjust in the coming decades to climate change; however, we hope these results will help inform future conservation projects and partnerships in the North West



ian.crosher@naturalengland.org.uk

www.naturalengland.org.uk

