

# Environmental change in the north west since the last Ice Age

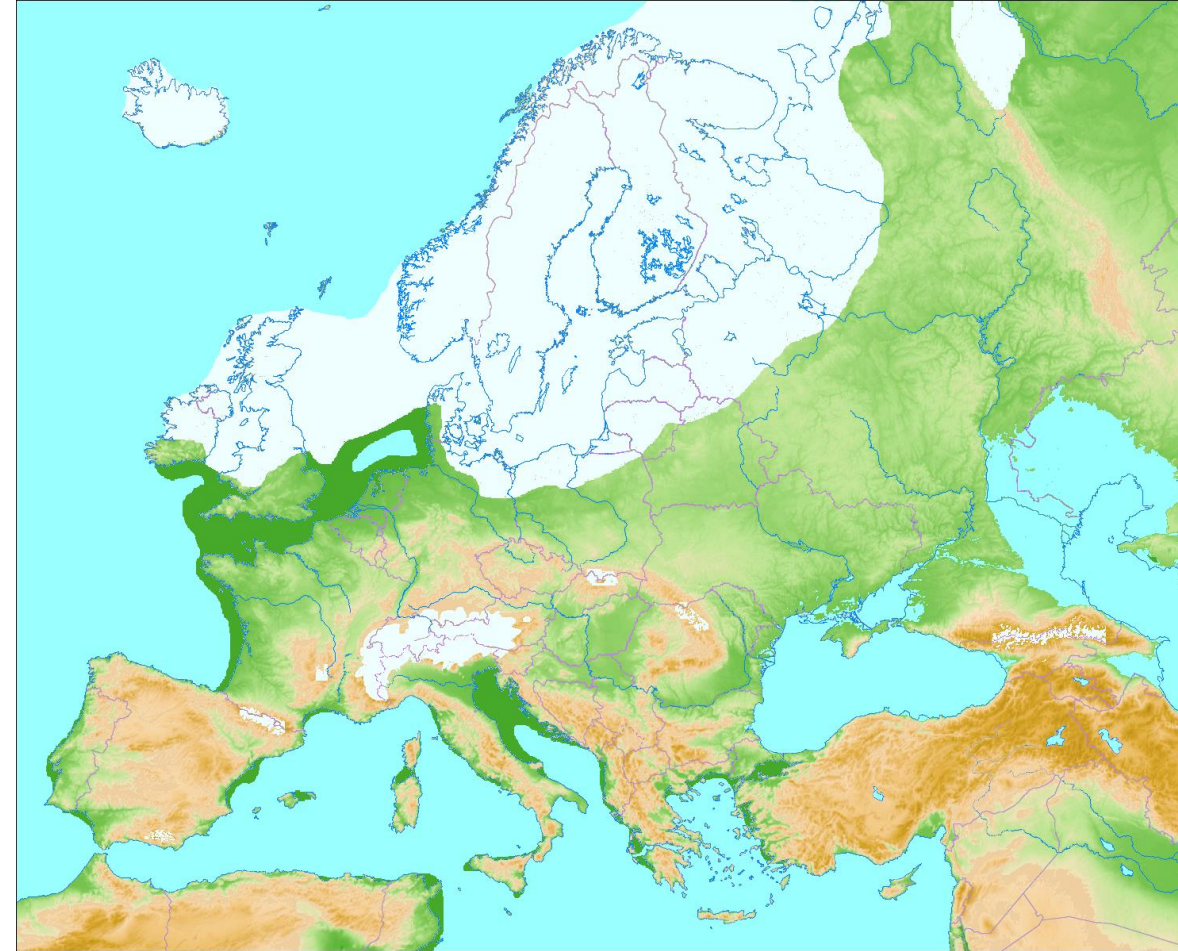


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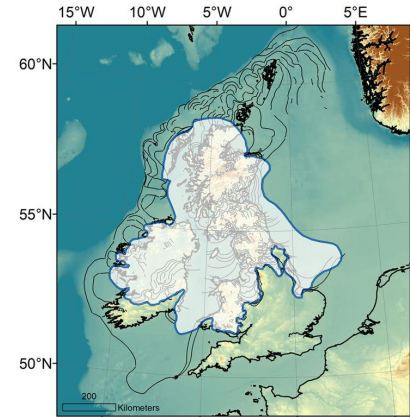
## what it means for wildlife and people







## Climate change: UK plants now flowering a month earlier

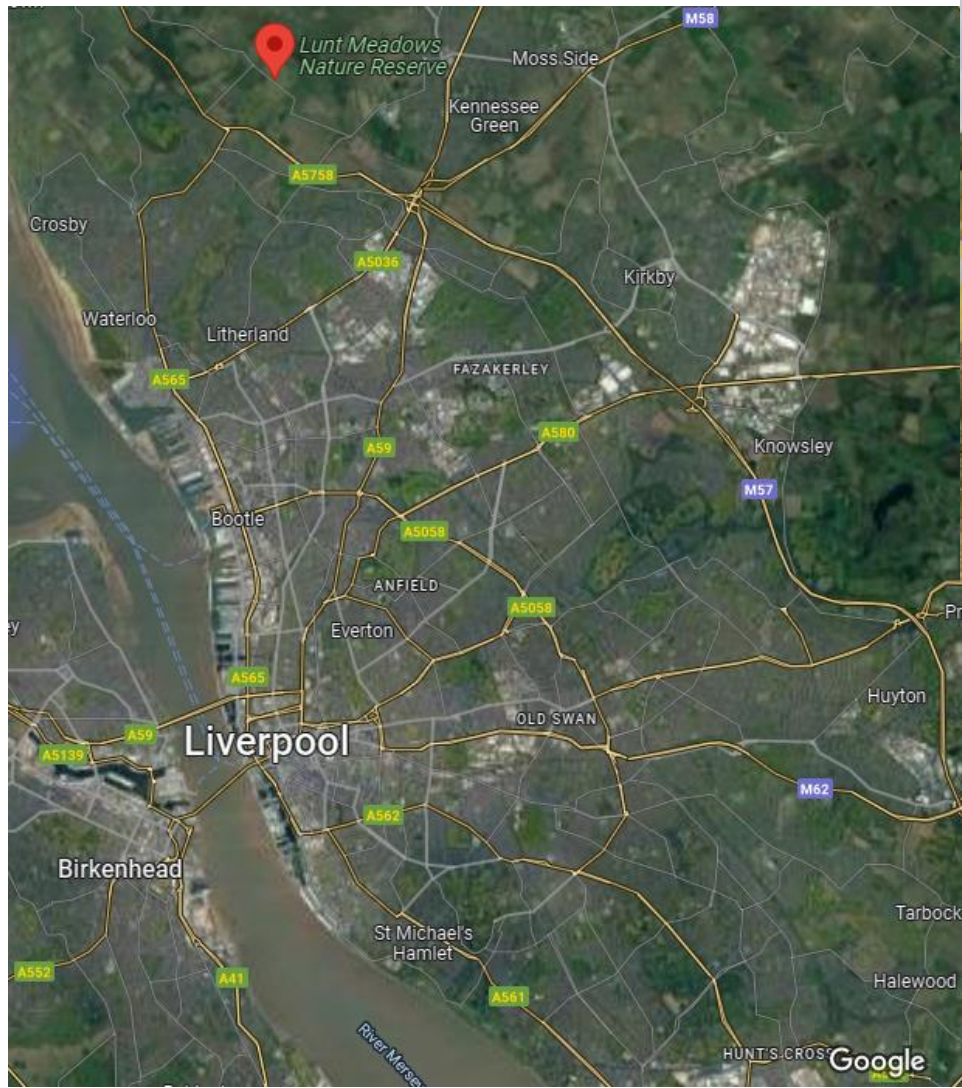
# The Lancashire Wildlife Trust

1. Intrigues of a 9,000 year old Mesolithic settlement at the Trust's **Lunt Meadows nature reserve**
2. Current **rapid global environmental change**
3. Change in **the North West since the last Ice Age**
4. Conservation of processes, complexity and **dynamism**... not of a static point in time
5. Health and wellbeing of **people and nature**
6. The role of the Wildlife Trusts and a **call to action against government attempts to roll back environmental legislation**



# 1. Lunt Meadows and human settlement after the last Ice Age

- 1 **Lunt Meadows**  
1:04:01
- 2   
1:39:59
- 3   
58:22
- 4   
1:09:03
- 5 **Wildlife of Lunt Meadows**  
Waders and Waterfowl  
2:02
- 6   
1:42



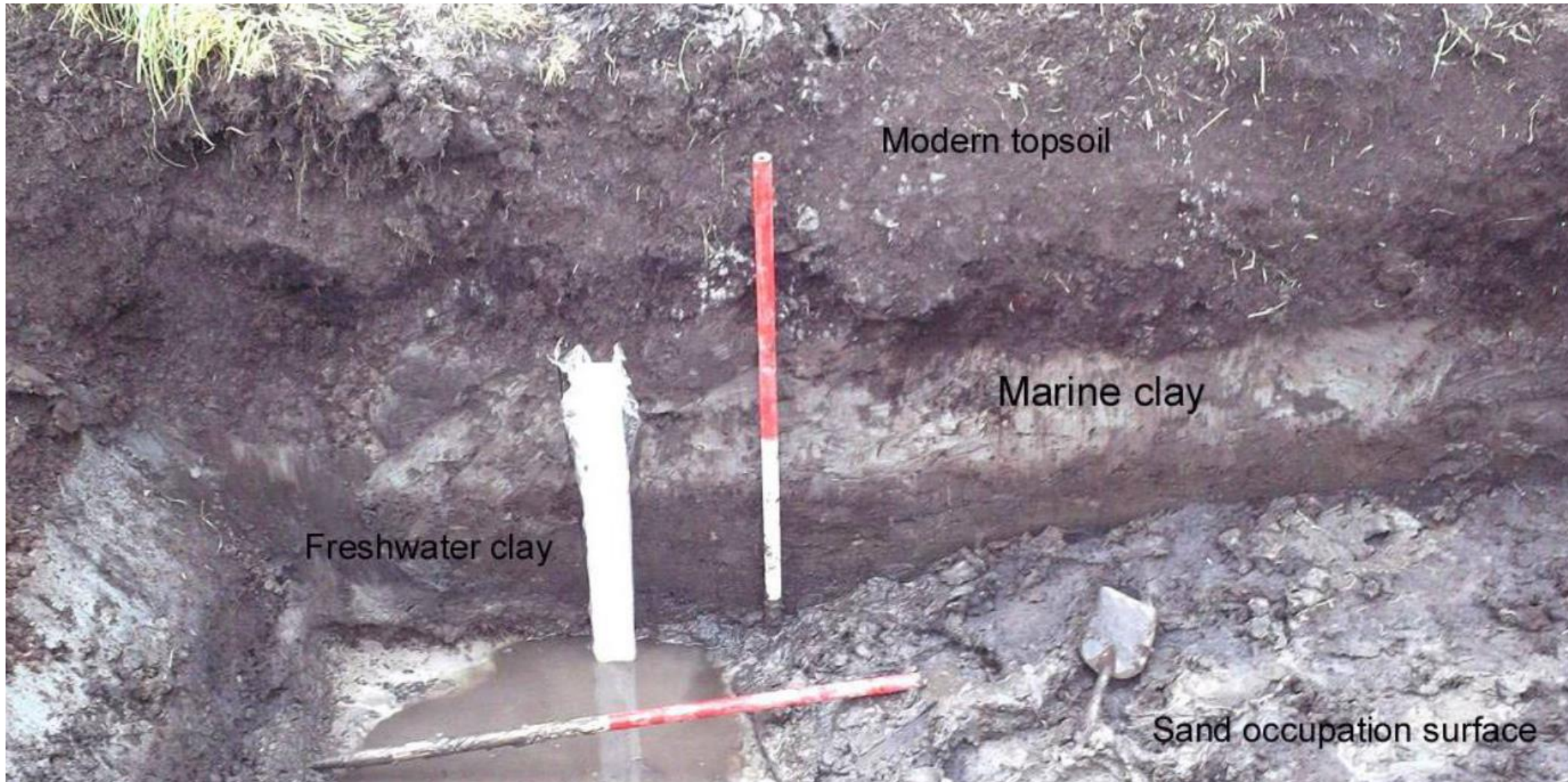
# Mesolithic and Modern Life: 5 year project



8-6000 years ago hunter-gatherers replaced by agricultural lifestyles



# Changes since the last Ice Age at Lunt Meadows and across the NW



# 2. Current rapid global environmental change

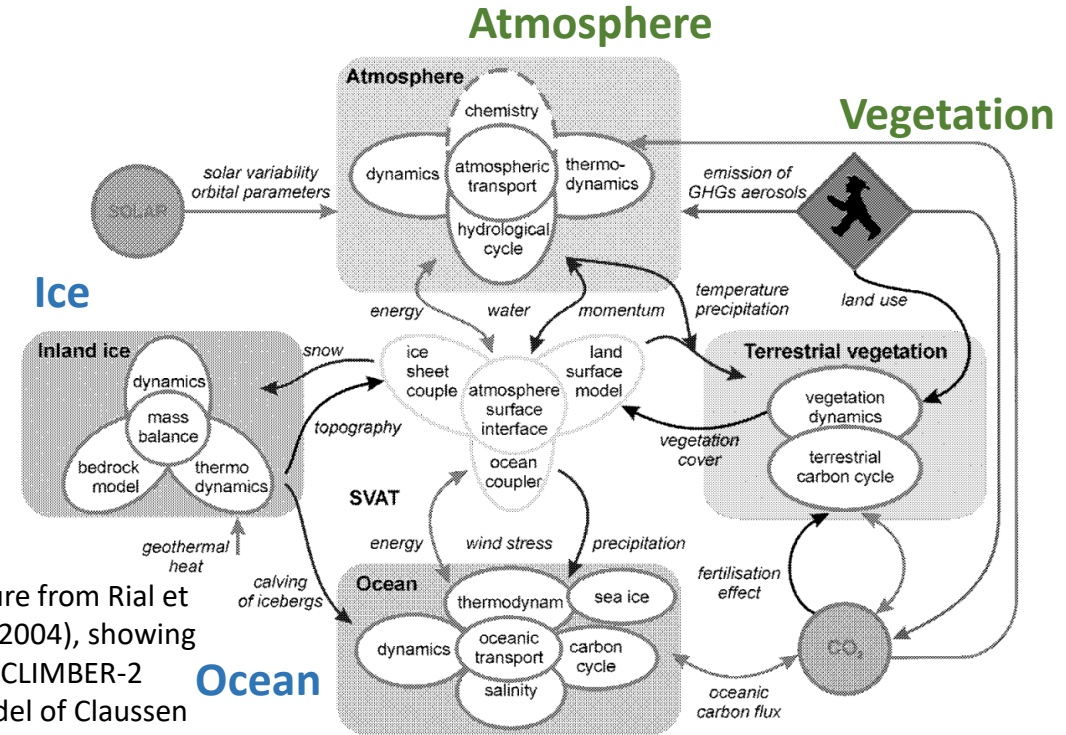
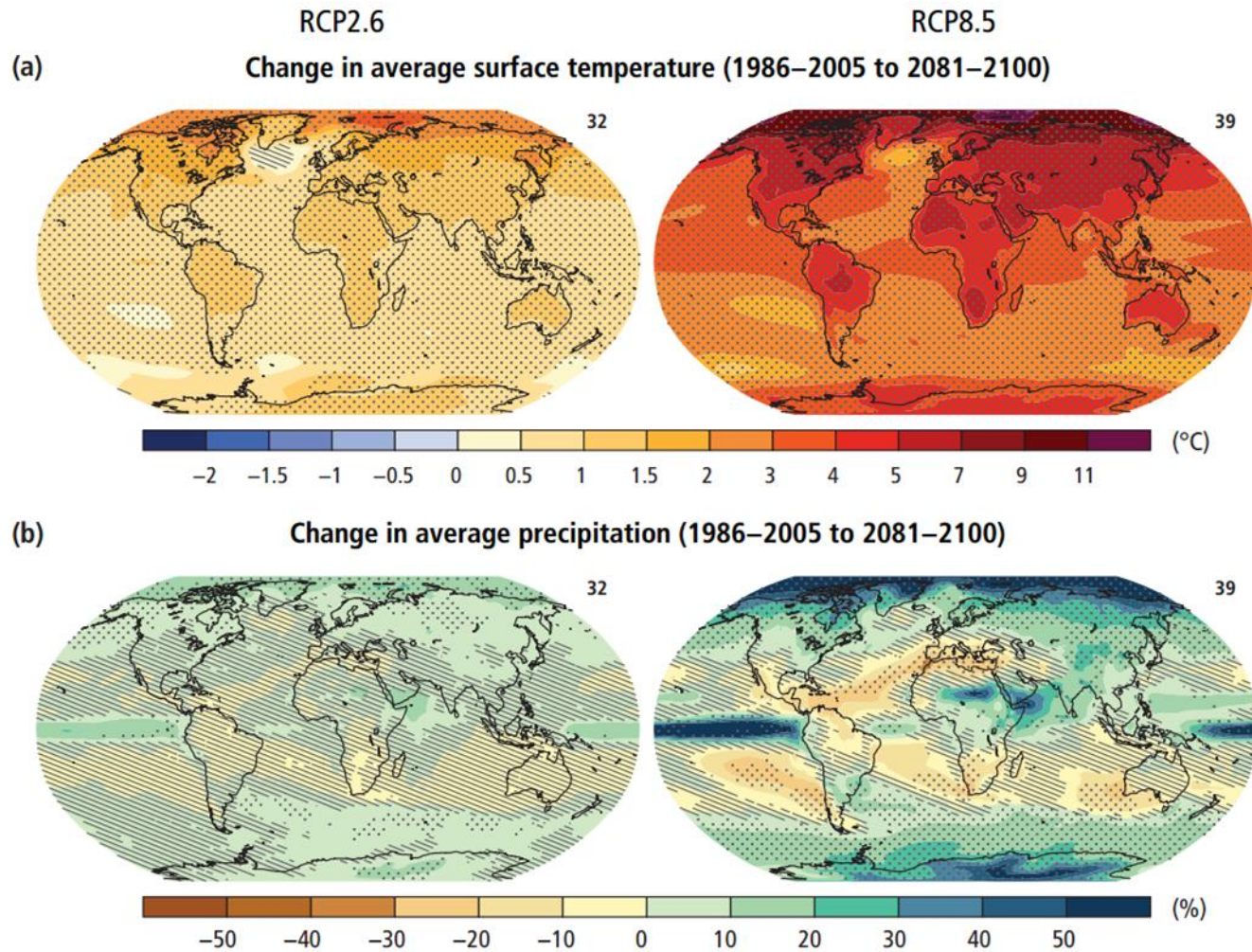


Figure from Rial et al. (2004), showing the CLIMBER-2 model of Claussen et al. (2002)

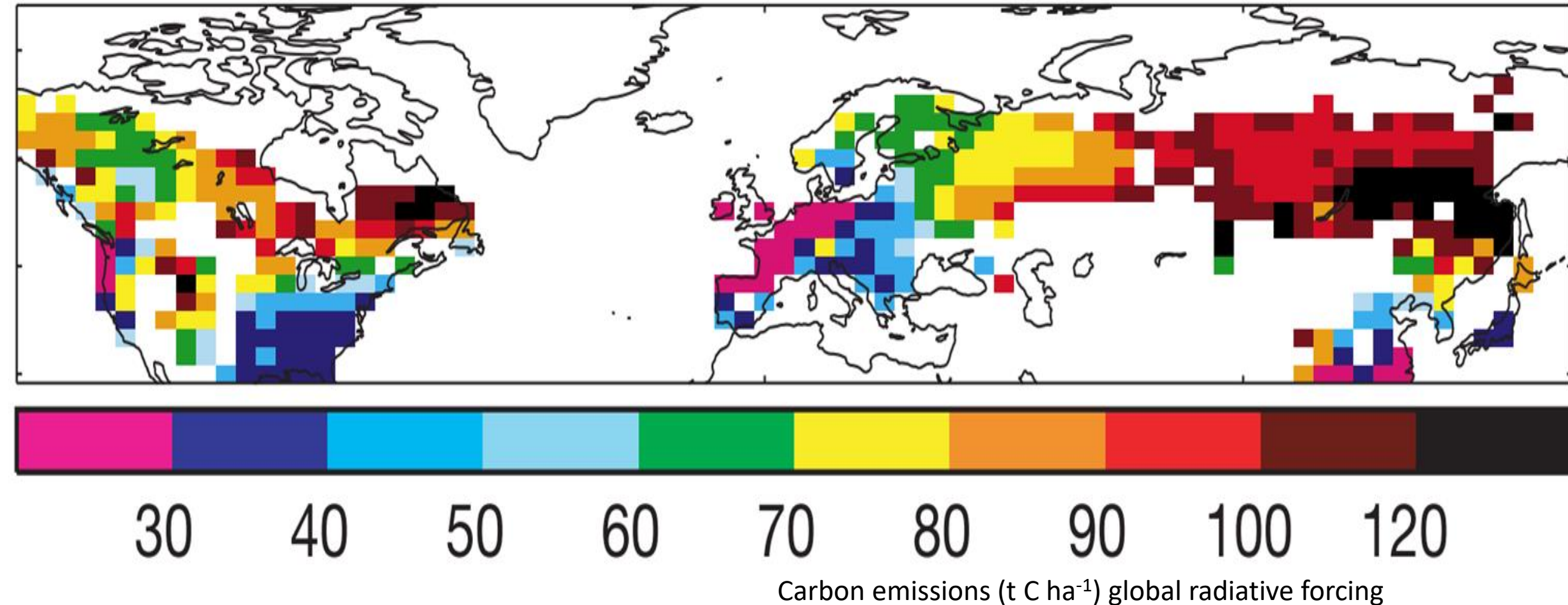


Figure SPM.7 from: **IPCC (2014) Climate Change 2014: Synthesis Report. Climate Change.** Geneva, Switzerland: IPCC

# Climate does not simply equal carbon

**Betts (2000)** Offset of the potential carbon sink from boreal forestation by decreases in surface albedo. *Nature* 408:187-190, <https://doi.org/10.1038/35041545>

**Moolna (2012)** Making Sense of CO<sub>2</sub>: Putting Carbon in Context. *Global Environmental Politics* 12(1):1-7, [https://doi.org/10.1162/GLEP\\_a\\_00094](https://doi.org/10.1162/GLEP_a_00094)



# Public awareness of climate changing the biosphere

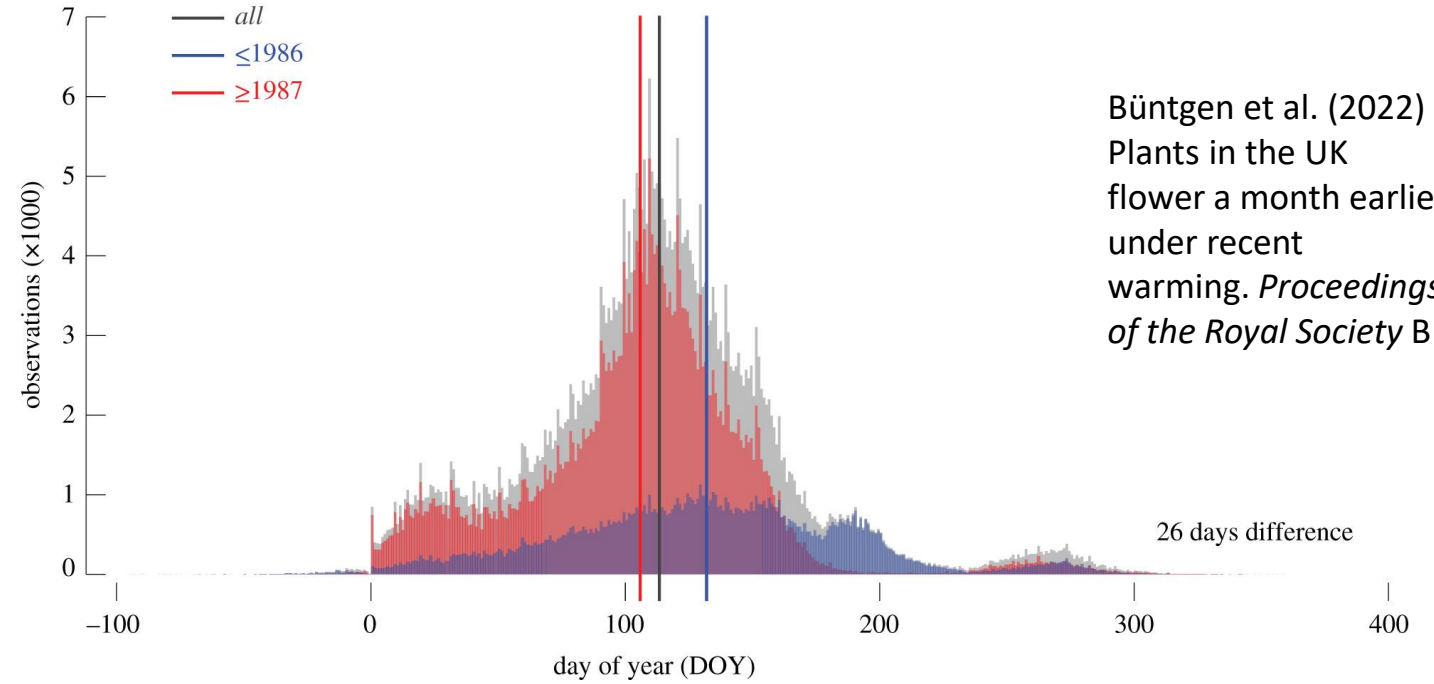


Science & Environment 2<sup>nd</sup> February 2022

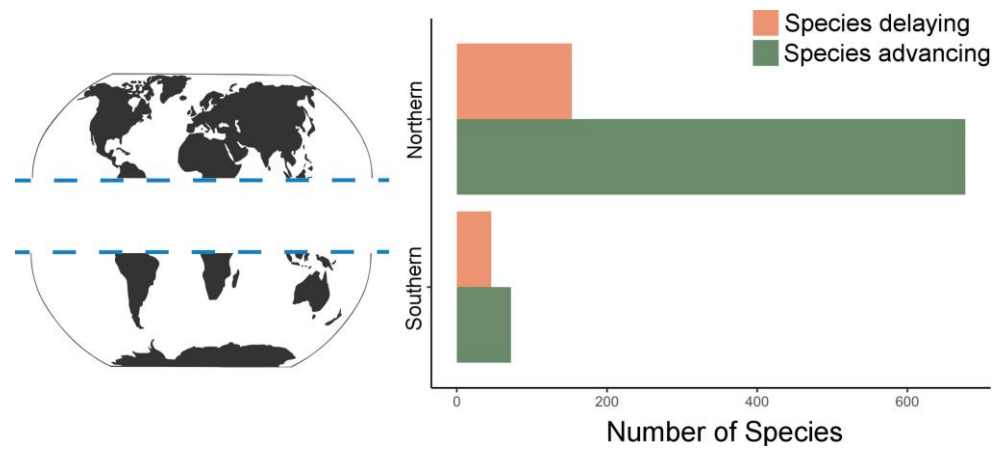
## Climate change: UK plants now flowering a month earlier

By Helen Briggs  
Environment correspondent

<https://www.bbc.co.uk/news/science-environment-60220661>



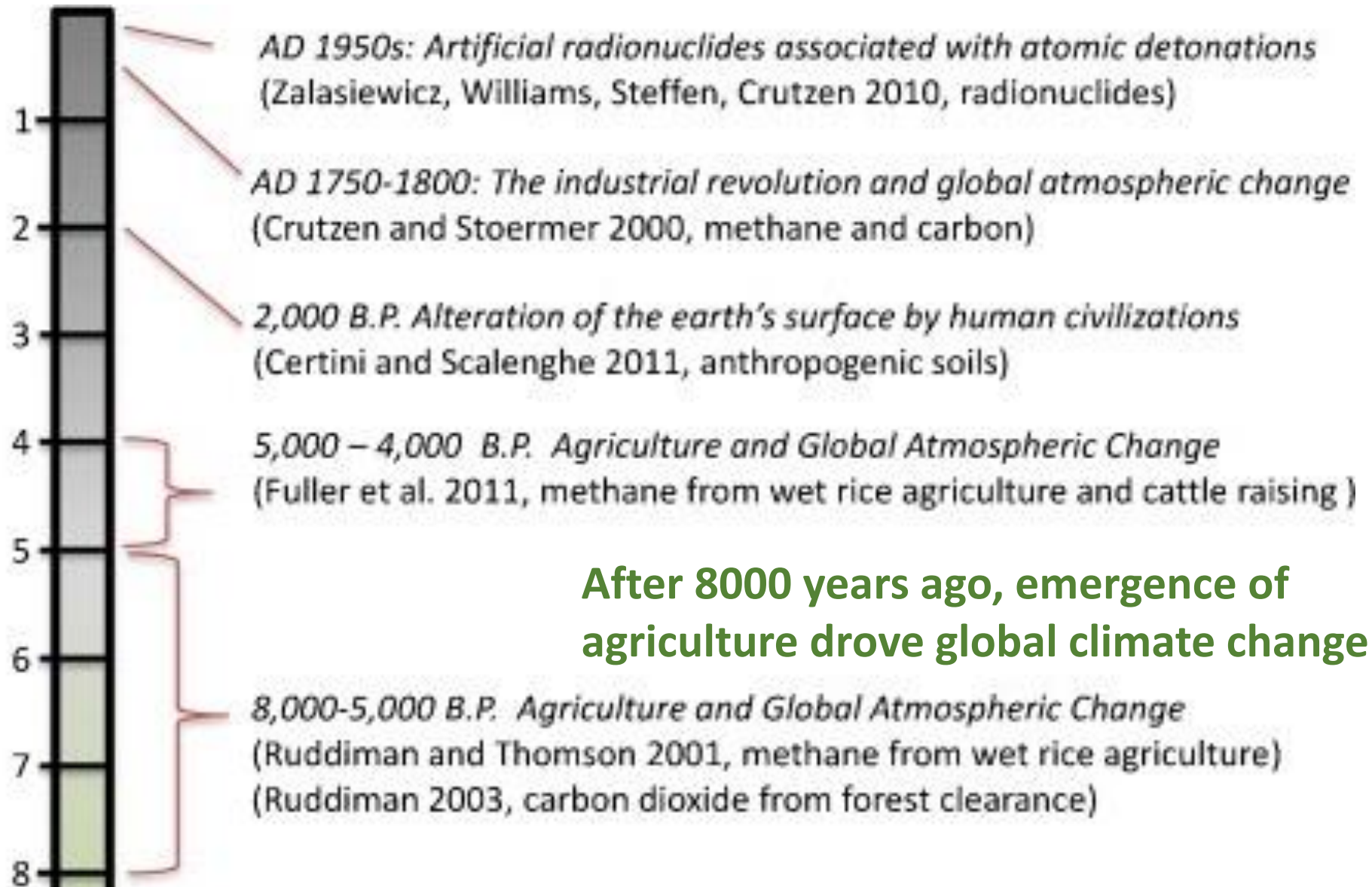
Büntgen et al. (2022)  
Plants in the UK  
flower a month earlier  
under recent  
warming. *Proceedings  
of the Royal Society B*



Everingham et al. (2022)  
Southern hemisphere  
plants show more delays  
than advances in  
flowering phenology. *J. of  
Ecology* 00:1-11

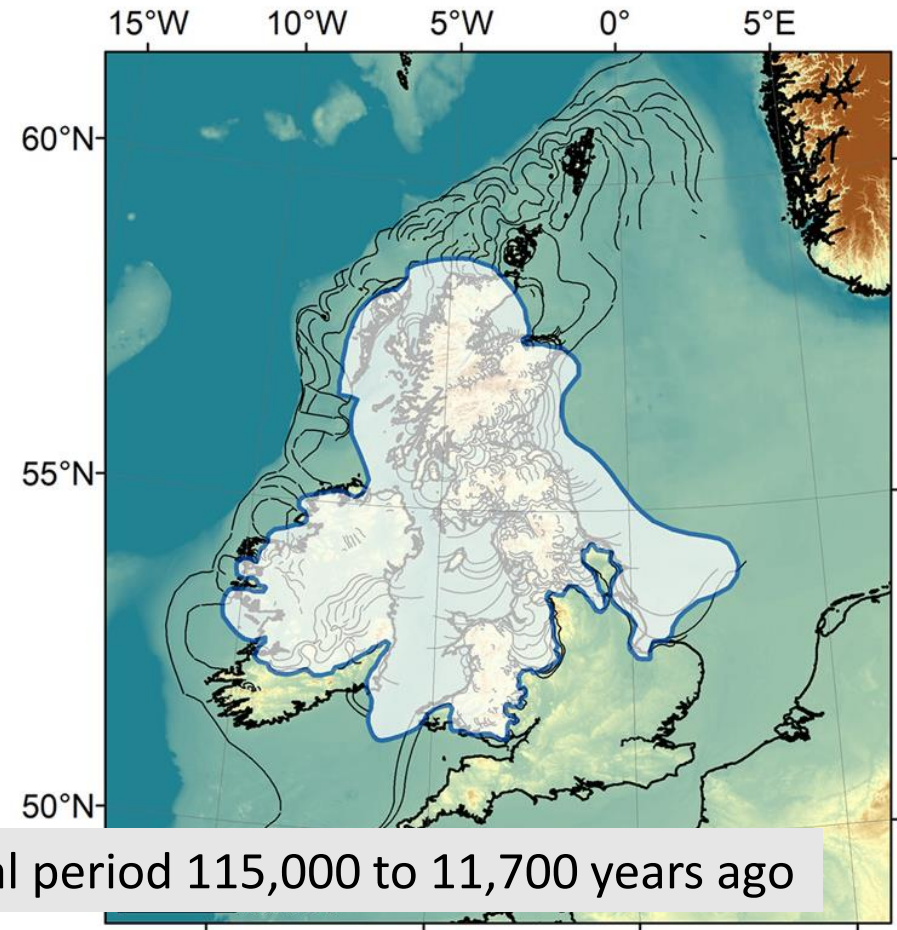
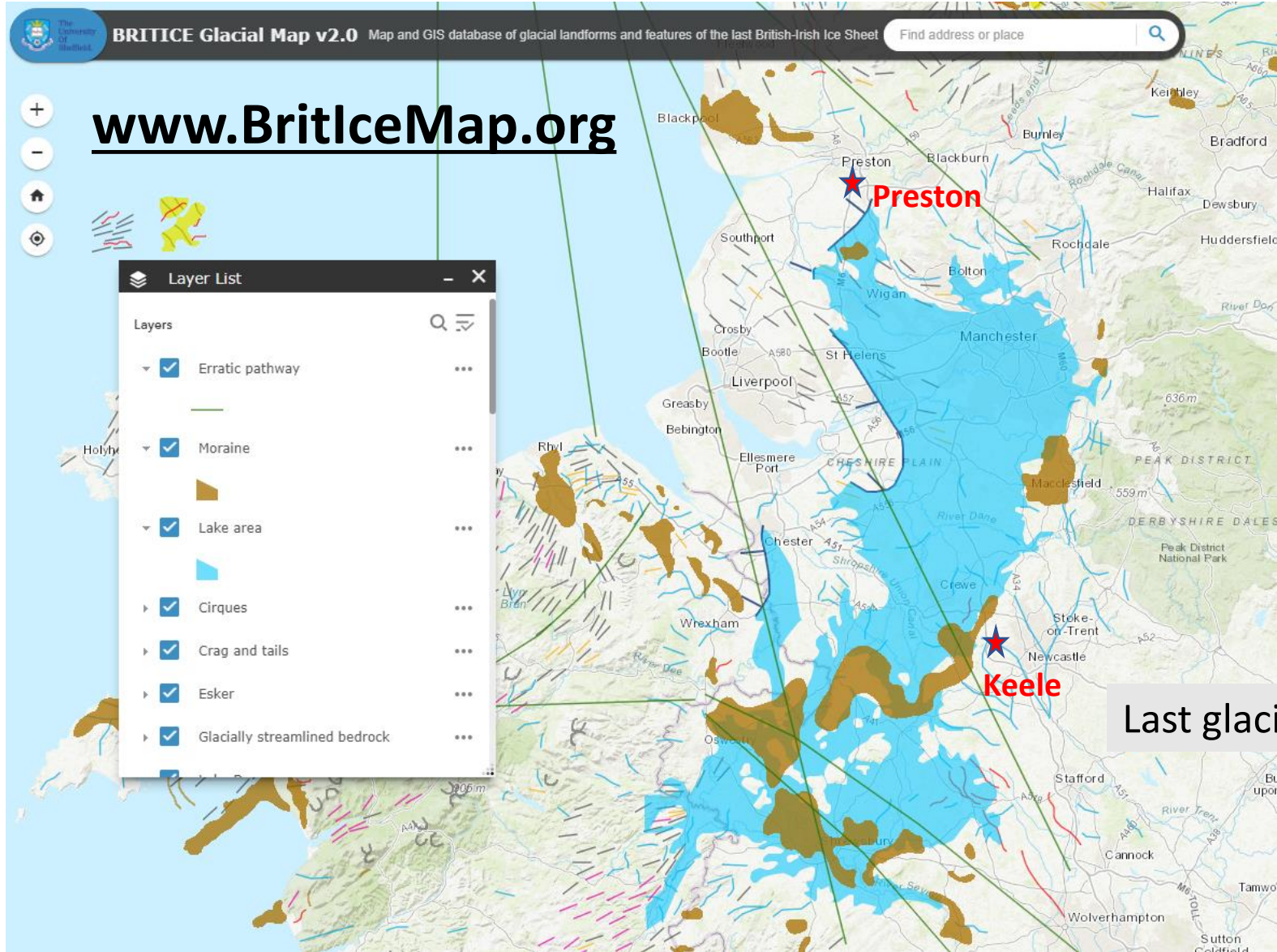


# The Anthropocene: global signature of humans?



Smith & Zeder (2013) The onset of the Anthropocene. *Anthropocene* 4:8-13

# 3. Change in the North West since the last Ice Age

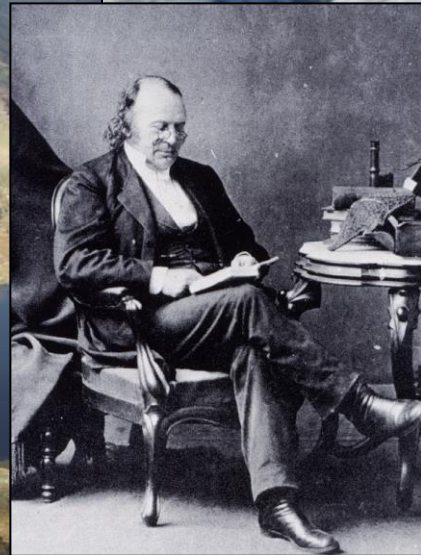


Clark et al. (2021) Journal of Quaternary Science 36:673-680, <https://doi.org/10.1002/jqs.3326>

# Evidence for past glaciation

**Hansen (1970)** The Early History of Glacial Theory in British Geology. *Journal of Glaciology* 9(55):135-141, <https://doi.org/10.3189/S0022143000026861>

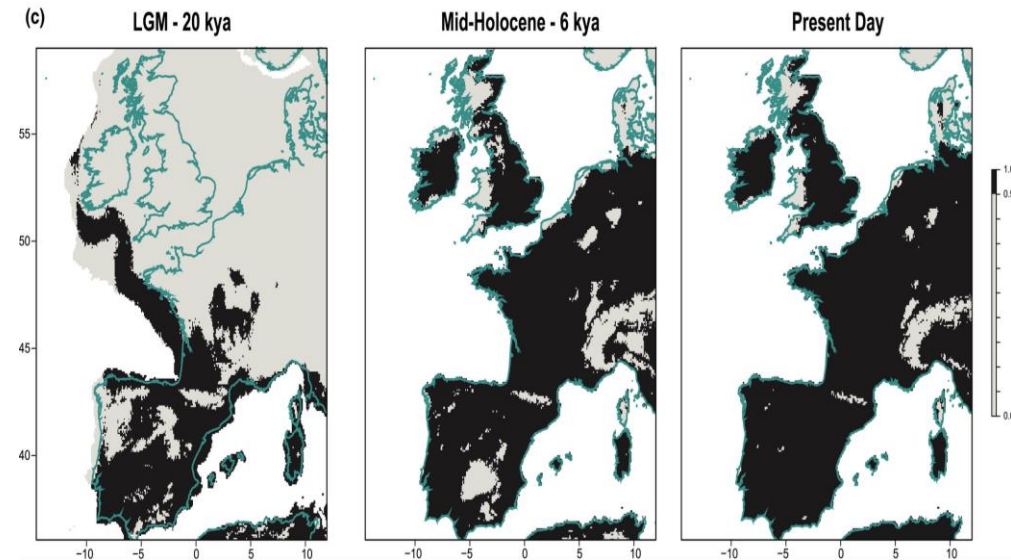
Imagine how much more compelling Agassiz's ideas must have been when they were described in front of an actual glacier...



# Routes of recolonisation: why our Barn Owls are white

Unexpected post-glacial colonisation route explains the white colour of barn owls (*Tyto alba*) from the British Isles

Machado et al. (2022) *Molecular Ecology* 31:482-497, <https://doi.org/10.1111/mec.16250>



# 2000-500 years ago: woodland clearances and erosion vulnerability

human activity is critical in  
changing geomorphology  
and vegetation

but individual storms are  
the trigger mechanisms



Chiverrell et al. (2008) Late Holocene environmental change in the Howgill Fells, Northwest England. *Geomorphology* 100(1-2):41-69

# North-West England ecosystems after the Ice Age are shaped by people



Coastal



Farmland



Freshwater



Grassland



Heathland and moorland



Marine



Rocky habitat



Towns and gardens



Wetlands



Woodland

[lancswt.org.uk/habitats](http://lancswt.org.uk/habitats)



# Carbon Landscape; Greater Manchester Wetlands; and more!



# New "Flashes of Wigan and Leigh" National Nature Reserve

**NEWS**

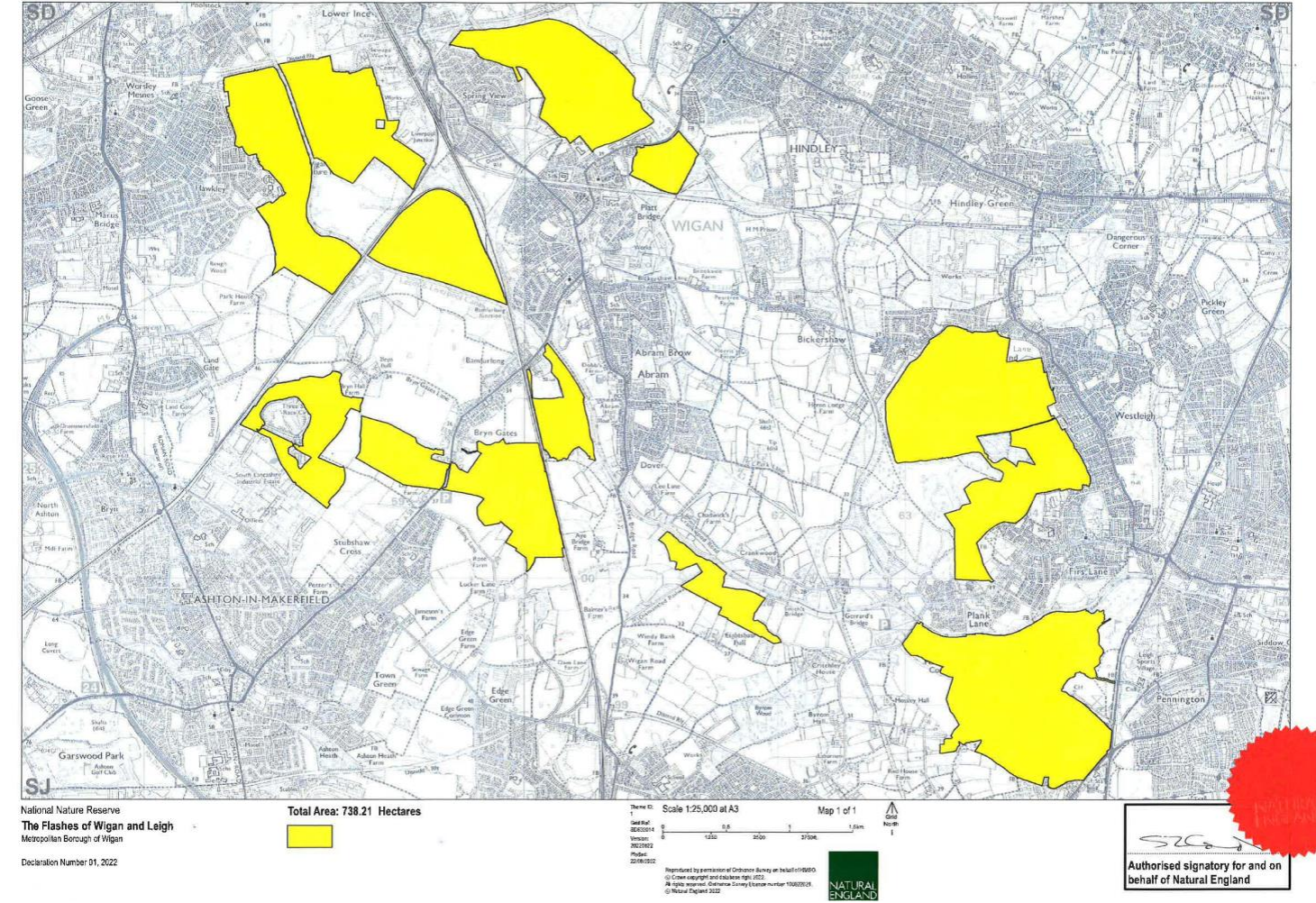
Home | Cost of Living | War in Ukraine | Coronavirus | Climate | UK | World | Business | Politics | Tech | Science

England | Local News | Regions | Manchester

## Former Wigan industrial wasteland becomes new nature reserve

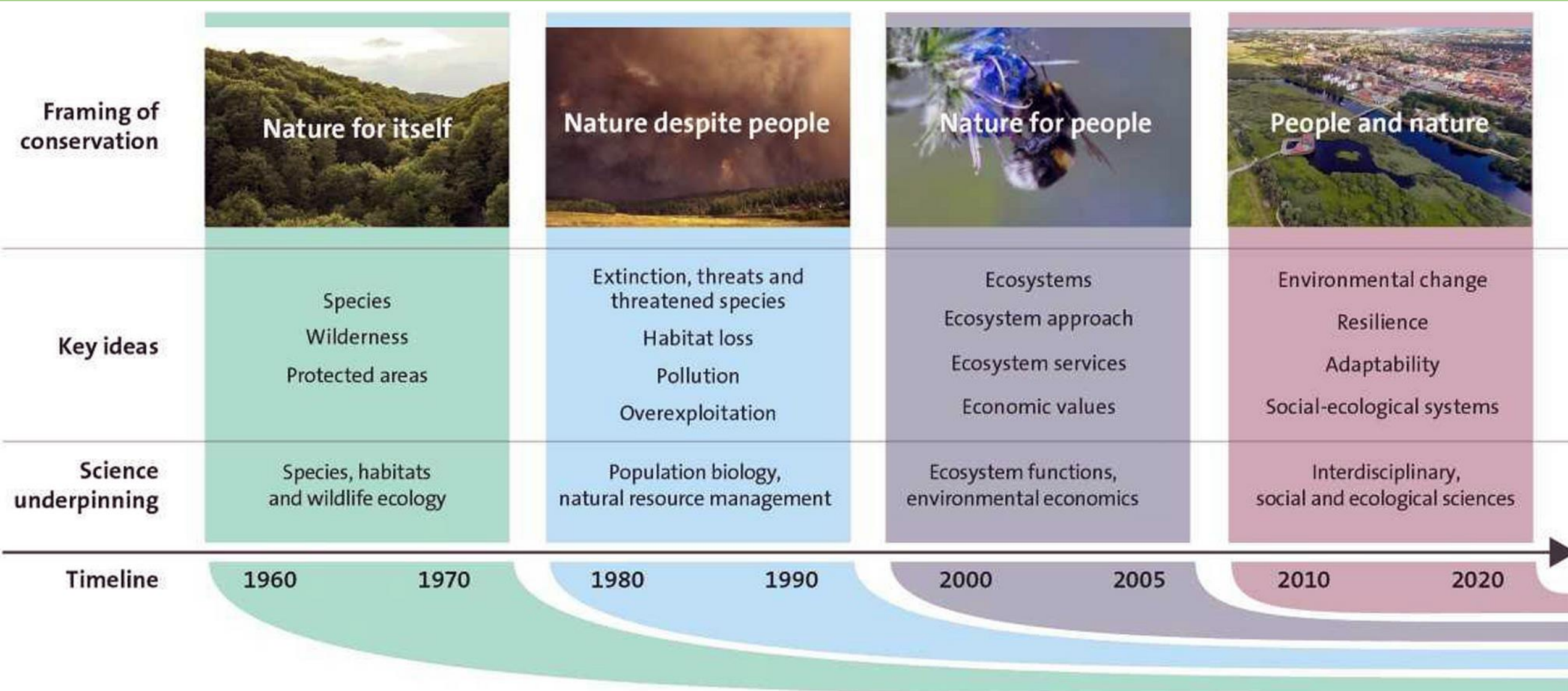
23 hours ago

 740 hectares





# 4. Conservation of dynamism and Living Landscapes



Folke et al. (2021) Our future in the Anthropocene biosphere. *Ambio* 50:834–869, <https://doi.org/10.1007/s13280-021-01544-8>

# Rewilding? Looking at early post-glacial ecosystems?



**A scene from Oostvaardersplassen, in The Netherlands, with Heck cattle, but could the landscape of Britain in the pre-Neolithic have resembled this?** Ruben Smit/www.rubensmit.nl


Hodder et al. (2009) Can the mid-Holocene provide suitable models for rewilding the landscape in Britain?  
*British Wildlife* 20 (5):4-15,  
<http://eprints.bournemouth.ac.uk/10323/>


# 5. Health and wellbeing of people and nature




Local Groups are run by some of the Lancashire Wildlife Trust's most dedicated volunteers and offer a wide range of activities such as talks, field trips, work parties and fundraising events.


Would you like to meet new people while giving back to the wildlife on your doorstep? Find your local group in the list below.

Croal Irwell Group 

Friends of Mere Sands Wood 

North Lancashire Wildlife Group 

Lancashire Botany Group 

Friends of Chat Moss 



## Myplace

An exciting and innovative Nature and Wellbeing project delivered by The Wildlife Trust for Lancashire, Manchester and North Merseyside...



## The Bay

Our blue wellbeing project based in Morecambe Bay uses the power of nature to help heal coastal communities impacted by the isolation of...



## Workplace Wellbeing

Time spent in nature is proven to improve employee wellbeing, and our Wild Wellbeing Days are the perfect way to inspire your team.

Lee et al. (2015) Value of urban green spaces in promoting healthy living and wellbeing: prospects for planning. *Risk management and healthcare policy* 8:131–137, <https://doi.org/10.2147/RMHP.S61654>

# Nature and Health in North Manchester as an example

## Green groups

We work with a variety of green groups in Prestwich to deliver our green social prescribing provision. When you fill out a form to join us, we'll get in touch with you and have a discussion about which of these groups may best fit your wants and needs.

Click on the tabs below to learn more about the groups.

Incredible Edible Prestwich and District



Friends of Philip's Park



Tuesday Social Drop In



Bury Greenwood Group



Lancashire Wildlife Trust: Nature and Wellbeing Service



Lancashire Wildlife Trust: Practical Conservation



If you'd like to refer yourself or someone else to our Nature for Health sessions in Bury, please fill out one of the forms below:

Self-referral form

Referral form



# MyPlace sessions and short courses for well-being



## Young people at Myplace



Through funding secured so far; Myplace currently works with young people aged 11 years and over, who live across Lancashire, often from deprived backgrounds and facing long waits for mental health services.



"I already feel happier, socialising with other people. Being here has massively improved my mental health and has inspired me to do more."



"It's good. You'll have a good time - you get to do better outside than you do in school."



Young people who attend increase wellbeing across the board; on average by 2 points on the Warwick Edinburgh Scale of wellbeing, but this increases to a 5 point rise if that young person is feeling very low wellbeing at the start –  
**MYPLACE HAS THE MOST IMPACT ON THOSE WHO ARE FEELING VERY LOW**

100%



100% of young people attending Myplace have learned something new.



"It's been a brilliant time, I have made a new friend and learnt so much about wildlife and nature."



"I attended Myplace at a time I really needed it. I made new friends and did lots of activities I enjoyed. Thanks for looking after me."

95%

of young people have given something back.



90%

of young people were more active.



85%

of young people noticed more around them.



80%

of young people have made new friends.



Myplace assesses impact on young people using the Youth Star outcomes framework and had the most impact in the sub-categories of Making a Difference, and Hopes & Dreams.




This is a summary of a full report which can be seen at [www.lancswt.org.uk/myplace](http://www.lancswt.org.uk/myplace)



# THIS IS ECOTHERAPY

# 6. The role of the Wildlife Trusts and a call to action


 Lancashire Wildlife Trust  
3 h · 🌐

We know you are as angry as we are about UK Government's plans to change nature and climate laws. In the last week alone, UK Government has announced that they will be:

- ❌ Lifting the ban on fracking in England.
- ❌ Removing important laws that protect nature.
- ❌ Considering scrapping plans to reward farmers for managing land in a nature-friendly way.

These go against the explicit promises the Conservative Party made in their 2019 manifesto and the mandate they were elected to govern on. We demand action.

Take a look at our step-by-step guide to find out how you can defend nature:  
<https://bit.ly/3reDUwY>

 [lancswt.org.uk](https://bit.ly/3reDUwY)  
Defend Nature | The Wildlife Trust for Lancashire, Manc...

[www.lancswt.org.uk/our-work/standing-wildlife/defend-nature](https://www.lancswt.org.uk/our-work/standing-wildlife/defend-nature)

**UK Government's deregulation agenda is dangerous: for the good of future generations, we must retain existing laws and enhance nature protection instead**

Thursday 22 September 2022



# Your Wildlife Trust: there is so much going on



## Vast new National Nature Reserve created in Wigan and Leigh

Monday 3 October 2022

An historic expanse of former coal mines in Wigan and Leigh has today been recognised for its importance for nature and the local community.

Nature

Wigan



## Wild beaver return in jeopardy after Government pulls legal protections at eleventh hour

The Wildlife Trusts call for an explanation as promised protections for beavers are put on hold

beavers

protection



## Her Majesty The Queen – a tribute from The Wildlife Trusts

Friday 9 September 2022

We are extremely saddened by the death of Her Majesty The Queen and send our deepest sympathies to the Royal Family.

News



## Winmarleigh carbon farm chosen as handover location for world's longest ever attempted relay

Sunday 2 October 2022

The Running out of Time relay will be the longest non-stop relay ever attempted. It's being done in the name of climate action, and our Winmarleigh carbon farm was one of only 27 outstanding...

Peatlands

Climate Change



## 'Changing Nature' report assesses climate risk across Wildlife Trust nature reserves

Tuesday 5 July 2022

New report from The Wildlife Trusts outlines radical steps required to help nature adapt to climate change.

Climate Change

Nature

Wildier Future

conservation



## Peat sales banned by 2024

Ban will apply to peat sold in retail outlets in England

Defra reveals that 95% of those who responded to its consultation were in favour of a complete retail sales ban

Following a...

Peatlands



## Historic day for beavers in England

Saturday 1 October 2022

More support needed for landowners to enable beavers' return, say The Wildlife Trusts and Beaver Trust.

beavers



## Rafts for Ratty: new floating islands help to monitor water voles

Wednesday 22 June 2022

Lancashire Wildlife Trust staff and volunteers at Lunt Meadows Nature Reserve and Flood Storage Reservoir in Sefton have built nineteen small rafts to help keep an eye on one of the site's more...

Lunt Meadows



## Government back track on beavers

A Wildlife Trusts campaign to give legal protections for beavers in England has led to a Government rethink on how we look after "nature's engineers".

beavers

Reintroduction

mammals

# Wildlife and people.... From the last Ice Age to present challenges



Dr Adam Moolna  
[a.moolna@keele.ac.uk](mailto:a.moolna@keele.ac.uk)

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