

Tackling health inequalities through green and blue infrastructure

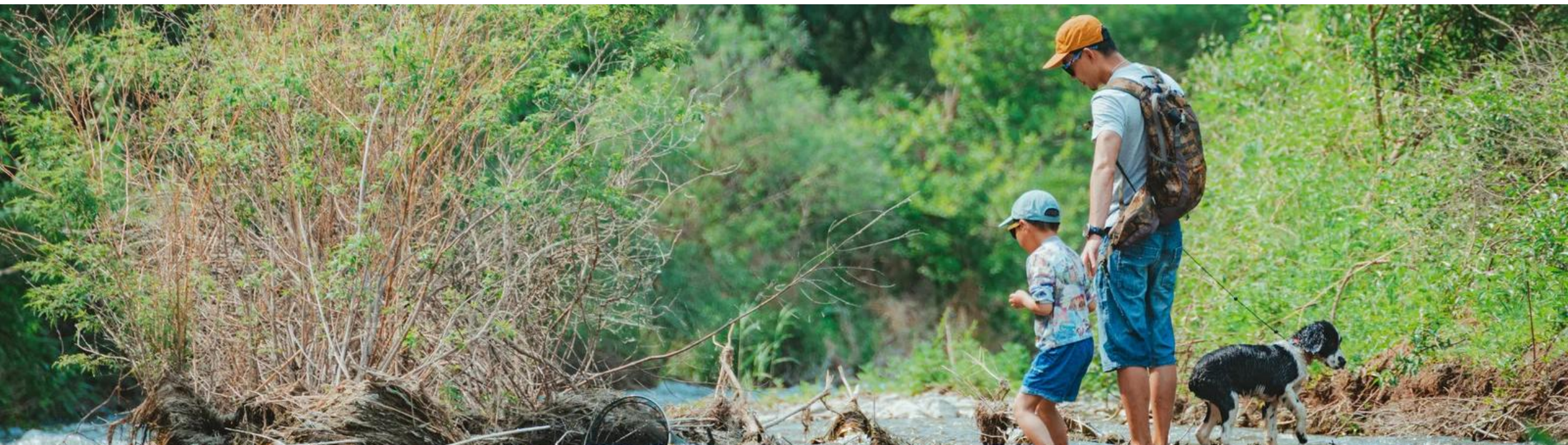


23 October 2025

12:00pm – 1:30pm



University
of Exeter



Agenda

- | | |
|-------------|--|
| 12.00-12.20 | Introduction and evidence on green/blue infrastructure and health inequalities
<i>Julia Thrift, TCPA Director, Healthier Place-making & Prof Ben Wheeler, Professor in Environment, Health and Inequalities</i> |
| 12.20-12.35 | NIHR funded research project: How can planning and environmental interventions impact GBI-health inequalities systems?
<i>Prof Ben Wheeler & Dr Mark Ferguson, Research Fellow</i> |
| 12.35-12.50 | Case study: Greenspace access, public health and the Local Nature Recovery Strategy in urban and rural Dorset.
<i>Rupert Lloyd, Senior Health Programme Advisor & Amy Smith, Local Nature Recovery Officer, Dorset Council</i> |
| 12.50-13.30 | Q&A with the audience and discussion |



University
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European Centre for
Environment & Human Health

Green/blue infrastructure and health inequalities

Ben Wheeler
Professor in Environment, Health and Inequalities
Co-director WHO Collaborating Centre on Natural Environments and Health

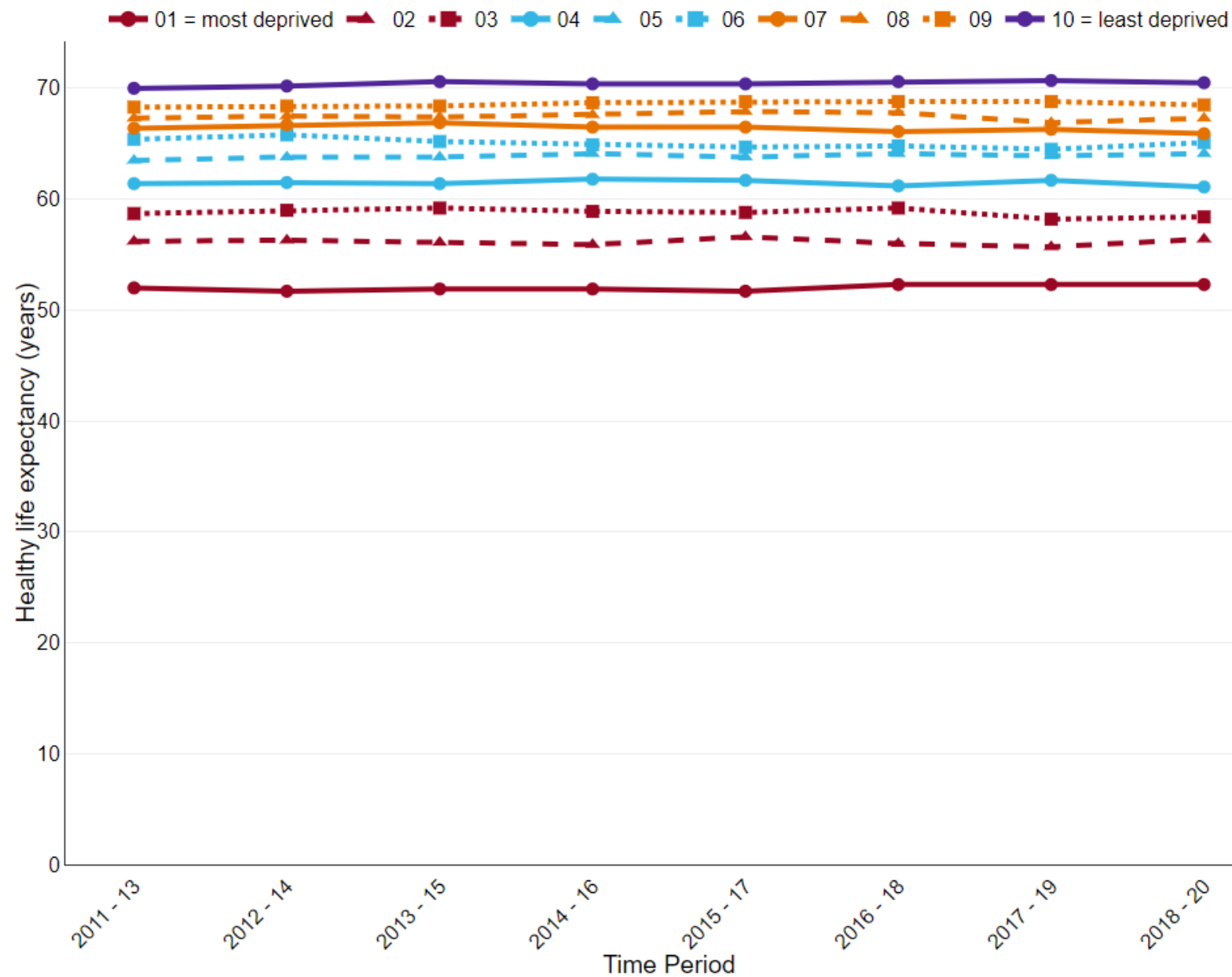
Mark Ferguson
Research Fellow



Part 1: How is green/blue infrastructure related to health inequalities?



Healthy life expectancy at birth - Male, deprivation decile, England, 2011 - 13 to 2018 - 20



Males - HLE at birth

Females - HLE at birth

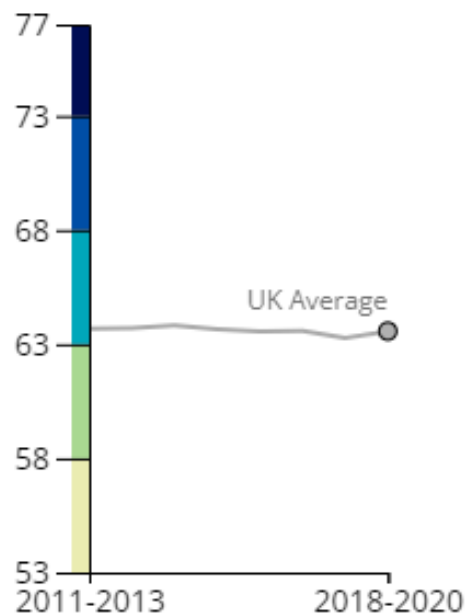
Males - HLE at age 65

Females - HLE at age 65

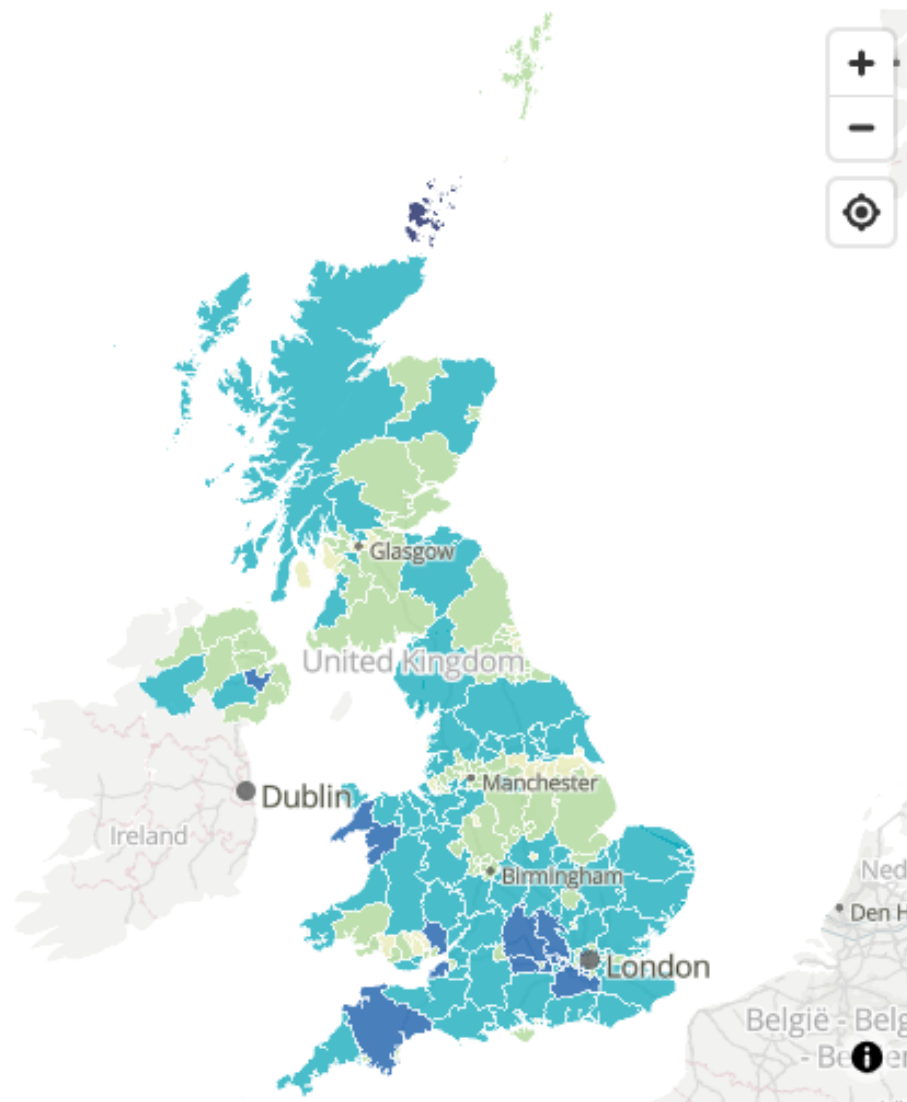
Select an area



Years

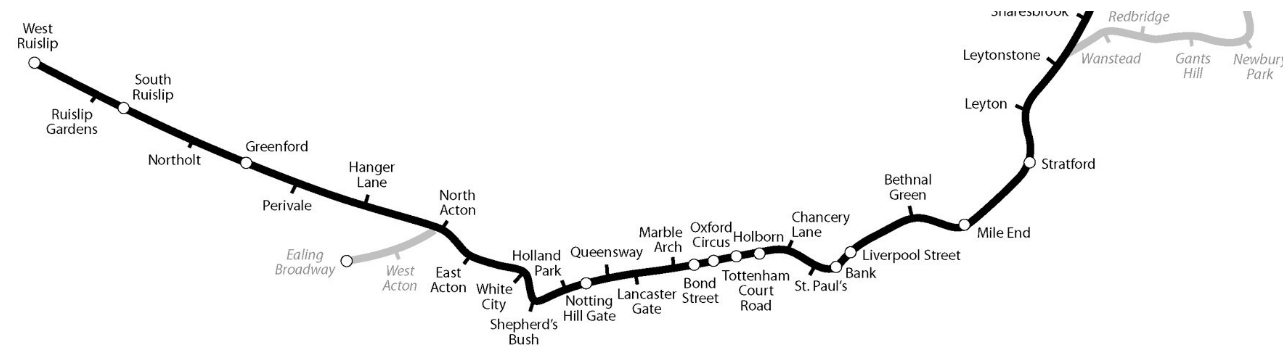
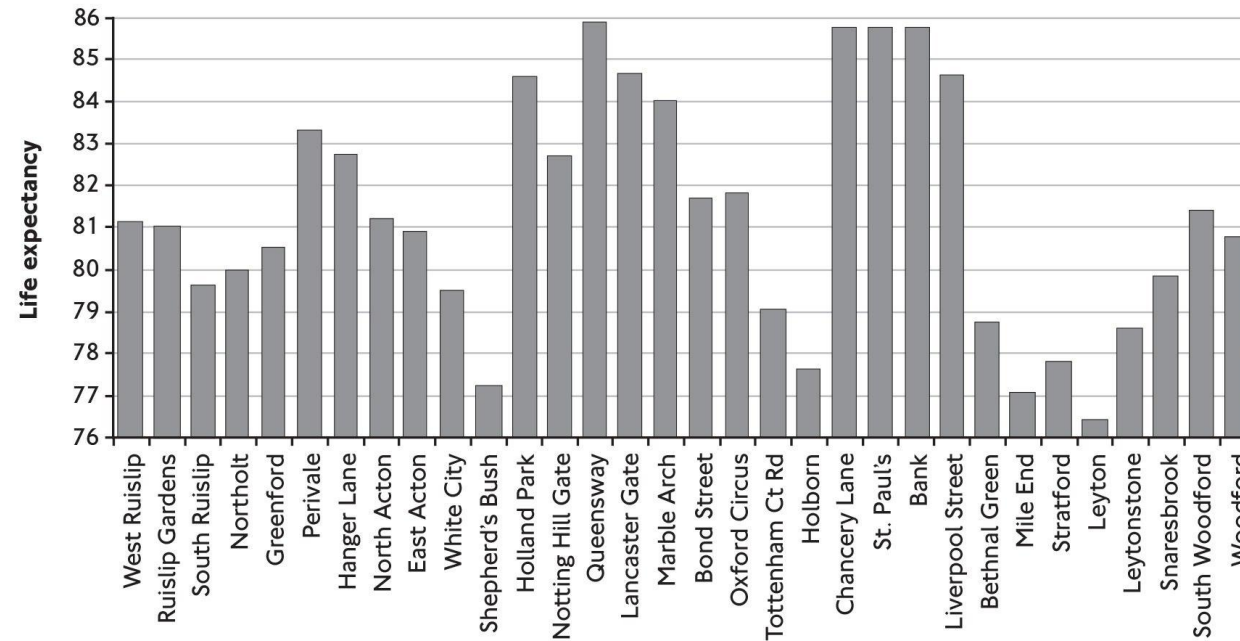


2018-2020

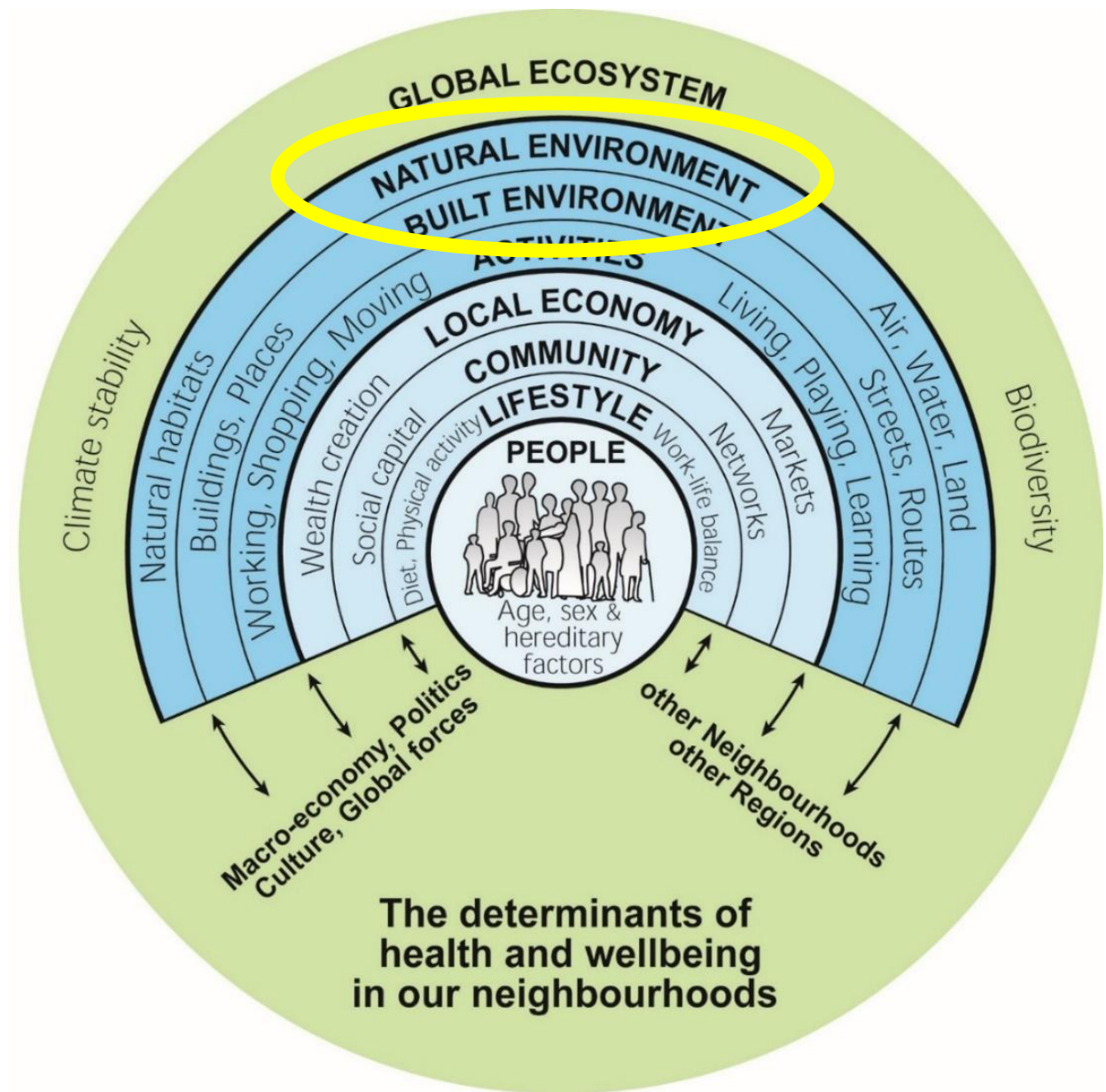


Source: Office for National Statistics

Inequalities arise at all scales...e.g. city scale



Drivers of geographical health inequalities



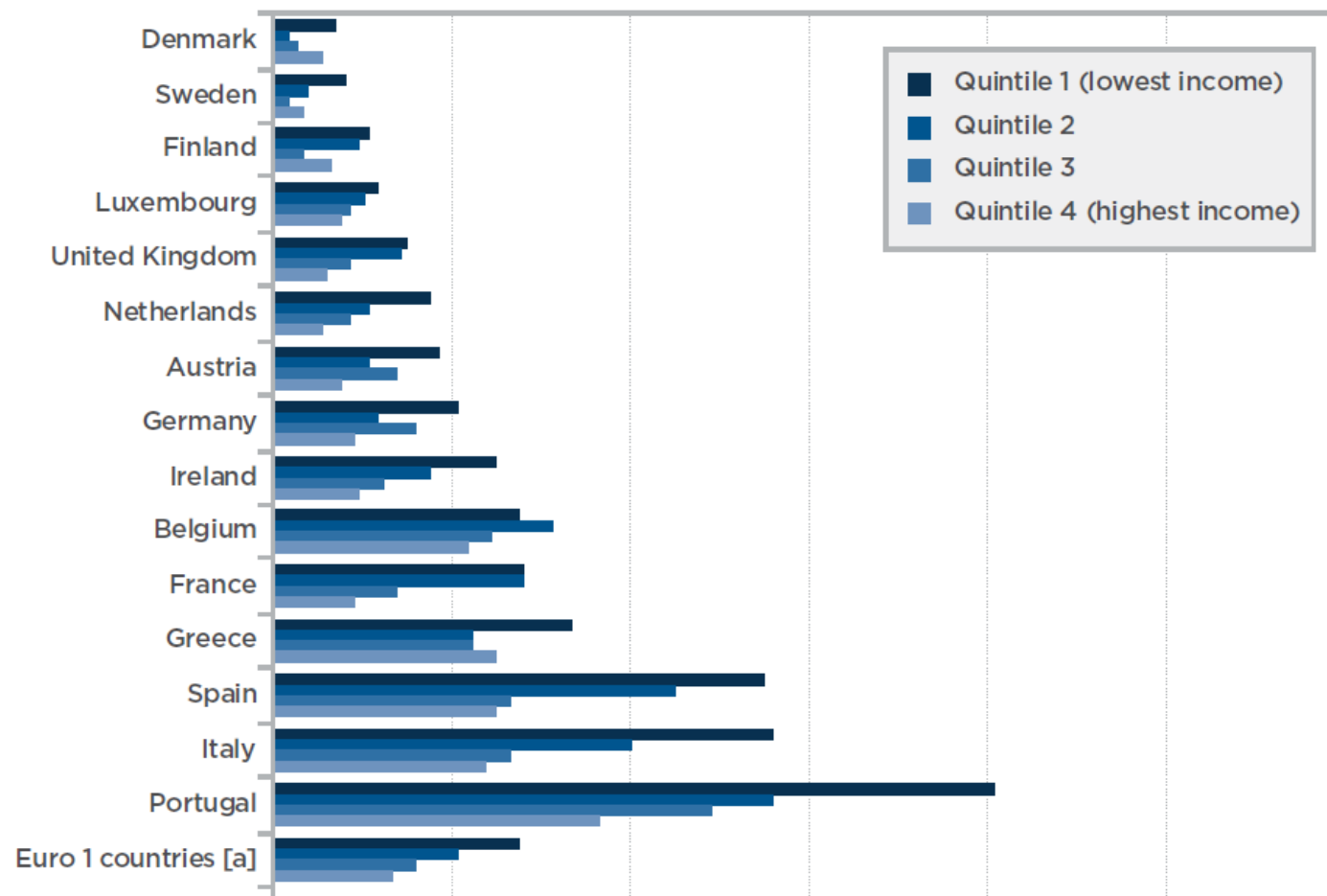
Green/blue infrastructure & health?

- Restoration
 - Stress
 - Directed attention
- Building capabilities
 - Physical activity
 - Social cohesion
- Harm reduction
 - Air pollution
 - Heat



Environmental inequality

Fig. 40. Prevalence of difficulty accessing recreational or green areas by income quartile (2016)



Environmental (in)justice

- Stems from US civil rights movement in 1970s
- Consider:
 - Distributional justice
 - How is green/blue infrastructure distributed, who gets to benefit?
 - Procedural justice
 - Are the processes that deliver GBI benefits equitable?
 - Recognitional justice
 - Who is 'at the table' in decision-making, who is recognised as experiencing inequity?

1. Inequalities in access to nature

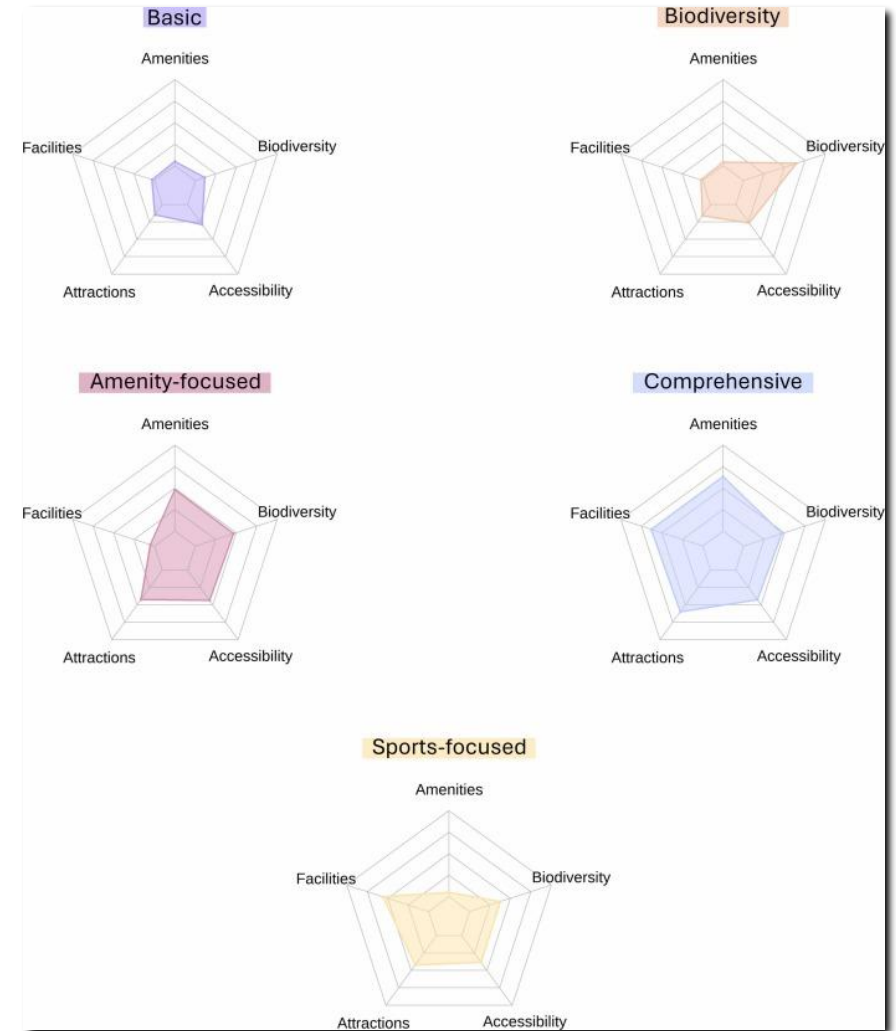
- Many studies indicate unequal access to nature
- But it's not always straightforward, some studies indicate the opposite of what we'd expect - better geographical accessibility amongst lower socio-economic groups?
- Consideration of **quality** and actual **use** is likely to be critical here
 - proximity to *anything* green or proximity to good quality, safe, biodiverse greenspaces?

Inequalities in access to nature

- Bristol, analysis of Quality of Life survey:
“Respondents in more deprived areas lived closer to greenspaces, but reported poorer perceived accessibility, poorer safety, and less frequent use. “

Park types & inequalities

- GB parks (OS green space map) grouped by functions
 - Higher proportion of ‘Sports-focused’ parks in more deprived areas
 - Lower proportion of ‘Amenity-focused’ parks (cafes, toilets etc.) and ‘Biodiversity’ parks in more deprived areas

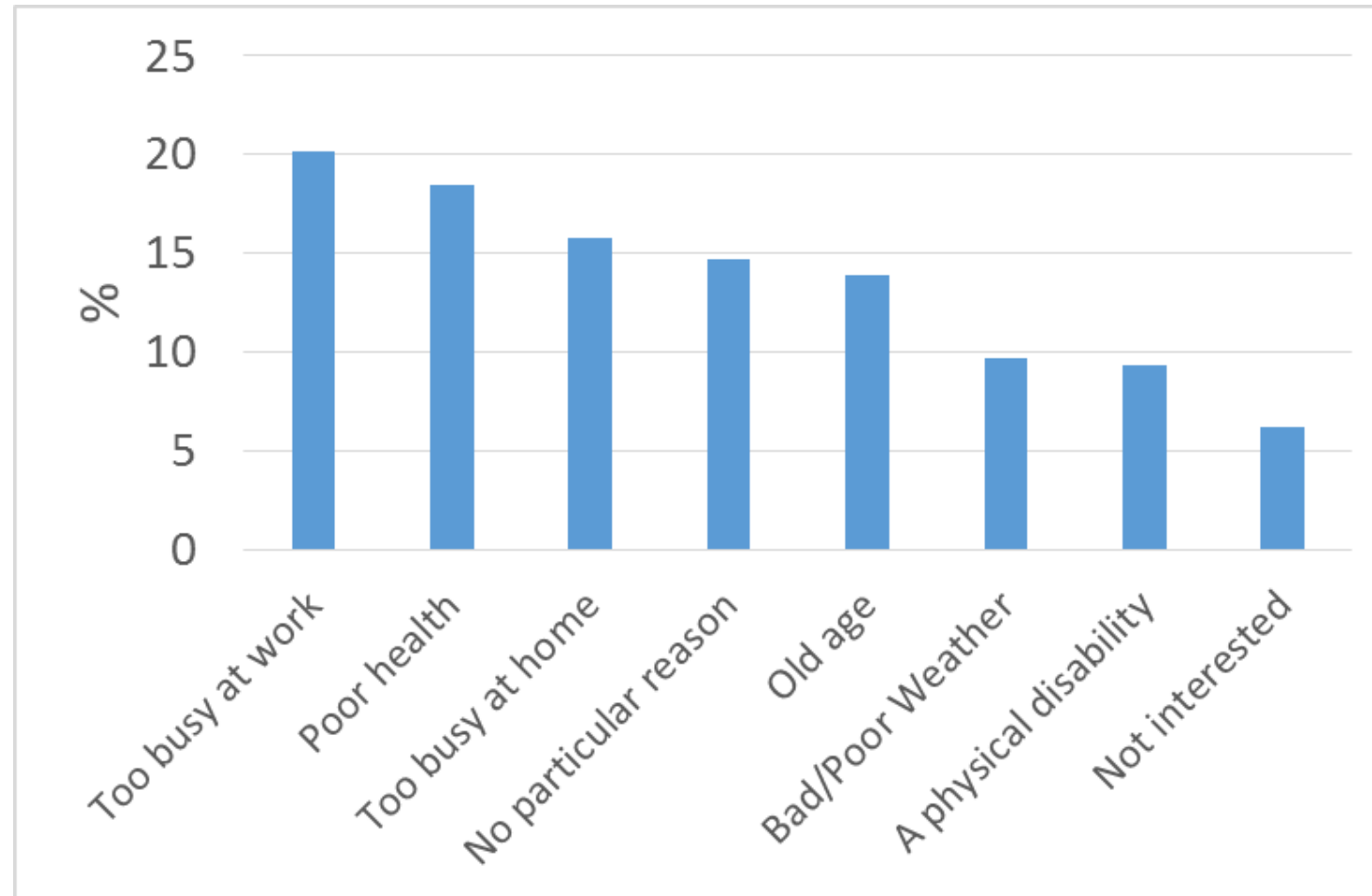


Who doesn't visit nature?

- Natural England MENE data (n~60k)
- Infrequent visitors (<1 x per month) were more likely to be:
 - Female
 - Older
 - In poor health
 - Lower socioeconomic status
 - Ethnic minority
 - Live in relatively deprived areas
 - Reside in areas with less neighbourhood greenspace

And Why?

Main reason for not visiting nature



Coastal access inequalities

- Multiple perceived benefits of visits, even amongst non-visitors
- Numerous barriers e.g.
 - Motivational
 - Overcrowding, ASB, cleanliness
 - Travel barriers
 - Costs
 - Facilities
 - Weather
 - Social & cultural norms
 - Stigma / discrimination



2. Equigenesis – ‘creation of equality’

- Some studies indicate **disproportionate health benefit** of access to or exposure to natural environments for lower socio-economic groups
 - Are good quality living environments able to mitigate to some extent the damaging effects of poverty/socio-economic deprivation? [the **equigenesis** hypothesis]

Greenspace & Inequalities in Mortality

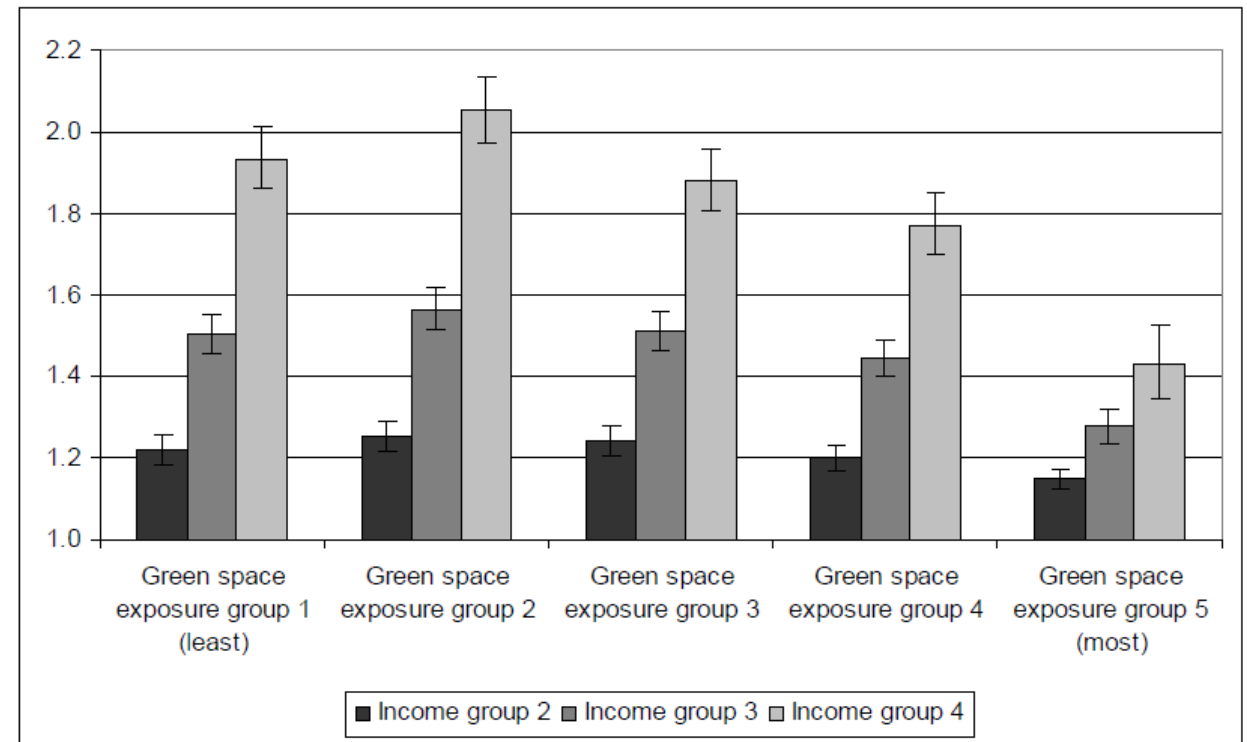
- Income inequality gradient clear – highest mortality in most deprived quartile
- Gradient is weaker in greener areas

→ Mortality differential (highest-lowest income):

+90% in least green areas

+40% in most green areas

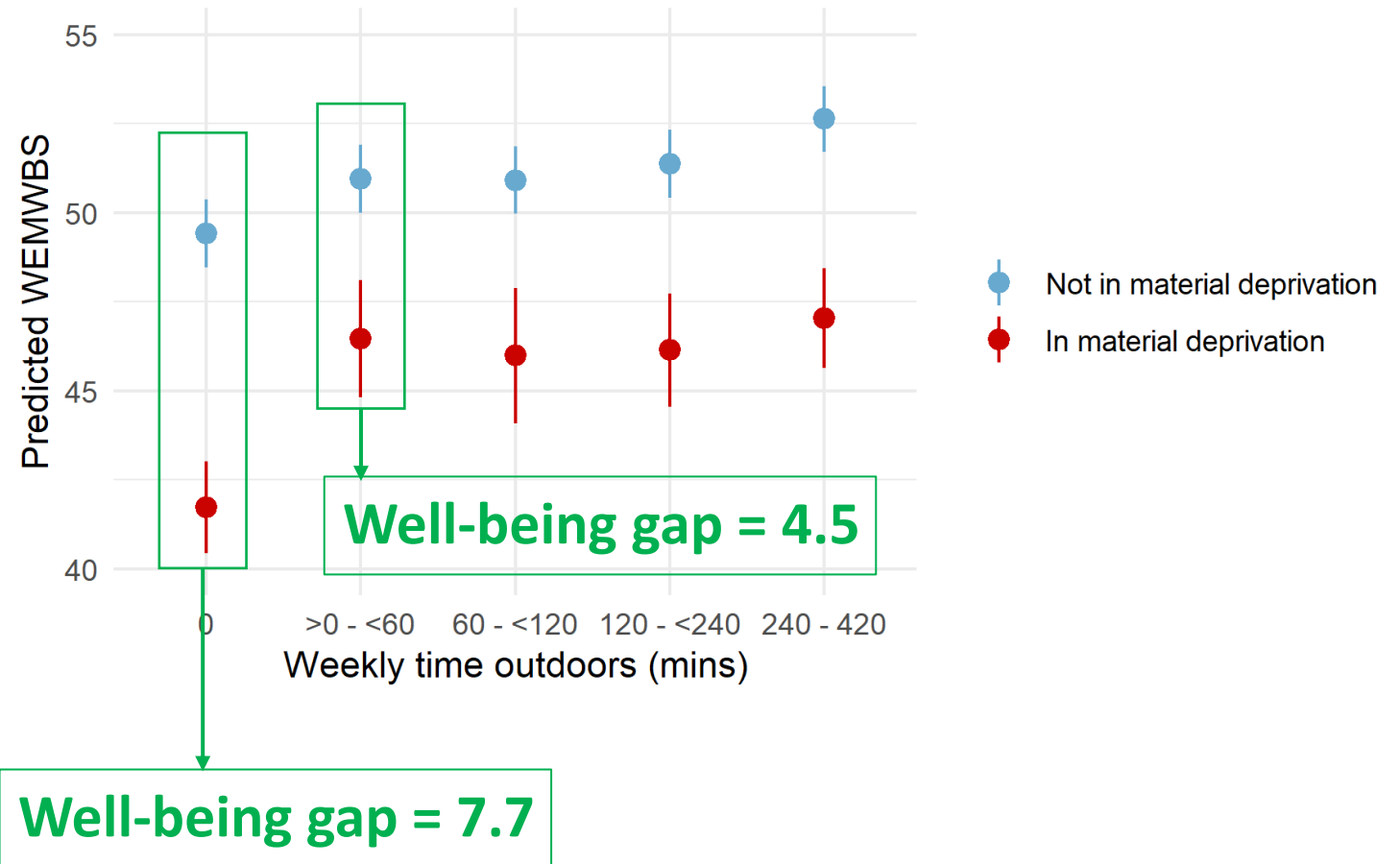
Figure 2: Incidence rate ratios (with 95% confidence intervals) for all-cause mortality in income deprivation quartiles 2-4, relative to income deprivation quartile 1 (least deprived), stratified by green space exposure group



Time in nature can narrow the well-being gap

Equigenesis?

Maybe good quality living environments can buffer the impact of socio-economic inequality on health inequality.



FUNDED BY

NIHR | National Institute for
Health and Care Research

This study is funded by the NIHR PHR 16/07/07. The views expressed are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care.

Garrett JK, et al. Visiting nature is associated with lower socioeconomic inequalities in well-being in Wales. Scientific Reports. 2023;13(1):9684. <https://doi.org/10.1038/s41598-023-35427-7>

3. Green gentrification?

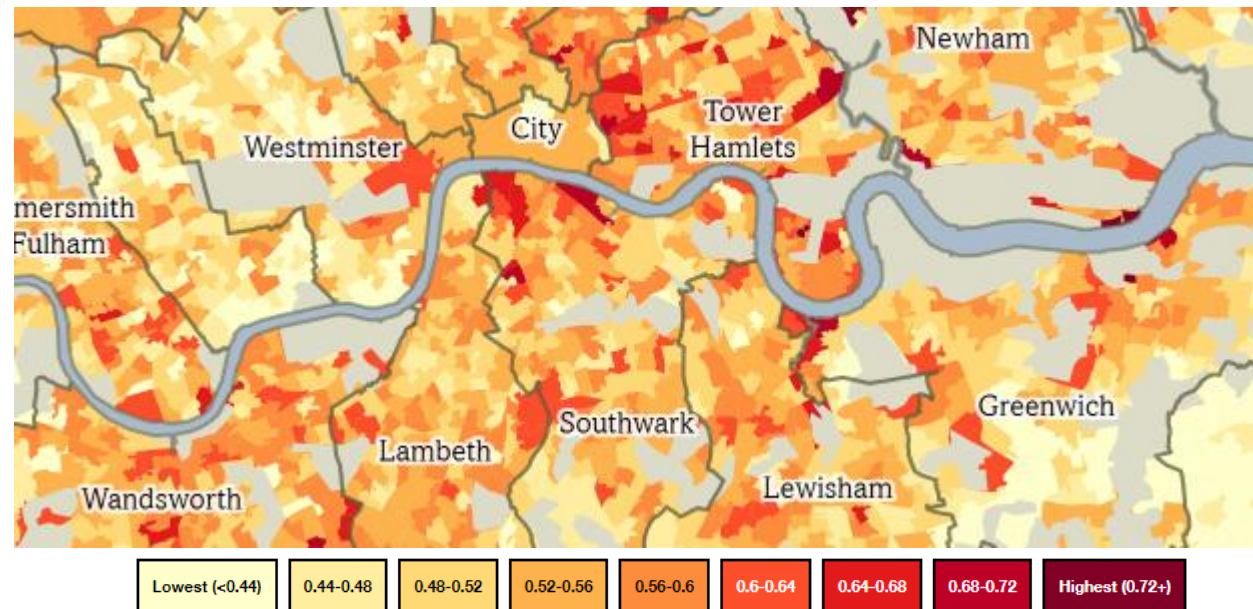
- Improving environments – e.g. urban greening, water quality improvements – can lead to gentrification of neighbourhoods
- This has been going on for a long time



"The Silent Highwayman" (1858). Death rows on the Thames, claiming the lives of victims who have not paid to have the river cleaned up.

https://en.wikipedia.org/wiki/Great_Stink

Gentrification Index for Small Areas in London (2010-16)

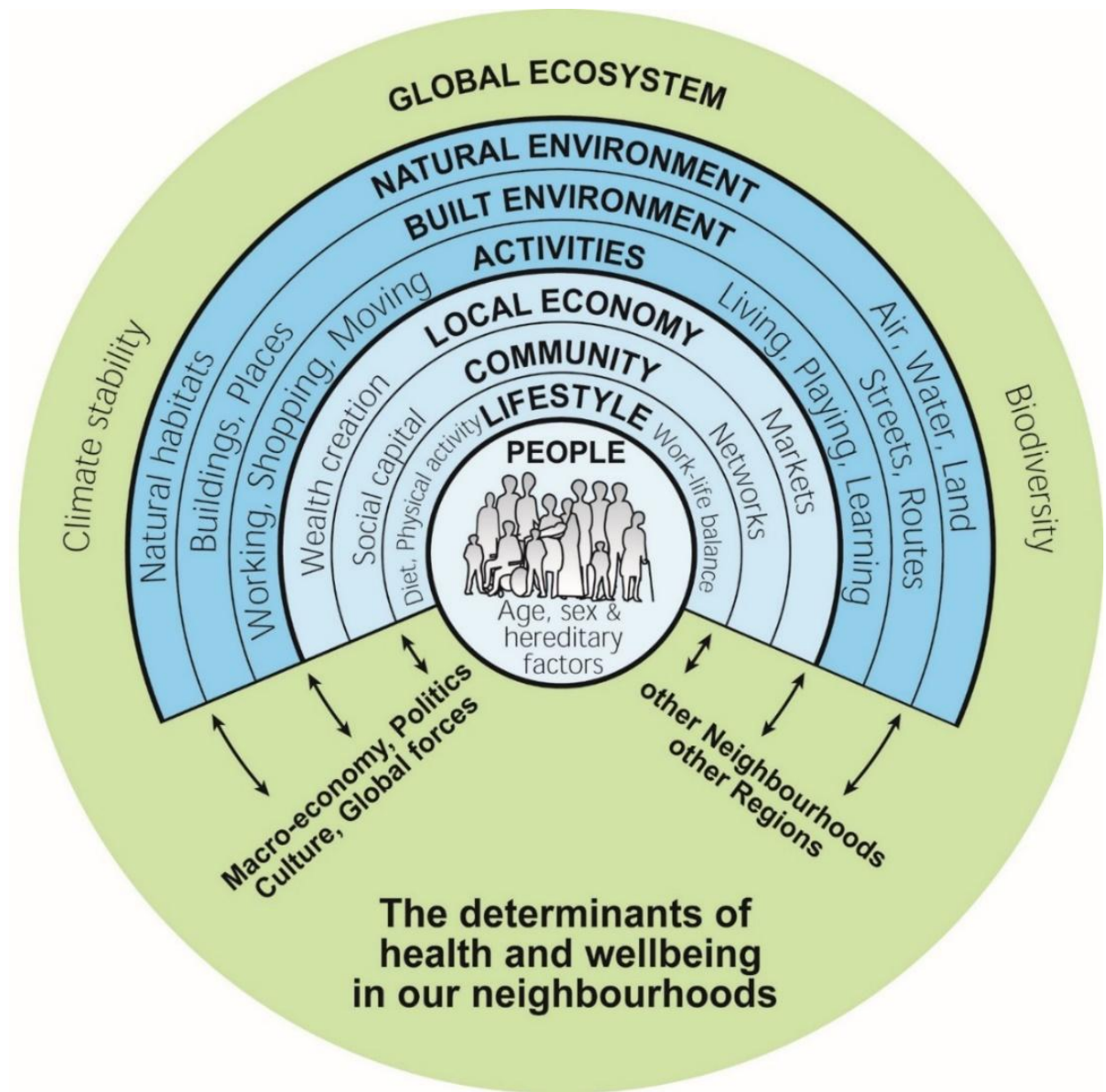


<https://www.trustforlondon.org.uk/data/gentrification-across-london/>

Green gentrification?

- “In gentrifying neighbourhoods, only more privileged residents benefit from green space” [Cole et al 2019]
- Difficult to tackle – doesn’t mean we should **not** improve environments to protect against gentrification

Need to consider
green/blue
infrastructure amongst
wider drivers of
population health



Green/blue infrastructure & health inequalities

- GBI and health inequalities are linked in various ways:
 1. Differential access and exposure to nature – from opportunities to visit green space to urban tree canopy



Green/blue infrastructure & health inequalities

- GBI and health inequalities are linked in various ways:
 1. Differential access and exposure to nature – from opportunities to visit green space to urban tree canopy
 2. There may be disproportionate benefits for lower socio-economic groups – equigenesis



Green/blue infrastructure & health inequalities

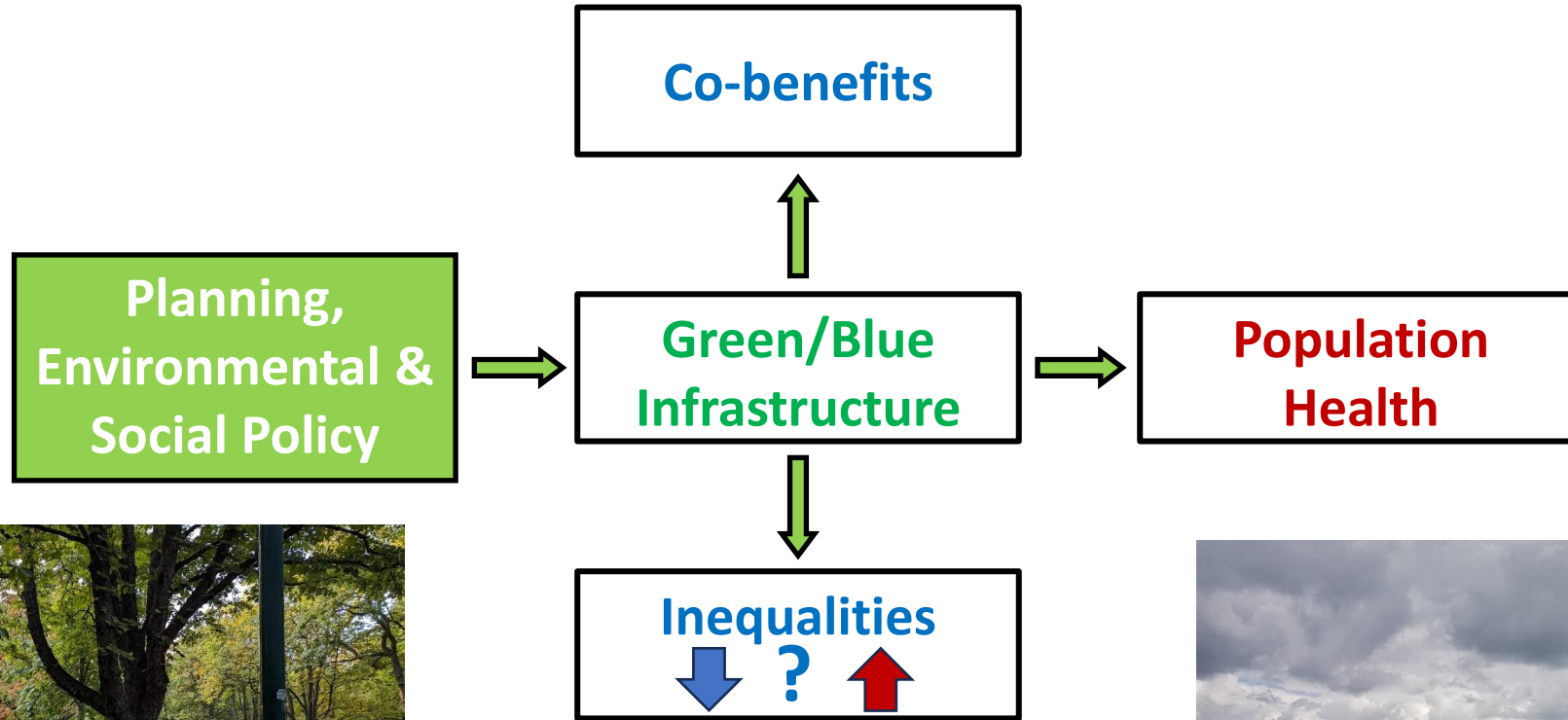
- GBI and health inequalities are linked in various ways:
 1. Differential access and exposure to nature – from opportunities to visit green space to urban tree canopy
 2. There may be disproportionate benefits for lower socio-economic groups – **equigenesis**
 3. There may be adverse social impacts of environmental improvements especially in urban areas – **gentrification**



Part 2: How can planning and environmental interventions impact the green/blue infrastructure-health inequalities system?




Tackling health inequalities through green/blue infrastructure





<https://www.cornwall.gov.uk/spacefornature>




ABOUTPROGRAMMES ▼NEWSEXPLORER BURSARYRESOURCES ▼CONTACT USUKHCN

PROGRAMMES

Greening the City

Our initiative to enhance urban green spaces, improving air quality, and promoting physical activity and mental well-being among city residents.

Click the **Green Health Maps** at the bottom of this page to view.

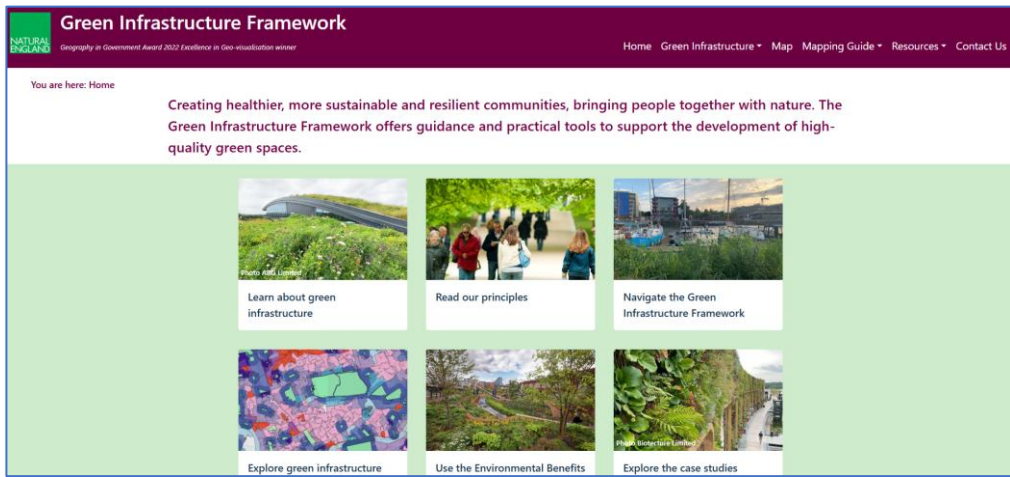


<https://www.belfasthealthycities.com/greening-the-city/>

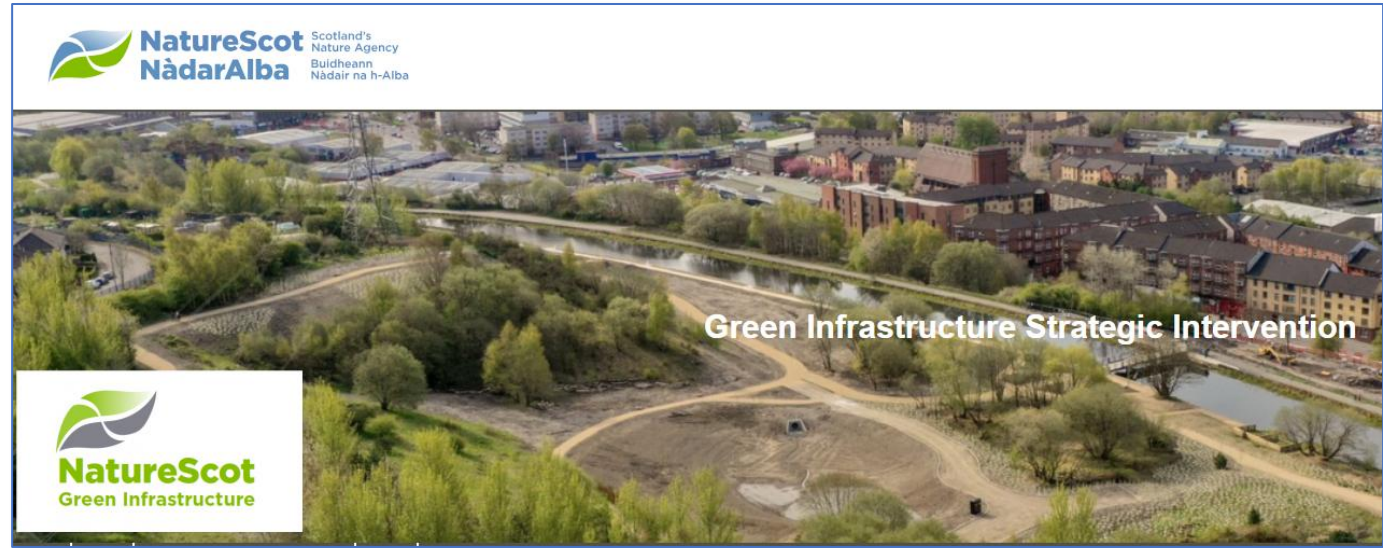
Home ⬆MAYOR OF LONDONLONDON ASSEMBLYSearch 🔍Menu ☰

Mayor invests £500,000 into street tree-planting across London as he delivers half-millionth tree of Mayoralty

<https://www.london.gov.uk/media-centre/mayors-press-releases/mayor-invests-ps500000-street-tree-planting-across-london-he-delivers-half-millionth-tree-mayoralty>



<https://designatedsites.naturalengland.org.uk/greeninfrastructure/home.aspx>



<https://www.nature.scot/funding-and-projects/green-infrastructure-strategic-intervention>

Planning and Infrastructure Bill

[AS AMENDED IN COMMITTEE]

CONTENTS

PART 1

INFRASTRUCTURE

CHAPTER 1

NATIONALLY SIGNIFICANT INFRASTRUCTURE PROJECTS

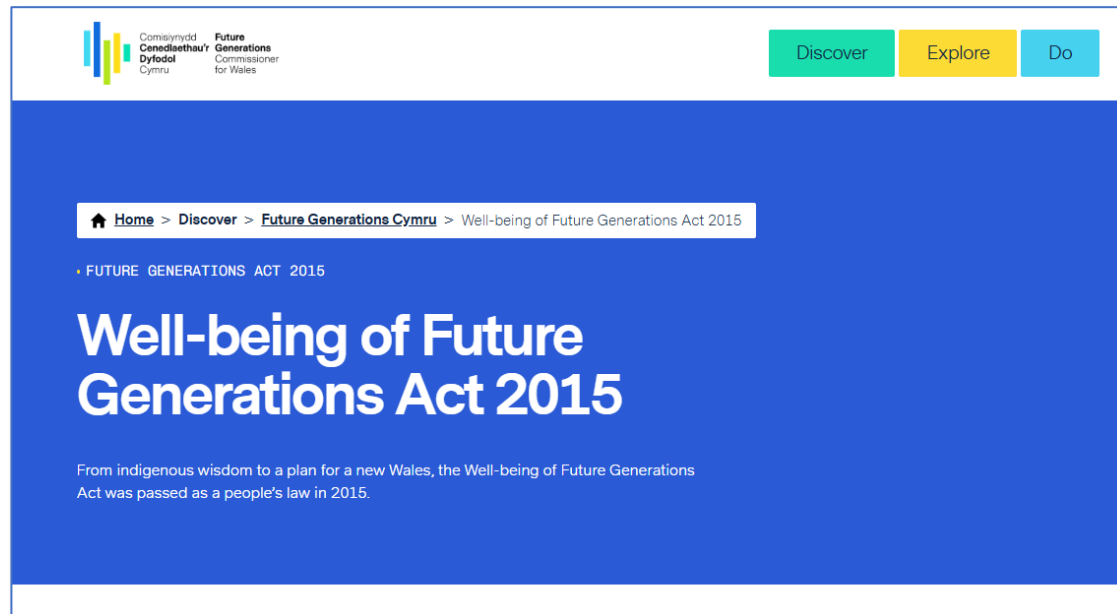
- 1 National policy statements: review
- 2 National policy statements: parliamentary requirements
- 3 Power to disapply requirement for development consent
- 4 Applications for development consent: removal of certain pre-application requirements
- 5 Applications for development consent: changes related to section 4
- 6 Applications for development consent: acceptance stage
- 7 Applications for development consent: local impact reports and representations
- 8 Examination of applications for development consent
- 9 Applications for development consent: costs
- 10 Planning Act 2008: right to enter and survey land
- 11 Changes to, and revocation of, development consent orders
- 12 Planning Act 2008: legal challenges

CHAPTER 2

ELECTRICITY INFRASTRUCTURE

Connections to the electricity transmission and distribution systems

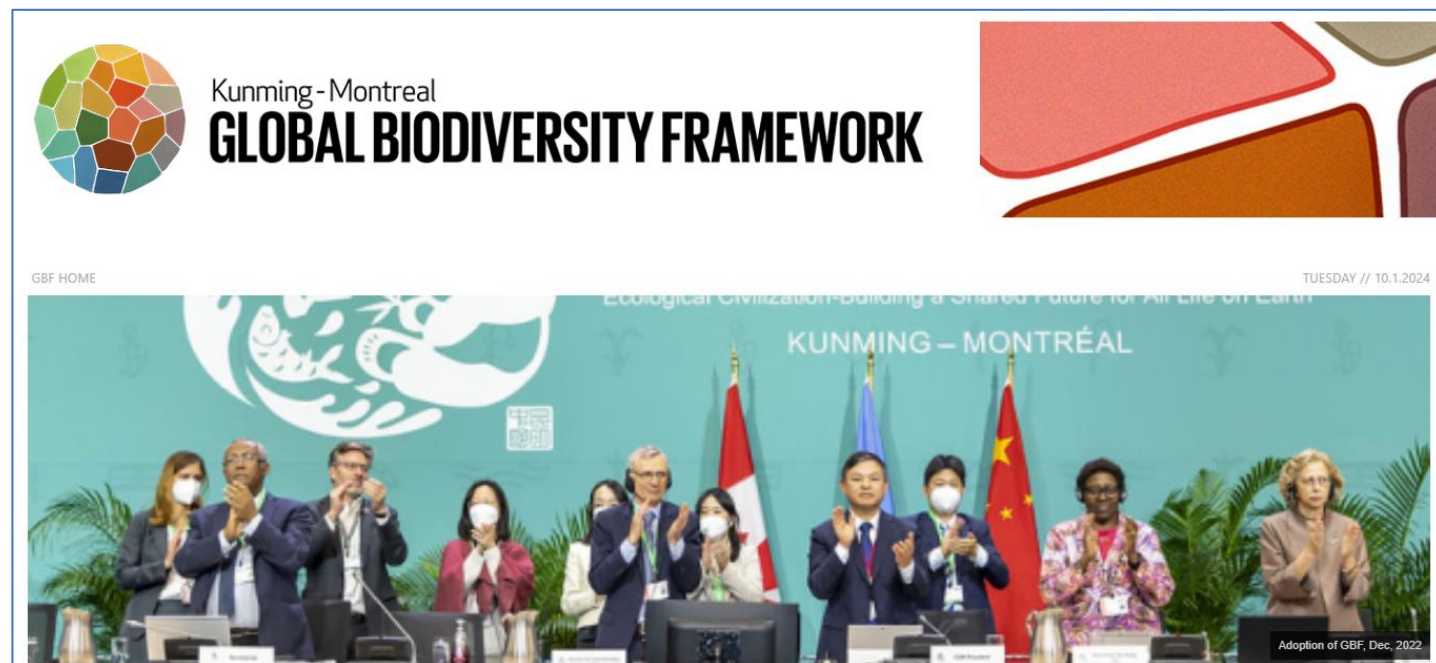
<https://bills.parliament.uk/bills/3946>



<https://futuregenerations.wales/discover/about-future-generations-commissioner/future-generations-act-2015/>

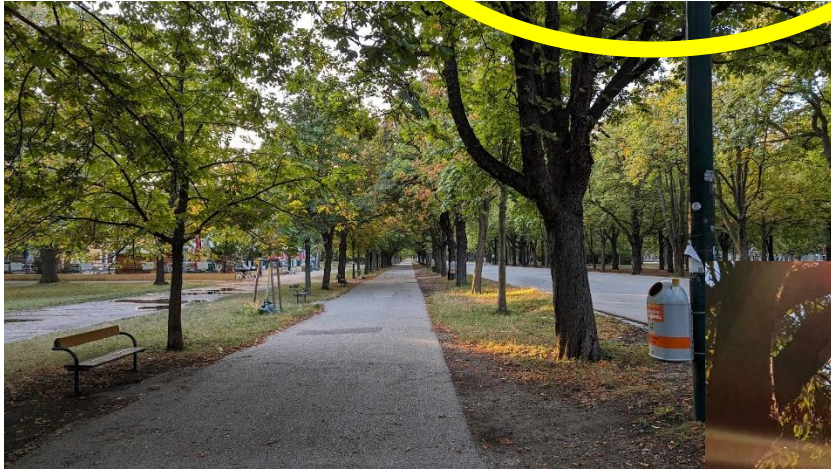
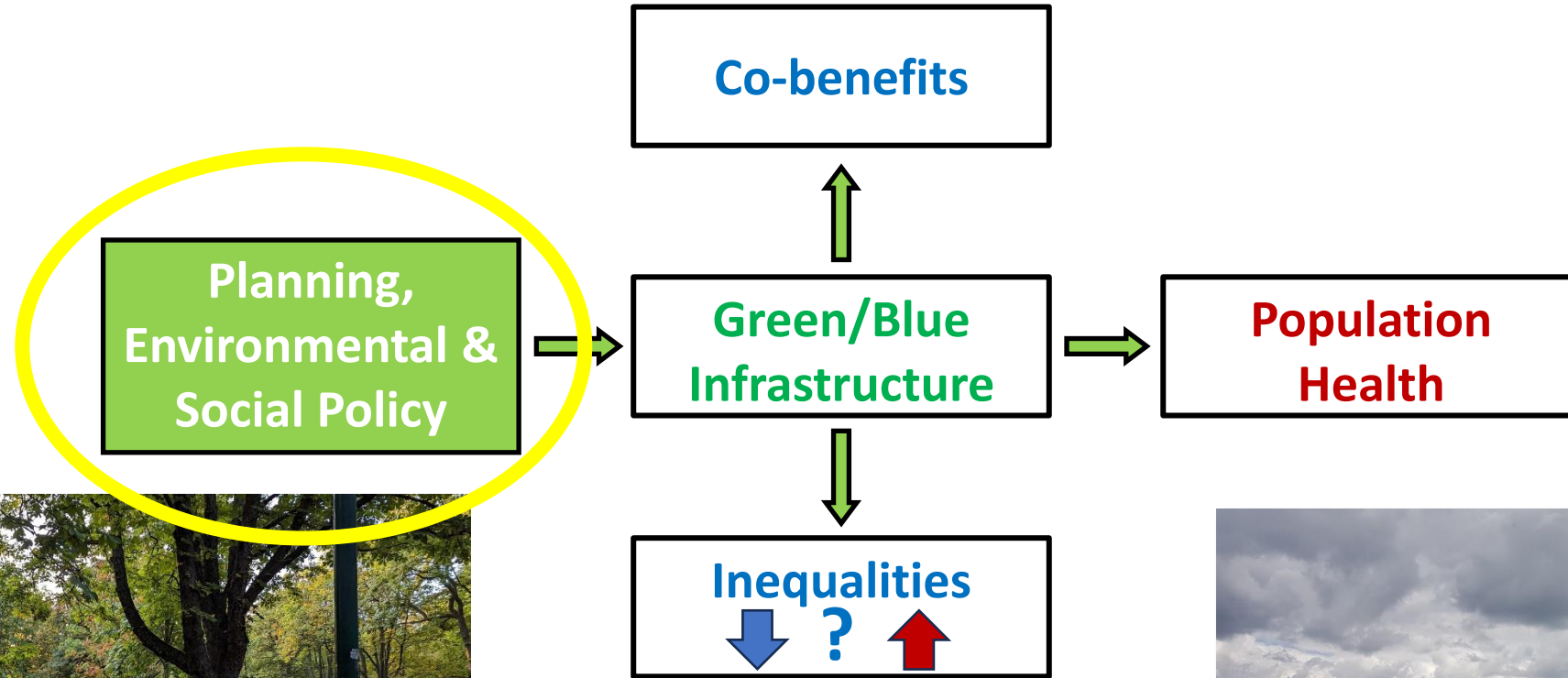


<https://www.who.int/europe/event/seventh-ministerial-conference-on-environment-and-health>



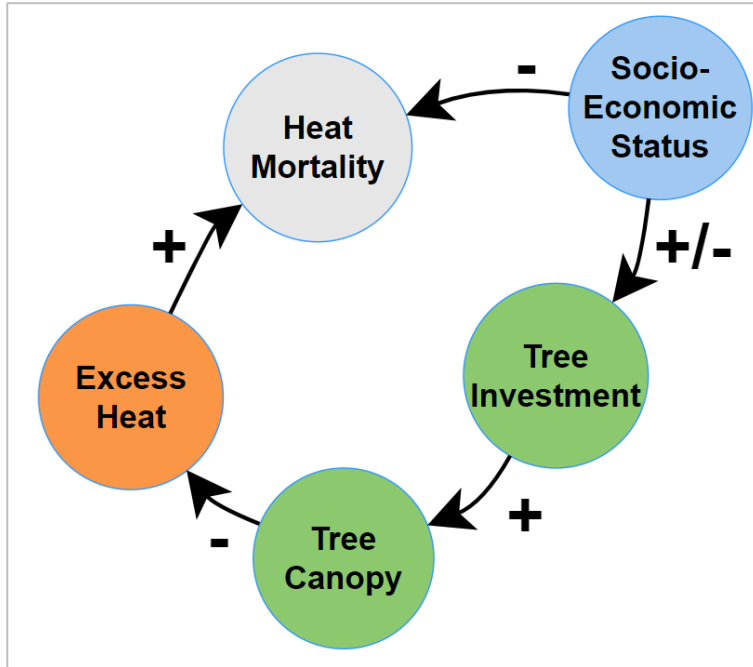
<https://www.cbd.int/gbf>

Tackling health inequalities through green/blue infrastructure

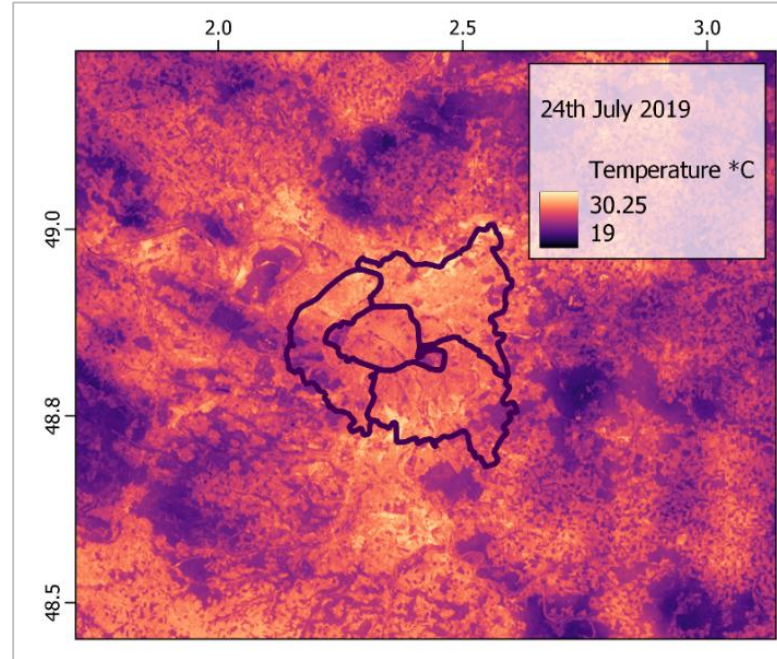


Tackling health inequalities through green/blue infrastructure

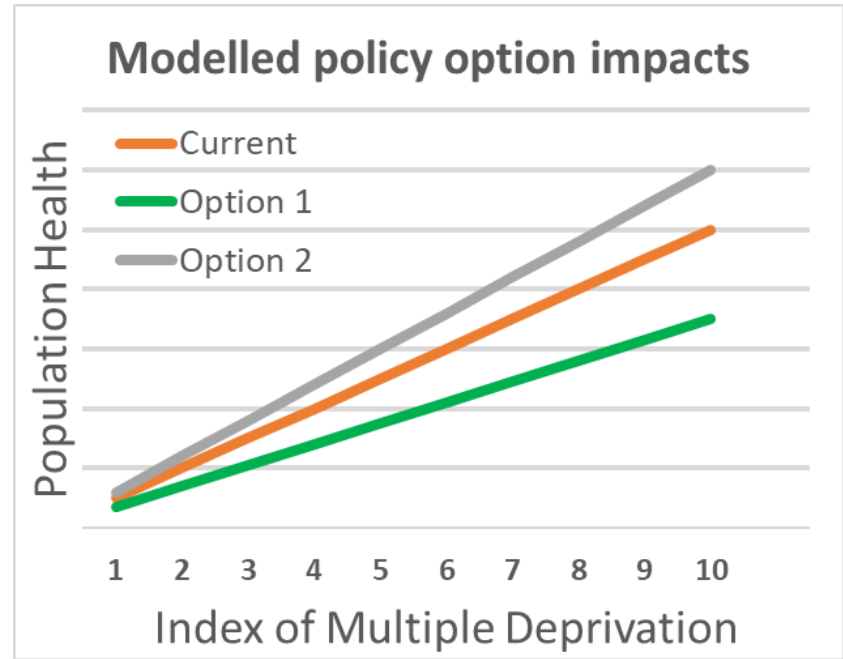
Theory building



Data analysis



What if? Scenario modelling

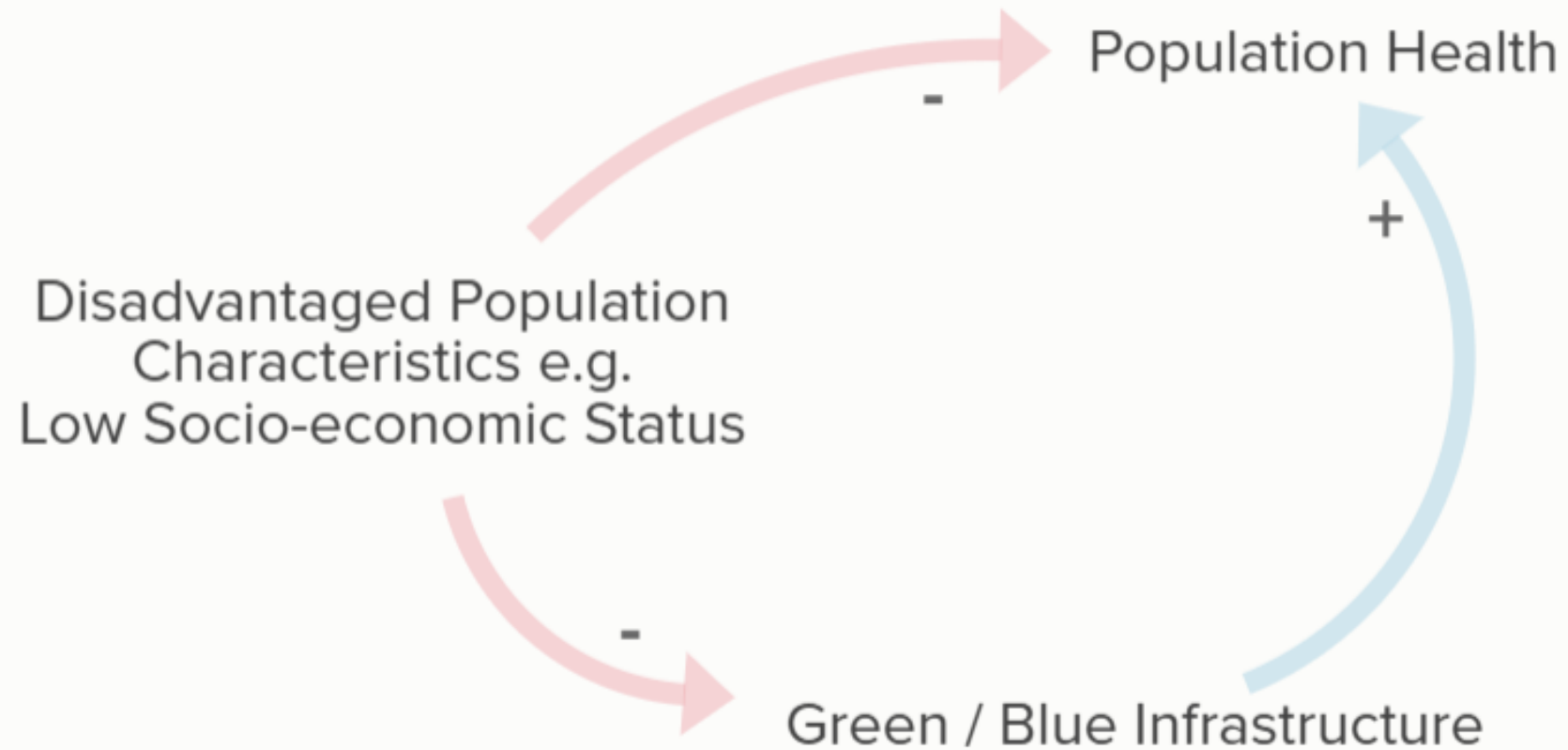


- Building the evidence to inform action at local authority level
 - Collaborators: Dorset Council, Coventry City Council, Sandwell Council
- Also working with TCPA, Natural England, OHID, Natural Resources Wales, Forest Research

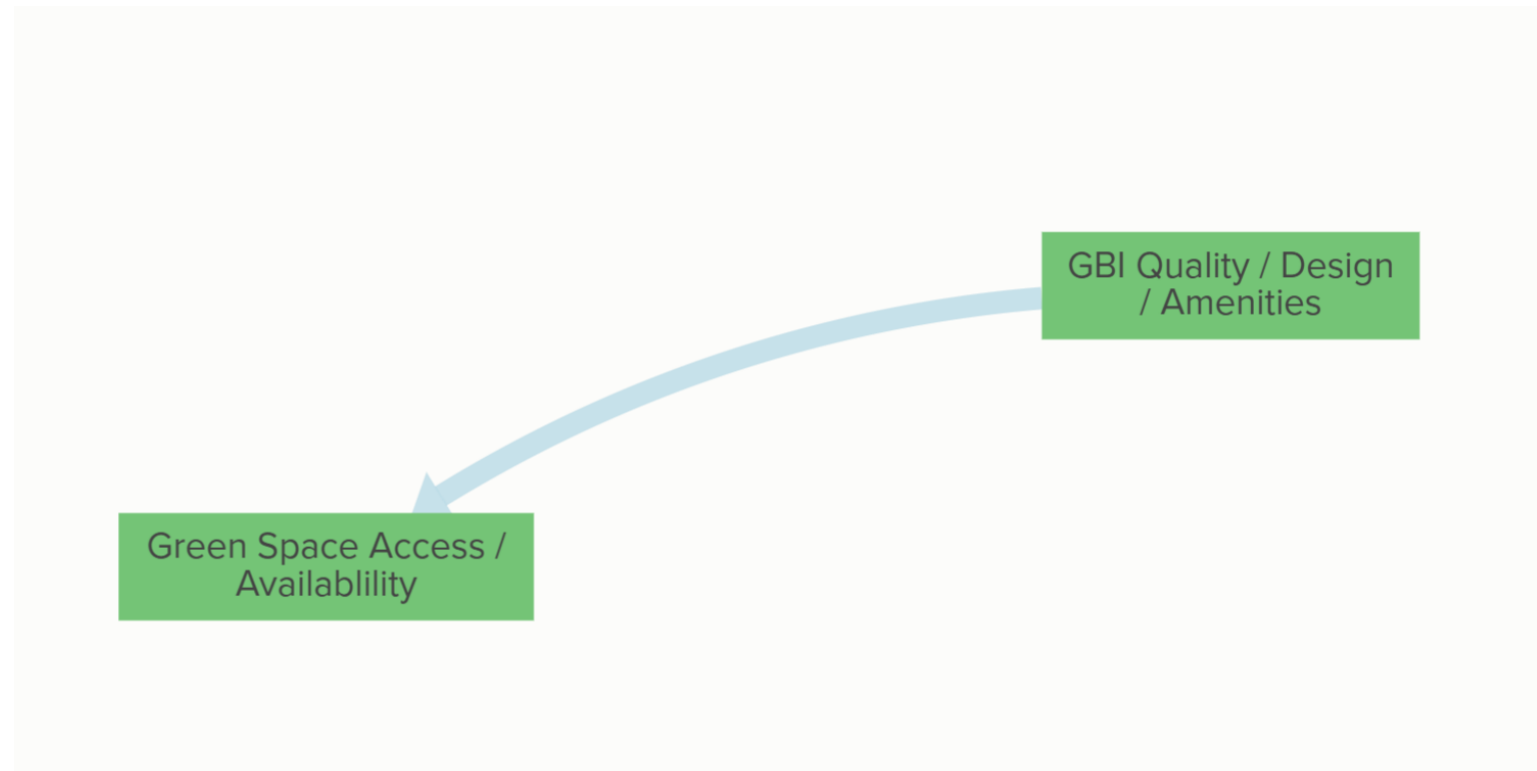
Theory building

- Group model building:
 - Professionals from public health, planning, environment sectors
 - Public partners
 - Academic researchers
- Workshops to co-create ideas of the complex system connecting green/blue infrastructure and health inequalities

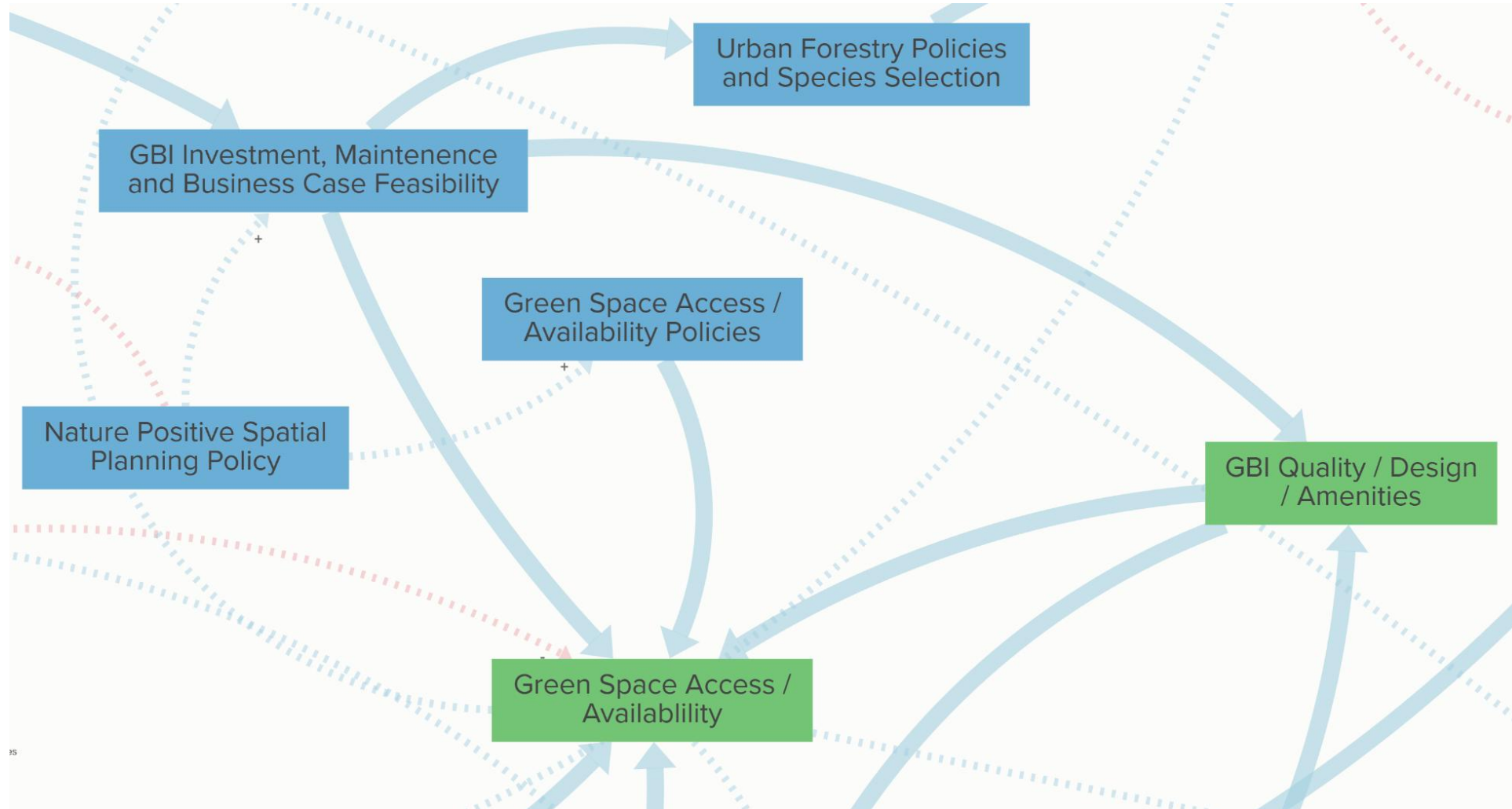
Causal Loop Diagrams



Co-produced CLD

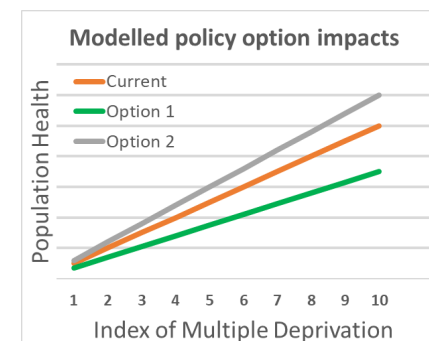
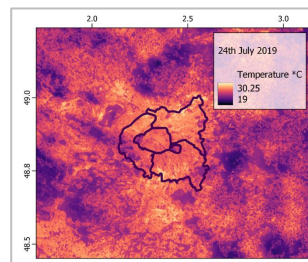
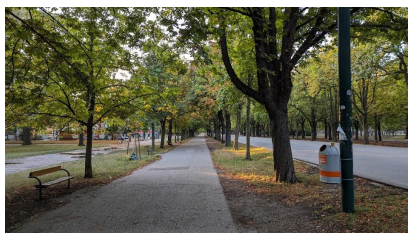


Co-produced CLD

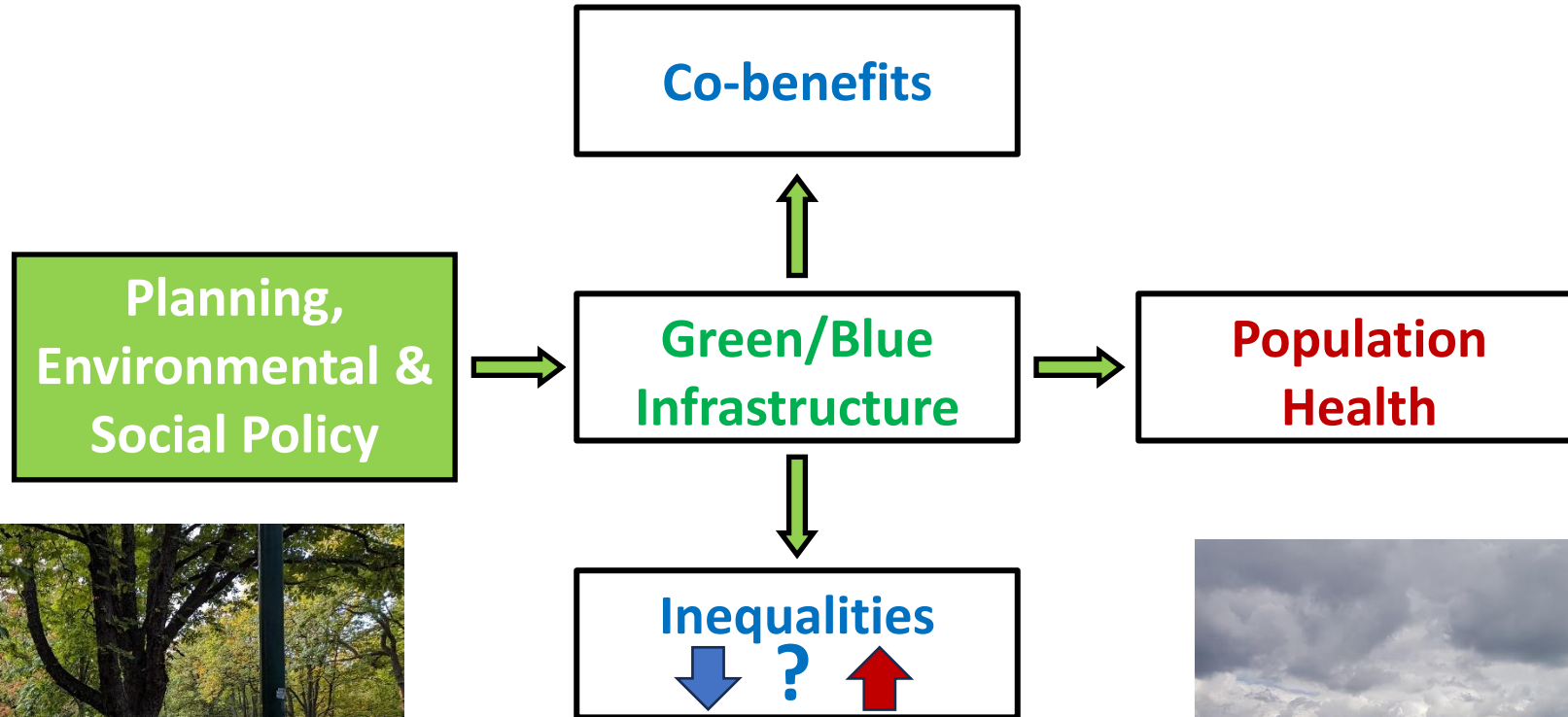


Project next steps

- Present back to workshop participants and public involvement group
 - Does it make sense?
 - What might it be useful for?
 - How might it be improved and communicated?
- Use to underpin next phase of research project
 - Geographical data analysis – intersectional inequalities in GBI
 - Scenario modelling health inequalities impacts



How do we do this well?



Thank you

Contact us:

B.W.Wheeler@exeter.ac.uk

M.Ferguson3@exeter.ac.uk

Project info:

<https://beyondgreenspace.net/health-inequalities-and-natural-infrastructure/>





Dorset
Council

Greenspace access, public
health and the Local Nature
Recovery Strategy in urban
and rural Dorset

23 October 2025



Who we are



Amy Smith

Local Nature Recovery



Rupert Lloyd

Public Health and Prevention

What we'll talk about

- Dorset Council and Bournemouth, Christchurch & Poole Council (BCP)
- What we did and why
- How this can make a difference





Photo: Ali Quinney



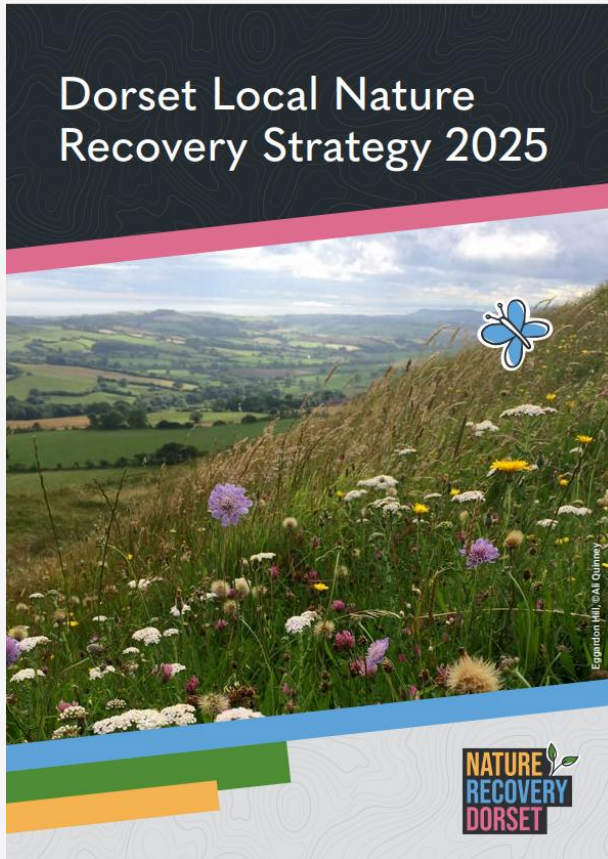
Natural environments & health

‘..increasing the provision of natural environments which are accessible (visually or physically) and appropriate can benefit the health, wellbeing and quality of life of certain deprived and disadvantaged groups. There is also evidence that modifying and increasing the quality of urban greenspaces can be effective in improving the health and wellbeing of deprived communities’

R Lovell, B Wheeler, K Husk, K Machray, and M Depledge (2020) ‘What Works’ briefing on natural environment based health interventions. Report for Department for Environment, Food and Rural Affairs (Defra) BE0128



Dorset Local Nature Recovery Strategy (LNRS)



- A requirement of the Environment Act
- 48 created across England
- Local people working together to agree:
 - Nature recovery priorities
 - Potential activities for all sectors
 - Map important nature areas and opportunities for recovery

A co-produced strategy

- Steering group
- 5x expert advisory groups
- Events, meetings and workshops
- Webpages and videos
- Nature Recovery Dorset network
- 12-week public consultation



Farmers, Foresters, Landowners & Land managers

People who own and/or manage land (For example, farms, woodlands and estates)



Communities & Individuals

Members of the public and local voluntary or community sector organisations



Business, Industry & Economy

Large and small businesses across all sectors (For example, utilities, manufacturing, retail, hospitality, building development)



Public bodies

Local government, town and parish councils, regional government bodies and agencies, and public service providers



Nature & Environment sector

Individuals & organisations with expertise or interest in nature, environmental issues and managing land for conservation purposes



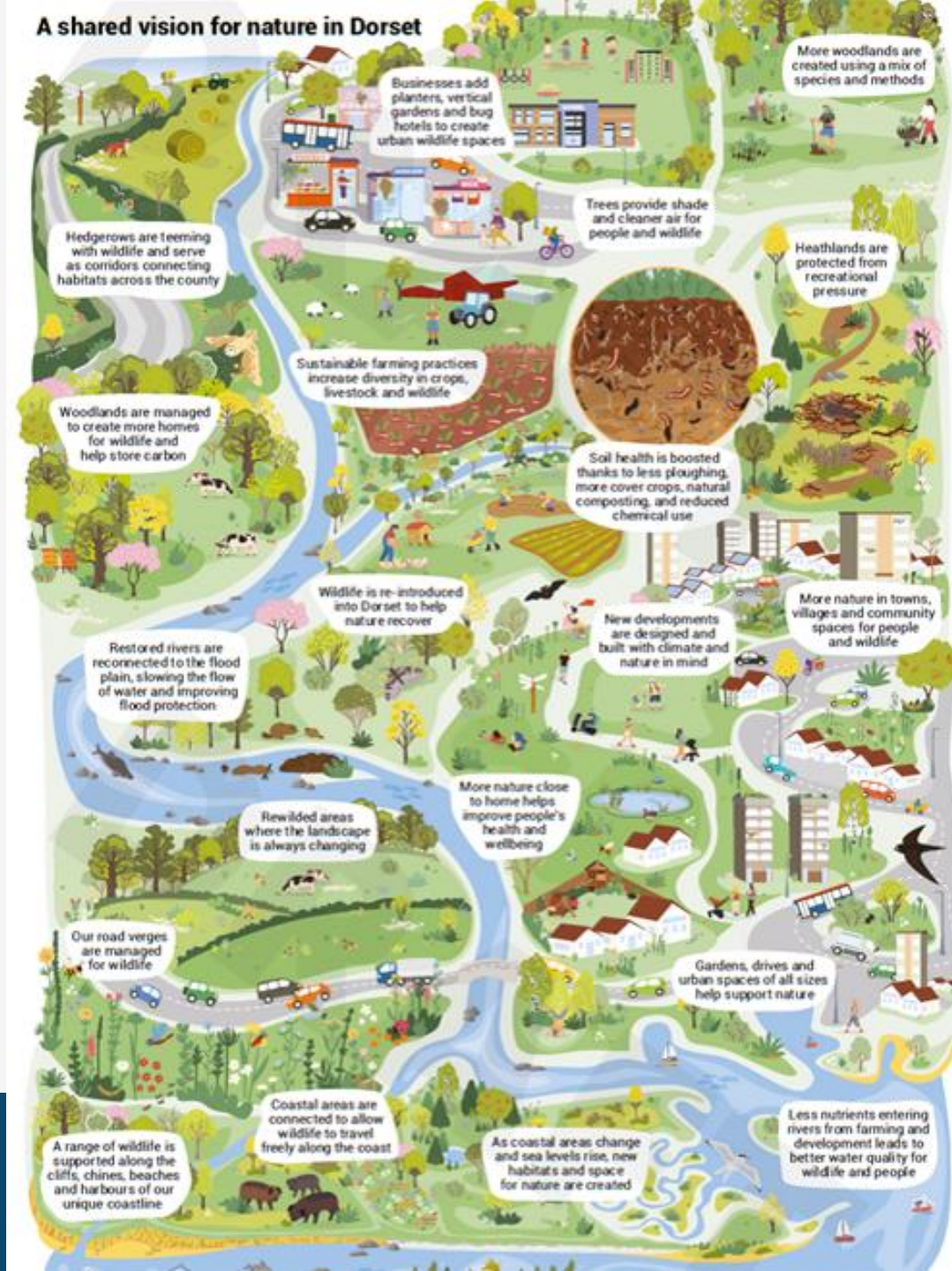
Partnerships & Connectors

Existing groups that work collaboratively across sectors or on specific issues



Health and wellbeing co-benefits

- Statutory guidance allows health and wellbeing to be included as co-benefits
 - “improving biodiversity can help increase land value or support people’s **health and wellbeing and access to nature**. Whilst these co-benefits are different from the strategy priorities, responsible authorities and local partners can propose action for biodiversity in ways and in places that will achieve them”
- People in Dorset wanted the local nature recovery strategy to help:
 - have a healthy natural environment that supports public health
 - create more nature-rich spaces for people to enjoy
 - promote nature connection
 - encourage use of nature-based solutions to achieve health benefits



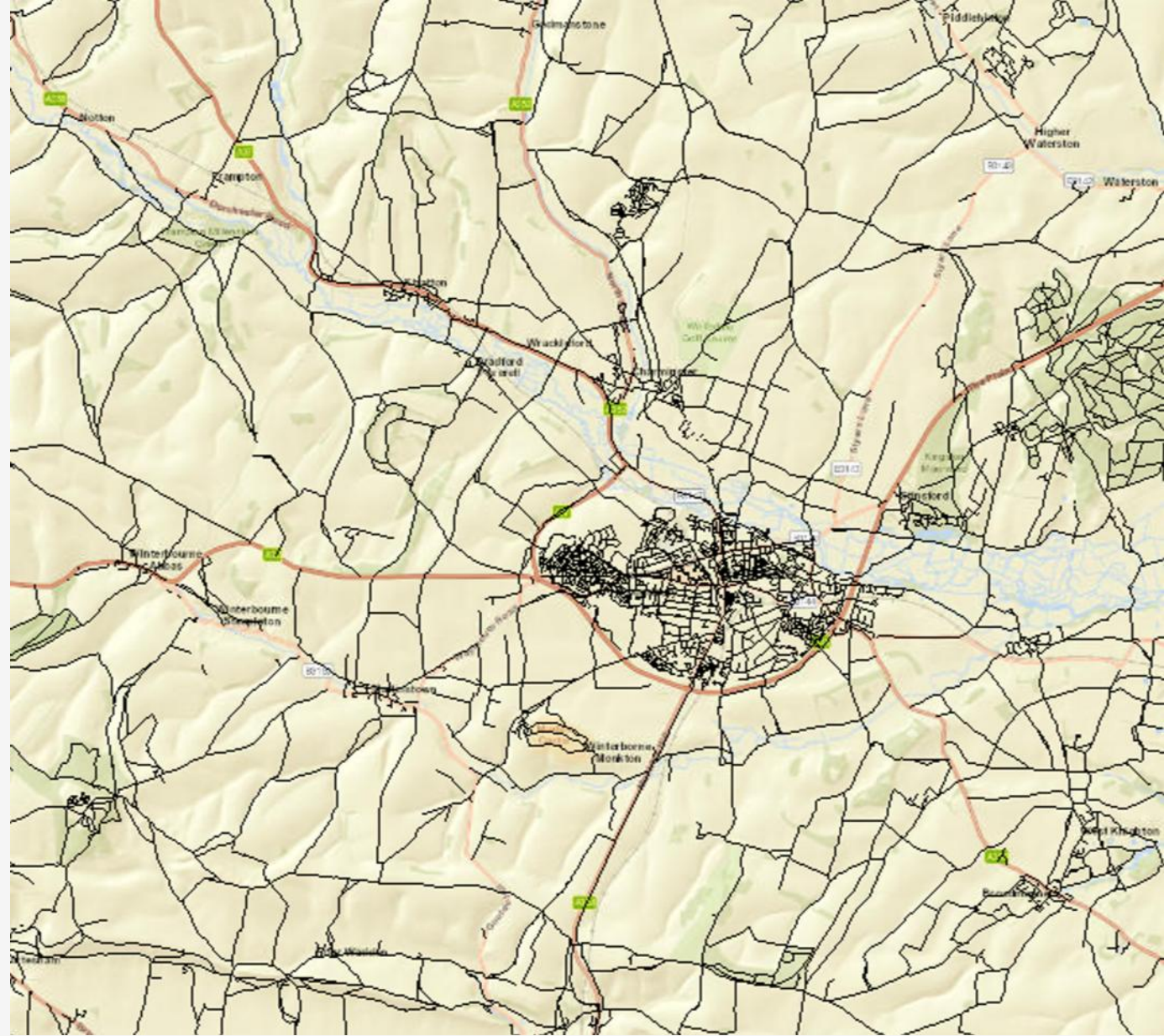
Our aim

To generate evidence of where LNRS nature recovery initiatives can address inequalities in access to nature



What we started with

- A map of green/blue spaces 'accessible' to the public
- A 'walkable' network of highways, Public rights of way and informal footpaths
- Accessible green paths (public right of way in non-urban areas)



Which type of green/blue spaces are likely to provide contact with nature?



How to account for the role of Public Rights of Way? (PRoW)



Access scenarios

- Distance from postcode centroid to:
- Any greenspace
- Any 'nature rich' site 2 hectares or bigger
- A 'green' public right of way (PRoW)

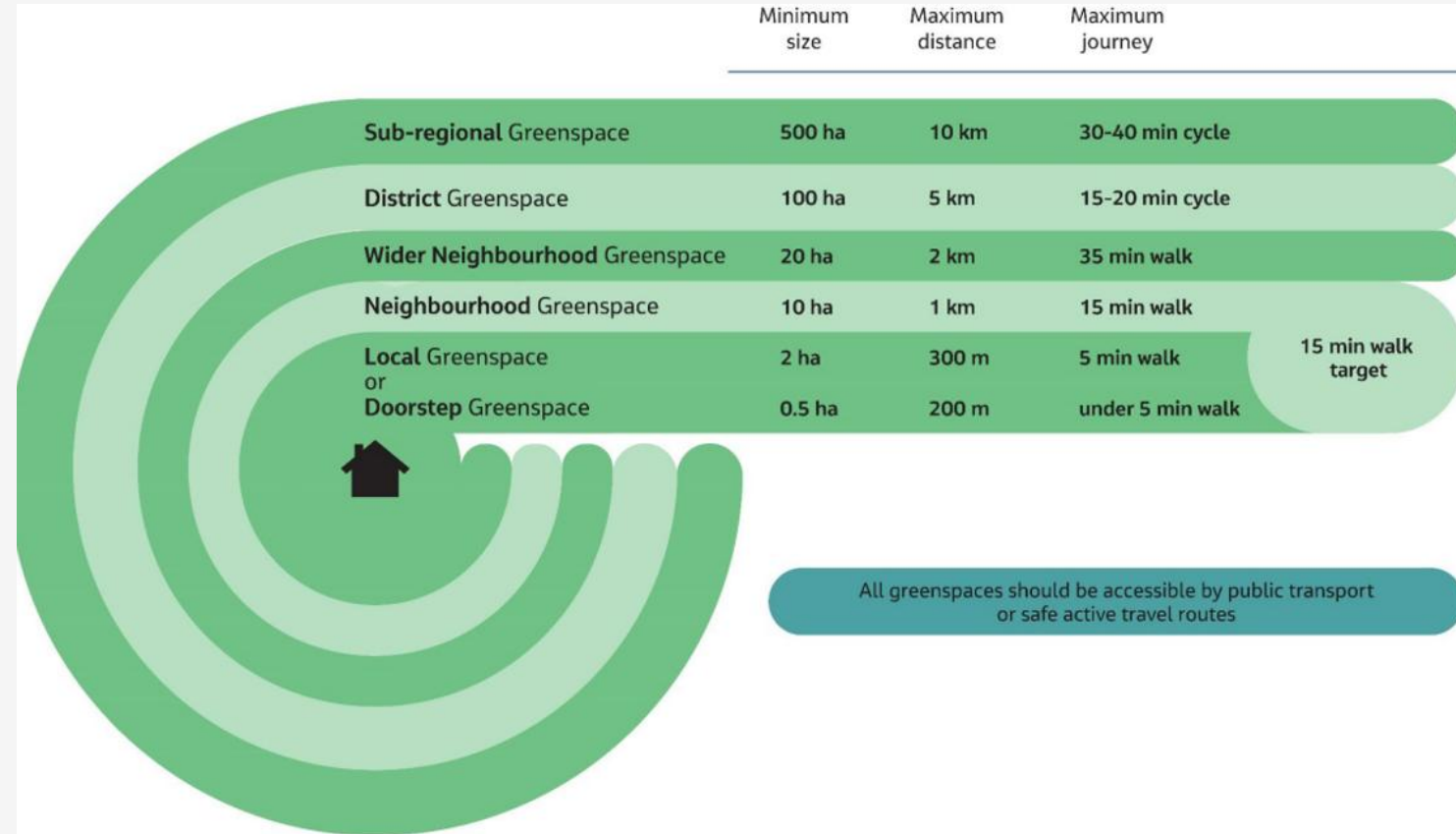


Image: Natural England, Green Infrastructure Framework - Principles and Standards for England

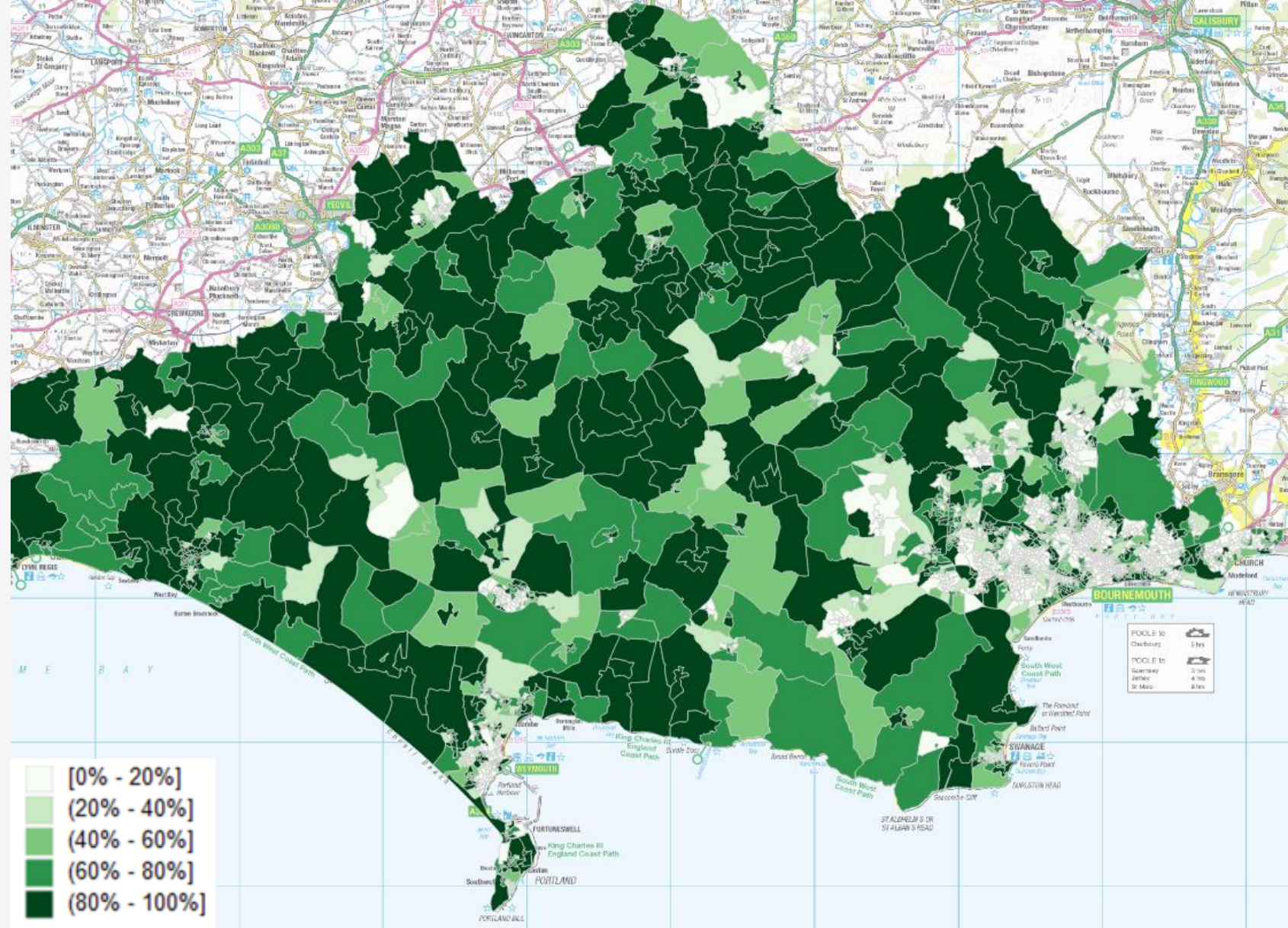
‘Nature nearby’

Percentage of population within 300 metres walk of:

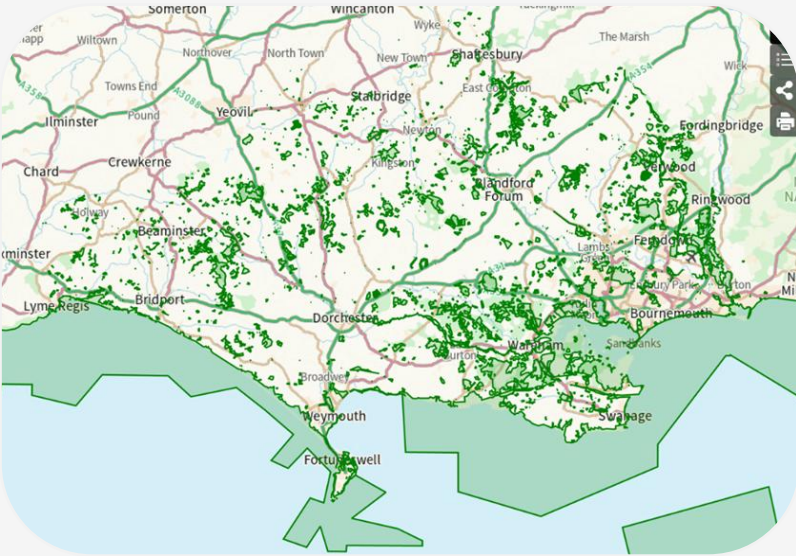
- a natural green/blue space 2 hectares or bigger

OR

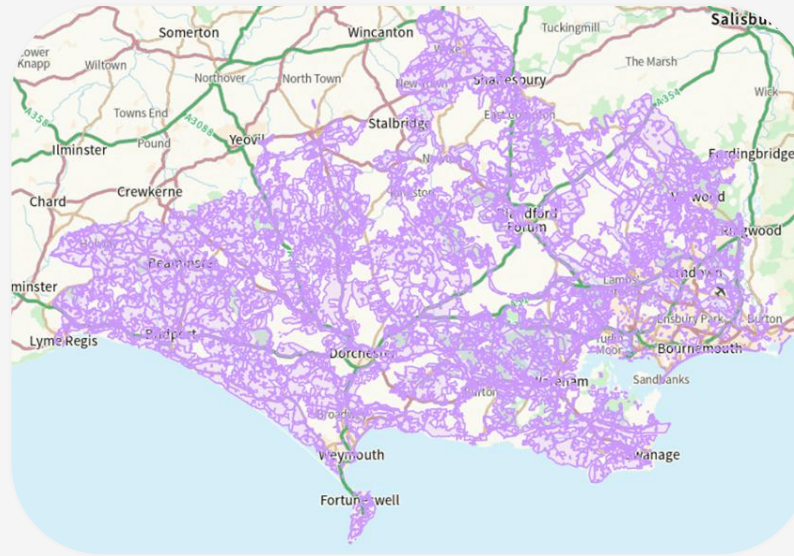
- a green Public Right of Way



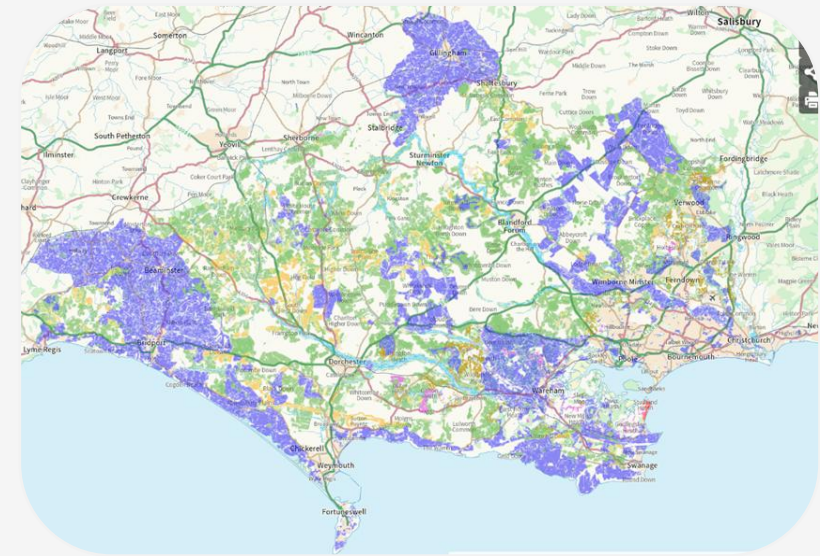
The LNRS local habitat map



1. Nature areas of national importance



2. High opportunity nature areas

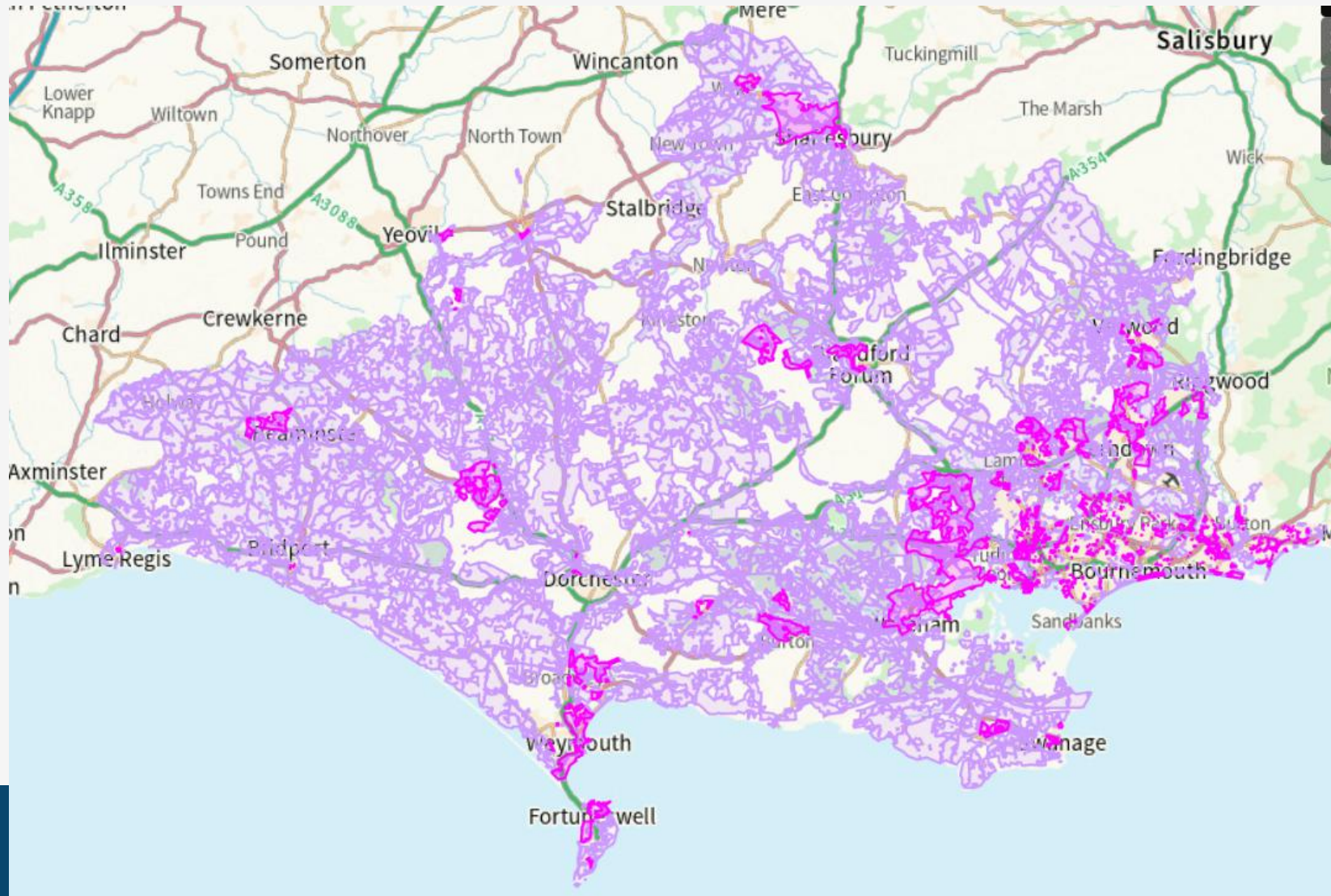


3. Potential activities

Defra names:

1, Areas of particular importance for biodiversity, 2. Areas that could become of particular importance, 3. Potential measures

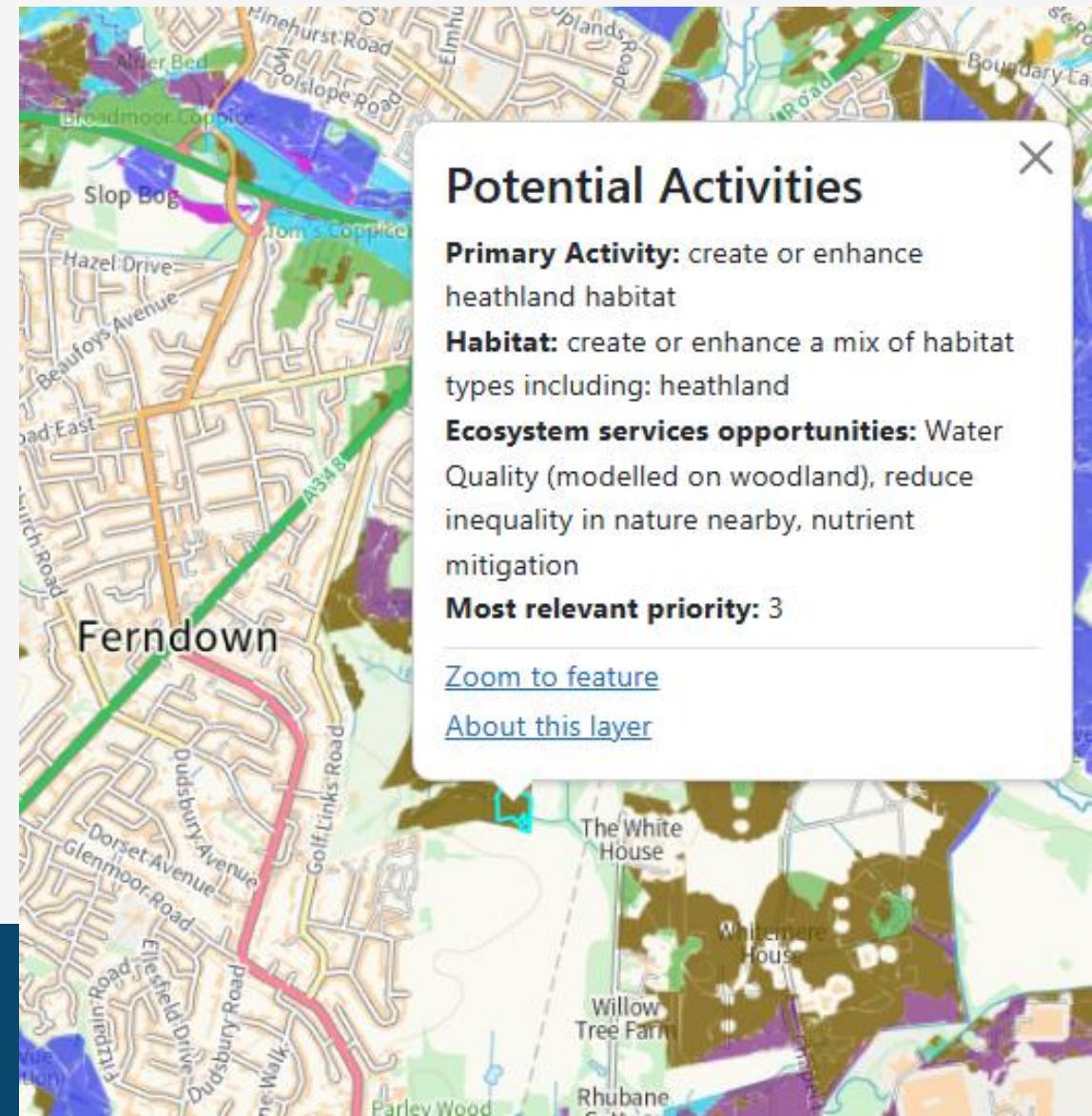
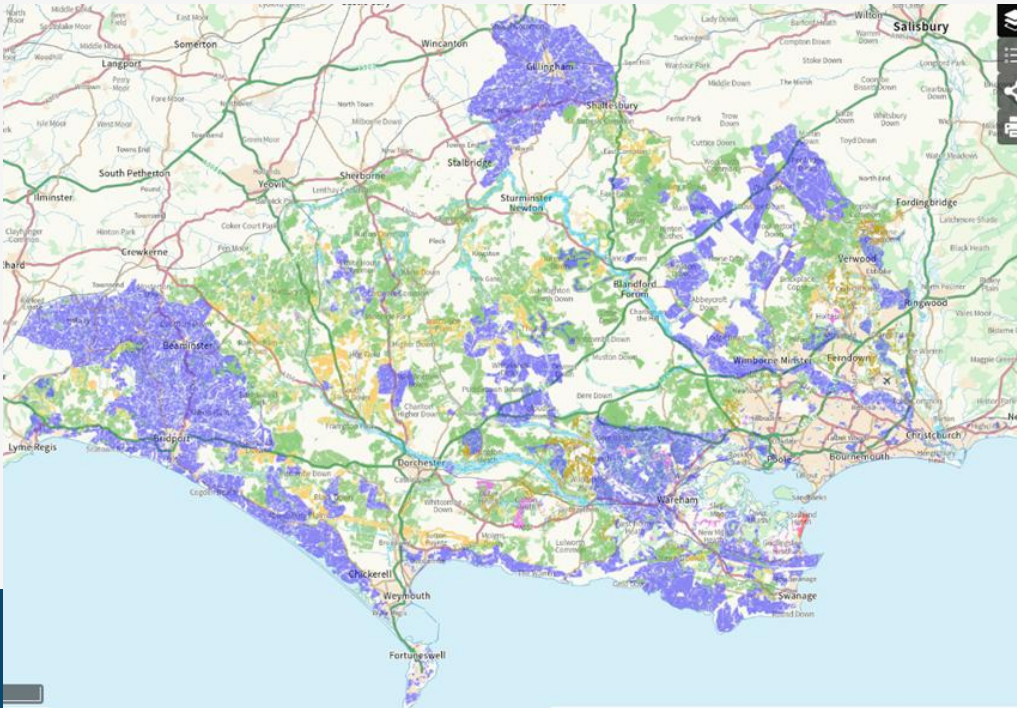
Nature nearby in the local habitat map



- ‘priority areas for creating nature nearby’ (pink)
- overlap with the ‘high opportunity nature areas’ (lilac)

Nature nearby in the local habitat map

‘Reducing inequality in nature nearby’ listed as an ecosystem service in the secondary potential activities



How this can support increased nature nearby

- Local habitat map as a guide to enhance existing nature spaces and create new nature areas
- A range of delivery mechanisms – including local plan development and development management
- More to come during delivery phase of the strategy



How could we do better

- Community perspective
- Interpretation: explaining what the data means / how to use it
- Timescale: Running the two projects in parallel, could we have had more influence if the nature nearby mapping came first
- Future proofing: Natural England's Access to Greenspace Standards mapping



Thank you

Amy Smith

Amy.smith@dorsetcouncil.gov.uk

Rupert Lloyd

Rupert.Lloyd@dorsetcouncil.gov.uk



Q&A

Project website:

beyondgreenspace.net/health-inequalities-and-natural-infrastructure