



UNIVERSITY OF
BIRMINGHAM

COLLEGE OF
ENGINEERING AND
PHYSICAL SCIENCES

Summer 2022 & changing UK climate

Dr Emma Ferranti

University of Birmingham & TDAG

e.ferranti@bham.ac.uk



Trees and Design Action Group (TDAG)



TDAG is a **network** and **charity** that brings together individuals, professionals, academics and organisations from public and private sectors to improve knowledge and good practice to support the role of urban trees through better collaboration in the planning, design, construction, management and maintenance of our urban places.

Facilitate knowledge exchange & research dissemination

Workshops & webinars

What we do

Respond to consultations

Produce best-practice guides

Forum for cross-sector working

Trees and Design Action Group (TDAG)

HOME

ABOUT US

OUR GUIDES

CASE STUDIES

RESOURCES

RESEARCH

EVENTS

PAST EVENTS

NEWS ARCHIVE

Trees, Planning and Development

First Steps in Trees and New Developments

First Steps in Urban Heat

First Steps in Valuing Trees and Green Infrastructure

Tree Species Selection for Green Infrastructure

First Steps in Urban Air Quality

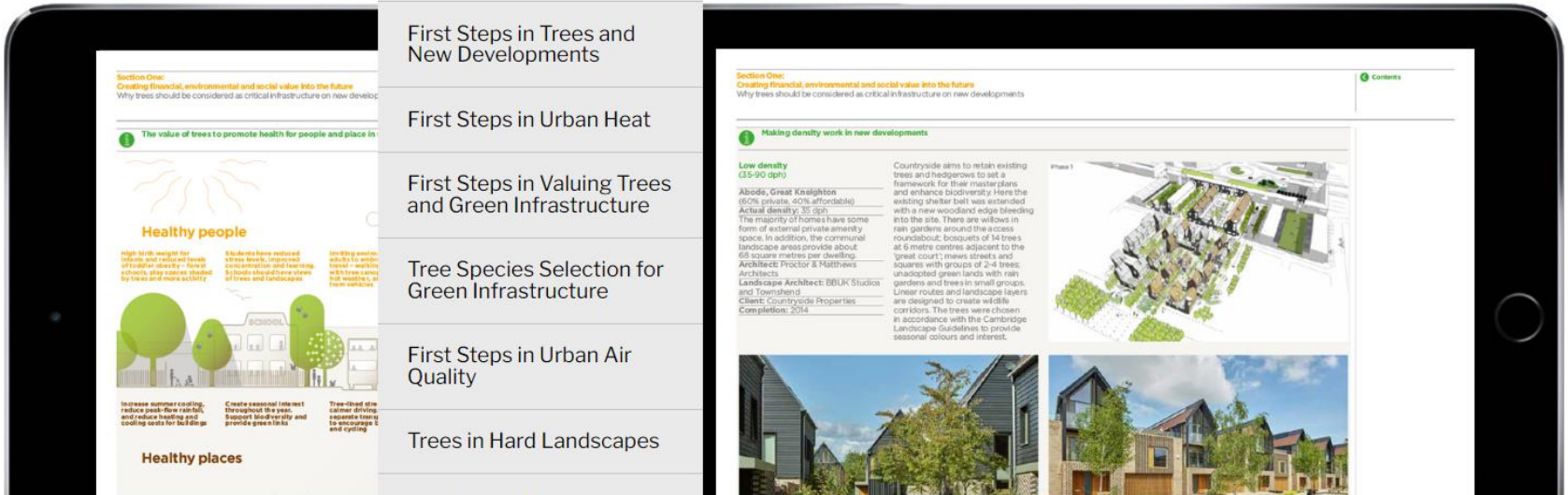
Trees in Hard Landscapes

Trees in the Townscape

The Canopy

No Trees, No Future

Endorse Trees in the Townscape



TDAG uses its broad knowledge of studies to inform decision-making of economic valuation approach get started.

with evidence-based information, practical advice and case studies to compile accessible information and advice about the use of green infrastructure, which tool or method to choose and how to

www.tdag.org.uk

Trees and Design Action Group (TDAG)



Search



Trees and Design Action Group

@treesanddesignactiongroup7020 146 subscribers 16 videos

Trees touch every part of our lives – from air and water quality, temperatur... >

Subscribe

HOME

VIDEOS

PLAYLISTS

COMMUNITY

CHANNELS

ABOUT



Videos Play all



Why plant a tree?

1:48:52

TDAG Seminar Series 2023:
Session 1 – Why plant a tree?

104 views • 2 months ago



Understanding the value and fragility of 'soil'

1:51:58

Understanding the value and fragility of 'soil'

228 views • 4 months ago



Tree research project and the Future of UK Treescapes

2:06:20

Tree research project and the Future of UK Treescapes

106 views • 4 months ago



How can we deliver and maintain trees in highways successfully?

1:05:15

How can we deliver and maintain trees in highways...

132 views • 6 months ago



The critical role of trees in making healthy places that support mental and physical wellbeing

1:35:46

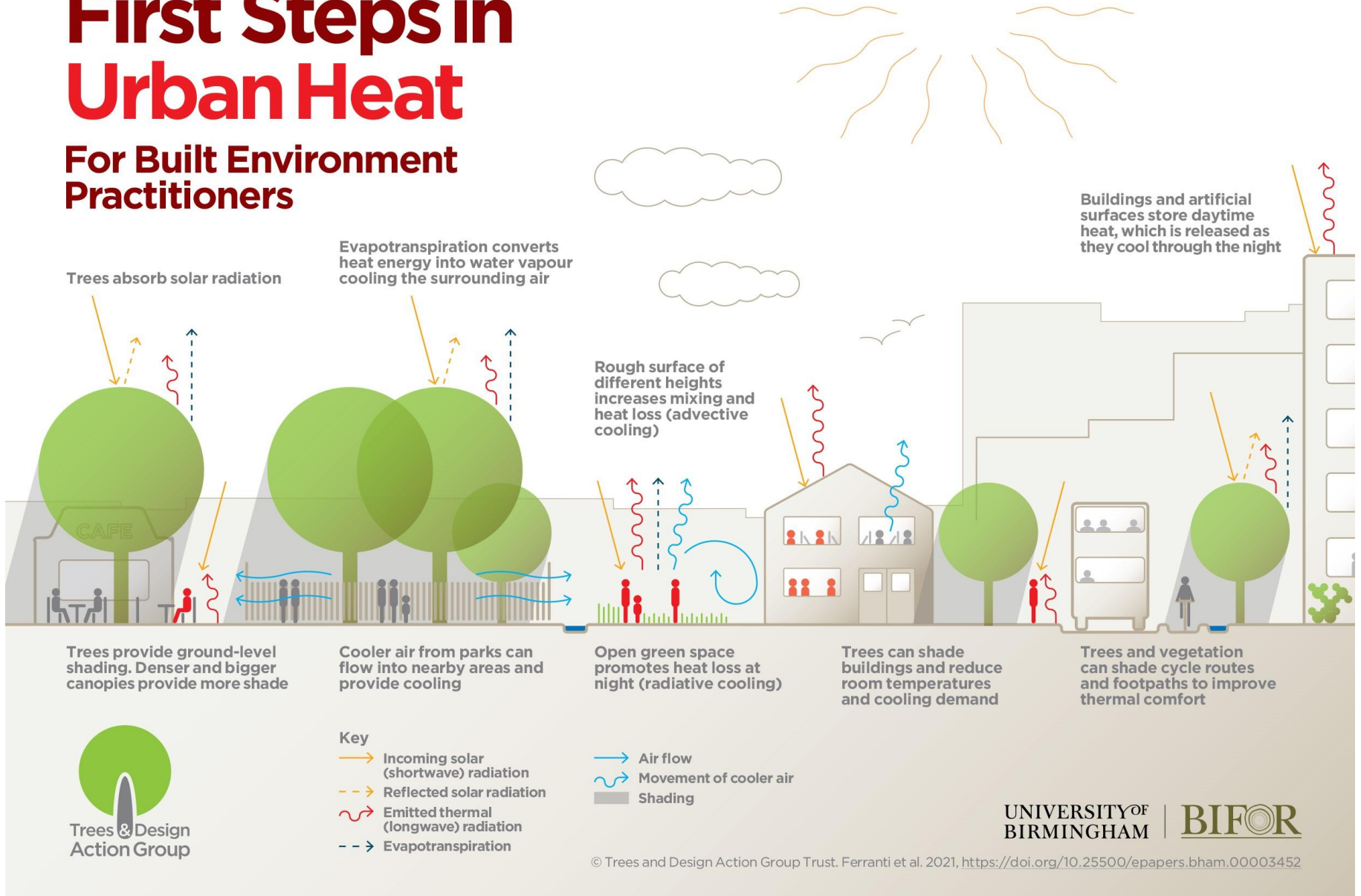
The critical role of trees in making healthy places that...

91 views • 6 months ago

www.tdag.org.uk

First Steps in Urban Heat

For Built Environment Practitioners

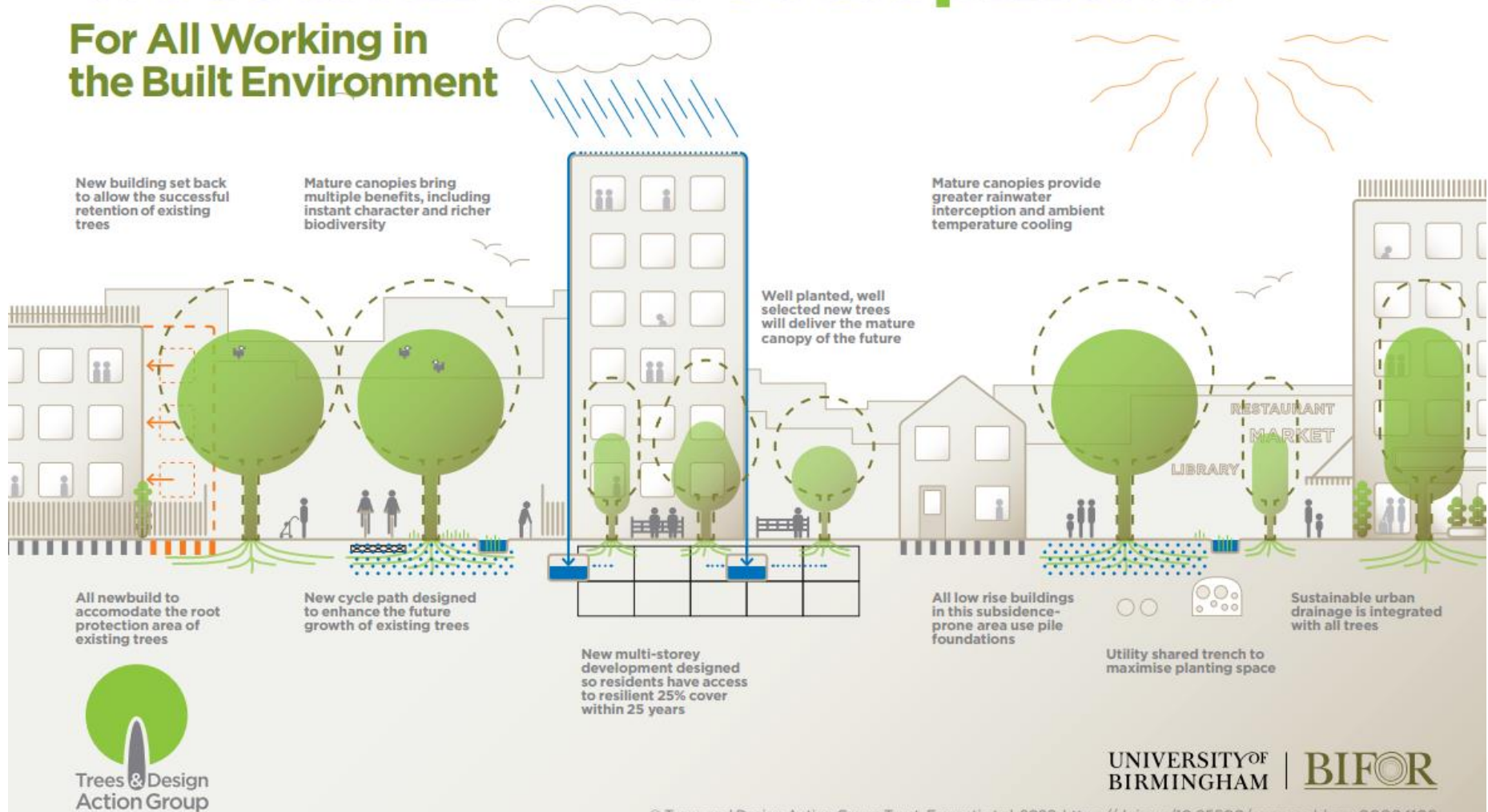


UNIVERSITY OF BIRMINGHAM | BIFOR

© Trees and Design Action Group Trust. Ferranti et al. 2021, <https://doi.org/10.25500/epapers.bham.00003452>

First Steps in Trees and New Developments

For All Working in the Built Environment



© Trees and Design Action Group Trust. Ferranti et al. 2022. <https://doi.org/10.25500/epapers.bham.00004109>

Summer 2022 - UK



New highest daily **maximum** temperatures

UK & England

40.3°C

Coningsby
(Lincolnshire)

Wales

37.1°C

Hawarden
(Flintshire)

Scotland

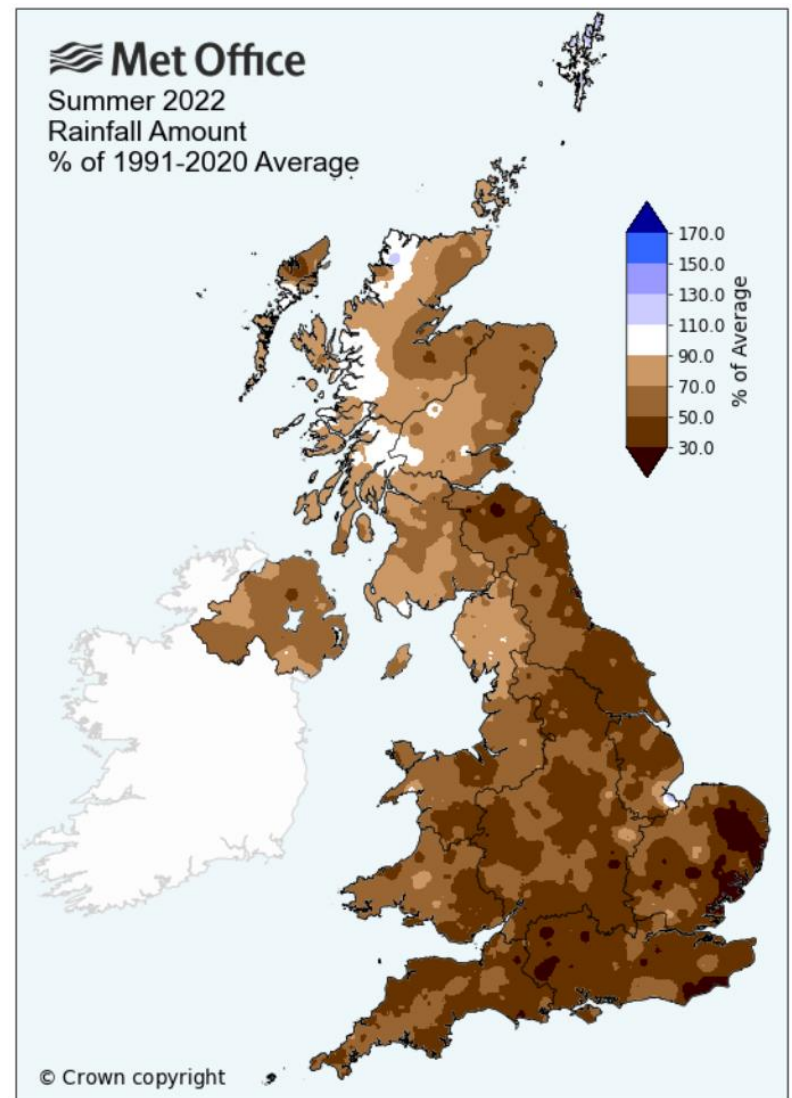
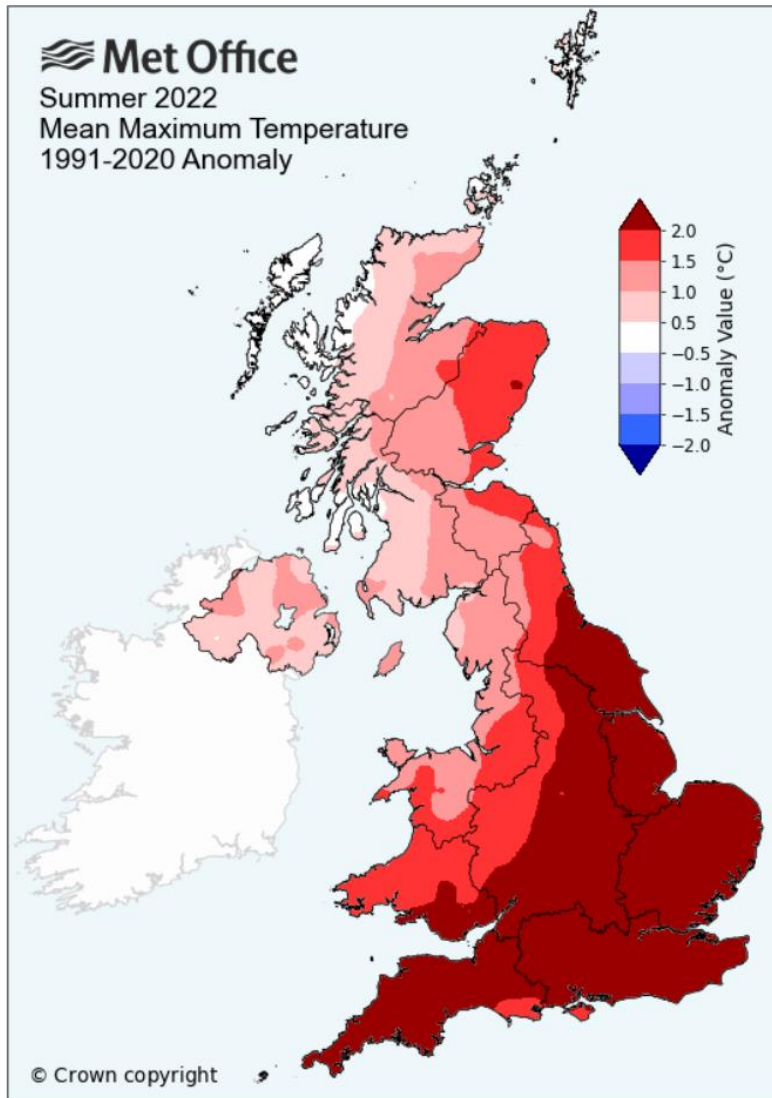
34.8°C

Charterhall
(Scottish Borders)

Source [Met Office](#)



Summer 2022 - UK



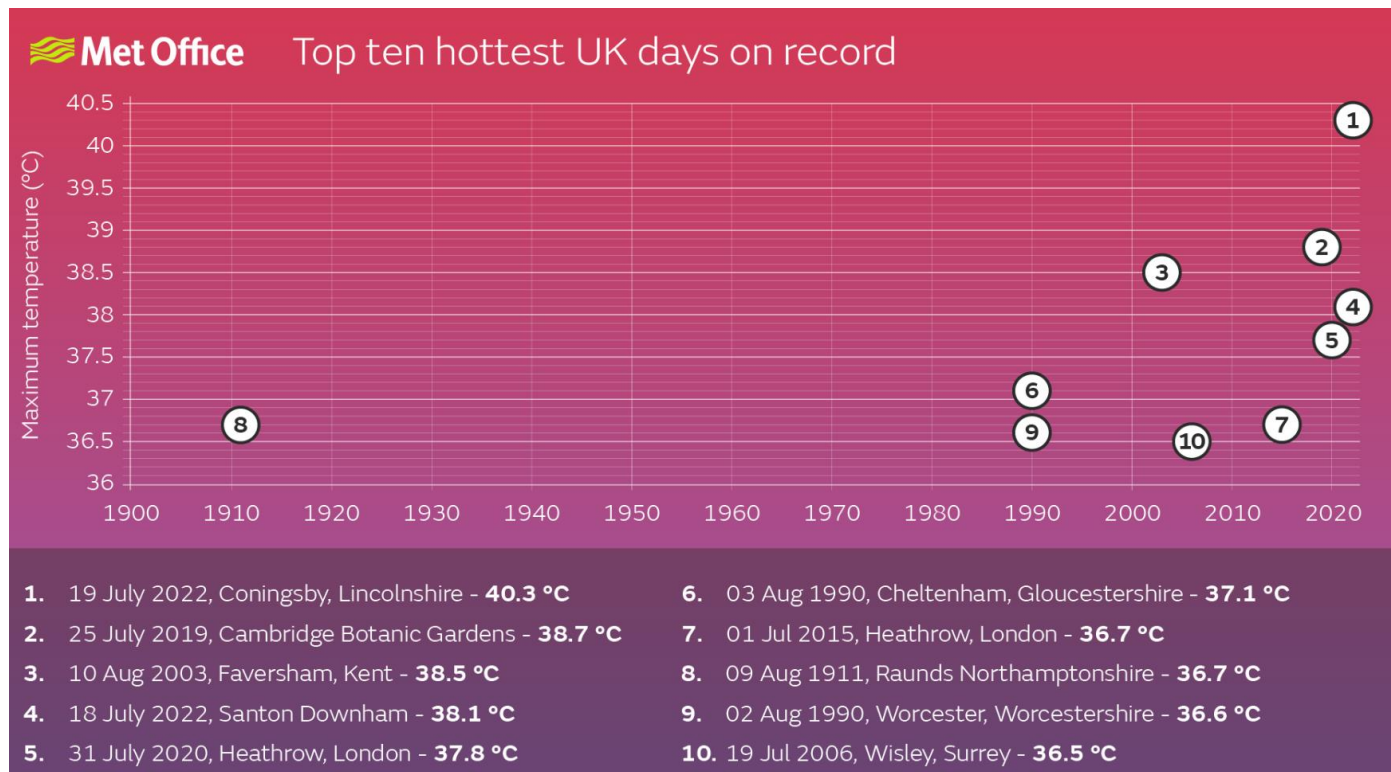
Source [Met Office](https://www.metoffice.gov.uk/news/2022/08/22/summer-2022-uk)

Future Climate

Source [Met Office](#)

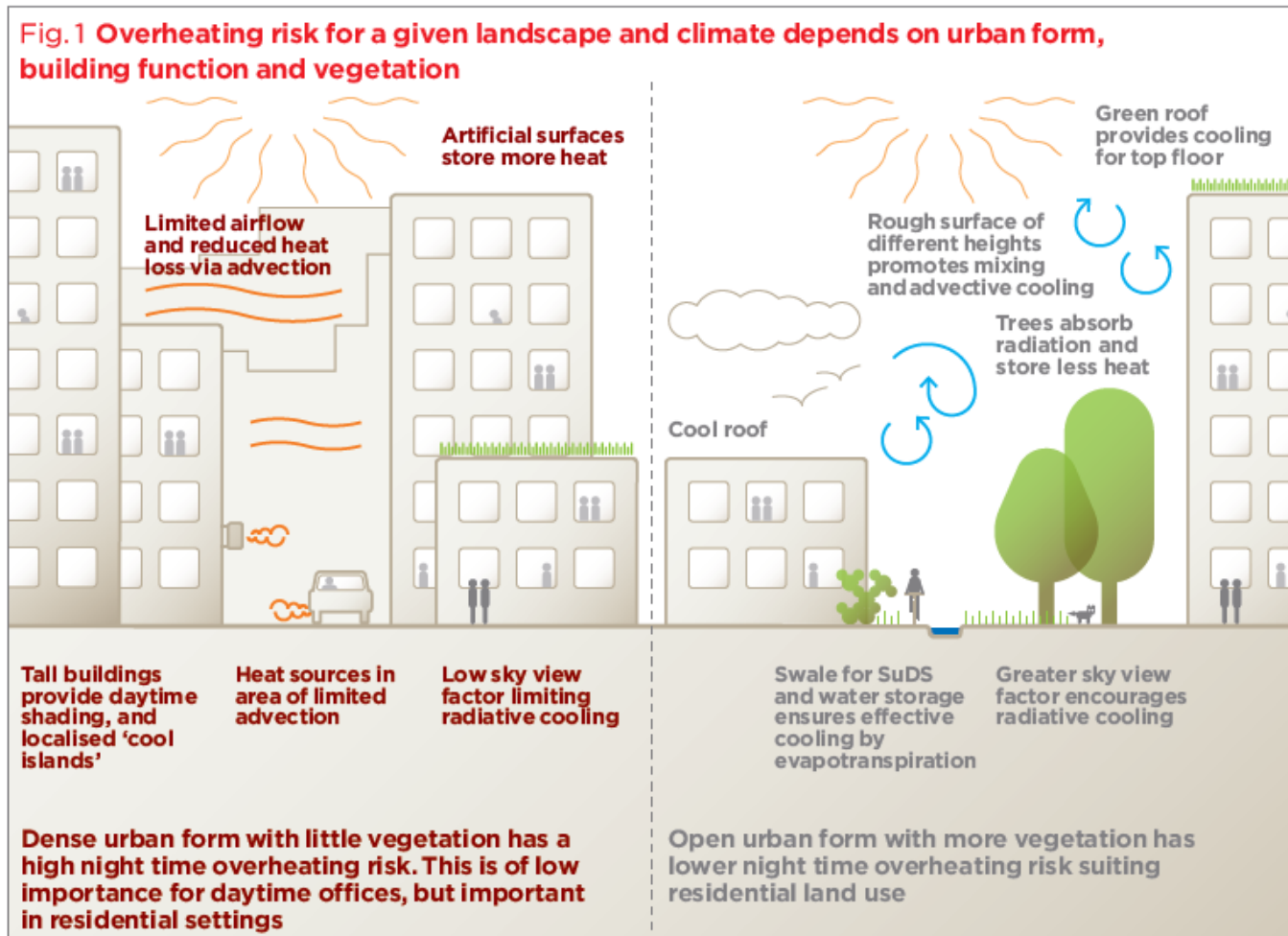
Met Office (UKCP 2018) “a greater chance of warmer, wetter winters and hotter, drier summers”

- More frequent heavy rainfall events, more rain in shorter period
- Summers like 2018 happening every other year by 2050



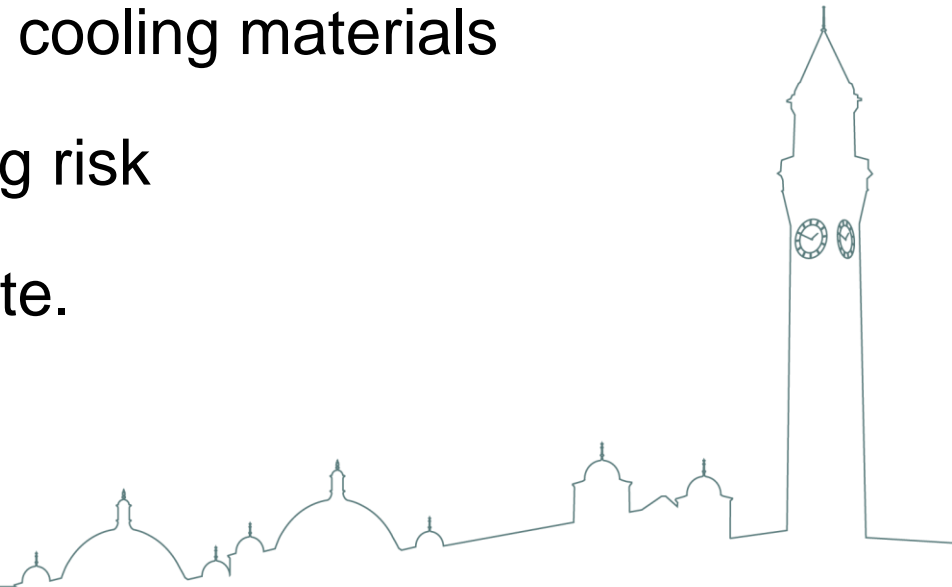
Urban heat

Urban areas are warmer than surrounding rural areas

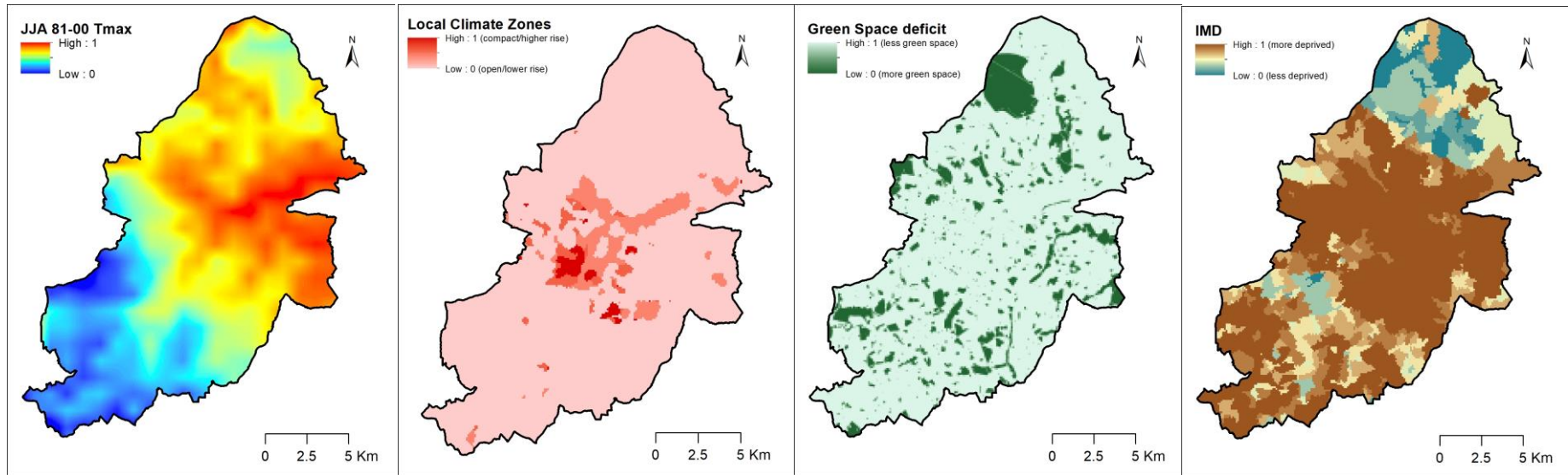


What can built environment practitioners do?

1. Understand urban heat – where is hottest?
2. Heat sensitive strategic planning – locate homes away from hottest areas
3. Consider site design and materials - sky view factor, green infrastructure, cooling materials
4. Assess building overheating risk
5. It is never too late to mitigate.

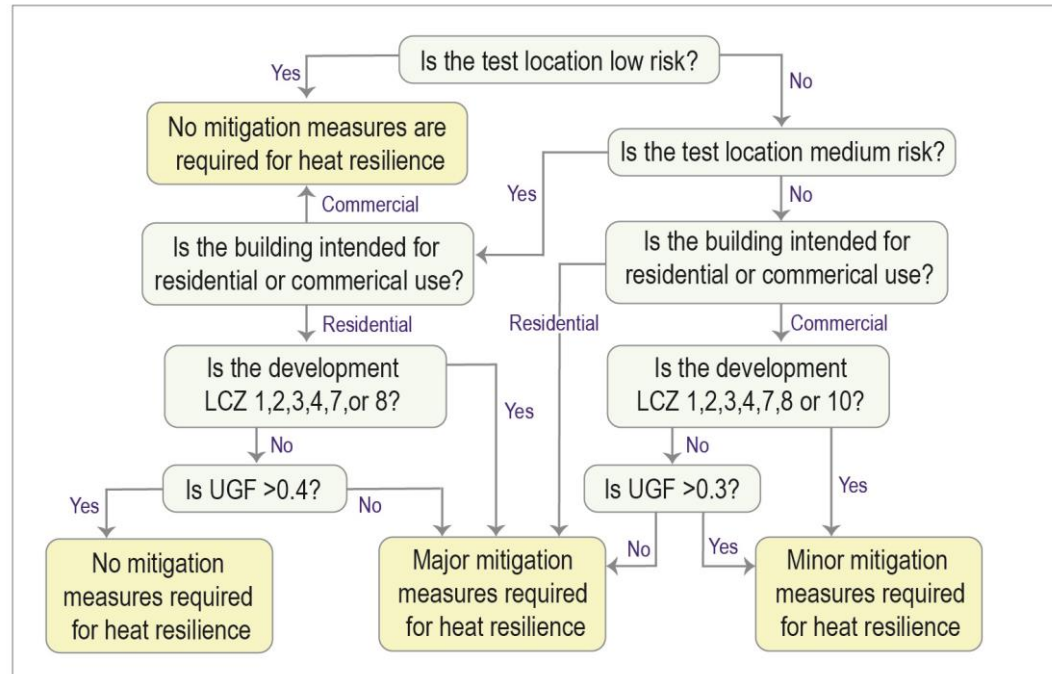
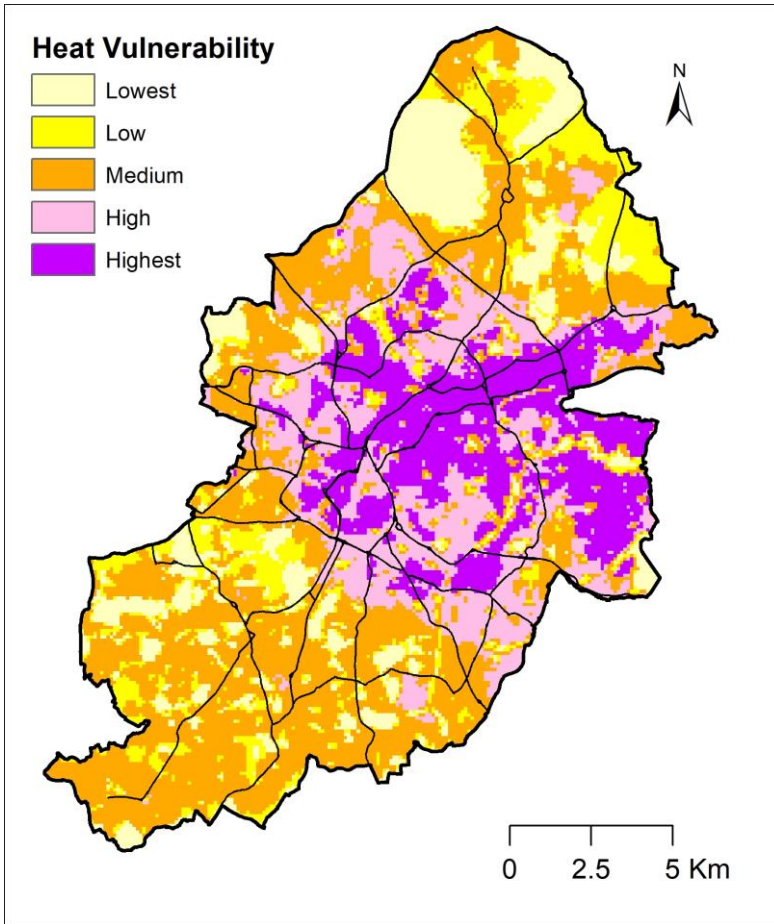


Mapping Heat Vulnerability in Birmingham



- Overheating risk can be estimated by combining 4 open access datasets (Ferranti et al. <under review>)
- Temperature, Local Climate Zones (urban form), green space, and Indices of Multiple Deprivation (IMD)

Mapping Heat Vulnerability in Birmingham



2. Combine with flow chart to specify heat mitigation measures (e.g. GI/building materials)

1. Map heat vulnerability (temperature, LCZ, green space, IMD)

Final Thoughts

1. Urban trees feel the extremes of heat and drought
2. Water is important: extreme rainfall, drought, trees need water to survive /evapotranspiration
3. Overheating risk is part of broader Climate Risk and Vulnerability Assessment (CVRA) mapping work
4. Contact me if of interest



Emma Ferranti

e.ferranti@bham.ac.uk