



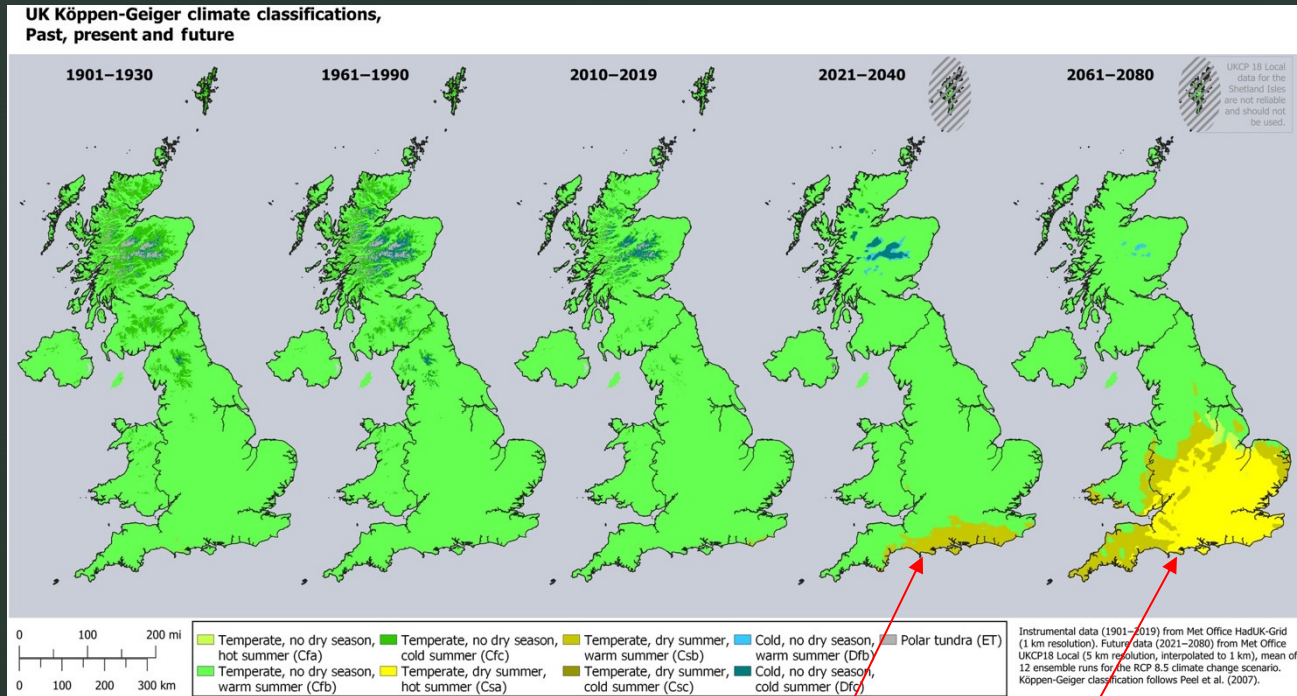
Wildfires, Phenology and Fire Weather in Dorset & Hampshire

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Past, Present and Future UK Köppen-Geiger Climate Classifications



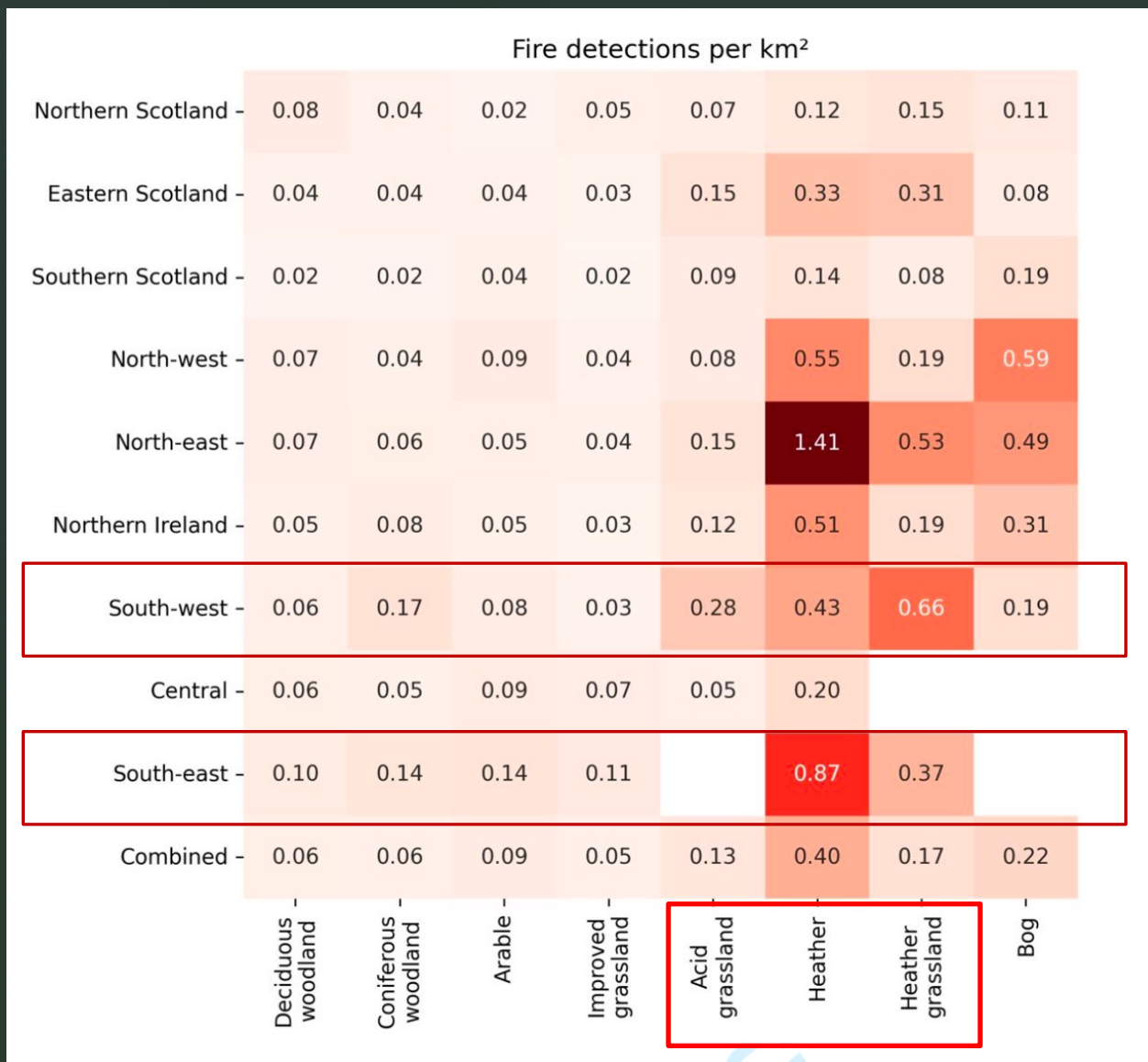
Changing pressures on Dorset and Hampshire Ecosystems

Impact biodiversity
Vegetation state and stress
Fire Risk

Temperate,
dry summer,
warm summer

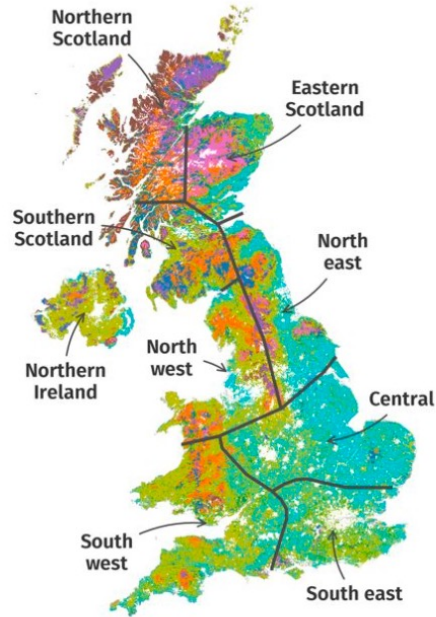
Temperate,
dry summer,
hot summer

What UK land cover types host the most fires?

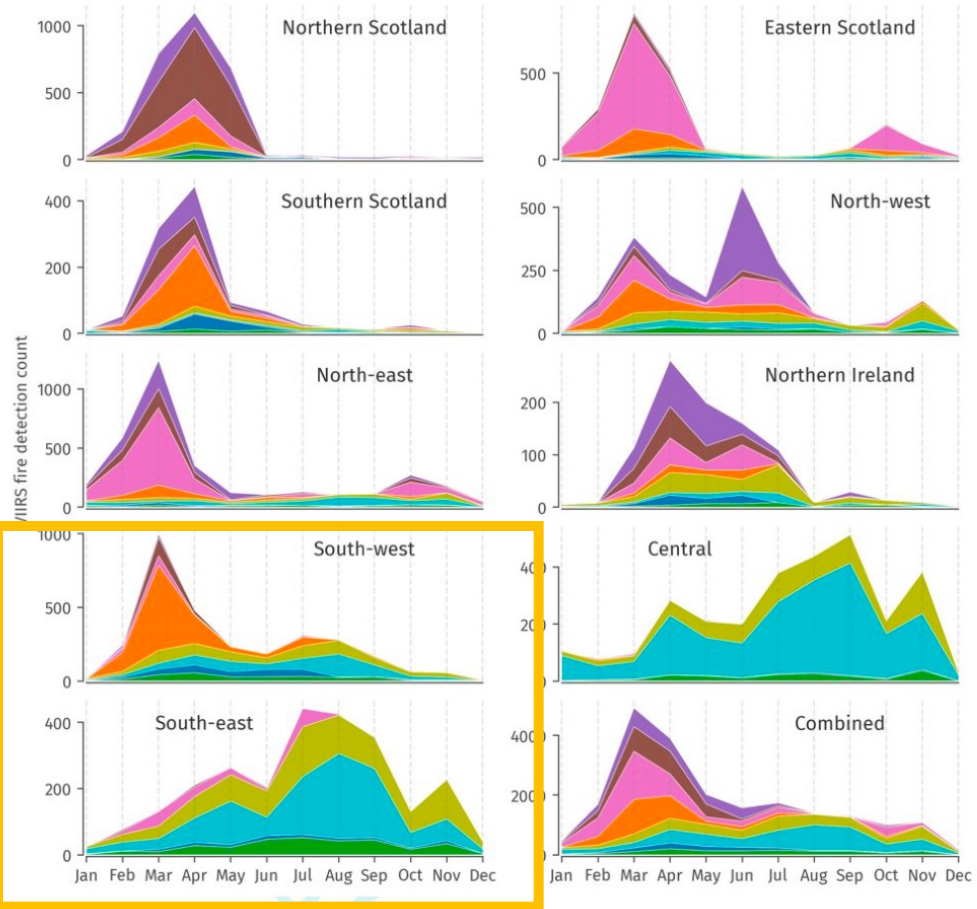


VIIRS NPP vegetation fire detection counts per square kilometre for the UK regions and land covers between 2012 – 2023.

When do Fires occur in the UK and in what land cover types?

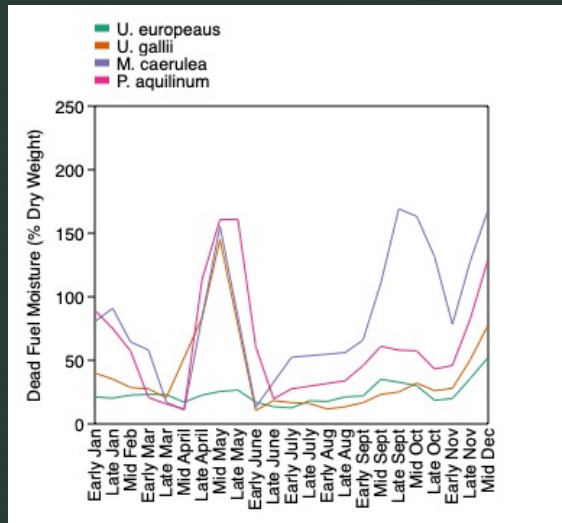


- Deciduous woodland
- Coniferous woodland
- Arable
- Improved grassland
- Acid grassland
- Heather
- Heather grassland
- Bog



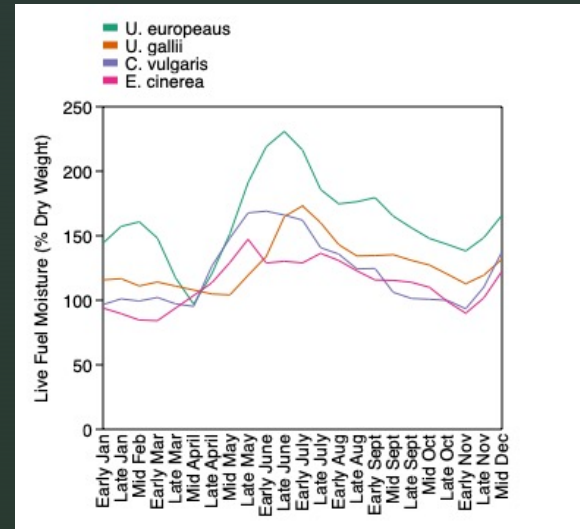
Phenologically Driven Variability Moisture and Ignitability in Heathlands

Dead Heathland Fuels



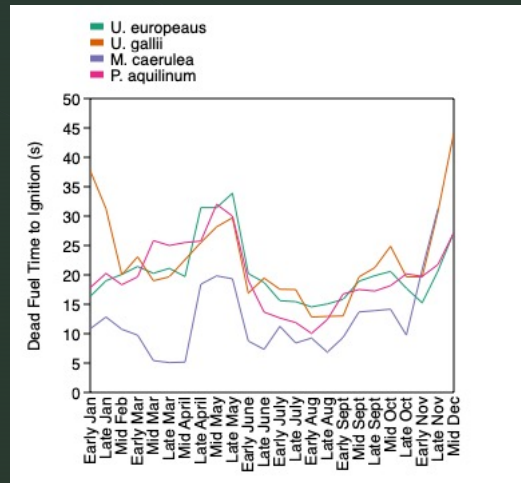
Peak Dead Fuel Moist April-May
Green up

Live Shrub Fuels

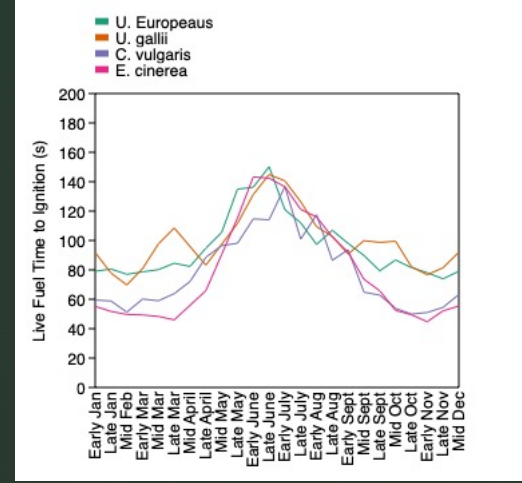


Peak Fuel Moisture Early June

Faster
slower



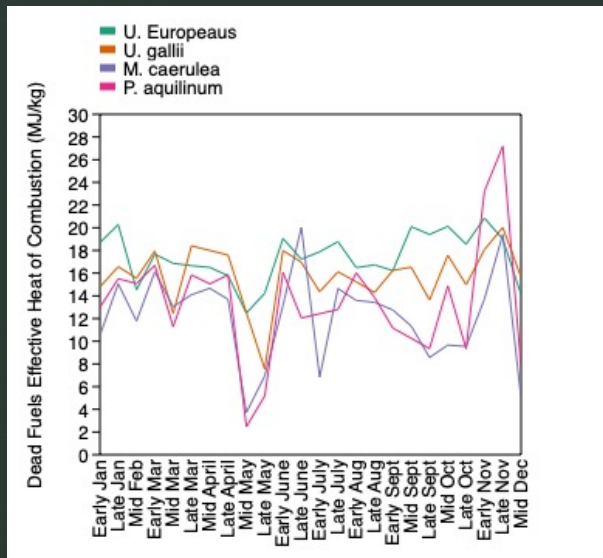
Slowest ignition April-May
Green up



Slowest ignition May-August
Green-up and summer

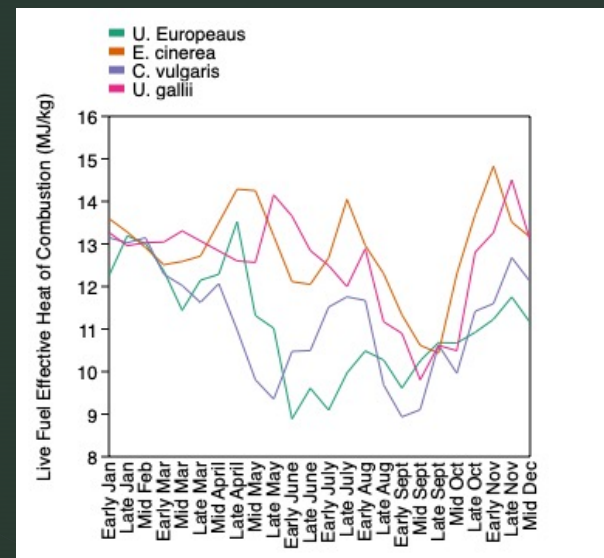
Phenologically Driven Variability in Flammability Effective Heat of Combustion = 'Energy Content'

Dead Heathland Fuels



Clear Start of Green-Up Dip

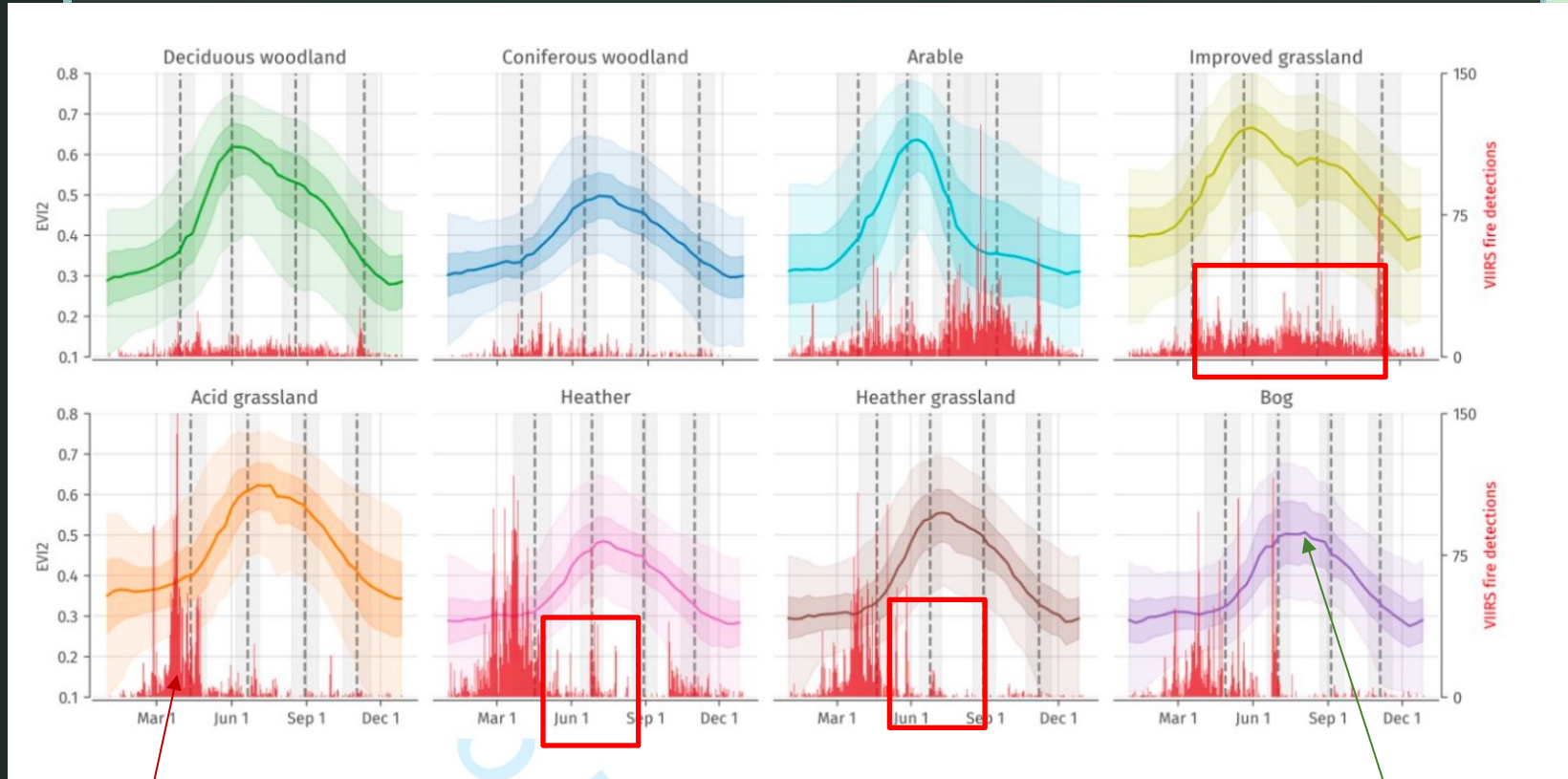
Live Shrub Fuels



Heat content lower throughout max greenness (late spring-Summer)

Do fires typically align with Phenology

Graphs showing 'enhanced vegetation Index' which is a satellite based proxy of vegetation relative greenness and health for UK land cover classes



Fire detections

Vegetation greenness

Live Fuels Have a Growing Season
And can interact with water availability (Dead fuels can't)

News > UK > Home News

Wildfires break out across UK as record heatwave rages

Fires broke out across London, Kent, Cornwall and Pembrokeshire on the UK's 'hottest day ever'

Weather Linked Conditions
are changing

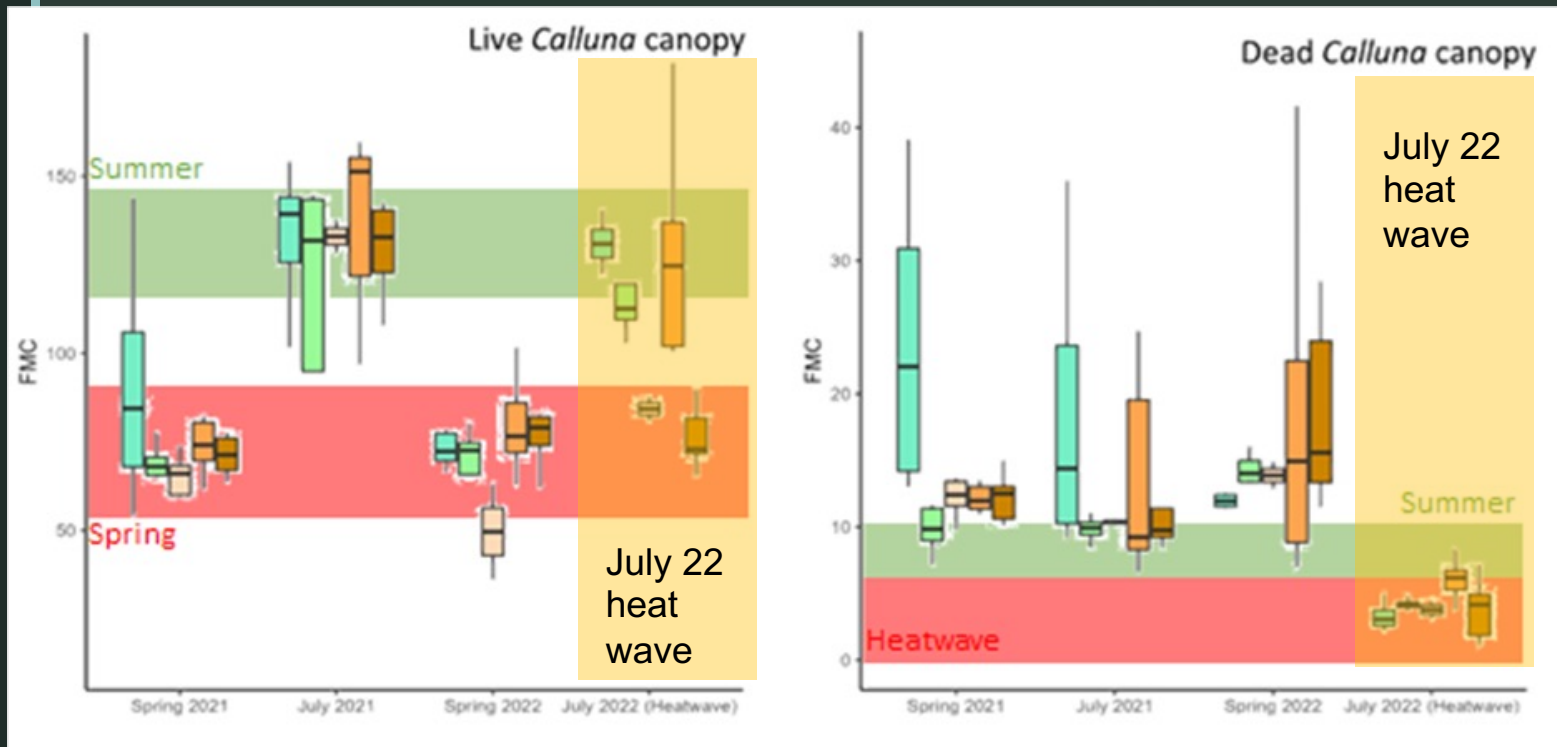
 News ▶ Cambridgeshire Fire and Rescue

UK heatwave: First ever red alert heat warning prompts Cambs fire warning

**UK heatwave: Fire risk to farmers
harvesting in extreme heat**

**UK weather news – live: Heatwave
fires ‘like the Blitz’ as dozens of
homes destroyed**

Do Heat Wave Conditions break the seasonal code?

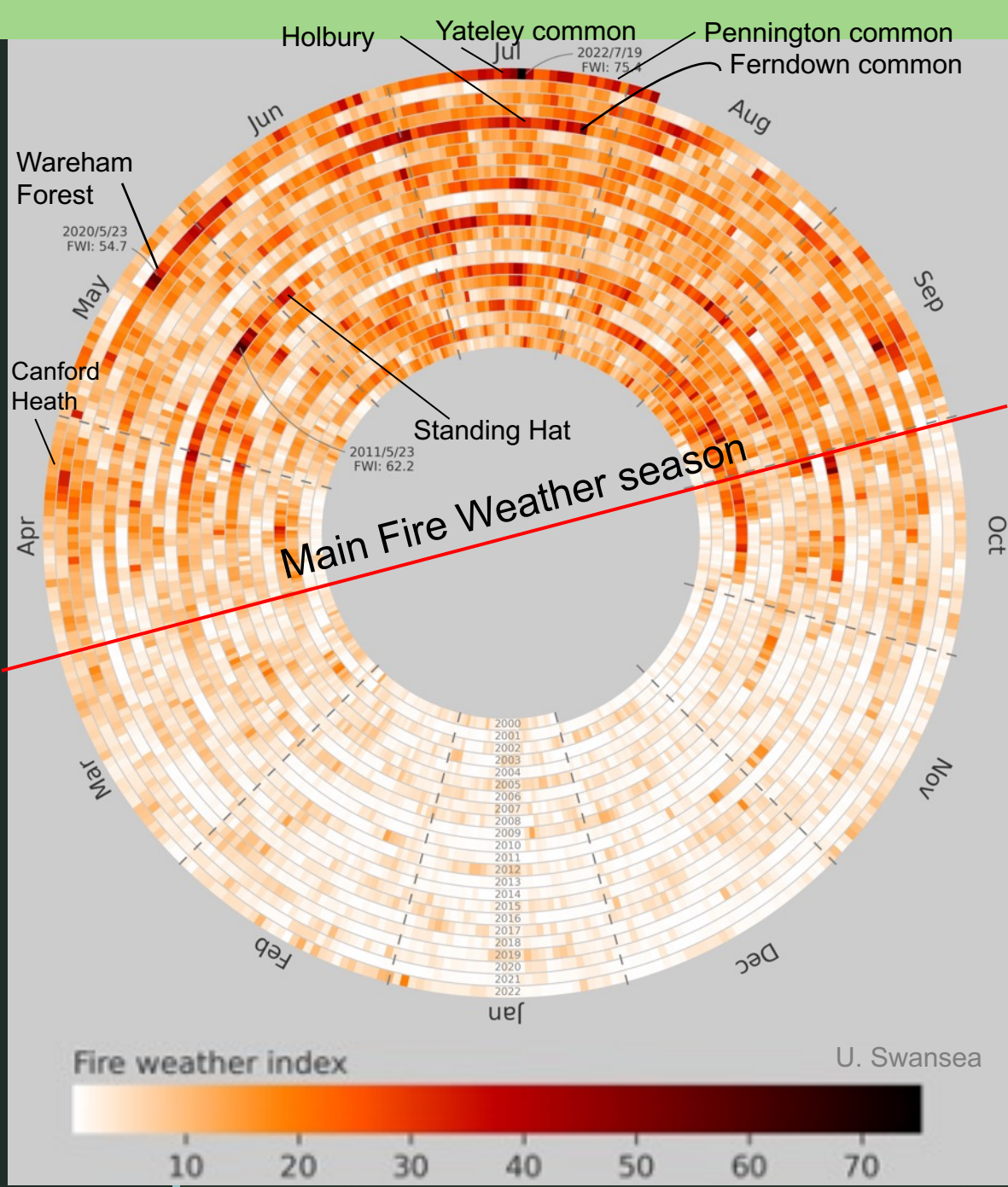


The phenological cycle for live *Heather* was disrupted by the extreme weather of July 2022. This disruption was severe in East Anglia and the South East.

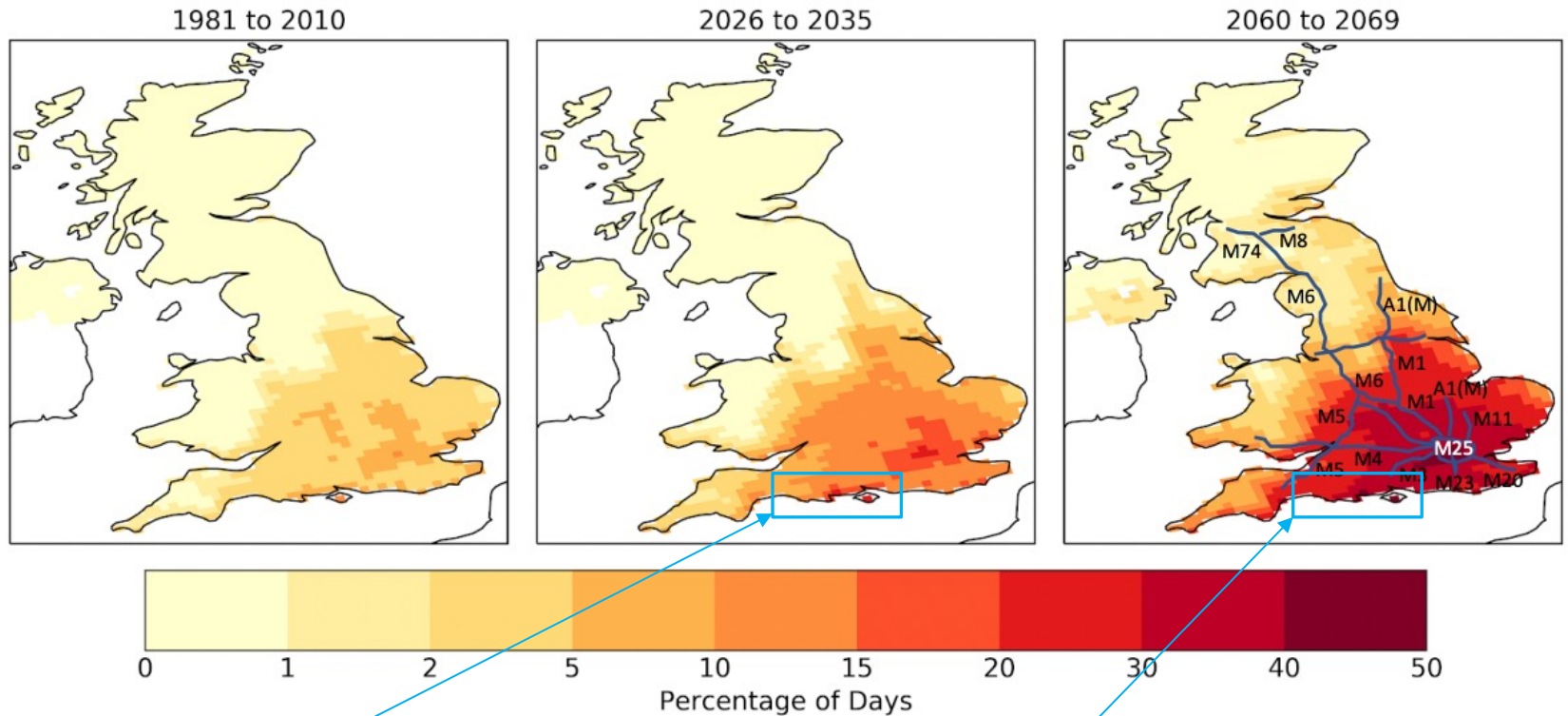
Summer Heat Waves Push our Fuels to the Level of their Spring Flammability but couple it with deadly Fire Weather

- Region of UK
- North York Moors
 - Peak District
 - East Anglia
 - South Wales/South West
 - South East

Do Heat Wave & Drought Conditions have a strong effect on Dorset and Hampshire



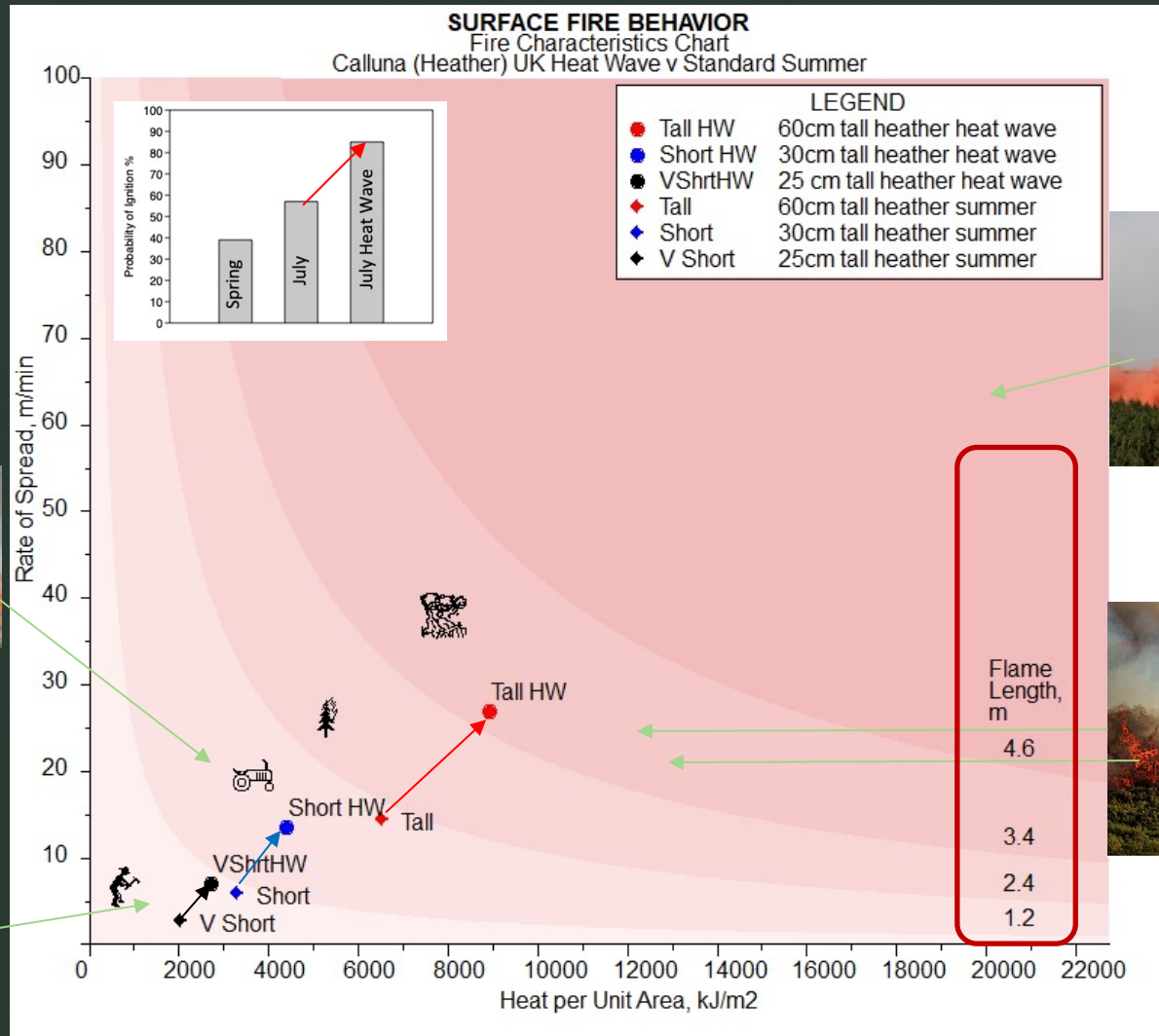
Will this be pushed further in the future?



Dorset and Hampshire are a predicted hot spot in the very near term

Up to 50% of summer days ! That is pretty concerning

How much does this change in fire behaviour matter?



Pushes the UK beyond its current fire fighting infrastructure and training

We need your help!

To improve our fire behaviour models we need more vegetation height data for Heathlands

Molinia

Heather both Calluna and Erica

Western Gorse and European Gorse

Ferns

Mixed heath - general height

Could you send us Photos?



c.belcher@Exeter.ac.uk

Email title: Heath Fuel Height



Thanks for Listening



Website: www.ukfdrs.com and www.wildfire-lab.com
Twitter/now X: @ukfdrs