

Climate change as a driver of extreme wildfires - trends, evidence and what next?

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*PM2.5 and PM10 air quality,
Canada, July 2023*





Launched May 2023, provides a **comprehensive global assessment of the links between climate change and growing extreme wildfire risk.**

It presents emerging country **approaches to adapt policies and practices to deal with the growing wildfire risk.**

Marta Arbinolo, Catherine Gamper,
Ágnes Szuda [OECD](2023)

Note: all figures in this presentation are from the report unless stated otherwise



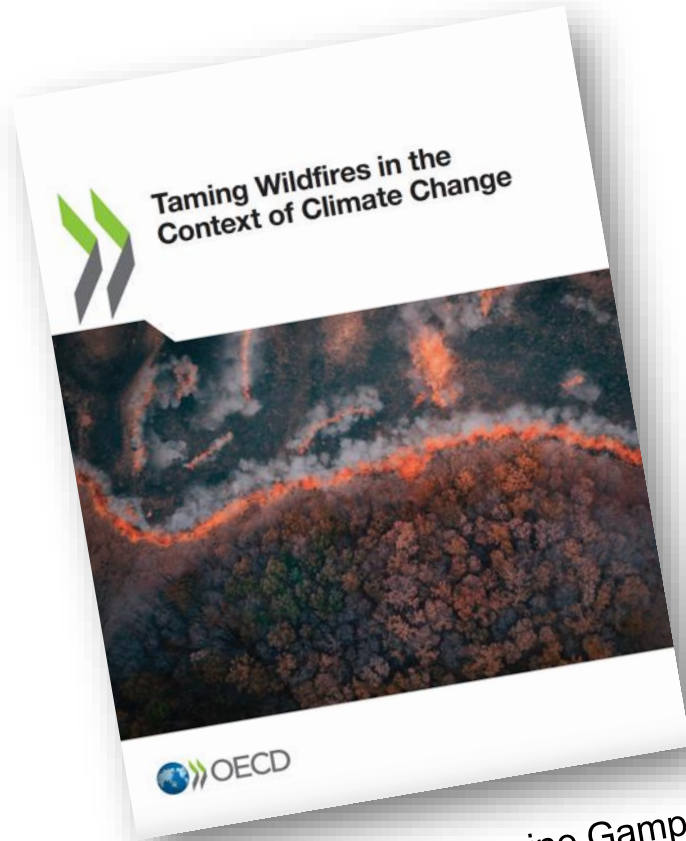
The **Organisation for Economic Co-operation and Development (OECD)** is an international organisation that works to build better policies for better lives.

Its goal is to **shape policies** that foster prosperity, equality, opportunity and well-being for all.



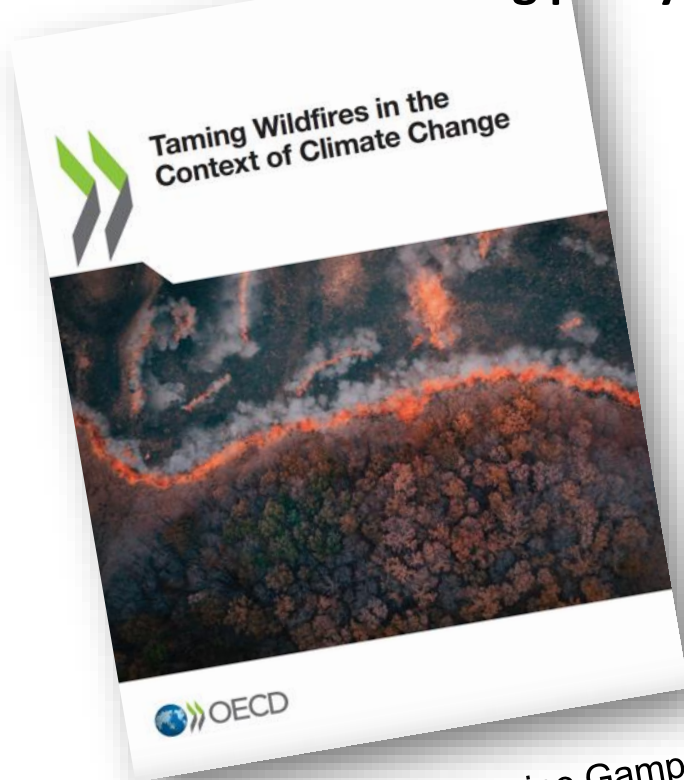
38 countries

Member states
Applicants



Marta Arbinolo, Catherine Gamper,
Ágnes Szuda [OECD](2023)

OECD mission: influencing policy for economic development (!?)



Marta Arbinolo, Catherine Gamper,
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1 Overview: Key findings and recommendations

- 1.1. An overview of wildfire risk and impacts across regions
 - 1.2. Adapting wildfire management to growing wildfire risk: State of play and policy recommendations
- References

2 Understanding wildfire risk in a changing climate

- 2.1. A critical moment to address wildfire risk
 - 2.2. Understanding wildfire risk
 - 2.3. Observed wildfire trends
 - 2.4. Drivers of extreme wildfires and projections
 - 2.5. Understanding the environmental and socio-economic impact of wildfires
- References
- Notes

– Country case studies (forthcoming)



Portugal



Australia



United States



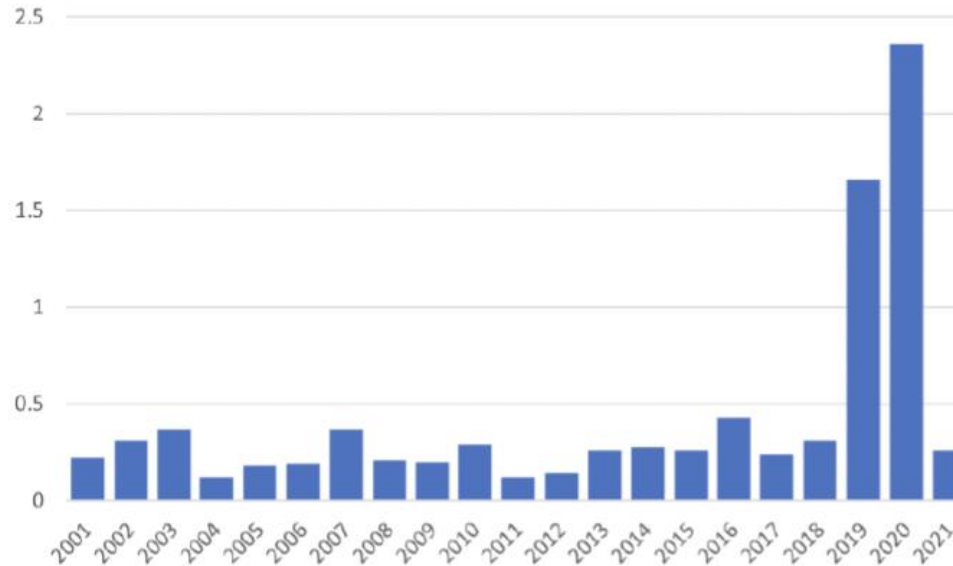
Greece

3 Adapting policies and practices to extreme wildfires: A cross-country review

- 3.1. Introduction
 - 3.2. Scaling up wildfire risk prevention throughout the wildfire management cycle
 - 3.3. Financing wildfire risk prevention
 - 3.4. Towards an integrated approach to wildfire risk prevention
- References
- Notes

Trends: forest area burned in Australia

Million hectares of forest area damaged

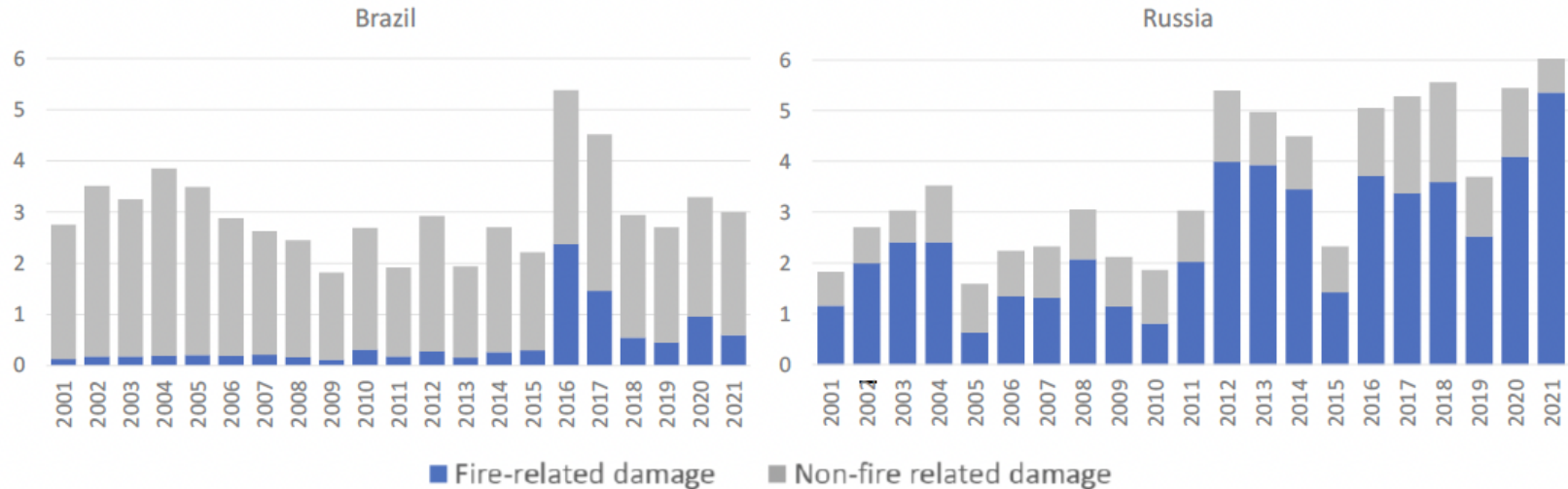


Note: The peak in forest damage observed in 2019 and 2020 is correlated with the exceptionally large area burned during the 2019-20 wildfire season. While tree cover damage may be permanent in some cases, tree cover damage is temporary in others.

Source: Based on WRI (2021_[17]).

Trends: forest area damaged in Brazil and Russia

Million hectares of forest area burned

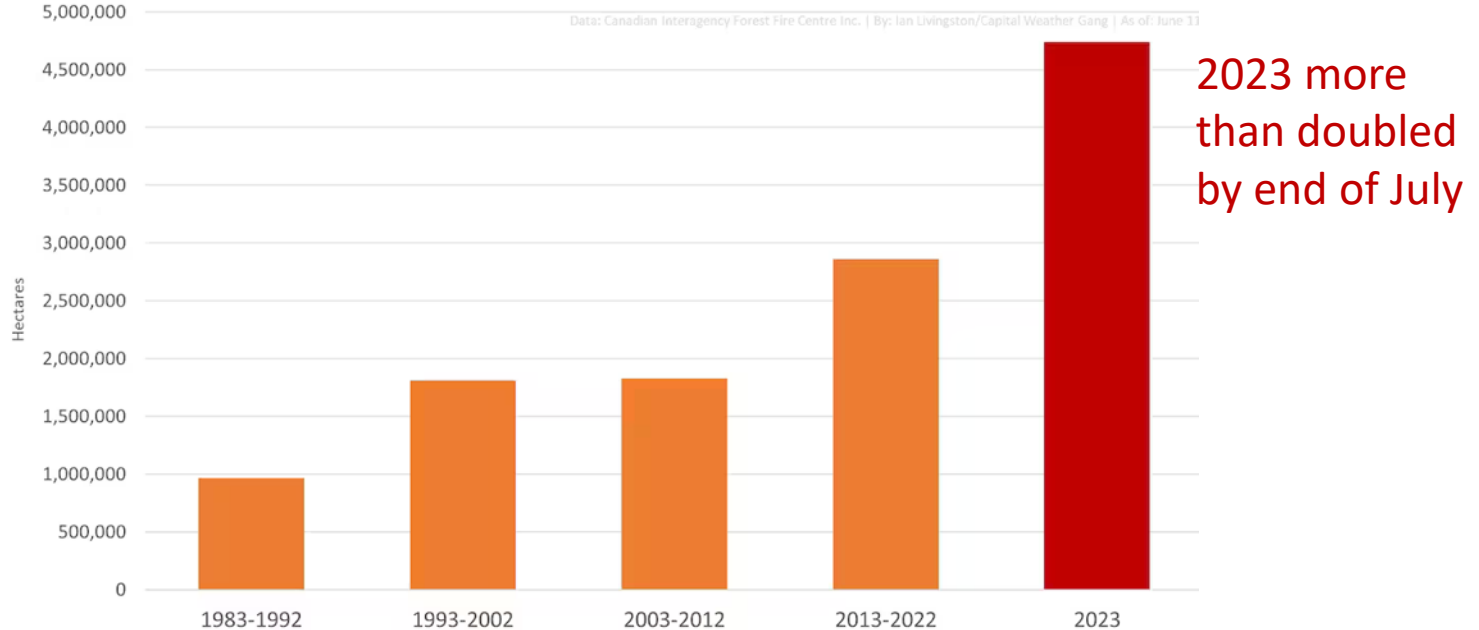


Note: While tree cover damage may be permanent in some cases, tree cover damage is temporary in others.

Source: Based on WRI (2021^[29]) and WRI (2022^[32]).

Trends: area burned in Canada (mainly forest)

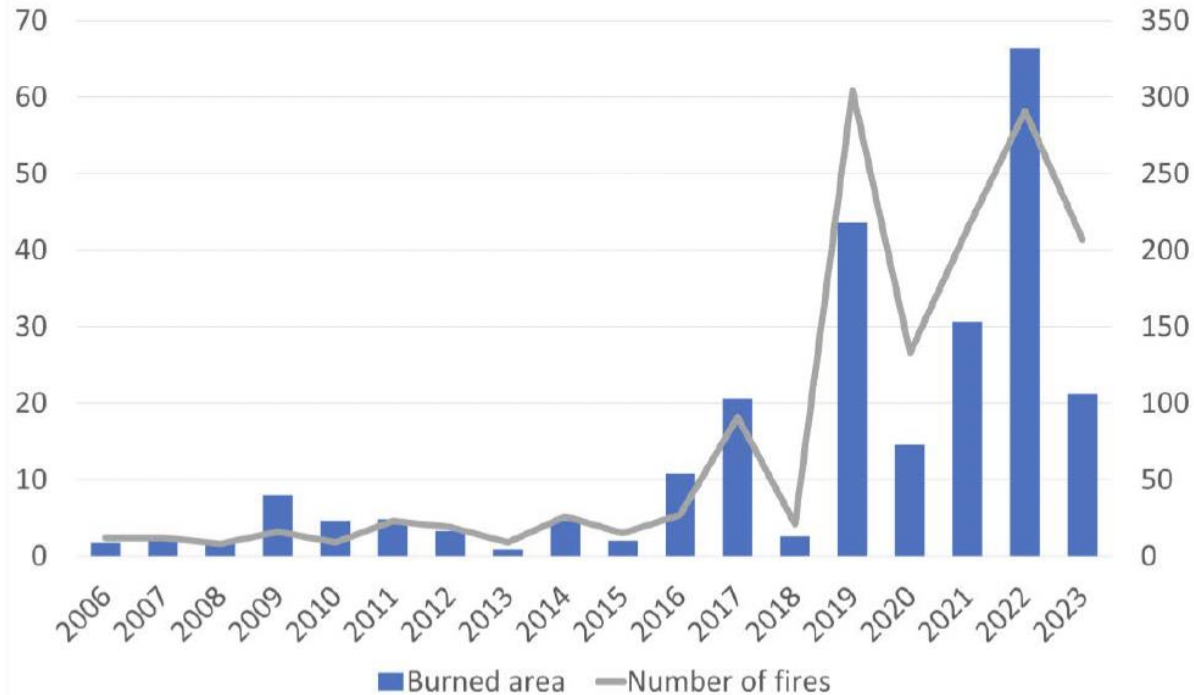
Median annual hectares burned compared with 2023 to date (to 11 June 2023!)



Source: Washington Post based on *Canadian Interagency Forest Fire Centre*

Trends: area burned in France

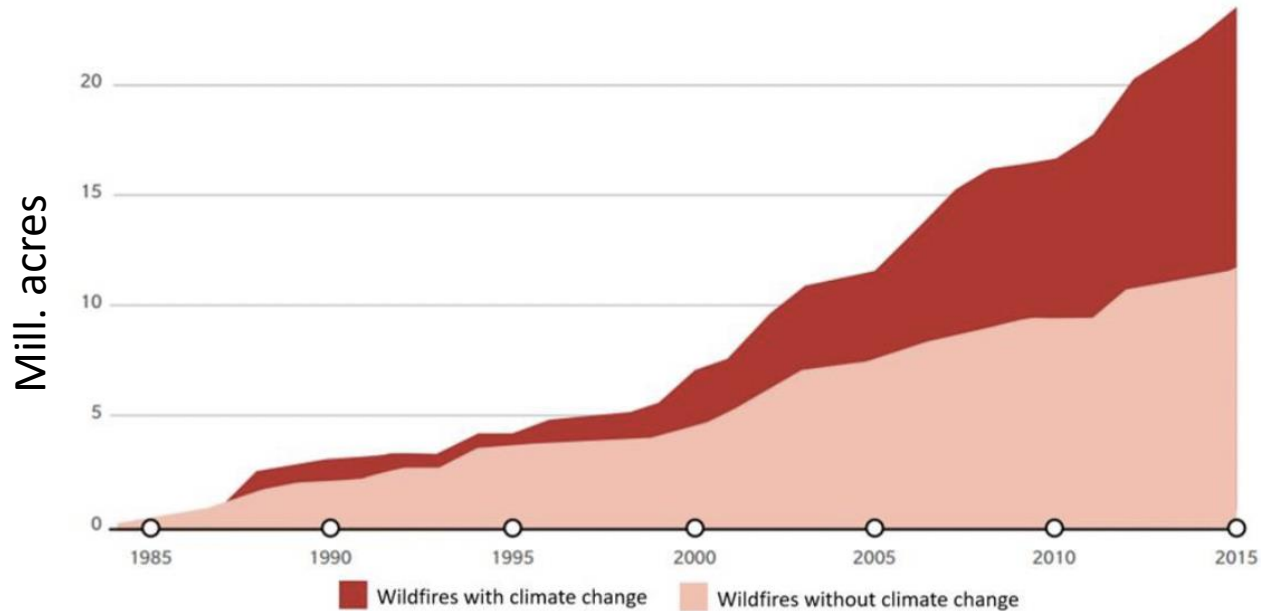
Thousand hectares burned per year (left axis) and number of wildfires recorded per year (right axis)



Notes: Data retrieved from the [European Forest Fire System](#). It includes fires of approximately 30 hectares or larger.

Source: Based on EFFIS (2023_[46]).

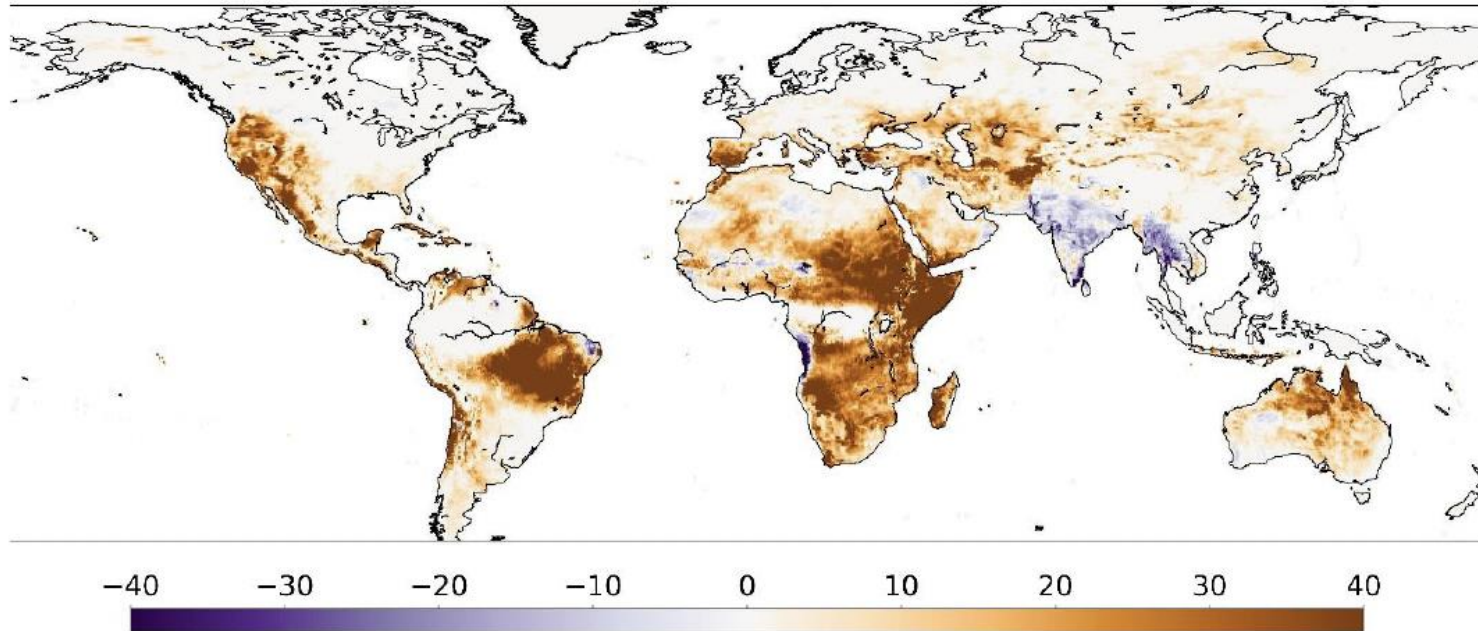
Trends: forest area burned in western USA



Source: adapted from Marsh & McLennan Companies (2019^[21]).

Cumulative forest area burned associated with climate change in the western United States, 1984-2015

Change in number of fire weather days



Notes: Cumulative change in the duration of the fire weather season between 1979 and 2019 based on data from Vitolo et al. (2020_[8]) using the ERA5 dataset. Purple areas represent a decrease in the duration of the fire weather season, while brown areas represent an increase.

Based on:

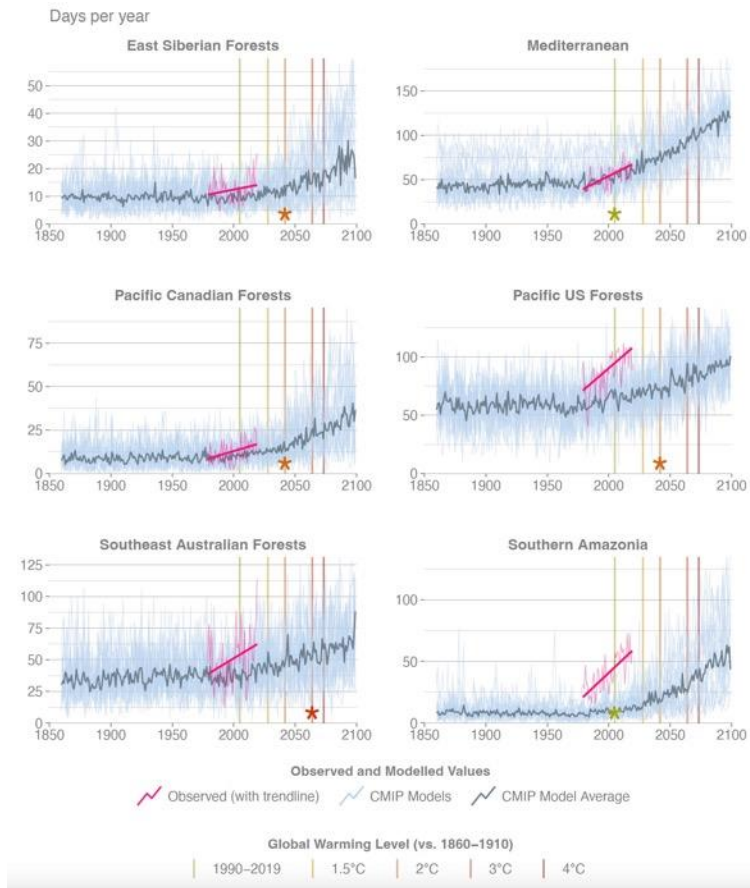
Jones et al. (2022) Reviews of Geophysics

Extreme fire weather days increase faster in some regions than predicted

Time series of regional estimates of mean fire weather season length

Based on:
CMIP5 models running RCP8.5
(business as usual) (light blue, avg.
dark blue; 2.5° resolution)

ERA5 'observations' (thin red lines;
0.25 deg. resolution)



Based on:
Jones et al. (2022)
Reviews of Geophysics

England 2022

Daily Fire Weather Index in 2022 'off the scale'

2011: 62 – 2022: 75!

UK cities need to prepare for future wildfires, say fire chiefs

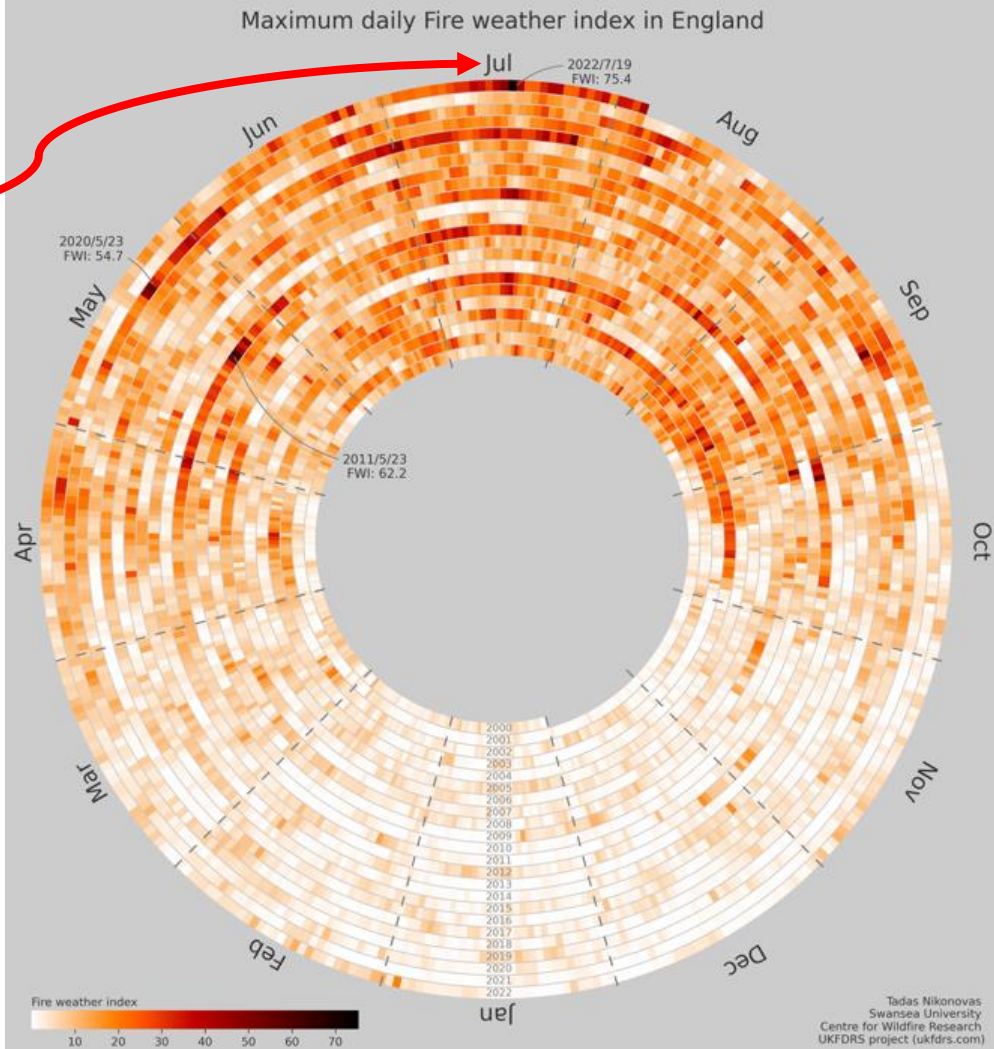
Services need to recognise risk after last week's 'unprecedented' blazes, say experts



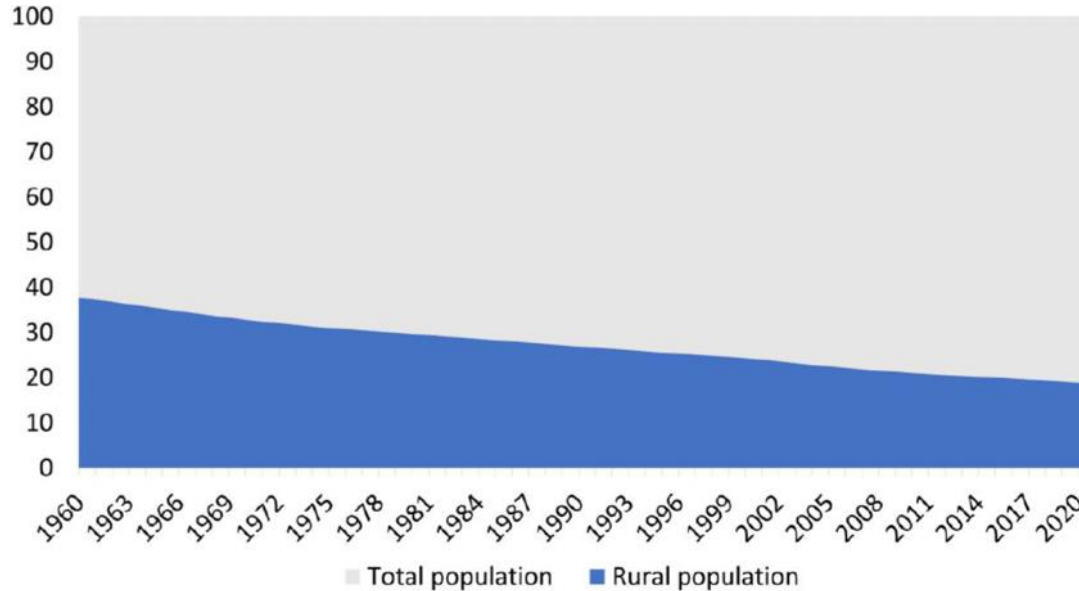
Homes gutted by fire in Wennington, London. Photograph: Dan Kitwood/Getty Images

Fire chiefs have warned that cities in the UK need to prepare for wildfires after dozens of "unprecedented" blazes broke out during last week's record-breaking temperatures.

Source:
Tadas Nikonovas
Centre for Wildfire Research



Attribution studies increasingly support the role of climate, but other factors at play too: fuels and ignitions

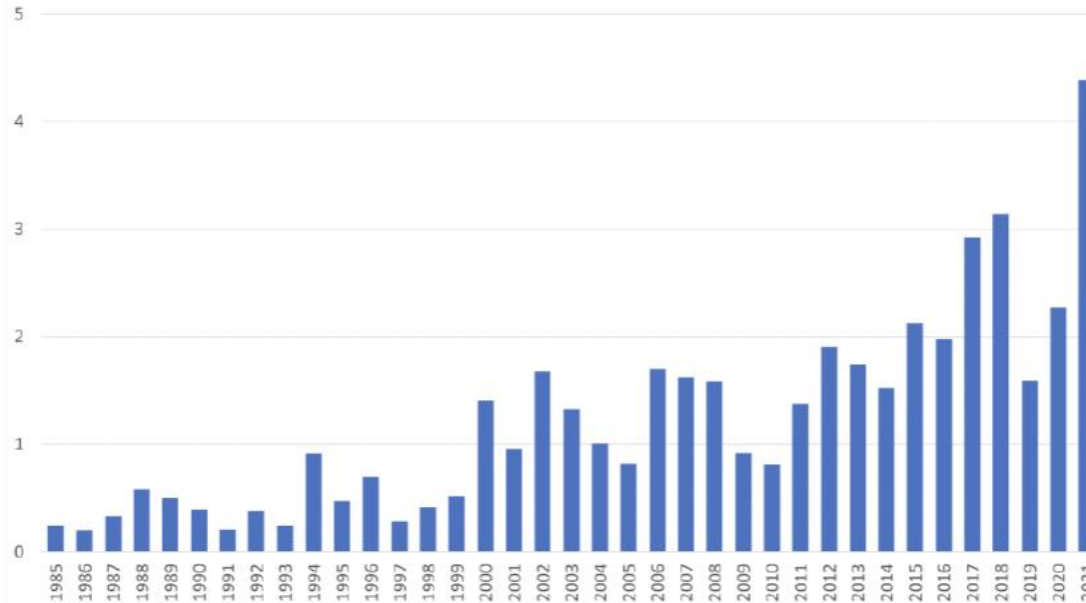


Note: World Bank estimations are based on the [United Nations Population Division's World Urbanization Prospects: 2018 Revision](#).
Source: Based on data from the World Bank (n.d._[108]).



Percentage share of rural population over total population in OECD countries

Action needed – wildfire suppression (?)

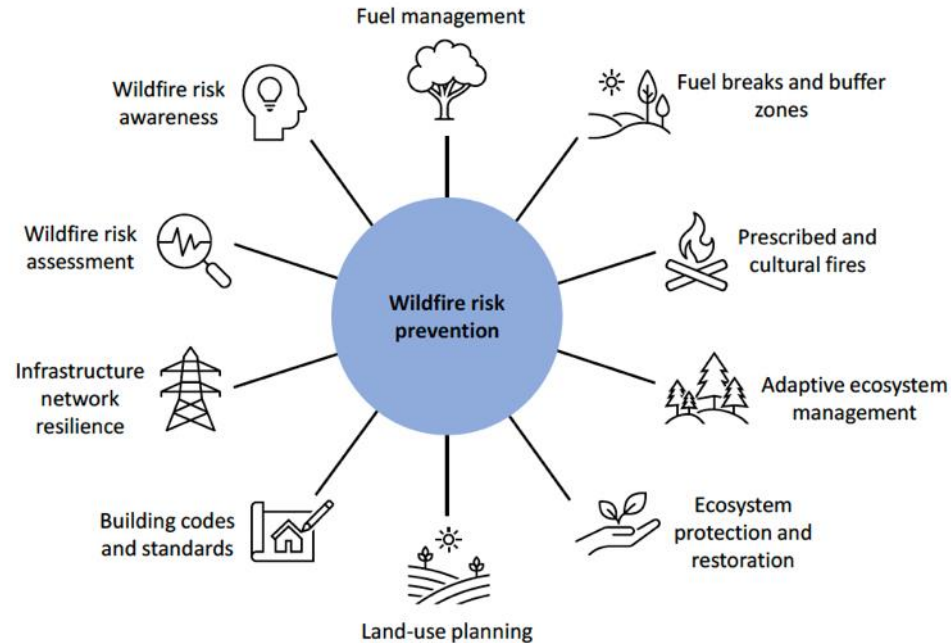


Note: The chart represents federal costs, including those incurred by the US Fire Service and the Department of the Interior's agencies.

Source: Based on data from the National Interagency Fire Center (n.d.[82]).

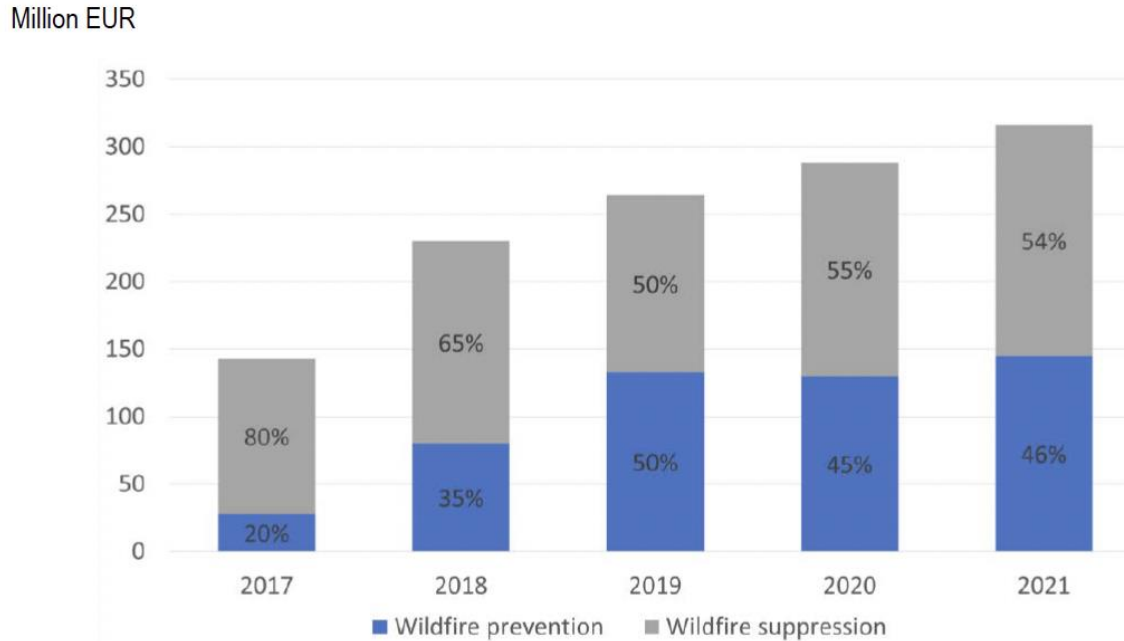
Wildfire suppression costs (billion \$US) in the United States, 1985-2021

Action needed – move towards risk reduction



Reducing the occurrence of, and exposure, to extreme wildfires

Some progress towards risk reduction – example Portugal



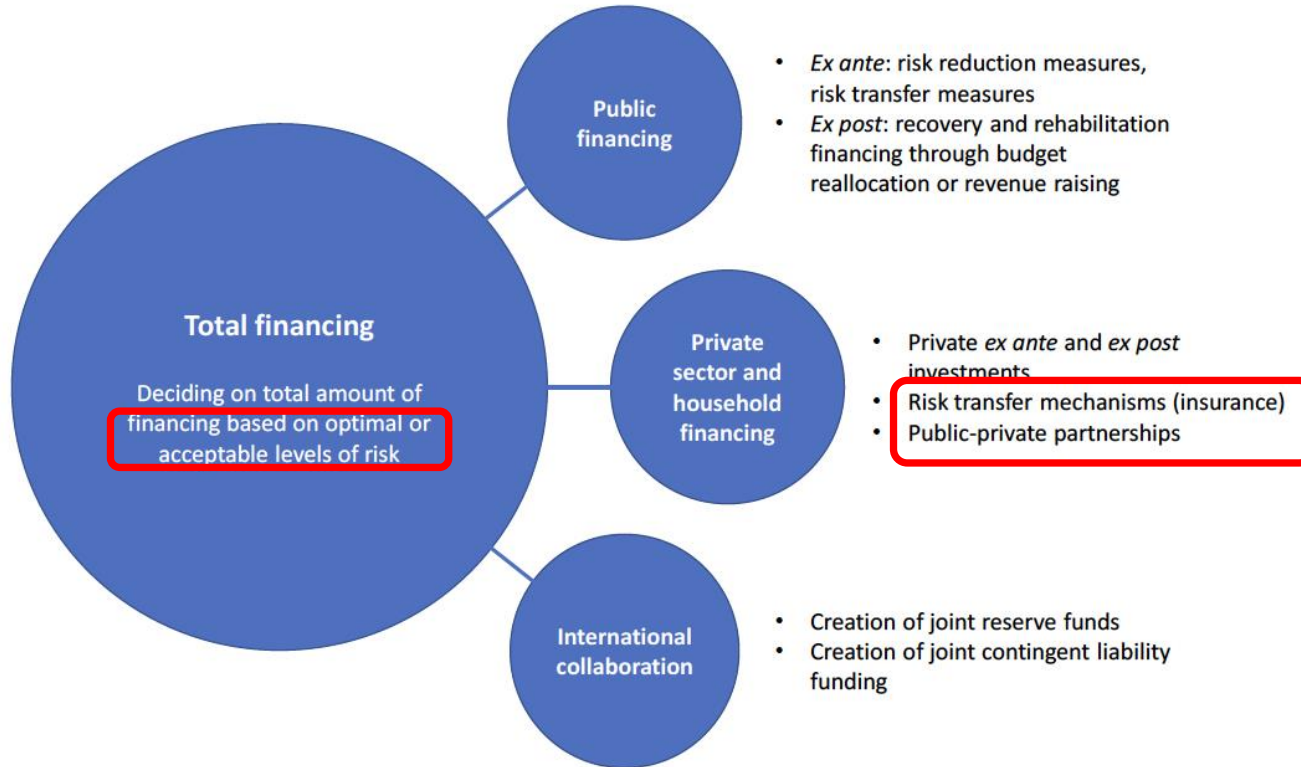
Source: Based on AGIF (2021^[123]).

Shift from suppression to prevention in national public funding 2017-21

OECD's suggested funding model for risk reduction



OECD's suggested funding model for risk reduction



Summary

- Increasing evidence for climate change being a key driver (but not the only one) for more extreme wildfires in many of the world's forest areas
- Worsening wildfires **only one of many** impacts of climate change
- Financing models suggested for risk reduction (occurrence **and** impacts)
- BUT they compete with other mitigation financing needs (e.g. floods, heat waves)



BUT

**Can even well financed mitigation actions
keep pace with anticipated and
unexpected climate change effects?**

