Department for Transport

Met Office

Issued October 2025

Transport hazard summary series

Wildfire

Wildfires threaten the safety and reliability of UK transport. They endanger staff and passengers, damage infrastructure, and disrupt vehicle operations through delays and closures. Climate change is expected to lengthen the wildfire season and make fires more frequent. Wildfires are projected to become more likely not only in areas already prone to them, but in areas that have historically been less likely to experience fires. In response, the transport sector must become more resilient.

The Department for Transport, Met Office and partners have created this series of **transport hazard summaries** to explain natural hazards, their impacts and how they may change in the future.

This summary introduces what is meant by wildfires and how they can impact transport, and offers further information to help decision makers manage and adapt to these risks.

Each year, fire and rescue services in England attend around 30,000 wildfires.*

* Forestry Commission England, 'Wildfire statistics for England report to 2020-2021', 2022, available at: **https://assets.publishing.service.gov.uk/media/63ecff77d3bf7f62edc835a1/FC-Wildfire-statistics-for-England-Report-to-2020-21-.pdf**

What are wildfires?

Wildfires are uncontrolled fires that burn vegetation in the natural environment. In the UK, most wildfires are started by people, either accidentally or deliberately. They may require significant effort from emergency responders to extinguish and can damage or destroy infrastructure.

When do they happen?
Wildfires can happen at any time of year in the UK but are most common from March to October. They are most likely in spring due to an abundance of fuel in the form of dead, dry vegetation after winter. The number of wildfires peaks again in summer, particularly in southern England and during heatwaves and periods of drought.

Where do they occur?
Wildfires occur across many UK landscapes. Most are small, but larger fires can cover tens of square kilometres, significantly impacting ecosystems, people and infrastructure. While most wildfires affect rural areas, they can also start or spread into built-up areas, as seen in the 2022 London wildfires which destroyed 20 homes.

How long do they last?
Most UK wildfires are contained within a few hours by emergency services.* However, under extreme conditions, wildfires can burn for days or weeks, as in the case of the 2018 Saddleworth Moor and 2025 Langdale Moor wildfires. Impacts can persist long after a wildfire is contained or extinguished, as infrastructure may need to be repaired or replaced.

What influences wildfire severity?
Once ignited, wildfire behaviour is shaped by weather, fuel and terrain. High winds can spread flames quickly, while heatwaves and drought can dry vegetation, increasing the availability of fuel. Fires on steep slopes, such as railway embankments, can move uphill rapidly.

As most wildfires in the UK are started by human activity, it is challenging to forecast exactly where one will ignite. Instead, a 'fire danger' level is used to indicate how easily wildfires could take hold and spread, given the weather and ground conditions. In England and Wales, this is assessed using the Met Office Fire Severity Index.† It is banded into five categories with 'very high' and 'exceptional' being the top two.

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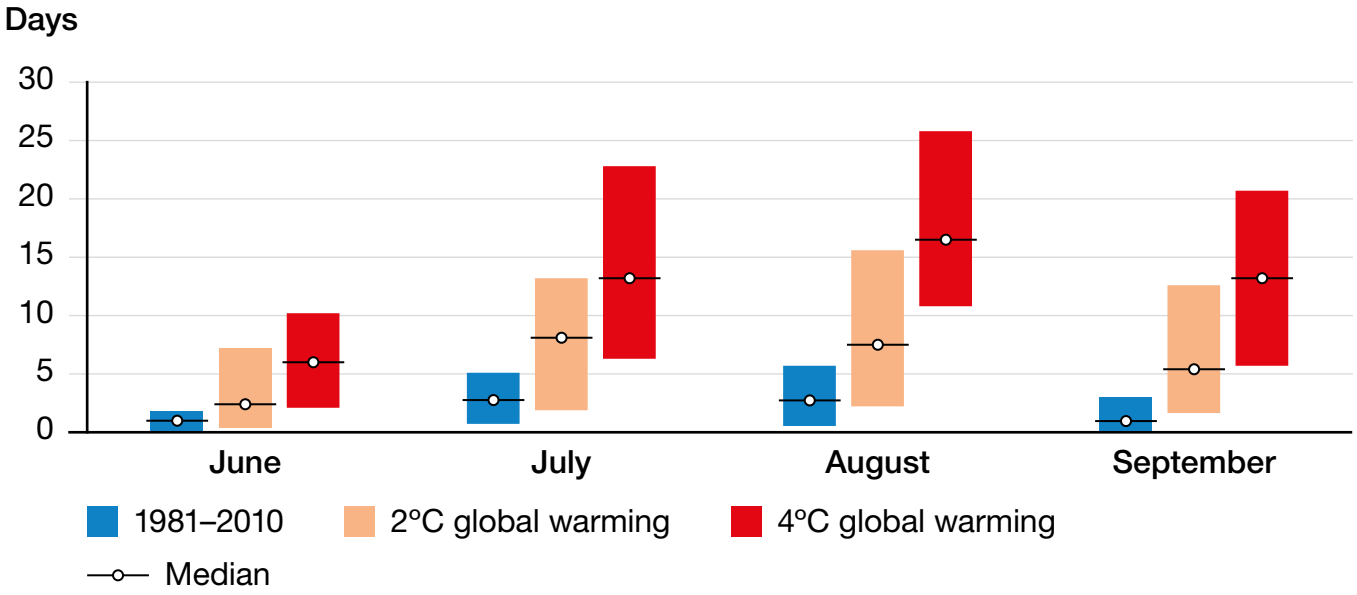
* Forestry Commission England, 'Wildfire statistics for England report to 2020-2021', 2022, available at: **https://assets.publishing.service.gov.uk/media/63ecff77d3bf7f62edc835a1/FC-Wildfire-statistics-for-England-Report-to-2020-21-.pdf**

† Met Office, 'Fire Severity Index', 2024, available at: **https://openaccess.naturalengland.org.uk/**

How are wildfire events changing due to climate change?

Due to climate change, the number of days with 'very high' or 'exceptional' fire danger across the UK is projected to double at 2°C of global warming and increase by a factor of five at 4°C.* More information on global warming levels can be found in the 'The changing climate' transport hazard summary.

Figure 1: The number of days per month (June to September) across the UK projected to have 'very high' or 'exceptional' fire danger at different global warming levels. The coloured bars represent the modelled range of days across a set of climate models. The horizontal line in each bar shows an average across this range.†



This is because of factors that increase either the amount of fuel available, or its flammability.

- More frequent and severe droughts and heatwaves are expected as global temperatures rise. For further information, see the transport hazard summaries on extreme heat and drought. These changes will compound disruption to the transport network, as wildfires increasingly coincide with the wider impacts of heat and drought.
- Spring and summer seasons are projected to lengthen, with the summer wildfire season extending further into autumn due to increasing levels of global warming.
- Warmer and wetter winters can lead to more vegetation growth, increasing the amount of fuel available for wildfires in spring. This may result in more frequent and more severe fires, particularly in areas not historically prone to them.‡

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* Burton, C., Ciavarella, A., Kelley, D.I. and others, Environmental Research Letters, 'Very high fire danger in UK in 2022 at least six times more likely due to human-caused climate change', volume 20, 044003, 2025, available at: **https://iopscience.iop.org/article/10.1088/1748-9326/adb764**

† Perry, M.C., Vanvyve, E., Betts, R.A. and Palin, E.J., Natural Hazards and Earth System Sciences, 'Past and future trends in fire weather for the UK', volume 22, issue 2, pages 559 to 575, 2022, available at: **https://doi.org/10.5194/nhess-22-559-2022**

‡ Belcher, C. M. and others, 'UK Wildfires and their Climate Challenges', 2021, available at: **https://www.ukclimaterisk.org/wp-content/uploads/2021/06/UK-Wildfires-and-their-Climate-Challenges.pdf**

Case studies

In July 2022, the UK experienced an unprecedented heatwave with temperatures exceeding 40°C for the first time on record. This heatwave was accompanied by weeks of below-average rainfall, creating drought conditions ideal for wildfires across much of England. On 19 July, with extreme temperatures across the UK, wildfires rapidly spread, particularly impacting grasslands and suburban areas around Norfolk, Lincolnshire and Greater London, where the London Fire Brigade faced its busiest day since World War II.*

Wildfires led to smoke and flames encroaching onto major routes (for example, the M25, A2, A13 and A47). This affected visibility and led to road closures, significant congestion and widespread travel delays.

Trackside fires and smoke caused suspensions of rail services in east London, Cambridgeshire and Yorkshire. Damage to infrastructure, including overhead lines and signalling systems, led to widespread cancellations and network disruption. This was in addition to the disruption caused by speed restrictions implemented in response to the heatwave temperatures.

Smoke from wildfires disrupted UK airports during summer 2022. For example, on 1 August, a large grass fire near Heathrow reduced runway visibility. The London Fire Brigade deployed 15 engines and about 100 firefighters, co-ordinating with the airport to reduce disruption.

* London Fire Brigade, 'Firefighters' heroic actions prevented fatalities on Brigade's busiest day since World War II', 2022, available at: **https://www.london-fire.gov.uk/news/2022-news/july/firefighters-heroic-actions-prevented-fatalities-on-brigade-s-busiest-day-since-world-war-ii**

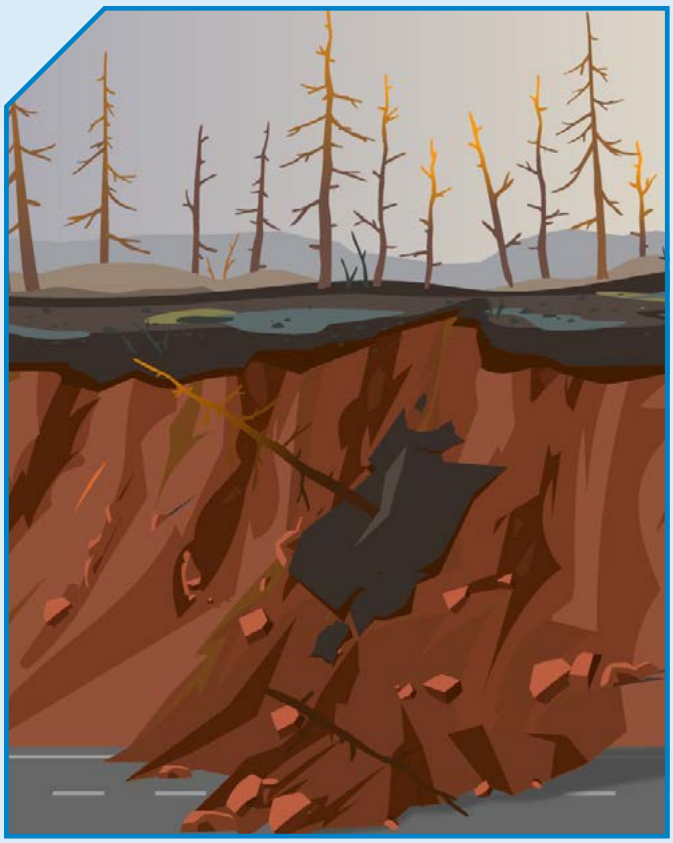
Direct impacts on transport due to wildfires

Human health and safety

- Wildfires can cause injury or death, particularly if they spread through the built environment and onto parts of the transport network.
- Inhalation of wildfire smoke can pose health risks to drivers, passengers and staff, especially children and those with pre-existing health conditions.
- Reduced visibility from smoke can create hazardous driving conditions, increasing the risk of accidents.
- Emergency services may be delayed due to poor visibility and access restrictions near wildfires.

Vehicle and service operations

- Aviation can be impacted by poor visibility due to smoke, creating unsafe landing conditions and leading to flights being diverted.
- Rail speed restrictions can be implemented or services can be suspended due to ongoing trackside fires or to reduce the risk of starting a wildfire, such as from steam trains.
- Wildfires can cause poor visibility on the roads, leading to slowdowns, road closures and disruption to road transport.



Infrastructure

- Wildfires can cause physical damage to roadside and trackside infrastructure such as signals, cables and road surfaces from heat or fire damage.
- Vegetation helps hold soil together and loss from wildfires can reduce soil strength, weakening structures such as embankments. This can lead to engineered earthworks being more likely to fail and can cause problems with ground stability, potentially leading to delays and disruption.

Interdependencies: wildfires can damage energy and communication infrastructure which in turn can affect transport infrastructure such as signalling systems. If wildfires occur during droughts or extreme heat events, their impacts can combine with other hazards, reducing the overall ability of transport and emergency services to respond and adapt.

Hazards associated with wildfires

Air quality

Smoke from wildfires significantly worsens air quality. Smoke particles of all sizes are released and can remain in the atmosphere for days.

Extreme heat and drought

Extreme heat, especially combined with drought, can lead to very dry vegetation and conditions suitable for wildfires to ignite and rapidly spread. These combined hazards put additional pressure on emergency response.

Fires and explosions

Wildfires can spread to buildings, either directly or via wind-blown embers. Wildfires can also stretch the resources of fire and rescue services, degrading their ability to respond to other fire emergencies.

Flooding

Wildfires can burn away vegetation which is used to soak up rainwater and slow the flow of water into watercourses, leading to an increased risk of flooding.

Landslides and earthwork failures

Loss of vegetation due to wildfire can cause slopes and engineered earthworks to lose stability. Sudden changes in soil moisture levels can then trigger landslides and structural failures.

Storms

It is rare for wildfires and storms to occur in the same area, as most UK storms bring significant rainfall, but lightning from storms has occasionally ignited fires. High winds without rain can dry vegetation and help spread fires that have started. Storms at the same time as wildfires may therefore place additional strain on emergency response.

Further information on these hazards can be found in our series of Transport hazard summaries: **www.gov.uk/government/collections/transport-hazard-summaries**

Risk mitigation and adaptation

As the risk of wildfires in the UK is likely to increase, transport infrastructure needs to become more resilient. Examples of effective measures include:

- clearing overgrown vegetation and creating gaps along transport corridors to act as a firebreak
- replacing combustible railway track components, such as wooden sleepers, with fire-resistant material where not already done
- designing future infrastructure to withstand wildfire, such as using fire-resistant materials for bridges, tunnels, and embankments in high-risk areas
- running public awareness campaigns to prevent people from accidentally igniting fires near transport infrastructure
- carrying out required risk assessments for outdoor engineering works and taking action to prevent igniting wildfires from heat or sparks

Questions for decision makers

- Which of your transport assets or routes are in areas where wildfires could develop and how resistant are they to fires?
- If parts of the transport network are impacted by wildfires, are robust emergency response and evacuations plans in place to keep staff and passengers safe?
- Is there sufficient redundancy and flexibility in systems to absorb sudden wildfire-related disruptions or increases in passenger demand, such as diversions and effective ways to communicate changes?
- Are you managing vegetation, and designing and maintaining infrastructure, in a way which reduces the risk of wildfires spreading?
- What operational changes are needed as wildfire risk and season length increase with climate change?

Further reading

England and Wales Wildfire Forum wildfire information – England and Wales Wildfire Forum

Fire Severity Index – Natural England and Met Office

Health Effects of Climate Change (HECC) in the UK: 2023 report. Chapter 10: Wildfires and health – UK Health and Safety Executive

Past and future trends in fire weather for the UK – Met Office

Scottish Wildfire Forum wildfire information – Scottish Wildfire Forum

Towards a UK Fire Danger Rating System – UK Fire Danger Rating System

UK Wildfire Impacts – Met Office

Risk assessment

See ‘The changing climate’ and ‘Transport hazards, risks and resilience’ transport hazard summaries for more information on identifying and planning for risks to transport and where to find climate data, including more detail on projected changes on a regional level.