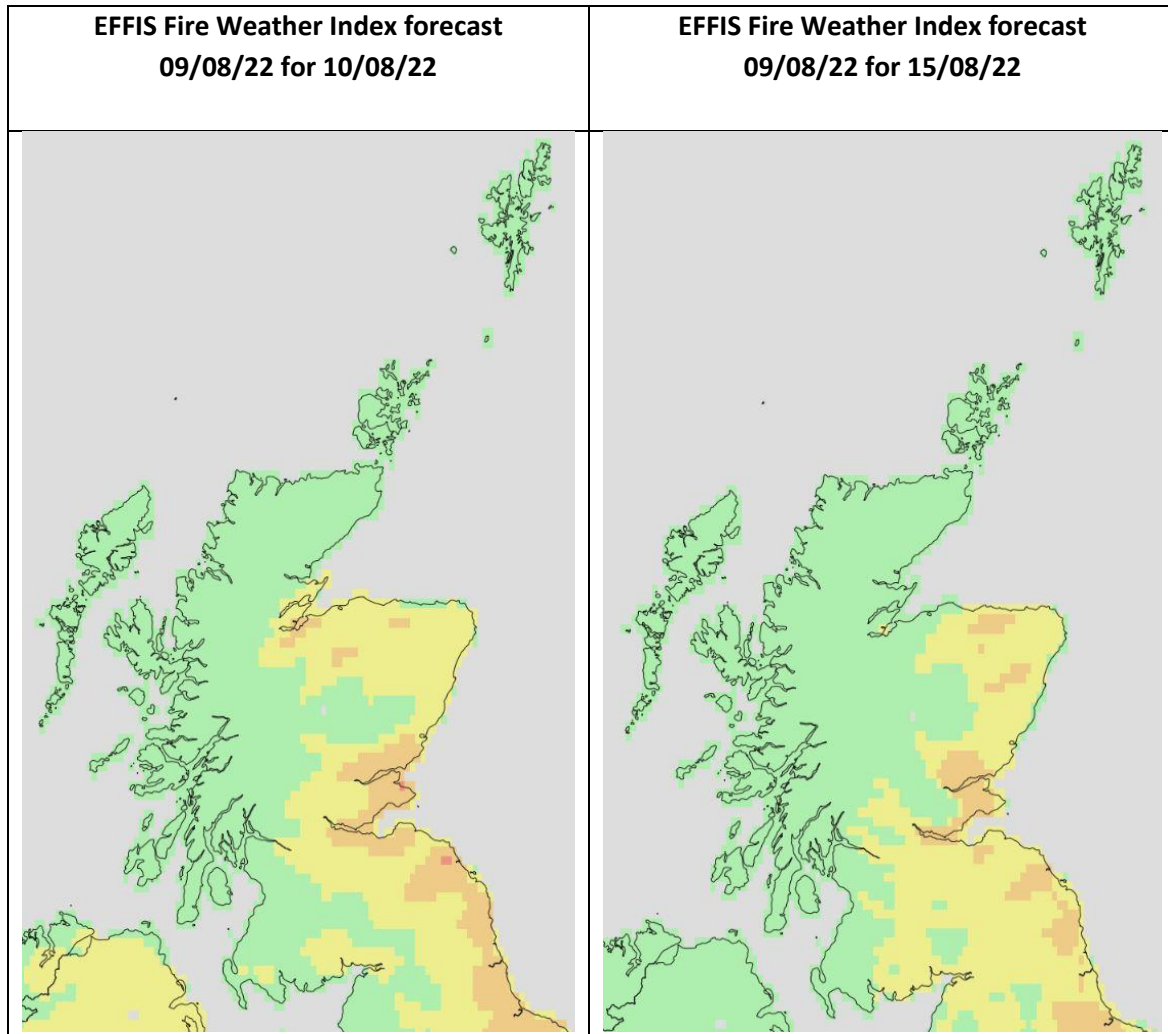


Wildfire Danger Assessment for Wednesday – 10th - Monday 15th August 2022 for Scotland.

The overall fire danger assessment is:

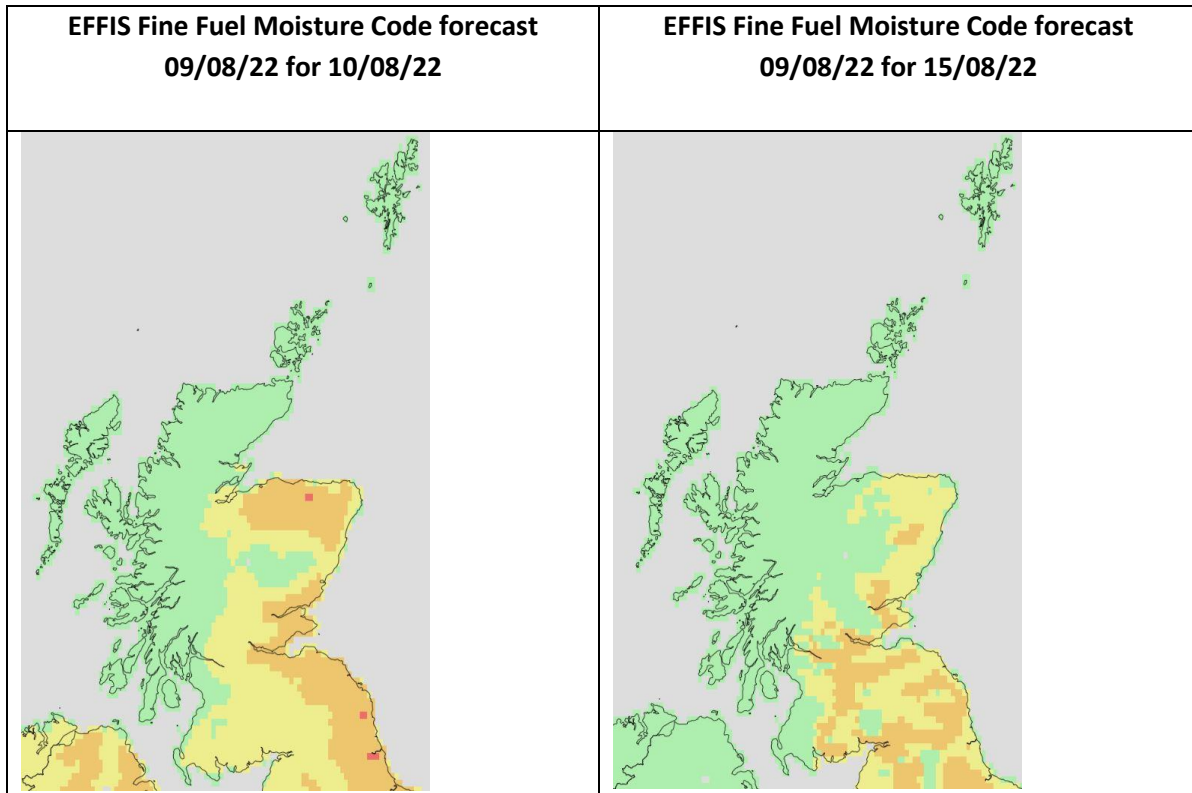
- Eastern and southern Scotland Very High 10th – 15th August 2022



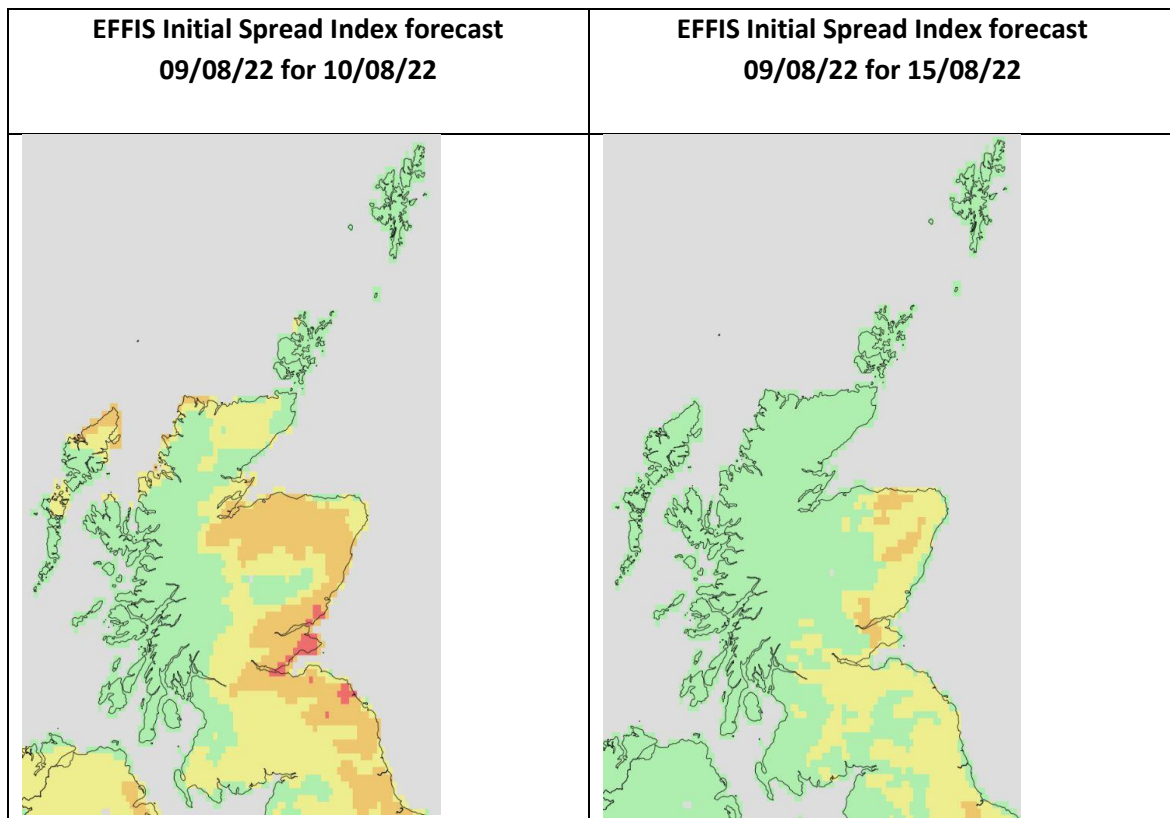
Index / Codes keys for Scotland (summer):

- Green – Low**
- Yellow – High**
- Brown – Very High**
- Red/Black – Extreme**

Ignition Potential - Fine Fuel Moisture Code:



Spread – Initial Spread Index:



Seasonal condition of the fuels:

Mid-August at this time of year, late summer, the seasonal condition of the fuels (vegetation) to watch for is the extent of curing (dying off or browning) This is most obvious with ripe arable crops of barley, wheat or oats but grasses more than 50% cured can support fire spread. Any dead gorse will dry quickly. There will be a combination of live green above ground fuels with relatively high moisture content, and any dead or cured grass and litter lying on the ground. Mosses with a poor root system can also dry out quite quickly. A layer of undecomposed organic matter is often below the soil surface that dries out a little more slowly. The combination is known as the moss and litter layer. These fuels dry out after a period without rain – drought conditions.

Air temperature, low relative humidity, long day-lengths, sunshine, and wind contribute to high evapotranspiration over more extended periods. In addition, in most places, the above ground vegetation such as grass, heather and bracken will still be growing if there has been some rain, so live fuel moisture will be high. This means that FFMC needs to be slightly higher than in the spring to capture ignition potential. Therefore, it is important to look at the overall the Fire Weather Index as well.

General weather forecast information:

The effect of the bands of rain over last week have diminished in the very hot weather. Some areas of eastern Scotland did not get any rain. At the moment there is a high pressure centred over central England and a low pressure system in the west Atlantic that will move north-west towards northern Norway. Some rain will occur in the NW Highlands Thurs-Sat. Warm and occluded fronts will gradually move across the Scotland from the west from Monday next week.

Wind direction initially will be variable with an on-shore element in the daytime. This will become westerly and variable for Wed/Thurs, variable Fri/Sat and easterly Sun/Mon. Windspeed over the mainland will be light 8-18kph (5-16mph). Air temperatures will be warm in the range of +12°C night time to +26°C during the day, in most places. Humidity levels in the east-central highlands and the south are low in the middle of the day and drop to around 33% - 47%. In the north-west humidity is much higher up to 77-81%. Humidity levels will gradually rise in central and eastern areas over the period. The continuing summer drought and heat are drying conditions, which will be constrained by a mixture of high humidity and light rain.

Discussion:

The key issues over the next six days in all areas are: whether your area has had any rain, the heat especially in east and south Scotland. Dead fine fuels will dry quickly, where there is sun and no rain. The effect of light rain will be to only dampen surface fuels, which will dry again within 2-3 days.

For soil moisture, FFMC is above 86, i.e. very high for some areas of eastern Scotland until 15th August, after which it diminishes after rain has covered most areas by Mon/Tues. ISI, for fire spread has a similar pattern. ISI is high, i.e. over 5 in eastern areas from 10th Aug then gradually diminishes.

FWI is above 11 in some of eastern Scotland and above 27 in the south-east. DMC is above 20 in parts of north-east and south-east Scotland. DC is above 300 in north-east but over 450 in south-east Scotland.

Where FFMC and FWI are high dead fuels will ignite and burn with high intensity. ISI is above 5 on Tues- Thurs in eastern areas, so spread rates could be fast. The litter and moss layers are drying out in east but the lower soil layers are still wet in the west. In eastern and southern Scotland there is significant potential for re-kindling and smouldering from the surface down to the peat.

Overall, Wed-Mon 10th -15th August 2022, surface fires could burn and spread in eastern and southern Scotland, with high fire intensity and fire danger is very high. Wind speeds are light-moderate. Fires could re-kindle and smoulder and therefore be difficult to extinguish with hand tools, water will likely be required.

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Important Notice

Wildfire danger assessments are made on behalf of the Scottish Wildfire Forum. They are done on a broad area basis. For more local risk assessments, the local condition of fuels, recent weather, and weather forecasts should be taken into account.

This document has been prepared by Firebreak Services Limited ("Firebreak") for general information purposes only. It is not intended to provide advice to any particular person or organisation or for any specific site or location. It should not be relied on as such. The contents of this document are not a substitute for taking appropriate professional advice. Any person who relies on the contents of this document does so entirely at their own risk and Firebreak accepts no liability for any loss, damage or expense that may arise as a consequence.

Appendix A: Background information

The EFFIS system is based on the Canadian Fire Weather Index system, of which FFMC, DMC, DC & ISI are sub-indices. FFMC looks at the dead fuel moisture of the litter layer on the soil surface. The Initial Spread Index (ISI) is FFMC plus a wind function. DMC & DC look are deeper soil moisture indices.

Table 1 EFFIS fire danger class bands:

	1	2	3	4	5	6
	VERY LOW	LOW	MOD	HIGH	VERY HIGH	EXTREME
	Green	Yellow	Orange	Red	Brown	Black
FWI	< 5.2	5.2 - 11.2	11.2 - 21.3	21.3 - 38.0	38.0 - 50.0	>50
FFMC	< 82.7	82.7 - 86.1	86.1 - 89.2	89.2 - 93	>= 93	
DMC	< 15.7	15.7 - 27.9	27.9 - 53.1	53.1 - 140.7	>= 140.7	
DC	< 256.1	256.1 - 334.1	334.1 - 450.6	450.6 - 749.4	>= 749.4	
ISI	< 3.2	3.2 - 5	5 - 7.5	7.5 - 13.4	>= 13.4	
BUI	< 24.2	24.2 - 40.7	40.7 - 73.3	73.3 - 178.1	>= 178.1	

EFFIS fire danger classes were initially created to support decision making in Mediterranean areas. The equivalent fire danger with typical grass and shrub fuel types in the British Isles is significantly lower. European Forest Fire Information Service (EFFIS) can be viewed at:

http://effis.jrc.ec.europa.eu/static/effis_current_situation/index.html

The weather data used in the EFFIS Fire Weather Index model is from the European Centre for Medium-Range Forecasts (ECMWF).

In Scotland and the UK, the scientific evidence indicates that significant numbers of wildfires often occur when FFMC is above 80 and ISI above 2. Any yellow area on the map indicates an FFMC of more than 83. ISI, which is FFMC plus a function for wind, when shown in yellow, indicates values between 3.2 – 5, i.e. above the threshold value of 2.

The Scottish Government have commissioned research to support a Scottish Fire Danger Rating System. For more information, see <https://www.hutton.ac.uk/research/projects/scottish-fire-danger-rating-system-sfdrs>