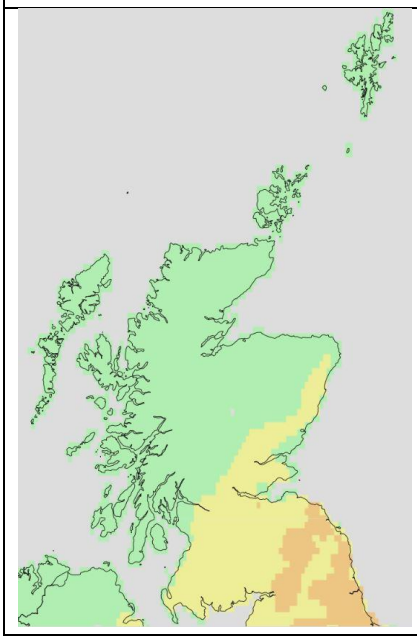
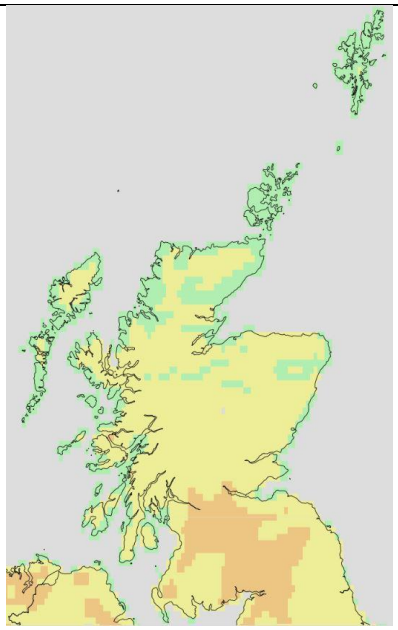
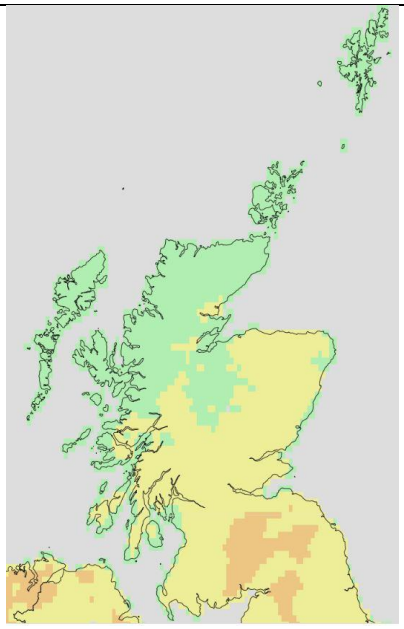
Wildfire Danger Assessment for Thursday 22nd – Mon 26th April 2021 for Scotland.

The overall fire danger assessment is:

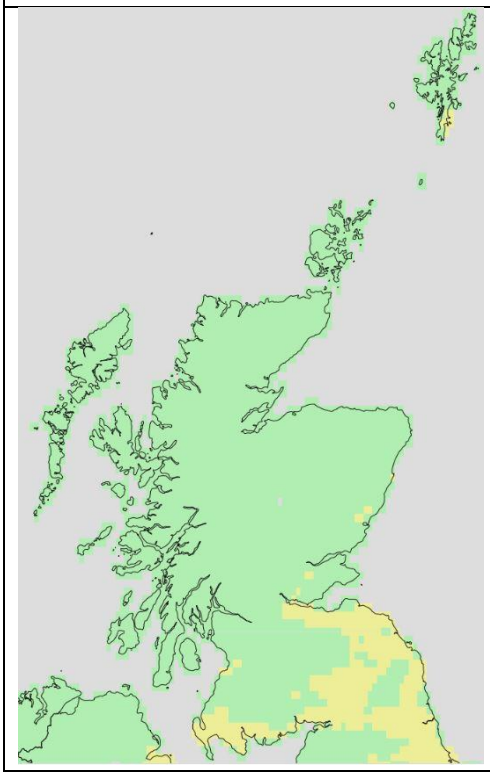
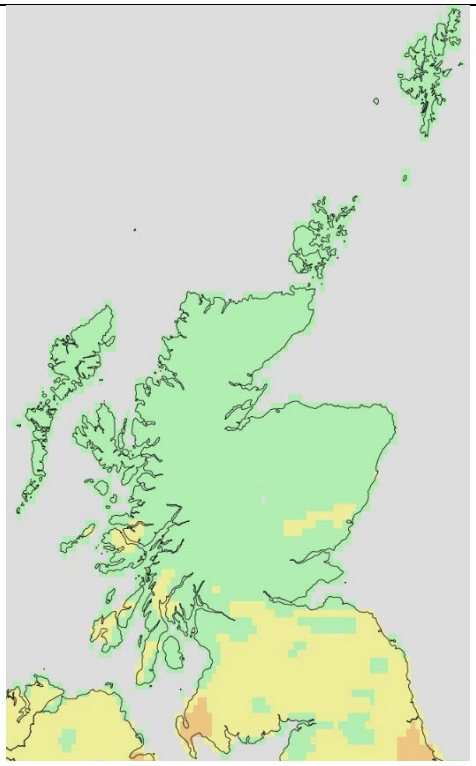
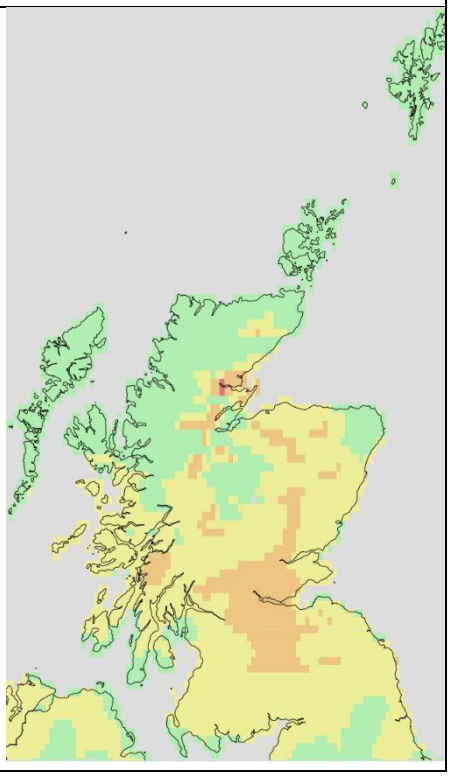
- **Southern and central Scotland Very High – Extreme 22nd – 26th April 2021**
- **North West Scotland Very High 23 – 25th April 2021**

Ignition Potential - Fine Fuel Moisture Code:

EFFIS Fine Fuel Moisture Code forecast 21/04/21 for 22/04/21	EFFIS Fine Fuel Moisture Code forecast 21/04/21 for 25/04/21	EFFIS Fine Fuel Moisture Code forecast 21/04/21 for 26/04/21
		

FFMC key for Scotland:
Green – Low / Moderate / High
Yellow – Very High
Brown/Red/Black - Extreme

Spot checks indicate FFMC higher than 80 across north-west Scotland from 23nd – 25th April

EFFIS Initial Spread Index forecast 21/04/21 for 22/04/21	EFFIS Initial Spread Index forecast 21/04/21 for 25/04/21	EFFIS Initial Spread Index forecast 21/04/21 for 26/04/21
		

Spot checks indicate North-West Scotland areas above ISI > 2 from 23rd – 25th April

ISI key for Scotland:
Green – Low / Moderate / High
Yellow – Very High
Brown/Red/Black - Extreme

Seasonal condition of the fuels:

Mid-April - at this time of year, early spring, the seasonal condition of the fuels (vegetation) will be reacting most to the combination of frost, low relative humidity, longer day-lengths, rising temperatures, sunshine and wind. There is a lot of dead grass and dead heather left over from last year, which can dry very quickly. Frost and sun can also reduce the live fuel moisture of heather. Overall these conditions can create very low moisture contents. Day length and sunlight are rapidly getting stronger.

General weather forecast information:

Recent light rain will evaporate quickly. There is now a settled high-pressure system over the UK. Wind direction is variable. Windspeed will be light to moderate 7 – 17 kph (5 – 10mph). Then it rises

on Monday up to 23 kph (14 mph). Air temperatures are in a day / night range of +13^{0}C to +3^{0}C. Humidity levels are low everywhere, dropping to between 48 - 61%. These are spring drying conditions.

Discussion:

The key issues over the next few days in all areas, are: the previous period of dry weather especially in southern Scotland, sunshine, low humidity and the rising windspeeds. Dead fine fuels will dry quickly in these conditions.

FFMC is above 80 i.e. very high for all areas Scotland 23rd – 25th April and in central and south Scotland from 21 – 26th. ISI starts high i.e. over 2 in southern and eastern areas, then as the dry period progresses and extends further north and west, and with higher winds on Monday elevated ISI covers the whole country.

Where the FFMC is high dead fuels will ignite and burn hot enough to burn fuels such as grass, heather, bracken and gorse. In areas where ISI is above 2 spread rates could be fast. The litter and moss layers are drying out but the lower soil layers are still damp, there is potential for re-ignitions and smouldering. With the variable winds re-kindling from smouldering could occur in varying parts of the fireline.

Overall in the for the period 22nd – 26th April fires could burn and spread easily, with moderate to high fire intensity, rising to very high fire intensity when windspeeds rise above 10 kph (6 mph). Fires will be difficult to extinguish with handtools, and it is likely that water will be required.

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Date 21/04/21

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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.

Appendix A: Background information

The EFFIS system is based on the Canadian Fire Weather Index system, of which FFMC, DMC, DC & ISI are a 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:

	VERY LOW	**LOW**	**MOD**	**HIGH**	**VERY HIGH**
	Green	Yellow	Brown	Red	Black
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

EFFIS fire danger classes were originally 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 that is 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 information see https://www.hutton.ac.uk/research/projects/scottish-fire-danger-rating-system-sfdrs