



## Forest Fire Risk Warning System

Forest Fire Danger Notices are issued during the main wildfire risk season from February through to September. These notices provide forest owners and managers with advance warning of high fire risk weather conditions, and permit appropriate readiness measures to be taken in advance of fire outbreaks.

Forest Fire Danger Notices are generally based on daily Met Eireann Fire Weather Index (FWI) and European Forest Fire Information System (EFFIS) outputs, with additional processing and daily analysis by DAFM. Like other forms of weather warnings they are colour coded. Increasing levels of preparation and vigilance are required as the risk levels scale from Green through to Red.

Like all forms of forecasting, Forest Fire Risk warnings are indicative, and conditions on the ground at local level may differ significantly from those forecasted. The Department of Agriculture, Food and The Marine will not be liable for loss or damages arising from the issue or omission of Fire Danger Notifications.

To minimise exposure to risk from wildfire, all forest owners and managers should carry out hazard/risk assessments for their properties, and take adequate measures to protect and exclude fire from their properties during the different risk condition levels. Such measures may include the installation of firebreaks, or the removal of dangerous vegetation in proximity to property and critical assets, and extend to the undertaking of fire patrols and pre-positioning of fire suppression resources by property managers.

### Fire Danger Rating Systems

A number of Fire Danger Rating systems are publicly available to land managers at European and local levels, including the Met Eireann Fire Weather Index and EFFIS the European Forest Fire Information System.

These systems are based on the Canadian Fire Weather Index system. It is important to note that under Irish Conditions, due to the nature of the modelling involved, fire danger bands are set quite high for our fuel types and as such FWI outputs generally underrate risk under Irish conditions. The Fine Fuel Moisture Code Component FFMC of the FWI has been found by experience to have the strongest correlation with actual fire risk under Irish conditions. As FFMC and risk rating level increases, there is a corresponding increase in fuel ignition potential and consequent fire behaviour, intensity and spread rates. These basic fire risk conditions will be further compounded by presence of wind and local topographical factors. Accordingly, the prevailing Forest Fire Danger ratings can be used to inform fire suppression tactics and resource allocation in advance of fire incidents.



## Forest Fire Danger Ratings are presented in four categories:

### 1. **Condition Green - Low Fire Risk Conditions** **FFMC Range 0-50**



Condition Green indicates that hazard status is favourable, and where vegetation can be ignited, there is a low rate of fire spread and wildfire risk. Condition Green is a favoured status for prescribed burning operations, especially protective burning near forestry and other property. Ideally, hazardous vegetation in proximity to assets should be removed/treated under these conditions. Risk assessments, Fire Plans and relevant contact lists should be developed for all plantations prior to the onset of higher risk conditions.

### 2. **Condition Yellow –Moderate Hazard Alert - Be Aware.** **FFMC RANGE 50-70**



Condition Yellow is the default condition during the peak wildfire risk period from March to June. Forest managers and owners, and people concerned with farming and upland management should be aware of the inherent fire risk during this period. Under Condition Yellow risk conditions upland vegetation can be expected to burn steadily, with a moderate flame length and predictable rate of spread, however wind conditions and other factors can cause this to change. Fire plans should be completed and relevant contact lists, aviation support contracts etc., updated prior to this point. It is implicit that Yellow Condition indicates hazard conditions that do not pose an immediate threat to the general population, but only to those exposed to risk by nature of the location of vulnerable assets, and/or risk profile of their activity e.g. traditional burning. However, rural residents should also be aware of the risks posed to property and human safety by wildfire, and take action to reduce and remove hazardous vegetation in proximity to homes, fuel storage areas, and other vulnerable assets.

### 3. **Condition Orange - High Fire Risk - Be Prepared.** **FFMC RANGE 70-80**



Condition Orange will generally derive from extended periods of low precipitation, moderate relative humidity and low to moderate wind conditions which have the capacity to significantly increase the risk of wildfire initiation and spread. 'Type B' Spring Westerly Atlantic high pressure systems and accompanying calm conditions or light Westerly/South Westerly winds regularly give rise to these conditions, and create a steady but moderate drying environment for fine fuels such as grasses and heather, particularly where vegetation is dead following the winter months. Orange level warnings may also derive from expected patterns of human activity that effect existing fire risk such as expected traditional burning patterns by landowners or other factors such as bank holiday weekends, school holidays etc. that may precipitate high levels of recreational visitors onto risk lands.

The issue of a Condition Orange warning implies that all recipients in affected areas should prepare for imminent outbreaks of fire. Forest managers, landowners and rural residents should be satisfied that firebreaks are in good condition and that access routes and forest road networks are clear and fit for purpose. Where available, fire suppression personnel and forest managers should be notified and instructed to prepare for the likelihood of fire occurrence. Suitable maps, contact lists, fire plans, and equipment and relevant PPE should be checked and made ready. Fire patrols may be warranted under such circumstances in known fire hotspots.

**BE PREPARED. BE VIGILANT. STAMP OUT FOREST FIRES**



#### **4. Condition Red –Extreme Fire Risk – Take Immediate Action.**

**FFMC >80**



Under extreme Fire Risk Conditions any ignition source in hazardous fuels will give rise to rapid and unpredictable wildfire development and spread. In upland situations fire can be expected to cover extensive areas and pose extreme difficulties to suppression efforts and will likely give rise to Major Emergency Management (MEMs) response scenarios.

Typically, extreme conditions derive from 'Type A' Northern European High Pressure Systems, where air circulates in a clockwise direction over the Northern European and Central European land masses. This circulation across the land mass causes the air to shed moisture and become very dry, which in turn dries out vegetation on the ground very rapidly inducing high levels of combustibility, particularly in fine fuels. Where the edges of these Easterly systems rest over UK/Ireland such cold dry air will be accompanied by strong and often cold very low humidity winds from the South East or North East that will support further drying and rapid fire propagation and spread to produce high intensity fire events, that can be further exacerbated where fuels and topography permit.

The issue of Condition Red Extreme fire risk warnings should be a comparatively rare event and implies that recipients should take immediate action to protect resources and property. Such action may involve the mobilisation, assembly and prepositioning of resources such as water tankers, machinery, personnel and contract aviation support in high risk areas.

Preliminary notification of Defence Forces Aid to Civil Power/ Aid to Civil Authority requests by relevant authorities may also be warranted where extreme conditions are deemed to exist, and where emergency response requirements may be likely exceed the capabilities of civil agencies. Even in the absence of a formal warning, under such conditions forest owners/managers, other land managers, landowners and local authorities should implement fire patrols to exclude all fire activity from the landscape and enforce relevant fire protection legislation. Rural residents should also implement a high degree of vigilance, and check on elderly or other vulnerable neighbours and assist with preparation and reassurance, and evacuation if this is deemed necessary by the Local Authorities. Further information on Fire management and wildfire protection is available at:

<https://www.agriculture.gov.ie/forests-service/firemanagement/>



# Fire Suppression Tactics per Fire Risk Condition

## Recommended Fire Suppression Tactics per Fire Risk Condition

Fire Danger Rating Conditions	Flame Height (m)	Intensity (kw/M)	Probable Fuel Conditions	Recommended Suppression Techniques
Low FFMC 0-50	<0.5	0-50	Young/Sparse/Live upland vegetation	Fires generally self-extinguish Non-intervention - Containment and monitoring*.
Moderate FFMC>50	0.5-1.5	50-500	Limited shrub fuel cover Light grass cover	Direct attack with hand tools and water based systems. Non Intervention - Containment and monitoring*.
High FFMC>70 Westerly High Pressure 'B'	1.5-3.0	500-2000	Mature Shrub Dead <i>Molinia</i> Tussocks Degenerate heather cover Immature Conifer Crops	Direct attack strenuous, especially with hand tools. Water based attack. Direct Aerial Attack. Tactical Fire methods**.
Extreme FFMC>80 Easterly High Pressure 'A'	3.0-10.0	2000-4000	Mature Phase Heather. Gorse accumulations <i>Molinia</i> Grass Tussocks High Forest Crops Civil Protection Impacts	Runaway vegetation fires with extreme fire behaviour. Direct aerial attack. Indirect attack i.e ploughed/flailed fire breaks. Tactical fire methods**.

\*Non-intervention - Containment and Monitoring approaches are recommended where appropriate in heavy fuel loads where moderate strength and adequately contained fires may have a beneficial impact on fuel load hazard reduction at critical locations.

\*\*Tactical fire methods must only be conducted by trained, qualified personnel, and under the authority of relevant Incident Commander (IC).