

Forest fires in Hungary

2012.

(Reported by: National Food Chain Safety Office, Forestry Directorate)



Fire danger in 2012 fire season in Hungary

FWI derived data and values were reported throughout the whole fire season by Forestry Directorate (FD). FD has been using JRC's data service to monitor the daily fire danger situation.

Forest fire hazard strongly depends on weather conditions. 2012 was the year of the highest extreme weather situations in the past 100 years. We may characterize the first nine months of 2012 with serious drought. The drought period lasted throughout whole summer and influenced the whole fire season.

Fire danger started to rise in April and it reached the "very high" level more times during the year. There were some short periods (days) when the FWI values reached the "extreme" level in summer. So a total fire ban was ordered two times and local or regional fire bans were ordered more than thirty times by the Forestry Directorates.

Although the fire dangerous periods were forecasted from April, there were lots of wildfires in the endangered parts of Hungary from the beginning of March. The 2012 fire season reached out to the autumn (mid of October).

Fire occurrences and affected surfaces

Forest fires data are collected in a strong cooperation with disaster management authority. Data collected on the spot by fire fighters are uploaded to the database weekly and if needed it can be done day-to-day. Forest fires data are prepared and analysed with an automated GIS method and checked on the spot by forest authority.

Table 1.				
Year	Number of wildfires	Forest fires in Hungary		Wildfires in other land
		Number of fires	Total burned area (ha)	Number of fires
2007	6.691	603	4.636	6088
2008	6.639	502	2.404	6137
2009	8.658	608	6.463	8050
2010	3.120	109	878	3011
2011*	8.436	2.021	8.055	6415
2012	21.581	2.657	13.978	18.924

**from 2011 Fire Database linking between Forestry Directorate and Fire Service*

Forest fires have multiplied in the last few decades in Hungary. The reasons can be found in climate extremities, less precipitation, the increase of mean annual temperature and a series of winters without snowfall. Due to the warming, the dangerous period of wildfires have extended, which may issue in the increase of such fires, especially if the socio-economic circumstances remain the same. (Data from 2007 are shown above on Table 1.)

95% of forest fires are surface fires, as you can see down below in Table 2. Surface fires, when surface litter and other dead vegetal parts and smaller shrub burn have been common in Hungarian forests. They can develop in whole fire season. Canopy fires mostly develop in coniferous forests, mainly in the Great Hungarian Plain during summer. Ground fire is not significant in Hungary, though – due to partial, relatively thick peat – it is not unknown either.

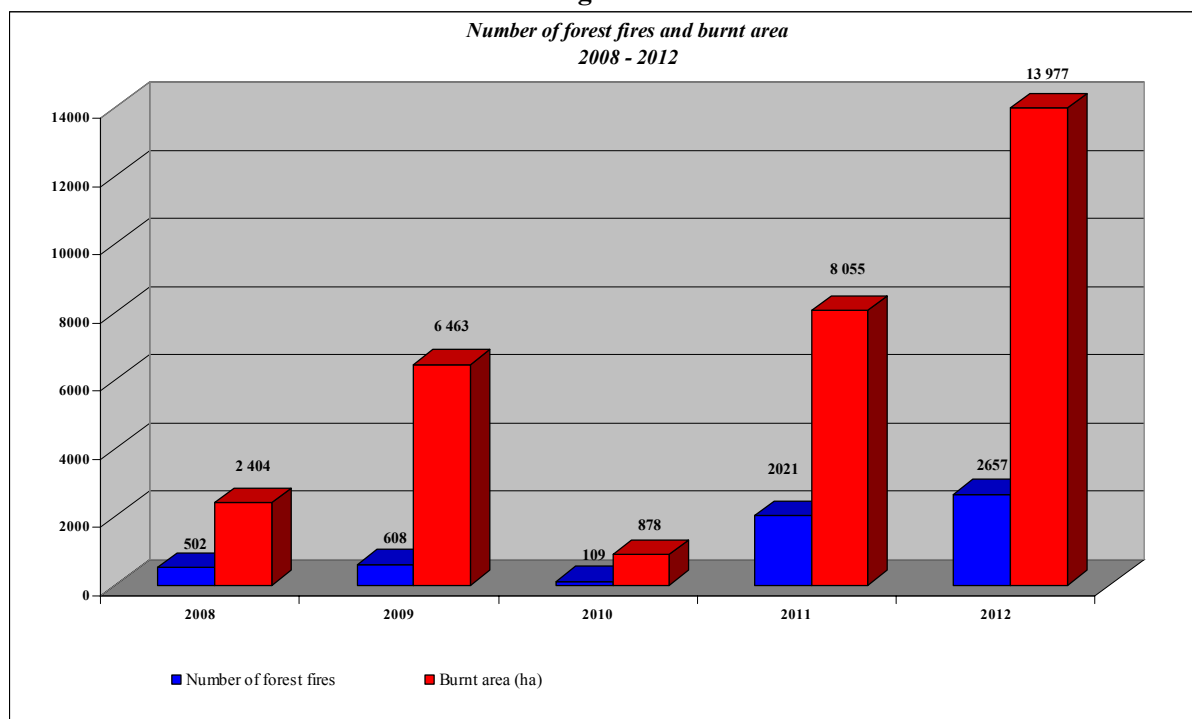
Table 2.		
Type of forest fire	Number of fires	Total burnt area (ha)
Ground fires	19	267
Surface fires	2.621	12.401
Crown fires	17	1.309
Total	2.657	13.977

The number of forest fires have significantly increased in the latest years. They spread to almost 50 hectares from time to time again. The average rate of fires smaller than 1 ha is almost 50 percent. The most problematic and the most prevalent type is the so called “average size” forest fire (between 1 ha and 10 ha), which adds up to the other 40 percent of the total number of fires. The average total burnt area was 5,3 hectares in 2012, which is significantly higher than in previous years. In 2012 there were 49 fires events when more than 50 hectares were burnt. In most cases about 30 percent of the total burnt area is forest.

Small fires under 1 hectare extent give 62 % of the total of forest fires. This fact well depicts well that the capacity of fire fighters and disaster prevention services are overloaded by spot fires. Small fires are usually low intensity surface fires where dry grass and small twigs are burning. There are forest fires beyond 100 hectares rarely in Hungary, in which mainly conifers, native poplars and locusts are burnt.

In 2012 there were 27 fire events where more than 100 hectares were burnt.

Figure 1.

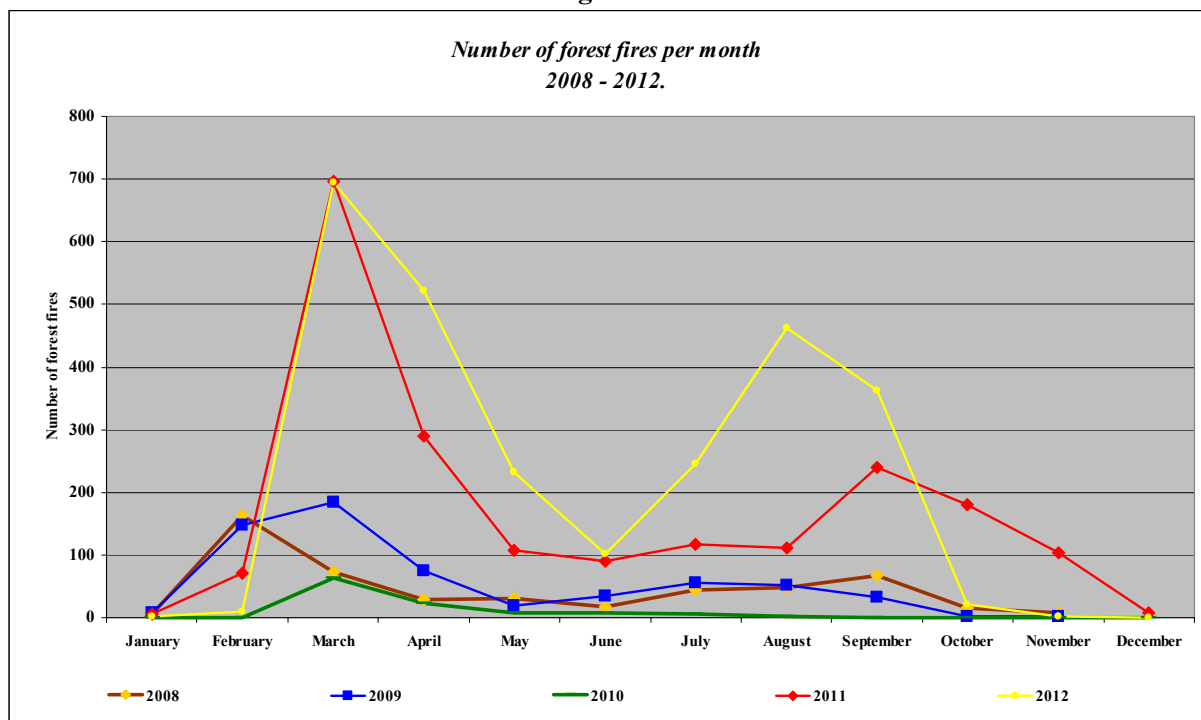


Due to climate and vegetation circumstances, naturally induced forests fires are of no account (about 1%) in Hungary. 99 % of forest fires are human induced (negligence or arson). Most fires are induced by (adults' and infants') negligence and only a small proportion of fires are caused by arsonists. Typical forest fire causes are the incorrectly extinguished fires of hikers, and the illicit agricultural fires. Most part of the total burnt area was due to incorrectly extinguished fires.

There are a lot of fires with unknown causes. The cause of the fire is not verifiable directly in many cases. If the circumstances of the forest fires are undetermined, the cause is registered as “unknown”.

Figure 2. represents the tendencies experienced in latest years that there are two most endangered forest fire periods during the year.

Figure 2.



“Traditional” grassland use includes burning methods in early spring, which can accidentally spread to nearby forest. These fires usually burn between February and April, after snow-break. Though burning has lost its importance by these days, it prevails as a traditional early spring grassland management method. Negligently lighted and unattended grass land fire may spread forest lands nearby. Vegetation is not green yet in this period of the year, and in addition a great sum of dry leaves and dry herbs is located on the ground, that can easily burn in flames.

Although we can report the total burnt area reached a high values in the past few years, we can say there were only surface fires which could not cause serious damage in forests stands.

Spring vegetation fires usually burn with low or medium intensity in broadleaf forests, juvenile growths, shrubs and grasslands. Fire totally or partially consumes forests and causes serious harms. 40-45 % of spring fires burn in northern areas (Borsod-Abaúj-Zemplén County, Heves County, Nógrád County) which indicates these areas as high forest fire danger zones. In these areas not only traditional grassland management methods, but other social-economic factors add to forest fire danger.

Forest litter, needles, dead twigs and branches get totally dry in arid summer periods (June- August) without rainfall and start easily burning as a consequence of negligently lighted fire. Coniferous forests are highly endangered, as a small litter layer fire can even result in canopy fire in this period.

Unlike spring fires, summer fires usually burn in the Great Hungarian Plain. These fires burn almost every year in the poor sites of Bács-Kiskun county and Csongrád county. Usually they do not have as dramatic effects as in May 2012 when 1000 hectares burnt near Bugac village.

Studying the statistics we can see that more than a total of 4.366 hectares of forest were burned or affected by fire during 2012. In addition, more than 6.778 hectares of grass vegetation and more than 2.800 hectares of bush vegetation were destroyed in forest fires. (Table 3.)

Table 3.	
Burnt fuel types in forest fires	Total burnt area (ha)
Forested land	4.366
Other wooded land	2.833
Other land	6.778
Total:	13.977

Fire fighting means

Fires were usually extinguished in less than an hour after alarming. Fire service arrived to fire in 30 minutes in average. Small fires are extinguished within half an hour.

There were no casualties among fire fighters and civilian people during fire fighting in 2012. Fire service equipment was not heavily damaged. No death or personal injury occurred during fire fighting in 2012. Neither Fire Service nor Forest Authority served mutual assistance last year.

Fire prevention activities and fire information campaign

There is a cooperation agreement between Fire Service and Forest Authority. In 2012 National Fire Prevention Committee was established by the government where representatives of forest authority became members also. It is required for the committee to monitor recent fire prevention activities and fire awareness raising campaign materials.

In 2011 a special type of forest fire hazard maps were developed for fire fighters by FD. Maps can be printed and stored in their IT system also. In order to improving the map system, a Web Map Service developed by forest authority based on that special forest maps, was launched in 2012. WMS contains some special types of forest thematic layers. Fire Service has been using them in their GIS system.

Fire prevention and fire fighting activities were presented very well by spokesmen and members of National Fire Prevention Committee in the media in the frame of awareness-raising campaigns in the last fire season. Media events such as press conferences, short reports and announcements in newspapers and on the radio and TV were organised accordingly. Supplying data from fire database is daily task to forest owners, managers and media.

Use of data derived from FWI developed by JRC was integrated in the fire ban system in 2012. Its values were taken into consideration and they were analyzed throughout the whole fire season supported by JRC.

Expert presentation and demonstration about forest fire prevention and suppression were organised by FD for fire fighters many times. The webpage of Forestry Directorate is continuously updated with fire prevention information.

The forest authority and Disaster Recovery Directorates jointly controlled the forest areas where forest managers had to make forest fire protection plans.

A study was ordered by forest authority about causes of forest fires in North Hungary. It was prepared by University of Miskolc Institute of Sociology. Negligent or intended fires in spring mainly occur in Borsod-Abaúj-Zemplén county and Heves county. Sociological researches demonstrate that people living there can be reached through social workers, regarding the special socio-economical conditions in the area. Researchers are open to personal consultation and they can reach the most disadvantaged people to prepare a report about their customs and practises of using fire and to survey their knowledge about forest fires. The results of the study will be built in the fire prevention actions from 2013.

With help of a new module some statistic analyses can be done in Forest Fire Information System of forest authority. Gathered fire data are processed and evaluated by size, date, cause, duration of fires and they are compared with traditions in forest management processes and behaviour of visitors and hikers in forest land area.

Map 1. shows places of forest fires in Hungary in different seasons of the year.

Map 1.

