Forest fires in Hungary

2019

(Reported by: National Food Chain Safety Office)
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Fire danger in 2019 fire season

FWI derived data and values were reported throughout the whole fire season by forest authority (FA). FA has been using JRC's data service to monitor the daily fire danger situation. Compared to previous years a long period between 15th February and 20th April was much dryer than the average. Precipitation in March was only 30% of the multi-year average only. Due to very dry period the fire danger has been increased causing a lot of fire events. The high endangered period shifted to 20th April last year. From start of March total fire ban was ordered and it took for 39 days. There were several rainy days in May, and June, so there was no significant fire danger. Because of the uneven distribution of precipitation in the second part of summer there were two short period, when the FWI values reached the high level in June and July. Both of them took for a week only. At the end of the fire season in October, a dry period began again and fire numbers increased. A short fire ban had to be ordered in pine wood region in the Great Plain.

Fire occurrences and affected surfaces

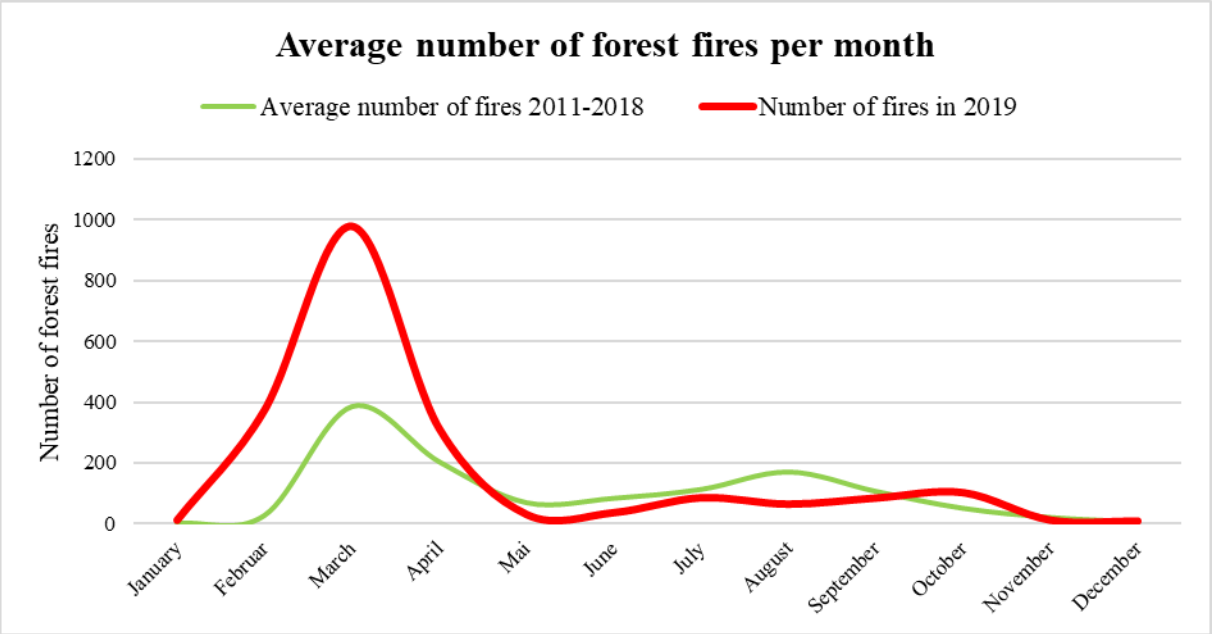
Forest fires data are collected in a close cooperation with disaster management authority. Data collected on the spot by fire fighters. They uploaded to the database weekly but if it necessary they can collect it day by day. Forest fires data are produced and analysed with a GIS method and checked on the spot by forest authority. Gathered fire data are processed and evaluated by size, date, cause, duration of fires. They are compared with traditions in forest management processes and behaviour of visitors and hikers in forest land area. The table 1. shows the total values between 2011 and 2019.

Table 1.

Year	Number of wildfires	Forest fires		Wildfires in other land
		Number of fires	Total burned area (ha)	Number of fires
2011	8.436	2.021	8.055	6415
2012	21.581	2.657	14.115	18.924
2013	4.602	761	1.955	3.841
2014	5.783	1.042	4.454	4.741
2015	5.318	1.069	4.730	4.249
2016	2.677	452	974	2.225
2017	7.122	1454	4.933	5.668
2018	2.981	530	906	2.451
2019	**7.296**	**2.088**	**6.541**	**5.208**

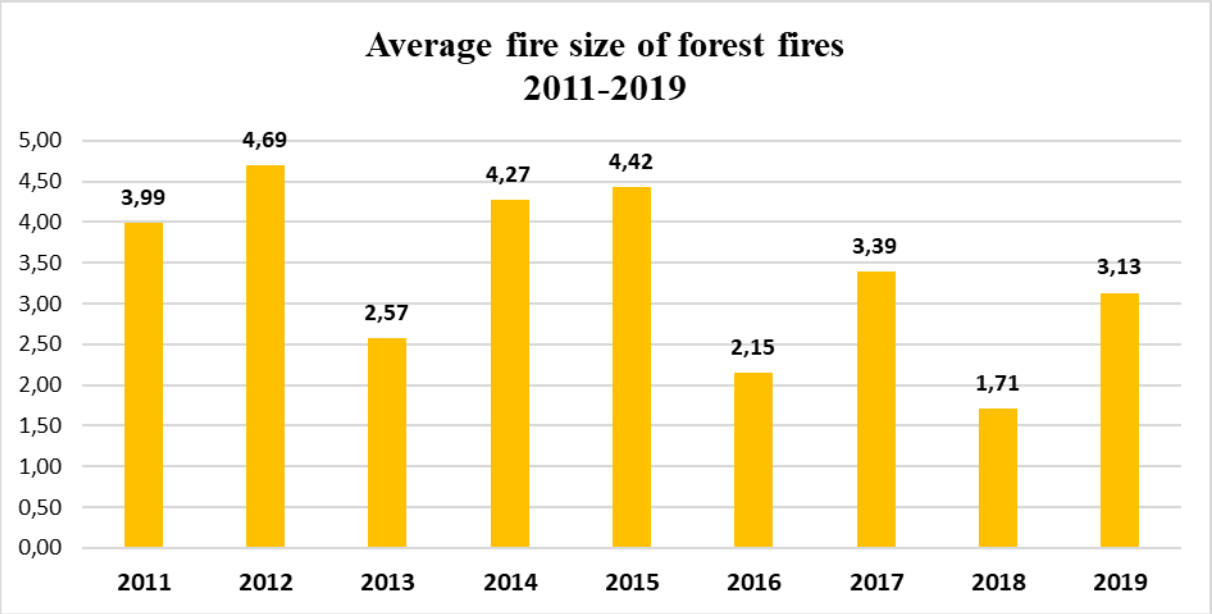
Figure 2. represents the tendencies experienced in last 9 years that there are two most endangered forest fire periods during every year. Traditional using of grassland includes burning methods in early spring, which can accidentally spread to nearby forest. These fires usually burn in March and April. 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. Based on yearly data set, we found that 55% of forest fires have been occured in two high endanered periods. In the same period of reported year, 81% of all fires occurred due to long dry period. The number of forest fires in February was 13 times higher than in the same month of the base period (2011-2018). There were 2.5 times more forest fires in March and 1.5 times in April.

Figure 2.



A total of 2.088 forest fires were registered in 2019. That value is the third highest in this decade after the two driest years 2011 and 2012. Despite the high number of fires, the average burned area was 3.1 ha, which is not an extrem value.

Figure 1.



The yearly trends in terms of number of fires and burnt areas between 2011 and 2019 are shown in Figure 3. and Figure 4.

Figure 3.

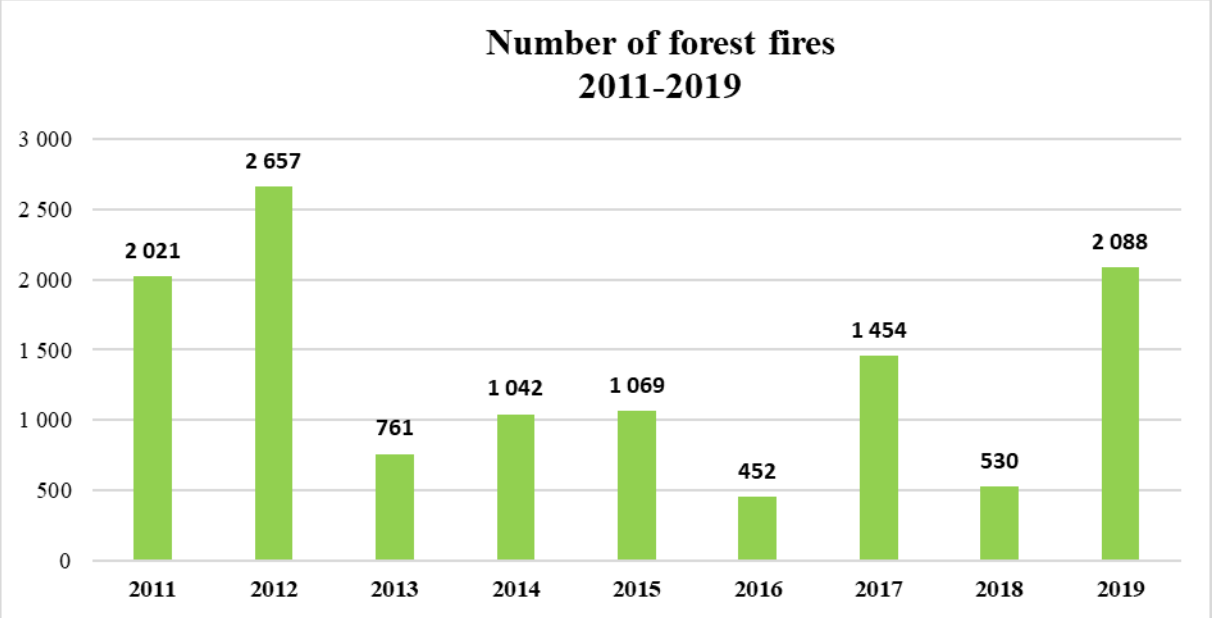
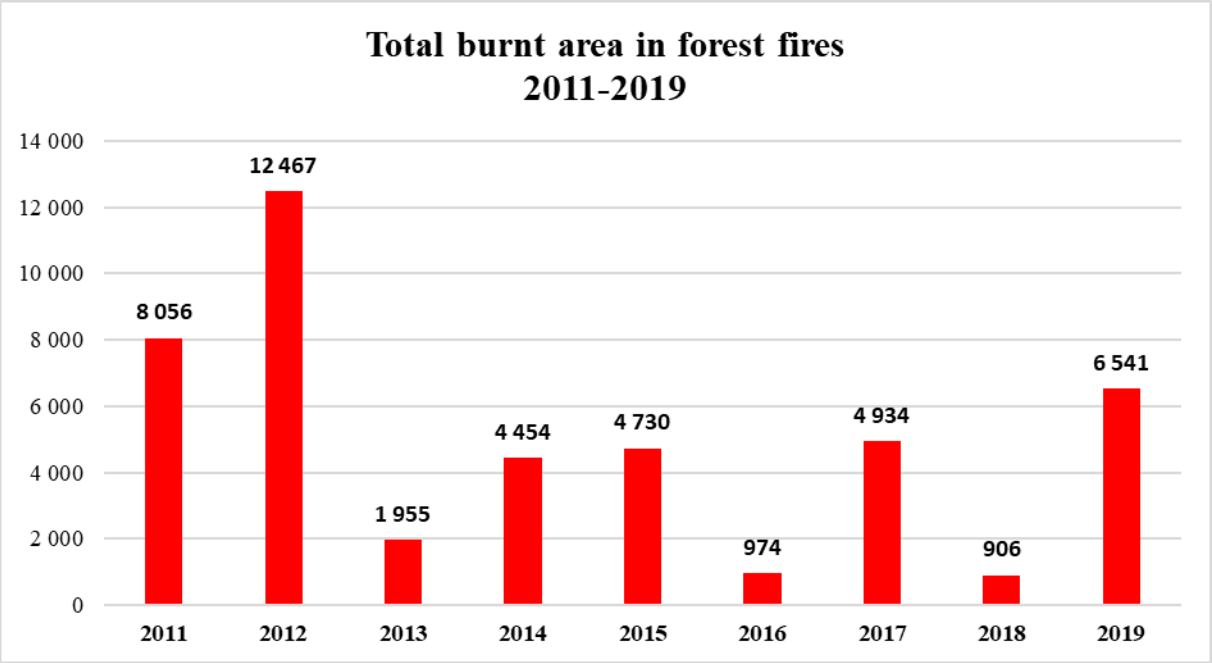
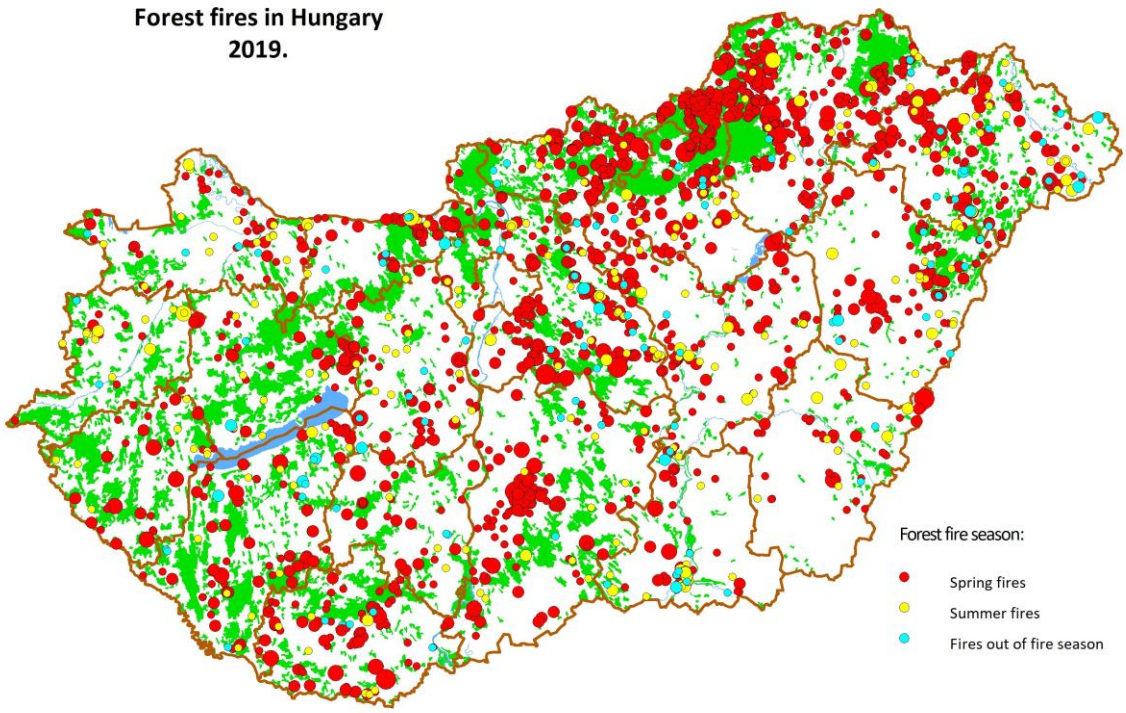


Figure 4.



Total of 1695 forest fires occured in spring which is 80% of all forest fires in 2019. Most part of spring fires (47%) burn in northern areas (Borsod-Abaúj-Zemplén County, Heves County, Nógrád County and Pest 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. Unlike spring fires, summer fires usually burn in the Great Hungarian Plain. Map 1. shows places of forest fires in Hungary in endangered periods of the year. Total of 265 forest fires occurred but there were no large fire last summer. Compared to previous years, the number of summer fires did not change.

Map 1.



98% of forest fires were surface fires in 2019 fire season, when surface litter and other dead vegetal parts and smaller shrubs burnt down. The average rate of fires smaller than 1 hectare is almost 70 %. There was no large fire in 2019. There was only 16 fire events where more than 50 hectares were burnt. (table 2.)

Table 2.

Classification of burnt area	Number of forest fires	Burnt area (hectare)
less than 1 ha	1.478	444
1 – 50 ha	**594**	4.159
50 – 100 ha	10	823
100 – 500 ha	6	1.115
more than 500 ha	0	0
Total:	**2.088**	**6.541**

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, throwing cigarette butt and sometimes slash burning.

Analyzing the statistics we can see that total of 4.197 hectares of forest land were burned or affected by forest fire during 2019. In addition, more than 847 hectares of grass vegetation and 1.497 hectares of other wooded land were destroyed in forest fires. (Table 3.)

Table 3.	
Burnt fuel types in forest fires	Total burnt area (ha)
Forested land	4.197
Other wooded land	1.497
Other land	847
Total:	**6.541**

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.

No death or personal injury occured during fire fighting in 2019. Fire service equipment was not heavily damaged. Neither Fire Service nor Forest Authority served mutual assistance last year.

Fire prevention activities and fire information campaign

In summer of 2019 we started a short study to gather the aspects that may be suitable for determining periods of fire risk and evaluating the effectiveness of forest fire prevention activities in Hungary. We are focusing on daily fire risk values and length of periods when a fire may occur. During the study we take into account fire statistics, meteorological data, fire risk and FWI data sets also.

There is a cooperation agreement between Fire Service and Forest Authority. National Fire Prevention Committee established by the government has been monitoring all fire prevention activities. Forest fire prevention activities are implemented by forest authority in the frame of a FIRELIFE project.

The last major event of the project was a training for forestry, nature conservation, environmental protection and agricultural specialist. International processes of fire prevention, the characteristics of the Hungarian fire season, the related regulations, as well as the challenges and tasks of domestic forest fire prevention and the steps of planning and implementing controlled burning were presented in the framework of the training. The presentations of training can be freely downloaded from the project website. http://erdotuz.hu/eloadasok/

The Firelife project entered the follow-up period after January 2019, but the effective communication developed in the project was continued during the spring and summer fire seasons with the budget support of National Food Chain Safety Office. About 15,000 posters and 35,000 flyers were

distributed, and the FIRELIFE adventure track promoted the importance of forest fire prevention at 10 events.

The communication project drew attention to the forest forst fire problem and resttarted many fire prevention processes that had been abandoned. On the basis of the information received during the implementation of the project, we have improved the fire prohibition system, which now operates more flexibly and faster, using forest fire indices calculeted by the EU JRC. Daily updated fire-prevention maps have been placed on the projects website, where relatad leaflets can be accessed immediately.