



Wildfires in Turkey 2007

1. Number, Area and Types of Forests and Other Vegetation Affected by Fire

Turkey is a country with a land mass of 77.079 million hectares (ha), of which 21.2 million hectares is forested, representing about 27.2 per cent of country's total land area (Orman Genel Müdürlüğü - OGM, 2007). About 12 million ha of forested lands is subjected to and under the threat of forest fires. Fire has always had a pervasive influence on forests of Turkey and their management, consuming thousands of hectares of forest land annually resulting in high suppression costs and causing great damages in lost timber, real estate and recreational values, and even loss of life.

Forest fire activity in the country is highly correlated with weather conditions, land use practices and vegetation associations (Canakcioglu and Ozkazanc, 1997). The most fires occur where Mediterranean climate with high temperatures and low to nonexistent precipitation during fire season is predominant in the southern and western Anatolia. In the period 1937-2007, a total of 82,556 fires burned a total of 1,582,590 ha of forest land. This represents 1,163 fires on 22,290 ha annually with an average area burned per fire of 19.17 ha (OGM, 2007).

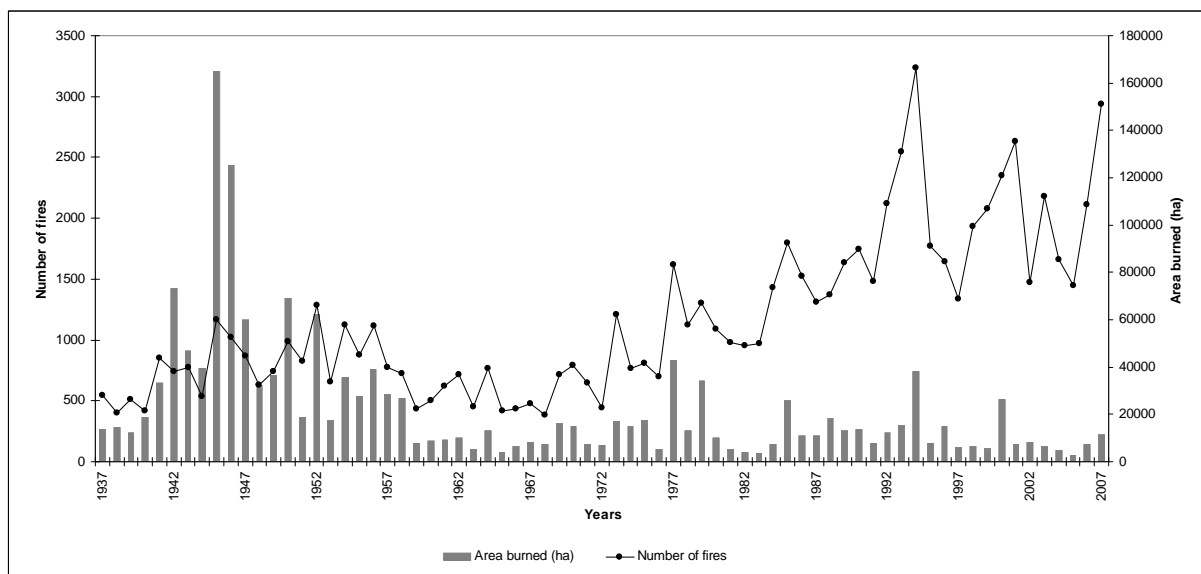


Figure 1. Forest fires in Turkey between 1937 and 2007 (Source: OGM 2007)

Average annual fire loss according to the last 10 year's data is about the 0.00061 % (Sixty one in One hundred thousand). This is a very low value compared to other countries in the Mediterranean Basin. Biggest damage was in Çanakkale (0.00183), and followed by Muğla (0.00171) İzmir (0.00139), Adapazarı (0.00130), Adana (0.00129) and Antalya (0.00118). In the period 1998-2007, a total of 20,702 fires burned a total of 87,913 ha of forest land. This represents 2070 fires on 8791 ha annually with an average area burned per fire of 4.25 ha (OGM, 2007).

As can be seen from the figures, there has been a gradual increase in the number of fire starts and a decrease in area burned. This may seem contradictory, but it is not. Thanks to the technological advances and the lack of recognition of the ecological roles of fires in forest ecosystems, fires have been successfully kept out of these systems over the last several years.

2. Causes of Wildfires

Majority of forest fires in Turkey are caused by people. Human-caused fires account for 94 to 97% of all fires, while natural agents are responsible for the remaining 3 to 6%. People-caused fires can be examined under three broad categories – voluntary, involuntary, and unknown fires. Of the human-caused fires, according to the recent statistics, 14 per cent is classified as arson, 58 per cent as negligence and carelessness, 5 per cent accident, and 23 per cent as unknown (Bilgili et al., 2004).

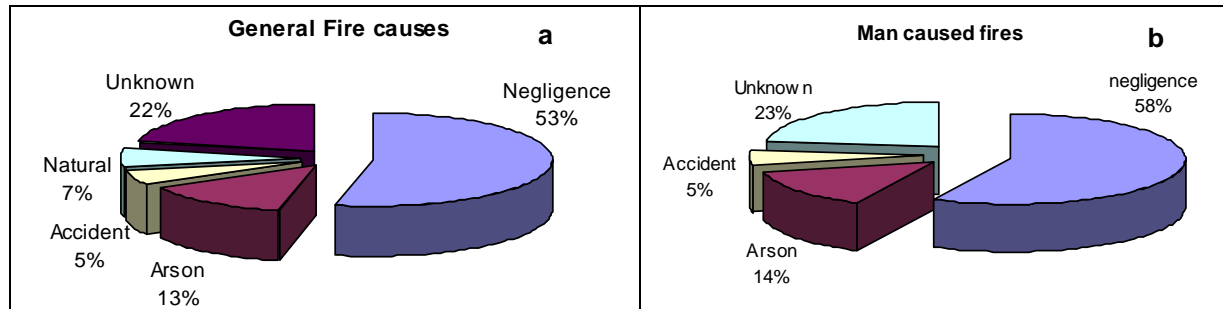


Figure 2. Fire incidences by causes: (a) general, (b) human caused fires

According to the last ten year's statistics, fire causes are: negligence and carelessness, 48 per cent; arson, 14 per cent; lightning, 4 per cent; and unknown, 34 per cent (OGM, 2007).

According to the last year's (2007) statistics, fire causes are: negligence and carelessness, 55 per cent; arson, 16 per cent; lightning, 11 per cent; and unknown, 18 per cent (OGM, 2007) (Fig. 3).

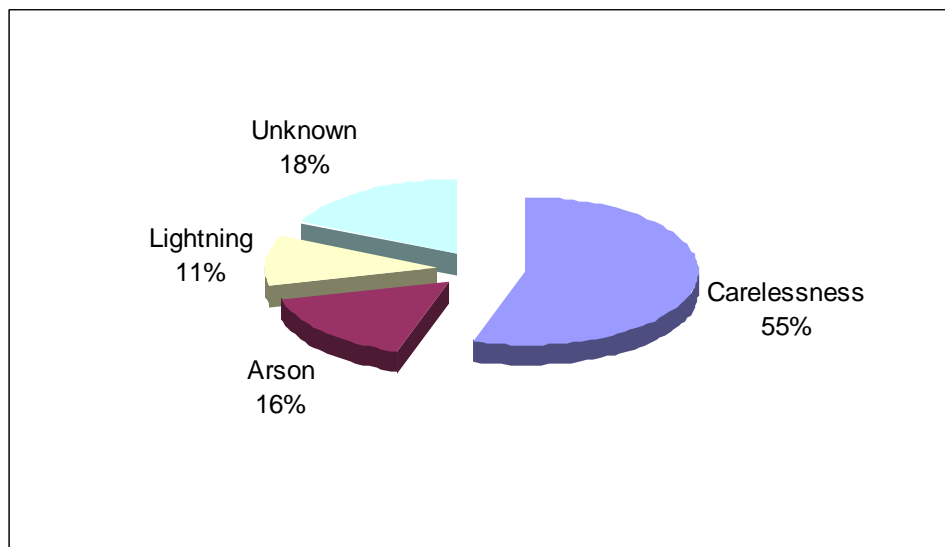


Figure 3. Fire incidences by causes in 2007

Arson fires are set for several reasons. About 7.8 million people live in 20,974 villages in or near forests (Anonymous, 2007). Socio-economic life standards of most of these people are well below the national average. People with low income and low life standards see the forests as an earning ground for their sustenance. Therefore, people set fire in the forest to create jobs that will earn them some provision or manipulate vegetation to improve and produce useful plants for their animals to graze. Personal conflicts between people and forestry officials or between shepherds or different villagers have also been reported to have been a cause for fires.

When examined in detail, it is very obvious that fire causes are closely related with land management activities, standards of living, population dynamics and associated public policies. Thus, to better understand the underlying causes of fires, the subject should be examined in relation to these factors.

3. Extreme Fires

Table 1 shows the fires burned in 2007 exceeding 100 ha. Almost all fires started in the high fire season when relative humidity was relatively low and temperature high. Coupled with the rugged topography, high winds in almost all large fires augmented the rapid acceleration of fire spread.

Table 1. Fires burned in 2007 exceeding 100 ha

No.	Regional Directorate	State Forest Enterprise	Forest Conservation Unit	Date	Time	Forest Type	Area burned (ha)
1	Balikesir	Balikesir	Balya	25/8/2007	16.15	HF	100
2	K.Maras	Antakya	Yayladagi	28/7/2007	13.30	DF-DC	105
3	Kutahya	Emet	Hisarcik	25/7/2007	14.10	HF	110
4	Istanbul	Vize	Cerkezkoy	25/8/2007	12.00	HF-DF	112
5	Bursa	Bilecik	Osmaneli	28/6/2007	15.25	HF	127
6	Denizli	Usak	Usak	18/7/2007	10.55	HF-DF-DC	130
7	Antalya	Kas	Saklikent	6/9/2007	14.15	HF-DF	140
8	Adapazari	Golcuk	Karamursel	9/7/2007	13.00	DF	144
9	Izmir	Manisa	Manisa	15/8/2007	10.20	HF-DF	156
10	Bursa	Bursa	Kestel	24/8/2007	14.00	HF-DF	168
11	Antalya	Kumluca	Akdag	21/6/2007	11.00	HF-DF	185
12	Adana	Osmaniye	Hasanbeyli	16/7/2007	16.30	HF	187
13	Balikesir	Balikesir	Akdogan	25/8/2007	15.15	HF	196
14	Mugla	Milas	Milas	15/7/2007	11.55	HF-DF-P	223
15	Amasya	Vezirkopru	Karacam	12/8/2007	14.00	HF	272
16	Adana	Saricam	Saricam	23/8/2007	17.00	P	283
17	Izmir	Izmir	Bornova	15/8/2007	11.20	HF-DF	290
18	Mugla	Milas	Bodrum	7/7/2007	11.05	DF-HF	308
19	K.Maras	Antakya	Yayladagi	16/7/2007	15.30	HF-DC	317
20	Antalya	Manavgat	Selale	8/7/2007	9.40	HF-P	321
21	Antalya	Kas	Kasaba	23/7/2007	14.50	HF-DF	324
22	Kutahya	Simav	Sogut	25/7/2007	14.45	HF	380
23	Mugla	Kemer	Kemer	19/5/2007	19.00	HF-P	390
24	Antalya	Tasagil	Burmahan	24/8/2007	11.00	HF-DF	513
25	Mersin	Gulnar	Pempecik	16/7/2007	15.45	HF	911

HF: High Forest; DF: Degraded Forest; DC: Degraded Coppices; P: Plantation

3. Fire Damages

80% of the forest fires occurred between June and October. Most of the fire damages in 2007 occurred in Mugla, Izmir, Kütahya, Antalya and Adana Regional Forest Directorates.

The budget allocated in the year 2007 for suppressing forest fires was 155 million Euros (225 million USD). Available resources included 838 fire trucks, 29 helicopters, 20 airplanes, 780 fire look-out towers, 144 water tankers, 142 bulldozers, 38 loaders, 126 graders, 115 trailers, 52 caravans, 717 motorbikes, 8,472 radio, 650 fire crews (of 5-7 men). As needed new resources are being added and new technologies adopted. These forces are allocated to each district based on fire danger levels and area in question. In addition, 1,756 km of tower road, 18,559 km fuel breaks, and 8,899 km fire breaks are in place. There are also 600 water ponds and pools.

4. Fire Prevention Measures

The year 2007 has seen more activities concerning fire prevention, pre-suppression and suppression. Many educational, social programs have been launched to increase the level of public awareness

concerning the forest fires. Many ponds have been constructed and water tankers bought in 2007. These have come in handy in fighting many potentially disastrous fires. Fire crews have been strengthened with new recruits.

5. Response to Fires

All fires have been attended to and dealt with according to the fire control plan prepared for each district. These plans envisage all the steps from observation to control and to mop-up of fires.



Figure 4. A village damaged by wildfire (Photo: OGM)



Figure 5. OGM firefighters in action (Photo: OGM)

6. National Cooperation in Responding to the Fires

Role of agencies at national and provincial level

Fire management in Turkey is a state responsibility. Duties are carried out by the state forest enterprises functioning under regional directorates. Fire control policies have been developed around a strong emphasis on total fire control as a response to destructive fires. Regardless of the high costs involved, it is the forest service department's responsibility and policy that all the required activities are planned and implemented immediately.

Risk is associated with ignition, and risk abatement involves raising the level of awareness of general public and various responsibility groups to the dangers of ignition and subsequent forest fires through education and enforcement. It is of the opinion of the forestry service that a strongly favorable public opinion is a vital necessity in any effort to reduce the number of people-caused fires.

Role of local communities

Local people are responsible by law to immediately to respond to a fire situation when and if requested. The response of the local people and communities to a fire has risen considerably in recent years. This has mostly been a result of the changing attitudes towards forest resources and of the success of the public awareness campaigns.

Non-governmental organizations help raise the level of awareness of general public and various responsibility groups to the dangers of ignition and subsequent forest fires through education and conducting/supporting relevant activities. These activities involve seminars, TV/radio programs, practical field work, and suggestions brought to the attention of policy makers.

Academia has a very important role in all aspects of fire management. However, their effectiveness has been fairly limited. Only in recent years, however, have the scientific studies been increasingly conducted and the results obtained put into practice. The most important step in this regard has been step taken for the establishment of a National Fire Danger Rating System.

7. International Cooperation

The Balkan region has seen one of the worst fire seasons in recent history. Many countries have suffered extreme losses. This has necessitated the international cooperation in fighting forest fires. In this regard, Turkey has sent help to neighboring countries (Tab. 2).

Table 2. Countries that received help from Turkey in fighting fires in 2007

Country	Resources
Syria	2 aircrafts, 4 helicopters
Greece	1 aircraft
Macedonia FYROM	1 aircraft, 2 helicopters

8. Analysis and Recommendations

Recent fire events have made it extremely clear that fire is a phenomenon beyond the national boundaries and requires immediate international attention to mitigate its negative effects and understand its ecological role in forest ecosystems. This calls for a genuine cooperation of all parties somehow affected from fires.

References

- Anonymous. 2007. Ormancılık özel ihtisas komisyon raporu. Dokuzuncu Kalkınma Planı. Yay. No: DPT: 2712-ÖİK: 665.
- Bilgili, E. Başkaya, Ş., ve Küçük, Ö. 2004. Public policies affecting forest fires in Turkey, Conference on Forest Fire Management and International Cooperation in Fire Emergencies in The Eastern Mediterranean, Balkans and Adjoining Regions of the Near East and Central Asia, 30 March - 3 April 2004, Antalya, Turkey.
- Canakcioglu and Ozkazanc. 1997. What can we do to reduce forest fires in Mediterranean region? In: Proc. XI. World Forestry Congress, 13-22 October, 1997, Antalya, Turkey.
- Orman Genel Müdürlüğü (OGM). 2007. Forest fire statistics

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