

# REVIEW OF FOREST FIRES IN ESTONIA

Veljo Kütt  
Ministry of Environment Forest Department  
Estonia

The total area of Estonian forests is 2011 thousand hectares. Forests cover 48% of the land area of the country. Altogether, 2058 forest fires have been registered in Estonia in the years 1990 – 99, with the total area of 6210,7 hectares. The average area of a forest fire was 3 hectares.

table

Forest fires in Estonia from 1990 to 1999

Year	Number	Area (ha)	Average area (ha)
1990	164	194,0	1,07
1991	39	58,0	1,49
1992	348	1787,0	5,13
1993	207	647,1	3,13
1994	289	456,4	1,58
1995	188	185,9	0,99
1996	273	579,0	2,12
1997	359	1146,5	3,19
1998	61	53,8	0,88
1999	130	1103,0	8,48
<b>Total</b>	<b>2058</b>	<b>6210,7</b>	<b>3,02</b>

The number and area of fires differs from year to year. As we can see from the table, there were big forest fires in 1992, 1997 and 1999, their total area exceeding 1000 hectares. The major fires occurred in Vihterpalu, the Harju County in 1992 and 1997, almost 800 hectares of forest being on fire in both cases. The two years between the First and the Second Baltic Conferences on Forest Fires have been very different both by the number and area of fires. Due to a rainy summer, only 61 forest fires with the total area of 53,8 hectares were registered in 1998. The average area of a fire was 0,88 hectares, which is the lowest indicator of the last 10 years. The next year, the average area of a forest fire was 8,48 hectares, which is almost 10 times more than the year before and the second highest indicator of the last 40 years. As we know, the biggest forest fires took place in 1963, the area per fire being 13,9 hectares. Statistical data of an extended time period indicate that 40% of all the fires take place in the Harju County and the major fires have also occurred there, but in 1999 forest fires occurred in other counties as well. The Ida-Viru County suffered the biggest damages in 1999, with the biggest fire of the year also occurring there (near Narva). Major fires also occurred in the Harju County (Männiku) and the Lääne County (Nõva). A number of major fires took place under extraordinary circumstances that complicated their suppression and the arrangement of suppression. I am bringing some examples.

The most extensive forest fire took place last year in the vicinity of Narva (the Ida-Viru County), where 400 hectares of forest and peat-bog to be turned into opencast oil-shale

pits were on fire. Fire brigades from a number of counties participated in the suppression of this fire. Suppression was carried out sector by sector. Both motor and automotive pumps were used and a helicopter proved to be most useful. Suppression was complicated by the fact that heavy fighting had taken place on that spot during the World War II. Old bombs and warheads exploded in fire in a number of cases, making fire suppression extremely dangerous. A special mine clearing unit was on the spot, preparing zones where fire brigades could act in comparative safety. Due to a complicated situation, it took 4 weeks to suppress the fire. None of the extinguishers was hurt, as adequate safety measures were taken.

Another major forest fire occurred near Männiku (the Harju County) on the area of 80 hectares, with fire brigades from various counties involved. Water was transferred with the help of motor-pumps and pumping stations from an opencast pit in the distance of 1,5 kilometres and a mire pond in the distance of 1 kilometre from the burning area. A helicopter was also used to suppress the fire. The fire presented a danger, as it was very close to the city. The fire brigades managed to stop the fire from spreading at the distance of 300 metres from the dwellings. The fire was caused by arson. Suppression lasted for 16 days, a period that could have been shorter, considering the area of the fire. But as soon as the fire was under control, forest was twice again set afire by arsonists who could not be caught.

Recruits of the Estonian defence forces could not be sent to suppress forest fires in 1999. The inclusion of the military probably would have enabled to put out fires considerably quicker.

Returning to the forest fire statistics for the last 10 years, it should be noted that approximately 1% of all the fires are caused by natural factors (lightning, etc.), and the remaining 99% are more or less related to human activities. Forest fires are caused by the following factors: natural factors (lightning) 1%; arson 14%; agricultural operations 8%; logging and forestry operations 1%; transportation and communications (railways, electricity lines) 5%; general public (campers, other visitors, children) 52% and other causes 1%. 18% of forest fires have been caused by unidentified factors.

#### Organisational Framework of Forest Fire Protection

As a result of institutional rearrangements, forest fire protection in Estonia has been arranged as follows:

1. A general emergency phone-number (112) has been introduced and county emergency centres have started functioning. All the notices of forest fires are now received on one and the same phone-number.
2. Suppression of forest fires is now the responsibility of the Rescue Board under the jurisdiction of the Ministry of Internal Affairs, as provided by the Rescue Act.
3. Monitoring of forest fire protection and measures to prevent widespread and especially dangerous fires are the responsibility of the Ministry of Environment, as provided by the Forest Act. For this purpose, the dissolved Forestry Board has been rearranged into the Forest Department of the Ministry.
4. Management of state forests and detection of forest fires from observation towers is the responsibility of the State Forest Management Centre - a state profit institution under the jurisdiction of the Ministry of Environment, as provided by the Forest Act.

### Research and Development Projects

In consistence with the recommendations of the First Baltic Conference on Forest Fires and the corresponding Polish experience, an applied research project aimed at increasing the fire-resistance of forests in the Vihterpalu region, the Harju County was launched, financed by the Forestry Board. The project report contains practical guidelines for forest owners (including the state) on piercing specific fire subject forest massifs with fire belts, building artificial water-bodies and fire protection roads and tending roadsides. Studies on the improvement of fire-resistance of forests will be continued in the year 2000.

As the process of integrating Estonia into the European Union has started, attention will be paid to the enforcement of Council Regulation (EEC) No 2158/92 and a number of development projects have been planned in this context. Those projects will address the methodologies of determining the degree of fire hazard and the planning of fire protection measures. Studies on causes of forest fires are in line. The studies and research projects are ordered by the Ministry of Environment.

The Estonian Rescue Board has been upgrading its equipment for the suppression of forest fires. Its main goal has been the creation of a mobile, quickly operable water transferring system that considers the frequency and disposition of Estonian lakes and rivers. Fire-pumps of different capacities and hose-lines of varying diameters have been and will be acquired for this purpose. The development of these systems is region-specific.

### Cooperation in the Baltic Sea Region

Estonia thinks that it is very important to carry on co-ordinated activities in the issues related to forest fires by the countries of the Baltic Sea region. We are interested in participating both in conferences and practical training sessions.

There has been quite good experience from the cooperation with Finland in the field of detecting forest fires in their early phases with the help of satellites. We hope this project will be developed further.

A mutual cooperation agreement concerning rescue services has been concluded with the Republic of Finland and a similar agreement is presently being prepared with the Swedish Kingdom. These agreements give Estonia the possibility of receiving prompt technical assistance and support, using procedures previously agreed upon. So far Estonia has not utilised this possibility and hopefully no such need will arise, however, the existence of those agreements undoubtedly gives a positive impetus to bilateral cooperation in the field of rescue services.

In the case of extensive and long-lasting forest fires it would undoubtedly be useful to open the country concerned to specialists-observers from other countries. Exchange of experiences on the basis of real-life situations would certainly be most beneficial.