



2018 FOREST FIRES IN ESTONIA



The report has been prepared in Estonia on forest and landscape fires in extraordinary weather conditions during the summer of May-August 2018. The overview includes statistics and trends for large-scale rescue events, an overview of rescue events. Also occupancy of rescue resources, including the capacity for obtaining and providing international assistance as well as an overview of preventive activities.

MAIN CONCLUSIONS

1. Trough the summer period of 2018 to May-August was an intensive period of extraordinary occupation for the Estonian Rescue Board, there were no human casualties registered due to the forest and landscape fires.

2. The weather for Estonia was extraordinary. The Rescue Board determined the time of a major fire hazard all over Estonia twice, with a total duration of 40 days.

3. For the first time, the Rescue Board conducted a hot wave action in three consecutive weekends during a major fire hazard period with the entire organization and involved partners in order to prevent people from getting killed in the accidents and to prevent forest and landscape fires.

HALF OF THE ESTONIAN TERRITORY ARE FORESTS

In Estonia, forest grows on approximately 2.2 mln hectares, of which 1.6 mln hectares is manageable forest. Two main types are forests growing on mineral soil (about 70%) and so-called swamp forests (about 30%), growing in the numerous wetland areas of Estonia. Most common tree species are pine, birch and spruce.

Nearly 369 swimming and campfire sites were checked and 296 campfires were extinguished or the use of a barbecue device was stopped.

4. Due to exceptional weather conditions during the summer there were 27 over-24-hour lasting events related to forest and landscape and building fires, which had an impact on the provision and availability of rescue capability in the country. More than 430 hectares of forest was burnt.

5. The rescue teams were exceptionally busy during the summer period. Altogether in seven times the provision of life-saving capability reached at a critical level where teams were redeployed through headquarters and

for the summoning of reserve teams to service the ongoing or new calls. In 2017 there was only one such event that affected the life-saving capability.

6. In terms of the critical limit of life-saving capability there were still on-going rescue events during the Vikipalu forest fire period and at that time the average number of dispatches in the North region increased four times. The average 2.4 dispatches increased to 10 per day. There were also occasional situations where calls were placed on hold.

7. During the summer, the Police and Border Guard Board and the Defense Forces provided significant assistance with their helicopters and aircraft for extinguishing the fires.

8. Estonia provided international assistance to Latvia to extinguish forest fires. However, in the case of international assistance, the main need for assistance was extinguishing fires from the air.

9. The critical capacity needs in Estonia are the ability to carry out airborne intelligence by drones, performing extinguishing in the terrain that is difficult to pass through, ensure the staff of the rescue teams in an intensive period, and also the ability of the state to ensure extinguishing from the air as an entirety.

Statistics and trends of rescue events

From May until the end of August, there were five times more rescue events with the duration of over 24 hours than on average over the past three years. Rescue missions for over 24 h events were as follows:

	2015	2016	2017	2018
Rescue event lasting over 24 hours	6	8	1	27
Dispatches to these events	243	309	20	1017

There were no human casualties due to the forest and landscape fires. Forest fires damaged buildings in 2 cases. One event occurred where the farmhouse burned and the cattle were evacuated. There were two events where the fire started from the building spread over to the forest.

Five large forest fires took place the

extinguishing of which took more than a week:

- Defense Forces Central shooting range fire – 7 days
- Vikipalu forest fire – 11 days
- Laeva swamp fire – 10 days
- Narva-Jõesuu landscape fire – 12 days
- Konju bog fire - 15 days

The size of the burnt area in 2018 is estimated. The data for the years 2015-2017 are from the Environment Agency (measuring fires over 0.1 hectares). In the comparison of recent years, the extent reached the peak in 2018:

2015	2016	2017	2018
67 ha	116 ha	29 ha	Ca 430 ha

Weather conditions and the period of high fire hazard

In the summer this year, the weather was exceptionally dry and sunny:

- the maximum air temperature in May reached 30.5 °C, which has not occurred since 1961; precipitation rate 41% of the norm;
- the maximum air temperature in June reached 28.6 °C; precipitation rate 61% of the norm;
- the maximum air temperature in July reached 34.2 °C; precipitation rate 36% of the norm; it had been drier than that only in the years 1961, 1967, 1994 and 2006;
- the maximum air temperature in August reached 32.6 °C; precipitation rate 98% of the norm; since 1961, August had been hotter only in three years 1997, 2002 and 2010.

The period of a major fire hazard is established on the basis of the directive of the Estonian Rescue Board, as an additional safety measure in view of extreme environmental conditions. As a rule in the spring, the Rescue Board establishes country wide fire hazard and ends it in the fall when rain and humidity arrive in autumn.

In both cases, it is based on the Fire Hazard Index of the Environment Agency Weather Service and



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the incidence of landscape fires. As a result of the determining of a period of a major fire hazard, restrictions are imposed on the use of open fire in nature, and in some cases, the ban on entry to the forest will apply.

The Rescue Board cooperates actively with the Weather Service. The Rescue Board has determined the time of a major fire hazard all over Estonia twice, with a total duration of 40 days:

- May 31 to June 22, for a duration of 23 days;
- July 28 to August 13, for a duration of 17 days.

The time of major fire hazard remained standing for regional extreme weather conditions - in Jõgeva and Ida-Viru counties, plus for one day in Järva County. For the longest, the restriction for a period of a major fire hazard lasted for Jõgeva County - a total of 75 days, and Ida-Viru County, a total of 55 days.



Overview for resolving and involvement of rescue events

Over the course of the summer upon resolving of several simultaneously occurring events, situations emerged where at the same time as the entire lifesaving resource was involved in events new calls emerged. Regional, and national headquarters had to be convened to coordinate events.

THE MAIN TASKS OF THE HEADQUARTERS WERE:

- The provision of an overview of the situation for dispatching the calls that incoming and monitoring the ongoing events;
- Planning of resources and reserves and sharing them between the sites;
- Planning of logistical support;

- Implementation of measures to ensure the operational continuity of the Rescue Board;
- Preparation for the adoption of international aid.

THE ESTONIAN DEFENSE FORCES SHOOTING RANGE FOREST FIRE, MAY 25 -31, 2018:

- duration 7 days, area burnt: 164 hectares;
- 10 fire brigades involved;
- a helicopter of the Estonian Police and Border Guard Board and an aircraft of the Estonian Defense Forces were involved;
- at the beginning phase of the fire, the fire spread at a dizzying speed, and therefore, the tactics to be chosen was to restrict the area;

- since it was a training and target area of the Defense Forces, there were various explosive devices (grenades, projectiles, rockets, etc.) that exploded during the fire. Therefore the extinguishing that took place was mainly from the air. For rescue teams, the movement inside the danger zone was dangerous and private sector UGVs were also used for testing purposes.

VIKIPALU FOREST FIRE, JUNE 10-21, 2018:

- duration 11 days, area burnt: 200 hectares;
- a total of 1322 people were involved in the extinguishing work, of which 552 volunteers contributed to a total of 6380 hours to the extinguishing;



- at the moment of intensive extinguishing, 12 of the fire brigades of the Northern region were present, and 4 brigades covered the entire region;

- a helicopter of the Police and Border Guard Board, an aircraft of the Defense Forces and the National Defense League were involved;

- during the same period, the average number of dispatches increased four times. Under normal circumstances, the average is 2.4 dispatches per 24 hours (now 10). There were situations where calls were placed on hold waiting to be serviced.

ALLIKU BOG FOREST FIRE, JULY 16 -18, 2018:

- duration 3 days, area burnt: 23 hectares;

- 17 fire brigades were involved, plus 60 volunteers who had been involved via social media;

- a helicopter of the Police and Border Guard Board was involved in the extinguishing.

NARVA-JÕESUU FOREST FIRE, JULY 27 TO AUGUST 8, 2018;

- duration 12 days, area burnt: 6 hectares;

- a total of 7 rescue brigades involved;
- a helicopter of the Police and Border Guard Board was involved in the extinguishing.

- the hose lines put in place for taking water from the Narva River were on the roads. The vehicle drivers started crossing hose lines at random places and the lines were broken and the extinguishing of fire was suspended.

KONJU BOG FOREST FIRES:

- There were a total of 3 fires from May to July with little breaks - from May 26 to May 28, with a duration of 3 days, from June 13 to June 28, with the duration of 15 days and from 16 to 20 July, with the duration of 5 days. Total duration was 23 days, burned area 28 hectares;

- 9 fire brigades and 145 people were involved in the bog fire in Konju village.

LAEVA SWAMP FOREST FIRE, JULY 30 TO AUGUST 8, 2018;

- duration 10 days, area burnt: 20 hectares;

- the extinguishing work was complicated by the complex swamp landscape with a dense forest. The roads had to be built for approaching the fire; the rescue teams also had difficulty in navigating in the inaccessible landscape in the darkness;

- a helicopter of the Police and Border Guard Board was used for quenching from the air.

- At the same time, several fires in the region broke out in South region.

WORK SAFETY

In the summer of 2018, 10 accidents at work occurred in forest and landscape fires, in addition 9 incidents (eg sting of insects, breathing damage, eye damage, and fatigue) were recorded. Last year at the same time there were 2 cases.

International assistance

In parallel with the Estonian landscape fires, there were extensive fires in North-Europe - in Finland and Sweden as well as in Latvia. The Rescue Board communicated proactively during this period on the possible provision of assistance. The main desire for assistance was related with air capabilities that Estonia could not provide.

MAZSALACA COUNTY FOREST FIRE IN THE REPUBLIC OF LATVIA:

On August 1, according to a bilateral agreement, Latvia submitted an official request for assistance requesting from Estonia resources for extinguishing the forest fire that had broken out in Mazsalaca County:

- Latvia asked for specific assistance for conducting observations with drones and for capabilities of movement in off-road terrain.

- Estonia participated in the extinguishing work during the period of August 1 to August 5 2018; the fire was about 2.5 km from the Estonian border;

- Assistance: Estonia provided ground forest firefighting force (32 firefighters and 11 vehicles).

ESTONIA'S ABILITY TO PROVIDE INTERNATIONAL SUPPORT ON FOREST FIRES:

This year has shown that when the events of other countries are extensive, the main means of assistance needed are primarily aircraft. The extinguishing capability from Estonia is critical.

Modules of terrestrial forest fires were asked for assistance, for example by Latvia and Sweden. Assistance provided by Estonia is case-based and implemented with national rescue capability, providing assistance

can be related to personnel, equipment or other means (completed intervention teams, water transport and pumping capacity, different hoses and distribution pipes etc).

Estonia has not prepared nor declared the module for extinguishing forest fires, which results in a rapid critical response to a request for international assistance.

HOST NATION SUPPORT

Due to extraordinary situation in Estonia, Rescue Board was also actively mapping the situation in order to ask for assistance through the Union Civil Protection Mechanism in case the assistance would have been needed.

There is two main considerations: needs of aircrafts from the EU countries; and there is need for further improvements on host nation support in Estonia (incl supporting aircrafts on the ground).

Prevention activities and heatwave operation

The Rescue Board organized three heatwave operations lasting th days in late July and early August due to climatic conditions, with a total duration of 9 days.

All fire and rescue units were involved in the operation. The parties involved by the Estonian Rescue Board were the Estonian Police and Border Guard Board, the State Forest Management Center, the Environmental Inspectorate and representatives of local governments.

The operations took place in the following periods: July 27 to July 29, 2018, August 03 to August 05, 2018 and August 10 to August 12, 2018. The implementation of information and inspections was influenced by smaller and larger forest and landscape fires that took place at the same time. **The aim was to guide people to behave in a safe way and increase their awareness regarding safety while handling fire, and to prevent accidents and human casualties.**

For example, the places of public campfires, popular recreational are-

as, and swimming places, as well as known areas of risk were checked. The main focus was on communication with people, counseling, the control of the existence and maintenance of life-saving equipment for public swimming places, and compliance with fire safety requirements during the period of a major fire hazard.

People's attitude to controls was peaceful and understanding. The orders to terminate making fires or using barbecues were taken into account and obeyed peacefully. Over weekends, nearly 369 swimming and campfire sites were checked, and 296 campfires were extinguished, or the use of a barbecue device was stopped. In summary, people's awareness of making fires related to the high risk of fire in public campfire sites was low.

A need emerged to perform more active outreach work in the direction of media and population because based on the feedback, the Estonian-speaking population was more likely to be aware of the restrictions in the period of a major fire hazard.

On August 14, information was sent about the expiry of the period of major fire hazard, and the main fire safety messages from the summer were reminded.

OTHER ACTIVITIES IN THE FIELD OF PREVENTION:

- in the framework of the "Let's do it" project, 2177 of joint activities were carried out involving 53,128 people, and, in addition to cleaning the areas around water bodies, campfire sites were made safer, and water safety stands were repaired;

- safety websites (www.veeohutus.ee and www.kodutuleohutuks.ee) were visited by 26 132 people on the basis of Facebook redirection;

- a total of 428 Midsummer Night bonfires were registered on the Estonian Rescue Board website, and responsibility was taken for the security of the party;

- to provide proactive safety information, the Chatbot application is used to answer safety questions.