Close this chapter

Passive and active landscape protection measures against fires in the Czech Republic and in the W-UI AREA Kostelec n.C.l.

L. Sisak[1], I. Kasparova[2] and K. Pulkrab[3]

[1]Faculty of Forestry of the Czech University of Agriculture Prague, Department of Forestry Economics, Kamycka 129, 165 21 Prague, Czech Republic, Phone: ++420224383705, Fax: ++420224383701, e-mail: sisak@lf.czu.cz
[2]Faculty of Forestry of the Czech University of Agriculture Prague, Department of Applied Ecology, 281 63 Kostelec n. C.lesy, Czech Republic, Phone: ++420321610379, Fax: ++420321679500, e-mail: kasparova@kostelec.czu.cz
[3]Faculty of Forestry of the Czech University of Agriculture Prague, Department of Forestry Economics, Kamycka 129, 165 21 Prague, Czech Republic, Phone: ++420224383703, Fax: ++420224383701, e-mail: pulkrab@lf.czu.cz

Keywords: forest fires, statistics, measures, legislation, case study area, Czech Republic

Abstract

The paper is devoted to the survey and analysis of legislative and organisational measures protecting the landscape against fires in the Czech Republic including the situation in the W-UI Area Kostelec n. C. l. The legislation in the section of forest fire control strives to minimize the risk of fire caused by human activities. At present, a set of Acts, Amendments of the Acts, and Regulations deal with the problem. The State administration enhances forest fire prevention by creating Fire Wardens, Forest Wardens, State Fire Inspection, Fire Control Brigades and Airborne Fire Control Service. Municipalities are differentiated by danger degrees, which influences number of members and equipment of Fire Control Brigades. Criteria for danger degrees in the respective cadastres are based on the number of permanent residents, character of recreation, cultural importance, traffic, and a number of fire fighting interventions. All the measures are used also in the W-UI area Kostelec n.C.l. In the W-UI area, there operate forest wardens of the University Forest Enterprise Kostelec n. C. lesy. The Danger Degree in the W-UI area is of an average value. The character of the W-UI area landscape, high share of forest stands, water works and dense network of roads provide the potential of high frequentation of this area. The forest fires are mainly caused by irresponsible behaviour of occasional visitors and by ignoring preventive regulations.

1. Introduction

Forest fires prevention and fighting measures, passive and active, elapse from both legislation (state, regional and local levels) and population behaviour (level of observing of the legislation rules). The legislation in the section of forest fire control strives to minimise the risk of fire caused by human activities. At present, a set of Acts, Amendments of the Acts and Regulations deal with the problem.

Close this chapter

The State administration enhances forest fire prevention by appointment of fire wardens that are responsible for detecting and eliminating causes of fires in forest stands. Activities of the fire wardens are specified in respective Acts. Forest wardens play a vitally important role in forest fire prevention, detecting and eliminating causes of fires in forest stands and extinguishing incipient fires.
Every building and house approval procedure includes the inspection of observance of fire control regulations attached to the construction approval. These regulations are binding for every promoter. The regional and municipal authorities carry out tasks of state administration authorities in the sphere of fire control.
Fire Control Brigades (FCB) fight all kinds of fires in the respective areas they are responsible for. Regional FCB carry out state fire inspection in the region, as well. Settlements are differentiated by danger degrees, which influences number of members and equipment of fire control brigades. Criteria for danger degrees in the respective cadastres are based on the number of permanent residents, character of recreation, history, traffic, a number of fire fighting interventions. Also the Airborne Fire Control plays an important role in diminishing the risk of fires in the landscape, especially in forests.

2. Statistical data and forest fires analysis in the Czech Republic

Statistical data about forest fires come from central state organisations. The long-term trends of number of forest fires, their area and damage are decreasing with higher fluctuations between individual years depending on many factors. The respective statistical figures on number of forest fires, area, damage and saved values in recent period 1996-2001 are shown in table 1.

Tab. 1: Forest fires in the CR

Statistical data	1996	1997	1998	1999	2000	2001
Number	1,421	1,398	2,563	1,403	1,499	483
Area (ha)	2,043	3,475	1,132	336	375	87
Damage (mil. Euro)	1.14	0.25	0.79	0.35	0.64	0.22
Value saved (mil. Euro)	12.05	7.52	15.55	7.62	10.72	3.89

Forest fires' quantitative and qualitative aspects are influenced not only by climatic factors like humidity, temperature, wind velocity, and by other aspects like soil type and cover, but to a great extent also by human behaviour, activities and their changes. For example, last years, the State Enterprise "Forest of the Czech Republic" administering 55% of forest area in the Czech Republic diminished substantially burning of waste wood (brushwood) on clear cutting areas. They clean the plots after final cuts from waste wood for reforestation operations by other ways not using the burning.
As for the number and area of forest fires, the kind and way of human activities in forests are more important than natural conditions, which can be documented by information in the following tables 2 – 5.
As for the years, the average temperature was the highest in 2000 and 1999 (table 2), the lowest temperature in 1996 and 1997, the highest precipitations in 2001 and 1997 (table 3), and the lowest in 1999 and 2000. The highest number of forest fires (table 1) occurred in 1998 and 2000 with 1,132 ha and 375 ha of affected areas respectively, while the lowest number of forest fires appeared in 2001 and 1999 with 87 ha and 336

Close this chapter

ha of affected areas respectively. The largest area of forest fires (3,475 ha) was in 1997 with the second lowest temperature and the second highest precipitations.

Tab 2: Average air temperature in the CR (°C)

Month	Year						Average
	1996	1997	1998	1999	2000	2001	
I	-4.6	-4.5	0.2	-0.4	-2.2	-1.6	-2.2
II	-4.6	1.5	2.8	-1.5	2.3	0.3	0.1
III	-0.8	3.8	2.9	4.6	3.7	3.5	2.9
IV	7.8	4.9	9.4	8.8	11.0	6.9	8.1
V	12.7	13.3	13.6	13.6	14.9	14.4	13.8
VI	16.3	16.2	16.9	15.4	17.4	12.7	15.8
VII	15.9	16.7	17.2	18.8	15.6	18.0	17.0
VIII	16.7	18.5	17.3	17.0	18.6	18.3	17.7
IX	9.9	13.0	12.6	16.2	12.8	11.2	12.6
X	8.9	5.9	8.2	8.2	10.9	11.3	8.9
XI	4.4	2.8	0.2	1.8	5.4	1.6	2.7
XII	-4.9	0.8	-1.7	-0.2	0.6	-3.5	-1.5
Total	6.5	7.7	8.3	8.5	9.3	7.9	---

Tab. 3: Average precipitations in the CR (mm)

Month	Year						Average
	1996	1997	1998	1999	2000	2001	
I	19	17	29	36	54	39	32
II	31	44	14	64	46	32	38
III	32	44	51	38	118	70	59
IV	42	52	33	43	21	63	42
V	103	64	37	50	61	61	63
VI	87	75	108	98	52	79	83
VII	90	214	93	80	123	119	120
VIII	94	51	47	46	48	91	63
IX	69	26	114	48	42	108	68
X	58	46	112	30	49	26	54
XI	45	50	47	41	47	55	48
XII	26	50	27	51	33	63	42
Total	696	733	712	625	694	811	---

As for the months in 2000-2001 (table 4), the highest numbers of forest fires occurred in May, August and April, while the highest temperatures were in July and August, and the highest precipitations in July, September and August. Apart from this, after winter season, forest soils and forest stands retain relatively very high humidity in April and May. But in April and May, forest clearances after winter clear cuttings are prepared for reforestation operations, and very often by burning of forest waste (branches).
The highest number of forest fires occurred in weekend days – Saturdays and Sundays (table 5) but high numbers are also in working days (especially Wednesdays). Nevertheless, last years, numbers and especially areas of forest fires decreased substantially. In the same time, the removing of forest wastage by burning on clearances

Close this chapter

was substantially reduced. Majority of forest fires was noticed between 12 and 18 o'clock (306, i.e. 63% in 2001, and 925, i.e. 62% in 2000).

Tab. 4: Number of forest fires by months in 2000-2001

Month	2000	2001	Total
I	1	5	6
II	18	20	38
III	20	16	36
IV	267	63	330
V	344	116	460
VI	250	44	294
VII	96	85	181
VIII	240	92	332
IX	158	8	166
X	71	24	95
XI	24	7	31
XII	10	3	13
Total	1,499	483	1,982

Tab. 5: Number of forest fires by week days in 2000-2001

Day	2000	2001	Total
Monday	191	63	254
Tuesday	186	50	236
Wednesday	198	103	301
Thursday	139	83	222
Friday	199	65	264
Saturday	263	63	326
Sunday	323	56	379

3. Legislation and prevention

The legislation in the section of forest fire control strives to minimize the risk of fire caused by human activities. At present, Forest Act No. 289/1995 and amendments of the Act of 3 Nov 1995 are valid in the Czech Republic. This Act, in subsection (1), § 20 specifies restrictions of activities that cause majority of fires in forests (letters in the subsection (1)):

g) driving or parking motor vehicles,
j) riding bicycles and horses, skiing and sledging out of marked paths,
k) smoking, lighting or keeping in fires and camping at other than approved places,
l) throwing away burning or smouldering objects,
o) littering the forests.

Subsection (2), § 20, of the Act specifies another important restriction: "It is also prohibited to light or keep in fires within 50 m from the forest edge."

§ 32, subsection (1), letter c) enacts the duty to "carry out precautionary measures against risk of fire under specific regulations." The specific regulations are part of the Act of the Czech National Council No. 133/1985, amended by later regulations, and the Fire Prevention Act No. 67/2001.

Close this chapter

Precautionary regulations are also included in Decree No. 246/2001 – Safety distance of hay and straw stacks from selected objects, forests and communications (table 6).

Tab. 6: Safety distance of hay and straw stacks[1)] from selected objects, forests and communications

Item	Objects or areas	Distance from hay/straw stack in m
1	Factories or stocks where explosive or highly inflammable goods (e.g. celluloid, nitrocellulose) are produced, stored; open spaces where highly inflammable liquids are stored (e.g. petrol, carbon disulphide, acetone)	300
2	Other industrial works, agricultural works and centres, forests	100
3	Border buildings of continuous municipal built-up area	50
4	Public communications	60
5	Border rails of railways[2)]	100
6	High-voltage electric lines	30
7	Solid domestic waste[3)]	50
8	Hay and straw stacks [4)]	50

[1)] Safety distance is not set in the case of hay and straw stacks up to 50 m^3. Such stacks are subject to Czech State Norm 73 0804.
[2)] If the rails are on a railway embankment, the distance increases by the double height of the embankment. If the hay and straw stacks are at least 6 m higher than the rail, the distance can be shortened to 60 m.
[3)] From the active border of the waste dump.
[4)] The cubage of hay and straw stacks is limited to 4,000 m^3. A continuous group of stacks is considered as a one storage unit with limited cubage of 4,000 m^3, as well.

Duties of citizens

Basic duties of citizens in fire prevention are to be found in Act No. 133/1985, § 17, subsection (1) and (2). Subsection (3) of the same paragraph forbids all activities that can induce fire elsewhere. Fire Prevention Act No. 67/2001 in § 5 and § 6 also specifies duties of legal bodies and enterprising natural persons.

Fire wardens

The State administration enhances forest fire prevention by creating Fire Wardens responsible for detecting and eliminating causes of fires in forest stands. Activities of Fire Wardens are specified in Act No. 133/1985, § 13, subsection (1), letters a) and b).

Forest wardens

Activities of the Forest Wardens are specified in Forest Act No. 289/1995 (3 November 1995), in § 38, subsections (1) to (7). Definition: “The Forest Warden is a natural person performing protection service in forests frequented by citizens.” Forest Wardens play a vitally important role in forest fire prevention, detecting and eliminating causes of fires in forest stands and extinguishing incipient fires.

Public administration and self-administration

The Fire Prevention Act (full statutes in No. 133/1985 and No. 67/2001) appoints the organs of public administration and its function in fire prevention in the Czech Republic in § 23 – § 29.

Close this chapter

State Fire Inspection
Activities of the State Fire Inspection are specified in the Fire Prevention Act No. 67/2001 in § 31, § 31a), § 32 and § 35.
Buildings
If the buildings and houses are approved in accordance with the respective regulations (Act No. 50/1976, amended by later regulations), the fire risk should be diminished. Every house approval procedure includes the inspection of observance of fire control regulations attached to the building approval. These regulations are binding for every promoter.
Burning brushwood in forest stands
Before burning brushwood, the owner (tenant) is obliged to report to the local Police station and local Fire Control station. He must inform about:
- precise location of the burning,
- precise date and time,
- responsible person and contacts.

Open fire burning is allowed to 1 p.m., afterwards the place is let to burn out, covered with mould (poured over with water). A 25-30 cm wide round strip must be dug around the fireplace down to the mineral bedrock!

4. Fire control

The system of fire control covers the whole area of the Czech Republic. Organisational structures, technical equipment and activities are specified in Act No. 133/1985 amended by later regulations, and the Amendment to this act No. 67/2001 (full statutes).
Administrative organs of the Fire Control:
- Ministry of Interior,
- Regional Fire Control Brigades,
- District authorities.

The regional and municipal authorities carry out tasks of state administration authorities in the sphere of fire control (§ 23 of Act No. 67/2001).

4.1 Fire Control Brigades (FCB)

FCB (§ 26 of Act No. 67/2001) fight all kinds of fires in the respective areas they are responsible for. Structure of the organisation:
- general management of the FCB, Prague, Na Perstyne 11,
- regional stations FCB,
- territorial stations of FCB,
- district stations of FCB.

Regional FCB carries out state fire inspection in the region, as well. FCB of the above levels employ fire fighters in full-time employment. Categories of the Fire Control Units (FCU) – Brigades and the basic table of territorial arrangement:
a) FCU with territorial scope of action, intervening in as well as out of the territory of its promoter:
    1. FCU I – professionals, territorial scope within 20 min drive from the location to the fire,

Close this chapter

2. FCU II – municipal volunteers + professionals, territorial scope within 10 min from the location to the fire,
3. FCU III – municipal volunteers, territorial scope within 10 min from the location to the fire;

b) FCU with local scope of action, intervening in the territory of its promoter
1. FCU IV – professional fire control brigade in a company,
2. FCU V – municipal volunteers,
3. FCU VI – voluntary fire control brigade in a company.

These Fire Control Units can fight fires out of their territory as well (the approval of their promoter is necessary). Cadastres are sorted by danger degrees into 7 grades.

4.2 Criteria for danger degrees in the respective cadastres

The danger degree in the cadastre is set in compliance with the value of the Total Criterion K_c from the most dangerous to the least one (see table 7).

Tab. 7: Danger degrees in the cadastres by the value of the total criterion K_c

The danger degree in the cadastre	Value of K_c (points)
I A	25 and more
I B	21 – 24
II A	16 – 20
II B	11 – 15
III A	6 – 10
III B	3 – 5
IV	Up to 2

The value of the criterion $\mathbf{K_c}$ is the total of the component criteria:

$$\mathbf{K_c = K_o + K_{ui} + K_z} ,$$

- **K_o – criterion of population**

The value of this criterion is related to the number of permanent residents in the respective cadastre (see table 8).

Tab. 8: Criterion of population

Population	Value of K_o
More than 50,000	20
10,001 – 50,000	15
4,001 – 10,000	14
1,001 – 4,000	12
201 – 1,000	10
20 - 200	5
Up to 20	1

- **K_{ui} – criterion of the cadastre character**

The reason for employing this criterion (see table 9) was to respect special features of the cadastres, not sufficiently implied in the criterion of population. If this criterion is to be employed, both K_{u1}, K_{u2} must be calculated; K_{u3} is facultative and its use depends on

Close this chapter

the resolution of the regional FCB because developed enterprising structures as such reflect the number of population in the area. K_{u3} is used in case of higher fire risk related to specific activities run in the cadastre.

Tab. 9: Criterion K_{ui}

Description of the criterion	Value of criterion K_{ui}
Recreational area with transient increase of population in the cadastre (more than 2,000 people)	$K_{u1} = 1$
Historical centre of the town/village with historical buildings (national monument or protected area)	$K_{u2} = 2$
Traffic centre of national or international importance (railway junction, intl. airport, intl. port) in continuous operation and store management. Cadastre with developed enterprise, production, store or business structures.	$K_{u3} = 3$

- **K_Z – criterion of interventions**

The value of K_Z depends on the number of fire fighting interventions in the cadastre in one year (average value from the previous 5 years).

Tab. 10: Criterion K_Z

Number of interventions	Value of criterion K_Z
Up to 40	0
40 – 120	1
More than 200	2

Danger degree criteria in the cadastre decrease in accordance with the above mentioned calculations from the highest (I A) to the lowest (III B). Degree IV is only a marginal one. Professional FCB intervention within 20 minutes is not counted on. This degree is related to hamlets, far from the municipalities. Forest stands are classed in this degree.

Tab. 11: Territorial arrangement of the FCU (FCB)

Danger degrees		Number of FCU and the intervention scope (in minutes)
I	A	2 FCUs up to 7 min and another FCU up to 10 min
	B	1 FCU up to 7 min and other 2 FCUs up to 10 min
II	A	2 FCUs up to 10 min and another FCU up to 15 min
	B	1 FCU up to 10 min and other 2 FCUs up to 15 min
III	A	2 FCUs up to 15 min and another FCU up to 20 min
	B	1 FCU up to 15 min and other 2 FCUs up to 20 min
IV	A	1 FCU up to 20 min and another FCU up to 25 min

4.3 Airborne fire control

In 1999, the Ministry of Agriculture and the Ministry of Interior issued “Regulations of Forest Fire Fighting and Airborne Fire Inspection”. Airborne Fire Control is a system whose aviation personnel, fire-fighting and inspection equipment provide forest fire fighting, inspection flights, reconnaissance of the forest stands, occurrence of pests etc.

Close this chapter

5. W-UI Area Kostelec n. Cernymi lesy

The area was chosen in the central Bohemia, in the west part of Kolin district. The W-UI (wildlife-urban interface) area lies within the borders of cadastres of villages with relatively many forest stands, housing estates, and weekend house colonies. The distance among villages is about 3 – 5 km, i.e. the area is evenly populated. In summer months (May – September) the area is full of occasional visitors – holidaymakers, tourists, sportsmen, mushroom-pickers etc. Recently, many cycle-tourists have been visiting the area.

Cadastres of the villages in the W-UI area:

Kostelec n.C.lesy – Svatbin, Kozojedy, Stihlice, Jevany, Cerne Voderady, Vyzlovka, Stribrna Skalice – Hradec – Kostelni and Hradove Strimelice, Oplany, Konojedy, Vyzerky.

Altitude: 230 – 540 m, average daily temperature: 7.2 – 8.8 °C, average precipitations: 606 – 663 mm, population density: 60 people per km^2. Total area of the W-UI area is 104.467 km^2. Forestland occupies 49.2% of the area, arable land 29.6%, grassland 6.2%, other plots (grave yards, quarries, urban vegetation, handling plots, playgrounds, recreational plots, waste land) 5.5%, gardens 2.8%, roads and paths 2.5%, built-up area 1.6%, water surface 1.5%, and orchards 1.1%.

Most forest stands in the W-UI area are in property of the Czech University of Agriculture Prague, administered by the University Forest Enterprise in Kostelec n.C.l. Majority of municipal forest properties in the area are leased to the University Forest Enterprise. In the W-UI area, there operate forest wardens of the University Forest Enterprise Kostelec n.C.lesy.

The character of the W-UI area landscape, high share of forest stands, water works and dense network of roads provide the potency of high frequentation of this area. The fact, that it is near the capital Prague and it is relatively accessible by public and private means of transport, raises numbers of people moving around the area, as well.

In the W-UI area, there are mainly residential houses (brick rural and urban buildings), farms, workshops and minor business establishments. Only exceptionally, the buildings are located out of the municipal borders (e.g. foresters' houses and gamekeepers' houses) – it applies to old buildings. There are quite many weekend houses built in the forest stands or near them, which can imply a higher potential risk of forest fires when we consider the heating system in most of them. Table 12 shows numbers of buildings of different kinds. Number of permanent residents was 6,480 and number of occasional visitors was estimated at 5,650 in April – September culminating in June – July.

The W-UI area Kostelec nad Cernymi lesy is in the sphere of authority of the Central-Bohemia regional FCB (the seat is in town Kladno), territorial station of town Kolin and district station of town Cesky Brod (distant ca 15 km of the centre of the W-UI area). FCB of the above levels employ fire fighters in full-time employment.

All municipalities are in the scope of FCB Cesky Brod (15 min) and the territorial FCB Kolin (30 min), except cadastre of Stribrna Skalice, which is too far from Cesky Brod (25-30 min). It would by much better (even from the economic point of view) to place the FCB for Stribrna Skalice in Kostelec n.C.lesy. Regional FCB carries out state fire inspection. According to the data from the regional Fire Control Brigade Kladno, the W-UI area Kostelec n.C.l. is of an average Danger Degree varying by cadastres from IIB to IIIB. Table 13 shows numbers of members and equipment of voluntary FCUs by municipalities in the W-UI area Kostelec n.C.l.

Close this chapter

Tab. 12: Numbers of buildings in the W-UI area (Situation as per 17 *April 2002)*

Cadastre	Buildings	From that			Number of permanent residents
		Residential houses	Weekend, recreational	*Other buildings	
Kostelec n.C.l	1,444	1,062	113	269	3,320
Svatbin	112	74	9	29	
Kozojedy	488	213	234	41	520
Stihlice	131	66	47	18	112
Jevany	647	261	273	113	464
Cerne Voderady	540	137	376	27	273
Hradec	143	29	99	15	965
Kostelni Strimelice	151	79	43	29	
Hradove Strimelice	404	77	299	28	
Stribrna Skalice	979	357	543	79	
Oplany	83	72	1	10	68
Konojedy	153	115	8	30	185
Vyzerky	78	66	11	1	108
Vyzlovka	515	280	186	49	465
Total	5,868	2,888	2,242	738	6,480

**Other buildings – workshops, stocks, buildings under construction still not approved by the responsible officer*

Tab. 13: Number of members and equipment of voluntary FCUs by municipalities

Municipality	Number of firemen	Equipment
Kostelec n.c.l. - Svatbin	17	Pump water tender, 2 water cannons, reserve vehicle, fire-engine, breathing apparatus
Kozojedy	14	2 trailer fire-engines
Stihlice	5	Crew vehicle with fire-engine
Jevany	28	Pump water tender
Cerne Voderady	35	Pump water tender, fire-engine
Stribrna Skalice - Hradec - Kostelni Strimelice - Hradove Strimelice	20	Pump water tender, fire-engine
Konojedy	22	Crew vehicle, fire-engine
Oplany	23	Pump water tender, 2 water cannons, trailer fire-engine
Vyzerky	45	Crew vehicle, fire-engine
Vyzlovka	-	-
Total W-UI AREA	209	5 Pump water tenders, 9 fire-engines

Voluntary FCUs operate in every municipality, with exception of Vyzlovka. Number of the members differs and is not proportional to the number of permanent residents. In case of need they unfailingly go into action and are very reliable. There are other FCBs in neighbouring municipalities.

Close this chapter

5.1 Magistrates' experience in the W-UI area

Technical and material equipment of voluntary Fire Control Brigades is financed from the municipal budgets. The technical parameters differ. Usually, it consists of older types of motor vehicles and fire fighting equipment. Its reliability depends on the care of the voluntary fire control brigade-members.
In the cadastres of all the municipalities in the W-UI area, there are sufficient water resources for the initial stages of the intervention. In case of large fires, there are usually other water resources not far from the fire location. In case of forest fires, the accessibility from the nearest village is crucial.
Causes of forest fires:

- In recent (approximately) 10 years, burning old grass on balks, in ditches and on forest edges has not been a cause of fires. Burning old grass is forbidden by law, and at the same time, any burning of organic waste is regulated by municipal edicts. All municipalities strictly supervise abiding of this law.
- In the W-UI area, there are many weekend houses and cottages, in which mostly wood is used for heating. Coal briquettes and electricity are not so widely used for heating. For cooking, bottled gas is used in most cases. These sources of heat can also be ruled out as possible causes of forest fires.
- In the area, there are no official camping sites. Nevertheless, in the area there is a dense network of roads including forest paths that are frequently used by occasional visitors and cyclists, esp. in the May – September season.
- Especially the occasional visitors, tourists and cyclists and their irresponsible behaviour occur to be the main cause of forest fires. Very often, they do not realize the danger of smoking or making campfires in the forests. They also litter the forests unscrupulously with waste of all kinds.

6. Conclusions

Analysis of statistical data about forest fires shows long-term declining trends of number of forest fires, their area and damage with higher fluctuations between individual years depending on many factors. Forest fires' quantitative and qualitative aspects are influenced not only by climatic factors like humidity, temperature, wind velocity, and by other aspects like soil type and cover, but to a great extent also by human behaviour, activities and their changes.
The State administration strives to minimize the risk of fire caused by human activities by the legislation in the section of forest fire control. At present, a set of Acts, Amendments of the Acts and Regulations deal with the problem. As for buildings, every building approval procedure includes the inspection of observance of fire control regulations attached to the building approval. These regulations are binding for every promoter. The regional and municipal authorities carry out tasks of state administration authorities in the sphere of fire control. It can be said that the inhabitants (forest owners, foresters, forest workers and forest visitors follow to a great extent respective Acts and regulations dealing with forest fires prevention. Population considers every forest fire as a very damaging factor destructing not only long-term work and financial means inserted into the forest production but also destructing very important non-market forest goods and services.

Close this chapter

The forest fire prevention has been enhanced by creating dense network of Fire Wardens, Forest Wardens, professional and voluntary Fire Control Brigades (Units) of different levels, State Fire Inspection, and Airborne Fire Control. Fire Control Brigades fight all kinds of fires in the respective areas they are responsible for. Municipalities (cadastres) are differentiated by danger degrees, which influences number of members and equipment of fire control brigades. Criteria for danger degrees in the respective cadastres are based on the number of permanent residents, character of recreation, history, traffic, and number of fire fighting interventions.

The W-UI area Kostelec n.C.l. does not show a great number or size of forest fires (similarly to the total Czech Republic), even though the area of forests is quite large (almost 50 % of the total acreage). Dense housing and number of permanent residents is not the main cause of forest fires. There are neither objects of high fire risk, nor large industrial and traffic structures in the W-UI area. The forest fires are mainly caused by irresponsible behaviour of occasional visitors and by ignoring of preventive regulations.

Other results of the study:

1) Legislation on forest fire prevention, fire fighting and damage compensations is well elaborated for the whole Czech Republic.
2) Technical equipment and organisational structure of fire control in the whole Czech Republic is very effective (dense network of qualified professional and voluntary fire control brigades).
3) Airborne fire control also provides very useful service, esp. in case of higher forest fire risk.
4) Equipment of FCUs should be modernised.
5) Technologies of forest operations in the removing of timber waste for reforestation should be improved and the hazard of forest fires should be further diminished.
6) Education of population and public awareness campaigns focused on forest fire prevention should be deepened.

References

Act No. 133/1985 “Czech National Council Act”
Act No. 67/2001 “Fire Prevention Act”
Act No. 289/1995 “Forest Act”
Act Bo. 50/1976 “Building Act”
Ministry of Agriculture of the Czech Republic, Prague, 2001. Report on the state of forests and forestry in the Czech Republic.