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AF

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# FOREST FIRE STATISTICS 1992-1994



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### ABSTRACT

*Forest fire Statistics 1992-1994* provides statistics on forest fires in the UN-ECE region, Europe, North America and the countries of the former USSR. Shown are the number and size of fires, their causes, their losses by volume and value, forest types and ownerships affected, and expenditures on prevention and control. Previous editions were published under the ECE/TIM series, since last year they have been part of the *Timber Bulletin*.

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## FOREST FIRE STATISTICS 1992-1994

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except where otherwise indicated)

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## PREFACE

The present document contains the results of the ninth enquiry on forest fire statistics<sup>1</sup>, carried out in 1995 by the Joint FAO/ECE Working Party on Forest Economics and Statistics, with the approval of its parent bodies, the ECE Timber Committee and the FAO European Forestry Commission.

The previous edition of Forest Fire Statistics covered the period 1991-1993. The present publication extends the coverage of Forest Fire Statistics officially collected by FAO/ECE, to the year 1994. Since the second edition, the form of enquiry has been kept unchanged. It was decided at the seventeenth session of the Working Party that henceforth these enquiries should be carried out on an annual basis.

Twenty one countries replied to the enquiry<sup>2</sup>. Sweden has discontinued the collection of forest fire statistics, but has nevertheless provided estimates for the fire season of 1994. Tables 1 and 2 summarize the data for the years 1983 to 1994, while the remainder give the information for the years covered by the latest enquiry (1992 to 1994), in most cases 1994 data should be treated as provisional. Not all the countries were able to reply fully to the enquiry. The information presented in this document can nevertheless be said to provide a reasonable coverage of forest fires in Europe, as the great majority of fires occur in the Mediterranean region, for which most of the data were available. The data for North America and the countries of the former USSR also provide a good coverage of the forest fire situation.

The information contained herein is obtained mainly from official national sources, to which the secretariat expresses its appreciation for the work entailed in preparing replies to the enquiry. Nevertheless the present document is published on the responsibility of the secretariat.

FAO/ECE continues to publish on a twice-yearly basis another publication on forest fires. It is entitled "International Forest Fire News" and is a collection of information, in newsletter style, of recent and coming events, meetings, publications, etc. concerned with forest fire. Copies of the IFFN may be obtained, free of charge, from:

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UN-ECE Trade Division  
Palais des Nations  
CH - 1211 GENEVA 10  
Switzerland

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## Symbols used

m<sup>3</sup> cubic metre, solid volume  
ha hectare  
- nil  
0 negligible  
... not applicable  
... not available  
\* unofficial figure or secretariat estimate

<sup>1</sup> Supplement 10 to volume XXXIV of the Timber Bulletin for Europe, January 1982; Supplement 7 to volume XXXIV of the Timber Bulletin for Europe, February 1984; ECE/TIM/32, 1988; ECE/TIM/41, 1988; ECE/TIM/51, 1990; ECE/TIM/58, 1992; ECE/TIM/70, 1993; Timber Bulletin ECE/TIM/BULU/474, 1994.

<sup>2</sup> Albania, Austria, Cyprus, Estonia, France, Germany, Italy, Latvia, Lithuania, Luxembourg, Moldova, Norway, Poland, Portugal, Romania, Slovenia, Spain, Sweden, Switzerland, Turkey, and the United States of America.

Table 1  
Total number of fires on forest and other land  
(Number)

Country	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Albania	96	192	71	134	102	121	70	269	147	695	590	585
Austria	235	226	152	138	96	124	88	225	225	165	176	94
Belgium	107	140	139	79	46	124	103	202	95	62	136	42
Denmark	115	109	105	50	62	66	66	20	47	61	116	62
Cyprus	55	58	74	50	62	66	66	64	47	16	16	35
Former Czechoslovakia	699	558	285	552	249	515	452	1254	961	2598	1951	1833
- Czech Rep												
Slovakia	18	17	6	10	11	11	11	2	1	2	1	1
Finland	464	464	502	717	285	621	617	571	287	832	573	570
France	4659	5672	6249	4353	3043	2837	6743	5981	3898	4008	4765	4747
Germany	1718	1772	1131	1227	1093	1188	1415	1846	1846	1846	1894	1898
Greece	230	402	142	152	183	183	183	333	333	333	333	238
China	320	402	200	576	333	333	333	333	333	333	333	333
Ireland	316	1194	478	490	721	721	721	156	184	1170	123	158
Israel	1233	908	834	577	1035	1354	1024	1133	1170	1170	1170	1170
Italy	7596	8462	1864	9386	11972	13559	9689	14477	11965	14545	15990	8656
Japan	127	108	75	5	5	7	118	95	117	78	96	96
Netherlands	127	108	75	5	5	7	118	95	117	78	96	96
Norway	354	485	329	301	286	448	390	878	976	892	253	471
Poland	3335	3041	1488	2769	1222	2781	4100	4137	3008	9305	4421	5182
Portugal	4503	6377	7218	4348	6977	5643	20155	19507	13116	14864	16101	21432
Romania	4880	7234	12284	7574	8678	9586	20384	12474	13011	15685	14241	10215
Spain	106	146	116	78	70	53	150	218	157	111	99	64
Sweden	106	146	116	78	70	53	150	218	157	111	99	64
Switzerland	488	1533	1931	1328	1310	1387	1633	1725	1446	2110	2547	3220
Turkey	985	1533	1931	1328	1310	1387	1633	1725	1446	2110	2547	3220
United Kingdom	1080	1080	1514	501	746	668	408	1327	476	328	328	328
Former Yugoslavia												
- Croatia												
- Slovenia												
<b>EUROPE</b>	<b>34650</b>	<b>42478</b>	<b>55891</b>	<b>37089</b>	<b>40715</b>	<b>44802</b>	<b>70275</b>	<b>67917</b>	<b>54605</b>	<b>75183</b>	<b>69407</b>	<b>73472</b>
Former USSR	10141	12953	10200	13296	11904	16432	18751	17872	23573	42418	25098	30203
Australia	8930	9589	9357	7087	11394	10741	12185	10111	10534	9089	5846	8418
Canada	9519	18106	13821	13896	14716	15862	17258	11816	11816	17638	15323	18203
<b>NORTH AMERICA</b>	<b>104099</b>	<b>191054</b>	<b>147878</b>	<b>145783</b>	<b>158450</b>	<b>164403</b>	<b>133411</b>	<b>128929</b>	<b>129130</b>	<b>165605</b>	<b>150869</b>	<b>181439</b>

a/ Inland. State forests only.  
b/ The collision of forest fire statistics was discontinued in 1980. Data for 1982 - 1994 are based on estimates (apples also to other tables).  
c/ United Kingdom. State forests only. Periods reported are financial years running from April to March of the following year.  
d/ Yugoslavia. Data provided by Yugoslavia prior to 1 January 1992 refer to the Socialist Federal Republic of Yugoslavia which was composed of six republics (apples also to data in other tables).  
e/ United States. Protected land only (apples also to data in other tables).

Table 2  
Total area burned on forest and other land  
(Hectares)

Country	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Albania	47	266	90	285	390	158	116	417	250	1011	522	705
Austria	190	304	83	89	53	67	52	200	53	132	112	57
Belgium	115	159	147	113	113	42	223	20	54	54	1017	792
Cyprus	3718	3771	4885	1749	1553	4083	1485	1452	108	9	69	178
Former Czechoslovakia	492	565	170	727	265	387	250	978	76	1278	1155	836
- Czech Rep												
Slovakia	7	16	134	6	53	53	53	137	226	277	131	131
Finland	100	301	238	367	153	289	516	433	228	1082	580	580
France	53729	27202	57368	51860	14108	6701	75566	72625	10130	18605	16895	24480
Germany	1259	1341	708	759	785	746	747	947	920	4808	1483	1114
Greece	19913	33655	108450	24514	48318	11050	42363	38394	13048	71410	48800	60832
China	170	1450	356	713	640	840	840	840	687	589	140	1582
Ireland	170	1450	356	713	640	840	840	840	687	589	140	1582
Israel	4788	1740	1476	671	3782	14615	6315	5850	8827	8827	8827	8827
Italy	22728	78328	188988	86420	120697	166405	95161	18519	99860	105995	203143	119414
Luxembourg	6	6	4	2	11	6	3	3	4	2	7	2
Netherlands	127	108	75	5	5	7	118	95	117	78	96	96
Norway	163	2846	244	585	335	215	982	67	530	1370	224	270
Poland	4147	5641	16559	3382	1454	3083	5086	5029	2110	33334	3877	2503
Portugal	47812	52713	146255	99522	76266	22433	126235	129839	182488	59071	49963	38146
Romania	146	172	172	172	172	172	172	172	172	172	172	172
Slovenia	117599	164546	488327	277071	145783	127855	410181	204043	244708	104902	8620	43208
Sweden	106	146	116	78	70	53	150	218	157	111	99	64
Switzerland	488	1533	1931	1328	1310	1387	1633	1725	1446	2110	2547	3220
Turkey	985	1533	1931	1328	1310	1387	1633	1725	1446	2110	2547	3220
United Kingdom	1080	1080	1514	501	746	668	408	1327	476	328	328	328
Former Yugoslavia												
- Croatia												
- Slovenia												
<b>EUROPE</b>	<b>504220</b>	<b>396944</b>	<b>1087847</b>	<b>672073</b>	<b>440762</b>	<b>513177</b>	<b>783105</b>	<b>709189</b>	<b>580272</b>	<b>447909</b>	<b>482879</b>	<b>738104</b>
Former USSR	235300	491500	684800	1001300	1217700	939500	1831000	1689911	60	28	28	38
Australia	184178	785382	787580	980123	1085628	1308670	7558570	930818	1566910	888783	1907386	1487487
Canada	1228887	2125587	1281448	1281448	2817058	2841227	1326872	2207470	1114464	1265353	1831185	1408686
<b>NORTH AMERICA</b>	<b>1987878</b>	<b>2912289</b>	<b>2241871</b>	<b>3102987</b>	<b>4330297</b>	<b>4840062</b>	<b>3136386</b>	<b>2681374</b>	<b>2152101</b>	<b>3798683</b>	<b>2877335</b>	

a/ Inland. State forests only. Periods reported are financial years running from April to March of the following year.  
b/ United Kingdom. State forests only. Periods reported are financial years running from April to March of the following year.  
c/ Yugoslavia. Data provided by Yugoslavia prior to 1 January 1992 refer to the Socialist Federal Republic of Yugoslavia which was composed of six republics (apples also to data in other tables).  
d/ United States. Protected land only (apples also to data in other tables).

Table 3  
Area burned by type of land  
(Hectares)

Country	Forest and other wooded land											
	Total					of which, high forest					Other land	
	1992	1993	1994	1992	1993	1994	1992	1993	1994	1992	1993	1994
Austria	1011	522	705	1011	522	705	1011	522	705	...	...	...
Azerbaijan	132	112	57	132	112	57	132	112	57	...	...	...
Belarus	23822	28	28	18551	28	28	18551	28	28	5271	365	...
Belgium	16	107	...	16	11	...	15	9	...	...	96	...
Bulgaria	5243	18164	...	5243	18164	...	4154	10147	...	4507	6055	...
Croatia	11131	20164	178	6624	14109	178	1699	3624	178	...	...	...
Cyprus	9	69	...	9	69	...	1278	1155	...	210	...	...
Czech Rep	1278	1155	...	67	...	...	67	...	...	...	...	...
Denmark	277	...	...	...	...	...	...	...	...	...	...	...
Estonia	1787	647	456	1129	423	242	1082	128	127	658	224	214
Finland	1082	16895	24460	1082	1493	1114	4908	1493	1114	...	...	...
France	16805	1493	6832	4908	4860	38585	4908	4860	38585	21855	...	21037
Germany	4308	1114	...	4908	1493	...	4908	1493	...	417	477	68036
Greece	71410	4860	6832	4908	4860	38585	4908	4860	38585	5385	184	39
Ireland	569	540	119414	152	63	36172	148	54	20310	72	12	10
Italy	105695	203143	350	39659	104385	36172	12476	43950	288	5385	184	39
Latvia	8366	571	30	3002	387	311	3002	288	195	52	72	...
Lithuania	863	304	2	792	283	292	522	274	195	...	...	...
Luxembourg	2	7	2	2	7	2	2	2	2	...	...	...
Moldova	22	2	215	18	2	79	18	79	4	...	...	136
Netherlands	174	224	224	21	224	224	21	224	224	153	...	...
Norway	1370	224	224	1370	224	224	1370	224	224	...	...	...
Poland	3374	224	224	3374	224	224	3374	224	224	...	...	...
Portugal	59071	49863	39146	57502	49863	39146	57502	49863	39146	1589	...	...
Romania	730	545	311	730	545	311	722	541	310	...	...	...
Russian Federation	1142775	1200435	812	1142775	1200435	812	691478	748619	433	110	410	33
Slovenia	104580	8963	432242	420	1453	879	195	323	33388	62075	54292	183844
Slovakia	8963	432242	420	420	1453	879	38951	...	...	...	...	...
Sweden	5808	1000	2085	5808	1000	2085	3251	...	1580	...	...	...
Switzerland	52	42	283	52	42	283	52	42	283	...	...	...
Turkey	12312	13734	20997	12312	13734	20997	7951	9920	20155	151	36	...
Ukraine	4282	3214	...	4101	3178	...	4101	3178	...	...	...	...
United Kingdom	194	123	...	194	123	...	194	123	...	...	...	...
Canada	680763	1967388	...	680763	1967388	...	680763	1967388	...	...	...	...
United States	1283338	1831195	...	...	...	...	...	...	...	...	...	...

Table 4  
Forest area burned by type of land<sup>a</sup>  
(Hectares)

Country	Forest and other wooded land											
	High forest					Coppice and other wooded land						
	Coniferous		Broadleaved			Coppice with standards		Other				
1992	1993	1994	1992	1993	1994	1992	1993	1994	1992	1993	1994	
Austria	132	112	57	28	28	...	...	...	...	...	...	...
Azerbaijan	15	5	...	1	3	...	...	...	...	...	...	...
Belgium	2611	6656	...	1543	3191	...	810	7401	...	279	616	...
Belarus	1461	3119	...	238	505	...	2150	4576	...	275	3807	...
Croatia	9	69	176	...	...	...	...	...	...	...	...	...
Cyprus	1278	1155	...	...	...	...	...	...	...	...	...	...
Czech Rep	67	...	...	56	17	44	243	178	43	104	119	72
Estonia	728	111	63	...	...	...	...	...	...	...	...	...
Finland	1082	...	...	1044	279	170	...	...	...	...	...	...
Germany	3864	1214	944	3864	1214	944	...	...	...	...	...	...
Greece	49555	48900	39595	49555	48900	39595	...	...	...	...	...	...
Ireland	148	54	...	...	...	...	...	...	...	...	...	...
Italy	5163	15777	5236	5470	20240	11095	21820	50828	12277	5657	9687	5585
Latvia	...	275	165	...	13	10	...	...	...	...	...	...
Lithuania	608	200	192	14	29	3	195	49	40	74	14	48
Luxembourg	1	3	2	1	3	...	0	2	...	...	...	...
Moldova	18	2	79	2	...	...	...	...	...	...	...	...
Netherlands	1370	224	232	2	...	...	...	...	...	...	...	...
Norway	33334	3877	2690	2677	3206	...	5538	2030	...	18449	26124	28025
Poland	506114	88	10121	608	453	277	...	...	...	6	4	1
Portugal	691476	748619	433	608	453	277	...	...	...	451297	451816	233
Russian Federation	193	315	433	2	6	...	64	725	214	181	403	233
Slovenia	25045	25812	1580	14915	7777	...	...	...	...	2556	1566	505
Spain	3251	42	293	...	...	...	...	...	...	2287	3408	801
Switzerland	52	3214	20155	...	...	...	12	806	41	4349	3408	801
Turkey	7951	9920	...	...	...	...	...	...	...	...	...	...
Ukraine	4101	3178	...	...	...	...	...	...	...	...	...	...
United Kingdom	194	123	...	...	...	...	...	...	...	...	...	...
Canada	680763	1967388	...	...	...	...	...	...	...	...	...	...

a/ Italy: "Coniferous" includes mixed forests, 1992: 1823 ha, 1993: 7984 ha, 1994: 3977 ha.  
b/ "Coniferous" includes broadleaved high forest

Table 5  
Area burned by type of ownership  
(Hectares)

Country	Total				Forest and other wooded land				Other wooded land			
	1992	1993	1994	1994	1992	1993	1994	1994	1992	1993	1994	1994
a/ Austria	28	28	...	...	28	28	...	...	...	...	...	...
Belgium	7	60	...	...	7	7	...	...	...	52	...	...
a/ Bulgaria	5243	18164	...	...	5243	16164	...	...	3510	3010	...	...
Croatia	6821	9683	...	...	5311	6673	...	178	...	...	...	...
Cyprus	9	69	...	178	8	69	...	...	...	...	...	...
a/ Denmark	277	617	...	...	67	422	...	210	210	224	214	...
a/ Estonia	1787	946	...	...	1125	842	...	658	658	...	...	...
Germany	4252	946	...	...	4150	686	...	100	100	80	...	...
Ireland	252	143	...	...	152	63	...	...	...	...	...	...
Italy	43334	68244	...	60801	...	...	...	...	...	...	...	...
Latvia	8366	551	...	...	3002	367	...	5365	184	33	...	...
Lithuania	846	285	...	282	774	273	...	72	12	9	...	...
Luxembourg	2	6	...	2	2	6	...	...	...	...	...	...
a/ Moldova	22	2	...	215	16	2	...	79	4	...	136	...
Netherlands	123	...	...	...	3	...	...	120	...	...	...	...
a/ Poland	33334	3677	...	2503	33334	3677	...	2503	...	...	...	...
Portugal	3465	13655	...	...	3465	10081	...	...	3774	...	...	...
a/ Romania	730	545	...	311	722	541	...	310	6	4	1	...
a/ Russian Federation	1142775	1200435	...	...	691478	748619	...	...	451287	451818	10	...
Slovenia	172	822	...	222	116	668	...	212	58	155	10	...
Spain	48006	40822	...	...	23167	20502	...	24840	20320	...	...	...
a/ Turkey	12312	13734	...	20987	12312	13734	...	20987	...	...	...	...
a/ Ukraine	4252	3214	...	...	4101	3178	...	151	36	...	...	...
a/ United Kingdom	184	123	...	...	184	123	...	...	...	...	...	...
Belgium	8	46	...	...	8	4	...	25387	44	...	...	...
Croatia	2310	10481	...	...	1313	7436	...	25387	97	3045	...	...
Germany	768	647	...	228	768	647	...	226	317	387	...	...
Ireland	117	517	...	...	...	...	...	...	...	...	...	...
Italy	6291	116889	...	58513	...	...	...	...	...	...	...	...
Latvia	...	20	...	40	...	20	...	34	...	...	6	...
Lithuania	17	20	...	10	17	20	...	9	...	...	0	...
Luxembourg	0	1	...	...	0	1	...	...	...	...	...	...
Netherlands	51	...	...	...	17	13736	...	...	34	22360	...	...
Portugal	5606	36108	...	...	5606	290	...	783	687	68	246	24
Spain	358	1041	...	690	290	783	...	687	68	246	24	...
Spain	56386	48445	...	...	18350	14473	...	...	37238	33872	...	...

a/ Countries having reported area burned exclusively in public land

Table 6  
Number of fires by known and unknown causes  
(Number)

Country	Total			Known causes			Unknown causes		
	1992	1993	1994	1992	1993	1994	1992	1993	1994
Albania	695	560	585	595	580	585	...	...	...
Belarus	7743	1867	...	5456	987	...	49	890	...
Belgium	28	36	...	38	24	...	7	12	...
Bulgaria	602	1196	...	368	423	...	294	773	...
Croatia	325	372	...	180	303	...	145	69	...
Cyprus	16	16	35	12	12	26	6	4	9
Denmark	2	...	...	1	...	...	1	...	...
Estonia	346	207	209	327	153	228	5	54	61
Finland	652	...	4747	730	...	...	122	...	...
France	4006	4765	...	406	...	...	3602	...	...
Germany	3012	1694	1696	1770	1042	1072	1233	652	634
Ireland	156	123	...	127	84	...	29	29	...
Italy a/	14545	15390	8055	8922	10628	4745	786	1304	610
Latvia	1510	995	854	1510	985	854	...	...	...
Lithuania	1164	635	714	1066	565	638	1	70	78
Luxembourg	6	12	6	6	6	2	2	4	5
Moldova	14	1	33	14	1	33	...	...	...
Netherlands	76	253	471	526	169	372	367	94	99
Norway	9905	4421	5162	6665	3124	3742	2840	1287	1410
Poland	187	160	121	166	1742	99	31	41	22
Romania	28777	16428	...	28396	...	...	616	686	...
Russian Federation	113	211	66	68	133	32	810	76	34
Slovenia	15895	14241	19215	11688	11181	...	4007	3062	...
Spain	111	99	84	84	72	46	27	27	6
Switzerland	2110	2547	3221	1063	1310	1283	1057	1237	1928
Turkey	9869	2967	...	5866	2966	...	...	...	...
Ukraine	...	...	...	...	...	...	...	...	...
Canada	9069	5846	...	8740	5710	...	278	136	...

a/ Italy: number of fires on forests only (excluding 'other land')

Table 7  
Number of fires by known causes  
(Number)

Country	Total				of which:				Natural causes			
	Human causes				Negligence				Total			
	1992	1993	1994	1995	1992	1993	1994	1995	1992	1993	1994	1995
Albania	695	560	585	30	20	25	665	540	590	590	1	1
Belarus	5444	995	...	...	...	...	5444	995	...	...	14	2
Belgium	19	24	...	...	...	...	14	22	...	...	...	...
Bulgaria	308	413	...	...	...	...	202	358	...	...	2	10
Croatia	178	282	...	...	...	...	102	117	...	...	4	21
Cyprus	6	11	8	1	1	1	6	10	7	7	6	1
Estonia	333	147	223	59	9	21	264	138	202	202	4	6
Finland	480	...	...	48	...	...	432	...	...	...	18	...
France	388	...	...	121	...	...	207	...	...	...	133	79
Germany	1046	963	941	550	385	345	1096	576	696	696	131	131
Ireland	127	94	...	3	2	...	124	92	...	...	...	...
Italy, A.	8885	9940	4652	4920	7636	3543	1935	2304	1109	1109	37	888
Latvia	1495	983	846	176	214	140	1317	749	706	706	15	2
Lithuania	1059	563	638	285	109	122	774	454	514	514	7	2
Luxembourg	6	8	1	...	...	...	6	8	1	1	...	...
Moldova	14	1	33	...	...	...	14	1	33	33	...	...
Netherlands	40	137	...	20	...	...	20	...	...	...	2	...
Norway	342	137	169	8	14	25	334	123	144	144	183	22
Poland	676	3035	3881	2216	1154	1600	4358	1881	2081	2081	99	81
Romania	152	108	98	14	10	4	138	98	94	94	4	11
Russian Federation	22973	14838	...	...	...	...	22973	14838	...	...	2023	2804
Slovenia	58	117	21	2	20	4	54	97	17	17	12	16
Spain	11098	10559	...	8473	8036	...	2625	2523	...	...	790	822
Switzerland	75	84	29	7	9	12	86	55	17	17	9	6
Turkey	997	1270	1158	430	541	323	567	729	835	835	56	40
Ukraine	5882	2964	...	...	...	...	5882	2964	...	...	7	2
Canada	4719	3481	...	638	480	...	4383	3021	...	...	4021	2229

a/ Italy: number of fires on forests only (excluding "other land")

Table 8  
Number of fires caused by negligence  
(Number)

Country	Agricultural operations				Logging and forest operations (including prescribed burning)				Other Industrial activities			
	General public				Other				Total			
	1992	1993	1994	1995	1992	1993	1994	1995	1992	1993	1994	1995
Belarus	740	112	...	20	16	...	...	...	...	...	...	...
Croatia	45	52	...	...	14	...	...	...	...	...	...	...
Cyprus	...	2	2	...	...	...	...	...	...	...	...	...
Estonia	23	23	19	...	5	5	...	...	...	...	...	...
France	52	...	...	64	71	...	...	...	...	...	...	...
Germany	85	72	...	...	...	...	...	...	...	...	...	...
Italy	398	578	355	42	38	43	...	...	...	...	...	...
Latvia	25	45	29	13	16	10	...	...	...	...	...	...
Lithuania	22	10	13	2	1	7	...	...	...	...	...	...
Moldova	...	...	...	...	...	...	...	...	...	...	...	...
Romania	485	196	156	14	17	17	...	...	...	...	...	...
Russian Federation	1204	1094	377	219	219	...	...	...	...	...	...	...
Slovenia	31	87	6	402	272	...	...	...	...	...	...	...
Switzerland	10	3	...	11	...	...	...	...	...	...	...	...
Turkey	...	...	...	...	...	...	...	...	...	...	...	...
Ukraine	147	53	...	22	22	5	...	...	...	...	...	...
Canada	1317	1114	...	282	243	...	...	...	...	...	320	248

Communications

Belarus	312	33	...	4388	834	...	...	...	...	...	...	...
Belgium	...	...	...	...	...	...	...	...	...	...	...	...
Croatia	...	...	...	...	...	...	...	...	...	...	...	...
Estonia	17	17	25	218	91	155	4	...	...	...	...	...
France	120	56	52	275	238	261	40	...	...	...	...	...
Germany	...	...	...	...	...	...	...	...	...	...	...	...
Iceland	3	7	6	48	42	16	1443	1034	1680	1680	...	...
Latvia	35	55	15	1225	598	632	14	...	...	...	...	...
Lithuania	27	27	20	722	406	472	2	...	...	...	...	...
Moldova	...	...	...	...	...	...	...	...	...	...	...	...
Netherlands	...	...	...	...	...	...	...	...	...	...	...	...
Romania	398	170	212	2204	1020	1185	6	...	...	...	...	...
Russian Federation	...	...	...	...	...	...	...	...	...	...	...	...
Slovenia	145	177	7	2008	13010	78	41	...	...	...	...	...
Spain	...	...	...	...	...	...	...	...	...	...	...	...
Switzerland	...	...	...	...	...	...	...	...	...	...	...	...
Turkey	...	...	...	...	...	...	...	...	...	...	...	...
Ukraine	...	...	...	...	...	...	...	...	...	...	...	...
Canada	189	92	...	1248	829	...	787	...	...	...	495	...

Table 9  
Area of fires by known and unknown causes  
( Hectares )

Country	Total				Known causes				Unknown causes				
	1992	1993	1994	1994	1992	1993	1994	1994	1992	1993	1992	1993	1994
Albania	1011	522	705	1011	1011	522	705	705	-	-	-	-	-
Belgium	18	107	...	...	...	43	...	...	3586	11000	64	...	...
Bulgaria	5243	18164	...	...	1647	7164	...	...	4866	3748	...	...	...
Croatia	11131	20164	...	...	6165	16416	...	6	6	1	172	...	...
Cyprus	9	98	176	...	3	60	...	...	...	...	...	...	...
Denmark	277	...	...	...	127	...	...	...	150	...	...	...	...
Estonia	1787	647	456	...	1324	505	...	371	483	142	85	...	...
Finland	1062	...	...	...	895	...	...	...	187	...	...	...	...
Germany	4898	1483	1114	...	3229	753	...	658	1679	740	458	...	...
Ireland	588	540	...	...	448	398	...	...	121	142	...	...	...
Italy a/	105695	203143	119414	...	36072	85432	30258	30258	3587	8693	7914	...	...
Latvia	8366	571	350	...	612	227	266	350	51	78	35	...	...
Lithuania	663	304	301	...	1	6	0	...	1	2	2	...	...
Luxembourg	2	7	2	...	22	2	215	...	...	...	...	...	...
Moldova	22	2	215	...	...	...	...	...	45	...	...	...	...
Netherlands	174	...	...	...	129	...	...	...	1112	62	22	...	...
Norway	1370	224	232	...	258	162	210	...	8609	1036	559	...	...
Poland	33334	3677	2503	...	24725	2641	1944	...	110	150	54	...	...
Romania	730	545	311	...	620	384	257	...	325	793	831	...	...
Slovenia	530	1683	812	...	205	1070	81	...	30700	15156	9	...	...
Spain	104592	89287	432252	...	73892	74111	284	...	24	11	7368	...	...
Switzerland	52	42	283	...	27	31	...	...	5684	4377	...	...	...
Turkey	12312	13734	20997	...	6616	9157	13629	...	3303	418	...	...	...
Canada	868763	1967388	...	...	864960	1960970	...	...	...	...	...	...	...

a/ Italy: area of fires on forests only (excluding 'other land')

Table 10  
Area of fires by known causes  
( Hectares )

Country	Total				Human causes				Natural causes				
	Total				of which:				Total				
	1992	1993	1994	1994	1992	1993	1994	1994	1992	1993	1992	1993	1994
Albania	1011	522	705	...	330	104	176	...	691	418	529	...	...
Belgium	184	706	...	...	204	1410	...	...	1440	5670	...	...	...
Bulgaria	6028	15279	...	...	2534	8940	...	...	3494	6339	...	...	...
Croatia	3	68	5	...	...	22	...	...	3	46	5	...	...
Cyprus	...	...	...	...	...	...	...	...	...	...	...	...	...
Denmark	1321	486	364	...	154	14	33	...	1167	472	331	...	...
Estonia	471	741	606	...	38	17	170	...	433	545	438	...	...
Finland	2283	448	396	...	21	3	...	...	427	385	...	...	...
Germany	448	...	...	...	...	...	...	...	770	14375	7816	...	...
Ireland	35720	91703	28806	...	27950	7328	20886	...	770	14375	7816	...	...
Italy a/	...	...	...	...	...	...	...	...	...	...	...	...	...
Latvia	812	569	348	...	6	72	14	...	187	182	...	...	...
Lithuania	227	286	...	...	...	...	...	...	72	187	...	...	...
Luxembourg	2	2	215	...	...	...	...	...	22	2	215	...	...
Netherlands	128	151	94	...	45	18	5	...	63	133	89	...	...
Norway	24897	2823	1910	...	4136	1420	980	...	20550	1204	820	...	...
Poland	599	389	255	...	54	27	20	...	845	383	235	...	...
Romania	141	1038	45	...	6	228	12	...	133	608	54	...	...
Slovenia	71194	67795	...	...	48402	42083	...	...	22781	2932	...	...	...
Spain	25	30	281	...	1	3	187	...	24	27	84	...	...
Switzerland	6584	9062	13485	...	3628	3478	8482	...	2338	1576	4003	...	...
Turkey	157198	186241	...	...	8787	3321	...	...	148386	185820	...	...	...
Canada	...	...	...	...	...	...	...	...	...	...	...	...	...

a/ Italy: area of fires on forests only (excluding other land)

Table 11  
Area of fires caused by negligence  
(Hectares)

Country	Agricultural operations			Logging and forest operations (including prescribed burning)			Other industrial activities		
	1992	1993	1994	1992	1993	1994	1992	1993	1994
Belgium	...	...	...	...	...	...	...	...	...
Croatia	450	639	...	9	...	...	...	...	...
Cyprus	...	7	39	...	12	3	...	...	...
Estonia	46	57	...	25	83	14	10	1	1
Germany	200	300	362	...	...	...	...	...	...
Ireland	1836	3532	2497	132	220	105	11	100	10
Latvia	...	33	19	17	...	...	...	...	...
Lithuania	...	7	4	0	0	3	0	1	1
Moldova	...	...	...	...	...	...	...	...	...
Poland	1236	201	274	6	19	9	2167	216	146
Romania	200	130	46	9	7	...	...	6	6
Slovenia	54	62	13	3	57	...	...	1	...
Spain	7400	7443	...	796	615	...	449	153	...
Switzerland	2	6	...	2	2	0	0	0	0
Turkey	...	...	...	...	...	...	...	...	...
Canada	15988	90656	...	9638	3000	...	2028	4763	...
	<b>Communications</b>			<b>General public</b>			<b>Other</b>		
Belgium	...	...	...	32	...	...	30-4	5500	2
Croatia	...	...	...	...	...	4	3	...	...
Cyprus	...	35	21	1065	356	266	19	10	...
Estonia	17	111	12	156	363	185	1376	142	102
Germany	...	...	...	72	32	...	...	...	...
Ireland	11	372	63	343	522	61	5437	9629	5065
Italy	...	57	5	...	328	236	...	61	8
Latvia	13	9	3	704	169	176	...	2	5
Lithuania	...	...	...	22	2	...	...	...	...
Moldova	...	...	...	...	...	...	...	...	...
Netherlands	14811	...	117	35	602	400	48	...	16
Poland	...	14	70	218	602	400	143	49	16
Romania	...	14	...	295	176	184	33	28	24
Slovenia	63	650	3	4	12	...	5	30	18
Spain	671	1663	...	5194	8102	...	8276	7754	...
Switzerland	1	6	...	20	13	83	0	1	1
Turkey	16	...	286	533	1009	...	2389	4567	4310
Canada	14260	943	...	99594	2405	...	6590	64163	...

Table 12  
Losses <sup>a/</sup>  
(National currencies)

Country	Currency	Total value				Wood and other tangible losses				Other			
		1992	1993	1994		1992	1993	1994		1992	1993	1994	
Albania d/	1000 US DOLLAR	3	4	12	3	4	4	12	...	...	...	...	...
Belarus	1000 B. ROUBLE	206649	76464	...	69294	10646	...	...	136355	65616	...	...	...
Belgium	1000 FRANCS	1281	1346	...	...	...	...	...	...	...	...	...	...
Bulgaria	1000000 LEVA	19617	143204	...	1136	2056	...	...	11356	20662	...	...	...
Croatia c/	1000 D. MARK	12462	22616	...	...	...	...	...	...	...	...	...	...
Cyprus	1000 POUND	3	62	146	3	62	146	...	...	...	...	...	...
Czech Rep.	1000 KORUNA	31600	45500	...	...	...	...	...	...	...	...	...	...
Denmark	1000 D. KRONER	5000	...	...	160	23	21	...	5000	179	34	24	...
Estonia b/	1000 US DOLLARS	336	67	45	24537	10515	2461	...	101	120	114	...	...
Germany	1000 D. MARK	24638	10635	2695	...	...	...	...	...	...	...	...	...
Iceland	1000 POUND	231	148	...	231	146	...	...	45669	66030	65920	...	...
Italy	1000000 LIRE	76100	179479	148629	32101	111449	62739	...	...	...	...	...	...
Latvia b/	1000 US DOLLAR	...	121	96	...	...	...	...	...	...	...	...	...
Lithuania	1000 LITA	736	161	719	648	65	277	...	56	66	443	...	...
Moldova d/	1000 LEU	1	1	1	1	1	1	...	0	0	0	...	...
Netherlands	1000 GUILDERS	10	534	1224	10	...	...	...	...	...	...	...	...
Norway	1000 N. KRONER	7267	534	...	...	...	...	...	...	...	...	...	...
Poland	1000000 ZLOTY	1366200	101096	1688	1366200	101096	1688	...	...	...	...	...	...
Portugal e/	1000000 ESCUDOS	14536	35496	64376	14536	35496	64376	...	...	...	...	...	...
Romania	1000 LEI	...	...	...	...	...	...	...	...	...	...	...	...
Russian Federation	1000000 ROUBLE	21	3679	...	7	...	...	...	14	4453	166	...	...
Slovenia	1000 TOLAR	9815	76805	354	2620	3172	176	...	7195	1812	...	...	...
Spain	1000000 PESETAS	30789	27888	...	64642	8078	...	...	21673	1812	...	...	...
Turkey	1000000 LIRA 50	64642	224378	...	64642	224378	...	...	26667	568672	...	...	...
Ukraine	1000 KRB	32643	6036615	...	...	...	...	...	...	...	...	...	...

a/ See general notes and explanations of methodologies of estimating losses

b/ Albania, Estonia and Latvia: data reported in US Dollars

c/ Croatia: data reported in DEM

d/ Moldova: 1992 data reported in 1000 Rouble

e/ Portugal: data refers to investigated fire occurrences (1 300 less corresponding to 17 861 t/yr)



Table 13  
Losses  
( 1000 US Dollars )

Country	Total value				Wood and other tangible losses				Other			
	1992	1993	1994	1994	1992	1993	1994	1994	1992	1993	1994	1994
Albania .....	3	4	12	12	3	4	12	12	-	-	-	-
Belarus c/.....	40	15	...	13	13	2	...	...	27	13	...	...
Belgium .....	36	37	...	...	...	...	...	...	...	...	...	...
Bulgaria .....	782	4619	...	...	...	...	...	...	...	...	...	...
Croatia .....	7740	13105	...	704	704	1191	...	...	7036	11813	...	...
Cyprus .....	5	99	310	5	5	99	310	310	...	...	...	...
Czech Rep. c/.....	1133	1637	...	...	...	...	...	...	...	...	...	...
Denmark .....	799	...	...	...	...	...	...	...	799	...	...	...
Estonia .....	338	57	45	160	160	23	21	21	179	34	24	24
Germany .....	15285	6162	1675	15203	15203	6092	1602	1602	63	70	74	74
Ireland .....	376	206	...	376	376	206	...	...	...	...	...	...
Italy .....	53097	122020	101067	21024	21024	75769	42653	42653	31273	46251	58413	58413
Latvia .....	...	121	96	...	...	97	80	80	...	23	15	15
Lithuania c/.....	189	39	184	166	166	22	71	71	23	17	113	113
Moldova .....	2	-	0	1	1	-	0	0	1	-	0	0
Netherlands .....	6	...	...	6	6	...	...	...	...	...	...	...
Norway .....	1048	71	181	...	...	...	...	...	...	...	...	...
Portugal .....	...	...	11	...	...	...	11	11	...	...	...	...
Romania .....	47	47	39	47	47	47	39	39	...	...	...	...
Russian Federation c/.....	18	3316	...	6	6	...	...	...	11	...	...	...
Slovenia .....	101	619	364	27	27	259	176	176	74	360	188	188
Spain .....	268611	196099	...	77685	77685	56788	...	...	190626	138311	...	...
Turkey .....	9450	20427	...	9450	9450	20427	...	...	...	...	...	...
Ukraine .....	51	242	...	9	9	3	...	...	42	238	...	...

c/ See general notes and explanations of methodologies of estimating losses

d/ The data in table 12 was converted to US Dollars using the exchange rates published in "Monthly Bulletin of Statistics", United Nations, New York

e/ Belarus, Czech Republic, Lithuania, Russian Federation no exchange rate available for 1992, 1993 rate used  
 f/ Poland, no exchange rate available, for values in national currency see table 12

Table 14  
Losses ( wood volume )  
( 1000 m3 overbark )

Country	Total				Volume of non recoverable wood			
	1992	1993	1994	1994	Sawlog-size			Other
	1992	1993	1994	1994	1992	1993	1994	1994
Albania .....	3	12	14	14	3	11	13	1
Austria .....	2	11	106	...	...	...	...	...
Croatia .....	86	156	...	...	2	3	...	85
Cyprus .....	0	4	1	0	0	4	1	...
Estonia .....	52	7	6	30	30	2	2	22
Germany .....	166	80	173	78	78	73	98	89
Iceland .....	9	3	...	...	...	0	...	...
Italy .....	1062	2441	2022	...	...	...	...	...
Latvia .....	50	6	4	...	...	...	...	...
Lithuania .....	26	5	9	3	3	0	1	23
Norway .....	40	...	...	20	...	...	...	20
Russian Federation .....	111397	122592	...	...	...	...	...	...
Slovenia .....	1	13	61	1	1	5	16	1
Spain .....	106	137	...	106	106	137	...	7
Turkey .....	278	1164	...	227	227	1106	...	51
Ukraine .....	78	174	...	...	...	...	...	...

Table 15  
Expenditures on prevention and control <sup>a/</sup>  
( National currencies )

Country	Currency	Total			Forest service			Other ( public and private )		
		1992	1993	1994	1992	1993	1994	1992	1993	1994
Albania b/	1000 US \$	400	300	200	400	300	200	...	...	...
Austria	1000 SCHILLINGS	13328	12812	13484	3332	3153	3368	8996	9459	10088
Belarus	1000 B. ROUBLE	1062196	13089733	...	8547	19894	...	1500	2000	...
Bulgaria	100000000 LEVA	8746	8327	...	7246	6327	...	...	...	...
Croatia c/	1000 D. MARK	769	869	865	769	869	865	...	...	...
Cyprus	1000 POUND	700	700	700	700	700	700	...	...	...
Denmark	1000 D. KRONER	320	809	811	240	794	795	80	15	18
Estonia b/	1000 US DOLLARS	2844	...	...	5907	6855	6188	86	342	161
Finland	1000 MARKKA	5883	7287	6349	...	...	...	...	...	...
Germany	1000 D. MARK	279	189	...	258	167	...	21	21	...
Ireland	1000 POUND	46000	67322	...	46000	63400	67322	...	...	...
Italy	1000000 LIRE	...	551	728	...	551	728	...	...	...
Latvia b/	1000 US DOLLAR	1981	3752	6136	1011	1978	3269	970	1774	2867
Lithuania	1000 LITA	59408	572	421	54300	518	421	5108	54	...
Moldova d/	1000 LEU	...	...	...	375	...	...	...	...	...
Netherlands	1000 GUILDERS	10000	...	...	...	...	...	...	...	...
Norway	1000 N. KRONER	20000	...	...	...	...	...	...	...	...
Poland	10000000 ZLOTY	1420940	225969	...	1420940	225969	...	...	...	...
Portugal	1000000 ESCUDOS	1008	1420	1743	1008	1420	1743	...	...	...
Romania	1000 LEI	61600	...	...	61600	...	...	...	...	...
Russian Federation	1000000 ROUBLE	578	5852	...	11516	17876	4821	600	600	1366
Slovenia	1000 TOLAR	12116	16476	6007	...	...	...	...	...	...
Spain	1000000 PESETAS	6287	...	...	6287	...	...	...	...	...
Turkey	1000000 LIRA 55	417000	965000	...	417000	965000	...	...	...	...
Ukraine	1000 KRB	2101	48882	...	1680	37808	...	421	11074	...
United Kingdom	1000 POUND 55	419	350	...	419	350	...	...	...	...
Canada	1000000 C. DOLLARS	278	275	...	278	275	...	...	...	...

a/ See general notes and explanations of methodologies of estimating losses

b/ Albania, Estonia and Latvia: data reported in US Dollars

c/ Croatia: data reported in Deutsche Marks

d/ Moldova: 1991 data reported in 1000 Rouble

Table 16  
Expenditures on prevention and control <sup>a/</sup>  
( 1000 US Dollars ) <sup>b/</sup>

Country	Total			Forest service			Other ( public and private )		
	1992	1993	1994	1992	1993	1994	1992	1993	1994
Albania c/	400	300	200	400	300	200	...	...	...
Austria	1174	1039	1214	283	260	303	880	779	910
Belarus	205	2534	...	...	...	...	...	...	...
Bulgaria	359	345	...	359	645	...	...	...	...
Croatia d/	5419	4824	...	4489	3665	...	929	1159	...
Cyprus	1591	1671	2028	1591	1671	2028	...	...	...
Denmark	112	...	...	112	...	...	...	...	...
Estonia c/	320	807	811	240	794	795	80	15	16
Finland	542	...	...	...	...	...	...	...	...
Germany	3713	4228	4099	3680	4030	3995	53	198	104
Ireland	454	265	...	420	238	...	34	30	...
Italy	31273	37207	41309	31273	37207	41309	...	...	...
Latvia c/	...	551	728	...	551	728	...	...	...
Lithuania	508	982	1573	259	507	838	249	455	735
Moldova e/	50	157	99	45	142	89	4	15	...
Netherlands	207	...	...	207	...	...	...	...	...
Norway	2898	...	...	...	...	...	...	...	...
Portugal	6868	8031	10656	6868	8031	10656	...	...	...
Romania	200	...	...	200	...	...	...	...	...
Russian Federation	481	4980	...	...	...	...	...	...	...
Slovenia	125	149	51	119	144	39	6	5	12
Spain	55	...	...	55	...	...	...	...	...
Turkey	60877	67860	...	60877	67860	...	...	...	...
Lithuania	3	2	...	3	2	...	1	0	...
United Kingdom	330	519	...	330	519	...	...	...	...
Canada	216	208	...	218	208	...	...	...	...

a/ See general notes and explanations of methodologies of estimating losses

b/ The data in table 16 was converted in US Dollars using the exchange rates published in "Monthly Bulletin of Statistics", United Nations, New York

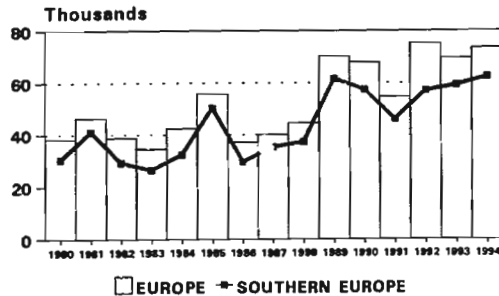
c/ Albania, Estonia and Latvia: data reported in US Dollars

d/ Croatia: data reported in D. Mark

e/ Moldova: 1991 data reported in 1000 Rouble

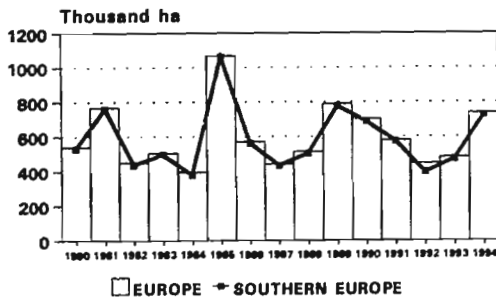
f/ Poland: no exchange rates available, for data in national currency see table 15

### Europe Number of fires



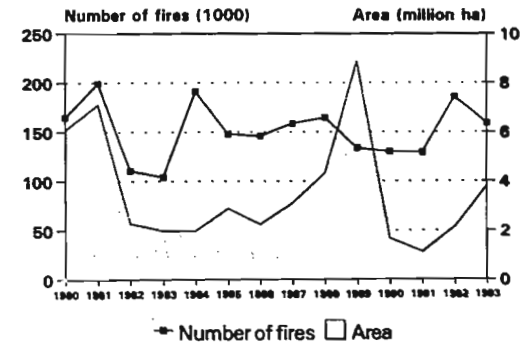
Southern Europe:  
Albania, Bulgaria, Croatia, Cyprus, France, Greece, Israel, Italy, Portugal, Slovenia, Spain, Turkey  
and former Yugoslavia

### Europe Area of fires

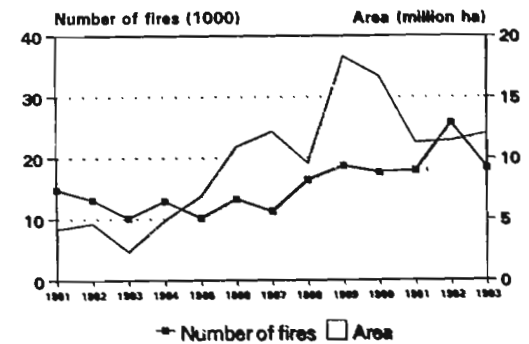


Southern Europe:  
Albania, Bulgaria, Croatia, Cyprus, France, Greece, Israel, Italy, Portugal, Slovenia, Spain, Turkey  
and former Yugoslavia

### North America Number and area of fires



### Russian Federation Number and area of fires



## NOTES TO TABLES 12-14: LOSSES FROM FIRES

Countries were asked to describe the method employed in evaluating the losses caused by fires, which are shown in tables 12 (national currencies) and 13 (converted into US dollars). The information provided is summarized below:

**Belgium:**

The following are taken into account: the loss of the future value of burned trees, or of those trees whose normal growth has been disturbed by fire.

**Bulgaria:**

The following are taken into account: the value of wood volume destroyed or damaged; the value of young stands destroyed or damaged; and re-establishment costs including: site preparation, cost of plants and cost of planting, plus cost of maintenance and clearing during a period of four years.

**Croatia:**

Method used for estimating forest fire damage:

The estimated value of wood losses is based on the percent share of the wood categories of the forests burned (e.g. logs x%, pulpwood x%, fuelwood x%), and the market value of these products. To calculate the social value of the forests, which is multiple times greater than the value of the wood mass, the coefficient 10 is used. The total damage is the result of summing together the value of the wood mass and the social value.

**Cyprus:**

For merchantable stands: commercial value is estimated; for immature stands: the cost of re-establishment is estimated.

**Estonia:**

Forest fire losses include destroyed and damaged wood, extinguishing expenses, cleaning expenditures and establishment costs for new stands.

**Germany:**

- (1) Estimate of the stand expectation value less the stumpage value plus consequent costs caused by fire (additional planting costs etc.) as well as other material damage
- (2) Other damage is estimated according to a material value method (Koch) or other comparable cost estimating methods.

**Ireland:**

The procedure adopted was to calculate both the value foregone and the potential value of the site. The difference between these two values is the financial loss incurred. The Net Discounted Revenue (NDR) technique has been used to calculate these values.

The Value Foregone is a combination of the NDR of the plantation assuming that it was not burned and its successor crop. The potential Value is the NDR of reforesting the burned site as well as the successor crop. In both instances the successor crop is *Silka spruce*.

**Italy:**

The losses of non-recoverable wood are estimated according to the commercial value of the standing timber or the felled timber, whichever it applies, at the time of the fire.

**Latvia:**

The method of assessing losses includes:

- (1) Loss of value of the standing and harvested timber;
- (2) Cleaning expenses and restocking of young stands;
- (3) Extinguishing costs. Timber prices have considerably increased between 1992 and 1994, this explains the relatively low level of losses in 1992.

**Moldova:**

The estimation of losses is carried out according to taxes for standing timber, degree of damage and volume of recoverable wood. Other expenses are taken into account such as extinguishing and cleaning costs.

**Netherlands:**

The sums paid by the insurance companies are taken into account for the estimation of losses.

**Norway:**

For wood and other tangible losses: includes damage to the productive forest: the value of damage to timber; and in young stands the cost of replanting. The discounting of future values of pre-commercial stands and non-tangible losses is not included; For other losses: includes damage to unproductive forest, non-forest land and other damage (buildings, equipment, etc.) caused by fires on forest and other land. The sums paid by the insurance companies Skogbrand are given.

**Poland:**

Difference between commercial value of the stand at the time of maturity and the costs of establishment. Methods also used to estimate losses of partly destroyed stands and of special stands (seed stands, reserved forest, experimental forest).

**Romania:**

The method used to evaluate losses is based on reestablishment costs and timber value.

**Russian Federation:**

For young stands, losses are estimated by discounting their future value. For mature stands, the methodology used is based on the forest inventory (standing volume per hectare, average diameter of trees, area burned, type and intensity of fire, etc.). Losses refer to non-recoverable wood as a percentage of the total standing volume.

**Spain:**

Tangible losses: costs of conservation and reforestation of immature stands; plus depreciation of burned timber; plus loss of potential value according to theoretical growth curves. Other losses: cost of restoring soil protection cover; plus income loss from recreational use; plus cost of imports to substitute burned timber; plus fire suppression costs. The following estimated environmental losses are not included in the tables:

<u>1992</u>	<u>1993</u>
( Million Pesetas )	
21.87	19.81

**Turkey:**

Standing volumes are recorded in the management plans according to species and location. Losses are estimated by calculating the difference between the values given in the management plans and the estimated timber value of stands before the fire.

**Ukraine:**

Losses from forest fire damage are calculated according to regulations of the Forest Law. These include: for wood losses, the value is calculated according to taxes applicable in a given region; for felled timber losses, the value takes into account price of timber less the fire damage and the felling, skidding and stocking costs; for buildings and equipment, according to their accounting value less a damage percentage. The total value comprises forest regeneration operations and costs of cleaning operations.

**United Kingdom:**

For the Forestry Commission only the losses due to fire, for years ending on 31 March were as follows:

<u>1992/93</u>	<u>1993/94</u>
( Thousand Pounds )	
114	104

These losses are calculated by accountants as adjustments to the "book value" of the Forestry Commission's estate.

**NOTES TO TABLES 15 AND 16: EXPENDITURES ON FIRE PREVENTION AND CONTROL**

Countries were invited to provide information on the coverage of their statistics on expenditures and this is summarized below:

**Albania:**

The expenditures refer to those of the Forest Service for forest fire surveillance, suppression and the elimination of consequences.

**Austria:**

Expenditure refer to forest fire prevention and control costs reimbursed to the local communities by the Federal Ministry of Agriculture and Forestry.

**Belarus:**

The breakdown for air and ground protection expenditure is the following:

	<u>1992</u>	<u>1993</u>
	( Thousand B. Roubles )	
Operational expenditures	155 485	1 703 734
Air surveillance	47 970	407 053
Ground surveillance	63 555	2 110 787
Total	127 110	4 221 574

**Canada:**

The breakdown of Provincial and Territorial Forest Services fire control expenditures is the following:

	<u>1992</u>	<u>1993</u>
	( Million Can. Dollars )	
Budgeted costs	137.761	159.816
Fire fighting costs	139.783	114.956
Total	277.554	274.772

Monetary figures for other public and private expenditures for fire prevention and control are not available. However, these figures would be a small percentage of the Provincial and Territorial Forest Service expenditures.

**Cyprus:**

Breakdown of expenditures of Forest Service:

	<u>1992</u>	<u>1993</u>	<u>1994</u>
	( C. Pounds )		
Fire fighting	1 562	11 810	8 715
Fire lock-out stations	196 880	227 329	277 894
Fire fighting task force	502 258	555 962	603 305
Construction of tracks for vehicles, water tanks, fire traces, etc.	65 893	74 046	75 237
Total	768 593	869 147	965 151

**Estonia:**

Forest Service expenditures refer to operations performed by airplanes, helicopters and other surveillance costs.

**Finland:**

Expenditures cover surveillance (tower and air observation) costs only.

**Italy:**

Covers fire suppression and equipment by the State Forest Service.

**Latvia:**

The method of estimation includes expenses for the upkeeping of fire breakout lines along roads, lookout towers, water reservoirs, access roads, communications and other fire service expenditure.

**Moldova:**

Expenditure on prevention and control comprises direct (cleaning and extinguishing costs) and indirect expenses. Indirect expenses include PR prevention campaigns, road and vehicle maintenance communications and salary costs.

**The Netherlands:**

Only the expenditures on forest fire prevention and control in State forests are known (labour, and small equipment). All fire control is done by regional fire services, which have no separate budget for the different type of fire suppression.

**Norway:**

Only expenditure on prevention are shown in tables 15 and 16.

**Poland:**

Data relate only to recurrent and occasional expenditure. Data on capital expenditure (investments) for forest fire prevention and control are not included.

**Portugal:**

Expenditure refers to prevention measures, excluding extinguishing costs.

**Romania:**

Expenditures include information costs, surveillance costs (fire look-out stations) and fire fighting equipment and material.

**Russian Federation:**

Expenditures include aircraft and land surveillance costs, forest fire prevention publications and campaigns and actual fire-fighting.

**Spain:**

Expenditure includes the investments in airplane equipment, 633 million Pesetas in 1991.

**Ukraine:**

Expenditures on prevention and control include worker's wages and fire brigade's costs, expenses for aircraft and other machines and equipment, costs of chemicals for fire control and other miscellaneous costs.

**United Kingdom:**

The information on expenditure on forest fire prevention and control refers to Forestry Commission and Northern Ireland Forest Service woodlands (less than 40% of total). Figures are for years ending on 31 March.

## DEFINITIONS USED IN THE ENQUIRY

Except that for "other land" the definitions are taken from the FAO/ECE Forest Resource Assessment 1990.

**Forest and other wooded land**

Land under natural or planted stands of trees, whether productive or not. Includes land from which forest has been cleared but that will be reforested in the foreseeable future. It includes areas occupied by roads, small cleared tracts and other small open areas within the forest which constitute an integral part of the forest.

**Forest**

Land with tree crown cover (stand density) of more than about 20% of the area. Continuous forest with trees usually growing to more than about 7 m in height and able to produce wood. This includes both closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground and open forest formations with a continuous grass layer in which tree synusia cover at least 10% of the ground.

**High forest**

Forest normally composed of trees of seedling origin. Included are other kinds of forest in process of transformation into high forest.

**Coniferous**

All trees classified botanically as Gymnospermae. These are sometimes referred to as softwoods.

**Broadleaved (non-coniferous)**

All trees classified botanically as Angiospermae. These are sometimes referred to as non-coniferous or hardwoods.

**Coppice and coppice with standards**

Forest composed of stool-shoots or root suckers with or without scattered trees of seedling origin (standards)

**Other wooded land**

Land which has some forestry characteristics but is not forest as defined above. It includes: open woodland and scrub, shrub and brushland (see below), whether or not used for pasture or range. It excludes land occupied by "trees outside the forest"

**Open woodland:** Land with tree crown cover (stand density) of about 5-20% of the area.

**Scrub, shrub and brushland:** Land with scrub, shrub or stunted trees where the main woody elements are shrubs (usually more than 50 cm and less than 7 m in height), covering more than about 20% of the area, not primarily used for agricultural or other non-forestry purposes, such as grazing of domestic animals.

**Ownership status****Public**

Forest and other wooded land belonging to State and other public bodies.

- **State:** Forest and other wooded land owned by national, state, and regional governments or by government-owned corporations; Crown forests;

- **Other public:** Forest and other wooded land area belonging to towns, villages and communes. Includes any other publicly owned forest and other wooded land not elsewhere specified.

**Private**

Forest and other wooded land which is:

- (a) owned by private forest (wood-processing) industries;
- (b) owned by private corporations and institutions (religious, educational, pension funds, etc.);
- (c) farm forest: owned by individuals, families or corporations engaged in agriculture as well as forestry;
- (d) other: privately owned not elsewhere specified.

**Other land**

Land which, although not falling within the definition of "forest and other wooded land" has nonetheless been included in national forest statistics. Such land may include heathland, waste land or agricultural land adjoining or enclosed by forest land.

## SOME FACTS ABOUT THE TIMBER COMMITTEE

The Timber Committee is a principal subsidiary body of the ECE (UN Economic Commission for Europe) based in Geneva. It constitutes a forum for cooperation and consultation between member countries on forestry, forest industry and forest product matters. All countries of Europe, the former USSR, United States of America, Canada and Israel are members of the ECE and participate in its work.

The ECE Timber Committee shall, within the context of sustainable development, provide member countries with the information and services needed for policy- and decision-making regarding their forest and forest industry sector ("the sector"), including the trade and use of forest products and, when appropriate, formulate recommendations addressed to member Governments and interested organizations. To this end, it shall:

1. With the active participation of member countries, undertake short-, medium- and long-term analyses of developments in, and having an impact on, the sector, including those offering possibilities for the facilitation of international trade and for enhancing the protection of the environment.
2. In support of these analyses, collect, store and disseminate statistics relating to the sector, and carry out activities to improve their quality and comparability.
3. Provide the framework for cooperation e.g. by organizing seminars, workshops and *ad hoc* meetings and setting up time-limited *ad hoc* groups, for the exchange of economic, environmental and technical information between governments and other institutions of member countries that is needed for the development and implementation of policies leading to the sustainable development of the sector and to the protection of the environment in their respective countries.
4. Carry out tasks identified by the UN-ECE or the Timber Committee as being of priority, including the facilitation of subregional cooperation and activities in support of the economies in transition of central and eastern Europe and of the countries of the region that are developing from an economic point of view.
5. It should also keep under review its structure and priorities and cooperate with other national and intergovernmental organizations active in the sector and in particular with the FAO (Food and Agriculture Organisation) and its European Forestry Commission and with the ILO (International Labour Organisation), in order to ensure complementarity and to avoid duplication, thereby optimizing the use of resources.

More information about the Committee's work may be obtained by writing to:

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UN-ECE Trade Division  
Palais des Nations  
CH-1211 Geneva 10, Switzerland  
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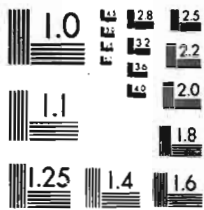
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# FOREST FIRE STATISTICS

1992-1994



UNITED NATIONS

