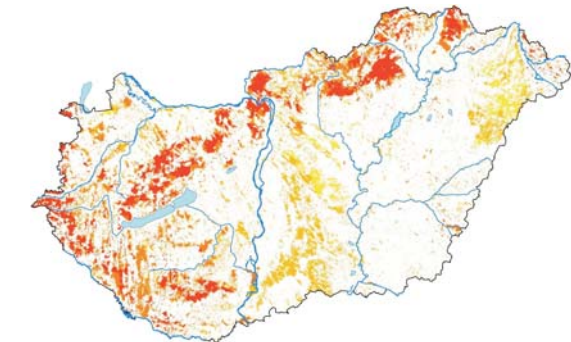


● Naturalness and nature conservation

Distribution of forest area according to naturalness categories

	Area (ha)	Color
Near-nature forests	495193	<div></div>
Semi-natural forests	529320	<div></div>
Far-from-natural forests	116185	<div></div>
Artificial forests	652036	<div></div>
Plantations	129374	<div></div>
Total	1922108	

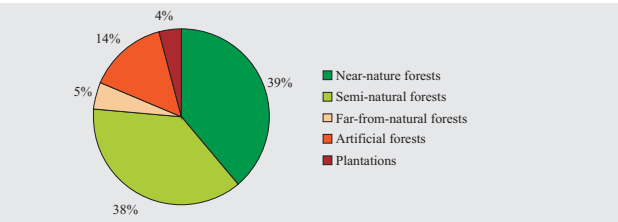


Classification of forest subcompartments into naturalness categories is based mainly on the proportion of non-indigenous and invasive tree species

Protected forests and forests of the Natura 2000 network

	Forest sub-compartment	Other type of subcompartment	Total
	(ha)		
Protected area			
Strictly protected	65987	6053	72040
Protected	354009	25632	379641
Total	419996	31685	451681
Natura 2000 sites			
Protected and strictly protected	382110	28580	410690
Not protected	384482	33551	418033
Total	766592	62131	828723
Birds sites and habitats sites			
Special protection area	465555	33038	498593
Special area of conservation	624338	54513	678851

Naturalness of the forests of the Natura 2000 network



Source: CAO Database, data of 31st Dec. 2010.

● Nature-oriented forest management

Year	Transition system ¹	Selection system ²	Non-wood-productive forest l. ³
	(ha)		
2006	4024	4956	44034
2007	8780	7220	47546
2008	13040	9219	51762
2009	19193	12576	55614
2010	30768	13515	58367

Source: CAO Database, data of 31st Dec. 2010.
¹ The destination is the achievement of the selection system
² Individual trees or groups are harvested periodically and frequently.
³ The aim is to let natural processes to take their course. Fellings are possible only for scientific, protection or regeneration purposes.

● Forestation (regeneration and afforestation)

Achievements in the growing year 2009-2010

	State sector	Other forms of management	Total
	(ha)		
Successfull initial stand establishment			
Regeneration after clear-cutting	6543	6477	13020
Initial planting			
In afforestation	1084	4012	5096
Blank filling			
In regeneration	2460	566	3025
In afforestation	184	680	864
Established forestations			
In regeneration, after clear-cutting	6729	7176	13905
In regeneration, after shelterwood cutting	2274	280	2554
In regeneration, total	9003	7456	16459
In afforestation	503	10135	10638
Lead time (year)			
In regeneration	8.9	6.6	7.9
In afforestation	7.0	5.5	5.6

Source: CAO "Report on Forestation and Fellings in 2010"

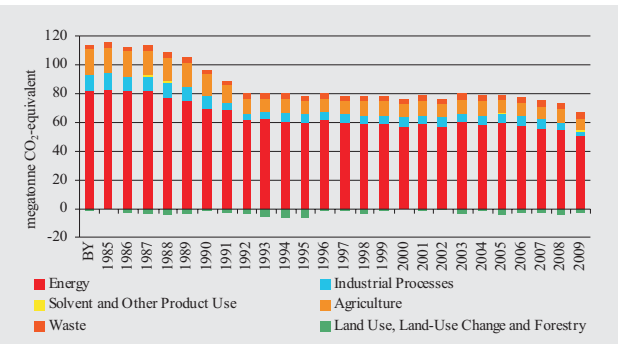
Potential forest types in forestations

	Successfull initial stand establishment	Initial planting in afforestation
	(ha)	
Oak	1711	1854
T. oak, other hard broadleaved	664	229
Beech	50	1
Black locust	6947	1579
Hybrid poplar and white willow	1449	354
Native poplar, other soft broadl.	1605	1053
Coniferous	594	26
Total	13020	5096

Source: CAO "Report on Forestation and Fellings in 2010"

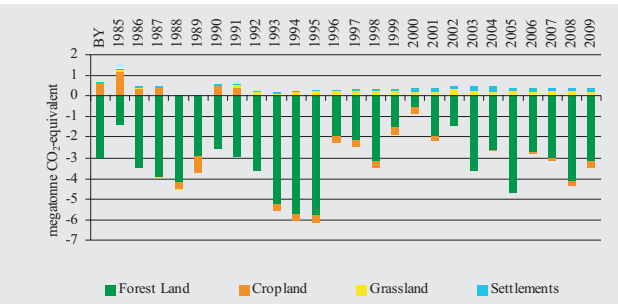
● The Kyoto Protocol and the forests

GHG emissions and removals by sectors



By ratifying the Kyoto Protocol (KP, 1997), Hungary committed to reducing its GHG emissions by 6% compared to the base year (BY – the average of 1985-87). The country's emission reductions are mainly due to the decrease of the emissions in the energy, industry and agriculture sectors. Actual removals are produced only by the land use, land-use change and forestry (LULUCF) sector. (The positive values mean emission and the negative values mean removal.)

GHG emissions and removals in the LULUCF sector



Forest management is the only major sink in the GHG-balance sheet of the country.

GHG emissions and removals in the forestry sector in 2009

	Area	CO ₂ eq.	CO ₂ eq. per hectare
	(ha)	(1000 tonnes)	(tonne)
Afforestation, reforestation (AR) since 1990	162137	-1154	-7.12
Deforestation (D) since 1990	8877	81	9.12
Forest management (FM)	1656690	-1892	-1.14

Forest management activities (afforestation, reforestation and deforestation since 1990) under Article 3.3 of the KP represented a net sink of 1.1 million tonnes CO₂-eq., while the activity under Article 3.4, i.e. forest management (FM), was also a net sink of 1.9 million tonnes CO₂-eq. The most efficient carbon sequestration can be reached by afforestation.

Source: NIR Hungary 2011. National Inventory Report for 1985-2009 Hungary, Hungarian Meteorological Service

● Wood products and timber trade

Wood products output in 2010¹

	Removals	
	total (m ³)	ratio in assortment composition (%)
Logs for panel products	80061	1.2
Sawlogs	998788	15.7
Other raw material for sawmilling	450314	7.0
Pitwood	12007	0.2
Pulpwood	630998	9.9
Bolt for panels	323485	5.0
Other industrial wood	215412	3.4
Technological chips	35227	0.5
Total industrial wood	2746292	42.9
Fuelwood	3659828	57.1
Total removals	6406120	100.0

¹ National distribution calculated on the basis of a statistical sample. Source: CAO

Output of selected products in 2010¹

	Unit	Quantity
Coniferous sawnwood	1000 m ³	13.0
Broadleaved sawnwood	“	77.5
Parquet frieze	“	14.2
Furniture strips and parts	“	5.2
Pallets	“	72.7
Wood particle board	“	487.2
Laminated particle board	“	379.7
Cement-bonded particle board	“	25.5
Fibreboard	“	151.6
Surface-treated fibreboard	“	81.4
Flat-pressed, moulded, laminated board	“	4.5
Veneer sheets	“	28.1
Parquet	1000 m ²	1620.0
Boxboard	1000 m ³	6.1
Industrial wood residue for industrial purposes	“	66.6
Industrial wood residue for woodfuel	“	139.0

¹ Based on data from large-scale and medium industries appointed for contributing data by the Ministry of Agriculture. Source: CAO

Timber trade in 2010

	Export	Import	Balance
	(million HUF)		
Solid wood products	19429	8111	11318
Sawn wood products	14709	22340	-7631
Panel products	40090	33242	6848
Miscellaneous wood products	51091	25550	25541
Total wood products	125319	89243	36076
Pulp and paper products	119220	188844	-69624
Total	244539	278087	-33548

Source: CAO

● Red sludge disaster in October 2010

Land use	Flooded land (ha)
Forest	30.5
Other wooded land	0.5
Garden	0.5
Pasture	134.9
Meadow	131.2
Cropland	498.1
Barren land	27.9
Periphery total	823.6
Residential area	137.7
Total	961.3

Source: Institute of Geodesy, Cartography and Remote Sensing and Government Office of Veszprém County, Forestry Directorate



In October 2010, the pond dam of an alumina plant to the west of Hungary suddenly broke and flooded two towns in toxic red sludge. 400 houses were flooded in Devecser and the mud level rose up to 2 meters in Kolontár. Ten people died in total, and around 120 were injured. About 700 thousand cubic metres of the waste material leaked out of the reservoir, fouling rivers including a local branch of the Danube. The damage in forests is not substantial.

● Organisational structure

Forest administration:

Ministry of Rural Development (MRD)	Ministry of Public Administration and Justice	Other organizations concerned with forestry:
Department of Forestry, Fishing and Hunting		- Central Agricultural Office, Directorate Of Plant Production and Horticultural, Department of Forestry and Energy Reproduction Materials
Forestry Department		Inspectorate of propagation materials
Central Agricultural Office Forestry Directorate		- Ministry of Rural Development (MRD) Department of National Park and Landscape Protection
County Government Offices Forestry Directorates (10)		Protection of the natural assets in forests on protected natural areas.
Forest management planning, official supervision of forest managements		

Forest research:

Forest Research Institute (FRI), Sárvár
University of West Hungary (UWH), Sopron

Professional training:

Higher education: University of West Hungary, Sopron
Professional secondary schools: Barcs, Mátrafüred, Sopron, Szeged
Trade schools: Ásotthalom, Miskolc, Piliscsaba, Somogyzsítfá-Szőcsénypuszta

Executive publisher: dr. Márton Oravecz president, Central Agricultural Office
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Forest resources, forestry and wood management in Hungary



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● **Notable milestones in the history of modern Hungarian forestry**

1791	The Parliament enacted the first feudal forest act.
1879	Enactment of the first modern civil forest act.
1920	As a result of the peace-treaty closing the First World War, Hungary lost 84 % of its forests, and forest cover decreased from 26 % to 12 %.
1935	The Act IV of 1935 was not just a forest act adjusted to the new geographical conditions of the country, but also the first Hungarian law on nature conservation to be promulgated.
1936	Hungary hosted the second World Forestry Congress and the 9th Congress of IUFRO.
1945	Private forest holdings exceeding 58 hectares were nationalized, properties of 6 to 58 hectares were taken into state management.
1959	Forest joint tenures were cut back, about 30 % of the forests were assigned to agricultural cooperatives.
1961	Enactment of the Act VII of 1961 on forests and wildlife management based on the socialist ownership structure.
1996	As a result of the change of political system, about 40 % of forests were privatised. The legislative control for multiple-use and sustainable forestry is provided in Act LIV of 1996 on forests and protection of forests.
2009	One main aim of the Act XXXVII of 2009 is to move forests closer to their natural states. On the one hand, the act defines the 'quantitative naturalness' and prescribes that it must not decrease due to management activities. On the other hand, the act makes it obligatory to apply continuous cover forestry methods on a predetermined area of state-owned forests. Furthermore, it ensures that the civil sphere can take part in forest planning to a greater extent than before.

● **Main objectives of the current Hungarian forest policy**

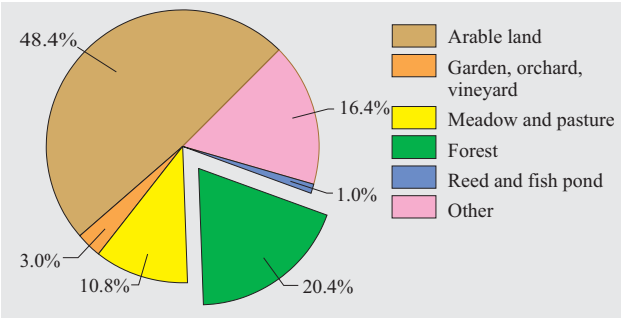
- To ensure long-term environmental, economic and social services of forests with sustainable multiple-use forest management.
- To harmonize the interest of the society in sustainable forest management with the interests of owners and managements.
- To maintain natural or close-to-natural forest stands composed by indigenous tree species and extend their area in accordance with prevailing site conditions.
- To increase the forested lands with afforestation up to the forest ratio of approximately 26-27 %.

● **Comprehensive facts**

Forest land area (in database)	1000 ha	1922.1
Forest ratio	%	20.7
Forest area per 1,000 inhabitants	ha/1000 cap.	192
Area of land in forestry use	1000 ha	2046.4
Growing stock	million gr. m ³	359.1
Gross annual increment	million m ³ /year	13.1
Total fellings	million gr. m ³	7.4
Final cutting	million gr. m ³	5.2
Regeneration (initial planting) per year	1000 ha	13.3
Afforestation (initial planting) per year	1000 ha	5.1
Ratio of forests under management	%	100.0

Sources: Hungarian Central Statistical Office (HCSO) 2010
CAO Database, data of 31st Dec. 2010
CAO "Report on Forestation and Fellings in 2010"

● **Area by categories of land use**



Source: HCSO, data of 18th Feb. 2010

● **Forest land according to the National Forestry Database**

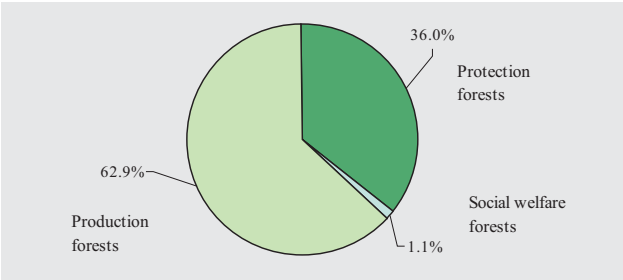
data of 31st Dec. 2010	(1000 ha)	ratio (%)
Forest land (covered by tree stands or earmarked for plantation)	1922.1	20.7
Other wooded lands (nurseries, rides, permanent clearings, roads)	124.3	1.3
Total area of land in forestry use	2046.4	22.0

● **Forest land area and ownership categories in the counties**

County	Area (km ²)	Forest l. area (km ²)	Forest ratio (%)	In forestry use (km ²)	State (%)	Com-munal (%)	Private (%)	Mixed (%)
Pest incl. Budapest	6918	1695	24.5	1793	60.3	1.9	36.7	1.1
Közép-Magyarország	6918	1695	24.5	1793	60.3	1.9	36.7	1.1
Fejér	4358	545	12.5	609	73.9	2.8	22.3	1.0
Komárom-Esztergom	2265	614	27.1	659	81.1	0.9	17.9	0.1
Veszprém	4493	1345	29.9	1542	63.0	0.5	35.9	0.6
Közép-Dunántúl	11116	2504	22.5	2810	69.7	1.1	28.6	0.6
Győr-Moson-Sopron	4208	814	19.3	902	69.2	0.4	30.3	0.1
Vas	3336	938	28.1	985	50.5	0.4	49.1	0.0
Zala	3784	1183	31.3	1252	52.7	0.6	43.8	2.9
Nyugat-Dunántúl	11328	2936	25.9	3140	56.5	0.5	41.8	1.2
Baranya	4429	1112	25.1	1165	54.0	1.3	43.6	1.1
Somogy	6036	1778	29.5	1902	55.5	0.8	42.5	1.2
Tolna	3704	663	17.9	710	55.9	0.8	42.6	0.7
Dél-Dunántúl	14169	3553	25.1	3777	55.0	1.0	42.9	1.1
Borsod-Abaúj-Zemplén	7247	2067	28.5	2156	60.2	1.1	42.9	1.1
Heves	3637	876	24.1	909	60.0	0.4	39.3	0.3
Nógrád	2546	986	38.7	1023	55.7	0.2	43.7	0.4
Észak-Magyarország	13433	3929	29.2	4088	59.0	0.7	39.7	0.6
Hajdú-Bihar	6210	682	11.0	723	45.9	0.9	52.7	0.5
Jász-Nagykun-Szolnok	5582	325	5.8	351	43.4	2.4	53.6	0.6
Szabolcs-Szatmár-B.	5937	1221	20.6	1262	27.0	1.2	71.6	0.2
Észak-Alföld	17729	2228	12.6	2336	35.2	1.3	63.1	0.4
Bács-Kiskun	8444	1738	20.6	1839	46.5	0.7	52.6	0.2
Békés	5630	256	4.5	279	60.4	3.9	34.0	1.7
Csongrád	4263	382	9.0	402	47.7	1.3	50.9	0.1
Dél-Alföld	18337	2376	13.0	2520	48.4	1.1	50.3	0.4
Total	93030	19221	20.7	20464	55.3	1.0	42.9	0.8

Source: CAO Database, data of 31st Dec. 2010
Mixed means the forest property is divided between state, private and community.
Before the transition of the political system the ratio of private forest was below 1 %.

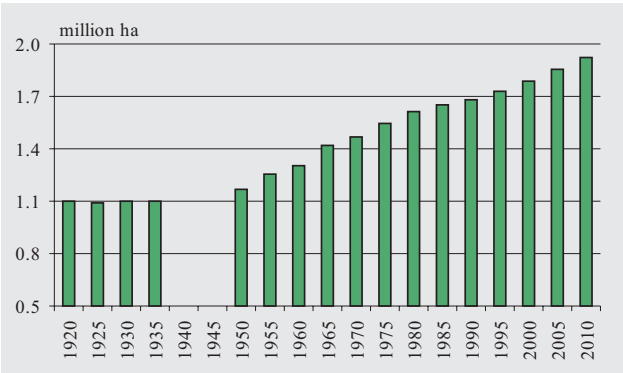
● **Distribution of forests by primary function**



Source: CAO Database, data of 31st Dec. 2010

Protection forests include protective forests (soil, water, settlement protection, etc.) and protected forests (e.g. in protected natural areas). Their area and ratio has been increasing for decades.

● **Changes of the forest area 1920-2010**



Source: CAO Database
Data of 1940 and 1945 are missing.

The ratio of the forest area between 1920 and 2010 increased from 11.8% to 20.7%, due to the afforestation programs subsidized by the state and mainly implemented by private forest owners.

Afforestations in the past decade (initial plantings)

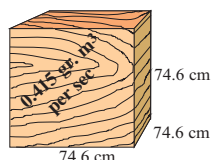
Growing year	State sector	Other forms of management	Total
	(ha)		
2000-2001	665	12472	13137
2001-2002	755	14075	14830
2002-2003	899	11116	12015
2003-2004	437	7137	7574
2004-2005	628	7029	7657
2005-2006	770	13219	13989
2006-2007	512	18436	18948
2007-2008	391	6941	7332
2008-2009	791	4377	5168
2009-2010	1084	4012	5096

Source: CAO "Report on Forestation and Fellings in 2010"

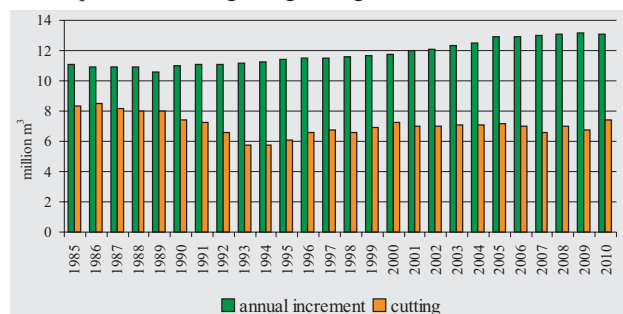
● Current annual increment, fellings and growing stock

Current increment by species (%)	
Oak	20.4
Turkey oak	8.1
Beech	6.8
Black locust	24.6
Other hard broadleaved	8.8
Poplar	13.1
Other soft broadleaved	6.0
Coniferous	12.2

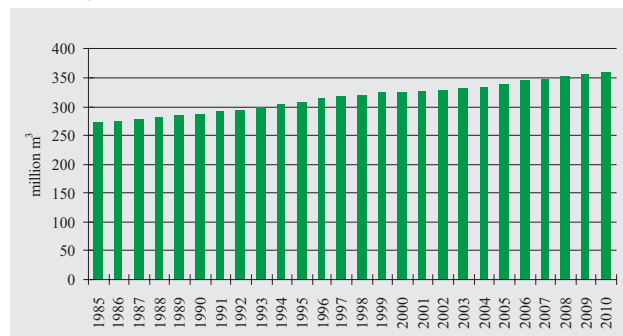
Gross annual increment in Hungarian forests:
13.1 million gr. m³/year



Development of cutting and growing stock



Growing stock



Growing stock is steadily increasing since in each year annual increment is higher than volume of the removed and died trees.

Source: CAO "Report on forestations and fellings in 2010"

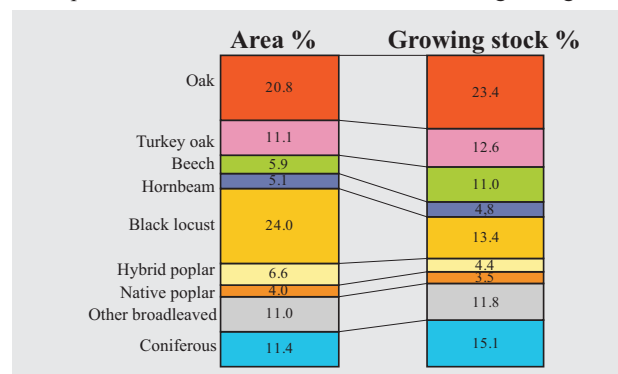
● Forest fires

	Surface fires	Ground fires	Crown fires
(ha)			
2007	10	884	1163
2008	43	325	29
2009	0	785	60
2010	0	239	0

Source: CAO Forest Fire Information System

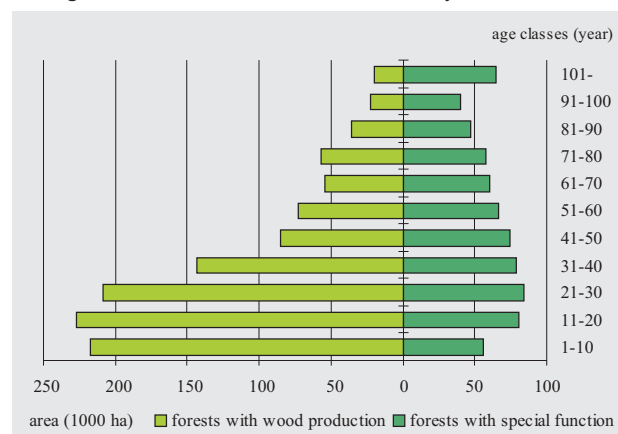
● Tree species- and age class distribution

Tree species distribution of the forest area and the growing stock

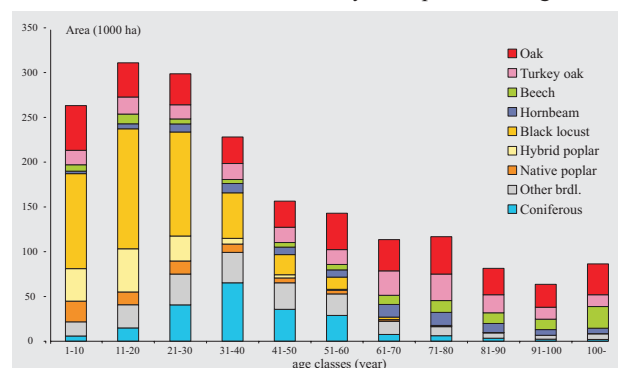


58% of the forest area is covered by indigenous species and 42% by alien or naturalized (black locust, red oak, coniferous), or cloned species (hybrid poplar).

The age class distribution of the forest area by function



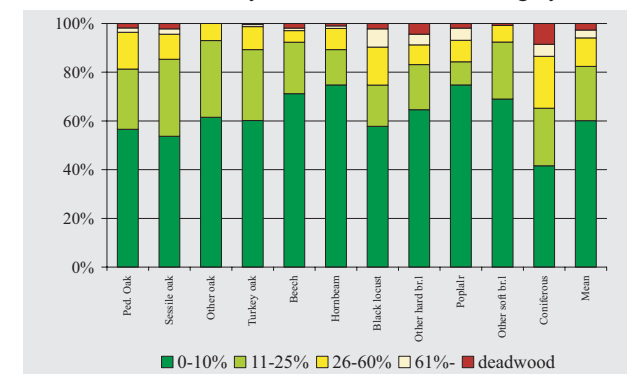
The distribution of the forest area by tree species and age



Source: CAO Database, data of 31st Dec. 2010

● Health conditions in 2010

Defoliation measured by the ICP Forests Monitoring System



Source: CAO Health Conditions Database, data of 31st Dec. 2010

The health conditions of the forests – in spite of the large amount of precipitation – became a little worse in 2010. The average level of defoliation increased from the 19% to 22% compared to the previous year. The number of sample trees decreased in the category of asymptomatic damage, while increased in almost all other damage categories. Compared to the previous years, improvement was only shown in the rate of the dead sample trees that died in the given year.

● Annual gross felling volume in 2010

	State sector	Other forms of management	Total
By felling types	(1000 gr. m ³)		
Cleaning	162	109	271
Pre-commercial thinning	373	293	666
Commercial thinning	532	114	646
Final felling	3106	2078	5184
Selection	41	4	45
'Selection-like' thinning	1	5	6
Sanitary cutting	456	101	557
Other types of fellings	31	18	49
Total	4702	2722	7424
By tree species groups	(1000 gr. m ³)		
Noble oaks	905	197	1102
Turkey oak	766	174	940
Beech	804	112	916
Hornbeam	202	72	275
Black locust	527	1100	1628
Other hard broadleaveds	165	55	220
Hybrid poplar	397	583	980
Native poplar	95	77	171
Other soft broadleaved	162	121	282
Coniferous	679	231	910
Total	4702	2722	7424

Source: CAO "Report on forestations and fellings in 2010"