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The Forest Resources Assessment Programme

Sustainably managed forests have multiple environmental and socio-economic functions important at the global, national and local scales, and play a vital part in sustainable development. Reliable and up-to-date information on the state of forest resources - not only on area and area change, but also on such variables as growing stock, wood and non-wood products, carbon, protected areas, use of forests for recreation and other services, biological diversity and forests' contribution to national economies - is crucial to support decision-making for policies and programmes in forestry and sustainable development at all levels.

FAO, at the request of its member countries, regularly monitors the world's forests and their management and uses through the Forest Resources Assessment Programme. This country report forms part of the Global Forest Resources Assessment 2005 (FRA 2005), which is the most comprehensive assessment to date. More than 800 people have been involved, including 172 national correspondents and their colleagues, an Advisory Group, international experts, FAO staff, consultants and volunteers. Information has been collated from 229 countries and territories for three points in time: 1990, 2000 and 2005.

The reporting framework for FRA 2005 is based on the thematic elements of sustainable forest management acknowledged in intergovernmental forest-related fora and includes more than 40 variables related to the extent, condition, uses and values of forest resources. More information on the FRA 2005 process and the results - including all the country reports - is available on the FRA 2005 Web site (www.fao.org/forestry/fra2005).

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The Global Forest Resources Assessment 2005 Country Report Series is designed to document and make available the information forming the basis for the FRA 2005 reports. The Country Reports have been compiled by officially nominated country correspondents in collaboration with FAO staff. Prior to finalisation, these reports were subject to validation by forestry authorities in the respective countries.

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1 Table T1 – Extent of Forest and Other wooded land

1.1 FRA 2005 Categories and definitions

Category	Definition
Forest	Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds <i>in situ</i> . It does not include land that is predominantly under agricultural or urban land use.
Other wooded land	Land not classified as “Forest”, spanning more than 0.5 hectares; with trees higher than 5 meters and a canopy cover of 5-10 percent, or trees able to reach these thresholds <i>in situ</i> ; or with a combined cover of shrubs, bushes and trees above 10 percent. It does not include land that is predominantly under agricultural or urban land use.
Other land	All land that is not classified as “Forest” or “Other wooded land”.
Other land with tree cover (Subordinated to “Other land”)	Land classified as “Other land”, spanning more than 0.5 hectares with a canopy cover of more than 10 percent of trees able to reach a height of 5 meters at maturity.
Inland water bodies	Inland water bodies generally include major rivers, lakes and water reservoirs.

1.2 National data

1.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National forest fund report	H	Forest Other wooded land Other land Other land with tree cover Inland water bodies	Since 1955	The annual National Forest Fund report is an official report and database of the National Forestry Board for the forest resources in Bulgaria. It is presented in the form of database and is not exact publication.
FAOSTAT data	H	Total area Land area	1990, 2000, 2002	

1.2.2 Classification and definitions

National class	Definition
Forest	All the area covered with trees higher than 5m, with canopy cover of more than 10 percent and spanning more than 0.1 hectares
Other wooded land	with trees higher than 5 meters with a combined cover of shrubs, bushes and trees above 10 percent and spanning more than 0.1 hectares
Other land	All the area not covered by forest or water
Other land with tree cover	Trees able to reach a height of 5 meters at maturity and spanning more than 0.1 hectares
Inland water bodies	The area that include rivers, lakes and water reservoirs

1.2.3 Original data

FRA 2005 Categories	Area (1000 hectares)		
	1990	2000	2005
Forest	3327.027	3375.117	3624.691
Other wooded land	130.08	104.73	27.255
Other land	7605.893	7583.153	7411.054
...of which with tree cover ¹⁾			
Inland water bodies	36	36	36
TOTAL	11099	11099	11099

The 2005 data were derived from latest data from 31.12.2004 from National forest fund report and the latest FAOSTAT data (total area, land area).

1.3 Analysis and processing of national data

1.3.1 Calibration

No need for calibration. The total land area of the country match the official, reported land area according to FAOSTAT.

1.3.2 Estimation and forecasting

1.4 Reclassification into FRA 2005 classes

Not needed

1.5 Data for National reporting table T1

FRA 2005 Categories	Area (1000 hectares)		
	1990	2000	2005
Forest	3327	3375	3625
Other wooded land	130	105	27
Other land	7606	7583	7411
...of which with tree cover ¹⁾			
Inland water bodies	36	36	36
TOTAL	11099	11099	11099

1) Area of “Other land with tree cover” is included in the area reported under “Other land” and should therefore be excluded when calculating the total area for the country.

1.6 Comments to National reporting table T1

There is a large increase in the forest area for the period 2000-2005. According to the Forest Act and the preparation of the map of the restored ownership for this period, in the Forest fund were included all excluded in the past, but not destroyed forests, all forests given up for utilization to other organizations and also all areas from agricultural fund – forested and self-forested. In this period actually the update of the Forest fund was done. Part of “Other wooded land” was also included in the Forest fund when forested.

2 Table T2 – Ownership of Forest and Other wooded land

2.1 FRA 2005 Categories and definitions

Category	Definition
Private ownership	Land owned by individuals, families, private co-operatives, corporations, industries, religious and educational institutions, pension or investment funds, and other private institutions.
Public ownership	Land owned by the State (national, state and regional governments) or government-owned institutions or corporations or other public bodies including cities, municipalities, villages and communes.
Other ownership	Land that is not classified either as “Public ownership” or as “Private ownership”.

2.2 National data

2.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National forest fund report	H	Community ownership Religious ownership School ownership Private ownership	Since 1955	Original data source

2.2.2 Classification and definitions

National class	Definition
State ownership	Forest area owned by the state and managed by National Forestry Board
Community ownership	The ownership of local communities
Religious institution ownership	Forest area owned by the church
Private ownership	All individual, family ownership (physical and legal bodies)

Note: If different national data sources use different classes and definitions, a table such as above is needed for each relevant data source.

2.2.3 Original data

	Area (1000 ha)			
	Forest		Other wooded land	
	1990	2000	1990	2000
State ownership	3327.027	2885.998	130.08	96.77
Community ownership	0	205.843	0	2.466
Religious institutions ownership	0	15.836	0	0.81
Private ownership (physical and legal bodies)	0	267.44	0	4.684
TOTAL	3327.027	3375.117	130.08	104.73

2.3 Analysis and processing of national data

2.3.1 Calibration

No need for calibration

2.3.2 Estimation and forecasting

Figures are available for both reporting years – no estimation is needed

2.4 Reclassification into FRA 2005 classes

	Private ownership	Public ownership	Other ownership
State ownership		100%	
Community ownership		100%	
Religious institution ownership	100%		
Private ownership	100%		

2.5 Data for National reporting table T2

FRA 2005 Categories	Area (1000 hectares)			
	Forest		Other wooded land	
	1990	2000	1990	2000
Private ownership	0	283	0	5
Public ownership	3327	3092	130	99
Other ownership	0	0	0	0
TOTAL	3327	3375	130	104

2.6 Comments to National reporting table T2

The reform for restitution of forests has started in Bulgaria in 1997 and is not finished yet.

3 Table T3 – Designated function of Forest and Other wooded land

3.1 FRA 2005 Categories and definitions

Types of designation

Category	Definition
Primary function	A designated function is considered to be primary when it is significantly more important than other functions. This includes areas that are legally or voluntarily set aside for specific purposes.
Total area with function	Total area where a specific function has been designated, regardless whether it is primary or not.

Designation categories

Category / Designated function	Definition
Production	Forest / Other wooded land designated for production and extraction of forest goods, including both wood and non-wood forest products.
Protection of soil and water	Forest / Other wooded land designated for protection of soil and water.
Conservation of biodiversity	Forest / Other wooded land designated for conservation of biological diversity.
Social services	Forest / Other wooded land designated for the provision of social services.
Multiple purpose	Forest / Other wooded land designated to any combination of: production of goods, protection of soil and water, conservation of biodiversity and provision of social services and where none of these alone can be considered as being significantly more important than the others.
No or unknown function	Forest / Other wooded land for which a specific function has not been designated or where designated function is unknown.

3.2 National data

3.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National forest fund report (NFB)	H	Wood production forests; Protected forests; Recreational forests; Others	Since 1955	

3.2.2 Classification and definitions

National class	Definition
Wood production forests	Forests with primary function for wood production
Protective forests	Forests with protective functions including water protecting forests; erosion preventing; irrigation (forest belts)
Protected forests	Natural reserves, national parks, protected areas, historical places,

	protected landscapes, natural sightseeing
Recreational forests	resort forests and areas and forest parks outside settlements (forests with social functions)
Others	All forests not included into other categories (with seed-producing plants and gardens; with forest nurseries; with geographical crops; with dendraria; forests around monuments of culture; research and experimentation forests, etc.)

3.2.3 Original data

	1990	2000	1990	2000	2005
	Forest (1000 ha)		Other wooded land		
Wood production forests	2364.539	2258.312	0	0	0
Protective forests	430.253	432.955	0	0	0
Protected forests	131.551	245.159	0	0	0
Recreational forests	221.615	222.757	130.08	104.73	27.255
Others	179.069	215.934	0	0	0
TOTAL	3327.027	3375.117	130.08	104.73	27.255

3.3 Analysis and processing of national data

3.3.1 Calibration

No need for calibration

3.3.2 Estimation and forecasting

Data about designated function of Forest in Bulgaria are calculated in every 5 years (1990, 1995, 2000, 2005, etc.) The report about 2005 is not ready up to now.

3.4 Reclassification into FRA 2005 classes

FORESTS	Production	Protection of soil and water	Conservation of biodiversity	Social services	Multiple purpose	No or unknown function
Wood production forests	100%					
Protective forests		100%				
Protected forests			36%*	0.06%**	63.94%	
Recreational forests				100%		
Others					100%	

*Only reserves (47 300 ha) are designated for Protection of biodiversity. The other protected forests are with multiple purposes. The table concerns only forests.

**For 1990 the area of historical sites is 8.069 and it was included into “Social services”.

The percentages are valid for both 1990 and 2000 except “historical sites” which are valid only for 1990.

The “Total area with function” is calculated according to the FRA definition given in the FRA Guidelines. For example: In the category “Conservation” all areas with function conservation are included independently of whether it is primary function or not.

According to forest categorization in Bulgaria forests are separated in many categories related to their functions and purposes.

Example for year 2000:

The category “Production” in the “Total area with function” includes (According to Bulgarian forest categorization):

1. All forests with primary function “Production” (forests designated for wood production) – 2 258 312 ha
2. The category “Protective forests”, which includes the following subcategories: - “water protecting forests”; - “erosion preventing forests”; and “irrigation forests” are also designated for “Production”. This is their not primary function and there the utilization is limited – 432 955 ha.
3. The category “Recreational forests” has also “Production” function, but not primary – 222 757 ha.
4. From the category “Protected areas” only category “Nature parks” is designated to be with “Production” function (not primary also). – 73 516 ha
5. From category “Other protective forests” (according to Bulgarian national forest categorization), the subcategories “Hunting management areas” – 160 312 ha, “Buffer zones around huts, monasteries, etc.” – 7135 ha and “Other – with different ownership” – 39 813 ha are included
6. TOTAL – 3 194 800 ha

The same procedure was used for the other categories in the National reporting table.

3.5 Data for National reporting table T3

FRA 2005 Categories / Designated function	Area (1000 hectares)					
	Primary function			Total area with function		
	1990	2000	2005	1990	2000	2005
Forest						
Production	2365	2258	NDA	3195	3152	NDA
Protection of soil and water	430	433	NDA	2619	2753	NDA
Conservation of biodiversity	47.3	46.0	NDA	332	320	NDA
Social services	230	223	NDA	306	355	NDA
Multiple purpose	255	415	NDA	not appl.	not appl.	not appl.
No or unknown function	0	0	NDA	not appl.	not appl.	not appl.
Total - Forest	3327	3375	3625	not appl.	not appl.	not appl.
Other wooded land						
Production	0	0	0	0	0	0
Protection of soil and water	0	0	0	0	0	0
Conservation of biodiversity	0	0	0	0	0	0
Social services	130	105	27	130	105	27
Multiple purpose	0	0	0	not appl.	not appl.	not appl.
No or unknown function	0	0	0	not appl.	not appl.	not appl.
Total – Other wooded land	130	105	27	not appl.	not appl.	not appl.

3.6 Comments to National reporting table T3

For 1990 the area of historical sites is 8.069 and it was included into “Social services”.

In 1999 with the adoption of the Protected areas Act some ha of the category “historical sites” were reclassified into “protected sites” category and other part was eliminated.

Data about designated function of Forest in Bulgaria are calculated in every 5 years (1990, 1995, 2000, 2005, etc.) The report about 2005 is not ready up to now.

4 Table T4 – Characteristics of Forest and Other wooded land

4.1 FRA 2005 Categories and definitions

Category	Definition
Primary	Forest / Other wooded land of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.
Modified natural	Forest / Other wooded land of naturally regenerated native species where there are clearly visible indications of human activities.
Semi-natural	Forest / Other wooded land of native species, established through planting, seeding or assisted natural regeneration.
Productive plantation	Forest / Other wooded land of introduced species, and in some cases native species, established through planting or seeding mainly for production of wood or non wood goods.
Protective plantation	Forest / Other wooded land of native or introduced species, established through planting or seeding mainly for provision of services.

4.2 National data

4.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National forest fund report (NFB)	H	Protected native forests; Virgin forests; Native forest with production designation; Introduced species; Recreational forest (introduced and native species mixed)	Since 1955	

4.2.2 Classification and definitions

National class	Definition
Protected native forests	Forest of native species, where the ecological processes are not significantly disturbed
Virgin forests	Forest of native species, where the ecological processes are not significantly disturbed and without human activities
Native forest with production designation	Native species designated for wood production, naturally regenerated

Semi-natural forests	Forestation through planting or seeding assisted by human
Introduced species	Introduced species designated for wood production or non wood forest products established through planting or seeding
Recreational forest (introduced and native species mixed)	Introduced and native species with recreational designation

4.2.3 Original data

National class	1990	2000	1990	2000	2005
	Forests (1000ha)		Other wooded land (1000ha)		
Protected native forests	131.551	245.159			
Virgin forests	135.834	150.62			
Native forest with production designation	2027.575	2046.358			
Semi-natural forests	991.613	885.255	130.08	104.73	27.255
Introduced species	21.902	30.722			
Recreational forest (introduced and native species mixed)	18.552	17.003			
TOTAL	3327.027	3375.117	130.08	104.73	27.255

4.3 Analysis and processing of national data

4.3.1 Calibration

4.3.2 Estimation and forecasting

Data about characteristics of Forests and Other Wooded Land in Bulgaria are calculated in every 5 years (1990, 1995, 2000, 2005, etc.) The report about 2005 is not ready up to now.

4.4 Reclassification into FRA 2005 classes

	Primary	Modified natural	Semi-natural	Productive plantation	Protective plantation
Protected native forests	100%				
Virgin forests	100%				
Native forest with production designation		100%			
Semi-natural forests			100%		
Introduced species				100%	
Recreational forest (introduced and native species mixed)					100%

4.5 Data for National reporting table T4

FRA 2005 Categories	Area (1000 hectares)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Primary	267	396	NDA	0	0	0
Modified natural	2028	2046	NDA	0	0	0
Semi-natural	992	885	NDA	130	105	27
Productive plantation	21.9	30.7	NDA	0	0	0
Protective plantation	18.6	17.0	NDA	0	0	0
TOTAL	3327	3375	3625	130	105	27

4.6 Comments to National reporting table T4

Data about characteristics of Forests and Other Wooded Land in Bulgaria are calculated in every 5 years (1990, 1995, 2000, 2005, etc.) The report about 2005 is not ready up to now.

5 Table T5 – Growing stock

5.1 FRA 2005 Categories and definitions

Category	Definition
Growing stock	Volume over bark of all living trees more than X cm in diameter at breast height (or above buttress if these are higher). Includes the stem from ground level or stump height up to a top diameter of Y cm, and may also include branches to a minimum diameter of W cm.
Commercial growing stock	The part of the growing stock of species that are considered as commercial or potentially commercial under current market conditions, and with a diameter at breast height of Z cm or more.

5.2 National data

5.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National forest fund report	H	Growing stock	Since 1955	

5.2.2 Classification and definitions

National class	Definition
Growing stock	Volume over bark of all living trees higher than 3m with branches
Commercial growing stock	Growing stock of the trees considered as commercial (no legal, economic or other specific restrictions on harvesting exist) No minimum dimension of z cm exist (refer to the national class growing stock definition)

5.2.3 Original data

FRA 2005 Categories	Volume (1000 cubic meters over bark)		
	Forest		
	1990	2000	2005
Growing stock	404 872	526 063	568 078
Commercial growing stock	259 175	321 058	346 528

The 2005 growing stock data were derived from latest data from 31.12.2004 from National forest fund report.

5.3 Analysis and processing of national data

As original data are available for all three reporting years, there is no need for further processing of national data.

5.4 Data for National reporting table T5

FRA 2005 Categories	Volume (million cubic meters over bark)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Growing stock	405	526	568	NDA	NDA	NDA
Commercial growing stock	259	321	347	NDA	NDA	NDA

Specification of country threshold values	Unit	Value	Complementary information
1. Minimum diameter at breast height of trees included in Growing stock (X)	cm	0	Trees above 3 m height
2. Minimum diameter at the top end of stem (Y) for calculation of Growing stock	cm	0	
3. Minimum diameter of branches included in Growing stock (W)	cm	0	All branches included
4. Minimum diameter at breast height of trees in Commercial growing stock (Z)	cm	0	Trees above 3 m height
5. Volume refers to “Above ground” (AG) or “Above stump” (AS)	AG / AS	AG	
6. Have any of the above thresholds (points 1 to 4) changed since 1990	Yes/No	No	
7. If yes, then attach a separate note giving details of the change	Attachment	No	

6 Table T6 – Biomass stock

6.1 FRA 2005 Categories and definitions

Category	Definition
Above-ground biomass	All living biomass above the soil including stem, stump, branches, bark, seeds, and foliage.
Below-ground biomass	All living biomass of live roots. Fine roots of less than 2mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter.
Dead wood biomass	All non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.

6.2 National data

6.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National forest fund report	H	Growing stock	Since 1955	
IPCC Good Practice Guidance	H	WD, BEFs, R,		

6.2.2 Classification and definitions

National class	Definition
Above ground biomass	The same as FRA category
Below ground biomass	The same as FRA category
Dead wood biomass	The same as FRA category

6.2.3 Original data

Data from table T5 were used as input.

6.3 Analysis and processing of national data

All calculations are done according to IPCC Good Practice Guidance and FRA Guidelines.

In the following table the growing stock data used for calculations are from year 2000

Species	Growing stock (million m3 over bark)	Basic density (tonnes/m3)	Stem biomass (million tonnes)	Biomass Exp. Fact.	A.G biomass (million tonnes)	Root-Shoot Ratio	B.G biomass (million tonnes)
Pinus sylvestris + Pinus nigra	167.95	0.42	70.54	1.3	91.7	0.32	29.34
Fagus sylvatica	130.12	0.58	75.46	1.4	105.64	0.26	27.47
Quercus sp. +Remainder of species	111.59	0.58	64.72	1.4	90.61	0.35	31.71
Picea abies	42.61	0.40	17.04	1.3	22.15	0.46	10.19
Quercus cerri	32.48	0.58	18.84	1.4	26.38	0.43	11.34
Carpinus betulus	20.50	0.63	12.92	1.4	18.08	0.43	7.77
Abies alba	10.81	0.40	4.32	1.3	5.62	0.46	2.59
Tilia sp.	8.20	0.43	3.53	1.3	4.59	0.43	1.97
Populus sp.	1.80	0.35	0.63	1.3	0.82	0.43	0.35
TOTAL	526.06				365.59		122.73

6.3.1 Estimation and forecasting

In order to estimate the biomass stocks for 1990 and 2005, weighted conversion factors were calculated. These weighted factors are ratios between biomass and growing stock

$$WCF_{agb} = 365.59 / 526.063 = 0.695$$

$$WCF_{bgb} = 122.73 / 526.063 = 0.233$$

Calculation of AGB and BGB for 1990:

$$AGB_{1990} = 404.872 \times 0.695 = 281.39$$

$$BGB_{1990} = 404.872 \times 0.233 = 94.34$$

Calculation of AGB and BGB for 2005:

$$AGB_{2005} = 568.078 \times 0.695 = 394.81$$

$$BGB_{2005} = 568.078 \times 0.233 = 132.36$$

6.4 Data for National reporting table T6

FRA 2005 Categories	Biomass (million metric tonnes oven-dry weight)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Above-ground biomass	281	366	395	NDA	NDA	NDA
Below-ground biomass	94	123	132	NDA	NDA	NDA
Dead wood biomass	ID	ID	ID	NDA	NDA	NDA
TOTAL	376	488	527	NDA	NDA	NDA

7 Table T7 – Carbon stock

7.1 FRA 2005 Categories and definitions

Category	Definition
Carbon in above-ground biomass	Carbon in all living biomass above the soil, including stem, stump, branches, bark, seeds, and foliage.
Carbon in below-ground biomass	Carbon in all living biomass of live roots. Fine roots of less than 2 mm diameter are excluded, because these often cannot be distinguished empirically from soil organic matter or litter.
Carbon in dead wood biomass	Carbon in all non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.
Carbon in litter	Carbon in all non-living biomass with a diameter less than a minimum diameter chose by the country for lying dead (for example 10 cm), in various states of decomposition above the mineral or organic soil. This includes the litter, fomic, and humic layers.
Soil carbon	Organic carbon in mineral and organic soils (including peat) to a specified depth chosen by the country and applied consistently through the time series.

7.2 National data

7.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National reporting table T6	H	Growing stock	1990 2000 2005	
IPCC Good Practice Guidance	H	WD, BEFs, R,		

7.2.2 Classification and definitions

National class	Definition
Carbon in above ground biomass	The same as FRA category
Carbon in below ground biomass	The same as FRA category

7.2.3 Original data

Data from table T6 were used as input.

7.3 Analysis and processing of national data

The calculation of carbon stock was made using the method provided by IPCC Good Practice Guidance, applying the default factor of 0.5 to convert biomass stocks to carbon stocks.

7.4 Data for National reporting table T7

FRA 2005 Categories	Carbon (Million metric tonnes)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Carbon in above-ground biomass	141	183	197			
Carbon in below-ground biomass	47	61	66			
Sub-total: Carbon in living biomass	188	244	264			
Carbon in dead wood	ID	ID	ID			
Carbon in litter	ID	ID	ID			
Sub-total: Carbon in dead wood and litter	ID	ID	ID			
Soil carbon to a depth of _____ cm	ID	ID	ID			
TOTAL CARBON	ID	ID	ID			

8 Table T8 – Disturbances affecting health and vitality

8.1 FRA 2005 Categories and definitions

Category	Definition
Disturbance by fire	Disturbance caused by wildfire, independently whether it broke out inside or outside the forest/OWL.
Disturbance by insects	Disturbance caused by insect pests that are detrimental to tree health.
Disturbance by diseases	Disturbance caused by diseases attributable to pathogens, such as a bacteria, fungi, phytoplasma or virus.
Other disturbance	Disturbance caused by other factors than fire, insects or diseases.

8.2 National data

8.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National forest fund report	H		Since 1955	
Official fire statistics of National Forestry Board	H	Disturbance by fires	annual	
Forest fires in Europe, EC – JRC, Ispra	H	Disturbance by fires	annual	
Forest protection stations – official statistics (Branches of NFB)	M	Disturbance by insects, disturbance by insects, other	annual	

8.2.2 Classification and definitions

National class	Definition
Disturbance by fire	Disturbance by fire caused human or natural activities
Disturbance by insects	Disturbance caused by insect pests
Disturbance by diseases	Disturbance caused by fungi, bacteria, etc.
Other disturbance	Disturbance caused by other factors than fire, insects or diseases.

Note: If different national data sources use different classes and definitions, a table such as above is needed for each relevant data source.

8.2.3 Original data

FORESTS	1988 (000 ha)	1989 (000 ha)	1990 (000 ha)	1991 (000 ha)	1992 (000 ha)	5-year average (000 ha)
Disturbance by fire	0.462	0.223	1.012	0.471	4.154	1.2644
Disturbance by insects	89.657	99.117	112.424	97.846	118.660	103.54
Disturbance by diseases	43.128	55.512	51.131	51.752	59.099	52.1
Other disturbance	9.28	8.428	8.645	5.342	13.501	9.04

OTHER WOODED LAND	1988 (000 ha)	1989 (000 ha)	1990 (000 ha)	1991 (000 ha)	1992 (000 ha)	5-year average (000 ha)
Disturbance by fire	NDA	NDA	0.029	0.040	1.089	0.386

FORESTS	1998 (000 ha)	1999 (000 ha)	2000 (000 ha)	2001 (000 ha)	2002 (000 ha)	5-year average (000 ha)
Disturbance by fire	6.060	4.198	37.431	18.463	5.910	14.4124
Disturbance by insects	311.254	235.079	152.045	150.717	82.431	186.31
Disturbance by diseases	26.128	26.085	29.248	39.306	60.696	36.29
Other disturbance	22.852	26.934	33.832	18.777	11.063	22.6916

OTHER WOODED LAND	1998 (000 ha)	1999 (000 ha)	2000 (000 ha)	2001 (000 ha)	2002 (000 ha)	5-year average (000 ha)
Disturbance by fire	0.907	4.093	19.975	1.689	0.603	5.4534

8.3 Analysis and processing of national data

8.3.1 Estimation and forecasting

Figures are available for both reporting years – no estimation is needed

The data are five years averages: for 1990 (1988-1992) and for 2000 (1998 – 2002)

	Average annual area affected (1000 hectares)			
	Forests		Other wooded land	
	1990 (5-year average 1988 -1992)	2000 (5-year average 1998-2002)	1990 (5-year average 1988 -1992)	2000 (5-year average 1998 -2002)
Disturbance by fire	1.2644	14.4124	0.386	5.4534
Disturbance by insects	104	186	NDA	NDA
Disturbance by diseases	52	36	NDA	NDA
Other disturbance	9	23	NDA	NDA

8.4 Reclassification into FRA 2005 classes

Not needed

8.5 Data for National reporting table T8

FRA-2005 Categories	Average annual area affected (1000 hectares)			
	Forests		Other wooded land	
	1990	2000	1990	2000
Disturbance by fire	1.26	14.4	0.386	5.45
Disturbance by insects	104	186	NDA	NDA
Disturbance by diseases	52	36	NDA	NDA
Other disturbance	9	23	NDA	NDA

8.6 Comments to National reporting table T8

There is an increase of forest and other wooded land fires in the country in the period 1998 – 2002. Also there is an increase of disturbances by insects and other disturbances in both periods. That's why the proportions of the disturbed area are so high.

“Other disturbances” are abiotic (wind throw, snow throw, etc.) and anthropogenic disturbances. Anthropogenic includes disturbances caused by the waste water from the sewage treatment plants (illegal logging or over-exploitation of the forest is not included).

9 Table T9 – Diversity of tree species

9.1 FRA 2005 Categories and definitions

Category	Definition
Number of native tree species	The total number of native tree species that have been identified within the country.
Number of critically endangered tree species	The number of native tree species that are classified as “Critically endangered” in the IUCN red list.
Number of endangered tree species	The number of native tree species that are classified as “Endangered” in the IUCN red list.
Number of vulnerable tree species	The number of native tree species that are classified as “Vulnerable” in the IUCN red list.

9.2 National data

9.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National forest fund report	H	Number of native species	Since 1955	
IUCN red list	H	Critically endangered species, Endangered species, Vulnerable species		

9.2.2 Classification and definitions

9.2.3 Original data

According to IUCN red list (IUCN website) there are no vulnerable, endangered or critically endangered tree species in Bulgaria.

9.3 Data for National reporting table T9

FRA 2005 Categories	Number of species (year 2000)
Native tree species	128
Critically endangered tree species	0
Endangered tree species	0
Vulnerable tree species	0

9.4 Comments to National reporting table T9

10 Table T10 – Growing stock composition

10.1 National data

10.1.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National forest fund report	H	Growing stock	Since 1955	

10.1.2 Original data

Species name (Scientific name and common name)	Growing Stock in Forests (million cubic meters)	
	1990	2000
<i>Fagus sylvatica</i> - beech	107.33	130.12
<i>Pinus sylvestris</i> - Scots pine	85.242	114.4
<i>Quercus sp.</i> – oak	63.9	76.92
<i>Pinus nigra</i> - black pine	21.98	53.55
<i>Picea abies</i> – Norway spruce	35.051	42.61
<i>Quercus cerris</i> - bitter oak	25.79	32.48
<i>Carpinus betulus</i> - hornbeam	23.93	20.5
<i>Abies alba</i> - silver fir	10.428	10.81
<i>Tilia sp.</i> - lime	6.28	8.2
<i>Populus sp.</i> - Poplar	1.97	1.8
Remainder of species	22.971	34.67
TOTAL	404.872	526.063

10.2 Analysis and processing of national data

10.2.1 Estimation and forecasting

Figures are available for both reporting years – no estimation is needed

10.3 Data for National reporting table T10

FRA 2005 Categories / Species name (Scientific name and common name)	Growing Stock in Forests (million cubic meters)	
	1990	2000
<i>Fagus sylvatica</i> - beech	107.3	130.1
<i>Pinus sylvestris</i> – Scots pine	85.2	114.4
<i>Quercus sp.</i> – oak	63.9	76.9
<i>Pinus nigra</i> - black pine	22.0	53.6
<i>Picea abies</i> – Norway spruce	35.1	42.6
<i>Quercus cerris</i> - bitter oak	25.8	32.5
<i>Carpinus betulus</i> - hornbeam	23.9	20.5
<i>Abies alba</i> - silver fir	10.4	10.8
<i>Tilia sp.</i> - lime	6.3	8.2
<i>Populus sp.</i> - Poplar	2.0	1.8
Remainder of species	23.0	34.7
TOTAL	404.9	526.1

11 Table T11 – Wood removal

11.1 FRA 2005 Categories and definitions

Category	Definition
Industrial wood removal	The wood removed (volume of roundwood over bark) for production of goods and services other than energy production (woodfuel).
Woodfuel removal	The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

11.2 National data

11.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National Forestry Board – annual report	H	Industrial roundwood, woodfuel	annual	

11.2.2 Classification and definitions

National class	Definition
Industrial roundwood	The same as FRA category
Woodfuel	The same as FRA category

11.2.3 Original data

FORESTS	Volume in 1000 m3 of roundwood over bark						
	1990	1998	1999	2000	2001	2002	2000 (average 1998 -2002)
Industrial roundwood	2457	3444	3168	2745	2117	2522	2799
Woodfuel	943	1051	1090	984	809	961	979
TOTAL for Country	3400	4495	4258	3729	2926	3483	3778

There are no data available for 1988, 1989 and the period 1991 – 1997.

11.3 Analysis and processing of national data

11.3.1 Estimation and forecasting

The figure for 1990 has been used directly. For 2000 the average for the period 1998-2002 was used. For 2005, the industrial roundwood and woodfuel removal is estimated as the removals planned at the beginning of the year by National Forestry Board.

11.4 Reclassification into FRA 2005 classes

	Industrial roundwood removal	Woodfuel removal
Industrial roundwood	100%	
Woodfuel		100%

11.5 Data for National reporting table T11

FRA 2005 Categories	Volume in 1000 cubic meters of roundwood over bark					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Industrial roundwood	2457	2799	3075	NDA	NDA	NDA
Woodfuel	943	979	1125	NDA	NDA	NDA
TOTAL for Country	3400	3778	4200	NDA	NDA	NDA

12 Table T12 – Value of wood removal

12.1 FRA 2005 Categories and definitions

Category	Definition
Value of industrial wood removal	Value of the wood removed for production of goods and services other than energy production (woodfuel).
Value of woodfuel removal	Value of the wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

12.2 National data

12.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National Forestry Board – annual report	H	Industrial roundwood, woodfuel	annual	

12.2.2 Classification and definitions

National class	Definition
Value of industrial wood removal	The same as FRA category
Value of woodfuel removal	The same as FRA category

12.2.3 Original data

For 1990, the following data on the value of roundwood removal are available:

Category	1000 USD
Value of industrial roundwood	46683
Value of woodfuel	1864
TOTAL for Country	48547

Data for the period 1998 – 2002:

Category	Total value of roundwood removal (1000 leva)				
	1998	1999	2000	2001	2002
Industrial roundwood	128 934	126 643	33 818	43 345	51 184
Woodfuel	520	6 788	4 920	5 302	6 382
TOTAL for Country	129 454	133 431	38 738	48 647	57 566

The following exchange rates were used (leva / USD)

1998	1999	2000	2001	2002
1.675099	1.9469	2.101903	2.219299	1.885004

12.3 Analysis and processing of national data

Applying the exchange rates to the annual data for the period 1998-2002 gives the following values in USD

FORESTS	Value of roundwood removal (1000 USD)					
	1998	1999	2000	2001	2002	2000 (average 1998 -2002)
Industrial roundwood	76 971	65 049	16 089	19 531	27 153	40 959
Woodfuel	310	3 486	2 341	2 389	3 395	2 385
TOTAL for Country	77 281	68 535	18 430	21 920	30 548	43 343

12.3.1 Estimation and forecasting

2005 data - the industrial roundwood and woodfuel removal is planned at the beginning of every year by National Forestry Board.

12.4 Reclassification into FRA 2005 classes

Not needed

12.5 Data for National reporting table T12

FRA 2005 Categories	Value of roundwood removal (1000 USD)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Industrial roundwood	46683	40 959	44637	NDA	NDA	NDA
Woodfuel	1864	2385	10887	NDA	NDA	NDA
TOTAL for Country	48547	43 343	55524	NDA	NDA	NDA

12.6 Comments to National reporting table T12

2005 data - the industrial roundwood and woodfuel removal is planned at the beginning of every year by National Forestry Board.

The increase is because of the total size of the wood utilization and is due to the fact, that from the beginning of 2005 a new tariff taxes for wood stumpage (especially there is a big difference for deciduous woodfuel) The tariff taxes are the main component by the process of price formation. In the middle of 1999 there was a denomination in Bulgarian currency (lev) – three “000” were removed.

13 Table T13 – Non-wood forest product removal

No data available.

14 Table T14 – Value of non-wood forest product removal

No data available.

15 Table T15 – Employment in forestry

15.1 FRA 2005 Categories and definitions

Category	Definition
Primary production of goods	Employment in activities related to primary production of goods, like industrial roundwood, woodfuel and non-wood forest products.
Provision of services	Employment in activities directly related to services from forests and woodlands.
Unspecified forestry activities	Employment in unspecified forestry activities.

15.2 National data

15.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National Forestry Board – annual report	H	Employment data	2000	

15.2.2 Classification and definitions

National class	Definition
State forestry administration	All state administration in forestry sector
Wood production employees	Employees in wood production and other wood wares (without furniture industry) ()
Silvicultural employees	Employees of subcontractor in silvicultural activities ()
Employees in forest management	Employees in forest management activities such as taxations, forest marking, etc. ()

15.2.3 Original data

	2000
State forestry administration*	9 239
Wood production employees	16 062
Silvicultural employees	7 780
Employees in forest management	1 289

*From which 80 persons are working in Nature parks (biodiversity conservation, protection of forests, etc.)

The figure on wood production does not include wood processing (sawmilling). It includes only logging and other activities within the forest.

15.3 Reclassification into FRA 2005 classes

The category provision of services relates to conservation, protection and recreation.

15.4 Data for National reporting table T15

FRA 2005 Categories	Employment (1000 person-years)	
	1990	2000
Primary production of goods	ID	33.001
Provision of services	ID	1.369
Unspecified forestry activities	ID	34.370
TOTAL	ID	34.370

15.5 Comments to National reporting table T15

The data are from the statistics of the National Forestry Board (2000) – an official report. They are different from the data of ILO statistics.