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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
1985. Long term forestry development program	M	Forest areas	1985	Primary source
Forest inventory	M	State areas	1990	Primary source
State forest enterprise "Srpske Sume"; Annual report 1999-2003	H	Forest areas in Republic of Srpska	2000	Primary source
Ministry for agriculture, water management and forestry of F BiH	L	Forest areas in Federation of BiH	2000	Secondary source
FAOSTAT	H	Inland water	1990, 2000, 2005	

1.2.2 Classification and definitions

National class	Definition
Forest	Area of all types of forests
Other wooded land	Land not classified as “Forest”, with a combined cover of shrubs, bushes and trees. 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”.
Inland water bodies	Inland water bodies generally include major rivers, lakes and water reservoirs.

1.2.3 Original data

National Categories	Area (1000 hectares)
	1985
Forest	2210
Other wooded land	500
Other land	2363
...of which with tree cover ¹⁾	NDA
Inland water bodies	47
TOTAL	5120

National Categories	Area (1000 hectares) in Republic of Srpska in year 2000		
	State	Private	Total
Forest	813	258	1071
Other wooded land	160	19	179
Other land			1255
...of which with tree cover			NDA
Inland water bodies			NDA
TOTAL			2505

National Categories	Area (1000 hectares) in Federation of Bosnia and Herzegovina in year 2000		
	State	Private	Total
Forest	905		905
Other wooded land	301		301
Forest and other wooded land		278	278
Other land			1131
...of which with tree cover			NDA
Inland water bodies			NDA
TOTAL			2615

1.3 Analysis and processing of national data

1.3.1 Calibration

There is no calibration needed.

1.3.2 Estimation and forecasting

The 1985 data is used for reporting year 1990. It is not possible to estimate extent of forest area by using the data from year 1990, because of influence of factors (civil war 1992-1995) that are not measurable. But using the available data from last five years there are no any significant changes of area under forest and other wooded land between 2000 and 2005.

1.4 Reclassification into FRA 2005 classes

	Forest	Other wooded land
Forest and other wooded land	75%	25%

The reclassification applies to the National category “Private forest and other wooded land” in Federation of Bosnia and Herzegovina for year 2000, giving the following result:

	Area in 1000 ha for Federation of BiH in 2000			Area in 1000 ha for Republic of Srpska in 2000			TOTAL
	State	Private	Total	State	Private	Total	
Forests	905	209	1114	813	258	1071	2185
OWL	301	69	370	160	19	179	549

1.5 Data for National reporting table T1

FRA 2005 Categories	Area (1000 hectares)		
	1990	2000	2005
Forest	2210	2185	2185
Other wooded land	500	549	549
Other land	2363	2339	2339
...of which with tree cover	NDA	NDA	NDA
Inland water bodies	47	47	47
TOTAL	5120	5120	5120

1.6 Comments to National reporting table T1

Data for inland water bodies were taken from FAOSTAT.

It must be underlined that data for private sector in forestry are weak, and some of those data are based on estimation. This should be considered for all reporting tables that require data from the private sector.

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
Long term forestry development program	M	Ownership of Forest and Other wooded land	1990	Primary source
State forest enterprise "Srpske Sume"; Annual report	H	Ownership of Forest and Other wooded land	2000	Primary source
Ministry for agriculture, water management and forestry of F BiH	M	Ownership of Forest and Other wooded land	2000	Secondary source

2.2.2 Classification and definitions

National class	Definition
Private ownership	Land owned by individuals, families and other private institutions.
State ownership	Land owned by the State (national, state and regional governments) or government-owned institutions or corporations or other public bodies.

2.2.3 Original data

	Area in 1000 ha for BiH in 1990		
	Total	State	Private
Forests	2210	1807	403
OWL	500	380	120

	Area in 1000 ha for Republic of Srpska in 2000		
	Total	State	Private
Forests	1071	813	258
OWL	179	160	19

	Area in 1000 ha for Federation of BiH in 2000		
	Total	State	Private
Forests	1114	905	
OWL	370	301	
Forests and OWL			278

2.3 Reclassification into FRA 2005 classes

FRA 2005 Categories	Forest	Other wooded land
National categories		
Forests and OWL	75%	25%

The reclassification applies to the National category “Private forest and other wooded land” in Federation of Bosnia and Herzegovina for year 2000:

FRA 2005 Categories	Area in 1000 ha for Federation of BiH in 2000		
	State	Private	Total
Forests	905	209	1114
OWL	301	69	370

2.4 Data for National reporting table T2

FRA 2005 Categories	Area (1000 hectares)			
	Forest		Other wooded land	
	1990	2000	1990	2000
Private ownership	403	467	120	88
Public ownership	1807	1718	380	461
Other ownership	0	0	0	0
TOTAL	2210	2185	500	549

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
Long term forestry development program	L	Designated function of forests	1990	Primary source
Forest inventory	L	Designated function of forests	1990	Primary source
State forest enterprise "Srpske Sume"	L	Designated function of forests	2000	Secondary source
Ministry for agriculture, water management and forestry of F BiH	L	Designated function of forests	2000	Secondary source

3.2.2 Classification and definitions

National class	Definition
High forests	Forests with natural regeneration (degradation forests included)
Low forests	Forest with regeneration from roots
Other wooded area	Land not classified as "Forest", with a combined cover of shrubs, bushes and trees. It does not include land that is predominantly under agricultural or urban land use.
Plantation	Forests established through planting or seeding mainly for production of wood or non wood goods.

3.2.3 Original data

National categories (BiH) 1990	1000 ha	National categories (R S) 2000	Rep. S 1000 ha	F BiH 1000 ha	Total (2000) 1000 ha
High forests	1292	High forests	562	643	1205
Low forests	918	Low forests	440	398	838
Other wooded area	500	Other wooded area	179	370	549
		Plantations	69	73	142
Total	2710		1250	1484	2734

In addition, an estimated 139 000 ha of forests were designated for protection of soil and water in 1990 and 25 000 ha for conservation of biological diversity in 1990 and 20 000 in 2000 (Author's estimates).

3.3 Reclassification into FRA 2005 classes

High forests → 90% production and 10% unknown function

Plantations → 100% production

Protection areas → 100% protection of soil and water

Conservation areas → 100% Conservation of biodiversity

Remaining forests → 100% unknown function

Other wooded area → 100% no or unknown function

3.4 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	1163	1226	1226	NDA	NDA	NDA
Protection of soil and water (1)	139			NDA	NDA	NDA
Conservation of biodiversity (2)	25	20	NDA	NDA	NDA	NDA
Social services				NDA	NDA	NDA
Multiple purpose				not appl.	not appl.	not appl.
No or unknown function	883	939	959	not appl.	not appl.	not appl.
Total - Forest	2210	2185	2185	not appl.	not appl.	not appl.
Other wooded land						
Production				NDA	NDA	NDA
Protection of soil and water				NDA	NDA	NDA
Conservation of biodiversity				NDA	NDA	NDA
Social services				NDA	NDA	NDA
Multiple purpose				not appl.	not appl.	not appl.
No or unknown function	500	549	549	not appl.	not appl.	not appl.
Total – Other wooded land	500	549	549	not appl.	not appl.	not appl.

(1) There is data about protective forests in forest inventory, but there is not possible to reclassify because of different methodology used. Data for this table is very weak and it is mostly based on author's estimation.

(2) There is an initiative for registration of several nominated area. Those are areas for protection of biodiversity. There is ca. 8.3 ha nominated for protection in Republic of Srpska.

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
Long term forestry development program	L	Characteristics of forests	1990	Primary source
Forest inventory	L	Characteristics of forests	1990	Primary source
State forest enterprise "Srpske Sume"	L	Characteristics of forests	2000	Primary source
Ministry for agriculture, water management and forestry F BiH	L	Characteristics of forests	2000	Secondary source

4.2.2 Classification and definitions

National class	Definition
Virgin forest	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.
Forests with natural regeneration	Forest of naturally regenerated native species where there are clearly visible indications of human activities.
Plantation	Forest of introduced species, and in some cases native species, established through planting or seeding mainly for production of wood or non wood goods.
Low and degradation forests	Forests with assisted regeneration
High forests	Forests with natural regeneration (degradation forests included)
Low forests	Forest with regeneration from roots
Other wooded land	Land not classified as "Forest", with a combined cover of shrubs, bushes and trees. It does not include land that is predominantly under agricultural or urban land use.

4.2.3 Original data

Forest areas in BiH (1000 ha)	1990
High forests	1292
Low forests	918
OWL	500
Total	2710

Forest areas in RS (1000 ha)	2000
Virgin forest	2
Forests with natural regeneration	542
Plantation	69
Low and degradation forests	458
OWL	179
Total	1250

Forest areas in F BiH (1000 ha)	2000
Forests with natural regeneration	642
Plantation	73
Low and degradation forests	399
OWL	370
Total	1484

4.3 Reclassification into FRA 2005 classes

National class	FRA 2005 Categories Area (1000 hectares)					
	Forest			Other wooded land		
	Primary	Modified natural	Semi-natural	Productive plantation	Protective plantation	
Virgin forest	100%					
Forests with natural regeneration		100%				
Plantation				100%		
Low and degradation forests			100%			
High forests		90%	10%			
Low forests			100%			
Other wooded land		100%				

4.4 Data for National reporting table T4

FRA 2005 Categories	Area (1000 hectares)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Primary		2	2			
Modified natural	1163	1184	1184	500	549	549
Semi-natural	1047	857	857			
Productive plantation		142	142			
Protective plantation						
TOTAL	2210	2185	2185	500	549	549

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
Long term forestry development program	L	Growing stock	1990	Primary source
Forest inventory	L	Growing stock	1990	Primary source
State forest enterprise "Srpske Sume"	M	Growing stock	2000	Primary source
Ministry for agriculture, water management and forestry of F BiH	L	Growing stock	2000	Secondary source

5.2.2 Classification and definitions

National class	Definition
Growing stock	Volume over bark of all living trees more than 10 cm in diameter at breast height. Includes the stem from ground level or stump height up to a top diameter of 7 cm, and may also include branches to a minimum diameter of 3 cm.
Growing stock of commercial species	The part of the growing stock of species that are considered as commercial, and with a diameter at breast height of 10 cm or more.

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

5.2.3 Original data

Growing stock in BiH 1990	million cubic meters
Growing stock	291
Growing stock of commercial species	NDA

Growing stock in RS 2000	million cubic meters
Growing stock	191
Growing stock of commercial species	NDA

Growing stock in F BiH 2000	million cubic meters
Growing stock	167
Growing stock of commercial species	NDA

5.3 Analysis and processing of national data

Estimation of growing stock for private forests in F BiH is 18% of growing stock for state forests. By analyzing the data for growing stock composition, it is estimated that commercial growing stock is 20% less than total growing stock.

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	291	358	391	NDA	NDA	NDA
Commercial growing stock	239	286	313	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	0 cm for low forests and 5 cm for high forests
2. Minimum diameter at the top end of stem (Y) for calculation of Growing stock	cm		
3. Minimum diameter of branches included in Growing stock (W)	cm		
4. Minimum diameter at breast height of trees in Commercial growing stock (Z)	cm		
5. Volume refers to “Above ground” (AG) or “Above stump” (AS)	AG / AS	AS	
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		

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

Growing stock data from table T5 has been used as input.

6.3 Analysis and processing of national data

The following conversion factors have been used:

Wood density = 0.40 for coniferous, and 0.58 for broadleaves

BEF = 0.32 for coniferous, and 0.26 and 0.35 for broadleaves

Root-shoot ratio = 1.3 for coniferous, and 1.4 for broadleaves

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	205	252	275	NDA	NDA	NDA
Below-ground biomass	57	70	76	NDA	NDA	NDA
Dead wood biomass	ID	ID	ID	NDA	NDA	NDA
TOTAL	262	322	351	NDA	NDA	NDA

Thresholds used by the country are the following:

WD = 0.40 for coniferous, and 0.58 for broadleaves

BEF = 0.32 for coniferous, and 0.26 and 0.35 for broadleaves

R = 1.3 for coniferous, and 1.4 for broadleaves

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

Biomass data from table T6 has been used as input.

7.3 Analysis and processing of national data

Carbon stock is calculated by multiplying the IPCC-GPG default value for carbon content of living biomass (50%) with the above-ground biomass and below-ground biomass respectively.

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	102.5	126	137.5	NDA	NDA	NDA
Carbon in below-ground biomass	28.5	35	38	NDA	NDA	NDA
Sub-total: Carbon in living biomass	131	161	175.5	NDA	NDA	NDA
Carbon in dead wood	NDA	NDA	NDA	NDA	NDA	NDA
Carbon in litter	NDA	NDA	NDA	NDA	NDA	NDA
Sub-total: Carbon in dead wood and litter	NDA	NDA	NDA	NDA	NDA	NDA
Soil carbon to a depth of _____ cm	NDA	NDA	NDA	NDA	NDA	NDA
TOTAL CARBON	NDA	NDA	NDA	NDA	NDA	NDA

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
State institute for statistic; yearbook 1992	M	Disturbances affecting health and vitality	1990	Primary source
Institute for statistic of Republika Srpska; Statistical Bulletin 2004	H	Disturbances affecting health and vitality	2000	Primary source
Federal office of statistic; Statistical yearbooks 2001 and 2003	M	Disturbances affecting health and vitality	2000	Primary source

8.2.2 Classification and definitions

National class	Definition
Disturbance by fire	Disturbance caused by wildfire, independently whether it broke out inside or outside the forest/OWL in state forests.
Disturbance by insects and diseases	Disturbance caused by insect pests that are detrimental to tree health, and disturbance caused by diseases attributable to pathogens, such as a bacteria, fungi, phytoplasma or virus in state forests.
Disturbance by man	Disturbance caused by human activities in state forests
Disturbance by natural disasters	Disturbance caused by natural disasters other than fire, insects or diseases in state forests.

8.2.3 Original data

Year	Disturbances (cubic meters) in BiH				
	By fire	By insects	By man	By diseases	By natural disasters
1987	28766	27670	24565	39505	57544
1988	9943	36739	35438	36194	72536
1989	2779	34912	39882	47964	71285
1990	1391	32774	75926	21219	50489
1991	4557	28750	61730	31503	43815
Average	9487	32169	47508	35277	59133

Year	Disturbances (ha) in R S			
	By insects and diseases	By man	By fire	By natural disasters
1999	15082	0	57	1276
2000	13506	4	8064	1472
2001	11674	2	5066	1225
2002	2913	102	1426	411
2003	4826	88	18942	219
Average	9600	39	6711	920

Year	Disturbances (cubic meters) in F BiH				
	By fire (ha)	By insects	By man	By diseases	By natural disasters
1998	2909	25071	56727	150	1828
1999	706	29396	63217	921	15282
2000	22756	16802	53791	250	86515
2001	1449	32196	45831	0	3391
2002	1336	5726	60742	32825	1646
Average	5831	21838	56062	6829	21732

Year	Disturbances by fire (ha) on OWL
1998	1632
1999	102
2000	8944
2001	2118
2002	208
Average	2601

8.3 Analysis and processing of national data

8.3.1 Estimation and forecasting

1990

Disturbances	BiH	
	(cubic meters)	(ha)
By fire	9487	1116
By insects	32169	1787
By man	47508	4751
By diseases	35277	1960
By natural disasters	59133	574

2000

Disturbances	BiH		R S (ha)	Total
	(cubic meters)	(ha)		
By fire		5831	6711	12542
By insects	21838	1213	8640*	9853
By man	56062	5606	39	5645
By diseases	6829	379	960*	1339
By natural disasters	21732	211	920	1131

* By using the data for cut volume of trees damaged by insects and diseases for Republic of Srpska, it was calculated that insects cause 90% and diseases cause 10% of damage.

8.4 Reclassification into FRA 2005 classes

National class	FRA-2005 Categories			
	Disturbance by fire	Disturbance by insects	Disturbance by diseases	Other disturbance
By fire	100%	0%	0%	0%
By insects	0%	100%	0%	0%
By diseases	0%	0%	100%	0%
By natural disasters	0%	0%	0%	100%
By insects and disasters	0%	90%	10%	0%

Disturbance by man is not included in the reporting for FRA 2005.

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	1.12	12.5	NDA	2.60
Disturbance by insects	1.79	9.85	NDA	NDA
Disturbance by diseases	1.96	1.34	NDA	NDA
Other disturbance	1.12	1.13	NDA	NDA

8.6 Comments to National reporting table T8

Data for 1990 are only available for Federation of Bosnia and Herzegovina.

Data for disturbance by fire on other wooded land is only for Federation of Bosnia and Herzegovina, it is possible that in Republic of Srpska those data are included in disturbance by fire in forests.

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
Faculty of forestry database	L	Native tree species	2000	Secondary source
IUCN Red List of threatened species	H	Vulnerable species	2000	Secondary source

9.3 Data for National reporting table T9

FRA 2005 Categories	Number of species (year 2000)
Native tree species	97
Critically endangered tree species	0
Endangered tree species	0
Vulnerable tree species	1

The vulnerable listed tree species is *Picea omorica*

10 Table T10 – Growing stock composition

10.1 FRA 2005 Categories and definitions

List of species names (scientific and common names)

10.2 National data

10.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Forest inventory	M	Growing stock composition	1990	Secondary source
Institute for statistic; Statistical bulletin 2003	L	Growing stock composition	2000	Secondary source

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
Fagus silvatica	138	174
Abies alba	63	70
Picea abies	35	50
Quercus petraea	16	20
Pinus nigra	6	8
Pinus silvestris	5	7
Remainder of species	28	29
TOTAL	291	358

10.4 Comments to National reporting table T10

Growing stock data are not available for the more than the six most important species.

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
Statistical yearbook of Republic Bosnia and Herzegovina 1992	H	wood removal	1990	Primary source
Federal office for statistic; Statistical yearbook 2003	H	wood removal	2000	Primary source
Institute for statistic; Statistical bulletin 2003	H	wood removal	2000	Primary source

11.2.2 Classification and definitions

National class	Definition
Industrial wood	The wood removed (volume of roundwood over bark) for chemical processing.
Tehnickal wood	The wood removed (volume of roundwood over bark) for mechanical processing.
Woodfuel	The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

11.2.3 Original data

Wood removal in BiH in 000 cubic meters in year 1990	
Industrial wood	3500
Tehnickal wood	291
Woodfuel	981
Total	4773

Wood removal in RS in 000 cubic meters in year 2000	
Industrial wood	1680
Woodfuel	605
Total	2285

Wood removal in F BiH in 000 cubic meters in year 2000	
Industrial wood	1446
Tehcnical wood	133
Woodfuel	462
Total	2041

11.3 Reclassification into FRA 2005 classes

	FRA 2005 Categories	
	Industrial roundwood	Woodfuel
Industrial wood	100%	
Tehcnical wood	100%	
Woodfuel		100%

11.4 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	3791	3259	2993	NDA	NDA	NDA
Woodfuel	982	1067	1146	NDA	NDA	NDA
TOTAL for Country	4773	4326	4139	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
State forest enterprise "Srpske Sume"; Annual report 1999-2003	M	Value of industrial wood removal	2000	Primary source
Ministry for agriculture, water management and forestry of F BiH	L	Forest areas in Federation of BiH	2000	Secondary source

12.2.2 Original data

Ministry for agriculture, water management and forestry of F BiH, report that value of all wood removal is 285 000 000 \$, and no any other data.

In state forest enterprise "Srpske Sume"; Annual report 1999-2003 there are data about value of all wood removal, and it is 1 730 000 000 \$.

The existing data are considered weak and therefore insufficient data is being reported in this reporting table.

12.3 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	ID	ID	ID	ID	ID	ID
Woodfuel	ID	ID	ID	ID	ID	ID
TOTAL for Country						

13 Table T13 – Non-wood forest product removal

13.1 FRA 2005 Categories and definitions

The following categories of non-wood forest products have been defined:

Category
<u>Plant products / raw material</u>
1. Food
2. Fodder
3. Raw material for medicine and aromatic products
4. Raw material for colorants and dyes
5. Raw material for utensils, handicrafts & construction
6. Ornamental plants
7. Exudates
8. Other plant products
<u>Animal products / raw material</u>
9. Living animals
10. Hides, skins and trophies
11. Wild honey and bee-wax
12. Bush meat
13. Raw material for medicine
14. Raw material for colorants
15. Other edible animal products
16. Other non-edible animal products

13.2 National data

13.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Long term forestry development program	L	Non-wood forest product removal	1990	Secondary source

13.2.2 Classification and definitions

National classes
Medical plants
Forest fruits
Mushrooms
Snails

13.2.3 Original data

National class	Tonnes
Medical plants	356
Forest fruits	4471
Ethereal oil	236
Mushrooms	2670
Snails	222

13.3 Analysis and processing of national data

13.3.1 Estimation and forecasting

Data for non-wood forest products removal are based on a study that estimates possibilities for production of non-wood forest products.

13.4 Reclassification into FRA 2005 classes

National class	FRA 2005 classes				
	FOOD	Raw material for medicine and aromatic products	Other edible animal products		
Medical plants		100%			
Forest fruits	100%				
Mushrooms	100%				
Ethereal oil		100%			
Snails			100%		

13.5 Data for National reporting table T13

FRA 2005 Categories	Unit	NWFP removal		
		1990	2000	2005
<u>Plant products / raw material</u>				
1. Food	tonnes	7140		
2. Fodder				
3. Raw material for medicine and aromatic products	tonnes	590		
4. Raw material for colorants and dyes				
5. Raw material for utensils, handicrafts & construction				
6. Ornamental plants				
7. Exudates				
8. Other plant products				
<u>Animal products / raw material</u>				
9. Living animals				
10. Hides, skins and trophies				
11. Wild honey and bee-wax				
12. Bush meat				
13. Raw material for medicine				
14. Raw material for colorants				
15. Other edible animal products	tonnes	220		
16. Other non-edible animal products				

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

14.1 FRA 2005 Categories and definitions

The following categories of non-wood forest products have been defined:

Category
<u>Plant products / raw material</u>
1. Food
2. Fodder
3. Raw material for medicine and aromatic products
4. Raw material for colorants and dyes
5. Raw material for utensils, handicrafts & construction
6. Ornamental plants
7. Exudates
8. Other plant products
<u>Animal products / raw material</u>
9. Living animals
10. Hides, skins and trophies
11. Wild honey and bee-wax
12. Bush meat
13. Raw material for medicine
14. Raw material for colorants
15. Other edible animal products
16. Other non-edible animal products

14.2 National data

14.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Long term forestry development program	L	Value of non-wood forest product removal	1990	Secondary source

14.2.2 Classification and definitions

National class	Definition
Medical plants	Raw material for medicine
Forest fruits	
Ethereal oil	
Mushrooms	
Snails	

14.2.3 Original data

National class	1000 USD
Medical plants	1748
Forest fruits	3848
Ethereal oil	5869
Mushrooms	17439
Snails	220

14.3 Reclassification into FRA 2005 classes

National class	FRA 2005 classes				
	FOOD	Raw material for medicine and aromatic products	Other edible animal products		
Medical plants		100%			
Forest fruits	100%				
Ethereal oil		100%			
Mushrooms	100%				
Snails			100%		

14.4 Data for National reporting table T14

FRA 2005 Categories	Value of the of NWFP removed (1000 USD)		
	1990	2000	2005
<u>Plant products / raw material</u>			
1. Food	15471		
2. Fodder			
3. Raw material for medicine and aromatic products	7617		
4. Raw material for colorants and dyes			
5. Raw material for utensils, handicrafts & construction			
6. Ornamental plants			
7. Exudates			
8. Other plant products			
<u>Animal products / raw material</u>			
9. Living animals			
10. Hides, skins and trophies			
11. Wild honey and bee-wax			
12. Bush meat			
13. Raw material for medicine			
14. Raw material for colorants			
15. Other edible animal products	220		
16. Other non-edible animal products			
TOTAL	23307		

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
State institute for statistic; yearbook 1992	H	Employers in forestry	1990	Primary source
Institute for statistic of Republika Srpska; Statistical Bulletin 2004	H	Employers in forestry	2000	Primary source
Federal office of statistic; Statistical yearbooks 2001 and 2003	M	Employers in forestry	2000	Primary source

15.2.2 Classification and definitions

National class	Definition
Employers in forest enterprises (total)	Average number of employers for year 1990 in all services (forestry and hunting)
Employers in forestry sector	Average number of employers for year 2000
Employers in hunting sector	Average number of employers for year 2000

15.2.3 Original data

Year	Employers in forest enterprises in thousands (total)
1990	21.9

Year	Employers in forest enterprises in thousands in Republic of Srpska (total)												Average
2000	1	2	3	4	5	6	7	8	9	10	11	12	6097
	6081	6128	6122	6091	6080	6081	6086	6178	6104	6109	6105	6000	
Year	Employers in forest enterprises in thousands in Republic of Srpska (other services)												Average
2000	1	2	3	4	5	6	7	8	9	10	11	12	1198
	1233	1224	1199	1210	1204	1186	1188	1166	1195	1195	1193	1183	

Employers in hunting services in Republic of Srpska (total)	
2002	2003
439	433
Employers in hunting services in Republic of Srpska (other services)	
39	48

Year	Employers in forestry and other services in Federation of Bosnia and Herzegovina
2000	6044

15.3 Analysis and processing of national data

15.3.1 Estimation and forecasting

Employers in hunting services for 2000 in R Srpska is 451 (by using linear interpolation).

15.4 Reclassification into FRA 2005 classes

FRA 2005 Categories	Primary production of goods	Provision of services	Unspecified forestry activities
Employers in forest enterprises in thousands (total)	80%	20%	0%
Employers in forestry sector	80%	20%	0%
Employers in hunting sector	90%	10%	0%

15.5 Data for National reporting table T15

FRA 2005 Categories	Employment (1000 person-years)	
	1990	2000
Primary production of goods	18	10
Provision of services	4	2
Unspecified forestry activities	0	0
TOTAL	22	12

15.6 Comments to National reporting table T15

All employers in forestry sector are classified in two categories: production of goods and provision of services.