

GLOBAL FOREST RESOURCES ASSESSMENT 2015

COUNTRY REPORT

Bulgaria

Rome, 2014

FAO, at the request of its member countries, regularly monitors the world's forests and their management and uses through the Global Forest Resources Assessment (FRA). This country report is prepared as a contribution to the FAO publication, the Global Forest Resources Assessment 2015 (FRA 2015).

The content and the structure are in accordance with the recommendations and guidelines given by FAO in the document Guide for country reporting for FRA 2015 (<http://www.fao.org/3/a-au190e.pdf>). These reports were submitted to FAO as official government documents.

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Introductory Text

Place an introductory text on the content of this report

The assessment is based on the official database of Executive Forest Agency /EFA/, Ministry of agriculture and food - since 1955. EFA is the responsible institution for forestry statistics in the country. The National institute of statistics is also involved in data preparation.

Desk Study?

Check "yes" if this survey is a Desk Study, "no" otherwise	
Desk Study?	no

1. What is the area of forest and other wooded land and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

1.1 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 in situ. 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 ; 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".
...of which with tree cover (<i>sub-category</i>)	Land considered as "Other land", that is predominantly agricultural or urban lands use and has patches of tree cover that span 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. It includes bothe forest and non-forest tree species.
Inland water bodies	Inland water bodies generally include major rivers, lakes and water reservoirs.
Forest expansion	Expansion of forest on land that, until then, was not defined as forest.
...of which afforestation (<i>sub-category</i>)	Establishment of forest through planting and/or deliberate seeding on land that, until then, was not defined as forest.
...of which natural expansion of forest (<i>sub-category</i>)	Expansion of forests through natural succession on land that, until then, was under another land use (e.g. forest succession on land previously used for agriculture).
Deforestation	The conversion of forest to other land use or the longterm reduction of the tree canopy cover below the minimum 10 percent threshold.
...of which human induced (<i>sub-category</i>)	Human induced conversion of forest to other land use or the permanent reduction of the tree canopy cover below the minimum 10 percent threshold.
Reforestation	Natural regeneration or re-establishment of forest through planting and/or deliberate seeding on land already in forest land use.
...of which artificial reforestation (<i>sub-category</i>)	Re-establishment of forest through planting and/or deliberate seeding on land already in forest land use.

1.2 National data

1.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments

1	National forest fund report	Forest Other wooded land Other land Other land with tree cover Inland water bodies Afforestation, reforestation and natural expansion of forests	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.
2	FAOSTAT data	Total area Land area	1990, 2000, 2002	N/A
3	“Agrostatistics – BASINK – final results for the employment and land use in Bulgaria”	Other wooded land ...of which with tree cover	2000 2005	Official report of Ministry of agriculture and food supply 2007 Web information http://www.mzgar.government.bg/StatPazari/Agrostatistika/agrostatistika.htm
4	Inventory of forest plantations	Afforestation	from 1995	Executive Forest Agency and its Regional forest directorates
5	Annual agricultural report	Other wooded land ...of which with tree cover	2011	report of Ministry of agriculture and food

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
Afforestation	The same as FRA category
Reforestation	The same as FRA category. Re-establishment of forest through planting and/or deliberate seeding on land classified as forest. Natural regeneration is also included
Natural expansion of forest	Natural succession of forest in agricultural fund on the territory of the country (includes also abandoned agricultural area)

1.2.3 Original data

Forestarea

FRACategories	Area (1000 hectares)			
	1990	2000	2005	2010
Forest	3327.027	3375.117	3651.243	3737.542
Other wooded land	130.08	104.73	26.308	23.757
Other land	7605.893	7583.153	7186.449	7094.701
...of which with tree cover	n.a.	98.820	71.457	72.913
Inland water bodies	36	36	236	244
TOTAL	11099	11099	11100	11100

* In FRA 2005 data were derived from latest data from 31.12.2004 from National forest fund report and the latest FAOSTAT data. The data for 2005 in this report are new (for 2005 from National forest fund report, Bulgaria. Starting in 2004, data relating to “Country area”, “Land area” and “Inland water” have been revised due to different sources and definitions (differences in Inland water bodies and country area in 2005)

Cate/ gories							...of which of introduced species					Av 2010
	2008	2009	2010	2011	2012	Average 2010	2008	2009	2010	2011	2012	
Forest expansion	7	6.7	8.1	-6.2	1.07	3.3						
...of which affore/ station	0,353	0,621	0,197	0,103	0,077	0,2702	0	0	0	0	0	0
...of which natural expansion of forest	6.7	6.1	7.9	-6.3	1	3.03						
Defore/ station	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

...of which human induced	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Refore/station	43.3	20.6	21.07	-2.96	29.8	22.4	0,972	1,394	0,732	0,596	0,544	0,8476
...of which artificial	3,293	3,979	2,066	1,141	0,877	2,2712	0,972	1,394	0,732	0,596	0,544	0,8476

***Introduced species: poplars, Douglas fir, cedar, red oak, gleditsia**

2005

Cate-gories							...of which of introduced species					
	2003	2004	2005	2006	2007	Average 2005	2003	2004	2005	2006	2007	Av 2005
Reforestation without artificial	64.4	94.5	49.7	33.3	34	55.2	n.a	n.a	n.a	n.a	n.a	n.a

2000

Cate-gories							...of which of introduced species					
	1998	1999	2000	2001	2002	Average 2000	1998	1999	2000	2001	2002	Av 2000
Reforestation without artificial	18.7	-36.8	78.6	72.6	54.1	37.4	n.a	n.a	n.a	n.a	n.a	n.a

*The calculations for 2010 are the same like for the other years

1.3 Analysis and processing of national data

1.3.1 Adjustment

Forest area

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

1.3.2 Estimation and forecasting

The data for 2015 are calculated : Forecasting using linear interpolation

1.3.3 Reclassification

1.4 Data

Table 1a

Categories		Area (000 hectares)				
		1990	2000	2005	2010	2015
	Forest	3327	3375	3651	3737	3823
	Other wooded land	130	105	26	24	22
	Other land	7606	7583	7187	7095	7011
	... of which with tree cover	N/A	99	72	73	74
	Inland water bodies	36	36	236	244	244
	TOTAL	11099.00	11099.00	11100.00	11100.00	11100.00

Table 1b

Categories	Annual forest establishment / loss (000 hectares per year)				...of which of introduced species (000 hectares per year)			
	1990	2000	2005	2010	1990	2000	2005	2010

	Forest expansion	N/A	14.8	43.3	3.3	N/A	N/A	N/A	N/A
	... of which afforestation	5.798	2.681	5.953	0.27	N/A	0.409	0.327	0
	... of which natural expansion of forest	N/A	12.102	37.267	3.03	N/A	N/A	N/A	N/A
	Deforestation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	... of which human induced	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Reforestation	20.259	37.4	55.2	22.4	N/A	N/A	N/A	N/A
	... of which artificial	20.259	4.065	2.799	2.3	N/A	1.056	0.733	0.85

Tiers

Category	Tier for status	Tier for reported trend
Forest	Tier 3	Tier 3
Other wooded land	Tier 3	Tier 3
Forest expansion	Tier 3	Tier 3
Deforestation	Tier 3	Tier 3
Reforestation	Tier 3	Tier 3

Tier criteria

Category	Tier for status	Tier for reported trend
<ul style="list-style-type: none"> • Forest • Other wooded land • Afforestation • Reforestation • Natural expansion of forest • Deforestation 	<p>Tier 3 : Data sources: Either recent (less than 10 years ago) National Forest Inventory or remote sensing, with ground truthing, or programme for repeated compatible NFIs</p> <p>Tier 2 : Data sources: Full cover mapping / remote sensing or old NFI (more than 10 years ago)</p> <p>Tier 1 : Other</p>	<p>Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status)</p> <p>Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status)</p> <p>Tier 1 : Other</p>

1.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trends

Forest	N/A	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. The process continues and is still not finished.
Other wooded land	Pinus mugo + trees higher than 5 meters with a combined cover of shrubs and bushes	The steep decrease between 2000 and 2005 are in part due the updating of the Forest Fund, where part of the other wooded land was reclassified as forest .It may therefore not reflect the real trend for this category. See also comment on Forest.
Other land	N/A	N/A
Other land with tree cover	N/A	Data for category "Other land of which with tree cover" include only orchards on the territory of the country. Data for 1990 are not available. Data are derived from the official report of the Ministry of agriculture and food supply ("Agrostatistics - BANSIK - final results for the employment and land use in Bulgaria") and Annual agricultural report
Inland water bodies	N/A	N/A
Forest expansion	The average data for 1990 for introduced species can not be reported because during these years the forest inventory was not full and these species were not investigated and reported n.a. - such information for the forest fund in Bulgaria is not available	N/A
Deforestation	N/A	N/A
Reforestation	...of which on areas previously planted" - data available only for Poplar	N/A

Other general comments to the table

N/A

2. What is the area of natural and planted forest and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

2.1 Categories and definitions

Term	Definition
Naturally regenerated forest	Forest predominantly composed of trees established through natural regeneration.
Naturalized introduced species	Other naturally regenerated forest where the tree species are predominantly non-native and do not need human help to reproduce/maintain populations over time.
Introduced species	A species, subspecies or lower taxon occurring outside its natural range (past or present) and dispersal potential (i.e. outside the range it occupies naturally or could occupy without direct or indirect introduction or care by humans).
Category	Definition
Primary forest	Naturally regenerated forest of native species where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.
Other naturally regenerated forest	Naturally regenerated forest where there are clearly visible indications of human activities.
...of which of introduced species (<i>sub-category</i>)	Other naturally regenerated forest where the trees are predominantly of introduced species.
...of which naturalized (<i>sub-sub category</i>)	Other naturally regenerated forest where the trees are predominantly of naturalized introduced species.
Planted forest	Forest predominantly composed of trees established through planting and/or deliberate seeding.
...of which of introduced species (<i>sub-category</i>)	Planted forest where the planted/seeded trees are predominantly of introduced species.
Mangroves	Area of forest and other wooded land with mangrove vegetation.
...of which planted (<i>sub-category</i>)	Mangroves predominantly composed of trees established through planting.

2.2 National data

2.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National forest fund report (NFB)	Protected native forests; Virgin forests; Native forest with production designation; Introduced species; Recreational forest (introduced and native species mixed)	Since 1955	Executive Forest Agency - responsible for the national forest fund report

2	Virgin forests in Bulgaria	Virgin forests	2005	PINMATRA Project Royal dutch society for nature protection; Ministry of environment and water / Bulgaria/
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

2.2.2 Classification and definitions

National class	Definition
Protected native forests	Forest of native species, where the ecological processes are not significantly disturbed
Virgin forests	Forest ecosystem, product of natural evolution, as well as those with partial exogenic influences of anthropogenic character, with preserved structure and relationship between biocenosis and environment
Planted forest	Forest composed of trees established through planting and/or deliberate seeding.
Primary forest	The same as FRA definition
Other naturally regenerated forest	Naturally regenerated forest where there are clearly visible indications of human activities.

2.2.3 Original data

Original data				
National class	1990	2000	2005	2010
	Forests (1000ha)			
Protected native forests	131.551	245.159	278.514	571.744
Virgin forests outside protected areas *	25.037*	25.037*	25.037*	25.037*

Other naturally regenerated forests	2138	2172.224	2473.034	2323.774
...of which of introduced species	96.204	110.809	139.855	150.590
Planted forests	1032	933.034	873.858	816.987
...of which of introduced species	37.173	28.226	33.309	53.077

*The data for 2010 are available

2.3 Analysis and processing of national data

2.3.1 Adjustment

2.3.2 Estimation and forecasting

2015 forecasting- linear interpolation

Linear interpolation will be not used for 2015 data - please see explanation in the comments. Please also see the explanation for primary forests! The data for VIRGIN FORESTS for 2005 are reliable - please see comments

An important increase in primary forest is reported which is probably not real, but only due to different dataset and calculations, also differing from FRA 2010 (<http://www.fao.org/docrep/013/al467e/al467e.pdf>). - NO! It is because NATURA 2000 - please see COMMENTS

2.3.3 Reclassification

Data about characteristics of Forests in Bulgaria are calculated in every 5 years (1990, 1995, 2000, 2005, 2010).

2.4 Data

Table 2a

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Primary forest	157	270	304	597	N/A

	Other naturally regenerated forest	2138	2172	2473	2323	N/A
	... of which of introduced species	96	111	140	151	N/A
	... of which naturalized	96	111	140	151	N/A
	Planted forest	1032	933	874	817	N/A
	... of which of introduced species	37	28	33	53	N/A
TOTAL		3327.00	3375.00	3651.00	3737.00	.00

Table 2b

Primary forest converted to (000 ha)								
1990-2000			2000-2010			2010-2015		
Other natural regeneration	Planted	Other land	Other natural regeneration	Planted	Other land	Other natural regeneration	Planted	Other land
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 2c

Categories	Area (000 hectares)				
	1990	2000	2005	2010	2015
Mangroves (forest and OWL)	0	0	0	0	0
... of which planted	0	0	0	0	0

Tiers

Category	Tier for status	Tier for reported trend
Primary forest	Tier 3	Tier 3
Other naturally regenerated forest	Tier 3	Tier 3
Planted forest	Tier 3	Tier 3
Mangroves	Tier 3	Tier 3

Tier Criteria

Category	Tier for status	Tier for reported trend
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Primary forest/Other naturally regenerated forest/Planted forest	<p>Tier 3 : Data sources: Recent (less than 10 years) National Forest Inventory or remote sensing with ground truthing or data provided by official agencies or programme for repeated compatible NFIs</p> <p>Tier 2 : Data sources: Full cover mapping/ remote sensing or old NFI (more than 10 years) Tier 1 : Other</p>	<p>Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other</p>
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2.5 Comments

Category	Comments related to data definitions etc	Comments on reported trend
Primary forest	Sum of Protected areas and Virgin forests. The data for virgin forests for 1990 and 2000 are interpreted using National Forest Fund report and are not very reliable and precise. Till 2002 no exact investigations on Virgin forests in Bulgaria were carried out. During the period 2002 and 2005 the project "PINMATRA -Virgin forests in Bulgaria" was launched. For 2005 were used the data according to this report, which are very reliable and new.	According to the results of the project PINMATRA - Virgin forests in Bulgaria", the total area of Virgin forests in Bulgaria is 103 356.1 ha, of which 78 318.7 ha are included in the category "Protected areas" according to Bulgarian legislation / category "Protected native forests" - National class /see table 4.2.3 in the country report/. Because the 2005 was found as reliable, contrary to the old ones, the 2005 data on the area of virgin forests outside the protected areas (25 037 ha) were used for all reference periods. There is an increase in Primary forest in Bulgaria because some of the NATURA 2000 sites after EU accession were reclassified as Primary forests, e.g. some of the Water-protective forests. Further prognosis based on the interpolation of the data is not possible because of the big difference in the area of Primary forest, which is not expected to grow during the next years.
Other naturally regenerating forest	N/A	N/A
Planted forest	N/A	N/A
Mangroves	N/A	N/A

Other general comments to the table

Other naturally regenerated forest of introduced species # Acacia sp. Planted forest of introduced species - Poplar ; Douglas fir ; larch Forecasting for 2015 is possible only for the total forest area. Forecasting will be not realistic for the other categories because of the drastic change in category Primary forest.

3. What are the stocks and growth rates of the forests and how have they changed?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

3.1 Categories and definitions

Category	Definition
Growing stock	Volume over bark of all living trees with a minimum diameter of 10 cm at breast height (or above buttress if these are higher). Includes the stem from ground level up to a top diameter of 0 cm, excluding branches.
Net Annual Increment (NAI)	Average annual volume of gross increment over the given reference period less that of natural losses on all trees, measured to minimum diameters as defined for "Growing stock".
Above-ground biomass	All living biomass above the soil including stem stump branches bark seeds and foliage.
Below-ground biomass	All 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.
Dead wood	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 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 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	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 the minimum diameter for dead wood (e.g. 10 cm) lying dead in various states of decomposition above the mineral or organic soil.
Soil carbon	Organic carbon in mineral and organic soils (including peat) to a soil depth of 30 cm.

3.2 National data

3.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National forest fund report	Growing stock	Since 1955	Executive Forest Agency
2	IPCC Guidelines for National Greenhouse Gas Inventories	Biomass factors Litter and dead wood carbon stocks Soil organic C stocks	2006	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

3.2.2 Classification and definitions

National class	Definition
Growing stock	Volume over bark of all living trees higher than 3m with branches
Above-ground biomass	The same as FRA 2015 category
Below-ground biomass	The same as FRA 2015 category
Dead wood	The same as FRA 2015 category

3.2.3 Original data

Growing stock					
FRA Categories	Volume (1000 cubic meters over bark)				
	Forest				
	1990	1990	2000	2005	2010
Growing stock	404 872	404 872	526 063	591 162	644 840
Growing stock of commercial species	259 175	259 175	321 058	378 143	372 230
Biomass stock					
Calculations – year 1990					
Foresttype	Growing stock / m3/	Area /ha/	Growing stock/ ha	BCEF*	
			/million m3/		

Hardwood	246 510 254	2 220 090	111.04	0.6
Pines	111 412 294	897 557	124.13	0.4
Other conifers	46 949 452	209 380	224.23	0.4

Calculations – year 2000

Foresttype	Growing stock/ m3/	Area /ha/	Growing stock/ ha /million m3/	BCEF*
Hardwood	293 935 467	2 336 641	125.8	0.6
Pines	172 669 779	691 054	249.8	0.4
Other conifers	58 591 514	347 422	168.6	0.4

Calculations – year 2005

Foresttype	Growing stock / m3/	Area /ha/	Growing stock/ ha /million m3/	BCEF*
Hardwood	332 467 909	2 572 260	129.3	0.6
Pines	192 580 943	851 123	226.3	0.4
Other conifers	66 113 110	227 860	290.1	0.4

Calculations – year 2010

Foresttype	Growing stock/ m3/	Area /ha/	Growing stock/ ha /million m3/	BCEF*
Hardwood	357 721 821	2 666 259	134.2	0.6

Pines	213228143	857 787	248.5	0.4
Other conifers	73890283	213496	346	0.4

*The Growing stock includes branches and stem tops – lower values are used

Carbon stock

Original data for broadleaf and needle-leaf forests needed for calculations

Forest area /1000 ha/	1990	2000	2005	2010
Broadleaf deciduous	2135	2337	2572	2666
Needleleaf evergreen	1192	1038	1079	1071
Total	3327	3375	3651	3737

Carbon in litter / million metric tonnes/	1990	2000	2005	2010
Broadleaf deciduous	34 160	37 392	41 152	42 656
Needleleaf evergreen	30 992	26 988	28 054	27846
Total	65 152	64 380	69 206	70 502

Forest	1990	2000	2005	2010
Soil carbon factor	95	95	95	95

Forest area /ha/	3327	3375	3651	3737
Soil carbon /mil. metr.t/	316 065	320 625	346 845	355 015
OWL	1990	2000	2005	2010
Soil carbon factor	95	95	95	95
OWL area	130	105	26	24
Soil carbon /mil. metr. tonnes/	12 350	9975	2470	2280

3.3 Analysis and processing of national data

3.3.1 Adjustment

3.3.2 Estimation and forecasting

Growing stock

The data for 2010 are available. Original data are used for calculations.

Biomass stock

Calculation of AGB

1990

$$AGB_{\text{hardwood}} = GS \times BCEF = 246\,510\,254 \times 0.6 = 147\,906\,152.4$$

$$AGB_{\text{pines}} = GS \times BCEF = 111\,412\,294 \times 0.4 = 44\,564\,917.6$$

$$\text{AGB}_{\text{other conifers}} = \text{GS} \times \text{BCEF} = 46\,949\,452 \times 0.4 = 18\,779\,780.8$$

$$\text{AGB}_{\text{total}} = 211\,250\,850.8$$

2000

$$\text{AGB}_{\text{hardwood}} = \text{GS} \times \text{BCEF} = 293\,935\,467 \times 0.6 = 176\,361\,280$$

$$\text{AGB}_{\text{pines}} = \text{GS} \times \text{BCEF} = 172\,669\,779 \times 0.4 = 69\,067\,911$$

$$\text{AGB}_{\text{other conifers}} = \text{GS} \times \text{BCEF} = 58\,591\,514 \times 0.4 = 23\,436\,605.6$$

$$\text{AGB}_{\text{total}} = 268\,865\,796.6$$

2005

$$\text{AGB}_{\text{hardwood}} = \text{GS} \times \text{BCEF} = 332\,467\,909 \times 0.6 = 199\,480\,745.4$$

$$\text{AGB}_{\text{pines}} = \text{GS} \times \text{BCEF} = 192\,580\,943 \times 0.4 = 77\,032\,377.2$$

$$\text{AGB}_{\text{other conifers}} = \text{GS} \times \text{BCEF} = 66\,113\,110 \times 0.4 = 26\,445\,244$$

$$\text{AGB}_{\text{total}} = 302\,958\,366.6$$

2010

$$\text{AGB}_{\text{hardwood}} = \text{GS} \times \text{BCEF} = 357\,721\,821 \times 0.6 = 214\,633\,092.6$$

$$\text{AGB}_{\text{pines}} = \text{GS} \times \text{BCEF} = 213\,228\,143 \times 0.4 = 85\,291\,257.2$$

$$\text{AGB}_{\text{other conifers}} = \text{GS} \times \text{BCEF} = 73\,890\,283 \times 0.4 = 29\,556\,113.2$$

$$\text{AGB}_{\text{total}} = 329\,480\,463$$

Calculation of BGB = AGB x R

1990

$$\text{BGB}_{\text{hardwood}} = 147\,906\,152.4 \times 0.27 = 39\,934\,661$$

*0.265 is an average sum according to table 5.3 for temperate forests

$$\text{BGB}_{\text{pines}} = 44\,564\,917.6 \times 0.29 = 12\,923\,826.1$$

$$\text{BGB}_{\text{other conifers}} = 18\,779\,780 \times 0.29 = 5\,446\,136.432$$

BGB_{total} = 58 304 624

2000

BGB_{hardwood} = 176 361 280 x 0.27= 47 617 545.6

*0.27 is an average sum according to table 5.3 for temperate forests

BGB_{pin}es = 69 067 911 x 0.29= 20 029 694.2

BGB_{other conifers} = 23 436 605.6x0.29= 6 796 615.6

BGB_{total} = 74 443 855

2005

BGB_{hardwood} = 199 480 745.4x 0.27= 53859801.3

*0.27 is an average sum according to table 5.3 for temperate forests

BGB_{pin}es = 77 032 377.2 x 0.29= 22 339 389.4

BGB_{other conifers} = 26 445 244x0.29= 7 669 120.8

BGB_{total} = 83 868 312

2010

$$\text{BGB}_{\text{hardwood}} = 214\,633\,092.6 \times 0.27 = 57\,950\,935$$

*0.27 is an average sum according to table 5.3 for temperate forests

$$\text{BGB}_{\text{pines}} = 85\,291\,257.2 \times 0.29 = 24\,734\,464.6$$

$$\text{BGB}_{\text{other conifers}} = 29\,556\,113.2 \times 0.29 = 8\,571\,273$$

$$\text{BGB}_{\text{total}} = 91\,256\,672.6$$

Carbon stock

The applied factor is the default global carbon fraction recommended by IPCC – 0.47

Default values for litter and wood carbon stocks

Litter:

- for Broadleaf deciduous /cold temperate, moist/ - 16 tonnes C ha⁻¹
- for needleleaf evergreen/cold temperate, moist/ – 26 tonnes C ha⁻¹

Soil organic C stocks

– HAC soils /cold temperate, moist/ - 95 tonnes C ha⁻¹

The data for 2015 are forecasted using linear interpolation - FRA guide

3.3.3 Reclassification

3.4 Data

Table 3a

Category		Growing stock volume (million m ³ over bark)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
	Total growing stock	405	526	591	645	699	N/A	N/A	N/A	N/A	N/A
	... of which coniferous	158	231	259	287	315	N/A	N/A	N/A	N/A	N/A
	... of which broadleaved	247	295	332	358	384	N/A	N/A	N/A	N/A	N/A

Table 3b

Category/Species name			Growing stock in forest (million cubic meters)			
Rank	Scientific name	Common name	1990	2000	2005	2010
1 st	<i>Fagus sylvatica</i>	Beech	107.3	130.1	142.6	154.6
2 nd	<i>Pinus sylvestris</i>	Scots pine	85.2	114.4	125.2	138
3 rd	<i>Quercus sp.</i>	Oak	63.9	76.9	87	93.2
4 th	<i>Pinus nigra</i>	Black pine	22	53.6	62.6	70.2
5 th	<i>Picea abies</i>	Norway spruce	35.1	42.6	48.5	55.3
6 th	<i>Quercus cerris</i>	Bitter oak	25.8	32.5	42.3	44.8
7 th	<i>Carpinus betulus</i>	Hornbeam	23.9	20.5	23	24.8
8 th	<i>Abies alba</i>	Silver fir	10.4	10.8	11.8	13.2
9 th	<i>Tilia sp.</i>	Lime	6.3	8.2	11.1	11.2

10 th	Populus sp.	Poplar	2	1.8	2.5	2.8
Remaining			23.1	34.6	34.4	36.9
TOTAL			405.00	526.00	591.00	645.00

THE PRE-FILLED VALUES FOR GROWING STOCK REFER TO THE FOLLOWING THRESHOLD VALUES (SEE TABLE BELOW)

Item	Value	Complementary information
Minimum diameter (cm) at breast height of trees included in growing stock (X)	Not applicable	Trees above 3 meters
Minimum diameter (cm) at the top end of stem for calculation of growing stock (Y)	0	N/A
Minimum diameter (cm) of branches included in growing stock (W)	0	N/A
Volume refers to above ground (AG) or above stump (AS)	AG	N/A

PLEASE NOTE THAT THE DEFINITION OF GROWING STOCK HAS CHANGED AND SHOULD BE REPORTED AS GROWING STOCK DBH 10 CM INCLUDING THE STEM FROM GROUND LEVEL UP TO A DIAMETER OF 0 CM, EXCLUDING BRANCHES.

Table 3c

Category		Net annual increment (m ³ per hectare and year)				
		Forest				
		1990	2000	2005	2010	2015
	Net annual increment	3.4	4	3.9	3.8	3.7
	... of which coniferous	4.6	6.8	6.6	5.5	4.4
	... of which broadleaved	2.9	2.9	2.7	2.35	2

Table 3d

Category		Biomass (million metric tonnes oven-dry weight)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
	Above ground biomass	211	269	303	329	355	N/A	N/A	N/A	N/A	N/A

	Below ground biomass	58	74	84	91	98	N/A	N/A	N/A	N/A	N/A
	Dead wood	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL		269.00	343.00	387.00	420.00	453.00	.00	.00	.00	.00	.00

Table 3e

Category		Carbon (Million metric tonnes)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
	Carbon in above ground biomass	99.3	126.4	142.4	154.6	166.8	N/A	N/A	N/A	N/A	N/A
	Carbon in below ground biomass	27.3	34.8	39.5	42.8	46.1	N/A	N/A	N/A	N/A	N/A
	<i>Subtotal Living biomass</i>	126.6	161.2	181.9	197.4	212.9	N/A	N/A	N/A	N/A	N/A
	Carbon in dead wood	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Carbon in litter	6.5	6.4	6.9	7.5	8.1	N/A	N/A	N/A	N/A	N/A
	<i>Subtotal Dead wood and litter</i>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Soil carbon	316	321	347	355	363	12	10	2.5	2.3	2.1
TOTAL		449.10	488.60	535.80	559.90	584.00	12.00	10.00	2.50	2.30	2.10

Tiers

Variable/category	Tier for status	Tier for trend
Total growing stock	Tier 3	Tier 3
Net annual increment	Tier 2	Tier 2
Above ground biomass	Tier 1	Tier 2
Below ground biomass	Tier 1	Tier 2

Dead wood	Tier 1	Tier 2
Carbon in above-ground biomass	Tier 1	Tier 2
Carbon in below ground biomass	Tier 1	Tier 2
Carbon in dead wood and litter	Tier 1	Tier 2
Soil carbon	Tier 1	Tier 2

Tier criteria

Category	Tier for status	Tier for reported trend
Total growing stock	Tier 3: Data sources Recent 10 years National Forest Inventory or remote sensing with ground truthing or programme for repeated compatible NFI 10 years Domestic volume functions Tier 2: Data sources/registers and statistics modelling or old NFI 10 years or partial field inventory Tier 1: Other data sources	Tier 3: Estimate based on repeated compatible tiers 3 (tier for status) Domestic growth functions Tier 2: Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 tier for status Tier 1: Other
Net annual increment	Tier 3: Scientifically tested national volume and growth functions Tier 2: Selection of volume and growth functions as relevant as possible Tier 1: Other	Tier 3: Confirmation/adjustment of functions used through scientific work Tier 2: Review work done to seek alternative functions Tier: 1 Other
Biomass	Tier 3: Country-specific national or sub-national biomass conversion expansion factors applied or other domestic or otherwise nationally relevant biomass studies Tier 2: Application of country specific national or sub-national biomass conversion factors from other country with similar climatic conditions and forest types Tier 1: International/regional default biomass expansion factors applied	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other
<ul style="list-style-type: none"> • Carbon in above ground biomass • Carbon in below ground biomass • Carbon in dead wood and litter • Soil carbon 	Tier 3: Country-specific national or sub-national biomass conversion expansion factors applied Tier 2: Application of country specific national or sub-national biomass conversion factors form from other country with similar climatic conditions and forest types Tier 1: International/regional default biomass expansion factors applied	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

3.5 Comments on growing stock biomass and carbon

Category	Comments related to data definitions etc	Comments on the reported trend
Total growing stock	Volume over bark of all living trees higher than 3m with branches	N/A
Growing stock of broadleaved coniferous	N/A	N/A

Growing stock composition	N/A	N/A
Net annual increment	Declining trend of the increment /esp. coniferous stands/: Replacement of artificially created coniferous plantations with naturally regenerated broadleaf stands. Also, in stands with age more than 80 years thinnings are conducted. This leads to age structure change of the stand and to reduction of the stand density.	N/A
Above-ground biomass	N/A	N/A
Below-ground biomass	N/A	N/A
Dead wood	N/A	N/A
Carbon in above-ground biomass	N/A	N/A
Carbon in below-ground biomass	N/A	N/A
Carbon in dead wood	N/A	N/A
Carbon in litter	N/A	N/A
Soil carbon	N/A	N/A

Other general comments to the table

List of non-commercial species: *Ulmus* sp., *Carpinus orientalis*, *Fraxinus ornus*, *Alnus glutinosa*, *Pinus heldreichii*, *Pinus mugo*, Fruit trees except wild cherry-tree

4. What is the status of forest production and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

4.1 Categories and definitions

Term	Definition
Primary designated function	The primary function or management objective assigned to a management unit either by legal prescription documented decision of the landowner/manager or evidence provided by documented studies of forest management practices and customary use.
Non wood forest product (NWFP)	Goods derived from forests that are tangible and physical objects of biological origin other than wood.
Commercial value of NWFP	For the purpose of this table, value is defined as the commercial market value at the forest gate.
Category	Definition
Production forest	Forest area designated primarily for production of wood, fibre, bio-energy and/or non-wood forest products.
Multiple use forest	Forest area designated for more than one purpose and where none of these alone is considered as the predominant designated function.
Total wood removals	The total of industrial round wood removals and woodfuel removals.
...of which woodfuel	The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

4.2 National data

4.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National forest fund report (NFB)	Wood production forests; Protected forests; Recreational forests; Others	Since 1955	Executive Forest Agency
2	Non-wood forest product	Non-wood forest product	N/A	Executive Forest Agency
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

4.2.2 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.)

4.2.3 Original data

	1990	2000	2005	2010
	Forest (1000 ha)			
Wood production forests	2364.539	2258.312	2561.410	2386.927
Protective forests	430.253	432.955	450.847	438.901
Protected forests	131.551	245.159	278.514	571.744
Recreational forests	221.615	222.757	237.620	219.397
Others	179.069	215.934	123.362	120.573
TOTAL	3327.027	3375.117	3651.753	3737.542

*The data for NWFP are original /collected in the same format as FRA category/.

4.3 Analysis and processing of national data

4.3.1 Adjustment

No need for calibration

4.3.2 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 2015 is not ready up to now. Reported values for 2015 were calculated with the use of preliminary data for 2010 - forecasting linear interpolation

4.3.3 Reclassification

FORESTS /for1990/	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%*	6.13% **	57.87%	
Recreational forests				100%		
Others					100%	

FORESTS /for2000/	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			19%*		81%	

Recreational forests				100%		
Others					100%	

FORESTS /for2005/	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			12%*		88%	
Recreational forests				100%		
Others					100%	

FORESTS /for2010/	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			8.7%*		91.3%	
Recreational forests				100%		
Others					100%	

Multiple use forests are calculated according to the Tables above.

4.4 Data

Table 4a

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Production forest	2365	2258	2561	2387	2213
	Multiple use forest	255	415	367	642	N/A

Table 4b

Rank	Name of product	Key species	Commercial value of NWFP removals 2010 (value 1000 local currency)	NWFP category
1 st	Mushrooms	Boletus edulis; Cantharellus cibarius; Marasmius oreades; Lactarius deliciosus, etc.	168	1
2 nd	Forest fruits	Raspberry, blackberry, blueberry, etc.	137	1
3 rd	Forest wildlings	broadleaves, coniferous	97	6.8
4 th	Christmas tree	-	72	6
5 th	Shelled nuts	walnuts, hazelnuts, almonds, etc.	43	1
6 th	Herbs	-	28	3
7 th	Lime flowers	-	22	3
8 th	Rosa canina	-	6	3
9 th	Bark	N/A	6	8
10 th	Forest seeds	broadleaves, coniferous	7	8
TOTAL			586.00	

2010

Name of local currency

lev

Category
Plant products / raw material
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
Animal products / raw material
9 Living animals
10 Hides skins and trophies
11 Wild honey and beewax
12 Wild meat
13 Raw material for medicine
14 Raw material for colorants
15 Other edible animal products
16 Other non-edible animal products

Table 4c Pre-filled data from FAOSTAT

Year	FRA 2015 category (1000 m ³ u.b.)	
	Total wood removals	...of which woodfuel
1990	4089	1503
1991	3650	1450
1992	3545	1870
1993	3547	1710
1994	2685	887
1995	2844	874
1996	3205	1185
1997	3041	1179
1998	3231	1388

1999	4351	1101
2000	4784	2107
2001	3992	1635
2002	4832	2187
2003	5388	2541
2004	5987	2909
2005	5862	2678
2006	5992	2885
2007	5696	2526
2008	6071	2692
2009	4599	2375
2010	5668	2657
2011	6205	2841

Tiers

Category	Tier for status	Tier for reported trend
Production forest	Tier 3	Tier 3
Multiple use forest	Tier 3	Tier 3

Tier Criteria

Category	Tier for status	Tier for reported trend
Production forest Multiple use forest	Tier 3: Updated including field verifications national forest maps including functions Tier 2: Forest maps older than 6 years including forest functions Tier 1: Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

4.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Production forest	N/A	N/A

Multiple use forest	After the increase of the Protected forests /after NATURA 2000 was introduced/ the data for Multiple use forest derived from linear interpolation are not reliable because no other increase in protected forests in the country is expected in the next years	N/A
Total wood removals	N/A	N/A
Commercial value of NWFP	The data are official data for 2010 received from regional Forest Directorates in EFA. No data available for game meet or other NWFP for 2010. Wildlings are used for afforestation, esp. in areas without sufficient natural regeneration.	N/A

Other general comments to the table

Data about designated function of Forest in Bulgaria are calculated in every 5 years (1990, 1995, 2000, 2005, etc.). Data for 2010 are available.

5. How much forest area is managed for protection of soil and water and ecosystem services?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

5.1 Categories and definitions

Category	Definition
Protection of soil and water	Forest area designated or managed for protection of soil and water
...of which production of clean water (<i>sub-category</i>)	Forest area primarily designated or managed for water production, where most human uses are excluded or heavily modified to protect water quality.
...of which coastal stabilization (<i>sub-category</i>)	Forest area primarily designated or managed for coastal stabilization.
...of which desertification control (<i>sub-category</i>)	Forest area primarily designated or managed for desertification control.
...of which avalanche control (<i>sub-category</i>)	Forest area primarily designated or managed to prevent the development or impact of avalanches on human life assets or infrastructure.
...of which erosion, flood protection or reducing flood risk (<i>sub-category</i>)	Forest area primarily designated or managed for protecting communities or assets from the impacts of erosion riparian floods and landslides or for providing flood plain services.
...of which other (<i>sub-category</i>)	Forest area primarily designated or managed for other protective functions.
Ecosystem services, cultural or spiritual values	Forest area primarily designated or managed for selected ecosystem services or cultural or spiritual values.
...of which public recreation (<i>sub-category</i>)	Forest area designated or managed for public recreation.
...of which carbon storage or sequestration (<i>sub-category</i>)	Forest area designated or managed for carbon storage or sequestration.
...of which spiritual or cultural services (<i>sub-category</i>)	Forest area designated or managed for spiritual or cultural services.
...of which other (<i>sub-category</i>)	Forest area designated or managed for other ecosystem services.

5.2 National data

5.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National forest fund report (NFB)	N/A	since 1955	Executive Forest Agency

2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

5.2.2 Classification and definitions

National class	Definition
Protective forests	Forests with protective functions including water protecting forests; erosion preventing; irrigation (forest belts)
Water protective	Forests designated for water production and protection of drinking water protected areas
Anti-erosion and meliorative forest	Forests designaten for erosion control, prevention of floods, reducing flood risks; forest belts
N/A	N/A

5.2.3 Original data

	1990	2000	2005	2010
	Forest (1000 ha)			
Protective forests	431	433	451	439
From wich water protective	254	221	231	229
From which anti-erosion and meliorative	177	212	220	210

2015 data are calculated using linear interpolation

5.3 Analysis and processing of national data

5.3.1 Adjustment

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5.3.2 Estimation and forecasting

5.3.3 Reclassification

FORESTS 1990/2000/2005/2010	Protection of soil and water	of which production of clean water	of which erosion, flood protection or reducing flood risk
Protective forests	100%		
From which water protective		100%	
From which anti-erosion and meliorative			100%

5.4 Data

Table 5a

Categories		Forest area (1000 hectares)				
		1990	2000	2005	2010	2015
	Protection of soil and water	430	433	451	439	427
	... of which production of clean water	254	221	231	229	227
	... of which coastal stabilization	0	0	0	0	0
	... of which desertification control	0	0	0	0	0
	... of which avalanche control	0	0	0	0	0

	... of which erosion, flood protection or reducing flood risk	176	212	220	210	200
	... of which other (please specify in comments below the table)	0	0	0	0	0

Other

N/A

Table 5b

Categories	Forest area (1000 hectares)				
	1990	2000	2005	2010	2015
Ecosystem services, cultural or spiritual values	230	223	238	219	200
...of which public recreation	N/A	N/A	N/A	N/A	N/A
...of which carbon storage or sequestration	N/A	N/A	N/A	N/A	N/A
...of which spiritual or cultural services	N/A	N/A	N/A	N/A	N/A
...of which other (please specify in comments below the table)	N/A	N/A	N/A	N/A	N/A

Tiers

Category	Tier for reported trend	Tier for status
Protection of soil and water	Tier 3	Tier 3
Ecosystem services, cultural or spiritual values	Tier 3	Tier 3

Tier criteria

Category	Tier for status	Tier for reported trend
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Protection of soil and water	Tier 3: High reliability data derived either from high intensity sample survey or data obtained from national or state agencies responsible for regulations or legislation relating to soil and water protection. Tier 2: Approaches based on low intensity or incomplete sample-based surveys or studies that provide data for specific areas that is extrapolated through statistical analysis to national level estimates. Tier 1: Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other
<ul style="list-style-type: none"> • Cultural or spiritual values • Public recreation • Spiritual or cultural services • Other 	Tier 3: High reliability data derived either from high intensity sample survey or data obtained from national or state agencies responsible for regulations. Tier 2: Approaches based on low intensity or incomplete sample-based surveys or studies that provide data for specific areas that is extrapolated through statistical analysis to national level estimates. Tier 1: Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

5.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Protection of soil and water	N/A	N/A
Production of clean water	N/A	N/A
Coastal stabilization	N/A	N/A
Desertification control	N/A	N/A
Avalanche control	N/A	N/A
Erosion, flood protection or reducing flood risk	Part of the national category protective forests.	N/A
Other protective functions	N/A	N/A
Ecosystem services, cultural or spiritual values	The forest in this category are recreational, cultural, with spiritual values and could not be distinguished	N/A
Public recreation	N/A	N/A
Carbon storage or sequestration	N/A	N/A
Spiritual or cultural services	N/A	N/A
Other ecosystem services	N/A	N/A

Other general comments to the table

N/A

6. How much forest area is protected and designated for the conservation of biodiversity and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

6.1 Categories and definitions

Category	Definition
Conservation of biodiversity	Forest area designated primarily for conservation of biological diversity. Includes but is not limited to areas designated for biodiversity conservation within the protected areas.
Forest area within protected areas	Forest area within formally established protected areas independently of the purpose for which the protected areas were established.

6.2 National data

6.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National forest fund report (NFB)	Wood production forests; Protected forests; Recreational forests; Others	Since 1955	Executive Forest Agency
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

6.2.2 Classification and definitions

National class	Definition
Protected forests	Natural reserves, national parks, protected areas, historical places, protected landscapes, natural sightseeing
N/A	N/A
N/A	N/A
N/A	N/A

6.2.3 Original data

See 4.2.3.

6.3 Analysis and processing of national data

6.3.1 Adjustment

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6.3.2 Estimation and forecasting

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6.3.3 Reclassification

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6.4 Data

Table 6

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Conservation of biodiversity	47	46	34	50	N/A
	Forest area within protected areas	132	245	279	572	N/A

Tiers

Category	Tier for status	Tier for reported trend
Conservation of biodiversity	Tier 3	Tier 3
Forest area within protected areas	Tier 3	Tier 3

Tier criteria

Category	Tier for status	Tier for reported trend
<ul style="list-style-type: none"> Conservation of biodiversity Forests within protected areas 	<p>Tier 3: Data obtained from national or state agencies responsible for conservation and protected area or legislation relating to area protection. Tier 2: Studies that provide data for specific areas that is extrapolated through statistical analysis to national level estimates Tier 1 Other</p>	<p>Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other</p>

6.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Conservation of biodiversity	N/A	N/A
Forest area within protected areas	The reason for the big increase are the forests incl. in NATURA 2000 sites after EU accession. About 54% of the forests in the country are in NATURA 2000 sites. About 60% of them are at the expense of the category forests designated for wood supply.	No sense to calculate the 2015 data using linear interpolation/ because of the very big difference in the protected areas category

Other general comments to the table

N/A

7. What is the area of forest affected by woody invasive species?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

7.1 Categories and definitions

Category	Definition
Invasive species	Species that are non-native to a particular ecosystem and whose introduction and spread cause, or are likely to cause, socio-cultural, economic or environmental harm or harm to human health.

7.2 National data

7.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National forest fund report	N/A	Since 1955	Executive Forest Agency
2	Forest protection stations – official statistics (Branches of NFB)	Disturbance by insects, disturbance by insects, other	annual	www.iag.bg - annual EFA report
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

7.2.2 Classification and definitions

National class	Definition
N/A	N/A

7.2.3 Original data

--

7.3 Analysis and processing of national data

7.3.1 Adjustment

--

7.3.2 Estimation and forecasting

7.3.3 Reclassification

7.4 Data

Table 7

Scientific name of woody invasive species	Forest area affected (000 ha)	
	2005	2010
Amorpha fruticosa	N/A	N/A
Fraxinus americana	N/A	N/A
Ailantus altissima	N/A	N/A
N/A	N/A	N/A
Total	N/A	N/A

Tiers

Category	Tier for status	Tier for reported trend
Invasive species	Tier 3	Tier 3

Tier Criteria

Category	Tier for status	Tier for reported trend
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Invasive species	Tier 3: Systematic assessment in forest inventory or other survey (e.g. by conservation department) within the last 5 years) Tier 2: Systematic assessment in forest inventory or other survey (e.g. by conservation department conducted more than 5 years ago) Tier 1: Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other
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7.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Invasive species	There is no methodology for systematic monitoring of invasive species; there are only a few scientific investigations in the area	N/A

Other general comments to the table

N/A

8. How much forest area is damaged each year?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

8.1 Categories and definitions

Category	Definition
Number of fires	Number of fires per year
Burned area	Area burned per year
Outbreaks of insects	A detectable reduction in forest health caused by a sudden increase in numbers of harmful insects.
Outbreaks of diseases	A detectable reduction in forest health caused by a sudden increase in numbers of harmful pathogens, such as bacteria, fungi, phytoplasma or virus.
Severe weather events	Damage caused severe weather events, such as snow, storm, drought, etc.

8.2 National data

8.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National forest fund report	N/A	since 1955	Executive Forest Agency - responsible for the report
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

8.2.2 Classification and definitions

National class	Definition
Number of fires	Number of fires per year.
Burned area	Area burned per year
Outbreaks of insects	A detectable reduction in forest health caused by a sudden increase in numbers of harmful insects.
Outbreaks of diseases	A detectable reduction in forest health caused by a sudden increase in numbers of harmful pathogens, such as bacteria, fungi, phytoplasma or virus.

8.2.3 Original data

8.3 Analysis and processing of national data

8.3.1 Adjustment

8.3.2 Estimation and forecasting

8.3.3 Reclassification

8.4 Data

Table 8a

Category		000 ha, number of fires									
		2003		2004		2005		2006		2007	
		000 ha	#	000 ha	#	000 ha	#	000 ha	#	000 ha	#
	Total land area burned	83.77	N/A	106.08	N/A	36.61	N/A	206.72	N/A	258.67	N/A
	... of which forest area burned	5	452	1.14	294	1.46	241	3.54	393	43	1479
Category		2008		2009		2010		2011		2012	
		000 ha	#	000 ha	#	000 ha	#	000 ha	#	000 ha	#
	Total land area burned	227.27	N/A	78.15	N/A	118.48	N/A	141.94	N/A	254.11	N/A
	... of which forest area burned	5.3	582	2.3	314	6.5	222	6.9	635	12.7	876

Table 8b

Outbreak category	Description/name	Year(s) of latest outbreak	Area damaged (000 hectares)
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1	Lymantria dispar	2009 and 2011	38
1	Geometridae, Tortricidae	2010	54
1	Euproctis chrysorrhea	2010 - 2011	0.14
1	Traumatocampa pityocampa	2010	19.6
1	Neodiprion pini	2009	8.3
2	Pine drying	2011	2.1
2	Oak drying	2010	2.8
2	Hypoxyton mediterraneum / Quercus cerris drying/	2010	1.3
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Outbreak category

1 Insects
2 Diseases
3 Severe weather events

Tiers

Category	Tier for status	Tier for trend
Area affected by fire	Tier 2	Tier 2
<ul style="list-style-type: none"> • Insects • Diseases • Severe weather events 	Tier 3	Tier 3

Tier criteria

Category	Tier for status	Tier for reported trend
Burned area	Tier 3 : National fire monitoring routines Tier 2 : Remote sensing surveys Tier 1 : Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other
<ul style="list-style-type: none"> • Insects • Diseases • Severe weather events 	Tier 3 : Systematic survey (e.g. via inventory or aerial damage assessment) Tier 2 : Management records Tier 1 : Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

8.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Burned area	Tier 2 data have been used for burned area detected through MODIS and provided by FAO.	N/A
Insects	N/A	The damaged areas in the years after 2008 are smaller. The outbreaks are the most recent
Diseases	N/A	The damaged areas in the years after 2008 are smaller. The outbreaks are the most recent
Severe weather events	N/A	N/A

Other general comments to the table

**Quercus cerris* drying (*Hypoxylon mediterraneum*) – the reason for drying is more complex than activeness of *Hypoxylon mediterraneum*. The definitions correspond to the FRA ones.

9. What is the forest area with reduced canopy cover?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

Category	Definition
Reduction in canopy cover	Forest that has undergone a reduction of canopy cover of more than 20% between the years 2000 and 2010 within the forest canopy cover range of 30-80% as detected by the MODIS VCF sensor.

Table 9

Category	Area of forest with reduced canopy cover (000 ha)
Reduction in canopy cover	11.6

Tiers

Category	Tier for reported trend
Reduction in canopy cover	Tier 3

Tier criteria

Category	Tier for reported trend
Reduction in canopy cover	Tier 3 : Remote sensing with ground truthing and/or Landsat imagery Tier 2 : Remote sensing using Modis (using pre-filled data provided by FAO) Tier 1 : Expert opinion

Comments

Category	Comments related to data definitions etc
Reduction in canopy cover	N/A

Other general comments

--

10. What forest policy and regulatory framework exists to support implementation of sustainable forest management SFM?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

10.1 Categories and definitions

Category	Definition
Policies supporting sustainable forest management	Policies or strategies that explicitly encourage sustainable forest management.
Legislation and regulations supporting sustainable forest management	Legislation and regulations that govern and guide sustainable forest management, operations and use.

10.2 National data

10.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Forest act and sub-ordinate legislation www.iag.bg	laws, regulations, ordinances	N/A	Executive Forest Agency
2	National strategy for sustainable development of forest sector www.iag.bg / new strategy under preparation/	strategy	2006-2015	Executive Forest Agency
3	Strategic plan for development of forest sector www.iag.bg	action plan	2007 - 2011	Executive Forest Agency
4	Forest management plans	N/A	every 10 years	Executive Forest Agency

10.2.2 Classification and definitions

National class	Definition
N/A	N/A

10.2.3 Original data

--

10.3 Data

Table 10

Category				
	National	Sub-national		
		Regional	Provincial/State	Local
Policies supporting sustainable forest management	yes	yes	no	yes
... of which, in <u>publicly</u> owned forests	yes	yes	no	yes
... of which, in <u>privately</u> owned forests	yes	yes	no	yes
Legislation and regulations supporting sustainable forest management	yes	no	no	no
... of which, in <u>publicly</u> owned forests	yes	no	no	no
... of which, in <u>privately</u> owned forests	yes	no	no	no

10.4 Comments

Variable / category	Comments related to data definitions etc
Policies supporting sustainable forest management	According to the Forest legislation /Forest law/ and National strategy for the development of the forest sector 2013 -2020, there are forest management programmes and plans on regional and local level
Legislation and regulations supporting sustainable forest management	N/A

Other general comments

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11. Is there a national platform that promotes stakeholder participation in forest policy development?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

11.1 Categories and definitions

Category	Definition
National stakeholder platform	A recognized procedure that a broad range of stakeholders can use to provide opinions, suggestions, analysis, recommendations and other input into the development of national forest policy.

11.2 National data

11.2.1 Data sources

	References to sources of information	Years	Additional comments
1	Forest Act	2014 /last amendment/	not officially available in English www.iag.bg
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A

Table 11

Is there a national platform that promotes or allows for stakeholder participation in forest policy development?	yes
--	-----

11.3 Comments

Category	Comments related to data definitions etc
National stakeholder platform	National Forest Council /art. 155 of the Forest Act - with the participation of all stakeholders/

Other general comments

--

12. What is the forest area intended to be in permanent forest land use and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

12.1 Categories and definitions

Category	Definition
Forest area intended to be in permanent forest land use	Forest area that is designated or expected to be retained as forest and is highly unlikely to be converted to other land use.
...of which permanent forest estate (<i>sub-category</i>)	Forest area that is designated by law or regulation to be retained as forest and may not be converted to other land use.

12.2 National data

12.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National forest fund report (NFB)	Wood production forests; Protected forests; Recreational forests; Others	Since 1955	Executive Forest Agency
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

12.2.2 Classification and definitions

National class	Definition
N/A	N/A

12.2.3 Original data

See Table 1.2.3.

12.3 Analysis and processing of national data

12.3.1 Adjustment

--

12.3.2 Estimation and forecasting

see Table 1.3.2

12.3.3 Reclassification

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12.4 Data

Table 12

Categories		Forest area 2010 (000 ha)
	Forest area intended to be in permanent forest land use	3737
	... of which permanent forest estate	3737

Tiers

Category	Tier for status
Forest area intended to be in permanent forest land use	Tier 3
Permanent forest estate	Tier 3

Tier Criteria

Category	Tier for status
Forest area intended to be in permanent forest land use	Tier 3 : National or sub-national land use plans strategy documents or other reports within the past 10 years Tier 2 : National or sub-national land use plans strategy documents or other reports within the past 20 years Tier 1 : Other
Permanent forest estate	Tier 3 : National or sub-national land use plans strategy documents or other reports within the past 10 years Tier 2 : National or sub-national land use plans strategy documents or other reports within the past 20 years Tier 1 : Other

12.5 Comments

Category	Comments related to data definitions etc
Forest area intended to be in permanent forest land use	According to the Forest Act the forest area in the country must be in permanent forest land use. Exceptions only for important infrastructural projects or projects very important for the society

Permanent forest estate	Forest area according to Forest Act is permanent forest estate by default. Only for projects of very important interests for the society ,forest area can change its purpose /infrastructural projects, electric power line, etc.
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Other general comments

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13. How does your country measure and report progress towards SFM at the national level?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

13.1 Categories and definitions

Category	Definition
Forest area monitored under a national forest monitoring framework	Forest area monitored by a national monitoring framework or systems that provide measurement based periodic monitoring of forest extent and quality.
Forest reporting at national scale	National reporting of forest extent and characteristics that includes some measure of progress toward sustainable forest management.

13.2 National data

13.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Forest management plans	N/A	every 10 years	Executive Forest Agency
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

13.2.2 Classification and definitions

National class	Definition
N/A	N/A

13.3 Data

Table 13a

Category	% of total forest area	Most recent year	Check all boxes that apply					
			Continuous	Periodic	Permanent ground plots	Temporary ground plots	Aerial/remote sensing sample based	Aerial/remote sensing full coverage
Forest inventory	100	2013	yes	yes	no	no	no	no
Other field assessments	N/A	2013	no	yes	no	yes	no	no
Updates to other sources	N/A	N/A	no	no	no	no	no	no
Expert estimate	N/A	N/A						

Table 13b

Type of forest reporting used at national scale	Check boxes that apply
1 Criteria and Indicators reporting	yes
2 Periodic national state of the forest report	yes
3 Other (please document)	no
4 None	no

Other type of forest reporting
N/A

13.4 Comments

Category	Comments
Other field assessment	Field assessment taken in the framework of different projects implemented by the Executive Forest Agency
N/A	N/A
N/A	N/A

Other general comments

--

14. What is the area of forest under a forest management plan and how is this monitored?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

14.1 Categories and definitions

Category	Definition
Forest area with management plan	Forest area that has a long-term documented management plan, aiming at defined management goals which is periodically revised
...of which for production (<i>sub-category</i>)	Forest management plan mainly focused on production
...of which for conservation (<i>sub-category</i>)	Forest management plan mainly focused on conservation
Monitoring of forest management plans	Government monitoring of forest management plan implementation conducted through field visits or audits of forest management plan performance

14.2 National data

14.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National forest fund report (NFB)	Wood production forests; Protected forests; Recreational forests; Others	Since 1955	Executive Forest Agency
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

14.3 Data

Table 14a

Forest plan type	Forest area 2010 (000 ha)
Forest area with management plan	3737
... of which for production	2387
... of which for conservation	1350

Table 14b

Indicate which (if any) of the following are required in forest management plans in your country	
1 Soil and water management	yes

2 High conservation value forest delineation	yes
3 Social considerations community involvement	yes

Table 14c

Percent of area under forest management plan that is monitored annually	10
--	-----------

Tiers

Category	Tier for status
Forest area with management plan	Tier 1
Percent of area under forest management plan that is monitored annually	Tier 1

Tier criteria

Category	Tier for status
Forest area with management plan	Tier 3 : Reports that describe national records 5 years old or less that contain long-term forest monitoring plans Tier 2 : Industry or other records indicating the presence of a long-term forest management plan Tier 1 : Other
Percent of area under forest management plan that is monitored annually	Tier 3 : Government documentation of monitoring extent Tier 2 : Reports from forest managers or other documental sources Tier 1 : Other

14.4 Comments

Category	Comments
Forest area with management plan	Almost all forest within the forest fund of Bulgaria have forest management plan. Only the forest lands under 2 ha and private ownership are not obligated to have a forest management plan according to Bulgarian legislation. But if they decide to have harvesting on their area than they are obligated to have forest management plan.
Tier - other	N/A
N/A	N/A

Other general comments

Not sure what is exactly recommended with your comment. - see "Tier - other"
--

15. How are stakeholders involved in the management decision making for publicly owned forests?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

15.1 Categories and definitions

Category	Definition
Stakeholder involvement	Stakeholder involvement is defined as significant inputs into at least one aspect of forest management at the operational scale

Table 15

Please indicate the type of stakeholder involvement in forest management decision making required in your country	
1. Planning phase	yes
2. Operations phase	no
3. Review of operations	yes

Tiers

Category	Tier for status
Type of stakeholder inputs	Tier 3

Tier criteria

Category	Tier for status
Type of stakeholder inputs	Tier 3 : Government (national or sub-national) documentation of stakeholder inputs Tier 2 : Government (national or subnational) requirement but stakeholder inputs not documented Tier 1 : Other

15.2 Comments

Category	Comments
Planning phase	According to the national legislation stakeholders are involved in the planning phase of the elaboration of forest management plans through their direct participation in the official expert meetings for their preparation and approval - giving suggestions, opinions, etc.
Review of operators	Participation in official public discussions
N/A	N/A

Other general comments

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16. What is the area of forest under an independently verified forest certification scheme?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

16.1 Categories and definitions

Category	Definition
FSC certification	Forest area certified under the Forest Stewardship Council certification scheme
PEFC certification	Forest area certified under the Programme for the Endorsement of Forest Certification scheme
Other international forest management certification	Forest area certified under an international forest management certification scheme with published standards and is independently verified by a third-party, excluding FSC and PEFC certification.
Certified forest area using a domestic forest management certification scheme	Area certified under a forest management certification scheme with published standards that are nationally recognized and independently verified by a thirdparty

16.2 Data

Table 16a

International forest management certification		Forest area (000 ha)						
		2000	2001	2002	2003	2004	2005	2006
	FSC	0	0	0	0	0	0	20.2
	PEFC	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0
		2007	2008	2009	2010	2011	2012	
	FSC	21.61	106.2	104.36	303.58	217.55	218.39	
	PEFC	0	0	0	0	0	0	
	Other	0	0	0	0	0	0	

Table 16b

Domestic forest management certification		Forest area (000 ha)						
		2000	2001	2002	2003	2004	2005	2006
	na	0	0	0	0	0	0	0
	na	0	0	0	0	0	0	0
	na	0	0	0	0	0	0	0

		2007	2008	2009	2010	2011	2012	
	na	0	0	0	0	0	0	
	na	0	0	0	0	0	0	
	na	0	0	0	0	0	0	

Tier criteria

Category	Tier for status
International forest management certification	Tier 3: International forest management scheme records maintained by the certifying organization for the reporting year Tier 2: International forest management scheme records reported by the certifying organization for a period 2 years prior to the reporting year Tier: 1 Other
Domestic forest management certification	Tier 3: National registry reports for domestic forest management certification maintained by the certifying organization for the reporting year Tier 2: Domestic forest management scheme records reported by the certifying organization for a period 2 years prior to the reporting year Tier: 1 Other

Tiers

Category	Tier for status
International forest management certification	Tier 3
Domestic forest management certification	Tier 3

16.3 Comments

Category	Comments related to data definitions etc
Certified forest area using an international forest management certification scheme	N/A
Domestic forest management certification	N/A

Other general comments

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17. How much money do governments collect from and spend on forests?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

17.1 Categories and definitions

Category	Definition
Forest revenue	All government revenue collected from the domestic production and trade of forest products and services. For this purpose revenue include: <ul style="list-style-type: none"> • Goods : roundwood; sawnwood; biomass; woodbased panels; pulp and paper and non-wood forest products. • Services : including concession fees and royalties, stumpage payments, public timber sales revenue taxes and charges based on forest area or yield, taxes on domestic trade and export of forest products, special levies on forestry activities and payments into forest related funds, other miscellaneous inspection, licence and administrative fees levied by forest administrations, permit and licence fees for recreation and other forest related activities.
Public expenditure on forestry	All government expenditure on forest related activities.

17.2 National data

17.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Official State Forestry Agency budget report	Revenues, Expenditures / operational, transfer/	2000, 2005, 2010	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

17.3 Data

Table 17

Category	Revenues / expenditures (000 local currency)		
	2000	2005	2010
Forest revenue	75480	72390	70416
Public expenditure on forestry	84286	91077	51369

	2000	2005	2010
Name of Local Currency	lev	lev	lev

17.4 Comments

Category	Comments related to data definitions etc
Forest revenue	N/A
Public expenditure on forestry	Due to a very big international project (Forest sector development project sponsored by World Bank), Bulgaria received the amount of 1048\$ from the World bank.
Other general comments	All European and international projects/from EU funds/ are included

Other general comments

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18. Who owns and manages the forests and how has this changed?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

18.1 Categories and definitions

Category	Definition
Public ownership	Forest owned by the State or administrative units of the public administration or by institutions or corporations owned by the public administration.
...of which owned by the state at national scale (<i>sub-category</i>)	Forest owned by the State at the national scale or administrative units of the public administration or by institutions or corporations owned by the public administration.
...of which owned by the state at the sub-national government scale (<i>sub-category</i>)	Forest owned by the State at the sub-national government scale or administrative units of the public administration or by institutions or corporations owned by the public administration.
Private ownership	Forest owned by individuals, families, communities, private cooperatives corporations and other business entities, private, religious and educational institutions, pension or investment funds, NGOs, nature conservation associations and other private institutions.
...of which individuals (<i>sub-category</i>)	Forest owned by individuals and families.
...of which private business entities and institutions (<i>sub-category</i>)	Forest owned by private corporations cooperatives companies and other business entities as well as private nonprofit organizations such as NGOs nature conservation associations, and private religious and educational institutions etc.
...of which local tribal and indigenous communities (<i>sub-category</i>)	Forest owned by a group of individuals belonging to the same community residing within or in the vicinity of a forest area or forest owned by communities of indigenous or tribal people The community members are coowners that share exclusive rights and duties and benefits contribute to the community development.
Unknown ownership	Forest area where ownership is unknown includes areas where ownership is unclear or disputed.
Categories related to management rights of public forests	Definition
Public Administration	The Public Administration (or institutions or corporations owned by the Public Administration) retains management rights and responsibilities within the limits specified by the legislation.
Individuals households	Forest management rights and responsibilities are transferred from the Public Administration to individuals or households through long-term leases or management agreements.
Private companies	Forest management rights and responsibilities are transferred from the Public Administration to corporations, other business entities private cooperatives, private nonprofit institutions and associations, etc., through long-term leases or management agreements.
Communities	Forest management rights and responsibilities are transferred from the Public Administration to local communities (including indigenous and tribal communities) through long-term leases or management agreements.
Other form of management rights	Forests for which the transfer of management rights does not belong to any of the categories mentioned above.

18.2 National data

18.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National forest fund report	Public ownership Private ownership ...of which owned by individuals ...of which owned by private business entities and institutions ...of which owned by local communities ...of which owned by indigenous / tribal communities Other types of ownership	Since 1955	Original data source of Executive forest agency
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

18.2.2 Classification and definitions

National class	Definition
State ownership	Forest owned by the State
Community ownership	Forest owned by the municipalities
Religious institution ownership	Forest area owned by the church
Private ownership	All individual, family ownership (physical and legal bodies)

18.2.3 Original data

Original data				
Original data	Forestarea (1000 hectares)			
	1990	2000	2005	2010
Public ownership	3327.027	2763.847	2651.566	2611.619

Community/ municipality/ ownership	0	205.843	427.750	465.321
Forests belonging to Ministry of Environment and Water	0	93.447	108.206	108.323
“Agricultural” forest fund	0	14.556	52.302	90.889
Educational and experimental forests	0	14.148	10.602	10.570
Private individuals	0	264.272	374.441	405.211
Private legal entities	0	3.168	8.865	27.542
Religious institutions		15.836	17.511	18.067
TOTAL	3327	3375.117	3651.243	3737.542

18.3 Analysis and processing of national data

18.3.1 Adjustment

No calibration needed

18.3.2 Estimation and forecasting

Not needed

18.3.3 Reclassification

FRA categories	National categories							
	Public ownership	Community/municipality/ownership	Forests belonging to Ministry of Environment and Water	“Agricultural” forest fund	Educational and experimental forests	Private individuals	Private legal entities	Religious institutions
Public ownership	100%	100%	100%	100%	100%			
Private ownership						100%	100%	100%
...of which owned by individuals						100%		
...of which owned by private business entities and institutions							100%	100%
...of which owned by local communities								
...of which owned by indigenous / tribal communities								

Other types of ownership								
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18.4 Data

Table 18a

Categories		Forest area (1000 hectares)			
		1990	2000	2005	2010
	Public ownership	3327	3092	3250	3286
	... of which owned by the state at national scale	3327	3092	3250	3286
	... of which owned by the state at the sub-national government scale	0	0	0	0
	Private ownership	0	283	401	451
	... of which owned by individuals	0	264	374	405
	... of which owned by private business entities and institutions	0	19	27	46
	... of which owned by local, tribal and indigenous communities	0	0	0	0
	Unknown ownership	0	0	0	0
TOTAL		3327.00	3375.00	3651.00	3737.00

Tiers

Category	Tier for status	Tier for reported trend
Public ownership	Tier 3	Tier 3
Private ownership	Tier 3	Tier 3
Unknown ownership	Tier 3	Tier 3

Tier criteria

Category	Tier for status	Tier for reported trend
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Ownership	Tier 3: National forestry statistics registers of land titles or maps on land ownership or all forest area under one ownership category that is five years old or less. Tier 2: National forestry statistics registers of land titles or maps on land ownership or questionnaires that are more than five years old. Tier 1: Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other
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Table 18b - Holder of management rights of public forests

Categories	Forest area (000 hectares)			
	1990	2000	2005	2010
Public Administration	3327	2886	2822	2577
Individuals	0	0	0	0
Private companies	0	0	0	244
Communities	0	206	428	465
Other	0	0	0	0
TOTAL	3327.00	3092.00	3250.00	3286.00

Category	Tier for reported trend	Tier for status
Public Administration	Tier 3	Tier 3
Individuals	Tier 3	Tier 3
Private companies	Tier 3	Tier 3
Communities	Tier 3	Tier 3
Other	Tier 3	Tier 3

18.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Public ownership	Community forests are state ownership	N/A
Private ownership	N/A	N/A
Unknown ownership	N/A	N/A
Management rights	The management rights of community forests belong to the community /this is defined by the Bulgarian Forestry Act/	N/A

Other general comments to the table
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N/A

19. How many people are directly employed in forestry?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

19.1 Categories and definitions

Category	Definition
Full-time equivalents (FTE)	A measurement equal to one person working full-time during a specified reference period.
Employment in forestry	Employment in activities related to production of goods derived from forests. This category corresponds to the ISIC/NACE Rev. 4 activity A02 (Forestry and logging).

19.2 National data

19.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Labour Force Survey	2000, 2005, 2010	N/A	EUROSTAT, National statistic institute
2	2000, 2005 R&D survey	2000, 2005	N/A	EUROSTAT, National statistic institute
3	EUROSTAT, National statistic institute	2010	N/A	EUROSTAT, National statistic institute
4	N/A	N/A	N/A	N/A

19.2.2 Classification and definitions

National class	Definition
N/A	N/A

19.2.3 Original data

1.1.1

	1990	2000	2005
Employment in forestry, logging and related service activities *	n.a.	26.3	20.5
...of which paid employment *	n.a.	23.0	18.9
...of which self-employment *	n.a.	3.3	1.6

*Data are reported in number of employed persons

The unit “Full-time equivalents (FTE) corresponds to one person working full time. 1000 years FTE corresponds to 1000 persons working full-time during one year, or 2000 persons working half time during one year.

19.3 Data

Table 19

Category		Employment (000 years FTE)			
		1990	2000	2005	2010
	Employment in forestry	N/A	26	21	20.2
	... of which female	N/A	N/A	5.2	5.3

19.4 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Employment in forestry	Incl. administrative staff /2378 employed/	N/A

Other general comments to the table

Data are reported in number of employed persons (data are not converted into full-time equivalents). There are no detailed data for 2010 available. The data are taken from Eurostat statistics. The female are expert calculated as a percentage. The data from EUROSTAT are taken more than 6 months ago when this report was created. Changes in the statistics are possible.

20. What is the contribution of forestry to Gross Domestic Product (GDP)?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

20.1 Categories and definitions

Category	Definition
Gross value added from forestry (at basic prices)	This category corresponds to the ISIC/NACE Rev. 4 activity A02 (Forestry and logging).

20.2 Data

Table 20 (Pre-filled data from UNdata/EUROSTAT)

Category	Million	Currency	Year for latest available information
Gross value added from forestry (at basic prices)	151.56	lev	2010

20.3 Comments

Category	Comments
N/A	N/A

Other general comments

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21. What is forest area likely to be in the future

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

21.1 Categories and definitions

Category	Definition
Government target/aspiration for forest area	Government target/aspiration for forest area for a specific year.
Forests earmarked for conversion	Forest area that is allocated/classified or scheduled to be converted into non-forest uses.

21.2 National data

21.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Forest Act	N/A	2012	Executive forest agency, www.iag.bg
2	3rd National action plan for climate change 2013 -2020, Ministry of environment and waters	N/A	N/A	N/A
3	National strategy for sustainable development of forest sector /New strategy under preparation/, Executive forest agency, Ministry of agriculture and food	N/A	2006-2015	Ministry of agriculture and food
4	Strategic plan for development of forest sector, Executive forest agency www.iag.bg	N/A	2007-2011	Executive forest agency

21.3 Data

Table 21a

Category	Forest area (000 ha)	
	2020	2030
Government target/aspiration for forest area	3900	4080

Table 21b

Category	Forest area (000 ha)
	2013

Forests earmarked for conversion	N/A
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21.4 Comments

Category	Comments
Government target/aspiration for forest area	Forest area will continue to increase, because of some tendencies marked in Forest Act, strategic or other documents, approved on governmental level, e.g. 1. Possibility for transformation of abandoned agricultural land into forest land – Forest Act, 3d national action plan for climate change 2. Biological recultivation of destroyed lands /e.g. sedimentary places of plants/, financed on governmental level /Ministry of environment and water/ 3. Compensation mechanisms in case of conversion of forest land /obligation for afforestation of the same area/
Forests earmarked for conversion	Possible only in case if the conversion is of interest of the society, e.g. infrastructure, dumping grounds, etc.

Other general comments

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