

# GLOBAL FOREST RESOURCES ASSESSMENT 2015

## COUNTRY REPORT

# **Netherlands**

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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## TABLE OF CONTENTS

Report preparation and contact persons.....	4
1. What is the area of forest and other wooded land and how has it changed over time? .....	5
2. What is the area of natural and planted forest and how has it changed over time? .....	15
3. What are the stocks and growth rates of the forests and how have they changed? .....	20
4. What is the status of forest production and how has it changed over time? .....	30
5. How much forest area is managed for protection of soil and water and ecosystem services? .....	37
6. How much forest area is protected and designated for the conservation of biodiversity and how has it changed over time? .....	42
7. What is the area of forest affected by woody invasive species? .....	45
8. How much forest area is damaged each year? .....	48
9. What is the forest area with reduced canopy cover? .....	52
10. What forest policy and regulatory framework exists to support implementation of sustainable forest management SFM? .....	53
11. Is there a national platform that promotes stakeholder participation in forest policy development? .....	56
12. What is the forest area intended to be in permanent forest land use and how has it changed over time? .....	57
13. How does your country measure and report progress towards SFM at the national level? .....	60
14. What is the area of forest under a forest management plan and how is this monitored? .....	62
15. How are stakeholders involved in the management decision making for publicly owned forests? .....	65
16. What is the area of forest under an independently verified forest certification scheme? .....	66
17. How much money do governments collect from and spend on forests? .....	68
18. Who owns and manages the forests and how has this changed? .....	71
19. How many people are directly employed in forestry? .....	76
20. What is the contribution of forestry to Gross Domestic Product (GDP)? .....	78
21. What is forest area likely to be in the future .....	79

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### Introductory Text

Place an introductory text on the content of this report

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### 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	CBS. Statistisch Jaarboek, Centraal Bureau voor de Statistiek, Heerlen/Voorburg	Other land, inland water bodies	1990-2010	N/A

2	Dirkse, G.M., W.P. Daamen, C. Schuiling, 2001, Toelichting bossenkaart, Alterra	Forest	1982, 2000	In the year 2000 a national forest map is constructed as part of a new national forest inventory system (Meetnet functievervulling bos).
3	Edelenbosch, N.H., 1996, Ex-post evaluatie van bosuitbreiding in Nederland over de periode 1990-1995, IBN-DLO, rapport 230, Wageningen	Afforestation	1990-1995	N/A
4	Nabuurs, G.J., P. Kuikman, H. Kramer, Nederlandse ontbossing bedraagt 1470 ha per jaar, Vakblad Natuur Bos Landschap, augustus/september 2005	Afforestation	1990-2000	A comparison has been made between the Dutch forest area in 1990 and 2000 respectively. A net increase in forest area of approximately 1,000 ha is recorded. The afforested area in this period was higher, but other forest area was transferred into other land use such as living areas and infrastructure.
5	Oldenburger, J. 2012. Bosomvorming zonder compensatie. Probos, Wageningen.	Deforestation	2006-2010	N/A
6	Schelhaas, M.J., A.P.P.M. Clerkx, W.P. Daamen, J. Oldenburger, G. Velema, P. Schnitger, H. Schoonderwoerd, H. Kramer, 2014. Zesde Nederlandse bosinventarisatie: Methodes en basisresultaten, Concept, versie 21 januari 2014, Alterra, Wageningen, 102 p.	Forest	2013	Results of the 6th NFI for the years 2012 and 2013.
7	Kramer, H., G.J. van den Born, J.P. Lesschen, J. Oldengarm and J.J. Van den Wyngaert, 2009. Land Use and Land Use Change for LULUCF reporting under the Convention on Climate Change and the Kyoto protocol. Alterra-report 1916, Alterra, Wageningen.	Forest	2009	This LULUCF 2009 map is based on the so called BasiskaartNatuur (Kramer, 2007). The BasiskaartNatuur is constructed by using the digital topographical map of the Netherlands (TOP10NL). This topographical map is based on aerial photographs from the period 2004-2008.

### 1.2.2 Classification and definitions

National class	Definition
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Forest	10%." /> Land spanning more than 0.5 ha with trees higher than 5 meters, or trees able to reach these thresholds in situ and a canopy cover of more than 20 percent including roads and similar structures smaller than 6 meter. Areas such as living areas situated inside forests, cemeteries and recreational areas are included in the 'forest' area if these areas have a canopy cover of > 10%.
Other wooded land	In the Netherlands the area that fit to the FAO definition of 'other wooded land' is not registered as such. Some of the area might be included in the forest area, but in general the area is not known.
Outland water bodies	Water that has an open connection with the North sea (Waddensea, Ooster- en Westerschelde).
N/A	N/A

### 1.2.3 Original data

<b>Forest area</b>						
<b>National class</b>	<b>Area (x1000 hectares)</b>					
	<b>1989</b>	<b>1996</b>	<b>2000</b>	<b>2003</b>	<b>2006</b>	<b>2008</b>
Total country area	4,153	4,153	4,153	4,153	4,154	4,155
Infrastructure (railways, main roads, airfields)	137	113	113	114	116	117
Build area (Living areas, commercial areas)	297	305	318	329	338	345
Semi-build area (mining, construction sites)	43	38	49	51	53	51

Recreation (Parks, sporting areas, others)	78	86	89	94	96	98
Agriculture	2,385	2,360	2,326	2,304	2,286	2,276
Forest and Nature	448	478	484	484	484	485
Inland water bodies	348	355	357	360	363	363
Outland water bodies	417	417	417	417	419	419

National class	Area (x1000 hectares)			
	1982	2000	2005	2010
Forest	334	360	365	373

### Forest expansion, reforestation

The forest area in the Netherlands has increased slightly over the last decade. This expansion is mainly caused by the conversion of agricultural land area to forest. The increase between 2005 and 2010 is also caused by a change in the methodology used to construct the map that the forest area is derived from.

## 1.3 Analysis and processing of national data

### 1.3.1 Adjustment

#### Forest area

Calibration was not necessary, because the national land area data matches the FAOSTAT land area.

### 1.3.2 Estimation and forecasting

#### **Forest area**

The forest area in 1990 is calculated by assuming a linear increase in forest area between 1982 (data from the fourth National Forest Area Survey) and the year 2000 (fifth National Forest Area Survey of Meetnet Functievervulling bos 2001-2005). The increase in forest area from 1982 (334,000 ha) to 2000 (360,000) is 26,000 ha. A linear increase in forest area results in an increase in forest area in the Netherlands of 1,444 ha each year. This calculation of the increase in forest area is in line with the estimation of Edelenbosch (1996) of approximately 1,400 ha each year, who studied the increase in forest area in the Netherlands over the period 1990 to 1995. The forest area in 2005 and 2010 is based on an estimation of the annual increase in forest area in the period 2000-2010. This annual increase is expected to be 1000 ha each year instead of the 1,444 ha in the previous decade. The forest area is expected to keep increasing at this rate of 1000 ha per year. Within the 6th national forest inventory that has been performed in the years 2012-2013 the LULUCF 2009 map for the Netherlands is used to estimate the forest area. This LULUCF 2009 map is based on the so called BasiskaartNatuur (Kramer *et al.*, 2009). The BasiskaartNatuur is constructed by using the digital topographical map of the Netherlands (TOP10NL). This topographical map is based on aerial photographs from the period 2004-2008. The forest area between 2010 and 2013 is kept stable to account for the increase in forest area that might have been caused by the different methodology and next to this the afforestation rate in the Netherlands is currently very low.

There is an ongoing discussion about the forest area in the Netherlands. The forest area in 2000 is based on a forest map that was constructed in 2000 and which was based on a comparison between topographical maps (Top10vector) and land use statistics. At the time of the 5th national forest inventory the sample plot outline was based on this forest map. During the fieldwork no forest was present on 8% of the measured sample plots (3622 in total). On the other hand there is an approximately evenly large area of forest on land which is not considered to be forest according to the topographical maps. The forest area data have therefore not been adjusted for this. The results of the sixth NFI did not solve this issue.

The definition of forest land differs between the FRA and the National Forest area surveys in the Netherlands. The difference lies in the percentage of canopy cover, which is 10 per cent in the FRA and 20 per cent in national surveys. No corrections in the national survey figures are made, because the forest area with a coverage of 10-20 per cent is negligible in the Netherlands. In the Netherlands the area that fits the FAO definition of 'other wooded land' is not registered as such. Some of the area might be included in the forest area, but in general the area is not known.

#### **Forest expansion, reforestation**

The afforested area in 1990 is based on an estimation of Edelenbosch (1996) who studied the increase in forest area in the Netherlands over the period 1990 to 1995. He concluded that the forest area increase with of approximately 1,400 ha each year in that period. The afforested forest area in 2000, 2005 and 2010 is based on an estimation of the annual increase in forest area in the period 2000-2010. This annual increase is expected to be 1000 ha each year instead of 1,400 ha, as the increase in forest area has slowed down from the year 2000. This forecast is supported by the findings of Nabuurs *et al.* (2005) who found a net increase of the forest area between 1990 and 2000 of 1,000 ha. No data is available for the afforestation after the year 2000. The afforested area between 2000 and 2010 is estimated to be 1,000 ha each year, based on expert judgment.

## 1.3.3 Reclassification

<b>Forest area</b>						
<b>National class</b>	<b>FRA Categories</b>					
	<b>Forest</b>	<b>Other wooded land</b>	<b>Other land</b>	<b>Other land with tree cover</b>	<b>Inland water</b>	<b>Outland water</b>
Infrastructure (railways, main roads, airfields)			100%			
Build area (Living areas, commercial areas)			100%			
Semi-build area (mining, construction sites)			100%			
Recreation (Parks, sporting areas, others)			100%			
Agriculture			100%			
Forest and nature	71% *		29% *			
Inland water bodies					100%	
Outland water bodies						100%

\*) Data from 2008, which is the most recent data.

**Forest expansion, reforestation**

Not needed.

**1.4 Data**

Table 1a

Categories		Area (000 hectares)				
		1990	2000	2005	2010	2015
	Forest	345	360	365	373	376
	Other wooded land	0	0	0	0	0
	Other land	3043	3021	3012	2999	2999
	... of which with tree cover	N/A	N/A	N/A	N/A	N/A
	Inland water bodies	765	772	776	782	787
	TOTAL	4153.00	4153.00	4153.00	4154.00	4162.00

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	1.4	1	1	1	N/A	N/A	N/A	N/A
	... of which afforestation	1.4	1	1	1	N/A	N/A	N/A	N/A
	... of which natural expansion of forest	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Deforestation	N/A	N/A	N/A	0.5	N/A	N/A	N/A	N/A
	... of which human induced	N/A	N/A	N/A	0.5	N/A	N/A	N/A	N/A
	Reforestation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	... of which artificial	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Tiers**

Category	Tier for status	Tier for reported trend
Forest	Tier 3	Tier 3
Other wooded land	Tier 1	Tier 1
Forest expansion	Tier 1	Tier 1
Deforestation	Tier 2	Tier 2

Reforestation	Tier 1	Tier 1
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## Tier criteria

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

## 1.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trends
Forest	<p>The definition for forest land in the FRA differs from the definition used in the National Forest area surveys in the Netherlands. Within the FRA land is considered forest at 10 per cent coverage, in national surveys this is 20 per cent coverage. However, no corrections in the national survey figures are made, because the forest area with coverage of 10-20 per cent is negligible in the Netherlands. In the Netherlands the area that fit to the FAO definition of 'other wooded land' is not registered as such. Some of the area other wooded land might be included in the forest area, but the percentage other wooded land of the total forest area is negligible.</p>	<p>There is an ongoing discussion about the forest area in the Netherlands. The forest area in 2000 is based on a forest map that was constructed in 2000 by comparing topographical maps (Top10vector) and land use statistics. At the time of the fifth national forest inventory the sample plot outline was based on this forest map. During the fieldwork no forest was present on 8% of the measured sample plots (3622 in total). On the other hand there is an approximately evenly large area of forest on land which is not considered to be forest according to the topographical maps. The forest area data have therefore not been adjusted for this. The increase in forest area between 2000 and 2010 has been estimated to be a little over 1000 ha per year and to keep increasing by this rate. Within the 6th national forest inventory that has been performed in the years 2012-2013, the LULUCF 2012 map for the Netherlands is used as a source of information for the forest area. This LULUCF 2012 map is based on the so called BasiskaartNatuur (Kramer, 2007). The BasiskaartNatuur is constructed by using the digital topographical map of the Netherlands (TOP10NL). This topographical map is based on aerial photographs from the period 2004-2008. The increase in forest area between 2000 and 2010 is probably more the result of the use of different methodologies to construct the maps than the result of an actual increase in the forest area.</p>

Other wooded land	In the Netherlands the area that fit to the FAO definition of 'other wooded land' is not registered as such. Some of the area might be included in the forest area, but in general the area is not known.	N/A
Other land	N/A	N/A
Other land with tree cover	In the Netherlands the area that fit to the FAO definition of 'other land with tree cover' is not registered as such. Some of the area might be included in the forest area, but in general the area is not known.	N/A
Inland water bodies	The area of inland water bodies in the years 2000 and 2005 is higher than reported in the FRA 2010. This is the result of an update of national statistics.	The increase of the area of inland water bodies is the result of the construction of the construction of the first and second Maasvlakte at the port of Rotterdam.
Forest expansion	Afforestation: The afforested area in the Netherlands is estimated by Probos to be more or less 1,000 ha per year. The afforested area is however not recorded and reported in official statistics. Natural expansion: The increase in forest area in the Netherlands by natural expansion is not known. Natural expansion occurs in other types of nature areas that lay adjacent to forest and on abandoned industrial sites. However, most often the trees are removed within five years. In the case of the nature areas the trees are removed as sometimes other nature types are valued higher than forests. In case of the expansion on abandoned industrial areas the trees are removed if the areas are reoccupied.	N/A
Deforestation	Deforestation in the Netherlands takes place on a relatively small scale. The deforestation is mostly the result of transformation to other types of nature like heather and for road construction and in some cases for building projects. Organisations in the Netherlands are obliged by law to compensate deforestation by afforestation elsewhere. This is not always done within the prescribed period.	N/A

Reforestation	The reforested forest area in the Netherlands is not known. In general clear cuts are no longer common practice in forest management in the Netherlands. Forest management in the Netherlands is mostly based on the principles of continuous cover forest management in which natural processes, such as natural regeneration, play a key role. Most regeneration is established by creating gaps in the canopy of 1 to 3 times the tree height in which the establishment of natural regeneration is stimulated. Most of the reforestation will make use of natural regeneration, in some cases enhanced by planting of (broadleaved) species.	N/A
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#### Other general comments to the table

Detailed information about forest regeneration such as requested in this table is not available in the Netherlands. In the 4th national forest inventory (1980-1983) the method of regeneration used to establish forest between 1964 and 1983 in the Netherlands is reported. 43,000 ha in total have been regenerated in this period. 95% of this area was regenerated by planting, 2% by seeding and the other 3% by natural regeneration. It is not possible to extrapolate these values to 1990, 2000 and 2005, because in the 5th national forest inventory (2001-2005) the type of regeneration is not reported as such. In this inventory the amount of regeneration inside the forest is determined by counting the number of young trees (dbh 5-8 cm). These trees with a dbh between 5 and 8 cm are the youngest trees that are measured during the inventory. The regeneration type is not recorded. Next to this, forest management in the Netherlands has changed since 1983 from a classic clear cut system into a nature oriented forest management system in which natural process, such as natural regeneration, play a key role. In general clear cuts are no longer common practice in forest management in the Netherlands. Most regeneration is established by creating gaps in the canopy of 1 to 3 times the tree height in which the establishment of natural regeneration is stimulated. However if a threshold of ten years is used the area under regeneration in the Netherlands for the years 1990, 2000 and 2005 is respectively 25, 18 and 21. As mentioned the regeneration type is not known. Most of the regenerated area will however be established by making use of natural regeneration, in some cases enhanced by planting.

## 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 <b>outside</b> 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	CBS, 1985. De Nederlandse bosstatistiek, CBS, Den Haag	All variables of this question.	N/A	N/A

2	Dirkse, G.M., W.P. Daamen, H. Schoonderwoerd, M. Japink, M. van Jole, R. van Moorsel, P. Schnitger, W. Stouthamer, M. Vocks, 2006. Meetnet Functievervulling bos 2001-2005, Vijfde Nederlandse Bosstatistiek, Directie Kennis, nr. DK065, Ministerie van Landbouw, natuur en Voedselkwaliteit, Directie Kennis, januari 2006	All variables of this question.	2001-2005	The results of the 5th national forest inventory (MFV).
3	Schelhaas, M.J., A.P.P.M. Clerkx, W.P. Daamen, J. Oldenburger, G. Velema, P. Schnitger, H. Schoonderwoerd, H. Kramer, 2014. Zesde Nederlandse bosinventarisatie: Methodes en basisresultaten, Concept, versie 21 januari 2014, Alterra, Wageningen, 102 p.	All variables of this question.	2012-2013	The results of the 6th national forest inventory.
4	N/A	N/A	N/A	N/A

### 2.2.2 Classification and definitions

National class	Definition
Introduced species	Those species are considered as introduced that are not native to the Netherlands. The following tree species are considered as native: <i>Acer pseudoplatanus</i> , <i>Alnus glutinosa</i> , <i>Betula pendula</i> , <i>B. pubescens</i> , <i>Carpinus betulus</i> , <i>Fagus sylvatica</i> , <i>Fraxinus exelsior</i> , <i>Pinus sylvestris</i> , <i>Populus tremula</i> , <i>P. canescens</i> , <i>P. nigra</i> , <i>Prunus avium</i> , <i>Quercus petraea</i> , <i>Quercus robur</i> , <i>Salix alba</i> , <i>S. fragilis</i> , <i>Tilia platyphyllos</i> , <i>T. cordata</i> , <i>Ulmus minor</i> and <i>U. glabra</i> . The most common introduced tree species are: <i>Larix decidua</i> , <i>Larix kaempferi</i> , <i>Picea abies</i> , <i>Pinus strobus</i> , <i>Pinus pinaster</i> , <i>Abies grandis</i> , <i>Picea omorika</i> , <i>Picea sitchensis</i> , <i>Pseudotsuga menziesii</i> , <i>Prunus serotina</i> , <i>Tsuga heterophylla</i> , <i>Picea orientalis</i> , <i>Picea sitchensis</i> , <i>Robinia pseudoacacia</i> , <i>Quercus rubra</i> , <i>Acer platanoides</i> and all other <i>Populus</i> and <i>Salix</i> species.
N/A	N/A
N/A	N/A
N/A	N/A

### 2.2.3 Original data

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## 2.3 Analysis and processing of national data

## 2.3.1 Adjustment

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## 2.3.2 Estimation and forecasting

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## 2.3.3 Reclassification

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## 2.4 Data

Table 2a

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Primary forest	0	0	0	0	0
	Other naturally regenerated forest	0	0	0	0	0
	... of which of introduced species	0	0	0	0	0
	... of which naturalized	0	0	0	0	0
	Planted forest	345	360	365	373	376
	... of which of introduced species	107	106	105	100	96
TOTAL		345.00	360.00	365.00	373.00	376.00

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
0	0	0	0	0	0	0	0	0

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
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## 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
Primary forest/Other naturally regenerated forest/Planted forest	<p><b>Tier 3</b> : 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><b>Tier 2</b> : Data sources: Full cover mapping/ remote sensing or old NFI (more than 10 years) <b>Tier 1</b> : Other</p>	<p><b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other</p>

## 2.5 Comments

Category	Comments related to data definitions etc	Comments on reported trend
Primary forest	N/A	N/A
Other naturally regenerating forest	N/A	N/A

Planted forest	Originally the largest part of the forest area in the Netherlands was planted with a regular spacing and one or two species in even-aged stands with wood-production as the main purpose. A rapid change towards multifunctional forest (e.g. ecological values, recreation, wood production etc.), started in the seventies of the 20th century, had an impact on the management of these even-aged stands. This type of forest management aims to change the forest stands into stands with more variation in age and number of tree species. Wood production however, is still an important goal in forest management in the Netherlands. Natural regeneration plays an important role in the transformation process from the even-aged, monocultural stands into stands with more variation in age and tree species. Although a small part of the forest area consists of stands that have been cleared and re-established by (human influenced) natural regeneration, almost all forest area in the Netherlands originates from planted forest and is therefore reported as planted forest.	N/A
Mangroves	N/A	N/A

#### Other general comments to the table

The following tree species are considered as native: *Acer pseudoplatanus*, *Alnus glutinosa*, *Betula pendula*, *B. pubescens*, *Carpinus betulus*, *Fagus sylvatica*, *Fraxinus exelsior*, *Pinus sylvestris*, *Populus tremula*, *P. canescens*, *P. nigra*, *Prunus avium*, *Quercus petraea*, *Quercus robur*, *Salix alba*, *S. fragilis*, *Tilia platyphyllos*, *T. cordata*, *Ulmus minor* and *U. glabra*. The most common introduced tree species are: *Larix decidua*, *Larix kaempferi*, *Picea abies*, *Pinus strobus*, *Pinus pinaster*, *Abies grandis*, *Picea omorika*, *Picea sitchensis*, *Pseudotsuga menziesii*, *Prunus serotina*, *Tsuga heterophylla*, *Picea orientalis*, *Picea sitchensis*, *Robinia pseudoacacia*, *Quercus rubra*, *Acer platanoides* and all other *Populus* and *Salix* species.

### 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	HOSP, 1994, Houtoogst in het Nederlandse bos 1988 tot 1992	Growing stock and Net Annual Increment	1988-1992	N/A
2	Schoonderwoerd, H., W.P. Daamen, 2000, Kwantitatieve aspecten van het bos en bosbeheer in Nederland: Resultaten Houtoogststatistiek 1995-1999	Growing stock and Net Annual Increment	1995-1999	N/A

3	Dirkse, G.M., W.P. Daamen, H. Schoonderwoerd, M. Japink, M. van Jole, R. van Moorsel, P. Schnitger, W. Stouthamer, M. Vocks, 2006, Meetnet Functievervulling bos 2001-2005, Vijfde Nederlandse Bosstatistiek, Directie Kennis, nr. DK065, Ministerie van Landbouw, natuur en Voedselkwaliteit, Directie Kennis, januari 2006	Growing stock, Net Annual Increment, Above-ground biomass, Below-ground biomass, Dead wood	2001-2005	The results of the 5th national forest inventory system (Meetnet functievervulling bos).
4	Daamen, W.P., 2002, Forest biomass stocks (IPCC), Stichting Bosdata	Above- and Below-ground biomass	1990-2000	N/A
5	Schelhaas, M.J., A.P.P.M. Clerkx, W.P. Daamen, J. Oldenburger, G. Velema, P. Schnitger, H. Schoonderwoerd, H. Kramer, 2014. Zesde Nederlandse bosinventarisatie: Methodes en basisresultaten, Concept, versie 21 januari 2014, Alterra, Wageningen, 102 p.	Growing stock, Net Annual Increment, Above-ground biomass, Below-ground biomass, Dead wood	2012-2013	The results of the 6th national forest inventory system.
6	Nabuurs, G.J., I.J. van den Wyngaert, W.D. Daamen, A.T.F. Helmink, W. de Groot, W.C. Knol, H. Kramer, P. Kuikman, 2005. National System of Greenhouse Gas Reporting for Forest and Nature Areas under UNFCCC in The Netherlands. Wageningen, Alterra, Alterra-report 1035.1. 57 p.	Carbon in above- and below-ground biomass, carbon in dead wood, carbon in litter, soil carbon	2005, 2010	N/A

### 3.2.2 Classification and definitions

National class	Definition
N/A	N/A

### 3.2.3 Original data

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### 3.3 Analysis and processing of national data

#### 3.3.1 Adjustment

##### Growing stock

See paragraph comments for an explanation of the calculation process.

##### Biomass stock

This table presents the growing stock share of both coniferous and deciduous species in the Netherlands for both the living wood part as the dead wood part of the growing stock.

	Growing stock share (in per cent)				
	1990	2000	2005	2010	2015
Conifers living	59	56	54	52	52
Broadleaves living	41	44	46	48	48
Conifers dead	55	49	44	39	39
Broadleaves dead	45	51	56	61	61

#### 3.3.2 Estimation and forecasting

##### Growing stock

- The growing stock value for the year 2005 is based on the results of the 5th national forest inventory (MFV). The growing stock in 2010 is estimated by assuming a linear development between 2005 and 2015 (based on the results of the 5th and 6th NFI).
- The growing stock on the area that is not in the survey is determined by using a figure of Daamen (2002) who estimated the growing stock as 87 m<sup>3</sup>/ha.
- For the year 2010 the growing stock for coniferous species and broadleaved species is estimated by assuming a linear development in the period 2005 to 2015 (based on the results of the 5th to the 6th NFI).
- For the year 2015 the growing stock is estimated by using the results from the 6th national forest inventory that has been executed in 2012 and 2013. For the forest area that was not in the survey the assumption is made that the average growing stock per hectare on the forest that is in the survey can also be used to calculate the growing stock on the area that is outside the survey.

##### Biomass stock

The standing and lying dead wood volume for the year 2005 are derived from the results of the 5th national forest inventory (MFV). No distinction is made between coniferous and broadleaved species within the standing and lying dead wood volume. The shares of coniferous and broadleaved species within these two dead wood components is for this reason expected to be the same as in the total volume of dead wood. See table above (44% coniferous and 56% broadleaves).

### 3.3.3 Reclassification

#### Growing and biomass stock

No reclassification into FRA2010 classes was necessary.

### 3.4 Data

Table 3a

Category		Growing stock volume (million m <sup>3</sup> over bark)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
	Total growing stock	52	61	71	76	81	0	0	0	0	0
	... of which coniferous	31	34	39	39	41	0	0	0	0	0
	... of which broadleaved	21	27	32	37	41	0	0	0	0	0

Table 3b

Category/Species name			Growing stock in forest (million cubic meters)			
Rank	Scientific name	Common name	1990	2000	2005	2010
1 st	<i>Pinus sylvestris</i>	Scots pine	16.8	16.8	19.5	19.9
2 nd	<i>Quercus petraea</i> and <i>robur</i>	European oak	7.4	11.6	12.8	14.4
3 rd	<i>Pseudotsuga menziesii</i>	Douglas fir	3.1	5.3	6.1	6.4
4 th	<i>Picea</i> spp.	Spruce spp.	3.1	2.1	5	5
5 th	<i>Fagus sylvatica</i>	European Beech	3.1	3.2	4.1	4.7
6 th	<i>Betula</i> spp.	Birch spp.	2.6	3.2	4.1	4.3

7 th	Larix spp.	Larch spp.	4.2	4.2	4.3	4.1
8 th	Populus spp./ Salix spp	Poplar spp. and willow spp.	3.1	4.2	4.1	3.9
9 th	Pinus spp.	Pine spp.	3.1	3.2	3.7	3.8
10 th	Quercus rubra	Red oak	1.6	2.1	3	3.1
Remaining			4.1	5.3	4.5	6.5
TOTAL			52.20	61.20	71.20	76.10

**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)	5	N/A
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)	N/A	Not included
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 <sup>3</sup> per hectare and year)				
		Forest				
		1990	2000	2005	2010	2015
	Net annual increment	7.8	8	7.5	7.4	7.3
	... of which coniferous	7.6	7.3	8.3	8.2	8.1
	... of which broadleaved	8.4	9.3	6.6	6.65	6.7

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	34	40	42	48	54	0	0	0	0	0
	Below ground biomass	7	8	8	10	11	0	0	0	0	0
	Dead wood	1	1	3	3	4	0	0	0	0	0
TOTAL		42.00	49.00	53.00	61.00	69.00	.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	17.1	20	21	24.1	26.9	0	0	0	0	0
	Carbon in below ground biomass	3.4	4	4.2	4.8	5.4	0	0	0	0	0
	<i>Subtotal Living biomass</i>	20.5	24	25.2	28.9	32.3	0	0	0	0	0
	Carbon in dead wood	0.5	0.6	1.4	1.7	2	0	0	0	0	0
	Carbon in litter	9	9	9	9	9	0	0	0	0	0
	<i>Subtotal Dead wood and litter</i>	9.5	9.6	10.4	10.7	11	0	0	0	0	0
	Soil carbon	37	39	40	40.5	40.5	0	0	0	0	0
TOTAL		67.00	72.60	75.60	80.10	83.80	.00	.00	.00	.00	.00

## Tiers

Variable/category	Tier for status	Tier for trend
Total growing stock	Tier 3	Tier 3
Net annual increment	Tier 3	Tier 3

Above ground biomass	Tier 3	Tier 3
Below ground biomass	Tier 3	Tier 3
Dead wood	Tier 3	Tier 3
Carbon in above-ground biomass	Tier 3	Tier 3
Carbon in below ground biomass	Tier 3	Tier 3
Carbon in dead wood and litter	Tier 3	Tier 3
Soil carbon	Tier 3	Tier 3

## 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	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other
<ul style="list-style-type: none"> <li>Carbon in above ground biomass</li> <li>Carbon in below ground biomass</li> <li>Carbon in dead wood and litter</li> <li>Soil carbon</li> </ul>	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	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other

## 3.5 Comments on growing stock biomass and carbon

Category	Comments related to data definitions etc	Comments on the reported trend
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Total growing stock	<p>The fifth and sixth national forest inventory(NFI) are plot based inventories. Within the plots all trees with a minimum diameter of 5 cm are measured. Therefore the reported values differ from the FAO definition. In theory the growing stock could be calculated using the FAO definition. However, with the data from the 5th and 6th NFI, the sample size of trees in the plots would than be too low in order to get representative results.</p> <p>The growing stock, growth and removal survey (Houtoogststatistiek en prognose oogstbaar hout, HOSP) was a monitoring system of about 3,000 permanent plots, which covered about 310,000 ha of the 350,000 ha of forest in the Netherlands. No monitoring plots are established on about 40,000 ha of forest that meets the FAO definition (tree canopy cover &gt; 10%) in this enquiry, but that has another type of land use, e.g. campsites, living areas, parking places, zoological gardens. Changes in this area of 40,000 ha cannot be estimated based on the HOSP monitoring system. In order to be able to give an indication for the growing stock in this area the report of Daamen (2002) is used. According to Daamen the average growing stock per hectare over the area (40,000 ha) that is not included in HOSP should be estimated as 87 m<sup>3</sup> ha<sup>-1</sup>. This value of 87 m<sup>3</sup> ha<sup>-1</sup> is also used to calculate the growing stock for the area (65,000 ha) that was not in the 5th national forest inventory (MFV).</p>	<p>The for 2005 has been changed as a result of recalculations done based on outcomes of the 5th and 6th NFI. The fifth and sixth NFI are plot based inventories, while the NFI's before that covered the entire forest area. Therefore a new trend for the recent years could only be determined after the 6th NFI was completed</p>
Growing stock of broadleaved coniferous	N/A	<p>One of the aims in forest management in the Netherlands is to increase the forest area with broadleaved species. This is expressed by the increase in the standing stock share of broadleaves (from 40% in 1990 to 46% in 2005 and to 51% in 2015) and the decrease in the share of coniferous standing stock (from 60% in 1990 to 55% in 2005 and 49% in 2015).</p>
Growing stock composition	N/A	N/A

Net annual increment	<p>The net annual increment for the years 1990 and 2000 is based on the growing stock, growth and removal survey (Houtoogststatistiek en prognose oogstbaar hout, HOSP). This project covered about 80% of the forest area in the Netherlands. The NAI in the HOSP was reported as an average for periods of 4 years. The NAI for 1990 is the average for the period 1988-1992 and the value for the year 2000 is an extrapolation based on the values from the periode 1995-1999. The NAI for the years 2005, 2010 and 2015 are based on the 5th and 6th NFI. The big difference between 1990/2000 and 2005 is a result of a difference area and the type of forests that were covered by respectively the HOSP and the NFI. The HOSP covered only productive forests, while the NFI's cover all forests including the low productive forests and landscape elements. Furthermore, the forest area of poplar was much higher during the time of the HOSP.</p>	N/A
Above-ground biomass	<p>Conversion factors for stem volume to woody biomass above-stump and woody biomass of stumps and roots are derived from the report of Daamen (2002). 1 m<sup>3</sup> of coniferous tree volume gives 0.494 ton dry weight above stump and 1 m<sup>3</sup> of deciduous tree volume gives 0.614 ton dry weight above stump. The biomass expansion factor that is used to calculate the total tree biomass in m<sup>3</sup> is 1.2.</p>	N/A
Below-ground biomass	<p>To calculate the below-ground biomass the conversion factor for the conversion of 1 m<sup>3</sup> of tree volume to the dry weight of stump and roots of 0.201 is used for both coniferous and deciduous species.</p>	N/A

Dead wood	The growing stock, growth and removal survey (Houtoogststatistiek en prognose oogstbaar hout, HOSP) , used to determine the growing stock for 1990 and 2000, only monitors the standing dead or alive trees, so a gap exists in the data of HOSP and the required data in this enquiry. From other inventories (SYHI and Woodstock) on forest holdings in which lying dead trees are measured, it is estimated that about 1 per cent (of the growing stock volume) extra volume is from lying dead trees. Based on the results of the above mentioned inventories the biomass stock in lying dead trees is calculated and added to the volume in standing dead trees. For the year 2005 and 2015 the standing and lying dead wood volume are derived from the results of the 5th and 6th national forest inventory respectively.	N/A
Carbon in above-ground biomass	In order to calculate the carbon stock the default value of 0.5 is used (1 ton dry weight is 0.5 ton C).	N/A
Carbon in below-ground biomass	In order to calculate the carbon stock the default value of 0.5 is used (1 ton dry weight is 0.5 ton C).	N/A
Carbon in dead wood	In order to calculate the carbon stock the default value of 0.5 is used (1 ton dry weight is 0.5 ton C).	N/A
Carbon in litter	The average stock of carbon in litter in the Netherlands is 25 Mg C ha <sup>-1</sup> (Nabuurs and Mohren,1993).	N/A
Soil carbon	The average amount of stable humus in the Dutch forests is 108.65 tonnes of carbon per hectare this value is used to calculate the soil carbon value in table T7 in the country report (Nabuurs and Mohren, 1993).	N/A

**Other general comments to the table**

N/A

## 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	Dirkse, G.M., W.P. Daamen, H. Schoonderwoerd, M. Japink, M. van Jole, R. van Moorsel, P. Schnitger, W. Stouthamer, M. Vocks, 2006, Meetnet Functievervulling bos 2001-2005, Vijfde Nederlandse Bosstatistiek, Directie Kennis, nr. DK065, Ministerie van Landbouw, natuur en Voedselkwaliteit, Directie Kennis, januari 2006	N/A	2001-2005	The results of the 5th national forest inventory system (Meetnet functievervulling bos).
2	Kuiper, L.C. (ed.), 2000. Nederlands bos in beeld. Probos, Wageningen	N/A	2000	N/A

3	Schelhaas, M.J., A.P.P.M. Clerkx, W.P. Daamen, J. Oldenburger, G. Velema, P. Schnitger, H. Schoonderwoerd, H. Kramer, 2014. Zesde Nederlandse bosinventarisatie: Methodes en basisresultaten, Concept, versie 21 januari 2014, Alterra, Wageningen, 102 p.	N/A	2010	Results of the 6th NFI for the years 2012 and 2013.
4	Eurostat, 1990-2011. Joint Forest Sector Questionnaire. Eurostat, Luxembourg	Total wood removals	1990-2011	N/A
5	Bosschap, 2011. Jaarverslag. Bosschap, Driebergen.	Production forest, multiple use forest	2010	N/A

#### 4.2.2 Classification and definitions

National class	Definition
Conservation of biodiversity	The area at which nature conservation is the designated function is included in the value presented for this category.
Social services	Recreation is considered as social services in The Netherlands
Multiple use	A combination of the different functions that can be delivered by the forest in which non of the functions is considered as being the primary function (e.g. a combination of nature conservation and recreation or a combination of nature conservation, recreation and wood production).
N/A	N/A

#### 4.2.3 Original data

The forest area from Question 1 is used. The 1992 data is applied for the reporting year 1990.

### 4.3 Analysis and processing of national data

#### 4.3.1 Adjustment

Calibration was not necessary.

#### 4.3.2 Estimation and forecasting

The 13,000 hectares of forest that are established after 2000 are expected to be multifunctional forests.

## 4.3.3 Reclassification

Not needed.

## 4.4 Data

Table 4a

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Production forest	31	4	4	4	3
	Multiple use forest	280	266	271	275	281

Table 4b

Rank	Name of product	Key species	Commercial value of NWFP removals 2010 (value 1000 local currency)	NWFP category
1 st	Game meat	Cervus elaphus (4%), Sus scrofa (21%), Capreolus capreolus (73%) and Cervus dama (2%)	2700	12
2 nd	Christmas trees	Picea abies	363	6
3 rd	N/A	N/A	N/A	N/A
4 th	N/A	N/A	N/A	N/A
5 th	N/A	N/A	N/A	N/A
6 th	N/A	N/A	N/A	N/A
7 th	N/A	N/A	N/A	N/A
8 th	N/A	N/A	N/A	N/A
9 th	N/A	N/A	N/A	N/A
10 th	N/A	N/A	N/A	N/A
TOTAL			3063.00	

2010

Name of local currency

Euro

Category
<b>Plant products / raw material</b>
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
<b>Animal products / raw material</b>
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 <sup>3</sup> u.b.)	
	Total wood removals	...of which woodfuel
1990	1420	145
1991	1123	127
1992	1253	161
1993	1075	175
1994	1043	180

1995	1104	163
1996	952	123
1997	1109	123
1998	1023	150
1999	1044	162
2000	1039	160
2001	865	136
2002	839	136
2003	1044	290
2004	1026	290
2005	1110	290
2006	1107	290
2007	1022	290
2008	1117	290
2009	1016	290
2010	1081	290
2011	982	290

## Tiers

Category	Tier for status	Tier for reported trend
Production forest	Tier 1	Tier 1
Multiple use forest	Tier 1	Tier 1

## 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	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other

## 4.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Production forest	N/A	The decline in the forest area primarily assigned for production is caused by the fact that forest management in the Netherlands is shifted to a more nature oriented and multifunctional forest management. Only the area that is considered as productive plantation is for this reason added to this table under the production category.
Multiple use forest	N/A	N/A
Total wood removals	The data for 2010 and 2011 have been changed as a result of a recalculation. This was done because the the yearly survey on which the data are based could not take place for the year 2010 and the previous number was an estimate. For 2011 recalculation was necessary because of an error in one of the formulas.	N/A

Commercial value of NWFP	<p>The game meat value is determined by counting the number of forest occurring species (roe deer, red deer, fallow deer and wild boar) that were shot in 2008, as this is the most recent year of which data is available. The Royal Dutch hunters association (KNJV) estimates that 80% of these animals are sold to poultries, butchers and restaurants. This 80% is considered as marketed. The value is determined by using an average price per kg and multiplying this price with the total weight of all the animals that were shot. The total weight of these animals is determined by multiplying the average weight of the species by the number of forest occurring species that were shot. The average weight for each species is a best expert guess by the Royal Dutch hunters association and Vereniging het edelhert. Only the species that mainly occur in forests are included in the bush meat. Species such as wood-pigeons are not included in this category, because they are mainly shot on agricultural land and hardly in forests. The total number of christmas trees originating from the Netherlands and corresponding value is not known, only the exported trees (114,493) and their value are registered by the CBS. The inland production was estimated to be 750.000 in 2005. The total value was calculated from the average price per Christmas tree from the export with the estimated total number of produced Christmas trees. Also it is not known which part of the total number of Christmas trees comes from forests and which part from nurseries, but the main part (&gt;90%) is probably grown on nurseries.</p>	N/A
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#### Other general comments to the table

Originally the largest part of the forest area in the Netherlands is planted with a regular spacing and one or two species in even-aged stands with wood-production as the main purpose. A rapid change, started in the seventies of the 20th century, towards forests for multiple purposes (e.g. nature, recreation, wood production) had an impact on the management of these even-aged stands. The original purpose of wood-production is however still of importance, but is no longer the primary function. The total social services area and the area that first had wood production as the primary function is now included in the multiple purpose area. In 2000 on 24 per cent (86,000 hectares) of the forest area (excluding area of productive plantations) in the Netherlands the emphasis of forest management is on the nature conservation function of the forest (Bos accent natuur). Recreation does take place in this forest area, but is of minor importance and wood is only harvested during a transitional period. During the transitional period tree species are harvested that are considered as exotic in order to get natural forest with only native tree species. 1 % (4,000 ha) of the forest area in The Netherlands can be considered as productive plantation. The other 74 per cent of the forest in the Netherlands (266,000 hectares) is managed as multiple purpose forest. In 2001 18 per cent of the Dutch forest was closed for the general public, 73 per cent accessible on paths and 5 per cent free accessible without restrictions. The remaining 4 per cent of the forest area is accessible for the public, but only if some conditions are met.

## 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	Bosscap, 2011. Jaarverslag. Bosscap, Driebergen.	Protection of soil and water	2010	N/A

2	Stichting Probos. Kerngegevens Bos en Hout in Nederland. Probos, Wageningen.	Forest area designated or managed for public recreation	2005, 2010	N/A
3	Stichting Probos. Gegevens areaal bos binnen het Bosklimaatfonds van Nationaal Groenfonds. Probos, Wageningen.	Forest area designated or managed for carbon storage or sequestration	2005, 2010	N/A
4	N/A	N/A	N/A	N/A

### 5.2.2 Classification and definitions

National class	Definition
N/A	N/A

### 5.2.3 Original data

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## 5.3 Analysis and processing of national data

### 5.3.1 Adjustment

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### 5.3.2 Estimation and forecasting

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### 5.3.3 Reclassification

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## 5.4 Data

Table 5a

Categories	Forest area (1000 hectares)				
	1990	2000	2005	2010	2015

	Protection of soil and water	N/A	N/A	N/A	4.5	4.5
	... of which production of clean water	N/A	N/A	N/A	4.5	4.5
	... 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	0	0	0	0	0
	... 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	0	0	37.6	39.4	40.3
...of which public recreation	0	0	36.5	37	37.5
...of which carbon storage or sequestration	0	0	1.1	2.3	2.8
...of which spiritual or cultural services	0	0	0	0	0
...of which other (please specify in comments below the table)	0	0	0	0	0

Tiers

Category	Tier for reported trend	Tier for status
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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
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	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other
<ul style="list-style-type: none"> <li>• Cultural or spiritual values</li> <li>• Public recreation</li> <li>• Spiritual or cultural services</li> <li>• Other</li> </ul>	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	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : 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	The forest area owned and managed by the waterworks in the Netherlands, reported by the Bosschap in their annual Report, are considered as the forest area designated for the production of clean water.	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	N/A	N/A
Other protective functions	N/A	N/A
Ecosystem services, cultural or spiritual values	N/A	N/A

Public recreation	83% of the forest area in the Netherlands is open for public. In all these forests people are allowed to use the paths freely between sunset and sundown. In 10% of the Dutch forest area it is allowed to walk everywhere, not just on the paths. This forest area is considered as forest area primarily designated or managed for public recreation	N/A
Carbon storage or sequestration	The Nationaal Groenfonds (The Dutch National Fund for Rural Areas) opened the Forest Climat Fund in 2001. This fund aims to contribute to an increase of carbon sequestration and the expansion of forest in the Netherlands. The area of forest registered to this fund is considered to be the only forest area primarily designated or managed for carbon storage or sequestration.	In the last years the increase of forest area within the Forest Climat Fund has slowed down. The area is expected to keep increasing with 100 ha each year.
Spiritual or cultural services	In recent years some forest area has been designated as a new type of cemeteries, places where people can bury the deceased in the forest (no tombstones or such are allowed). The area is however too little to report here.	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	Kuiper, L.C. (ed.), 2000. Nederlands bos in beeld. Probos, Wageningen.	Forest area within protected areas	2000	N/A
2	Dort, K.W. van, 1999, Evenwichtig netwerk bosreservaten, Vakblad Natuurbeheer, 7 (1999), p. 101-105	Conservation of biodiversity	1999	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
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

See 4.3.1.

### 6.3.2 Estimation and forecasting

### 6.3.3 Reclassification

## 6.4 Data

Table 6

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Conservation of biodiversity	0.5	3.5	3.5	3.5	3.5
	Forest area within protected areas	N/A	80	84	87	90

### Tiers

Category	Tier for status	Tier for reported trend
Conservation of biodiversity	Tier 2	Tier 2
Forest area within protected areas	Tier 1	Tier 1

### Tier criteria

Category	Tier for status	Tier for reported trend
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<ul style="list-style-type: none"> <li>• Conservation of biodiversity</li> <li>• Forests within protected areas</li> </ul>	<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><b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other</p>
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## 6.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Conservation of biodiversity	<p>In the Netherlands 3,500 ha (1 %) of forest is assigned as permanent forest reserves. These reserves are spread over the country and represent the different forest types in the Netherlands. They are used to study the natural processes that take place in Dutch forest after management has stopped. There are in total 60 forest reserves in the Netherlands with an area ranging from 5 to 400 hectares Recreation does take place but no management activities are allowed.</p>	<p>The Forest Reserve programme in the Netherlands started in 1983. 60 forest areas were selected and were gradually transformed into permanent reserves. In 1990 551 ha of forest reserves were already established. This area increased gradually to 3,500 ha in 2000 when the last of the 60 selected forest areas was officially established.</p>
Forest area within protected areas	<p>The forest area within protected areas consists of the forest area within National Parks (31.400 ha) (IUCN code II and other protected forest area as reported under IUCN code III to VI. Data for the Netherlands is only available for the total of these IUCN codes and it is therefore not possible to exclude the area with the codes V and VI.</p>	<p>The increase is a result of the increase in the total forest area and especially the increase in forest area managed by nature protection organisations.</p>

### Other general comments to the table

Originally the largest part of the forest area in the Netherlands is planted with a regular spacing and one or two species in even-aged stands with wood-production as the main purpose. A rapid change, started in the seventies of the 20th century, towards forests for multiple purposes (e.g. nature, recreation, wood production) had an impact on the management of these even-aged stands. The original purpose of wood-production is however still of importance, but is no longer the primary function. The total social services area and the area that first had wood production as the primary function is now included in the multiple purpose area. In 2000 on 24 per cent (86,000 hectares) of the forest area (excluding area of productive plantations) in the Netherlands the emphasis of forest management is on the nature conservation function of the forest (Bos accent natuur). Recreation does take place in this forest area, but is of minor importance and wood is only harvested during a transitional period. During the transitional period tree species are harvested that are considered as exotic in order to get natural forest with only native tree species. Less than 1 % (3,000 ha) of the forest area in The Netherlands can be considered as productive plantation. The other 74 per cent of the forest in the Netherlands (274,000 hectares) is managed as multiple purpose forest.

## 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	Dirkse, G.M., W.P. Daamen, H. Schoonderwoerd, M. Japink, M. van Jole, R. van Moorsel, P. Schnitger, W. Stouthamer, M. Vocks, 2006, Meetnet Functievervulling bos 2001-2005, Vijfde Nederlandse Bosstatistiek, Directie Kennis, nr. DK065, Ministerie van Landbouw, natuur en Voedselkwaliteit, Directie Kennis, januari 2006	Invasive species	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

#### 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
Prunus serotina	162	167
N/A	N/A	N/A
Total	162	167

### Tiers

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

Category	Tier for status	Tier for reported trend
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	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other

### 7.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Invasive species	Prunus serotina was introduced in the Dutch forests around 1920 in order to improve the quality of the litter layer in softwood stands and to stimulate the height growth of the trees. After 1950 the State forest service noticed that the species was spreading through the forest in which it was planted. Due to its presence it prevented and prevents other species from establishing inside the forests. For this reason forest owners are fighting against the species, but in the end they don't succeed. According to the Meetnet Functievervulling, the species is present as tree, shrub or sapling in 45% of the Dutch forest (162,000 ha) in 2005. The percentage of 45% is not expected to have changed and it is therefore used to calculate the area affected by Prunus serotina from the total forest area in the Netherlands in 2010.	The reported area affected by Prunus serotina for 2005 has been altered compared to the reporting for the Forest Resource Assessment 2010, as new information has become available. It is now significantly higher.

#### 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	MODIS data as provided by FAO	Burned area	2003-2012	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

#### 8.2.2 Classification and definitions

National class	Definition
N/A	N/A

## 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	0.29	N/A	0.19	N/A	0.1	N/A	0.06	N/A	0.19	N/A
	... of which forest area burned	0.02	N/A	0.04	N/A	0.04	N/A	0	N/A	0	N/A
Category		2008		2009		2010		2011		2012	
		000 ha	#	000 ha	#	000 ha	#	000 ha	#	000 ha	#
	Total land area burned	0.06	N/A	0.33	N/A	0.04	N/A	0.48	N/A	0.06	N/A
	... of which forest area burned	0	N/A	0.17	N/A	0	N/A	0.08	N/A	0	N/A

Table 8b

Outbreak category	Description/name	Year(s) of latest outbreak	Area damaged (000 hectares)
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1	Operophtera brumata	2007	N/A
1	Erannis defoliaria	2007	N/A
1	Tortrix viridana	2007	N/A
1	Agrilus biguttatus	1998	N/A
1	Ips typographus	2004	N/A
2	Pseudomonas syringae	2002	N/A
2	Chalara fraxinea (Hymenoscyphus pseudoalbidus)	2010	N/A
N/A	N/A	N/A	N/A
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"> <li>• Insects</li> <li>• Diseases</li> <li>• Severe weather events</li> </ul>	Tier 2	Tier 2

### Tier criteria

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

## 8.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Burned area	<p>Untill 1994 data was recorded on the number of fires and the burnt area of forest and nature area by the ministry of Agriculture, Nature and Food Quality in cooperation with the sector of forestry and nature conservation. After that year this way of recording stopped and the only the number of fires was recorded by the fire department. In this data recording all the fires outside municipal boundaries were taken together, regardless wether they occurred in forest and nature areas or along highways, agricultural land, etc. Also the burnt area is not recorded. The number of fires increased dramatically from 200 on average per year in before 1995 to 5000 per year, which shows the discrepancy in the data. Because the data recorded by the fire department is not a reliable reliable source for fires occurring in forest and nature, the data as provided by the FAO (from MODIS) is used. Although this data may not be totally complete, it is the most reliable source of information.</p>	N/A
Insects	N/A	N/A
Diseases	<p>In 2010 the outbreak of Chalara fraxinea (<i>Hymenoscyphus pseudoalbidus</i>) started. This disease rapidly spread across the Netherlands and is now present in the whole country. It is not know exactly how many hectares of forest with ash has been infected and what the effects will be on these forests on the long term, but the expectation is that the disease will be present in all forests with ash in the next years.</p>	N/A
Severe weather events	N/A	N/A

### Other general comments to the table

N/A

## 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	N/A

Tiers

Category	Tier for reported trend
Reduction in canopy cover	N/A

Tier criteria

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

Comments

Category	Comments related to data definitions etc
Reduction in canopy cover	The FAO has provided an estimate of the forest area with reduced canopy cover in the Netherlands based on the MODIS VCF sensor. According to this estimation for 370,000 ha of forest in the Netherlands there has been a reduction in canopy cover of more than 20% between the years 2000 and 2010. This implies that the entire Dutch forest area is subject to reduction in canopy cover between 2000 and 2010. This estimation is incorrect and on behalf of the Dutch government we sharply reject it. Exact figures on the forest area with reduced canopy cover are not available. Data from the 6th NFI (2012-2013) shows however that more than 292,000 ha of forest falls within the class of 50-100% canopy cover, whereas in the 5th NFI (2001-2005) approximately 220,000 ha of forest was in this class. Also, the growing stock volume in the entire Dutch forest has increased from 62 million m <sup>3</sup> in 2000 to 72 million m <sup>3</sup> in 2010. These developments clearly show that in a significant part of the Dutch forest, the canopy cover has not reduced but increased. In general the forest area where the canopy has reduced with more than 20% between 2000 and 2010 will be negligible. Most Dutch forests are either protected or under sustainable forest management with the aim for the majority of the forests being continuous cover forestry. Therefore significant reduction of the canopy cover in the near future is not to be expected.

Other general comments

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## 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	Ministerie van Infrastructuur en Milieu, 2013. Factsheet Green Deal Bevorderen Duurzaam Bosbeheer. Den Haag.	Policies supporting sustainable forest management	2013	A green deal is an agreement between the government and organisations representing a certain sector, in which both parties commit to objectives on sustainability.
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

#### 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
... of which, in <u>publicly</u> owned forests	yes		yes	no
... of which, in <u>privately</u> owned forests	yes		yes	no
Legislation and regulations supporting sustainable forest management	no		no	no
... of which, in <u>publicly</u> owned forests	no		no	no
... of which, in <u>privately</u> owned forests	no		no	no

## 10.4 Comments

Variable / category	Comments related to data definitions etc
Policies supporting sustainable forest management	<p>Third party independent forest certification is chosen to define sustainable forest management. However, the total forest area in the Netherlands can be considered as under sustainable management, because the total forest area in the Netherlands is protected by the forest act which aims to prevent the forest area from decreasing. Next to that the sustainable conservation of the forest is one of the criteria in the subsidy scheme that is in place in the Netherlands. Most of the forest owners make use of this subsidy scheme. In 2013 a so called Green Deal was signed by the Ministry of Infrastructure and Environment and several important organisations from the forestry and wood producing sector. In this Green Deal they agreed to promote sustainable forest management worldwide and to increase the percentage of wood from sustainably managed forests on the Dutch market. This Green Deal does however not include any specific goals or actions to promote sustainable forest management for forests in the Netherlands. The Netherlands does not have a national forest programme within the framework of the EU Forest Action Plan.</p>

<p>Legislation and regulations supporting sustainable forest management</p>	<p>There is no specific legislation or regulations in the Netherlands in which sustainable forest management is described and included. There are however laws and regulations that indirectly support sustainable forest management such as the forest law and Natura2000. Currently the legislation concerning forest and nature is evaluated with the aim to integrate the Flora and fauna act, the nature protection law 1998 and forest law into one law.</p>
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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	N/A	N/A	N/A
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?	no
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### 11.3 Comments

Category	Comments related to data definitions etc
National stakeholder platform	N/A

Other general comments

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## 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	Ministerie van Economische Zaken, 2014, Boswet, Ministerie van Economische Zaken, Den Haag	Forest area intended to be in permanent forest land use	2010	This reference is also relevant for the variable Permanent forest estate, see comment 2
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

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## 12.3 Analysis and processing of national data

### 12.3.1 Adjustment

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### 12.3.2 Estimation and forecasting

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### 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	373
	... of which permanent forest estate	373

### 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	<b>Tier 3</b> : National or sub-national land use plans strategy documents or other reports within the past 10 years <b>Tier 2</b> : National or sub-national land use plans strategy documents or other reports within the past 20 years <b>Tier 1</b> : Other
Permanent forest estate	<b>Tier 3</b> : National or sub-national land use plans strategy documents or other reports within the past 10 years <b>Tier 2</b> : National or sub-national land use plans strategy documents or other reports within the past 20 years <b>Tier 1</b> : Other

## 12.5 Comments

Category	Comments related to data definitions etc

Forest area intended to be in permanent forest land use	<p>Since 1961 all forests larger than 0,1 hectare and rows of trees consisting of more than 20 trees, are by law protect in the Forest law (Boswet). This law prohibits the removal of forests larger than 0,1 hectare and rows of trees consisting of more than 20 trees. In some cases however, the government can make an exemption. In this case, the owner of the forest that is to be cut down has to compensate the exact forest area elsewhere. On average, this exemption is given for 0.1% of the forest area in the Netherlands each year. In principle, this means that the total forest area in the Netherlands is designated as forest and it is highly unlikely to be converted into another type of land use.</p>
Permanent forest estate	<p>In the FRA workshop in Geneva in October 2013 it was concluded that forest area which is protected by law is considered as permanent forest estate. The fact that exceptions can be made as mentioned above, does not influence this. Therefore, the total forest area in the Netherlands is reported in this category.</p>

#### 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	Schelhaas, M.J., A.P.P.M. Clerkx, W.P. Daamen, J. Oldenburger, G. Velema, P. Schnitger, H. Schoonderwoerd, H. Kramer, 2014. Zesde Nederlandse bosinventarisatie: Methodes en basisresultaten, Concept, versie 21 januari 2014, Alterra, Wageningen, 102 p.	Forest area monitored under a national forest monitoring framework and Forest reporting at national scale	2012-2013	The results of the 6th national forest inventory.
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	2014	no	yes	yes	yes	no	no
Other field assessments	N/A	N/A	no	no		no	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	no
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
N/A	N/A
N/A	N/A
N/A	N/A

Other general comments

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## 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	Boschap jaarverslag	Forest area with management plan	2010	N/A
2	Probos, 2005, Kerngegevens Bos en Hout in Nederland	Forest area with management plan	2010	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	297
... of which for production	N/A
... of which for conservation	N/A

Table 14b

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

2 High conservation value forest delineation	
3 Social considerations community involvement	

Table 14c

<b>Percent of area under forest management plan that is monitored annually</b>	<b>N/A</b>
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## Tiers

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

## Tier criteria

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

## 14.4 Comments

<b>Category</b>	<b>Comments</b>
Forest area with management plan	In the Netherlands there is no obligation for both public and private forest owners to have a forest management plan. It is assumed however that there is a long term management plan for the total forest area owned and managed by public organisations (181,000 ha) and nature conservation organisations (58,000 ha). Next to this it is estimated that one third of the private forest owners (58,000 ha) have a long term management plan. In total the estimated forest area with a management plan is quite a bit higher than reported in the previous FRA. This is the result of different assumptions in the estimation based on new information. Pretty much all forest area in the Netherlands are managed as multifunctional forest. For part of these forests there is emphasis one of the forest funtions, but it is not known which part of the management plans is mainly focused on production and which part on nature conservation.
N/A	N/A
N/A	N/A

## Other general comments

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## 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	no
2. Operations phase	no
3. Review of operations	no

Tiers

Category	Tier for status
Type of stakeholder inputs	Tier 1

Tier criteria

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

### 15.2 Comments

Category	Comments
Stakeholder involvement	There is no structural system of stakeholder involvement in the Netherlands, although occasionally volunteers are invited to give their input as a basis for the management of certain forest and nature areas.
N/A	N/A
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	112.55	115.46	99.03	99.03	162.72
	PEFC	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0
		2007	2008	2009	2010	2011	2012	
	FSC	148.16	151.79	151.61	152.08	157.7	171.29	
	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
	N/A	0	0	0	0	0	0	0
	N/A	0	0	0	0	0	0	0
	N/A	0	0	0	0	0	0	0

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

## Tier criteria

Category	Tier for status
<b>International</b> 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
<b>Domestic</b> 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
<b>International</b> forest management certification	Tier 3
<b>Domestic</b> 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	Third party independent forest certification is chosen to define sustainable forest management. Third party independent forest certification was not in practice until 2002. For this reason the area under sustainable forest management in 2000 was 0. The presented data differs slightly from the data provided by FAO. This is result of a different measuring point in time. The presented data gives the certified area on the 31st of December for each year, while the FAO presents the data from the 1st of July. The data at the end of the year is considered to be more relevant as this excludes any changes later in the year.
Domestic forest management certification	There are no domestic forest management certification schemes in the Netherlands

## 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"> <li>• <b>Goods</b> : roundwood; sawnwood; biomass; woodbased panels; pulp and paper and non-wood forest products.</li> <li>• <b>Services</b> : 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.</li> </ul>
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	Berger, E.P., J. Luijt & M.J. Voskuilen. 2007. Bedrijfsuitkomsten in de Nederlandse particuliere bosbouw over 2005. LEI, Den Haag.	Forest revenue and Public expenditure on forestry	2005	N/A
2	Luijt, J. & M.J. Voskuilen. 2012. Bedrijfsuitkomsten in de Nederlandse particuliere bosbouw over 2010. LEI Wageningen UR, Wageningen.	Forest revenue and Public expenditure on forestry	2010	N/A
3	Ministerie van Economische Zaken, Directie Natuur en Biodiversiteit, bijdrage Staatsbosbeheer.	Operational expenditure State Forest Service	2000, 2005, 2010	The data is derived from the internal administration of the Ministry
4	Ministerie van Economische Zaken, Directie Natuur en Biodiversiteit	Transfer payments	2005, 2010	The data is provided by Dienst Regelingen which is the organisation that implements the European and national regulations for the Ministry of Agriculture Nature and Food quality in the Netherlands.

### 17.3 Data

Table 17

Category	Revenues / expenditures (000 local currency)		
	2000	2005	2010
Forest revenue	N/A	N/A	N/A
Public expenditure on forestry	45554	67006	71708
	2000	2005	2010
Name of Local Currency	Euro	Euro	Euro

### 17.4 Comments

Category	Comments related to data definitions etc
Forest revenue	<p>The Dutch government gets some direct revenues from the forest sector, but it is unknown how much this is. The State forest service has a publicly owned business entity that is involved in commercial activities such as round wood trade, renting vacation homes etc. The revenue from these activities are redirected to the State forest service and are therefore not considered as revenues for the Dutch government. In a study performed annually by LEI in the Netherlands the financial results of private forest owners are calculated. In 2010 these owners accounted for 58.000 hectares of forest, which is 15.7% of the total Dutch forest. To give an indication of revenues and expenditure in the Dutch forestry, the data on revenues and expenses in the private forest sector the results for 2005 and 2010 are presented. Also the amount of subsidies and the share of these subsidies in the total income. In 2005 the average income was 186 euro/ha and the costs were 236 euro/ha on average. Private forest owners received 85 euro/ha from subsidies, 46% of the total income. In 2010 the average income was 271 euro/ha, while the costs were 250 euro/ha on average. In this year private forest owners received 99 euro/ha from subsidies, 37% of the total income. The increase in income is mostly explained by the increase in the wood prices.</p>
Public expenditure on forestry	<p>The first part of the public expenditure on forestry is the direct contribution to the State forest service by the Dutch government. The other part of the expenditure are the subsidies given to forest owners. There is a standard subsidy for forest, but forest owners can also apply for a higher subsidy when they focus their forest management more on the ecological values. Afforestation in the Netherlands is stimulated in certain areas that are appointed by the provincial government, by offering a land owner a subsidy as compensation for the loss of value of the agricultural land when it is converted into forest land. Another possibility to get a subsidy for afforestation is when the forest to be planted is part of a new estate. The data for all years has changed significantly. In the past it was not possible to divide the subsidies for forest and other types of nature. With the new information that is now available it is possible to make this distinction and therefore calculate the public revenue solely for forests.</p>

Other general comments	N/A
------------------------	-----

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	Dirkse, G.M., W.P. Daamen, H. Schoonderwoerd, M. Japink, M. van Jole, R. van Moorsel, P. Schnitger, W. Stouthamer, M. Vocks, 2006, Meetnet Functievervulling bos 2001-2005, Vijfde Nederlandse Bosstatistiek, Directie Kennis, nr. DK065, Ministerie van Landbouw, natuur en Voedselkwaliteit, Directie Kennis, januari 2006	Forest ownership area	2001-2005	The results of the 5th national forest inventory (Meetnet functievervulling bos).
2	Boschap jaarverslag	Forest ownership area	1990, 2000, and 2010	All forest owners that own a forest area of more than 5 ha have to register at the Boschap. Approximately 70 per cent of the Dutch forest area is covered in this way the other 30 per cent belongs to forest owners that own less than 5 ha of forest.
3	Schelhaas, M.J., A.P.P.M. Clerkx, W.P. Daamen, J. Oldenburger, G. Velema, P. Schnitger, H. Schoonderwoerd, H. Kramer, 2014. Zesde Nederlandse bosinventarisatie: Methodes en basisresultaten, Concept, versie 21 januari 2014, Alterra, Wageningen, 102 p.	N/A	2012-2013	The results of the 6th national forest inventory system.
4	N/A	N/A	N/A	N/A

## 18.2.2 Classification and definitions

National class	Definition
N/A	N/A

## 18.2.3 Original data

## 18.3 Analysis and processing of national data

## 18.3.1 Adjustment

## 18.3.2 Estimation and forecasting

## 18.3.3 Reclassification

Reclassification into FRA2015 classes was not necessary.

## 18.4 Data

Table 18a

Categories		Forest area (1000 hectares)			
		1990	2000	2005	2010
	Public ownership	176	178	182	181
	... of which owned by the state at national scale	N/A	N/A	108	114
	... of which owned by the state at the sub-national government scale	N/A	N/A	50	45
	Private ownership	169	182	183	192
	... of which owned by individuals	N/A	N/A	52	50
	... of which owned by private business entities and institutions	N/A	N/A	62	80
	... of which owned by local, tribal and indigenous communities	0	0	0	0
	Unknown ownership	0	0	0	0

TOTAL	345.00	360.00	365.00	373.00
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## 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
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	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other

Table 18b - Holder of management rights of public forests

Categories	Forest area (000 hectares)			
	1990	2000	2005	2010
Public Administration	176	178	182	181
Individuals	0	0	0	0
Private companies	0	0	0	0
Communities	0	0	0	0
Other	0	0	0	0
TOTAL	176.00	178.00	182.00	181.00

Category	Tier for reported trend	Tier for status
Public Administration	Tier 2	Tier 2
Individuals	Tier 2	Tier 2
Private companies	Tier 2	Tier 2
Communities	Tier 2	Tier 2

Other	Tier 2	Tier 2
-------	--------	--------

### 18.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Public ownership	The area owned by the State forest service is included in this figure, although this organisation was incorporated in 1998 and became a public corporation. For the years 1990 and 2000 there is no data available to further subdivide the forest area which is in public ownership.	The distribution of the area over the ownership categories has changed compared to FRA 2010 and SoEF 2011 as new data has become available.
Private ownership	For the years 1990 and 2000 there is no data available to further subdivide the forest area which is in private ownership.	The distribution of the area over the ownership categories has changed compared to FRA 2010 and SoEF 2011 as new data has become available.
Unknown ownership	N/A	N/A
Management rights	The management of publicly owned forests is performed by the State forest service, the Ministry of Defence, the Ministry of Infrastructure and Environment or municipalities. Some provinces do own forest, but the management is in the hands of nature conservation organisations.	N/A

#### Other general comments to the table

N/A
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## 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	CBS, 2004, Bedrijven naar aantal werknemers en economische activiteit, statline.cbs.nl, 09-08-2004, Heerlen/Voorburg	Employment in forestry	1993-2002	N/A
2	CBS, 2008, Banen van werknemers; economische activiteit en geslacht, statline.cbs.nl, 22-10-2008, Heerlen/Voorburg	Employment in forestry	2006	N/A
3	Boschap, 2013. Eindrapportage arbeidsmarktonderzoek. Aequor, Ede	Employment in forestry	2010	N/A
4	Website Statistics Netherlands, via <a href="http://statline.cbs.nl/StatWeb/?LA=nl">http://statline.cbs.nl/StatWeb/?LA=nl</a>	Employment in forestry	1990-2010	N/A

#### 19.2.2 Classification and definitions

National class	Definition
N/A	N/A

## 19.2.3 Original data

The original data are the same as the data presented in table 19. No estimation and forecasting necessary. Reclassification not necessary.

## 19.3 Data

Table 19

Category		Employment (000 years FTE)			
		1990	2000	2005	2010
	Employment in forestry	1.8	1.46	1.46	1.61
	... of which female	0.13	0.11	0.15	0.21

## 19.4 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Employment in forestry	In 2013 Bosschap published a report on the labor market in the forest sector. According to this report, based on the registering organisation LISA, the number of people working in forestry is given as 1634, of which 93.7% works fulltime and 6.3% works parttime. The fulltime workers are accounted for as 1 FTE and as there are no hard data available it is estimated that the parttimers in this sector account for 0.8 FTE. This results in 1531 fulltimers/FTE and 103 parttimers, which count as 82.4 FTE.	N/A

## Other general comments to the table

N/A

## 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)	66	Euro	2012

### 20.3 Comments

Category	Comments
Gross value added from forestry (at basic prices)	This value has been changed as this is the figure officially published by Statistics Netherlands (CBS)

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	Oldenburger, J. 2012. Bosomvorming zonder compensatie. Probos, Wageningen.	Forests earmarked for conversion	2006-2010	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

### 21.3 Data

Table 21a

Category	Forest area (000 ha)	
	2020	2030
Government target/aspiration for forest area	N/A	N/A

Table 21b

Category	Forest area (000 ha)
	2013
Forests earmarked for conversion	N/A

### 21.4 Comments

Category	Comments
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Government target/aspiration for forest area	The Dutch government does not have a target to increase the forest area in the Netherlands. The aim is to maintain the current forest area. This is ensured by the Forest Act Forest, which in principle prohibits the conversion of forest. Planting projects are welcomed however and are supported by the Bosklimaatfonds (Forest Climate Fund) of the Nationaal Groenfonds (The Dutch National Fund for Rural Areas). The forest area is expected to increase slightly each year by 0.3%, consistent with the increase in the last decades.
Forests earmarked for conversion	In principal, the Forest Act prohibits the conversion of forest. Every year however, some exemptions are made for the clearing of forest in the purpose of road construction, building projects and the conversion of forest to other types of nature. This forest area has to be compensated elsewhere. There are no records kept of the forest area earmarked for conversion in the current year or the coming years. In the period 2006-2010 the converted forest area was somewhat 500 hectares.

## Other general comments

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