

GLOBAL FOREST RESOURCES ASSESSMENT 2015

COUNTRY REPORT

# **United States Virgin Islands**

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.

The content and the views expressed in this report are the responsibility of the entity submitting the report to FAO. FAO may not be held responsible for the use which may be made of the information contained in this report.

## 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? .....	6
2. What is the area of natural and planted forest and how has it changed over time? .....	12
3. What are the stocks and growth rates of the forests and how have they changed? .....	17
4. What is the status of forest production and how has it changed over time? .....	31
5. How much forest area is managed for protection of soil and water and ecosystem services? .....	36
6. How much forest area is protected and designated for the conservation of biodiversity and how has it changed over time? .....	41
7. What is the area of forest affected by woody invasive species? .....	44
8. How much forest area is damaged each year? .....	47
9. What is the forest area with reduced canopy cover? .....	51
10. What forest policy and regulatory framework exists to support implementation of sustainable forest management SFM? .....	52
11. Is there a national platform that promotes stakeholder participation in forest policy development? .....	54
12. What is the forest area intended to be in permanent forest land use and how has it changed over time? .....	55
13. How does your country measure and report progress towards SFM at the national level? .....	58
14. What is the area of forest under a forest management plan and how is this monitored? .....	60
15. How are stakeholders involved in the management decision making for publicly owned forests? .....	62
16. What is the area of forest under an independently verified forest certification scheme? .....	63
17. How much money do governments collect from and spend on forests? .....	65
18. Who owns and manages the forests and how has this changed? .....	67
19. How many people are directly employed in forestry? .....	71
20. What is the contribution of forestry to Gross Domestic Product (GDP)? .....	73
21. What is forest area likely to be in the future .....	74

## Report preparation and contact persons

### Contact persons

The present report was prepared by the following person(s)

Name (FAMILY NAME, first name)	Institution/address	Email	Tables
Brandeis, Thomas	US Forest Service, 4700 Old Kingston Pike, Knoxville, TN, 37934 USA	tjbrandeis@fs.fed.us	1a, 1b, 2a, 2b, 2c, 3a, 3b, 3c, 3d, 3e
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

### Introductory Text

Place an introductory text on the content of this report

*(The following introduction is excerpted from Brandeis, T.J., Turner, J.A., 2013. The U.S. Virgin Islands' Forests, 2009. Resour. Bull. SRS-XXX. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. In press.)*

This report presents the results of the second forest inventory of the 3 main islands of the Territory of the U.S. Virgin Islands. While the inventory methods have been further refined and improved, the primary objectives have remained essentially the same as for the first forest inventory in 2004 (see Brandeis and Oswalt 2007):

- Estimate the status of and change in forest land on St. Croix, St. John and St. Thomas.
- Provide estimates of the numbers of trees, their size distributions, quantity of merchantable wood, and amount of carbon stored in their biomass.
- Assess and monitor stand age class structure to see how forests are recovering from past land clearance, recent hurricanes and continuing human pressures.
- Contribute to a broader understanding of the species composition, regeneration trends, successional processes, and species dynamics.
- Assess tree crown health by looking for damage due to pests and pathogens, breakage by hurricanes, or factors that might cause losses of tree vigor.

In addition to the above objectives, we can now make accurate estimates of change over the intervening 5-year period due to the remeasurement of the same plots and trees that were measured during the first forest inventory of 2004. The estimates of net tree growth, removals and mortality made in this report provide unique first-time, insights into subtropical forest dynamics and the continuing changes in the U.S. Virgin Islands' forests. This report summarizes and interprets those results along with recent trends in the U.S. Virgin Islands' forest area, the patterns of forest ownership, biomass carbon and wood volume stored in the forests, net growth, removals and mortality, forest stand structure, tree species composition and forest health issues. But we do not attempt to be a complete, comprehensive analysis of the forest inventory data here, rather our goal is to provide an introduction to the many possible questions that can be addressed with forest inventory data and encourage further inquiry by interested stakeholders.

### Literature Cited

Brandeis, T.J.; Oswalt, S.N. 2007. The status of U.S. Virgin Islands' forests, 2004. Resour. Bull. SRS-122. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 61 p.

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	Brandeis, T. J., and S. N. Oswalt. 2007. The Status of U.S. Virgin Islands' Forests, 2004. Resource Bulletin SRS-122, USDA Forest Service Southern Research Station, Asheville, NC. p 61	Forest cover, Volume, Biomass	1994 and 2004	USDA Forest Service forest inventory
2	Brandeis, T.J., Turner, J.A., 2013. The U.S. Virgin Islands' Forests, 2009. Resour. Bull. SRS-XXX. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. In press.)	Forest cover, Volume, Biomass	2009	USDA Forest Service forest inventory
3	US Forest Service, Forest Inventory and Analysis Database, version 5.1	Forest cover, Volume, Biomass	2004-2009	USDA Forest Service forest inventory
4	FAOSTAT	Inland water	All	N/A

### 1.2.2 Classification and definitions

National class	Definition
Subtropical dry forest	Found in areas with 600 to 1100 mm of annual precipitation. Some of the native tree species that are common in subtropical dry forest in the U.S. Virgin Islands are turpentine tree [ <i>Bursera simaruba</i> (L.) Sarg.], torch wood ( <i>Amyris elemifera</i> L.), Jamaican caper ( <i>Capparis cynophallophora</i> L.), orange manjack ( <i>Cordia rickseckeri</i> Millsp.), water mampoo ( <i>Pisonia subcordata</i> Sw.), lignum vitae ( <i>Guaiacum officinale</i> L.), white frangipani ( <i>Plumeria alba</i> L.), and fustic [ <i>Pictetia aculeata</i> (Vahl) Urban]. The more heavily-disturbed dry forest areas have numerous, smaller stemmed tan tan [ <i>Leucaena leucocephala</i> (Lam.) deWit], <i>Prosopis juliflora</i> (Sw.) DC., stink kasha ( <i>Acacia macracantha</i> Humb. & Bonpl.), and acacia [ <i>Acacia farnesiana</i> (L.) Willd.] individuals.
Subtropical moist forest	Found in areas with 1000 to 2200 mm of annual precipitation. Some of the many natural indicator species of subtropical moist forest in the U.S. Virgin Islands include the dog almond [ <i>Andira inermis</i> (W. Wright) Kunth ex DC.], black mampoo [ <i>Guapira fragrans</i> (Dum.-Cours.) Little], dog plum ( <i>Spondias mombin</i> L.), gre gre ( <i>Bucida buceras</i> L.), sandbox tree ( <i>Hura crepitans</i> L.), kapoktree [ <i>Ceiba pentandra</i> (L.) Gaertn.], cigar box cedar ( <i>Cedrela odorata</i> L.), bayrumtree ( <i>Pimenta racemosa</i> var. <i>racemosa</i> ), royal palm ( <i>Roystonea borinquena</i> O.F. Cook) (on St. Croix only), stinkingtoe ( <i>Hymanaea courbaril</i> L.), pumpwood ( <i>Cecropia schreberiana</i> Miq.), and pink poui [ <i>Tabebuia heterophylla</i> (DC.) Britt.]. While subtropical moist forests have some of the same introduced species found in subtropical dry forest, tamarind ( <i>Tamarindus indica</i> L.) and genip ( <i>Melicococcus bijugatus</i> Jacq.) are also commonly found.

Nonstocked	Land with only 5-9% stocking, where stocking is defined as the degree of occupancy of land by trees, measured by basal area or number of trees by size and spacing, or both, compared to a stocking standard; that is, the basal area or number of trees, or both, required to fully utilize the growth potential of the land.
N/A	N/A

### 1.2.3 Original data

Measured forest areas (ha)				
Survey unit	Land area (ha)	1994	2004	2009
St. Croix	21,466	11,537	11,817	10,594
St. John	5,080	4,797	4,367	4,186
St. Thomas	8,091	6,574	2,660	3,497
<b>Total</b>	<b>34,637</b>	<b>22,908</b>	18,844	18,277

## 1.3 Analysis and processing of national data

### 1.3.1 Adjustment

The FIA-derived national data shows a total land area of 34,637 ha in the U.S. Virgin Islands while FAO-STAT has the total at 35,000 ha. The differences are probably due to rounding and the inclusion of smaller, non-forested islands so no calibration was done to the estimates, rather the difference was added to the non-forest land category.

### 1.3.2 Estimation and forecasting

Projected forest areas (ha)							
Survey unit	1990	Annual change (ha/yr) 1994-2004	2000	Annual change (ha/yr) 2004-2009	2005	2010	2015



St. Croix	11,904	28	11,705	-245	11,573	10,350	9,127
St. John	4,855	-43	4,539	-36	4,331	4,149	3,968
St. Thomas	6,818	-391	4,225	167	2,827	3,664	4,502
<b>Total</b>	<b>23,577</b>	<b>-406</b>	<b>20,469</b>	<b>-113</b>	<b>18,730</b>	<b>18,163</b>	<b>17,596</b>

### 1.3.3 Reclassification

All of the national forest classes, (which are based on Holdridge life zones), fully correspond to the FRA forest category.

National Classes	FRA Categories				Total	OLWTC
	Forest	OWL	Other land			
Subtropical dry forest	100%				100%	
Subtropical moist forest	100%				100%	

## 1.4 Data

Table 1a






Categories		Area (000 hectares)				
		1990	2000	2005	2010	2015
	Forest	23.58	20.47	18.73	18.16	17.6
	Other wooded land	0	0	0	0	0
	Other land	11.42	14.53	16.27	16.84	17.4
	... of which with tree cover	N/A	N/A	N/A	N/A	N/A
	Inland water bodies	0	0	0	0	0
	<b>TOTAL</b>	<b>35.00</b>	<b>35.00</b>	<b>35.00</b>	<b>35.00</b>	<b>35.00</b>

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
CFRQ	Forest expansion	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CFRQ	... of which afforestation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CFRQ	... of which natural expansion of forest	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CFRQ	Deforestation	0.41	0.41	0.11	0.11	N/A	N/A	N/A	N/A
CFRQ	... of which human induced	0.41	0.41	0.11	0.11	N/A	N/A	N/A	N/A
CFRQ	Reforestation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CFRQ	... 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	N/A
Forest expansion	N/A	N/A
Deforestation	Tier 3	Tier 3
Reforestation	N/A	N/A

## 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>	<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	<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

## 1.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trends
Forest	All of the national forest classes, (which are based on Holdridge life zones), correspond to the FRA forest category.	N/A

Other wooded land	The forest inventories did not quantify other wooded land. Any areas of other wooded land that may exist are included under other land.	No trend information is available.
Other land	All land that did not meet the definition of forest was considered non-forest, or according the FRA terminology, other land. May include some areas of other wooded land.	N/A
Other land with tree cover	No data is available for other land with tree cover because these lands were not included in the forest inventories.	No trend information is available.
Inland water bodies	Inland water bodies occupy a small area and were already subtracted from the FIA-derived total land area.	N/A
Forest expansion	N/A	N/A
Deforestation	I am considering the loss of overall forest cover as being caused by deforestation. We do not know, however, if there is any reforestation going on. It is doubtful, however, that there is any appreciable reforestation.	N/A
Reforestation	N/A	N/A

**Other general comments to the table**

There are considerable differences between the forest area estimates in FRA 2005 and FRA 2010 due to new forest inventory data used for FRA 2010 and also some differences in the classification. These differences are described in detail in the cited publication.

## 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	Conservation Data Center, UVI-ECC. 2001. Virgin Islands Rapid Ecological Assessment. Published by the University of the Virgin Islands, No. 2 John Brewers Bay, St. Thomas, VI 00802	Vegetation cover, land cover	1994-2000	Forest coverage estimates were extracted from a GIS vegetation map.

2	Brandeis, T. J., and S. N. Oswalt. 2007. The Status of U.S. Virgin Islands' Forests, 2004. Resource Bulletin SRS-122, USDA Forest Service Southern Research Station, Asheville, NC. pp. 61	Forest cover Volume Biomass	1994 and 2004	USDA Forest Service forest inventory
3	Brandeis, T.J., Turner, J.A., 2013. The U.S. Virgin Islands' Forests, 2009. Resour. Bull. SRS-XXX. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. In press.)	Forest cover Volume Biomass	2009	USDA Forest Service forest inventory
4	US Forest Service, Forest Inventory and Analysis Database, version 5.1	Forest cover, Volume, Biomass	2004-2009	Forest inventory database, accessible through publically-accessible on-line tools such as Evaluator: <a href="http://apps.fs.fed.us/Evaluator/evaluator.jsp">http://apps.fs.fed.us/Evaluator/evaluator.jsp</a>

## 2.2.2 Classification and definitions

National class	Definition
Subtropical dry forest	Found in areas with 600 to 1100 mm of annual precipitation. Some of the native tree species that are common in subtropical dry forest in the U.S. Virgin Islands are turpentine tree [ <i>Bursera simaruba</i> (L.) Sarg.], torch wood ( <i>Amyris elemifera</i> L.), Jamaican caper ( <i>Capparis cynophallophora</i> L.), orange manjack ( <i>Cordia rickseckeri</i> Millsp.), water mampoo ( <i>Pisonia subcordata</i> Sw.), lignum vitae ( <i>Guaiacum officinale</i> L.), white frangipani ( <i>Plumeria alba</i> L.), and fustic [ <i>Pictetia aculeata</i> (Vahl) Urban]. The more heavily-disturbed dry forest areas have numerous, smaller stemmed tan tan [ <i>Leucaena leucocephala</i> (Lam.) deWit], <i>Prosopis juliflora</i> (Sw.) DC., stink kasha ( <i>Acacia macracantha</i> Humb. & Bonpl.), and acacia [ <i>Acacia farnesiana</i> (L.) Willd.] individuals.
Subtropical moist forest	Found in areas with 1000 to 2200 mm of annual precipitation. Some of the many natural indicator species of subtropical moist forest in the U.S. Virgin Islands include the dog almond [ <i>Andira inermis</i> (W. Wright) Kunth ex DC.], black mampoo [ <i>Guapira fragrans</i> (Dum.-Cours.) Little], dog plum ( <i>Spondias mombin</i> L.), gre gre ( <i>Bucida buceras</i> L.), sandbox tree ( <i>Hura crepitans</i> L.), kapoktree [ <i>Ceiba pentandra</i> (L.) Gaertn.], cigar box cedar ( <i>Cedrela odorata</i> L.), bayrumtree ( <i>Pimenta racemosa</i> var. <i>racemosa</i> ), royal palm ( <i>Roystonea borinquena</i> O.F. Cook) (on St. Croix only), stinkingtoe ( <i>Hymanaea courbaril</i> L.), pumpwood ( <i>Cecropia schreberiana</i> Miq.), and pink poui [ <i>Tabebuia heterophylla</i> (DC.) Britt.]. While subtropical moist forests have some of the same introduced species found in subtropical dry forest, tamarind ( <i>Tamarindus indica</i> L.) and genip ( <i>Melicoccus bijugatus</i> Jacq.) are also commonly found.

N/A	N/A
N/A	N/A

### 2.2.3 Original data

See data for question 1 for original data on forest area.

## 2.3 Analysis and processing of national data

### 2.3.1 Adjustment

See topic one.

### 2.3.2 Estimation and forecasting

Projected forest areas (ha)							
Survey unit	1990	Annual change (ha/yr) 1994-2004	2000	Annual change (ha/yr) 2004-2009	2005	2010	2015
St. Croix	11,904	28	11,705	-245	11,573	10,350	9,127
St. John	4,855	-43	4,539	-36	4,331	4,149	3,968
St. Thomas	6,818	-391	4,225	167	2,827	3,664	4,502
<b>Total</b>	<b>23,577</b>	<b>-406</b>	<b>20,469</b>	<b>-113</b>	<b>18,730</b>	<b>18,163</b>	<b>17,596</b>

### 2.3.3 Reclassification

All forests are considered to be “Other naturally regenerated forests”. So the total forest area for all five reporting years were taken directly from question 1.

## 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	23.58	20.47	18.73	18.16	17.6
	... of which of introduced species	N/A	N/A	N/A	N/A	N/A
	... of which naturalized	N/A	N/A	N/A	N/A	N/A
	Planted forest	N/A	N/A	N/A	N/A	N/A
	... of which of introduced species	N/A	N/A	N/A	N/A	N/A
TOTAL		23.58	20.47	18.73	18.16	17.60

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)	N/A	N/A	N/A	N/A	N/A
... of which planted	N/A	N/A	N/A	N/A	N/A

## 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	N/A	N/A
Mangroves	N/A	N/A

## 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	All forests on the U.S. Virgin Islands are secondary forests with varying degrees of modification caused by human activity.	N/A
Planted forest	While there are some plantations, particularly mahogany, they are of limited extent and we do not have separate estimates for them.	N/A
Mangroves	The forest inventory sampling of mangroves in the USVI is currently inadequate so I do not present those figures.	N/A

### Other general comments to the table

N/A



### 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	Brandeis, T. J., and S. N. Oswalt. 2007. The Status of U.S. Virgin Islands' Forests, 2004. Resource Bulletin SRS-122, USDA Forest Service Southern Research Station, Asheville, NC. pp. 61	Forest cover Volume Biomass	1994 and 2004	USDA Forest Service forest inventory

2	Brandeis, T.J., Turner, J.A., 2013. The U.S. Virgin Islands' Forests, 2009. Resour. Bull. SRS-XXX. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. In press.)	Forest cover Volume Biomass	2009	USDA Forest Service forest inventory
3	US Forest Service, Forest Inventory and Analysis Database, version 5.1	Forest cover Volume Biomass	2004-2009	Forest inventory database, accessible through publically-accessible on-line tools such as Evaluator: <a href="http://apps.fs.fed.us/Evaluator/evaluator.jsp">http://apps.fs.fed.us/Evaluator/evaluator.jsp</a>
4	N/A	N/A	N/A	N/A

### 3.2.2 Classification and definitions

National class	Definition
Growing stock	Living trees of commercial species classified as sawtimber, poletimber, saplings, and seedlings. For a tree to be considered growing stock, one-third or more of the gross volume in its saw-log section must meet grade, soundness, and size requirements for commercial logs, or the tree must have the potential to meet these requirements if it is poletimber size with 12.5 cm # d.b.h. # 27.5 cm.
Growing stock volume	The m3 volume of sound wood in growing-stock trees at least 12.5 cm d.b.h. from a 30-cm stump to a minimum 10-cm top d.o.b. of the central stem, measured outside of bark. This volume excludes branches.
Aboveground biomass and carbon, live	=1 inch, and dead trees with a diameter >=5 inches. Calculated for both timber and woodland species. Smith, J.E.; Heath, L.S. 2008. Forest sections of the land use change and forestry chapter, and Annex. In: US Environmental Protection Agency, Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2006. EPA 430-R-08-005. <a href="http://www.epa.gov/climatechange/ghgemissions/usinventoryreport/archive.html">http://www.epa.gov/climatechange/ghgemissions/usinventoryreport/archive.html</a> " /> IPCC forest carbon pool 1 is derived from 2 components (one condition-level component and one tree-level component): 1. Carbon in understory aboveground. Carbon (tons per acre) in the aboveground portions of seedlings and shrubs. Estimated from models based on geographic area, forest type, and live tree carbon density (Smith and Health 2008). 2. Carbon in the aboveground portion of the tree. The carbon in the aboveground portion, excluding foliage, of live trees with a diameter >=1 inch, and dead trees with a diameter >=5 inches. Calculated for both timber and woodland species. Smith, J.E.; Heath, L.S. 2008. Forest sections of the land use change and forestry chapter, and Annex. In: US Environmental Protection Agency, Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2006. EPA 430-R-08-005. <a href="http://www.epa.gov/climatechange/ghgemissions/usinventoryreport/archive.html">http://www.epa.gov/climatechange/ghgemissions/usinventoryreport/archive.html</a>

Belowground biomass and carbon	<p>=1 inch, and dead trees with a diameter <math>\geq 5</math> inches. Calculated for both timber and woodland species. Smith, J.E.; Heath, L.S. 2008. Forest sections of the land use change and forestry chapter, and Annex. In: US Environmental Protection Agency, Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2006. EPA 430-R-08-005. <a href="http://www.epa.gov/climatechange/ghgemissions/usinventoryreport/archive.html">http://www.epa.gov/climatechange/ghgemissions/usinventoryreport/archive.html</a> " /&gt; IPCC forest carbon pool 2 is derived from 2 components (one condition-level component and one tree-level component): 1. Carbon in understory aboveground. Carbon (tons per acre) in the aboveground portions of seedlings and shrubs. Estimated from models based on geographic area, forest type, and live tree carbon density (Smith and Health 2008). 2. Carbon in the aboveground portion of the tree. The carbon (pounds) in the aboveground portion, excluding foliage, of live trees with a diameter <math>\geq 1</math> inch, and dead trees with a diameter <math>\geq 5</math> inches. Calculated for both timber and woodland species. Smith, J.E.; Heath, L.S. 2008. Forest sections of the land use change and forestry chapter, and Annex. In: US Environmental Protection Agency, Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2006. EPA 430-R-08-005. <a href="http://www.epa.gov/climatechange/ghgemissions/usinventoryreport/archive.html">http://www.epa.gov/climatechange/ghgemissions/usinventoryreport/archive.html</a></p>
Down woody material	<p>Woody pieces of trees and shrubs that have been uprooted (roots no longer support growth) or severed from their root system, are not self-supporting, and are lying on the ground. This includes both coarse woody debris and fine woody debris. Coarse woody debris is down pieces of wood with a minimum small-end diameter of at least 8 cm and a length of at least 0.9 m (excluding decay class 5). Coarse woody material pieces must be detached from a bole and/or not be self-supported by a root system, and must have a lean angle of more than 45 degrees from vertical. Fine woody debris is down pieces of wood with a diameter <math>\leq 8</math> cm, not including foliage or bark fragments. Down woody material biomass and carbon is considered part of the FRA dead wood category.</p>
Aboveground biomass and carbon, standing dead	<p>Total oven-dry biomass in kilograms of all standing dead aboveground tree parts, including stem, stump, branches, bark, seeds, and foliage, as estimated from regression equations that predict aboveground biomass from individual tree d.b.h. and total height measurements, only for trees at least 12.5 cm d.b.h. Standing dead tree biomass and carbon is considered part of the FRA dead wood category.</p>
Litter	<p>The entire thickness of organic material overlying the mineral soil, consisting of the litter and the duff (humus). Litter is the undecomposed or only partially decomposed organic material that can be readily identified (e.g., plant leaves, twigs, etc.). Duff is a soil layer dominated by organic material derived from the decomposition of plant and animal litter and deposited on either an organic or a mineral surface. This layer is distinguished from the litter layer in that the original organic material has undergone sufficient decomposition that the source of this material (e.g., individual plant parts) can no longer be identified.</p>

### 3.2.3 Original data

FIA data					
<b>Table 3a work</b>					
Measured forest volume (cubic meters)					
<b>Survey unit</b>			1990	2004	2009
St. Croix			n.a.	106,427	173,263
St. John			n.a.	130,856	161,870
St. Thomas			n.a.	36,963	76,828
Total			n.a.	274,247	411,962
Note: 1980 and 1990 are growing stock on timberland values and not comparable to 2003 and 2008.					
<b>Table 3b work</b>					
Common name			2004	2009	
West Indian mahogany			42,045	47,400	
black mampoo			41,432	56,652	
Spanish lime			37,816	61,701	
gumbo limbo			27,633	38,245	
bodywood			17,479	20,047	
water mampoo			16,999	23,211	
spineless wattle			13,235	19,956	
cabbagebark tree			7,369	21,833	
white cinnamon			6,244	8,473	
bulletwood			5,939	0	
Remainder			58,055	114,442	
Total			274,247	411,962	

<b>Table 3c work</b>					
1 cubic feet per acre = 0.0699724518 cubic meters per hectare					
Net growth, cubic meters per hectare					
<b>Table 3d</b>					
Biomass (million metric tonnes oven-dry weight) (CRM times 2; divided 1 million)					
	1990	2004	2009		
Above-ground biomass	n.a.	0.51	0.70		
Below-ground biomass	n.a.	0.11	0.15		
Dead wood	n.a.	0.04	0.31		
TOTAL	n.a.	0.66	1.15		
<b>Table 3e</b>					
Measured forest carbon					
Carbon (Million metric tonnes) (CRM divided by 1 million)					
	1990	2004	2009		
Carbon in above-ground biomass	n.a.	0.25	0.35		
Carbon in below-ground biomass	n.a.	0.05	0.07		
Sub-total: Living biomass	n.a.	0.31	0.42		

Carbon in dead wood	n.a.	0.04	0.31		
Carbon in litter	n.a.	0.07	0.00		
Sub-total: Dead wood and litter	n.a.	0.11	0.31		
Soil carbon	n.a.	n.a.	n.a.		
<b>TOTAL</b>	n.a.	0.42	0.73		

### 3.3 Analysis and processing of national data

#### 3.3.1 Adjustment

See 1.3.

#### 3.3.2 Estimation and forecasting

Projection and estimation using FIA data					
	Projected forest volumes (cubic meters)				
<b>Survey unit</b>	2000	Annual change (m3/yr) 2004-2009	2005	2010	2015
St. Croix	52,959	13,367	119,794	186,630	253,466
St. John	106,045	6,203	137,059	168,073	199,087
St. Thomas	5,071	7,973	44,936	84,801	124,666
Total	164,075	27,543	301,790	439,504	577,219

Projected forest volumes (cubic meters)					
Common name	2000	Annual change (m3/yr) 2004-2008	2005	2010	2015
West Indian mahogany	37,761	1,071	43,116	48,471	53,826
black mampoo	29,256	3,044	44,476	59,696	74,916
Spanish lime	18,709	4,777	42,593	66,478	90,362
gumbo limbo	19,143	2,122	29,756	40,368	50,980
bodywood	15,424	514	17,992	20,561	23,130
water mampoo	12,029	1,242	18,242	24,454	30,666
spineless wattle	7,858	1,344	14,580	21,301	28,022
cabbagebark tree	-4,203	2,893	10,262	24,726	39,191
white cinnamon	4,461	446	6,690	8,918	11,147
bulletwood	10,690	-1,188	4,751	-1,188	-7,127
Remainder	12,946	11,277	69,333	125,720	182,106
<b>Total</b>	<b>164,075</b>	<b>27,543</b>	<b>301,790</b>	<b>439,504</b>	<b>577,219</b>
Projected forest growth (cubic meters)					
Survey unit	2000	Annual change (m3/yr) 2004-2009	2005	2010	2015
	n.a.	65,470	n.a.	n.a.	n.a.

	Projected forest biomass (million metric tons)				
Survey unit	2000	Annual change 2004-2009 (Mmt/yr)	2005	2010	2015
Above-ground biomass	0.36	0.04	0.55	0.73	0.92
Below-ground biomass	0.08	0.01	0.12	0.15	0.19
Dead wood	-0.17	0.05	0.10	0.36	n.a.
TOTAL	0.27	0.10	0.76	1.25	1.74
	Projected forest carbon (million metric tons)				
Survey unit	2000	Annual change 2004-2009 (Mmt/yr)	2005	2010	2015
Carbon in above-ground biomass	0.18	0.02	0.27	0.37	0.46
Carbon in below-ground biomass	0.04	0.00	0.06	0.08	0.10
Sub-total: Living biomass	0.22		0.33	0.44	0.56
Carbon in dead wood	-0.17	0.05	0.10	0.36	n.a.
Carbon in litter	0.13	-0.01	0.06	-0.01	-0.09
Sub-total: Dead wood and litter	-0.04		0.15	0.35	-0.09
Soil carbon	n.a.	n.a.	n.a.	n.a.	n.a.
TOTAL	0.18		0.48	0.79	0.47



## 3.3.3 Reclassification

National and FRA categories for above-ground and below-ground biomass are the same. The national down woody materials, (consisting of coarse and fine woody debris) and standing dead trees, fall within the FRA dead wood category.

## 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	N/A	0.164	0.302	0.44	0.577	N/A	N/A	N/A	N/A	N/A
	... of which coniferous	N/A	0	0	0	0	N/A	N/A	N/A	N/A	N/A
	... of which broadleaved	N/A	0.164	0.302	0.44	0.577	N/A	N/A	N/A	N/A	N/A

Table 3b

Category/Species name			Growing stock in forest (million cubic meters)			
Rank	Scientific name	Common name	1990	2000	2005	2010
1 st	Swietenia mahagoni	West Indian mahogany	N/A	0.038	0.043	0.048
2 nd	Guapira fragrans	black mampoo	N/A	0.029	0.044	0.06
3 rd	Melicoccus bijugatus	Spanish lime	N/A	0.019	0.043	0.066
4 th	Bursera simruba	gumbo limbo	N/A	0.019	0.03	0.04
5 th	Bourreria succulenta	bodywood	N/A	0.015	0.018	0.021
6 th	Pisonia subcordata	water mampoo	N/A	0.012	0.015	0.024
7 th	Acacia muricata	spineless wattle	N/A	0.008	0.015	0.021
8 th	Andira inermis	cabbagebark tree	N/A	0	0.01	0.025
9 th	Maytenus laevigata	white cinnamon	N/A	0.004	0.007	0.009

10 th	Manilkara bidentata	bulletwood	N/A	0.011	0.005	0
Remaining			N/A	0.009	0.072	0.126
TOTAL			.00	.16	.30	.44

**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)	12.5 cm	DBH measured at 1.37 cm.
Minimum diameter (cm) at the top end of stem for calculation of growing stock (Y)	10.0 cm	N/A
Minimum diameter (cm) of branches included in growing stock (W)	n.a.	Estimate does not include branches, only main stem
Volume refers to above ground (AG) or above stump (AS)	AS	Stump height = 30 cm

**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	N/A	N/A	3.53	N/A	N/A
	... of which coniferous	N/A	N/A	0	N/A	N/A
	... of which broadleaved	N/A	N/A	3.53	N/A	N/A

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	N/A	0.36	0.55	0.73	0.92	N/A	N/A	N/A	N/A	N/A










	Below ground biomass	N/A	0.08	0.12	0.15	0.19	N/A	N/A	N/A	N/A	N/A
	Dead wood	N/A	0.1	0.1	0.36	0.63	N/A	N/A	N/A	N/A	N/A
TOTAL		.00	.54	.77	1.24	1.74	.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	N/A	0.18	0.27	0.37	0.46	N/A	N/A	N/A	N/A	N/A
	Carbon in below ground biomass	N/A	0.04	0.06	0.08	0.1	N/A	N/A	N/A	N/A	N/A
	<i>Subtotal Living biomass</i>	N/A	0.22	0.33	0.44	0.56	N/A	N/A	N/A	N/A	N/A
	Carbon in dead wood	N/A	0.1	0.1	0.36	0.63	N/A	N/A	N/A	N/A	N/A
	Carbon in litter	N/A	0.13	0.06	0.06	0.06	N/A	N/A	N/A	N/A	N/A
	<i>Subtotal Dead wood and litter</i>	N/A	0.23	0.16	0.41	0.69	N/A	N/A	N/A	N/A	N/A
	Soil carbon	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL		.00	.45	.49	.87	1.25	.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	N/A	N/A

## 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
Total growing stock	All live volume is presented here instead of the FIA defined growing stock volume. All live better fits the FRA definition of growing stock.	This trend information is based on forest inventories from 2004 and 2009.

Growing stock of broadleaved coniferous	There are few conifers growing in the U.S. Virgin Islands. Growing stock and all live tree volume is entirely in broadleaved trees.	N/A
Growing stock composition	The top 10 species were chosen from the 2004 forest inventory.	Trend information from 2004 to 2009.
Net annual increment	Note that I took forest acreage in 2004 and in 2009, averaged them, then divided the total volume increase per year over that average acreage to get a growth increment as cubic meters per hectare per year.	Calculated by the NIMS processing system as annual volume increase per year across all forested acres.
Above-ground biomass	Aboveground live tree biomass was estimated using several regression equations from the NIMS processing system.	Trend information from 2004 to 2009.
Below-ground biomass	Total oven-dry biomass in kilograms of all live belowground tree parts was estimated using a regression equation that models the relationship between aboveground biomass and belowground biomass from Cairns, M. A., S. Brown, E. H. Helmer, and G. A. Baumgardner. 1997. Root biomass allocation in the world's upland forests. <i>Oecologia</i> 111:1-11.	Trend information from 2004 to 2009.
Dead wood	Standing dead tree biomass was estimated using the same allometric equations used for live trees. Down woody biomass estimates were calculated by multiplying the carbon estimates by 2. Carbon estimates were derived from methods that appear in Woodall, C., and M. S. Williams. 2005. Sampling protocol, estimation and analysis procedures for down woody materials indicator of the FIA program. General Technical Report NC-256, USDA Forest Service, North Central Research Station, St. Paul, MN. These methods adjust carbon content for degree of decay.	Trend information from 2004 to 2009. Note that I used the 2005 value for DWM in 2000 because otherwise the value would have been negative.
Carbon in above-ground biomass	Carbon estimates were derived from aboveground live tree biomass estimates by multiplying by 0.5.	Trend information from 2004 to 2009.
Carbon in below-ground biomass	Carbon estimates were derived from belowground live tree biomass estimates by multiplying by 0.5.	Trend information from 2004 to 2009.

Carbon in dead wood	Carbon estimates were derived from methods that appear in Woodall, C., and M. S. Williams. 2005. Sampling protocol, estimation and analysis procedures for down woody materials indicator of the FIA program. General Technical Report NC-256, USDA Forest Service, North Central Research Station, St. Paul, MN. These methods adjust carbon content for degree of decay.	Trend information from 2004 to 2009.
Carbon in litter	These values were calculated in a laboratory from samples collected in the field. Methodology is described in O'Neill, Katherine P; Amacher, Michael C.; Perry, Charles H. 2005. Soils as an indicator of forest health: a guide to the collection, analysis, and interpretation of soil indicator data in the Forest Inventory and Analysis program Gen. Tech. Rep. NC-258. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 53 p.	Trend information from 2004 to 2009.
Soil carbon	We do not have estimates of soil carbon at this time.	N/A

**Other general comments to the table**

Note that there are considerable differences between the biomass estimates made in FRA 2010 and those here in FRA 2015. This is due to a change in the processing system used to make these estimates. The newer processing system should produce more consistent estimates over time, so those newer estimates were used here and throughout this report.

## 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	N/A	N/A	N/A	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

#### 4.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A

N/A	N/A
N/A	N/A

#### 4.2.3 Original data

--

### 4.3 Analysis and processing of national data

#### 4.3.1 Adjustment

--

#### 4.3.2 Estimation and forecasting

--

#### 4.3.3 Reclassification

--

### 4.4 Data

Table 4a



Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Production forest	N/A	N/A	N/A	N/A	N/A
	Multiple use forest	N/A	N/A	N/A	N/A	N/A

Table 4b

Rank	Name of product	Key species	Commercial value of NWFP removals 2010 (value 1000 local currency)	NWFP category
1 st	N/A	N/A	N/A	N/A
2 nd	N/A	N/A	N/A	N/A
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			.00	

2010	
Name of local currency	N/A

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	N/A	N/A
1991	N/A	N/A
1992	N/A	N/A
1993	N/A	N/A
1994	N/A	N/A
1995	N/A	N/A
1996	N/A	N/A
1997	N/A	N/A
1998	N/A	N/A
1999	N/A	N/A
2000	N/A	N/A
2001	N/A	N/A
2002	N/A	N/A
2003	N/A	N/A
2004	N/A	N/A
2005	N/A	N/A
2006	N/A	N/A
2007	N/A	N/A
2008	N/A	N/A
2009	N/A	N/A
2010	N/A	N/A
2011	N/A	N/A

Tiers

Category	Tier for status	Tier for reported trend
Production forest	N/A	N/A
Multiple use forest	N/A	N/A

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	N/A
Multiple use forest	N/A	N/A
Total wood removals	N/A	N/A
Commercial value of NWFP	N/A	N/A

Other general comments to the table
N/A

## 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	N/A	N/A	N/A	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

### 5.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

### 5.2.3 Original data

--

## 5.3 Analysis and processing of national data

### 5.3.1 Adjustment

--

### 5.3.2 Estimation and forecasting




--





### 5.3.3 Reclassification

--

## 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	N/A	N/A
	... of which production of clean water	N/A	N/A	N/A	N/A	N/A
	... of which coastal stabilization	N/A	N/A	N/A	N/A	N/A

	... of which desertification control	N/A	N/A	N/A	N/A	N/A
	... of which avalanche control	N/A	N/A	N/A	N/A	N/A
	... of which erosion, flood protection or reducing flood risk	N/A	N/A	N/A	N/A	N/A
	... of which other (please specify in comments below the table)	N/A	N/A	N/A	N/A	N/A

**Other**

N/A

Table 5b

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

Tiers

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

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	N/A	N/A
Coastal stabilization	N/A	N/A
Desertification control	N/A	N/A
Avalanche control	N/A	N/A
Erosion, flood protection or reducing flood risk	N/A	N/A
Other protective functions	N/A	N/A
Ecosystem services, cultural or spiritual values	N/A	N/A
Public recreation	N/A	N/A
Carbon storage or sequestration	N/A	N/A
Spiritual or cultural services	N/A	N/A
Other ecosystem services	N/A	N/A

**Other general comments to the table**

N/A
-----



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

Documents for this question:

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

### 6.1 Categories and definitions

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

### 6.2 National data

#### 6.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	N/A	N/A	N/A	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

#### 6.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

#### 6.2.3 Original data

--

### 6.3 Analysis and processing of national data



## 6.3.1 Adjustment

## 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	N/A	N/A	N/A	N/A	N/A
	Forest area within protected areas	N/A	N/A	N/A	N/A	N/A

## Tiers

Category	Tier for status	Tier for reported trend
Conservation of biodiversity	N/A	N/A
Forest area within protected areas	N/A	N/A

## Tier criteria

Category	Tier for status	Tier for reported trend
<ul style="list-style-type: none"> <li>Conservation of biodiversity</li> <li>Forests within protected areas</li> </ul>	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	<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

## 6.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Conservation of biodiversity	N/A	N/A
Forest area within protected areas	N/A	N/A

---

<b>Other general comments to the table</b>
--

N/A
-----

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

Documents for this question:

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

### 7.1 Categories and definitions

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

### 7.2 National data

#### 7.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	N/A	N/A	N/A	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
N/A	N/A
N/A	N/A
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
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	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	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
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	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	N/A
N/A	N/A	N/A
Total	N/A	N/A

Tiers

Category	Tier for status	Tier for reported trend
Invasive species	N/A	N/A

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	N/A	N/A

Other general comments to the table
N/A

## 8. How much forest area is damaged each year?

Documents for this question:

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

### 8.1 Categories and definitions

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

### 8.2 National data

#### 8.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	N/A	N/A	N/A	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
N/A	N/A
N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	... of which forest area burned	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Category		2008		2009		2010		2011		2012	
		000 ha	#	000 ha	#	000 ha	#	000 ha	#	000 ha	#
	Total land area burned	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	... of which forest area burned	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 8b

Outbreak category	Description/name	Year(s) of latest outbreak	Area damaged (000 hectares)
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	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	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	N/A

Outbreak category
1 Insects
2 Diseases
3 Severe weather events

Tiers

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

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	N/A	N/A
Insects	N/A	N/A
Diseases	N/A	N/A
Severe weather events	N/A	N/A

<b>Other general comments to the table</b>		
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	N/A

Other general comments

--

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

Documents for this question:

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

### 10.1 Categories and definitions

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

### 10.2 National data

#### 10.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	N/A	N/A	N/A	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

#### 10.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
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				
... of which, in <u>publicly</u> owned forests				
... of which, in <u>privately</u> owned forests				
Legislation and regulations supporting sustainable forest management				
... of which, in <u>publicly</u> owned forests				
... of which, in <u>privately</u> owned forests				

**10.4 Comments**

Variable / category	Comments related to data definitions etc
Policies supporting sustainable forest management	N/A
Legislation and regulations supporting sustainable forest management	N/A

Other general comments

--

## 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?

### 11.3 Comments

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

Other general comments

--

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

Documents for this question:

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

### 12.1 Categories and definitions

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

### 12.2 National data

#### 12.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	N/A	N/A	N/A	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

#### 12.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

#### 12.2.3 Original data

--

### 12.3 Analysis and processing of national data

## 12.3.1 Adjustment

--

## 12.3.2 Estimation and forecasting



--

## 12.3.3 Reclassification

--

## 12.4 Data

Table 12

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

## Tiers

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

## 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	N/A
Permanent forest estate	N/A



Other general comments

--

### 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	N/A	N/A	N/A	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

##### 13.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
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	N/A	N/A						
Other field assessments	N/A	N/A						
Updates to other sources	N/A	N/A						
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	
2 Periodic national state of the forest report	
3 Other (please document)	
4 None	

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

--

## 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	Virgin Islands Dept. of Agriculture	Areas with management plans	2008	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

### 14.3 Data

Table 14a

Forest plan type	Forest area 2010 (000 ha)
Forest area with management plan	0.415
... 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>
--	------------

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	N/A

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	This information was provided by the USVI Department of Agriculture in 2010. No new information was offered for 2015, so these numbers were carried forward.
N/A	N/A
N/A	N/A

Other general comments

--

## 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	
2. Operations phase	
3. Review of operations	

Tiers

Category	Tier for status
Type of stakeholder inputs	N/A

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
N/A	N/A
N/A	N/A
N/A	N/A

Other general comments

--

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

Documents for this question:

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

### 16.1 Categories and definitions

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

### 16.2 Data

Table 16a













International forest management certification		Forest area (000 ha)						
		2000	2001	2002	2003	2004	2005	2006
	FSC	0	0	0	0	0	0	0
	PEFC	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0
		2007	2008	2009	2010	2011	2012	
	FSC	0	0	0	0	0	0	
	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	N/A
<b>Domestic</b> forest management certification	N/A

16.3 Comments

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

Other general comments

--



## 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>• <u>Goods</u> : roundwood; sawnwood; biomass; woodbased panels; pulp and paper and non-wood forest products.</li> <li>• <u>Services</u> : 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	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

### 17.3 Data

Table 17

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

### 17.4 Comments

Category	Comments related to data definitions etc
Forest revenue	N/A
Public expenditure on forestry	N/A
Other general comments	N/A

Other general comments

--

## 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	N/A	N/A	N/A	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

### 18.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
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

--

## 18.4 Data

Table 18a

Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010

CFRQ	Public ownership	N/A	N/A	N/A	N/A
CFRQ	... of which owned by the state at national scale	N/A	N/A	N/A	N/A
CFRQ	... of which owned by the state at the sub-national government scale	N/A	N/A	N/A	N/A
CFRQ	Private ownership	N/A	N/A	N/A	N/A
CFRQ	... of which owned by individuals	N/A	N/A	N/A	N/A
CFRQ	... of which owned by private business entities and institutions	N/A	N/A	N/A	N/A
CFRQ	... of which owned by local, tribal and indigenous communities	N/A	N/A	N/A	N/A
CFRQ	Unknown ownership	N/A	N/A	N/A	N/A
TOTAL		.00	.00	.00	.00

## Tiers

Category	Tier for status	Tier for reported trend
Public ownership	N/A	N/A
Private ownership	N/A	N/A
Unknown ownership	N/A	N/A

## 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	N/A	N/A	N/A	N/A
Individuals	N/A	N/A	N/A	N/A
Private companies	N/A	N/A	N/A	N/A
Communities	N/A	N/A	N/A	N/A
Other	N/A	N/A	N/A	N/A
TOTAL	.00	.00	.00	.00

Category	Tier for reported trend	Tier for status
Public Administration	N/A	N/A
Individuals	N/A	N/A
Private companies	N/A	N/A
Communities	N/A	N/A
Other	N/A	N/A

### 18.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Public ownership	N/A	N/A
Private ownership	N/A	N/A
Unknown ownership	N/A	N/A
Management rights	N/A	N/A

Other general comments to the table
N/A

## 19. How many people are directly employed in forestry?

Documents for this question:

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

### 19.1 Categories and definitions

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

### 19.2 National data

#### 19.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	N/A	N/A	N/A	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

#### 19.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A



#### 19.2.3 Original data

--

### 19.3 Data

Table 19

Category	Employment (000 years FTE)
----------	----------------------------

		1990	2000	2005	2010
	Employment in forestry	N/A	N/A	N/A	N/A
	... of which female	N/A	N/A	N/A	N/A

#### 19.4 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Employment in forestry	N/A	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)	N/A	N/A	N/A

### 20.3 Comments

Category	Comments
N/A	N/A

Other general comments

--

## 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	N/A	N/A	N/A	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
Government target/aspiration for forest area	N/A

Forests earmarked for conversion	N/A
----------------------------------	-----

Other general comments

--