



Food and Agriculture
Organization of the
United Nations

Global Forest Resources Assessment 2020

Desk Study

Bermuda

Rome, 2020



FAO has been monitoring the world's forests at 5 to 10 year intervals since 1946. The Global Forest Resources Assessments (FRA) are now produced every five years in an attempt to provide a consistent approach to describing the world's forests and how they are changing. The FRA is a country-driven process and the assessments are based on reports prepared by officially nominated National Correspondents. If a report is not available, the FRA Secretariat prepares a desk study using earlier reports, existing information and/or remote sensing based analysis.

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Introduction

Introductory text

No report has been received from Bermuda. This report is the result of a desk study prepared by the FRA secretariat in Rome, which is based on the existing available information using the established format for FRA 2020.

Bermuda consists of a group of over 300 islands and islets in the North Atlantic Ocean east of Cape Hatteras, North Carolina. The islands have a base of volcanic rock capped by coral formations, low hills separated by fertile depressions. They are enclosed on the north, west, and south by reefs. The islands are separated from one another by narrow channels, but include several coral lagoons, or sounds. The highest point is Town Hill with 76 m. [1]

The average rainfall is about 1470 mm per year. The climate is mild, subtropical and humid; the temperature averaging 17° C in winter and 26° C in summer. The Warm Gulf Stream tempers the ocean winds, but when south winds prevail, the humidity rises and severe thunderstorms are frequent. Fall hurricanes may strike the islands.

Some main endemic tree species are *Juniperus bermudiana*, *Conocarpus erectus* and *Rhizophora mangle*; part of main invasive tree species are *Schinus terebinthifolius*, *Casuarina equisetifoli* and *Ficus microcarpa*. [2]

The Bermuda Plan of 2008, gave the Minister authority to place a Tree Preservation Order (TPO) on any trees, groups of trees or woodlands to prohibit the cutting down, topping, lopping or wilful destruction of them. Moreover in assessing an application for development within a Rural zone all significant natural features, stands of trees and mature vegetation are preserved. Species Recovery Plans have been developed for several of Bermuda's protected species, outlining the necessary actions to recovery and protect a specific species.[3]

[1] The World Factbook – Central Intelligence Agency (CIA) <https://www.cia.gov/library/publications/resources/the-world-factbook/docs/guidetowfbook.html> . Retrieved February 22, 2017.

[2] Indigenous & Invasive Plants of Bermuda. Government of Bermuda, Ministry of Public Works, Department of Conservation Services. July 2012. Retrieved February 22, 2017.
http://www.bermudabotanicalsociety.org/BBS/Library_files/Bermuda%20Plantfinder.pdf

[3] The Bermuda Plan 2008, Government of Bermuda, Ministry of the Environment and Sports, Department of Planning. 2008. Retrieved February 22, 2017.
<http://www.planning.gov.bm/Documents/Final%20Bermuda%20Plan%202008/Planning%20Statement%202008.pdf>

1 Forest extent, characteristics and changes

1a Extent of forest and other wooded land

National Data

Data sources + type of data source eg NFI, etc

Expert opinion from FAO 2005. Global Forest Resources Assessment 2005. Bermuda Country Report. Working Paper 078. Secondary data source.

National classification and definitions

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Original data

All of the open areas including mangrove swamps, forested areas, and low scrub barely exceed 1000 ha. The total area of inland water is 27 hectares.

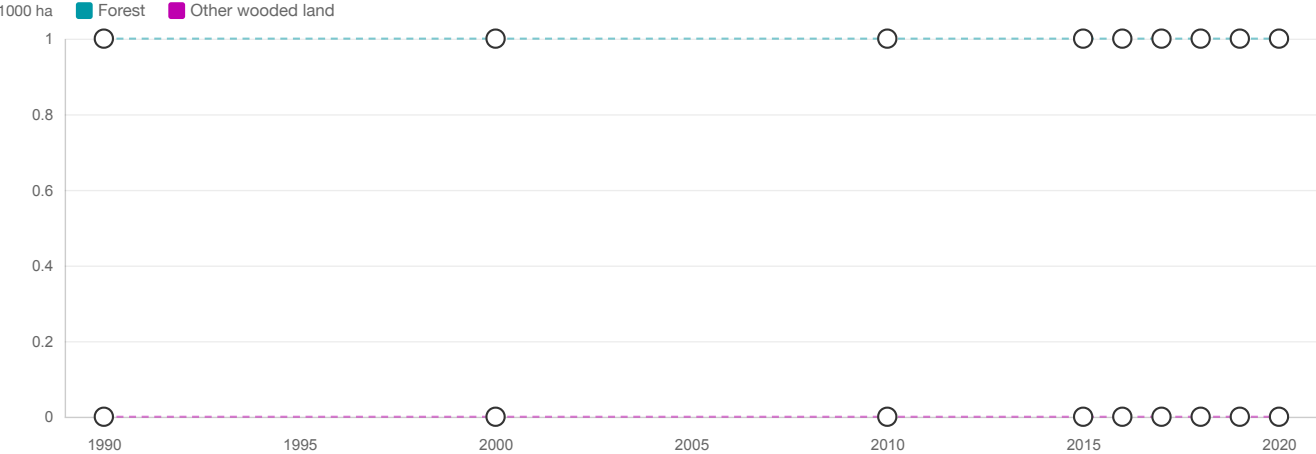
Analysis and processing of national data

Estimation and forecasting

The forest area is considered constant over the years.

Reclassification into FRA 2020 categories

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FRA categories	Area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Forest (a)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Other wooded land (a)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other land (c-a-b)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Total land area (c)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00

The FAOSTAT land area figure for the year 2015 is used for all reference years

Climatic domain	% of forest area 2015	Override value
Boreal	0.00	
Temperate	0.00	
Sub-tropical	100.00	
Tropical	0.00	

Comments

1b Forest characteristics

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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FRA categories	Forest area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest (a)									
Planted forest (b)	–	–	–	–	–	–	–	–	–
Plantation forest									
...of which introduced species									
Other planted forest									
Total (a+b)	–	–	–	–	–	–	–	–	–
Total forest area	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Comments

1c Primary forest and special forest categories

National Data

Data sources + type of data source eg NFI, etc

	References to sources of information	Variables	Additional comments
1	FAO 2007. Mangroves of North and Central America. Country Reports.	Mangrove area	Secondary source, cites various studies with information on mangroves.

National classification and definitions

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Original data

Most reliable, recent mangrove area estimate			Mangrove area estimate 1980	Mangrove area estimate 1990	Mangrove area estimate 2000	Mangrove area estimate 2005
Bermuda	ha	year	ha	ha	ha	ha
	16	1992	17	16	15	15

Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

The estimated mangrove area for 2005 has been used for all the reporting years.

FRA categories	Area (1000 ha)				
	1990	2000	2010	2015	2020
Primary forest					
Temporarily unstocked and/or recently regenerated					
Bamboos					
Mangroves	0.01	0.01	0.01	0.01	0.01
Rubber wood	0.00	0.00	0.00	0.00	0.00

Comments

1d Annual forest expansion, deforestation and net change

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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FRA categories	Area (1000 ha/year)			
	1990-2000	2000-2010	2010-2015	2015-2020
Forest expansion (a)				
...of which afforestation				
...of which natural expansion				
Deforestation (b)				
Forest area net change (a-b)	0.00	0.00	0.00	0.00

Comments

1e Annual reforestation

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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FRA categories	Area (1000 ha/year)			
	1990-2000	2000-2010	2010-2015	2015-2020
Reforestation				

Comments

1f Other land with tree cover

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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FRA categories	Area (1000 ha)				
	1990	2000	2010	2015	2020
Palms (a)					
Tree orchards (b)					
Agroforestry (c)					
Trees in urban settings (d)					
Other (specify in comments) (e)					
Total (a+b+c+d+e)	–	–	–	–	–
Other land area	4.00	4.00	4.00	4.00	4.00

Comments

2 Forest growing stock, biomass and carbon

2a Growing stock

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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FRA categories	Growing stock m³/ha (over bark)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest									
Planted forest									
...of which plantation forest									
...of which other planted forest									
Forest									
Other wooded land									

FRA categories	Total growing stock (million m³ over bark)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest									
Planted forest									
...of which plantation forest									
...of which other planted forest									
Forest									
Other wooded land									

Comments

2b Growing stock composition

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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FRA categories	Scientific name	Common name	Growing stock in forest (million m³ over bark)				
			1990	2000	2010	2015	2020
Native tree species							
#1 Ranked in terms of volume							
#2 Ranked in terms of volume							
#3 Ranked in terms of volume							
#4 Ranked in terms of volume							
#5 Ranked in terms of volume							
#6 Ranked in terms of volume							
#7 Ranked in terms of volume							
#8 Ranked in terms of volume							
#9 Ranked in terms of volume							
#10 Ranked in terms of volume							
Remaining native tree species							
Total volume of native tree species			–	–	–	–	–
Introduced tree species							
#1 Ranked in terms of volume							
#2 Ranked in terms of volume							
#3 Ranked in terms of volume							
#4 Ranked in terms of volume							
#5 Ranked in terms of volume							
Remaining introduced tree species							
Total volume of introduced tree species			–	–	–	–	–
Total growing stock			–	–	–	–	–

Comments

2c Biomass stock

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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FRA categories	Forest biomass (tonnes/ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Above-ground biomass									
Below-ground biomass									
Dead wood									

Comments

2d Carbon stock

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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FRA categories	Forest carbon (tonnes/ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Carbon in above-ground biomass									
Carbon in below-ground biomass									
Carbon in dead wood									
Carbon in litter									
Soil carbon									

Soil depth (cm) used for soil carbon estimates	
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Comments

3 Forest designation and management

3a Designated management objective

National Data

Data sources + type of data source eg NFI, etc

Joint Nature Conservation Committee - Biodiversity: the UK Overseas Territories. Compiled by S. Oldfield. Editor by D. Procter and L.V. Fleming.

ISBN: 1 86107 502 2. Copyright Joint Nature Conservation Committee 1999

www.nonnativespecies.org/downloadDocument.cfm?id=494

National classification and definitions

Protected areas

Bermuda has a comprehensive system for protection of remnant areas of natural habitat, with various legal measures in place.

• The Bermuda National Parks Act 1986. This is the enabling legislation for the designation of national parks and reserves, which may be areas of land or water. The Act also requires the preparation of a strategic plan for the management and development of the national parks system as a whole. The main purpose of protected areas declared under the legislation is informal recreation. There are two designations: Class A Protected Areas— Nature Reserves: to be managed to protect special or fragile natural features and provide limited public access; Class B Protected Areas—Parks: to be managed to encourage conservation and enjoyment of natural and historic features with the minimum of commercial activity. Reserves further divide into Government reserves and private (or ‘agreement’) nature reserves. Private reserves enter the system by agreement and can be withdrawn by agreement. None of these has yet been gazetted, although it is the intention to do so with Audubon Society reserves. Each protected area is meant to have a management plan in place within five years of declaration, but plans have not yet been completed for all sites. Any activity undertaken within a protected area must be consistent with the purposes of the area and its management plan. Ministers can make regulations to ensure this, and can provide for permit arrangements. Infringement of the terms of a permit is an offence, and strict enforcement is provided for. Construction or alteration of roads, buildings, alteration of land and other activities requires written approval of the Minister: proposals must be published and there is a period for public comment.

Currently, 12 nature reserves covering some 48 ha, and 63 parks ranging in size from 0.04 ha to 38 ha are listed under the Act. The nature reserves listed include a number of those already declared under statutory instruments arising from the Protection of Birds Act.

Original data

No data available to complete this table

Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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Primary designated management objective

FRA 2020 categories	Forest area (1000 ha)				
	1990	2000	2010	2015	2020
Production (a)					
Protection of soil and water (b)					
Conservation of biodiversity (c)					
Social Services (d)					
Multiple use (e)					
Other (specify in comments) (f)					
None/unknown (g)	1.00	1.00	1.00	1.00	1.00
Total forest area	1.00	1.00	1.00	1.00	1.00

Total area with designated management objective

FRA 2020 categories	Forest area (1000 ha)				
	1990	2000	2010	2015	2020
Production					
Protection of soil and water					
Conservation of biodiversity					
Social Services					
Other (specify in comments)					

Comments

3b Forest area within protected areas and forest area with long-term management plans

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

-

Original data

-

Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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FRA categories	Area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Forest area within protected areas									
Forest area with long-term forest management plan									
...of which in protected areas									

Comments

4 Forest ownership and management rights

4a Forest ownership

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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FRA categories	Forest area (1000 ha)			
	1990	2000	2010	2015
Private ownership (a)				
...of which owned by individuals				
...of which owned by private business entities and institutions				
...of which owned by local, tribal and indigenous communities				
Public ownership (b)				
Unknown/other (specify in comments) (c)	–	–	–	–
Total forest area	1.00	1.00	1.00	1.00

Comments

4b Holder of management rights of public forests

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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FRA categories	Forest area (1000 ha)			
	1990	2000	2010	2015
Public Administration (a)				
Individuals (b)				
Private business entities and institutions (c)				
Local, tribal and indigenous communities (d)				
Unknown/other (specify in comments) (e)	–	–	–	–
Total public ownership	–	–	–	–

Comments

5 Forest disturbances

5a Disturbances

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

-

Reclassification into FRA 2020 categories

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FRA categories	Area (1000 ha)																	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Insects (a)																		
Diseases (b)																		
Severe weather events (c)																		
Other (specify in comments) (d)																		
Total (a+b+c+d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total forest area	1.00	-	-	-	-	-	-	-	-	-	1.00	-	-	-	-	1.00	1.00	1.00

Comments

5b Area affected by fire

National Data

Data sources + type of data source eg NFI, etc

-

National classification and definitions

-

Original data

-

Analysis and processing of national data

Estimation and forecasting

-

Reclassification into FRA 2020 categories

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FRA categories	Area (1000 ha)																	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total land area affected by fire																		
...of which on forest																		

Comments

5c Degraded forest

Does your country monitor area of degraded forest		No
If "yes"	What is the national definition of "Degraded forest"?	
	Describe the monitoring process and results	

Comments

6 Forest policy and legislation

6a Policies, Legislation and national platform for stakeholder participation in forest policy

National Data

Data sources + type of data source eg NFI, etc

-

National classification and definitions

-

Original data

-

Indicate the existence of	Boolean (Yes/No)	
	National	Sub-national
Policies supporting SFM		
Legislations and regulations supporting SFM		
Platform that promotes or allows for stakeholder participation in forest policy development		
Traceability system(s) for wood products		

Comments

6b Area of permanent forest estate

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

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FRA 2020 categories	Forest area (1000 ha)					
	Applicable?	1990	2000	2010	2015	2020
Area of permanent forest estate						

Comments

7 Employment, education and NWFP

7a Employment in forestry and logging

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

-

Original data

-

FRA 2020 categories	Full-time equivalents (1000 FTE)											
	1990			2000			2010			2015		
	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male
Employment in forestry and logging												
...of which silviculture and other forestry activities												
...of which logging												
...of which gathering of non wood forest products												
...of which support services to forestry												

Comments

7b Graduation of students in forest-related education

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

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FRA 2020 categories	Number of graduated students											
	1990			2000			2010			2015		
	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male
Doctoral degree												
Master's degree												
Bachelor's degree												
Technician certificate / diploma												
Total												

Comments

7c Non wood forest products removals and value 2015

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

-

Original data

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	Name of NWFP product	Key species	Quantity	Unit	Value (1000 local currency)	NWFP category
#1						
#2						
#3						
#4						
#5						
#6						
#7						
#8						
#9						
#10						
All other plant products						
All other animal products						
Total					-	

Name of currency	
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Comments

8 Sustainable Development Goal 15

8a Sustainable Development Goal 15

SDG Indicator 15.1.1 Forest area as proportion of total land area 2015

Indicator	Percent							
	2000	2010	2015	2016	2017	2018	2019	2020
Forest area as proportion of total land area 2015	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00

Name of agency responsible	
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SDG Indicator 15.2.1 Progress towards sustainable forest management

Sub-Indicator 1	Percent						
	2000-2010	2010-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
Forest area annual net change rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Name of agency responsible	
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Sub-Indicator 2	Forest biomass (tonnes/ha)							
	2000	2010	2015	2016	2017	2018	2019	2020
Above-ground biomass stock in forest	–	–	–	–	–	–	–	–

Name of agency responsible	
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Sub-Indicator 3	Percent (2015 forest area baseline)							
	2000	2010	2015	2016	2017	2018	2019	2020
Proportion of forest area located within legally established protected areas	–	–	–	–	–	–	–	–

Name of agency responsible	
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Sub-Indicator 4	Percent (2015 forest area baseline)							
	2000	2010	2015	2016	2017	2018	2019	2020
Proportion of forest area under long-term forest management plan	–	–	–	–	–	–	–	–

Name of agency responsible	
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Sub-Indicator 5	Forest area (1000 ha)							
	2000	2010	2015	2016	2017	2018	2019	2020
Forest area under independently verified forest management certification schemes	0.00	0.00	0.00	0.00	0.00	0.00	–	–