



Food and Agriculture  
Organization of the  
United Nations

# Global Forest Resources Assessment 2020

Report

**Singapore**

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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## TABLE OF CONTENTS

### Introduction

1. Forest extent, characteristics and changes
2. Forest growing stock, biomass and carbon
3. Forest designation and management
4. Forest ownership and management rights
5. Forest disturbances
6. Forest policy and legislation
7. Employment, education and NWFP
8. Sustainable Development Goal 15

# Introduction

## Report preparation and contact persons

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### Introductory text

Place an introductory text on the content of this report

# 1 Forest extent, characteristics and changes

## 1a Extent of forest and other wooded land

### National data

#### Data sources

1990	References	Singapore Carbon Accounting exercise
	Methods used	National Forest Inventory, Sample-based remote sensing assessment, Full-cover forest/vegetation maps
	Additional comments	Wall to wall remote sensing assessment was used

2000	References	Singapore Carbon Accounting exercise
	Methods used	National Forest Inventory, Sample-based remote sensing assessment, Full-cover forest/vegetation maps
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2010	References	Singapore Carbon Accounting exercise
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2015	References	Singapore Carbon Accounting exercise
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2016	References	Singapore Carbon Accounting exercise
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### Classifications and definitions

1990	National class	Definition
	Forest land	

		Forest is defined as any vegetation dominated by trees having the potential to grow to at least 5 metres, with a potential canopy cover of at least 30%, in an area not less than 0.5 ha, and a minimum width of 20m, except in settlement areas, where the minimum area must not be less than 5 ha. In particular, it refers to stocked forest areas (ranging from early regrowth to mature/primary stand conditions) consisting of: primary forest made up of lowland and hill dipterocarp forest, secondary regrowth forest, abandoned plantations, exotic species-dominated stands (eg of Albizia, Acacia, Leucaena, Cecropia spp) and freshwater swamp forest.
	Mangrove Forest	Coastal forest dominated by mangrove species.
	Other Wooded Land	This refers to tree-covered areas in settlements with a minimum land size of between 0.25 ha – 5 ha and crown cover of over 30%. It includes city park lands, tree-stocked areas of golf courses, cemeteries and managed gardens in schools, residential areas, factories. It will also include other vegetated areas in settlement areas with or without solitary trees with a minimum land area of under 0.25 ha and crown cover of less than 30%.
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2010	<b>National class</b>	<b>Definition</b>
	Forest land	Forest is defined as any vegetation dominated by trees having the potential to grow to at least 5 metres, with a potential canopy cover of at least 30%, in an area not less than 0.5 ha, and a minimum width of 20m, except in settlement areas, where the minimum area must not be less than 5 ha. In particular, it refers to stocked forest areas (ranging from early regrowth to mature/primary stand conditions) consisting of: primary forest made up of lowland and hill dipterocarp forest, secondary regrowth forest, abandoned plantations, exotic species-dominated stands (eg of Albizia, Acacia, Leucaena, Cecropia spp) and freshwater swamp forest.
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Original data and reclassification

1990	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Other land
	Forest land	14.05	99.48 %	0.00 %	0.52 %
	Mangrove Forest	0.85	100.00 %	0.00 %	0.00 %
	Other Wooded Land	0.00	0.00 %	0.00 %	100.00 %
	Other Land	48.42	0.00 %	0.00 %	100.00 %
	Total	63.32	14.83	0.00	48.49

2000	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Other land
	Forest land	16.23	99.59 %	0.00 %	0.41 %
	Mangrove Forest	0.85	100.00 %	0.00 %	0.00 %
	Other Wooded Land	0.00	0.00 %	0.00 %	100.00 %
	Other Land	51.19	0.00 %	0.00 %	100.00 %
	Total	68.27	17.01	0.00	51.26

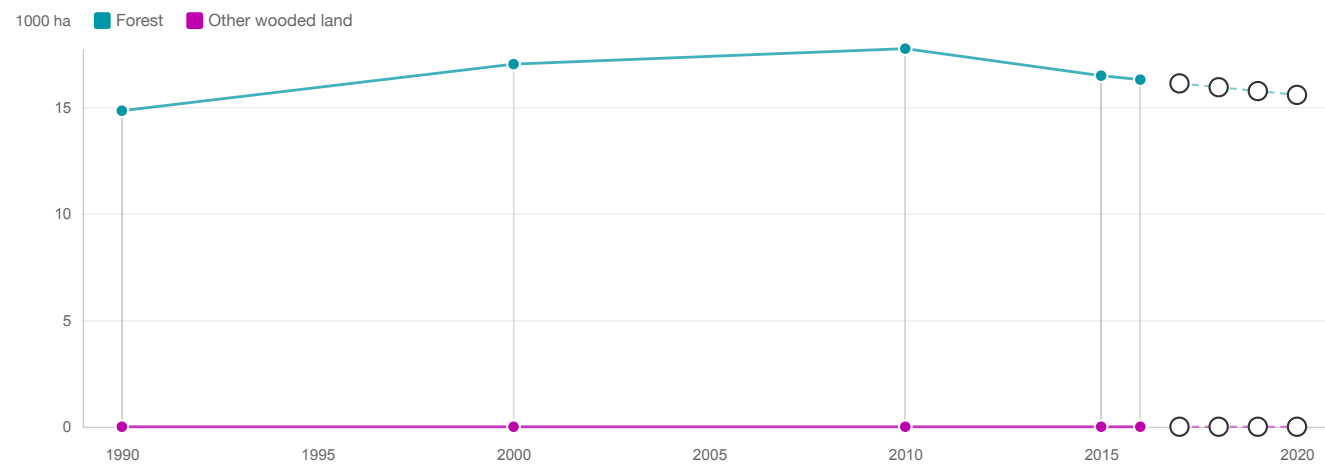
2010	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Other land
	Forest land	16.98	99.59 %	0.00 %	0.41 %
	Mangrove Forest	0.83	100.00 %	0.00 %	0.00 %
	Other Wooded Land	0.00	0.00 %	0.00 %	100.00 %
	Other Land	53.43	0.00 %	0.00 %	100.00 %



	Total	71.24	17.74	0.00	53.50
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2015	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Other land
	Forest land	15.72	99.50 %	0.00 %	0.50 %
	Mangrove Forest	0.83	100.00 %	0.00 %	0.00 %
	Other Wooded Land	0.00	0.00 %	0.00 %	100.00 %
	Other Land	55.36	0.00 %	0.00 %	100.00 %
	Total	71.91	16.47	0.00	55.44

2016	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Other land
	Forest land	15.52	99.52 %	0.00 %	0.48 %
	Mangrove Forest	0.84	100.00 %	0.00 %	0.00 %
	Other Wooded Land	0.00	0.00 %	0.00 %	100.00 %
	Other Land	55.61	0.00 %	0.00 %	100.00 %
	Total	71.97	16.29	0.00	55.68



FRA categories	Area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Forest (a)	14.83	17.01	17.74	16.47	16.29	16.11	15.93	15.75	15.57
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)	56.17	53.99	53.26	54.53	54.71	54.89	55.07	55.25	55.43
Total land area (c)	71.00	71.00	71.00	71.00	71.00	71.00	71.00	71.00	71.00

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	0.00	
Tropical	100.00	

Comments

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The forest trend corresponds to actual forest area dynamics. We foresee that forest area will reduce slightly in the foreseeable future.

Take note that the total Forest Area computed includes mangroves but does not include infrastructure within forest land. In previous reporting, we were able to report statistics under the category "Other Wooded Land" which refers to pockets of scrubland and freshwater marsh. With the use of current remote sensing data, we were not able to differentiate these areas and hence what has been reported as "Other Wooded Land" is now reported under "Other Land".

With regards to the total land area of Singapore, we will need to liaise with FAOSTAT on the updated land area figures. However, for now, we let the existing statistics remain.

Example: The total land area for Singapore for the following years are (Source: Department of Statistics, Singapore: [www.singstat.gov.sg](http://www.singstat.gov.sg))

Year 2000 = 68.27 kha,

Year 2010 = 71.24 kha,

Year 2015 = 71.91 kha

Year 2017 = 72.15 kha

1b Forest characteristics

National data

Data sources

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2010	<b>National class</b>	<b>Definition</b>
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Original data and reclassification

1990	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Naturally regenerating forest	Plantation forest	Other planted forest
	Forest land	13.98	100.00 %	0.00 %	0.00 %
	Mangrove Forest	0.85	100.00 %	0.00 %	0.00 %
	Total	14.83	14.83	0.00	0.00

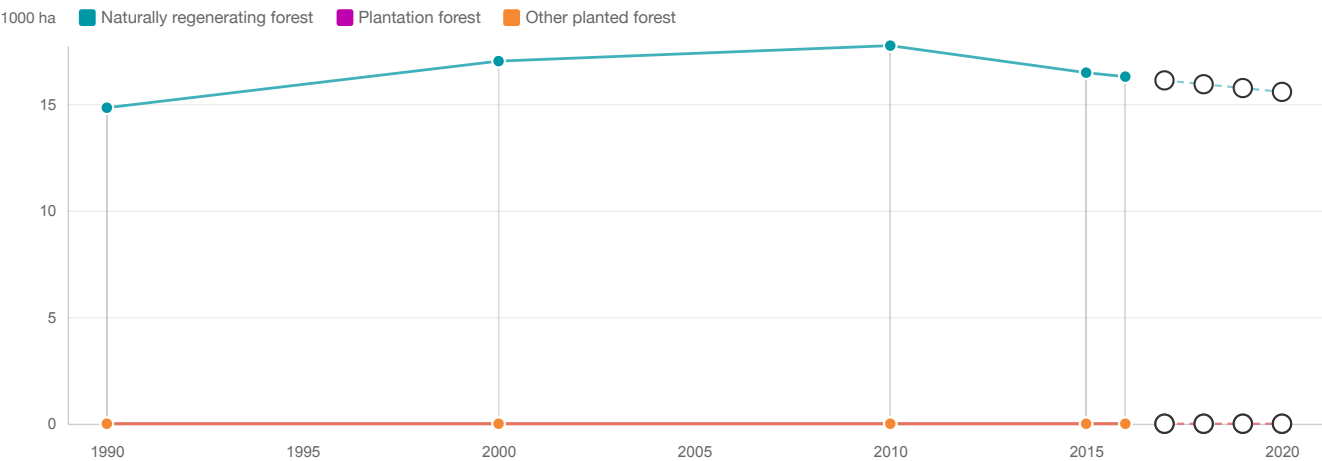
2000	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Naturally regenerating forest	Plantation forest	Other planted forest
	Forest land	16.16	100.00 %	0.00 %	0.00 %
	Mangrove Forest	0.85	100.00 %	0.00 %	0.00 %
	Total	17.01	17.01	0.00	0.00

2010	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Naturally regenerating forest	Plantation forest	Other planted forest
	Forest land	16.91	100.00 %	0.00 %	0.00 %
	Mangrove Forest	0.83	100.00 %	0.00 %	0.00 %
	Total	17.74	17.74	0.00	0.00

2015	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Naturally regenerating forest	Plantation forest	Other planted forest
	Forest land	15.64	100.00 %	0.00 %	0.00 %
	Mangrove Forest	0.83	100.00 %	0.00 %	0.00 %
	Total	16.47	16.47	0.00	0.00

2016	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Naturally regenerating forest	Plantation forest	Other planted forest
	Forest land	15.45	100.00 %	0.00 %	0.00 %
	Mangrove Forest	0.84	100.00 %	0.00 %	0.00 %
	Total	16.29	16.29	0.00	0.00





FRA categories	Forest area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest (a)	14.83	17.01	17.74	16.47	16.29	16.11	15.93	15.75	15.57
Planted forest (b)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Plantation forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
...of which introduced species									
Other planted forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total (a+b)	14.83	17.01	17.74	16.47	16.29	16.11	15.93	15.75	15.57
Total forest area	14.83	17.01	17.74	16.47	16.29	16.11	15.93	15.75	15.57

Comments

# 1c Primary forest and special forest categories

## National Data

### Data sources + type of data source eg NFI, etc

Singapore Carbon Accounting exercise

### National classification and definitions

-

### Original data

-

## Analysis and processing of national data

### Estimation and forecasting

-

### Reclassification into FRA 2020 categories

-

FRA categories	Area (1000 ha)				
	1990	2000	2010	2015	2020
Primary forest					
Temporarily unstocked and/or recently regenerated					
Bamboos					
Mangroves	0.85	0.85	0.83	0.83	0.84
Rubber wood					

Comments

The Mangrove areas for 2020 is based on figures derived from 2016. Assumption is that there is no significant change in area for the period 2016-2020.

1d Annual forest expansion, deforestation and net change

National Data

Data sources + type of data source eg NFI, etc

Singapore Carbon Accounting exercise

National classification and definitions

-

Original data

-

Analysis and processing of national data

Estimation and forecasting

-

Reclassification into FRA 2020 categories

-

FRA categories	Area (1000 ha/year)			
	1990-2000	2000-2010	2010-2015	2015-2020
Forest expansion (a)	0.50	0.21	0.05	0.06
...of which afforestation	0.00	0.00	0.00	0.00
...of which natural expansion	0.50	0.21	0.05	0.06
Deforestation (b)	0.28	0.14	0.30	0.24
Forest area net change (a-b)	0.22	0.07	-0.25	-0.18

Comments

The computations above of the "Forest expansion (a)" are based on year-to-year changes derived from our remotes sensing (from Singapore carbon accounting exercise) as compared to the figures generated automatically for "Forest area net change (a-b)" which are based on the averages of the absolute difference between two periods (eg Year 2000 less Year 1990 divided by 10). We note that the figures for "Deforestation (b)" is automatically computed based on difference between "Forest expansion (a)" and "Forest area net change (a-b)". Finally, for the period 2015-2020, the "Forest Expansion (a)" is based on the year-to-year changes derived between 2015 and 2016.

## 1e Annual reforestation

### 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

-

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

-

National classification and definitions

-

Original data

-

Analysis and processing of national data

Estimation and forecasting

Linear progression was used for estimates of 2020 as indicated in 1a

Reclassification into FRA 2020 categories

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FRA categories	Area (1000 ha)				
	1990	2000	2010	2015	2020
Palms (a)	0.00	0.00	0.00	0.00	0.00
Tree orchards (b)	0.00	0.00	0.00	0.00	0.00
Agroforestry (c)	0.00	0.00	0.00	0.00	0.00
Trees in urban settings (d)	23.33	19.94	20.43	21.11	24.11
Other (specify in comments) (e)					
Total (a+b+c+d+e)	23.33	19.94	20.43	21.11	24.11
Other land area	56.17	53.99	53.26	54.53	55.43

Comments

"Trees in urban settings: refers to our vegetation in our land-use category Settlement, specifically tree-covered areas and other vegetated areas. For 2020, this is based on linear progression.

2 Forest growing stock, biomass and carbon

2a Growing stock

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

-

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

-

National classification and definitions

-

Original data

-

Analysis and processing of national data

Estimation and forecasting

-

Reclassification into FRA 2020 categories

-

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**

Singapore Carbon Accounting exercise

**National classification and definitions**

-

**Original data**

-

### Analysis and processing of national data

**Estimation and forecasting**

-

**Reclassification into FRA 2020 categories**

-

FRA categories	Forest biomass (tonnes/ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Above-ground biomass	105.72	106.33	116.71	133.06	135.71	135.71	135.71	135.71	135.71
Below-ground biomass	21.25	21.37	23.46	26.74	27.28	27.28	27.28	27.28	27.28
Dead wood	7.78	6.78	6.97	7.86	8.03	8.03	8.03	8.03	8.03

Comments

As we do not have figures of biomass and deadwood for the period 2017-2020, we take the conservative stocks based on 2016 (as suggested by reviewer). Below-ground biomass is determined based on a fraction of 0.201 of the above-ground biomass.



## 2d Carbon stock

### National Data

**Data sources + type of data source eg NFI, etc**

Singapore Carbon Accounting exercise

**National classification and definitions**

-

**Original data**

-

### Analysis and processing of national data

**Estimation and forecasting**

-

**Reclassification into FRA 2020 categories**

-

FRA categories	Forest carbon (tonnes/ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Carbon in above-ground biomass	49.69	49.97	54.86	62.54	63.78	63.78	63.78	63.78	63.78
Carbon in below-ground biomass	9.99	10.04	11.03	12.57	12.82	12.82	12.82	12.82	12.82
Carbon in dead wood	3.66	3.19	3.28	3.69	3.77	3.77	3.77	3.77	3.77
Carbon in litter	5.62	4.90	5.25	5.85	5.94	5.94	5.94	5.94	5.94
Soil carbon	88.36	77.04	76.64	83.82	84.95	84.95	84.95	84.95	84.95

Soil depth (cm) used for soil carbon estimates	50.00
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Comments

As we do not have figures of biomass and deadwood for the period 2017-2020, we take the conservative stocks based on 2016 (as suggested by reviewer). We use a carbon fraction of 0.47 to convert biomass to carbon.

### 3 Forest designation and management

#### 3a Designated management objective

##### National Data

**Data sources + type of data source eg NFI, etc**

- 1) National Parks Board, 1 Cluny Road, Singapore 259569
- 2) Yee, A.T.K., Corlett, R. T., Liew, S. C. and Tan, H. T. W. 2011. The vegetation of Singapore - an updated map. The Gardens' Bulletin, Singapore 63 (1 & 2): 205 - 212. National Parks Board
- 3) Ng, K.L.P., Corlett, R.T. & Tan, T.W.H. Eds. 2011. Singapore biodiversity: an encyclopedia of the natural environment and sustainable development. Singapore: Editions Didier Millet in association with Raffles Museum of Biodiversity Research

**National classification and definitions**

-

**Original data**

-

##### Analysis and processing of national data

**Estimation and forecasting**

-

**Reclassification into FRA 2020 categories**

-

Primary designated management objective

FRA 2020 categories	Forest area (1000 ha)				
	1990	2000	2010	2015	2020
Production (a)	0.00	0.00	0.00	0.00	0.00
Protection of soil and water (b)	0.00	0.00	0.00	0.00	0.00
Conservation of biodiversity (c)	0.00	0.00	0.00	0.00	0.00
Social Services (d)	11.48	13.66	14.39	13.12	12.22
Multiple use (e)	3.35	3.35	3.35	3.35	3.35
Other (specify in comments) (f)	0.00	0.00	0.00	0.00	0.00
None/unknown (g)	-0.00	0.00	0.00	0.00	0.00
Total forest area	14.83	17.01	17.74	16.47	15.57

Total area with designated management objective

FRA 2020 categories	Forest area (1000 ha)				
	1990	2000	2010	2015	2020
Production	0.00	0.00	0.00	0.00	0.00
Protection of soil and water	3.04	3.04	3.04	3.04	3.04
Conservation of biodiversity	3.35	3.35	3.35	3.35	3.35
Social Services	14.83	17.01	17.74	16.47	15.57
Other (specify in comments)					

Comments

Forests in Singapore consist of protected nature reserves as well as other forested areas. In reference to the first table, areas that are in the nature reserves are considered for ‘Multiple Use’ as they are primarily managed for conservation of biodiversity, but also provide protection of soil and water and compatible social services (eg. research and recreation). The other forested areas also provide a ‘Social Services’ role.

### 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**

National Parks Board, 1 Cluny Road, Singapore 259569

**National classification and definitions**

-

**Original data**

-

#### Analysis and processing of national data

**Estimation and forecasting**

-

**Reclassification into FRA 2020 categories**

-

FRA categories	Area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Forest area within protected areas	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35
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**

National Parks Board, 1 Cluny Road, Singapore 259569

**National classification and definitions**

-

**Original data**

-

#### Analysis and processing of national data

**Estimation and forecasting**

-

**Reclassification into FRA 2020 categories**

-

FRA categories	Forest area (1000 ha)			
	1990	2000	2010	2015
Private ownership (a)	0.00	0.00	0.00	0.00
...of which owned by individuals	0.00	0.00	0.00	0.00
...of which owned by private business entities and institutions	0.00	0.00	0.00	0.00
...of which owned by local, tribal and indigenous communities	0.00	0.00	0.00	0.00
Public ownership (b)	14.83	17.01	17.74	16.47
Unknown/other (specify in comments) (c)	-0.00	0.00	0.00	0.00
Total forest area	14.83	17.01	17.74	16.47

Comments

All forest land are managed by the government, hence publicly owned. The "Unknown/other" category is not applicable to us.



## 4b Holder of management rights of public forests

### National Data

Data sources + type of data source eg NFI, etc

Expert estimate

National classification and definitions

-

Original data

-

### Analysis and processing of national data

Estimation and forecasting

-

Reclassification into FRA 2020 categories

-

FRA categories	Forest area (1000 ha)			
	1990	2000	2010	2015
Public Administration (a)	14.83	17.01	17.74	16.47
Individuals (b)	0.00	0.00	0.00	0.00
Private business entities and institutions (c)	0.00	0.00	0.00	0.00
Local, tribal and indigenous communities (d)	0.00	0.00	0.00	0.00
Unknown/other (specify in comments) (e)	0.00	0.00	0.00	0.00
Total public ownership	14.83	17.01	17.74	16.47

Comments

5 Forest disturbances

5a Disturbances

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

-

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	17.01	-	-	-	-	-	-	-	-	-	17.74	-	-	-	-	16.47	16.29	16.11

Comments

There is no data currently available on the area of forest land affected by insects, diseases, severe weather events or others.

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

-

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

There is no data currently available on the area of forest land affected by fire.

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	Yes	No
Legislations and regulations supporting SFM	Yes	No
Platform that promotes or allows for stakeholder participation in forest policy development	No	No
Traceability system(s) for wood products	No	No

### Comments

In regards to platform promoting stakeholder participation, while there are no official platforms, the government do engage a broad range of stakeholders through various channels for inputs relating to national forest policies.

## 6b Area of permanent forest estate

### National Data

Data sources + type of data source eg NFI, etc

Expert estimate

National classification and definitions

-

Original data

-

FRA 2020 categories	Forest area (1000 ha)					
	Applicable?	1990	2000	2010	2015	2020
Area of permanent forest estate	Yes	3.35	3.35	3.35	3.35	3.35

Comments

## 7 Employment, education and NWFP

### 7a Employment in forestry and logging

#### National Data

Data sources + type of data source eg NFI, etc

-

National classification and definitions

-

#### Original data

Singapore does not have a commercial logging industry. Hence, the employment statistics are reflected as zero.

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
...of which silviculture and other forestry activities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
...of which logging	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
...of which gathering of non wood forest products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
...of which support services to forestry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Comments

We do not have a forestry and logging industry . We do have Full Time Equivalents managing the nature reserves as conservation forests.

## 7b Graduation of students in forest-related education

### National Data

Data sources + type of data source eg NFI, etc

-

National classification and definitions

-

### Original data

As Singapore does not have a commercial logging industry, there is no post-secondary education dedicated to the subject or discipline of forests and related topics.

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Master's degree	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bachelor's degree	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Technician certificate / diploma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Comments

## 7c Non wood forest products removals and value 2015

### National Data

Data sources + type of data source eg NFI, etc

-

National classification and definitions

-

### Original data

Singapore does not have a logging industry and non-wood forest products extraction is illegal, hence, not practised. Therefore, columns like "Name of NWFP product", "Key species", "NWFP category" are left empty.



	Name of NWFP product	Key species	Quantity	Unit	Value (1000 local currency)	NWFP category
#1			0	0	0	
#2			0	0	0	
#3			0	0	0	
#4			0	0	0	
#5			0	0	0	
#6			0	0	0	
#7			0	0	0	
#8			0	0	0	
#9			0	0	0	
#10			0	0	0	
All other plant products					0	
All other animal products					0	
Total					0	

Name of currency	Singapore Dollar
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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	23.96	24.99	23.20	22.94	22.69	22.44	22.18	21.93

Name of agency responsible	National Parks Board, Singapore
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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	0.42	-1.47	-1.14	-1.09	-1.13	-1.14	-1.16

Name of agency responsible	National Parks Board, Singapore
----------------------------	---------------------------------

Sub-Indicator 2	Forest biomass (tonnes/ha)							
	2000	2010	2015	2016	2017	2018	2019	2020
Above-ground biomass stock in forest	106.33	116.71	133.06	135.71	135.71	135.71	135.71	135.71

Name of agency responsible	National Parks Board, Singapore
----------------------------	---------------------------------

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	20.34	20.34	20.34	20.34	20.34	20.34	20.34	20.34

Name of agency responsible	National Parks Board, Singapore
----------------------------	---------------------------------

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	National Parks Board, Singapore
----------------------------	---------------------------------

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	–	–