



**Forestry Department**

**Food and Agriculture Organization of the United Nations**

**GLOBAL FOREST RESOURCES  
ASSESSMENT 2010**

**COUNTRY REPORT**

**PALAU**

FRA2010/159  
Rome, 2010



## The Forest Resources Assessment Programme

Sustainably managed forests have multiple environmental and socio-economic functions important at the global, national and local scales, and play a vital part in sustainable development. Reliable and up-to-date information on the state of forest resources - not only on area and area change, but also on such variables as growing stock, wood and non-wood products, carbon, protected areas, use of forests for recreation and other services, biological diversity and forests' contribution to national economies - is crucial to support decision-making for policies and programmes in forestry and sustainable development at all levels.

FAO, at the request of its member countries, regularly monitors the world's forests and their management and uses through the Forest Resources Assessment Programme. This country report forms part of the Global Forest Resources Assessment 2010 (FRA 2010).

The reporting framework for FRA 2010 is based on the thematic elements of sustainable forest management acknowledged in intergovernmental forest-related fora and includes variables related to the extent, condition, uses and values of forest resources, as well as the policy, legal and institutional framework related to forests. More information on the FRA 2010 process and the results - including all the country reports - is available on the FRA Web site ([www.fao.org/forestry/fra](http://www.fao.org/forestry/fra)).

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The Global Forest Resources Assessment Country Report Series is designed to document and make available the information forming the basis for the FRA reports. The Country Reports have been compiled by officially nominated country correspondents in collaboration with FAO staff. Prior to finalisation, these reports were subject to validation by forestry authorities in the respective countries.

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## Introduction

Palau is composed of a diverse network of coral reefs and a chain of more than 300 raised limestone and volcanic islands. The islands trend northeast to southwest for a distance of about 200 km, approximately 750 km east of the Philippines. The islands range in size from the relatively large volcanic island of Babeldaob, at about 37000 hectares, to coral rocks topped with trees, only a few meters across. The tremendous marine diversity is supported by the convergence of oceanic currents and the filtering and nutrient effects of the dense terrestrial forests. The topography of the four volcanic islands is marked by steep slopes and rolling hills, with mangroves often found on coastal flats. The limestone coral islands or “Rock Islands” support a diversity of tree species on often surprisingly shallow soils deposited in the recesses of the rugged karstic topography.

Palau is hot and humid with little annual variation in the mean maximum temperature of 31 C and the mean minimum of 24 C. Annual precipitation averages about 3750 mm. In the wettest months, June and July, monthly precipitation averages about 430 mm, whereas during the driest months, February, March, and April, monthly precipitation averages 225 mm (data from Western Regional Climate Center 2004). Palau borders the typhoon belt in the western tropical Pacific and is subject to occasional typhoon damage. Prior to European contact, extensive terracing was practiced on Babeldaob in upland areas. Paleoenvironmental evidence suggests terracing may have contributed to landcover change from forest to savanna and fernland, and accelerated erosion as much as 2500 years before present (Athens and Ward 2002). Additional recent disturbances have included mining of bauxite, military action during World War II (which denuded much of Peleliu and Angaur), and conversion of forest for agriculture. Forest was cleared during the recent construction of a new capitol on Babeldaob and a new road circumnavigating the island. Barren volcanic soils pose high risk of erosion with frequent, intense rainfall and are often a corridor for colonization by invasive species.

### References:

- Athens, J.S.; Ward, J.V. 2002. Holocene paleoenvironmental investigations on Ngerekebesang, Koror, south Babeldaob, and Peleliu islands. International Archaeological Research Institute, Inc., Honolulu, HI.
- Western Regional Climate Center. 2004. Koror, Palau, period of record monthly climate summary, 1953-2004. <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?pikoro>. [September 12, 2004].

## 1 Table T1 – Extent of Forest and Other wooded land

### 1.1 FRA 2010 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 <i>in situ</i> . 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 <i>in situ</i> ; 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”.
Other land with tree cover (Subordinated to “Other land”)	Land classified as “Other land”, spanning 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.
Inland water bodies	Inland water bodies generally include major rivers, lakes and water reservoirs.

### 1.2 National data

#### 1.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Preliminary land cover assessment for the Republic of Palau, USDA Forest Service, Pacific Northwest Forest Inventory and Analysis. Contact: Joseph Donnegan, <a href="mailto:jdonnegan@fs.fed.us">jdonnegan@fs.fed.us</a>	M	Land cover	2002	A preliminary five class land cover map was derived from IKONOS satellite data (1m resolution). Classes included: forest, nonforest vegetation, barren land, urban, and inland water.
Cole, T. G., M. C. Falanruw, C. D. MacLean, C. D. Whitesell, and A. H. Ambacher. 1987. Vegetation Survey of the Republic of Palau. Resource Bulletin PSW-RB-22, Pacific Southwest Research Station, USDA Forest Service.	H	Land Cover	1979	Land cover and vegetation maps were interpreted from 1976, 1:10,000 aerial photo imagery. Final data from report was dated 1979.
MacLean, C. D., T. G. Cole, C. D. Whitesell, and K. E. McDuffie. 1988. Timber Resources of Babelthuap, Republic of Palau. Resource Bulletin PSW-RB-23, U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station, Berkeley, CA.	H	Timberland area	1985	Used Cole et al. 1976 maps, updating with inventory field plots for timber volumes.

### 1.2.2 Classification and definitions

National class	Definition
Forest land	Land spanning more than 0.5 hectares and a tree canopy cover of more than 10 percent.
Unreserved forest land	Forest land available for wood removals.
Protected forest land	Forest land that is not available for wood removals.
Limestone forest	Forest occurring on limestone substrate, generally in southern Palau's Rock Islands.
Volcanic forest	Forest occurring on volcanic soils, generally in northern Palau, especially Babeldaob island.
Nonforest urban	Land used primarily for urban purposes.
Nonforest vegetation	Land characterized primarily by non-tree species or <10% canopy cover of trees.
Barren lands	Lands with exposed soil, rock, or sand, devoid of vegetation.
Unknown	Further work is needed to determine land cover.
Water	Inland water bodies generally include major rivers, lakes and water reservoirs.

### 1.2.3 Original data

1979 Land class	Area (ha)
Forest:	
Upland forest	21,891
Swamp forest	1,680
Mangrove forest	4,708
Plantation forest	26
Rock Island forest	1,116
Limestone forest	1,232
Casuarina forest	451
Atoll forest	155
Palm forest	< 1
Total forest	31,259
Secondary vegetation	
	727
Agroforest:	
Agroforest	16
Agroforest (w/coconut)	279
Coconut plantation	814
Total agroforest	1,109
Nonforest:	
Marsh, fresh	475
Marsh, cultivated	134
Marsh, saline	25
Grassland	6,783
Strand	11
Cropland	203
Cropland/secondary veg.	28
Urban	397
Urban/cropland	176
Urban/agroforest	61
Urban/secondary veg.	3

Barren	180
Water	48
Total nonforest	8,524
Total area	41,619

2002 Land Cover Class	Area (sq. meters)	Area (ha)
Barren	538,160	54
Forest	391,282,736	39,128
Non-forest vegetation	50,378,592	5,038
Unknown	44,192	4
Urban	7,749,424	775
Inland water	1,413,318	141
Total Area	451,406,432	45,141

### 1.3 Analysis and processing of national data

#### 1.3.1 Calibration

FAOSTAT total area = 46,000 ha

Calibration factor 1979 =  $(46,000/41,619) = 1.105264422$

Calibration factor 2002 =  $(46,000/45,141) = 1.01903734103278$

	Original data		Calibration to FAOSTAT	
	1979	2002	1979	2002
	<i>Hectares</i>			
All forest land	33,095	39,128	36,579	39,873
Other land	8,524	6,012	9,421	6,127
Water	0	0	0	0
Total	41,619	45,141	46,000	46,000

#### 1.3.2 Estimation and forecasting

	Original Data	Original Data	FAO Calibrated Data	FAO Calibrated Data	Change	Δ per year
	1979	2002	1979	2002		
All forest land	33,095	39,128	36,579	39,873	3,294	143.217
Other land	8,524	6,012	9,421	6,127	-3,294	-143.217
Water	0	0	0	0	0	0
Total	41,619	45,141	46,000	46,000		

#### 1.3.3 Reclassification into FRA 2010 categories

The small amounts of agroforest and secondary forest were included in the total forest area. The inland water in the original data was included in other land to match FAOSTAT data.



#### 1.4 Data for Table T1

FRA 2010 categories	Area (1000 hectares)			
	1990	2000	2005	2010
Forest	38.154	39.587	40.303	40.303
Other wooded land	0	0	0	0
Other land	7.846	6.413	5.697	5.697
...of which with tree cover	n.a.	n.a.	n.a.	n.a.
Inland water bodies	0	0	0	0
<b>TOTAL</b>	46.000	46.000	46.000	46.000

#### 1.5 Comments to Table T1

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest	FRA 2000 reported forest area of 35,000 ha in 1990 and 2000. This figure was based on the MacLean et al. (1988) report that covered only the most productive forest land, and only on the island of Babeldaob. Agroforest and secondary vegetation was not included in that figure. The vegetation inventory from Cole et al. (1987) was used here to maintain consistency for the total area of reporting and to include all forested lands, including agroforest and secondary forest. The 2003 inventory did not try to separate gradations of secondary forest and reverting agroforest from forested lands.	Owing to important land use and cover changes in Palau, the data reported in 2005 simply was carried forward to 2010. The relocation of the capitol and the building of the circumnavigating road are expected to reduce forest cover and reverse the overall trend of forest expansion seen for the largest island Babeldaob. Remeasurement of forested field plots and new forest mapping are scheduled for 2013 and will help quantify the recent changes. The increase is likely because of continued forest recovery from World War II.
Other wooded land	No data is available on other wooded land. May occur in the other land category.	
Other land		
Other land with tree cover		
Inland water bodies		

#### Other general comments to the table

The values in T1 are preliminary values based on rapid interpretation of satellite imagery. A second, more detailed landcover classification is in progress, utilizing supplemental satellite imagery and ground verification. For both the 1979 and the 2002 data, agroforest and secondary forest vegetation were grouped with forest (approximately 5% of total land cover in 1979). Agroforest and tree gardens are relatively small in area but are an important food, cultural, craft, and watershed resource for Palauans. Agroforest and secondary vegetation often cannot be precisely delineated using satellite imagery.

Palau is working on making corrections to the total country area statistics with the United Nations Statistics Office as well as with FAOSTAT for total land area and inland water area. The official request for changes has not yet been submitted as of 3/31/2009, but is expected to be submitted within the next six months. For the purposes of this report, the statistics of FAOSTAT and the UN Statistics Office will be used. The current numbers that have been calculated and will likely go into the final request for changes are the following:

Inland water area: 8.7 ha  
Marine lakes: 143.52 ha  
Total land area (not including mangroves, marine lakes or inland water area): 41405.38 ha  
Total mangrove area: 4608.36 ha.

<b>Expected year for completion of ongoing/planned <u>national forest inventory and/or RS survey / mapping</u></b>	
Field inventory	2003 2013...
Remote sensing survey / mapping	2009

## 2 Table T2 – Forest ownership and management rights

### 2.1 FRA 2010 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.
Private ownership	Forest owned by individuals, families, communities, private co-operatives, corporations and other business entities, private religious and educational institutions, pension or investment funds, NGOs, nature conservation associations and other private institutions.
Individuals (sub-category of Private ownership)	Forest owned by individuals and families.
Private business entities and institutions (sub-category of Private ownership)	Forest owned by private corporations, co-operatives, companies and other business entities, as well as private non-profit organizations such as NGOs, nature conservation associations, and private religious and educational institutions, etc.
Local communities (sub-category of Private ownership)	Forest owned by a group of individuals belonging to the same community residing within or in the vicinity of a forest area. The community members are co-owners that share exclusive rights and duties, and benefits contribute to the community development.
Indigenous / tribal communities (sub-category of Private ownership)	Forest owned by communities of indigenous or tribal people.
Other types of ownership	Other kind of ownership arrangements not covered by the categories above. Also includes areas where ownership is unclear or disputed.
<b>Categories related to the holder of management rights of public forest resources</b>	
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 institutions	Forest management rights and responsibilities are transferred from the Public Administration to corporations, other business entities, private co-operatives, private non-profit 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.

## 2.2 National data

### 2.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Al Caraig, National Surveyor, BLS Ramarui Daniel, Cartographer I, BLS	M		2008	The numbers in the original data table are estimated numbers from the Bureau of Lands and Surveys (BLS), Ministry of Resources and Development taken in 2008. The BLS does not differentiate between ownership of land covered in forest or other land cover types. Therefore, these figures are of land area and not only of forest areas.  <u>Available data does not allow reporting for this reporting table.</u>

### 2.2.2 Classification and definitions

See comments section.

### 2.2.3 Original data

Table from the Bureau of Lands and Surveys (BLS). Note that this table does not include statistics for public and private lands in Sonsorol and Hatohobei States. Also it does not include the rock islands. The vast majority of the rock islands are public lands however there are a few that are privately owned. The total estimated area of the rock islands is: 4,872.08 ha.

STATES (Unit in Hectares)	PUBLIC LANDS	PRIVATE LANDS	TOTAL
AIRAI	4936.02	1569.02	6505.04
AIMELIIK	4282.05	1394.72	5676.76
NGATPANG	2120.17	928.00	3048.17
NGEREMLENGUI	4713.54	303.81	5017.35
NGARDMAU	4339.55	957.01	5296.55
NGARRARD	2224.81	863.77	3088.58
NGERCHELONG	163.17	609.43	772.60
NGIWAL	1867.91	1853.15	3721.05
MELEKEOK	1554.26	818.44	2372.70
NGCHESAR	3407.92	807.30	4215.23
KOROR MAIN. IS.	309.25	487.18	796.43
PELELIU	296.56	941.21	1237.76
ANGAUR	51.02	803.68	854.70
KAYANGEL	0.00	170.94	170.94

## 2.3 Analysis and processing of national data

### 2.3.1 Calibration

### 2.3.2 Estimation and forecasting

Estimations are not made for 1990, 2000 and 2005 as this information is unknown.

### 2.3.3 Reclassification into FRA 2010 categories

## 2.4 Data for Table T2

**Table 2a - Forest ownership**

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	2000	2005
Public ownership	n.a.	n.a.	n.a.
Private ownership	n.a.	n.a.	n.a.
...of which owned by individuals	n.a.	n.a.	n.a.
...of which owned by private business entities and institutions	n.a.	n.a.	n.a.
...of which owned by local communities	n.a.	n.a.	n.a.
...of which owned by indigenous / tribal communities	n.a.	n.a.	n.a.
Other types of ownership	n.a.	n.a.	n.a.
<b>TOTAL</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>

Note: If other types of ownership is reported, please specify details in comment to the table.

Does ownership of trees coincide with ownership of the land on which they are situated?	<input type="checkbox"/>	Yes
	<input type="checkbox"/>	No
If <b>No</b> above, please describe below how the two differ:		

**Table 2b - Holder of management rights of public forests**

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	2000	2005
Public Administration			
Individuals			
Private corporations and institutions			
Communities			
Other			
<b>TOTAL</b>			

## 2.5 Comments to Table T2

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Public ownership		
Private ownership		Each year, more and more land is moving from clan ownership to individual ownership. Data is not available to determine how much land and at what rate this conversion is happening.
Other types of ownership		
Management rights		

### Other general comments to the table

In the early 1990s it was estimated that Palau’s privately owned lands were 80% owned by clans and/or families and not by individuals. Traditionally, individuals do not “own” land. In fact, “ownership” of land is not a Palauan concept. Land in traditional times was not bought or sold. Land was always owned by clans and managed by the High Chief to be used by this generation and handed down to the generations to come. Since the Japanese and subsequent United Nations Trust Territory Administration by the United States, Palau has been going through a process to survey and issue land titles for all of the lands in Palau.

Traditionally there are two kinds of “public lands” in Palau – (1) *chutem buai* - are those lands that are owned by individuals but have been given to the public to use for the benefit of the larger community. Traditional meeting houses or *bai* and docks typically are situated on these types of public land called *chutem buai*. (2) *chutem beluu* are lands that do not belong to any one clan or family but belong to the village as a whole and were traditionally managed by the High Chief of a village. Most of these lands today are what are considered to be “public land” and are administered and managed by the PPLA and State PLAs. These lands typically have high forest cover. In Palau, public lands are those lands that were owned or maintained as government or public lands under the Japanese Administration and/or the Trust Territory Administration. Today the Palau Public Lands Authority (PPLA) has been created to receive and hold title for these lands and to administer, manage, and regulate them in trust for the people of the Republic of Palau. Technically the government does not “own” these public lands. There is a small amount of government owned lands which has been purchased by the government and these include the airport, sewer treatment plant, power plant, and several public schools. These areas however have minimal forest cover.

### 3 Table T3 – Forest designation and management

#### 3.1 FRA 2010 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.
Protected areas	Areas especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.
<b>Categories of primary designated functions</b>	
Production	Forest area designated primarily for production of wood, fibre, bio-energy and/or non-wood forest products.
Protection of soil and water	Forest area designated primarily for protection of soil and water.
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.
Social services	Forest area designated primarily for social services.
Multiple use	Forest area designated primarily for more than one purpose and where none of these alone is considered as the predominant designated function.
Other	Forest areas designated primarily for a function other than production, protection, conservation, social services or multiple use.
No / unknown	No or unknown designation.
<b>Special designation and management categories</b>	
Area of permanent forest estate (PFE)	Forest area that is designated to be retained as forest and may not be converted to other land use.
Forest area within protected areas	Forest area within formally established protected areas independently of the purpose for which the protected areas were established.
Forest area under sustainable forest management	To be defined and documented by the country.
Forest area with management plan	Forest area that has a long-term (ten years or more) documented management plan, aiming at defined management goals, which is periodically revised.

#### 3.2 National data

##### 3.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Mueller-Dombois, D., and F. R. Fosberg. 1998. Vegetation of the Tropical Pacific Islands. Springer-Verlag, New York.	H	Designation of forests		Descriptive information based on field visits and extensive experience in the tropical Pacific.

### 3.2.2 Classification and definitions

No national classification is available for designated function.

### 3.2.3 Original data

Data from T1 is used as input.

### 3.3 Analysis and processing of national data

Same as T1. All forested lands are assumed to be multiple purpose.

### 3.4 Data for Table T3

**Table 3a – Primary designated function**

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Production	0	0	0	0
Protection of soil and water	0	0	0	0
Conservation of biodiversity	0	0	0	0
Social services	0	0	0	0
Multiple use	38.154	39.587	40.303	40.303
Other (please specify in comments below the table)	0	0	0	0
No / unknown	0	0	0	0
<b>TOTAL</b>	<b>38.154</b>	<b>39.587</b>	<b>40.303</b>	<b>40.303</b>

**Table 3b – Special designation and management categories**

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Area of permanent forest estate				
Forest area within protected areas	n.a.	n.a.	n.a.	n.a.
Forest area under sustainable forest management				
Forest area with management plan				



**3.5 Comments to Table T3**

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Production		
Protection of soil and water		
Conservation of biodiversity		
Social services		
Multiple use	All forested lands are assumed to be multiple purpose. Palau has been moderately active in growing Mahogany species for craft and minimal timber production, but reliable statistics on the extent is currently lacking. The total area involved is a very small percentage of forest land. Although there are many protected areas, all but one of the protected areas allows for multiple use.	
Other		
No / unknown designation		
Area of permanent forest estate		
Forest area within protected areas		
Forest area under sustainable forest management		
Forest area with management plan		

Other general comments to the table

## 4 Table T4 – Forest characteristics

### 4.1 FRA 2010 Categories and definitions

Term / category	Definition
Naturally regenerated forest	Forest predominantly composed of trees established through natural regeneration.
Introduced species	A species, subspecies or lower taxon, occurring <u>outside</u> 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).
<b>Characteristics categories</b>	
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.
Other naturally regenerated forest of introduced species (sub-category)	Other naturally regenerated forest where the trees are predominantly of introduced species.
Planted forest	Forest predominantly composed of trees established through planting and/or deliberate seeding.
Planted forest of introduced species (sub-category)	Planted forest, where the planted/seeded trees are predominantly of introduced species.
<b>Special categories</b>	
Rubber plantations	Forest area with rubber tree plantations.
Mangroves	Area of forest and other wooded land with mangrove vegetation.
Bamboo	Area of forest and other wooded land with predominant bamboo vegetation.

### 4.2 National data

#### 4.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Mueller-Dombois, D., and Fosberg, F. R. 1998. Vegetation of the Tropical Pacific Islands. Springer-Verlag, New York.	H	Descriptive characteristics of forests		Descriptive information based on field visits and extensive experience in the tropical Pacific.
Cole, T. G., M. C. Falanruw, C. D. MacLean, C. D. Whitesell, and A. H. Ambacher. 1987. Vegetation Survey of the Republic of Palau. Resource Bulletin PSW-RB-22, Pacific Southwest Research Station, USDA Forest Service.	H	Characteristics based on aerial survey, Mangrove.	1979	Based on photo interpretation of forest and vegetation types.

Formatted: Swedish (Sweden)

#### 4.2.2 Classification and definitions

No national classification available for forest characteristics.

### 4.2.3 Original data

No quantitative data are available for forest characteristics.

### 4.3 Analysis and processing of national data

Not needed.

### 4.4 Data for Table T4

**Table 4a**

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Primary forest				
Other naturally regenerated forest				
...of which of introduced species				
Planted forest				
...of which of introduced species				
<b>TOTAL</b>				

**Table 4b**

FRA 2010 Categories	Area (1000 hectares)			
	1990	2000	2005	2010
Rubber plantations (Forest)				
Mangroves (Forest and OWL)	47.08	n.a.	n.a.	n.a.
Bamboo (Forest and OWL)				

#### 4.5 Comments to Table T4

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Primary forest		
Other naturally regenerating forest		
Planted forest		
Rubber plantations		
Mangroves		A draft map from 2005 data shows some decline in mangrove area but no quantitative estimates are currently available.
Bamboo		

#### Other general comments to the table

Delineation of forest according to FRA 2010 categories has not been attempted. Cole et al. (1987; figure 3) classified 75% of the area in Palau as “Forest”, 1% as “Secondary Vegetation”, 3% as “Agroforest”, and 21% as “Nonforest”. No reference is made to human disturbance or alteration of ecological processes in their aerial-photo-based classification. From a descriptive standpoint, the more remote, southern Rock Islands are relatively undisturbed, except Peleliu and Angaur, which were razed in World War II. Interior forests on Babeldaob are also relatively undisturbed with characteristics leaning toward primary forest.

## 5 Table T5 – Forest establishment and reforestation

No data is available for this reporting table.

## 6 Table T6 – Growing stock

### 6.1 FRA 2010 Categories and definitions

Category	Definition
Growing stock	Volume over bark of all living trees more than X cm in diameter at breast height (or above buttress if these are higher). Includes the stem from ground level or stump height up to a top diameter of Y cm, and may also include branches to a minimum diameter of W cm.
Growing stock of commercial species	Growing stock (see def. above) of commercial species.

### 6.2 National data

#### 6.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Donnegan, J. A., S. L. Butler, O. Kuegler, B. J. Stroud, B. A. Hiserote, and K. Rengulbai. 2007. Palau's Forest Resources, 2003. Resource Bulletin PNW-RB-252, U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Portland, OR.	H	Net volume on forest land	2003	Data were collected on 0.067 ha plots spaced at approximately 3 km intervals across the forested landscape.
Cole, T. G., M. C. Falanruw, C. D. MacLean, C. D. Whitesell, and A. H. Ambacher. 1987. Vegetation Survey of the Republic of Palau. Resource Bulletin PSW-RB-22, Pacific Southwest Research Station, USDA Forest Service.	H	Volume on most productive forest lands	1985	Inventory does not cover all lands, but accounts for approximately 89% of the forested lands.

#### 6.2.2 Classification and definitions

National class	Definition
Net growing stock volume	Volume over bark of all living trees more than 12.5 cm in diameter at breast height (or above buttress and stilted roots if these are higher) minus rotten cull. Includes the stem from ground level to a top diameter of 1 cm. Does not include branches off of the main stem.
Timberland volume	Volume of wood on land that is capable of producing at least 1.4 cubic meters per hectare per year of industrial wood.

### 6.2.3 Original data

1983 timberland volume for timber species.				
Timberland types:	Upland forest	Mangrove forest	Swamp forest	All types
<i>Million cubic meters</i>				
Total volume	2.511	0.206	0.231	2.948

#### 2003 estimated net volume of all live trees $\geq$ 12.5 cm d.b.h. on forest land.

Forest type	million cu.m
Limestone forest	2.136
Volcanic/ravine forest	5.377
Total	7.513

## 6.3 Analysis and processing of national data

### 6.3.1 Calibration

FAOSTAT total area = 46,000 ha

Calibration factor 1979 =  $(46,000/41,619) = 1.105264422$

Calibration factor 2002 =  $(46,000/45,141) = 1.01903734103278$

#### 2003 estimated net volume of all live trees $\geq$ 12.5 cm d.b.h. on forest land, calibrated to FAO area.

Forest type	million cu.m
Limestone forest	2.177
Volcanic/ravine forest	5.479
Total	7.656

### 6.3.2 Estimation and forecasting

The calibrated 2003 estimate is used for reporting years 2005 and 2010. The growing stock per hectare is assumed to be constant. Reported figures for 1990 and 2000 is based on growing stock per hectare and forest area (T1).

### 6.3.3 Reclassification into FRA 2010 categories

None.

## 6.4 Data for Table T6

**Table 6a – Growing stock**

FRA 2010 category	Volume (million cubic meters over bark)							
	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Total growing stock	7.248	7.520	<b>7.656</b>	<b>7.656</b>				
... of which coniferous	0	0	0	0				
... of which broadleaved	7.248	7.520	<b>7.656</b>	<b>7.656</b>				
Growing stock of commercial species	n.a.	n.a.	n.a.	n.a.				

**Table 6b – Growing stock of the 10 most common species  
Not used as the two inventories are incomparable.**

FRA 2010 category / Species name (data from 1983)			Growing stock in forest (million cubic meters)		
Rank	Scientific name	Common name	1990	2000	2005
1 <sup>st</sup>	<i>Camposperma brevipetiolata</i>	kelela charm, kiu	0.370		
2 <sup>nd</sup>	<i>Parinari corymbosa</i>		0.328		
3 <sup>rd</sup>	<i>Horsfieldia amklaal</i>	emeklachel, eumail	0.232		
4 <sup>th</sup>	<i>Pinanga insignis</i>	ebouch, demailei	0.215		
5 <sup>th</sup>	<i>Alphitonia carolinensis</i>	elebiob, elebiong	0.151		
6 <sup>th</sup>	<i>Cocos nucifera</i>	lius, coconut	0.142		
7 <sup>th</sup>	<i>Gmelina palawensis</i>	blancheos	0.137		
8 <sup>th</sup>	<i>Calophyllum inophyllum</i>	laurel	0.121		
9 <sup>th</sup>	<i>Rhus taitensis</i>	eues	0.099		
10 <sup>th</sup>	<i>Horsfieldia novo-guineensis</i>		0.093		
Remaining			1.060		
<b>TOTAL</b>			<b>2.948</b>		

Note: Rank refers to the order of importance in terms of growing stock, i.e. 1<sup>st</sup> is the species with the highest growing stock. Year 2000 is the reference year for defining the species list and the order of the species.

FRA 2010 category / Species name (data from 2003)			Growing stock in forest (million cubic meters)		
Rank	Scientific name	Common name	1990	2000	2005
1 <sup>st</sup>	<i>Camposperma brevipetiolata</i>	kelela charm, kiu	n.a.	n.a.	0.646
2 <sup>nd</sup>	<i>Maranthes corymbosa</i>	bkau, apgau	n.a.	n.a.	0.624
3 <sup>rd</sup>	<i>Horsfieldia palauensis</i>	ersachel	n.a.	n.a.	0.388
4 <sup>th</sup>	<i>Sonneratia alba</i>	urur	n.a.	n.a.	0.325
5 <sup>th</sup>	<i>Horsfieldia novo-guineensi</i>	ersachel	n.a.	n.a.	0.303
6 <sup>th</sup>	<i>Intsia bijuga</i>	dort	n.a.	n.a.	0.253
7 <sup>th</sup>	<i>Rhizophora apiculata</i>	bngaol	n.a.	n.a.	0.241
8 <sup>th</sup>	<i>Cocos nucifera</i>	lius, coconut	n.a.	n.a.	0.238
9 <sup>th</sup>	<i>Pinanga insignis</i>	ebouch, demailei	n.a.	n.a.	0.235
10 <sup>th</sup>	<i>Semecarpus venenosus</i>	tonget, poison tree	n.a.	n.a.	0.193
Remaining			n.a.	n.a.	4.210
<b>TOTAL</b>					<b>7.656</b>

**Table 6c – Specification of threshold values**

Item	Value	Complementary information
Minimum diameter (cm) at breast height <sup>1</sup> of trees included in growing stock (X)	12.5	
Minimum diameter (cm) at the top end of stem for calculation of growing stock (Y)	1	
Minimum diameter (cm) of branches included in growing stock (W)		
Volume refers to “above ground” (AG) or “above stump” (AS)	AS	

**6.5 Comments to Table T6**

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Total growing stock		Reported trend reflects the change in forest area.
Growing stock of broadleaved / coniferous		
Growing stock of commercial species		
Growing stock composition		

Other general comments to the table

<sup>1</sup> Diameter at breast height (DBH) refers to diameter over bark measured at a height of 1.30 m above ground level or 30 cm above buttresses if these are higher than 1 m.



## 7 Table T7 – Biomass stock

### 7.1 FRA 2010 Categories and definitions

Category	Definition
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 2mm 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.

### 7.2 National data

#### 7.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Donnegan, J. A., S. L. Butler, O. Kuegler, B. J. Stroud, B. A. Hiserote, and K. Rengulbai. 2007. Palau's Forest Resources, 2003. Resource Bulletin PNW-RB-252, U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Portland, OR.	H	Tree stem biomass	2003	Data were collected on 0.067 ha plots spaced at approximately 3 km intervals across the forested landscape.
Penman, J., M. Gytarsky, T. Hiraishi, T. Krug, D. Kruger, R. Pipatti, L. Buendia, K. Miwa, T. Ngara, K. Tanabe, and F. Wagner, editors. 2003. Good Practice Guidance for Land Use, Land-Use Change and Forestry. Intergovernmental Panel on Climate Change, National Greenhouse Gas Inventories Programme, Institute for Global Environmental Strategies (IGES), Hayama, Kanagawa, Japan,.	M	Carbon mass conversion factors, biomass expansion factors and ratio of aboveground to belowground biomass.	2003	

#### 7.2.2 Classification and definitions

National class	Definition
Live above-ground stem biomass	Biomass of live standing tree stems $\geq 2.5$ cm at breast height from ground to 1 cm top. Does not include branch, leaf, or root biomass.
Dead above-ground stem biomass	Biomass of dead standing tree stems $\geq 2.5$ cm at breast height from ground to 1 cm top. Does not include branch, leaf, or root biomass.
Total above-ground stem biomass	Biomass of live and dead standing tree stems $\geq 2.5$ cm at breast height from ground to 1 cm top. Does not include branch, leaf, or root biomass.

### 7.2.3 Original data

Ranked top 10 species biomass estimate for live tree stems  $\geq 2.5$  cm d.b.h. from 2003 forest inventory. Wood density for individual species was used to estimate stem biomass only.

Scientific Name	DEAD	LIVE	Grand Total
	<i>metric tonnes</i>		
<i>Maranthes corymbosa</i>	6691	493243	499934
<i>Camptosperma brevipetiolata</i>	2770	325143	327914
<i>Pinanga insignis</i>	1491	292753	294243
<i>Horsfieldia palauensis</i>	1189	213428	214617
<i>Sonneratia alba</i>	4356	193790	198146
<i>Intsia bijuga</i>	0	162259	162259
<i>Rhizophora apiculata</i>	598	160956	161554
<i>Horsfieldia novo-guineensi</i>	0	154552	154552
<i>Eugenia reinwardtiana</i>	483	130947	131430
<i>Semecarpus venenosus</i>	0	129915	129915
Remaining	122519	2586919	2709438
Grand Total	140096.7	4843904	4984001

## 7.3 Analysis and processing of national data

### 7.3.1 Calibration

FAOSTAT total area = 46,000 ha

Calibration factor 2002 =  $(46,000/45,141) = 1.01903734103278$

Biomass was calculated using total stem volume and wood density, a biomass expansion factor to estimate branches, leaves, and seeds (3.4; tropical broadleaf), and an aboveground to belowground ratio estimator (0.27; tropical/sub-tropical dry forest).

#### 2003 estimated stem biomass, Palau, calibrated by FAO area.

Scientific Name	DEAD	LIVE	Grand Total
	<i>metric tonnes</i>		
Grand Total	142764	4936119	5078883

### 7.3.2 Estimation and forecasting

The calibrated 2003 estimate is used for reporting years 2005 and 2010. The biomass stock per hectare is assumed to be constant. Reported figures for 1990 and 2000 is based on biomass stock per hectare and forest area (T1).

### 7.3.3 Reclassification into FRA 2010 categories

Dead above-ground stem biomass = Dead wood

#### 7.4 Data for Table T7

FRA 2010 category	Biomass (million metric tonnes oven-dry weight)							
	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Above-ground biomass	15.89	16.48	16.78	16.78				
Below-ground biomass	4.29	4.45	4.53	4.53				
Dead wood	0.14	0.14	0.14	0.14				
<b>TOTAL</b>	20.31	21.07	21.46	21.46				

#### 7.5 Comments to Table T7

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Above-ground biomass		
Below-ground biomass		
Dead wood	Does not include branch or root biomass.	

#### Other general comments to the table

The reported trend is based on forest area change.

## 8 Table T8 – Carbon stock

### 8.1 FRA 2010 Categories and definitions

Category	Definition
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 specified depth chosen by the country and applied consistently through the time series.

### 8.2 National data

#### 8.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Donnegan, J. A., S. L. Butler, O. Kuegler, B. J. Stroud, B. A. Hiserote, and K. Rengulbai. 2007. Palau's Forest Resources, 2003. Resource Bulletin PNW-RB-252, U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Portland, OR.	H	Tree stem biomass	2003	Data were collected on 0.067 ha plots spaced at approximately 3 km intervals across the forested landscape.
Penman, J., M. Gytarsky, T. Hiraishi, T. Krug, D. Kruger, R. Pipatti, L. Buendia, K. Miwa, T. Ngara, K. Tanabe, and F. Wagner, editors. 2003. Good Practice Guidance for Land Use, Land-Use Change and Forestry. Intergovernmental Panel on Climate Change, National Greenhouse Gas Inventories Programme, Institute for Global Environmental Strategies (IGES), Hayama, Kanagawa, Japan.	M	Carbon mass conversion factors, biomass expansion factors and ratio of aboveground to belowground biomass.	2003	

#### 8.2.2 Classification and definitions

National class	Definition
Carbon in above-ground tree stem biomass	Carbon in living tree stems $\geq 2.5$ cm in diameter at breast height from ground to 1 cm top. Does not include branches, bark, seeds, and foliage.
Carbon in dead tree stem biomass	Carbon in standing dead tree stems $\geq 2.5$ cm in diameter at breast height from ground to 1 cm top. Does not include branches, bark, seeds, and foliage.

### 8.2.3 Original data

Biomass data was multiplied by 0.5 to estimate stem carbon.

## 8.3 Analysis and processing of national data

### 8.3.1 Calibration

Carbon mass was estimated as  $\frac{1}{2}$  biomass.

### 8.3.2 Estimation and forecasting

See T7 Biomass.

### 8.3.3 Reclassification into FRA 2010 categories

Carbon in dead tree stem biomass = Carbon in dead wood

## 8.4 Data for Table T8

FRA 2010 Category	Carbon (Million metric tonnes)							
	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Carbon in above-ground biomass	7.94	8.24	8.39	8.39				
Carbon in below-ground biomass	2.14	2.23	2.27	2.27				
<i>Sub-total: Living biomass</i>	10.09	10.47	10.66	10.66				
Carbon in dead wood	0.07	0.07	0.07	0.07				
Carbon in litter	n.a.	n.a.	n.a.	n.a.				
<i>Sub-total: Dead wood and litter</i>	n.a.	n.a.	n.a.	n.a.				
Soil carbon	n.a.	n.a.	n.a.	n.a.				
<b>TOTAL</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>				

Soil depth (cm) used for soil carbon estimates	
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### 8.5 Comments to Table T8

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Carbon in above-ground biomass		
Carbon in below-ground biomass		
Carbon in dead wood	Carbon in standing dead tree stems only. Does not include branches, bark, seeds, and foliage.	
Carbon in litter		
Soil carbon		

Other general comments to the table
The reported trend is based on forest area change.

## 9 Table T9 – Forest fires

No data is available for this reporting table.

## 10 Table T10 – Other disturbances affecting forest health and vitality

### 10.1 FRA 2010 Categories and definitions

Term	Definition
Disturbance	Damage caused by any factor (biotic or abiotic) that adversely affects the vigour and productivity of the forest and which is not a direct result of human activities.
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.
Category	Definition
Disturbance by insects	Disturbance caused by insect pests.
Disturbance by diseases	Disturbance caused by diseases attributable to pathogens, such as bacteria, fungi, phytoplasma or virus.
Disturbance by other biotic agents	Disturbance caused by biotic agents other than insects or diseases, such as wildlife browsing, grazing, physical damage by animals, etc.
Disturbance caused by abiotic factors	Disturbances caused by abiotic factors, such as air pollution, snow, storm, drought, etc.

### 10.2 National data

#### 10.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Donnegan, J. A., K. Waddell, O. Kuegler, and B. A. Hiserote. 2008. Forest Inventory and Analysis: The Pacific Islands Database for American Samoa, Guam, Palau, the Northern Mariana's, Micronesia, and the Marshall Islands. Database version 2008-1. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Portland, OR.	H	Damages on trees, presence/absence	2003	Data are collected on 0.067 ha plots spaced at approximately 3 km intervals across the forested landscape.

#### 10.2.2 Classification and definitions

National class	Definition
Insect	Disturbance caused by insect pests.
Disease	Disturbance caused by diseases attributable to pathogens, such as bacteria, fungi, phytoplasma or virus.

Fire	Damage to a tree from fire.
Animal	Damage caused by grazing, browsing, rooting, or toppling.
Weather	Damage related to storms, e.g., wind, flood, lightning.
Vegetation (e.g., competition or vines)	Damage caused by other vegetation.
Physical	Damage caused by one tree hitting another or from undermining of roots.
Silvicultural or cutting	Damage caused by humans.
Unknown	Unknown damage agent.

### 10.2.3 Original data

Palau, estimated number of trees by species by damaging agent, 2003

Scientific Name	None	Insect	Disease	Fire	Weather	Veg.	Physical	Silvicultural	Unknown	Grand Total
<i>Aglaia palauensis</i>	171298				12293	49170				232760
<i>Allophylus ternatus</i>	36878									36878
<i>Allophylus timorensis</i>	12293									12293
<i>Alphitonia carolinensis</i>	454824		24585			12293				491701
<i>Annona reticulata</i>	12293									12293
<i>Areca catechu</i>	73755									73755
<i>Artocarpus mariannensis</i>	48372									48372
<i>Astronidium palauense</i>	258143		12293						12293	282728
<i>Avicennia mariana</i>	12293		12293							24585
<i>Badusa palauensis</i>	253955		24186			12093			12093	302327
<i>Barringtonia racemosa</i>	329904		12093			36878				378875
<i>Bruguiera gymnorrhiza</i>	467116		12293							479409
<i>Buchanania palawensis</i>	98141									98141
<i>Calophyllum inophyllum</i>	292428		12093						24186	328707
<i>Calophyllum pelewense</i>	196481		12293							208774
<i>Calophyllum soulattri</i>	49170									49170
<i>Calophyllum spp.</i>	36479					12093			24585	73157
<i>Camptosperma brevipetiolata</i>	712768		24585		36878	61463				835693
<i>Canarium hirsutum</i>	72559		12293			12293				97144
<i>Casearia cauliflora</i>	12293									12293
<i>Casearia spp.</i>	84652									84652
<i>Casuarina equisetifolia</i>	60465		12093							72559
<i>Cerbera floribunda</i>	24585									24585
<i>Cerbera manghas</i>	135018	12293				61463				208774
<i>Cocos nucifera</i>	305718					12293				318010
<i>Commersonia bartramia</i>	12293									12293
<i>Cordia micronesica</i>	12293									12293
<i>Cyathea lunulata</i>	540871					12293				553164
<i>Diospyros ferrea</i>	98340									98340
<i>Diospyros spp.</i>	73356						12293			85649
<i>Dodonaea viscosa</i>	72957									72957
<i>Dracaena multiflora</i>	97742		12093							109835
<i>Drypetes nitida</i>	36678									36678
<i>Elaeocarpus graeffei</i>						12293				12293
<i>Elaeocarpus joga</i>	452031		24585		24585	24386				525587
<i>Erythrina fusca</i>	12093									12093
<i>Eugenia cuminii</i>	206580					12093				218673
<i>Eugenia javanica</i>	181396		48372							229769
<i>Eugenia reinwardtiana</i>	568973		24186							593160



<i>Eugenia</i> spp.	36678					36678
<i>Fagraea</i> ksid	110633	24585		36878		172095
<i>Ficus</i> spp.	12293					12293
<i>Ficus tinctoria</i>	24186					24186
<i>Flacourtia rukam</i>	135018	12293		12093		159404
<i>Garcinia matudai</i>	49170		12293	12293		73755
<i>Garcinia rumiyo</i>	294024	12293		12293		318609
<i>Garcinia</i> spp.	342595					342595
<i>Gironniera celtidifolia</i>	36878					36878
<i>Glochidion ramiflorum</i>	133822	24386		36678		194886
<i>Glochidion</i> spp.				12293	12293	24585
<i>Gmelina elliptica</i>	181795	36678				218473
<i>Gmelina palawensis</i>	429840	73755		12093	36878	12293
<i>Gmelina</i> spp.	36878	12293		24585		73755
<i>Gulubia palauensis</i>	108838					108838
<i>Hernandia sonora</i>	12093	12093		12093		36279
<i>Hernandia</i> spp.	36279	12093		12093		60465
<i>Heterospathe elata</i>	73755			12293		86048
<i>Hibiscus tiliaceus</i>	49170			49170		98340
<i>Horsfieldia amklaal</i>	219869	12293			12293	244455
<i>Horsfieldia novo-guineensi</i>	221266	12293				233558
<i>Horsfieldia palauensis</i>	843398	60864	12293	12293	61263	990111
<i>Horsfieldia</i> spp.		12293				12293
<i>Inocarpus fagifer</i>	12293					12293
<i>Intsia bijuga</i>	181396	48372				229769
<i>Lumnitzera littorea</i>	12293					12293
<i>Macaranga carolinensis</i>	122327	12293		36878		171497
<i>Manilkara udoido</i>	233558		12293	24585		12293
<i>Manilkara zapota</i>	49170			12293	12293	73755
<i>Maranthes corymbosa</i>	552765	73755	12293	24585		663398
<i>Morinda citrifolia</i>		12293		12293		24585
<i>Morinda latibracteata</i>	24585	12293		24585		61463
<i>Morinda pedunculata</i>	12293					12293
<i>Morinda</i> spp.	12293				12293	12293
<i>Nephelium lappaceum</i>				12293		12293
<i>Osmoxylon oliveri</i>	24585					24585
<i>Osmoxylon</i> spp.	24585			36878		61463
<i>Pandanus aimiriikensis</i>	61463					61463
<i>Pandanus dubius</i>	145117	48372			12093	205582
<i>Pandanus kanehirae</i>	61463					61463
<i>Pandanus</i> spp.	36878					36878
<i>Pandanus tectorius</i>	86048	12293				98340
<i>Pandanus utiyamai</i>	12293					12293
<i>Pangium edule</i>	12293			12293		24585
<i>Parinari laurina (Atuna)</i>	514491	12293	12293	24585		563662
<i>Parinari</i> spp.	24585					24585
<i>Pinanga insignis</i>	2065146			122925		2188071
<i>Pithecellobium dulce</i>	12093					12093
<i>Pouteria calcarea</i>	36878					36878
<i>Pouteria obovata</i>	352495	24585		24386		401465
<i>Pouteria</i> spp.	12293					12293
<i>Premna obtusifolia</i>	36878			49170		86048
<i>Pterocarpus indicus</i>	24585					24585
<i>Ptychosperma palauensis</i>	86048					86048
<i>Rhizophora apiculata</i>	1339813	24386	12093		12093	1388385
<i>Rhizophora mucronata</i>	376082					376082

<i>Rhus taitensis</i>	356483	12293		12293	12293			36878	430239	
<i>Rinorea carolinensis</i>	12093								12093	
<i>Semecarpus venenosus</i>	526584	12293			24585			12293	575755	
<i>Sonneratia alba</i>	172095								172095	
<i>Stemonurus ammui</i>	61463								61463	
<i>Swietenia macrophylla</i>	49170								49170	
<i>Swietenia mahogoni</i>	36878				36878				73755	
<i>Symplocos racemosa</i>	36878		12293				12293		61463	
<i>Terminalia catappa</i>	12293							36878	49170	
<i>Theobroma cacao</i>	24585	24585		12293					61463	
<i>Timonius timon</i>	84652						24186		108838	
<i>Tournefortia argentea</i>	36479	12293							48771	
<i>Trichospermum ledermannii</i>	98340								98340	
Unknown	12293								12293	
Unknown 0	134420						12293		146713	
Unknown 1	24585	12093						12293	48971	
Unknown 10	12293								12293	
Unknown 11	12293								12293	
Unknown 3	49170								49170	
Unknown 30	12093								12093	
Unknown 5	85649								85649	
Unknown, other	73755	12293							86048	
<i>Vitex coffassus</i>	61463				36878			12293	110633	
<i>Xylocarpus granatum</i>	147510	36878							184388	
<b>Grand Total</b>	<b>18658557</b>	<b>24585</b>	<b>989911</b>	<b>24585</b>	<b>171896</b>	<b>1226661</b>	<b>110633</b>	<b>24585</b>	<b>195683</b>	<b>21427096</b>

### 10.3 Analysis and processing of national data

#### 10.3.1 Calibration

National data is recorded as presence/absence on individual trees. Presence/absence point count cannot be expanded to area estimates.

#### 10.3.2 Reclassification into FRA 2010 categories

Insect = Disturbance by insects

Disease = Disturbance by diseases

Fire = Disturbance caused by abiotic factors

Animal = Disturbance by other biotic agents

Weather = Disturbance caused by abiotic factors

Vegetation (e.g., competition or vines) = Disturbance by other biotic agents

Unknown = Unknown

Silvicultural or cutting = Disturbance by other biotic agents

### 10.4 Data for Table T10

Available data cannot be expanded to area estimates.

#### Other general comments to the table

National numbers are recorded on an individual tree basis and expanded to the population as an estimated number of trees affected by damaging agent.

**11 Table T11 – Wood removals and value of removals**

No data is available for this reporting table.

**12 Table T12 – Non-wood forest products removals and value of removals**

No data is available for this reporting table.

**13 Table T13 – Employment**

No data is available for this reporting table.

## 14 Table T14 – Policy and legal framework

### 14.1 FRA 2010 Categories and definitions

Term	Definition
Forest policy	A set of orientations and principles of actions adopted by public authorities in harmony with national socio-economic and environmental policies in a given country to guide future decisions in relation to the management, use and conservation of forest and tree resources for the benefit of society.
Forest policy statement	A document that describes the objectives, priorities and means for implementation of the forest policy.
National forest programme (nfp)	A generic expression that refers to a wide range of approaches towards forest policy formulation, planning and implementation at national and sub-national levels. The national forest programme provides a framework and guidance for country-driven forest sector development with participation of all stakeholders and in consistence with policies of other sectors and international policies.
Law (Act or Code) on forest	A set of rules enacted by the legislative authority of a country regulating the access, management, conservation and use of forest resources.

### 14.2 Data for Table T14

Indicate the existence of the following (2008)			
<b>Forest policy statement with national scope</b>		Yes	
	X	No	
If Yes above, provide:	Year of endorsement		
	Reference to document		
<b>National forest programme (nfp)</b>		Yes	
	X	No	
If Yes above, provide:	Name of nfp in country		
	Starting year		
	Current status		In formulation
			In implementation
			Under revision
		Process temporarily suspended	
Reference to document or web site			
<b>Law (Act or Code) on forest with national scope</b>		Yes, specific forest law exists	
		Yes, but rules on forests are incorporated in other (broader) legislation	
	X	No, forest issues are not regulated by national legislation	
If Yes above, provide:	Year of enactment		
	Year of latest amendment		
	Reference to document		

In case the responsibility for forest policy- and/or forest law-making is decentralized, please indicate the existence of the following and explain in the comments below the table how the responsibility for forest policy- and law-making is organized in your country.		
Sub-national forest policy statements	X	Yes
		No
If Yes above, indicate the number of regions/states/provinces with forest policy statements		Aimeliik State
Sub-national Laws (Acts or Codes) on forest	X	Yes
		No
If Yes above, indicate the number of regions/states/provinces with Laws on forests		One confirmed

### 14.3 Comments to Table T14

Variable / category	Comments related to data, definitions, etc.
Forest policy statement with national scope	A draft forest policy statement was written as part of a project under the National Forest Programme Facility Partnership with the Republic of Palau. This draft policy has not been formally adopted.
National forest programme (nfp)	
Law (Act or Code) on forest with national scope	
Sub-national forest policy statements	
Sub-national Laws (Acts or Codes) on forest	At least one of the sixteen states, (Aimeliik State) has specific forest law.

Other general comments to the table

### 15 Table T15 – Institutional framework

No information is available for this reporting table.

### 16 Table T16 – Education and research

No information is available for this reporting table.

### 17 Table T17 – Public revenue collection and expenditure

No information is available for this reporting table.