



Forestry Department

Food and Agriculture Organization of the United Nations

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ASSESSMENT**

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NORTHERN MARIANA ISLANDS

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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 2005 (FRA 2005), which is the most comprehensive assessment to date. More than 800 people have been involved, including 172 national correspondents and their colleagues, an Advisory Group, international experts, FAO staff, consultants and volunteers. Information has been collated from 229 countries and territories for three points in time: 1990, 2000 and 2005.

The reporting framework for FRA 2005 is based on the thematic elements of sustainable forest management acknowledged in intergovernmental forest-related fora and includes more than 40 variables related to the extent, condition, uses and values of forest resources. More information on the FRA 2005 process and the results - including all the country reports - is available on the FRA 2005 Web site (www.fao.org/forestry/fra2005).

The Global Forest Resources Assessment process is coordinated by the Forestry Department at FAO headquarters in Rome. The contact person for matters related to FRA 2005 is:

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The Global Forest Resources Assessment 2005 Country Report Series is designed to document and make available the information forming the basis for the FRA 2005 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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1 Table T1 – Extent of Forest and Other wooded land

1.1 FRA 2005 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, jdonnegan@fs.fed.us	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.
Falanruw, M. C., T. G. Cole, and A. H. Ambacher. 1989. Vegetation Survey of Rota, Tinian, and Saipan, Commonwealth of the Northern Mariana Islands. Resource Bulletin PSW-RB-27, USDA Forest Service, Pacific Southwest Forest and Range Experiment Station, Berkeley, CA.	H	Land cover	1976	Maps derived from interpretation of 1976, 1:8,000 black and white aerial photography. Maps were partially field verified in 1984. Data are considered to be from 1976.

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.
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

Land class and type 1976	Total for Rota, Tinian, Saipan
<i>Hectares</i>	
Forest:	
Limestone forest	6,088
Introduced trees	4,313
Casuarina thickets	1,403
Atoll forest	37
Mangrove forest	7
Total forest	11,848
Secondary vegetation	10,111
Agroforest:	
Agroforest	7
Agroforest (w/coconuts)	48
Coconut plantations	1,755
Total agroforest	1,810
Nonforest:	
Marsh, fresh	164
Savanna/grassland	3,737
Strand	1,217
Cropland	332
Urban	915
Barren	293
Water	20
Total Nonforest	6,678
Total area	30,447

	1976 ha	2002 ha
Total Forest	23,769	21,718
Other Land	6,678	8,041
Inland Water	0	0
Total	30,447	29,759

1.3 Analysis and processing of national data

1.3.1 Calibration

FAOSTAT total area = 46,000 ha

Calibration factor 1976 = $(46,000/30,447) = 1.5108220842776$

Calibration factor 2002 = $(46,000/29,759) = 1.54574658421205$

1.3.2 Estimation and forecasting

	FAO Calibrated Data 1976 (ha)	FAO Calibrated Data 2002 (ha)	Total change in 26 years	Area Δ per year
All forest land	35,911	33,571	-2,340	-90
Other land	10,089	12,429	2,339	90
Inland water	0	0	0	0
	46,000	46,000		

1.4 Data for National reporting table T1

FRA 2005 Categories	Area (1000 hectares)		
	1990	2000	2005
Forest	34.651	33.751	33.301
Other wooded land	NDA	NDA	NDA
Other land	11.349	12.249	12.699
...of which with tree cover ¹⁾	NDA	NDA	NDA
Inland water bodies	0	0	0
TOTAL	46.000	46.000	46.000

- 1) Area of “Other land with tree cover” is included in the area reported under “Other land” and should therefore be excluded when calculating the total area for the country.

1.5 Comments to National reporting table T1

The values for original data in 2002 are preliminary values based on rapid interpretation of satellite imagery and will be updated at the end of 2005 with supplemental satellite imagery and ground verification. Agroforest and secondary forest are included in the totals. FRA 2000 reported 13,978 ha of closed forest, 20,430 ha of Shrubs/trees (secondary vegetation and low growth of summit) and 55 ha of forest fallow (Agroforest). These last two categories were reclassified as other wooded land for FRA 2000, while secondary vegetation and agroforests were included in the total forest area in this report.

2 Table T2 – Ownership of Forest and Other wooded land

No national data are available.

The CNMI government is in the process of preparing ownership maps in a geographic information system.

3 Table T3 – Designated function of Forest and Other wooded land

3.1 FRA 2005 Categories and definitions

Types of designation

Category	Definition
Primary function	A designated function is considered to be primary when it is significantly more important than other functions. This includes areas that are legally or voluntarily set aside for specific purposes.
Total area with function	Total area where a specific function has been designated, regardless whether it is primary or not.

Designation categories

Category / Designated function	Definition
Production	Forest / Other wooded land designated for production and extraction of forest goods, including both wood and non-wood forest products.
Protection of soil and water	Forest / Other wooded land designated for protection of soil and water.
Conservation of biodiversity	Forest / Other wooded land designated for conservation of biological diversity.
Social services	Forest / Other wooded land designated for the provision of social services.
Multiple purpose	Forest / Other wooded land designated to any combination of: production of goods, protection of soil and water, conservation of biodiversity and provision of social services and where none of these alone can be considered as being significantly more important than the others.
No or unknown function	Forest / Other wooded land for which a specific function has not been designated or where designated function is unknown.

3.2 National data

3.2.1 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, jdonnegan@fs.fed.us	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.
Falanruw, M. C., T. G. Cole, and A. H. Ambacher. 1989. Vegetation Survey of Rota, Tinian, and Saipan, Commonwealth of the Northern Mariana Islands. Resource Bulletin PSW-RB-27, USDA Forest Service, Pacific Southwest	H	Land cover	1976	Maps derived from interpretation of 1976, 1:8,000 black and white aerial photography. Maps were partially field verified in 1984. Data are considered to be from 1976.

Forest and Range Experiment Station, Berkeley, CA.				
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No quantitative national data on designated functions are available. Data on forest area were taken from table T1.

3.3 Reclassification into FRA 2005 classes

Forests on CNMI serve the multiple purposes of protection of soil and water, conservation of biodiversity, and social services, such as recreation and aesthetics. Additionally, some fruits, nuts, and medicines are collected within the forests.

3.4 Data for National reporting table T3

FRA 2005 Categories / Designated function	Area (1000 hectares)					
	Primary function			Total area with function		
	1990	2000	2005	1990	2000	2005
Forest						
Production						
Protection of soil and water						
Conservation of biodiversity						
Social services						
Multiple purpose	34.651	33.751	33.301	not appl.	not appl.	not appl.
No or unknown function				not appl.	not appl.	not appl.
Total - Forest	34.651	33.751	33.301	not appl.	not appl.	not appl.
Other wooded land						
Production						
Protection of soil and water						
Conservation of biodiversity						
Social services						
Multiple purpose				not appl.	not appl.	not appl.
No or unknown function				not appl.	not appl.	not appl.
Total – Other wooded land				not appl.	not appl.	not appl.

3.5 Comments to National reporting table T3

The values in table 3 are preliminary values based on rapid interpretation of satellite imagery and will be updated at the end of 2005 with supplemental satellite imagery and ground verification. Agroforest and secondary forest are included in the totals. Forests on CNMI serve the multiple purposes of protection of soil and water, conservation of biodiversity, and social services, such as recreation and aesthetics. Additionally, some fruits, nuts, and medicines are collected within the forests.

4 Table T4 – Characteristics of Forest and Other wooded land

No quantitative data are available.

4.1 FRA 2005 Categories and definitions

Category	Definition
Primary	Forest / Other wooded land of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.
Modified natural	Forest / Other wooded land of naturally regenerated native species where there are clearly visible indications of human activities.
Semi-natural	Forest / Other wooded land of native species, established through planting, seeding or assisted natural regeneration.
Productive plantation	Forest / Other wooded land of introduced species, and in some cases native species, established through planting or seeding mainly for production of wood or non wood goods.
Protective plantation	Forest / Other wooded land of native or introduced species, established through planting or seeding mainly for provision of services.

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 F. R. Fosberg. 1998. Vegetation of the Tropical Pacific Islands. Springer-Verlag, New York.	H	Forest characteristics		Descriptive information based on field visits and extensive experience in the tropical Pacific.
Falanruw, M. C., T. G. Cole, and A. H. Ambacher. 1989. Vegetation Survey of Rota, Tinian, and Saipan, Commonwealth of the Northern Mariana Islands. Resource Bulletin PSW-RB-27, USDA Forest Service, Pacific Southwest Forest and Range Experiment Station, Berkeley, CA.	H	Forest characteristics	1976	Based on photo interpretation of forest and vegetation types.
Falanruw, M. C. 1989. Vegetation of Asuncion: A volcanic Northern Mariana Island. Resource Bulletin PSW-RB-28, USDA Forest Service, Pacific Southwest Forest and Range Experiment Station, Berkeley, CA.	H	Forest characteristics	1975	Based on field visit and photo interpretation (1944, 1969, 1972 and 1975 imagery) of forest and vegetation types.

4.3 Comments to National reporting table T4

Delineation of forest according to FRA 2005 categories has not been attempted. No quantitative reference is made to human disturbance or alteration of ecological processes in the aerial-photo-based classifications. The three major islands of the CNMI, Rota, Tinian, and Saipan, all differ in their relative amounts of disturbance and time since major disturbance. Saipan is the most urbanized of the three islands, and the forests were cleared and severely disturbed by World War II fighting. Forests have been recovering with a combination of native species regeneration and aerial seeding of non-native species following the war. Tinian's native vegetation also suffered from World War II, having been the site of a major air base. Rota's vegetation is the most intact of the major islands.

5 Table T5 – Growing stock

No quantitative data are currently available.

Volume information from the 2004 field inventory of the CNMI will be available at the end of 2005 from the USDA Forest Service, Forest Inventory and Analysis Program:
<http://www.fs.fed.us/pnw/fia/>

6 Table T6 – Biomass stock

No quantitative data are currently available.

Biomass information from the 2004 field inventory of the CNMI will be available at the end of 2005 from the USDA Forest Service, Forest Inventory and Analysis Program:
<http://www.fs.fed.us/pnw/fia/>

7 Table T7 – Carbon stock

No quantitative data are currently available.

Carbon mass information from the 2004 field inventory of the CNMI will be available at the end of 2005 from the USDA Forest Service, Forest Inventory and Analysis Program:
<http://www.fs.fed.us/pnw/fia/>

8 Table T8 – Disturbances affecting health and vitality

No quantitative data are currently available.

Disturbance information from the 2004 field inventory of the CNMI will be available at the end of 2005 from the USDA Forest Service, Forest Inventory and Analysis Program:
<http://www.fs.fed.us/pnw/fia/>

CNMI encounters frequent typhoons and the vegetation was dramatically changed during World War II.

9 Table T9 – Diversity of tree species

9.1 FRA 2005 Categories and definitions

Category	Definition
Number of native tree species	The total number of native tree species that have been identified within the country.
Number of critically endangered tree species	The number of native tree species that are classified as “Critically endangered” in the IUCN red list.
Number of endangered tree species	The number of native tree species that are classified as “Endangered” in the IUCN red list.
Number of vulnerable tree species	The number of native tree species that are classified as “Vulnerable” in the IUCN red list.

9.2 Data for National reporting table T9

FRA 2005 Categories	Number of species (year 2000)
Native tree species	NDA
Critically endangered tree species	2
Endangered tree species	0
Vulnerable tree species	2

9.3 Comments to National reporting table T9

From the IUCN Redlist:

Critically endangered trees:

Osmoxylon ariannense
Serianthes nelsonii

Vulnerable trees:

Aglaia mariannensis
Heritiera longipetiolata

10 Table T10 – Growing stock composition

No quantitative data are currently available.

Volume information from the 2004 field inventory of the CNMI will be available at the end of 2005 from the USDA Forest Service, Forest Inventory and Analysis Program:

<http://www.fs.fed.us/pnw/fia/>

11 Table T11 – Wood removal

No quantitative data are available.

12 Table T12 – Value of wood removal

No quantitative data are available.

13 Table T13 – Non-wood forest product removal

No quantitative data are available.

14 Table T14 – Value of non-wood forest product removal

No quantitative data are available.

15 Table T15 – Employment in forestry

No quantitative data are available.