



Forestry Department

Food and Agriculture Organization of the United Nations

**GLOBAL FOREST RESOURCES
ASSESSMENT 2010**

COUNTRY REPORT

COOK ISLANDS

FRA2010/046
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).

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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

Forestry in the Cook Islands is for conservation and local cottage-type industry use, such as hand crafts, firewood, and land management in areas prone to erosion, such as rivers, streams, and the beach front. There is no commercial harvest. Apart from 1,110 hectares of planted forest, the rest is natural forest comprising of a number of tropical species. Protection of the water lends by the country's forest cover is seen as critical to ensuring quality water supply for domestic use.

This report presents the current status of forestry in the Cook Islands, both natural and planted. It provides data where this is known. Because there is no commercial forestry in the country, a lot of the required data are therefore not known, or does not apply.

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
OLIVER. W. 1992 Plantation forestry in the South Pacific: A compilation and assessment of Practices. Project RAS/86/036, UNDP/FAO, Rome		Plantation area	1991	
OLIVER.W. 1999. An update of plantation forestry in the South Pacific RAS/97/330. Working paper, UNDP/FAO, Rome		Land cover types	1998	
Cook Islands Natural Heritage Project- Cook Islands Biodiversity Database		Names of trees	2000	
Agroforestry Guides for Pacific Islands by Craig R, Elevich and Kim M. Wilkinson		Names of trees	2000	

1.2.2 Classification and definitions

National class	Definition
Littoral forest	The littoral zone in the Cook Islands, where not pre-empted by human modification, includes coastal forest dominated by some combination of the trees <i>Barringtonia asiatica</i> , <i>Calophyllum inophyllum</i> , <i>Cordia subcordata</i> , <i>Guettarda speciosa</i> , <i>Hernandia nymphaeifolia</i> , <i>Hibiscus tiliaceus</i> , <i>Pandanus tectoria</i> , <i>Pisonia grandis</i> , <i>sphora tomentosa</i> , <i>Timonium polygramus</i> , and <i>Tournefortia agentea</i> , and the shrubs <i>Morinda citrifolia</i> , <i>Pemphis acidula</i> , <i>Pipturus argenteus</i> , <i>Scaevola taccada</i> , <i>Schleinitzia insularum</i> , <i>Melia azedarach</i> , and <i>Suriana maritima</i> .
Makatea forest	The vegetation of makatea is generally well preserved because the rough surface is unsuitable for cultivation or human habitation. Examples can be seen on the islands of Mangaia, Atiu, Mauke and Mitiaro. The vegetation becomes more species-rich with distance inland. The coastal makatea forest changes with distance inland from a combination of <i>Cocos nucifers</i> , <i>Hernandia nymphaeifolia</i> , <i>Hibiscus tiliaceus</i> , and <i>Pandanus tectorias</i> , with occasionally <i>Barringtonia asiatica</i> , and <i>Casuarina equisetifolia</i> , to a tree assemblage in which <i>Elaeocarpus tonganus</i> , <i>Guettarda</i>

	<i>speciosa</i> , <i>Pisonia grandis</i> , <i>Schleinitzia insularum</i> , and <i>Sophora tomentosa</i> , become dominant. Fronting the forest is a shrub layer dominated by <i>Scaevola taccarda</i> , with <i>Euphorbia atoto</i> , <i>Timonius polygamus</i> , and <i>Wollastonia biflora</i> . <i>Pephis acidula</i> forms a narrow belt closest to the coast. The inland makatea includes all of the woody species from the coastal makatea except <i>Pephis acidula</i> , and includes in additiona trees of <i>Aleurite moluccana</i> , <i>Calophyllum inopphyllum</i> , and <i>Hernandia moerenhoutian</i> . That from higher canopy. Other woody species includes <i>Cyclophyllum barbatum</i> , <i>Ficus prolixa</i> , <i>Ficus tinctoria</i> , <i>Glochidion sp</i> , <i>Morinda citrifolia</i> , and <i>Pipturus argenteus</i> .
Other natural forest	Includes montane forest and cloud forest. This come from an assumption since no further explanation is given in the source.
Plantation	<i>Santalum sp</i> , <i>Pinus sp</i>
Other land	Mainly agriculture

1.2.3 Original data

Source: Oliver, W. 1999. Reference year – 1998

National Classification	Area (ha)
Littoral Forest	4900
Makatea Forest	5000
Other Natural Forest	4500
Plantations	1100
Other Land	7800

Source: Oliver. W. 1992. Reference Year – 1991.

Area occupied by plantations = 510 ha.

1.3 Analysis and processing of national data

1.3.1 Calibration

No calibration required. Other land calculated as the difference between total land area and the sum of forest plus other wooded land.

1.3.2 Estimation and forecasting

The area of natural forests (14400 ha) is assumed to be constant and is used for all reporting years.

The plantation area for 1998 (1100 ha) is used for reporting years 2000, 2005 and 2010.

The plantation area for 1991 (510 ha) is used for reporting year 1990.

1.3.3 Reclassification into FRA 2010 categories

National class	FRA CLASSIFICATION		
	Forest	Other Wooded land	Other land
Littoral forest	100%		
Makatea forest	100%		
Other natural forest	100%		
Plantations	100%		
Other land			100%

1.4 Data for Table T1

FRA 2010 categories	Area (1000 hectares)			
	1990	2000	2005	2010
Forest	14.9	15.5	15.5	15.5
Other wooded land	0	0	0	0
Other land	9.1	8.5	8.5	8.5
...of which with tree cover	n.a.	n.a.	n.a.	n.a.
Inland water bodies	0	0	0	0
TOTAL	24.0	24.0	24.0	24.0

1.5 Comments to Table T1

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest	<p>It is assumed that the natural forest area reported for 1998 by Oliver (1999) can be used as a valid estimate for 1990.</p> <p>Oliver (1992) reports the plantation area in 1992. As no date was provided the value given is assumed to refer to 1991, and is used for 1990</p>	<p>Due to the absence of additional information, the size of forest in 2000, 2005 and 2010 were assumed to be the same as the reported values for 1998.</p>
Other wooded land		
Other land		
Other land with tree cover		
Inland water bodies		

Other general comments to the table

Other land with tree cover (agriculture land) planted with oranges or citrus sp in the 1950-80's are being used by land owners as private house sites, accommodations or units for tourism purposes. These are the only changes that is happening here mainly in the Southern Cook Islands, however data is not available to report on the area of Other land with tree cover.

As for the Northern Cook Islands forest remains the same except during the 5 cyclones that hit them but according to them forest has grown back and almost to its peak again. The datas used above are the same datas used in the FRA 2005 report for the Cook Islands, no changes.

Expected year for completion of ongoing/planned national forest inventory and/or RS survey / mapping

Field inventory	n.a.
Remote sensing survey / mapping	n.a.

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 (<i>sub-category of Private ownership</i>)	Forest owned by individuals and families.
Private business entities and institutions (<i>sub-category of Private ownership</i>)	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 (<i>sub-category of Private ownership</i>)	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 (<i>sub-category of Private ownership</i>)	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.
Categories related to the holder of management rights of public forest resources	
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
Oliver.W. 1999 Plantation forestry in the South Pacific: A compilation and assessment of Practices. Project RAS/86/036. UBDP/FAO, Rome.	H	Land ownership, Land cover area.	1998	
Space. J. 2000 Submission to FRA 2000		Plantation forest area	2000	

2.2.2 Classification and definitions

National class	Definition
Public ownership	Forest owned by 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, NGO's, nature conservation associations and other private institutions.
Individuals	Forest owned by individuals and families.
Private Business entities and institutions	Forest owned by private corporations, co-operatives,, companies and other business entities, as well as private non-profit organizations such as NGO's, nature conservation associations, and private religious and educational institutions..
Local communities, Indigenous/tribal communities, other types	As of public ownership.

2.2.3 Original data

According to Oliver (1999), land ownership varies from island to island although most land is owned by families. The government does not own land.

2.3 Analysis and processing of national data

2.3.1 Reclassification into FRA 2010 categories

All forest area is privately owned.

2.4 Data for Table T2

Table 2a - Forest ownership

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	2000	2005
Public ownership	0	0	0
Private ownership	14.9	15.5	15.5
...of which owned by individuals	0	0	0
...of which owned by private business entities and institutions	2.0	2.0	2.0
...of which owned by local communities	0	0	0
...of which owned by indigenous / tribal communities	12.9	13.5	13.5
Other types of ownership	0	0	0
TOTAL	14.9	15.5	15.5

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 checked="" type="checkbox"/>	Yes
	<input type="checkbox"/>	No
If No 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	0	0	0
Individuals	0	0	0
Private corporations and institutions	0	0	0
Communities	0	0	0
Other	0	0	0
TOTAL	0	0	0

2.5 Comments to Table T2

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Public ownership		
Private ownership		
Other types of ownership		
Management rights		

Other general comments to the table
Ownership of forest land is privately owned and controlled by families. e.g. Takitumu Conservation Area is owned by the Karika family and they can do whatever/anything to it if they wants to, but in this instant they want it for conservation for Kakerori (bird) rehabilitation program etc, and on the island of Pukapuka there are 3 islets (motus) and three tribes and each island is controlled by each tribes. The datas used above are the same datas reported in the FRA 2005 report for the Cook Islands, no changes.

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.
Categories of primary designated functions	
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.
Special designation and management categories	
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
BROWN. C. 1997. Regional Study- the South Pacific: Asia-Pacific forestry Sector Outlook Study Working paper Series, WP No. APFSOS/WP/01, FAO, Rome.		Forest categories	1996	
Agroforestry Guides for Pacific Islands by Craig R. Elevitch and Kim M. Wilkinson		Pacific Forest trees and their uses	1997	
Cook Islands Biodiversity Database by the Cook Islands Natural Heritage Project.		Names of trees	2000	

3.2.2 Classification and definitions

National class	Definition
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. <i>Albizia lebbbeck</i> , <i>Aleurites moluccana</i> , <i>Inocarpus fagifer</i> , <i>Leucaena leucocephala</i> , <i>Mangifera indica</i> , <i>Morinda citrifolia</i> , <i>Musa spp</i> , <i>Pemphis acidula</i> , <i>Persia Americana</i> , <i>Pometia piñata</i> , <i>Psidium guajava</i> , <i>Spondias dulcis</i> , <i>Syzygium malaccense</i> , <i>Tamatindus indica</i> , <i>Terminalis catappa</i> , <i>Cocos nucifera</i> , <i>Carica papaya</i> , <i>Barringtonia edulis</i> , <i>Averrhoa carambola</i> , <i>Artocarpus altilis</i> , <i>Annona squamosa</i> , <i>Pisonia grandis</i> , <i>Ceiba pendantra</i> , <i>Scaevola taccada</i> , <i>Thesoesia populnea</i> , <i>Tournefortia argentea</i> , <i>Acacia spp</i> , <i>Hernandia nymphaeifolia</i> , <i>Hibiscus tiliaceus</i> , <i>Calophyllum inophyllum</i> , <i>Cananga odorata</i> , <i>Cordia subcordata</i> , <i>Fagraea berteriana</i> , <i>Casuarina equisetifolia</i> , <i>Guettarda speciosa</i> , <i>Scaevola taccada</i> , <i>Allyxia spp</i> , <i>Codyline spp</i> , <i>Derris elliptica</i> ,
Conservation of Biodiversity	Forest area designated primarily for conservation of biological diversity. Includes but is not limited to areas designated for diversity conservations with the protected areas. <i>Albizia lebbbeck</i> , <i>Aleurites moluccana</i> , <i>Inocarpus fagifer</i> , <i>Leucaena leucocephala</i> , <i>Mangifera indica</i> , <i>Morinda citrifolia</i> , <i>Musa spp</i> , <i>Pemphis acidula</i> , <i>Persia Americana</i> , <i>Pometia piñata</i> , <i>Psidium guajava</i> , <i>Spondias dulcis</i> , <i>Syzygium malaccense</i> , <i>Tamatindus indica</i> , <i>Terminalis catappa</i> , <i>Cocos nucifera</i> , <i>Carica papaya</i> , <i>Barringtonia edulis</i> , <i>Averrhoa carambola</i> , <i>Artocarpus altilis</i> , <i>Annona squamosa</i> , <i>Pisonia grandis</i> , <i>Ceiba pendantra</i> , <i>Scaevola taccada</i> , <i>Thesoesia populnea</i> , <i>Tournefortia argentea</i> , <i>Acacia spp</i> , <i>Hernandia nymphaeifolia</i> , <i>Hibiscus tiliaceus</i> , <i>Calophyllum inophyllum</i> , <i>Cananga odorata</i> , <i>Cordia subcordata</i> , <i>Fagraea berteriana</i> , <i>Casuarina equisetifolia</i> , <i>Guettarda speciosa</i> , <i>Scaevola taccada</i> , <i>Allyxia spp</i> , <i>Codyline spp</i> , <i>Derris elliptica</i>
Production	Forest area designated primarily for production of wood, fibre, bio-energy and/or non-wood forest products. <i>Acacia mangium</i> ,
Protection of soil and water	Forest area designated primarily for protection of soil and water. <i>Aleurites moluccana</i> , <i>Inocarpus fagifer</i> , <i>Leucaena leucocephala</i> , <i>Mangifera indica</i> , <i>Morinda citrifolia</i> , <i>Musa spp</i> , <i>Pemphis acidula</i> , <i>Persia Americana</i> , <i>Pometia piñata</i> , <i>Psidium guajava</i> , <i>Spondias dulcis</i> , <i>Syzygium malaccense</i> , <i>Tamatindus indica</i> , <i>Terminalis catappa</i> , <i>Cocos nucifera</i> , <i>Carica papaya</i> , <i>Barringtonia edulis</i> , <i>Averrhoa carambola</i> , <i>Artocarpus altilis</i> , <i>Annona squamosa</i> , <i>Pisonia grandis</i> , <i>Ceiba pendantra</i> , <i>Scaevola taccada</i> , <i>Thesoesia populnea</i> , <i>Tournefortia argentea</i> , <i>Acacia spp</i> , <i>Hernandia nymphaeifolia</i> , <i>Hibiscus tiliaceus</i> , <i>Calophyllum inophyllum</i> , <i>Cananga odorata</i> , <i>Cordia subcordata</i> , <i>Fagraea berteriana</i> , <i>Casuarina equisetifolia</i> , <i>Guettarda speciosa</i> , <i>Scaevola taccada</i> , <i>Allyxia spp</i> , <i>Codyline spp</i> , <i>Derris elliptica</i>
Multiple use	Forest area designated primarily for more than one purpose and where none of these alone is considered as the predominant designated functions. <i>Aleurites moluccana</i> , <i>Inocarpus fagifer</i> , <i>Leucaena leucocephala</i> , <i>Mangifera indica</i> , <i>Morinda citrifolia</i> , <i>Musa spp</i> , <i>Pemphis acidula</i> , <i>Persia Americana</i> , <i>Pometia piñata</i> , <i>Psidium guajava</i> , <i>Spondias dulcis</i> , <i>Syzygium malaccense</i> , <i>Tamatindus indica</i> , <i>Terminalis catappa</i> , <i>Cocos nucifera</i> , <i>Carica papaya</i> , <i>Barringtonia edulis</i> , <i>Averrhoa carambola</i> , <i>Artocarpus altilis</i> , <i>Annona squamosa</i> , <i>Pisonia grandis</i> , <i>Ceiba pendantra</i> , <i>Scaevola taccada</i> , <i>Thesoesia populnea</i> , <i>Tournefortia argentea</i> , <i>Acacia spp</i> , <i>Hernandia nymphaeifolia</i> , <i>Hibiscus tiliaceus</i> , <i>Calophyllum inophyllum</i> , <i>Cananga odorata</i> , <i>Cordia subcordata</i> , <i>Fagraea berteriana</i> , <i>Casuarina equisetifolia</i> , <i>Guettarda speciosa</i> , <i>Scaevola taccada</i> , <i>Allyxia spp</i> , <i>Codyline spp</i> , <i>Derris elliptica</i>

3.2.3 Original data

	Area ('000 ha)	
	1991	1998
Natural forest	14.4	14.4
Plantation forest	0.5	1.1

Source: Brown. C. 1997.

	Primary use
Natural forest	Multiple use (Conservation and Watershed Protection)
Plantation forest	Soil and Watershed Conservation

3.3 Analysis and processing of national data

Plantation forests have been classified as “Protection of soil and water” using the figures reported in T1 for each reporting year.

Natural forests have been classified as “Multiple purpose” using the figures reported in T1 for each reporting year.

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	0.5	1.1	1.1	1.1
Conservation of biodiversity	0	0	0	0
Social services	0	0	0	0
Multiple use	14.4	14.4	14.4	14.4
Other (please specify in comments below the table)	0	0	0	0
No / unknown	0	0	0	0
TOTAL	14.9	15.5	15.5	15.5

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				
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	In the Cook Islands all these tables serves as the same purposes either for conservation, protection, social services etc they are all the same and does the same responsibilities in uses.	
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
<ol style="list-style-type: none"> 1. Takitumu Conservation Area – Managed by the Karika Family. 2. Suvarrow Island - Government under NES 3. Takutea Island – Managed by the people of Atiu 4. Highland Paradise – Managed by the Raymond Pirangi family 5. Pukapuka Atoll – Under the controlled of local island councils and village tribes – 60 Hectares 6. Nassau Atoll – under the control of island councils etc <p>The datas used in the Cook Islands FRA 2005 report are the same datas used above, no changes.</p>

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).
Characteristics categories	
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.
Special categories	
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
Agroforestry Guides for Pacific Islands by Craig R. Elevich and Kim M> Wilkinson		Pacific trees and its uses	1997	
Cook Islands Biodiversity Database by the Cook Islands Natural Heritage Project.		Names of Trees and its uses	2000	
OLIVER. W. 1992 Plantation forestry in the South Pacific: A compilation and assessment of Practices. Project RAS/86/036, UNDP/FAO, Rome		Plantation area	1991	
OLIVER.W. 1999. An update of plantation forestry in the South Pacific RAS/97/330. Working paper, UNDP/FAO, Rome		Land cover types	1998	

4.2.2 Classification and definitions

National class	Definition
Naturally generated forest	Trees established through natural regeneration such as: <i>Aleurites moluccana</i> , <i>Barringtonia asiatica</i> , <i>Calophyllum inophyllum</i> , <i>Casuarina equisetifolia</i> , <i>Ceiba pentandra</i> , <i>Cocos nucifera</i> , <i>Delonix regia</i> , <i>Guettarda speciosa</i> , <i>Inocarpus fagifer</i> , <i>Mangifera indica</i> , <i>Melia azedarach</i> , <i>Morinda citrifolia</i> , <i>Pometia pinnata</i> , <i>Pritchardia pacifica</i> , <i>Pisonia grandis</i> , <i>Thespersia populnea</i> , <i>Tournefortia argentea</i> , <i>Terminalia catappa</i> , <i>Spondias dulcis</i> , <i>Melia azedarach</i> , <i>Homalium acuminatum</i> , <i>Syzygium cumini</i> , <i>Incarpus fagifer</i> , <i>Albizia lebbbeck</i> , <i>Spathodea campanulata</i> , <i>Hernandia nymphaeifolia</i> , etc
Introduced species	A species, sub-species or lower taxon, occurring outside its natural range (past and present) and dispersal potential (i.e. outside the range it occupies naturally or could occupy without direct or indirect introduction or care by human). <i>Tectona grandis</i> , <i>Albizia lebbbeck</i> , <i>Bamboo vulgaris</i> , <i>Azadirachta indica</i> , <i>Acacia mangium</i> , <i>Delonix regia</i> , <i>Ficus bengalensis</i> , <i>Ficus benjamina</i> , <i>Ficus carica</i> , <i>Litchi sinensis</i> , <i>Macadamia integrifolia</i> , <i>Morinda citrifolia</i> , <i>Persia Americana</i> , <i>Pinus caribean</i> , etc.
Primary forests	Naturally regenerated forest of native species, where are no clearly visible indications of human activities and the ecological process are not significantly disturbed. <i>Aleurites moluccana</i> , <i>Inocarpus fagifer</i> , <i>Leucaena leucocephala</i> , <i>Mangifera indica</i> , <i>Morinda citrifolia</i> , <i>Musa sp</i> , <i>Pemphis acidula</i> , <i>Persia Americana</i> , <i>Pometia pinnata</i> , <i>Psidium guajava</i> , <i>Spondias dulcis</i> , <i>Syzygium malaccense</i> , <i>Tamatindus indica</i> , <i>Terminalis catappa</i> , <i>Cocos nucifera</i> , <i>Carica papaya</i> , <i>Barringtonia edulis</i> , <i>Averrhoa carambola</i> , <i>Artocarpus altilis</i> , <i>Annona squamosa</i> , <i>Pisonia grandis</i> , <i>Ceiba pendantra</i> , <i>Scaevola taccada</i> , <i>Thesoesia populnea</i> , <i>Tournefortia argentea</i> , <i>Acacia spp</i> , <i>Hernandia nymphaeifolia</i> , <i>Hibiscus tiliaceus</i> , <i>Calophyllum inophyllum</i> , <i>Cananga odorata</i> , <i>Cordia subcordata</i> , <i>Fagraea berteriana</i> , <i>Casuarina equisetifolia</i> , <i>Guettarda speciosa</i> , <i>Scaevola taccada</i> , <i>Allyxia spp</i> , <i>Codyline spp</i> , <i>Derris elliptica</i>
Other natural regenerated forest of introduced species	Other naturally regenerated forest where the trees are predominantly of introduced species. <i>Santalum sp</i> , <i>Accasia sp</i> , <i>pinus sp</i> , <i>Macardamia sp</i> etc.
Planted forest	Forest predominantly composed of trees established through planting and/or deliberate seeding. <i>Pinus caribean</i> , <i>Eucalyptus citriodola</i> , <i>Leucaena leucocephala</i> , <i>Spathodea campanulata</i> , <i>Acacia mangium</i> ,

4.2.3 Original data

	Area ('000 ha)	
	1991	1998
Natural forest	14.4	14.4
Plantation forest	0.5	1.1

4.3 Analysis and processing of national data

Plantation forest = Planted forest

Natural forest = Other naturally regenerated forest

4.4 Data for Table T4

Table 4a

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Primary forest	0	0	0	0
Other naturally regenerated forest	14.4	14.4	14.4	14.4
...of which of introduced species	n.a.	n.a.	n.a.	n.a.
Planted forest	0.5	1.1	1.1	1.1
...of which of introduced species	n.a.	n.a.	n.a.	n.a.
TOTAL	14.9	15.5	15.5	15.5

Table 4b

FRA 2010 Categories	Area (1000 hectares)			
	1990	2000	2005	2010
Rubber plantations (Forest)	0	0	0	0
Mangroves (Forest and OWL)	0	0	0	0
Bamboo (Forest and OWL)	n.s.	n.s.	n.s.	n.s.

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	<p>All forest in the Cook Islands except the planted forests are in this category.</p> <p>These trees are still the main species established through natural regenerations. <i>Aleurites moluccana</i>, <i>Inocarpus fagifer</i>, <i>Leucaena leucocephala</i>, <i>Mangifera indica</i>, <i>Morinda citrifolia</i>, <i>Musa sp</i>, <i>Pemphis acidula</i>, <i>Persia Americana</i>, <i>Pometia piñata</i>, <i>Psidium guajava</i>, <i>Spondias dulcis</i>, <i>Syzygium malaccense</i>, <i>Tamatindus indica</i>, <i>Terminalis catappa</i>, <i>Cocos nucifera</i>, <i>Carica papaya</i>, <i>Barringtonia edulis</i>, <i>Averrhoa carambola</i>, <i>Artocarpus altilis</i>, <i>Annona squamosa</i>, <i>Pisonia grandis</i>, <i>Ceiba pendastra</i>, <i>Scaevola taccada</i>, <i>Thesoesia populnea</i>, <i>Tournefortia argentea</i>, <i>Acacia spp</i>, <i>Hernandia nymphaeifolia</i>, <i>Hibiscus tiliaceus</i>, <i>Calophyllum inophyllum</i>, <i>Cananga odorata</i>, <i>Cordia subcordata</i>, <i>Fagraea berteriana</i>, <i>Casuarina equisetifolia</i>, <i>Guettarda speciosa</i>, <i>Scaevola taccada</i>, <i>Allyxia spp</i>, <i>Codyline spp</i>, <i>Derris elliptica</i></p>	
Planted forest		
Rubber plantations	Rubber plantations do not exist in the Cook Islands.	
Mangroves	No mangroves in the Cook Islands. No body seems to be interested in it.	
Bamboo	Only small plantations no use mentioning as there is no value on them. Mainly used for fishing rods and beautification.	

Other general comments to the table

There is no record of the Cook Islands of having rubber plantations, mangroves and bamboo plantations. They did introduced *Tectona grandis* but used for land boundaries by Europeans, windbreaks such as *Erythrina variegata* for citrus sp plantations etc.

These introduced species were introduced for various reasons but some of these are now invasive sp. *e.g.* *Albizia lebbbeck*, *Acacia sp*,

These were introduced for the purpose of;

1. *Albizia lebbbeck* – by the Ministry of Agriculture for the purpose of making patterns for export boxes of oranges to NZ
2. *Acacia sp* – these were introduced by the Government of the Cook Islands for the purpose of wood-burning generators
3. *Pinus sp* – were introduced mainly for the purpose of soil erosion and timber, mainly on the islands of Mangaia and Atiu, whereby most of the hillsides on these two islands were planted with pineapples before, and also on Rarotonga mainly on fernlands where the kids have burn these fernlands.
4. *Santalum sp* – were introduced for the islands of Mangaia, Mitiaro, Atiu and Mauke for soil erosion, craft, oil and many other uses.
5. *Erythrina variegata* (Ngatae) – were introduce mainly for the purpose of citrus plantations windbreaks

Tectona grandis – were introduced for the purpose of land boundaries by Europeans.

5 Table T5 – Forest establishment and reforestation

5.1 FRA 2010 Categories and definitions

Term	Definition
Afforestation	Establishment of forest through planting and/or deliberate seeding on land that, until then, was not classified as forest.
Reforestation	Re-establishment of forest through planting and/or deliberate seeding on land classified as forest.
Natural expansion of forest	Expansion of forests through natural succession on land that, until then, was under another land use (e.g. forest succession on land previously used for agriculture).

5.2 National data

5.2.1 Data sources

Quantitative information is not available for reporting on this table.

5.2.2 Classification and definitions

National class	Definition
Afforestation	Establishment of forest through planting and/or deliberate seeding on land that, until then, was not classified as forest. <i>Fern lands planted with introduced tree species e.g. Pinus sp, Acacia sp,</i>
Reforestation	Re-establishment of forest through planting and/of deliberate seeding on land classified as forest.
Natural expansion of forest	Expansion of forests through natural succession on land that, until then, was under another land use, (e.g. forest succession on land previously used for agriculture). Agriculture land being planted with pineapples in the 1950s' to 60s' on the islands of Mangaia, Atiu, and Rarotonga, but in the 1970s' export of pineapples ceased even. So to stop soil erosions these agriculture lands that once were planted with pineapple were replanted with introduced forest trees. e.g. <i>Pinus caribean, Acacia mangium</i> (for wood generator) etc, mainly on the islands of Mangaia, Atiu, Mauke, and Rarotonga these same forest trees were planted on fern-lands because often they were burned by kids and very serious erosion.

Comments to forest establishment and reforestation:

Natural expansion of forest occurs case mainly on the islands of Mangaia and Atiu (where once was pineapple plantations) and on Rarotonga, (fern-lands) mainly for soil erosion.

Some introduced species were introduced for the purpose of providing timber for building and other uses. But due to the government reorganisation in 1996 forest was one of the unlucky projects that was faced out and these trees were left and government pulled out and was given back to land owners hence we don't have record of what is there and what will happen to them. Now the Ministry of Agriculture just a coordinator for forest programme etc.

5.3 Data for Table T5

FRA 2010 Categories	Annual forest establishment (hectares/year)			...of which of introduced species ¹⁾ (hectares/year)		
	1990	2000	2005	1990	2000	2005
Afforestation						
Reforestation						
...of which on areas previously planted						
Natural expansion of forest						

Note: The figures for the reporting years refer to the averages for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively.

5.4 Comments to Table T5

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Afforestation		
Reforestation		
Natural expansion of forest		

Other general comments to the table

6 Table T6 – Growing stock

Data is not available for this reporting table.

7 Table T7 – Biomass stock

Data is not available for this reporting table.

8 Table T8 – Carbon stock

Data is not available for this reporting table.

9 Table T9 – Forest fires

9.1 FRA 2010 Categories and definitions

Category	Definition
Number of fires	Average number of vegetation fires per year in the country.
Area affected by fire	Average area affected by vegetation fires per year in the country.
Vegetation fire (supplementary term)	Any vegetation fire regardless of ignition source, damage or benefit.
Wildfire	Any unplanned and/or uncontrolled vegetation fire.
Planned fire	A vegetation fire regardless of ignition source that burns according to management objectives and requires limited or no suppression action.

9.2 National data

9.2.1 Data sources

Not available.

9.2.2 Classification and definitions

National class	Definition
Number of Fires	Average number of vegetation fires per year in the country. <i>One (1995) on Mangaia. Pinus sp and Acacia mangium were all destroyed.</i>
Area affected by fire	Average area affected by vegetation fires per year in the country.
Vegetation fire	Any vegetation fire regardless of ignition source, damaged or benefit.
Wild fire	Any unplanned and/or uncontrolled vegetation fire. <i>Yes, on Rarotonga. Mostly fern lands</i>
Planned fires	A vegetation fire regardless of ignition source that burns according to management objectives and requires limited or no suppression action. <i>Yes, on Rarotonga, fern lands by kids.</i>

9.2.3 Original data

Number of fires of which on other wooded are Fern-lands on Rarotonga

The 2 fires of which on forest were in Mangaia and Atiu and are wild fires.

Mangaia 1993 400 ha mainly Pines but replanted after the fire.

Atiu 1995 100 ha mainly Pines but replanted after the fire.

9.3 Data for Table T9

Table 9a

FRA 2010 category	Annual average for 5-year period					
	1990		2000		2005	
	1000 hectares	number of fires	1000 hectares	number of fires	1000 hectares	number of fires
Total land area affected by fire						
... of which on forest						
... of which on other wooded land						
... of which on other land						

Table 9b

FRA 2010 category	Proportion of forest area affected by fire (%)		
	1990	2000	2005
Wildfire			
Planned fire			

Note: The figures for the reporting years refer to the averages of annually affected areas for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively. All these planned fires are by kids and mainly fern –lands on Rarotonga.

9.4 Comments to Table T9

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Area affected by fire		
Number of fires		
Wildfire / planned fire		

Other general comments to the 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
Ministry of Agriculture, P.O. Box 96, Rarotonga, COOK ISLANDS				Maja Poeschoe, Entomologist, Pests & Disease of the Cook islands report.

10.2.2 Classification and definitions

National class	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 not likely to cause, socio-cultural, economic or environmental harm or harm to human health. <i>Spathodea campanulata</i> , <i>Albizia lebbek</i> , <i>Acacia mangium</i> , <i>Mile-a-minute</i> , <i>Balloon wine</i> , <i>Bambusa vulgaris</i> , <i>Merremia peltata</i> ,
Disturbance by insects	Disturbance caused by insect pests <i>Coconut Flat Moth (Agonoxena argaula)</i> , <i>Coconut termite Neoterma rainbowi</i> , <i>Coconut scale (Aspidiolus destructor)</i>
Disturbance by other Biotic agents	Disturbances caused by abiotic factors, such as air pollutions, snow, storm, drought etc. <i>Caused by tropical cyclones etc.</i>

10.3 Data for Table T10

Table 10a – Disturbances

Quantifiable records of the disturbances by insects, disease, biotic and abiotic are not available.

Table 10b – Major outbreaks of insects and diseases affecting forest health and vitality

No information available for this reporting table.

*The following outbreaks of insects and diseases affecting *cocos nucifera* have been reported.*

Description / name	Tree species (scientific name)	Year of latest outbreak	Area affected (1000 hectares)	Additional information
Coconut Flat Moth (<i>Agonoxena argaula</i>)	<i>Cocos nucifera</i>	2000	unknown	Outbreak on Rarotonga in 2000 and to the other Southern and Northern Groups of the Cook Islands later in the years, but under control using bio control
Coconut termite (<i>Neoterma rainbowi</i>)	<i>Cocos nucifera</i>	1956	unknown	Only on three atolls in the Northern Cook Islands. (Pukapuka, Nassau and Suvarrow) Control, affected trees were cut and burned.
Coconut scale (<i>Aspidiolus destructor</i>)	<i>Cocos nucifera</i>	1978	unknown	On the islands of Rarotonga and Atiu. Control bio-control.

Table 10c – Area of forest affected by woody invasive species

Scientific name of woody invasive species	Forest area affected 2005 (1000 hectares)
<i>Albizia lebeck</i> , <i>Paraserianthes falcataria</i>	n.a.
<i>Spathodea campanulata</i>	n.a.
<i>Bambusa vulgaris</i>	n.a.
<i>Acacia mangium</i> , <i>Acacia auriculiformis</i>	n.a.
Total forest area affected by woody invasive species	n.a.

Note: The total forest area affected by woody invasive species is not necessary the sum of the values above, as these may be overlapping.

10.4 Comments to Table T10

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Disturbance by insects		
Disturbance by diseases		
Disturbance by other biotic agents	Goats, Wild pigs: Mainly on the Outer Southern islands of the Cooks. (Aitutaki, Atiu, Mangaia, Mauke and Mitiaro) Free grazing.	
Disturbance caused by abiotic factors	Tropical cyclone Martin November 1987. Destruction right through most of the 15 islands of the Cook Islands most serious on the atolls mainly Manihiki, Rakahanga, Pukapuka & Nassau.	
Major outbreaks		
Invasive species	<i>Acacia mangium</i> mostly on the islands of the Southern Cook Islands. <i>Acacia auriculiformis</i> most on the islands of the Southern Cook Islands. <i>Albizia lebeck</i> mostly on the islands of the Southern Cook Islands. <i>Mile a minute (Mikania micrantha)</i> most on the islands of the Southern Cook Islands. People also use the leaves this plant for medicine. <i>Ballon wine (Cardiospermum gradiflorum)</i> only on the is of Rarotonga <i>Meremia peltata</i> only on the island of Atiu, Rarotonga & Aitutaki. <i>Giant mimosa</i> Only on the island of Aitutaki. Meantine we have a bio-control in place and it is showing good results.	

Other general comments to the table

Albizia lebeck was introduced during the citrus export duration to make patterns for bushel and bushel and half export boxes. Now it has taken a lot of bush, fern or forest land or even agriculture land. The same with the *Acacia spp* which was introduced for the purpose of wood burning generator, but now it has gone wild especially on the islands of Mangaia, Atiu, Aitutaki, Rarotonga and Mauke. As for invasive species like *Mile-a-minute (Mikania micrantha)*, *Ballon wine (Cardiospermum gradiflorum)*, very serious weed on the mainland Rarotonga as seen on the eastern side of the island on the hillside and some sort of control is need as soon as possible to control if possible and *Meremia peltata* we needs bio-control as soon as possible as it is spreading in the forest areas mainly on hillsides etc mainly on the islands of Rarotonga and Aitutaki.

11 Table T11 – Wood removals and value of removals

11.1 FRA 2010 Categories and definitions

Category	Definition
Industrial roundwood removals	The wood removed (volume of roundwood over bark) for production of goods and services other than energy production (woodfuel).
Woodfuel removals	The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

11.2 National data

11.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Agroforestry Guides for Pacific Islands by Craig R. Elevich and Kim M. Wilkinson		Pacific trees and it's uses	2000	Names of trees
Cook Islands Biodiversity Database by the Cook Islands Natural Heritage Project		Cook Islands trees and it's Uses	2000	Names of trees
FAOSTAT	M	Industrial round wood production	1988-1992 1998-2002 2003-2006	

11.2.2 Classification and definitions

National class	Definition
Woodfuel removals	The wood removed for energy production purposes, regardless whether for industrial , commercial or domestic use. <i>Pemphis acidula</i> , <i>Syzygium cumini</i> , <i>Bischofia javanica</i> , <i>Calophyllum inophyllum</i> , <i>Barringtonia asiatica</i> , <i>Cananga odorata</i> , <i>Cordia subcordata</i> , <i>Delonix regia</i> , <i>Fagraea berteriana</i> , <i>Guettarda speciosa</i> , <i>Inocarpus edulis</i> , <i>Leucaena leucocephala</i> , <i>Morinda citrifolia</i> , <i>Pometia pinnata</i> , <i>Psidium guajava</i> , <i>Tournefortia argentea</i> , <i>terminalia catappa</i> , <i>Citrus spp</i> , <i>Melia azedarach</i> ,
Industrial roundwood removals	The wood removed (volume of roundwood over bark) for production of goods and services other than energy production (wood fuel).

11.3 Analysis and processing of national data

Industrial round wood production (m3 under bark)

1988	1989	1990	1991	1992
0	0	0	0	0

1998	1999	2000	2001	2002
5000	5000	5000	5000	5000
2003	2004	2005	2006	
5000	5000	5000	5000	

FAOSTAT gives values under bark. To get the over bark, these values are multiplied by 1.15.

The average yearly data from 1988-1992 was used as the estimate for 1990 while the average yearly data from 1998-2002 used as the estimate for 2000. The average yearly data for 2003-2006 was used as the estimate for 2005.

11.4 Data for Table T11

FRA 2010 Category	Industrial roundwood removals			Woodfuel removals		
	1990	2000	2005	1990	2000	2005
Total volume (1000 m ³ o.b.)	0	5.75	5.75	n.a.	n.a.	n.a.
... of which from forest	0	5.75	5.75	n.a.	n.a.	n.a.
Unit value (local currency / m ³ o.b.)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total value (1000 local currency)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Note: The figures for the reporting years refer to the averages of annually affected areas for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively.

	1990	2000	2005
Name of local currency	NZ\$	NZ\$	NZ\$

11.5 Comments to Table T11

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Total volume of industrial roundwood removals	Mainly those that either being blown over by strong wind or cyclone or trimming of trees used for grafts etc.	
Total volume of woodfuel removals	Mainly for umu and fire cooking mainly in the outer islands. On the mainland Rarotonga including some of the southern Cook Islands they use modern technologies (methane gas or electricity)	
Unit value		
Total value		

Other general comments to the table

Most of the removals are for carvings, posts, roofs, medicine, fire-woods, canoes, leis, beautification etc and mainly trees that are fell either by cyclones or strong winds or trees fell from new house sites etc. or farming lands on the hill sides. With the introduction of methane gas, and electricity people don't harvest wood-fuels, not that much except when there is special occasions like 21st birthdays, marriage, investiture of Kings or Queens etc.

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

12.1 FRA 2010 Categories and definitions

Term	Definition
Non-wood forest product (NWFP)	Goods derived from forests that are tangible and physical objects of biological origin other than wood.
Value of NWFP removals	For the purpose of this table, value is defined as the market value at the site of collection or forest border.

NWFP categories

Category
<u>Plant products / raw material</u>
1. Food
2. Fodder
3. Raw material for medicine and aromatic products
4. Raw material for colorants and dyes
5. Raw material for utensils, handicrafts & construction
6. Ornamental plants
7. Exudates
8. Other plant products
<u>Animal products / raw material</u>
9. Living animals
10. Hides, skins and trophies
11. Wild honey and bee-wax
12. Wild meat
13. Raw material for medicine
14. Raw material for colorants
15. Other edible animal products
16. Other non-edible animal products

12.2 National data

12.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Agroforestry Guides for Pacific Islands by Craig R. Elevitch and Kim M. Wilkinson.		Pacific trees and it's uses	2000	Names of trees
Pacific Agroforestry. An information kit. PRAP			1999	
Cook Islands Biodiversity Database by the Cook islands Natural Heritage Report.		Cook Islands trees and it's uses	2000	Names of trees

12.2.2 Classification and definitions

National class	Definition
Plant products/raw materials	<i>Aleurites moluccana, Alyxia elliptica, Artocarpus altilis, Bambusa vulgaris, Barringtonia asiatica, Broussonetia papyrifera, Calophyllum inophyllum, Cananga odorata, Casuarina sp, Cocos nucifera, Cordia subcordata, Cordyline terminalis, Dioscorea alata, Eugenia malaccensis, Inocarpus edulis, Mangifera indica, Morinda citrifolia, Musa spp, Pandanus sp, gardenia sp, Hibiscus tillaceus, Leucaena sp, Piper methysticum, Pisonia grandis, Pomelia pinnata, Santalum sp, Scaevola sericea, Terminalia catappa, Thespesia populnea, Tournefortia argentea, Vanilla sp, Zingiber sp, coffea arabica, Spondias edulis, Syzygium cumini, Governor's plum, Derris illiptica,</i>
Animal products/raw materials	Wild pigs, wild chickens, birds, coconut crabs, prawns, eels, fruit bats, honey,

12.2.3 Original data

Not available.

12.3 Data for Table T12

Rank	Name of product	Key species	Unit	NWFP removals 2005		NWFP category
				Quantity	Value (1000 local currency)	
1 st	Food, timber, crafts, medicine, drinks, fish traps, mosquito repellent, rope, copra, oil, etc	<i>Cocos nucifera</i>				
2 nd	Garlands for export (maire), perfumes, etc	<i>Alyxia elliptica</i>			\$30,000	
3 rd	Food, handicrafts, costumes, garlands (leis), leaves for houses, etc	<i>Pandanus sp</i>				
4 th	Medicine, dyes, export, firewood etc	<i>Morinda citrifolia</i>				
5 th	Food, canoe, medicine etc	<i>Mangifera indica</i>				
6 th	Food, firewood, crafts, etc	<i>Inocarpus fagifer</i>				
7 th	Food, chewing gum, housing etc	<i>Artocarpus altilis</i>				
8 th	Oil, crafts, tables, medicine, etc	<i>Calophyllum inophyllum</i>				
9 th	Medicine, arts & crafts, etc	<i>Thespesia populnea</i>				
10 th	Medicine, arts & crafts, firewood, fishing etc	<i>Casuarina equisetifolia</i>				
All other plant products						
All other animal products						
TOTAL						

	2005
Name of local currency	NZ\$

12.4 Comments to Table T12

Variable / category	Comments related to data, definitions, etc.
10 most important products	Its very hard to clarify in order which is the most important plant for each island in the Cook Islands have their own order except that we all know that in the Pacific islands coconut is the most important tree of all trees, for local and export.
Other plant products	Other trees are also important in the way each island used them whether for local or export or money or decoration. (culture)
Other animal products	Most of these animal products are consumed locally and not exported or sold for money except for trophies (pig's tooth etc)
Value by product	<i>Alyxia elliptica</i> (maire) is very import for ladies on three is lands in the Cooks, namely Mauke, Mangaia, Mitiaro, in which they export it to Hawaii every week and all year round and also they use it in coconut oil extracts for perfumes for it smell. Also <i>Morinda citrifolia</i> export for medicine etc organically.
Total value	

Other general comments to the table
<i>Alyxia elliptica</i> (maire) is one of the most important plant being harvested for export in lei forms to Hawaii all year round and it keeps the mamas on the islands of Mauke, Mangaia, Mitiaro busy, and at the moment the Ministry of Agriculture is doing a research on Mauke of planting these plants out of its natural growing area in an open easily access to the mamas to harvest, meantime they are harvesting the maire within its growing habitat which is in the makatea. (NZ\$30,000 for the year of 2006) That also goes for <i>Morinda citrifolia</i> (noni or nono) whereby on the islands of Mauke, Mangaia, Atiu, and Mitiaro are also harvested from within these makatea which has sharp stones etc. We also harvest a lot of fruits, root crops, eels, prawns, flowers from these forest areas either for human consumptions or uses.

13 Table T13 – Employment

13.1 FRA 2010 Categories and definitions

Category	Definition
Full-time equivalents (FTE)	A measurement equal to one person working full-time during a specified reference period.
Employment	Includes all persons in paid employment or self-employment.
Paid employment	Persons who during a specified reference period performed some work for <u>wage or salary</u> in cash or in kind.
Self-employment	Persons who during a specified reference period performed some work for <u>profit or family gain</u> in cash or in kind (e.g. employers, own-account workers, members of producers' cooperatives, contributing family workers).

13.2 National data

13.2.1 Original data

In the year 1996 when the Cook Islands had a reform whereby a lot of public servants were laid off, and that's when the forestry programme for the Cook Islands was no more viable, even though of this the Local government of Mangaia and Atiu carried on paying their former forestry officer to look after the plantation of Pines etc until 2002, when they can't afford to pay them. The Ministry of Agriculture since then have been coordinating and advising the programmes. e.g. encouraging the people of Mangaia and Mitiaro to go ahead and plant sandalwood for future ventures.

13.3 Data for Table T13

FRA 2010 Category	Employment (1000 years FTE)		
	1990	2000	2005
Employment in primary production of goods			
...of which paid employment			
...of which self-employment			
Employment in management of protected areas			

13.4 Comments to Table T13

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Employment in primary production of goods		
Paid employment / self-employment		
Employment in management of protected areas		

Other general comments to the table

All the lands that have been planted with pines, acacia sp and santalum (sandalwood) on the islands of Mangaia, Atiu, Mauke, Mitiaro and Rarotonga have been taken over by land owners since the 1996 reform. This also comes under the National Conservation Services (NES) Taporoporo Ipekarea policy.

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)			
Forest policy statement with national scope	<input checked="" type="checkbox"/>	Yes	
	<input type="checkbox"/>	No	
If Yes above, provide:	Year of endorsement	1997	
	Reference to document	Cook Islands Ministry of Agriculture National Forest Policy, July 1997.	
National forest programme (nfp)	<input checked="" type="checkbox"/>	Yes	
	<input type="checkbox"/>	No	
If Yes above, provide:	Name of nfp in country	Ministry of Agriculture	
	Starting year	1997	
	Current status	<input type="checkbox"/>	In formulation
		<input type="checkbox"/>	In implementation
		<input type="checkbox"/>	Under revision
Reference to document or web site	<input checked="" type="checkbox"/>	Process temporarily suspended	
Law (Act or Code) on forest with national scope	<input type="checkbox"/>	Yes, specific forest law exists	
	<input checked="" type="checkbox"/>	Yes, but rules on forests are incorporated in other (broader) legislation	
	<input type="checkbox"/>	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	√ Yes
	No
If Yes above, indicate the number of regions/states/provinces with forest policy statements	15
Sub-national Laws (Acts or Codes) on forest	√ Yes
	No
If Yes above, indicate the number of regions/states/provinces with Laws on forests	15

14.3 Comments to Table T14

Variable / category	Comments related to data, definitions, etc.
Forest policy statement with national scope	
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	

Other general comments to the table
The Ministry of Agriculture, Project division only coordinates and advice the forestry programmes for the Cook Islands. There is no more forestry programmes in place for forestry in the Cook Islands since 1996. Maybe

15 Table T15 – Institutional framework

15.1 FRA 2010 Categories and definitions

Term	Definition
Minister responsible for forest policy-making	Minister holding the main responsibility for forest issues and the formulation of the forest policy.
Head of Forestry	The Head of Forestry is the Government Officer responsible for implementing the mandate of the public administration related to forests.
Level of subordination	Number of administrative levels between the Head of Forestry and the Minister.
University degree	Qualification provided by University after a minimum of 3 years of post secondary education.

15.2 Data for Table T15

Table 15a – Institutions

FRA 2010 Category	2008	
Minister responsible for forest policy formulation : please provide full title	Mrs Ngamau (Aunty Mau) Munokoa Minister of Agriculture	
Level of subordination of Head of Forestry within the Ministry		1 st level subordination to Minister
		2 nd level subordination to Minister
		3 rd level subordination to Minister
	√	4 th or lower level subordination to Minister
Other public forest agencies at national level	Ministry National Environment Services (NES)	
Institution(s) responsible for forest law enforcement	Ministry of Agriculture and NES	

Table 15b – Human resources

FRA 2010 Category	Human resources within public forest institutions					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Total staff						
...of which with university degree or equivalent						

Notes:

1. Includes human resources within public forest institutions at sub-national level
2. Excludes people employed in State-owned enterprises, education and research, as well as temporary / seasonal workers.

15.3 Comments to Table T15

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Minister responsible for forest policy formulation		
Level of subordination of Head of Forestry within the Ministry		
Other public forest agencies at national level		
Institution(s) responsible for forest law enforcement		
Human resources within public forest institutions		

Other general comments to the table
The Ministry of Agriculture only coordinates all forestry programmes for the Cook Islands.

16 Table T16 – Education and research

16.1 FRA 2010 Categories and definitions

Term	Definition
Forest-related education	Post-secondary education programme with focus on forests and related subjects.
Doctor's degree (PhD)	University (or equivalent) education with a total duration of about 8 years.
Master's degree (MSc) or equivalent	University (or equivalent) education with a total duration of about five years.
Bachelor's degree (BSc) or equivalent	University (or equivalent) education with a duration of about three years.
Technician certificate or diploma	Qualification issued from a technical education institution consisting of 1 to 3 years post secondary education.
Publicly funded forest research centers	Research centers primarily implementing research programmes on forest matters. Funding is mainly public or channelled through public institutions.

16.2 National data

Since the Cook Islands 1996 reform all forestry programmes were abolished and the Ministry of Agriculture since then only accommodate or coordinate forestry programmes. All planted plantations of *Pinus sp* and *Santalum sp* were taken over by the land owners. We have qualified foresters in the Cook Islands but only on advisory purposes. e.g. Otheniel Tangianau, Maara Peraua, Teuanuku Koroa etc.

16.3 Data for Table T16

FRA 2010 Category	Graduation ¹⁾ of students in forest-related education					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Master's degree (MSc) or equivalent	0	0	0	0	0	0
Bachelor's degree (BSc) or equivalent	0	0	0	0	0	0
Forest technician certificate / diploma	0	0	0	0	0	0
FRA 2010 Category	Professionals working in publicly funded forest research centres ²⁾					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Doctor's degree (PhD)	0	0	0	0	0	0
Master's degree (MSc) or equivalent	0	0	0	0	0	0
Bachelor's degree (BSc) or equivalent	0	0	0	0	0	0

Notes:

1. Graduation refers to the number of students that have successfully completed a Bachelor's or higher degree or achieved a certificate or diploma as forest technician.
2. Covers degrees in all sciences, not only forestry.
3. We have two (2) graduates in Bachelor Degree (BSc) from PNG but none of them are working on forestry programmes, but being employed elsewhere in other government ministries. e.g. Otheniel Tangianau (BSc) as the Secretary for Office of the Minister for Island Administration (OMIA), Maara Peraua (BSc) as a fulltime vegetable grower and Teuanuku Koroa as a Public Servant on the island of Mangaia and others also working for the government.

16.4 Comments to Table T16

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Graduation of students in forest-related education		
Professionals working in public forest research centres		

Other general comments to the table
<p>Since the Cook Islands 1996 reform all forestry programmes were abolished and the Ministry of Agriculture since then only accommodate or coordinate forestry programmes. All planted plantations of Pinus sp and Santalum sp were taken over by the land owners. We have qualified foresters in the Cook Islands but only on advisory purposes. e.g. Otheniel Tangianau, Maara Peraua, Teuanuku Koroa etc.</p>

17 Table T17 – Public revenue collection and expenditure

No information is available for this reporting table.