

# **COUNTRY REPORT**

## **COOK ISLANDS**

**THIS DOCUMENT IS AN EDITED AND UPDATED VERSION OF THE ORIGINAL  
REPORT PRESENTED AT THE  
PACIFIC SUB-REGIONAL WORKSHOP ON FOREST AND TREE GENETIC  
RESOURCES**

**“STATE OF FOREST AND TREE GENETIC RESOURCES IN THE  
PACIFIC ISLANDS, AND SUB-REGIONAL ACTION PLAN FOR  
THEIR CONSERVATION AND SUSTAINABLE USE”**

The Conference was organised by:

The South Pacific Regional Initiative On Forest Genetic Resources (SPRIG),  
the Australian Agency For International Development (AusAID),  
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the Pacific Islands Forest and Tree Support Programme of the Secretariat of the Pacific Community  
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## 1: INTRODUCTION

The self-governing territory of the Cook Islands consists of 15 islands and atolls that are spread over 2 million square kilometres of the South Pacific Ocean.

The islands are geographically divided into two groups, commonly referred to as the Northern and Southern Group islands. The two groups of islands making up the country exhibit marked differences in their social, cultural and economic activities. The Northern Group islands remain relatively isolated from the Southern Group islands.

The Cook Islands were formed by volcanic activity and coral growth. The islands of Rarotonga, Mangaia, Atiu, Mauke and Mitiaro are the emergent peaks of extinct volcanoes. The islands of Manuae, Palmerston, Manihiki, Rakahanga, Pukapuka, Nassau and Suvarrow are atolls - coral reefs around a lagoon on the top of submerged volcanoes. Aitutaki is part volcano and part atoll.

The total land area of the Cook Islands is 23,261 hectares while its exclusive economic zone covers an area of nearly 2 million square kilometres or 750,000 square miles. Rarotonga, with a total land area of 6,719 hectares, is the largest and most populous island, with over 50% of the population, and is also the administrative centre.

The Cook Islands enjoy a South Pacific moderate climate. The mean monthly minimum and maximum temperatures in Rarotonga, the capital, range between 21° and 28° Celsius. Trade winds blow almost continuously throughout the year. Rainfall is normally spread evenly throughout the year but there is considerable variation from year to year. The islands lies within the hurricane belt and severe damage to crops, housing, coastal areas and harbours can be expected once or twice each decade. The hurricane season lasts from November to March, during which time storms of less than hurricane strength may also inflict minor damage to the islands.

### 1.1: The Forest Estate

The forest types fall mainly into three main categories, due the type of land and environment upon which they are established. Like most islands in the South Pacific, most land is owned by customary landowners, although on some islands some parts of the land have been regulated by the Crown to protect water resources and to maintain the integrity of the forest. Table 1.1 summarizes the forest estate in the Cook Islands.

**Table 1.1: Forest cover of the Cook Islands**

| FOREST TYPE          | AREA (ha) | PERCENTAGE OF TOTAL LAND AREA |
|----------------------|-----------|-------------------------------|
| Coastal              | 4900      | 20.5                          |
| Makatea              | 5000      | 21.6                          |
| Other Natural Forest | 4500      | 20.5                          |
| Plantations          | 1180      | 5                             |
| Others               | 7720      | 32.4                          |
| Totals               | 23,300    | 100%                          |

The country has established some forest plantations, mainly of *Pinus caribaea* and various acacias. The distribution and age classes of the plantations are shown in Table 1.2.

**Table 1.2: Forest plantations in the Cook Islands**

| ISLAND    | AGE CLASS      |                 | TOTAL (ha) |
|-----------|----------------|-----------------|------------|
|           | 0 - 5 yrs (ha) | 5 - 10 yrs (ha) |            |
| Rarotonga | -              | 44.72           | 44.72      |
| Atiu      | 30             | 145.34          | 175.34     |
| Mauke     | -              | 36.11           | 36.11      |
| Mangaia   | 180            | 750.35          | 930.35     |
| Totals    | 210            | 976.52          | 1186.52    |

Despite the fact that forestry plantation activities were started in the 1960s, there is in fact no Forest Act in the Cook Islands. However, there is some legislation which touches upon the protection of the environment and its biological constituents. These include:

- The Conservation Act 1988/89; and
- Peace, Order and Good Governance Ordinance 1916-1964

To date no National Forest Action Plan (NFAP) under the TFAP has been developed. There is also no operational code of logging practice in the country owing the absence of commercial logging operations.

The main uses of the natural forest in the country are:

- Watershed protection
- Maintenance and preservation of fauna habitats and integrity of the forests
- Provision of beauty and greenery
- Soil erosion protection
- Provision of medicinal products, fuel and materials of cultural importance.

Because of the absence of forest based businesses that utilize tree products, very small economic benefits are derived from the forest. However, opportunities for tourism-based businesses are being identified and developed. All islands in the Cook group have the same tree species occupying the coastal areas. However, species composition is more varied in the Southern Group islands. The importance of various species also differs between the two groups of islands. For example, the Northern Group islanders use a lot of *Guettadia speciosa* for construction whereas in the South this species is used for firewood.

There are also species of trees that only exist on individual islands. One example is *Santalum insulare* on Mitiaro which is used for medicinal purposes. Other important trees are listed in the following Tables.

## 2: UTILIZATION AND DISTRIBUTION OF FOREST GENETIC RESOURCES

**Table 2.1: Most important trees and their uses**

| SPECIES                          | LOCATION    | DISTRIBUTION | USES                        |           |      |
|----------------------------------|-------------|--------------|-----------------------------|-----------|------|
|                                  |             |              | Wood                        | Medicinal | Food |
| <i>Paraserianthes falcataria</i> | S           | >1000        | Can, Fi, Leg,<br>Con        | -         | -    |
| <i>Barringtonia edulis</i>       | N, S        | >1000        | Fi, Sh                      | -         | -    |
| <i>Casuarina equisetifolia</i>   | N, S        | >1000        | Fi, Pro, Con                | Yes       | -    |
| <i>Cocos nucifera</i>            | N, S        | >1000        | Pro, Cav, Inst,<br>Con, Pol | Yes       | Yes  |
| <i>Cordia subcordata</i>         | N, S        | 100-1000     | Fi, Cav, Inst               | Yes       | Yes  |
| <i>Calophyllum inophyllum</i>    | N, S        | 100-1000     | Fi, Cav, Inst,<br>Con, Can  | Yes       | -    |
| <i>Guettarda speciosa</i>        | N, S        | >1000        | Cons, Pol, Can              | -         | -    |
| <i>Hernandia</i> spp             | N, S        | >1000        | Pro, Sha                    | -         | -    |
| <i>Hibiscus tiliaceus</i>        | N, S        | >1000        | Fi, Pro, Ins, Fb            | -         | -    |
| <i>Homalium acuminatum</i>       | S           | >1000        | Pro, Con, Fi                | -         | -    |
| <i>Morinda citrifolia</i>        | N, S        | >1000        | Fi                          | Yes       | Yes  |
| <i>Pandanus tectorius</i>        | N, S        | >1000        | Cons, Pol                   | Yes       | Yes  |
| <i>Pinus caribaea</i>            | S           | >1000        | Eros, Cons, Pol             | -         | -    |
| <i>Santalum insulare</i>         | S (Mitiaro) | <100         | Inst, Cav                   | Yes       | -    |
| <i>Thespesia populnea</i>        | N, S        | 100-1000     | Inst, Cav, Fi<br>Cons, Can  | Yes       | -    |

### Key to abbreviations of uses:

|                        |                            |                    |                            |
|------------------------|----------------------------|--------------------|----------------------------|
| Can – Canoe            | Fi - Firewood              | Leg - Legume       | N - Northern Group Islands |
| Sh – Shade             | Pro - Protection           | Cav - Carving      | S - Southern Group Islands |
| Pol – Poles            | Fb - Fibres                | Con - Construction |                            |
| Eros - Erosion Control | Inst – Musical Instruments |                    |                            |

### 3: CONSERVATION OF FOREST GENETICS

**Table 3.1: Threats to genetic resources of most important trees**

| SPECIES                       | LOCATION<br>(GROUP or ISLANDS)                      | THREATENED<br>AT<br>POPULATION<br>LEVEL? | POPULATION<br>STATUS   |
|-------------------------------|---|--|--|
| <i>Guettarda speciosa</i>     | Northern Islands                                    | No                                       | Not enough mature stock standing, although adequate non mature population.                                     |
| <i>Santalum insulare</i>      | Southern islands (Mitiaro only)                     | Yes                                      | Over-harvesting of mature and non-mature stock. Regeneration poor. Very low population in the wild <100 trees. |
| <i>Thespesia populnea</i>     | Some Northern group islands, and all Southern Group | No                                       | Low regeneration. Tree population affected through land clearing for farming 100 –1000.                        |
| <i>Calophyllum inophyllum</i> | Some Northern group islands, All Southern Group.    | No                                       | Low regeneration. Tree population affected by land clearing. Not enough mature stock (100-1000).               |
| <i>Pandanus tectorius</i>     | All islands in the Group                            | No. Only on Atiu.                        | Stock affected by mites which destroyed stock on Atiu in 1980s.  |

**Table 3.2: Conservation Areas**

| CONSERVATION<br>AREA       | LOCATION                 | LEGAL STATUS  | FOREST TYPES AND<br>MAJOR TREE SPECIES  |
|----------------------------|--------------------------|---|---|
| Takitumu Conservation Area | Turoa Valley (Rarotonga) | Customary land approved by landowners for tourism eco-tours. It was established in 1997 in the Turoa Valley. The main attraction apart from trees is the presence of "Kakerori" a native bird of Rarotonga which was almost extinct in 1980s. SPREP Biodiversity project. | <i>Barringtonia edulis</i><br><i>Cocos nucifera</i><br><i>Guettarda speciosa</i><br><i>Psidium guava</i><br><i>Hibiscus tiliaceus</i><br><i>Hernandia</i> spp<br><i>Morinda citrifolia</i><br><i>Homalium acuminatum</i><br><i>Elaeocarpus rarotongensis</i><br><i>Casuarina equisetifolia</i><br><i>Paraserianthes falcataria</i><br><i>Thespesia populnea</i><br><i>Acacia auriculiformis</i> |
| Takutea National Reserve   | Takutea Island           | Uninhabited and left as a Natural Reserve and as a bird sanctuary.  | <i>Guettarda speciosa</i><br><i>Barringtonia edulis</i><br><i>Cocos nucifera</i>  |
| Suwarrow National Park     | Suwarrow Island          | Inhabited by a family of four (4) as caretakers for the island.   | <i>Hernandia</i> spp<br><i>Hibiscus tiliaceus</i><br><i>Casuarina equisetifolia</i><br><i>Albizia lebbek</i><br><i>Morinda citrifolia</i>   |

#### 4: PRIORITY ACTION FOR FOREST GENETIC RESOURCES

The Cook Islands have undertaken some evaluation trials of tree species and provenances, focused on research to find tree species that can establish successfully in plantations on worn out, acid and fertile soils. Of the over 30 species tried, only five were subsequently used in the plantation. These include *Pinus caribaea*, *Acacia mangium*, *Acacia leptocarpa*, *Acacia auriculiformis* and *Acacia crassicarpa*.

With the possibility of over-harvesting of various important species, the government and communities should be looking seriously at a forest genetic resources conservation program for the Cook Islands. Table 4.1 sets out some of the priorities.

**Table 4:1: List of species identified as high priority in the Cook Islands for genetic resource conservation and activities (1 = high priority, 2 = moderate priority, 3 = low priority)**

| SPECIES                                    | EXPLORATION AND GERmplasm COLLECTION |                                |                                   | EVALUATION AND IMPROVEMENT   |                        | CONSERVATION   |                |
|--|--------------------------------------|--------------------------------|-----------------------------------|------------------------------|------------------------|----------------|----------------|
|  | Biological Information               | Genetic and Ecological Studies | Germplasm Collection and Research | Field Testing and Evaluation | Selection and Breeding | <i>In Situ</i> | <i>Ex Situ</i> |
| <i>Santalum insulare</i>                   | 1                                    | 1                              | 1                                 | 1                            | 1                      | 1              | 1              |
| <i>Calophyllum inophyllum</i>              | 3                                    | 3                              | 1                                 | 3                            | 3                      | 1              | 1              |
| <i>Thespesia populnea</i>                  | 3                                    | 3                              | 1                                 | 1                            | 3                      | 1              | 1              |
| <i>Cordia subcordata</i>                   | 3                                    | 3                              | 1                                 | 2                            | 3                      | 2              | 2              |
| <i>Santalum austrocaledonicum</i> (exotic) | 2                                    | 2                              | 1                                 | 1                            | 2                      | -              | -              |

#### 5: INSTITUTIONS AND RESOURCES FOR FOREST GENETIC RESOURCE CONSERVATION

Recent restructuring of the Cook Islands Government has meant that certain activities previously done by government, such as forestry activities and services previously provided by the Ministry of Agriculture, have now ceased.

Therefore at present there is no institution working on forest and tree genetic resources, although on one island, Mangaia, the local government has a forestry and tree planting program in place.

#### 6: CONCLUSION AND RECOMMENDATIONS

There is a need to consider seriously the conservation of forest genetic resources in the Cook Islands, especially of the tree species listed in Table 4.1. The Government needs to institute a mechanism to allow people to establish new woodlots and to mobilize communities to harvest native trees sustainably so that there is always stock there for future harvest.

In the case of the sandalwood (*Santalum insulare*) the species needs careful study to see if it can be multiplied and established at woodlot or plantation level. Perhaps the introduction of *Santalum austro-*

*caledonicum* may remove pressure on this species as it is sought mainly for medicine. For the Cook Islands this is an area where regional assistance is required.

## **References**

Cook Island Census of Population and Dwelling, 1996  
Proceeding of Heads of Forestry Meeting, 1996