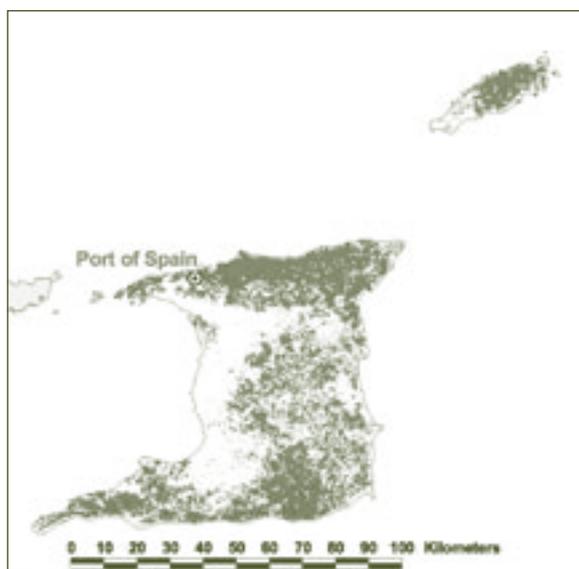


TRINIDAD & TOBAGO



*For legend see page 58

Forest resources

The country of Trinidad and Tobago consists of two main islands and a number of small islets; it has a total land area of 513,000 hectares and a population of 1.3 million people. Trinidad, the much larger island, is traversed by three ranges of hills running more-or-less east to west with a highest point in the northern range of 936 m. These ranges separate two areas of lowland terraces, alluvial plains and swamps. Tobago has a central ridge running for two-thirds the length of the island and rising to 576 m; the southern and western parts of the island are relatively flat. FAO (2005) estimated the forest area to be 259,000 hectares in 2000; another estimate (for 2003) is 248,000 hectares^b.

Forest types. The most widespread forest formation is semi-evergreen seasonal forest (about 100,000 hectares), characterized in the lowlands by

two main canopy species, *Carapa guianensis* (crappo) and *Eschweilera subglandulosa* (guatecare). Tropical evergreen submontane and montane forests occur in the mountains of the northern range. Some swamp forests remain (17,000 hectares), as well as mangrove relicts around the coast^a.

Dynamics of forest resource change. The annual deforestation rate between 1990 and 2000 was an estimated 2,000 hectares, or 0.8% of the forest area (FAO 2005). In 2000, secondary forests accounted for about 17,000 hectares of the forest estate^a. Fires and occasional hurricanes are the main natural hazards affecting the forests.

Permanent forest estate. Of the 192,200 hectares of state-owned forest, 131,500 hectares are designated as 'proclaimed forest reserves' and 11,700 hectares as 'unproclaimed forest reserves'. These – and some other protection forests – constitute the PFE (Table 1); only state forests are counted, since the permanency of private forest is unreported.

Planted forests. The total planted forest is estimated to be about 15,400 hectares, comprising 9,100 hectares of *Tectona grandis* (teak, introduced from Myanmar in 1913), 4,200 hectares of *Pinus caribaea* (Caribbean pine) and other pine species, and 2,100 hectares of mixed hardwoods^b.

Institutional arrangements

Forest tenure. Most forested land is owned and administered by the state. State-owned forest accounts for 192,200 hectares, including all the PFE; the remainder is in private hands.

SFM policy framework. Trinidad and Tobago has long had a systematic approach to SFM; for

Table 1 PFE

Estimated total forest area, range (million hectares)	Total closed natural forest ('000 hectares) Source: FAO 2001	PFE ('000 hectares)			Total
		Production		Protection	
		Natural	Planted		
0.248–0.259	250	127 ^d	15.4 ^b	59.1 ^{b,*}	201.5

* Includes forested area above 90 m contour (where logging is not permitted), wildlife sanctuaries, nature reserves and windbelts within reserves.

Table 2 Some commonly harvested species for industrial roundwood

Timber species	Remarks
<i>Tectona grandis</i> (teak)	From plantations, most valuable timber, 25% of all logs used ^a
<i>Pinus</i> spp	From plantations, 34% of all logs produced ^a
<i>Swietenia macrophylla</i>	From plantations
<i>Cedrela mexicana</i>	From plantations
<i>Cordia alliodora</i> (cypre)	From plantations

example, its block management and shelterwood systems have been applied for more than 60 years^b. However, it lacks a system of C&I suited to its needs, which would be an important part of an SFM policy framework.

Forest policy and legislation. Trinidad and Tobago adopted its first forest policy for the sustainable management of its PFE in 1942. A revision was made in 1981 to take into account the significant social, economic, political and technological changes that had taken place in the country since 1942, but it was never adopted by government. A further revision took place in 1998 and while the cabinet has approved this revision it has not been formally adopted. There is an absence of an agreed strategy and policy in the forest sector^b. Two major pieces of legislation have been revised and amended: the Forests Act (revised 1999) and the Sawmills Act (revised 1999). The 1998 policy revision proposed sustainability within two pillars of forest management:

- (i) the regulation of yield of all types (recreation, wildlife, timber, aesthetics, water, etc); and
- (ii) the improvement of the quantity and quality of stock.

Institutions involved in forests. In Trinidad, the Forestry Division of the Ministry of Public Utilities and the Environment (MPUE) is the state's sole management authority for the sector, being responsible for forestry, watershed management, wildlife, parks, utilization, research and services in support of the private forestry sector. Specific user rights (fuelwood gathering, use of NWFPs) are guaranteed by law for people living adjacent to the forests. However, the absence of an agreed strategy and policy for the forest sector is a source of uncertainty for the Forestry Division and weakens

its operational capacity^b. In 2001, a new strategic plan was developed for the Division for the period 2001–2005 and this was approved in principle by the government. It was expected that this plan would enable the Division to be more effective and efficient in delivering goods and services demanded by new and emerging challenges. Apart from a restructuring of the existing professional staff, several specialist positions are now being sought to meet the challenges of added roles and responsibilities. In Tobago, forests are under the jurisdiction of the Assistant Conservator of Forests, who reports to the Secretary of Agriculture, Land Marketing and the Environment^b.

There is no direct involvement by civil-society organizations in forest management.

Status of forest management

Forest for production

Both natural forests and particularly planted forests are actively managed. About 75,000 hectares of natural forests are regarded as intensively managed and have management plans. All the forest reserves and the external boundaries of the PFE have been fully demarcated. However, the boundaries are not properly maintained and there are frequent incursions/encroachments^a. The police force participates in forest patrols to help control illegal activities.

Up to the 1980s, management plans for forest reserves were written and followed. Subsequently, working plans have not been revised in some cases and the prescriptions have not been followed in others. Harvesting is conducted in accordance with a block system in which areas are opened up for sale on a polycyclic basis. The management of natural

Table 3 Management of the production PFE ('000 hectares)^{b,d}

Total	Natural			Planted			
	Allocated to concessions/ under licence	With management plans	Certified	Sustainably managed	With management plans	Certified	
127	75	75	0	15 ^d	15.4	15.4	0

forests has followed a form of selection known as the 'open range system'. Several variations of this have been introduced from time to time, known variously as silvicultural marking in blocks, the periodic block system and the tropical shelterwood system. Because forest resources are limited, there are no forest concessions: individually licensed loggers are allowed to cut a specified number of trees or volume as defined by the Forestry Division. In many cases this has amounted to a 'logger's selection system', uncontrolled by the Forestry Division^b. Some 400 private loggers (mainly woodworkers) are registered (licensed) by the Forestry Division and allotted marked trees for extraction and use^b. Illegal encroachment and illegal logging certainly occur in the PFE, although their extent is unknown; the police-assisted patrols no doubt reduce their prevalence^b. In the case of plantations, particularly teak, coupes to be clearfelled are sub-divided into five-hectare units, and coupes to be thinned are sub-divided into ten-hectare plots for allocation to licensees.

Silviculture and species selection. A large part of timber is derived from planted forests (Table 2). Enrichment planting in natural forests is still practised in depleted and poorly stocked forest to improve the growing stock and thereby support multiple use and sustainability.

Planted forest and trees outside the forest. The total industrial plantation area of about 15,400 hectares is stable, with felled plantations replaced with new plantations and no new areas being planted. Besides the major species of teak and Caribbean pine, a number of other species have been planted on a limited scale in both pure and mixed stands, including by enrichment planting; these include *Cedrela odorata* (cedar), *Cordia alliodora* (cypre), *Swietenia macrophylla* (mahogany) and *Tabebuia rosea* (apamate). All plantations are owned by the state, although it has been reported

that some 1,240 hectares of teak and mixed species have been raised by farmers in private farmlands (Ramnarine & Jhilmit 2003). Forest fires are the most significant threat to planted forests. Trees outside natural and planted forests are probably important as a source of fruit, nuts, fuelwood and timber for local use, but no data on this are available.

Forest certification. So far no forests have been certified.

Estimate of the area of forest sustainably managed for production. Of the natural forests, 15,000 hectares have been managed for many years according to management plans which conform to basic principles of SFM and are harvested according to the periodic block system, which is considered generally consistent with sustainability^b. The balance of production forest has been managed under the open-range system and is now considered to be degraded^b.

Timber production and trade. Trinidad and Tobago produces modest quantities of industrial timber and depends mainly on imports to cover its needs for sawnwood, plywood and paper products; its net timber import bill in 2001 amounted to US\$106 million^b. Total industrial roundwood production in 2003 was 70,000 m³ (ITTO 2005). Plantation areas to be thinned or clearfelled are allocated to sawmillers and woodworkers on a quota system. Annual blocks to be thinned or clearfelled are notified for sale; sawmillers are expected to indicate their interest in working in particular areas. In 2000, there were 85 licensed sawmills whose combined input capacity was 100,000 m³ per year. These ranged in size from typical family enterprises to large companies and processed both the domestic supply of timber and imports of round logs and squares from neighbouring Guyana and Suriname. In 2000, there were

Table 4 Management of the protection PFE ('000 hectares)

Total	Attributed to IUCN categories I-IV	Allocated for soil and water	With management plans	Sustainably managed
59.1	29.2	n.d.	12	n.d.

113 registered and several unregistered furniture factories that processed the lumber into finished products for domestic use and for exports^a.

Non-wood forest products. Little information was made available for this report on the domestic production of the country's major NWFPs. Bamboo is grown as a commercial crop. Some NWFPs are imported from Venezuela and the countries of the Guyana Shield. Edible products such as wild tubers, wild meat, honey, beeswax and thatching grass are used extensively by rural communities. The value of forest products used for subsistence in 2000 is estimated to be about US\$825,000^a.

Forest for protection

Soil and water. There are about 2,000 hectares of protection plantations in the coastal regions^a. It is generally recognized that there is a need to reforest and rehabilitate critical watersheds, but land outside the forest is generally occupied. Some efforts are being made to rehabilitate degraded land through tree-planting in parts of the islands. Some 37,000 hectares of forest are reportedly managed primarily for the protection of soil and water^a.

Biological diversity. Trinidad has surprising biodiversity for its size, brought about by its proximity to other Caribbean islands and, particularly, to continental South America. More than 2,280 species have been recorded, 215 of them endemic. There are over 100 mammals (the richest in the Caribbean), 420 birds and 70 reptiles. One mammal, four birds, five reptiles, nine amphibians and one plant are listed as critically endangered, endangered or vulnerable on the IUCN red list of threatened species; of these, three birds and eight amphibians are found in forests (IUCN 2004). Trinidad and Tobago has listed 49 plant species in CITES Appendix II (CITES 2005).

Protective measures in production forests. Forest management plans prescribe measures to protect riverbanks, rare plants and wildlife in production forests.

Extent of protected areas. A system of 61 national parks and other protected areas was proposed in 1980, about 40 of which have been established and are managed by the Forestry Division; two are being developed with funds from the IDB. According to UNEP-WCMC (2004), 29,300 hectares of forest are in protected areas that conform to IUCN protected-area categories I-IV, including 11,900 hectares of semi-evergreen moist broadleaved forest.

Estimate of the area of forest sustainably managed for protection. Insufficient information was available to estimate the area of sustainably managed protection PFE (Table 4). Some protection forests are covered by management plans and are widely used for ecotourism.

Socioeconomic aspects

Economic aspects. Forests cover most requirements for fuelwood and some of the nation's timber needs. At present, about 10,000 people are employed in local forestry-related jobs and many others are indirectly linked to forestry^b. The Tourism Master Plan aims to make Trinidad and Tobago the foremost tourism destination in the Caribbean. This will involve ecotourism, in which forests will undoubtedly play a substantial role.

Livelihood values. Forests do not generally provide the living area of the poor but they provide important subsistence products for many people. There is no direct conflict between timber-harvesting and livelihood interests, but forest is still being cleared for agricultural and other purposes.

Social relations. Although there are no significant social conflicts associated with the management of the country's forests, the current forest policy proposes increased involvement of local communities in forest management^b. Some ten sites have been earmarked for recreation and are visited by approximately 300,000 people annually^a.

Summary

Trinidad and Tobago's strong tradition in forest management means that SFM has a good footing in the country; however, significant institutional and policy weaknesses could see the deterioration of this tradition unless remedial measures are taken^b. Both natural forests and plantations are affected by over-harvesting, encroachment, fires and other forms of damage, although the extent of these has not been quantified and police patrols probably help reduce illegal activities. There appear to be few social conflicts over forest use, and stronger community involvement in forest management has been foreshadowed.

Key points

- The PFE comprises an estimated 142,000 hectares of production forest (including just over 15,000 hectares of plantations) and 59,000 hectares of protection forest.
- Most timber production derives from planted forests; the main species are teak and Caribbean pine.
- At least 15,000 hectares of natural-forest production PFE are being sustainably managed.
- The country has yet to develop a workable set of C&I for SFM suited to its special needs.
- Individually licensed loggers are able to cut a specified number of trees or volume as defined by the Forestry Division. In many cases this may have amounted to a 'logger's selection system'.
- Trinidad and Tobago imports round logs and squares from neighbouring Guyana and Suriname for local processing; it is a net importer of timber.

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