

**A
READER
IN
CARIBBEAN
GEOGRAPHY**

EDITORS:

*David Barker, Carol Newby
& Mike Morrissey*

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CHAPTER 6
**Physical landscapes of the humid
and seasonally humid tropics**

**Human influence on the
vegetation of Jamaica**

John Rashford

SUMMARY A discussion of how people have influenced the pattern and distribution of vegetation in Jamaica, leading to the development of a secondary successional (settlement) vegetation. Special emphasis is placed on the vegetation of homes and residential environments, and the fields of small farmers and large estates.

Relevant to Physical Geography: **Core Topic 4**

Introduction

This paper explores how humans intentionally and unintentionally select the plants in the environment in which they live, which produces a distinctive settlement vegetation that is an expression of the historical development of their way of life. The concept of settlement vegetation includes all the plant communities of herbs, vines, shrubs or trees in the human environment, that are directly or indirectly the result of human activities and of the physical

structures associated with these activities. These plant communities are the ones with which people are in regular contact and upon which they depend for the wide variety of products necessary for their health, and for the success of their economic, reproductive, recreational and religious activities. All cultures produce a distinct settlement vegetation based on the nature of their physical environment and on the historical development of their way of life. Although Jamaica's settlement vegetation is used to illustrate these ideas, the aim here is to provide a general framework that explains systematically the relationship between people and plants in all cultures.

Human selective pressures producing settlement vegetation

The deliberate and unintentional human selection of plants that form a distinctive settlement vegetation occurs in a variety of ways and for a variety of reasons. Nevertheless, these human selective pressures are exerted in two fundamental ways.

The first process involves the impact on wild plants, wherever humans settle and build structures. There are three common human responses to wild plants growing in the settlement environment: they are destroyed to make space, remove interference and to create useful products; they are tolerated when they do not interfere with human activities; and they are preserved, protected or cultivated when they are valued.

In addition to the responses to wild plants, the second fundamental way in which human selective pressures determine the development of settlement vegetation is through the cultivation of wild plants and domesticates. Cultivation is simply the deliberate assistance given to plants such as preparing the soil, fertilising, irrigating, weeding and providing protection from predators. Whether grown from seeds or vegetatively, wild plants become domesticated when, by cultivation, they have been genetically modified to the point of dependence on human activity for their successful reproduction and dispersal.

Jamaica's settlement vegetation

Figure 6.1 is adapted from Swabey's classification of the vegetation types of Jamaica. Swabey's work makes a basic distinction between climax and successional vegetation. Of the successional types, he identifies primary successional vegetation and secondary successional vegetation. Primary successional vegetation refers to plant colonisation of disturbed land, such as land affected by

landslides and newly formed mud banks and sand bars. With respect to secondary successional vegetation Swabey notes that the bulk of the vegetation of Jamaica comes into this group, and that man and grazing animals have in one way or another altered most of the natural vegetation of the island. This may range from complete destruction of the original plant cover, for the purpose of cultivation or other development, to the selective felling of scattered trees in otherwise natural woodland. The use of fire, the cutting of firewood, the grazing of stock have all played their part. What Swabey considers secondary successional vegetation is termed settlement vegetation in this paper.

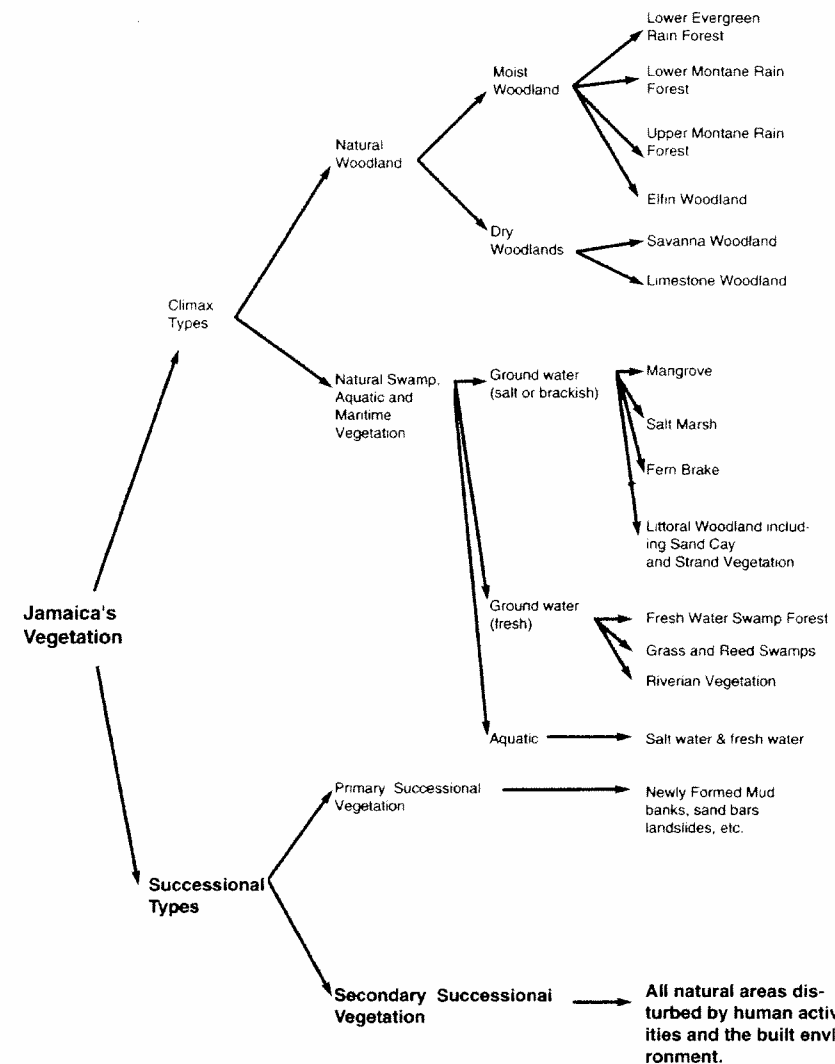


Figure 6.1 Jamaica's vegetation types according to Swabey

Asprey and Robbins offer another classification of Jamaica's vegetation types (Figure 6.2) which generally resembles that of Swabey. Their classification has the added advantage of identifying the kinds of human-induced successional plant communities that have resulted from the transformation of much of Jamaica's natural forests which now only occur in the wet limestone country of the interior, the higher elevations of the Blue Mountains in the east, the dry limestone hills and the mangrove swamps. It is important to realise that the transformation of Jamaica's natural vegetation into settlement vegetation is a microcosm of a process that is occurring in human settlements around the world.

Plant introduction and the development of Jamaica's settlement vegetation

Most of the great variety of useful plants commonly associated with the human environment in Jamaica have been introduced from elsewhere. These plants now form a settlement vegetation that is distinctly Jamaican. In contrast to many of the world's peoples who have traditionally depended on grasses for their basic nutrition, Jamaicans, in common with other groups in humid equatorial and tropical marine environments, have depended upon an assemblage of herbaceous root crops and tree crops.

The Arawaks were among the first to transform Jamaica's natural forests into settlement vegetation by their response to native wild plants and their cultivation of largely introduced domesticated and wild plants. They depended on a complex of roots and fruits which many scholars believe originated between 3,000 and 7,000 years ago in South America's tropical lowlands. They brought these plants to Jamaica as they migrated north through the Caribbean archipelago.

The next groups to contribute significantly to the development of Jamaica's settlement vegetation were the Spanish and the Africans whom they enslaved. This process began in 1492 when Columbus initiated a biological and cultural exchange between the Old and the New Worlds that, in effect, doubled the plant resources of both hemispheres and contributed greatly to the development of the present world system. Some five hundred of the familiar common, useful, ornamental and weedy plants were not in Jamaica when Columbus arrived.

The third and last great influence on the development of Jamaica's settlement vegetation came after the British captured the island from the Spanish in 1655. The worldwide search for plantation crops and food crops was facilitated when the British established Jamaica's botanic gardens which operated

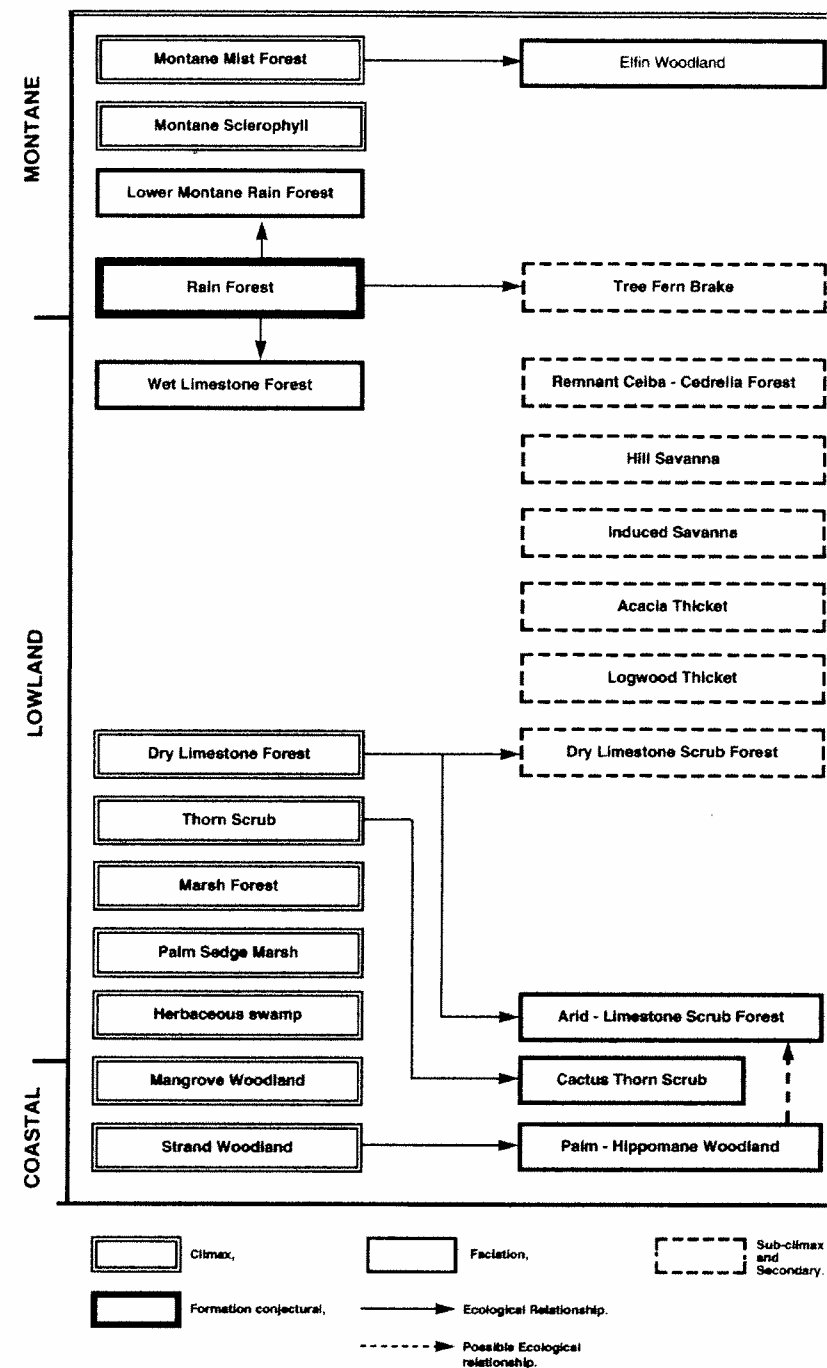


Figure 6.2 Jamaica's vegetation types according to Asprey and Robbins

in co-operation with other botanic gardens and related institutions around the world. This resulted in the large-scale introduction of plants to the island from all parts of the world.

At the beginning of the twentieth century, William Harris, who was sent from Kew Gardens to Jamaica to be Superintendent of the island's Public Gardens, was able to conclude that Jamaica could be described as the garden and orchard of the West Indies and that there was probably no tropical colony which had benefitted to such a large extent by the introduction of the fruit, economic and ornamental trees and plants of other lands, as Jamaica.

Residential environments

In Jamaica, as in other parts of the humid tropics, one of the most important categories of plants in the residential environment, are trees. They are usually found in backyards, but they also occur in side yards and front yards and along fence lines where they grow singly or scattered, or in groves, orchards and especially multi-tiered intercropped communities.

One tree that is an important part of Jamaica's residential vegetation is the ackee from West Africa, the source of the island's national fruit. The ackee, which produces many weedy seedlings, is an indicator species for the presence of Jamaicans when one considers its distribution in other Caribbean islands, Central America and Florida, in association with Jamaicans and those with Jamaican connections. Other important African trees include coffee, tamarind and bissi. The baobab, one of Africa's most famous trees, also occurs, but rarely.

Tropical American contributions to the residential environment of Jamaica include familiar trees like the naseberry, sweetsop, soursop, custard apple, star apple, Barbados cherry, seagrape, guinep, stinking toe, pawpaw, cashew, mamee, annatto, calabash, pimento, avocado, cocoa and guava.

From India has come the ubiquitous mango, one of the island's most important fruit trees, and the jackfruit. Other Asian plants include jimbling and the citruses, especially the lime, sour orange, sweet orange, tangerine and grapefruit. Important additions to the Jamaican home environment include the nutmeg from the East Indies and the litchi from southern China.

The Pacific component of Jamaica's residential vegetation includes the coconut, June plum, breadfruit, Otaheite apple, jimbling, rose apple, and barge.

Writing of south Florida, where many plants in the human environment are the same as those found in Jamaica, Julia Morton noted that the great increase in the naturalised flora was attributable mainly to the escaping from cultivation of trees, shrubs, vines and other plants deliberately imported as

ornamentals or as sources of food, timber, fiber or forage. Among the trees that are incidentally dispersed in Jamaica's settlement environment by people (some more frequently and more extensively than others) are the ackee, sweetsop, star apple, stinking toe, pawpaw, calabash, avocado, guava, sour orange, lime, Barbados cherry, naseberry and jimbling. Other such human incidentally dispersed species that are especially common along the roadsides are the mango, guinep, tamarind, tropical almond, coolie plum and poinciana.

Agricultural fields of small farmers and estates

Beyond residential areas of the settlement is the vegetation associated with the agricultural fields of small farmers and large estates. With small farmers, many plants found in their yards, especially trees, are also found in their fields. Nevertheless, with fields, special attention is given to root crops of tropical America including the cassava, sweet potato, yampi, arrowroot and coco. Root crops of Africa and the Pacific are also common.

Plants associated with the fields and pastures of large estates have dominated the landscape of Jamaica's settlement environment. Foremost is the sugarcane from Southeast Asia. Next are the banana and the citruses, also from Southeast Asia; the coconut whose origin is controversial, though Southeast Asia and the Pacific seem likely; coffee from Africa, the cultivation of which has transformed large areas of the Blue Mountain; cocoa, a tropical American species introduced to Jamaica either by the Arawak or the Spanish or both; and the native pimento, commonly a wild plant in the settlement environment in those parts of the island where growing conditions are suitable.

Source Adapted from J. Rashford, 'Jamaica's settlement vegetation, agroecology, and the origin of agriculture', *Caribbean Geography* 1994, 5(1), pp. 32-50.
