BWA YO

IMPORTANT TREES OF HAITI

JOEL TIMYAN

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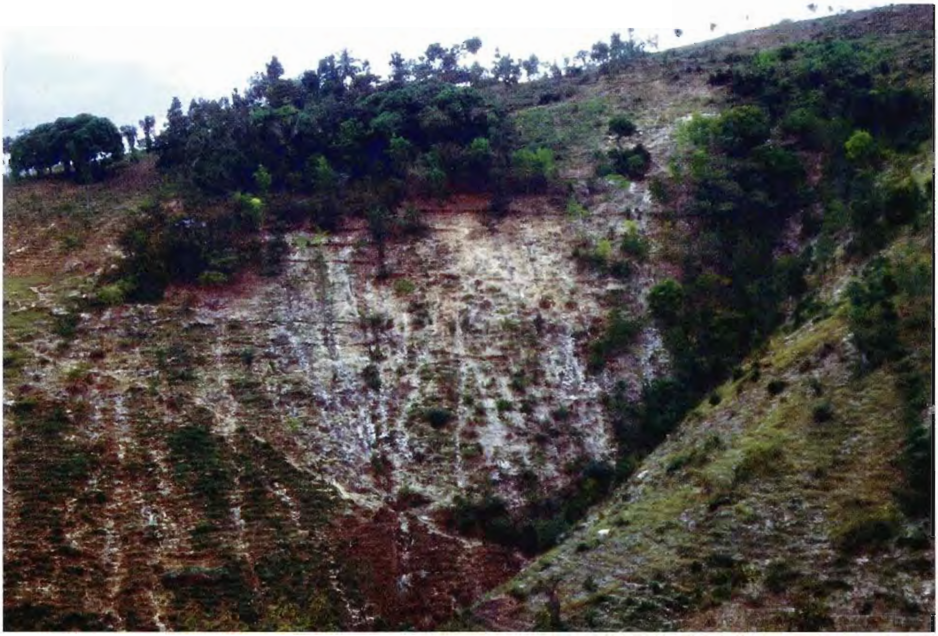

I go from the woods into the cleared field:
A place no human made, a place unmade
By human greed, and to be made again.
Where centuries of leaves once built by dying
A deathless potency of light and stone
And mold of all that grew and fell, the timeless
Fell into time. The earth fled with the rain,
The growth of fifty thousand years undone
In a few careless seasons, stripped to rock
And clay - a "new land," truly, that no race
Was ever native to, but hungry mice
And sparrows and the circling hawks, dry thorns
And thistles sent by generosity
Of new beginning. No Eden, this was
A garden once, a good and perfect gift;
Its possible abundance stood in it
As it then stood. But now what it might be
Must be foreseen, darkly, through many lives —
Thousands of years to make it what it was,
Beginning now, in our few troubled days.

— Wendell Berry
VIII, 1979

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Title *Bwa-yo* is the shortened version of *pye bwa yo*, the Creole word for “trees.”

Front cover A 12-year-old eucalyptus tree (*Eucalyptus camaldulensis*) planted during the Agroforestry Outreach Project near St. Michel de l’Attalye in 1983.

Contents

Foreword

As part of USAID's continuing efforts to address environmental degradation in Haiti and in an effort to provide information on selected economically important tree species, the Office of Economic Growth of USAID/Haiti funded this book: *Bwa Yo: Important Trees of Haiti.*

Much of the information contained in this book has been a result of research and extension activities in agroforestry supported by USAID since 1981. Beginning with the Agroforestry Outreach Project (1981–1987), through the Agroforestry II (1988–1992) and presently, the Productive Land Use Systems (PLUS) Project, more than 63 million trees have been planted as part of developing environmentally-sound farming systems in Haiti. Today, over 250,000 farmers, approximately 35 percent of Haiti's small farmer's, are reaping the benefits of the trees they planted since 1981. Most significantly, this includes the conservation of fertile top soil and an increase in wood assets as a store of value.

The efforts of several institutions are greatly appreciated for their contribution to the information contained in this book and their continued commitment to improving Haiti's productive natural resources base: the Ministry of Agriculture Natural Resources and Rural Development (MARNDR), the South-East Consortium for International Development (SECID), Auburn University, International Resources Group (IRG), Pan American Development Foundation (PADF), CARE, World Bank, and FAO.

It is our sincere hope that this book would serve as a valuable reference tool to all those concerned with the critical role of trees in agricultural production and environmental management in Haiti.

Hyatt Abdul Wahab
Chief
Office of Economic Growth
US Agency for International Development/Haiti

Acknowledgments

No book is ever the work of one person. A common interest about trees, shared by many people over the span of a decade, were involved in some way toward the creation of this book. The idea for the book was first suggested by Michelet Fontaine in 1992. We shared the same concern about the loss of technical information that so often accompanies the termination of projects in Haiti. This attempts to address part of that concern. I greatly appreciate the generous support, encouragement and patience of the staff of USAID, SECID, Auburn University, PADF, and CARE throughout the writing period. Special thanks are extended to those individuals and institutions who cooperated in the collection of photographs, as listed below. Many suggestions and improvements were made as a result of the reviews by Dennis Shannon, Carl Campbell, Paul Campbell, William Theobald, Luc Raymond, and Susan Berstler. Last, but not least, I am indebted to the many Haitian farmers who shared with me a part of their world that extends way beyond the covers of this book.

Photo Credits (The numbers refer to the figure numbers in the text, unless otherwise stated).

Paul Campbell: 2.6–2.8, 4.7, 5.5, 6.7, 7.3, 7.6, 9.4, 13.4, 15.5–15.6, back cover (man with *Colubrina arborescens* tree, man harvesting *Cocos nucifera*, *Simarouba berteroana*, *Crescentia cujute* fruit, *Roystonea borinquena* crown shaft, woman with *Catalpa longissima*.

Yvon Elie: 6.1, 9.3, 10.2–10.3, 11.9, 12.1, 13.2, 13.5, 15.2, 16.5a-d.

Andrew Henderson: 7.1, back cover (*Copernicia berteroana* crowns).

Scott Josiah: 2.9, 4.4 inset, 8.5, 12.8–12.10, 13.1, 14.3–14.5, 15.7, back cover (dead *Cocos nucifera*, *Ceiba pentandra* tree).

PADF: 2.3, 6.2, 6.3, 8.5, 12.8, 14.1 inset, 14.6, 15.1, 16.1 inset, 16.2, 16.4.

Sam Reep: back cover (*Attalea crassispatha*).

Kent Reid: 5.6.

Paul Starr: 7.1 inset.

Joel Timyan: Front cover, opposite poem # 1, 1.1–1.3, 1.7–1.9, 2.1, 2.2, 2.4, 2.5, 3.1–3.3, 3.5, 4.1–4.6, 4.7 inset, 4.9, 4.10, 5.1–5.4, 6.4–6.6, 6.11, 7.2, 7.4, 7.5, 7.7, 8.1–8.4, 8.8, 8.10, 9.1, 9.2, 9.5, 9.7, 10.1, 10.5–10.8, 11.1–11.3, 11.5–11.7, 12.5, 12.6, 14.1, 14.2, 14.8, 15.3, 15.4, 15.11, 16.1, 16.3, 16.8, 17.1–17.5, opposite Tree Proverbs, opposite poem # 2, back cover (*Prosopis juliflora* trees, *Citrus maxima* fruit, *Guacicum officinale* flower, *Ficus* sp. tree, *Haematoxylon campechianum* bark, *Pseudophoenix vinifera* tree, *Cedrela odorata* tree, *Mangifera indica* log, *Spondias mombin* tree, *Melia azedarach* flowers).

Introduction

Trees and their forest habitats have played a major role in creating a fertile environment in Haiti. The ecological fabric that has nurtured the soil and supported life for millennia gradually has been unraveled by human activities. As population growth and economic development collide with the limits of a mountainous island, the makeup of the tree population has been altered considerably, shifting toward those species that supply the daily needs of Haitians and their lifestyles. All other species are at risk, including a significant number found only in Haiti or on the island of Hispaniola.

There is a collection of native and exotic species that plays an essential role in the agricultural landscape. Several of the more important ones are included in Part I. This selection was based primarily on their versatility, the amount of information available in Haiti, and their economic value in the rural context. The group is biased toward the low-to mid-elevation regions where most Haitians live. Such a selection may be considered too narrow, because a much wider assortment of tree species is used regularly throughout Haiti. Their exclusion in no way diminishes their value, as diversity and potential economic benefits are essential safeguards for the future.

Part II compiles useful information of a more technical nature and covers a wider range of species. It has always been difficult to find information about Haitian species, because the amount of literature that has been published about them is limited and often inaccessible. These chapters should serve as a useful reference tool to professionals trained in both the basic and applied sciences. A reference section has been included for those interested in studying these tree species in greater depth.

Variations of a perennial-based agricultural system are the most sensible of landuse options for Haiti's mountains. However, economic insecurity and political instability combine to keep the land in a sort of flux with little time for rest and regeneration. Forests and their trees develop their full potential only in situations where people are relatively well-off and secure. In these situations, tree species are cultivated, provided that they supply valuable products and services and require low establishment costs. The species thus selected share many of the same attributes: tradition and myth, adaptability, and utility.

Tradition and myth: In the world market of precious woods, Haiti has provided historical contributions of mahogany (*Swietenia mahagoni*), logwood (*Haematoxylon campechianum*), Spanish cedar (*Cedrela odorata*) and lignum vitae (*Guaiacum officinale*). Parts of the forest that once covered Haiti's mountains are now part of the world's wealth far from the country. Neither Haiti nor the rest of the world would be the same without these species that have graced its heritage.

However, beyond the rich texture and color of mahogany wood are the proverbs and beliefs that enrich Haitian culture even today. Within the towering Spanish cedar and giant mapou are a magic and a folklore that have sustained family customs for generations. The power of tradition, myth and heritage, extending beyond the realm of the scientific perspective, defines in large part the role that trees play in society. A great many species that would not be considered important in the economy of a developed nation are an integral part of Haitian life.

Adaptability: Survival of a tree species requires a regeneration strategy and suitable site conditions. As the land becomes disturbed and no longer favorable for the regeneration of native species, it is common for more hardy, often exotic, species to dominate. Silvicultural interventions are often necessary to cultivate those species more sensitive to environmental change. These measures might include various modes of artificial regeneration, site preparation and species mixing to manage light, nutrient and moisture factors. In the absence of outside assistance, making use of these interventions requires that the farmers sacrifice scarce resources that otherwise would be channeled toward more lucrative and immediate returns (e.g., goats, pigs, corn and beans). Given the resources and options available to rural Haitians, tree planting of many species, particularly those that require silvicultural inputs, is inadequate to meet the demands of both production and conservation.

The ideal tree species for the Haitian farmer is one that "takes care of itself" (*leve pou kòl*). Simarouba (*Simarouba* sp.) and royal palm (*Roystonea borinquena*) are good examples of such species. Fauna aid in the dispersal of seed of both species for regeneration away from the mother tree. Farmers transplant the volunteers or leave them eventually to replace harvested trees. Both species are adapted to a wide variety of soils and fill a range of niches in local farming patterns with their excellent forms. As sites becomes more degraded, another group of tree species aids in restoring fertility. The more useful of these species are non-native to Haiti and include mesquite (*Prosopis juliflora*), leucaena (*Leucaena leucocephala* ssp. *glabrata*), neem (*Azadirachta indica*), and cassia (*Senna siamea*). These trees, filling the role of pioneer species and being a component of improved fallows, are widely adapted, provide quick ground cover and arrest the processes that deteriorate the most important resource available to the Haitian farmer — the soil.

Utility: Living on the production of a hectare of land allows little consideration for trees without immediate value to the household economy. Trees must provide myriad goods and services. A tree's failure to do so generally means its elimination, many times in favor of other agricultural activities, mainly grazing and land clearing for annual crops.

Fruit trees, which provide a certain element of food security, as well as shade, fuelwood and lumber, are among the most important tree species. Mango (*Mangifera indica*), avocado (*Persea americana*), coconut (*Cocos nucifera*) and the *Citrus* group top the list. Next in importance are the species that provide construction material. Together, these form a key group that is surviving and playing a vital role in the peasant economy. They provide a basic level of goods and services, grow fast enough, tolerate a fair amount of disturbance, and are broadly adapted. The hope is that by better managing these few species, we can begin to learn what will be required to conserve the rest. Hispaniolan pine (*Pinus occidentalis*), the mangrove species, and the rare endemics are all worthy in their own right and are in critical need of a national management plan. Continued efforts to increase the productivity and value of tree products always will be a priority if arboriculture is to remain a viable alternative to current patterns of land use.

PART I

IMPORTANT TREES OF HAITI

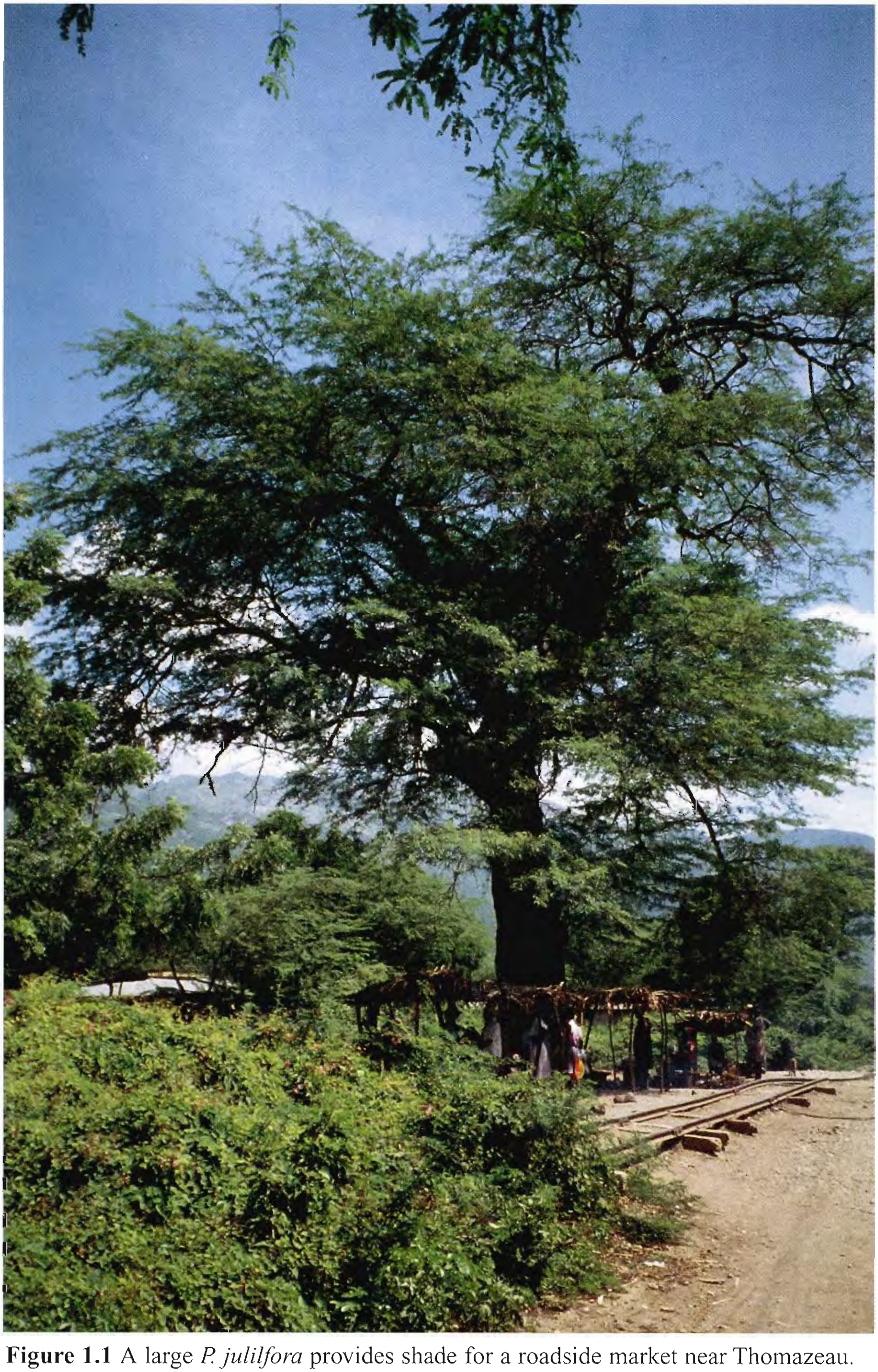

Figure 1.1 A large *P. julilfora* provides shade for a roadside market near Thomazeau.

1 Bayawonn

Species: *Prosopis juliflora* (Sw.) DC.
Family: Leguminosae - Mimosoideae
Synonyms: *Acacia cumanensis* Humb. & Bonpl. ex Willd., *Algarobia juliflora* (Sw.) Benth. ex Heynh., *Mimosa juliflora* Sw., *M. salinarum* Vahl, *Neltuma juliflora* (Sw.) Raf., *Prosopis bracteolata* DC., *P. cumanensis* (Humb. & Bonpl. ex Willd.) Kunth, *P. dominguensis* DC., *P. vidaliana* Naves
Common names: H - bayahonde (*bayawonn*), bayahonde français (*bayawonn fran*), chambron, guatapana (*gwatapana*); **RD** - bayahon, bayahonda, bayahonda blanca, bohahunda, vallahonda; **C** - chachaca, plumo de oro, guatapaná, cambrón; **PR** - algarroba, aroma, mesquite.

Importance: *P. juliflora* is valued for its tolerance of harsh, dry environments with soils that are typically alkaline and saline. In areas of Haiti with environments such as these, the tree provides shade, and is an important source of charcoal, timber, and fodder. It is a natural silvo-pastoral species that is dispersed by animals who eat the nutritious and succulent pods, and its thorny, bushy nature tolerates browsing pressure. Once established, the species is difficult to eradicate, forming pure stands that are disclimax in nature.

Taxonomy and Botanical Features: The variation in the species has fostered debate about the true identity of the species. At least three varieties of *P. juliflora* are recognized by Burkhart (1976); others classify the species as a synonym of *P. pallida* (H. & B. ex Willd.) HBK. (Little and Wadsworth, 1964; Wojtusik et al. 1993). Taxonomy is difficult because the species is highly variable, partly as a result of its self-incompatibility and octoploidy nature (8N=112), but also because *P. juliflora* has spread for centuries with the travels and migrations of human settlement. This dispersal has given rise to many closely related land races that are difficult to separate.

The variety in Haiti is recognized by its prostrate and spreading form as a seedling. Green zigzag twigs, with a pair of thorns 2–3 cm long at the base of the leaf petiole, support pinnate leaves with one or two pair of pinnae 10–15 cm long and narrow leaflets 6 mm wide. Flowers occur in pale yellow spikes 5–10 cm long, arising at the juncture of the thorns and leaves. The pale yellow pods, up to 20 cm long and containing 10–20 round brown seeds, do not split open when ripe.

Distribution and Ecology: The species is believed to be the only one native to Central America, ranging from Mexico to Peru and throughout the Caribbean (Stewart et al., 1992). Little and Wadsworth (1964) list it as an introduced species from the continent, though the species probably has been in the Caribbean since before recorded history. Lee et al. (1992) postulate a Central American origin, though it could have spread into the Caribbean from Venezuela during the first human migrations. It has become naturalized in the dry regions of Africa and India, having been introduced there during the nineteenth century.

In Haiti, the species occurs primarily in the dry coastal regions, extending inland where dry plains occur, as in the Cul-de-Sac, Gonaïves, the Anse-Rouge coast, and the Northeast. These are areas that probably were comprised of a higher diversity of species, but have become dominated by *Prosopis* and *Acacia* as a result of land use practices and changed soil conditions. Despite its reputation for adapting to a wide range of soils, the species performs poorly on extremely rocky sites where *Acacia tortuosa* and cactus grow. It is often the only tree species that can tolerate poorly drained, high pH (9.0+) sodic soils. The species is uncommon in Haiti at elevations higher than 400 m or in areas with annual rainfall amounts greater than 1000 mm.

Tree Characteristics: Very large trees with heights of 15 m and trunk diameters greater than 1 m are found in Haiti. Most of the mature trees in Haiti have been pollarded, making it difficult to measure natural crown diameters. Crown widths have been measured up to 15 m. The tree is generally multi-stemmed, forking low when young (**Fig. 1.2**). Eventually, a single stem dominates, reinforced in practice as the inferior stems are harvested for firewood and small poles. Coppice stems grow faster and more erect, favoring a straight form that is ideal for construction material. On favorable sites, the tree is often seen to be spreading clusters of coppice and root suckers that regenerate for numerous harvesting cycles. The tree's shallow and deep root systems are both extensive. The common Creole name *bayawonn* is believed to be a corruption of the Spanish *vaya hondo*, which means " to go deep," a reference to the extraordinary root system.

The main fruiting season of the species extends from May to November, though pods are available throughout the year. There are 20,000–35,000 seeds kg^{-1}. During drought periods, the pods commonly are infested with insect larvae, particularly bruchid beetles.

The heartwood is a dark red-brown that turns purplish upon exposure and contrasts sharply with the white sapwood. Durability is dependent on stem age; while the heartwood is durable, stem wood comprised mostly of sapwood is highly susceptible to powder post beetles and decay fungi. The wood is moderately hard and heavy (sp. gr. 0.8)

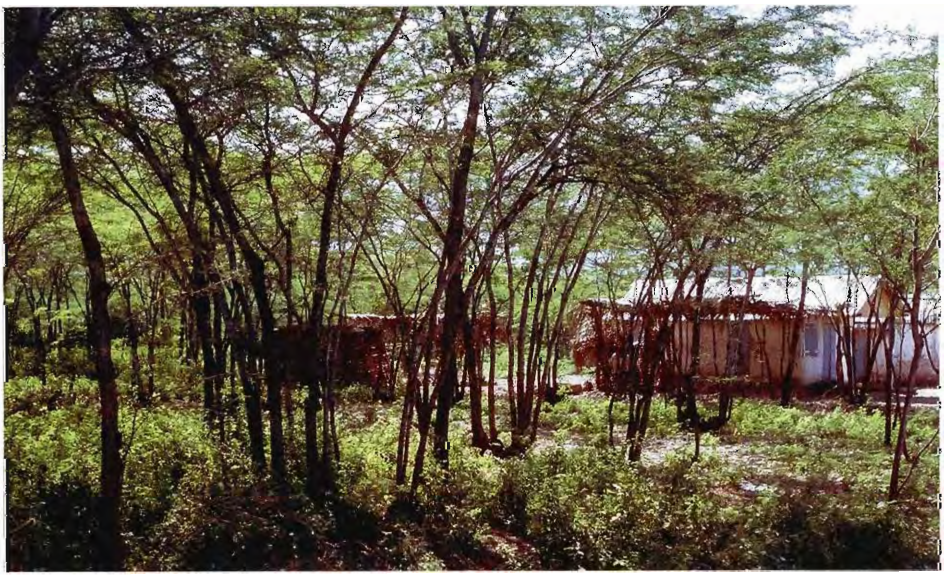

Figure 1.2 *P. juliflora* stands are managed near the home as livestock parks for shade, feed, fuel and construction wood.

with calorific values ranging 15.7–17.1 megajoules kg^{-1} at 14% moisture content (Maxwell, 1985; Timyan, 1987).

Utilization: Mature stems of *P. juliflora* are used as a source of beams, door and window frames, posts, and railways ties in the dry areas of Haiti. Coppice stems generally are made into charcoal or used for light construction that does not require durability. The making of charcoal is the most lucrative method for converting young wood into a marketable product, because demand is generally steady and reliable, and the wood yields a high-grade charcoal (**Fig. 1.3**). Livestock relish the pods, which have a high sugar and protein content. Pod production during the winter drought, January to March, is an important mainstay for cattle; they should only be fed ripe, yellow pods as the green unripe ones are bitter and have little feed value. In areas of Peru, molasses and other confectionery products are made from the pods; dried pods have been ground into a meal as a dry land flour and mixed with water as a beverage (Little and Wadsworth, 1964). Options for the local production of concentrated poultry feed, largely comprised of dried ground pods, are being considered in northeastern Haiti as an industry. The proximate analysis of *P. juliflora* is shown in **Table 1.1**. The tree is an important honey plant, with bees commonly being observed around the flower clusters.

Propagation: The species generally is raised from seed that requires scarification prior to sowing. The simplest method for mass propagation is to immerse the seed in boiling water, stir it for one to two minutes in the hot water taken off the boil, and then soak it in cold water for 2–3 days. Nicking, filing, and sandpaper scarification of individual seeds is tedious, but is recommended for research accessions.

Container volume is an important consideration for maximum early root development and survival under harsh environments. Decomposable fiber containers, 15 cm x

Figure 1.3 *P. juliflora* is valued as a source of charcoal in Haiti, commonly made from simple earthen kilns.

Table 1.1 Proximate analysis (% dry weight) of *P. juliflora*, after Göhl(1975).

COMPONENT	CRUDE PROTEIN	CRUDE FIBER	CRUDE FAT	CARBO-HYDRATES	ASH	Ca	P
Fresh leaves (Sudan)	19.0	21.6	2.9	48.0	8.5	2.1	0.2
Fresh flowers (Sudan)	21.0	15.5	3.2	50.3	10.0	1.0	0.4
Pods (South Africa)	13.9	27.7	3.0	50.6	4.8	—	—
Fruit pulp	7.7	12.0	0.6	77.4	2.3	—	—
Seed (Sudan)	65.2	2.8	7.8	19.0	5.2	—	—
Pod husks	4.3	54.3	0.6	37.4	3.4	—	—

15 cm x 30 cm, have been used successfully on an experimental basis in Haiti (Dupuis, 1986a; Lee et al., 1992). The major drawback is the cost involved in preparing the deep holes properly to avoid J-rooting. Furthermore, complete weed control one season prior to field establishment is recommended to build up soil moisture reserves on arid sites. No serious pests are associated with the species in containerized nurseries (Josiah, 1989). Two-year-old stumps, with basal diameters 1.5–2.5 cm and roots 25 cm long, also have been used in arid zones (Lamprecht, 1989).

Vegetative methods for the species have been employed successfully in Haiti. A solar-powered mist system to root cuttings was experimented at Thomazeau with over 90% rooting success (Wojtusik et al., 1994). Grafting techniques have been successful utilizing a cleft graft with scion material selected and transported from Haiti to Texas (Wojtusik and Felker, 1993; Wojtusik et al., 1993). The rootstock selected for grafting was *P. alba* because of its vigor and influence on scion growth under greenhouse conditions in Texas. Five clones, selected for desirable traits, achieved a 100% success rate.

Biomass Studies: Regression equations were determined to estimate the amount of total dry biomass, wood, and pole volume of *P. juliflora* as a function of stem diameter. One set of equations was developed from a sample of harvested trees at two sites near Cabaret and Ganthier (Ehrlich, 1985). A separate set of equations was determined for coppice stands near Bon Repos (Timyan, 1987). These equations are provided in **Table 1.2.**

Growth Performance: *P. juliflora* has been tested in several trials throughout Haiti, in most cases being compared to other species. The slow initial growth, thorny nature, and prostrate form of the local variety have discouraged a wider selection of the species in trials. It appears that the tree devotes its early years to establishing an extensive root system with the aboveground portion of biomass developing slowly. **Table 1.3** summarizes the growth parameters for this species in Haiti. The Oxford Forestry Institute trials were established with a variety originating in Honduras that survived and grew very poorly in Haiti, confirming the wide genetic variability found in the species. **Figure 1.4** compares the height growth of *P. juliflora* across several sites in Haiti. Annual height increments do not exceed 0.8 m yr^{-1}, even on the best sites and provenances. This level of growth amounts to very low yields of wood for the estimates based on basal diameters and regression equations developed in Haiti. The values cited in Wojtusik et al. (1993)

Table 1.2 Equations used to estimate biomass components (kg dry weight) of *P. juliflora* in Haiti.

COMPONENT	REGRESSION EQUATION[1]	R^2	DIAMETER RANGE (cm)	SITE
Total aboveground biomass	$0.408(DBH)^2$	0.97	1.2–10.8	Cabaret & Ganthier
Usable wood weight	$0.304(DBH)^2$	0.99	1.2–10.8	Cabaret & Ganthier
Usable wood weight	$0.195(sd)^2$	0.97	1.5–13.5	Cabaret & Ganthier
Coppice biomass	$0.158S(sd)_n^2 + 0.163$	0.97	2.4–18.3	Bon Repos
Usable coppice wood weight	$0.123S(sd)_n^2 + 0.013$	0.98	2.4–18.3	Bon Repos

[1] **DBH** = Stem diameter at 1.3 m above ground level, in cm. **sd** = Stump diameter at 0.10 m above ground level, in cm. **n** = Number of stems at 0.10 m above ground.

for total biomass yields, corrected in **Table 1.3** by a factor of 0.75 for estimated wood yields, are derived from regressions developed under different growing conditions and may be overestimates of local wood yields.

Tree Improvement: The trial at Thomazeau is a genetic screening trial, established by Texas A & I University in 1987, and managed by the Convention Baptiste d'Haiti. A total of 70 *Prosopis* accessions, including 44 Haitian accessions, 12 Peruvian accessions, and several other *Prosopis* species from North America, Chile, and Argentina are being assessed for economically important traits: biomass production, form and pod production. The early results indicate that the seed lots from Peru are a significant improvement in form, being more erect and achieving greater height growth than the Haitian accessions. **Figures 1.5** and **1.6** compare the height and aboveground biomass growth of the top 15 accessions, which are dominated by the Peruvian accessions. The differences in the habit of the Haitian and introduced Peruvian types are significant (see **Fig. 1.7** and **Fig. 1.8**). Among the Haitian selections, no geographic trends are evident in height or biomass yield, nor is there a significant correlation between the size of the parent tree and the growth rate of the progeny. Individual selections based on progeny testing would be appropriate for continued improvement of the local variety. The combination of superior genetic quality and proper silvicultural management is necessary to develop trees for high-value wood production (**Fig. 1.9**).

Table 1.3 Site and growth parameters of *Prosopis juliflora* trials in Haiti. Dry wood yields for the Thomazeau site were estimated from Wojtusik et al. (1993).

SITE	ELEVATION (m)	ANNUAL RAINFALL (mm)	AGE (yr)	SURVIVAL (%)	HEIGHT M.A.I.[1] (m)	d^2 M.A.I. (cm)	DRY WOOD YIELD (kg $tree^{-1}$)
Nan Marron	450	600	3.3	28	0.2	0.2	0.1
Maré Grand Bois	20	1200	3.5	58	0.6	0.9	1.9
Békin	100	1397	3.5	96	0.8	0.7	1.2
Thomazeau (Peru)	25	970	3.8	89	0.8	—	5.0
Thomazeau (Haiti)	25	970	3.8	94	0.6	—	4.1
Fond-des-Blancs	250	1335	4.0	58	0.2	0.2	0.1
Cabaret	80	900	6.9	72	0.3	0.4	1.5

[1] **M.A.I.** = Mean annual increment. [2] **d** = Stem diameter at 0.3 m above ground level.

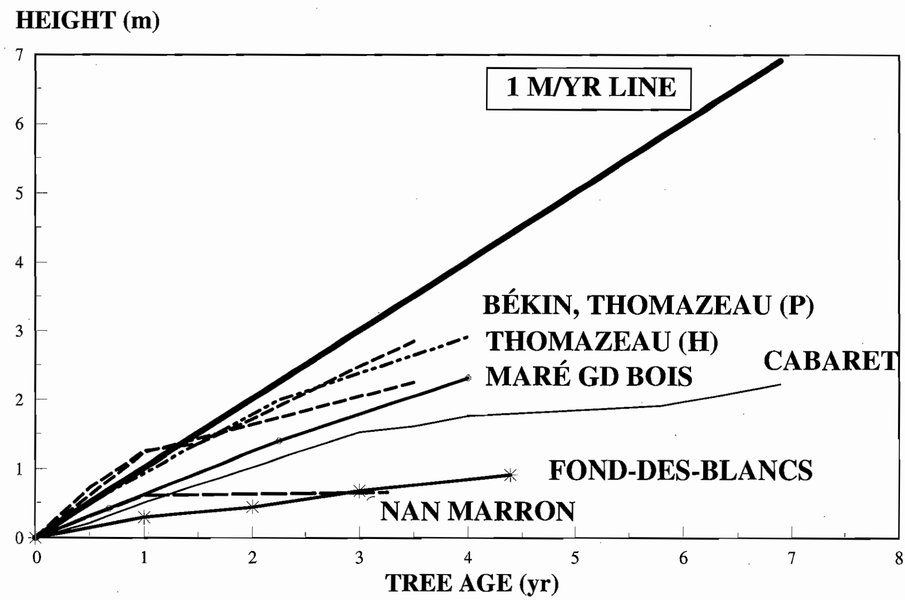

Figure 1.4 Height growth of *P. juliflora* in Haiti.

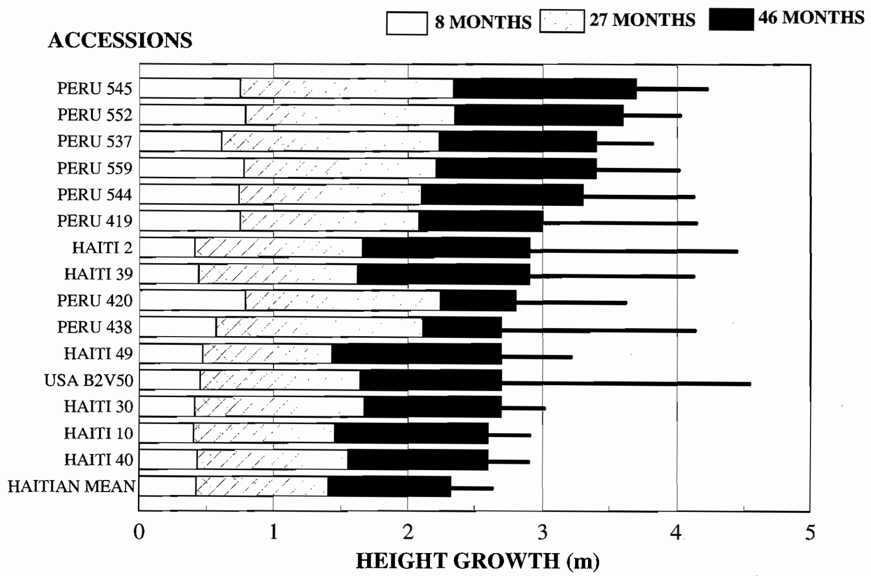

Figure 1.5 Height growth of the top *Prosopis* accessions at Thomazeau after four years. 95% confidence interval bars are indicated for comparison of total height means. Accession origins are reported in Lee et al. (1992).

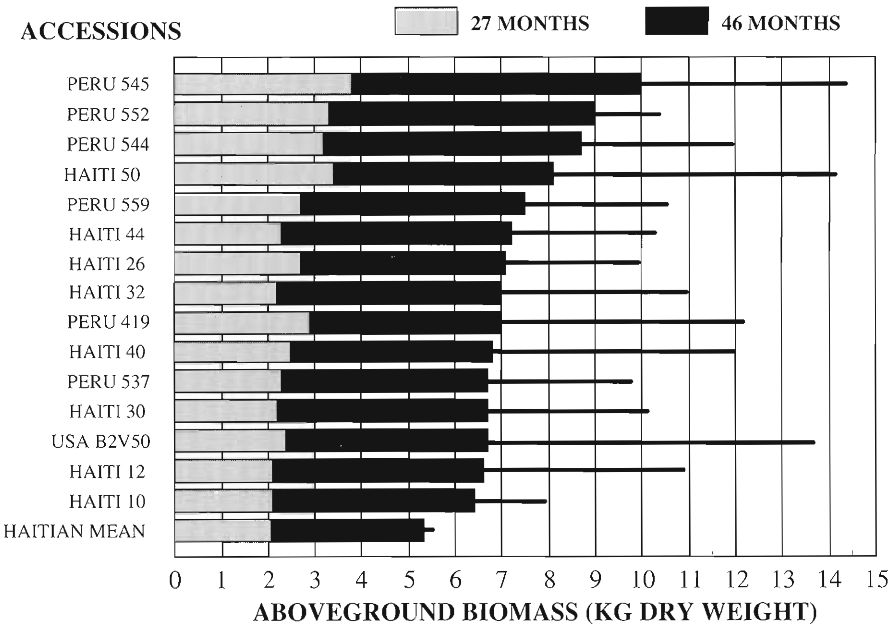

Figure 1.6 Aboveground biomass (kg) of the top 15 *Prosopis* accessions at Thomazeau after nearly 4 years. 95% confidence interval bars are indicated for comparison of total aboveground biomass means. Accession origins are reported in Lee et al. (1992).

Figure 1.7 Typical spreading habit of a 6-year-old Haitian *P. juliflora*.

Figure 1.8 Erect habit of a 6-year-old Peruvian *Prosopis*.

Remarkably two Peruvian thornless accessions resistant to goat browsing were reported (Lee et al., 1992). The accessions originate from Trujillo, Peru. The validity of this finding should be tested with exclosure trials designed to assess the impact of free goat grazing on the growth of the Peruvian selections. This assessment would be an important contribution to semi-arid agroforestry systems in Haiti and throughout the arid land tropics. The top four thornless accessions at Thomazeau have been cloned and await reentry to Haiti for establishment in a clonal bank.

The *Prosopis* established at the Thomazeau site have not produced pod yields sufficient to permit early assessment of progeny as a source of animal feed. As of six years, only a few of the trees have flowered and set fruit. This trial has tremendous economic importance to Haitian farmers, however, broadening the genetic base of *Prosopis* and enabling selection of more productive varieties. It would be tragic if the opportunity for genetic gain in this species is lost. The greatest challenge lies ahead. Clonal seed orchards should be envisioned for the future. *P. juliflora* is a primary source of fuelwood and charcoal for Haiti and an underutilized source of nutrition. The economic benefits to be gained through continued research of a broad genetic base should be significant.

Figure 1.9 The graceful form of a superior specimen of *P. juliflora* showing the potential for lumber.

Figure 2.1 *C. arborescens* is commonly planted near homes for shade and a source of lumber.

2 Bwa Ple

Species: *Colubrina arborescens* (Mill.) Sarg.
Family: Rhamnaceae
Synonyms: *Ceonothus arborescens* Mill., *Colubrina colubrina* Millsp., *C. ferruginosa* Brongn., *Rhamnus colubrinus* Jacq.
Common Names: H - bois capable (*bwa kapab*), bois pelé (*bwa ple*), bois de fer (*bwa fè*), bois de fer blanc (*bwa fè blan*), bois mabi (*bwa mabi*), capable (*kapab*), *kapab gran fey*, *kapab ti fey*, *gri-gri*, *gri-gri sovaj,* rougeole (*roujiòl*), **RD** - corazón de paloma, cuerno de buey; **C** - bijáguara, birijagua, fuego; **J** - black velvet, greenheart, mountain ebony, snake-wood, wild ebony; **US** - coffee colubrina, snake-bark.

Importance: A Haitian species of choice for rural house construction, the form of *C. arborescens* fits perfectly in the mid- to upper-canopy layer of traditional perennial gardens. The tree grows rapidly with an excellent form and yields a quick return of goods and services to the farmer. It is a popular shade tree that is easily propagated.

Taxonomy and Botanical Features: At least 5 species of *Colubrina* occur on Hispaniola (Liogier, 1982). *C. arborescens*, the most common species, has several varieties, giving rise to a proliferation of common names used in Haiti. In turn, the common names have been used indiscriminately without careful taxonomic referencing. The popular large-leaf variety is known in Creole as *bwa ple* or *bwa pele* in the Cayes and Cap-Haïtien regions. Less utilized names are *gri-gri, kapab gran fey, bwa mabi* and *bwa fè* . The small-leaf variety is known as *bwa kapab, kapab, kapab ti fey, gri-gri sovaj* or *bwa fè blan.* There is a less common long-leaf variety, occurring in the wet ravine cloud forests of the higher elevations. Several of the common names of *C. arborescens* also refer to *C. elliptica* (Sw.) Briz & Stern (syn: *C. reclinata* Brongn.) and *Schaefferia frutescens* Jacq. (Celastraceae). The latter species is also known as *bwa kapab* and is distinguished by smaller elliptical leaves 2.5–6 cm long and 0.8–2.0 cm wide, unisexual flowers, and an indehiscent red drupe 4–6 mm diameter.

The varietal differences occur in tree size, leaf shape and branch morphology. Differences in the seed are indistinguishable to the naked eye. Features of the large-leaf variety include: light green, thin, glabrous leaves 10–25 cm by 5–12 cm; puckered between recursive leaf veins; an open crown; and tree heights 20–25 m (**Fig. 2.2**). The small-leaf variety is distinguished by precocious fruiting, thicker dark green leaves 4–8 cm by 2–4 cm, twigs with a conspicuous reddish pubescence, a dense crown, and tree heights to 12 meters with stem diameters to 25 cm (**Fig. 2.3**). The less common long-leaf variety has leaves up to 18.5 cm long by 5 cm wide with a short 1.5 cm petiole. The grayish-brown bark of *C. arborescens* cracks and peels as the tree matures, revealing lighter patches of new bark and giving the stem a mottled appearance.

Distribution and Ecology: The small-leaf variety occurs on the shallow red and black soils overlying limestone rock of the dry coastal areas and certain parts of the upper Central Plateau. This variety is found at sea level to 300 m elevation in the wetter spectrum of the subtropical dry forest. Annual rainfall ranges from 800–1200 mm and is highly variable from year to year. The large-leaf variety is common to the low-elevation humid mountain regions of Haiti (elevations between 150–1000 m and receiving

Figure 2.2 The large-leaf variety is distinguished by shiny, light green and thin leaves with puckered leaf veins.

Figure 2.3 The small-leaf variety is noted for its prolific seeding and shiny, dark green leaves with a reddish pubescence on new growth.

annual rainfall 1200–2000 mm) and the humid plains near sea level, located near Cayes and Cap-Haïtien. These areas fall mostly within the subtropical humid forest zone. In several areas of Haiti, the natural range of the large-leaf variety overlaps with the range of the small-leaf variety, notably the mountain areas of southern Haiti and the Central Plateau. The long-leaf variety seems to be much rarer, definitely less cultivated, occurring in the less-populated higher and per-humid ranges along the south-eastern and northern mountain chains. It is a canopy species of the broad-leaved forests above 1000 m elevation and 2000 mm annual rainfall.

Tree Characteristics: The large-leaf variety of *C. arborescens* grows to 26 m, with stem diameters averaging 20–30 cm and rarely larger than 50 cm. Stem form is straight with primary forks, if present, at two-thirds total tree height. The new growth of the horizontal branches is regularly spaced and sparse, projecting a light shade to understory crops. The average crown width:stem diameter ratio is 30, with crown closures of mature stem diameters occurring at 200 trees ha^{-1}. The large-leaf variety is the preferred variety as a result of its greater merchantable height, faster growth, lighter shade, self-pruning and less weedy nature (**Fig. 2.4**). However, this advantage is less evident on the


Figure 2.4 The fast-growing, tall, straight, self-pruning stem of large-leaf varieties of *C. arborescens* is valued for beams and joists.

drier, rocky sites of the lower elevations, particularly on the coastal and leeward slopes of mountain areas in Haiti. The leaves of *C. arborescens* are palatable to animals and damage is extensive under free-grazing conditions. Basal sprouting occurs with the large-leaf variety in response to sub-humid, droughty conditions (**Fig. 2.5**). This trait can be managed for mixed-aged stems by leaving a couple sprouts to develop in the shade of the main stem.

The small-leaf variety rarely grows taller than 18 m, limited by the harsher site conditions of its natural range. Stem diameters are generally less than 20 cm. Adaptations to drier conditions are evident in the small-leaf variety, with its thicker leaves and heavier seeding. The crown is more compact than that of the large-leaf variety, with lateral branching occurring more frequently along the stem axis and extending further down the stem. Self-pruning is less evident and the shade cast by the crown is denser than the large-leaf variety. *C. arborescens* coppices when cut on short rotations.

The heartwood is reddish-brown with a small proportion of lighter brown sapwood on mature stems. The wood is hard and heavy, with a specific gravity ranging from 0.67–0.82 for samples taken from a 5-year-old stand in the Northwest. It seasons very hard so that sawing and nailing are difficult.

The principal fruiting season of *C. arborescens* occurs from May through July, with a smaller harvest from November through January. There are 50,000–65,000 seeds kg^{-1}.

Utilization: The most important use of *C. arborescens* is in house construction, where the timber is utilized in all parts of the structure (**Fig. 2.6**). Because the large-leaf variety provides one of the longest and straightest trunks of any of the lowland tree species, it is prized for joists, beams, ridgepoles and supports. As soon as the tree becomes usable, after reaching a 10 cm stem diameter, it generally is cut for building material, with few stems left to grow larger than 25 cm. Smaller-diameter trees are worked in the

Figure 2.5 Basal sprouting of *C. arborescens* is typical of the large-leaf varieties on droughty sites.

round form, providing long, straight poles used in roofing timbers. The larger diameter stems usually are split in quarters or squared for use as construction material or sawn into planks (**Fig. 2.7**). Posts are improved for durability by charcoaling the sapwood of the end that is buried in soil. The wood is used for rustic furniture and wood sculptures.

A beverage derived from the astringent bark, containing various tannins, alkaloids and saponins, is used for medicinal purposes (Seaforth and Mohammed, 1988). Bark tea is considered a diuretic; mixed with anise, nutmeg, mace and sugar, the tea is taken as an aphrodisiac. A decoction made from boiled wood and mixed with milk is used to build up blood, especially after childbirth (Altschul, 1973).

The shade of *C. arborescens* is not deep, allowing for flexibil-

Figure 2.6 *C. arborescens* is valued as a construction timber used for building houses in Haiti.

ity in the type of cash crops that can be grown in association with the tree. In field gardens, crops are grown right up to the base of the tree. Lateral branches are cut to control seasonal light demands, and to provide fodder and fuelwood. It is a common shade tree of the gardens grown near the home, particularly those associated with coffee and cocoa groves (**Fig. 2.8**).

Figure 2.7 Lumber of *C. arborescens* is used in construction and furniture making.

Propagation: *C. arborescens* is tricky to raise from seed. The hard seed coat inhibits germination, often giving erratic results in the nursery. The most common method to overcome seed dormancy is to immerse the seed in hot water and soak the seed for several days, changing the water daily (Josiah, 1989). However, experimental data do not support this method as being the best one. Probably the most important aspect of propagating the species in a containerized system is to keep the germinating seed environment humid by placing shade cloth over the containers. Generally, the seed is sown in greater quantities to compensate for poor germination, with multiple emergents being transplanted or thinned. Seedlings ready for field planting require about 4 weeks in the shade and a total of 14 weeks in containers, such as the Rootrainer or Winstrip. Sunscald and overwatering are common problems associated with nursery culture. The species can be top-pruned prior to planting in the field. A virus is postulated to attack the species in the nursery (Josiah, 1989), causing leaves to exhibit mosaic-type symptoms, with a mottled appearance and curled, shriveled leaf margins (**Fig. 2.9**). Tourigny (1987) proposed that the virus is transmitted by the citrus aphid, *Toxoptera aurantii,* (B. de F.), and that effective control of aphids might solve this problem.

Figure 2.8 A stand of *C. arborescens* used as coffee shade and timber.

Barbour (1926) describes how Haitian farmers in the Cayes area " sow seed of a tree they call *bois pele* in wood lots behind their houses." However, in a detailed study of traditional propagation methods in the Lascahobas area, sown seed accounts for only 5% of the *C. arborescens* tallied (Campbell, 1994). More than two-thirds of the trees were volunteer, with an additional 16% that were transplanted volunteers.

An attempt was made to graft and bud the species in 1988 by the Double Harvest nursery, but all attempts failed with the split, inverted-T bud and cleft methods. No knowledge of vegetative methods has been reported in Haiti.

Seed Research: The hard seed coat inhibits germination. Scarification by nicking the small seed results in a 4-fold increase in total germination. However, this is not cost-effective for bulk seed and most nurseries compensate for low and irregular germination by sowing extra quantities of seed for transplants. An experiment designed to test scarification procedures showed that immersion in 80° C water, followed by a 24-hour soak, significantly reduced seed germination, whereas soaking in cold water for 24 hours had no effect. Furthermore, there was a poor correlation between laboratory germination tests and nursery emergence. No differences in germination were detected when ripe seed was harvested from the same orchard trees at 3-week intervals during the peak fruiting season (May to July).

Planting Stock Quality: Various methods to establish *C. arborescens* in the field have been tested for their effect on survival and growth (Dupuis, 1986a; Reid, 1991). Direct seeding of the species has consistently failed in the field and can be recommended only if seed is plentiful. Container types and potting mixes showed no effects on a fertile site near Port-au-Prince. However, seedlings raised in a polythene sack survived better on a drier, less fertile site than did the smaller-containerized seedlings raised in the Rootrainer or Winstrip. This difference was accounted for by the larger soil volume of the sack and a more well-developed seedling root system.

Figure 2.9 Deformed leaves of a *C. arborescens* nursery seedling probably are caused by an aphid-borne virus.

Biomass Studies: Ehrlich (1985) developed total and fuelwood biomass tables for *C. arborescens*, sampled from a stand of trees located near Morne-à-Cabrit. The estimates are based on diameter-at-breast-height (DBH) and stump diameter measurements. Another set of biomass equations was developed on a drier site in the Northwest near Nan Marron in 1990. The 5-year-old stand had a narrow stem diameter range from 3–7 cm. These equations estimate total and wood (> 1 cm) dry weights on the basis of stem diameters measured at 0.3 m above ground level. The set of equations for *C. arborescens* is given in **Table 2.1**.

Table 2.1 Equations used to estimate biomass components (kg dry weight) of *C. arborescens* in Haiti.

COMPONENT	REGRESSION EQUATION[1]	R^2	DIAMETER RANGE (CM)	SITE
Total aboveground biomass	$0.25(DBH)^2$	0.98	3.0–12.5	Morne-à-Cabrit
Usable wood weight	$0.204(DBH)^2$	0.98	3.0–12.5	Morne-à-Cabrit
Total aboveground biomass	$0.033h\sum d_n^2$	0.99	2.8–6.6	Nan Marron
Usable wood weight	$0.027h\sum d_n^2$	0.99	2.8–6.6	Nan Marron

[1] **DBH** = Stem diameter at 1.3 m above ground level, in cm. **d** = Stem diameter at 0.30 m above ground level, in cm. **h** = Total tree height, in m. **n** = Number of stems at 0.30 m above ground level.

Growth Performance: The oldest trials of *C. arborescens* were established by the FAO project in the mid-1970s. Later in the 1980s, several trials were established by the USAID Agroforestry Outreach and AFII projects and the World Bank Projet Forestier National. **Table 2.2** compiles the growth rates and yield information available for several of the trials. The species failed at the highest elevation site (Tranquille) as well as on the coastal sites that receive severe drought, such as Cabaret and Jean Rabel. However, Nan Marron is probably the driest site and the species is performing well, being the same small-leaf variety that is common in the area. The Haut Camp and Lapila sites have an adequate rainfall distribution, but the soils are extremely shallow and rocky. In contrast, the fastest growth occurs on alluvial, lowland sites such as Fauché, near Grand Goâve, and Roche Blanche, near Croix-des-Bouquets. Early height growth of 2.5 m yr^{-1} has been observed. The O'Gorman trial, located only 5 km east of Roche Blanche, is also an alluvial site, but with a combination of less rainfall, poorer soils, and perhaps a poorly-adapted provenance. Moortele (1979) indicates that the source of the seed was from Grenier, a much higher (el. 800 m) and wetter location than the trial site. **Figure 2.10** summarizes the height growth of the species in Haiti.

Tree Improvement: There are distinct varieties in the species that are adapted to a wide range of growing conditions in Haiti. Farmers growing in moist and wetter sites prefer the taller and faster large-leaf variety for timber wood; the small-leaf variety is adapted to shallow and rocky soils common to the dry regions of Haiti under 1000 mm rainfall. The first priority in the improvement of this species was to focus on the large-leaf variety for the moist regions of Haiti where the species is most developed as a timber tree. The establishment of seed orchards is the surest method to guarantee the harvest of pure large-leaf varieties and to achieve the uniformity in seedling performance that the farmer is seeking.

Table 2.2 Site and growth parameters for *C. arborescens* trials in Haiti.

SITE	ELEVATION (m)	ANNUAL RAINFALL (mm)	AGE (yr)	SURVIVAL (%)	HEIGHT M.A.I.[1] (m)	DBH[2] M.A.I. (cm)	DRY WOOD YIELD (kg tree^{-1})
Laborde	90	1875	1.0	57	0.4	—	—
Tranquille	850	1385	2.7	48	0.5	—	—
Fauché	5	1436	3.0	70	2.6	2.7	13.7
Haut Camp	180	2281	3.0	69	0.5	—	—
Marmont	280	1450	3.0	21	1.3	1.6	4.9
Roche Blanche 2	75	1100	3.0	63	1.2	—	—
Terrier Rouge	20	1293	3.0	33	0.9	0.9	1.4
Bombardopolis	480	948	3.4	31	1.1	—	—
Lapila	350	1145	3.4	88	0.8	0.9	1.8
Békin[3]	100	1397	3.5	93	1.4	1.4	4.9
Nan Marron	450	600	4.8	87	0.8	0.8	2.8
Roche Blanche 1	75	1100	5.0	97	1.4	1.6	12.4
Limbe	400	2057	5.2	78	1.2	1.0	5.5
O'Gorman	70	830	5.2	19	0.4	0.5	1.3

[1] **M.A.I.** = Mean annual increment. [2] **DBH** = Stem diameter at 1.3 m above ground level, in cm. [3] Reported as *Schaefferia frutescens*.

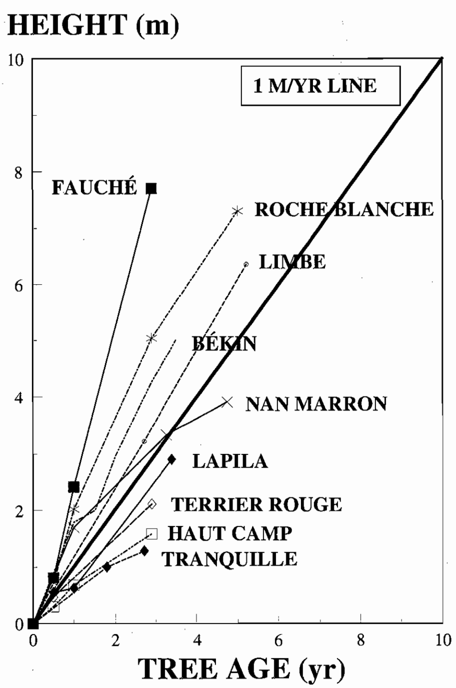

Figure 2.10 Height growth of *C. arborescens* in Haiti.

Between 1988 and 1991, 53 trees of the large-leaf variety were selected for superior traits: straight stem form, wide and horizontal branch pattern, small crown size, and vigor. An additional 6 trees of the small-leaf variety were selected for inclusion in progeny trials on drier sites. Seed was collected from more than two-thirds of the candidate trees and seedlings were propagated for seedling seed orchards, progeny trials, and arboreta throughout Haiti. The seed orchard at Roche Blanche contains the entire progeny collection and perhaps the widest genetic base of the species in Haiti.

There is significant variation in vigor among half-sib families of the large-leaf variety, particularly on droughty sites such as Lapila (**Fig. 2.11**). The top-ranked family is growing at twice the rate as the lowest-ranked family. Certain families are consistently the top-ranked families across a range of sites, being managed in the orchards for seed production and future progeny testing. It is expected that seed from such a wide genetic base shows a level of increased vigor.

Continued germplasm work with *C. arborescens* should not neglect the small-leaf varieties for the drier regions where the species is under severe pressure from grazing and charcoal making activities. These varieties show adequate and steady growth, tolerating the severe droughts and rocky limestone sites common to these areas.

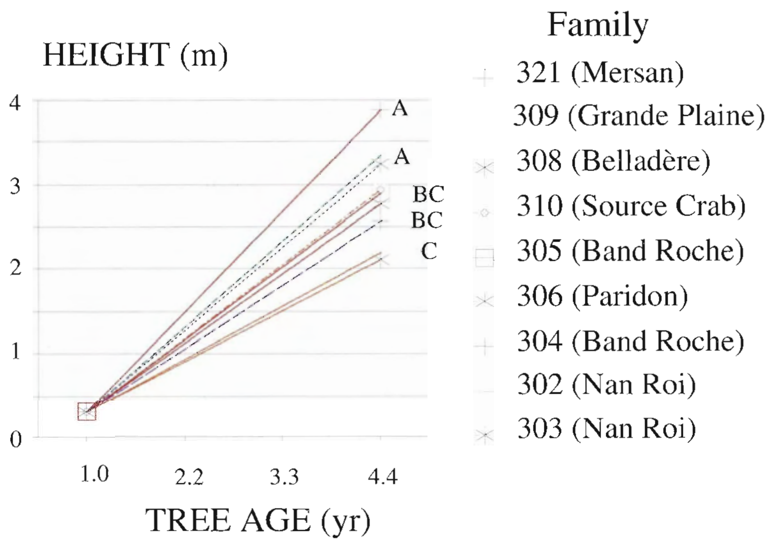

Figure 2.11 Comparison of height growth among *C. arborescens* half-sib families at Lapila, near Pignon. Means followed by the same letter are not significantly different at p=0.05.

Figure 3.1 *C. alliodora* selected as a perennial garden species near Port Salut.

3 Bwa Soumi

Species: *Cordia alliodora* (Ruiz Lopez & Pavon) Oken.
Family: Boraginaceae
Synonyms: *Cerdana alliodora* Ruiz & Pavon, *Cordia alliodora* (Ruiz Lopez & Pavon) Cham., *C. geracanthus* Jacq.
Common Names: H - bois de rose (*bwa wòz*), bois soumis (*bwa soumi*), chêne caparo (*chenn kapawo*), chêne franc (*chenn fran*), chêne noir (*chenn nwa*); **RD** - capá, capá de olor, capá de sabana, capá o laurel, capá prieto, guacimilla; **C** - varía, varía prieta, varía colorada, varía amirilla.

Importance: This species is an ideal timber species for traditional agroforestry models utilizing multi-tiered perennial crops characteristic of the *lakou* garden. The natural form of the tree provides an excellent mix of shade, as well as valuable lumber, and should be considered as an integral component in coffee-growing regions of Haiti.

Taxonomy and Botanical Features: The genus *Cordia* includes some 200 species ranging from shrubs to large trees (Liegel and Stead, 1990). Large differences in morphological and phenological features exist among varieties of *C. alliodora* and have created considerable taxonomic confusion. Two distinct races are recognized in Costa Rica. The distinguishing features of the tree are the whorled branches extending in horizontal layers from the main stem and the showy white flowers that cover the canopy during the dry season (**Fig. 3.2**). The flowers are clustered tightly in terminal branches, each flower with a tubular calyx that is 5-lobed and white, turning to brown. Leaf blades are 6.5–15 cm long, with the undersides finely hairy, extending from hairy petioles 9.5–19 mm long. They smell like garlic when crushed. The terminal branches are swollen at the nodes.

Distribution and Ecology: This species is a native to Haiti, though it is common in restricted regions. The native range of the species covers the entire Caribbean area and extends from central Mexico to a broad belt across South America from Peru to Bolivia and Brazil (Little and Wadsworth, 1964). This extensive range includes an annual rainfall from 1000–4500 mm and 0–4 dry months. In Haiti, the species grows from sea level to about 600 m, mostly confined to the lower foothills of the moist subtropical forest (*sensu* Holdridge, 1967) and extending into the wet forest, where there is annual rainfall between 1200–2000 mm. It is common in southern Haiti, particularly along the southwest coast from Port Salut to Tiberon, and in the foothills extending west of the Chaine de Selle. Dr. Ekman collected plant specimens of the species in the Chaine de Mathieu on Morne-à-Cabrit in 1927.

The soils where *C. alliodora* is found along the coastal regions are typically sandy and gravelly, commonly associated with ravines and river flood plains. The tree is adapted to a wide range of soils, including deep clayey and calcareous soils on gently rolling slopes, but it grows poorly on degraded sites and steep slopes. It naturally regenerates on abandoned fields and pastures. Seedlings have been found beneath 2- to 4-year-old stands at several sites where *C. alliodora* had been planted for the first time.

Figure 3.2 A shower of white flowers spreads over the canopy of a four-year-old *C. alliodora* tree during the dry season.

Tree Characteristics: Tree heights up to 20 m have been measured in Haiti with stem diameters 20–40 cm and exceptionally straight and cylindrical stems. The tree attains heights over 40 m in Costa Rica. Clear boles to 12 m are not uncommon for mature trees, with a narrow crown reaching 4–5 meters (**Fig. 3.3**). The tree is self-pruning and deciduous, though differences occur among provenances for leaf retention and branch patterns. Most of the wood volume is concentrated in the main stem of medium-sized trees, an ideal characteristic for pole and lumber production and agroforestry systems that optimize spatial factors.

This species has superb features as an agroforestry tree, with superior vertical form, self-pruning lateral branches and a narrow crown. The tree generally does not coppice, but root suckers can be prolific on moist sites.

The olive-brown heartwood has a decorative appearance with black streaks and a specific gravity 0.44–0.52. The grain is straight to slightly interlocked and seasons well with only a slight warp (Chudnoff, 1984). It is easy to work, finishes smoothly and is readily glued. The durability of the heartwood varies according to the color of the heartwood, though it is generally resistant to dry-wood termites but not to borers.

The tree flowers throughout the year in the Caribbean, with a peak during the dry season (December to February). Seed develops within 1–2 months after flowering and is ready for harvest from February onward. The seeds are borne in the tubular calyxes of the flower clusters and require climbing of the tree for harvest about 2–3 weeks prior to natural seedfall. The trees at Cazeau began bearing full crops of seed at 5 years with good germination. There are between 20,000–30,000 seeds kg^{-1}, though as many as 100,000 seeds kg^{-1} are found in its native range.

Utilization: In areas where the species is common, Haitians consider the wood similar to the fine quality of *C. longissima* and use it for the same basic purposes. Poles harvested from the coppice or thinnings are utilized mostly in house construction and as climbing stakes for crops. It yields an excellent lumber that is used for furniture, carvings, construction, doors, windows, flooring, and crossbeams, fetching an equivalent price to *C. longissima*. The erect form and short crown, with evenly-spaced branch whorls, cast an excellent shade that is not too dense for a wide assortment of understory crops. As such, it is widely planted in Central America for coffee shade and ornament. The tree's potential has not been fully utilized in Haiti, where *C. alliodora* could easily replace shade species such as *Inga vera* and *Albizia saman* with a more valuable harvest potential. The flowers of the tree are an important source of food for bees during the dry season. The seeds and leaves are used in home medicines, mostly for ailments related to throat infections and chest colds. A leaf decoction compress is applied to sores (Liogier, 1990).

Figure 3.3 *C. alliodora* grows tall and straight, with a self-pruning bole that is harvested for lumber.

Propagation: Seedlings are raised from seed either as stumps, striplings, or in containers for field planting. The seed loses viability rapidly after several weeks unless it is properly stored at low moisture contents (< 10 % moisture content and 4–5° C). Seed is sown directly in containers and lightly covered with potting medium. Propagation in small containers, such as Rootrainers and Winstrips, require approximately 18–20 weeks for seedlings to reach sufficient size for field planting. Shade is required for the first 3–4 weeks prior to full sun. No serious pests or diseases have been encountered with propagating the species from seed in Haiti.

Stump planting is a slower and less-utilized method, though cost saving, to propagate the species. Raised nursery beds are sown in rows 15 cm apart and thinned to a spacing of 15 cm x 15 cm. Stumps are prepared when root collar diameters reach 1 cm; shoots are pruned to 5–10 cm and roots are pruned to 10–20 cm. Seedlings up to 3 m tall have been balled and transplanted with 100% survival (Johnston and Morales, 1972). Transplanting of volunteers from beneath select stands is another alternative that is utilized in Asia and Central America.

Grafting methods are employed for clonal seed orchard stock, with the side-veneer technique (Boshier and Mesén, 1987), though techniques are difficult and are not practiced for general purposes.

Growth Performance: The species has failed at Cabaret and Terrier Rouge, both sites being too severe for the species with droughts extending 3–5 months. **Table 3.1** summarizes the data that are available for the growth of this species in Haiti. Survival is mediocre, averaging 50-60%. After 3 years, annual growth in the Central Plateau can be considered marginal with annual height increments under a meter. In contrast, at low elevation sites with soils ranging from sandy loams (Bérault, Fauché, Cazeau) to clayey loams (Pémel, Roche Blanche), annual height increments of 1.5–2.0 m are normal (**Fig. 3.4**). Trees selected for superior traits at Cazeau, the oldest trial known to exist in Haiti, are averaging annual height and stem diameter increments of 2.3 m yr^{-1} and 2.9 cm yr^{-1},

Table 3.1 Site and growth parameters of *C. alliodora* trials in Haiti.

SITE	ELEVATION (m)	ANNUAL RAINFALL (mm)	AGE (yr)	SURVIVAL (%)	HEIGHT M.A.I.[1] (m)	DBH[2] M.A.I. (cm)
Bérault	25	1950	3.0	61	1.9	—
Fauché	5	1436	3.0	40	1.5	1.5
Marmont	280	1450	3.0	53	0.7	0.5
Pémel	75	1875	3.0	69	1.1	1.2
Roche Blanche	130	1030	3.0	85	1.6	1.7
Terrier Rouge	20	1293	3.0	5	0.1	—
Cazeau 5	30	1200	5.5	90	2.3	2.9

[1]**M.A.I.** = Mean annual increment. [2]**DBH** = Stem diameter at 1.3 m above ground level.

respectively. Because of the tree's high light requirements, stands need to be thinned intensively for good crown development. Densities of 180 stems ha^{-1} are used for cocoa plantations in Costa Rica (Lamprecht, 1989).

Tree Improvement: The earliest introduction of provenances for testing in Haiti occurred in 1984 when Operation Double Harvest introduced a single provenance, CATIE 1382, from San Carlos, Costa Rica. Four candidate trees were selected from this provenance in 1989 for progeny testing in aboreta and a seedling seed orchard in Marmont. An additional 6 provenances were introduced by International Resources Group in 1988 from Central America. After 3 years, the COHDEFOR 7488 provenance from northwestern Honduras appears to be better adapted than the Costa Rican provenances on drier sites, retaining its leaves and branches for longer periods during the dry months and producing seed as early as 2 years. However, significant variation in height growth occurs within each provenance as well as across sites (i.e., significant site x provenance interactions) suggesting that selection at both the individual and provenance levels merit consideration for breeding purposes. No significant differences in survival have been observed among provenances.

There is considerable variation among the seed lots that have been tested in Haiti. As in *Cedrela odorata*, differences among provenances are readily observable in the bark, branching pattern and leaf phenology (**Fig. 3.5**).

Because the species has excellent potential as an agroforesty candidate, such differences among the varieties may play an important role as selection criteria. However, the current provenance trials rep-

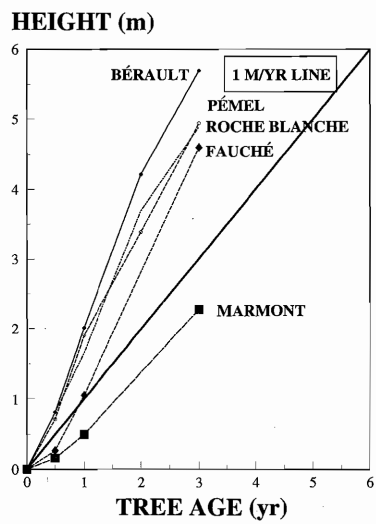

Figure 3.4 Height growth of *C. alliodora* in Haiti.

resent a fairly narrow range of growing conditions in Haiti. This can be remedied only by testing the species on a wider range of sites, particularly in the higher-elevation coffee-growing areas. The tree is a natural shade/lumber candidate and should be tested with several agroforestry options and additional seed from advanced generations of the tree improvement program in Costa Rica.

Figure 3.5 Differences in leaf retention and branching pattern are striking among *C. alliodora* provenances collected from its extensive native range.

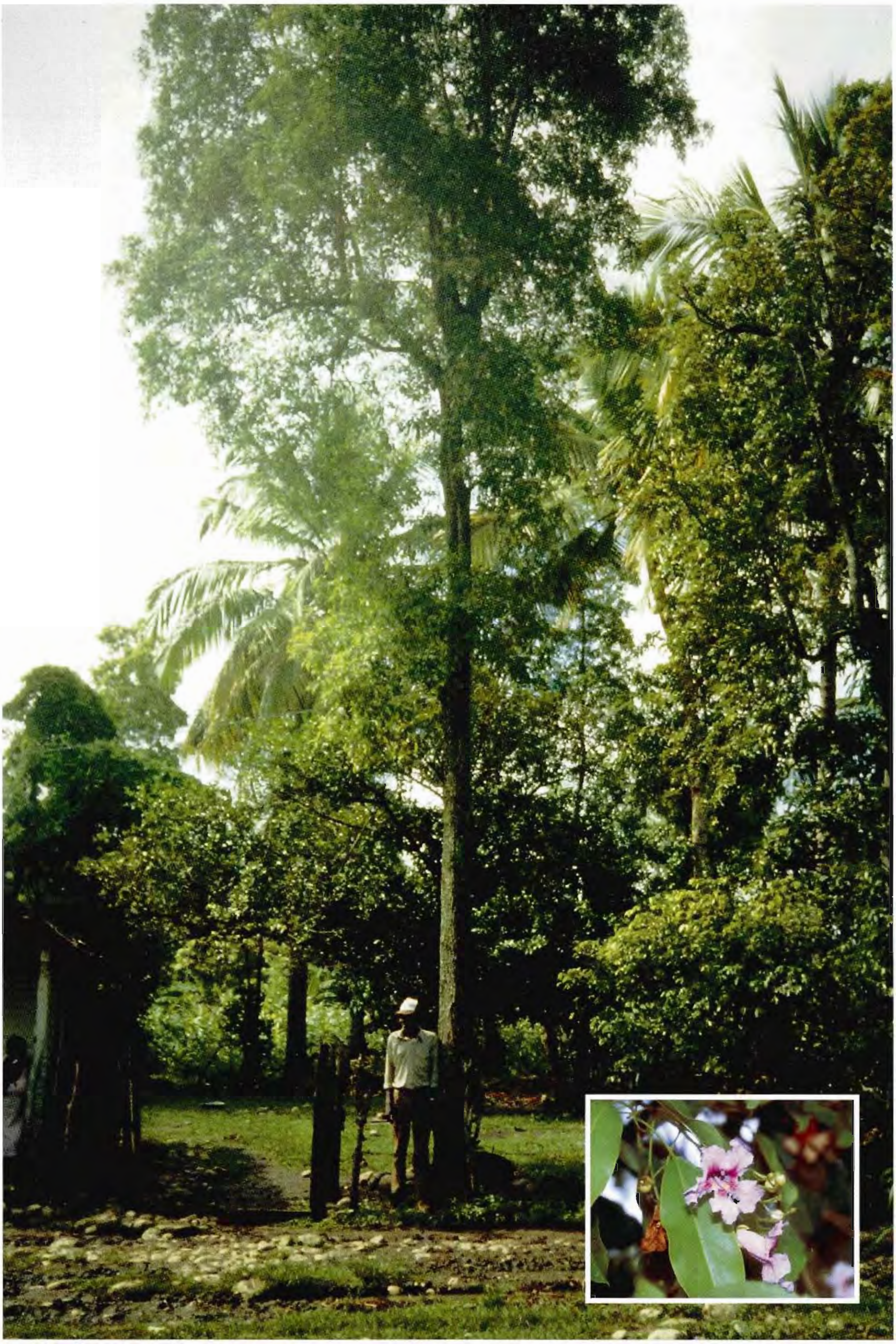

Figure 4.1 A mature *C. longissima*, valued by Haitians for shade and lumber. Inset — flowers of *C. longissima*.

4 Chenn

Species: *Catalpa longissima* (Jacq.) Dum. Cours.
Family: Bignonaceae
Synonyms: *Bignonia longissima* Jacq., *B. quercus* Lam., *Catalpa longissima* (Jacq.) Sims, *Macrocatalpa longissima* (Jacq.) Britton
Common Names: H - chêne (*chenn*), bois chêne *(bwa chenn*), chêne haïtien (*chenn peyi*), chêne noir (*chenn nwa*), chenier; **RD** - roble, roble de olor; **J** - Jamaica-oak, mast-wood, yokewood; **PR** - roble Dominicano, Haitian catalpa; **US** - Haitian oak; **M** - radé-gonde.

Importance: *C. longissima* is one of the best-known lumber species in Haiti. Ask the Haitian fishermen what their boats are made of and the response is usually *chenn*. The superior wood quality and local demand for *chenn* are reflected in local lumber prices that are higher than the price of the renowned West Indies mahogany (*Swietenia mahagoni*). The tree typically is distributed along the coastal and river plains, where farmers manage the species with important food crops such as plantains (*Musa* x *paradisiaca*) and sweet potato (*Ipomea batatas*). The sparse crown does not compete with understory crops as with other tree species with denser shade.

Taxonomy and Botanical Features: The common name of this species is derived from the French and Spanish names for oak (*Quercus*: Fagaceae). The *Catalpa* genus is comprised of few species in Haiti, of which *C. longissima* is the largest in size. As is typical of other *Catalpa* members, the showy white flowers are bell-shaped with a faint pinkish tinge on the inside of the 5-lobed corolla (**Fig. 4.1 inset**). The tree is recognized immediately by an abundance of long, stringy pods, up to 40 cm long, that are light green turning to brown and twisting open to scatter hundreds of soft cottony seeds to the wind. The pods are persistent, hanging on the outside of the crown and giving it a stringy appearance. From a distance, the crown has a soft, bushy texture with slightly wavy branches forming a cylindrical canopy. *Chenn nwa* may refer to a darker heartwood variety or any one of several *Cordia* species that exist in Haiti.

Distribution and Ecology: *C. longissima* is native to the islands of Hispaniola and Jamaica, but has become naturalized throughout the Caribbean as an ornamental and timber species (Adams, 1972). Natural stands of Haitian oak are most typically found near the coastal flood plains and alluvial fans of rivers, below an elevation of 250 m, that receive an annual rainfall of 1000–2000 mm (**Fig. 4.2**). It tolerates seasonal flooding and it is common to see nearly pure stands of the species, as along the Ennery River near Passe Reine or in the valley of the Limbé river. As one travels into the mountains up to an elevation of 1000 m, the tree is found mostly as an occasional specimen of ravines and courtyards of Haitian homes, associated with other common species of the subtropical moist forest: mango (*Mangifera indica*), avocado (*Persea americana*), simarouba *(Simarouba glauca*), colubrina (*Colubrina arborescens*), mahogany (*Swietenia mahagoni*) and coconut *(Cocos nucifera*).

The soils most commonly associated with Haitian oak are the calcareous alluvial deposits of sand, silt and gravel common to the coastal plains as well as the rivers and ravines that drain the mountains. Typically, these soils have a pH range of 7.0–8.2 and

Figure 4.2 Stands of *C. longissima* are common along stream courses and river flood plains, as shown here near Baie-de-Henne.

good drainage. Though Haitian oak is found on a wide range of sites, it performs poorly where the dry season drought is combined with shallow and rocky soils. It rarely is found in the lowland dry forest that is comprised mostly of the thorny *Prosopis* and *Acacia* species and becomes just as rare as one reaches 1000 m in elevation. It is shade intolerant.

Average size-class distributions of the species, as cultivated by Haitian farmers, were studied in Lascahobas (Campbell, 1994). Less than 8% of the tallied stems were in the saw timber class, defined as having trunks larger than 25 cm. Over half of the population were seedlings and saplings under 10 cm DBH. The balance of the population was in the 1-2 pole merchantable class.

Tree Characteristics: The juvenile form is often multi-stemmed and bushy, eventually developing into a single-stemmed tree with a narrow crown:DBH ratio. Dominant heights in Haiti reach up to 28 meters, with an average around 19 m. Stem diameters of most of the mature trees in Haiti are between 25–40 cm, though individuals up to 80 cm are sighted occasionally. Natural crown diameters spread to 18 m. However, Haitian oak growing in field gardens is pruned heavily and rarely does the crown exceed 6 m (**Fig. 4.3**). The traditional method of pruning the lateral branches keeps the crown narrow and is a common feature where the tree is associated with understory crops such as plantains, sweet potatoes, corn and beans. The tree tolerates pruning well, which not only allows more light and rainfall penetration, but provides fuelwood and aids in the development of the bole for lumber production.

Figure 4.3 *C. longissima* is typically pruned to allow more sunlight to reach understory crops and to increase its value as lumber.

Haitian oak begins to flower at an early age, usually within 2 years from seed. The flowers of the species range in color from white to pink. During the months of June, July and November, most trees are fruiting with long, stringy, cylindrical pods up to 40 cm that split open and scatter hundreds of small brown seeds, 1 mm wide and 8 mm long, and enclosed with cotton-like fiber.

Throughout the year, caterpillars and beetles attack mature trees sometimes causing serious defoliation. At other times of the year, mostly at the beginning of the rainy season, it is common to see juvenile trees defoliated by caterpillars, tortoise-shell beetles, and skeletonizers (**Fig. 4.4**).

The wood exhibits hues of light gray to a darker near-chocolate color. A local seed collector claims that the darker-wooded variety, sometimes known as *chenn nwa* (black oak), can be distinguished by the reddish hue of the maturing seed pod. The wood varies in density from 0.60 to 0.80 g/cm^3 with a straight grain that is easily worked (Longwood, 1962).

Utilization: As a living tree, Haitian oak provides a light shade that is influenced in part by defoliation and is controlled further by pruning. As mentioned previously, an important byproduct of pruning the tree is fuelwood. However, where the tree grows well, the primary importance of Haitian oak is for the production of lumber. It ranks second to mango as the main source of lumber in Haiti, though its wood is much more valuable. Haitian oak is the wood of choice for fishing boats (**Fig. 4.5**). As a furniture wood, it is favored over mahogany for its resistance to wood borers and for the natural grayish-brown, lustrous color of its heartwood. The color of the wood is not as age-sensitive as the color of mahogany. Statues and woodcarvings made of Haitian oak generally are left in their natural color (**Fig. 4.6**).

The poles commonly are harvested from coppice stems that sprout from mature stumps. In the urban areas of Port-au-Prince, the poles are used mostly as supports for the pouring of concrete ceilings and building multi-story buildings. In the rural areas, the poles are used chiefly for house construction, both as vertical posts and horizontal beams and rafters. The leaves of Haitian oak are used in a decoction and taken orally for fevers, dysentery, hemorrhoids and respiratory problems (Weniger, 1985; Rouzier, 1990).

Figure 4.4 *C. longissima* is heavily attacked by a number of defoliating insects. Inset — Caterpillar feeding on *C. longissima*.

Propagation: Haitian oak is regenerated naturally by seed that is wind blown great distances from the mother tree. Volunteers left in place were the source of 60% of the trees of known origin in the Lascahobas region (Campbell, 1994). The rest were volunteers that were transplanted to another location. In many areas of Haiti, farmers transplant volunteers to more secure and fertile areas of their land and thus guarantee the eventual harvest of wood. After the mature tree is harvested, basal sprouts regenerate to provide a second, more valuable harvest (**Fig. 4.7**). Up to 20% of the *C. longissima* stems that one tallies on a farm is coppice. However, alternative means to propagating the species are numerous, the only limiting factors being the technical knowledge and input costs of the various options.

Josiah (1989) summarized the methods of propagating Haitian oak utilizing containerized systems, such as the Rootrainer or Winstrip. Problems associated with raising Haitian oak seedlings in the nursery are 1) variability in seed viability among seed lots and seasons, 2) seed predation in the nursery by ants, rats and mice, 3) occasional insect infestations of mites, caterpillars, aphids, leafminers and white fly, 4) occasional fungal diseases such as leafspot (*Alternaria*, *Botrytis*, and *Cercospora*), and anthracnose, caused by *Colletotrichum* (Runion et al., 1990). Seed germination rarely exceeds 40% in the nursery. Factors that greatly affect the seed quality of Haitian oak are many, the most important being parent source, seed crop season and storage conditions. It is more critical to store the seed at low moisture content than at low temperature. Moisture content should be maintained between 5–7% (wet weight basis); storage temperatures

Figure 4.5 *C. longissima* is an important source of wood for boat building.

between 4–19° C, the equivalent to the range between a refrigerator and an air-conditioned room, are adequate, provided that the seed is stored in air-tight containers.

Vegetative techniques have been observed in Haiti, though the practice is not widely utilized. Campbell (1994) tallied only one tree that was established as a cutting by farmers in Lascahobas. Branch cuttings have rooted successfully at a CARE nursery near Barbe Pagnol. In another case, a farmer near Petit Goâve demonstrated air-layering and stooling methods with the species. These methods were successful in propagating superior phenotypes. The advantages of vegetative methods are 1) insured genetic superiority and uniformity, 2) low technological costs and 3) increased survival and growth of the propagule. Considering the

Figure 4.6 The beauty and working ease of *C. longissima* is a favorite among Haitian wood carvers.

limited number of seedlings that the average Haitian farmer demands, vegetative propagation of Haitian oak will be a distinct feature of this species' future in Haiti.

Five grafting methods were experimented with *C. longissima* at Double Harvest in October, 1988. The methods utilized scion material collected from superior tree candidates and rootstock propagated in 10 cm polythene bags. None of the grafting methods was successful. However, the experiment was not exhaustive and such factors as season, rootstock vigor and budwood quality were not studied.

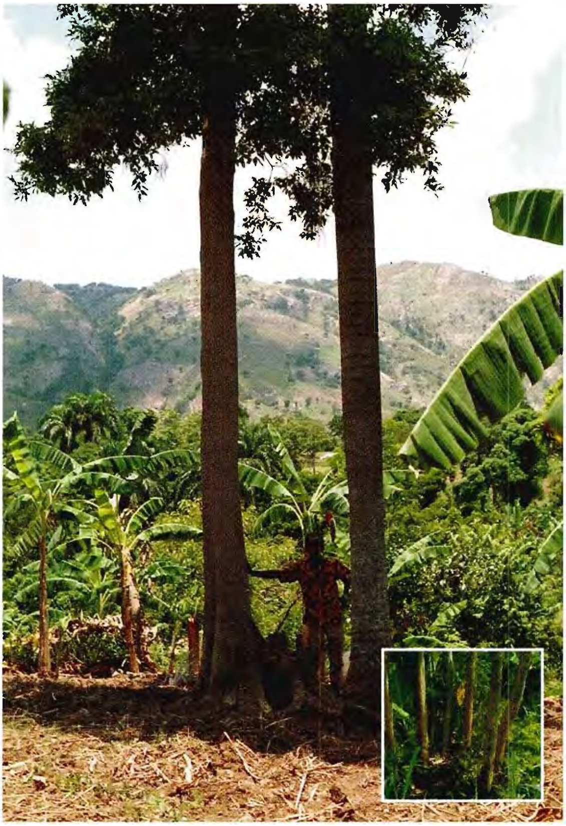

Figure 4.7 *C. longissima* coppice, ready for second lumber harvest. Inset — Close up of coppicing stump.

Biomass Studies: Ehrlich et al. (1986) developed biomass and volume tables for this species based on a stand of Haitian oak near Limbé that ranged in stem diameters from 2 to 20 cm. These tables are based on the allometric relationship between an easily measured parameter, such as DBH, and biomass. These relationships are expressed in the equations provided in **Table 4.1**.

Compared to species such as *Leucaena leucocephala,* the tree has low biomass coefficients, meaning that most of the wood is contained within a stocky single stem rather than in a heavily branched canopy. This attribute is one that makes *C. longissima* a favorite lumber species, especially if the tree is managed on a regular pruning cycle. No volume tables for lumber have been recorded for Haitian oak.

Growth Performance: The tree grows moderately fast on freely-drained alluvial sites that receive at least 1000 mm annual rainfall. The best early growth of the species has been observed at the progeny trial near Laborde (Cayes) and the seed orchard at Roche Blanche (Croix-des-Bouquets), where average height increments of 1.2–1.4 m y^{-1} during the first 3 years and survival rates above 90% were recorded (**Fig. 4.8**). The oldest trial of Haitian oak was established by FAO at Vaudreuil (Bihun, 1982). Average heights of 2.5 m in 2 years, 6 m in 7 years and 7.5 m in 10 years were recorded at a survival rate of 65 %. However, Haitian oak performs poorly on sites where soils are extremely shal-

Table 4.1 Equations used to estimate biomass components (kg dry weight) of *C. longissima* in Haiti, after Ehrlich (1986).

COMPONENT	REGRESSION EQUATION[1]	R^2	DBH RANGE (cm)	SITE
Total aboveground biomass	$0.242(DBH)^2 - 0.54$	0.95	1.7 - 10.8	Limbé
Usable wood weight	$0.179(DBH)^2 - 0.83$	0.96	1.7 - 10.8	Limbé
Usable wood weight	$0.12(sd)^2 - 2.28$	0.93	3.0 - 13.5	Limbé
Pole volume (x 10^{-3} m^3)	$0.277(DBH)^2 - 2.031$	0.95	5.0 - 10.8	Limbé

[1] **DBH** = Stem diameter at 1.3 m above ground level, in cm. **sd** = Stem diameter at 0.1 m above ground, in cm.

low and rocky, such as the Haut Camp and Lapila sites, or in areas that experience lengthy droughts, such as the Terrier Rouge and Nan Marron sites. On these sites, the species never achieves growth rates worthy of wood production.

A summary of several trials in Haiti is provided in **Table 4.2**. The tree does not sprint in height growth like *Leucaena*, but develops more slowly. The poor height rankings are mostly indicative of the early fast growth of the exotics that were established in the same trial. After 3 years, wood yield is negligible at such off-site locations as Bombard, O'Gorman and Lapila. The species would be considered a failure at these sites. Growth ranges at the Terrier Rouge and Fauché sites are suboptimal for the potential of these sites for the species, because of inadequate management during the first years of establishment. The Roche Blanche trial is averaging annual wood yields of 6.7 kg $tree^{-1}$ for the first 3 years. The Vaudreuil site, about 10 km to the east of Roche Blanche, yielded about 1.5 kg $tree^{-1}$ yr^{-1} over the 10 year period (1975–1985). The Laborde site is remarkable in that the species is conspicuously absent in the area. The former use of the land was fallow pasture, as shown in the illustrations (see **Fig. 4.9** and **Fig. 4.10**). The tree is growing very well on the sandy loam soil in association with *Cedrela odorata* and is achieving annual wood yields of 1.7 kg $tree^{-1}$.

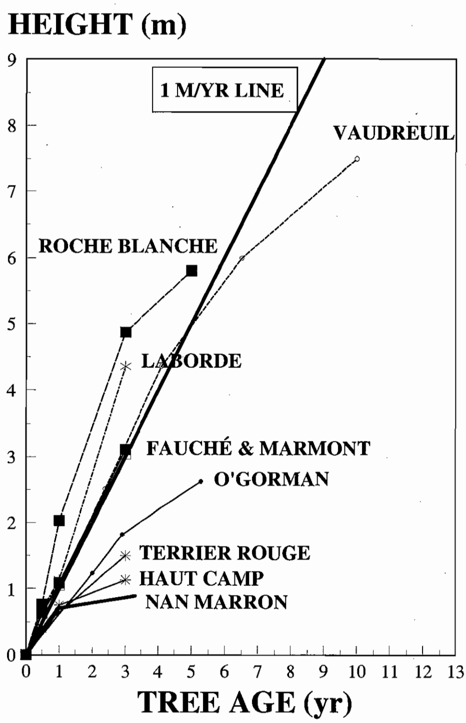

Figure 4.8 Height growth of *C. longissima* in Haiti.

Tree Improvement: An effort began in 1988 to improve the quality of the species as a timber species. A country-wide selection of candidate trees was made for qualitative characteristics that contribute to the economic value of Haitian oak. These traits include stem form, height to the primary fork, branching patterns, and resistance to disease, insects and wind. A total of 127 mother trees were selected throughout Haiti. Seed was collected from two-thirds of the selected candi-

Table 4.2 Site and growth parameters of *C. longissima* trials in Haiti.

SITE	ELEVATION (m)	ANNUAL RAINFALL (mm)	AGE (yr)	SURVIVAL (%)	HEIGHT M.A.I.[1] (m)	DBH[2] M.A.I. (cm)	DRY WOOD YIELD (kg tree^{-1})
Lapila	350	1145	1.0	90	0.6	—	—
Bombard	480	948	1.0	76	0.6	—	—
Plaisance	360	1900	1.5	62	0.1	—	—
Cazeau	30	1200	2.1	97	1.7	—	—
Colin	650	1300	2.2	78	0.6	—	—
Passe Catabois	120	987	2.2	65	0.8	—	—
Grand Bassin	70	1300	2.3	40	0.4	—	—
Crocra	30	1490	3.0	89	0.6	0.6	0.6
Fauché	5	1436	3.0	39	1.0	1.3	1.9
Haut Camp	180	2280	3.0	90	0.4	—	—
Laborde	90	1875	3.0	99	1.4	1.9	5.2
Marmont	280	1450	3.0	72	1.0	1.1	1.1
Roche Blanche 2	130	1030	3.0	86	0.4	—	—
Terrier Rouge	20	1293	3.0	57	0.5	0.5	—
Nan Marron	450	600	3.4	32	0.3	0.2	—
Roche Blanche 1	130	1030	5.0	96	1.2	2.2	20.0
O'Gorman 1	70	830	5.3	74	0.5	0.6	1.2
O'Gorman 2	70	830	5.3	89	0.5	0.4	0.1
Vaudreuil	55	830	10.0	65	0.8	0.9	14.7

[1] **M.A.I.** = Mean annual increment. [2] **DBH** = Stem diameter at 1.3 m above ground level, in cm.

Figure 4.9 Pasture site before trial establishment...

Figure 4.10 ... and 4 years later, showing excellent growth of *C. longissima*.

dates and established in a series of progeny trials and seedling seed orchards throughout Haiti. All progeny tests and orchards are comprised of open-pollinated stock.

No maternal effects have been detected for 3-year survival and height growth. Within-family variation is as large as inter-family differences. For example, at the Laborde progeny trial near Cayes, a 23% difference between the first- and last-ranked families in height growth (4.7 m v. 3.8 m) at 3 years was not significant. Survival likewise was the same across families, ranging from 96–100%. This finding directs further breeding strategies towards selection of individuals that can be vegetatively propagated and installed in second-generation orchards.

The orchard of 55 half-sib families at Roche Blanche probably contains the broadest genetic base of *C. longissima* in its native range. The orchard began yielding seed in the second year. The photo in **Fig. 4.4**, taken at this orchard, shows the seasonal insect defoliation that often attacks the species when it is under drought stress. But it also underscores the worth of an investment to conserve a genetic diversity that can better cope with changes in pests and growing conditions of such an economically important tree species. Several periodic studies on the intensity of defoliation exhibited no family differences. However, the effect of annual attacks may be causing growth differences among families, with the top families showing superior vigor and an advantage of 40–50% in height growth over 5 years. The 2 largest individuals in the orchard come from the same mother tree, a positive indication that improvement can be made in Haiti.

Figure 5.1 Farmers like *S. glauca* growing in their fields because it grows tall, straight, and reaps good lumber.

5 Fwenn

Species: *Simarouba glauca* DC. var. *latifolia* Cronq.
Family: Simaroubaceae
Synonyms: *Simarouba medicinalis* Endl., *S. officinalis* Macfad., *S. officinalis* DC.
Common names: H - bois frêne (*bwa fwenn*), bois blanc (*bwa blan*), d'olive (*doliv*), frêne (*fwenn*); **RD** - daguilla, daguillo, juan primero, laguilla, olivio, palo amargo; **C** - gavilán; **J** - bitter damson; **G/M** - acajou blanc; **US** - simarouba, princess tree; **F** - bois amer, quinquina d'Europe.

Species: *Simarouba berteroana* Krug. and Urban
Family: Simaroubaceae
Common names: H - bois frêne (*bwa fwenn*), frêne (*fwenn*), frêne étranger (*fwenn etranje*); **RD** - aceituna, daguilla, juan primero, olivio.

Importance: *S. glauca* is one of the major sources of fast-growing, medium-grade lumber in Haiti. It is well adapted to the agricultural landscape, regenerating naturally beneath mango and other mature trees. The fast, straight growth and wide adaptability on shallow soils of Haiti's mountains combine to make this tree an attractive choice for agroforestry. The seed kernel is underutilized and has potential for supplying Haitains with a source of oil.

Taxonomy and Botanical Features: There are 6 species of *Simarouba* in tropical America, two of which are native to Haiti (Liogier, 1985). The common *S. glauca* var. *latifolia* is easily distinguished from the less common *S. berteroana* by the leaves. Those of the former are dark, shiny green above, oblong, and often notched or smooth at the apex. *S. berteroana* leaves are a lighter dull green, lanceolate and have a prominent beak at the apex (**Fig. 5.3 inset**). A third *Simarouba* species, planted during the 1950s and 1960s in the vicinity of Lake Peligre, probably was introduced from abroad. Locally known as *doliv*, it is distinguished from *S. glauca* by a smaller bivalved seed and young growth that is light green rather than reddish. It appears to have a shorter bole and a heavier crown.

Fwenn is the Creole name derived from the French word for ash (*Fraxinus*: Oleaceae). *Bwa blan* is heard more often in the northern part of Haiti, whereas *fwenn* is used for the species in the south. Where *S. glauca* co-exists with *S. berteroana*, the latter sometimes is referred to as *fwenn etranjè* (foreign ash), though both are native to Haiti. The specimen identified as *S. glauca* (*Ekman 3036*), collected in 1925 by Dr. Ekman near Ganthier, is *S. berteroana*, as described by Liogier (1985).

Distribution and Ecology: *S. glauca* is a common native of the Greater Antilles, Florida, Mexico and Central America. It is found mostly in Haiti as an associated species of the subtropical moist forest (*sensu* Holdridge, 1976), occurring from sea level to about 800 m. It shares the overstory position with the other common trees of the home and humid perennial gardens: mango (*Mangifera indica*), royal palm (*Roystonea borinquena*), avocado (*Persea americana*), plantain (*Musa* x *paridisiaca*) and as shade for coffee (**Fig. 5.2**). The species is found on the rocky, shallow calcareous soils of mountain slopes and ridges as well as on the deeper soils of the ravines and alluvial plains.

S. berteroana is endemic to Hispaniola and found scattered throughout the country at elevations 100–600 m. The range of the species overlaps with *S. glauca* in the wetter regions, though much less common, and extends into the drier zones which *S. glauca* does not prefer.

S. glauca is shade tolerant and occurs as an understory tree, particularly under the canopy of large fruit trees where birds perch and deposit the seed. Birds relish the ripe drupes and play an important role in seed dispersal from March to July. The species does poorly on severely degraded sites and approaches the limits of its optimal range in regions of Haiti receiving less than 1200 mm annual rainfall. Stressed seedlings in these areas often are attacked by caterpillars and stem borers during the dry months. However, the bitter leaves are avoided by livestock, an advantage for seedlings that develop slowly on tough sites.

Tree Characteristics: A remarkable attribute of *Simarouba* is the straightness of the bole across sites varying widely in soil depth and quality. The tree develops a shallow root system that is well adapted to mountain soils. Mature trees of *S. glauca* attain heights of 25–27 m and stem diameters of 40–50 cm, often with a clear, cylindrical bole to 9 m. *S. berteroana*, being found frequently on less-fertile sites, rarely grows taller than 20 m with stem diameters ranging from 30–40 cm. The form is not as straight as *S. glauca* and tends to fork at lower heights **(Fig. 5.3)**. The crown of both species is narrow, widths averaging 4–6 m, with a crown width:DBH ratio of 22–25. Boles clear of branches often extend to two-thirds total tree height and are managed by pruning the lateral branches. Pruning allows the flexibility to grow the tree as part of the upper story of a perennial garden or in pure, dense stands of *rak bwa* (woodlot). The species coppices, though not vigorously. Approximately 10% of the trees tallied by Campbell (1994) were coppice stems.

At least 2 branch stories or whorls must be left when pruning *S. glauca* to avoid impairing growth rates (Lamprecht, 1989). Plantations have been reported to resist storms and drought and are favored over cashew (*Anacardium occidentale*) for such reasons in India (Satpathi, 1984).

The wood is light (sp. gr. 0.38) and soft with strength properties normal for a wood of its density. The creamy white color of the heartwood is barely distinguishable from the sapwood. It is commonly reported in Haiti and other Caribbean islands that the wood has a tendency to split

Figure 5.2 *S. glauca* is managed with mixed annual and perennial food crops in the moist regions of Haiti.

during sawing. Seasoning with prolonged weather exposure causes severe surface and end splitting. It exhibits variability in decay resistance, though it is generally considered low in resistance to decay fungi and highly susceptible to dry-wood termites and marine borers, contrary to a widely held belief that the characteristic bitter taste of the bark and wood impart a resistance to insects (Longwood, 1962).

The plant is dioecious with both unisexual and bisexual flowers. The seed orchard at Roche Blanche began bearing seed at 3 years, though full seed production is achieved at 6 years. Male trees made up approximately 40% of the population in a plantation established in India (Satpathi, 1984). These were eliminated and replaced with bisexual plants for seed production. There are 1600–1800 seeds kg^{-1} for *S. glauca* and 1100–1300 seeds kg^{-1} for *S. berteroana.*

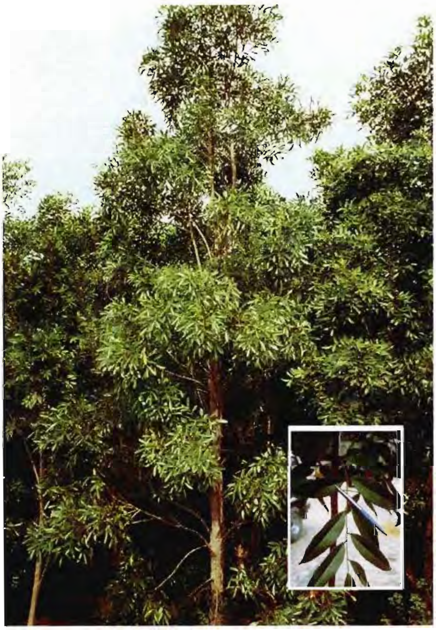

Figure 5.3 *S. berteroana*, showing the typical habit of the species. Inset - Slender and pointed leaf shape of *S. berteroana*

Utilization: The moderate density, softness, and ease of working, make *S. glauca* a popular wood for house construction and common furniture of the Haitian farmer. The combination of fast growth, broad adaptibility, and ample natural regeneration provides an adequate supply for local wood industries in such regions as Maniche in the southwestern Haiti (**Fig. 5.4**).

The wood generally is sawn into planks that are easy to work as a general utility wood. Certain staining fungi that attack the wood actually enhance its appearance for decorative uses. The wood industry in Central America uses the species in match manufacture, plywood core, veneer, wood chips and lumber.

S. glauca yields an edible oil from its seeds. The aceituno fat also is used for soap production in India, where plantations have been established for commercial production. Methods for processing the seed to produce and refine the crude fat, as well as the physical and chemical characteristics of the aceituno oil, are given in Rath (1987). Armour (1959) mentions a toxin in the residual cake that is produced during the oil-extraction process.

All parts of the tree are used for medicinal purposes. The bark is taken as a decoction or tea for diarrhea and fever. Leaves are used for rheumatism or are applied in the form of a lotion for body pain, bruises or skin itch. The fruit is edible. During the flowering season, it is visited by swarms of bees and is considered an important honey plant.

Propagation: *S. glauca* regenerates well under the deep shade of mango, where birds perch and drop the seed after eating the sweet pulp (**Fig. 5.5**). It also is dispersed by other small fauna that feed on the fruit. A lizard species (*Ctenosaura similis*) in Costa Rica has been observed to ingest the fruit and disperse intact seeds away from the mother trees (Traveset, 1990).

Figure 5.4 Men sawing *S. glauca* in the Maniche area, where the species supplies a local lumber industry.

For the most part, trees found in the Haitian landscape are regenerated naturally. However, farmers occasionally transplant volunteer seedlings or sow seeds in new locations. Nursery beds for stumps or bare-root seedlings are a recent development of agroforestry and forestry projects in Haiti **(Fig. 5.6)** and are better suited for local production of seedlings where natural regeneration is scarce. Stumps or balled seedlings are transplanted during the rainy season when root collar diameters reach 0.7–1.0 cm. Vegetative techniques include air-layering, cuttings and grafting (Satpathi 1984; Armour, 1959).

Special considerations are needed to propagate the species efficiently in containers. It is preferred to sow fresh seed, within a month following harvest, and prepare the seed by cracking the endocarp to overcome dormancy barriers. Emergents have a tendency to loop or lie on their sides. Sowing the seed on its side partially overcomes this problem; extra seed is sown in germination beds for replacing deformed seedlings. Young seedlings under shade are susceptible to root- and stem-rot diseases that should be controlled by proper watering and fungicide treatments. Sunscald is a problem when seedlings are placed in the sun directly from the shade. This problem is avoided if the seedlings are conditioned properly. Approximately 12 weeks are required to raise seedlings in the rigid cell containers, with the initial 4 weeks in the shade and the final month being hardened off (Josiah, 1989).

Seed Research: Seed of this species exhibits dormancy as a result of the hard seed coat. Seed that are viable by the tetrazolium test fail to germinate. Furthermore, the high oil content of the seed causes the seed to lose viability after a couple of months when it is stored at ambient conditions. Drying to seed moisture contents below 10% and storing in air-tight containers improves seed longevity.

Figure 5.5 Natural regeneration of *S. glauca* under a harvested mango tree, where birds once perched and dropped seed after eating the sweet pulp.

Seed-coat dormancy can be overcome by extracting the kernel from the endocarp or by cracking the endocarp prior to sowing (Timyan and Vaval, 1993). Both these treatments showed significant improvements in germination over the control, increasing total germination 2-fold in the nursery. Soaking the seed in either cold or hot (80° C) water for 24 hours did not affect germination. However, height growth was slower for seedlings that germinated from the extracted kernels than for the other seed treatments.

Growth Performance: Both species generally exhibit good to excellent survival, even on poor sites with shallow soils and drought periods extending to 4 months (e.g., Bombard and Lapila). However, the species are out of their range on low-elevation sites receiving less than 1000 mm rainfall or sites above 900 m elevation (see **Table 5.1** and **Table 5.2**). Annual stem increments are slightly higher for *S. glauca* than *S. berteroana*, with the latter species exhibiting a more slender stem, less erect form, and branchier crown.

Figure 5.6 *S. glauca* is propagated as bare-root seedlings in a CARE nursery.

Height growth has never been observed to exceed 2 m yr^{-1} for either species (see **Fig. 5.7** and **Fig. 5.8**). The fastest growth has been measured at the Fauché site (1.8 m yr^{-1} for *S. glauca*; 1.6 m yr^{-1} for *S. berteroana*), with the average for the species close to a meter per year. The oldest trial at O'Gorman in the Cul-de-Sac plain was measured at 9 years and showed a mean annual height increment of 0.5 m and stem-diameter increment of 0.6 cm for *S. berteroana*. *S. glauca* exhibited height increments of 0.7 m and stem-diameter increments of 0.6 cm in the same trial. However, the O'Gorman site is not typical of the growing conditions where *S. glauca* is commercially exploited for lumber. Fauché and La Jeune are typical sites where the native population is vigorous and the species is regarded as a valuable shade and timber species. These trials should be observed carefully to estimate the profitability of growing the species for timber.

Tree Improvement: The selection of *S. glauca* provenances for superior wood properties has been examined in Africa, based in part on seed collected in Haiti (Ergo and Deschamps, 1984). A great deal of heterogeneity was found among the seed sources throughout its native range in the Caribbean and Central America. Most variability was attributed to genetic differences, indicating the potential of tree improvement within the species.

Between 1988 and 1991, a selection of superior phenotypes was conducted in areas of Haiti where significant populations occur: La Jeune area of the Plateau Central, Maniche area of the southwest, the Grand-Anse, and areas of Bainet and Jacmel. A total of 79 plus trees were selected, of which 35 trees were harvested for seed and propagated for establishment in seedling seed orchards, progeny trials, and arboreta. The same approach was employed for the endemic *S. berteroana*. Nine of 14 selected trees were harvested and established in orchards and progeny trials. Some of the orchards of the

Table 5.1 Site and growth parameters of *S. glauca* var. *latifolia* trials in Haiti.

SITE	ELEVATION (m)	ANNUAL RAINFALL (mm)	AGE (yr)	SURVIVAL (%)	HEIGHT M.A.I.[1] (m)	DBH[2] M.A.I. (cm)
Laborde 2	90	1875	1.0	92	0.5	—
La Jeune	400	1145	2.0	88	1.2	—
Paillant	600	1300	2.0	69	0.4	—
Tranquille 76-11	900	1450	2.9	41	0.2	—
Bombard	480	948	3.0	75	0.8	0.8
Fauché	5	1436	3.0	77	1.8	2.0
Haut Camp	180	2280	3.0	82	0.4	0.5
Marmont	280	1450	3.0	48	0.9	0.8
Roche Blanche	130	1030	3.0	84	1.6	2.0
Terrier Rouge	20	1293	3.0	57	0.7	0.8
Lapila 2	350	1145	3.2	52	0.7	0.9
Lapila 1	350	1145	3.4	90	1.2	1.3
O'Gorman 76-10	70	830	5.3	85	0.9	0.8
O'Gorman 76-9	70	830	5.3	74	1.2	0.5
O'Gorman 76-6	70	830	9.0	41	0.7	0.4
Vaudreuil 75-1	55	830	10.0	53	1.0	1.2

[1] **M.A.I.** = Mean annual increment. [2] **DBH** =Stem diameter at 1.3 m above ground level.

Table 5.2 Site and growth parameters of *S. berteroana* trials in Haiti.

SITE	ELEVATION (m)	ANNUAL RAINFALL (mm)	AGE (yr)	SURVIVAL (%)	HEIGHT M.A.I.[1] (m)	DBH[2] M.A.I. (cm)
Laborde 2	90	1875	1.0	100	0.9	—
Tranquille 76-10	850	1385	2.7	32	0.3	—
Marmont	280	1450	3.0	36	1.2	1.1
Fauché	5	1436	3.0	66	1.6	1.5
Roche Blanche	130	1030	3.0	80	1.6	1.8
Terrier Rouge	20	1293	3.0	62	0.9	0.8
Lapila 2	350	1145	3.2	69	0.8	0.8
O'Gorman 1	70	830	9.0	49	0.4	0.6

[1] **M.A.I.** = Mean annual increment. [2] **DBH** = Stem diameter at 1.3 m above ground level.

latter species are isolated from *S. glauca*; others are adjacent and may produce hybrid seed. There is evidence that the two species hybridize, with seed collected from wild populations of *S. glauca* showing traits of *S. berteroana.* Future studies should be oriented toward better understanding the role that hybrids may play in wood properties, survival and growth rates. Attempts to broaden the genetic diversity of *S. glauca* by importing seed from the OFI collection (UK) and the Dominican Republic were unsuccessful, with the seed failing to germinate in the nursery.

No maternal effects have been shown for either species in survival or height growth after 3 years. There is as much variance within the half-sib families as there is between them. The populations in Haiti appear to be quite uniform, though selection at the individual level in the progeny and seed orchards is planned at the time of the first thinning. The seed orchard at Roche Blanche, established in 1989, began bearing seed in May, 1993 at 3 1/2 years.

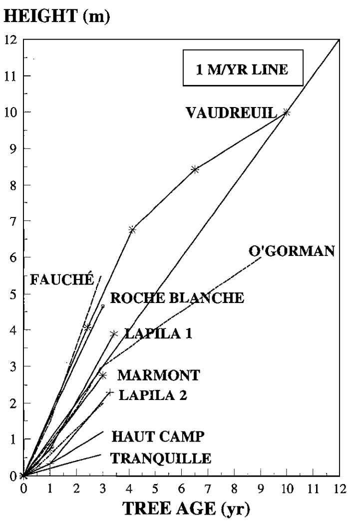

Figure 5.7 Height growth of *S. glauca* in Haiti.

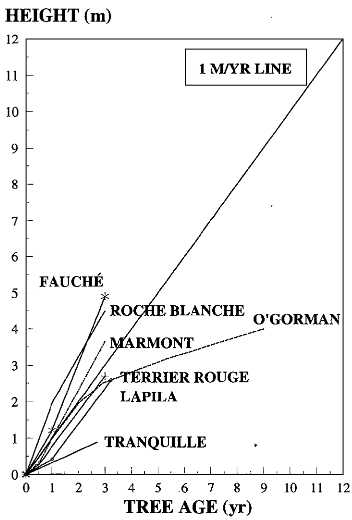

Figure 5.8 Height growth of *S. berteroana* in Haiti.

Figure 6.1 A mature *S. mahagoni* shelters the courtyard of a rural residence.

6 Kajou Peyi...Kajou Etranje

Species: *Swietenia mahagoni* (L.) Jacq.
Family: Meliaceae
Synonyms: *Cedrela mahagoni* L., *Cedrus mahagoni* L., *C. mahogani* (L.) Miller, *Swietenia fabrilis* Salisbury, *S. mahogoni* (L.) Lam.
Common Names: H - acajou (*kajou*), acajou pays (*kajou peyi*); **C, PR, RD** - caoba, caoba de Santo Domingo, caoba dominicana; **J, PR, US** - Dominican mahogany, small-leaf mahogany, West Indian mahogany, West Indies mahogany.

Species: *Swietenia macrophylla* G. King
Family: Meliaceae
Synonyms: *Swietenia belizensis* Lundell, *S. candollei* Pittier, *S. krukovii* Gleason & Panshin, *S. tessmannii* Harms
Common Names: H - acajou étranger (*kajou etranje*), acajou du Venezuela (*kajou venezwela*), acajou du Honduras; **RD** - caoba hondureña; **PR** - caoba de Honduras; **PR, US, J** - big-leaf mahogany, Honduras mahogany, mahogany, Venezuelan mahogany.

Importance: *S. mahagoni*, one of the world's premier cabinet woods, was the original mahogany in the commercial trade and was exported from Hispaniola as early as the sixteenth century. It is broadly adapted to dry rocky sites where other premier timber species are not productive. It naturally regenerates well and hybridizes with *S. macrophylla* for faster growth and superior form. *S. macrophylla*, introduced from Central America and naturalized in the wetter regions of Haiti, offers expanded opportunities for agroforestry and lumber production.

Taxonomy and Botanical Features: Most botanists recognize 3 species in the genus *Swietenia* (*S. mahagoni, S. macrophylla,* and *S. humilis*), though the degree of hybridization and intermediate types among the species blurs this distinction (Pennington and Styles, 1975). The broad symmetrical crown and short trunk is characteristic of the native *S. mahagoni.* The leaves are even pinnate, 10–18 cm long, and bearing 4–10 pairs of shiny, dark green leaflets, lance-shaped, 2.5–5.0 cm long by 0.7–2.0 cm broad. The light brown seed capsule stands upright, about 6–10 cm long by 4–5 cm diameter, with 5 valves splitting upward from the base. Each valve releases about 20 flat brown winged seeds, 4–6 cm long. Features that are characteristic of the naturalized *S. macrophylla* are the smoother and lighter bark, straighter and longer bole, narrower crown in proportion to total tree height, and larger leaves. The leaves are 20–40 cm, with 6–12 pairs of shiny leaflets, 6.5–15.0 cm long. The seed capsule is 12–18 cm long and 7.5 cm diameter, with 5 valves that split from the base, each with 2 rows of 10–14 winged brown seeds, 8–11 cm long (**Fig. 6.2**). *S. macrophylla* outcrosses with *S. mahagoni* in Haiti to produce hybrids with intermediate leaf sizes, but inherits more the form and growth rate of *S. macrophylla* and the wood qualities and drought resistance of *S. mahagoni* (Whitmore and Hinojosa, 1977).

Distribution and Ecology: *S. mahagoni* is native to the western Caribbean, including Hispaniola, Jamaica, Cuba, Bahamas and south Florida. It now occurs throughout the tropics as a timber species, having problems naturalizing in other countries.

Figure 6.2 Five-parted seed capsules are a characteristic feature of *Swietenia*. The capsules of *S. macrophylla*, shown here, are larger than those of *S. mahagoni*.

S. macrophylla occurs naturally from the Yucatán in Mexico to Brazil. It is a lowland species, most frequently found from sea level to 450 m.

In Haiti, *S. mahagoni* is common at elevations of 100–500 m, mostly inhabiting the drier hillsides where it is better adapted than the introduced *S. macrophylla*. Soils are mostly calcareous and annual rainfall ranges from 800–2000 mm with a 2–3 month winter drought. The seed capsules fully ripen during the dry season, with the winged seed dispersed widely by the winds.

Pure and dense stands of the species occur rarely, observed only in areas of the Plateau Central where the species is very common. Typically, the species is scattered as isolated trees across the agricultural landscape and occurs in remnant populations. In the drier habitats of the Northwest, commonly associated species are *bwa blan* (*Phyllostylon brasilense*), *divi-divi* (*Caesalpinea coriaria*), *bwa kapab* (*Colubrina arborescens*) and *gayak* (*Guaiacum* sp.). In the moist forest, associates are *sèd* (*Cedrela odorata*), *bwa dòti* (*Petitia domingensis*), *chenn* (*Catalpa longissima*) and *bwa ple* (*Colubrina arborescens*).

S. macrophylla was introduced into Haiti during the 1940s by SHADA (Société Haïtienne-Américaine pour le Développement Agricole) at Bayeux, on the northern coast, and at Franklin, in the southwest (**Fig. 6.3**). Since that time, it has been

Figure 6.3 One of the original *S. macrophylla* stands at Franklin, about 40 years after its introduction to Haiti.

distributed as roadside plantings and has been established in small private plantations in the Cap-Haïtien and Jérémie areas. The species performs poorly on alkaline soils, particularly on the soft whitish limestone clays, locally known as *tif*, and on shallow rocky soils of the dry slopes and ridges. It prefers sheltered conditions and well-drained soils in areas of Haiti that receive more than 1800 mm annual rainfall and below 500 m elevation. Natural *S. macrophylla* x *S. mahagoni* hybrids are found in most areas where *S. macrophylla* has been introduced, notably in the Limbé/Riviere Salé region and Fond-des-Nègres. Additionally, seed lots of the hybrid have been imported from Puerto Rico and St. Croix since 1989 and have been established in growth trials with both of the parent species. *S. humilis* occurs in scattered trials throughout the country and has been introduced to Haiti only since 1989.

Tree Characteristics: The typical form of mature *S. mahagoni* has a short, buttressing trunk, up to 1 m diameter and 2-3 meters high, with a large, spherical crown, many heavy branches and dense shade. The bark is smooth and gray on young trees, turning to a scaly dark reddish brown on large trees. Superior individuals have been selected with clear bole lengths up to 12 m. Maximum tree heights rarely exceed 24 m and average 18 m with spreading crown diameters up to 15 m. Average crown:DBH ratio for this species is 22.4 (sd 2.74). The tree is deciduous where there are severe droughts, with a characteristic reddish flush of new leaves at the beginning of the rains (**Fig. 6.4**).

Figure 6.4 *S. mahagoni* is deciduous in the drier regions of Haiti.

The form of *S. macrophylla* is superior for lumber production, having a narrower crown and clear boles up to 16 m. Tree heights have been measured up to 30 m at Franklin, with stem diameters 40–60 cm, averaging an annual increment of 1 cm yr^{-1} during the past 50 years. The crown of young trees is narrow; that of older trees becomes broad, dense, and highly branched.

Wood properties of the two species differ. *S. mahagoni* is harder, with a heartwood that is brownish red, deepening with exposure and age. *S. macrophylla* is lighter pink brown, with a grain not as fine. Both woods have similar density (0.5–0.8) with straight grain that is sometimes wavy, roey, and figured. The sapwood of both species is very susceptible to decay and insects. Many farmers and woodworkers in Haiti complain of the attack (*piké*) on juvenile *S. mahagoni* trees by various borers. However, the heartwood of *S. mahagoni* is highly resistant to decay and insect attack, performing better than all other mahoganies on the world market (Moses, 1955). West Indies mahogany is noted for its low and uniform shrinkage and its ability to hold its shape much better than other woods of similar density (Longwood, 1962). The wood works well and finishes to an exceptionally smooth, lustrous surface.

Figure 6.5 Detail of classic mahogany furniture made in Haiti.

Both species flower in Haiti during the fall and produce seed during the late winter period from January to March. Seed weights range from 2100–2800 seeds kg^{-1} for *S. macrophylla* to 6000–8700 seeds kg^{-1} for *S. mahagoni*. The seed of neither species stores well. The best storage conditions are at very low seed moisture contents (3 % wet weight basis) and low storage temperatures (-20 to 2° C). Seed does not remain viable for longer than 2 months when stored at ambient conditions in Haiti.

Utilization: This is the wood of choice for high-class furniture and cabinetwork, joinery, yachts, and pattern work (**Fig. 6.5**). Logs usually are hauled in from the rural areas in short 3-meter lengths rather than being sawn (**Fig. 6.6**). Woodcarvers use a significant amount

Figure 6.6 Logs of *S.mahagoni* in Port-au-Prince waiting to be sold for wood carving and furniture making.

of the wood in turnery and sculpture. Much of the branchwood and crooked stems is converted to charcoal, particularly in the regions of Haiti isolated from the urban markets by poor roads. High-grade timber is used locally for window frames, doors, sills and interior woodwork, or is exported to the urban market.

S. mahagoni is a medicinal plant throughout the Caribbean. The bark is considered an astringent and taken orally as a decoction for diarrhea, as a source of vitamins and iron, and as a medicine used to induce hemorrhage. When the bark is steeped to a red liquid, it is taken to clear blood, increase appetite, and regain strength in cases of tuberculosis (Ayensu, 1981).

Farmers generally plant the species along the boundary of gardens or around the courtyard garden, where it provides deep shade. A widespread belief in Haiti is that *S. mahagoni* dries the soil and makes it "hot." This is particularly true in the drier regions where soil moisture is already marginal for adequate crop production. *S. macrophylla* does not suffer this reputation, being planted in regions of Haiti where rainfall is greater than 1500 mm and used as shade for coffee.

Figure 6.7 Transplanting volunteer seedlings is the easiest method for establishing *S. mahagoni* at new locations.

Propagation: Most farmers in Haiti who transplant seedlings do so from naturally-regenerated stock in the field (**Fig. 6.7**). The species generally is propagated from seed for mass production of seedlings in containerized systems, such as the Winstrip and Rootrainer. Seed is sown shortly after harvest, considering the short viability of the seed under ambient conditions. Seed usually is prepared by breaking the seed wing to facilitate germination. The heavy part of the seed is planted into the soil with the top portion slightly exposed. Looping of the hypocotyl is a problem and these seedlings are replaced with transplants from a germination bed. Both species require about 18 weeks to prepare seedlings for outplant, with the initial 3 weeks in the shade and the final 4 weeks for hardening off. Sunscald is a problem if the seedlings are exposed directly to the sun from shade, requiring acclimation to full-sunlight conditions. Damping off and root-rot problems are the most serious nursery diseases and can be controlled by proper watering and fungicide treatments. The root plug of the species is loose and special precautions are required in lifting out the seedlings.

Growth Performance: The growth data on *S. mahagoni* in Haiti are surprisingly sparse considering the widespread occurrence of the species (**Table 6.1**). It is more drought hardy than *S. macrophylla* (**Table 6.2**) and generally exhibits higher survival and growth on sites receiving less than 1000 mm rainfall. The trial at O'Gorman is typical of the performance of *S. mahagoni* in **Table 6.1** compared to *S. macrophylla* in **Table 6.2** on a dry site. Survival is 4-fold and mean annual diameter increments are 2-fold. Even height growth is faster for the more drought-tolerant native species. On favorable and wetter sites such as Fauché, growth of *S. macrophylla* is rapid, achieving twice the annual height increments of *S. mahagoni*. Whereas *S. macrophylla* can achieve 2 m yr^{-1}, *S. mahagoni* rarely grows faster than 1 m yr^{-1}, even on sites where moisture and soil depth are not limiting. **Figure 6.8** and **Figure 6.9** compare the height

Table 6.1 Site and growth parameters of *S. mahagoni* trials in Haiti.

SITE	ELEVATION (m)	ANNUAL RAINFALL (mm)	AGE (yr)	SURVIVAL (%)	HEIGHT M.A.I.[1] (m)	DBH[2] M.A.I. (cm)
Fauch•	5	1436	3.0	84	1.4	1.4
Marmont	280	1450	3.0	71	1.2	1.2
Marmont	280	1450	3.0	44	1.0	0.9
Roche Blanche	130	1030	3.0	48	1.1	1.2
Terrier Rouge	20	1293	3.0	71	0.6	0.3
O'Gorman	70	830	9.0	85	0.6	0.6
Vaudreuil	55	830	10.0	89	0.8	1.1

[1] **M.A.I.** = Mean annual increment. [2] **DBH** = Stem diameter at 1.3 m above ground level, in cm.

Table 6.2 Site and growth parameters of *S. macrophylla* trials in Haiti.

SITE	ELEVATION (m)	ANNUAL RAINFALL (mm)	AGE (yr)	SURVIVAL (%)	HEIGHT M.A.I.[1] (m)	DBH[2] M.A.I. (cm)
B•rault	25	1950	3.0	53	2.0	2.2
Labordette	375	1350	3.0	44	0.6	1.0
Fauch•	5	1436	3.0	47	2.2	2.1
Marmont	280	1450	3.0	32	1.4	1.5
Marmont	280	1450	3.0	44	1.0	1.0
Roche Blanche	130	1030	3.0	30	1.0	1.0
O'Gorman	70	830	5.3	22	0.4	0.3
Vaudreuil	55	830	10.0	75	1.0	1.2

[1] **M.A.I.** = Mean annual increment. [2] **DBH** = Stem diameter at 1.3 m above ground level, in cm.

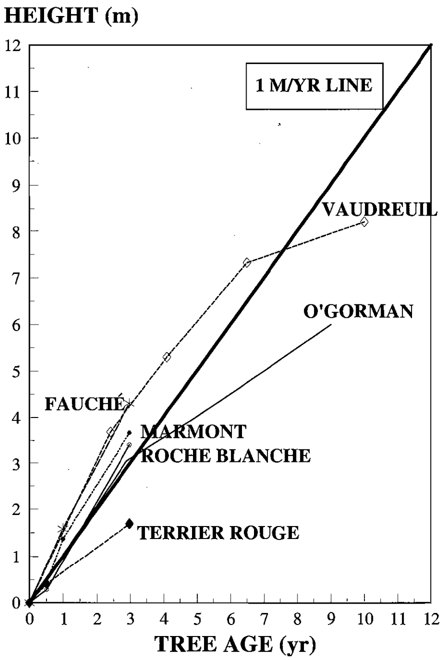

Figure 6.8 Height growth of *S. mahagoni* in Haiti.

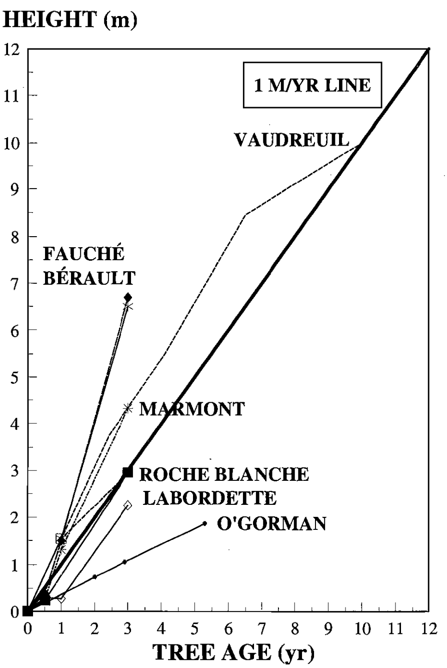

Figure 6.9 Height growth of *S. macrophylla* in Haiti.

growth of the two species on several sites in Haiti. The trials are more typical of sites that are preferred by *S. mahagoni*, biasing the true potential of *S. macrophylla.* The best examples are the former SHADA plantations near Anse d'Hainault and Bayeux and several private plantations near Cap-Haïtien. The tree grows poorly on the shallow, rocky soils of steep slopes and ridges, as in the case of the Labordette trial.

The trial at Marmont is situated in the Central Plateau where *S. mahagoni* is a dominant species. Early growth rates are favoring *S. macrophylla* and the hybrid, *S. macrophylla* x *S. mahagoni,* over the native species. However, survival rates are still higher for *S. mahagoni* and a steady growth rate over a longer period may be superior.

Survival is not a problem for *S. mahagoni*, tolerating drought better than *S. macrophylla.* However, the broad canopy of the tree discourages pure wood lots and the slow growth makes it difficult for farmers to seriously consider this species for intensive silviculture. For this reason, farmers rarely propagate the species, preferring instead to rely on natural regeneration and transplanting wildings at wide spacings. It is difficult at this stage to predict the role of the hybrid. It is reported to be more drought resistant than *S. macrophylla,* though this will be difficult to prove with so few sites where the hybrid and both parents occur at the same age. At Roche Blanche and Marmont, where such a situation occurs, the hybrid has not shown any advantage in survival. Results in height growth are mixed (**Fig. 6.10**). Growth rates for the few sites where it has been established in

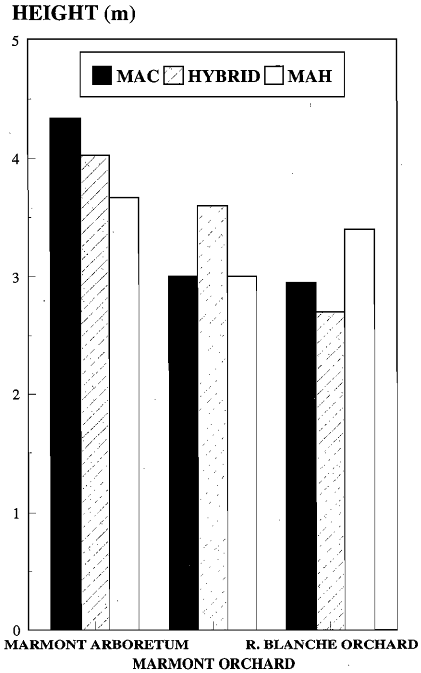

Figure 6.10 Height growth comparisons of *Swietenia* spp. after three years. **MAC** = *S. macrophylla;* **HYBRID** = *S. macrophylla* x *S. mahagoni*; **MAH** = *S. mahagoni*.

trials are provided in **Table 6.3**.

Tree Improvement: A total of 17 *S. mahagoni* and 18 *S. macrophylla* were selected between 1988 and 1991 for superior traits. The major selection areas for *S. mahagoni* were in the Central Plateau, the Northwest, and in scattered populations in the southern peninsula. Superior phenotypes of *S. macrophylla* were selected in even-aged plantations in the Jérémie and Cap-Haïtien areas. Several provenances of *S. macrophylla* were introduced from Central America and established in provenance trials and seed orchards to broaden the genetic base of the introduced species. The open-pollinated *S. macrophylla* x *S. mahagoni* hybrid was imported from Puerto Rico and St. Croix on three occasions and established with both parent species in stands for growth comparisons and to encourage back-crossing of the hybrid with the local *S. mahagoni* for more drought-resistant stock. The hybrid, with a narrow crown and a straight clean stem, resembles more the traits of the mother parent, *S. macrophylla*, and appears to be a good choice for agroforestry (**Fig. 6.11**). Problems of variability and a narrow genetic base inherent to hybrids should be studied further to improve their potential for widescale forestry purposes.

Table 6.3 Site and growth parameters of *S. macrophylla* x *S. mahagoni* hybrid trials in Haiti.

SITE	ELEVATION (m)	ANNUAL RAINFALL (mm)	AGE (yr)	SURVIVAL (%)	HEIGHT M.A.I.[1] (m)	DBH[2] M.A.I. (cm)
Marmont 1	280	1450	3.0	52	1.3	1.2
Marmont 2	280	1450	3.0	68	1.2	1.2
Roche Blanche 1	130	1030	3.0	32	0.9	0.9
Roche Blanche 2	130	1030	4.0	80	1.6	1.9

[1] **M.A.I.** = Mean annual increment. [2] **DBH** = Stem diameter at 1.3 m above ground level, in cm.

Figure 6.11 Comparison of *S. mahagoni* (left) with a *S. macrophylla* x *S. mahagoni* hybrid (right) after three years of growth in the Cul-de-Sac Plain.

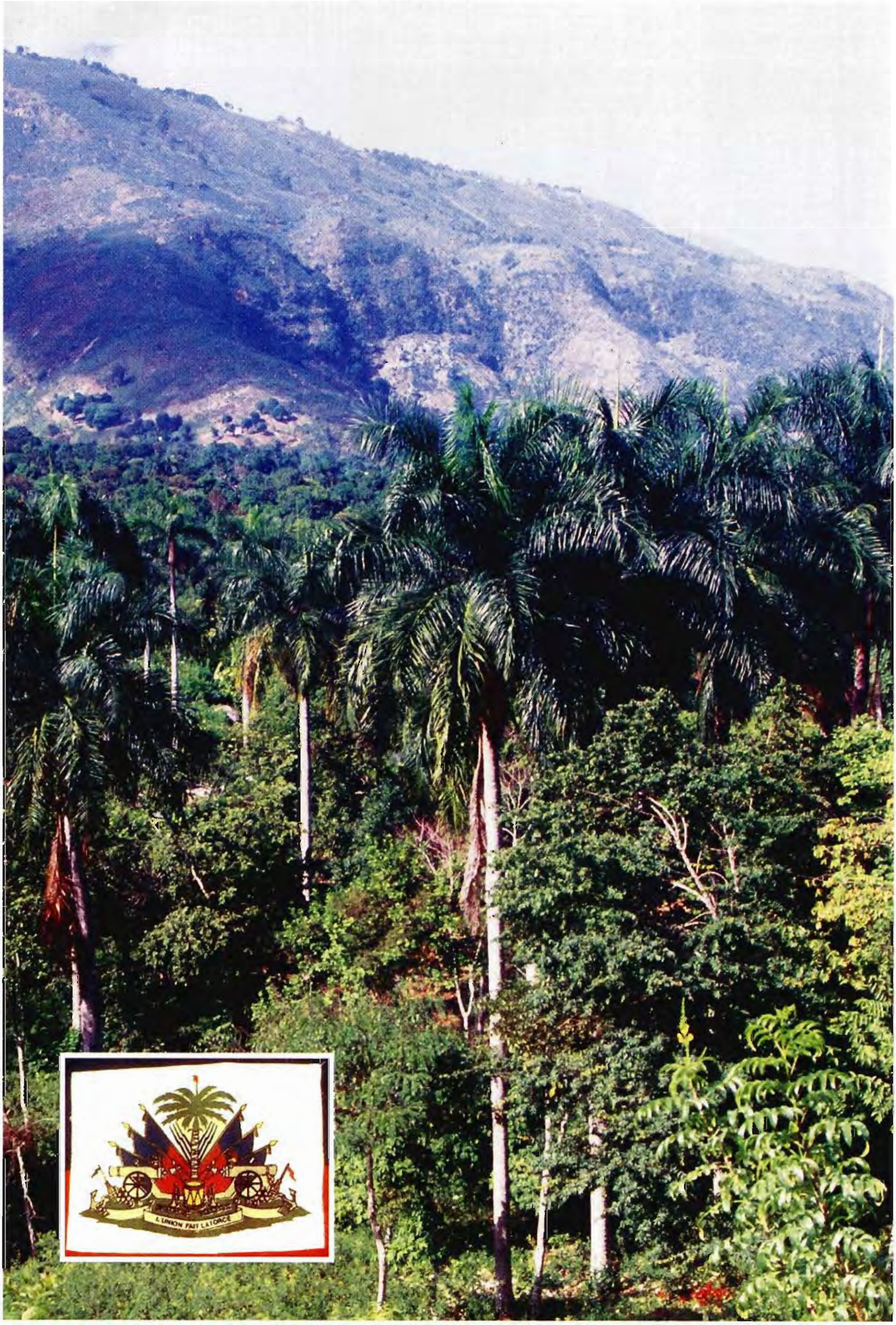

Figure 7.1 *R. borinquena* is an important source of food, fiber and construction material for rural populations in Haiti. Inset — The royal palm is displayed proudly in the Haitian coat of arms.

7 Palmis

Species: *Roystonea borinquena* O. F. Cook
Synonyms: *Oreodoxa borinquena* (O.F. Cook) Reasoner ex L.H. Bailey, *Roystonea hispaniolana* Bailey, *R. hispaniolana* f. *altissima* Moscoso, *R. peregrina* L. H. Bailey
Family: Arecaceae (=Palmae)
Common Names: H - palmiste (*palmis*), palmier royale; **RD** - palma, palma deyagua, palma real; **US** - Hispaniolan royal palm, Puerto Rico royal palm, royal palm.

Importance: This is one of the most useful trees in the moist lowlands of Haiti, providing a source of food for pigs, fiber for weaving and thatch, and construction material. Nearly every part of *R. borinquena* can be utilized for domestic purposes or for sale in the market. The stately tree is a symbol of patrimony, and is positioned in the center of the Haitian flag (**Fig. 7.1** inset).

Taxonomy and Botanical Features: The genus is native to the Caribbean, and is named in honor of General Roy Stone (1835–1905), who served in Puerto Rico during the Spanish-American War. Bailey and Moore (1949) recognized 12 species, though there may be fewer than this when a revision of the genus is completed (Henderson et al. 1990). The center of diversity for the genus is recognized as eastern Cuba (Zona, 1993).

R. borinquena and *R. hispaniolana*, though often reported as distinct species, may be considered synonyms (S. Zona, personal communication). The palm is recognized by a smooth gray and solitary trunk up to 0.5 m diameter that is slightly swollen at mid-height; a light green column of leaf sheaths about 1.5 m high between the trunk and the crown of large pinnate leaves; leaf blades about 2.5– 3.5 m long, with many paired pinnae 0.4–0.6 m long, the youngest unfolded leaf projecting as a spire from the middle of the crown; male and female flower clusters at the base of the leaf sheaths; and light brown, slightly fleshy, elliptical fruits approximately 1 cm in diameter.

Distribution and Ecology: *R. borinquena* occurs in Puerto Rico, Vieques, St. Croix (Little and Wadsworth, 1964) and throughout the island of Hispaniola, from below sea level near Lake Enriquillo to about 1000 m elevation (Zanoni, 1991). It is found most frequently in the lower mountain areas beginning at 150 m, preferring the moist to wet forest regions that receive 1000–2000 mm annual rainfall. It does not occur in the dry limestone regions except near water sources. The tree is abundant in the upper Artibonite watershed (**Fig. 7.2**). In one study of the courtyard gardens around Lascahobas, royal palm was the most common species, including all size classes, and ranked third behind mango and avocado in the number of mature trees over 25 cm stem diameter (Campbell, 1994). Though a dominant tree of the upper canopy layer in the gardens near rural residences, most of the population is distributed in favor of the juvenile-size classes that are not considered mature for timber harvest. The species is dispersed largely by farmers who harvest the fruit to feed pigs, but also by birds and rodents.

Tree Characteristics: Mature palms reach 20 m tall with crown diameters approaching 5 m (**Fig. 7.3**). The grayish smooth trunk has a slightly broad base that narrows before swelling some distance above. The evergreen crown has more than a dozen

Figure 7.2 *R. borinquena* is particularly abundant in the lower elevations of the moist regions of Haiti.

gracefully curved and spreading leaves that separate smoothly from the trunk after they die. Faint leaf scars at the nodes form a distinctive pattern along the trunk and are variably spaced according to growth rate and tree age. The tree flowers throughout the year.

Utilization: The species is one of the most utilized tree species in the subtropical moist forest. It is planted as a stately ornamental in the urban residential areas. In the rural areas, the standing tree is often used to store grain. A hole is cut through the trunk at about 6 m above ground and corn is balanced on each end of a pole running through the hole (**Fig. 7.4**). This practice discourages rats from getting to the corn. As an important honey plant, the flowers attract bees that also make their hive in trunk segments prepared by farmers (**Fig. 7.5**). The fruit clusters are served to pigs that are often tethered at the base of the trunk or in deep shade (**Fig. 7.6**). When pigs are given fresh fruit, they eat the fleshy outer part and leave the kernel to dry for later consumption. The proximate analysis of *Roystonea* fruit from Cuba, on a dry weight basis, is as follows: 6.1% crude protein, 23.6 % crude fiber, 26.6% crude fat, 39.4% carbohydrates, and 4.3% ash (Göhl, 1975).

The palm generally is felled when the hard outer trunk is mature for lumber, about 15–25 years of age (Campbell, 1994). Thin planks are hewn with a machete along the stem axis, about 10 cm wide and 4–6 m long, and are utilized mainly for roof lattice, flooring, and siding in the construction of houses and granaries (**Fig. 7.7**). The lumber is reportedly very susceptible to attack by dry-wood termites (Little and Wadsworth, 1964). The palm cabbage (i.e., heart of palm) is wrapped carefully in the leaf sheath and sold as a food item, particularly at Easter time. Leaf segments of the young furled fronds are used for weaving chair seats and hats. The dried sheaths (*tash*) of mature fronds, when pressed flat, are used as roofing and siding material and are readily sold in local

Figure 7.3 *R. borinquena* is planted for its majestic beauty as well as its useful products.

markets as a cheaper substitute for corrugated tin sheets. The sheaths also are prepared for packing tobacco and molasses sugar (*rapadou*) or for insulating glass bottles. The leaf blades serve as thatch for graineries, outdoor kitchens, and field huts. The frond ribs are used as fuel.

Figure 7.4 *R. borinquena* is typically used for dry grain storage high and away from rats.

Propagation: The majority of seedlings are volunteers that are left to grow wherever they germinate. Seed dispersal is aided significantly by transporting the ripe seed to feed pigs and the almost continuous availability of fruit to wild animals. Very few seedlings are transplanted once they have germinated, though it is possible to transplant the tree even at very large sizes. Next in importance are those seedlings that are cultivated by sowing the seed in selected areas of the property. Very rarely is the tree propagated from seed in containers, except as an ornamental in the urban residential areas.

Figure 7.5 A *Roystonea* grove provides an excellent site for an apiary, providing both hives made from the trunks and a source of nectar and pollen from flowers.

Seedlings are propagated easily from seed. The exocarp is removed from the kernel prior to sowing. Germination takes 2–4 weeks under constantly moist conditions. Good drainage is necessary to keep the seed from rotting.

Figure 7.6 The fruit of *R. borinquena* is a valued source of food for pigs and birds that act as important dispersal agents for regeneration to new sites.

Figure 7.7 *R. borinquena* is an important source of construction material for granaries and houses, particularly in the Central Plateau.

Figure 8.1 *C. odorata* planted in a typical residential setting in Bombardopolis.

8 Sèd

Species: *Cedrela odorata* L.
Family: Meliaceae
Synonyms: *Cedrela dugessii* Watson, *C. glaziovii* C. DC., *C. guianensis* Adr. Juss., *C. mexicana* M. J. Roemer, *C. occidentalis* C. DC., *C. pavaguariensis* Martius, *C. sintenisii* DC., *C. velloziana* M.J. Roemer., *Surenus brownei* Ktze.
Common Names: H - acajou à planches (*kajou planch*), acajou femelle (*kajou femèl*), cèdre (*sèd*), cèdre blanc (*sèd blan*), cèdre espagnol (*sèd panyol*), cèdre rouge; **C, RD, PR** - cedro, cedro del país, cedro hembra, cedro macho; **PR** - Spanish cedar.

Importance: *Cedrela odorata* is prized for its valuable aromatic wood. In Haiti, as elsewhere in the tropical America, the species is exploited heavily for domestic use or for sale in the urban market. The tree provides a wide variety of products and services, making it a good choice for traditional perennial-oriented cropping systems. Because of the value of the wood, local populations have been reduced severely. Optimal conditions necessary for natural regeneration are deteriorating, thus adding importance to continued efforts in provenance testing and genetic conservation of the species in Haiti.

Taxonomy and Botanical Features: The genus *Cedrela* has involved several systematic revisions, causing some confusion in the taxonomy of *C. odorata* L. Styles (1981) reduced the number of species within the genus to 7 and considers 28 other named species, including *C. mexicana* M. J. Roem., as *C. odorata*. Naturally, there is a significant amount of population variation in the species, with differences expressed in the bark, foliage and wood. The common native variety is close in appearance to the provenances imported from Colombia and Costa Rica and is distinguished as *séd wouj* (red cedar). Characteristic features include a rough fissured bark, reddish-green color of new growth, and sessile leaflets. In contrast, the provenances from Honduras, Belize and Guatemala exhibit a light green color of new growth, smoother bark, larger leaflets with petioles, and varying degrees of pubescence. Mature trees of this variety are less common in Haiti and are known as *séd blan* (white cedar). Both varieties have alternate leaves, about 20–60 cm long, consisting of 8–20 pairs of elliptical leaflets. The inconspicuous flowers are 4-parted, greenish-white, and about 10–16 mm across. Seeds are borne in a reddish-brown capsule, are nearly round with light-colored dots, 16–20 mm in diameter, and split into four parts to release 30–40 winged seeds. Tree parts give off a bitter, characteristic scent that smells like garlic (Little and Wadsworth, 1964).

Distribution and Ecology: The natural distribution of the species extends from Mexico and the Caribbean to Argentina (Longwood, 1962; Smith, 1965). Optimum growth conditions for the species are found in the moist forest, with annual precipitation of 1200–1800 mm and 4–5 dry months. The majority of the remnant population in Haiti is located in the mountain elevations extending from 200–800 m elevation and over 1500 mm rainfall. However, scattered native populations have been located in drier habitats, such as Bombardopolis (900 mm rainfall) and on coastal plains of wetter locations, including the Plaine du Nord, Cayes, Petit-Goâve, Arcahaie and Anse-à-Veaux regions. The tree usually is seen isolated among other tree species of the subtropical moist forest, occuring near ravines and courtyard gardens. Occasionally, stands of *C. odorata* are found as shade for coffee groves.

The species is not demanding of soil nutrients, tolerating soils high in calcium, though exacting in its soil physical requirements. The species is shallow-rooted and requires good soil aeration. It prefers sites where the upper root system remains in dry soil ("ankles dry") with the major roots near saturated conditions ("feet wet"). Holdridge (1943) recommended only 11 trees ha^{-1} in its native range, presumably to avoid *Hypsipyla grandella* (shoot borer moth). Trees prefer sheltered conditions and limited exposure to severe drought. The difficulty in establishing the tree is exacerbated by deteriorating site conditions and the genetic quality of the existing population.

Tree Characteristics: Mature trees in Haiti have been measured up to 65 cm in stem diameter and 25 m in height. The average size of trees being cut for saw timber range from 15–20 m tall with stem diameters 25–40 cm . The trunk is average length, ranging from 4 m and extending up to 13 m for superior trees. The spreading crown averages 7–8 m in diameter with a crown diameter:DBH ratio of 19.4 (sd 3.62).

The species flowers during the late summer and bears fruit during the winter from October to March. Trees in higher elevations have been observed to bear later than those in lower elevations. The species is monoecious and yields seed in isolation, with an occasional seed lot suffering from a high degree of albinism. Albino seedlings eventually die in the nursery. The tree bears seed for the first time at about 15 years (Lamprecht, 1989). There are 40,000–55,000 seed kg^{-1}.

The natural quality of Spanish cedar wood is known to be variable according to age and growing conditions of individual trees (Record and Hess, 1943). Rapidly-grown or young wood is reported to be less fragrant, lighter in color, and tougher than the denser, pungent-odored timber of old or slowly-grown trees. The heartwood is pinkish to reddish brown, becoming richer in color upon exposure, and sometimes poorly distinguished from the pinkish to white sapwood. The grain is usually straight, with a texture that ranges from fine and uniform to coarse and uneven. The distinctive cedar-like odor is usually pronounced. The average specific gravity ranges from 0.42–0.64, depending upon location, site, age of tree, and rapidity of growth. *C. odorata* is moderately durable, being resistant to dry-wood and subterranean termites, but not to marine borers. It is occasionally infested with pinhole borers. It has excellent weathering properties without the protection of paint (Longwood, 1962).

Utilization: Spanish cedar is a premier timber for furniture, decorative veneer, musical instruments, wooden novelties and doors. The scent of the wood is used for storage containers, such as jewelry boxes, wardrobes and cigar boxes. The wood is reported to protect against insects such as moths. Because of the scarcity of the wood in Port-au-Prince, such storage containers usually are built from mahogany and lined with thinner sheets of Spanish cedar for the scent. Coffins made of the wood demand a premium price, as they are reputed to protect against theft of *zombi* (dead souls).

The tree is used for shade and windbreak in courtyard gardens and coffee groves (**Fig. 8.2**). Branches are used as live fence material and as a source of fuelwood. The flowers are visited by bees as a source of nectar for honey production. The tree provides many ingredients as a medicinal plant (Ayensu, 1981). The root bark is used to reduce fever and pain, the trunk bark is harvested to prepare a decoction for inducing abortions, and the seeds are believed to have vermifugal properties (**Fig. 8.3**). Protection against

Figure 8.2 *C. odorata* combines high-value wood production with coffee shade.

witches is provided by planting the tree at the entrance of house-and-yard compound, bathing in a bark bath, or placing pieces of wood and bark above windows and doors.

Propagation: The transplanting of naturally regenerated seedlings or establishment of branch and stem cuttings are the most common propagation methods used by Haitian farmers. However, natural regeneration from seed is sparse and widely scattered. The more practical method is to propagate the species from branch cuttings harvested during the late winter dry period and prior to the onset of the spring rains. Cuttings often are established as living fences or border plantings in southern Haiti (**Fig. 8.4**).

Propagation from seed is most efficient with containerized systems and this has been done in Haiti with the Rootrainer and Winstrip. Seed stores well at 6–7% moisture content and a

Figure 8.3 The bark of *C. odorata* is harvested for magical and medicinal purposes.

Figure 8.4 *C. odorata* is commonly propagated from cuttings to establish border plantings and live fence rows.

temperature of 4° C for up to 10 years (Timyan, 1990). The seed is sown with the heaviest part in the soil. Seedlings are raised in 14 weeks with the initial 6 weeks in the shade and the final 6 weeks hardening off prior to outplant. Seedlings are susceptible to sunscald and require a gradual acclimation to full-sunlight conditions. Insect infestations are occasional, such as the citrus aphid (*Toxoptera aurantii*) and spider mites (**Fig. 8.5**). The former may be a vector in a leaf virus that occasionally attacks nursery seedlings. Common nursery diseases are leafspot (*Alternaria*, *Cercospora*), stem blight combined with vascular wilt, and anthracnose (*Colletotrichum*) as reported by Runion et al. (1990).

Figure 8.5 Spider mite infestations on *C. odorata* are occasionally a problem in container nurseries.

Striplings, stumps or balled seedlings are lower input techniques that have been used successfully for the species. Grafting and budding methods have been successful for this species, utilizing the T-bud, veneer and cleft grafts in Haiti. Scion material was collected during the end of the dry season from mature trees and grafted onto 4-month-old rootstock grown in plastic polythene bags. These techniques are reserved for the propagation of orchard trees.

Growth Performance: A summary of the trials in Haiti (**Table 8.1**) shows the species living up to its reputation as a tree exacting in its site

Table 8.1 Site and growth parameters of *C. odorata* trials in Haiti. Within site parameters are distinguished between several Central American (CA) varieties and the local Haitian (HAI) variety.

SITE	ELEVATION (m)	ANNUAL RAINFALL (mm)	AGE (yr)	SURVIVAL (%)	HEIGHT M.A.I.[1] ($m\ yr^{-1}$)	DBH[2] M.A.I. ($cm\ yr^{-1}$)
Paillant	600	1300	2.0	75.0	0.4	—
Tranquille (HAI)	900	1450	2.7	55.5	0.2	—
O'Gorman (HAI)	70	830	2.9	29.6	0.8	—
Berault (CA)	25	1950	3.0	56.2	2.2	2.9
Fauché (Hai)	5	1436	3.0	41.3	2.1	1.9
Laborde (CA)	90	1875	3.0	93.5	1.7	1.5
Labordette (CA)	375	1350	3.0	62.3	0.7	1.1
Marmont (HAI)	280	1450	3.0	12.0	0.7	1.6
Marmont (CA)	280	1450	3.0	36.0	1.3	1.4
Lapila (HAI)	350	1145	3.2	25.0	0.3	—
Lapila (CA)	350	1145	3.2	43.3	0.6	—
Bombard (HAI)	480	948	3.4	4.8	0.2	—
Bombard (CA)	480	948	3.4	54.8	0.5	0.6

[1] **M.A.I.** = Mean annual increment. [2] **DBH** = Stem diameter at 1.3 m above ground level, in cm.

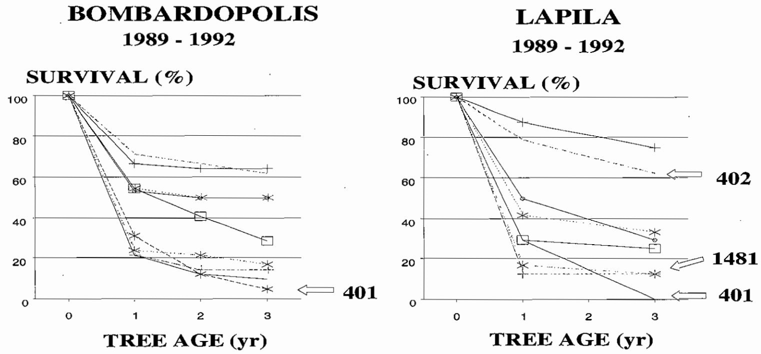

Figure 8.6 Survival of *C. odorata* accessions from Haiti (401, 402, 1381) compared to Central American provenances.

requirements. Assuming that most of the trials established before 1989 were planted from unselected sources in Haiti, at least some of the poor results can be attributed to the performance of the local variety. In trials where certain provenances from Central America are planted alongside the local variety, the former outperform in survival and height growth, even on poor sites (shallow, rocky soil and annual rainfall less than 1200 mm) such as Bombard and Lapila (**Fig. 8.6**). The only trial in which the local variety is growing well with acceptable survival is at Fauché, a coastal site with alluvial, sandy loam soils and a high water table. After 3 years, height increments are exceeding 2 m yr^{-1}. The trial at Lapila indicates that there is variability in the performance of the local variety, with 2 accessions exhibiting 6% survival and 0.6 m height growth after 3 years and 1 accession with 63% survival and 1.0 m height growth. The latter seed lot was collected from a healthy stand of *C. odorata* in the mountains behind Petit Goâve where the species is grown for lumber and coffee shade.

The high survival and growth rates of the Central American varieties is impressive (**Fig. 8.7**) and may correspond to the faster growth formerly attributed to *C. mexicana* (Cintron, 1990). The best sites have the characterisitic soil and climate features that the species seems to require: well-drained, sandy loams with annual rainfall above 1500 mm. Annual height increments over 2.0 m with high sur-

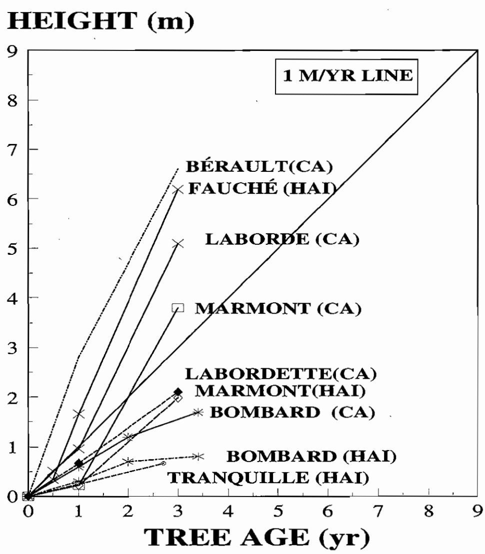

Figure 8.7 Height growth of *C. odorata* in Haiti. Imported accessions from Central America (CA) are distinguished from local accessions (HAI).

vivals, ranging from 60–95%, are not uncommon. The Labordette trial is typical of mountain garden conditions, with adequate rainfall, but shallow soil and damages incurred by annual agricultural activities. Two-thirds of the trees survive with annual height increments under a meter. Over a period of 25 years, the species can achieve average heights of 32 m and mean annual increments of 12.6 m^3 ha^{-1} (Lamb, 1968).

It is too early to draw conclusions on the importance of this trend. Wood qualities may differ with differences in the rate of growth and variety. Susceptibility to wind damage and pest attacks may take its toll with unpredictable events, particularly infestations by larvae of the small moth, *H. grandella,* and a fungi, *Armillaria mellea*, that causes damage to the roots of young trees. The species also succumbs to a die-back of uncertain causes (Marshall, 1939) after early years of good growth.

Tree Improvement: There are two important trends in Haiti that are placing *C. odorata* at a disadvantage as a cultivated species. First, the exploitation of the species for its high-quality lumber has resulted in a highly scattered population comprised of isolated individuals of questionable genetic worth. Second, typical sites that favor natural regeneration, survival and growth of the local variety are deteriorating as these soils are compacted and eroded. For these reasons, the major focus since 1988 has been to conserve and broaden the genetic base of the species by (1) collecting seed from superior phenotypes, (2) introducing new provenances from other origins within the species' natural range and (3) establishing provenance trials throughout Haiti to identify the varieties that exhibit broad adaptability in Haiti.

Between 1988 and 1991, a total of 36 superior phenotypes of the *séd wouj* variety and 7 *séd blan* variety were selected throughout the natural range of the species in Haiti. The progeny of these trees were established in arboreta and provenance trials along with over a dozen provenances from Central and South America (**Fig. 8.8**). Several commercial seed lots from Central American sources were also tested.

Figure 8.8 Four-year-old *C. odorata* provenance trial at the Laborde trial near Cayes. The imported provenances are faster growing and survive better than local provenances.

The provenances from Belize (OFI 23/77), Honduras (OFI 52/79 & COHDEFOR 6888) and Nicaragua (OFI 36/78) are performing significantly better than the provenances from Haiti, Guatemala (OFI 42/79), Costa Rica (CATIE 2532) and Colombia (OFI 25/80) for both survival and height growth. The Central American provenances that appear to exhibit the broadest adaptation are from the drier regions of the species' natural range. Seedlings from the drier regions have been observed to exhibit different patterns of leaf retention than those from the wetter provenances in Costa Rica and Colombia (**Fig. 8.9**). This may be an important criteria in the selection of *C. odorata* provenance, indicating a potential for the selec-

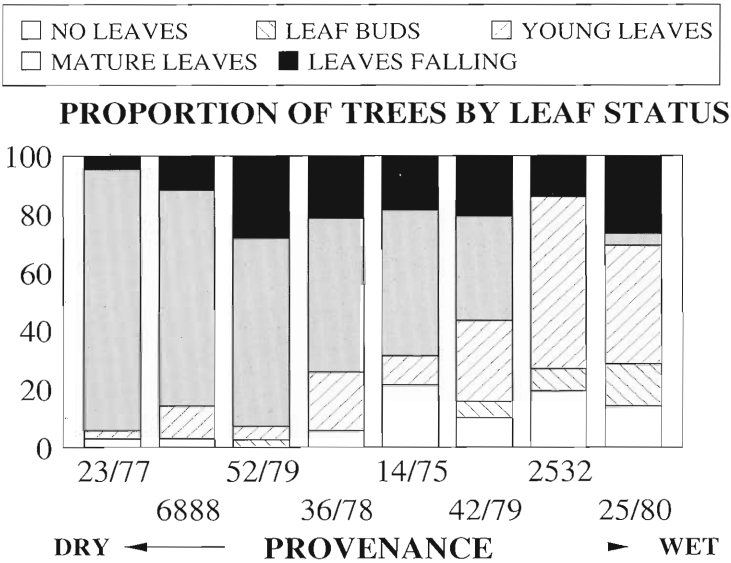

Figure 8.9 The Central American population of *C. odorata* exhibits considerable variation in leaf phenology. The provenances are arranged in order of mean annual rainfall that occurs in their native regions. The data was collected at the onset of the Spring rains in March, 1992.

Figure 8.10 A 6-year-old Honduran provenance on a degraded site in southwestern Haiti, offering hope that such sites can be restored both economically and ecologically.

tion of provenances optimally matched with the agronomic calendar of understory crops. Ideally, the period of leaf fall should coincide with the flowering and fruiting of commonly cultivated understory crops to minimize light competition. Long-term considerations for provenance selection should include wood quality, insect resistance (particularly to *Hypsipyla grandella*), leaf phenology, and wind resistance. Growing *C. odorata* with a mix of tree species aids in controlling pest and disease problems and fits into the traditional methods of silviculture already practiced by the Haitian farmer. As site conditions across the country become more degraded, a shift to hardier provenances may be required to sustain the productivity of the species (**Fig. 8.10**).

Figure 9.1 *L. sabicu*, showing excellent form as a source of high-quality lumber and nitrogen-fixing shade tree in a coffee grove near Thiotte.

9 Tavèno

Species: *Lysiloma sabicu* Benth.
Synonyms: *Acacia latisiliqua* Willd., *L. latisiliqua* Benth., *Mimosa latisiliqua* L.
Family: Fabaceae (= Leguminosae) **Subfamily:** Mimosoideae
Common Names: H - tabernon (*tabèno*), taverneau (*tavèno*), tavernon; **RD** - caracolí, caracolillo; **C** - abey, bacona morada, frijolillo, jigüe, sabicú, sabicú amarillo, zapatero; **J, PR** - horseflesh tree, West Indian sabicu, wild tamarind.

Importance: As one of Haiti's premier timber trees, this species has suffered extensive exploitation in its native range. It is well-adapted to a wide range of sites and is a hardy survivor of the shallow limestone soils common to the low-elevation mountains. The spreading canopy casts a light shade and, with its ability to fix nitrogen, makes *L. sabicu* a natural selection for agroforestry systems.

Taxonomy and Botanical Features: Two species of *Lysiloma* occur on the island of Hispaniola (Liogier, 1985). *L. sabicu* is the larger tree, up to 20 m tall and distinguished by 3–7 leaflet pairs, oval to obvoid and 1–2 cm long, with a glabrous calyx at the base of the petiole. *L. bahamensis* is a shorter tree up to 15 m, with 10–33 leaflet pairs, oblong to lanceolate, 8–15 mm long, with a pubescent calyx. The latter species is reported to occur along the northern coast of Haiti, from Port-de-Paix to Fort Liberté.

Distribution and Ecology: *Lysiloma* is chiefly a Mexican genus, extending into Central America, the southernmost parts of the United States, and the Greater Antilles. *L. sabicu* occurs throughout the subtropical moist forest of Haiti, though local populations are often scattered and isolated by mountain ranges. It is found mostly on rocky sites of low-elevation mountains at elevations between 100–750 m with rainfall ranging from 1000–2000 mm. The tree generally occupies well-drained drier sites along with other pioneer species. The tree is not particularly demanding of soil requirements, thriving on soils saturated with calcium, and it grows adequately on the shrink swell clays characteristic of vertisols. It often is found located in wooded fallows, woodlots and along property boundaries.

Tree Characteristics: Mature trees can reach heights of 25 m with stem diameters to 1 meter. The stem varies considerably in form and length, with a natural tendancy to fork low in open conditions. Typically, the tree has a short trunk, about 2–3 meters, though individuals have been found with stems free of branches to 10 m (**Fig. 9.2**). The large spreading canopy can extend to a diameter of 20 m, casting a light shade. A distinct feature of young trees is the curved single stem that gradually straightens with age. The light grayish brown bark is shaggy and peels away from mature stems.

The heartwood is a lustrous brown with a coppery or purplish tinge and is sometimes faintly striped. Mature stems have a thin white sapwood that contrasts sharply with the heartwood. The grain ranges from straight to interlocked. Specific gravity ranges from 0.58–0.70 with the heartwood considered to be very durable.

Fruiting of the species begins in December and peaks during March and April. Seed production is generally light, with pods containing only 3–4 seeds and attacked heavily by insects. There are 50,000–55,000 seeds kg^{-1}.

Utilization: The tree is valued most for its high-quality wood, and is esteemed for furniture, interior trim, knife handles, turnery and parquet (**Fig. 9.3**). Boards have a tendency to surface and end check when they are dried too quickly. The wood is considered easy to work, finishes smoothly and takes a high natural polish. The tree often is pruned to increase the value of the main stem as lumber. The branches provide an excel-

Figure 9.2 Collecting seed from a superior specimen of *L. sabicu* in the humid forest region of the Grand-Anse.

Figure 9.3 *L. sabicu* is traditionally prized as a fine wood for furniture.

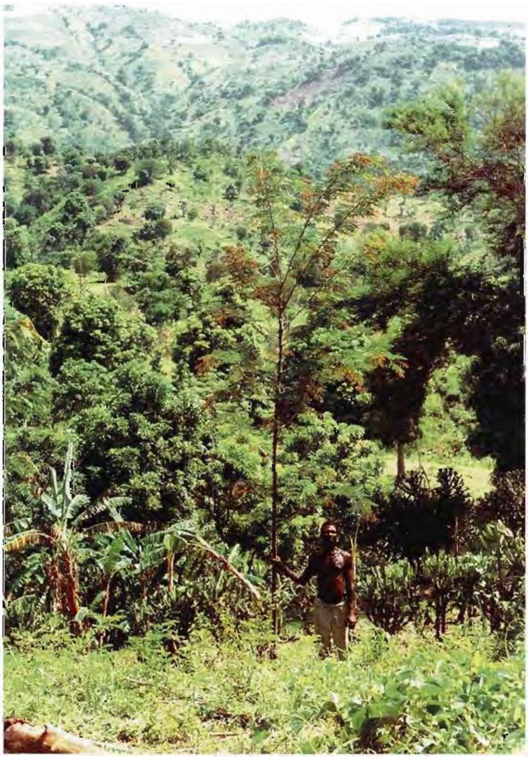

Figure 9.4 *L. sabicu* is broadly adapted and survives well in the dry site conditions of a field garden.

lent fuelwood. Crops are planted up to the base of the tree in field gardens (**Fig. 9.4**) or are underplanted with coffee and other perennial crops (**Fig. 9.5**). In Haiti, the leaves are crushed and applied as a bath for skin infections (Weniger, 1985). The bark is boiled with other bushes to cure hemorrhoids in the Turk and Caicos islands (Morton, 1981). The tree is regarded as a honey plant.

Propagation: Natural regeneration from the sparse seed crops is poor, making the population vulnerable to overcutting. The papery-thin seed pods are attacked easily by weevils, which damage a great percentage of the seed crop. The species is propagated easily from seed in small containers, such as the Rootrainer or Winstrip. Seedlings for transplanting require about 14 weeks in the nursery, with the initial 6 weeks under shade and the final 4 weeks hardening off. Seed is scarified for mass propagation by immersing it in hot water, at least 49° C, and soaking it for 2 days. Seed should be inspected for insect infestations and stored with a light dusting of an insecticide. Innoculation with the proper *Rhizobium* strain is recommended for best growth in the field. Occasionally, damping-off is a problem in the nursery and treatment of the disease should be followed

Figure 9.5 *L. sabicu* occupies the upper canopy layer of a humid perennial garden. Common understory crops include coffee, plantain and *Citrus* spp.

by a repeated application of *Rhizobium* (Josiah, 1989).

Growth Performance: Very few trials have been established with the species. It has a reputation of being a slow grower and has therefore fallen in disfavor with reforestation projects promoting fast-growing species. The tree consistently ranks near the bottom in height growth among the faster-growing exotics and many of the local timber species (**Table 9.1**). However, on shallow, rocky limestone sites, such as the Lapila site in the Central Plateau, the tree is growing exceptionally well compared to many of the exotics that cannot tolerate the alkalinity and shallow soils. Early height growth rates are steady on the drier sites (Lapila, Crocra, Terrier Rouge), while they are beginning to decline after the first year of rapid growth on wetter sites such as Fauché (**Fig. 9.6**).

Table 9.1 Site and growth parameters of *L. sabicu* trials in Haiti.

SITE	ELEVATION (m)	ANNUAL RAINFALL (mm)	AGE (yr)	SURVIVAL (%)	HEIGHT M.A.I.[1] (m)	DBH[2] M.A.I. (cm)
Fauché	5	1436	3.0	78	1.3	1.7
Marmont	280	1450	3.0	48	1.1	1.1
Mirebalais	110	2150	3.0	78	1.1	—
Terrier Rouge	20	1293	3.0	17	0.8	0.3
Lapila 2	350	1445	3.2	81	0.8	1.0
Crocra	30	1490	4.0	67	0.9	0.9

[1] **M.A.I.** = Mean annual increment. [2] **DBH** = Stem diameter at 1.3 m above ground level, in cm.

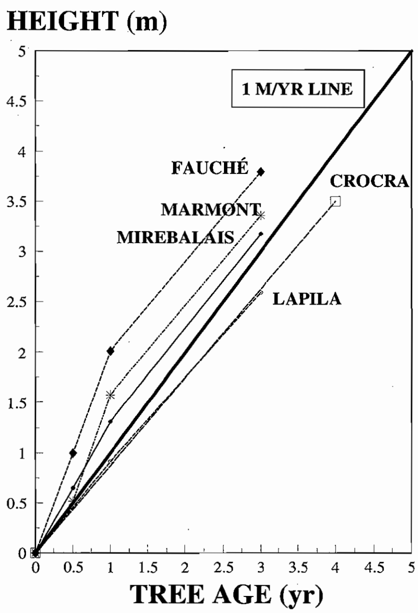

Figure 9.6 Height growth of *L. sabicu* in Haiti.

Tree Improvement: This species is a prime example of a high-value timber tree that is being over-exploited in Haiti, with severe consequences to the local gene pool. The scattered populations of the species are isolated and might be considered remnant. Early seed collection strategies targeted the areas of Haiti where significant populations still occur: the region south of Thiotte, the Trouin area, the lower Voldrogue River basin, and the upper Artibonite River basin. Fifty trees were selected between 1988 and 1991 for superior form traits, such as straight, cylindrical boles that are clear of branches and without signs of defects and decay. Seed was collected from 23 of

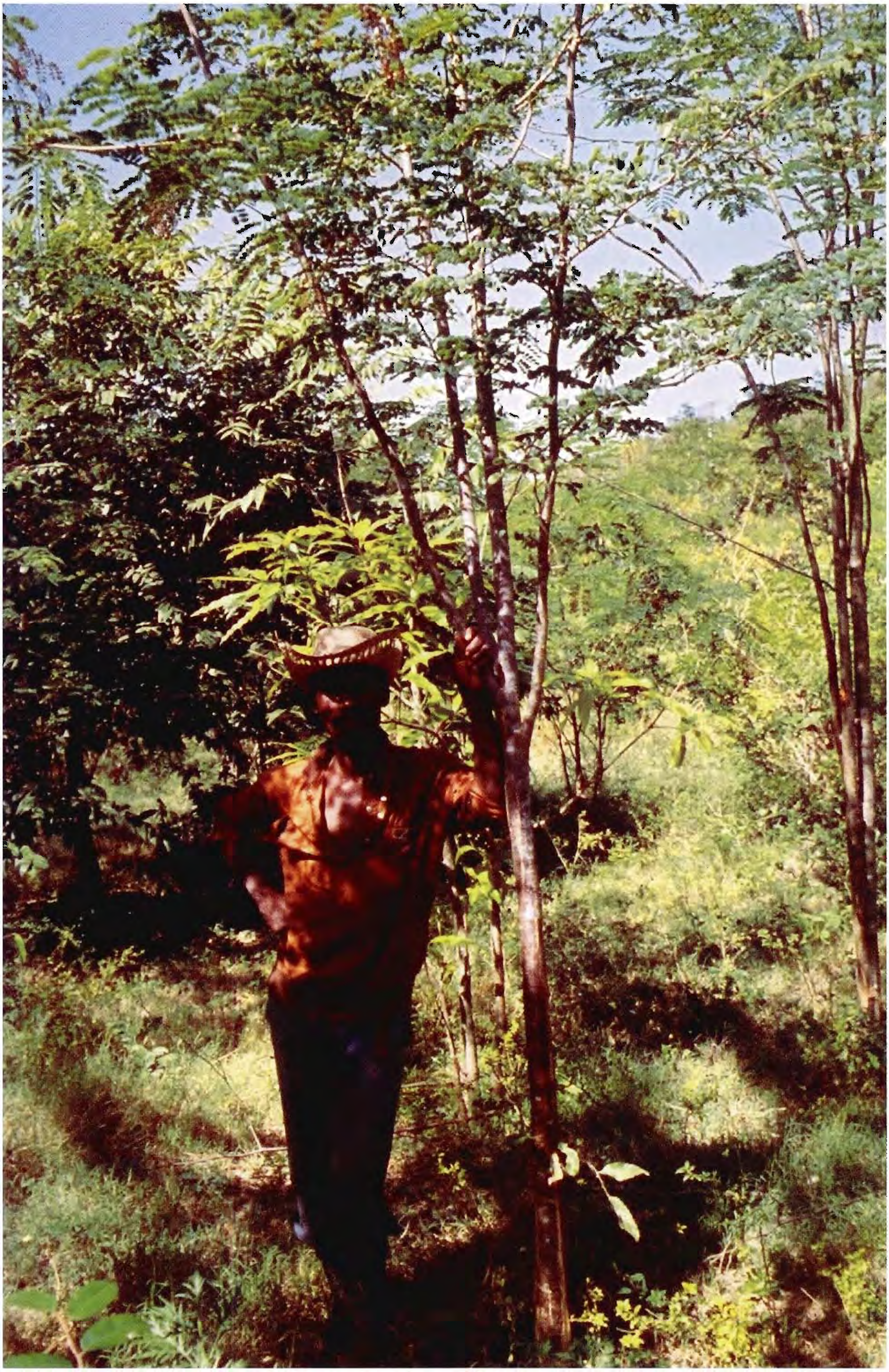

Figure 9.7 Three-year-old *L. sabicu* seed orchard tree at Mirebalais.

the trees, propagated as half-sib families and established in arboreta, seedling seed orchards and progeny trials with private landowners and volunteer organizations in Haiti (**Fig. 9.7**). The signficance of these trials as gene conservation banks is as important as the objective of genetic testing to study the variation within the Haitian population.

Three-year results have revealed differences in mean stem length as an indicator of vigor. Generally, half-sib families are exhibiting as much difference in growth rates as are found within the population as a whole. Further selection of the species should target those individuals that show exceptional form in the progeny trials and seed orchards. Family rankings and differences are not consistent across sites, indicating genotype interaction with growing conditions. Orchard trees bear seed crops as early as three years on optimal sites.

Figure 10.1 *C. nucifera* in a perennial garden setting near Camp Coq.

10 Kokoye

Species: *Cocos nucifera* L.
Family: Arecaceae (= Palmae)
Synonym: *Palmas cocos* Miller
Common Names: H - cocotier, cocoyer (*kokoye*), noix de coco (*nwa koko*), coq au lait (*kòk*); **RD** - palma de coco; **US** - coconut

Importance: *C. nucifera* is planted widely as an ornamental and a source of food and fiber in Haiti. Anywhere it occurs in the tropics, coconut ranks as one of the most useful trees. Its graceful form, with often slanting stems, is a symbol of tropical landscapes. In recent years, the spread of lethal yellowing in Haiti has increased local awareness about how vulnerable to disease such a common and economically important tree species can be.

Taxonomy and Botanical Features: The *Cocoeae* tribe of the palm family is represented in Haiti by at least 5 species, including *Attalea crassispatha*, one of the rarest palms in the world, and *Cocos nucifera*, probably the best known palm. Coconut is a monotypic species with only one species occurring within the genus. The cultivated forms of coconut fall into 2 main classes: the tall and dwarf varieties. The dwarf has been postulated to be a mutation of the tall varieties. The most common variety one sees in Haiti is referred to as the Jamaican Tall and is known locally as *misket* or *très picos* (**Fig. 10.2**). Much less common is the Panama Tall, known as *panyol*. The most common dwarf variety is the Malayan Dwarf, which is further subdivided into the Red, Yellow and Green, all present in Haiti (**Fig. 10.3**). Other varieties of both tall and dwarf occur, having been introduced largely on an experimental basis by the Ministry of Agriculture.

The Jamaican Tall is distinguished by a slender, often leaning, solitary trunk enlarged at the base; with prominent leaf scars alternately arranged up the stem; up to 20 m tall; and large elongated, triangular fruit, green to bronze, 20–30 cm long, weighing about 1.5 kilo fresh. The Panama Tall is generally larger in trunk diameter with large, round bronze fruit. The Malayan Dwarf is recognized by its smaller size; up to 10 m tall; and brilliantly colored fruit, either light yellow (Malayan Yellow), apricot-orange color (Malayan Red) or light green (Malayan Green). The fruit is 15–20 cm long, weighing less than a kilo fresh, with a small nut 8 cm in diameter. Hybrids of the Tall and Dwarf occur in Haiti as a result of natural outcrossing with characteristics that are intermediate of the parent types.

Distribution and Ecology: The native range of *C. nucifera* is uncertain, because the species has been introduced throughout the tropics for so long. It is believed to have originated from the Pacific islands and to have been introduced to Brazil in the 1500s by the Portuguese and into the Caribbean during the 1600s by the Spanish (Rosengarten, 1986). The Malayan Dwarf varieties were brought to Haiti during the 1930s by the Ministry of Agriculture (Morin, 1977).

Large coconut plantations are not common in Haiti, but do occur in the Jean Rabel, St. Louis du Sud, Cayes, and Port-au-Prince areas. The majority of the coconut population is distributed along the coastal regions of the island (**Fig. 10.4**), where it forms

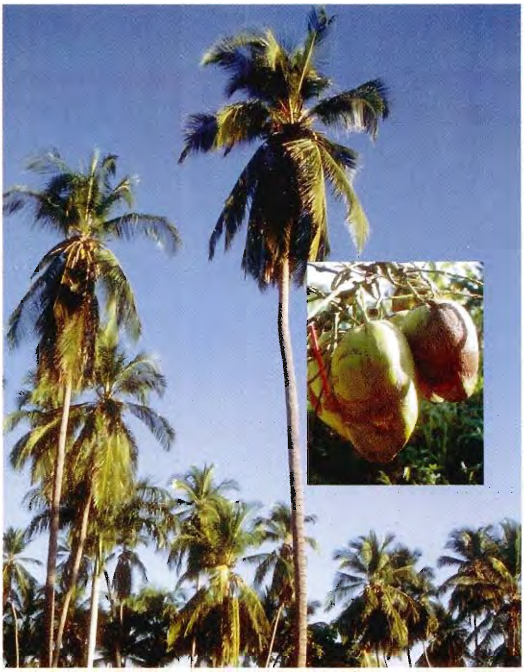

Figure 10.2 The most common variety in Haiti is the Jamaican Tall. Inset — Mature greenish fruit.

Figure 10.3 Malayan Dwarf specimen with coconut cluster. Inset — Mature apricot color of the Malayan Red Dwarf fruit.

pure stands along the beaches (**Fig. 10.5**). Though it naturally tolerates a salty environment, coconuts require good drainage and fresh water to grow well, usually with an annual rainfall above 1000 mm. The Jamaican Tall is broadly adapted to the calcareous soils of the low-elevation mountains and can be found up to 1000 m elevation. It is scattered throughout the lower elevations of the mountain ranges, normally occurring in the courtyards associated with other timber and fruit trees, as a boundary planting around field gardens or along travel routes where it has been distributed (**Fig. 10.6**). The Malayan Dwarfs are concentrated along the principal roads of Haiti around urban areas and small towns. Here they are found in the vicinity of the courtyards, occurring as 1–2 individuals and often overtopped by Jamaican Tall. Theobald (1989) estimated less than 1% of the coconut population in the Fauché area was Malayan Dwarf. However, the population varies greatly. Fifty percent of the coconuts tallied in the Lascahobas region were dwarf varieties (Campbell, 1994).

There is a wide spread among estimates of the number of Jamaican Tall in the country. Morin (1977) estimated that a half million Jamaican Tall occur in Haiti, while the Ministry of Agriculture estimated that 1.5 million existed in 1978 (Wiltbank, 1982). Agricorp (1984) tallied 137,000 coconuts in the Plateau Central. The major coconut growing regions, in descending order of importance are: Cayes, Jérémie, Petit-Goâve, Cap-Haïtien, Port-au-Prince and Jacmel.

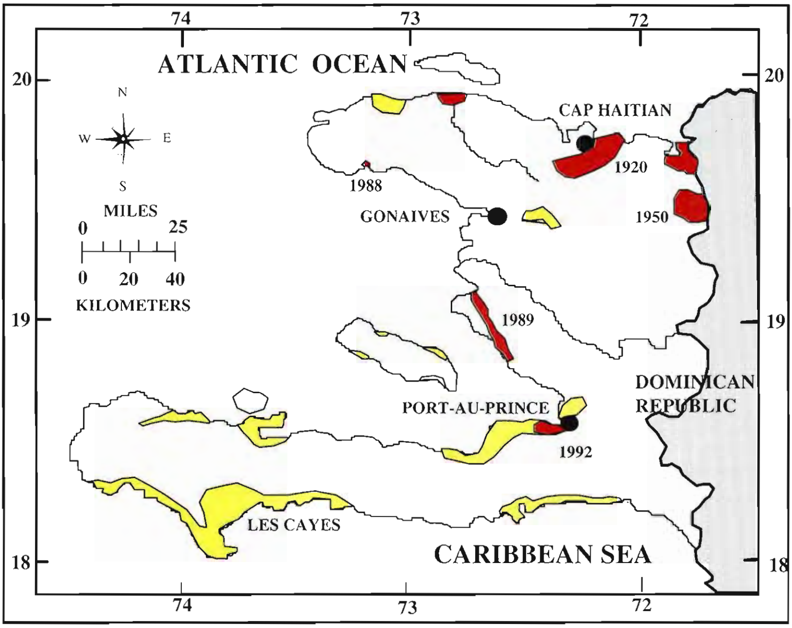

Figure 10.4 Distribution of coconut and the progression of Lethal Yellowing (red area) in Haiti.

Figure 10.5 Coconuts along the coast are symbolic of the Caribbean paradise, attracting tourists from the world over.

The Malayan Dwarf is more site sensitive and does not occur on the range of sites as does the Jamaican Tall. As a recently introduced variety, it is not as widely distributed nor as common. It is often seen as the only survivor of lethal yellowing in areas where the disease wiped out the Jamaican Tall variety, such as regions in the Northwest, along the coast between Arcahaie and Montrouis and in northern Haiti.

Tree characteristics: The Jamaican Tall begins bearing fruit at approximately 6–8 years and lives to about 60–70 years. Malayan Dwarfs bear at 3–4 years, live to about 30 years, and are resistant to lethal yellowing, a disease caused by a mycoplasmic-like organism. Both varieties flower and fruit throughout the year, about 70 nuts $year^{-1}$ for the dwarf varieties and 30 nuts $year^{-1}$ for the tall varieties.

Figure 10.6 A typical agricultural landscape in southwestern Haiti, showing the four most useful palms in Haiti - *C. nucifera*, *R. borinquena*, *Sabal causiarum* and *Coccothrinax argentea*.

Male and female flowers occur on the same panicle, with the female flowers maturing later in the tall varieties and typically being cross-pollinated from male flowers of neighboring palms. Insects are the predominate pollination vector. Dwarf varieties normally have female flowers becoming receptive (about a week) while the male flowers on the same inflorescence are maturing. Dwarf varieties are largely self-pollinated.

Utilization: The most valued product of the coconut is the fruit, processed at the household level rather than on large plantations for industrial purposes. A major portion of the harvest is consumed prior to maturity when the volume of coconut water, or milk, is greatest and the fleshy meat is the consistency of jelly (**Fig. 10.7**). It takes from 120–160 days for the fruit to develop to this stage. Otherwise, the coconut is allowed to ripened, about 330–360 days, with the meat being used for cooking and confectioneries. The coconut fat contained in the meat serves as an important ingredient in many recipes of the Haitian cuisine. Coconut, either shredded, roasted or raw, is used in popular snacks such as *tablet*, *dous makos* (Petit Goâve), *komparet* (Jérémie) and *kasav* (Cap-Haïtien).

The leaves are used as thatch, mostly for temporary structures, and for weaving mats, baskets, and hats. The wood is used as pilings and posts, being fairly resistant to decay under moist conditions. In countries where the coconut industry is well developed, coconut meal is a byproduct of oil extraction and is fed to livestock. The proximate analysis of various *C. nucifera* products is summarized in **Table 10.1**. Coconuts are an important source of nectar and pollen for bees and honey production, which in turn, are important in cross pollination.

Propagation: The farmer either plants the fruit directly in the soil or purchases seedlings when a local crop is not available. Coconuts are harvested carefully for propagation as many farmers are suspicious of the damage that may occur from coconuts left to drop on the ground. Fruit should be selected from trees with large crops of high-quality nuts. In most cases, propagation consists of laying the fruit on its side, set apart 30 cm, with the eyes slightly raised. Germination can be improved by burying the seed nuts three-quarters deep. The sprout emerges through the eye on the side that has the longest

Figure 10.7 A healthy snack of coconut milk and the immature meat is a favorite in Haiti.

part of the triangular hull. The root penetrates the hull and enters the soil after a month. Leaves appear at about 2 months and seedlings are ready to transplant at 6-8 months.

Controlled pollination methods have been developed in Jamaica to develop hybrids that are more resistant to lethal yellowing. One of the most successful hybrids is the Maypan, a cross between Malayan Dwarf as the seed parent and Panama Tall as the pollen parent. Several techniques are utilized, the most common of which entails a monthly emasculation (removal of the male flowers), followed by isolation of the female flowers and fertilizing them with pollen from selected Panama Tall specimens. The Red Malayan Dwarf is selected, since hybridization is easily identified by the color of the seedlings (Harries, 1976).

Lethal Yellowing Disease: Among the pests and diseases that attack coconut, none is more deadly than lethal yellowing (LY). It is caused by a mycoplasma-like organism (MLO) transmitted by a plant hopper (*Myndus* sp.). Death occurs 3–6 months from the time that the first symptoms are evident. The order of symptoms are as follows: 1) premature nut fall, 2) necrosis of the inflorescence, 3) flag leaf, 4) yellowing of the lower fronds upward, and 5) spear leaf yellows and decays. There is no evidence that the MLOs can be transmitted by seed (Illingworth, 1992).

LY first was observed in the Caribbean as early as 1832 in the Cayman Islands and in Cuba, Jamaica and Haiti in the late 1800s (Howard and Barrant, 1989). Reports of its first occurring in northern Haiti seem to indicate this was the region where LY began in Haiti. Morin (1977) reported that LY had been in this area since the mid-1950s, though it may have been in the country much earlier. Illingworth (1992) notes that the disease occurred in Haiti fifty years before having been observed in the Dominican Republic in 1969. The first area of infection extended from Cap-Haïtien to Ouanaminthe and

Table 10.1 Proximate analysis (% dry weight) of *C. nucifera*, after Göhl (1975).

COMPONENT	CRUDE PROTEIN	CRUDE FIBER	CRUDE FAT	CARBO-HYDRATES	ASH	Ca	P
Coconut water	4.4	6.5	6.0	70.8	12.3	5.77	3.85
Copra, Malaysia	7.4	3.0	68.0	19.6	2.0	0.03	0.26
Oilcake, Malaysia	20.0	8.3	11.7	54.1	5.9	—	—
Oil cake, expeller, Trinidad	25.2	10.8	5.2	52.8	6.0	—	—

Figure 10.8 Lethal yellowing can reach epidemic levels, as shown here in Baie-de-Henne in 1988.

reached into the interior at Camp Coq, about 10 km south of Limbé. Theobald (1989) found the disease to be well developed in the Port-de-Paix area during his survey. During the latter part of the 1980s, the disease had spread to the southern coast of the northwest peninsula at Baie-de-Henne (**Fig. 10.8**), traversed the Artibonite, and extended as far south as Arcahaie. By 1992, lethal yellowing progressed to the southern peninsula, attacking spots between Port-au-Prince and Leogâne. **Figure 10.4** shows the distribution of the disease in Haiti. The spread of the disease appears to be spotty and slow in Haiti.

A program was initiated by the Ministry of Agriculture during the mid-1970s to test new cultivars that might be more resistant to lethal yellowing and at the same time be more productive. Two experimental trials, located at Grand Prè and Levy, were established in 1976. Four Tall x Dwarf hybrid varieties from West Africa were compared with the local Jamaica Tall variety in a randomized complete block design. These trials were evaluated in 1989 by International Resources Group, Inc. The Levy trial showed no symptoms of lethal yellowing, though several palms were missing of unknown causes and two palms showed typical bud rot symptoms. By contrast, at Grand Prè, individuals of all cultivars showed symptoms of LY. The status of the trial at the time of the 1989 visit is summarized in **Table 10.2**. The susceptibility of the Jamaica Tall variety to LY, well known in the literature (Whitehead, 1968; Harries, 1974; Been, 1981; Howard and Barrant, 1989) appears to be supported by the data in the trial. The susceptibility of the Yellow Malayan Dwarf

Table 10.2 Status of the Ministry of Agriculture Grand Prè trial in 1989, 13 years after establishment.

VARIETY	NON-INFECTED	LY INFECTED	DEAD	TOTAL
Yellow Malayan Dwarf x West African Tall	81	1	18	100
Red Cameroon Dwarf x West African Tall	81	4	15	100
Green Malayan Dwarf x West African Tall	68	3	29	100
Yellow Malayan Dwarf	55	3	42	100
Local Jamaica Tall	53	5	42	100

probably is exacerbated by suboptimal site conditions for this variety and shows that no coconut variety is completely resistant to LY. So far the only practical solution in Haiti is the controlled breeding of Malayan Dwarfs, particularly in areas where the population has survived LY infestations. The preferred pollen parent is the Panama Tall for the propagation of 'Maypan' hybrids. The Panama Tall parent would preferably originate from LY-infected areas and exhibit resistance. Hybrids with the Jamaica Tall pollen parent are susceptible to LY.

Figure 11.1 Mango is the all-around favorite tree among Haitian farmers, providing shade, food, wood and a source of cash income.

11 Mango

Species: *Mangifera indica* L.
Family: Anacardiaceae
Common Names: H - mango, mangue, manguier; **RD, C, PR** - mangó

Importance: Mango is the most important tree species in Haiti, with an estimated 4.5 million trees scattered throughout the country (Wiltbank, 1982). The fruit is second to coffee in agricultural exports at about 8 million metric tons (Estublier and Lingley, 1990). The lengthy fruiting season of the tree in Haiti gives the country an export advantage, while providing a reliable food source during hunger months. Mature trees are a major asset to meet cash contingencies, being lopped or harvested entirely for fuel-wood, charcoal, and lumber.

Taxonomy and Botanical Features: Mango is probably the best known member of the Anacardiaceae family that includes cashew (*Anacardium occidentale*), hogplum (*Spondias mombin*) and *Comocladia*, the important genus for live fences. No one is sure how many varieties exist in Haiti nor the extent of hybridization among the recognized cultivars. Estimates range from 30–100 varieties, with one source listing as many as 83 in the upper Artibonite watershed (Agricorp, 1984). Most of the mangos in Haiti are polyembryonic with a genetic parentage that probably originated in southeast Asia and the Philippines (Wiltbank, 1982). Selected monoembryonic cultivars, mainly from India and Florida, are identified by their horticultural names in the country of origin (e.g., Tommy Atkins, Ingowe, St. Kitts).

Varietal differences are notable in the fruit, varying in size, shape, skin color and thickness, pulp and fiber content, and nutritional properties (**Table 11.1**). Mango leaves are lanceolate, about 30 cm long, reddish-purple when young, and dark green when mature. Bisexual and staminate flowers occur on the same panicle of the tree. Their relative percentages vary among varieties, with more bisexual flowers toward the apex of the panicles. Bisexual flowers are distinguished by a yellow ovary on a white disk in the center of the flower.

Distribution and Ecology: Mango is a native of tropical Asia, probably from the Indo-Burmese monsoon region (Rehm and Espig, 1991) where it has been cultivated for 4000 years. The greatest diversity of mango is in India, which has more than 1000 types and claims two-thirds of the world's production. It has spread throughout the tropics, having been introduced into Mexico and Brazil during the late 17th century and spreading to the West Indies through Barbados around 1742 and from Jamaica on board a ship destined for Haiti in 1782 (Leonard and Sylvain, 1931).

The mango tree is very abundant in the lowland areas of Haiti to approximately 400 meters above sea level. A typical landscape view of the valleys is dominated by trees, with mango being the principal species among other common home-and-garden species such as coconut, royal palm, breadfruit and avocado (**Fig. 11.2**). Mango thrives in areas that receive an annual rainfall between 1000–2000 mm distributed mostly during the summer months and a 2–3 month dry season prior to flower and fruit production. It is drought tolerant and can survive the drier regions of Haiti, rainfall between 600–800 mm, if additional subterranean moisture or irrigation is available for growth. Soil requirements are moderate, the best soils being well-drained sandy or gravelly loams of

Table 11.1 Differences in fruit characteristics among selected Haitian mango varieties, after Saint Hilaire (1990).

VARIETY	PHYSICAL DESCRIPTION	LENGTH (cm)	WEIGHT (g)	FIBER (%)	PULP (%)	SUGAR (%)	b-carotene (mg/100 g)
Baptiste	oblong - oval, slight beak and sinus, thick skin, juicy, yellow to deep orange and firm, aromatic meat	12.2–13.8	300–350	5.9	57.4	13.7	6.0
Blanc	oval - reniform, slight prominent beak, slightly deep sinus, dark skin spots, light whitish-yellow and soft meat, fibrous	13.9–15.1	380–500	14.4	41.2	12.4	1.3
Carotte	rounded, no beak or sinus, slight cavity, light yellow skin dots, skin and meat taste like carrot	8.5–10.0	230–270	—	1.8	—	—
Corne	oblong-elliptical, slight prominent beak, slight sinus, golden yellow skin and meat, juicy, aromatic and fibrous	14.8–15.8	207–245	7.5	34.9	18.1	4.0
Doudouce	oblong - oval, slight beak, sinus and cavity, juicy and very aromatic	10.4–12.6	235–320	11.7	49.8	16.2	—
Fil	oblong, slight beak and sinus, absent cavity, light yellow, thin skin, light acid taste, juicy and fibrous	11.7–12.9	178–211	7.8	43.0	15.5	2.3
Francisque	oblong - reniform, slightly prominent beak, deep sinus and slightly deep cavity, apricot colored firm meat, non-fibrous	16.4–18.0	420–486	6.2	63.2	13.4	6.4
Jean - Marie	oblong - oblique & reniform, slightly deep sinus and slight cavity, bright yellow, firm, juicy, aromatic meat	13.7–15.9	264–341	10.1	41.2	15.5	6.0
Kòdok	oblong - reniform, slight beak and sinus, slightly deep cavity, dark orange meat, juicy, acid and fibrous	13.5–16.1	276–419	18.8	42.1	12.9	—
Muscat	round - ovoid, absent beak and sinus, deep cavity, light gray skin dots, apricot color skin and meat, juicy and aromatic	11.8–13.4	252–307	9.0	48.1	15.7	1.6
Rosalie	oblong - oval, slight beak and sinus, deep cavity, fibrous	10.4–12.8	250–320	8.4	53.5	15.6	2.3

medium fertility and pH 6–7. Trees growing above 400 m are characterized by a poor and inferior crop, exhibiting less color, and fewer soluble solids at these elevations (Wiltbank, 1982). Altitude delays the flowering period about 4 days for each 120 meter increase in elevation and coupled with increased humidity and more constant rainfall, results in erratic flowering and fungal disease problems. Imported grafted varieties are scattered throughout the country, but mainly are concentrated in the Leogâne, Cul-de-Sac Plain, and Plaine-du-Nord regions.

Tree Characteristics: The most common varieties of mango in Haiti are recognized by large, evergreen trees with short, but thick boles to 1 m diameter, and heights to 25 meters. Trunk buttresses vary from small to prominent with a spreading crown that is about half as large as the tree is tall (**Fig. 11.3**). The tree develops a strong and deep

Figure 11.2 Mango thrives in Haiti and has become the most common fruit tree at lower elevations.

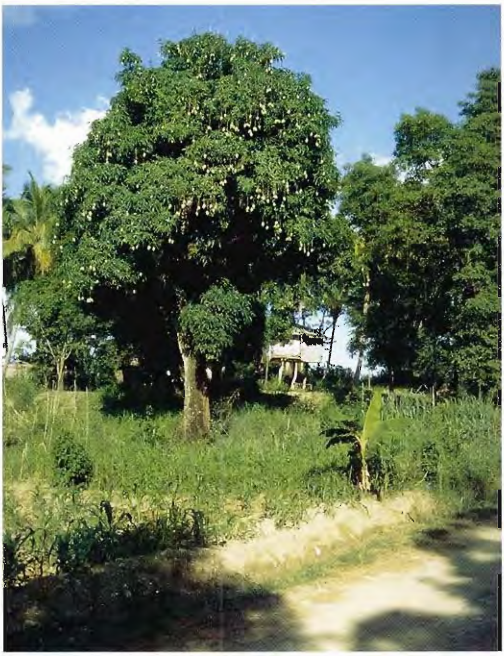

Figure 11.3 Typical form of a mature mango tree.

taproot system that aids in drought tolerance. The imported horticultural varieties are recognized by their dwarf stature; short main stem with dense, compact crowns; and massive branching as a result of pruning and grafting management regimes.

The growth of mango occurs in periodic flushes, with a tendency of bearing every other year. Its growth is influenced by variety, climate, and soil conditions. Rain and high humidity at blossoming reduce pollination and fruit setting. It takes about 2–5 months to develop fruit after fertilization, depending on cultivar and temperature (Purseglove, 1968a). Fruit is produced between 6–10 years from seed and 3–5 years from grafts. A typical yield from a mature tree is 35 kg of fresh fruit.

The regional differences in climate, particularly the distribution of rainfall as affected by the mountainous landscape, play an important role in the fruiting cycles of mango. The typical savanna pattern of low rainfall in the cooler months (November to March) and higher rainfall in warmer months controls mid-winter flowering and provides the major crops from May through August. A short dry period occurs during the midsummer that coincides with a second flowering period and yielding early mango harvests from November through April. **Figure 11.4** compares the differences in fruiting seasons for the major varieties and growing regions of Haiti.

The polyembryonic varieties in Haiti, derived from genetic parentage originating in Southeast Asia, are not seriously affected by anthracnose (*Colletotrichum gloeosporiodes*), scab (*Elsinoe mangiferae*) or pow-

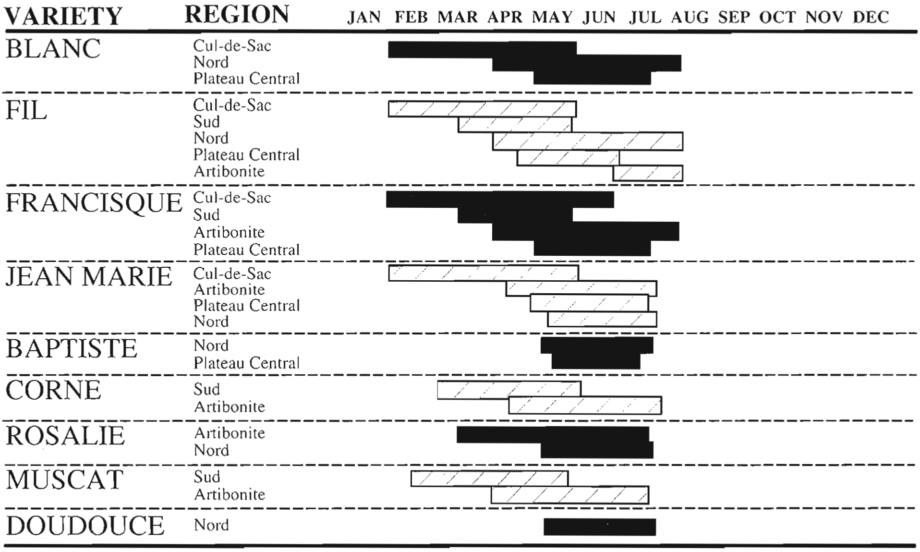

Figure 11.4 Differences in harvest period by major production regions and mango variety.

Figure 11.5 Mango has become a major source of lumber in Haiti because of its abundance and low cost in comparison with other lumber species.

dery mildew (*Oidium* spp.). In contrast, most of the improved varieties derived from Indian parentage are susceptible to anthracnose. The low relative humidity in the primary growing areas is an advantage against fungal problems, allowing for the production of mangos that can be labeled 'organic' for the North American fresh fruit market.

Utilization: Mango is prized for its aromatic flavor as a fresh fruit, having twice the sugar content of oranges and a substantial source of vitamins A, C, and K. The most important variety exported from Haiti is the Francisque, with lesser amounts of Baptiste, Carotte, Corne, and Muscat. Preserves, juice, chutney and pickle condiments efficiently use the mango grades that are not marketable as fresh fruit. The fruit is preserved by canning, pickling, dehydration and freezing. Francisque, Baptiste, Kodok and Carotte are considered for jams;

Blanc and Francisque, with their firm pulp, are considered for mango conserves; all varieties are acceptable for mango juice.

Livestock, particularly pigs, consume excess quantities of fruit and seed kernel that are collected as feed. Proximate analysis of mango is shown in **Table 11.2**. In other countries, the seed is roasted or boiled for human consumption and dried for flour milling or processed for edible fats. The fruit skin is used as source of pectin. The bark serves as a source of tannin, exhibiting antibacterial properties (Kerharo, 1974). Leaves and roots are prepared in decoctions for liver problems, fever, lower back problems and urethritis (Weniger, 1985). Latex of bark, leaves and fruit has an allergenic constituent (3-pentadecyl catechol) that may cause dermatitis and itching in some people (Campbell, 1992).

Table 11.2 Proximate analysis (% dry weight) of *M. indica*, from Göhl (1975).

COMPONENT	CRUDE PROTEIN	CRUDE FIBER	CRUDE FAT	CARBO-HYDRATES	ASH	Ca	P
Fresh leaves, India	8.0	28.0	2.7	51.2	10.0	2.3	10.0
Fresh leaves, Pakistan	9.5	22.6	4.8	50.0	13.1	3.1	0.2
Unripe fruit pulp, Nigeria	35.0	2.8	0.3	60.1	1.8	—	—
Mature fruit pulp, Nigeria	5.6	2.3	0.5	89.4	2.2	—	—

The heartwood is light pinkish brown, sometimes with black streaks, and is not always clearly defined from the sapwood. Wood texture is coarse with an interlocked, wavy grain that makes for only fair woodworking characteristics. The wood is moderately heavy and hard, with a specific gravity between 0.45–0.62 (Chudnoff, 1984; Little and Wadsworth, 1964). Though the wood is difficult to work, it is one of the most available lumbers in Haiti, providing the widest planks for general construction purposes (**Fig. 11.5**). Mango has become a major source of fuelwood to small urban industries, such as bakeries, dry cleaners and raw rum distilleries (**11.6**), and of charcoal from regions such as the Southwest and the Plateau Central (**11.7**).

Figure 11.6 Mango is a major fuelwood source for guild industries such as the *klerin* (raw rum) mills.

Propagation: Methods of mango propagation in Haiti depend upon the variety and resources of the farmer. Traditional low-input methods are to plant the seed directly on site or to transplant volunteers for the commercial varieties and leave volunteers in place of germination for the low-valued varieties. **Figure 11.8** compares the traditional methods of farmers in the Lascahobas region for regeneration of mango. Occasionally, coppice shoots are managed for a second rotation if the tree has been cut for wood or required space in the garden.

Figure 11.7 Mango wood supplies a charcoal industry throughout Haiti to supply the urban demand.

Because most of the local varieties are polyembryonic, seedlings propagated from seed have a high chance of being identical to the maternal parent. However, shoots develop that are of sexual origin and not true to seed. The best way to guarantee a superior selection is by vegetative techniques, such as grafting or budding. An additional advantage of grafting is the shortened time period required to yield a significant crop, about three to four years compared with six to ten years for trees propagated from seed. Seedling trees are also larger and more difficult to manage than grafted trees.

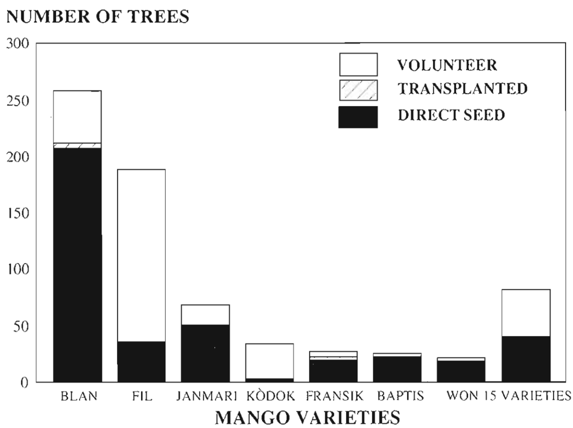

Figure 11.8 Propagation methods of the principal mango varieties in the Lascahobas region, after Campbell (1994).

Vegetative methods generally are selected to propagate commercial varieties. The most common method is a type of veneer graft or chip bud, with budwood prepared and collected from superior yielding cultivars and grafted onto rootstock selected for vigor and disease resistance. The most

Figure 11.9 The commercial 'Corne' variety is grafted onto the common and broadly adapted 'Fil' variety. Inset — Close up of graft union.

common rootstock in Haiti is the 'Fil,' being widely available and adapted to a broad range of growing conditions. Other varieties are used, depending upon local preferences. Rootstocks are propagated from seeds that are planted as soon as they are mature, though storage in polythene bags at 21° C is possible for about 2–4 weeks. The kernel is extracted from the tough endocarp and germinated preferably in a sterile medium, being transplanted about a month later to polythene bags. However, most nurseries plant the seed kernel directly in the bags. Budding is best done when rootstocks are 2–3 weeks old and in the succulent red stage. Most grafting methods in Haiti use rootstock that has reached stem diameters 6–8mm with seedling heights 30–40 cm.

Budwood is prepared from hardened terminal growth, 6–10 mm in diameter, which the leaves have been removed 2–3 weeks prior. Ringing the base of the shoot 10 days before severing increases carbohydrate reserves in the budwood and promotes faster healing (Hartmann and Kester, 1983). Techniques and training materials for grafting mango varieties have been experimented in Haiti by non-governmental organizations such as the Organisation de Réhabilitation Environment (ORE) and CARE. In an experiment of grafting and budding methods, Blaise (1990) found no significant differences in successful takes between the veneer graft and the cleft graft (both greater than 50%), but did find that the latter grafting method had more disease problems in the nursery. T-budding methods were unsuccessful in the experiment.

Inferior varieties can be converted to more productive commercial varieties by top-working the trees. The advantage is that the top-worked plant returns to flowering and fruiting faster than one started from grafted seedlings, allowing for a faster conversion to more profitable cultivars. Veneer grafting has been successful in top-working mature mango trees in Haiti (**Fig. 11.9**). However, it is preferable to work with young, healthy wildings and allow them room for growth. Conversion of old, mature stems runs the risk of their being diseased and thus causing the grower an economic loss.

Air-layering and cuttings are less frequently used for mango, though layering has been shown to be successful with methods outlined in Mukherjee and Bid (1965). Using cuttings is difficult, but can be done, with leafy cuttings under mist with IBA hormone treatments. These methods are not considered economically feasible for large-scale production.

Figure 12.1 *C. aurantium* is never too far from the kitchen, playing an important role in the diet and health of Haitians.

12 Sitwon...Zoranj...Chadèk

Species and Common Names:
Citrus aurantifolia (Christm.) Swingle **H** - citron (*sitwon*); **RD** - lima boba; **US** - Key lime, West Indian lime.
Citrus aurantium L. subsp. *aurantium* **H** - orange amer (*zoranj si*); **RD** - naranja agria (DR); **US** - sour orange.
Citrus maxima (Burman) Merr. **H** - chadeque (*chadèk*); **RD** - pomelo, toronja, toronja de la India; **US** - pummelo, haddock.
Citrus x *paradisi* Macfad. **H** - pamplemouse; **RD** - pomelo; **US** - grapefruit.
Citrus reticulata Blanco **H** - mandarine (*mandaren*); **RD** - naranja mandarina; **US** - tangerine, mandarin orange, Satsuma orange.
Citrus sinensis (L.) Osbeck **H** - orangier, orange dous (*zoranj dous*); **RD** - naranja, naranja dulce; **US** - sweet orange.

Family: Rutaceae

Importance: The *Citrus* group of species and cultivars provides an important source of nutrition and health to Haitians. Citrus products from Haiti turn up in some of the finest liquers and perfumes of the world. This genus provides Haiti an important livelihood, integrated into the traditional agriculture of most every farmer in Haiti. All parts of the tree are utilized as a source of food, medicine, shade and wood.

Taxonomy and Botanical Features: Fruits commonly known as citrus belong to three genera: *Poncirus*, *Fortunella* and *Citrus*. The taxonomy of *Citrus* is confused and complicated by hybridization, by polyembryony, by mutations, and by autotetraploid forms (Purseglove, 1968b). As many as 16 species divided into 2 subgenera, Papeda and Eucitrus, are recognized (Webber and Batchelor, 1948). The cultivated *Citrus* in Haiti fall under the Eucitrus subgenus. The fruits represent natural groups of horticultural varieties, having been selected and bred since remote times. *C. sinensis* alone comprises about 1100 cultivars divided into several groups: common orange (e.g., 'Valencia,' 'Shamouti'), navel oranges (e.g., 'Washington,' 'Thomson'), blood oranges from the Mediterranean region, and sugar oranges. *C. reticulata* has about 500 cultivars grouped into 2 varieties: var. *deliciosa* Swingle (yellow-fruited mandarin and orange-fruited tangerine cultivars) and var. *unshui* Swingle (satsuma cultivars). *C. aurantifolia* is divided into 2 varieties: the Mexican variety recognized by small fruits with many seeds and the Tahiti variety that is seedless and large-fruited. *C. aurantium* is divided into 2 subspecies that are considered by some authors as separate species: *aurantium*, which is common in Haiti and *bergamia* (Risso & Poit.) Engler that is cultivated in the Mediterranean (Terrell et al., 1986). *C. maxima* is divided into the common, pigmented, and sweet or nonacid group. *C. paradisi* is divided into the common and pigmented groups.

The differences among species are recognized by the morphology of the leaves, flowers and fruit. **Table 12.1** summarizes the morphological differences among the major citrus species in Haiti.

Distribution and Ecology: The genus *Citrus* originated in southeast Asia. It has been reported that Columbus introduced at least two of the species (*C. limon* and *C. sinen-*

Table 12.1 Morphological differences among major *Citrus* species in Haiti, after Little and Wadsworth (1989) and Purseglove (1968b). Bold-faced characteristics are important in distinguishing the species.

SPECIES	LEAF	FLOWER	FRUIT
C. aurantifolia lime, sitwon	Narrowly-winged petiole, 1–2 cm long; dull green blade, 4–10 cm long, 2–6 cm wide, rounded base	**Less than 2.5 cm dia.**; white, saucer-shaped calyx; 4–5 oblong petals, 8–12 mm long; 20–25 stamens	**Small, elliptic to round, 4–6 cm dia.**; thin peel, 1.5 mm thick; green, turning yellow; very sour pulp; small oval seeds; polyembryonic; white cotyledons
C. aurantium sour orange, zoranj si	Broadly-winged petiole, 2–4 cm long, **1–1.6 cm** wide; green, slightly shiny blade, 6.4–14 cm long, 3.8–10.2 cm wide	Light green, 4–5 toothed calyx; 5 oblong petals, 1.9 cm long; 20–24 stamens	Round to subglobose, 6.4–11.4 cm diameter; **usually hollow core**; rough peel, 0.6–1 cm thick, strongly aromatic, green; bitter and very sour pulp; **small pulp vesicles**; numerous polyembryonic seeds
C. limon lemon, limon frans	Short, **narrowly-margined** petioles; 5–10 cm long, 3–6 cm wide; ovate, serrate	Solitary or clustered; 3.8–5 cm dia.; **reddish buds**; petals white above, purplish below; 20–40 stamens	Oval with terminal nipple, 5–10 cm long, light yellow when ripe; thick adherent peel, predominate gland dots, slightly rough; oviod polyembryonic seeds; white cotyledons
C. maxima pummelo, chadèk	Broadly-winged petiole; 5–20 cm long, 2–12 cm wide; **undersurface of midrib often pubescent**	Solitary or clustered flowers, 3–7 cm dia.; cream colored petals; 20–25 stamens	**Very large pear-shaped, 10–30 cm dia.**; yellowish when ripe; thick peel; sweetish juice; large, ridged, monoembryonic seeds
C. medica citron, sitwon	Short wingless petiole, **not clearly articulated at top**; elliptic, serrate, 8–20 cm long, 3–9 cm wide	3–4 cm dia.; 5 pinkish petals; 30–40 stamens	Large oblong, 10–20 cm long; bumpy, very thick peel, yellow; sour, greenish pulp; small white polyembryonic seeds
C. paradisi grapefruit, pamplemouse	Broadly-winged petiole; leaves smaller than *C. grandis*, pale green when young, **glabrous beneath**	Single or clustered, 4–5 cm dia.; usually 5 white petals; 20–25 stamens	Large globuse fruit, 8–15 cm dia. greenish or pale yellow when ripe; **rind thinner and pulp vesicles smaller than *C. grandis***; white polyembryonic seeds; white cotyledons
C. reticulata mandarin, mandaren	**Narrowly-winged** or margined petiole; **small and narrow**, 4–8 cm long, 1.5–4 cm wide; dark shiny above, yellowish-green below	Small, 1.5–2.5 cm dia.; 5 white petals; about 20 stamens	Top of fruit depressed; globuse, 5–8 cm dia.; thin peel, **loose and easily separating from segments**, green turning to yellow or orange-red when ripe; sweet and juicy pulp; small, polyembryonic seed; **green embryos**
C. sinensis sweet orange, zoranj dous	Narrowly-winged, articulated petiole, 1–2 cm long; dark green or yellow-green blade, 6.4–15.2 cm long, 3.2–8.9 cm wide	Greenish-white broad saucer-shaped calyx; 5 white eliptic petals, 1.3–2.2 cm long	Round, 6.4–9.5 cm diameter; smooth peel, 0.6 cm thick, **tightly adherent**; green to yellowish-green; sweet pulp; nil to numerous polyembryonic seeds; **white embryos**

sis) to Haiti on his second voyage in 1493 (Pursglove, 1968b). *C. aurantifolia* and *C. aurantium* were introduced to the Western Hemisphere by the Spanish early in their colonization. *C. maxima* was brought to Barbados during the seventeenth century by Captain Shaddock, giving rise to its common names, 'shaddock' and 'chadek'. The origin of *C. paradisi* is not certain, though a close relative of *C. maxima* supports the idea that it resulted as a cross between *C. maxima* and *C. sinensis* or as a bud mutation of *C. maxima*. Though most of the citrus species occur throughout Haiti, the best production of the different species depends upon elevation and rainfall: hot and high-rainfall regions of the low elevations favor lime, grapefruit, shaddock and some sweet orange cultivars; the mid elevations favor most of the sweet orange cultivars and mandarins (Wiltbank, 1982). The prinicipal production regions of the newer imported cultivars are

La Chapelle for Tahiti lime, La Vallee de Jacmel for mandarin, and the Cul-de-Sac and Cap-Haïtien for grapefruit. Lemon (*C. limon*) and citron (*C. medica*) are not widely cultivated in Haiti.

The genus is notably absent in regions of Haiti that receive less than 1000 mm of rainfall without irrigation and in high-elevation mountain areas above 1000 m. Dry periods up to 2 months can be endured only during the winter dormant period (Rehm and Espig, 1991). Salt and drought tolerance are higher in such cultivars as the 'Cleopatra' mandarin and the 'Rangpur' lime.

Citrus are sensitive to salty and poorly-drained soils, requiring fertile conditions and a pH 5–7 for consistently high production. Mineral fertilizing with about 0.6 kg N, 0.3 kg P and 0.6 kg K tree^{-1} year^{-1} is recommended for oranges (Cohen, 1976). In the West Indies, nitrogenous fertilizers are the most important and are applied at a rate of 0.2 kg N tree^{-1} year^{-1} where fruit is regularly harvested. An unbalanced, high-nitrogen fertilization gives high yields, but impairs fruit quality by lowering the sugar:acid ratio. Potash is used to improve fruit quality.

Citrus are not truly wild, having been cultivated for so long. However, natural regeneration plays an important role in establishment, particularly in the case of sour orange and, to a much lesser extent, the other more marketable species. Practically all sweet orange cultivars are cultivated. The species are shade-tolerant, though good fruit production requires full sun. Typically, *Citrus* form the middle canopy layer of traditional perennial gardens and coffee groves, along with *Musa* (plantain, banana), *Annona* (soursop, custard apple) and *Crescentia cujete* (callebash). The *Citrus* group ranks third in the quantity of fruit trees found in Haiti, after mango (*Mangifera indica*) and avocado (*Persea americana*). *C. aurantium* is the most abundant *Citrus* species.

Tree Characteristics: Tree height varies among the *Citrus* species. Lime (*C. aurantifolia*), lemon (*C. limon*), citron (*C. medica*) and mandarin (*C. reticulata*) are small trees, ranging 2–5 m. Sweet orange (*C. sinensis*) grows to about 10 m and pummelo (*C. grandis*) and grapefruit (*C. paradisi*) up to 15 m. Stem diameters average 15 cm. The species can be considered evergreen, with leaves that usually live for a year or more. The degree of thorniness varies among species, with spines developing at the base of the leaf nodes. The presence of spines depends upon the stage of development for many species. There are few or no spines on the fruit-bearing twigs of those species that have thorns.

The tree produces new leaves several times a year, the first growth being the strongest and producing the most flowers. The following growth phases are irregular with few or no flowers. However, the crops from these off-season growth phases can be of considerable economic importance locally. Sweet orange does not develop the orange color of US cultivars, but retains a green color. Sweet oranges from the Cap-Haïtien region have a higher sugar and juice content, because of higher temperatures and insolation during maturation (Wiltbank, 1982).

The wood does not vary significantly among the citrus species, ranging from light yellow to yellowish brown, hard and fine-grained. Growth rings usually are clearly defined.

Sweet orange, shaddock, grapefruit and mandarin flower between March and May, with fruit being harvested between November and April. Lime flowers throughout the year, peaking between March and July with fruit maturing between June and November. Sour orange flowers throughout the year. However, the main season for any one region can be considerably different from another region, as affected by microclimate differences. This variance is illustrated for production areas of the Central Plateau (**Figures 12.2–12.4**).

Utilization: The entire citrus tree is used in Haiti. Though the fruit is by far the most important product, the trees are valued as honey plants. They provide a diverse source of ingredients in traditional medicine, yield wood products requiring strength and hardness, and are planted as shade or ornamentals. Each of the species is unique in the contribution of products that are harvested from the plant.

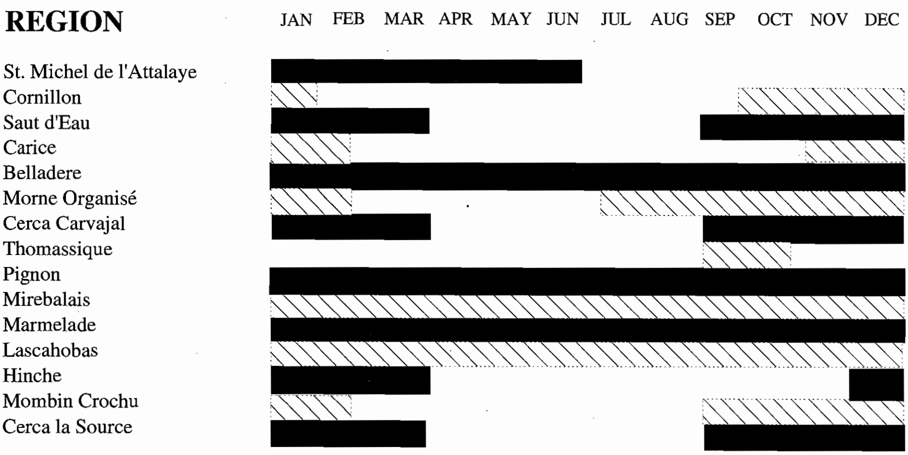

Figure 12.2 Harvest periods of *C. aurantium* across regions in the Central Plateau, after Agricorp (1984).

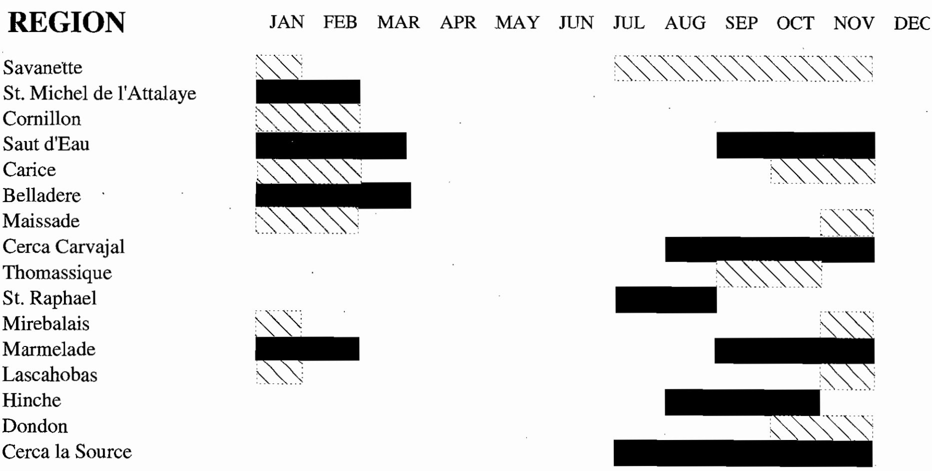

Figure 12.3 Harvest periods of *C. sinensis* across regions in the Central Plateau, after Agricorp (1984).

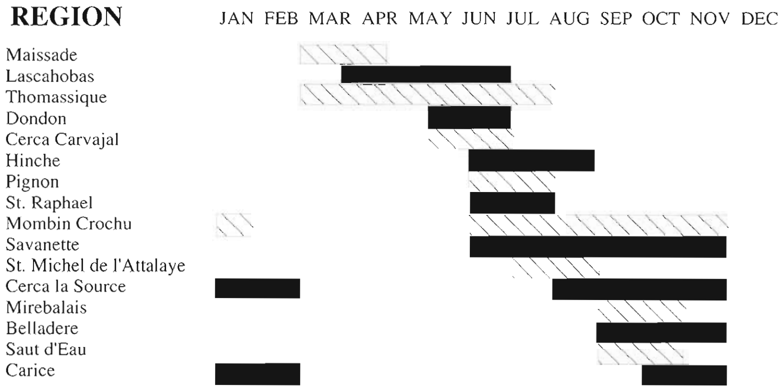

Figure 12.4 Harvest periods of *C. aurantifolia* across regions in the Central Plateau, after Agricorp (1984).

Figure 12.5 Farmer carving a *pilon* (pestle) from the hard wood of *C. aurantium*.

Sour orange juice is essential in Haitian cuisine as a cleaning agent, particularly for meat. The peel is used in marmelades and is processed in Haiti for export in the making of fine liquers such as Curacao and Cointreau. The species is the most important medicinal plant in Haiti, being utilized as a remedy for 23 of 25 major types of illness (Rouzier, 1990). As one of the most important rootstocks for grafting in the citrus industry, sour orange has a good influence on the vigor, yield, and fruit quality of grafted varieties, while being resistant to many of the major diseases such as *Phytophthora*, xyloporosis and exocortis. The high-priced neroli oil used in perfumes, known as "neroli Bigarade," is distilled from the flowers of sour orange; the subspecies *bergamia* is used for bergamot oil, expressed from the peel in southern Italy. An aromatic oil is produced from leaves. The wood is valued for its strength and hardness. The most common uses are tool handles and pestles (**Fig. 12.5**).

Sweet orange is consumed mostly as a food or squeezed for its juice, rich in vitamin C. Several oils are extracted from sweet orange. An essential oil is pressed from the peel, an aromatic oil is expressed from the leaves, and orange flower oil, known as "neroli Portugal," is distilled from the flowers. Sweet orange is used almost as frequently as sour orange in the folk medicine of Haiti. Several byproducts of citrus juice and oil-extracting facilities, including excess fresh citrus, pulp, pulp meal, molasses and

Table 12.2 Proximate analysis (% dry weight) of *C. sinensis*, after Göhl(1975).

COMPONENT	CRUDE PROTEIN	CRUDE FIBER	CRUDE FAT	CARBOHY-DRATES	ASH	CA	P
Fresh whole fruit, Israel	7.8	9.4	1.6	76.5	4.7	0.47	0.23
Peels, Israel	6.8	6.2	1.9	81.4	3.7	1.30	0.12
Dried citrus pulp, Trinidad	6.9	13.1	2.8	70.1	7.1	—	—
Citrus meal, USA	8.1	11.4	3.9	71.1	5.5	—	—
Citrus molasses, USA	5.8	0.0	0.3	87.3	6.6	1.13	0.08
Citrus seed meal, USA	40.0	8.8	6.7	37.5	7.0	—	—

Figure 12.6 *C. maxima* is kept in a field garden to provide fruit during the dry season and a source of income.

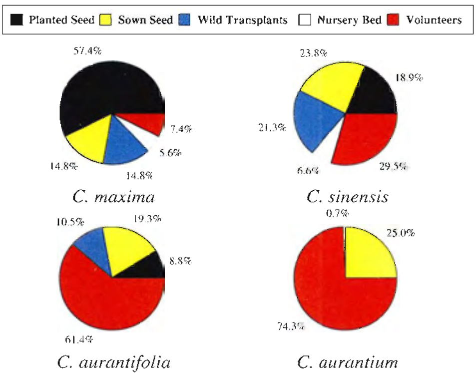

Figure 12.7 Traditional methods used by Haitian farmers to establish *Citrus*, after Campbell (1994).

seed meal, are used as animal feed. Seed meal contains limonin, a factor toxic to pigs and poultry, but acceptable to ruminants (Göhl, 1975). Proximate analysis (% dry weight basis) of sweet orange as animal feed is provided in **Table 12.2**.

Lime juice is the base for many beverages, with the fruit being the main source of citric acid and lime oil that is extracted from the peel. All parts of the tree are used in folk remedies. The fruiting season occurs when other citrus are not bearing, thus giving lime an important role in stabilizing cash income.

Shaddock juice is one of the most popular drinks in Haiti. Along with sweet orange, the fruit often is eaten as a refreshment during working hours in the field (**Fig. 12.6**). The shaddock rind is peeled in a single piece, dried in the sun and candied as a preserve. The plant is less utilized than the other citrus for medicinal purposes.

Propagation: Most of the trees one sees in the countryside are cultivated from seed and are the result of low management techniques adopted by farmers. **Figure 12.7** provides a glimpse of the way most *Citrus* in Haiti are established. The more intensive methods (transplanting volunteers, nursery bed preparation and planting seed directly in the soil) are

Figure 12.8 Aphids are a major *Citrus* pest, transmitting virus and other pathogens, and directly damaging stems and leaves through their feeding habits. Shown here is the result of a citrus aphid attack on *C. maxima*.

reserved for the more marketable fruit — shaddok, sweet orange and lime. Sour orange is generally left to grow as a volunteer, many times near the courtyard kitchen where the fruit is used in food preparation.

Due to the presence of zygotic embryos, *Citrus* cultivars do not reproduce true by seed. Though the nucellar embryos of the polyembryonic varieties are genetically identical with the mother tree, the offspring tend to be more thorny, more vigorous, and are slower to come into bearing. Vegetative propagation techniques, designed to conserve the genetic quality of a given cultivar and decrease the time required for full fruit production, are notably absent from the cultivation practices of most Haitian farmers. However, as market demand for fruit quality and disease-resistant cultivars increases, there is all likelihood that farmers gradually will employ these methods as part of their propagation strategy.

Nurseries that regularly graft *Citrus* usually have established a budwood orchard of various commercial cultivars. A partial list of the cultivars that have been introduced to Haiti is provided in **Table 12.3**. The method most frequently utilized by the commercial nurseries employs T-budding onto sour orange rootstock. Rootstock generally is propagated from seed in polythene bags for 4–6 months prior to budding. During this stage, seedlings face any number of diseases, pests, and nutrient-related problems that must be controlled carefully for healthy plants (**Figures 12.8-12.10**).

Sour orange exhibits many excellent traits as a rootstock, being well adapted to a variety of site conditions. It is hardy and favorably influences the fruit quality of the cultivars worked on it. However, other rootstocks should be considered, particularly for

Table 12.3 Partial list of *Citrus* cultivars and their locations in Haiti, after Wiltbank (1982).

SPECIES	CULTIVAR (LOCATION)
Citrus aurantifolia	Persian (Tahiti) lime (Haiti Citrus Corp., ODH/Roche Blanche)
C. depressa	'Shekwasha' (MARNDR/Grand Prè)
C. jambhiri	(MARNDR/Grand Prè)
C. latifolia	'Eureka' (Grand Prè)
C. limon	'Meyer' (BHM/Fairmathe)
C. macrophylla	'Alemon' (MARNDR/Grand Prè)
C. x *paradisi*	'Isle of Pine' and 'Thompson' (MARNDR/Grand Prè, US Embassy residence); 'Marsh Seedless' (Haiti Citrus Corp., MARNDR/Grand Prè, and US Embassy residence); 'Ruby Red' (ODH/Roche Blanche, US Embassy residence, MARNDR/Grand Prè); 'Star Ruby' (Haiti Citrus Corp.)
C. paradisi x *Poncirius trifoliata*	'Swingle' (MARNDR/Grand Prè)
C. reticulata	'Oreco' (US Embassy residence, MARNDR/Grand Prè); 'Lee,' 'Murcott' and 'Satsume' (BHM/Fairmathe)
C. sinensis	'Bon Ami,' 'Camp Louise,' 'La Chine' and 'Pineapple' (US Embassy residence); 'Jacmel' (MARNDR/Damien); 'Temple' (US Embassy residence, MARNDR/Grand Prè, ODH/Roche Blanche); 'Valencia' (US Embassy residence, MARNDR/Grand Prè, ODH/Roche Blanche); 'Washington Navel' (US Embassy residence, MARNDR/Damien, ODH/Roche Blanche, BHM/Fairmathe); 'Carrizo' (MARNDR/Grand Prè)
C. sunki	'Sunki' (MARNDR/Grand Prè)
C. volkamericana	'Volkamer' (MARNDR/Grand Prè)

Figure 12.9 As many as a dozen species of scale insects and mealybugs attack *Citrus*, with heavy infestations killing young trees.

Figure 12.10 The high pH of water and soil derived from calcareous rock causes nutrient deficiencies, particularly iron, in *Citrus* seedlings.

Table 12.4 Various traits of major rootstock species used in vegetative methods.

SPECIES	ADVANTAGES	DISADVANTAGES
C. sinensis	Hardier than lemon (*C. limon*); resistant to tristeza (' quick decline') and scab; juicy, fairly high-quality fruit; long lived; 70–95% nucellar embryos.	Susceptible to gummosis (*Phytophthora*); less hardy than *C. aurantium*; shallow rooted; slow grower; low branched, bushy.
C. aurantium	Hardy, with a deep tap root; resistant to gummosis (*Phytophtora*), xyloporosis, and exocortis; vigorous; high fruit yield and quality; 85–95% nucellar embryos; best stock for 'Marsh' grapefruit and 'Valencia' orange.	Susceptible to tristeza ('quick decline') and scab. Poor scion compatibility with limes.
C. reticulata 'Cleopatra'	Resistant to gummosis (*Phytophthora*) and tristeza ('quick decline'); salt tolerant.	Slow growth; slow bearing; susceptible to gummosis (*Phytophtora*) and xyloporosis.
C. limon	Drought hardy; sandy, well-drained soils; vigorous early fruiting; resistant to tristeza ('quick decline'); 100% nucellar embryos.	Lower-quality fruit (thick skinned, more acid); susceptible to gummosis (*Phytophtora*) and scab.
C. aurantifolia x *C. reticulata* 'Rangpur lime'	Vigor; resistant to tristeza ('quick decline'); tolerant of wet and salty site conditions.	Susceptible to exocortis and gummosis (*Phytophtora*).

specific cultivars and site conditions (**Table 12.4**). Furthermore, sour orange is susceptible to the citrus tristeza virus that is transmitted by an insect vector or from infected budwood. As this disease becomes more widespread in the West Indies and Central America, the selection of alternate rootstock is highly recommended.

Figure 13.1 *P. americana* is an excellent source of energy and vitamins, playing an important role in the Haitian diet.

13 Zaboka

Species: *Persea americana* L.
Family: Lauraceae
Synonyms: *Laurus persea* L., *Persea edulis* Raf, *P. gratissima* Gaertner, *P. leiogyna* Blake, *P. persea* (L.) Cockerell.
Common Names: H - avocat (*zaboka*), avocatier, *zabelbok*; **DR** - aguacate; **C** - pagua; **US** - avocado, alligator pear.

Importance: The fruit is an important source of oil and nutrition in the Creole cuisine, while the tree provides shade and wood in an agroforestry setting. It is well adapted to a wide variety of soil types and, along with mango, citrus and coconut, adds an element of food security to the harvest of annual crops.

Taxonomy and Botanical Features: The Lauraceae family is well known in Haiti for its timber genera, including *Ocotea* (*lorie blan*), *Cinnamomum* (*lorie wòz*) and *Licaria* (*lorie jòn*). But the best-known member of the family is the avocado. Though there are 10 recognized species represented in the *Persea* genus, *P. americana* is by far the most popular and is cultivated throughout the tropics and subtropics for its edible fruit. The species is divided broadly into 3 races as distinguished by the characteristics of the fruit. 'Mexican' (*P. americana* var. *drymifolia* Mez = *P. drymifolia* Cham. & Schlecht.), sometimes considered a distinct botanical variety, is a small-fruited race that is adapted to poor growing conditions and can withstand frost to -6° C. 'Guatemalan' is large-fruited, with thick, rough skin, and a small kernel, being able to withstand frost to -4.5° C. The race in Haiti is known as the 'West Indian,' and is also large-fruited with a smooth and leathery skin, but it is more tropical and not able to withstand temperatures below -2° C (Rehms and Espig, 1991).

The West Indian race is distinguished by 1) the foliage lacking an anise-like scent of the Mexican race, 2) the young branches and leaves being lighter green than the Guatemalan race, 3) the smooth and leathery skin of the large fruit, weighing up to 1.3 kg and ranging in color from yellow-green to maroon, 4) the kernel being large in proportion to the fruit, often loose in the seed cavity, and 5) the flowering season from January through May with fruit maturing from June to November.

Varieties are classified into A and B types according to the manner in which the flowers function. "A" type stigmas are receptive in the morning and anthers shed pollen in the afternoon of the following day; "B" type stigmas are receptive in the afternoon and anthers shed pollen in the morning of the next or second day (Malo and Campbell, 1988). It is disputed whether this is of practical significance, because bees and other insects are the main pollinators of avocados.

Hybrids have been developed among the 3 races, some of which are described in **Table 13.1**. Many of these are available in Haiti through private owners and non-governmental organizations.

Distribution and Ecology: The species is considered native to Mexico and Central America, but not to the Caribbean. It was introduced to Jamaica around 1650 and spread later to the rest of the Caribbean, where it has become naturalized (Purseglove, 1968a). Most of the avocados in Haiti occur in the moist and wet regions, with annual rainfall above 1200 mm and elevations from sea level to 800 m elevation. The West Indian race

Table 13.1 Characteristics of several commercial avocado varieties.

VARIETY	RACE	FLOWER TYPE & SEASON	FRUIT COLOR AND SIZE (KG)	YIELD	RESISTANCE TO AVOCADO SCAB (*Sphaceloma persae*)
Lula	Guatemala x Mexican hybrid	A (Nov-Feb)	Green 0.4–0.7	High	Susceptible
Choquette	Guatemalan x W. Indies hybrid	A (Nov-Feb)	Green 0.7–1.1	Medium	Resistant
Waldin	W. Indies	A (Sept-Nov)	Green 0.4–0.8	Medium	Resistant
Pollock	W. Indies	B (July-Sept)	Green 0.5–1.1	Low	Resistant
Booth 7 or 8	Guatemalan x W. Indies hybrid	B (Oct-Dec)	Green 0.3–0.8	High	Moderately Susceptible
Monroe	Guatemalan x W. Indies hybrid	A (Jul-Sep)	Green 0.5–1.1	Medium	Moderately Susceptible

requires the most tropical climate of the 3 races, preferring a mean annual temperature of 24–26° C (Geilfus, 1989). It is particularly abundant in the mid-elevation mountains, becoming more common than mango above 500 m elevation. The tree is not demanding in specific soil requirements and produces adequately on the shallow and rocky limestone soils common to the mountain slopes of Haiti (**Fig. 13.2**). The tree tolerates neither salinity nor poorly drained soils. The distribution of avocado is more restricted than that of mango in the low elevations of Haiti, because the tree is not as drought tolerant and more importantly, it is susceptible to avocado root rot (*Phytophtora cinnamoni*) that is common to wet and heavy soils (Wiltbank, 1982).

Figure 13.2 *P. americana* is well adapted to rocky mountain slopes.

The tree often is seen in humid perennial gardens in association with other fruit species (mango, coconut, citrus) and serves as shade for coffee. As a fruit tree, the size-class distribution is unlike those of mango and coconut, in which mature trees dominate. The species was found to be evenly distributed among seedlings, young fruit-bearing, and mature trees in the Lascahobas area (Campbell, 1994).

Tree Characteristics: Wild trees in the mid-elevation mountains reach heights of 20 m and stem diameters up to 50 cm, sometimes with a long clean bole typical of other timber trees in the Lauraceae. Mature trees have a narrow or rounded crown; they often lean and are shaped by wind damage to the brittle branches and trunk. The combination of the longer clear bole for lumber and the less dense canopy are advantages over mango, permitting more light to reach other perennial crops in the understory. The tree coppices well and is allowed to regrow.

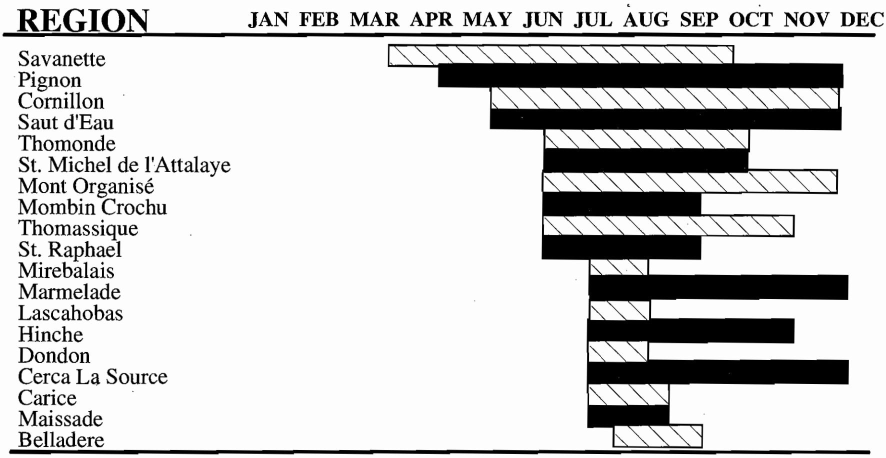

Figure 13.3 Major harvest periods of *P. americana* in the Central Plateau, after Agricorp (1984).

The brown, reddish or pinkish heartwood contrasts sharply with the cream-colored sapwood. Planks sawn from avocado are medium to coarse in texture with straight to irregular grain. Specific gravity ranges from 0.39–0.54. The wood is easy to work and finishes smoothly. Avocado wood is not durable in the ground and is susceptible to decay fungi (Chudnoff, 1984).

The tree flowers from January through May with fruits maturing from June to November. However, microclimate differences, such as elevation and rainfall distribution, greatly influence the fruiting schedules for any one region (**Fig. 13.3**). Higher elevations delay fruit maturity because of lower temperatures. Introduced cultivars with genetic parentage from the Guatemalan variety flower and fruit later than the West Indian variety does and are of local economic importance.

Utilization: The tree is cultivated in Haiti for its fruit, which is an important source of vitamins (A, B complex and E), protein (0.8–4.4 g /100 g fresh wt) and digestible fat (5–25 g /100 g fresh wt.). The major portion of Haiti's harvest is consumed and sold locally, while an estimated 12% is transported to urban markets (Wiltbank, 1982) (**fig. 13.4**). Surplus fruit is an important food source for pigs and other livestock. Avocado oil is extracted from the pulp and used in cosmetic preparations and salad oil. The oil is approximately 77% oleic acid, which demands a price 10 times higher than that of peanut oil (Rehms and Espig, 1991). The wood of the tree has a wide range of uses. Because of its relative abundance, like mango, the tree is an important source of lumber in certain areas of Haiti (**Fig 13.5**). The wood is used for furniture, house construction, and turnery, though it is brittle and susceptible to attack by termites. Avocado is visited by bees, important for pollination and honey production. All parts of the tree are utilized in traditional medicines. Leaf and bark teas contain tannin and are taken as an anti-diarrhetic, for high blood pressure, colds, and jaundice. Poultices are made from the leaves for pain, headaches, rheumatism, and sprains (Eldridge, 1975).

Figure 13.4 Avocados ready for transport to the Port-au-Prince market from the Lascahobas region.

Figure 13.5 *P. americana* lumber is common in the urban market as traditional timber species become depleted.

Propagation: Most of the trees found in Haiti are propagated from seed, though seedlings are not true to type. In the *lakou*, rotten fruit or seeds thrown away in a shady and composted area are left to germinate. By far the most common method is to plant the seed directly in a restricted location of the courtyard. Volunteers hardly ever are transplanted, but are allowed to grow where they germinate. No traditional method of vegetatively propagating the species by cuttings has been observed in Haiti.

Grafting and budding techniques are preferred for the propagation of local selections and imported commercial cultivars. Much of the most recent work in Haiti has been to introduce late-maturing Guatemalan hybrids to expand the avocado fruiting season. Rootstock is usually of the locally available West Indian variety and is grown in polythene bags. The large seed produces a pencil-size shoot suitable for cleft grafting in 2–4 weeks after germination. Seedlings are 15–20 cm high and 6–10 mm in diameter and scion material are shoot terminals 5–8 cm long with a terminal bud taken as it resumes growth. Care is taken to sterilize the seed in hot water (49° C) to avoid root rot (*Phytophthora cinnamomi*) infection.

Figure 14.1 A superior specimen of *S. siamea* selected for seed collection. Inset — Yellow flowers and thin pods of *S. siamea.*

14 Kasya

Species: *Senna siamea* (Lam.) Irwin & Barneby
Synonyms: *Cassia arborea* Macfad., *C. florida* Vahl, *C. gigantea* Bertero, *C. siamea* Lam., *Sciacassia siamea* (Lam.) Britton
Family: Fabaceae (=Leguminosae) **Subfamily:** Caesalpinioideae
Common Names: H - casse de Siam, cassia (*kasya*); **RD** - acacia amarilla, casia de Siam, flamboyán amarillo, la casia amarilla; **C, PR** - casia, casia siamea; **J, PR, US** - kassod-tree, Siamese senna, Siamese shower.

Importance: There are several reasons that *Senna siamea* became one of the most popular species of the Haitian farmer. It grows fast on a wide range of sites to provide quick shade and a moderately dense wood for small timber and fuelwood. It coppices well to yield successive crops. It is not weedy and generally is refused by animals as a browse. The crown is erect and the seedling is more shade tolerant than most other fast-growing exotics. It fits well into the traditional *lakou* system, besides being suitable for hedgerows, boundary plantings, and woodlots.

Taxonomy and Botanical Features: The species first was described in Thailand, formerly Siam, as the common and scientific names indicate. A major revision of the Cassieae tribe distinguishes three closely-related genera (*Cassia, Senna* and *Chamaecrista*) based on the stamen and bract features (Irwin and Barneby, 1982). The medium-sized tree is recognized by the large terminal clusters of showy yellow flowers and numerous bunches of flat, narrow, slightly curved, dark brown pods which split open to release more than a dozen shiny, circular, dark brown, flat seeds 8 mm in diameter (**Fig. 14.1** inset). The 6–14 paired leaflets, 3–7.5 cm long and 1.3–2.3 cm wide, are attached to a reddish tinged axis and have a dark green upper surface and a gray green lower surface. The flower stalks and new growth have a yellowish tint.

Distribution and Ecology: The natural range of the species is southeast Asia from southern India to the Malay peninsula. It has been planted throughout the tropics as a fast-growing reforestation species and the time of its entry to Haiti is uncertain. Little and Wadsworth (1964) reported the species' introduction to Jamaica prior to 1837. SHADA planted the species in the Bayeux and Franklin areas in the 1940s. As the most-planted species during the USAID Agroforestry Outreach Project (1981–1989) and Agroforestry II (1990–1991), the gene pool, mostly from the Bayeux population, has been distributed throughout Haiti. The main distribution of the species still is centered along travel ways, commonly occurring as a combination ornamental, boundary planting, and shade tree in the residential sections of small towns. During 1988, additional seed lots were imported from Central America and Africa and were incorporated into a program to broaden the genetic base of the species and to begin selection of superior trees.

The tree prefers elevations under 500 m and annual rainfall amounts from 1000–2000 mm. It fails on sites with a combination of alkaline soils, particularly heavy clays, and 4–5 months of drought with no access to deep soil moisture. It survives poorer than *Leucaena leucocephala* ssp. *glabrata* and *Azadirachta indica* on shallow and rocky soils. The tree tolerates the poorly-drained vertisols, but prefers the sandy loams and the sandstone-derived soils of the Plateau Central as well as basaltic soils. Seedlings and coppice shoots are shade tolerant and exhibit a yellowish-green growth under its own deep shade. The species prefers to grow in full light and captures the site to the exclusion of other species once it is established. However, it is not as aggressive as other fast-growing species, with a much lower rate of natural seeding than *Leucaena* and *Azadirachta indica*.

Tree Characteristics: The tree rarely grows taller than 18 m in Haiti, having stems that range from a low-forking bole to a single main stem that may reach to 10 m, particularly in pure stands (**Fig. 14.2**). Stem form appears to be sensitive to soil conditions; scattered stands of excellent form occasionally are seen throughout Haiti, mainly on basaltic and sandy loams. Multiple and low-forking stems require early pruning to develop straight wood for construction purposes. The tree coppices well in partial shade; boundary and fence trees can be pollarded for fuelwood and light management for understory crops. Crown diameters extend up to 8 m, with an average crown width:DBH ratio of 29.6. Peak fruiting occurs around December, but seed is available between October and February and again during April and May. There are approximately 30,000–40,000 seeds kg^{-1}.

Wood density is moderate, ranging from 0.57–0.83 for samples taken from 5-year-old trees in the Northwest. The dark brown-black heartwood of *S. siamea* is streaked and hard, while the sapwood is light brown and moderately hard, but not durable.

Utilization: *S. siamea* traditionally was planted as an ornamental and shade tree in areas of southeast Asia where it is native. It forms a good windbreak with a closed and erect crown. In Haiti, it has become a general-purpose tree, providing a quick source of wood for construction material and fuelwood (**Fig. 14.3** and **Fig. 14.4**). The bark is used as a source of tannin. It is not a preferred browse species and is reported to be toxic to pigs. However, ruminants can eat it as part of the diet (Geilfus, 1989). As a fodder, it generally is planted along the garden boundary and lopped as required. The proximate analysis is shown in **Table 14.1**.

The wood is susceptible to decay and termite attack, with 60% of untreated posts tested in Puerto Rico considered unserviceable after 1 year (Englerth, 1960). The grain is interlocked, but takes a good polish and is acceptable for turnery. Charcoal made from the wood is considered medium grade and inferior to *Prosopis, Acacia* and *Casuarina*

Figure 14.2 Five-year-old *S. siamea* provenance trial at Mirebalais.

Figure 14.3 Men sawing *S. siamea* into planks for house construction.

(Grosenick, 1986a). The fuelwood tends to be smoky.

There are no records of *S. siamea* being used as a medicinal plant in Haiti, though it is considered a honey plant. Its use as a hedgerow species is not as widely spread in Haiti as for *Leucaena*, with greater problems in seed availability and germination in the field. However, studies have indicated that *S. siamea* may be less competitive for soil moisture in alley-cropping designs. It has the advantage of being less browsed as a green manure than *Leucaena*.

Propagation: The seed of *S. siamea* would seem ideal for direct seeding in the field. However, most direct seeding experiments in Haiti have failed to establish seedlings. Direct seeding seems to require more constant rainfall conditions than is typical in the drier regions of Haiti. Unless copious quantities of the seed are available

Figure 14.4 *S. siamea* firewood is smoky and likely to be made into charcoal for sale or use as a cooking fuel.

Table 14.1 Proximate analysis of *S. siamea* (% dry weight basis), after Göhl(1975).

COMPONENT	CRUDE PROTEIN	CRUDE FIBER	CRUDE FAT	CARBO-HYDRATES	ASH	Ca	P
Leaves	16.8	19.8	11.2	46.8	5.4	—	—
Fresh twigs	20.0	16.5	5.6	52.6	5.3	1.14	0.14

and cheap, this technique is not recommended.

The growing of seedlings in containerized systems, such as the Rootrainer and Winstrip, has been the principal propagation method used for *S. siamea* since the 1970s. Seed germination, following immersion in hot water and soaking for a couple of days, ranges from 65–80%. As with other *Senna* species, *S. siamea* seedlings are sensitive to overwatering and precautions are required in the preparation of the potting medium. It is highly susceptible to leaf spot diseases, particularly *Cercospora*, requiring a regular schedule of foliar fertilizer and fungicide treatments (**Fig. 14.5**). Runion et al. (1990) indicate at least 8 genera of fungi causing leaf spot, a single genus (*Colletotrichum*) associated with anthracnose, and a powdery mildew that Tourigny (1987) attributed to *Oidium* (**Fig. 14.6**). It takes approximately 14 weeks to prepare seedlings for outplanting with the initial 3 weeks under shade and the final 4 weeks hardening off (Josiah, 1989). Seedlings do not respond well to top-pruning.

The growing of root suckers and the transplanting of volunteers and stumps are low-input methods that are sometimes used. Stumps are left to grow to a 1 cm root collar diameter in a deeply-dug nursery bed at 15 cm x 15 cm, and are prepared by pruning the shoot to 10 cm and the roots to 25–30 cm (Geilfus, 1989).

Figure 14.5 Cercospora leaf-spot on *S. siamea* seedling.

Biomass and Volume Studies: Ehrlich (1985) developed biomass and pole volume tables from a stand located in Limbé. In 1990, an additional set of regression equations was analyzed in a biomass study conducted at the CARE trial near Nan Marron. The equations in **Table 14.2** can be utilized to estimate biomass components based on stem and tree height measurements.

Growth Performance: The fastest early growth rate that has been observed for *S. siamea* is 3.2 m yr^{-1} during the first 2 years at Cazeau (**Fig. 14.7**). This site is well-drained with a deep sandy loam and approximately 1200 mm rainfall that is sup-

Figure 14.6 Powdery mildew on *S. siamea* seedling.

plemented by a high water table. *S. siamea* has no problem growing faster than 2 m yr^{-1} on alluvial sites such as Roche Blanche or the deeper loams of Marmont in the Central Plateau. The sites where the tree is growing under 1 m yr^{-1} in **Figure 14.7** are extremely shallow and rocky (Haut Camp, Bombard) or experiencing lengthy drought periods with about 800 mm rainfall (Nan Marron). Survival is generally high for this species, regardless of growth rates, if droughts are not severe (i.e., <3 months with negligible rainfall).

There is a wide range in wood yields as shown in **Table 14.3**. For all practical purposes, the species is a failure on extremely rocky sites, such as Haut Camp near Camp Perrin, and on sites that endure lengthy drought periods combined with shallow soils, such as Nan Marron, Jean Rabel, Bombard, and Lapila. The species has suffered in the northeast at Terrier Rouge, where soil depths are adequate, but rainfall is variable and

Table 14.2 Equations used to estimate biomass components (kg dry weight) of *S. siamea* in Haiti.

COMPONENT	REGRESSION EQUATION[1]	R^2	DIA. RANGE (cm)	SITE
Total aboveground biomass	$0.364(DBH)^2$	0.97	1.0–13.8	Limbé
Usable wood weight	$0.432(DBH)^2 - 1.5(DBH)$	0.97	1.0–13.8	Limbé
Usable wood weight	$4.001(sd)^2 - 9.461$	0.86	1.7–27.6*	Limbé
Pole volume (x 10^{-3} m^3)	$0.338(DBH)^2$	0.91	5.0–13.8	Limbé
Total aboveground biomass	$0.023h\Sigma d_n^2$	0.99	1.4–12.7	Nan Marron
Usable wood weight	$0.023h\Sigma d_n^2$	0.99	1.4–12.7	Nan Marron

[1] **DBH** = Stem diameter measured at 1.3 m above ground level, in cm. **sd** = Stump diameter measured at 0.1 m above ground level, in cm. **h** = Total tree height, in m. **n** = Number of stems at 0.1 m above ground level. *Stump diameter range.

Table 14.3 Site and growth parameters of *S. siamea* trials in Haiti.

SITE	ELEVATION (m)	ANNUAL RAINFALL (mm)	AGE (yr)	SURVIVAL (%)	HEIGHT M.A.I.[1] (m)	DBH[2] M.A.I. (cm)	DRY WOOD YIELD (kg tree^{-1})
Colora	247		0.5	100	1.8	—	—
Colin 2	750	1300	0.8	52	0.8	—	—
Passe Catabois 2	120	987	0.8	60	0.7	—	—
Bassin Zim	400	1950	1.1	96	2.3	—	—
Cazeau 4	30	1200	2.1	96	3.2	—	—
Colin 1	650	1300	2.2	52	0.8	—	—
Passe Catabois 1	120	987	2.2	73	1.6	1.4	2.1
Grand Bassin	70	1300	2.3	80	1.0	—	—
Bergeau	35	2000	2.9	52	0.7	—	—
Fond-des-Blancs	350	900	2.9	62	1.1	—	—
Jean Rabel	107	1045	2.9	22	0.6	0.6	0.4
Haut Camp	180	2280	3.0	92	0.6	0.4	—
Marmont	280	1450	3.0	59	2.3	3.4	28.5
Mirebalais	110	2150	3.0	79	2.6	2.4	11.1
Roche Blanche	50	1100	3.0	77	2.8	2.9	19.1
Terrier Rouge	20	1293	3.0	91	1.2	1.0	2.0
Lapila	350	1145	3.4	53	1.0	1.1	2.0
Bombard	480	948	3.4	68	1.0	0.8	1.7
Békin	100	1445	3.5	100	2.0	1.9	8.5
Nan Marron	450	600	4.8	83	0.5	0.6	0.4

[1] **M.A.I.** = Mean annual increment. [2] **DBH** = Stem diameter at 1.3 m above ground level, in cm.

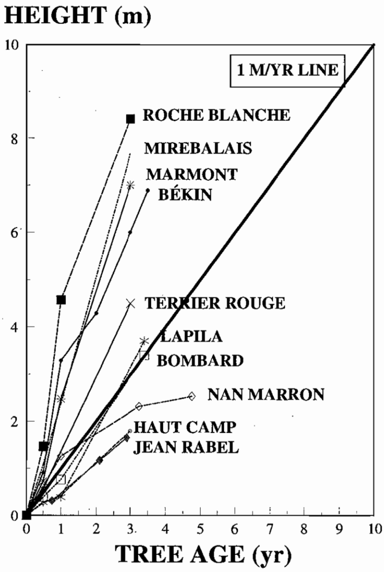

Figure 14.7 Height growth of *S. siamea* in Haiti.

drought periods ever present. The highest yields occur on the deeper, well-drained sites of the Central Plateau and the Cul-de-Sac. The Marmont site is averaging an annual wood yield of 9.5 kg tree^{-1} after 3 years. Given the 56% survival rate at this site and the original stocking density of 1600 trees ha^{-1}, annual yields are estimated at 8.5 metric tons ha^{-1}.

Tree Improvement: Most of the *S. siamea* in Haiti likely are descended from the SHADA stands between Port Margot and Bayeux. The species was widely planted in the North of Haiti since the late 1960s by the reforestation efforts of the Limbé hospital, then redistributed to the rest

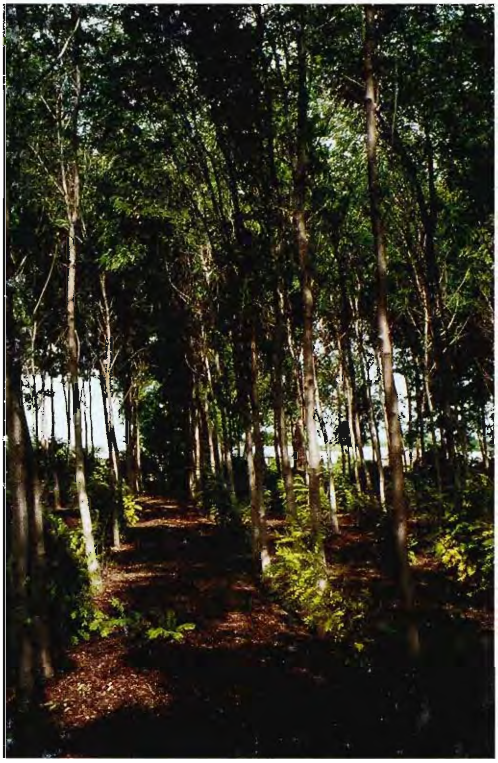

Figure 14.8 A four-year-old provenance trial of *S. siamea* after selective thinning.

of Haiti through the USAID-funded agroforestry projects during the 1980s and early 1990s. *S. siamea* became the most widely-planted species in the project. Up to a million seedlings were produced annually by PADF alone. An effort was made in 1988 to import as many seed lots as possible from international sources, including southeast Asia where it is native. These seed lots, though not strictly considered provenances, were established in 1989 as "provenance" trials to test for genetic differences among seed sources (**Fig. 14.8**). Also, 37 trees were selected based on superior traits throughout Haiti. Many of these were harvested, propagated from seed, and established in seedling seed orchards and arboreta. Several of these trials are represented in **Table 14.3** and **Figure 14.7**.

The remarkable degree of uniformity in qualitative traits among the seed lots suggests that the germplasm available in Haiti and abroad have a fairly homogenous genetic base. It should be noted that the 10 imported accessions were from countries where *S. siamea* is an exotic and could very well be derived from the same provenance as the species found its way around the tropics. An attempt in 1988 to import a wider genetic diversity of *S. siamea* from native stands in Thailand failed, but should continue to be a goal, particularly if significant improvements are to be made in terms of disease resistance and vigor. The seed orchards at Marmont and Terrier Rouge are comprised of progeny from trees possessing superior stem form, and these should be studied carefully to assess the environmental effect on form. There is significant form x site interaction in this species.

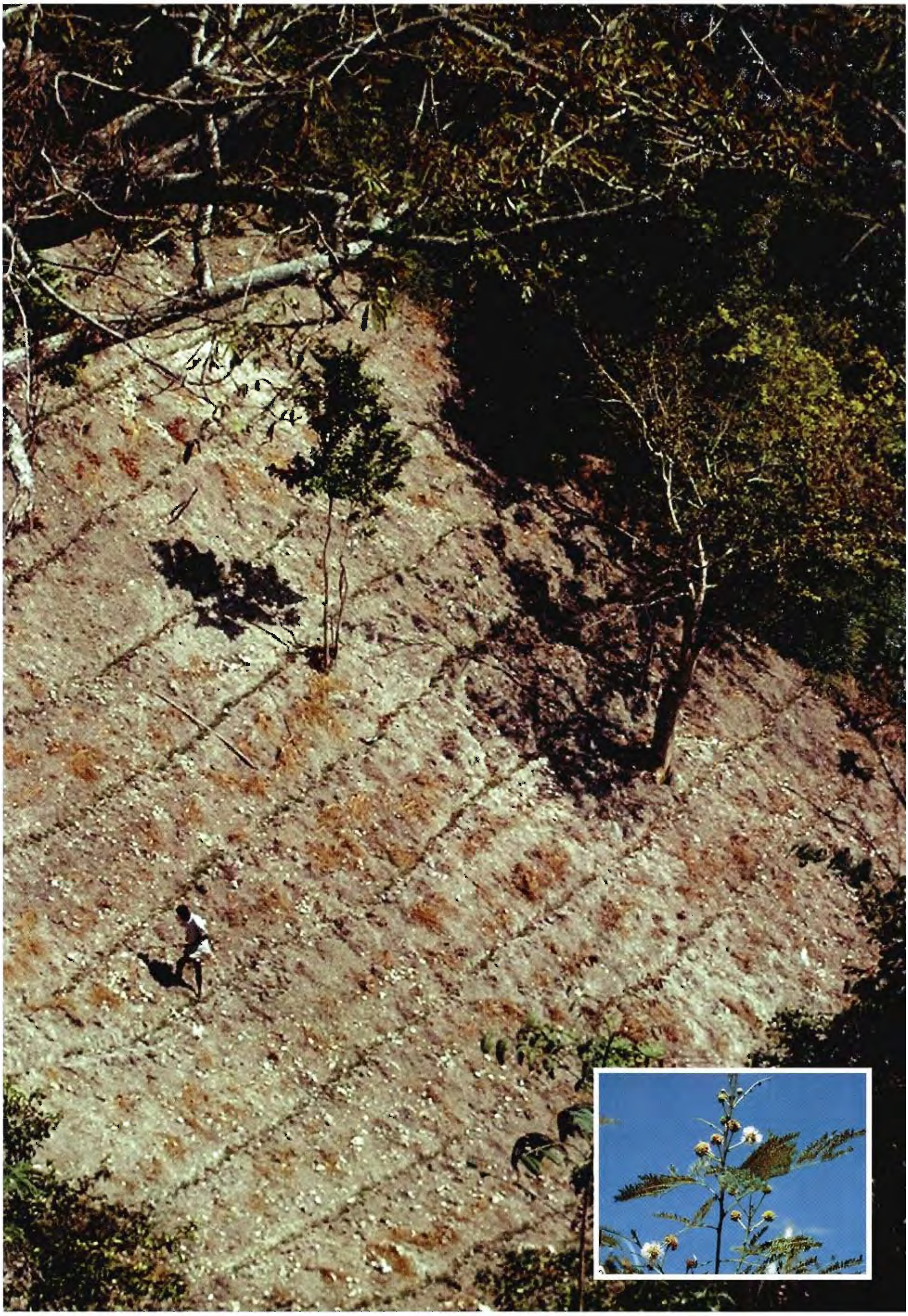

Figure 15.1 One of the most practical uses of *Leucaena leucocephala* subsp. *glabrata* is to conserve mountain soil. Shown here is the earliest known demonstration of *Leucaena* hedgerows in Haiti, established near Jérémie in 1982. Inset — White flowers of *L. leucocephala* ssp. *glabrata*.

15 Lisina...Delen

Subspecies:
Leucaena leucocephala (Lam.) de Wit subsp. *glabrata* (Rose) S. Zarate
Leucaena leucocephala (Lam.) de Wit subsp. *leucocephala*
Synonyms:
Subsp. *glabrata*: *L. glabrata* Rose
Subsp. *leucocephala*: *Acacia glauca* Willd., *L. glauca* (Willd.) Benth., *L. latisiliqua* (L.) Gillis & Stearn, *Mimosa leucocephala* Lam.
Family: Fabaceae (= Leguminosae) **Subfamily:** Mimosoideae
Common Names:
Subsp. *glabrata*: **DR, H** - leucaena (*lisina*); **US** - giant leucaena, Salvador leucaena, Peru leucaena.
Subsp. *leucocephala*: **H** - bois bourro (*bwa bouwo*), tcha-tcha marron (*tcha tcha mawon*), graines de lin (*delen*), graines de lin pays (*delen peyi*), *madlenn*; **DR** - granadillo bobo, granadino, granolino, lino, lino criollo; **C** - aroma blanca, aroma boba, aroma mansa, soplillo; **PR** - acacia, acacia pálida, barcillo, campeche, hediondilla, tamarindillo, wild tamarind; **US** - Hawaiian leucaena, leadtree.

Importance: The shrubby subspecies *leucocephala* is considered a weed in Haiti, but plays an important role in the re-vegetation of fallow or degraded sites where it is grazed by goats and converted to charcoal. The arboreal subspecies *glabrata* is a fast-growing general utility tree for shade, house construction and other wood products. Multiple uses as fodder, fuelwood, green manure and soil conservation are combined when the species is managed as hedgerows along the contour of mountain slopes. The advantages of easy propagation, wide adaptability, and fast growth must be weighed against the low wood durability, weediness, and psyllid (*Heteropsylla cubana*) attacks when selecting the ideal niche for subspecies *glabrata* in Haiti.

Taxonomy and Botanical Features: *Leucaena* is a New World genus comprising about 17 species (Hughes, 1993). The confusing taxonomy surrounding one of the more common species, *L. leucocephala,* was resolved by Zarate (1987), who recognized 2 subspecies: *leucocephala* and *glabrata*. Subspecies *leucocephala*, locally known as *delen* and known internationally as the 'Hawaiian' variety, rarely grows taller than 6 m, with leaves comprised of 6–9 pairs of pinnae, 9–18 pairs of leaflets, 9–12 cm long, and pods 13–16 cm long with a dense pubescence. Subspecies *glabrata*, known as the 'Giant,' 'Salvador,' or 'Peru' variety, is represented in Haiti mostly by the K series of cultivars developed in Hawaii (e.g., K8, K28, K636). It can grow up to 20 m tall, with leaves comprising of 3–8 pairs of pinnae, 11–24 pairs of glabrous leaflets, 8–15 mm long, and glabrous pods 11–18 cm long by 1.5–2.3 mm wide. Natural hybrids may occur between the 2 subspecies, though levels of outcrossing are low, with both subspecies being highly self-compatible. The much more common hybrid in Haiti is the result of subspecies *glabrata* as the pollen parent and *L. diversifolia* as the maternal parent. The latter is represented in Haiti as the tetraploid *L. diversifolia* subsp. *diversifolia*, introduced mostly as K156 from Hawaii.

Distribution and Ecology: The local naturalized subspecies *leucocephala* probably was introduced to Haiti by Spanish traders from Mexico during the early colonization of Hispaniola in the fifteenth and sixteenth centuries. Much of the present population of subspecies *glabrata* was introduced to Haiti in 1978, derived from a mix of the K8, K28, and K67 cultivars developed at the University of Hawaii (Benge, 1985). It spread throughout the low-elevation areas of the country, mostly as a result of local reforestation projects supported by USAID and the Ministry of Agriculture during the 1980s. Additional cultivars (K636, K584, K387) were established in 1988 at the Operation Double Harvest seed orchards in Roche Blanche. An interspecific hybrid (KX3) between *L. diversifolia* subsp. *diversifolia* and *L. leucocephala* ssp. *glabrata* was also introduced at this time.

Subspecies *glabrata* is widely adapted to the calcareous soils of Haiti. However, the species develops as a multi-stemmed bush on degraded sites that are rocky and shallow or that experience severe drought periods that extend beyond 4 months. To live up to its reputation as a rapidly-growing tree, relatively fertile sites are required, with at least 800 mm rainfall and elevations below 600 m.

Subspecies *leucocephala* occurs abundantly throughout Haiti, particularly as a lowland (0–500 m elevation) fallow species in the subtropical dry and moist forest zones (**Fig. 15.2**). It is mainly found on calcareous soils with rainfalls ranging from 750–1200 mm usually with a 2–4 month winter drought. The species is commonly associated with *Chrysophyllum oliviforme*, *Acacia* spp., *Senna atomaria*, and *Prosopis juliflora* that are common to the subtropical dry forest and degraded sites of the moist forest.

Tree Characteristics: Both species exhibit characteristics of pioneer species: rapid growth, tolerance of disturbed areas, and are prolific seeders that regenerate from coppice shoots, forming dense pure stands where established. Subspecies *leucocephala* usually is seen as a multi-stemmed shrub, rarely taller than 6 m, and flowering or fruiting almost continuously during the year. The species is difficult to eliminate from the land and sprouts back after the land is burned for cropping. In pasture land, the shrub is kept low with browsing, and harvested with other woods for charcoal manufacture and fuelwood. Subspecies *glabrata* grows quickly to 16–20 m tall and 20–30 cm stem diameter on fertile, lowland sites (**Fig. 15.3**). The tree suffers seasonal die-back and devel-

Figure 15.2 A typical fallow in the moist regions of Haiti contains *L. leucocephala* subsp. *leucocephala*, shown here in association with *Chrysophyllum oliviforme*.

Figure 15.3 A remarkable feature of *L. leucocephala* ssp. *glabrata* is its exceptionally fast growth rates, up to 5 cm yr^{-1} stem diameter on favorable sites.

Figure 15.4 The high wood yield of *L. leucocephala* ssp. *glabrata* yields a charcoal that competes well with native species.

ops into a multi-stemmed tree in regions of severe winter drought extending beyond 4 months or under free-grazing conditions. The flowering of subspecies *glabrata* is more seasonal than that of subspecies *leucocephala*, with peak fruiting occurring from February through March and October through November. There are 17,000–20,000 seed kg^{-1}. Both subspecies are tetraploid (Brewbaker, 1987).

The light yellowish sapwood is distinguished from the brown heartwood. The grain tends to be interlocked and rough. Wood density of subspecies *glabrata* is affected by growing conditions. Differences have been detected in Haiti across sites for the same provenance and stand age. The average specific gravity of wood from a 5-year-old stand in the Northwest was 0.68 as compared to 0.61 for trees growing in the Southwest. Typical specific gravity ranges in Haiti are between 0.59 and 0.79. These ranges are significantly lower than those of *L. shannonii* (0.83–0.93) and *L. collinsii* (0.80–0.96) that also have been tested in Haiti.

Utilization: The wide adaptability and fast growth of the tree make it a convenient species to plant for fodder, poles, fuelwood and charcoal. However, short rotation (2–3 year) poles are not durable, being highly susceptible to wood borers and are used only in cases in which durability is not important. The advantage of higher wood production is best achieved by transforming to charcoal (**Fig. 15.4**), which is considered to be of moderate quality, but inferior to the traditional *Prosopis* and *Acacia* charcoals and the exotic *Casuarina equisetifolia* (Grosenick, 1986a).

The utilization of subspecies *glabrata* in hedgerows probably has surpassed its importance as a single stemmed tree since the mid-1980s when USAID-funded agroforestry projects began promoting this technology (**Fig. 15.5**). Seed is sown directly along the contour made by a shallow trench in the soil. If properly managed, the hedgerow can serve a multi-purpose role: soil conservation structure and source of green manure, fodder, and fuelwood. As a fodder, *L. leucocephala* is an important source of protein and is highly palatable. Ideally, fodder banks are established near the courtyard to provide a convenient grazing area near tethered livestock and where browsing can be controlled to maintain productivity (**Fig. 15.6**). However, open and staked grazing in annually-cropped fields is more common, in which case it can be expected that hedgerows and seedlings will suffer extensive damage. The tree cannot be grazed hard and continuously without its productivity diminishing to very low levels. Mimosine toxity also limits the amount that can be consumed by livestock without impairing their health. Proximate analyses are summarized in **Table 15.1**.

Figure 15.5 Pruned *Leucaena* hedgerow.

As a medicinal plant, roots and leafy twigs of subspecies *leucocephala* are boiled in a decoction for severe back pain; the twigs are boiled and taken for menstrual cramps; the leaves are consumed as a tea for gas and typhoid; and the roots are boiled and taken orally for fever (Eldridge, 1975; Morton, 1970). A popular febrifuge is prepared by roasting the seed and grinding them with coffee.

Propagation: The species is easily direct seeded, emerging rapidly several days after sowing. The ease with which it is propagated in this way has contibuted to its importance as a hedgerow species. However, large amounts of seed are required for mass distribution during peak planting seasons and adequate supervision of seed quality is difficult. Despite the species' known self-compatibility, gene exchange between co-existing subspecies *leucocephala* is possible and could play a role in the development of less

Table 15.1 Proximate analysis (% dry weight) of *L. leucocephala*, after Göhl(1975).

COMPONENT	CRUDE PROTEIN	CRUDE FIBER	CRUDE FAT	CARBO-HYDRATES	ASH	Ca	P
Fresh leaves (Thailand)	21.0	18.1	6.5	46.0	8.4	—	—
Fresh twigs (Malaysia)	27.8	10.4	3.5	55.1	3.5	0.54	0.29
Fresh browse (Hawaii)	24.2	24.2	2.7	40.0	8.9	—	—
Pods (Zimbabwe)	21.7	25.6	1.4	45.5	5.8	—	—
Seed (Zimbabwe)	35.8	11.4	7.5	40.9	4.4	—	—

Figure 15.6 *Leucaena* fodder banks are an excellent source of nutrition to complement food rations of goats and other livestock.

desirable genotypes. Efforts to maintain the genetic vigor of the hedgerows with improved *glabrata* varieties must be ensured with isolated and secure seed orchards.

A variety of container types have been used to propagate the species, the most appropriate being a function of nursery costs. Rootrainer and Winstrips were utilized during most of the 1980s in Haiti, though ODH utilized a much smaller Styrofoam Speedling tray for seedlings planted on fertile land. Manual scarification, by nicking the cotyledon end of the seed, is recommended for research and experimental seed lots; immersion in hot water, at least 49° C, followed by a 2-day soak, is the method most often used for mass propagation purposes. Inoculation by *Rhizobium*, either coating the seed or drenching the sown seed, is a safeguard for insufficient field inoculum. Inoculation procedures are recommended following pesticide applications for psyllid and root rot attacks. Generally 14 weeks is sufficient to raise seedlings, with an initial 3 weeks of shade and a final 4 weeks of hardening off. Psyllid (*H. cubana*) (**Fig. 15.7**), damping off and root rot diseases (*Pythium, Rhizoctonia, Phytophtora, Alternaria, Fusarium, Myrothecium*) have been observed to attack nursery seedlings (Tourigny, 1987; Runion et al., 1990). The species can be top-pruned, if necessary, prior to outplanting.

Stump propagation and vegetative methods, including root cuttings and tissue culture have not been experimented in Haiti, though these have been reported from other countries and are examined in Pound and Martinez (1984).

Biomass Studies: Regression equations to estimate the biomass of subspecies *glabrata* were conducted at four sites for 5–7-year-old trees and once for a 2-year-old coppice rotation. These equations allow one to estimate various tree dry weights based on easily measured stem and height measurements. There is a significant difference in the coefficients between coppice and seedling rotations because of the difference in stem and canopy forms, with the coppice stem concentrating a much greater amount of the total tree weight as polewood rather than as fuelwood. The differences in estimates among the equations for the standards (i.e., seedling rotation) are mainly because of the differences in sampling distribution rather than differences in form. A summary of the biomass equations is provided in **Table 15.2**.

Charcoal and Lumber Conversion Rates: When 3–4-year-old *L. leucocephala* is converted to charcoal, only about 17–20% of the wood dry weight becomes merchantable

Table 15.2 Equations used to estimate biomass components (kg dry weight) of *L. leucocephala* subsp. *glabrata* in Haiti.

COMPONENT	REGRESSION EQUATION [1]	R^2	DBH RANGE (cm)	SITE
Usable wood volume (x 10^{-3} m^3)	$0.501(DBH)^2 - 3.422$	0.97	3.0–14.5	Bon Repos
Total aboveground biomass	$0.524(DBH)^2$	0.97	0.8–17.7	Camp Perrin
Usable wood weight	$0.642(DBH)^2 - 2.707*(DBH)$	0.98	0.8–17.7	Camp Perrin
Usable wood weight	$0.275(sd)^2$	0.97	1.8–23.6	Camp Perrin
Total aboveground biomass	$0.471(DBH)^2$	0.98	3.0–16.2	Bon Repos
Fuelwood minus pole weight	$0.210(DBH)^2$	0.97	3.0–16.2	Bon Repos
Pole weight	$0.198(DBH)^2$	0.98	5.5–16.2	Bon Repos
Total coppice biomass	$0.260(DBH)^2$	0.96	2.0–10.0	Bon Repos
Coppice fuelwood minus pole weight	$0.035(DBH)^2$	0.96	2.0–10.0	Bon Repos
Coppice pole weight	$0.175(DBH)^2$	0.99	5.0–10.0	Bon Repos
Total aboveground biomass	$0.030h\Sigma d_n^2$	0.99	5.4–12.3*	Nan Marron
Usable wood weight	$0.192\Sigma d_n^2$	0.99	5.4–12.3*	Nan Marron
Aboveground dry biomass (kg)	$0.210\Sigma d_n^2$	0.99	5.8–13.6*	Fond-des-Blancs
Fuelwood and polewood (kg)	$0.0284h\Sigma d_n^2$	0.98	5.8–13.6*	Fond-des-Blancs

[1] **DBH** = Stem diameter at 1.3 m above ground level, in cm. **d** = Stem diameter measured at 0.3 m above ground level, in cm. **sd** = Stem diameter measured at 0.1 m above ground level, in cm. **h** = Total tree height, in m. **n** = Number of stems at 0.1 m above ground level. *Stem diameter range at 0.3 m above ground level.

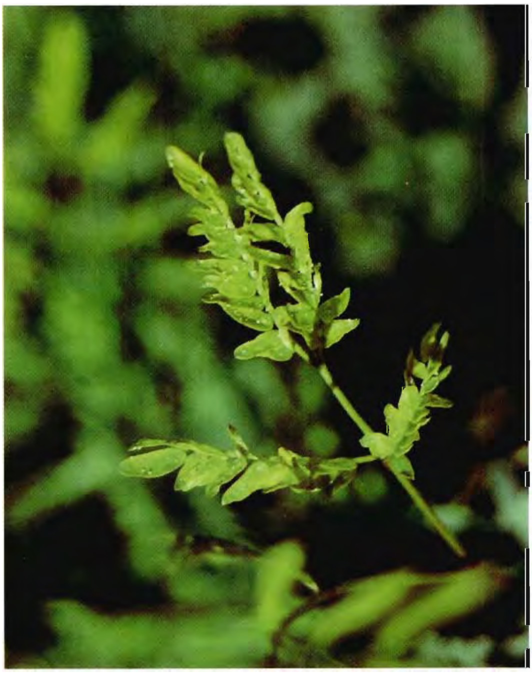

Figure 15.7 Psyllids are a common pest of *L. leucocephala* ssp. *glabrata*, but rarely fatal to the tree in Haiti.

charcoal. Another 10% of the wood is a fine and shattered charcoal that generally is not sold (Timyan, 1987).

The relationship between the volume of subspecies *glabrata* logs, ranging from 0.015–0.09 m^3, and lumber yield is shown in **Figure 15.8**. The use of the regression equation allows for the estimation of lumber volume based on the top-end diameter and length of the log. The lumber was sawn with a Woodmizer, a portable bandsaw unit, at the former ODH nursery site in Cazeau. As shown, recovery rates up to 67% were achieved, though the average was only 44%. However, slabs are sold for cheaper construction purposes, such as for building pig sties.

Growth Performance: Since 1983, several species trials have

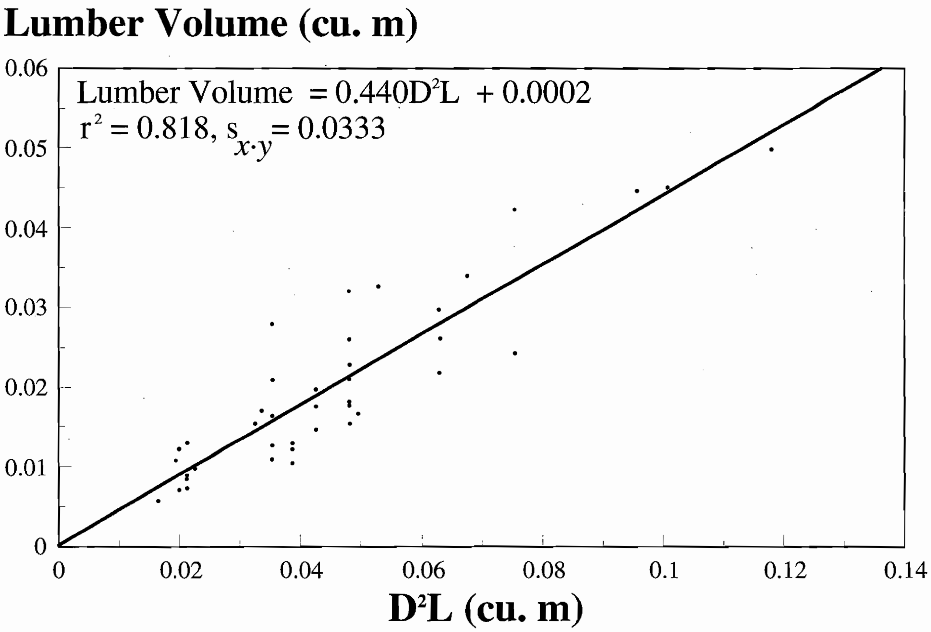

Figure 15.8 Relationship between the amount of recovered *Leucaena* lumber and saw log volume.

been established in Haiti with the giant leucaena. The species is clearly a winner in height growth during the first several years, ranking first in three-quarters of the trials and achieving high survival rates between 70–100% after 3 years (**Table 15.3**). The only other species that consistently surpass giant leucaena in height growth are *Eucalyptus camaldulensis* and *E. tereticornis*. One can expect over 3 m yr^{-1} height growth on good sites for the first couple of years, tapering off to 1.5 m yr^{-1} at 4 years and 1.0 m yr^{-1} at 6 years. However, on poorer and dry sites with 3–5 months drought, common to the northwest (Nan Marron; Jean Rabel), the eastern Cul-de-Sac plain (Ganthier) and northeast (Terrier Rouge) of Haiti, annual height increments do not exceed 1 m yr^{-1} (**Fig. 15.9**) and seasonal die-back of new growth is common. Browsing by goats and cattle on such sites is a problem.

The average wood yield of giant leucaena ranges from 0.8–2.3 kg $tree^{-1}$ yr^{-1} on marginal sites such as Jean Rabel, Terrier Rouge and Cabaret to nearly 6 kg $tree^{-1}$ yr^{-1} after 3 years on average sites such as Marmont (near Hinche) in the Plateau Central. This yield is equivalent to 9.6 dry metric tons (DMT) ha^{-1} yr^{-1} at stocking levels of 1,600 trees ha^{-1}. Growth rates on a leucaena plantation near Port-au-Prince ranged from 1.7–14.4 DMT ha^{-1} yr^{-1} for the first 2 years, averaging 4.1 DMT ha^{-1} yr^{-1} over 28 hectares (Timyan, 1983).

Subspecies *glabrata* has been used widely as a nursery species for higher-valued hardwoods that respond favorably to the competition for light, moisture and nutrients. This use has been reported for *Tectona grandis*, where giant leucaena is sown during the first year of teak establishment (Lamprecht, 1989). In the Cul-de-Sac plain of Haiti, the

Table 15.3 Site and growth parameters of *L. leucocephala* subsp. *glabrata* trials in Haiti.

SITE	ELEVATION (m)	ANNUAL RAINFALL (mm)	AGE (yr)	SURVIVAL (%)	HEIGHT M.A.I.[1] (m)	DBH[2] M.A.I. (cm)	DRY WOOD YIELD (kg tree^{-1})
Colora	247	1471	0.5	93	2.3	—	—
Colin 2	775	1300	0.8	100	1.4	—	—
Passe Catabois 2	120	987	0.8	83	1.5	—	—
Ganthier	90	700	1.8	90	1.2	—	—
Cazeau 4	30	1200	2.0	90	3.1	—	—
Passe Catabois 1	120	987	2.2	78	1.8	1.8	6.4
Colin 1	775	1300	2.2	41	2.2	—	—
Grand Bassin	70	1300	2.3	95	1.0	—	—
Jean-Rabel	107	1045	2.9	98	1.0	0.8	2.4
Marmont	280	1450	3.0	96	1.9	2.0	17.4
Terrier Rouge	20	1293	3.0	86	1.0	0.9	3.2
Maré Grand Bois	40	1200	3.3	59	1.7	2.0[3]	9.1
Fond-des-Blancs	250	1335	4.0	100	1.4	1.4	9.2
Papaye	250	1450	4.4	44	1.4	1.1	17.0
Nan Marron	450	600	4.8	68	1.3	1.4	16.4
Cabaret 1	80	900	6.9	77	0.8	0.8	15.8
Cabaret 2	80	900	6.9	81	0.9	0.9	19.9

[1] **M.A.I.** = Mean annual increment. [2] **DBH** = Stem diameter at 1.3 m above ground level, in cm. [3] Stem diameter at 0.1 m above ground level, in cm.

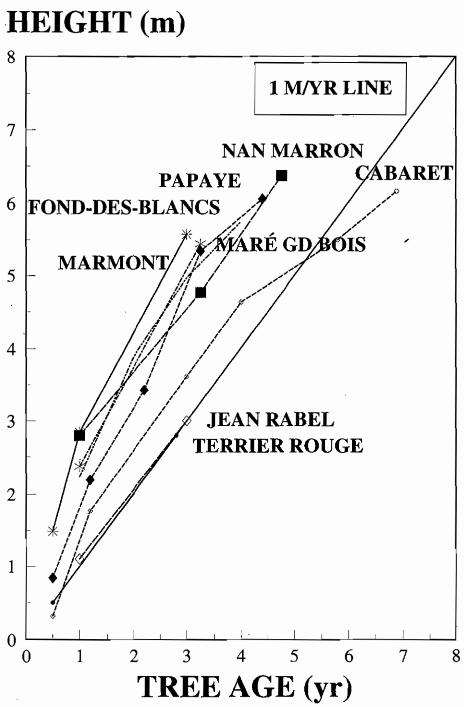

Figure 15.9 Height growth of *L. leucocephala* subsp. *glabrata* in Haiti.

shade-tolerant neem (*Azadirachta indica*) had improved stem form and exhibited less taper of the stump log when planted in a 2:1 ratio with subspecies *glabrata* (Welle et al., 1985).

Giant leucaena is the principal species selected in Haiti for alley cropping systems, being easy to establish and productive on a wide range of sites. In an alley cropping trial at Barbe Pagnol in the Northwest, *L. leucocephala* subsp. *glabrata* was compared with an in-country source of *L. diversifolia* subsp. *diversifolia* and 20 provenances of *Gliricidia sepium* for biomass production. The trial was harvested at intervals of 4–6 months over a 28 month period and exhibited total yields as shown in **Figure 15.10**. The *Leucaena* species did not differ significantly in total dry biomass or leaf and small wood yields,

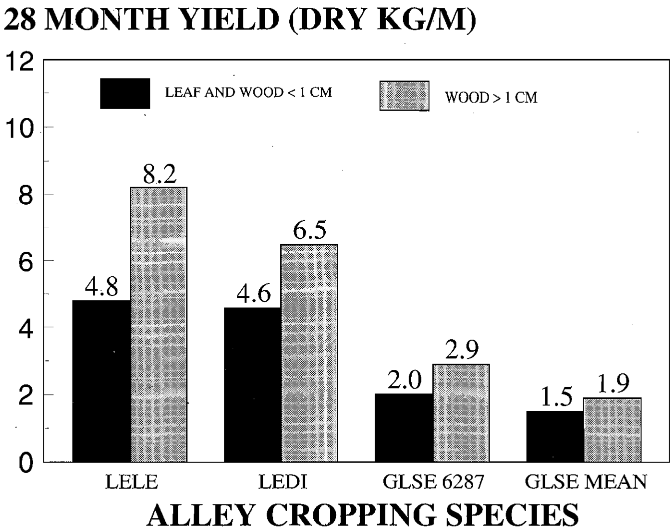

Figure 15.10 Dry yield of subspecies *glabrata* (LELE) compared with *L. diversifolia* (LEDI), the highest-yielding *Gliricidia sepium* (GLSE) provenance, 6287, and the average of 20 *G. sepium* provenances.

though both were 2–3 times more productive than the top *G. sepium* accession. With regard to wood > 1 cm, subspecies *glabrata* yielded higher than *L. diversifolia* subsp. *diversifolia.* Both species exhibited more than twice the wood yield of the top *G. sepium* accession. Cunard (1991) conducted fresh biomass measurements of 2 harvests in a direct-seeded hedgerow trial near Camp Perrin. He did not find subspecies *glabrata* to be superior to *Calliandra calothyrsus,* though both were more productive than 4 other legumes, including *G. sepium.* He measured total fresh yields of about 1 kg m^{-1} after 5 months of coppice growth for *L. leucocephala* subsp. *glabrata.* Other hedgerow trials have confirmed the broad adaptability of *L. leucocephala* subsp. *glabrata,* usually ranked at the top until one reaches the upper elevations (Isaac et al., 1994). The hybrid, KX3, is showing comparable yields with subspecies *glabrata* and may be better adapted to sites above 1000 m than either of its parent varieties. Dry yield estimates for *Leucaena* species in hedgerow/alley cropping designs are summarized in **Table 15.4**.

Tree Improvement: A recent status of a network of seed-production areas and tree-improvement trials involving subspecies *glabrata* is given in Timyan (1993). The introduction of the subspecies to Haiti in the latter part of the 1970s was most probably of narrow genetic base, representing the self-pollinated K8, K28 and K67 isolines from the University of Hawaii. K8, the most widely cultivated variety, originally was collected from one or a few cultivated trees in the northern Mexico state of Zacatecas in 1959 (Hughes, 1993). Though the Asian psyllid epidemic of the mid-1980s did not happen in Haiti, the indiscriminate distribution of such a narrow genetic base is risky. The continued improvement of *Leucaena* in Haiti requires the importation of a wider genetic base than that which was introduced in the late 1970s. It was not until 1985 that another

Table 15.4 Dry biomass yields of *Leucaena* species in hedgerow and alley cropping trials in Haiti. The harvest period indicated is the time from establishment to the last harvest. Yields are equivalent to the sum of the individual harvests, which includes the initial seedling harvest.

SPECIES	DENSITY (trees m^{-1})	NO. OF HARVESTS	HARVEST PERIOD (months)	DRY LEAF YIELD (kg m^{-1})	DRY WOOD YIELD (kg m^{-1})	SITE
L. diversifolia K156	2	4	28 (1988–1991)	4.6	6.5	Bab Panyol
L. leucocephala K8	2	4	28 (1988–1991)	4.8	8.2	Bab Panyol
L. diversifolia K156	10	3	23 (1991–1993)	0.7	1.1	Bergeau, Cayes
L. diversifolia x *L. leucocephala* hybrid (KX3)	10	3	23 (1991–1993)	2.0	3.6	Bergeau, Cayes
L. leucocephala K636	10	3	23 (1991–1993)	2.0	3.8	Bergeau, Cayes
L. salvadorensis	10	3	23 (1991–1993)	0.1	0.2	Bergeau, Cayes
L. shannonii	10	3	23 (1991–1993)	0.7	1.5	Bergeau, Cayes
L. diversifolia K156	10	3	24 (1991–1993)	0.9	1.2	Ft. Jacques
L. diversifolia x *L. leucocephala* hybrid (KX3)	10	3	24 (1991–1993)	1.1	1.7	Ft. Jacques
L. leucocephala K636	10	3	24 (1991–1993)	0.8	1.7	Ft. Jacques
L. diversifolia K156	10	2	23 (1991–1993)	0.2	0.3	St. Georges
L. diversifolia x *L. leucocephala* hybrid (KX3)	10	2	23 (1991–1993)	0.6	0.8	St. Georges
L. leucocephala K636	10	2	23 (1991–1993)	0.8	1.6	St. Georges
L. salvadorensis	10	2	23 (1991–1993)	0.3	0.5	St. Georges
L. shannonii	10	2	23 (1991–1993)	0.1	0.2	St. Georges

source of giant leucaena was brought to Haiti. A seed lot from Choluteca, Honduras, OFI 19/81, was established at 5 locations in the country as part of the OFI dry zone species trials. Also included in the trials was the introduction of 2 new *Leucaena* species: *L. shannonii* subsp. *shannonii* and *L. collinsii* subsp. *zacapana*. Neither species outperformed the survival and height growth of *L. leucocephala* subsp. *glabrata*, though local farmers soon noted the difference in wood qualities and seed production.

In 1988, International Resources Group introduced K636, K605, and K584, along with the interspecific hybrid KX3, a cross between *L. diversifolia* subspecies *diversifolia* and *L. leucocephala*. These were established in seed-production stands and isolated varietal blocks throughout sites in Haiti, from sea level to 1500 m (**Fig. 15.11**). The stands were culled of individuals exhibiting early flowering and inferior form charac-

Figure 15.11 *L. leucocephala* ssp. *glabrata* x *L. diversifolia* hybrid (KX3) stand managed for seed production in the Cul-de-Sac Plain.

teristics. Hybrid stands generally were culled of individuals exhibiting strong characteristics of the K8 pollen parent, favoring the K156 seed parent and its tolerance of higher elevations.

Despite *L. leucocephala* subsp. *glabrata*'s known self-compatibility, gene exchange with the local subspecies is possible and could play a role in the development of genotypes less desirable than the giant variety (Zarate, 1987). Natural outcrossing of *L. leucocephala* subsp. *glabrata*, as the pollen parent, with *L. diversifolia* subsp. *diversifolia* is common where the two species co-exist, and produces progeny with a variable range of traits common to uncontrolled crosses.

In 1991, several new species of *Leucaena* from the OFI collections in Central America, were introduced in both high- (>1200 m) and low-elevation sites. These included additional *L. diversifolia* subsp. *diversifolia* seed lots to broaden the K156 genetic base for high-elevation areas, *L. esculenta* subsp. *esculenta*, *L. esculenta* subsp. *paniculata*, *L. lanceolata*, *L. macrophylla* subsp. *nelsonii*, *L. pulverulenta*, and *L. salvadorensis*. The military coup of 1991 forced suspension of continued germplasm improvement activities, with most of the new species requiring re-introduction.

There is continued need to assess the progeny from the K636 and KX3 seed production stands for levels of pod production, segregation, and outcrossing rates, as these varieties are tested across sites in hedgerows and as single-stemmed trees. Decline in hybrid vigor of the KX3 and the genetic maintenance of pure *L. leucocephala* subsp. *glabrata* in close proximity with other *Leucaena* species and subspecies is the challenge of future germplasm improvement activities. A wider genetic base at both the species and subspecies levels is also necessary to secure the future of the species and of the people who have come to depend on the tree. In addition to the germplasm that is already in Haiti, it is wise to continue importing new diversity for specific end-purposes.

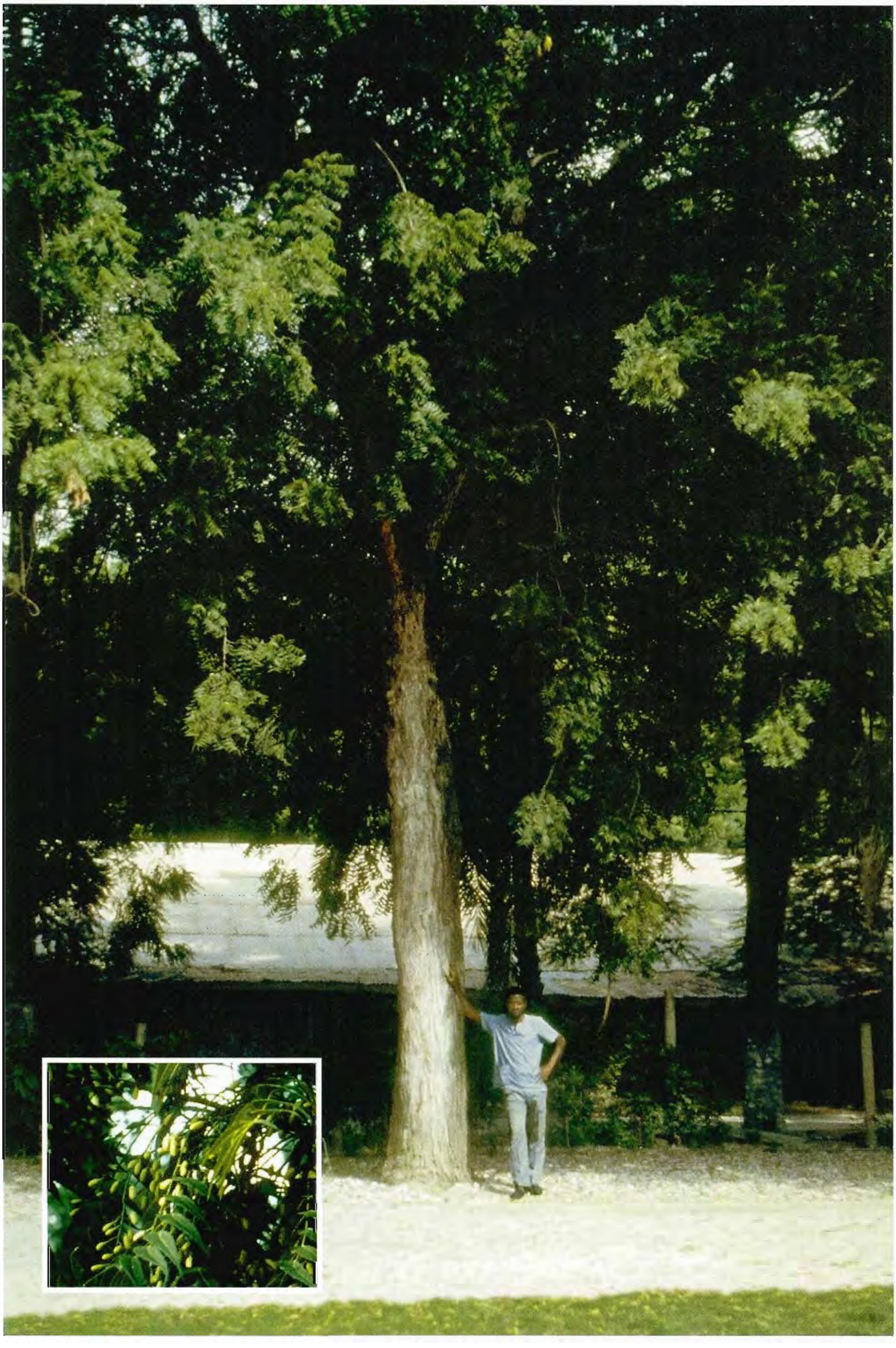

Figure 16.1 This 26-year-old specimen at the Ministry of Agriculture is among the oldest *A. indica* in Haiti, brought to the country from Senegal, W. Africa in 1967. Inset — Ellipsoidal drupes of *A. indica.*

16 Nim

Species: *Azadirachta indica* Adr. Juss.
Synonyms: *Antelaea azadirachta* (L.) Adelbert, *Melia azadirachta* L., *Melia indica* (Adr. Juss.) Brandis
Family: Meliaceae
Common Names: neem (*nim*), neeb, nimba

Importance: *A. indica* is the model of a multi-purpose tree species, providing an important mix of goods and services that benefit Haitian farmers. The fruit is a source both of insecticides and fertilizer that keep vulnerable food crops healthy, while contributing to the diet of Haiti's wild fauna that disperse the seed. A significant amount of oil that is contained in the kernel can be utilized in a range of products from cooking oil to soaps and lubricants. Its quick growth and abundant natural regeneration ensure a supply of fuelwood, construction wood and shade. The tree can be invasive and must be managed to protect the natural regeneration of native tree species.

Taxonomy and Botanical Features: *A. indica* is a member of the mahogany family, comprising many of the most important wood species in Haiti: *Swietenia mahagoni* (*kajou peyi*), *S. macrophylla* (*kajou etranje*), *Trichilia hirta* (*monben bata*), *Guarea guidonia* (*bwa wouj*) and *Cedrela odorata* (*sèd*). The species is considered by some botanists to be comprised of two varieties. *A. indica* var. *indica* is the common variety from India that has been introduced as an exotic throughout the tropics. *A. indica* var. *siamensis* has bigger leaves and a smoother leaf margin with two races that are distinguished by a red and green top shoot (Bhumibhamon, 1987). The fruit is an ellipsoidal drupe, up to 2 cm long, that turns from light green to yellow (**Fig. 16.1** inset). The sweet mucilaginous pulp surrounds a seed that is composed of a shell and a light green kernel. The small, white, bisexual flowers of *A. indica* are arranged in axillary clusters and have a honey-like scent that attracts bees (**Fig. 16.2**).

A closely-related species, *Melia azedarach* L., locally known as *lila,* also occurs in Haiti and is distinguished from *A. indica* by the slighter stem, less dense canopy, light lavender flowers, and sparser fruit clusters with spherical drupes, 1 cm in diameter.

Distribution and Ecology: *A. indica* is believed to be indigenous to India, Java and the lesser Sunda Islands (Burkill, 1966). It spread throughout the drier tropical regions of Africa and into the Caribbean as early as the latter part of the nineteenth century (Pliske, 1984). Neem was introduced to Haiti in 1967 from seed believed to have originated in Senegal. Trees originating from this narrow genetic base still can be found at several locations, including the Faculté d'Agronomie et Médecine Vétérinaire (Damien) and Place St. Anne in Port-au-Prince. The species spread quickly after being planted along the national highways to the north and south of Haiti during the mid-1970s. As a major species of the USAID agroforestry projects (1981–1991), neem has been distributed to nearly every part of Haiti. The Operation Double Harvest (ODH) nursery at Cazeau distributed more than 1.4 million seedlings between 1981 and 1986. The distribution included the planting of 0.3 million seedlings on 10 plantations in the Cul-de-Sac (Timyan, 1987). Additional provenances of *A. indica* were introduced to Haiti from Burma in 1984, India in 1986, and Africa in 1991, by the combined efforts of USAID, ODH, and Agridyne, Inc. In 1984, neem was shipped to the Dominican Republic from seed collected in Haiti and was planted at the Instituto Superior de Agricultura, Santiago, under the auspices of the National Energy Policy Commission (Knudson et al., 1988).

Neem performs best between sea level and 600 m elevation with annual rainfall above 800 mm. Though the species has a reputation for being hardy, wood and fruit production are marginal on the dry, stony sites that typically are invaded by such thorny species as *Acacia tortuosa.* Neem is not as salt tolerant as *Prosopis juliflora* and failed when planted on the salty, poorly-drained land (pH = 9.0) between Thomazeau and Croix-des-Bouquets by ODH in 1981. It exhibits chlorosis when planted on calcareous rock and shallow soils commonly found near the coast (**Fig. 16.3**). Once neem is established, it has a tendency to become weedy and form pure stands, growing thickly under its own shade and eliminating the natural regeneration of other species. Wild animals, particularly birds and lizards, are fond of the yellow ripe seed and disperse the species gradually away from the seed source. Goats, sheep, and cattle do not prefer neem as a forage and tend to leave it alone except under severe drought pressure when other food is not available. However, damage is generally extensive under open grazing conditions because of trampling, breaking of the growing portion of the stem, and soil compaction.

Tree Characteristics: The oldest trees in Haiti, aged 26 years, are approximately 20 m tall with stem diameters that range from 45–75 cm. Open-grown, the tree is short-stemmed with a heavily-branched, dense, and evergreen canopy that fruits abundantly. Grown under denser conditions, the tree develops a straight, high-forking stem with negligible fruit production. Fruiting of neem peaks twice during the year, in June and November, with most of the seed available for harvest between May and July and from October to December. Mature trees can yield between 30–50 kg of fresh fruit (Ahmed

Figure 16.2 White flowers of *A. indica.*

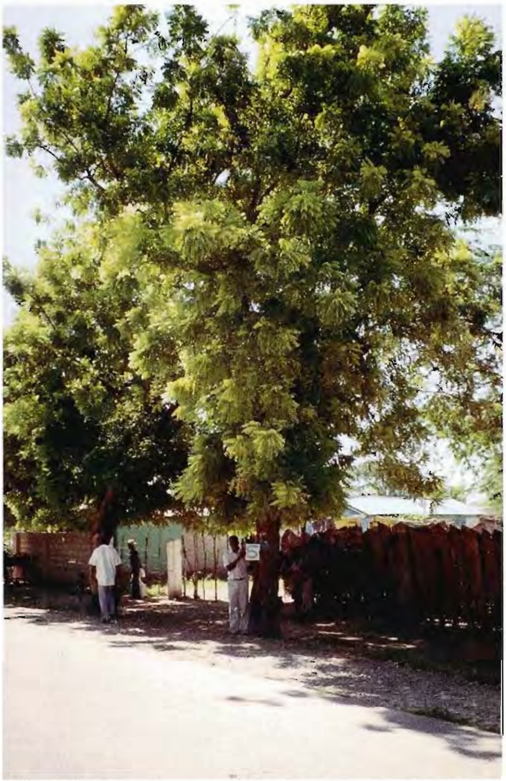

Figure 16.3 Lime-induced chlorosis is common on calcareous sites near the coast.

et al., 1984) at approximately 4000 seeds kg^{-1}.

The heartwood of mature trees is reddish brown, though most of the wood harvested in Haiti is closer to straw color with a tinge of pink. The grain is interlocked, with a moderately coarse texture. The wood ranges from dull to somewhat lustrous, having, when freshly cut, a slight cedary smell that fades on drying. Neem lumber seasons well and becomes stable with varying atmospheric conditions. It works well and produces a smooth finish, though it has a tendency to split when nailed. Neem is rated as durable to moderately durable (Chudnoff, 1984; UKFPRL, 1968). Neem poles have a reputation of not being attacked quickly by borers and they sell well in the Port-au-Prince market (Welle et al., 1985). About 60% of the total tree weight can be used for charcoal or poles (Ehrlich, 1985). Wood density is moderate (sp. gr. 0.52–0.65) with an energy equivalent of 16.92 megajoules kg^{-1} at 14% moisture content.

Utilization: In Haiti, neem has been planted primarily for its quick yield of wood and deep shade. Trees generally are planted along field boundaries, serving as both a boundary marker and a windbreak (**Fig. 16.4**). The tree pollards well and is managed on a lopping cycle that coincides with the light and moisture needs of the understory crops. Stems are utilized as roundwood for house construction. The ODH plantations in the Cul-de-Sac plain were managed for a mixture of fuelwood, charcoal and poles in an attempt to commercialize wood production. Stands located on more fertile sites at Cazeau and Bon Repos were managed for fuelwood and lumber. Consumer preference tests conducted in Port-au-Prince showed that neem charcoal was considered inferior to charcoal made of *Casuarina equisetifolia*, *Prosopis juliflora* and *Acacia* spp., superior to *Leucaena leucocephala* and *Senna siamea* and no different from *Eucalyptus camaldulensis* and *Albizia lebbeck* (Grosenick, 1986a).

Despite its recent introduction to Haiti, neem is being utilized as a febrifuge. In the La Chapelle area, neem ranks fifth among plant species as a source of leaf decoctions for fever (Rouzier, 1990). It is recognized in other countries for its fungicidal, antibacterial and antiviral properties (NRC, 1992).

Figure 16.4 *A. indica* is planted typically along the boundary of land devoted to annual food crops. It has a tendency to gradually invade on moist sites.

Utilization of neem as a natural source of insecticide has increased gradually over the past decade. In 1981, early experiments on La Gonâve were conducted by applying crushed seed into vegetable pots planted with cabbage, cucumber and tomatoes. Increased vigor and protection against major pests was observed (Welle et al., 1985). It was also noted that tilapia fry were killed by neem seed dropping into an outdoor fish tank. Neem has been used as an alternative to Chlordane in nurseries by CARE and PADF throughout Haiti (Josiah, 1989) and on an agri-business scale by ODH in the Cul-de-Sac (**Fig. 16.5a–d**). The active ingredients extracted from the seed kernel, primarily azadirachtin, are responsible for disrupting the metamorphosis of insects and act as a feeding deterrent. The biochemicals are systemic, being taken up by the host plant (NRC, 1992).

The cake of the oil seeds is used as fertilizer and the aromatic leaves are reported to be used as fodder in India. The proximate analysis of *A. indica* is shown in **Table 16.1**.

Propagation: The propagation of neem in Haiti has been largely from seed sown in rigid container systems such as the Rootrainer and the Winstrip. Fresh seed does not require pre-treatment when sown within a couple of weeks from harvest. As in other species of the Meliaceae, looping of the hypocotyl is a problem, affecting up to 7% of emergents in Winstrips, with deformed root systems and poor vigor (Larson et al., 1985). These emergents are replaced by transplanting pre-germinated seed or by proportionally increasing the sowing rate and selecting out the deformed seedlings. Most common nursery disease problems include: leaf spot caused by *Cercospora,* perhaps *C.*

Figure 16.5 a) Pulverized neem kernel for wet pesticide application. **b)** Applying wet neem seed solution to tomato seedlings. **c)** Pulverized neem kernel for dry pesticide application. **d)** Applying dry neem seed to papaya.

Table 16.1 Proximate analysis (% dry weight) of *A. indica,* after Göhl (1975).

COMPONENT	CRUDE PROTEIN	CRUDE FIBER	CRUDE FAT	CARBO-HYDRATES	ASH	Ca	P
Fresh leaves (India)	15.4	12.7	4.2	56.5	11.2	2.65	0.24
Fresh leaves (Pakistan)	13.4	14.7	6.2	55.5	10.3	1.94	0.17

leucostica or *C. meliae* (Tourigny, 1987), under humid or poorly-ventilated conditions; a "carrot top" foliar disease of uncertain cause; and leaf chlorosis caused by using potting medium contaminated with nematodes (Josiah, 1989; Runion et al., 1990). Seedlings normally require 14 weeks in a Rootrainer or Winstrip prior to outplanting, with the initial 4 weeks under shade and the last 4 weeks reserved for hardening off.

There are several alternative propagation methods that are less costly and simpler than the containerized seedling. The two methods that are the most practical for neem is stump propagation and the transplanting of volunteers from beneath selected mother trees. Stumps are prepared by raising seedlings directly in a raised bed and pruning both stem and roots prior to outplant. Reid (1991) showed no differences in survival or growth between stumps and containerized seedlings at 2 sites in Haiti following a year of growth. Volunteers are lifted from beneath selected mother trees and transplanted during the rains. A portion of the lifted seedlings are rejected because of natural root deformities associated with looping and poor vigor. One study revealed that up to 22% of the volunteers had root deformities, while 39% had excellent taproot formation (Larson et al., 1985). While transplanting volunteers increases mortality rates and poorer root development, the trade-off has to be measured in terms of the economics and practicality of managing a containerized nursery under typical Haitian farm conditions.

Seed Handling: One of the most serious limitations in artificial propagation is the problem of seed longevity and adequate germination procedures to test seed viability. However, neem seed may be stored successfully up to 4 months if the seed is dried immediately following harvest in the sun for 3 days and stored in cotton bags at 15° C at reduced levels of humidity (Chaisurisri, 1986). Seed can be stored for longer periods of time if moisture content is lowered to 6.6–7.3% (dry weight basis) and stored continuously in sealed containers at 4° C. Furthermore, dormancy factors associated with the seed hull must be overcome to maximize germination capacity. Removal of the seed coat has shown a 10-fold increase in germination of stored seed in Haiti (Timyan, 1991). Similar results were shown for 2 seed lots from Africa: 2-year-old seed germinated 24% compared to 62% with the endocarp removed, while 8½-year-old seed exhibited differences of 20% and 70% (Bellefontaine and Audinet, 1993).

Azadirachtin Levels: Azadirachtin levels in neem seed were analyzed for tree and seed maturity effects in 1989 (Timyan and Walter, 1990). This study was initiated based on reports from W.R. Grace & Co. that certain seed lots from Africa tested 2- to 10-fold higher than seed lots from Haiti. It was suspected that both genetic and environmental effects contributed to this difference. No differences were detected between 3 levels of seed maturity, ranging from green seed on the tree and fallen seed on the ground. However, differences were detected among trees, sites, and seed collected during different seasons. There is reason to believe that even with the narrow genetic base that is present in Haiti, genetic improvement can be made on azadirachtin levels in neem. Azadirachtin levels ranged from 2.40–3.50 mg per dry gram seed kernel.

Silviculture: ODH experimented with the direct seeding of neem and failed primarily because the neem germinated too slowly and rotted in the field (Welle et al., 1985). Fruits, dried seed, and pre-soaked seed were tested. The latter had a germination rate of 25%, but failed to establish as seedlings. However, the transplanting of top-pruned volunteers planted during the same period exhibited 60% survival after a month of only 10 mm of rainfall. Reid (1991) measured a 4% survival of direct-seeded neem after 1 year at Cazeau.

Container and potting mix trials have shown mixed results in survival and early height growth (Dupuis, 1986a; Reid, 1991). However, these studies have never been continued beyond 2 years and should be considered with caution as to the real impact that nursery treatments have on longer term field productivity.

Neem appears to be weed sensitive during the first year that the seedling is developing a root system. Stunting of the tree has been observed by several foresters at trials that were neglected, particularly under droughty site conditions. Subsequent weeding of the trials generally does not exert a positive height-growth response.

The only pests that have been observed to attack mature trees are the stem borer *Apate monachus* and a carpenter bee (Hymenoptera: Xylocopinae). *A. monachus* penetrates deeply into the branches, forming galleries that retard growth and make the branches susceptible to wind breakage (Knudson et al., 1988). This same pest is known to attack *Casuarina equisetifolia, Swietenia mahagoni, S. macrophylla,* and *Melia azedarach* (CATIE, 1992). The carpenter bee attacks in a similar fashion, boring into apical stems, and forming galleries that weaken the tree. It is likely that these pests are only a problem when neem is under drought stress, since the observations were reported in the drier regions of Haiti and the Dominican Republic.

Double rows of neem alternating with a single row of *L. leucocephala* developed more vigorously with less stem fluting, higher forking, and less canopy volume than pure stands of *A. indica* at an equivalent spacing and age. The use of *L. leucocephala* as a nurse crop maximizes the potential of neem as a source of poles and lumber, always of a higher value than fuelwood or charcoal in the urban area.

Pure stands of neem at stocking densities ranging from 2000–2500 stems ha^{-1} consistently have yielded poor seed harvests, with any significant production occurring at the stand edge. A neem stand, established in 1991 near Croix-des-Bouqets, produced seed within 2 years at a density of 800 stems ha^{-1} . This appears to be the optimal density to maximize fruit yields.

Biomass and Volume Studies: Equations developed to estimate various components of *A. indica* have been completed over the past decade. The first study was conducted to estimate fuelwood volume based on stem diameters. This was done in 1983 on a 2-year-old stand near Bon Repos (Timyan, 1983). Ehrlich (1985) conducted a biomass study from a 4-year-old stand at Thomazeau and included pole volume tables. A third study was completed in 1986 for a coppice stand and regression equations were analyzed to estimate fuelwood and pole biomass separately (Timyan, 1987). The volume and biomass equations from these studies are provided in **Table 16.2**. Because of the difference

Table 16.2 Equations used to estimate biomass components (kg dry weight) of *A. indica* in Haiti.

COMPONENT	REGRESSION EQUATION[1]	R^2	DIA. RANGE (cm)	SITE
Usable wood volume (x 10^{-3} m^3)	$0.481(DBH)^2 - 10.227$	0.94	6.9–10.4	Bon Repos
Total aboveground biomass	$0.313(DBH)^2$	0.98	1.3–12.6	Thomazeau
Usable wood weight	$0.282(DBH)^2 - 0.707(DBH)$	0.99	1.3–12.6	Thomazeau
Usable wood weight	$0.203(sd)^2 - 1.02(sd)$	0.99	2.6–15.8*	Thomazeau
Pole volume (x 10^{-3} m^3)	$0.226(DBH)^2$	0.97	5.0–12.6	Thomazeau
Total coppice weight	$0.268(DBH)^2$	0.95	2.0–10.0	Bon Repos
Coppice fuelwood weight	$0.189(DBH)^2$	0.96	2.0–10.0	Bon Repos
Coppice polewood weight	$0.152(DBH)^2$	0.98	5.0–10.0	Bon Repos

[1] **DBH** = Stem diameter measured at 1.3 m above ground level, in cm. **sd** = Stump diameter measured at 0.1 m above ground level, in cm. *Stump diameter range.

in form between the first rotation and the coppice rotation, the amount of biomass changes significantly for the same stem diameter, as shown by the difference in coefficients of equations.

Lumber Conversion Rate: A study to estimate lumber volumes based on log dimensions was performed at Operation Double Harvest in 1987. **Figure 16.6** shows the relationship between log volume and the amount of recovered lumber. About 25% of the log volume was recovered in lumber. The poor recovery rate is a result of the irregularities in logs of various lengths and the strong taper that is common in *A. indica*. Until further refinements can be made in milling and better-formed logs are available for harvest, the regression function is not a precise estimator of lumber yield.

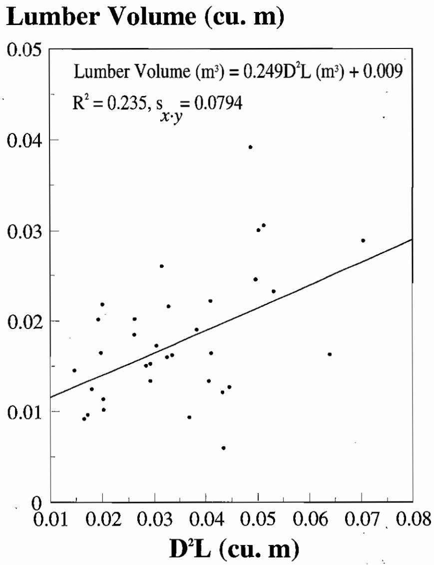

Figure 16.6 Relationship between *A. indica* log volume and recovered lumber. D = log top end diameter (m); L = log length (m).

Growth Performance: Neem has been evaluated on a range of sites in a series of trials that began in 1975 with the FAO trials in the Cul-de-Sac (Moortele, 1979; Bihun, 1982; Hernandez, 1991). Among the 13 trials that Dupuis (1986b) evaluated in 1985, neem ranked consistently in the upper quartile in height growth for sites below an elevation of 400 m and with a mean annual precipitation between 700–1000 mm (**Table 16.3**). On the best of these sites, height increments do not exceed 2.8 m yr^{-1} . Over a longer period of time, height growth tapers off to 1.0–1.2 m yr^{-1} with mean annual diameter increments between 1.5–3.0 cm. **Figure 16.7** summarizes the height

Table 16.3 Site and growth parameters for *A. indica* trials in Haiti.

SITE	ELEVATION (m)	ANNUAL RAINFALL (mm)	AGE (yr)	SURVIVAL (%)	HEIGHT M.A.I.[1] (m)	DBH[2] M.A.I. (cm)	DRY WOOD YIELD (kg tree^{-1})
Ganthier	75	740	1.8	90	1.2	—	—
Roche Blanche	130	1030	2.0	88	2.3	2.4	2.9
Cazeau	30	1200	2.1	90	2.3	—	—
Colin	650	1300	2.2	67	0.3	—	—
Passe Catabois	120	987	2.2	61	1.3	1.4	0.4
Cayes	20	2035	2.3	48	2.8	2.7	7.3
Grand Bassin	70	1300	2.3	15	0.5	—	—
Jean-Rabel	107	1045	2.9	40	0.8	0.9	1.2
Terrier Rouge	20	1293	3.0	71	1.7	1.9	5.1
Mirebalais	244	1731	3.2	90	1.8	1.6	3.7
Limonade	20	1000	3.5	55	1.4	2.1	5.3
Cabaret	80	900	6.9	74	0.6	0.6	2.0
O'Gorman 1	70	830	9.0	93	1.0	1.1	21.1
O'Gorman 2	70	830	9.0	100	1.2	1.3	29.7
Vaudreuil	55	830	10.0	97	1.1	1.7	73.7

[1] **M.A.I.** = Mean annual increment. [2] **DBH** = Stem diameter at 1.3 m above ground level, in cm.

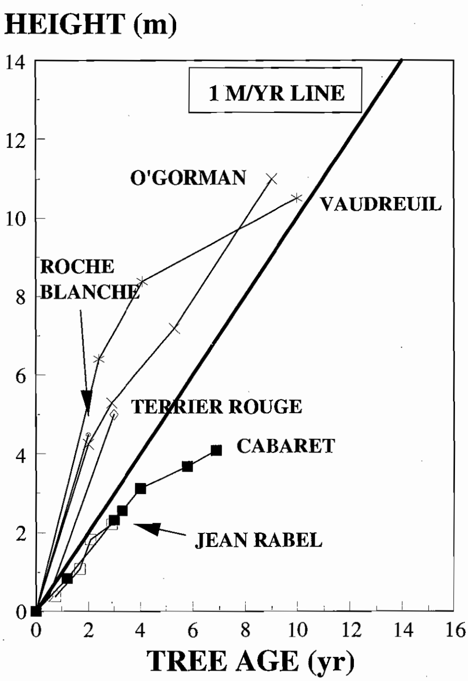

Figure 16.7 Height growth of *A. indica* in Haiti.

growth of neem on sites throughout Haiti. Most sites can achieve greater than 1 m yr^{-1}. Exceptions are the Cabaret and Jean Rabel sites, where exceptionally droughty conditions may have combined with poor weed management to exhibit poor performance.

Mean annual wood production in the trials ranged from a low of 0.2 kg tree^{-1} yr^{-1} at Passe Catabois to 7.3 kg tree^{-1} yr^{-1} at the partially irrigated site of Vaudreuil. Most of the sites exhibited mean annual wood yields of 1–3 kg tree^{-1} yr^{-1} for a period of 2–9 years.

Tree Improvement: Genetic improvement of neem in Haiti began in 1984. The rapid deterioration of neem seed in closed shipping containers severely hampered attempts to enlarge the genetic base of the species. Furthermore, the two seed lots that were established successfully at Cazeau did not yield significant

Figure 16.8 Widely-spaced double rows of *A. indica* are necessary for adequate fruiting in this genetic trial.

amounts of seeds during the time that neem seedlings were being mass distributed throughout Haiti. However, a significant step was made in 1990 with the importation of a West African and Caribbean collection made by Agridyne, Inc. (Salt Lake City, UT). These seed lots were established in a 1991 genetic test designed to evaluate differences in survival, growth, seed yield, and azadirachtin concentration over a period of 5 years. The results after 2 years are encouraging, though differences in height growth have only been detected between the top seed lot from Niger (4.8 m) and the slowest-growing seed lot from Puerto Rico (3.6 m). There were no differences in survival. Several of the neem have flowered and fruited, indicating that the trial may yield seed of sufficient quantities for early azadriachtin assays (**Fig. 16.8**).

The Neem Vision: Continued research must be directed toward enlarging and improving the genetic base of neem in Haiti. Currently, only a narrow genetic base is available for wide-scale management of neem seed production. Every effort must be made to keep abreast of progress being made to conduct provenance-wide collections of *A. indica.* The use of sterilized seedlings grown in the source country and packed in moist peat moss should be investigated as an alternative to seed for shipment of germplasm to Haiti.

Currently, neem is being harvested from unimproved trees growing as windbreaks, shade and roadside plantings. Silvicultural research must continue to study the optimal conditions for fruit production. The relationship between tree density (trees ha^{-1}) and azadirachtin yield (kg ha^{-1}) must be determined for various site conditions if neem is to be managed economically for the pesticide industry. An operational method already has been developed by ODH for the primary separation of neem oil and azadirachtin. Though the neem oil is being used as a pesticidal spray against fungal diseases, it may have a greater return on investment as a base for the local production of soap. In-country demand for azadirachtin may compete for prices paid by importers in North America. All of these factors must be considered in the future to realize the extraordinary potential of neem in Haiti.

Figure 17.1 *G. sepium* is a popular live-fence species in regions of southern Haiti, as shown here near Fond-des-Nègres.

17 Piyon

Species: *Gliricidia sepium* (Jacq.) Walp.
Family: Fabaceae (=Leguminosae) **Subfamily** - Lotoideae (Faboideae, Papilionoideae)
Synonyms: *Gliricidia lambii, G. sepium* (Jacq.) Steud., *Lonchocarpus sepium, Robinia maculata* HBK., *R. sepium* Jacq.
Common Names: H - piñón (*piyon, piyong*), lilas étranger (*lila etranje*), immortelle (*mòtèl*); **DR** - almácigo extranjero, palo de parque, piñón de Cuba, piñón cubano, varita de San José; **C, DR** - piñon amoroso; **C** - acacia, amor y celos, bien vestida, desnudo florecido, floresco, piñon florido; **J** - quick stick, St. Vincent plum; **PR** - madre de cacao, mata ratón, mother-of-cocao

Importance: *G. sepium* is one of the easiest nitrogen-fixing trees to establish by stem cuttings, making it a valuable live fence species to protect property. Grown as a tree, it serves as shade for perennial crops and is easily lopped as a source of fuelwood, forage and green manure. Larger stems are a source of rough lumber. Anywhere soil stabilization is required, the living fence technology can be employed in alley cropping or in gully plug arrangements. The species improves the soil. Ease in propagation, fast growth and low risk of being invasive offer an easily-managed component for agroforestry systems.

Taxonomy and Botanical Features: The generic name *Gliricidia* refers to "mouse killer" in Latin (Barrett, 1956) and the species epithet is named from the Latin *saepes* meaning "hedge." There are at least 3 species in the genera that are native to Central America, though confusion has surrounded the taxonomy of the species. *G. maculata*, a closely related species, is distinguished by its white flower and different leaf morphology, although some botanists consider it synonymous with *G. sepium* (Hughes, 1987).

Piyon is one of the popular names used for this species in Haiti, most likely derived from the Dominican common name, *piñon cubano* (Liogier, 1974). *G. sepium* is a multistemmed tree, often with spindly branches forming a loose crown (**Fig 17.2**). The alternate leaves are recognized by 7–9 pairs of elliptic leaflets 2–7 cm long. Flowers range from pink to lavender and are arranged in a short, erect inflorescence usually preceding the leaves. The dehiscent pods turn from greenish yellow to brown and explode when mature. Each pod contains 5–6 seeds and twists into spirals after shedding the seed.

Figure 17.2 *G. sepium* is a light seeder in Haiti.

Distribution and Ecology: *G. sepium* is a native of Central America and Mexico, ranging as far south as the northern portion of South America. The species may have been introduced into the Caribbean by the Spanish during the last century for cacao shade and as a living fence (Ford, 1987). The species seems to have been established in Cuba before spreading to Hispaniola and Puerto Rico (Liogier, 1974). The distribution of the species is very scattered in Haiti, tending to occur in pockets along the major trade routes, particularly in the lower elevations of the coffee-growing regions. Here it thrives best in moist-to-humid forest conditions with rainfall greater than 1000 mm and elevations below 600 m. The most conspicuous concentration of the species is in the Fonds-des-Nègres area spreading toward L'Asile in southern Haiti, where is found the best example of its use as a live fence. In other regions of Haiti, the species usually is mixed with other live fence species or occurs as a single tree near residences. *G. sepium* is rarely found along the dry coastal regions, the thorn scrub areas on the leeward side of mountains or mountain elevations above 800 m.

Figure 17.3 Large trunk of *G. sepium* near Pétionville.

Since the early 1980s, many provenances of *Gliricidia sepium* have been distributed throughout Haiti by various natural resource management projects, by both the Ministry of Agriculture and non-governmental organizations involved in soil conservation, forestry and agroforestry strategies with Haitian farming communities. In due time, it is expected to be more widespread and more common as farmers become familiar with utilizing the species and thus have easy access to planting material.

Tree Characteristics: In its natural form, the tree is low-forked and multiple stemmed, rarely reaching heights above 12 meters. Occasionally, trees with stem diameters up to 40 cm can be found (**Fig. 17.3**). Most of the forms of juvenile trees are pruned as a result of being incorporated as a living fence. Trees developing from branch cuttings do not appear to be different from those that are propagated from seed, except when cuttings longer than a meter are utilized, as in the case of live fencing. Branching in this case occurs at the distal end of the cut when trees are seasonally pollarded as a boundary around a field garden. There are significant inter-provenance differences in branching habit, erectness and canopy density.

The heartwood is dark brown, hard and of moderate density. Specific gravity ranged from 0.51–0.74 for wood samples taken from 5-year-old trees in the Northwest. Durability of the wood is reported to be good with resistance to termites. The wood is fine-grained and shiny.

The tree flowers during the winter and bears seed from February to June. Light seed crops are the norm for this species in Haiti, with trees growing in more humid zones, such as Fond-des-Nègres, bearing less seed than those in the drier regions of the country that have a more severe drought season. Other factors that may explain low seed production in Haiti are the degree that neighboring trees are related, the negative effect that pruning has on flower production and fruit set and types of insects that visit the species, either as pests or as pollinators (Hughes, 1987). There are 6000–9000 seeds kg^{-1}.

Table 17.1 Proximate analysis (% dry weight) of *G. sepium*, after Göhl(1975).

COMPONENT	CRUDE PROTEIN	CRUDE FIBER	CRUDE FAT	CARBO-HYDRATES	ASH	Ca	P
Fresh twigs (Trinidad)	20.5	30.2	1.5	37.6	10.5	—	—
Fresh young twigs (Malaysia)	18.8	15.5	3.7	55.7	6.3	0.66	0.11
Fresh leaves (Trinidad)	30.0	14.1	4.3	43.6	8.0	—	—

Utilization: The utilization of *G. sepium* in Haiti is not as extensive as it is in the countries where the species is native. Large trees are seen occasionally, planted as an ornamental or as shade for coffee. The most common use of the tree is as a living fence or single line of trees planted along the boundary of gardens. Here it is lopped to provide fuelwood, planting stakes, green manure and, occasionally, fodder. There is great variation among provenances in palatability, with the provenances originating from Costa Rica and Nicaragua being significantly more palatable than those from Guatemala and Mexico (Larbi et al. 1993). The proximate analysis of *G. sepium* is provided in **Table 17.1**. Bees are attracted to the flowers for honey production.

As a medicinal plant, *G. sepium* is used in a number of ways throughout the Caribbean region. The leaves are used as a poultice for bruises and sores. A leaf decoction is taken orally for fatigue and colds, often mixed with the leaves from soursop (*Annona squamosa*). A leaf tea is taken for gonorrhea. The roots are scraped for kidney trouble, jaundice and dropsy (Ayensu, 1981).

The heartwood is durable and hard, useful for posts and making a charcoal that burns with little spark and long-lasting embers. The wood is pretty and takes a fine polish, being used for tool handles, furniture and turnery.

Figure 17.4 *G. sepium* cuttings exhibit significant differences in rooting and vigor at both individual and provenance levels.

Figure 17.5 Propagation methods have a significant effect on establishing *G. sepium*. Rooted cuttings (right) is superior to seedlings sown from seed (left) in both survival and early growth.

Propagation: Propagation by stem and branch cuttings is the method preferred by Haitian farmers to establish the species. Normally, cuttings are harvested at the beginning of the rains and are cut in lengths 1–2 m to facilitate establishing a living fence. They usually are planted as soon as possible, because the cuttings mold easily and begin to rot. Smaller stock, about 20 cm long, are rooted in polythene bags to establish clonal seed orchards. The ends are cut parallel at a 45-degree angle to increase the rooting surface below the soil and to keep water from penetrating the pith of the stem from the top. Notable differences in rooting and vigor have been observed among provenances and individual selections within provenances (**Fig. 17.4**). Propagation methods appear to have a significant effect on the early surivival and growth rate of outplanted seedlings (**Fig. 17.5**), with rooted cuttings being superior to seedlings started from seed.

The tree can be direct seeded, though seed is scarcely available in large enough quantities for this method to be efficient on a large scale. Seedlings propagated from seed do not pose any problems. Seed prepared for mass propagation is immersed in hot water and left to soak for a couple of days prior to sowing. About 10 weeks are required to raise seedlings in containers such as the Rootrainer or Winstrip, with the initial 3 weeks under shade and the final 4 weeks hardening off. No major insect or dis-

Table 17.2 Equations used to estimate biomass components (dry weight) of *G. sepium* in Haiti.

COMPONENT	REGRESSION EQUATION[1]	R^2	d RANGE (cm)	SITE
Total aboveground biomass	$0.085\Sigma d_n^2$	0.98	1.8 - 8.1	Nan Marron
Usable wood weight	$0.079\Sigma d_n^2$	0.98	1.8 - 8.1	Nan Marron
Usable wood weight	$0.021h\Sigma d_n^2$ (cross-site regression)	0.96	1.8 - 15.3	10 world-wide sites w/ 1 in Haiti

[1] **d** = Stem diameter measured at 0.3 m above ground level, in cm. **h** = Total tree height, in m. **n** = Number of stems at 0.3 m above ground

ease problems have been associated with this species in Haitian nurseries.

Biomass Studies: Equations to estimate the yield of total and wood biomass of *G. sepium* are provided in **Table 17.2**. The study was conducted in 1990 at Nan Marron in northwest Haiti. These equations allow one to estimate the amount of total and wood weights, in dry kilograms, based on stem measurements. Stewart et al. (1992) published a cross-site equation to estimate wood yield for the species based in part on data collected from the Nan Marron site.

Growth Performance: *G. sepium* was established in several species trials during the 1980s. The species has exhibited very mixed results, failing or showing poor growth on most of the sites (**Table 17.3**). Height growth is inferior to most of the tree species considered for timber, hardly achieving annual height increments of 1 m yr^{-1} (**Fig. 17.6**). Reasons for this performance are not easily understood, except that the species does not appear as drought hardy as one would expect from reading the literature. Furthermore, factors such as stock quality and genetic source of the seed seem to have been underestimated as they influence the productivity of *G. sepium* greatly. Significant differences between the survival and early growth of seedling stock compared with rooted cuttings were observed at Lapila (**Fig. 17.4**). Whereas, rooted cuttings exhibited an average 85% survival rate and 2.5 m height growth in 18 months, seedlings averaged 40% survival and grew to only 1.5 m. Since much of the seed is imported from Central American

Table 17.3 Site and growth parameters of *G. sepium* trials in Haiti.

SITE	ELEVATION (m)	ANNUAL RAINFALL (mm)	AGE (yr)	SURVIVAL (%)	HEIGHT M.A.I.[1] (m)	d[2] M.A.I. (cm)	DRY WOOD YIELD (kg $tree^{-1}$)
Lapila	350	1145	1.6	85	1.6	—	—
Paillant	600	1300	2.0	22	0.2	—	—
Cabaret	80	900	2.0	38	0.4	0.7	0.2
Jean Rabel	107	1045	2.9	23	0.6	1.1	0.8
Marmont	280	1450	3.0	72	1.4	1.5[3]	1.7
Cabaret	80	900	3.3	52	0.5	—	—
Maré Grand Bois	20	1200	3.3	12	0.4	0.9	0.2
Fond-des-Blancs	250	1335	4.0	49	0.6	0.8	0.4
Papaye	250	1450	4.4	40	1.0	1.0	1.8
Nan Marron	450	600	4.8	96	0.7	1.0	1.5

[1] **M.A.I.** = Mean annual increment. [2] **d** = Stem diameter measured at 0.3 m above ground level, in cm. [3]Stem diameter at 1.3 m above ground level, in cm.

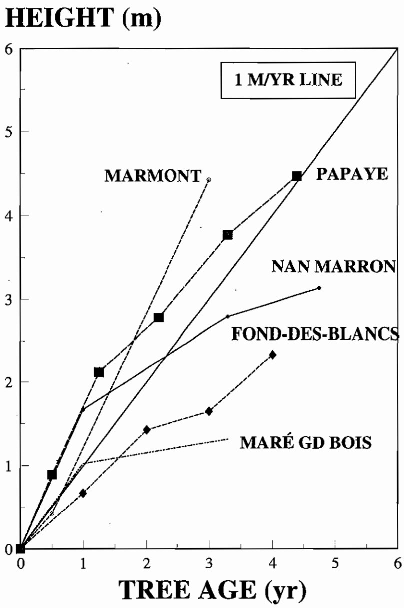

Figure 17.6 Height growth of *G. sepium* in Haiti.

sources, ill-adapted provenances cannot be discounted as a factor. The species was established as a single provenance (13/82 from Nicaragua) in the OFI trials, which may not be broadly adapted in Haiti. While the species failed with poor survival at Maré Grand Bois (12% after 12 months) and Papaye (42% after 6 months), high survival was achieved at Nan Marron (96% after 4.8 years). Wood yield at all sites where the species has been tested is low. The highest yield in **Table 17.3** has been observed at the Marmont site with an annual wood yield of 0.6 kg tree^{-1} compared with 9.5 kg tree^{-1} for the top species, *Senna siamea.*

The story is slightly different when managed as an alley cropping species. **Figure 17.6** compares the performance of *G. sepium* at 2 alley cropping trials in the Northwest. Total aboveground biomass production averaged over 2 dry kg m^{-1} during a period of 34 months at Bombardopolis, a subhumid site typical of shallow soils. Production at a humid site, with deeper and more fertile soils, averaged over 3 dry kg m^{-1} during a 28-month period. The hedgerows were established as seedlings spaced 0.5 m in-row and 4 m between rows, with survival above 95% at both sites. Wood biomass, greater than 1 cm diameter, was found to comprise about 80% of the aboveground biomass lopped for alley cropping purposes.

Tree Improvement: This species is considered naturalized in Haiti where local populations are highly homogenous and probably derived from a narrow genetic base, being distributed as cuttings. The primary focus of germplasm improvement since 1987 has been to establish a wider genetic base in Haiti and to screen for improved productivity. During the late 1980s, several trials were established in the country from seed originating in Costa Rica. A seed production area, comprising 7 Costa Rican provenances, was established by ODH at Cazeau. These same provenances were established in the Maissade area by Save the Children and near Pignon and Thomonde by PADF. During the same period, the Ministry of Agriculture established a trial at Cabaret, with 7 provenances from Costa Rica and 4 provenances from Guatemala (Béliard, 1989). In 1988, 26 provenances from the Oxford Forestry Institute collection were introduced and established in alley cropping trials at Bombard and Barbe Pagnol in northwest Haiti. The trials were the first serious attempts to screen the best-adapted provenances for dry biomass yield. A clonal seed orchard was established at Lapila in 1991 from selections made at the Barbe Pagnol trial and a second clonal orchard was established in 1993 at Passe Catabois from selections made at the Bombard trial. The Lapila orchard had its first significant seed crop in 1993, exhibiting relatively high seed yields for the species.

Early trial evaluations show considerable provenance variation in terms of dry biomass production managed as an alley-cropping species (**Fig. 17.7**). The highest-yielding accession at both sites is 62/87 from IITA, Nigeria. Other promising accessions originate from Nicaragua, Honduras, and Guatemala. Provenances from Panama, Venezuela, and Mexico are consistently low yielding. The accession originating in Thailand (75/87) performed poorly in the provenance trials, but is the top-ranked provenance at the Lapila orchard in height growth and in the upper quartile in survival (91%) after 18 months. Normal selection procedures based on the top-yielding provenances in the alley cropping trials would have eliminated this accession from further selection; selection at the individual level included the accession in the orchard.

A commercial seed lot from Honduras (C) and the F_2 of 13/82, introduced to Haiti in 1985, were both inferior to the productivity of the top 5 accessions at Bombard. The remarkable difference in performance between a commercial seed lot used as a control and the top yielding provenances at the Bombard trial is a helpful reminder of the importance in identifying the right seed source prior to any importation and distribution to the Haitian farmer. Furthermore, statistical differences have been validated among provenances in rooting ability, coppice habit, phenology and palatability. There is high potential to improve the tree for desirable features in agroforestry systems.

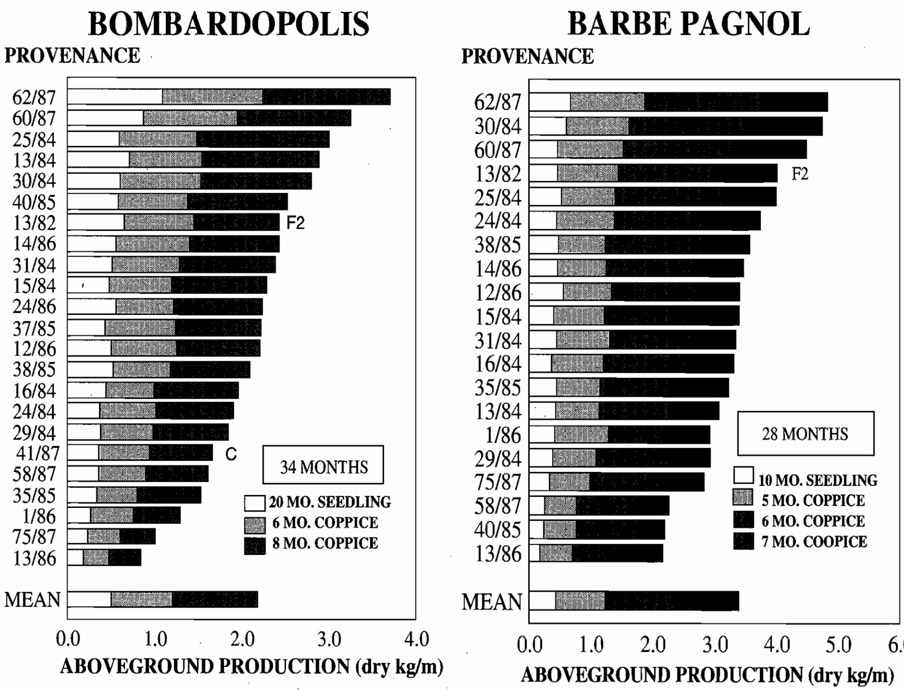

Figure 17.7 Comparison of dry aboveground production among *G. sepium* accessions at the Bombard (left) and Barbe Pagnol (right) alley cropping trials. Provenance numbers follow seed lot accessions assigned by Oxford Forestry Institute, UK.

PART II

TECHNICAL NOTES

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18 Pests and Diseases

Damaging agents, such as pests and diseases, reduce the productivity of Haitian trees and cause considerable economic loss. However, very little has been reported on the nature of tree pests and diseases in Haiti. Much of this lack has to do with the fact that basic scientific research nearly has ceased in the country during recent decades. For example, the only entomological work specific to Haiti is a dated treatment by Wolcott (1927). Recent investigations of the pests and diseases that attack young seedlings in the artificial environments of tree nurseries (Tourigny, 1987; Runion et al., 1990; Josiah, 1990; Josiah and Allen-Reid, 1991) are by design quick and superficial. The rapid reconnaissance work of consultants cannot possibly keep up with the long-term evolution of tree pests and diseases. Such studies, requiring institutional commitments, expertise and funding, fall hopelessly low on the national and international agendas of governmental and development agencies operating in Haiti. Aside from a few of the commercially important non-native species, the information we have about the pests and diseases of Haitian trees is seriously inadequate.

Given the scarcity of data specific to Haiti, a preliminary investigation of the literature was conducted to summarize the most important pests and diseases known to attack tree species found in Haiti. Even if a particular pest or disease never has been confirmed in the country, its spread to Haiti must always be considered possible. Biological factors such as these have little respect for political boundaries. Furthermore, as stresses to the island's ecosystems increase and the genetic erosion of tree populations continues unabated, the situation becomes of greater concern.

The following information is arranged in alphabetical order by species. For each species or genus, a summary of the pests and diseases are listed, followed in many cases by a brief description of the type of damage or attack symptoms and the location(s) in which the observations were made. No attempt has been made to include control measures, though these occasionally can be found in the cited literature.

Species: *Acacia auriculiformis* A. Cunn. ex Benth.
Creole Names: akasya, zakasya
Family: Fabaceae (=Leguminosae)
Insect Pests: Seedlings are vulnerable to crickets (Orthoptera: Gryllidae) that clip the stems or defoliate in the nursery.
Other Pests: Rabbits severely damage seedlings in Florida. Birds, attracted to the bright orange aril, consume and disperse the seed in Haiti.
Diseases: Notable fungal diseases attacking nursery seedlings in Haiti include leaf spot (*Pestalotia*), powdery mildew (*Oidium*), and damping off (*Fusarium* and *Rhizoctonia*).
References: Josiah and Allen-Reid, 1991; Morton, 1983; Runion et al., 1990; Tourigny, 1987.

Species: *Acacia farnesiana* (L.) Willd.
Creole Name: zakasya jòn
Family: Fabaceae (=Leguminosae)
Insect Pests: The twig girdler (*Oncideres pustulatus* LeConte) attacks the tree in southern Texas. Bruchid beetles (e.g., *Caryedon gonagra* Fabricius) infest seeds and pods in Puerto Rico and India. The pomegranate butterfly (*Virachola livia* Klug) attacks green pods in Egypt.

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Other Pests: Root knot nematodes (*Meloidogyne javanica* (Treub) Chitwood) infest stands in India.
Diseases: Pink disease (*Corticum salmonicolor* Berk. & Br.) occurs in Sierra Leone. Fungal pathogens include: *Ravenelia australis* Dict. & Neger; *R. hieronymi* Speg., and *R. siliquae* Long in Texas; *R. spegazziniana* Lindquist in Hawaii, continental US, Mexico, Guatemala, Cuba, and Puerto Rico; *R. acaciae-farnesianae* P. Henn. in Brazil; *R. formosana* Syd. in Taiwan; *Uromycladium notabile* (Ludw.) McAlp in N. Zealand and Australia; *Phylachora acaciae* P. Henn in the West Indies and Ecuador; *Camptomeris albizziae* (Petch) Mason in Dominica, Sudan, Kenya, and S. Africa; root rot, including *Clitocybe tabescens* Scop. ex Bres. in Florida and *Phymatotrichum omnivorum* (Shear) Dug. in Texas. A wilt caused by *Dothiorella* sp. has been reported in Italy.
Reference: Parrotta, 1992a.

Species: *Acrocomia aculeata* (Jacq.) Lodd. ex Mart.
Creole Name: koko ginen
Family: Arecaceae (=Palmae)
Insect Pests: Larvae of the palm bruchid beetles (*Pachymerus bactris* Linné, *P. cardo* Fähraeus, *P. nucleorum* Fabricius, *Speciomerus revoili* Pic) feed in the seed and exit as adults that feed on the flowers, nectar, and pollen.
Reference: Johnson et al., 1995.

Species: *Albizia lebbeck* (L.) Benth.
Creole Name: tcha tcha
Family: Fabaceae (=Leguminosae)
Insect Pests: *Oxyrhachis tarandus* Fabr. attacks young shoots of seedlings and saplings; *Indarbela quaduinotate* Walker damages the bark; *Eurema blandasilhetana* Wallace and *E. hecabe* Linn. larvae defoliate young leaves; and psyllids (*Heteropsylla* sp.) suck sap from young leaves and tender stems in India. *Xystrocera festiva* and *X. globosa* Oliver larvae feed on inner bark and sapwood in Burma, Malaysia, Java and Egypt. The long-horned beetle (*Chlorida festiva*) attacks trees in the Caribbean. Sixty other insect pests of Coleoptera, Hemiptera, Homoptera and Lepidoptera feed on young shoots, leaves, roots, sap, seeds, and dead wood in SE Asia.
Diseases: Fungal pathogens (*Endodothella albiziae* (Syd.) von Arx and *E. deightonii* (Syd.) von Arx) infect leaves, causing small yellow spots on which fruiting structures appear as minute black dots in Africa, Pakistan, Philippines, and S. Asia. Foliar necrosis (*Camptomeris albizae* (Petch) Mason) occurs in Africa, S. Asia, and the Dominican Republic. *Helminthosporium albiziicola* Thirum & Naras. forms brownish pustules on reddish leaf spots in India. *Collectotrichum lebbek* (Syd.) Petrak infests seed pods in Pakistan, Philippines, and Jamaica. Powdery mildew (*Leiveillula taurica* (Lev.) Arnaud) causes leaf necrosis. Rusts include: *Sphaerophragmium acaciae* (Cooke) Magnus in W. Africa, SE Asia, and the United States; *Ravenelia sessilis* Berk. in S. Asia and China; and *Uredo* spp. in E. Africa and India. Dieback caused by *Nectria ditissima* Tul. with bark cracking, leaf shedding, and eventual dieback; and *Phomopsis mendax* (Sacc.) Trav., is found in SE Asia. Wilt (*Fusarium oxysporum* Schl. f. sp. *perniciosum* (Hept.) Toole) invades the fine roots and causes gummosis of vessels, wilting, and eventual death. Heart and butt rot include: *Phellinus fastuosus* (Lev.) Ryv., *P. gilvus* (Schw.) Pat. and *Flavodon flavus* (Kl.) Ryv. A mushroom root rot (*Clitocybe tabescens* (Scop.

ex Fr.) Bres.), an algal leaf spot (*Cephaleuros virescens* Kunze), a twig dieback (*Diplodia natalensis* P. Evans), a pod spot (*Phyllosticta divergens* Sacc.), galls, and gumming caused by *Stilbella erythrocephala* (Ditm.) Lindau, are known to attack the tree in its growing range in Florida and Hawaii.
References: CATIE, 1992; Hegde and Relwani, 1988; Morton, 1983; Parrotta, [n.d.].

Species: *Albizia procera* (Roxb.) Benth.
Family: Fabaceae (=Leguminosae)
Insect Pests: Insects that attack the tree in India include: *Oxyrhachis tarandus* Fabr. which attacks young shoots of seedlings and saplings; larvae of *Ascotis selenaria imparata* Walker, *Rhesala imparata* Walker, and *R. inconcinnalis* Walker which defoliate; a caterpillar (*Indarbela quadrinotata* Walker) eats the bark; and a red borer (*Zeuzera coffeae*) attacks woody stems and branches of saplings. Fifty other insect pests of Coleoptera, Hemiptera, Homoptera and Lepidoptera feed on young shoots, leaves, roots, sap, seeds, and dead wood in SE Asia.
Diseases: Stem canker (*Fusarium solani* (Mart.) Sacc.) appears as a pinkish scar, turning black after secondary infection by bacteria and sap-staining fungi, usually followed by insect infestation in Asia and the Caribbean. Another stem canker (*Nectria haematococca* Berk. & Br.) attacks young trees in India. Rusts include: *Sphaerophragmium acaciae* (Cooke) Magnus and *Ravenelia sessilis* Berk. in S. Asia and China; *R. clemensiae* Syd. in India, Burma, and Papua New Guinea; *R. indica* Berk. in India; and *Uredo albiziae* P. Henn. in Papua New Guinea. Wilt (*Fusarium oxysporum* Schl. f. sp. *perniciosum* (Hept.) Toole) invades the fine roots and causes gummosis of vessels, wilt, and eventual death. Root and butt rot are caused by *Ganoderma lucidum* ((W. Curt.) Fr.) Karst., *G. applanatum* (Pers. ex Wallr.) Pat., and *Polyporus anebus* Berk.
Reference: Parrotta, [n.d.].

Species: *Albizia saman* (Jacq.) F. Muell.
Creole Name: saman
Family: Fabaceae (=Leguminosae)
Insect Pests: The bean maggot (*Hylemya platura* Meig.) infests seed cotyledons and kills seedlings in Haiti. The nymph of the psyllid (*Heteropsylla cubana* Crawford) attacks young shoots that die back in Haiti. Larvae of *Gymnanadrosoma pithecolobiae* infest seed.
Diseases: Sooty mold (*Capnodium*) is an occasional problem of nursery seedlings in Haiti. A "carrot-top" disease affecting crown shape and leaf development of seedlings has been observed in Haiti.
References: CATIE, 1992; Josiah and Allen-Reid, 1991; Runion et al., 1990; Tourigny, 1987.

Species: *Anacardium occidentale* L.
Creole Name: nwa kajou
Family: Anacardiaceae
Insect Pests: Major pests include the white fly (*Aleurodicus cocois*), a caterpillar (*Anthistarcha binoculares*), a red beetle (*Crimissa* sp.), and a thripid (*Selenothripes rubrocinctus*). The larvae of the cashew borer (*Mococerynus coripes*) bores into the

trunk and roots, causing gum leakage and eventually killing the tree. Thrips damage leaves and include: *Heliothrips rubrocinctus* Giard in the West Indies; and *Idolothrips halidaji* Newm., and *Phloeothrips anacardii* Newm. in India. The leaf miner (*Acrocercops syngramma* M.) attacks young plants. The tea mosquito (*Helopeltis antonii* S.) attacks the shoot tips and causes them to dry up and shed nuts prematurely. The caterpillar (*Cricula trifenestrata* H.) occasionally infests and defoliates the tree. The mealy bug (*Ferresiana virgata*) attacks the inflorescence. An unidentified mite infests the tree in Haiti, yellowing the leaves, and causing a severe reduction in nut yield. Other pests include leaf webbers, flea beetles, spider mites, and scales. Fruit flies sometimes attack the cashew apple.

Other Pests: Nematode species of the genera *Criconemoides*, *Scutellonema*, and *Xiphinema* are prevalent in Brazil.

Diseases: Cashew anthracnose is caused by a fungus (*Glomerella cingulata*) and is characterized by the destruction of flower sets, resulting in little or no fruit production. Pink disease, caused by *Gloeosporium* spp., results in tip dieback and possibly pitting of the nut surface. A disease with leaf-blight symptoms occurs on mature trees in Haiti, but may be confused with severe infestations of mites. Powdery mildew attacks young leaves and inflorescences during dry weather. An additional 26 genera of pathogenic fungi have been reported, none of which is considered to be of economic importance.

References: Duke, 1989; Morton, 1961; Tourigny, 1987.

Species: *Andira inermis* (W. Wright) DC.

Creole Name: bwa palmis

Family: Fabaceae (=Leguminosae)

Insect Pests: Seed weevils (*Cleogonus* spp.) and fruit flies attack seeds and pods in Costa Rica. Pinhole borers, powder post beetles, and termites attack the sapwood. Drywood termites attack the heartwood in tropical America.

Other Pests: Field mice clip the stems of seedlings in Puerto Rico.

Reference: Weaver, 1989.

Species: *Annona muricata* L.

Creole Name: kowosòl

Family: Annonaceae

Insect Pests: Insect pests causing the most damage include *Bephata maculicollis*, *Ceconota annonella*, *Talponia backeri*, and *Thecla ortygnus*.

Disease: Fungus damage (*Colletotrichum gloeosporioides* Penz) is serious in Venezuela and Puerto Rico. Dieback of an uncertain cause occurs in Hawaii.

Reference: CAB, 1988

Species: *Araucaria heterophylla* (Salisb.) Franco

Creole Name: arokariya

Family: Araucariaceae

Insect Pests: The mealybug (*Octaspidiotus araucariae*) infests the tree in Hawaii and Puerto Rico. *Ericocus araucariae* Muskell attacks the tree in Brazil.

Disease: Dieback of an uncertain cause has been reported in its native Norfolk Island.

Reference: Francis, [n.d.]

Species: *Avicennia germinans* (L.) L.
Creole Name: mang nwa
Family: Verbenaceae
Insect Pests: Wood borer (*Sphaeroma terebrans* Bate) attacks the tree in Florida. A scale (*Icerya seychellarum* Westw.) causes defoliation in the Indo-Pacific. Larvae of *Cleora injectaria* Walker infest leaves and defoliates in the Indo-Pacific. High intensity of leaf miner activity has been reported in Puerto Rico. Marine borers (*Toredo* spp.) attack wood in Puerto Rico.
Disease: Fungal pathogens (*Alternaria alternata* and *Phytophtora* spp.) cause defoliation and occasionally kill the tree in Australia.
Reference: Jiménez and Lugo, 1985.

Species: *Azadirachta indica* Adr. Juss.
Creole Name: nim
Family: Meliaceae
Insect Pests: A beetle (*Apate monachus*) attacks both living and dead wood, retarding growth, deforming trunks, and making them susceptible to wind damage in Central America and the Caribbean. A carpenter bee (Hymenoptera: Xylocopinae) penetrates deep into stems and branches of drought-stressed trees in Haiti and makes them prone to wind damage. Scale insects attack nursery seedlings in Haiti, turning leaves yellow and causing them to fall prematurely. Furthermore, their honeydew secretions attract ants and the development of sooty molds. Other insect pests include: scale (*Aonidiella orientalis* in Africa and *Pinnapsis strachni*) in Asia, Africa, and Latin America; leaf-cutting ants (*Acromyrmes* spp.) in Central and S. America; the tortricid moth (*Adoxophes aurata*) in Asia and Papua New Guinea; a tea mosquito (*Helopeltis theivora*) in S. India; and the pyralid moth (*Hypsipyla* spp.) in S. Australia.
Diseases: Fungal diseases attacking nursery seedlings in Haiti include leaf spot (*Cercospora leucostica*, *C. meliae*, and *Phyllosticta* sp.) that forms lesions on the leaf and also infects stems and petioles; and damping off (*Fusarium* and *Rhizoctonia*). A "carrot top" disease attacks seedlings and deforms leaf development and crown shape sporadically in Haiti. Fungal diseases reported in other parts of the world include root rot (*Ganoderma lucidum*), blight (*Corticum salmonicolor*), and leaf spot (*Cercospora subsessilis*). A bacterial blight (*Pseudomonas azadirachtae*) attacks the tree in India. A canker disease that discolors the wood has been reported.
References: Josiah and Allen-Reid, 1991; NRC, 1992; Runion et al., 1990; Tourigny, 1987.

Species: *Buchenavia capitata* (Vahl) Eichl.
Creole Name: grigri jòn
Family: Combretaceae
Insect Pests: Numerous insects infest and feed on seeds in Puerto Rico. Marine borers (*Toredo* spp.) attack the heartwood. Powder post beetles (*Lyctus* spp.) attack the sapwood in Puerto Rico.
Other Pests: Rats split the endocarp and eat the seed embryos in Puerto Rico.
Reference: Weaver, 1991.

Species: *Bucida buceras* L.
Creole Name: bwa grigri
Family: Combretaceae
Insect Pests: An unidentified mite species causes horn-shaped gall in the Caribbean. A whitefly (*Aleurodicus dispersus*) attacks the tree in Florida. Marine borers (*Toredo* spp.) and wet-wood termites (*Nasutitermes* spp.) attack the wood in Puerto Rico.
Reference: Francis, 1989a.

Species: *Bursera simaruba* (L.) Sarg.
Creole Name: gomye
Family: Burseraceae
Insect Pests: Several species of Homoptera feed on leaves and twigs in Puerto Rico. Ambrosia beetles (*Xyleborus* spp. and *Platypus* spp.) attack green logs in Puerto Rico. Powder post beetles (*Lyctus* spp.) attack seasoned lumber. Wood borers (*Lagochirus araneiformis* L.) feed on live and dead wood in Puerto Rico. Termites (*Incisitermes snyderi* Light, *Cryptotermes brevis* Walker, *Nasutitermes costalis* Holmgren, and *Neotermes castaneus*) attack both live and dead wood in the Caribbean.
Reference: Francis, 1990a.

Species: *Byrsonima spicata* (Cav.) HBK.
Creole Name: lian towo
Family: Malpighiaceae
Insect Pests: Several species of Coleoptera, Homoptera, and Lepidoptera, including *Megalopye krugii* Dewitz, defoliate trees in Puerto Rico. The dry-wood termite (*Cryptotermes brevis* Walker) and marine borers (*Toredo* spp.) attack the wood.
Reference: Francis, 1990b.

Species: *Calliandra calothyrsus* Meissen
Creole Name: kaliandra
Family: Fabaceae (=Leguminosae)
Insect Pests: A undetermined stem borer, similar to the mahogany shoot borer (*Hypsipyla robusta*), attacks the tree in the Philippines.
Reference: Luego, 1989.

Species: *Calophyllum calaba* L.
Creole Name: damari
Family: Clusiaceae (=Guttiferae)
Insect Pests: Marine borers (*Toredo* spp.), the dry-wood termite (*Cryptotermes brevis* Walker), and the subterranean termites (*Heterotermes convexinotatus*, *H. tennis*, and *Nasutitermes corniger*) attack the wood in Panama. *Neodryocetes devius* attacks the tree in the Caribbean. An unidentified seed borer has been reported in Puerto Rico. Thrips cause splotches on leaves and premature defoliation in Puerto Rico.
Diseases: Wilt (*Cephalosporium* sp.) induces gummosis of vascular tissue as evidenced by dry branches in the tree top, followed by chlorotic foliage and death of the tree in Central America. Thread blight (possibly *Corticium stevensii*) and a root fungus (possibly *Rosellinia* sp.) occur in Trinidad.
References: CATIE, 1992; Weaver, 1990a.

Species: *Carica papaya* L.
Creole Name: papay
Family: Caricaceae
Diseases: A virus related to the cucurbit mosaic and transmitted by the green peach aphid (*Myzus persicae*) from cucumbers and watermelons causes a bitter flavor in fruits. Anthracnose (*Glomerella cingulata* and *Colletotrichum gloeosporioides*) enters wounds in ripe fruit. Dieback by an unidentified pathogen attacks crowns and leaves, causing rot. Stem end rot (*Ascochyta caricae*) affects young fruits, causing premature fruit drop and attacks mature fruit as black circular spots. Root rot (*Phytophtora* spp.) results in wilt and eventual death. The powdery mildew (*Oidium* spp.) attacks leaves of seedlings under humid, poorly-ventilated conditions.
References: Mortensen and Bullard, 1970; Tourigny, 1987.

Species: *Casuarina equisetifolia* L. ex J.R. & G. Forst.
Creole Names: bwa pen, pich pen, kazowina
Family: Casuarinaceae
Insect Pests: A stem borer (*Apate monachus*) attacks both living and dead wood, retarding growth, deforming trunks, and making them susceptible to breakage in high winds in Central America and the Caribbean. A buprestid beetle (Coleoptera: Buprestidae) feeds on the inner bark and outer wood tissues of the stem and a cossid moth (Lepidoptera: Cossidae) bores into the stems of trees in the Philippines. The larvae of an undetermined twig-girdling insect bore into the stem and feed on the stem bark and cambial tissues in the Philippines. Long-horned beetles (*Neoclytus cordifer* and *Chlorida festiva*) attack trees in Central America. The stingless bee (*Trigonia silvestriana*) wounds trees by cutting bark incisions. Larvae of *Bootamomyia* infest seed in the Caribbean. Nymphs of the spittle bug (*Clasoptera undulata*) suck sap from flowers, leaves, stems, and soft branches. Other insect pests include: crickets and grasshoppers (*Chondracis rosea*, *Schistocerca gregaria*), a defoliator (*Lymantia xylina*), and sap feeders (*Icerya* spp.). Several species of ants eat the seed, hampering sowing success in the nursery, and inhibiting natural regeneration of the species worldwide. The species is vulnerable to crickets (Orthoptera: Gryllidae) that clip seedling stems or defoliate in the nursery. Twig girdlers attack the tree in southern Florida, cutting off new shoots and branches, resulting in deformed stems. Major seedling pests in India are the cricket (*Brachytrupes achatinus*), a bark-eating caterpillar (*Arbela tetronis*), a longicorn (*Coelosterna scabrata*), and grubs of the rhinoceros beetle (*Oryctes rhinocerus*).
Diseases: Notable fungal diseases observed among tree nurseries in Haiti include: the powdery mildew (*Oidium* spp.) that attacks leaves of seedlings under humid, poorly-ventilated conditions; foliar blights (*Alternaria*, *Cercospora*, and *Phytophtora*); and root rot (*Pythium*, *Phytophtora*, and *Rhizoctonia*). Trees grown in unfavorable conditions succumb to major root diseases caused by *Pseudomonas solanacearum*, *Trichosporium vesiculorum*, and *Rhizoctonia* spp., particularly on wet and poorly-drained sites. The mushroom root rot (*Clitocybe tabescens* (Scop.) Bres.) causes a high rate of mortality on sandy soils in S. Florida. Dieback and stem canker caused by *Diplodia natalensis* occur in southern Florida and Puerto Rico.
References: Brazza, 1987a; Brazza, 1988a; CATIE, 1992; Josiah and Allen-Reid, 1991; Morton, 1980; NFTA 1990; Runion et al., 1990; Tourigny, 1987.

Species: *Catalpa longissima* (Jacq.) Dum. Cours.
Creole Name: chenn
Family: Bignoniaceae
Insect Pests: Caterpillars (Lepidoptera: Pyralidae) tie leaves together prior to pupation and defoliate in Haiti. A tortoise beetle (Coleoptera: Cassidenae) is a common defoliator of nursery seedlings and mature trees in Haiti. The wet-wood termite (*Nasutitermes* spp.) and the dry-wood termite (*Cryptotermes brevis* Walker) consume dead wood in Puerto Rico. The citrus aphid (*Toxoptera aurantium* B. de F.) shrivels young leaves, reduces vigor, and promotes development of black sooty mold in Haiti. Aphids are an occasional problem of nurseries in Haiti.
Diseases: Notable fungal diseases observed among tree nurseries in Haiti include: leaf spot (*Alternaria*, *Botrytis* and *Cercospora*); anthracnose (*Collectotrichum*); and an unidentified aphid-borne virus that causes leaves of young seedlings to shrivel with mosaic-type symptoms.
References: Francis, 1990c; Josiah and Allen-Reid, 1991; Runion et al., 1990; Tourigny, 1987.

Species: *Cecropia peltata* L.
Creole Name: twompèt
Family: Moraceae
Insect Pests: Larvae of several species (*Correbidia terminalis*, *Gynaecia dirce*, *Historis odious*, *Prepodes* spp., and *Sylepta salicalis*) defoliate the seedling and sapling stages and cause heavy damage to leaves of mature trees. The cotton aphid (*Aphis gossypii*) commonly is observed on leaves of the tree in Puerto Rico.
Other Pests: Vines of Fabaceae, Convolvulaceae and Malpighiaceae strangle saplings in S. America.
Reference: Silander and Lugo, 1990.

Species: *Cedrela odorata* L.
Creole Name: sèd
Family: Meliaceae
Insect Pests: The citrus aphid (*Toxoptera aurantium* B. de F.) shrivels young leaves, reduces vigor, and promotes development of black sooty mold in Haiti. The mahogany shoot borer (*Hypsipyla grandella* Zeller), common throughout the species' natural range, bores into buds, shoots, and stems, causing death in the apical meristem. Jumping plant lice (*Coelocara ernestii*) attack the tree in the Caribbean. The termite (*Neotermes castaneus*) attacks both live and dead wood in Central American and the Caribbean. Beetle damage is a problem on some plantations in Africa.
Other Pests: Snails and slugs cause damage to plantations in Malaysia, Africa, and the Virgin Islands.
Diseases: Fungal diseases of seedling nurseries in Haiti include: leaf spot (*Alternaria* and *Cercospora*), anthracnose, and stem blight (*Colletotrichum*). An unidentified aphid-borne virus causes leaves of young seedlings to shrivel with mosaic-type symptoms in Haiti. Dieback of previously healthy 1-2 year old stands is a common phenomenon in Central America and the Caribbean, characterized by poor crowns going out of leaf at frequent intervals, dead-looking bark, and dieback from the top.
References: CATIE, 1992; Cintron, 1990; Marshall, 1939; Runion et al., 1990.

Species: *Ceiba pentandra* (L.) Gaertn.
Creole Name: mapou
Family: Bombacaceae
Insect Pests: Defoliators include: *Pericallia ricini* Fabr., *Oiketicus kirbiyi* Guilding, *Bucculatrix* spp., *Eulepidotis modestula* Herrich-Schaeffer, *Ephyriades arcas* Drury, and *Diaprepes abbreviatus* L. in Puerto Rico and India. Seed eaters include: *Dysdercus andreae* L. and *D. bimaculatus* in Puerto Rico. Tree girdlers include: *Analeptes trifasciata* Fabr. and *Paranaleptes reticulata* Thoms in Africa. Other insect pests have been reported including 9 Coleoptera, 11 Hemiptera, 6 Lepidoptera and 1 Thysanoptera species around the world.
Other Pests: The tree is a host to parasitic plants (*Dendropthoe falcata*, *Loranthus* spp.).
Diseases: Twenty-eight pathogenic fungi of the following genera have been reported to attack the tree: *Armillaria*, *Calonectria*, *Camillea*, *Cercospora*, *Chaetothyrium*, *Coniothyrium*, *Corticum*, *Corynespora*, *Daldinia*, *Fomes*, *Glomerella*, *Phllosticta*, *Physalospora*, *Polyprous*, *Polystictus*, *Pycnoporus*, *Ramularia*, *Schizophyllum*, *Septoria*, *Thanatephorus*, and *Ustulina*. The following viruses attack kapok: Cacao virus 1A, 1C, and 1M, Swollen Shoot, Offa Igbo (Nigeria) and viruses that also attack *Adansonia digitata*.
References: Chinea-Rivera, 1990; Duke, 1989.

Species: *Chrysophyllum cainito* L.
Creole Name: kaymit
Family: Sapotaceae
Disease: An unidentified fungal pathogen shrivels immature fruit in Florida.
Reference: Mortensen and Bullard, 1970.

Species: *Citharexylum fruticosum* L.
Creole Name: madam klòd
Family: Verbenaceae
Insect Pests: The lepidopteran pest (*Pyrausta certata* F.) occasionally defoliates the tree in Puerto Rico. Insects of the orders Homoptera, Isoptera and Lepidoptera also feed on the tree. The dry-wood termite (*Cryptotermes brevis* Walker), and rarely the wet-wood termite (*Nasutitermes costalis*), attack the wood.
Diseases: Heart rot fungi attack old trees.
Other Pests: Mistletoe is common in Puerto Rico.
Reference: Francis, 1990d.

Species: *Citrus* spp.
Creole Names: zoranj, sitwon, chadèk
Family: Rutaceae
Insect Pests: The cottony cushion scale (*Icerya purchasi* Mask.) and the citrus snow scale (*Unaspis citri* Comstock) infest leaves and twigs in Haiti. An additional 23 species of scales and mealybugs are widespread where *Citrus* is cultivated. The citrus rust mite (*Phyllocoptruta oleivora* Ashm.) and citrus red mite (*Paratetranychus citri* McG.) attack all green parts of the plant. The citrus aphid (*Toxoptera aurantium* B. de F.) shrivels young leaves, reduces vigor, and promotes development of black sooty mold.

Several species of ants harvest the honey dew secretions of aphid and scale pests. Leaf-cutting ants harvest leaves and defoliate. The stingless bees (*Trigonia corvina* and *T. silvestriana*) cut flower buds to extract resin. Fruit fly maggots (*Anastrepha* spp. and *Ceratitis capitata*) enter fruits and cause decay. A gray larvae of *Papilio* spp., known as orange dog, infest young leaves and impart an offensive odor. The citrus root weevil (*Diprepes* spp.) is reported in the Caribbean. Thrips (*Scirtothrips* spp.) and whiteflies (*Dialeurodes* spp.) are widespread. The moth borer (*Citripestis sagittiferella* Moore) is an important pest in SE Asia.
Other Pests: The burrowing nematode (*Radopholus similis* (Cobb) Thorne), citrus nematode (*Tylenchulus semipenetrans*), and *Pratylenchus* spp. attack the tree.
Diseases: Gummosis (*Phytophtora citrophthora* (Sm. & Sm.) Leon. and *P. parasitica* Dastur) is characterized by lesions in the crown and the graft union that exude gum prior to death of the tree. *Phytophtora* spp. also cause a brown rot on fruit. The scab (*Elsinoe fawcetti* Bitanc. & Jenk.) produces corky lesions on twigs, leaves and fruit. Melanose (*Diaporthe citri* (Fawc.) Wolf) produces brown pustules on young twigs, leaves and fruits. Anthracnose of limes (*Gloeosporium limetticolum* Claus.) causes branch tips to die. Anthracnose of oranges, grapefruit and lemons (*Colletotrichum gloeosporioides* Penz.) attacks branches, leaves, and fruits which have become injured or weakened. Citrus canker (*Xanthomonas citri* (Hasse) Dowson) is dangerous and requires uprooting and burning of all infected trees. Fungi that endanger post-harvested fruit include: *Penicillum* spp., *Alternaria citri* Ellis & Pearce, *Guignardia citricarpa* Kiely, and numerous others. The *Tristeza* virus, transmitted by diseased budwood and aphids, suppresses new growth, causing leaf yellowing, wilting, and tree death. Other virus diseases include exocortis, psorosis and xyloporosis. "Stubborn," "greening," and "yellow shoot" diseases are caused by mycoplasms and transmitted by psyllids. Fungal diseases attacking seedlings in Haitian nurseries include leaf spot (*Alternaria*, *Fusarium*, and *Phoma*), anthracnose (*Colletotrichum*), and scab (*Sphaceloma*).
References: CATIE, 1992; Josiah and Allen-Reid, 1991; Mortensen and Bullard, 1970; Purseglove, 1968b; Runion et al., 1990; Tourigny, 1987.

Species: *Cocos nucifera* L.
Creole Name: kokoye
Family: Arecaceae (=Palmae)
Insect Pests: More than 100 species of insects afflict the tree. The rhinoceros beetles (*Orycetes rhinoceras* in SE Asia and *O. moceros* in Africa) are serious pests, penetrating the terminal bud and causing damage to unfolded leaves, and death if the central growing part is attacked. The coconut mite (*Aceria guerreronis* Keifer) is probably the most prevalent pest in Haiti, deforming nut development and reducing crop yield. The coconut weevils (*Rhynchophorus cruentatus* in S. Florida, *R. palmarum* in the West Indies and S. America, *R. ferrugineus* in S. Asia, and *R. schach* in Malaysia) are dangerous, attacking the bud and causing death of the tree when the growing point is destroyed. Other important coleopteran pests include: *Strategus* spp. that attack the soft wood and the heart of the tree; *Brontispa* spp., most notably *B. longissima* in the Pacific and SE Asia, that severely damages leaves; and the leafminers (*Promecotheca* spp. in SE Asia and *Coelaenomenodera* spp. in Africa and Madagascar) that render the leaves non-functional. The larvae of several lepidopteran species are important defoliators,

including *Artona catoxantha* in SE Asia, *Brassolis sophorae* and *Castina daedalus* in S. America, *Hidari irava* in Indonesia, *Nephantis serinopa* in S. India, *Setora nitens* and *Tirathaba* spp. in SE Asia. The planthopper (*Myndus crudus*) feeds on phloem while transmitting mycoplasmalike organisms that cause lethal yellowing. The scale (*Aspidiotus destructor*) infests the leaves, causing discoloration and loss of vigor. Populations in Haiti appear to be controlled by a ladybug predator (*Chilocorus cacti*). Long-horn grasshoppers (*Sexava* spp.) attack coconuts in almost all the coconut-growing areas and occasionally cause serious defoliation.

Other Pests: Bird pests include the Hispaniolan Woodpecker (*Melanerpes striatus*), which attacks the trunk for nesting sites and damages immature nuts, and the Village Weaver (*Ploceus cucullatus*), which strips the leaves for nest building. The nematode (*Rhadinaphelenchus cocophilus* (=*Aphelenchus cocophilus*)) invades the stem and crown base, causing red ring disease. It is transmitted by the coconut weevil (*Rhynchophorus palmarum*).

Diseases: Diseases prevalent in the Caribbean include: red ring, infesting the trunk with a characteristic red ring, rapid wilting of the leaves, and eventual death of the palm; lethal yellowing, caused by mycoplasmalike organisms transmitted by the planthopper *Myndus crudus* Van Duzee (and perhaps other *Myndus* species), and devastating local populations in Haiti and throughout the Caribbean basin; bud rot fungus (*Phytophtora palmivora* Butl.) which wilts and kills the terminal bud; leaf blight fungus (*Pestalotia palmarum*) which invades stressed plants by attacking the leaves with yellow spots that finally turn to gray and coalesce; leaf break fungus (*Botryodiplodia palmarum*) which attacks trees weakened by unfavorable growing conditions and causes the leaves to break at their distal ends; leaf stalk rot fungus (*Phytophtora parisitica*) on the stalks and limbs of infected leaves; stem bleeding and leaf spot fungus (*Thielaviopsis paradoxa* (De Segn.) Hoehn); butt rot fungus (*Ganoderma* spp.) which kills the lower fronds and eventually the entire tree; and fatal wilt flagellate (*Phytomas*) which attacks the coconut bud and kills the tree.

References: Morin, 1977; Ohler, 1984.

Species: *Coffea arabica* L.

Creole Name: kafe

Family: Rubiaceae

Insect Pests: The citrus aphid (*Toxoptera aurantium* B. de F.) shrivels young leaves, reduces vigor and promotes development of black sooty mold in Haiti. The bean borer (*Hypothenemus hampei*) attack beans in Africa and Brazil. The green scale (*Coccus viridis*) attacks leaves along the veins.

Diseases: The most serious disease is Hemileia rust caused by *Hemileia vastatrix* Berk. & Br. that attacks the leaves. Leaf spot (*Mycena citricolor*) results in defoliation of the plant. Another leaf spot (*Cercospora coffeicola*) is occasionally a problem in humid areas of Haiti, resulting in chlorotic leaves, berry lesions, and pulp sticking to the beans. Fungal diseases attacking seedlings in Haitian nurseries include: leaf spot (*Alternaria*, *Cephalosporium*, *Cercospora*, *Mycena*, *Pestalotia*, and *Phyllosticta*); anthracnose (*Colletotrichum*); and damping off (*Rhizoctonia*). A stem blight attacks seedlings under humid conditions in Haiti.

References: Mortensen and Bullard, 1970; Runion et al., 1990; Tourigny, 1987.

Species: *Colubrina arborescens* (Mill.) Sarg.
Creole Names: bwa ple, kapab
Family: Rhamnaceae
Insect Pests: The citrus aphid (*Toxoptera aurantium* B. de F.) shrivels young leaves, reduces vigor, and promotes development of black sooty mold in Haiti. The stingless bee (*Trigonia silvestriana*) extracts resin by making bark incisions. Seedlings are vulnerable to crickets (Orthoptera: Gryllidae) that clip stems or defoliate in the nursery.
Diseases: Fungal diseases attacking seedlings in Haitian nurseries include: leaf spot (*Alternaria*, *Cercospora*, and *Myrothecium*); anthracnose (*Colletotrichum*); damping off (*Alternaria* and *Fusarium*); and stem blight (*Alternaria*, *Fusarium*, and *Colletotrichum*). An unidentified aphid-borne virus causes leaves of young seedlings to shrivel with mosaic-type symptoms in Haiti.
References: CATIE, 1992; Josiah and Allen-Reid, 1991; Runion et al., 1990; Tourigny, 1987.

Species: *Cordia* spp.
Creole Names: bwa soumi, bwa chik, flè dan
Family: Boraginaceae
Insect Pests: Larvae of a bean weevil (*Amblycerus pygidialis*) destroy flowers, young fruit or seeds in the Caribbean. The stingless bee (*Trigonia silvestriana*) wounds *C. alliodora* by cutting bark incisions. A root-cutter beetle (*Phyllophagus* spp.) attacks seedlings in Venezuela. The Spanish elm lacewing bug (*Dictyla monotropidia*) infests seedlings and damages leaves. The leaf hoppers (*Draculocephala cubana* and *Hortensia similis*) damage and deform leaves of trees in the Caribbean. Larvae of *Conchylodes diptherali* bore into concealed areas of the tree to feed. Ants commonly infest the swollen nodes of the lateral branches in Central and S. America, but cause no significant damage to planted seedlings. The tree is very susceptible to various defoliators. More than 212 insect taxa were found on *C. alliodora* in Panama, none causing serious injury.
Other Pests: Birds and rodents destroy much of the seed in exposed areas. Extracts from a grass (*Melinis minutiflora*) has adverse effects on seedling growth of *C. alliodora*.
Diseases: *C. alliodora* is susceptible to canker-causing rust (*Puccina cordiae*), attacking at the base of young branches, in the West Indies, Guatemala, and South America. A black fungal or viral canker of an unknown species, causing severe damage to nodes on main stems of *C. alliodora*, has been reported from the Pacific. Leaf spot disease attacks nursery seedlings in Puerto Rico.
References: CATIE, 1992; Liegel and Stead, 1990; Webb et al., 1984.

Species: *Cupania americana* L.
Creole Name: satanye
Family: Sapindaceae
Insect Pests: Homoptera species feed on trees, causing twig mortality, in Puerto Rico. Lepidopteran caterpillars defoliate lightly in Puerto Rico. Unidentified insect larvae destroy seeds in Puerto Rico. The wet-wood termite (*Nasutitermes costalis* Holmgren)

feeds on dead limbs and twigs of live trees in Puerto Rico. The dry-wood termite (*Cryptotermes brevis* Walker) attacks the wood in the Caribbean.
Reference: Francis, 1991a.

Species: *Dalbergia sissoo* Roxb.
Family: Fabaceae (=Leguminosae)
Insect Pests: A defoliator (*Plecoptera reflexa*) and a leaf binder (*Dichomeris eridantis*) attack the tree in India. Pinhole borers and termites attack the wood. A cricket (*Brachytrypes portentosus*) attacks seedlings in India.
Other Pests: Parasitic plants include *Loranthus longiflorus* and *Tapinenthus dodoneifolius* in India. Porcupines and rats damage root systems in India.
Diseases: Powdery mildew (*Phyllactinia dalbergiae* Pirozynski) appears on leaves of young and old trees late in the growing season in India. Other common fungal diseases in India include: leaf spot (*Cercospora sissoo* Syd., *Cochliobolus lunatus* Nelson & Haasis, *Colletotrichum sisoo* (Sydow.) Sutton, *Phomopsis dalbergiae* Sahni, *Phyllachora dalbergiae* Syd. & Butler, and *Phyllosticta sisoo* Died.); leaf blight (*Colletotrichum gloeosporioides* Penzig); leaf wilt (*Fusarium solani* (Mart.) App. & Wollenw. f. *dalbergiae* Gordon); leaf rusts (*Eudarluca caricis* (Fr.) C. Eriks, *Maravalia achora* (Syd.) Arth. & Cunm., and *Uredo sisoo* Syd. & Butler); wood rots (*Daedalea flavida* Lev., *Daldinia erschscholzii* (Ehrenb.) Rehm., *Favolus canadensis* Klotzsch., *Fomes fastuosus* (L.) Berk., *Ganoderma applanatum* (Pers.) Pat., *G. lucidum* (Leyss.) Kaist., *Hymenochaeta damaecornis* (Link.) Lev., *Irpex flavus* Klotzsch., *Marasmius pangerangensis* P. Henn., *Peniophora indica* Thind & Rattan, and *Polyporus gilvus* Schw.); stump rot (*Fomes durissimus* Lloyd and *F. lucida*); root rot (*Ganoderma lucidum* (Leyss.) Kaist.); and blister canker (*Nummularia cinnalbarina* P. Henn.).
Reference: Parrotta, 1989.

Species: *Elaeis guineensis* Jacq.
Creole Name: kwokwo ginen
Family: Arecaceae (=Palmae)
Insect Pests: Larvae of the palm bruchid beetle (*Pachymerus bactris* Linné) feed in the seed and exit as adults that feed on the flowers, nectar, and pollen. Caterpillars (Saturniidae: *Automeris liberia*, *A. cinctistiga*, *A. bilinea*, *Periphoba hircia*, and *Pseudodirphia gregatus*) defoliate oil palms throughout the Neotropics.
References: Couturier and Kahn, 1993; Johnson et al., 1995.

Species: *Enterolobium cyclocarpum* (Jacq.) Griseb.
Creole Name: bwa tanis wouj
Family: Fabaceae (=Leguminosae)
Insect Pests: Wood-boring insects (buprestids, cerambicids, and scolitids) attack diseased areas caused by *Fusarium oxyosporum* var. *perniciosum* in Puerto Rico. The gall-forming fly (*Asphondylia enterolobii*) destroys flowers in Costa Rica. A sucking insect (*Umbonia crassicorni*) attacks trees in Costa Rica. *Stator generalis* attacks dormant seeds in Costa Rica. Numerous insects attack the sapwood.

Other Pests: Parrots (*Amazona* spp.) eat green seeds in Costa Rica. A rodent (*Liomys salvini*) and peccaries consume seeds on the ground in Costa Rica.
Diseases: *Fusarium oxyosporum* var. *perniciosum* causes exudation from bark fissures on infected trunks and branches, attracting wood borers and eventually resulting in limb breakage in Puerto Rico.
Reference: Francis, 1988.

Species: *Eriobotrya japonica* (Thunb.) Lindl.
Creole Name: lokwat
Family: Rosaceae
Disease: The fire blight (*Erwinia amylovora*) is the most serious disease of the tree, causing branches to die back. Scab (*Spilocaea eriobotryae*) spoils the fruit.
Reference: Mortensen and Bullard, 1970.

Species: *Eucalyptus* spp.
Creole Name: kaliptis
Family: Myrtaceae
Insect Pests: The snout beetle (*Euscelus aureolus*) damages fruit of the tree in the Caribbean. The stingless bee (*Trigonia silvestriana*) wounds by cutting bark incisions. Several species of ants eat the seed, hampering sowing success in the nursery, and inhibiting natural regeneration of the species in Haiti. Seedlings are vulnerable to crickets (Orthoptera: Gryllidae) that clip the stems or defoliate in the nursery. The tree is susceptible to attack by the snout beetle (*Gonipterus*) in South Africa. Additional pests include: *Phoracantha semipunctata* in Israel; and *Platypus*, *Pantomorus*, and *Atta* in Uruguay.
Diseases: Fungal diseases attacking seedlings in Haitian nurseries include: leaf spot (*Alternaria*, *Cercospora*, *Curvularia*, *Myrothecium*, *Phytophtora*, and *Spaeropsis*); anthracnose (*Colletotrichum*); powdery mildew (*Oidium*); and damping off (*Colletotrichum*, *Fusarium*, *Myrothecium*, *Phomopsis*, *Phytophthora*, and *Scolecotrichum*). A canker (*Phomopsis*) occasionally attacks the tree in Haiti. Basal canker (*Cryphonectria cubensis*) infects *E. grandis* plantations in S. Florida, Brazil and Surinam.
References: CATIE, 1992; Josiah and Allen-Reid, 1991; Meskimen and Francis, 1990; Runion et al., 1990; Webb et al., 1984.

Species: *Genipa americana* L.
Creole Name: jinpa
Family: Rubiaceae
Insect Pests: Numerous insects of the orders Coleoptera, Homoptera, and Lepidoptera, use the tree as a host, though none appears to cause significant damage. Pinhole borers, the dry-wood termite (*Cryptotermes brevis* Walker), powderpost beetles (*Lyctus* spp.), and marine borers (*Toredo* spp.) attack the wood in the Caribbean and Central America.
Reference: Francis, 1993.

Species: *Gliricidia sepium* (Jacq.) Walp.
Creole Names: piyon, piyong, lila etranje
Family: Fabaceae (=Leguminosae)
Insect Pests: Scale (*Orthezia praelonga* Douglass), a mealybug (*Puto barberi*), and an aphid (*Aphis liburni*) cause minor damage in Trinidad. Aphids (*Aphis* spp.) suck sap from young leaves and twigs, secrete honeydew as a nutritive medium for sooty molds, and cause a decline in vigor of trees in Haiti. The species is host to several agricultural pests: *Ceutorhynchus asperulus*, a weevil that attacks pigeon pea; *Oligonychus biharensis* Hirst and *Eutetranychus orientalis* Klein, both polyphagous mites in India. The species is an alternate food plant for lepidopteran pests (*Orgyia postica* Wlk. and *Dasychira mendosa* Hb.) and for the peanut aphid (*Aphis crassivora* Koch.) in India.
Other Pests: Rats and mice girdle bark and kill seedlings in Haiti, despite its reputation as a source of rat poison.
Diseases: A leaf spot (*Cercospora gliricidiae* Syd. and *Colletotrichum gloeosporioides* Penz.) is reported in Puerto Rico and Nigeria. A thread blight (*Pellicularia koleroga* Cke.) occurs in Puerto Rico. *Cladosporium* sp. causes severe defoliation in Costa Rica. A root fungal pathogen (*Sphaerostilbe repens* Berk. & Br.) is reported in Trinidad.
References: Josiah and Allen-Reid, 1991; Parrotta, 1992b; Tourigny, 1987.

Species: *Guarea guidonia* (L.) Sleumer
Creole Name: bwa wouj
Family: Meliaceae
Insect Pests: The mahogany shoot borer (*Hypsipyla grandella* Zeller) bores into buds, shoots, and stems in Central America and the Caribbean. Several insect species attack seedlings, causing mortality in Trinidad.
Disease: Minor leaf spot damage has been reported in Puerto Rico.
References: CATIE, 1992; Weaver, 1988.

Species: *Guazuma ulmifolia* Lam.
Creole Name: bwa dòm
Family: Sterculiaceae
Insect Pests: The seed crop is heavily attacked by a bruchid beetle (*Amblycerus cistelinus*) in Costa Rica. *Phelypera distigma*, *Lirimiris truncata*, and *Hylesia lineata* beetles feed on leaves in Costa Rica. The wet-wood termite (*Nasutitermes costalis* Holmgren) attacks dead trees and dead limbs of live trees in Puerto Rico. The dry-wood termite (*Cryptotermes brevis* Walker) attacks the wood in the Caribbean and Central America.
Reference: Francis, 1991b.

Species: *Hevea brasiliense* (HBK.) Muell. Arg.
Creole Name: kawotchou
Family: Euphorbiaceae
Diseases: Anthracnose (*Glomerella cingulata*) attacks young leaves and results in premature leaf drop. The leaf spot (*Helminthosporium heveae*) causes spotting on leaves and premature leaf drop. The South American leaf blight (*Dothidella ulei*) causes severe defoliation.
Reference: Mortensen and Bullard, 1970.

Species: *Hibiscus elatus* Sw.
Creole Name: maho ble
Family: Malvaceae
Insect Pests: Cotton stainer bugs occasionally infest trees in the Caribbean. Several species of ants consume seeds in the Caribbean. The long-horned beetles (*Acanthoderes circumflexa* and *Plectomerus dentipes*) attack *Hibiscus* spp. in the Caribbean. Nymphs and adults of *Dysdercus andreae*, *D. ocreatus*, and *D. sanguineus* suck on seeds, deforming them, and causing premature seed fall in the Caribbean.
Other Pests: Bats and other predators consume immature seed while it is still on the tree.
Diseases: Leaf spot (*Septoria* sp. and *Pestalstia heterocornis* Guba) is reported in Jamaica. Dieback characterized by crown branching, leaf wilt, and trunk blackening occurs in Puerto Rico.
References: CATIE, 1992; Weaver and Francis, [n.d.].

Species: *Hura crepitans* L.
Creole Names: sabliye, rabi
Family: Euphorbiaceae
Insect Pests: The wet-wood termites (*Nasutitermes costalis* Holmgren and *N. nigriceps* Haldeman) consume dead limbs in Puerto Rico. Homopteran insects feed on foliage in Puerto Rico.
Disease: Heart rot enters basal scars and reaches interior of trees.
Reference: Francis, 1990e.

Species: *Hymenaea courbaril* L.
Creole Name: koubari
Family: Fabaceae (=Leguminosae)
Insect Pests: A weevil (*Rhinochenus* sp.) bores through seed pods and eats the seed in Costa Rica and Trinidad and Tobago. Other insects (*Acanthoscelides* sp., *Hypothenemus buscki* Hopkins, and *Myelois decolor* Zeller) feed inside seed pods in Puerto Rico. An unidentified insect cuts twigs and small branches after depositing eggs in Trinidad and Tobago. Leaf-cutter ants (*Atta* spp.) harvest young leaves in Costa Rica. Wet-wood termites (*Nasutitermes costalis* Holmgren and *N. nigricepts* Haldeman) eat dead wood in the Caribbean. Marine borers (*Toredo* spp.) attack wood in the Caribbean.
Reference: Francis, 1990f.

Species: *Inga vera* Willd.
Creole Names: sikren, pwạ dou
Family: Fabaceae (=Leguminosae)
Insect Pests: An ant (*Myrmelachista ramulorun* Wheeler) attacks older trees and tunnels through trunks and branches in Puerto Rico. A leaf webber (*Tetralopha scabridella* Ragonot) causes severe defoliation and a beetle (*Xyleborus affinis* Eichhoff) attacks both healthy and stressed trees in Puerto Rico. A wood borer (*Platypus ratzenburgi* Chapuis) causes severe damage to live trees in Puerto Rico.
Disease: An unidentified root fungus or bacterium causes a loss of sap from trees, necrosis, and eventual death in Puerto Rico.
Reference: Rodríguez, 1990.

Species: *Laguncularia racemosa* (L.) Gaertn. f.
Creole Name: mang blan
Family: Combretaceae
Insect Pests: A wood borer (*Sphaeroma terebrans* Bate) attacks trees in Florida. A beetle (*Chrysobothris tranqueborica* Gmelin.) and a borer (*Psychonoctua personalis* Grote) attack trees and cause mortality in Puerto Rico.
Reference: Jiménez, 1985a.

Species: *Leucaena diversifolia* (Schlecht.) Benth. subsp. *diversifolia*
Creole Name: lisina ti fèy
Family: Fabaceae (=Leguminosae)
Insect Pests: The coffee bean weevil (*Araecerus fasciculatus* De Geer) and an undetermined moth species attack seeds in the Philippines, feeding on the seed cotyledon and seed coats.
Reference: Brazza, 1988b.

Species: *Leucaena leucocephala* (Lam.) de Wit
Creole Names: lisina, delen, madlenn
Family: Fabaceae (=Leguminosae)
Insect Pests: The nymph of the psyllid (*Heteropsylla cubana* Crawford) attacks young shoots that die back in Haiti and causes considerable damage throughout SE Asia. Natural enemies, both parasitic and predatory, keep psyllids from reaching epidemic levels in the Caribbean. Lepidopteran larvae (*Heliothis zea*) defoliate young trees in Puerto Rico. Mealy bugs (*Pseudococcus citri* Risso and *Ferrisia virgata* Ckll.) feed on seed pods in Indonesia and the Philippines. A twig girdler (*Oncideres rhodosticta*) attacks trees in Texas. The coffee bean weevil (*Araecerus fasciculatus* De Geer) attacks seeds in the Philippines, feeding on the cotyledon. Other insect pests of the Philippines include: the scarab beetles (*Anomala* sp., *Adoretus* sp., and *Holotrichia* sp.) that feed on seedling roots; coleopteran and lepidopteran stem borers, including *Zeuzera coffeae* and *Cossus* sp.; lepidopteran defoliators (*Orgyia australis postica, Lymantria* sp.); an undetermined microlepidopteran species that feeds on the cotyledons and seedcoats of seeds inside pods; *Gryllotalpa africana* (Orthoptera: Gryllotalpidae) and *Phaneroptera furcifera* (Orthoptera: Tettigoniidae) that feed on the roots and flowers, respectively; an undetermined diaspidid (Homoptera: Diaspididae) that sucks sap from seedling stems and leaves, causing defoliation; and a burrowing cydnid (Hemiptera: Cydnidae) that sucks sap from the roots.
Other Pests: The Hispaniolan Woodpecker (*Melanerpes striatus*) and Yellow-bellied Sapsucker (*Sphyrapicus varius*) wounds the bark to feed on insects and sap, usually at the crown base.
Diseases: Leaf spot (*Exosporium leucaenae* F.L. Stevens & Dalby) occurs in Puerto Rico. Leaf pustules caused by *Camptomeris leucaenae* (F.L. Stevens & Dalby) Syd. has been reported in Puerto Rico, Dominican Republic, Colombia, and Venezuela. Dieback (*Botryosphaeria ribis* var. *chromogena* Shear, Stevens & Wilcox and *Phylsalospora obtusa* (Schw.) Cke.) affects branches in Hawaii. Seed pod rot includes the following fungi: *Colletotrichium gloeosporioides* (Penzig) Penzig & Sacc. occurs in Mauritius; *Pseudomonas fluorescens* and *Fusarium* sp. occurs in Colombia. Root rot includes the following fungi species: *Fomes lamaoensis* (Murr.) Sacc. & Trott, *Helicobasidium compactum* Boed., *Rosellinia arcuata* Petch, *R. bunodes* (Berk. & Br.) Sacc. and *Ustulina*

deusta (Fr.) Petr. in the East Indies; *Fusarium moniliforme* and *F. oxysporum* in Sri Lanka; *Fomes lignosus* (Klotzsch) Bres. in the Pacific and Congo basin; and *Rhizoctonia choussii* Crandall & Arillaga in El Salvador. Pink disease (*Corticium salmonicolor* Berl. & Br.) occurs in the East Indies. Heart rot includes: *Ganoderma lucidum* (Fr.) Karst. in the Philippines and *G. pseudoferreum* Walkef. in the Pacific. Wilt (*Verticillium albo-atrum* Reinke. & Br.) is reported in the Congo basin. Gummosis and canker diseases, caused by *Fusarium semitecum*, has been observed in India. Damping off (*Pythium* and *Rhizoctonia*) and root lesions (*Phytophtora*) have been reported in nurseries in Haiti.
References: Bandara, 1987; Brazza, 1987b; Brazza and Salise, 1988; Josiah and Allen-Reid, 1991; Moreno et al., 1988; Parrotta, 1992c; Tourigny, 1987.

Species: *Malpighia glabra* L.
Creole Name: seriz dayiti
Family: Malpighiaceae
Insect Pests: Weevil larvae (*Anthonomus unipustulatus*) feeds in the fruit.
Other Pests: The species is highly susceptible to nematodes.
Reference: Mortensen and Bullard, 1970.

Species: *Mammea americana* L.
Creole Name: zabriko
Family: Clusiaceae (=Guttiferae)
Insect Pests: Several insect species feed on leaves and fruit of the tree in the Caribbean. Wet-wood termites attack dead trunks and branches. Dry-wood termites attack seasoned lumber.
Diseases: A black mildew (*Aulographum melioloides* Cke. & Mass.) attacks leaves in the Caribbean. Heart rot infects older trees, entering through basal scars.
Reference: Francis, 1989b.

Species: *Mangifera indica* L.
Creole Name: mango
Family: Anacardiaceae
Insect Pests: The cottony cushion scale (*Icerya purchasi* Mask.) infests leaves and twigs of seedlings that turn chlorotic and eventually die in Haiti. Other scale and mealy bug pests include: *Aulacaspis tubercularis* in India; the lesser snow scale (*Pinnaspis strachani* Cooley); the false oleander scale (*Pseudaulacaspis cockerelli* Cooley); the citrus mealybug (*Pseudococcus citri* Risso); the mango shield scale (*Coccus mangiferae* Green); and the Florida red scale (*Chrysomphalus aoaidum* L.), attacking all parts of the tree in Florida. Mites include: the avocado red mite (*Oligonychus yothersi* McGregor); the tumid mite (*Tetranychus tumidus* Banks); and the broad mite (*Polyphagotarsonemus latus* Banks), causing damage mostly to flowers, young fruits, and new leaves in Florida. Thrips include red-banded thrips (*Selenothrips rubrocinctus* Giard) that defoliate and blossom thrips (*Frankliniella* spp.) that cause poor fruit set in Florida. The long-horned beetle (*Chlorida festiva*) attacks trees in the Caribbean. An ambrosia beetle (*Xylosandrus compactus* Eichoff) burrows deep into the wood, potentially causing the death of large branches and entire trees. The band cucumber beetle (*Diabrotica balteata* Leconte) attacks the terminal leaves of seedlings and young trees.

Larvae of the leaf tier (*Argyrotaenia amatana* Dyar) and the cotton square borer (*Strymon melinus* Hubner) feed on blossom panicles. The blossom anomala (*Anomala undulata* Melsheimer) makes sporadic attacks on mango blooms. Maggots of the fruit flies (*Anastrepha* spp. and *Toxotrypara curvicauda* Gerst) infest the fruit. Other fly pests include the citrus whitefly (*Dialeurodes citri* Ashmead) and the citrus blackfly (*Aleuroncanthus woglumi* Ashby) that infest leaves and lower their vigor. A treehopper (*Aconophora pugionata*) feeds on leaves.
Diseases: Anthracnose (*Colletotrichum gloeosporioides* Penz) infects young fruit, leaves, and blossoms, causing much damage under humid conditions. Mango scab (*Elsinoe mangiferae* Bit. and Jenkins) attacks the plant parts of young trees. Mango malformation (*Fusarium* spp.) deforms the flower panicle and inhibits fruit from developing properly. It also attacks the bud tissue of branches, causing bud swelling and shortening of the internodes. Powdery mildew (*Oidium* spp.) infects the blossom, inhibits fruit set, and deforms leaf development, a problem also in the nursery under humid conditions. Additional diseases include *Verticulum* wilt, stem end-rot, and red rust.
References: Mortensen and Bullard, 1970; Tourigny, 1987; Young and Sauls, [n.d.].

Species: *Manilkara bidentata* (A. DC.) Chev.
Creole Name: sapoti nwa
Family: Sapotaceae
Diseases: Sooty molds attack lower leaves of canopy in Puerto Rico. A canker of an unidentified pathogen causes branches to die in Puerto Rico.
Reference: Weaver, 1990b.

Species: *Manilkara zapota* (L.) v. Royen
Creole Name: sapoti
Family: Sapotaceae
Insect Pests: The Mediterranean fruit fly (*Ceratitis capitata* Wied.), the Mexican fruit fly (*Anastrepha ludens* Lw.), and *A. serpentina* are the most damaging pests of the fruit in its native range. Moth larvae (*Eucosmophora* sp.) have been observed feeding on young leaves. The mining scale (*Howardia biclavis* Comst.), the green shield scale (*Pulvinaria psidii* Mask.), the pustule scale (*Asterolecanium pustulans* Ckll.), and other scale species typically infest the tree.
Diseases: Rust (*Scopella sapotae* Mains ex Cumm. and *Uredo sapotae* Arth. & J.R. Johnson) attacks the tree in its native range. A leaf spot (*Septoria* sp.) has been observed to cause defoliation of trees in Florida.
Reference: Mortensen and Bullard, 1970.

Species: *Melia azedarach* L.
Creole Name: lila
Family: Meliaceae
Insect Pests: The stem borer (*Apate monachus*) attacks both living and dead wood, retards growth, deforms trunks, and makes them susceptible to breakage in high winds in the Caribbean.
Reference: CATIE, 1992.

Species: *Melicoccus bijugatus* Jacq.
Creole Name: kenèp
Family: Sapindaceae
Insect Pests: The wet-wood termite (*Nasutitermes costalis* Holmgren) feeds on dead limbs and twigs of live trees in Puerto Rico. The dry-wood termite (*Cryptotermes brevis* Walker) and ambrosia beetles attack the wood in the Caribbean.
Reference: Francis, 1992a.

Species: *Moringa oleifera* Lam.
Creole Name: benzoliv
Family: Moringaceae
Insect Pests: Fruit fly species of *Gitona* infest the fruits that dry out and rot in India. Several weevil species of *Myllocerus* attack seedlings and freshly-planted stumps.
Other Pests: The tree is occasionally parasitized by the flowering plant, *Dendrophthoe flacata*, in India.
Diseases: Pathogenic fungi reported to attack the tree in India include a leaf spot (*Cercospora moringicola*), a spot anthracnose (*Sphaceloma morindae*), and a rust (*Puccinia moringae*). Powdery mildews include *Oidium* spp., *Polyporus gilvus*, and *Leveillula taurica*.
References: Kareem et al., 1974; Ullasa and Rawal, 1984.

Species: *Musa* sp.
Creole Names: bannann, fig mi
Family: Musaceae
Insect Pests: Larvae of the root weevil (*Cosmopolites sordidus*) feed in the corm. Larvae of the scab moth (*Nacoleia octasema*) feed on female flowers and young fruit. Larvae of the stem borer (*Metamasius hemipterus sericeus*) feed in the stems.
Diseases: Panama disease (*Fusarium oxysporum* var. *cubense*) causes wilting and death of trees by destroying roots. Sigatoka (*Mycosphaerella musicola*) produces yellow spots and dead areas on leaves. Freckle disease (*Macrophoma musae*) discolors fruits and causes uneven ripening. Moko bacterial wilt (*Xanthomonas solanacearum*) causes wilt and occurs in wild *Heliconia* plants that commonly infect adjacent plantations.
References: Mortensen and Bullard, 1970; Tourigny, 1987.

Species: *Ochroma pyramidale* (Cav.) Urb.
Creole Name: mahodèm
Family: Bombacaceae
Insect Pests: A shoot borer (*Anadasus porinodes* Meyrick) causes severe damage in plantations throughout Central and South America. Ants (*Paraponera* sp.) feed on sap-filled tissue beneath petioles and leaf veins, protecting the tree from herbivores in its native range. Wood is highly susceptible to marine borers, pinhole borers, powderpost beetles (*Lyctus* spp.), and dry-wood termites (*Cryptotermes brevis* Walker) in its native range. Wet-wood termites (*Nasutitermes costalis* Holmgren) consume dead limbs and fallen wood in Puerto Rico.
Reference: Francis, 1991c.

Species: *Persea americana* Miller
Creole Name: zaboka
Family: Lauraceae
Insect Pests: Mites of *Oligonychus* spp. suck and damage leaves. Scales (*Melanaspis aliena*) occur on twigs and fruits. Larvae of the seed weevil (*Conotrachelus perseae*) feed in or near the seed. The most important insect pests in Florida are scales, mites, borers, and thrips.
Diseases: Root rot (*Phytophthora cinnamomi* Rands) causes branches to wilt and die and feeder roots to decay, eventually killing the tree. Cercospora spot (*Cercospora purpurea*) results in lesions on the fruit and leaves. Avocado scab (*Sphaceloma perseae*) infects young tissue, deforming leaf development and producing a corky, cracked fruit peel. The Lula variety is highly susceptible to this disease. Anthracnose (*Colletotrichum gloeosporoides*) infects injured fruit, resulting in rot as the fruit ripens. Powdery mildew (*Oidium* spp.) attacks the underside of leaves and impairs leaf vigor.
Reference: Mortensen and Bullard, 1970.

Species: *Phoenix dactylifera* L.
Creole Name: dat
Family: Arecaceae (=Palmae)
Insect Pests: Scales (*Parlatoria* spp.) attack leaves near the trunk. Wasps of several species, including *Polistes* spp., feed on ripe or nearly-ripe fruit.
Diseases: The species is highly susceptible to lethal yellowing, caused by mycoplasmalike organisms and transmitted by planthoppers, in Florida.
References: Howard, 1992; Mortensen and Bullard, 1970.

Species: *Pinus caribaea* Morelet
Creole Name: bwa pen
Family: Pinaceae
Insect Pests: Pine bark beetles (*Dendroctonus frontalis* Zimmerman and *D. mexicanus* Hopk.) are serious pests in Central America, frequently attacking healthy trees. Less destructive are *Hypothenemus eruditus, Ips calligraphus* Germar, *I. interstitialis, I. grandicollis*, *I. avulsus* Eich., and *Xyleborus affinis* in Central America and the Caribbean. Gall midges (*Retinodiplosis forsii*) form galls at the base of needles in which are found brightly-colored larvae in the Caribbean. Stingless bees (*Trigonia silvestriana*) cut seedlings in Central America and the Caribbean. Conifer sawflies (*Neodiprion insularis*) attack trees, causing massive defoliation in Central America. Lepidopteran stem borers (*Dioryctria clarioralis* and *D. horneana*) bore into flowers, fruit, and buds in Central America. Larvae of the Nantucket pine tip moth (*Rhyacionia frustrana*) bore into the base of needles and feed on bud tissue in Central America. The snout beetles (*Lachnopus* sp. and *Exophthalmus hybridus*) perforate cones and nuts, as well as defoliate, in the Caribbean. The pinhole borers (*Platypus linearis* and *P. poeyi*) attack less-vigorous trees, constructing galleries in the wood to cultivate fungi. Less widespread damage is caused by aphids, weevils, buprestid beetles, spider mites, leaf cutter ants, termites, and moths.
Diseases: Damping off fungi (*Thanatephorus cucumeris* (Frank) Donk., *Rhizoctonia solanti* Kuhn, *Pithium*, and *Fusarium*) are common in nursery seedlings. Root patho-

genic fungi that occur worldwide in plantations include *Armillaria mellea* (Vahl) Kummer, *Phytophthora cinnamomi* Rands., *Fomes annosus* (Fr.) Cooke, and *Gylindrocladium* spp.
References: CATIE, 1992; Francis, 1992b.

Species: *Pinus occidentalis* Sw.
Creole Name: bwa pen
Family: Pinaceae
Insect Pests: Bark beetles (*Ips interstitialis*, *I. calligraphus* and *Dendroctonus frontalis*) attack wood or xylem surface by constructing galleries and leaving pellet-size round exit holes. *Dirphia plana* defoliates trees. The larvae of the Nantucket pine tip moth (*Rhyacionia frustrana*) bore into the base of needles and feed on bud tissue. The cottony cushion scale (*Icerya purchasi*) attacks seedlings in Haiti. The gall midge (*Retinodiplosis forsii*) forms galls in the base of pine needles in which are found brightly-colored larvae. An unidentified defoliator (Lepidoptera: Citheroniinae) causes serious damage to the tree in Haiti. Many insect pests of *P. caribaea* are potential pests of *P. occidentalis*, though few studies have been conducted.
Other Pests: Parasitic mistletoe (*Arceuthobium bicarinatum*, *Dendropemon pycnophyllis*, and *Dendrophtoras* spp.) is considered a serious pest on Hispaniola, severely restricting growth potentials.
Diseases: A foliar blight and damping off diseases of uncertain causes have been reported in seedling nurseries in Haiti.
References: CATIE, 1992; Darrow and Zanoni, 1991; Josiah and Allen-Reid, 1991; Runion et al., 1990.

Species: *Pithecellobium dulce* (Roxb.) Benth.
Family: Fabaceae (=Leguminosae)
Insect Pests: Larvae of *Subpandesma anysa* Gn. attack the fruit and seeds in Hawaii. A hemipteran insect (*Umbonia crassicornis* Amyot & Serville) is a pest in Puerto Rico. Larvae of *Indarbela* sp. bore into the bark of trees in India. *Polydesma umbricola* is a serious pest on the island of Réunion in the Indian Ocean.
Diseases: Leaf spot pathogens include *Cercospora mimosae* Agarwal & Sharma, *Colletotrichum dematium* Pers. ex Fr., *C. pithecellobii* Roldan, *Phyllosticta ingae-dulcis* Died., and *P. pithecellobii* Shreemali in India. Heart rot (*Phellinus* sp.) has been reported in India.
Reference: Parrotta, 1991.

Species: *Prosopis juliflora* (Sw.) DC.
Creole Names: bayawonn, gwatapana
Family: Fabaceae (=Leguminosae)
Insect Pests: The bruchid beetle (*Algarobius prosopis*) invades the seed pods. Psyllids have been reported to defoliate the tree. Wood is subject to attack by marine borers (*Toredo* spp.). The sapwood is highly susceptible to powder post beetles (*Lyctus* spp.).
Reference: NFTA, 1987.

Species: *Psidium guajava* L.
Creole Name: gwayav
Family: Myrtaceae
Insect Pests: Aphids (*Aphis* spp.) feed on young growth, causing the curling of leaves. Fruit fly maggots (*Anastrepha striata* and *Dacus* spp.) attack the fruit. The green scale (*Coccus viridis*) occurs on branches.
Diseases: Fruit rot (*Glomerella cingulata*) shrivels green fruit and rots ripe fruit. Mushroom root rot (*Clitocybe tabescens*) rots the roots and eventually kills the tree.
Reference: Mortensen and Bullard, 1970.

Species: *Rhizophora mangle* L.
Creole Name: mang wouj
Family: Rhizophoraceae
Insect Pests: Wood borers (*Poecilips rhizophorae* Hopkins and *Sphaeroma terebrans* Bate) invade prop roots of trees along tidal channels and occasionally cause extensive damage in Florida.
Other Pests: Crabs and monkeys eat freshly planted seedlings in Panama and Malaysia.
Diseases: A fungal pathogen (*Cylindrocarpum didymum* (Hartig) Wollenw.) produces a gall disease that results in malformation of the trunk and prop roots in Florida. Heavily infested trees are killed by the disease or secondary agents.
Reference: Jiménez, 1985b.

Species: *Sabal causiarum* (O. F. Cook) Becc.
Creole Names: latanye fran, latanye jòn
Family: Arecaceae (=Palmae)
Insect Pests: Larvae of the palm bruchid beetles (*Caryobruchus* sp., *C. gleditsiae* Johansson & Linné) feed in the seed and exit as adults that feed on the flowers, nectar, and pollen.
Reference: Johnson et al., 1995.

Species: *Sabal domingensis* Becc.
Creole Names: latanye chapo, pay
Family: Arecaceae (=Palmae)
Insect Pests: Larvae of the palm bruchid beetles (*Caryobruchus* sp., *C. gleditsiae* Johansson & Linné) feed in the seed and exit as adults that feed on the flowers, nectar, and pollen.
Reference: Johnson et al., 1995.

Species: *Schefflera morototoni* (Aubl.) Maguire Steyerm. & Frodin
Creole Name: bwa kano
Family: Araliaceae
Insect Pests: Several lepidopteran and coleopteran insects consume foliage or woody material in Puerto Rico.
Other Pests: Stranglers (e.g., *Clusia griesebachiana*) and climbers (e.g., *Ipomea* spp.) are common on wet montane sites in Puerto Rico.
Reference: Leigel, 1990.

Species: *Senna siamea* (Lam.) Irwin & Barneby
Creole Name: kasya
Family: Fabaceae (=Leguminosae)
Insect Pests: Leaf-cutter ants harvest nursery seedlings in Haiti. *Asterolecanium pustulans* Cockerell (Homoptera), *Saisetia oleae* Oliver (Homoptera), *Nasutitermes costalis* Holmgren (Isoptera) and *Megalopyge krugii* Dewitz, feed on leaves, branches, and bark in Puerto Rico. Larvae of *Eurema blanda* Boisduval defoliate the tree in Sri Lanka. *Catopsilla pomona* Fabricus causes damage in China.
Other Pests: Parasitic plants include *Cuscuta reflexa* Roxb., *Dendrophthoe falcata* (L.f.) Ettingsh., and *Tapinanthus* sp. in Sri Lanka and India. Nematodes are an occasional problem in tree nurseries in Haiti.
Diseases: Leaf spot (*Cercospora* sp.) is the most serious seedling disease in Haiti, characterized by small brown- to chestnut-colored leaf spots that remain separate, later becoming ashen-gray and papery. Leaf spot is also caused by *Alternaria*, *Curvularia*, *Fusarium*, *Fusoma*, *Macrophomina*, *Pestalotia*, and *Rhizoctonia*. Leaf spot caused by *Cercospora cassiae-siameae* Chiddarwar and *Cochliobolus nodulosus* Luttrell is reported in India. Other diseases attacking nursery seedlings in Haiti include: anthracnose (*Colletotrichum*); damping off (*Alternaria*, *Cercospora*, *Diaporthe*, *Fusarium*, *Macrophomina*, *Myrothecium*, and *Rhizoctonia*); a stem blight of uncertain cause; and powdery mildew (*Oidium* sp.). Pink disease (*Corticum salmonicolor* Berk. & Br.) attacks trees in Mauritius and Tanzania. A bark necrosis (*Botryidiplodia theobromae* Pat.) is reported in E. Africa. *Nectria* spp. are associated with cankers and dieback of trees in W. Africa. A vascular wilt (*Fusarium solani* (Mart.) Sacc.) has been reported in several countries. Root pathogens include: *Armillariella mellea* (Fr.) Karst. in Uganda; *Ganoderma lucidum* (Leyss.) Karst. in India, Java, and Taiwan; *Polyporus baudoni* Pat. in Ghana and Tanzania; and *Phellinus noxius* (Corner) G.H. Cunn. in Ghana. Rot fungi include: *Flavodon flavus* (Kl.) Ryv., *Nothopanus hygrophanus* (Mont.) Singer, *Trametes cotonea* (Hart. & Pat.) Ryv., *Schizopora paradoxa* (Schrad. ex Fr.) Donk, *Trametes meyenii* (Kl.) Lloyd in Sierra Leone; and *Phaeolus manihotis* Heim. in Ghana. The latter kills roots and causes dieback.
References: Josiah and Allen-Reid, 1991; Parrotta and Francis, 1990; Runion et al., 1990; Tourigny, 1987.

Species: *Simarouba glauca* DC. var. *latifolia* Cronq.
Creole Names: fwenn, bwa blan
Family: Simaroubaceae
Insect Pests: Tent caterpillars defoliate seedlings under drought stress in Haiti.
Diseases: Fungal diseases attacking seedlings in Haitian nurseries include damping off and stem blight caused by *Fusarium*.
Reference: Runion et al., 1990.

Species: *Spathodea campanulata* Beauv.
Creole Name: mòtèl etranje
Family: Bignoniaceae
Insect Pests: Insect species of the orders Homoptera, Lepidoptera, Hymenoptera, and Thysanoptera, feed on various parts of the tree in Puerto Rico. A bark beetle, two lepitdopterans and two termite species attack the tree in Uganda. Wet-wood termites (*Nasutitermes costalis* Holmgren) consume dead trees and limbs in Puerto Rico.
Diseases: Butt and heart rot attack trees in Hawaii.
Reference: Francis, 1990g.

Species: *Spondias mombin* L.
Creole Names: monben, monben fran
Family: Anacardiaceae
Insect Pests: A leaf-cutting ant (*Atta cephalotes* L.) attacks the tree in Costa Rica. Fruit flies (*Anastrepha mombinpraeoptans* Seln, *Drosiphila ampelophila* Leow, and *D. repleta* Wollaston) infect fruits in Puerto Rico.
Reference: Francis, 1992c.

Species: *Swietenia macrophylla* G. King
Creole Names: kajou etranje, kajou venezwela
Family: Meliaceae
Insect Pests: The stem borer (*Apate monachus*) attacks both living and dead wood, retards growth, deforms trunks, and makes them susceptible to breakage in high winds. The mahogany shoot borer (*Hypsipyla grandella* Zeller) bores into buds, shoots and stems. The snout beetle (*Pachnaeus litus*) attacks fruit and defoliates in the Caribbean. Wet-wood termites (*Nasutitermes costalis* Holmgren) consume dead branches and occasionally the trunks of the tree in Puerto Rico. Marine borers (*Toredo* spp.) attack the heartwood and powderpost beetles (*Lyctus caribeanus* Lesne) attack the sapwood. The leaf hoppers (*Draculocephala cubana* and *Hortensia similis*) damage and deform leaves of trees in the Caribbean.
Diseases: Damping off (*Fusarium* and *Macrophoma*) is a common problem of nurseries in Haiti. Less common nursery diseases include: leaf spot (*Alternaria*); anthracnose (*Colletotrichum*); leaf blister (*Taphrina*); and stem blight (*Colletotrichum*, *Fusarium*, and *Macrophoma*).
References: CATIE, 1992; Runion et al., 1990; Tourigny, 1987.

Species: *Swietenia mahagoni* (L.) Jacq.
Creole Names: kajou, kajou peyi
Family: Meliaceae
Insect Pests: The mahogany webworm (*Macalla thyrsisalis* Walker) causes defoliation and webbing throughout the Greater Antilles. The mahogany shoot borer (*Hypsipyla grandella* Zeller) bores into buds, shoots, and stems in the Caribbean and *H. robusta* Moore attacks trees in Asia. The coffee tree borer (*Apate monachus* F.) attacks both live and dead trees, penetrating deeply into branches, deforming trunks, and causing them to be susceptible to breakage in high winds. An unidentified shoot borer and caterpillar is reported to attack the tree in Haiti. The snout beetle (*Pachnaeus litus*) attacks the seed capsules and defoliates. Wet-wood termite (*Nasutitermes costalis* Holmgren) con-

sume dead branches and occasionally tree trunks in Puerto Rico. Marine borers (*Toredo* spp.) attack the heartwood and powderpost beetles (*Lyctus caribeanus* Lesne) attack the sapwood. The long-horned beetles (*Acanthoderes circumflexa* and *Plectomerus dentipes*) attack trees in Central America. The leaf hoppers (*Draculocephala cubana* and *Hortensia similis*) damage and deform leaves of trees in the Caribbean.
Other Pests: The tree is occasionally attacked by heavy infestations of mistletoe in Haiti.
Diseases: Heart and butt rot are common in older trees, apparently entering through basal scars and branch stubs. Leaf blight (*Phyllosticta swietenia*) results in defoliation under humid nursery conditions in Puerto Rico. Diseases of seedling nurseries in Haiti include: leaf spot (*Alternaria*); anthracnose (*Colletotrichum*); leaf blister (*Taphrina*); damping off (*Fusarium* and *Macrophoma*); and stem blight (*Colletotrichum*, *Fusarium*, and *Macrophoma*).
References: CATIE, 1992; Francis, 1991d; Josiah and Allen-Reid, 1991; Runion et al., 1990.

Species: *Syzygium jambos* (L.) Alston
Creole Name: pòm wòz
Family: Myrtaceae
Insect Pests: An ant (*Myrmelachista ramulorum* Wheeler) bores into twigs and kills terminal shoots of trees in Puerto Rico. Numerous other insect species feed on leaves, twigs, flowers, and fruit. Wet-wood termite (*Nasutitermes costalis* Holmgren) consume dead wood. The wood is highly susceptible to dry-wood termites (*Cyrptotermes brevis* Walker).
Diseases: The rust fungus (*Puccinia psidii*) attacks leaves of the tree in Brazil. A fungus grows naturally on the upper leaf surface giving them a darker, grayish appearance, but is not known to cause significant damage.
Reference: Francis, 1990h.

Species: *Tabebuia heterophylla* (DC.) Britton
Creole Name: pwaye
Family: Bignoniaceae
Insect Pests: Cutworms (*Hyblaea puera*) destroy seedlings and defoliate trees in Central America and the Caribbean. Larvae of *Bonchys munitalis* bore into concealed areas of the tree to feed.
Reference: CATIE, 1992.

Species: *Tamarindus indica* L.
Creole Name: tamarenn
Family: Fabaceae (=Leguminosae)
Insect Pests: The most serious insect pests in India are the scale insects (*Aonidiella orientalis* Newst., *Aspidiotus destructor* Sign. and *Saisetia oleae* Ol.), mealy bugs (*Nipaecoccus viridis* Newst. and *Planococcus lilacinus* Ckll.), and a borer (*Pachymerus gonagra* Fabr.). Other minor pests in India include bruchid beetles (*Caryoborus gonagra* Fabr.), lac insects (*Kerria lacca* Ker), and bagworms (*Pteroma plagiophleps* Hampson). Beetle larvae of *Lochmaecles* sp. cause damage to branches in Brazil.

Beetles (*Calandra linearis*) attack ripe pods in Florida and Hawaii. Termites (*Cryptotermes hainanensis*) attack the tree in China. Stored fruit is commonly infested with *Paralipsa gularis* Zellar and *Corcyra cephalonia* Stnt. in India. Larvae of the groundnut bruchid beetle (*Caryedon serratus* Oliver) are serious pests that attack the fruit and seed in India and have been reported in Colombia and Puerto Rico.
Diseases: The major diseases in India include: leaf spot (*Bartalinia robillardoides* Tassi, *Exosporium tamarindi* Syd., *Hendersonia tamarindi* Syd., *Pestalotia poonensis* V. Rao, *Phyllosticta tamarindicola* V. Rao, *P. tamarindina* Chandra & Tandon, *Prathigada tamarindi* Muthappa, *Sphaceloma* sp., and *Stigmina tamarindii* (Syd.) Munjal & Kulshreshta); powdery mildews (*Erysiphe polygoni* DC. and *Oidium* spp.); a sooty mold (*Meliola tamarindi* Syd.); stem disease (*Fracchiaea indica* Talde); root and wood rot (*Ganoderma lucidum* (Leyss.) Karst and *Lenzites palisoti* Fr.); stem rot (*Pholiota gollani* P. Henn.); trunk and root rot (*Stereum nitidulum* Berk.); collar rot (*Phytophtora nicotianae* var. *nicotianae*); stem canker (*Hypoxylon nectrioides* Speg.); and a bark parasite (*Myriangium tamarindii* Tendulkar).
References: Morton, 1958; Parrotta, 1990.

Species: *Tectona grandis* L.
Creole Name: tèk
Family: Verbenaceae
Insect Pests: Termites (*Neotermes castaneus*) attack both live and dead wood in Central American and the Caribbean.
Reference: CATIE, 1992.

Species: *Terminalia catappa* L.
Creole Name: zamann
Family: Combretaceae
Insect Pests: Thripids (*Selenothrips rubrocinctus* Giard) cause leaf discoloration and premature leaf fall of trees in Puerto Rico. Beetles, grasshoppers, leaf rollers,and leaf miners defoliate young trees in India and Malaya. The tree is a major host of the Mediterranean fruit fly (*Ceratitis capitata*) in Costa Rica. The tree is susceptible to attack by dry-wood termites (*Cryptotermes brevis* Walker) and powder post beetles (*Lyctus* spp.) in the Caribbean.
References: Francis, 1989c; Morton, 1985.

Species: *Theobroma cacao* L.
Creole Name: kakawo
Family: Sterculiaceae
Insect Pests: The citrus aphid (*Toxoptera aurantium* B. de F.) shrivels young leaves, reduces vigor, and promotes development of black sooty mold in Haiti. Leaf-cutting ants (*Atta* spp.) harvest and defoliate the tree, particularly as a seedling. Larvae of *Xyleborus* spp. bore into the trunk. The pod borer (*Acdrocercops cramerella*) bores into the fruits.
Diseases: The most important diseases in the Western Hemisphere include: witches' broom (*Marasmius perniciosus* Stathel.), resulting in abnormal branching and premature fruit drop; Monilia pod rot (*Monilia* sp.); and black pod rot (*Phytophtora palmivo-*

ra Butl.). A serious disease in W. Africa is swollen shoot caused by viruses. The infected branches of the tree swell and small yellow spots appear all over the mature leaves. Eventually, the leaves drop and the branches die. Cushion gall (*Fusarium decemcellulare* and *F. roseum*) forms a gall on seedlings and adult trees through seeds and wounds.
References: Mortensen and Bullard, 1970; Tourigny, 1987.

Species: *Thrinax morrisii* H. Wendl.
Creole Name: latanye lamè
Family: Arecaceae (=Palmae)
Insect Pests: Larvae of the palm bruchid beetle (*Caryobruchus gleditsiae* Johansson & Linné) feed in the seed and exit as adults that feed on the flowers, nectar, and pollen.
Reference: Johnson et al., 1995.

Species: *Trichilia hirta* L.
Creole Name: monben bata
Family: Meliaceae
Insect Pests: Larvae of *Hypsipyla grandella* bore into buds and shoots of the tree to feed.
Reference: CATIE, 1992.

Species: *Vitex* spp.
Creole Names: bwa leza, bwa savann, grigri
Family: Verbenaceae
Insect Pests: Cutworms (*Hyblaea puera*) destroy seedlings and defoliate trees in the Central America and the Caribbean.
Reference: CATIE, 1992.

Species: *Zanthoxylum* spp.
Creole Name: bwa pine
Family: Rutaceae
Insect Pests: The lepidopteran pest (*Papilio pelaus imerius* Godard) eats the leaves of *Z. martinicense* in Trinidad and Tobago. Snout beetles (*Apion martinezi*) bore into fruits and defoliate in the Caribbean. Wet-wood termites (*Nasutitermes costalis* Holmgren) attack dead limbs and exposed trunks. Wood is extremely susceptible to dry-wood termites (*Cryptotermes brevis* Walker) and several genera of pinhole borers in the Caribbean.
Other Pests: Numerous bird species relish the oily seed in Haiti and may aid in dispersal.
Diseases: Heart and butt rots of unidentified fungal pathogens attack older trees in its native range.
References: CATIE, 1992; Francis, 1991e.

19 Wood Properties and Energy Values

The most widely used product of trees is wood. Though many of the tree species in Haiti are harvested indiscriminately during land-clearing activities, others are cultivated because of their wood quality. General utility species combine adequate form with structural strength and durability. Those harvested for high-quality craftsmanship are selected for their combination of beauty, working properties and stability. The best charcoal species are generally those with the densest wood, with some species achieving high densities at remarkable growth rates. As wood properties vary, so does the wood quality that determines the species' usefulness to society.

The information summarized below is arranged in **Tables 19.1** and **19.2**, compiling the available information on wood properties and energy values. Each table is arranged alphabetically by species and should be a helpful guide to the diversity found in Haiti. Introduced species are included for those that have become naturalized in Haiti.

Wood Properties: Two-thirds of the tree families and genera known to occur in Haiti are represented in **Table 19.1** for major wood property categories. Data is unavailable or incomplete for many of the lesser-known and -utilized species, some of which play an important role in local areas of the country. The information has been compiled from the literature for the more common, internationally known species. The literature includes *Commercial Timbers of the Caribbean* by F. R. Longwood (1971); *Common Trees of Puerto Rico and the Virgin Islands, Volume I* by E. L. Little, Jr. and F. H Wadsworth (1964) and *Volume II* by E. L. Little, Jr., R. O. Woodbury and F. H. Wadsworth (1974); and *Tropical Timbers of the World* by M. Chudnoff (1984). Previously unpublished data from Haiti has been reviewed to broaden the information base.

Wood characteristics include sapwood (**S**) and heartwood (**H**) color, grain, odor, texture, and other characteristics that describe the wood. *Specific gravity* is a measure of wood density calculated as the ratio of oven-dry weight to green volume. Specific gravity should be stated as a range of values, though it is not uncommon that only an average value is published in the literature. *Durability* is a measure of the resistance of the heartwood to decay fungi, not necessarily to insect attack. It is assumed that the wood is in contact with the soil. *Shrinkage* values are given for radial (**R**), tangential (**T**), and volumetric (**V**) changes in dimension, as a percentage, from green to oven-dry conditions. Generally, woods with low shrinkage values exhibit higher dimensional stability after seasoning. *Hardness* is a measure of resistance to indentation and ability to withstand abrasion. Janka side hardness is the pressure, in pounds, required to embed a 11.3 mm diameter steel ball to a depth of 5.6 mm on the side-grain of wood dried to 12% moisture content (Chudnoff, 1984).

Energy Values: The Cul-de-Sac Plain of Haiti and the Mao region of the Dominican Republic are important sources of charcoal and fuelwood for the urban markets of Port-au-Prince and Santo Domingo. Studies were conducted in these areas to determine the heat of combustion values for the common species being harvested in these regions (Maxwell, 1985; Timyan, 1988). These values (**Table 19.2**), measured in megajoules (mj) kg^{-1}, were determined using standard procedures with a bomb calorimeter as described in Maxwell (1985).

The maximum amount of heat available under oven-dry conditions is given in the second column. Standard error of the estimates follows in parentheses. The heat available at 14% moisture content is shown in the third column. This is a close approximation of the heat values provided by air-dry fuelwood. For comparative purposes, one barrel of oil is approximately equal to 6,100 mj of energy. Pierre-Louis (1990) calculated that 1.7 kg of *Prosopis juliflora* wood at a moisture content of 15% is equivalent to the heating value of a liter of fuel oil. A dry kg of wood yields the same amount of heat as 0.3 kg of butane gas.

Table 19.1 Summary of wood properties for tree and shrub species found in Haiti.

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Acacia auriculiformis zakasya	S - pale brown, H - pale brown to dark amber red; hard, fine-grained, attractive figure, finishes well, little checking.	0.60–0.80	—	—	—
Acacia farnesiana zakasya jòn	S - white to yellowish, H - red to reddish brown; hard, close-grained.	0.77–0.84	Durable	—	—
Acacia macracantha zakasya pikan	—	0.80–1.07	Very Durable	—	—
Acacia mearnsii	S/H - pale brown with pinkish tinge; medium luster, odorless, uniform and fine texture, interlocked grain, easy to work, takes a high polish.	0.52–0.65	Nondurable	—	1,750 Hard
Acacia melanoxylon	S - straw-colored, H - golden to dark brown; lustrous, odorless, fine to medium texture, straight, interlocked or wavy grain, dark streaks.	0.52–0.65	Moderately Durable	R - 3.4 T - 9.0	1,100 Slightly Hard
Acacia muricata	S - light brown, H - reddish brown; hard, strong.		Durable	—	—
Acacia nilotica	S - whitish, H - pinkish to reddish brown w/ darker steaks; straight to cross grain, fine texture, hard, tough and strong.	0.80	Durable	—	—
Acacia scleroxyla bwa savann, kandelon, tandrakayou	—	0.88–0.94	—	—	—
Acacia tortuosa zakasya nwa, zakasya wouj	S - light brown, H - dark to reddish brown; hard.	—	—	—	—
Acnistus arborescens bèladonn, fèy doulè	S/H - light brown; hard.	—	—	—	—

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Acrocomia aculeata koko ginen	Very hard wood from the outer part w/ black markings.	—	—	—	—
Adelia ricinella grenad mawon	S/H - light brown; hard.	—	—	—	—
Adenanthera pavonina reglis	S - light brown, H - reddish; hard, strong.	0.60–0.80	Durable	—	—
Albizia guachapele	S - whitish, H - light yellowish to rich dark brown and streaked; medium luster, odorless, medium to coarse texture, deeply interlocked grain, decorative, difficult to work, finishes well.	0.55–0.60	Moderately Durable	R - 2.9 T - 5.8 V - 9.6	1,240–1,440 Hard
Albizia lebbeck tcha tcha	S - whitish, H - light orange brown to brown; golden luster, no odor, medium to coarse texture, interlocked grain, easy to work	0.43–0.68	Durable	R - 2.9 T - 4.5 V - 7.6	1,040 Slightly Hard
Albizia procera	S - whitish, H - light yellowish brown to light brown; moderately hard, straight to interlocked grain, strong.	0.60–0.90	Moderately Durable	—	—
Albizia saman saman	S - yellowish, H - light to golden brown, streaked; medium luster, no odor, medium to coarse texture, straight or cross grained, takes a fine polish.	0.42–0.64	Durable	R - 2.0 T - 3.4 V - 6.0	850 Soft
Alchornea latifolia bwa krapo, fèy krapo, pwa vach	S - whitish to light brown, H - light brown; soft, strong, medium texture, straight to slightly wavy grain, without growth rings.	0.39	Nondurable	—	—
Alchorneopsis floribunda	S - whitish, H - pale brown; soft.	0.40–0.50	Perishable	—	—
Aleurites moluccana nwazèt	S/H - whitish; soft.	—	—	—	—
Allophylus occidentalis twa fèy, twa pawòl	S/H - light brown; hard.	—	—	—	—
Alnus acuminata	S/H - light to reddish brown; lustrous surface, fine texture, straight grain, no odor.	0.50–0.60	Nondurable	—	—
Amyris spp. bwa chandèl, twa pawol	S - whitish, H - light yellow; very resinous w/ strong odor, very hard, fine-grained, strong, takes a good polish.	0.79-1.11	Very Durable	—	—
Anacardium occidentale nwa kajou	S/H - whitish, grayish, reddish-brown, pinkish; moderately strong and hard, irregular grain, easy to work.	0.40–0.52	—	—	—
Andira inermis bwa palmis, pwa palmis	S - pale brown to grayish yellow, H - yellowish-brown to dark reddish brown; distinctive figure, low luster, odorless, texture very coarse, moderately irregular grain, easily worked, strong.	0.64	Moderately Durable	R - 4.6 T - 9.8 V - 12.5	1,600 Hard
Annona spp. kowosòl, kachiman	S - whitish to light brown, H - brown; soft and weak.	0.40–0.50	Nondurable	—	—
Antirhea lucida bwa patat, zaboka mawon	S/H - light brown; hard.	—	—	—	—

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Araucaria heterophylla arokariya	S/H - cream to light tan; lustrous, fine and even texture, no odor, knotty, straight grain, easy to work, sapwood vulnerable to stain.	0.45	Nondurable	R - 3.5 T - 5.3 V - 8.9	650 Moderately Soft
Ardisia obovata	S - pinkish, H - light reddish brown; hard, heavy.	—	—	—	—
Artocarpus spp. jakiye, laba pen, lam veritab	S - light yellow to yellowish brown, H - yellow to golden brown, sometimes with olive green tinge; moderate luster, coarse texture, interlocked grain, high silica content.	0.27–0.40	Variable: Perishable to Highly Durable	R - 2.9 T - 5.5	1,250 Moderately Hard
Averrhoa carambola karambola	S/H - whitish; soft.	—	—	—	—
Avicennia germinans mang nwa	S - light brown, H - yellow to dark brown; coarse texture, interlocked and uneven grain, very hard, prominent growth rings.	0.8–1.0	—	—	—
Azadirachta indica nim	S - straw colored to pale red, H - reddish brown; dull to medium luster, faint cedary smell, moderately coarse texture, interlocked grain, works well, fine smooth finish.	0.52–0.65	Moderately Durable	R - 2.2 T - 4.3 V - 6.5	1,460 Hard
Bauhinia monandra de jimèl, jimèl	S - whitish, H - brown; hard.	—	—	—	—
Bauhinia variegata	S/H - whitish to light brown; soft.	—	—	—	—
Beilschmiedia pendula bwa nwa	S - pale brown, H - pinkish brown, moderately hard and strong.	0.54	—	—	—
Bernardia dichotoma	S/H - light brown; hard.	—	—	—	—
Bixa orellana woukou	S - whitish, H - light brown or yellowish; soft, porous, weak.	0.40	Nondurable	—	—
Bocconia frutescens bwa jònis, bwa kòk denn	H - brown to orange red; soft w/ a large pith.	—	—	—	—
Bontia daphnoides doliv bata, mang mawon	S/H - light gray brown; hard, fine texture, fairly straight grain, spicy odor.	—	—	—	—
Bourreria spp. kafe mawon, mapou gri	S/H - light brown; hard.	—	—	—	—
Brunellia comocladiifolia bwa mabèl	S/H - light brown; hard.	0.30	—	—	—
Buchenavia capitata bwa mago, grigri jòn	S - light yellow brown, H - yellowish brown; high luster, spicy odor, medium to coarse texture, roey or straight grain, strong, distinct growth rings.	0.52–0.65	Moderately Durable	R - 2.8 T - 5.7 V - 8.6	1,220 Hard

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Bucida buceras grigri mòn	S - yellowish, light brown, H - yellowish to dark greenish brown, olive-hued; roey grain, high luster, tarry odor, fine to medium texture, very hard, very strong.	0.75–0.93	Durable	R - 4.4 T - 7.9 V - 12.2	—
Bumelia cubensis bwa denn	S/H - light brown; hard.	—	Durable	—	—
Bumelia salicifolia koma wouj, sip	S - light brown, H - reddish or dark brown; medium to fine texture, fairly straight grain.	0.90–0.99	Moderately Durable	—	—
Bunchosia glandulosa bwa kaka, bwa poulèt	S - light brown; hard.	—	—	—	—
Bursera simaruba gomye	S/H - white, yellowish or light brown; moderate luster, no odor, fine to medium texture, straight to irregular grain, prone to sap-stain discoloration.	0.26–0.40	Perishable	R - 2.6 T - 4.2 V - 7.3	270 Extremely Soft
Buxus spp. bwa ti fèy	S/H - light yellow; hard, very fine texture	—	—	—	—
Byrsonima crassifolia	H - reddish brown; hard, strong, brittle.	0.70	Moderately Durable	—	—
Byrsonima lucida	S - light brown, H - dark brown; hard, fine texture.	—	—	—	—
Byrsonima spicata liann kolik, liann towo, towo tig	S - gray to reddish-brown, H - pale to dark reddish brown with a purple cast; medium luster, no odor, fine texture, straight to slightly interlocked grain.	0.52–0.65	Nondurable	R - 4.0 T - 8.2 V - 12.2	1,530 Hard
Caesalpinia coriaria divi divi, gwatapana	S - yellowish- or pinkish-white, H - dark red, chocolate brown to nearly black; medium luster, no odor, medium to coarse texture, straight to irregular grain.	0.90–1.20	Very Durable	—	—
Callistemon citrinus	S - light brown; hard.	—	—	—	—
Calophyllum calaba damari	S - pink to yellowish pink, H - pink to rich reddish brown; medium to low luster, no odor, uniform, medium texture, generally interlocked grain.	0.40–0.52	Moderately Durable	R - 4.6 T - 8.0 V - 13.6	1,150 Moderately Hard
Calotropis procera koton swa	S/H - whitish; soft.	—	—	—	—
Calycogonium spp.	S - yellow, H - pinkish brown to pale brown, streaked; hard and strong, fine texture, straight grain.	0.74	Nondurable	—	—
Calyptranthes spp. ti bwa pen	S - light brown, H - brown tinged, sometimes tinged w/ red; hard, fine grain.	—	—	—	—
Cananga odorata ilan ilan	S/H - pinkish buff, yellowish to light gray; coarse texture, straight grain, no odor, easy to work, finishes smoothly.	0.30	Perishable	R - 3.3 T - 8.0	330 Very Soft
Canella winterana kanèl	S - olive brown, H - blackish; very hard.	0.90–1.00	—	—	—
Capparis cynophallophora bwa dajan, bwa kaka	S - light brown, H - yellow to reddish tinged; hard.	—	—	—	—

Calliandra Calothyrsus

0.5-0.8
0.51-0.78
0.62 midrange S.g.

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Capparis flexuosa bwa kaka	S - light brown; hard.	0.79–0.86	—	—	—
Capparis frondosa bwa bourik, sentèspri	S/H - whitish; soft.	—	—	—	—
Capparis hastata	S/H - light brown; hard.	—	—	—	—
Capparis indica	S - light brown; hard.	—	—	—	—
Carapa guianensis	S - pale brown or grayish, H - light salmon to reddish brown; low to high luster, odorless, fine to coarse texture, straight or roey grain.	0.52–0.65	Moderately Durable	R - 3.1 T - 7.6 V - 10.4	1,220 Hard
Carica papaya papay	S/H: whitish to pale yellow; soft, lightweight and fleshy, center of trunk is hollow.	—	—	—	—
Casearia spp. bwa nègès, kafe mawon	S - light brown, H - dark brown, hard, fine texture, brittle.	0.70	—	—	—
Cassia fistula kas dou, kas panyòl	H - reddish; very hard and strong.	0.90	—	—	—
Cassia grandis baton kas	S - whitish to brownish, H - variegated brown w/ streaks, often purplish; hard and tough, coarse texture, straight to very irregular grain.	—	—	—	—
Cassia javanica kas	S - whitish; soft.	—	—	—	—
Cassine xylocarpa	S/H - light brown; hard, fine texture, strong.		Durable		—
Cassipourea guianensis	S - yellowish, H - pale brown; moderately hard, strong, fine texture.	—	Moderately Durable	—	—
Castilla elastica subsp. *elastica*	H - yellow brown; moderately soft.	—	Nondurable	—	—
Casuarina spp. kazòwina, pich pen	S - buff colored, H - light red to reddish brown; low luster, odorless, fine texture, straight to interlocked grain, some species have wide rays and attractive figure, splits during drying, difficult to work, finishes smoothly.	0.78–1.20	Nondurable	R - 6.4 T - 11.7 V - 17.6	3,200 Very Hard
Catalpa longissima chenn	S - light to pinkish brown, H - grayish to light brown with darker lines; fairly high luster, kerosene odor, medium to coarse texture, straight grain.	0.60–0.80	Durable	—	—
Cecropia peltata twompèt	S/H - whitish to pale brown or oatmeal; fairly lustrous, no odor, coarse texture, generally straight grain, soft, weak and brittle.	0.26–0.40	Perishable	R - 2.0 T - 6.2 V - 8.3	320 Very Soft
Cedrela odorata sèd	S - pinkish to white, H - pinkish- to reddish-brown; golden luster, cedary odor, fine to coarse texture, usually straight, sometimes interlocked grain.	0.37–0.60	Moderately Durable	R - 4.2 T - 6.3 V - 10.3	600 Soft
Ceiba pentandra mapou	S/H - pinkish-white to ashy brown; low luster, no odor, coarse texture, straight to irregular grain, soft and weak, prone to sap stain discoloration.	0.23–0.40	Perishable	R - 2.1 T - 4.1 V - 7.7	240 Extremely Soft

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Celtis trinervia bwa fèy blanch, bwa rai	S/H - yellowish; hard.	—	—	—	—
Cestrum diurnum	S/H - whitish; hard.	—	—	—	—
Cestrum macrophyllum	S/H - whitish to light brown; slightly soft.	—	—	—	—
Chionanthus compactus	H - pinkish; hard.	—	—	—	—
Chionanthus domingensis kaypon	S - light brown; hard, takes a fine polish.	0.90	Durable	—	—
Chlorophora tinctoria bwa jòn	S - white, H - bright to golden yellow; high luster, no odor, medium to fine texture, nearly straight to interlocked grain.	0.65–0.85	Very Durable	R - 3.4 T - 5.4 V - 7.8	2,380 Extremely Hard
Chrysobalanus icaco ikak	S/H - light brown; hard.	0.80	—	—	—
Chrysophyllum argenteum ti kaymit	S - light brown; hard and tough, strong.	—	Durable	—	—
Chrysophyllum cainito kaymit	S/H - reddish brown to dark brown; strong, fine to medium texture, fairly straight grain.	0.70	Nondurable	R - 6.4 T - 8.6 V - 15.2	—
Chrysophyllum oliviforme kaymit mawon	S/H - light brown; hard and strong.	0.90	—	—	—
Cinnamomum spp. lorie	S - whitish or brownish, H - brownish yellow w/ green cast, or olive to light olive brown to blackish brown, medium to coarse texture, satiny or silky luster, straight and often roey grain, spicy odor, excellent working qualities.	0.43–0.61	Durable	R - 3.4 T - 6.0 V - 9.8	1,060 Slightly Hard
Cinnamomum elongatum lorie kanèl, lorie ti fèy	S - light brown, H - pinkish w/ darker stripes, moderately soft and strong, straight to irregular and tightly interlocked grain, medium texture, medium to high luster.	0.47	Moderately Durable	—	—
Cinnamomum verum kanèl	S - light brown, slightly soft.	—	—	—	—
Citharexylum caudatum kafe mawon, kafe sovaj	S/H - light brown; hard.	—	—	—	—
Citharexylum fruticosum grenad mawon, kafe mawon, madam klòd	S/H - ivory to light tan; close-grained, hard, strong, sands to a fine finish.	0.65–0.95	Durable	—	—
Citrus spp. chadèk, sitwon, zoranj	S - whitish, H - light yellow, yellowish brown, light brown; hard and fine-grained, prominent growth rings.	—	—	—	—
Clusia clusiodes	S/H - light brown; hard.	0.90	—	—	—

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Clusia minor bwa pal, figye modi	S - whitish; soft.	—	—	—	—
Clusia rosea bwa pal, figye modi mawon	S - light reddish brown, H - reddish brown; hard, strong, medium to fine texture, straight grain.	—	—	—	—
Coccoloba costata rezen	S/H - whitish; slightly soft.	—	—	—	—
Coccoloba diversifolia mevis, rezen, rezen bouzen	S - whitish or light brown, H - dark reddish brown; hard, strong, brittle.	0.80	—	—	—
Coccoloba leoganensis	—	0.82–0.97	—	—	—
Coccoloba microstachys	S/H - light brown; hard.	—	—	—	—
Coccoloba pubescens rezen gran fèy	S - whitish, H - reddish brown w/ pores filled with dark gum; very hard.	1.00–1.10	Durable	—	—
Coccoloba swartzii	S - whitish; hard.	0.70	—	—	—
Coccoloba uvifera rezen fè, rezen lamè	S - light brown, H - reddish brown; hard, takes a fine polish.	0.70	—	—	—
Coccoloba venosa	S/H - whitish; hard.	—	—	—	—
Cochlospermum vitifolium	S/H - whitish to light brown; soft and spongy.	—	Perishable	—	—
Cocos nucifera kokoye	Outer 7.5–10 cm, very hard and heavy. Center, softer and lighter, prone to sap stain discoloration.	4-fold decrease from cortex to center	Nondurable	—	—
Coffea arabica kafe	S/H - whitish; hard, heavy and tough.	—	—	—	—
Colubrina arborescens bwa ple, kapab	S - whitish or light brown, H - yellowish brown; hard.	0.55–0.82	Moderately Durable	—	—
Colubrina elliptica bwa mabi	S - light brown, H - dark brown; hard and strong.	0.80	Moderately Durable	—	—
Comocladia spp. breziyèt, bwa panyòl	S/H - light brown; hard.	—	—	—	—
Conocarpus erectus mang nwa	S - light brown, H - yellow brown; very hard, strong, fine texture.	0.90–1.00	Very Durable	—	—
Cordia spp. (dark-wooded) bwa denn, ti soley	S - grayish to yellowish, H - reddish brown with black streaks and variegations; variable luster, mildly fragrant, fine to medium texture, variable grain.	0.52–0.78+	Very Durable	R - 4.0 T - 7.4 V - 11.6	2,200 Very Hard
Cordia alba bwa chik	S/H - light brown; soft.	—	Nondurable	—	—

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Cordia alliodora bwa soumi, chenn kapawo	S - light yellowish brown, straw color, H - yellowish to brown, streaked and variegated; high, rich and golden luster, spicy scent, fine to coarse texture, straight and shallow interlocked grain.	0.40–0.52	Durable	R - 3.4 T - 7.1 V - 9.2	1,000 Slightly Hard
Cordia collococca twa pye	S/H - whitish brown; soft.	—	—	—	—
Cordia sebestena kòkèliko, ti soley	S - light brown, H - dark brown; fine texture.	0.70	—	—	—
Cordia sulcata paresòl	S/H - light brown; soft, easily worked.	0.60	Nondurable	—	—
Crescentia cujete kalbas	S - pinkish to reddish brown, H - light brown; hard.	0.50–0.80	—	—	—
Crossopetalum rhacoma sewal	S - light brown; hard.	—	—	—	—
Cupania americana satanye, twazokòt	S/H - light brown; hard.	0.40	—	—	—
Cupressus lusitanica siprè	S - whitish to pale yellowish and pinkish brown, H - yellowish or pinkish brown; high luster, fragrant, fine and uniform texture, straight to irregular grain, soft.	0.40–0.52	Moderately Durable	V - 8.0	460 Very Soft
Cynometra portoricensis	S - whitish; hard.	—	—	—	—
Cyrilla racemiflora	S - light brown, H - dark reddish brown; fine texture, heavily interlocked grain, prominent growth rings.	0.53	—	—	—
Dalbergia sisoo	S - white to pale brownish white, H - golden brown to dark brown w/ darker streaks; very hard and strong, medium coarse texture, close and interlocked grain.	0.78–0.83	Very Durable	—	—
Delonix regia flambwayan	S - light yellow, H - yellowish brown to light brown; soft, coarse grain, weak, brittle.	0.80	—	—	—
Dendropanax arboreus bwa nègès	S/H - cream colored to grayish yellow; low to medium luster, no odor, medium and uniform texture, straight grain.	0.40–0.52	Perishable	R - 5.1 T - 8.3 V - 13.8	725 Soft
Dendrosicus latifolius kalbas zombi	H - light brown or pinkish w/ orange tinge; hard.	—	—	—	—
Diospyros spp. bwa raid, ebenn	S - pale red brown, H- jet black or black brown or streaked; very fine texture, straight to slightly interlocked grain, takes a fine polish, irritating sawdust.	0.60–0.80	Very Durable	R - 5.5 T - 6.5	3,220 Very Hard
Ditta myricoides	S - light brown; hard, fine texture.	—	—	—	—
Dodonaea viscosa mang ti fèy	S - light brown, H - dark brown; hard.	—	—	—	—
Drypetes spp. bwa kòtlèt, labou kochon	S/H - white to light brown; hard.	—	—	—	—

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Drypetes lateriflora bwa kòtlèt	S - light brown or yellowish, H - dark brown; hard, brittle, fine texture.	—	—	—	—
Duranta repens bwa jambet, mayi bouyi	S/H - light brown; hard.	—	—	—	—
Enterolobium cyclocarpum bwa tanis wouj	S - whitish, H - reddish-brown; pungent dust, coarse texture, interlocked, ribbon grain, good luster.	0.34–0.65	Nondurable	R - 2.0 T - 5.2 V - 7.2	520 Soft
Erithalis fruticosa	H - light brown w/ dark streaks; very hard, fine textures, resinous.	—	Durable	—	—
Erythrina berteroana brikal	S/H - whitish; soft and weak.	0.30	—	—	—
Erythrina crista-galli	S/H - whitish; soft and weak.	—	—	—	—
Erythrina poeppigiana bwa mòtèl	S/H - whitish; soft.	—	Perishable	—	—
Erythrina variegata baton sòsiye	S/H - light brown; soft.	—	—	—	—
Erythroxylum areolatum arabo, nago, papelit	S - light brown, H - rich reddish brown or chocolate brown w/ oily appearance; very fine grain, very hard, strong.	—	Very Durable	—	—
Erythroxylum rotundifolium	S/H - whitish to light brown; hard.	—	—	—	—
Eucalyptus camaldulensis kaliptis	S/H - light red to pinkish brown; close texture, interlocked to wavy grain, hard, tends to warp on drying.	—	Durable	—	—
Eucalyptus globulus kaliptis	S - grayish white, H - pale yellow brown; low luster, odorless, coarse texture, interlocked grain.	0.67–0.80	Moderately Durable	R - 8.0 T - 12.0	1,540–2,580 Hard
Eugenia axillaris meriz	S - light brown, H - brown, tinged w/ red; hard, fine texture, strong.	—	—	—	—
Eugenia biflora	S - light brown; hard.	—	—	—	—
Eugenia confusa	S/H - light brown; hard.	—	Durable	—	—
Eugenia domingensis brinyòl, bwa kayman	S - light brown; hard and strong.	—	—	—	—
Eugenia foetida bwa ti fèy	S - light brown, H - dark reddish brown; hard, fined-grained.	—	—	—	—
Eugenia monticola bwa dinn ti fèy, ti bwa denn	S/H - light brown; hard.	—	—	—	—
Eugenia pseudopsidium	S - light reddish brown, H - reddish brown; hard.	1.30	—	—	—
Eugenia rhombea bwa mit	S/H - light brown; very hard.	—	Nondurable	—	—

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Euphorbia spp. gad mezon, kandelab	S - whitish; very soft.	—	—	—	—
Exostema caribaeum kenkena peyi, kininn	S - yellow, H - light brown with yellow streaks; hard and strong, resinous.	0.98–1.13	Durable	—	—
Exostema ellipticum	S/H - light brown; hard.	—	—	—	—
Exothea paniculata bwa koulèv, bwa milèt, kenèp mawon	S - whitish to light brown, H - reddish brown; hard, fine texture, takes a fine polish.	—	—	—	—
Faramea occidentalis	S/H - light brown or yellow; hard, takes a good polish.	—	—	—	—
Ficus citrifolia	S - whitish, H - light brown; soft, tough and strong.	0.40	Nondurable	—	—
Ficus elastica kawotchou	S - whitish; moderately hard.	—	—	—	—
Ficus microcarpa	S - whitish, H - light brown; hard, distinct growth rings.	0.50	Nondurable	—	—
Ficus trigonata figye wouj	S - whitish; soft.	—	—	—	—
Genipa americana var. *caruto* jinpa	S - cream-colored, H - light yellowish brown; medium luster, no odor, fine texture, straight to irregular grain, attractive striped figure.	0.52–0.66	Perishable	R - 4.6 T - 9.1 V - 13.5	1,410 Hard
Gesneria spp.	S/H - light brown, hard.	—	—	—	—
Gliricidia sepium lila etranje, piyon	S - light brown, H - dark to reddish brown; hard and strong, coarse texture, irregular grain, not easily worked, takes a good polish.	0.47–0.75	Moderately Durable	—	—
Gmelina arborea melina	S/H - pale straw yellow; lustrous, coarse texture, interlocked to wavy grain, easy to work, finishes smoothly.	0.40–0.52	Moderately Durable	R - 2.4 T - 4.9 V - 8.8	525–720 Soft
Gomidesia lindeniana	S/H - light brown; hard.	—	—	—	—
Grevillea robusta grevilya	S - cream colored, H - yellow brown; lustrous, odorless, medium to coarse texture, straight to wavy grain, prominent figure, works well.	0.40–0.52	Moderately Durable	R - 2.7 T - 7.7	840 Soft
Guaiacum spp. gayak	S - pale yellow or cream-colored, H - dark greenish brown to black; slight scent, resinous, very fine uniform texture, interlocked grain.	0.89–1.30	Very Durable	—	4,500 Extremely Hard
Guapira discolor	S - light brown; soft.	—	—	—	—
Guapira fragrans	S - whitish; soft.	—	—	—	—
Guapira obtusata bwa kasav silvès	S/H - light brown with darker streaks; hard.	—	—	—	—
Guarea spp. bwa wouj	S - whitish to pink, H- pinkish to deep reddish brown; low luster, mildly fragrant, medium texture, straight grain, brittle.	0.40–0.65	Durable	R - 3.4 T - 7.0 V - 11.2	800–1,330 Slightly Hard

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Guatteria blainii bwa nwa	S - light brown or whitish; hard.	0.80	—	—	—
Guazuma ulmifolia bwa dòm	S - light brown, H - pinkish to brownish; moderately soft, easily worked.	0.50	Nondurable	—	—
Guettarda spp. kal nwa	S/H - light brown; hard, fine texture.	0.80–0.83	—	—	—
Gymindia latifolia	S/H - light brown; hard.	—	—	—	—
Gymnanthes lucida bwa mabre	S - whitish or yellowish, H - light olive, streaked w/ dark brown; very fine grain, very hard, takes a fine polish.	1.10	Durable	—	—
Haematoxylon brasiletto kampèch	Similar to *H. campechianum*	0.71–0.90	—	—	—
Haematoxylon campechianum kampèch	S - whitish to straw-colored, H - bright orange-red; medium to fine texture, odor of violets, irregular grain, brittle, strong and hard, takes a fine polish.	0.54–0.95	Very Durable	—	—
Haenianthus salicifolius	S/H - light brown; hard.	—	—	—	—
Hamelia patens flè koray, koray wouj	S/H - light brown; hard.	—	—	—	—
Helicteres jamaicensis bwa dòm, jèson, koton rat	S/H - yellowish; hard.	—	—	—	—
Henriettea fascicularis ti grenn	H - light yellowish brown; hard.	—	—	—	—
Hernandia sonora	S/H - grayish white w/ faint olive streaks, firm, soft, easily worked.	0.29	Perishable	—	—
Hevea brasiliensis kawotchou	S /H - light brown with pinkish tinge; low luster, sour smell, coarse and even texture, straight grain, prone to sap stain discoloration.	0.40–0.52	Perishable	R - 2.3 T - 5.1	—
Hibiscus elatus maho ble	S - white, H - grayish-brown or olive, variegated with shades of purple or metallic blue; dull luster, no odor, medium texture, straight grain.	0.52–0.65	Durable	—	—
Hibiscus tiliaceus gran maho, maho fran	S - whitish, H - dark greenish brown; moderately soft and porous.	0.60	Durable	—	—
Hippomane mancinella mancheni, manseniye	S - light brown or yellowish, H - dark brown; hard, strong, takes a good polish.	0.50	Moderately Durable	—	—
Hirtella triandra	S/H - light brown; hard.	—	—	—	—
Homalium racemosum	S - golden yellow, H - grayish-brown to reddish-brown w/ darker streaks and patches, hard, moderately strong, fine texture, interlocked grain.	0.77	Moderately Durable	R - 7.0 T - 9.6 V - 17.2	2,050 Very Hard

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Hura crepitans rabi, sabliye	S - yellowish white, H - pale yellowish brown or olive gray; high luster, no odor, fine to medium texture, straight to interlocked grain, brittle.	0.26–0.40	Nondurable to Perishable	R - 2.7 T - 4.5 V - 7.3	550 Soft
Hyeronima spp.	S - pinkish white to light brown, H - light reddish brown to dark red; low luster, no odor, coarse texture, interlocked grain, distinctive markings on tangential cuts, finishes well and takes a good polish.	0.52–0.78	Very Durable	R - 5.4 T - 11.7 V - 17.0	1,700 Very Hard
Hymenaea courbaril koubari, pwa konfiti	S - white, gray or pinkish, H - salmon red to orange brown w/ blackish streaks; golden luster, no odor, medium to coarse texture, interlocked grain, strong and tough.	0.71–0.82	Very Durable	R - 4.5 T - 8.5 V - 12.7	2,350–3,290 Very Hard
Hypelate trifoliata chandèl mawon	H - dark brown; hard.	—	Durable	—	—
Ilex spp. wou	S - whitish, H - light brown; hard, fine texture, tough, easily worked.	0.77	—	—	—
Inga fagifolia	S - whitish, H - pale reddish brown, streaked; moderately hard, coarse texture, strong and tough.	0.62	Nondurable	—	—
Inga fastuosa	H - light brown; hard.	—	—	—	—
Inga vera spp. *vera* pwa dou, sikren	S - whitish, H - pale to golden brown, streaked; moderately hard, strong and tough.	0.57–0.75	Nondurable	—	—
Ixora ferrea	S - light brown; hard, strong and tough.	—	—	—	—
Jacaranda mimosifolia jakaranda	S - light brown; soft.	—	—	—	—
Jacquinia spp. bwa bande, bwa kasav	S/H - yellowish or light brown; hard.	—	—	—	—
Jatropha spp. fèy medsen, papay sovaj	S/H - white to light brown; soft and spongy.	—	—	—	—
Juglans jamaicensis nogal	S - whitish, H - chocolate brown with purplish cast; high luster, mild odor, coarse texture, straight to irregular grain.	0.40–0.52	—	R - 2.8 T - 5.5	—
Krugiodendron ferreum bwa fè	S - light brown, H - orange brown to dark brown, streaked; very hard, fine texture.	0.96–1.04	Very Durable	—	—
Laetia procera	S/H - light yellow to orange; soft.	0.75	—	—	—
Lagerstroemia speciosa	S - light yellow brown to grayish white, H - light red to reddish brown; fine to moderately coarse texture, lustrous, straight to wavy grain, works well, takes a good polish	0.55	Moderately Durable	R - 4.4 T - 6.8 V - 12.7	1,055 Hard
Laguncularia racemosa mang blan	S - light brown, H - yellowish to dark greenish brown; moderately fine texture.	0.60–0.80	Nondurable	—	—
Leucaena leucocephala subsp. *glabrata* lisina	S - pale yellow, H - light yellowish to reddish brown; close-grained, easily worked, strong.	0.50–0.79	Nondurable	—	—

Leucaena diversifolia 0.45-0.55

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Leucaena leucocephala subsp. *leucocephala* delen, madlenn	S - light yellow, H - yellow brown to dark brown; hard.	0.70	—	—	—
Licaria triandra lorie jòn	S - light yellowish brown, H - yellowish brown to coffee brown with a tinge of red or violet; moderate luster, fragrant, fine to medium texture, straight to slightly interlocked grain, strong.	0.68–0.96	Very Durable	R - 5.4 T - 7.9 V - 12.5	2,900 Very Hard
Lonchocarpus spp. bwa dano, bwa kayman	S - yellowish sapwood, H - yellowish brown to dark reddish brown; low to medium luster, no odor, straight to irregular or interlocked grain, striped with laminations of lighter color.	0.62–0.76	Durable	R - 3.9 T - 8.2 V - 13.0	2,700 Very Hard
Lyonia rubiginosa	S/H - light yellow.	—	—	—	—
Lysiloma sabicu tabèno	S - white, H - lustrous brown with coppery or purplish tinge; no odor, medium texture, straight to roey grain, takes a high polish, easy to work.	0.52–0.65	Very Durable	R - 2.7 T - 7.2 V - 9.5	1,400 Hard
Magnolia spp.	S - white to light greenish brown, H - olive green to greenish brown, often streaked w/ purple or dark brown; low to moderate luster, spicy fragrance, fine and uniform texture, straight to interlocked grain.	0.40–0.70	Durable	R - 3.6 T - 7.0 V - 11.2	1,090 Slightly Hard
Mammea americana zabriko	S - light brown, H - reddish brown; medium texture, irregular and interlocked grain, flecked w/ dark, oily exudations.	0.62	Moderately Durable	—	—
Mangifera indica mango	S/H - light brown with black streaks; lustrous, odorless, fine to coarse texture, interlocked to straight grain, easy to work, torn grain common, finishes and polishes well.	0.45–0.58	Nondurable	R - 3.0 T - 4.9 V - 7.3	1,000 Slightly Hard
Manilkara albescens bwa wil, sapoti mawon	H - reddish; hard and strong.	—	Durable	—	—
Manilkara bidentata sapoti, sapoti nwa	S - whitish to pale brown, H - reddish brown; attractive, resembles mahogany, very strong and hard, low to medium luster, no odor, fine and uniform texture, straight to wavy or interlocked grain.	0.85	Very Durable	R - 6.3 T - 9.4 V - 16.9	3,190 Extremely Hard
Manilkara jaimiqui ssp. *haitensis*	H - dark reddish; hard.	—	—	—	—
Manilkara zapota sapoti	H - dark red; very hard, strong and tough.	—	Durable	—	—
Margaritaria nobilis	S - light brown, H - brownish or pinkish.	0.90	—	—	—
Mastichodendron foetidissimum akoma, koma	S - yellowish, H - yellowish to orange; hard and strong.	0.90	Durable	—	—
Matayba domingensis bwa grenn, bwa grenn nwa	S - light brown, H - uniform pinkish to reddish brown; very hard, attractive, strong, fine texture, irregular and interlocked grain, foul odor.	0.70	Nondurable	—	—

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Maytenus spp. bwa foumi, kajou sovaj, rezen mawon	S - whitish, H - light reddish brown; low luster, no odor, very fine and uniform texture, interlocked or irregular grain, satisfactory working qualities.	0.64–0.77	Nondurable	R - 4.6 T - 8.9	2,240 Very Hard
Mecranium amygdalinum bwa pijon	H - light brown; hard.	—	—	—	—
Melaleuca quiquenervia melalika	S - yellowish, H - pink to reddish brown; moderately hard, fine to medium texture, interlocked grain, tough, silica dulls tools, takes a fine polish.	0.65	Durable	R - 4.0 T - 9.5 V - 16.2	—
Melia azedarach lila	S - yellowish white, H - reddish brown; lustrous, odorless, coarse and uneven texture, straight grain, works easy, takes a good polish.	0.40–0.52	Durable	R - 5.0 T - 8.5 V - 13.5	—
Melicoccus bijugatus kenèp	S - light brown, H - light brown; pale yellow gray, fairly hard.	—	Nondurable	—	—
Meliosma herbertii	S - light brown, H - light brown w/ darker streaks and orange tinge; coarse texture, straight to interlocked grain, faint growth rings, difficult to work.	0.42	Nondurable	—	—
Metopium toxiferum bwa milat	S - yellowish to light brown, H - dark brown, streaked w/ red; hard wood takes a fine polish, easily worked.	—	Durable	—	—
Miconia spp. makrio, twazokòt	S/H - whitish to light brown; hard.	—	—	—	—
Micropholis spp. sapoti	S - light yellow to gray, H - yellow to gray brown with pinkish tinge or yellowish-green hue; medium luster, fine to medium texture, straight grain, takes a high polish, difficult to saw w/ high silica content.	0.52–0.78	Moderately Durable	R - 5.8 T - 8.5 V - 14.3	1,490 Hard
Mimosa scabrella	S - pinkish, H - grayish rose; medium texture, low luster, straight grain.	0.45–0.67	—	—	—
Morinda citrifolia bwa doulè	S - yellow brown; soft.	—	—	—	—
Moringa oleifera benzoliv	S - white to light brown; soft.	—	—	—	—
Morisonia americana	S/H - light brown; hard.	—	—	—	—
Morus nigra mi	S/H - light brown; soft.	—	—	—	—
Mouriri domingensis kòmiye	S/H - yellowish; hard, fine texture.	—	—	—	—
Muntingia calabura bwa swa mawon	S - whitish brown, H - pale brown; medium texture, irregular grain, very easily worked.	—	Nondurable	—	—
Murraya paniculata mit	S - light yellow, H - light brown; hard, fine texture.	—	—	—	—
Myrcia citrifolia bwa damou, magèt, malagèt	S/H - light brown; hard.	—	—	—	—

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Myrcia deflexa	S - whitish, H - reddish; hard and strong.	0.80	—	—	—
Myrcia leptoclada	S/H - light brown; very hard, fine texture.	—	Durable	—	—
Myrcia splendens	S - light brown, H - reddish brown; hard.	—	—	—	—
Myrica cerifera kanèl abey, kanèl dous	S - whitish, H - light brown; slightly hard.	—	—	—	—
Myristica fragrans nwa miskad	S - light brown, H - light reddish brown to olive gray; fine to slightly coarse texutre, straight grain, lustrous, easy to work.	0.45–0.60	Nondurable	R - 4.6 T - 6.9 V - 12.4	1,020 Slightly Hard
Myrospermum frutescens	Hard, heavy.	—	Very Durable	—	—
Myroxylon balsamum	S - white, H - deep red or purplish; medium to high luster, spicy scent, medium texture, interlocked grain.	0.74–0.81	Very Durable	R - 3.8 T - 6.2 V - 10.0	2,200 Very Hard
Myrsine coriacea bwa plòm, mang	S - whitish w/ prominent white rays; hard.	0.70	—	—	—
Myrsine guianensis fèy kanèl	S/H - light brown; hard, strong.	—	—	—	—
Neolaugeria resinosa	S/H - light brown; hard.	0.80	—	—	—
Nerium oleander lorie wòz	S/H - whitish yellow; slightly hard and brittle.	0.60	—	—	—
Ochroma pyramidale koton swa, mahodèm	S - oatmeal with yellowish hue, H - pale brown or reddish tinged; high luster, no odor, medium to coarse texture, straight grain, velvety feel, soft and weak, prone to sap stain discoloration.	0.22–0.26	Perishable	R - 3.0 T - 7.6 V - 10.8	75–100 Extremely Soft
Ocotea coriacea lorie blan	S - light brown, H - dark brown.	—	—	—	—
Ocotea floribunda lorie piant	H - rose white; easily worked.	—	—	—	—
Ocotea globosa lorie gran fèy	H - light brown.	—	—	—	—
Ocotea leucoxylon doliv, lorie blan, lorie gèp, lorie wòz,	S - pale yellowish brown to cream, H - light golden brown without figure; moderately soft and strong, easily worked.	0.45	Nondurable	—	—
Ocotea membranacea lorie jòn	S - gray, H - yellowish to golden brown; moderately soft and strong, straight to wavy grain, medium texture, medium luster.	0.45	—	—	—
Ocotea nemodaphne	S - whitish; hard.	—	—	—	—
Ocotea patens	H - light brown; hard.	—	—	—	—
Ocotea sintenisii	S - light yellow, H - pale greenish to yellow; moderately soft, satiny luster, medium texture, interlocked or straight grain.	0.55	Moderately Durable	—	—
Ormosia krugii bwa nannon	S - yellowish, H - pinkish to reddish brown, streaked; medium luster, no odor, coarse texture, irregular grain, more or less streaked.	0.40–0.78	Perishable	R - 3.6 T - 7.4 V - 12.0	1,000–1,570 Hard

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Ottoschulzia rhodoxylon	H - reddish; hard.	—	—	—	—
Oxandra lanceolata bwa lans	S - pale yellow; medium luster, no odor, very fine texture, straight grain, moderately difficult to work, finishes smoothly.	0.81	Nondurable	R - 6.2 T - 9.6 V - 15.4	2,830 Very Hard
Pachira spp. kolorad	S/H - whitish; soft.	—	—	—	—
Palicourea spp.	S/H - light brown; hard, light weight.	—	—	—	—
Parkinsonia aculeata madam yas	S - yellowish, H - light or reddish brown; moderately hard, brittle.	0.56–0.67	—	—	—
Peltophorum pterocarpum	S - whitish; hard.	—	—	—	—
Persea americana zaboka	S - gray or cream-colored, H - brown, reddish or pinkish; medium to high luster, no odor, medium to coarse texture, straight to irregular grain, brittle.	0.40–0.65	Nondurable	R - 4.8 T - 9.5 V - 13.5	860 Slightly Hard
Persea krugii pèch mawon	S - whitish; moderately soft.	—	—	—	—
Petitia domingensis bwa dòti	S - light brown, H - attractive light to medium brown, variegated w/ darker stripes; very hard, tough and strong, fine texture, straight, wavy or interlocked grain.	0.66	Moderately Durable	—	—
Phyllanthus acidus sibilinn	H - reddish brown; moderately hard, strong, tough and fibrous, takes a good polish.	0.6	Durable	—	—
Phyllostylon brasiliense bwa blan	S - yellowish to nearly white, H - lemon yellow, sometimes with dark streaks; no odor, fine and uniform texture, straight to irregular grain, takes a high polish, not difficult to work.	0.65–0.92	—	—	—
Picramnia pentandra bwa ti gason	S - whitish; hard.	—	—	—	—
Picrasma excelsa fwenn, gori fwenn	S/H - whitish yellow; soft.	—	—	—	—
Pictetia aculeata gratgal	S - light brown, H - dark brown; extremely hard.	0.8	Durable	—	—
Pictetia spinifolia galgal	S - light brown, H - dark brown.	0.97–1.31	Durable	—	—
Pilocarpus racemosus	S - light brown; hard.	—	—	—	—
Pimenta racemosa bwa denn franse, klou jiròf	S - light brown, H - brownish red or blackish and mottled; very hard, strong, tough.	0.90	Durable	—	—
Pinus caribaea bwa pen	S - light brown, H - golden to red brown; medium luster, resinous odor, coarse texture, straight grain, compression wood often present.	0.26–0.78	Moderately Durable (depends on resin content)	R - 6.3 T - 7.8 V - 12.9	1,120–1,240 Moderately Hard

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Pinus occidentalis bwa pen	S - light yellow, H - pale yellow to golden or reddish brown; strong resinous odor, medium to coarse texture, heavy deposits of resin.	0.58–0.76	—	—	—
Piper aduncum bwa majò, siwo	S/H - whitish; hard.	—	—	—	—
Piper tuberculatum	S/H - light brown; soft.	—	—	—	—
Piptadenia peregrina bwa ekòs, bwa kayman	S - whitish to light brown, H - reddish brown to dark brown; high luster, no odor, fine to medium texture, straight to irregular grain, tends to tear when planing irregular grain.	0.52–0.80	Moderately Durable	R - 4.4 T - 6.4–7.5 V - 9.0–11.6	1,550–1,680 Hard
Pisonia albida	S - whitish or yellowish, H - yellowish; coarse texture, moderately soft, silvery gum in the pores.	—	—	—	—
Pisonia rotundata	S/H - whitish; soft, porous.	0.50	Nondurable	—	—
Pithecellobium arboreum bwa kolye, pwazon lasinèt	S - whitish, H - reddish brown to dark red; streaked and figured, takes a fine polish, strong.	0.70	Durable	—	—
Pithecellobium circinale kampèch mawon	—	0.91–1.12	—	—	—
Pithecellobium dulce	S - yellowish, H - yellowish or reddish brown; moderately soft, strong, brittle, takes a high polish, not easily worked.	0.58–0.69	Durable	—	—
Pithecellobium unguis-cati	H - light brown; hard.	—	—	—	—
Pleodendron spp.	S/H - nearly white; hard.	—	—	—	—
Plumeria spp. franjipani	S/H - light brown; slightly hard.	—	—	—	—
Podocarpus spp. bwa liben	S/H - pale yellow to yellowish brown; somewhat lustrous, no odor, fine texture, straight to slightly interlocked grain.	0.26–0.65	Nondurable	R - 2.6 T - 6.4 V - 9.8	710–760 Soft
Pouteria dictyoneura ssp. *fuertesii* karakole	H - reddish; hard.	—	—	—	—
Pouteria multiflora	S - light brown, H - reddish brown; very hard, strong, fine texture, straight grain, indistinct growth rings.	—	—	—	—
Pouteria sapota jòn dèf	H - light reddish or brown; moderately hard and strong.	0.60	Moderately Durable	—	—
Prosopis juliflora bayawonn, gwatapana	S - light yellow, H - yellowish to dark brown; moderately hard, tough and strong.	0.80	Moderately Durable	—	—
Prunus myrtifolia lamandye ti fèy	S - light brown, H - light red; hard.	—	—	—	—
Prunus occidentalis lamandye gran fèy	S - light yellowish brown, H - dark reddish brown; very hard, medium to coarse texture, tough and strong.	0.90–1.05	—	—	—

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Pseudolmedia spuria bwa meriz, long bab	S - grayish or pinkish brown, H - reddish brown; very hard, medium coarse texture, variable grain, tough and strong.	—	Nondurable	—	—
Psidium guajava gwayav	S - light brown, H - brown or reddish; hard and strong.	0.80	—	—	—
Psychotria spp.	S/H - whitish to light yellow or brown; hard, brittle.	—	—	—	—
Pterocarpus officinalis bwa nago, bwa pal	S - yellowish to whitish, H - dark brown or purplish; medium luster, no odor, medium to coarse texture, straight to irregular grain.	0.65–0.78	Very Durable	R - 3.9 T - 6.8 V - 10.8	1,380 Hard
Quararibea turbinata	S - whitish; hard.	—	—	—	—
Randia aculeata kròk chen	S/H - light brown; hard.	—	—	—	—
Rauvolfia nitida bwa lèt femèl	S - light brown, H - clear yellow; hard.	—	—	—	—
Reynosia uncinata briyòl, bwa ebenn, bwa fè mawon, galgal	S/H - light brown; hard.	—	—	—	—
Rheedia spp. bwa diou, zabriko	S - light brown, H - dark yellowish-, grayish- or pinkish-brown; low to medium luster, no odor, fine to coarse texture, straight to irregular or roey grain, sometimes specked with resinous exudations.	0.65–0.78	Durable to Nondurable	R - 4.0 T - 14.0 V - 16.2 Very high	—
Rhizophora mangle mang chandèl, mang nwa, mang wouj	S - yellowish, grayish or pinkish, H - dark red to reddish brown; low luster, no odor, fine to medium texture, straight to irregular grain.	0.89	Durable	R - 5.0 T - 10.7 V - 14.3	2,760 Very Hard
Ricinus communis maskriti	S/H - whitish; soft.	—	—	—	—
Rochefortia acanthophora ebenn, gratgal	S - light brown, H - dark brown; hard.	—	—	—	—
Rondeletia spp.	S/H - light brown; hard.	—	—	—	—
Roystonea borinquena palmis	Outer stem - gray, odorless, very coarse texture, straight grain. Planks can be planed and sanded smooth.	—	Moderately Durable	—	—
Sambucus simpsonii siwo	S/H - light brown; soft.	—	—	—	—
Sapindus saponaria savonèt, savonèt peyi	S - whitish, H - yellow or light brown; hard, coarse texture.	0.80	Nondurable	—	—
Sapium spp. bwa brilan, bwa lèt	S/H - whitish, yellowish or light brown; low luster, odorless, medium texture, straight to slightly interlocked grain, prone to sap stain discoloration.	0.38–0.52	Perishable	R - 3.3 T - 6.6 V - 9.2	700 Soft

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Schaefferia frutescens bwa kapab, ti gason	H - light brown to yellow; hard, fine texture.	—	—	—	—
Schefflera morototoni bwa kano	S/H - pale brownish color; medium luster, no odor, fine to medium texture, straight grain, brittle.	0.36–0.54	Perishable	R - 5.9 T - 9.2 V - 14.8	665–915 Soft
Securinega acidoton	S/H - light brown; hard, fine texture.	—	—	—	—
Senna atomaria bwa kabrit	S - yellow, H - dark brown, hard.	0.57–0.85	—	—	—
Senna polyphylla var. *montis-christi*	S/H - light brown; hard.	—	—	—	—
Senna siamea kasya	S - whitish to light brown, H - dark brown to nearly black, streaked; moderately hard.	0.57–0.83	Durable	—	—
Senna spectabilis kas mawon	S - whitish, H - brown; hard.	—	Durable	—	—
Simarouba spp. bwa blan, fwenn	S/H - whitish or straw colored w/ occasional oil streaks; high luster, odorless, uniform and medium texture, straight grain.	0.34–0.41	Nondurable	R - 2.3 T - 5.0 V - 8.0	440 Soft
Sloanea amygdalina bwa kòk, chapo kare	S - whitish; hard.	—	—	—	—
Sloanea berteriana	S - yellowish brown, H - multicolored, from yellow brown to pinkish brown and dark brown w/ streaks; hard, strong, medium texture, irregular grain, prominent growth rings.	0.80	Durable	—	—
Solanum antillarum	S/H - whitish to light brown; hard.	—	—	—	—
Solanum erianthum amourèt mawon, tabak mawon	S/H - light brown; hard.	—	—	—	—
Solanum rugosum	S/H - whitish; soft and brittle.	—	—	—	—
Solanum torvum amourèt	S/H - whitish to pale yellow; soft.	—	—	—	—
Spathodea campanulata mòtèl etranje	S - whitish; soft.	—	—	—	—
Spondias dulcis wòb, pòm sitè	S - whitish to light yellow, H - light brown; moderately soft.	—	Nondurable	—	—
Spondias mombin monben	S/H - cream or buff colored; medium luster, odorless, medium to coarse texture, straight to irregular grain, sticky resin.	0.26–0.40	Perishable	R - 2.7 T - 4.7 V - 7.5	335–510 Soft
Spondias purpurea siwèl	S/H - whitish; soft and brittle.	—	—	—	—
Stahlia monosperma	S - light brown, H - dark brown; very hard, strong.	—	Durable	—	—

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Sterculia apetala pistach	S - yellowish, H - yellowish, reddish or light brown; coarse texture, medium luster, straight to irregular grain, spongy, prone to sap stain discoloration, easy to work.	0.26–0.40	Perishable	R - 3.7 T - 8.3 V - 11.8	270–530 Soft
Suriana maritima krist marinn	S - light red, H - dark red or reddish brown; hard and strong, fine texture.	—	Moderately Durable	—	—
Swietenia macrophylla kajou etranje, kajou venezwela	S - yellow to white, H - light reddish brown; golden luster, odorless, fine to coarse texture, straight, roey, wavy or curly grain, attractive figure; easy to work, takes a fine polish.	0.48–0.60	Durable	R - 3.0 T - 4.1 V - 7.8	770–970 Slightly Hard
Swietenia mahagoni kajou peyi	S - yellow to white, H - yellowish-red to deep reddish brown; high, silky and golden luster, odorless, fine texture, straight, roey, curly or wavy grain, attractive figure, strong.	0.57–0.80	Durable	R - 4.6 T - 5.4 V - 6.9	1,330 Moderately Hard
Symphonia globulifera bwa kochon	S - whitish, H - yellowish-, grayish- or greenish brown; variable, medium luster, odorless, coarse texture, straight to irregular grain, mealy appearance, high silica content, easy to work.	0.52–0.65	Durable	R - 5.7 T - 9.7 V - 15.6	1,120 Slightly Hard
Syzygium jambos pòm wòz	S/H - brown; hard, close-grained.	0.70	Nondurable	—	—
Syzygium malaccense pòm malezi	S - light brown; hard and tough, tends to warp, difficult to work.	—	—	—	—
Tabebuia spp. bwa nago, sip	S/H - light brown to golden; low to medium luster, odorless, medium to coarse texture, straight to roey grain, finishes well.	0.52–0.65	Moderately to Very Durable	R - 3.6 T - 6.1 V - 9.5	960 Soft
Tabernaemontana citrifolia bwa lèt mal	S - whitish brown; medium hard, fine texture.	—	—	—	—
Tamarindus indica tamarenn	S - light yellow, H - dark purplish brown; very hard and strong, takes a fine polish.	0.80–0.90	Durable	—	—
Tecoma stans chevalye	S - light brown; hard.	—	—	—	—
Tectona grandis tèk	S - pale yellowish, H - dark yellow to golden brown; scented, fine to medium texture, straight or wavy grain, high silica content, oily feel, works easily, finishes smoothly.	0.52–0.65	Very Durable	R - 2.5 T - 5.8 V - 7.0	1,000–1,155 Moderately Hard
Terminalia catappa zamann	S - light brick red, H - brick red to reddish brown; lustrous, odorless, medium to coarse texture, interlocked and irregular grain, torn grain common, works easily.	0.45–0.58	Perishable	R - 4.5 T - 5.7 V - 10.3	—
Ternstroemia peduncularis bwa denn mawon	S/H - light brown; hard.	—	—	—	—
Tetragastris spp. bwa kochon	S - yellowish-brown, H - orange brown w/ darker streaks; medium to high luster, fragrant, fine texture, irregular to roey grain, high silica content.	0.63–0.78	Durable	R - 4.4 T - 8.5 V - 13.9	1,770–2,170 Hard
Tetrazygia spp.	S - light brown; hard.	—	—	—	—

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Theobroma cacao subsp. *cacao* kakawo	S/H - light brown; hard.	—	—	—	—
Thespesia populnea fèy dayiti, gran maho, mòtèl debou	S - light brown, H - chocolate brown; moderately soft, takes a fine polish.	—	Durable	—	—
Thevetia peruviana bwa sèzisman	S/H - brownish gray; hard, fine texture, easily worked.	—	—	—	—
Thrinax morrisii latanye lamè	Hard and lightweight, soft pith toward center.	—	—	—	—
Torralbasia cunefolia	S/H - yellowish; hard, fine texture.	—	—	—	—
Trema lamarckiana maho piman	S/H - light brown; soft.	—	—	—	—
Trema micrantha bwa swa	S/H - light brown; soft and weak.	0.40	—	—	—
Trichilia hirta monben bata	S - light brown to creamy white, H - reddish brown w/ darker veins; medium luster, fine texture, straight grain, easy to work, fine sanding qualities.	0.50	Durable	—	—
Trophis racemosa bwa nèf, ramo	S - creamy to yellowish, H - light to dark brown; fairly lustrous, odorless, medium texture, straight to irregular grain, parenchyma markings.	0.42–0.65	Perishable	—	770 Soft
Turpina occidentalis	S - whitish; hard and brittle.	—	—	—	—
Vitex divaricata bwa leza	S - yellowish, grayish to pale brown, H - olive to deep brown; low to high luster, odorless, fine to moderately coarse texture, straight to irregular grain, well defined growth rings, high silica content, easy to work, takes a fine polish.	0.52–0.62	Durable	R - 3.2 T - 6.4 V - 10.4	1,160 Moderately Hard
Weinmannia pinnata	S - whitish, H - reddish brown; hard.	—	—	—	—
Ximenia americana kròk, makabi	S - yellow, H - reddish brown or orange; very hard, fine texture, slightly fragrant, easy to work, takes a fine polish.	0.95	—	—	—
Xylosma spp. pikan wòz	S - whitish to light brown; hard.	—	—	—	—
Zanthoxylum flavum bwa pine	S - whitish to light yellow, H - yellowish brown; very hard, high, satiny luster, coconut scent, fine and even texture, interlocked or irregular grain, roey or mottled figure, takes a fine polish.	0.65–0.90	Nondurable	—	—
Zanthoxylum martinicense pine blan	S - whitish, H - cream to light yellowish brown; moderately hard, straight to irregular grain, good luster, easily worked.	0.46–0.66	—	—	—
Zanthoxylum monophyllum bwa pine	S - light yellow, H - dark brown; very hard and tough, fine texture, growth rings, takes a good polish.	0.76	—	—	—

SPECIES	WOOD CHARACTERISTICS	SPECIFIC GRAVITY	DURABILITY	SHRINKAGE (%)	JANKA SIDE HARDNESS (lbs.)
Ziziphus spp. kòk mòl	S/H - light brown or yellowish; hard.	0.90	—	—	—

Table 19.2 Energy values for major fuelwood species of Hispaniola. Standard error of the means is shown in parentheses.

SPECIES	HEAT OF COMBUSTION ---OVEN-DRY--- (megajoules kg^{-1})	HEAT OF COMBUSTION ---14% MC--- (megajoules kg^{-1})	SITE AND SOURCE
Acacia macracantha zakasya pikan	19.574 (0.015)	16.827 (0.013)	Mao, Rep. Dom., Maxwell (1985)
Acacia scleroxyla kandelon	19.899 (0.099)	17.107 (0.085)	Mao, Rep. Dom., Maxwell (1985)
Acacia tortuosa zakasya wouj	16.215 (0.091)	13.939 (0.078)	Cul-de-Sac, Haiti, Timyan (1988)
Acacia tortuosa zakasya wouj	19.302 (0.022)	16.590 (0.022)	Mao, Rep. Dom., Maxwell (1985)
Amyris sp. bwa chandèl	21.476 (0.094)	18.462 (0.081)	Mao, Rep. Dom., Maxwell (1985)
Azadirachta indica nim	19.69 (0.314)	16.923 (0.270)	Cul-de-Sac, Haiti, Timyan (1988)
Bursera simaruba gomye	18.282 (0.152)	15.717 (0.131)	Mao, Rep. Dom., Maxwell (1985)
Caesalpinia coriaria divi divi	19.863 (0.124)	17.075 (0.107)	Mao, Rep. Dom., Maxwell (1985)
Capparis sp.	20.114 (0.180)	17.291 (0.155)	Mao, Rep. Dom., Maxwell (1985)
Capparis flexuosa bwa kaka	19.254 (0.082)	16.552 (0.070)	Mao, Rep. Dom., Maxwell (1985)
Casearia guianensis kafe mawon	19.601 (0.027)	16.850 (0.023)	Mao, Rep. Dom., Maxwell (1985)
Coccoloba leoganensis	19.489 (0.056)	16.754 (0.048)	Mao, Rep. Dom., Maxwell (1985)
Eugenia foetida ti fèy	19.909 (0.784)	17.115 (0.674)	Cul-de-Sac, Haiti, Timyan (1988)
Exostema caribaeum kenkena peyi	20.685 (0.104)	17.782 (0.089)	Mao, Rep. Dom., Maxwell (1985)
Guaiacum officinale gayak	21.080 (0.731)	18.121 (0.628)	Cul-de-Sac, Haiti, Timyan (1988)
Guaiacum officinale gayak	21.170 (0.085)	18.199 (0.073)	Mao, Rep. Dom., Maxwell (1985)
Haematoxylon campechianum kampèch	17.891 (0.558)	15.380 (0.480)	Cul-de-Sac, Haiti, Timyan (1988)
Krugiodendron ferreum bwa fè	19.066 (0.100)	16.390 (0.086)	Mao, Rep. Dom., Maxwell (1985)
Leucaena leucocephala subsp. *glabrata* lisina	18.142 (0.467)	15.596 (0.401)	Cul-de-Sac, Haiti, Timyan (1988)
Maytenus buxifolia bwa foumi	19.575 (0.067)	16.828 (0.058)	Mao, Rep. Dom., Maxwell (1985)

SPECIES	HEAT OF COMBUSTION ---OVEN-DRY--- (megajoules kg^{-1})	HEAT OF COMBUSTION ---14% MC--- (megajoules kg^{-1})	SITE AND SOURCE
Phyllostylon brasiliensis bwa blan	18.089 (0.342)	15.550 (0.294)	Cul-de-Sac, Haiti, Timyan (1988)
Phyllostylon brasiliensis bwa blan	19.038 (0.119)	16.366 (0.102)	Mao, Rep. Dom., Maxwell (1985)
Pictetia spinifolia gratigal	20.610 (0.106)	17.717 (0.091)	Mao, Rep. Dom., Maxwell (1985)
Pithecellobium circinale kampèch mawon	19.447 (0.045)	16.718 (0.039)	Mao, Rep. Dom., Maxwell (1985)
Pithecellobium unguis-cati	19.050 (0.872)	16.376 (0.750)	Cul-de-Sac, Haiti, Timyan (1988)
Prosopis juliflora bayawonn	19.926 (0.014)	17.130 (0.012)	Cul-de-Sac, Haiti, Timyan (1988)
Prosopis juliflora bayawonn	18.300 (0.097)	15.732 (0.083)	Mao, Rep. Dom., Maxwell (1985)
Senna atomaria bwa kabrit	19.328 (0.415)	16.615 (0.357)	Cul-de-Sac, Haiti, Timyan (1988)
Senna atomaria bwa kabrit	19.688 (0.094)	16.925 (0.081)	Mao, Rep. Dom., Maxwell (1985)

20 Medicinal Uses

Trees have provided a rich source of ingredients that Haitians and other people of Hisponiola have used for centuries in their folk medicine. After Charles Plumier published his *Description des Plantes de l'Amérique* in 1693, based in part on floristic studies conducted in Haiti, two French doctors wrote on the utilization of medicinal plants in Haiti: René Pouppée Desportes wrote *Histoire des Maladies de Saint Domingue* in 1740 and E. Descourtilz wrote *Flore Pittoresque et Médicinales des Antilles* in 1821. Recent ethnobotanical studies have been conducted on the medicinal plants of Haiti, including those by Brutus and Pierre-Noel (1959, 1960, 1966), Léon (1980), Weniger (1985), Weniger and Rouzier (1986), and Rouzier (1990). Studies dealing with many of the same species present throughout the Caribbean and Latin American include Ayensu (1981), Morton (1981), Nunez (1982), Tramil I (1984), Darnault and Longuefosse (1985), Tramil II (1986), Joseph (1988), Seaforth (1988), Tramil III (1988), Ansel et al. (1989) and Liogier (1990).

The medicinal use of trees is an important part of Haitian cultural knowledge, and its effectiveness must be reinforced by scientific study. At times there is concern, even contempt, among Western medical researchers about traditional, local practices. Precision in dosages of curative treatments is difficult. Some remedies have been shown to contain toxic compounds; others fade into the universe of mysticism and magic. Strict ethical guidelines in the application of treatments are rarely explicit. However, the beauty of traditional medicines comes down to an issue of cultural diversity and a deeper understanding of the role that plants play in the daily lives of people. Without this diversity, modern pharmaceutical science would not be what it is today. Herbal remedies are locally available and foster a self-reliance among those who can ill-afford the high costs of imported pharmaceuticals. Perhaps an art more than a science, one of the most important contributions of folk medicine is that it adds to our understanding of Haitian trees.

A list of trees that are commonly used for medicinal purposes in Haiti is provided in **Table 20.1** below. The table includes 76 families, 222 genera and 293 taxa. The taxa are arranged alphabetically by species. The first column gives the scientific and Creole names associated with the tree. The second column summarizes the ailments, followed by the tree part and the principal method of application. Specific prescriptions, such as dosage and frequency, are not given, as these are rarely specified in the literature and can vary considerably among users according to recipe. Moreover, the table does not rank the order of species importance as a medicinal source for the ailments, though this work can be found for areas of Haiti studied by Service Oecuménique d'Entraide since the 1980s. Many of the tree species invariably are associated with specific treatments. Examples include the relief of sore throat with *Spondias purpurea* or lowering of blood pressure with *Terminalia catappa.*

The genera that stand out in importance are important fruit trees — notably *Citrus* (sweet and sour orange, key lime, and pummelo) and *Annona* (soursop, custard apple, and cherimoya). *Citrus* is most valued for its aromatic oil, the antiseptic quality of its acidic juice, and the nutritive value of its fruit. It is here where the distinction between a healthy diet and a prescriptive medicine becomes blurred. As for the nonfood species, it is interesting to note how quickly exotic species such as neem (*Azadirachta indica*) and *Eucalyptus* spp. have gained acceptance in local medicine. One can only wonder about the process whereby peasant society accepts or rejects the remedial powers of a tree species.

Table 20.1 Summary of the medicinal uses of trees and shrubs found in Haiti.

SPECIES	MEDICINAL USES
Acacia farnesiana zakasya jòn	**Fever, typhus:** root bath, applied to rectum, or cooked root, taken orally. **Tuberculosis:** root decoction, taken orally. **Gangrene:** root decoction, applied externally. **Bladder infection:** leaf decoction, taken orally. **Wound:** dried, pulverized leaf, applied externally. **Stomach ache:** flower tea, taken orally. **Diarrhea, eye/throat infection:** crushed fruit juice, taken orally.
Acacia macracantha zakasya pikan	**Fever:** root and leaf drink, taken orally, or warm water bath. **Gum disease:** crushed leaf mouthwash. **Infected sore:** root and leaf wash and compress. **Dysentery, chronic diarrhea, gangrene:** leaf decoction, taken orally or applied.
Acacia scleroxyla bwa savann, kandelon, tandrakayou	**Skin itch:** wash with crushed leaves.
Adansonia digitata mapou etranje	**Fever:** fruit pulp juice or macerated bark w/ wine drink. **Diarrhea, bladder and kidney infection:** leaf, either decoction or prepared w/ food. **Dysentery:** dry, mealy pulp surrounding the seed, eaten.
Adenanthera pavonina reglis	**Migraine, headache:** pulverized wood mixed w/ water, taken orally. **Diarrhea, dysentery, tonsillitis:** bark and leaf decoction, taken orally. **CAUTION:** Seeds are poisonous.
Albizia lebbeck tcha tcha	**Diarrhea:** bark decoction w/ salt, taken orally. **Snakebite, ulcer:** pulverized bark, applied externally. **Flu, chest cold, cough, lung infection:** flower syrup, taken orally. **Asthma, eczema:** stem bark decoction, taken orally. **Boils, skin eruptions:** flower poultice. **Eye ailments:** leaf and bark decoction, applied externally. **CAUTION:** Contains toxic heterocides (Ansel et al., 1989). Usage not recommended (Rouzier, 1990).
Albizia saman saman	**Anxiety, nervousness:** fruit decoction, taken orally. **Constipation:** leaf tea or infusion, taken orally. **Dysentery, hemorrhage:** fruit ingested. **Throat infection:** chew seed.
Alchornea latifolia bwa krapo, fèy krapo, pwa vach	**Tuberculosis:** flower, leaf and twig decoction, taken orally. **Chest cold:** leaf tea, taken orally.
Aleurites fordii nwazèt	**Leprosy:** seed oil, applied externally.
Aleurites moluccana nwazèt	**Purgative:** seed. **CAUTION:** Seed remedies are not recommended due to their toxicity (Liogier, 1990).
Allophylus cominia kafe mawon, twa fèy, twa pawòl	**Diabetes:** leaf decoction, taken orally. **Coma:** leaf boiled 3 times, tea taken orally. **Tuberculosis, hemoptysis:** twig decoction, taken orally.
Allophylus occidentalis twa fèy, twa pawòl	**Stomach cramp, migraine, anaphrodisiac:** leaf infusion in boiling water.
Alvaradoa haitiensis abe mawon, ti abe	**Malnutrition complex:** pulverized leaves applied as a bath or massage.
Amyris balsamifera bwa chandèl	**Phlegm, choke:** macerated root w/ sweet wine, taken orally.

SPECIES	MEDICINAL USES
Anacardium occidentale nwa kajou	**Anemia:** bark (macerated or decoction) w/ salt, taken orally. **Diabetes, thrush, plaque, diarrhea, malarial fever:** bark or leaf decoction, taken orally. **Skin rash, wart, acne, toothache, flu, phlegm, constipation, diarrhea, edema, hemoptysis:** cashew pericarp juice. **Nervous disorders:** bark tea as a tonic. **Aphrodisiac:** toasted seed or leaf infusion. **Burns, skin ailments:** crushed mature leaf poultice. **CAUTION:** Pericarp oil is caustic and must be used with prudence.
Andira inermis bwa palmis, pwa palmis	**Urethritis:** macerated root, taken orally. **Fever, intestinal worms:** stem bark decoction in small doses. **Constipation:** seed decoction, taken orally. **Skin rash, quicklime burn:** leaf compress. **Wound:** macerated seed poultice.
Annona cherimolia kachiman	**Indigestion, constipation:** boiled leaves or fruit as decoction or cooked, taken orally. **NB:** Seed reported to have anti-cancer properties (Liogier, 1990).
Annona glabra kowosòl mawon	**Hepatitis, liver ailments, worms, rheumatism:** flower and leaf extracts, taken orally. **Chest cold, dry cough, tuberculosis:** fruit syrup, taken orally. **NB:** Leaves contain a poisonous narcotic used to kill fish.
Annona muricata kowosòl	**Digestive tract ailments:** leaf decoction w/ salt, taken orally. **Intestinal malaise:** leaf and crushed seed infusion, taken orally. **Fatigue:** leaf decoction w/ salt or sugar, taken orally. **Anxiety:** leaf or bark decoction. **Cold, chest pain, nerve disorders:** flower or flower bud tea with honey. **Flu, cold:** fruit syrup. **Hepatitis, fever:** fruit as a food. **Nervous shock:** leaf massage. **CAUTION:** Seed contains a strong poison, used as a potent insecticide, that induces severe vomiting.
Annona reticulata kachiman kè bèf	**Digestive tract ailments, fever, nerve disorders, anemia:** leaf (sometimes bark) decoction w/ salt, taken orally. **Fatigue:** leaf decoction w/ sugar or salt, taken orally. **Dermatosis:** leaf decoction, taken orally. **Headache:** crushed leaves applied as a bath. **Sprain:** crushed bark in warm, salty water and applied as poultice. **NB:** Exhibits antispasmodic and analgesic properties; requires further research for internal use (Tramil III, 1988).
Annona squamosa kachiman kanèl	**Diarrhea, chronic dysentery:** leaf, bark or green fruit infusion, taken orally. **Cramp, spasm:** leaf or sprout tea.
Antirhea lucida bwa patat, zaboka mawon	**Colic:** strong leaf infusion w/ *Hedyosmum nutans.* **Astringent:** root.
Artocarpus altilis laba pen, lam veritab	**Blood pressure:** fruit (sometimes leaf or flowers) decoction, taken orally. **Wart, skin ulcer, abscess:** caustic latex or bark poultice. **Burn:** stewed fruit compress. **Constipation:** cooked fruit, easily digested. **NB:** Leaf extracts contain substances with hypotensive properties (Seaforth, 1988).
Artocarpus heterophyllus jakiye	Same applications as *Artocarpus altilis*. **Diarrhea, fever:** root decoction, taken orally. **Intestinal worms, syphilis:** sap, taken orally. **Ulcer, wound:** leaf ash, applied externally.
Aspidosperma cuspa madam jan	**Cholera, asthma, snakebite:** root decoction, taken orally. **Ulcer:** leaf poultice.
Averrhoa bilimbi blinblin	**Fever:** green fruit juice, taken orally. **Poisonous bite:** leaf, applied as a poultice.
Avicennia germinans mang nwa	**Diarrhea, intestinal irritation, colic:** bark decoction, taken orally. **Sore, wound:** bark decoction wash. **Bleeding gums:** bark decoction rinse. **Hemorrhoids:** bark decoction bath. **Skin disease:** gum exudate lotion.
Azadirachta indica nim	**Fever:** leaf decoction w/ salt taken, orally. **Head lice:** fruit pulp ointment. **Skin ulcer, cramp:** seed oil, applied externally. **NB:** Alcoholic extracts contain antipyretic and anti-inflammatory substances (Pousset, 1989).
Bactris plumeriana koko makak	**Fever:** leaf tea, taken orally.
Bambusa vulgaris bambou	**Cold, malarial fever:** leaf decoction, taken orally. **Dysentery:** sweet sap drink. **Diuretic:** root decoction. **Rash:** stem 'bark' decoction bath. **Fever:** leaf boiled w/ *Pannicum maximum* leaf and white rum drink.
Bauhinia divaricata bwa kalson, kolèg, ti kalson	**Heart palpitation, spasm, upset stomach:** macerated leaf decoction, taken orally.
Bauhinia monandra de jimèl, jimèl	**Dysentery:** dried buds and young flower infusion, taken orally. **Irregular gastrointestinal tract:** leaf drink.

SPECIES	MEDICINAL USES
Bixa orellana woukou	**Headache:** leaf, applied to forehead. **Mouth/throat infection:** leaf decoction, gargle. **Asthma:** root decoction, taken orally. **Fever:** macerated seed decoction, taken orally. **Dysentery, kidney infection:** pulp surrounding seed, astringent drink.
Blighia sapida aki	**Fever, cold, intestinal worms:** leaf tea, taken orally.
Bocconia frutescens bwa jònis, bwa kòk denn	**Jaundice:** roots blended w/ warm water, taken orally.
Bontia daphnoides doliv bata, mang mawon	**Insect bite:** macerated leaf and fruit w/ alcohol. **Herpes:** resin. **Swollen tissue:** flower decoction or fruit oil extract, massage. **Ulcer, sore:** leaf, flower and fruit decoction, wash.
Bucida buceras grigri	**Fever:** bark and leaf decoction, taken orally.
Bunchosia glandulosa bwa kaka, bwa poulèt	**Amenorrhea, menstrual pain:** leaf infusion, taken orally. **Asthma, bronchitis:** leaf juice, taken orally. **Rheumatism:** leaf bath.
Bursera simaruba gomye	**Toothache, abscess, swollen glands, chest pain:** sap or terminal shoot, applied in natural form as a compress. **Fever:** bark tea, taken orally. **Digestive tract ailments, urethritis:** macerated bark or root, taken orally. **Kidney stones, diarrhea, lung infection:** resin, taken orally. **Gangrene:** leaf compress. **Snakebite:** macerated seed in aqueous resin, applied to bite.
Byrsonima crassifolia	**Fever, diarrhea, menorrhagia:** root decoction, taken orally.
Byrsonima spicata liann kolik, liann towo, towo tig	**Inflammation, ulcer:** leaf decoction, applied externally. **Dysentery, bronchitis, cough:** fruit, root and bark decoction, taken orally.
Caesalpinia bonduc grenn kinik, kanik, kinik, kinik jòn	**Asthma, mental distress:** leaf decoction, taken orally. **Fever, intestinal worms:** pulverized seed infusion, taken orally.
Caesalpinia ciliata kanik, kinik, kinik jòn, wawi	**Convulsion, venereal disease:** seed kernel decoction, taken orally.
Caesalpinia coriaria divi divi, gwatapana	**Diarrhea:** fruit cut in small pieces, prepared in an infusion, taken orally. **Throat infection:** fruit decoction gargled. **Skin disease, wound:** bark, leaf and green fruit infusion, wash. **Fever:** powdered dry seed, taken orally. **Stomach ache:** leaf and shoot decoction, taken orally.
Caesalpinia pulcherrima fransilad	**Fever:** root decoction, taken orally. **Liver infection:** leaf cooked, taken orally. **Canker sore:** leaf decoction, gargled or mouth wash. **Bronchial infection, erysipelas, measles, wound:** ground leaf and flower decoction, take orally or applied.
Caesalpinia vesicaria	**Diarrhea:** bark, roasted and powdered, taken orally.
Calophyllum calaba damari	**Blood pressure, liver disorders:** leaf decoction, taken orally. **Swollen glands, abscess:** latex or terminal shoot, applied externally. **Skin itch:** bathe with crushed leaves. **Burn:** resin, applied to burn. **Hernia:** resin, taken orally. **Skin infection:** seed oil lotion.
Calotropis procera koton swa	**Blood pressure:** leaf infusion, taken orally. **Leprosy, elephantiasis, syphilis:** root, bark and latex application. **Intestinal worms, toothache:** bark and latex, taken orally. **Depilatory:** latex.
Cameraria latifolia bwa lèt	**Blood disorders:** leaf or macerated root decoction w/ salt, taken orally or as a bath. **Rotten tooth:** latex, applied to fracture tooth.
Cananga odorata ilan ilan	**NB:** Plant has properties that lower blood pressure; used as an antiseptic and source of essential oil used in cosmetics (Liogier, 1990).
Canella winterana kanèl	**Rheumatism:** macerated bark in alcohol, massage. **Fever, abortive:** bark decoction, taken orally.
Capparis cyanophallophora bwa dajan, bwa kaka	**Skin diseases, herpes:** root decoction, applied externally. **Edema, intestinal worms:** root decoction, taken orally.
Capparis ferruginea bwa senegal	**Venereal disease:** leaf decoction, taken orally. **Thrush:** leaf decoction, gargled. **Skin diseases, herpes:** strong leaf decoction, applied externally. **Nerve disorders:** flower tea, taken orally. **Hysteria, shock, mourning:** root bath.
Capparis flexuosa bwa kaka	**Skin diseases, herpes:** strong leaf decoction, applied externally. **Spasm:** fruit decoction, taken orally.

SPECIES	MEDICINAL USES
Capparis gonaivensis bwa rav	**Gout:** root decoction, taken orally.
Carapa guianensis	**Skin itch:** leaf boiled in water, applied as lotion. **Fever, intestinal worms:** fruit rind decoction, taken orally. **Hepatitis, tetanus:** seed oil decoction, taken orally. **Skin disease, ringworm:** seed oil decoction or soap, applied externally.
Carica papaya papay	**Gastrointestinal ailments:** fruit and juice, eaten. **Sores:** fresh leaf poultice. **Rheumatism:** fresh root w/ sugar cane alcohol, taken orally or massaged. **Cough, bronchitis, asthma, chest cold:** flower decoction, taken orally. **NB:** The juice of unripe fruit is the source of papain. This protein-splitting enzyme is used as an aid in digestion and as a meat tenderizer.
Carpodiptera cubensis bwa dòti	**Digestive disorders of newborns:** fresh leaf infusion, taken orally. **Menstrual ailments, urine retention, bladder infection, bad blood, constipation:** root, stem or leaf infusion, taken orally.
Carpodiptera simonis bwa dòti	**Uterine hemorrhage, anemia, head congestion, arteriosclerosis:** flower and wood tea, taken orally.
Casearia sylvestris papelit	**Sore, ulcer:** leaf and stem decoction, applied to infected area. **Fever, syphilis, diuretic:** leaf decoction, taken orally.
Cassia fistula kas dou, kas panyòl	**Worms:** leaf of fruit decoction w/ salt, taken orally.
Cassia grandis baton kas	**Digestive tract ailments:** leaf decoction w/ salt, taken orally. **Skin itch:** massage and wash with crushed leaves. **Hysteria, nervousness, abortion:** leaf, flower, fruit pulp or seed beverage, taken orally. **Skin infection:** macerated root in alcohol, applied as a tincture. **Fever, rheumatism:** root and bark infusion, taken orally.
Cassine xylocarpa	**Stimulant:** plant parts, edible fruit.
Cassipourea guianensis	**Astringent:** bark.
Castilla elastica	**Sore throat:** leaf decoction, taken orally.
Catalpa longissima chenn	**Fever:** leaf decoction w/ salt, taken orally. **Asthma:** leaf decoction w/ salt, taken orally. **Fever, dysentery, uterine hemorrhage, leukorrhea:** bark decoction, taken orally. **Throat infections, tonsillitis:** bark infusion, taken orally. **Sore:** dried leaf and bark infusion wash. **Hemorrhoids:** macerated leaf w/ water bath. **NB:** Febrifruge properties require further research (Tramil III, 1988).
Cecropia peltata twompèt	**Inflammation:** pulverized leaf decoction applied as a bath or poultice. **Fever, asthma, Parkinson's disease, spleen ailments, epilepsy:** leaf decoction, taken orally. **Dysentery, hemorrhage, toothache:** astringent made from inner bark and shoots. **Gangrene, skin ulcer, wart:** caustic latex applied externally. **Diarrhea:** bark infusion, taken orally. **NB:** Contains ursolic acid with diarrheic properties (Duke, 1985).
Cedrela odorata sèd	**Digestive tract ailments:** macerated bark w/ salt, taken orally. **Malarial fever, epilepsy, ciguatera, cough:** root bark, leaf or twig decoction, taken orally. **Pain:** leaf or twig bath. **Abortion:** large quantities of bark decoction, taken orally. **Toothache:** bark decoction, as gargle. **Bronchitis:** resin decoction, taken orally.
Ceiba pentandra mapou	**Dizziness:** fresh leaf compress or lotion. **Edema:** boiled root decoction. **Skin bite/infection, fatigue, erysipelas, sprains, boils:** leaf decoction, as bath or poultice. **Constipation, diabetes:** root infusion, taken orally. **Upset stomach:** gum, eaten. **Contraceptive:** tender shoot decoction. **Placenta expulsion:** fruit rind. **Cough, hoarse throat:** leaf infusion, taken orally.
Cereus hexagonus	**Diuretic, dysentery:** macerated root w/ water, taken orally.
Chiococca alba kimak, kròk souri	**Purgative, diuretic, emetic, rheumatism:** root decoction, taken orally.
Chlorophora tinctoria bwa jòn	**Hepatitis:** macerated root w/ water, taken orally. **Tooth anesthetic:** dried latex placed beside tooth. **Mouth sore, sore throat:** gargle w/ fruit decoction. **Cold:** flower infusion, taken orally.
Chrysobalanus icaco ikak	**Dysentery, diarrhea:** bark, leaf and root decoction, taken orally. **Tonsillitis, sore throat:** honey w/ fruit oil and leaf decoction, taken orally.
Chrysophyllum cainito kaymit	**Wound:** leaf underside grated and applied as a compress. **Hemorrhage:** fruit. **Fever:** cooked fruit. **Hypoglycemia:** leaf decoction, taken orally. **NB:** Rich in tannins (Morton, 1981).
Chrysophyllum oliviforme kaymit mawon	**Wound, sore:** leaf underside grated and applied as a compress.

SPECIES	MEDICINAL USES
Cinnamomum verum kanèl	**Rheumatism:** essence as a poultice. **Spasm, stomach/intestinal gas:** essence, taken orally.
Citharexylum caudatum kafe mawon, kafe sovaj	**Abortive:** bark. **Hoarse throat:** leaf or macerated seed infusion, taken orally.
Citharexylum fruticosum grenad mawon, kafe mawon, madam klòd	**Abortive:** bark. **Lung infection, cold, bronchitis:** leaf drink and flower syrup, taken orally.
Citrus aurantifolia sitwon	**Digestive system ailments, fever, tuberculosis, worms:** leaf and fruit decoction w/ salt, taken orally. **Liver ailments:** inside peel, macerated, w/ salt, taken orally. **Headache:** crushed leaf decoction applied as a head bath. **Head cold, loss of appetite, epilepsy:** fruit juice, w/ sugar, taken orally. **Toothache:** fruit decoction or juice mouthwash w/ salt. **Wound, eye infection:** fruit juice rinse or compress. **General fatigue:** fruit juice w/ salt and sugar. **Urethritis:** macerated root or fruit juice, taken orally. **NB:** Lime juice stimulates gastrointestinal system; photosensitivity associated with wound treatments (Tramil III, 1988).
Citrus aurantium zoranj si	**Digestive tract ailments, head cold, loss of appetite, general fatigue:** fruit juice w/ sugar or salt, taken orally. **Chest pain, skin itch:** massage or compress on the diaphragm with a hot orange. **Respiratory ailments:** roasted fruit, taken orally. **Vomiting, nerve disorders :** leaf decoction w/ salt, taken orally. **Liver ailments:** fruit juice, taken orally. **Headache:** crushed leaf decoction and applied as head bath. **Rheumatism, broken bone, inflammation:** roasted fruit or leaf decoction applied as a massage or bath. **NB:** Fruit decoction exhibit anti-hemorrhagic properties in the gastrointestinal tract (Tramil, 1988); rich in vitamin C against infection; limonene exhibits expectorant properties; oils exhibit light anti-spasmodic and sedative properties (Paris and Moyse, 1976).
Citrus limetta kalmouk	**Kidney stones, gall bladder stones, hematuria, blood pressure, scurvy:** fruits eaten daily. **Fever:** fruit boiled in soda water.
Citrus limon limon frans	Similar properties as *Citrus aurantifolia.*
Citrus maxima chadèk	**General fatigue, flu, fever:** fruit juice, taken orally.
Citrus sinensis zoranj dous	**Digestive tract ailments, nerve disorders, fever, asthma, stomach ulcer or indigestion, blood pressure, general fatigue, vomiting:** leaf decoction w/ salt, taken orally. **Skin itch:** massage and wash with crushed leaves or fruit juice. **Urethritis:** macerated root, leaf or fruit mesoderm, taken orally. **Hepatitis, liver ailments:** macerated mesoderm of the fruit (sometimes bark) or decoction, taken orally. **Head cold, loss of appetite:** fruit juice or leaf decoction w/ sugar, taken orally. **Headache, rheumatism:** crushed leaf decoction and applied as bath. **Broken bone:** roasted fruit massage. **NB:** Leaf oil exhibits carminative properties (Tramil III, 1988) and light anti-spasmodic and sedative properties (Paris and Moyse, 1976); rich in vitamin C against infection.
Clusia major bwa pal, figye modi, gwo figye	**Kidney pain, sciatica, lumbago, shoulder pain:** resin compress. **Rheumatism:** fresh leaf, castor bean oil and salt mixture, applied as compress or fruit rind decoction, as bath. **Respiratory infection:** flower infusion, taken orally.
Coccoloba uvifera rezen fè, rezen lamè	**Diarrhea:** bark, branches and roots used in cooking or decoction. **Skin itch:** bark bath. **Fever:** bark decoction, taken orally. **NB:** Astringent bark, wood and roots have hemostatic properties and antipyretic properties (Liogier, 1990).
Coccothrinax sp. gwenn, latanye savann	**Respiratory ailments:** leaf decoction, taken orally.
Cochlospermum vitifolium	**Hepatitis:** fresh leaf juice, taken orally. **Chest cold:** flower, fresh or dried, decoction, taken orally. **Abscess:** pulverized root compress. **Intestinal inflammation:** root infusion, taken orally.
Cocos nucifera kokoye	**Anemia, purgative:** fruit bark (macerated or decoction) w/ salt, taken orally. **Sore:** coconut oil as a compress. **Fatigue, laxative, intestinal worms, bladder infection:** meat and milk, taken orally. **Dysentery:** root decoction, taken orally. **Bladder stones, nephritis, hypertrophy:** coconut wine. **Thrush:** root decoction w/ coconut oil, taken orally.
Coffea arabica kafe	**Sore:** powdered kernel as a compress. **Swollen glands, general fatigue, blood disorders, nerve disorders, fever:** macerated leaves or seed kernel decoction, taken orally. **Nerve disorders:** roasted seed decoction taken orally. **Headache:** leaf decoction or seed marc, taken orally or as a bath. **Malaria:** green fruit infusion drink. **Motion sickness:** Flower tonic.

SPECIES	MEDICINAL USES
Cola acuminata nwa kola	**Dysentery, stomach pain:** crushed nut and prepared as a tonic.
Colubrina arborescens bwa ple, kapab	**Rheumatism:** leaf tea or wood decoction, taken orally or applied as massage. Similar properties as *C. elliptica.*
Colubrina elliptica bwa mabi	**Diarrhea, dysentery, liver infections, fever, stomach ulcer:** bark drink. **Eczema:** bark bath.
Comocladia dentata breziyèt, bwa panyòl	**Cough and colds:** leaf decoction w/ sugar, taken orally. **Fever, stomach ulcer or indigestion:** leaf decoction w/ salt, taken orally. **CAUTION:** Not recommended for internal usage as plant contains potent irritants.
Conocarpus erectus mang nwa	**Diarrhea, intestinal irritation, colic:** bark tea, taken orally. **Bleeding gums:** bark tea, rinse.
Consolea macracantha rakèt	**Abscess:** macerated segment w/ other species (*Agave, Cassia fistula*), applied as a compress. **Hemorrhoids:** macerated segment, bath.
Cordia alba bwa chik	**Bronchitis:** flower decoction, taken orally. **Stomach infection:** wood charcoal.
Cordia alliodora bwa soumi, chenn kapawo	**Sore:** leaf decoction compress. **Cough, chest cold:** leaf infusion, taken orally. **Throat infection:** flower decoction, taken orally.
Cordia collococca twa pye	**Chigger:** crushed leaf application or bath. **Edema, shock:** root decoction, taken orally.
Cordia gerascanthes	**Epilepsy:** flower decoction, taken orally. **Herpes:** leaf decoction. **Fever:** bark infusion, taken orally.
Cordia mirabiloides flè dan, kròk chen	**Teething:** fruit or leaf infusion.
Cordia sebestena kòkèliko, ti soley	**Cough, flu, cold, indigestion, colic:** leaf decoction, taken orally. **Headache, fever:** leaf juice w/ water.
Couroupita guianensis boulèt kanon	**Depilatory:** fruit pulp decoction.
Crataeva tapia	**Rheumatism:** leaf decoction. **Dysentery, fever:** root tonic, taken orally.
Crescentia cujete kalbas	**Urethritis, swollen glands, lung infections, asthma, varix, constipation, dysentery, diarrhea:** macerated fruit pulp or juice, taken orally. **Trauma:** fruit decoction w/ salt or pulp juice, taken orally. **Epilepsy:** fruit pulp compress. **Wound, laceration:** crushed leaf and shoot bud compress. **Edema:** macerated root w/ wine and water, taken orally. **NB:** Has not been shown to exhibit anti-bacterial action. **CAUTION:** Contains cyanohydrate and internal usage not recommended (Ansel et al., 1989; Tramil III, 1988).
Crescentia linearifolia kalbas mawon	Similar properties as *Crescentia cujete.*
Crossopetalum rhacoma sewal	**Diuretic, infected kidney:** leaf and bark decoction, taken orally.
Croton glabellus bwa blan, bwa gèp	**Digestion, low blood pressure:** leaf decoction, taken orally. **Leprosy:** leaf decoction, applied externally.
Cupania americana satanye, twazokòt	**Chest pain:** massage on the diaphragm with crushed leaves. **Bladder weakness, swollen vesicles, intestinal disorders, kidney stones:** leaf and bark tea, taken orally. **Dysentery:** powdered seed in chocolate drink. **Headache, backache:** leaf compress, applied to affected area.
Cupressus sempervirens siprè	**Nervous system disorders, menopause disorders, bleeding of the uterus, hemorrhoids:** fruit decoction. **Chest sickness, diarrhea:** astringent made of bark, wood or fruit. **Intestinal worms:** volatile oil extract from the wood. **Convulsive cough:** essence boiled in water, taken orally. **Rheumatism:** leaf decoction, applied externally.
Curatella americana pòm tòch	**Arthritis, blood pressure, diabetes:** leaf and stem decoction, taken orally. **Skin rash, sore:** leaf decoction bath.
Cycas circinalis	**Ulcer:** suppuration with sticky substance in stem. **Kidney pain:** fruiting cone as a poultice. **CAUTION:** Seeds contain a toxic glucoside, *pakonia* (Liogier, 1990).

SPECIES	MEDICINAL USES
Dalbergia ecastaphyllum liann klou, zèb aklou	**Gastrointestinal disorders:** young leaf, flower or seed decoction, taken orally, in small doses (e.g., 1 teaspoon daily). **Intestinal worms:** bark or seed kernel decoction, taken orally, in small doses.
Daphnopsis americana maho	**Blistering:** macerated bark w/ water, applied to provoke blistering.
Delonix regia flambwayan	**Malaria:** macerated root and branch in alcohol, taken orally. **Malarial fever:** flower and bark infusion, taken orally. **Constipation:** leaf decoction, taken orally.
Dendropanax arboreus bwa nègès	**Rash, fever:** leaf and root decoction, used as a diaphoretic.
Dendrosicus latifolius kalbas zombi	**Tetanus:** fruit decoction, taken orally. **Rash:** leaf juice, massage.
Diospyros revoluta ebenn	**Constipation:** fruit pulp, taken orally. **Malaria:** leaf decoction, taken orally.
Dodonaea viscosa mang ti fèy	**Abscess, boil:** warm leaf poultice. **Fever, colic, gout, male venereal disease:** leaf and bark tea or wood decoction, taken orally.
Ehretia tinifolia bwa chapo, chenn nwa	**Kidney infection:** leaf decoction, taken orally. **Bloody vomit:** flower tea and leaf decoction, taken orally.
Enterolobium cyclocarpum bwa tanis wouj	**Tuberculosis, chronic bronchial infections:** bark and flower syrup, taken orally. **Lung congestion:** bark and fruit decoction, taken orally or gargled. **Hemorrhoids:** bark bath.
Erithalis fruticosa	**Diuretic, kidney infection, cystitis:** bark, resin and fruit decoction, taken orally.
Erythrina corallodendrum koray	**Chest ailments:** flower decoction, taken orally. **Scorpion sting:** stem sap, applied to affected area. **CAUTION:** Seeds are toxic. Bark contains a narcotic alkaloid.
Erythrina crista-galli	**Animal bite:** fresh bark compress. **Hemorrhoids:** cool bark bath. **Throat sore:** bark used in food preparation.
Erythrina poeppigiana bwa mòtèl	**Asthma, cough, hysteria:** leaf and bark decoction, taken orally. **Skin itch:** milky leaf lotion. **Flu:** dried leaf decoction, taken orally.
Erythrina variegata baton sòsiye	**Chest cold, cough, flu, asthma:** leaf and bark decoction, taken orally. **Pain, insomnia:** leaf and bark syrup, taken orally. **Venereal disease:** leaf decoction bath. **Chest ailments:** sun-dried flower syrup, taken orally.
Erythroxylum havanense	**Hemoptysis:** root decoction, taken orally.
Erythroxylum minutifolium	**Skin itch:** root salve.
Eucalyptus globulus kaliptis	**Respiratory ailments, cough convulsions:** inhaled leaf vapors. **Lung infections, gastrointestinal ulcers, angina:** leaf decoctions or tea, taken orally. **Rheumatism:** leaf bath.
Eugenia ligustrina	**Leukorrhea:** leaf decoction, taken orally.
Euphorbia pulcherrima de sezon, fèy senjan	**Depilatory:** latex application. **Erysipelas:** latex lotion, applied externally.
Exostema caribaeum kenkena peyi, kininn	**Fever, malaria:** bark and fruit decoction, taken orally.
Faramea occidentalis	**Diarrhea, anemia:** leaf infusion, taken orally. **Antiseptic:** leaf bath.
Ficus benjamina figye	**Skin ulcer:** boiled leaf decoction w/ oil, applied externally.
Ficus microcarpa	**Bath:** leaves used as an aromatic.
Ficus religiosa	**NB:** Purgative made from leaves and shoots; seeds ground to dust taken as a tonic.
Ficus trigonata figye wouj	**Dislocation**: latex poultice. **Liver ailments:** leaf decoction, taken orally.
Garcinia aristata	**Tetanus, wound, bleeding:** resin, applied to wound. **Asthma:** boiled resin, taken orally.
Genipa americana jinpa	**Dysentery:** edible fruit. **Syphilis, pharyngitis:** fruit rind decoction wash. **Emetic:** pulverized seed emulsion w/ water. **Purgative:** root decoction. **Hemorrhage:** green fruit infusion. **NB:** Seed was a source of dye for tattoos among the native Tainos.
Gliricidia sepium lila etranje, piyon	**Fever, pain:** leaf bath. **Sinus inflammation, gonorrhea:** leaf tea, taken orally. **Kidney ailments, edema, hepatitis:** root tea, taken orally. **Skin disease, wound:** leaf poultice.

SPECIES	MEDICINAL USES
Guaiacum officinale gayak fran, gayak mal	**Toothache:** resin, applied to tooth. **Skin disease:** resin, applied externally. **Rheumatism, gout, blood pressure, arteriosclerosis:** resin, taken orally.
Guaiacum sanctum gayak blan, gayak femèl	**Syphilis, gout, rheumatism, scrofula:** resin decoction, taken orally.
Guarea guidonia bwa wouj	**Blood disorders, anemia, malarial fever, intestinal hemorrhage:** bark or leaf decoction w/ salt or macerated leaf, taken orally. **Phlegm, bronchitis:** resin in alcohol base, taken orally. **Eczema:** bark bath.
Guazuma ulmifolia bwa dòm	**Digestive tract ailments, bad blood:** bark or seed decoction w/ salt, taken orally. **Cold, high blood pressure:** leaf, bark or seed decoction w/ sugar, taken orally. **Cough:** macerated bark massage. **Broken bone, sore:** pulverized bark compress. **Burn:** inner bark compress **Elephantiasis:** leaf decoction or maceration. **Dysentery, hemorrhoids:** inner bark enema. **Heat rash:** green bark tea, bath. **CAUTION:** Excessive quantities may cause gastrointestinal ailments; used as a diarrheic in Nicaragua and Venezuela (Morton, 1981).
Gymnanthes lucida bwa mabre	**Toothache:** bark decoction. **Callus:** latex application.
Haematoxylon campechianum kampèch	**Hepatitis, nerve disorders, fever:** pulverized leaf decoction, taken orally or as a bath. **Anemia, blood disorders, dysentery, diarrhea:** wood, bark or leaf decoction w/ salt, taken orally. **Trauma:** leaf juice w/ salt, taken orally. **Headache:** pulverized leaves compress. **Toothache:** leaf decoction mouthwash w/ salt. **NB:** Source of anti-inflammatory and antibiotic substances (Oliver, 1986).
Hamelia patens flè koray, koray wouj	**Intestinal gas:** leaf tea, taken orally. **Asthma, smallpox, leg wound, skin infection:** leaf decoction bath. **Skin itch:** macerated leaf and fruit lotion. **Headache:** leaf compress.
Hernandia sonora	**Chronic diarrhea:** fruit, including husk, decoction, taken orally. **Constipation:** bark and leaf decoction, taken orally. **Depilatory:** leaf juice, applied externally.
Hibiscus elatus maho ble	**Skin irritation, bite, sore:** powdered leaf, bark or fresh leaf compress or bath. **Diarrhea, colic, dysentery, cough, malarial fever:** leaf decoction, taken orally, with bath. **Throat infection, tonsillitis:** leaf decoction, gargle.
Hibiscus rosa-sinensis choublak	**Flu, cold, fever:** flower petal and shoot bud tea, taken orally. **Hair dye/tonic:** crushed leaf lotion.
Hibiscus tiliaceus gran maho, maho fran	**Gastro-intestinal ailments, constipation, cough, abscess:** flower, root and root bark decoction, taken orally. **Hemorrhoids:** leaf decoction.
Hippomane mancinella mancheni, manseniye	**Syphilis, edema, tetanus:** bark and wood decoction.
Hura crepitans rabi, sabliye	**Abscess:** boiled leaves, applied externally. **Trauma:** leaf decoction applied as a compress. **Rheumatism, headache:** hot leaves applied as a compress. **CAUTION:** Seed is a powerful purgative; seed remedies are not recommended (Liogier, 1990).
Hymenaea courbaril koubari, pwa konfiti	**Emphysema, asthma, cough:** scalded resin as an inhalant. **Wounds, sores, ulcers:** powdered resin, applied externally. **Muscle cramps, rheumatism, arthritis, bruises, kidney pain:** resin liniment, applied to affected area. **Purgative:** bark decoction, taken orally. **Constipation, intestinal gas:** bark fragment infusion, taken orally. **Intestinal worms:** inner bark decoction, taken orally.
Ilex macfadyenii ti wou	**Fever:** leaf decoction, taken orally. **Phlegm:** root and bark tea, taken orally. **Diuretic, diaphoretic:** leaf, root and bark.
Inga vera pwa dou, sikren	**Anemia:** macerated bark, taken orally. **Gall bladder stones:** root decoction, taken orally. **Constipation:** fruit pulp, taken orally.
Jatropha curcas fèy medsen	**Edema:** boiled plant parts in water, taken orally. **Sore:** plant decoction, compress. **Eczema, dermatosis**: warm plant decoction, compress. **Fever:** leaf bath. **Constipation:** tender leaf infusion, taken orally. **Rash, burn, skin infection:** latex lotion. **Emetic, purgative:** fruit and seed decoction.
Jatropha multifida papay sovaj	**Sore, scar:** latex. **Venereal diseases:** roasted seed infusion. **Skin parasites:** seed oil lotion.
Juglans jamaicensis nogal	**Bad blood:** leaf decoction, taken orally. **Leukorrhea:** bathe with leaf decoction. **Skin infections:** tea made with husk and applied externally.
Juniperus gracilior sèd	**Emmenagogue, abortive:** leaf tea or decoction, taken orally. **CAUTION:** Not to be used without a medical prescription.

SPECIES	MEDICINAL USES
Krugiodendron ferreum bwa fè	**Toothache:** bark chew.
Lagerstroemia indica stragònya	**Thrush, stomatitis:** root decoction, gargle or mouth wash.
Lagetta lagetto bwa dantèl, lagèt	Similar properties as *Daphnopsis americana.*
Laguncularia racemosa mang blan	**Astringent, tonic.**
Lawsonia inermis flè jalouzi	**Ulcer, rheumatism:** leaf and flower infusion, applied externally. **Tetanus, epilepsy, stomach pain:** leaf and flower infusion, taken orally.
Leucaena leucocephala subsp. *leucocephala* delen, madlenn	**Fever:** root decoction, taken orally. **Typhoid, digestive tract ailments:** leaf tea. **Anemia:** boiled parched leaves until very red. **Severe back pain:** root and twig decoction, taken orally. **Abortive:** root and bark, taken orally.
Licaria triandra lorie jòn	**Stomach ailments:** leaf, root or bark decoctions, taken orally. **Skin ailments:** bark bath.
Litchi chinensis kenèp chinwa, litchi	**Diarrhea:** leaf infusion, taken orally. **Mouth/throat infections :** leaf infusion as gargle or mouthwash. **Fatigue, anemia:** root bark tonic, taken orally.
Lonchocarpus domingensis bwa kayman	**Constipation, stomach ailments:** leaf decoction, taken orally. **Difficulty in urinating:** root infusion in boiling water, taken orally.
Lonchocarpus latifolius bwa kayman	**Induce vomiting, purgative:** leaf decoction, taken orally.
Lysiloma sabicu tabèno	**Skin itch, ulcer:** wash with crushed leaves. **Diarrhea:** leaf enema. **Seafood poison, food poison:** leaf decoction, taken orally.
Malpighia emarginata seriz sendoming, ti seriz	**Sore throat:** crushed leaf juice diluted in cool water, gargled. **Fever:** bark decoction, taken orally. **Hepatitis, gastrointestinal disorders:** fruit juice, taken orally. **NB:** Fruits are a rich source of vitamin C.
Malpighia setosa bonbon kapitenn, kapitenn	**Hemorrhage, menorrhagia, leukorrhea:** ripe fruit and root tea, taken orally.
Malvaviscus arboreus	**Bronchial infection, dysentery, diarrhea, thrush, tonsillitis:** flower decoction, taken orally.
Mammea americana zabriko	**Hair and skin parasites, eczema:** resin lotion or bark decoction. **Wound:** pulp decoction., applied to wound.
Mangifera indica mango	**Diarrhea:** bark or leaf decoction w/ salt, taken orally. **Urethritis, lower back ailments, malarial fever:** bark or root decoction, taken orally. **Liver ailments:** macerated bark in an aqueous solution, taken orally. **Burn:** boiled ground bark, poultice. **Bronchitis:** boiled bark w/ honey, taken orally. **Malaria, intestinal worms, toothache, asthma, chest infection:** leaf infusion, taken orally. **Rickets:** edible fruit. **Tuberculosis:** roasted fruit w/ sugar. **Constipation:** fruit skin, eaten. **Bronchial infection, asthma:** flower syrup, eaten. **Intestinal worms:** pulverized roasted seed decoction. **Dysentery, diarrhea:** seed emulsion, taken orally. **NB:** Exhibits action against intestinal tract bacteria (*E. coli, S. enteritidas*); excessive ingestion may cause digestive and renal ailments; tannins exhibit antibacterial properties (Kerharo, 1977).
Manilkara zapota sapoti	**Fever, hemorrhage, wound, ulcer:** leaf decoction, taken orally or applied. **Neuralgia:** leaf w/ tallow, applied as a compress on the temple. **Diuretic:** ground seed w/ water. **NB:** Plant is source of sapotin, a glucoside used in medicine as a febrifuge. Sap is source of chicle and base of chewing gum. **CAUTION:** Seed contains hydrocyanic acid.
Mastichodendron foetidissimum akoma, koma	**Wound, sore:** resin, applied externally.
Matayba apetala bwa grenn, bwa grenn nwa	**Toothache:** bark, applied to tooth. **Erysipelas:** shoot bud decoction, applied as a wash.
Matayba scrobiculata satanye, satanye mawon	**Body ache:** warm leaf bandage or bath.

SPECIES	MEDICINAL USES
Melaleuca quiquenervia melalika	**Skin infections (eczema, psoriasis, acne):** ointment. **Headache, colds:** decoctions of the seed capsules and crushed young leaves. **Intestinal worms, spasm, colic, flatulence, bronchitis, laryngitis:** oil from leaves and twigs, taken internally. **Rheumatism, neuralgia, gout, local paralysis, skin irritations, bronchitis, sprain, bruise:** oil from leaves and twigs, applied externally. **Toothache:** oil dropped into cavity.
Melia azedarach lila	**Fever:** leaf and bark decoction w/ salt, taken orally. **Rheumatism, sore:** leaf bath.
Melicoccus bijugatus kenèp	**Nerve disorders:** leaf decoction w/ salt, taken orally. **Fever, body malaise:** leaf decoction drink. **Sore throat, thrush, tonsillitis:** macerated leaf juice, gargle. **Chest weakness, dry stomach:** fruit, eaten. **Diarrhea:** powdered roasted seed syrup or tea, taken orally.
Metopium brownei bwa milat	**Syphilis, hepatitis, kidney and bladder infections:** leaf, flower, bark and root decoctions. **Uterine hemorrhage, fibroma:** plant tea. **Inflammatory rheumatism, measles, smallpox, erysipelas:** sudorific and sedative properties.
Michelia champaca ilan ilan	**Rheumatism, malaria, headache, dizziness:** bitter bark decoction, taken orally. **NB:** Perfume oil is extracted from the flowers and seed (Liogier, 1990).
Miconia impetiolaris makrio, twazokòt	**Hemorrhage:** leaf and bark decoction.
Miconia laevigata makrio	**Bite, wound:** leaf and bark, warmed w/ water, compress. **Fever:** leaf and bark tea or bath.
Miconia racemosa kaka poul, makrio	**Pressure sore on animals:** leaf poultice.
Morinda citrifolia bwa doulè	**Pain:** warm leaf w/ castor bean oil, compress. **Ulcer, gout, sore:** leaf juice, applied to affected area.
Moringa oleifera benzoliv	**Nerve disorders, loss of appetite:** leaf decoction w/ salt, taken orally. **Flu, cough, general fatigue:** leaf or flower decoction w/ sugar, taken orally. **Skin irritant:** root decoction as salve. **Convulsions:** macerated leaf, applied as a compress to joints and temple. **Edema:** root decoction, taken internally. **Sore:** leaf poultice. **NB:** Rich in folic acid as an anti-anemic and vitamin C against infection.
Morus nigra mi	**Diabetes:** leaf, flower or fruit decoction gargled. **Fever, sore throat, swollen vocal chords:** fruit juice w/ tepid water and sugar. **NB:** Fruit has laxative properties.
Muntingia calabura bwa swa mawon	**Nerve ailments, spasm, cough:** flower decoction, taken orally.
Murraya paniculata mit	Similar properties as *Citrus limon* and *Citrus sinensis*
Musa spp. bannann, fig mi	**Diarrhea, hemorrhage:** green fruit. **Burn:** powdered green fruit poultice. **Sting:** heated green bark compress. **Skin infections:** dried, pulverized bark application. **Sore:** ripe leaf bath. **Tuberculosis:** fermented stem juice, taken orally. **Diuretic, laxative:** young sucker juice, taken orally. **Asthma:** crushed stolon juice w/ honey, taken orally.
Myrcia citrifolia bwa damou, magèt, malagèt	**Gum disease:** leaf decoction, mouth rinse.
Myrica cerifera kanèl abey, kanèl dous	**Intestinal gases:** leaf decoction mixed w/ rum, taken orally.
Myristica fragrans nwa miskad	**Intestinal infections, gas, fever:** pulverized seed infusion, taken orally.
Myrospermum frutescens	**Rheumatism, muscle spasm:** alcoholic legume beverage, applied as a massage. **Toothache:** stem resin dissolved in alcohol, applied to tooth. **Chest ailments:** legume vapor dissolved in ether, inhaled.
Myroxylon balsamum	**Chest ailments, bronchial infection, venereal disease:** resin, taken orally. **Skin disease, skin itch:** resin, applied as a salve.
Nerium oleander lorie twopikal, lorie wòz	**Mange:** dry leaf poultice. **Head lice, ulcer:** macerated leaf w/ vinegar.
Ochroma pyramidale koton swa, mahodèm	**Fever:** stem bark decoction, taken orally. **Diarrhea, colic:** root bark decoction, taken orally. **Rheumatism, joint pain:** leaf mixed with castor bean oil, applied as lotion. **Chest infection, bronchitis, dry cough, flu:** fruit juice drink.

SPECIES	MEDICINAL USES
Ocotea coriacea lorie blan	**Digestive tract ailments:** leaf decoction w/ salt, taken orally.
Omphalea triandra nwazèt	**Scrofula, intestinal worms, kidney pain, enteritis:** edible fruit pulp or fruit oil extract. **Rickets:** fruit oil extract, massage or leaf infusion. **Tuberculosis, bone ailments, lymphadenitis:** leaf infusion, taken orally.
Opuntia ficus-indica rakèt	**Diarrhea, dysentery:** crushed fruit drink. **Cough:** fruit juice drink or syrup. **Diuretic:** root decoction, taken orally.
Oreopanax capitatum bwa danjou, bwa kochon	**Rheumatism:** bark extract. **Diaphoretic:** leaf.
Ouratea ilicifolia ano	**Diuretic, purgative:** leaf and twig tonic.
Oxandra lanceolata bwa lans	**Bad blood, stomach ache, diarrhea:** leaf, bark or root tea, taken orally. **Toothache:** bark bath.
Pachira aquatica kolorad	**Chest pain:** flower and leaf tea, taken orally.
Pachira insignis	**Emollient:** leaf. **NB:** Seed is considered very nutritious (Liogier, 1990).
Parkinsonia aculeata madam yas	**Fever, malaria, abortive:** leaf, fruit and stem decoctions, taken orally. **Rheumatism:** flower and leaf extraction in alcohol, applied as a poultice.
Pera bumeliifolia kase rach, kase raj	**Hemorrhoids:** bark decoction. **Rash, herpes, sore, wound:** bark scrapings boiled in water, wash.
Persea americana zaboka	**Digestive tract ailments, anemia:** bark decoction w/ salt, taken orally. **Hepatitis, liver ailments:** juice from macerated seed and taken orally. **NB:** Leaf and fruit extracts have a stimulatory effect on rat uteri; recommended against amenorrhea (Tramil III, 1988).
Petitia domingensis bwa dòti	**Digestive tract ailments, fever:** leaf decoction w/ salt, taken orally. **Sore:** boiled or pulverized leaves compress.
Phoenix dactylifera dat	**Cough, chest cold:** edible fruit.
Phyllanthus acidus sibilinn	**Cathartic:** seed. **Purgative:** seed and root. **Diaphoretic:** leaf.
Picramnia antidesma	**Fever, diarrhea, venereal disease:** bark and leaf decoction, taken orally.
Picramnia pentandra bwa pwason, bwa ti gason, kafe mawon	**Fever, dysentery, cholera, intestinal worms:** leaf, bark and root decoction, taken orally.
Picrasma excelsa fwenn	**Indigestion, anorexia, intestinal worms, dysentery, fever:** leaf and bark decoction, taken orally.
Picrodendron baccatum	**Venereal diseases:** entire plant for purgative and sudorific properties.
Pictetia spinifolia galgal	**Skin ulcer, wound, scar:** boiled leaf compress. **Headache:** pounded leaf poultice, applied to temple. **Constipation:** boiled fruit, taken orally.
Pimenta dioica magèt, malagèt	**Toothache:** leaf oil, applied to tooth. **Fever, pain:** leaf bath.
Pimenta racemosa bwa denn franse, klou jiròf	**Muscle cramp:** massage. **Incontinence (urine):** leaf and seed decoction w/ honey. **Insect bite, edema, varix, bruise:** leaf and seed decoction, treated w/ warm water and applied. **Headache, dizziness:** leaf decoction, compress. **Sore throat:** leaf decoction, gargle. **Nausea:** bay-rum oil w/ sugar. **Diarrhea:** leaf tea. **Elephantiasis:** leaf bath.
Pinus caribaea bwa pen	**Rheumatism:** massage w/ sawdust or resin dissolved in lemon juice. **Eczema:** fresh resin applied directly to affected area. **Gout, rheumatism:** wood or leaf decoction bath. **Bronchitis:** shoot bud decoction, taken orally.
Pinus occidentalis bwa pen	**Hemorrhage, puerperal fever, rheumatism, sciatica:** essence of turpentine, taken internally. **Bruise, rheumatic cramps, backache, spasms:** essence of turpentine applied externally, sometimes with mixed with alcohol and egg yolk. **Cold, cough, bronchitis:** essence of turpentine, taken orally, w/ sugar. **Chest ailments:** syrup taken orally. **Respiratory ailments:** leaf or bark decoction w/ salt or sugar, taken orally. **Fever:** leaf needle tea, taken orally.

SPECIES	MEDICINAL USES
Piper aduncum bwa majò, siwo	**Fever:** leaf tea, taken orally.
Piper amalago anis mawon, fèy siwo	**Colic, intestinal gases, digestion ailments:** leaf infusion, taken orally. **Chronic ulcer:** strong root decoction, applied externally.
Piptadenia peregrina bwa ekòs, bwa kayman	**NB:** Roasted seeds formerly used as a narcotic by the Tainos, former inhabitants of Haiti.
Piscidia piscipula bwa ivran	**Toothache:** bark and root compress, applied to tooth. **Shoulder pain:** leaf decoction massage. **Wound:** leaf decoction wash. **NB:** Plant contains narcotic properties.
Pisonia aculeata kròk chen	**Rheumatism, swollen joints:** bark or leaf decoction, taken internally or applied externally. **NB:** Roots are a purgative (Liogier, 1990).
Pithecellobium dulce	**Dysentery:** root bark decoction, taken orally. **Indigestion:** leaf w/ salt and black pepper. **Convulsions, venereal lesions, pain:** leaf poultice. **Hemoptysis:** fruit pulp, taken orally, to stop blood flow. **Congestion:** seed juice, inhaled into nostrils. **Internal ulcers:** pulverized seed, ingested.
Pithecellobium unguis-cati	**Fever, dysentery, renal infection, kidney stones, liver/spleen infection:** bark decoction, taken orally. **Skin infections:** bark and fruit pericarp bath.
Plumeria alba franjipanye blan	**Skin parasites, syphilis, toothache:** latex application. **Intestinal worms:** root decoction, taken orally.
Plumeria obtusa franjipani	**Ulcer, wound:** bark and stem decoction, bath. **Flu, cold, bronchitis, dry cough:** flower tea.
Polyscias sp. paresè	**Flu, cough, cold:** fresh leaf infusion. **Headache, dizziness:** fresh leaf w/ oil and salt, compress.
Pouteria sapota jòn dèf	**Wart, callus:** bark fragments, applied as poultice. **Dysentery, stomach ulcer:** boiled fruit. **Diuretic:** seed oil beverage. **Ear/eye infections:** seed oil application. **Kidney stones, rheumatism:** rind of seed kernel, taken orally.
Prosopis juliflora bayawonn, gwatapana	**Eye infection:** eye drops made from leaf juice or cooked leaves, applied or taken orally. **Cold, flu, hoarse throat:** gum exudate from trunk, taken orally. **Diarrhea:** fresh root, taken orally. **Bronchial infection, sinus congestion:** bark and fruit decoction.
Prunus myrtifolia lamandye ti fèy	Similar properties as *Prunus occidentalis.*
Prunus occidentalis lamandye gran fèy	**Asthma, cough:** bark, leaf and fruit decoction, taken orally. **Cold:** flower and leaf infusion, taken orally. **Phlegm, cough:** seed syrup, w/ sugar, taken orally.
Prunus persica pèch	**Hematuria, constipation:** fruit as food. **Child's cough/restlessness:** flower syrup, taken orally.
Psidium guajava gwayav	**Digestive tract ailments, cold, high blood pressure:** leaf decoction or fruit juice w/ salt or sugar, taken orally. **Trauma, pain, headache, rheumatism:** hot leaf decoction compress. **Sore throat, hoarse throat:** leaf decoction, gargle. **Varix, ulcer:** leaf decoction, treated w/ warm water, bath. **Diarrhea:** leaf decoction, enema. **Hepatitis, gonorrhea, diarrhea:** clear fruit juice. **NB:** Exhibits anti-bacterial action against intestinal pathogens; controls bowel movement (Tramil III, 1988); oil contains bisabolene and flavanoides that exhibit anti-inflammatory properties (Morton, 1981; Duke, 1985); volatile oil with methylchavicol, persein, d-pinene (a paraffin) in leaf (Eldridge, 1975).
Pterocarpus officinalis bwa nago, bwa pal	**Skin infection:** bark resin, applied as a salve. **Diarrhea, amenorrhea:** bark resin, taken orally.
Punica granatum grenad	**Intestinal worms:** root and stem bark decoction, taken orally. **Dysentery, diarrhea:** fruit rind decoction, taken orally. **Asthma:** flower infusion, taken orally. **Eye wash:** fresh juice surrounding seeds. **Tonsillitis, throat infection:** flower bud and fruit rind w/ honey, gargle.
Quassia amara	**Fever, diphtheria, anorexia:** macerated bark decoction, taken orally.
Randia aculeata kròk chen	**Dysentery, fever:** leaf and bark decoction, taken orally. **Hemorrhage:** latex.
Rauvolfia nitida bwa lèt femèl	**Tension:** root. **Snake bite:** leaf and stem compress.

SPECIES	MEDICINAL USES
Rhizophora mangle mang chandèl, mang nwa, mang wouj	**Fever, hemorrhage, rheumatism, liver ailments:** bark tea, taken orally. **Sore throat, angina:** bark decoction, gargle. **Malarial fever:** pulverized bark, taken orally. **Leprosy, ulcer:** macerated wood decoction, applied to affected area.
Roystonea borinquena palmis	**Broken bones:** leaf compress. **Diuretic, bladder stones, diabetes:** root decoction, taken orally.
Sambucus simpsonii siwo	**Fever, diaphoretic, throat infection, chest cold:** flower infusion, taken orally. **Headache:** leaf compress. **Measles, smallpox, scarlet fever:** leaf infusion.
Sapindus saponaria savonèt, savonèt peyi	**Diarrhea:** root decoction, taken orally. **Snakebite:** leaf infusion, applied to bite. **Rheumatism, gout:** fruit oil. **Asthma:** fruit, taken orally. **NB:** Leaf and fruit contains saponin, a group of glucosides that is used as a detergent.
Schaefferia frutescens bwa kapab, ti gason	**Flu, cold, chronic cough, aphrodisiac:** plant decoction, taken orally. **Skin itch, rash:** pulverized leaf bath.
Schefflera morototoni bwa kano	**Broken bone, dislocation:** leaf treated w/ warm water, compress. **Lumbago, rheumatism:** leaf decoction, taken orally.
Schinus molle	**Ophthalmia, rheumatism:** leaf juice. **Diarrhea:** bark extract infusion. **CAUTION:** Resin is a dangerous purgative.
Schinus terebinthifolius	**Rheumatism, sciatica:** bark bath. **Skin ulcer:** crushed, dried leaf poultice. **Bronchitis, respiratory ailments:** leaf infusion, taken orally. **Wound, sore:** leaf or fruit decoction bath. **Ganglionic tumors, contusions:** macerated root juice.
Senna angustisiliqua brize menaj, fèy lawouziye	**Syphilis:** all plant parts prepared in a decoction, taken orally. **Bad blood:** root decoction, taken orally.
Senna atomaria bwa kabrit	**Skin itch:** massage with crushed leaves. **Skin discoloration, insect bite:** macerated leaf decoction, applied to affected area.
Senna pendula bwa dano	**Gastrointestinal disorders:** leaf decoction, taken orally.
Sesbania grandiflora pwa valye	**Rheumatism:** root paste, applied externally. **Phlegm:** root resin w/ honey, taken orally. **Fever, diabetes:** bark decoction, taken orally. **Sinus congestion:** flower decoction, taken orally.
Sesbania sesban	**Suppuration:** leaf compress, applied to infected area.
Simarouba glauca var. *latifolia* bwa blan, fwenn,	**Fever:** macerated bark decoction, taken orally. **Rheumatism:** pulverized leaf, seed and bark boiled in sugar water, taken orally. **Bruise, body pain:** leaf decoction, applied as lotion. **Skin itch:** massage with crushed leaves. **Diarrhea:** bark tea, taken orally.
Sloanea amygdalina bwa kòk, chapo kare	**Stomach ache, headache:** leaf decoction, taken orally.
Sloanea ilicifolia chapo kare	**Menstrual cramps:** leaf decoction, taken orally.
Spondias mombin monben	**Digestive tract ailments:** macerated bark or leaves taken orally. **Urethritis:** macerated root taken orally. **Lower back pain:** macerated root, taken orally. **Rheumatism:** pulverized leaf bath. **Angina, sore throat:** root bark decoction, taken orally. **Metrorrhagia, contraceptive:** root. **Malarial fever, congestion:** leaf decoction, taken orally. **Diarrhea:** fermented fruit, eaten. **NB:** Plant extracts exhibit anti-bacterial properties (Rouzier, 1990).
Spondias purpurea siwèl	**Swollen glands:** leaf juice, taken orally. **Trauma:** leaf juice w/ salt, taken orally. **Head cold, headache:** crushed leaves and applied as a head bath. **Skin itch, skin parasites, hemorrhoids:** crushed leaf bath. **Digestive ailments:** pulverized leaf decoction w/ salt, gargle. **Constipation:** fruit eaten in quantity. **Dysentery, diarrhea:** leaf decoction, taken orally. **NB:** Leaves exhibit anti-bacterial properties (Tramil III, 1988).
Sterculia apetala pistach	**Cough, insomnia:** flower decoction, taken orally. **Flu, bronchitis, chronic cough, asthma:** flower syrup, taken orally. **Rheumatism:** leaf decoction, taken orally. **Stimulant:** seed decoction tonic.
Strumpfia maritima	**Fever:** leaf infusion w/ *Exostema caribaeum* leaf; **Poisonous bite:** leaf infusion compress.
Suriana maritima krist marinn	**Rheumatism:** branch and leaf bath. **Sore:** leaf and bark decoction or powder, applied externally. **Bleeding:** powdered leaf w/ flour, applied as poultice.

SPECIES	MEDICINAL USES
Swietenia mahagoni kajou peyi	**Nerve disorders:** leaf decoction w/ salt, taken orally. **Fever, anemia, diarrhea, dysentery:** bark (macerated or decoction) w/ salt, taken orally. **Aphrodisiac:** steeped bark with rum for 3–4 days, taken orally. **Loss of appetite:** steeped bark, taken orally. **Vitamins and iron:** steeped bark and roots, taken orally. **Abortion:** large quantities of boiled bark decoction, taken orally. **Toothache:** resin or bark decoction. **Chest pain:** seed tea, taken orally. **Bleeding:** bark, leaf or root extract, applied externally.
Syzygium jambos pòm wòz	**Epilepsy:** root. **Diabetes:** pulverized seed. **Purgative, emetic:** root and bark. **NB:** Plant is a source of eugenol, a colorless, aromatic liquid phenol used in perfumes and as an antiseptic.
Tabernaemontana citrifolia bwa lèt mal	**Fever, hemorrhage:** bark and latex bath. **Toothache, birthmark removal:** latex.
Tamarindus indica tamarenn	**Asthma, digestive tract ailments:** leaf, bark or root decoction w/ salt, taken orally. **Throat infections, intestinal worms, liver ailments:** leaf decoction w/ salt, taken orally. **Loss of appetite:** fruit pulp taken orally. **Eye infection, sprain, wound:** young leaf compress. **Constipation:** macerated fruit in water 24 hrs., taken orally. **Rheumatism:** fruit pulp w/ salt, massage. **Malarial fever:** fruit decoction, taken orally. **NB:** Leaf extracts exhibit anti-oxidant activity in the liver (Tramil III, 1988).
Tecoma stans chevalye	**Diabetes:** leaf infusion, taken orally. **Diuretic, syphilis, intestinal worms:** strong leaf and root decoction, taken orally. **Stomach pain, diabetes mellitus:** leaf decoction, taken orally.
Terminalia catappa zamann	**Gastric fever, dysentery, diarrhea:** macerated leaf or bark decoction w/ salt or sugar, taken orally. **Asthma, blood pressure:** leaf decoction w/ salt, taken orally. **Skin rash:** crushed leaf or bark bath. **Cold:** crushed seed decoction w/ sugar, taken orally. **Rheumatism:** leaf poultice. **Headache, colic:** juice of young leaves, taken orally. **NB:** Plant extracts slow motor activity and exhibit analgesic properties; lowers blood pressure with a light antidiarrheic effect on rats (Tramil III, 1988).
Ternstroemia peduncularis bwa denn mawon	**Dysentery:** various plant parts. **Rheumatism:** bath with various plant parts.
Tetragastris balsamifera bwa kochon	**Rheumatism:** root and seed kernel tea, taken orally. **Colic, gastrointestinal ailments:** leaf decoction, taken orally. **Anemia, fever:** wood and root, essential oil decoction w/ salt, taken orally. **Respiratory ailments:** bark decoction w/ sugar or salt, taken orally.
Theobroma cacao kakawo	**Diuretic, stimulant:** seed decoction.
Thespesia populnea fèy dayiti, gran maho, mòtèl debou	**Blood pressure:** leaf and bark decoction, taken orally. **Rheumatism, urine retention:** leaf tea, taken orally. **Mange, itch, rash:** seed, seed capsule, leaf or boiled bark decoction, applied to infected area.
Thevetia peruviana bwa sèzisman	**Fever:** Sap, bark and fruit bath. **Arthritis:** seed kernel paste, applied as an analgesic. **Tension:** boiled leaf and flower tea. **CAUTION:** Fruit is poisonous; not recommended for internal usage.
Thrinax morrisii latanye lamè	**Anemia, chest cold, flu, cough:** root decoction, taken orally.
Trichilia havanensis bwa loray	**Rheumatism, venereal disease:** leaf bath. **Albuminuria:** root decoction, taken orally. **Bladder infection:** bark decoction, taken orally.
Trichilia hirta monben bata	**Asthma, tuberculosis:** leaf decoction w/ salt, taken orally. **Fever:** leaf or bark decoction w/ salt, taken orally. **Elephantiasis, erysipelas:** leaf décoction compress. **Ulcers:** leaf bath. **Diarrhea:** root decoction, taken orally. **Abortive:** leaf, flower, and root infusion, taken orally. **CAUTION:** Contains a toxic resin and internal usage not recommended (Tramill III, 1988).
Trichilia pallida dombou, twa pawòl	**Purgative enema:** leaf decoction.
Trophis racemosa bwa nèf, ramo	**Diarrhea:** astringent bark tonic, taken orally.
Vitex agnus-castus	**Insomnia, dizziness, digestive disorders:** leaf infusion. **Diuretic:** fruit.
Vitex heptaphylla bwa savann, grigri	**Appendicitis:** pulverized seed w/ onion application. **Enlarged liver, headache, chronic cold:** macerated leaf compress.
Weinmannia pinnata	**Malaria, fever:** bark and gum extraction, taken orally.
Ximenia americana kròk, makabi	**Rheumatism, psoriasis:** fruit syrup, taken orally. **NB:** Fruit is a laxative.

SPECIES	MEDICINAL USES
Zanthoxylum elephantiasis pine jòn	**Asthma, chest aliment:** macerated bark in cane alcohol, taken orally. **Teething:** macerated bark decoction, taken orally.
Zanthoxylum fagara pine jòn	**Rheumatism, syphilis:** bark and leaf decoction, taken orally. **Ear pain:** leaf boiled in castor oil.
Zanthoxylum martinicense pine blan	**Digestive tract ailments:** macerated leaf decoction, taken orally or as a bath. **Toothache:** chewed bark. **Sore:** leaf poultice.
Zanthoxylum pimpinelloides fèy be	**Heart palpitation:** macerated stem mixed w/ rum, taken orally.
Ziziphus mauritiana pòm malkadi, ti pòm	**Flu:** shoot and ripe fruit decoction, taken orally. **Gonorrhea:** root and gum exudate tea, taken orally. **Sore, skin ulcer:** root decoction bath.
Zuelania guidonia kachiman mawon, kachiman sovaj	**Syphilis:** resin pellets, taken orally. **Ulcer:** bark and leaf powder, topical application, as a cleansing agent. **Rheumatism:** bark decoction, massage.

21 Biomass and Volume Tables

The accurate estimation of tree weight, or biomass, and volume is important for tree growth and yield analyses. Periodically, economic analyses (e.g., Grosenick, 1986; Street et al., 1990) require a simple method to evaluate tree inventories in terms of current stocks, production rates or the breakdown in wood products, such as saw logs, poles and the amount of fuelwood that might be converted to charcoal for sale in the marketplace. In such cases, methods of biomass estimation are necessary. The primary considerations are simplicity, time efficiency, and precision.

Biomass Equations: Among the numerous methods that have been used to estimate tree biomass, the one most commonly used and seen in the literature is the regression estimation technique (Young, 1976). This technique relates tree weight to tree size through regression equations that are determined by destructively sampling a representative portion of the species population. Once the equations are analyzed by statistical methods, biomass estimates may be obtained by measuring one or two parameters and solving an algebraic equation.

The best single parameter for estimating biomass is the square (or natural logarithm) of the stem diameter at some specified height above the ground. Diameter-at-breast-height (DBH), measured at 1.3 m above ground level, is the conventional parameter for single-stemmed, straight-boled trees without massive buttresses. The multi-stemmed, spreading trees of drier tropical environments require that stem diameters be measured lower to the ground to minimize stem measurements. CATIE (1984) set this height at 0.1 m, though problems with stem buttressing for many species precludes high precision. It is however a useful measure, since this can be considered stump diameter, the only parameter available to estimate biomass or volume once trees are harvested. Stewart et al. (1992) determined that 0.3 m was the best height to determine stem diameter for the dry-zone species of Central America and that the 3 principal stems at this height should be measured. Maxwell (1985) selected 0.5 m as the height for diameter measurements for the dry-forest species in northwestern Dominican Republic. In the case of multiple stems, the sum of the stem diameters squared (Σd_n^2) is the parameter that is selected to predict tree weight. Height is the second most important parameter and is important for cross-site equations, reflecting the variation in tree form as a result of the species growing under different conditions. When vertical height is equivalent to total height, as in the case of most single and straight-stemmed species, this is the parameter that is measured. Otherwise, stem length is measured for spreading, multi-stemmed species, since this parameter has greater biological relevance to the volume of wood in the tree (Stewart et al., 1992).

Simple linear regression equations utilizing a single parameter are sufficient in most cases to predict tree weight. In situations where certain statistical assumptions are violated, as in the case of heteroscadasity (Zar, 1984), the data are transformed to a log normal distribution with the back-transformed data corrected for bias

(Baskerville, 1972). A double parameter equation generally yields greater accuracy for a particular species across a range of sites, but is more time-consuming and costly to measure. The selection of an equation for a particular species becomes a trade-off between costs and the level of precision required for estimates. Stewart et al. (1992) compared site-specific and cross-site regression values for several fuelwood species, based in part on data collected in Haiti. For the majority of species that were investigated, tree stem length combined with the sum of the stem diameters squared significantly improved cross-site regression values, making them applicable across a wide range of sites around the world. Within Haiti, single parameter equations utilizing only stem diameter have been found to be consistent across a range of sites for species such as *Leucaena leucocephala* susbsp. *glabrata.* Biomass regressions even can be used among species that have similar form characteristics, as discussed by Maxwell (1985). He found several pairs of species that had coincidental regressions (i.e., the slope of the regression equations were not significantly different) for species typical of the subtropical dry forest formation in the Dominican Republic.

The reader should be aware that estimates derived with the following equations have an error associated with them that is not only partial to the inherent variation within the species, but also the differences in the distribution of the sampled population. The only way to verify how well an estimate holds true for a particular site is to sample the local population and compare whether the slopes (β_i) of the regressions are significantly different. In all cases, the equations are to be used to estimate only within the size classes of the original sample.

Biomass and Volume Studies: Biomass and volume equations have been conducted for several of the hardwood species planted and utilized by Haitian farmers during USAID-funded Agroforestry Outreach Project (1981–1989). The first volume tables were developed for a 2-year-old stand of *Leucaena leucocephala* subsp. *glabrata* (K8) and *Azadirachta indica* near Bon Repos (Timyan, 1983). In addition to these species, Ehrlich (1985) developed fuelwood biomass and pole volume yield tables for *Colubrina arborescens*, *Eucalyptus camaldulensis*, *Prosopis juliflora* and *Senna siamea*. Biomass tables were completed for *Catalpa longissima* and *Casuarina equisetifolia* in 1986 (Ehrlich et al., 1986). Each of the species was sampled at a different site in Haiti, selected for an adequate tree size distribution on sites where the species was well adapted. Biomass studies for the coppice rotation of 4 species (*Leucaena leucocephala* subsp. *glabrata* (K8), *Azadirachta indica, Acacia tortuosa* and *Prosopis juliflora*) were conducted in 1987 (Timyan, 1987). In 1990, Oxford Forestry Institute completed biomass studies of 15 fuelwood species established at 3 sites in Haiti: Nan Marron (near Bombardopolis), Papaye (near Hinche) and Fond-des-Blancs. These trials were 5 years old at the time of sampling and had been established by PADF and CARE in 1985 in collaboration with OFI. The cross-site regression functions published by Stewart et al. (1992) are included below and should be distinguished from the site-specific equations developed independently by SECID. The former equations were selected for the best fitting equation at multiple sites around the world. In addition to the Haitian studies, Maxwell (1985) derived total and usable green biomass equations for 16 species typical of the subtropical dry forest region in northwestern Dominican Republic. A compilation of the biomass and volume equations for hardwood species that have been conducted in Haiti are provided in **Tables 21.1–21.3.**

Perhaps the earliest equations developed in Haiti were the pulp and timber volume estimates for *Pinus occidentalis* (Berry and Musgrave, 1977), based on 126 stems harvested for saw timber in the Forêt-des-Pins. During the 1988 inventory of the Forêt-des-Pins, Ashley derived a second set of volume equations that predicted total, pulp and saw log volumes and found that his estimates fell within 5% of the Berry and Musgrave estimates (Ashley, 1988). These equations are provided in **Table 21.4.**

Differences in Wood Yield: Tree species vary widely in wood yield for a given stem diameter. As much as 2- or 3-fold differences in wood utilizable for charcoal or fuelwood have been observed (**Figure 21.1**). These differences in tree form require that biomass tables be constructed for separate species. The differences in tree form also play an important role in the design of agroforestry systems, as they affect wood yield, shade quality, soil moisture dynamics and other factors that impact associated crops. The distribution of quality biomass suitable for lumber or poles along the main stem axis, and the ratio between this biomass and total tree biomass, are criteria that should be considered to optimize production value. *Casuarina equisetifolia*, *Cordia alliodora* and *Colubrina arborescens* are excellent examples of such species, particular relevant to situations in Haiti where arable land is at a premium.

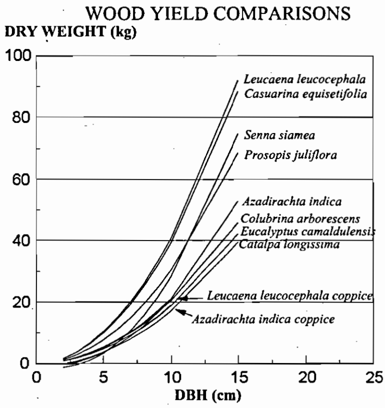

Figure 21.1 Relationship between DBH and aboveground weight of various tree species.

Example of Biomass and Volume Estimation: The stem of a *Senna siamea* stem measures 10 cm at 1.3 m above ground level. Wood yield is estimated from the species' equation in **Table 21.2** and calculated as shown in **Box 1**. Pole volume is estimated by the species' equation in **Table 21.3**, shown in **Box 2**.

Box 1

Usable wood weight $= 0.432(DBH)^2 - 1.5(DBH)$

$= 0.432(100) - 1.5(10)$

$= 28.2$ kg of oven-dry wood

Box 2

Pole volume $= 0.338*(DBH)^2$

$= 0.338*(100)$

$= 33.8 \times 10^{-3}\ m^3$

Table 21.1 Regression equations developed in Haiti for the estimation of **tree biomass (oven-dry kilograms)**, of selected hardwood species. This is equivalent to the weight of the aboveground portion of the tree, including leaves, twigs and wood.

SPECIES	REGRESSION EQUATION[1]	N	R^2	DIA. RANGE (CM)	SITE
Acacia deamii	$0.189\Sigma d_n^2$	12	0.99	0.4–5.2	Nan Marron
A. farnesiana	$0.102\Sigma d_n^2$	12	0.99	0.4–3.6	Nan Marron
A. farnesiana	$0.152\Sigma d_n^2$	12	0.98	1.1–5.4	Fond-des-Blancs
A. pennatula	$0.046h\Sigma d_n^2$	12	0.99	3.3–10.9	Fond-des-Blancs
A. pennatula	$0.058h\Sigma d_n^2$	12	0.99	0.7–11.6	Nan Marron
A. scleroxyla	$0.106\Sigma d_n^2$	12	0.75	0.7–4.4	Nan Marron
A. tortuosa	$0.124\Sigma sd_n^2 - 0.013$	17	0.96	2.0–11.0	Bon Repos
Albizia guachapele	$0.238\Sigma d_n^2 - 1.5535h$	12	0.99	2.2–19.8	Papaye
Alvaradoa amorphoides	$0.0345h\Sigma d_n^2$	12	0.99	3.9–7.7	Nan Marron
A. amorphoides	$0.133\Sigma d_n^2$	12	0.99	4.9–8.7	Fond-des-Blancs
Applonesia paniculata	$0.166\Sigma d_n^2$	12	0.99	1.0–7.4	Fond-des-Blancs
Ateleia herbert-smithii	$0.042h\Sigma d_n^2$	12	0.99	1.3–6.3	Nan Marron
Azadirachta indica	$0.313D^2$	22	0.98	1.3–12.6	Thomazeau
A. indica coppice	$0.268D^2$	12	0.95	2.0–10.0	Bon Repos
Caesalpinia coriaria	$0.058h\Sigma d_n^2$	12	0.99	0.7–3.8	Nan Marron
C. eriostachys	$0.032h\Sigma d_n^2$	12	0.85	0.4–4.9	Nan Marron
C. velutina	$0.037h\Sigma d_n^2$	12	0.99	1.0–6.8	Nan Marron
C. velutina	$0.039h\Sigma d_n^2$	12	0.99	3.7–8.2	Fond-des-Blancs
Casuarina equisetifolia	$0.49D^2 - 1.44$	17	0.99	1.8–9.6	Terre Rouge
C. equisetifolia	$0.567D^2$	35	0.98	5.5–16.8	Cazeau
Catalpa longissima	$0.242D^2 - 0.54$	17	0.95	1.7–10.8	Limbé
Colubrina arborescens	$0.033h\Sigma d_n^2$	12	0.99	2.8–6.6	Nan Marron
C. arborescens	$0.250D^2$	15	0.98		Morne-a-Cabrit
Crescentia alata	$0.0287h\Sigma d_n^2$	12	0.99	1.1–13.2	Papaye
Enterolobium cyclocarpum	$0.0150h\Sigma d^2_n$	12	0.98	3.2–11.8	Papaye
E. cyclocarpum	$0.062\Sigma d^2_n$	12	0.97	0.8–5.6	Fond-des-Blancs
Eucalyptus camaldulensis	$0.251D^2$	15	0.99	1.4–13.3	Bon Repos
Gliricidia sepium	$0.085\Sigma d^2_n$	12	0.98	1.8–8.1	Nan Marron
Haematoxylon brasiletto	$0.124\Sigma d^2_n$	12	0.99	1.4–7.9	Fond-des-Blancs
H. brasiletto	$0.153\Sigma d^2_n$	12	0.98	2.3–7.8	Nan Marron
Leucaena collinsii ssp. *zacapana*	$0.038h\Sigma d^2_n$	12	0.95	3.3–7.3	Fond-des-Blancs
L. leucocephala ssp. *glabrata*	$0.471D^2$	35	0.98	3.0–16.2	Bon Repos
L. leucocephala ssp. *glabrata*	$0.265sd^2$	18	0.98	5.0–19.5	Bon Repos
L. leucocephala ssp. *glabrata*	$0.524D^2$	16	0.97	0.8–17.7	Camp Perrin
L. leucocephala ssp. *glabrata*	$0.030h\Sigma d^2_n$	12	0.99	5.4–12.3	Nan Marron
L. leucocephala ssp. *glabrata*	$0.210\Sigma d^2_n$	12	0.99	5.8–13.6	Fond-des-Blancs
L. leucocephala ssp. *glabrata* coppice	$0.260D^2$	18	0.96	2.0–10.0	Bon Repos
L. shannoni ssp. *shannonii*	$0.134\Sigma d^2_n$	12	0.96	1.5–10.0	Nan Marron

SPECIES	REGRESSION EQUATION[1]	N	R^2	DIA. RANGE (CM)	SITE
Parkinsonia aculeata	$0.111\Sigma d^2_n$	12	0.99	0.5–6.2	Fond-des-Blancs
Pithecellobium dulce	$0.132\Sigma d^2_n$	12	0.95	0.4–5.1	Fond-des-Blancs
Prosopis juliflora	$0.408D^2$	20	0.97	1.2–10.8	Cabaret & Ganthier
P. juliflora coppice	$0.158\Sigma sd^2_n + 0.163$	31	0.97	2.4–18.3	Bon Repos
Senna atomaria (Haitian provenance)	$0.258\Sigma d^2_n$	12	0.97	0.7–9.0	Nan Marron
S. atomaria (Nicaraguan provenance)	$0.128\Sigma d^2_n$	12	0.99	1.4–6.0	Fond-des-Blancs
S. atomaria (Nicaraguan provenance)	$0.171\Sigma d^2_n$	12	0.98	0.8–11.3	Nan Marron
S. siamea	$0.364D^2$	27	0.97	1.0–13.8	Limbé
S. siamea	$0.023h\Sigma d^2_n$	12	0.99	0.4–12.7	Nan Marron

[1] **sd** = Stump diameter at 0.10 m above ground level, in cm. **d** = Stem diameter at 0.30 m above ground level, in cm. **D** = Stem diameter at 1.30 m above ground level, in cm. **h** = Stem length of main stem, in m. **n** = Number of stems at 0.30 m above ground level.

Table 21.2 Regression equations developed in Haiti for the estimation of **wood biomass (oven-dry kilograms) and volume (x 10^{-3} m^3).**

SPECIES	REGRESSION EQUATION[1]	N	R^2	DIA. RANGE (cm)	SITE
	Wood > 1 cm Diameter				
Acacia farnesiana	$0.111\Sigma d^2_n$	12	0.98	1.1–5.4	Fond-des-Blancs
A. farnesiana	$0.0223h\Sigma d^2_n$	12	0.98	0.4–3.6	Nan Marron
A. farnesiana	$0.0432h\Sigma d^2_n + 0.0557$ (cross-site regression)	—	—	0.4–8.0	7 sites w/ 2 in Haiti
A. pennatula	$0.038h\Sigma d^2_n$	12	0.99	3.3–10.9	Fond-des-Blancs
A. pennatula	$0.048h\Sigma d^2_n$	12	0.99	0.7–11.6	Nan Marron
A. pennatula	$0.0399h\Sigma d^2_n + 0.149$ (cross-site regression)	—	—	0.7–12.4	8 sites w/ 2 in Haiti
A. scleroxyla	$0.078\Sigma d^2_n$	12	0.76	0.7–4.4	Nan Marron
Albizia guachapele	$0.223\Sigma d^2_n - 1.451h$	12	0.99	2.2–19.8	Papaye
A. guachapele	$0.0186h\Sigma d^2_n + 0.0048$ (cross-site regression)	—	—	2.2–14.8	7 sites w/ 1 in Haiti
Alvaradoa amorphoides	$0.093\Sigma d^2_n$	12	0.99	4.9–8.7	Fond-des-Blancs
A. amorphoides	$0.027h\Sigma d_n^2$	12	0.99	3.9–7.7	Nan Marron
Applonesia paniculata	$0.122\Sigma d^2_n$	12	0.98	1.0–7.4	Fond-des-Blancs
Ateleia herbert-smithii	$0.034h\Sigma d^2_n$	12	0.97	1.3–6.3	Nan Marron
A. herbert-smithii	$0.0305h\Sigma d^2_n + 0.195$ (cross-site regression)	—	—	1.3–11.0	9 sites w/ 1 in Haiti
Caesalpinia coriaria	$0.039h\Sigma d^2_n$	12	0.97	0.7–3.8	Nan Marron
C. coriaria	$0.0318h\Sigma d^2_n + 0.395$ (cross-site regression)	—	—	0.7–7.7	5 sites w/ 1 in Haiti
C. eriostachys	$0.026h\Sigma d^2_n$	12	0.86	0.4–4.9	Nan Marron

SPECIES	REGRESSION EQUATION[1]	N	R^2	DIA. RANGE (cm)	SITE
C. eriostachys	$0.027h\Sigma d^2_n + 0.165$ (cross-site regression)	—	—	0.4–8.1	7 sites w/ 1 in Haiti
C. velutina	$0.034h\Sigma d^2_n$	12	0.99	3.7–8.2	Fond-des-Blancs
C. velutina	$0.033h\Sigma d^2_n$	12	0.99	1.0–6.8	Nan Marron
C. velutina	$0.0322h\Sigma d^2_n + 0.0821$ (cross-site regression)	—	—	1.0–8.7	7 sites w/ 2 in Haiti
Casuarina equisetifolia	$0.393D^2$	35	0.97	5.5–16.8	Cazeau
C. equisetifolia **wood volume** ($x10^{-3}$ m^3)	$0.494D^2$	35	0.98	5.5–16.8	Cazeau
Catalpa longissima	$0.179D^2 - 0.83$	17	0.96	1.7–10.8	Limbé
C. longissima	$0.12sd^2 - 2.3$	17	0.93	3.0–13.5	Limbé
Colubrina arborescens	$0.027h\Sigma d^2_n$	12	0.99	2.8–6.6	Nan Marron
Crescentia alata	$0.0255h\Sigma d^2_n$	12	0.99	1.1–13.2	Papaye
Enterolobium cyclocarpum	$0.0541\Sigma d^2_n$	12	0.97	0.8–5.6	Fond-des-Blancs
E. cyclocarpum	$0.0139h\Sigma d^2_n$	12	0.99	3.2–11.8	Papaye
E. cyclocarpum	$0.0127h\Sigma d^2_n + 0.109$ (cross-site regression)	—	—	0.8–11.8	11 sites w/ 2 in Haiti
Gliricidia sepium	$0.079\Sigma d^2_n$	12	0.98	1.8–8.1	Nan Marron
G. sepium	$0.021h\Sigma d^2_n$ (cross-site regression)	—	—	1.8–15.3	10 sites w/ 1 in Haiti
Haematoxylon brasiletto	$0.084\Sigma d^2_n$	12	0.98	1.4–7.9	Fond-des-Blancs
H. brasiletto	$0.121\Sigma d^2_n$	12	0.98	2.3–7.8	Nan Marron
Leucaena collinsii subsp. *zacapana*	$0.0312h\Sigma d^2_n$	12	0.94	1.8–8.1	Fond-des-Blancs
L. collinsii subsp. *zacapana*	$0.039h\Sigma d^2_n - 0.07$ (cross-site regression)	—	—	1.8–11.8	7 sites w/ 2 in Haiti
L. leucocephala subsp. *glabrata*	$0.0284h\Sigma d^2_n$	12	0.98	5.4–12.3	Fond-des-Blancs
L. leucocephala subsp. *glabrata*	$0.192\Sigma d^2_n$	12	0.99	5.8–13.6	Nan Marron
L. leucocephala subsp. *glabrata*	$0.0242h\Sigma d^2_n + 0.184$ (cross-site regression)	—	—	1.8–13.8	8 sites w/ 2 in Haiti
L. shannonii subsp. *shannonii*	$0.102\Sigma d^2_n$	12	0.97	1.5–10.0	Nan Marron
L. shannonii subsp. *shannonii*	$0.0495h\Sigma Sd^2_n + 0.24$ (cross-site regression)	—	—	1.5–7.4	6 sites w/ 1 in Haiti
Parkinsonia aculeata	$0.0885\Sigma d^2_n$	12	0.98	0.5–6.2	Fond-des-Blancs
P. aculeata	$0.0291h\Sigma d^2_n + 0.095$ (cross-site regression)	—	—	0.5–8.1	7 sites w/ 1 in Haiti
Pithecellobium dulce	$0.0265h\Sigma d^2_n$	12	0.96	0.4–5.1	Fond-des-Blancs
P. dulce	$0.035h\Sigma d^2_n + 0.121$ (cross-site regression)	—	—	0.4–6.7	7 sites w/ 1 in Haiti
Prosopis juliflora	$0.0449h\Sigma d^2_n + 0.254$ (cross-site regression)	—	—	0.4–5.9	6 sites w/ 0 in Haiti
Senna atomaria (Haitian provenance)	$0.181\Sigma d^2_n$	12	0.97	0.7–9.0	Nan Marron
S. atomaria (Nicaraguan provenance)	$0.100\Sigma d^2_n$	12	0.99	1.4–5.9	Fond-des-Blancs
S. atomaria (Nicaraguan provenance)	$0.142\Sigma d^2_n$	12	0.97	0.8–11.3	Nan Marron

SPECIES	REGRESSION EQUATION[1]	N	R^2	DIA. RANGE (cm)	SITE
S. atomaria (Nicaraguan provenance)	$0.031h\Sigma d^2_n$ (cross-site regression)	—	—	0.8–14.3	8 sites w/ 2 in Haiti
S. siamea	$0.021h\Sigma d^2_n$	12	0.99	1.4–12.7	Nan Marron
Wood > 2 cm Diameter					
Acacia tortuosa	$0.084sd^2 - 0.033$	17	0.94	2.0–11.0	Bon Repos
Azadirachta indica	$0.282D^2 - 0.707D$	22	0.99	1.3–12.6	Thomazeau
A. indica	$0.203sd^2 - 1.02sd$	22	0.99	2.6–15.8	Thomazeau
A. indica **wood volume** ($x10^{-3}$ m^3)	$0.481D^2 - 10.227$	14	0.94	6.9–10.4	Bon Repos
A. indica coppice	$0.189D^2$	12	0.96	2.0–10.0	Bon Repos
Casuarina equisetifolia	$0.34D^2 - 2.14$	17	0.95	—	Terre Rouge
C. equisetifolia	$0.20sd^2 - 3.7$	17	0.88	—	Terre Rouge
Colubrina arborescens	$0.204D^2$	15	0.98	—	Morne-à-Cabrit
C. arborescens	$0.365sd^2 + 0.434sd$	15	0.97	—	Morne-à-Cabrit
Eucalyptus camaldulensis	$0.187D^2$	15	0.98	1.4–13.3	Bon Repos
E. camaldulensis	$2.205sd^2 - 1.132\sqrt{sd}$	15	0.91	2.8–23.8	Bon Repos 1
Leucaena leucocephala subsp. *glabrata*	$0.408D^2$	18	0.99	3.0–16.2	Bon Repos
L. leucocephala subsp. *glabrata*	$0.23sd^2$	18	0.99	5.0–19.5	Bon Repos
L. leucocephala subsp. *glabrata* minus pole weight	$0.210D^2$	18	0.97	3.0–16.2	Bon Repos
L. leucocephala subsp. *glabrata* minus pole weight	$0.119sd^2$	18	0.98	5.0–19.5	Bon Repos
L. leucocephala ssp. *glabrata* coppice	$0.210D^2$	18	0.96	2.0–10.0	Bon Repos
L. leucocephala subsp. *glabrata*	$0.642D^2 - 2.707D$	23	0.98	0.8–17.7	Camp Perrin
L. leucocephala subsp. *glabrata*	$0.275sd^2$	23	0.97	1.8–23.6	Camp Perrin
L. leucocephala subsp. *glabrata* **wood volume** ($x10^{-3}$ m^3)	$0.501D^2 - 3.422$	19	0.97	3.0–14.5	Bon Repos
Prosopis julifora	$0.304D^2$	20	0.99	1.2–10.8	Cabaret & Ganthier
P. julifora	$0.195sd^2$	20	0.97	1.2–10.8	Cabaret & Ganthier
P. julifora coppice	$0.123\Sigma sd^2 + 0.013$	31	0.98	2.4–18.3	Bon Repos
Senna siamea	$0.432D^2 - 1.5D$	27	0.97	1.0–13.8	Limbe
S. siamea	$4.001sd - 9.461\sqrt{sd}$	27	0.86	1.7–27.6	Limbe 2

[1] **sd** = Stump diameter at 0.10 m above ground level, in cm. **d** = Stem diameter at 0.30 m above ground level, in cm. **D** = Stem diameter at 1.30 m above ground level, in cm. **h** = Stem length of main stem, in m. **n** = Number of stems at 0.30 m above ground level.

1 E. camaldulensis $2.205\,sd - 1.132 * \sqrt{sd}$

2 S. siamea $4.001\,sd - 9.461 * \sqrt{sd}$

Table 21.3 Pole weight (dry kilograms) or volume (x 10^{-3} m^3) equations for selected hardwood species in Haiti.

SPECIES	WOOD COMPONENT	REGRESSION EQUATION[1]	N	R^2	DIA. RANGE (cm)	SITE
Azadirachta indica	Pole volume	$0.226D^2$	13	0.97	4.6–12.6	Thomazeau
A. indica coppice	Pole weight	$0.152D^2$	—	0.98	5.0–10.0	Bon Repos
Casuarina equisetifolia	Pole weight	$0.308D^2$	35	0.97	5.5–16.8	Cazeau
C. equisetifolia	Pole volume	$0.486D^2$	35	0.98	5.5–16.8	Cazeau
C. equisetifolia	Pole volume	$0.379D^2 - 3.078$	—	0.94	—	Terre Rouge
Catalpa longissima	Pole volume	$0.277D^2 - 2.031$	—	0.95	5.0–10.8	Limbé
Eucalyptus camaldulensis	Pole volume	$0.291D^2$	14	0.96	4.8–13.3	Bon Repos
Leucaena leucocephala subsp. *glabrata*	Pole weight	$0.198D^2$	—	0.98	5.0–16.2	Bon Repos
L. leucocephala subsp. *glabrata*	Pole weight	$0.111sd^2$	—	0.96	5.0–16.2	Bon Repos
L. leucocephala subsp. *glabrata* coppice	Pole weight	$0.175D^2$	—	0.99	5.0–10.0	Bon Repos
Senna siamea	Pole volume	$0.338D^2$	19	0.91	6.3–13.8	Limbé

[1] **sd** = Stump diameter at 0.10 m above ground level, in cm. **D** = Stem diameter at 1.30 m above ground level, in cm.

Table 21.4 Volume equations for Hispaniolan pine (*Pinus occidentalis* Swartz.) developed at Forêt-des-Pins, Haiti.

REGRESSION EQUATION[1]	R^2	NOTES
Stem Volume > 7 cm Diameter		
$0.0008486D^2 - 0.0680182$	0.89	outside bark diameter
$0.00075432D^2 - 0.0761294$	0.86	inside bark diameter
$0.00003166D^2H - 0.0025991$	0.96	outside bark diameter
$0.00002863D^2H - 0.030146$	0.96	inside bark diameter
Stem Volume > 8 cm Diameter		
$0.0006938D^2 + 0.09282$	0.82	outside bark diameter; diameter range: 15–50 cm; N = 59
$0.00003765h_{20}D^2 - 0.0094$	0.96	outside bark diameter; diameter range: 31–35 cm; N = 17
$0.000021h_{20}D^2 + 0.2499$	0.82	outside bark diameter; diameter range: 35–50 cm; N = 42
Stem Volume > 18 cm Diameter		
$0.00090705D^2 - 0.2358016$	0.91	outside bark diameter
$0.00080508D^2 - 0.2283548$	0.88	inside bark diameter
$0.00003346D^2H - 0.1563121$	0.96	outside bark diameter
$0.00003012D^2H - 0.1698399$	0.95	inside bark diameter
$0.00003765h_{20}D^2 - 0.0987$	0.96	outside bark diameter; diameter range: 35–50 cm; N = 42
Total Stem Volume		
$0.008021D^2$	0.89	outside bark diameter
$0.00070349D^2$	0.79	inside bark diameter
$0.0003182D^2H$	0.96	outside bark diameter
$0.000028D^2H$	0.88	inside bark diameter

22 Common and Scientific Tree Names

When talking about trees, most people use their common names. These names are practical for conversation, as long as everyone understands what is meant within the local context. Lacking precision and varying considerably in language, the novice is soon frustrated in confusion. The same name may refer to widely different tree species that cross generic, even family, boundaries. Several common names may apply to the same tree species, depending upon local preferences and dialects. Any scientific effort to study trees for research and educational purposes requires a more thorough study of their names and the variations used in language.

Part of this problem is solved when botanists assign a unique Latin binomial to plant specimens collected in the wild. Taxonomy reduces the problem considerably, but not without additional complications. Perhaps the greatest limitation is that so little of the tropical flora has been studied from a standardized, modern taxonomic perspective. Botanists can differ significantly in their concepts of what determines a species, sometimes leading to a profusion of names for particularly variable and wide-ranging species. Generic boundaries often are not clearcut, especially as new species and hybrids are discovered that blur morphological differences and challenge the evolutionary relationships among species. The inadequate floristic surveys of many genera limits the taxonomic effort, made even more difficult by the fragmented and continually disturbed plant communities of Haiti. Any botanical work in such environments is necessarily slow and selective.

A list of tree names is an invaluable tool for specialists involved in the natural sciences and their management. A Haitian tree name list, as compiled below, is an effort that must be continued as research continues to unfold gaps in our knowledge of the Haitian flora. The list is not meant to be a systematic treatment, but rather a useful compilation that should be revised periodically. The list is particularly lacking in synonyms that would require a more thorough study. Common exotic species have been included, particularly for the species that have become naturalized in Haiti. Species recently introduced on an experimental scale have not been included, because their adaptability and future role in the Haitian ecology remains uncertain.

The number of tree taxa contained in any given list depends not only upon available information, but also upon some arbitrary definition of a tree. Trees may be defined as woody perennials with one main stem or trunk at least 7.5 cm in diameter at breast height, a more or less definitely-formed crown or foliage, and a height of 3–4 m (Little and Wadsworth, 1964). Many trees are naturally multi-stemmed, as often occurs under more extreme environments. Several genera, containing mostly shrubs, are included, though not all species within the genera may be listed. Others plants obtain the size of a tree, but are not trees in the botanical sense. These include palms, bamboo, cacti, lianas, tree ferns, and cycads. For certain families, classification is incomplete and will require revision when such information is published. This is particularly true for those families represented in the less-explored areas of Haiti.

The tree and shrub names are organized in two main sections. The first section lists the accepted scientific name, synonyms and common names, if any, of more than 1,100 species representing 406 genera and 110 botanical families. The tree species are arranged alphabetically by botanical family and species. The second section lists the common Haitian tree names according to their Creole names. These lists were prepared in part by consulting several floras completed on Hispaniola and elsewhere in the Caribbean, including: *Common Trees of Puerto Rico and the Virgin Islands (Vol. I & II)* by E. L. Little and F. H. Wadsworth (1964; 1989) and E. L. Little, R. O. Woodbury and F. H. Wadsworth (1974); *La Flora de la Española (Vol. I–V)* by A. H. Liogier (1982–1989); *Nomenclature Polyglotte des Plantes Haitiennes et Tropicales* by A. V. Pierre-Noel (1971); *La Flore d'Haiti* by H. D. Barker and W. S. Dardeau (1930); *Floristic Study of Morne La Visite and Pic Macaya National Parks, Haiti* by W. S. Judd (1987); *The Flora of Macaya Biosphere Reserve: Additional Taxa, Taxonomic and Nomenclature Changes* by W. S. Judd and J. D. Skean, Jr. (1990); *ICRAF Multipurpose Tree and Shrub Database* by P. G. von Carlowitz, G. V. Wolfe and R. E. M. Kemperman (1991); and *Field Guide to the Palms of the Americas* by A. Henderson, G. Galeano and R. Bernal (1995). These sources should be consulted for further research purposes.

Scientific Names: The first column of each family table shows the accepted Latin binomial that currently is recognized for a given tree taxon. The second column lists synonyms, alternate spellings and uncertain names that have been associated with the taxon in the published literature. The third column lists the common names of the tree species in the Greater Antilles, beginning with Haiti, followed by the Dominican Republic, Cuba, Puerto Rico, Jamaica, and occasionally other countries in the Caribbean. The common names are followed by the first letter of their country names in parentheses: **H** = Haiti, **RD** = Republica Dominicana, **PR** = Puerto Rico, **C** = Cuba, **J** = Jamaica, **US** = United States, **G** = Guadeloupe, **M** = Martinique, **B** = Bahamas, and **VI** = Virgin Islands. Many of the lesser-known species lack a common name that has not been published to the knowledge of the author. Occasionally, common names from outside the Caribbean are used, especially for the exotic species.

The common name list for Haiti are given as they appear in the botanical literature. These are a combination of French and Creole names, the latter generally published in the French orthography. The reader should be aware that many of the French names are not Creole and that the majority of Creole names are no longer spelled as such. It was observed during this compilation that many of the Creole names had been transcribed poorly or misapplied to the Latin name. The names have been listed for reference purposes and should be verified during field studies. A thorough study of the regional differences in usage and verification of the list for accuracy remains a challenge for the future research.

Creole Common Names: This section lists the Creole tree and shrub names according to the current orthography (Déjean, 1986). The names are arranged alphabetically. If a common name applies to more than one species within a genus, only the genus is given. Many of the names are derived from the original Latin or French. All possible variants of a common name, primarily associated with differences in pronunciation and regional usage, may not be listed.

Scientific Names of Trees and Shrubs

ADOXACEAE

SPECIES	SYNONYMS	COMMON NAMES
Sambucus canadensis L.		fleurs sureau, sureau (H); American elder, American elderberry (US)
Sambucus simpsonii Rehd.		fleurs sureau, sureau (H); saúco blanco (C, RD); saúco (PR); Florida elder (US)

ANACARDIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Anacardium occidentale L.	*Acajuba occidentalis* Gaertn., *Cassuvium pomiferum* Tuss.	acajou, anacarde, noix d'acajou, pomme, pomme acajou (H); cacajuil, cajuil (RD); cashew (US)
Comocladia cuneata Britton Endemic to Hispaniola		bois espagnol, bois franc, bois pagnol, bousillette, brésillet, dos gillette, la brisiette (H); chicharrón, guao (RD); poison ash (PR)
Comocladia dentata Jacq.	*C. dentata propinqua* Engler., *C. propinqua* HBK.	bousillette, brésillet, brisiette (H); guao, guao de costa (RD)
Comocladia dodonaea (L.) Urb.	*C. ilicifolia* Sw., *C. tricuspidata* Lam., *Ilex dodonaea* L.	brésillet (H); chicharrón cimarrón, guao (RD)
Comocladia domingensis Britt. Endemic to Hispaniola		bois espagnol, bois pagnol, brésillet (H); guao (RD)
Comocladia ehrenbergii Engler. Endemic to Hispaniola		
Comocladia ekmaniana Helwig. Endemic to Hispaniola		
Comocladia gilgiana Helwig. Endemic to Hispaniola		
Comocladia glabra (Schultes) Spreng.	*C. acuminata* Moç. & Sessé, not Britt., *C. glabra acuminata* Urb., *C. ilicifolia glabra* Schultes	brésillet (H); chicharrón (RD); carasco (PR); guao (C, RD)
Comocladia mollifolia Ekm. & Helwig		
Comocladia pinnatifolia L.	*C. integrifolia* Jacq., *C. pinnatifida* Ind. Kew.	bois espagnol, bois pagnol, brésillet, sablier (H); guao (RD)
Comocladia pubescens Engl.		guao (RD)
Mangifera indica L.		mangue, manguier, mango, margot (H); mangó (RD)

ANACARDIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Metopium brownei (Jacq.) Urb.	*M. linnaei* Engl. in DC., p.p., *Rhus metopium* L., *Terebinthus brownei* Jacq.	bois mulâtre, mancenillier, mulâtre (H); cochinilla, cochinillo, cotinilla, guao (RD); Jamaica sumac (J)
Metopium toxiferum (L.) Krug & Urb.	*Amyris toxifera* L., *M. linnaei* Engl. in DC., p.p., *M. metopium* Small	bois mulâtre, machandeuse, machandoise, mancenillier, manchenille, maximier, mulâtre (H); guao, manzanillo (RD)
Schinus molle L.		pimienta (RD); California pepper tree (US)
Schinus terebinthifolius Raddi		pimienta de Brasil (RD, PR); Brazil pepper tree, Christmas berry (US)
Spondias dulcis Parkinson	*S. cytherea* Tuss., not Sonn., *S. dulcis* Forst. f.	mombin à fruits jaunes, mombin espagnol, pomme cythère, robe (H); jobo de la India, manzana de oro (RD)
Spondias mombin L.	*S. lutea* L., *S. lutea* var. *glabra* Engler., *S. lutea* var. *maxima* Engler., *S. myrobalanus* L., *S. nigrescens* Pittier, *S. pseudomyrobalanus* Tuss., *S. radlokoferi* J. D.	grand mombin, gros mombin, mombin, mombin franc, myrobalane (H); ciruela, ciruela amarilla, ciruelo, jobo, jobo de puerco, jobobán (RD); hogplum, jobo vano, yellow mombin (PR)
Spondias purpurea L.	*S. cirouella* Tuss., *S. cytherea* Sonn., *S. macrocarpa* Engl., *S. mombin* L. (1759, not 1753), *S. mombin* Desc., *S. myrobalanus* Jacq., *Warmingia macrocarpa* Engl.	abricotier bâtard, cirouelle, cirouellier, ciroyer d'Amerique, mombin rouge (H); ciruela morada, ciruela sanjuanera, jobo, jobo negro (RD); ciruela del país, Jamaica plum, Spanish plum, (PR); purple plum, red mombin (US)
Spondias x *robe* Urb. Endemic to Hispaniola	*S. mombin* x *S. purpurea*	mombin espagnol, robe (H)

ANNONACEAE

SPECIES	SYNONYMS	COMMON NAMES
Annona cherimolia Mill.	[Also spelled *A. cherimola*]	cachiman, cachiman la Chine, cherimolier (H); cherimoya, chirimoya (RD); cherimaya (PR)
Annona domingensis R. E. Fries Endemic to Hispaniola		anón de perro (RD)
Annona dumertorum R. E. Fries Endemic to Hispaniola		anón de perro (RD)
Annona frutescens R. E. Fries Endemic to Hispaniola		
Annona glabra L.	*A. laurifolia* Dunal, *A. palustris* L.	coeur boeuf, corossol marron, liège, mammier marron (H); bagá, guanábana cimarrona, guanábana de corcho, guanábana de perro, mamón de perro (RD); alligator apple, cayur (PR); pond apple (J)
Annona gracilis R. E. Fries Endemic to Hispaniola		
Annona micrantha Bert ex Spreng. Endemic to Hispaniola		anón de perro, guanabanita (RD)
Annona montana Macf.		corossol zombie (H); guanábana, guanábana cimarrona, guanábana de perro (RD); mountain soursop (J)
Annona muricata L.		corossol, corossolier (H); guanábana (RD, C, PR); soursop (PR)

ANNONACEAE

SPECIES	SYNONYMS	COMMON NAMES
Annona reticulata Linn.		bois cachiman, cachiman, cachiman coeur de boeuf, coeur boeuf (H); mamón (RD, C); corazón (RD, PR); bullock's heart, custard apple (PR)
Annona rosei Safford Endemic to Hispaniola		cachiman zombie (H)
Annona salicifolia Ekm. & Fries Endemic to Hispaniola		
Annona squamosa L.		cachiman, cachiman cannelle, pomme de cannelle (H); candongo (RD); anón (RD, C, PR); sugar apple, sweetsop (PR)
Annona urbaniana R. E. Fries Endemic to Hispaniola		cachiman marron, marguerite (H); anón de perro (RD)
Cananga odorata (Lam.) Hook. & Thoms.	*Canangium odoratum* Baill., *Uvaria odorata* Lam.	ilang-ilang (H, PR); cananga, ilán-ilán (Spanish); ylang-ylang (English)
Guatteria blainii (Griseb.) Urb.	*Asimina blainii* Griseb., *Cananga blainii* Britt.	bois noir (H); yaya, yaya prieta (RD); haya, haya minga (PR)
Oxandra lanceolata (Sw.) Baill.	*Guatteria virgata* Dum., *O. virgata* A. Rich, *Uvaria lanceolata* Sw., *U. virgata* Sw.	bois de lance, bois de lance franc (H); yaya, yaya boba, yaya fina, yaya pesada (RD); black lancewood (J); West Indian lancewood (US)
Oxandra laurifolia (Sw.) A. Rich.	*Guatteria laurifolia* Dunal, *Uvaria laurifolia* Sw.	bois de lance bâtard (H); yaya, yaya blanca, yaya boba (RD)
Rollinia mucosa (Jacq.) Baill.	*Annona mucosa* Jacq., *A. obtusifolia* Tuss.	anón, candón, candongo (RD); cachiman cochon, cachiman montagne (G)

APOCYNACEAE

SPECIES	SYNONYMS	COMMON NAMES
Aspidosperma cuspa (HBK.) Blake & Pittier	*A. domingensis* Urb., *Conoria cuspa* HBK.	bois amer blanc, madame jean (H)
Cameraria angustifolia L. Endemic to Hispaniola		
Cameraria latifolia L.		bois lait, haitier, laitier (H); palo de leche (RD); maboa (C, RD)
Cameraria linearifolia Urb. Endemic to Hispaniola		palo de leche (RD)
Nerium oleander L.		laurier blanc, laurier des jardins, laurier rose, laurier tropical (H); martinica, pirulí, rosa del Perú (RD); narciso, rosa francesca (C); adellfa, oleander (PR)
Plumeria alba L.		frangipanier, frangipanier blanc, frangipanier sauvage (H); alelaila, alelí blanco (PR); frangipani, plumeria (US)
Plumeria obtusa L.	*P. barahonensis* Urb., *P. beatensis* Urb., *P. cayensis* Urb., *P. cuneifolia* Helwig., *P. krugii* Urb., *P. marchii* Urb., *P. ostenfeldii* Urb., *P. portoricensis* Urb.	franchipagne, frangipane, frangipanier, frangipanier blanc, frasoigne (H); alelí, atabaiba, flor de cerro (RD); lirio (C); alelí cimarrón, alelí de la Mona, alelía, tabaiba (PR)

APOCYNACEAE

SPECIES	SYNONYMS	COMMON NAMES
P. obtusa x *P. subsessilis* hybrids Endemic to Hispaniola 1) *P. biglandulosa* Urb. 2) *P. discolor* Urb. & Ekm. 3) *P. longiflora* Urb. & Ekm. 4) *P. paulinae* Urb. 5) *P. trouinensis* Urb. & Ekm.		frangipane, frangipanier marron (H); alelí, atabaiba (RD)
Plumeria rubra L.	*P. acutifolia* Poir., *P. incarnata* Ruiz. & Pav., *P. purpurea* Ruiz. & Pav., *P. tricolor* Ruiz. & Pav.	frangipane, frangipanier, frangipanier rose (H); ataiba rosada (RD); frangipán, lirio, lirio tricolor (C); frangipani (PR)
P. rubra x *P. subsessilis* hybrids Endemic to Hispaniola		frangipane, frangipanier marron (H); alelí, atabaiba (RD)
Plumeria stenopetala Urb. Endemic to Hispaniola		frangipane, frangipanier marron (H)
Plumeria subsessilis A. DC. Endemic to Hispaniola	*P. berterii* A. DC., *P. jaegeri* Muell. Arg.	frangipane, frangipane blanche, frangipanier, frangipanier marron (H); alelí (RD)
Plumeria tuberculata Lodd.	*P. domingensis* Urb., *P. gibbosa* Urb., *P. obtusa* var. *sericifolia* Woods, *P. sericifolia* C. Wr. ex Griseb.	frangipane, frangipanier épineux (H); alelí, atabaiba (RD)
Rauvolfia biauriculata Muell.	[Also spelled *Rauwolfia.*]	
Rauvolfia nitida Jacq.	*R. tetraphylla* auth., no L. [Also spelled *Rauwolfia.*]	bois lait, bois lait femelle, bois saisissement (H); corazón de paloma, palo de leche, palo de leche chiquito, palo del rey (RD); huevo de gallo (C); bitter-ash, cachimbo, milk bush, palo amargo (PR)
Rauvolfia viridis Roem. & Schult.	*R. lamarckii* A. DC. [Also spelled *Rauwolfia.*]	bitterbush (PR)
Tabernaemontana amygdalifolia Jacq.		
Tabernaemontana citrifolia L.	*Rauvolfia oppositifolia* Spreng., *T. berterii* DC., *T. citrifolia* Jacq., *T. oppositifolia* (Spreng.) Urb.	bois lait, bois lait mâle, bois laiteux fébrifuge, leteuil (H); palo de leche (RD); pegojo, pitiminí (C); palo lechoso, pegoje (PR)
Tabernaemontana divaricata (L.) R. Br. ex Roem. & Schult.	*Nerium divaricatum* L., *T. coronaria* Willd.	caprice (H); jazmín Malabar (RD)
Thevetia peruviana (Pers.) K. Schum.	*Cerbera peruviana* Pers., *C. thevatia* L., *T. neriifolia* Juss., *T. thevetia* Millsp.	ahouai des Antilles, bagage à collier, bois saisissement, d'eau livre, feuilles saisies, feuilles saisissement, noix de serpent, serpent (H); retama (RD); cabalonga, lucky-nut (PR)

AQUIFOLIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Ilex azuensis Loes. Endemic to Hispaniola		
Ilex barahonica Loes. Endemic to Hispaniola		
Ilex fuertesiana (Loes.) Loes. Endemic to Hispaniola	*I. caroliniana* var. *fuertesiana* Loes., *I. fuertesiana* var. *selleana* Loes.	

AQUIFOLIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Ilex guianensis (Aubl.) Kuntze	*I. acuminata* Willd., *I. guianensis* var. *cuencensis* Loes., *I. macoucoua* Pers., *I. panamensis* Standl., *I. pseudomacoucoua* Loes., *Macoucoua guianensis* Aubl.	palo de burro (RD); macoucoua (PR); water wood, whitewood (Belize)
Ilex impressa Loes. & Ekm.. Endemic to central Hispaniola		
Ilex krugiana Loes.	*I. duarteensis* Loes.	lombai (H); palo blanco, palo de burro (RD)
Ilex macfadyenii (Walp.) Rehder	*I. macfadyenii* var. *domingensis* Moscoso, *I. macfadyenii* var. *occidentalis* Moscoso, *I. montana* Griseb., not T. & G., *Prinos macfadyenii* Walp., *P. montanus* Sw.	feuilles houx, houx, petit houx, (H); acebo cubano de sierra, palo blanco (RD); acebo de sierra (PR); graines vertes pruneau, petit citronnier (G)
Ilex microwrightioides Loes. Endemic to Hispaniola	*I. microwrightioides* var. *calescens* Loes.	
Ilex nitida (Vahl) Maxim	*Prinos nitidus* Vahl	briqueta, briqueta naranjo, hueso prieto (PR); bois de houe (M); pruneau noir (G)
Ilex obcordata Sw.	*I. formonica* Loes.	
Ilex repanda Griseb.	*I. grisebachii* Maxim., *I. grisebachii* var. *haitiensis* Loes.	
Ilex riedlaei Loes.	Considered by some authors as a variety of *I. urbaniana* Loes.	
Ilex tuerckheimii Loes. Endemic to Hispaniola		

ARALIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Brassaia actinophylla Endl.	*Schefflera actinophylla* (Endl.) Harms.	schefflera (H); mano (RD)
Dendropanax arboreus (L.) Decne. & Planch.	*Aralia arborea* L., *Gilibertia arborea* (L.) E. March., *G. brachypoda* Urb.	bois négresse, fausse salsepareille, salsepareille bâtard, salsepareille marron (H); junquillo, lengua de vaca, palo de burro, palo malo, pinga de perro, ramón de bestia, ramón de costa, víbora (RD); ramón de vaca (C, RD); víbona (C); palo de pollo (PR)
Dendropanax selleanus (Urb. & Ekm.) A. C. Smith Endemic to southern Hispaniola	*Gilibertia selleana* Urb. & Ekm.	bois négresse (H)
Oreopanax capitatum (Jacq.) Decne. & Planch.	*Aralia capitata* Jacq. [Also spelled *O. capitatus.*]	bois cochon, bois d'anjou (H); palo de viento, pinga de perro, víbora (RD); candlewood, palo cachumba, woman wood (PR)
Polyscias balfouriana (Hort. Sander.) L. H. Bailey	*Aralia balfouriana* Hort. Sander.	paresseux, persillette (H); gallego (RD)
Polyscias filicifolia (Moore) L. H. Bailey	*Aralia filicifolia* Moore ex Fourn.	feuilles paresseux, paresseux (H); gallego (RD, PR)
Polyscias guilfoylei (Cogn. ex March.) L. H. Bailey	*Aralia guilfoylei* Cogn. ex March., *P. guilfoylei* (Bull.) L. H. Bailey	paresseux (H); gallego (RD, PR); guilfoyle polyscias (PR)

ARALIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Polyscias pinnata Forst.		feuilles paresseux, paresseux, paresseux des clôtures (H); parici (RD); gallego (PR)
Schefflera morototoni (Aubl.) Maguire Steyerm. & Frodin	*Didymopanax morototoni* (Aubl.) Decne. & Planch., *Panax morotoni* Aubl.	aralie grandes feuilles, bois canot, bois trembler, tremble, trembler, trompette mâle (H); palo de sable, sablito (RD); yagrumo macho (C, RD, PR); arriero, gavalán, zapatón (C); matchwood (PR)
Schefflera tremula (Krug & Urb.) Alain Endemic to Hispaniola	*Didymopanax tremulus* Krug & Urb. Some authors spell *D. tremulum*.	aralie grandes feuilles, bois d'anjou, bois trembler, tremble, trembler (H); palo de viento (RD)
Sciadodendrun excelsum Griseb.		ouane primaire (H); juan primero (RD)

ARAUCARIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Araucaria heterophylla (Salisb.) Franco	*A. excelsa* (Lam.) R. Br.	araucaria (H, PR); siete pisos (RD, C); Norfolk-Island pine (PR)

ARECACEAE (=PALMAE)

SPECIES	SYNONYMS	COMMON NAMES
Acrocomia aculeata (Jacq.) Lodd. ex Mart.	Henderson et al. (1995) list 37 synonyms including *A. media* O. F. Cook, *A. quisqueyana* Bailey, *Bactris globosa* Gaertn., *Cocos aculeatus* Jacq., *Palma spinosa* Mill.	coco guinée, corosse (H); catié, corozo, corozo criollo (RD); corojo (C)
Attalea crassispatha (Mart.) Burret Endemic to southwestern Haiti	*Bornoa crassispatha* O. F. Cook, *Cocos crassipatha* Mart., *Maximiliana crassispatha* Mart., *Orbignya crassispatha* (Mart.) Glassman	carosse, carossier, petit coco (H)
Bactris plumeriana Mart.	*B. chaetophylla* Mart., *B. cubensis* Burrett, *B. jamaicana* L. H. Bailey, *B. plumeriana* of Becc., *Palma gracilis* Mill.	canne de Tobago, coco macaque, petit crocro (H); palma de catey (RD); coco macaco, pajua, palma (C); prickly pole (J)
Calyptronoma plumeriana (Martius) Lourteig	*Calyptrogyne clementis* León, *C. dulcis* (Wright ex Griseb.) Gomez, *C. intermedia* (Griseb. & H. Wendl.) Gomez, *C. microcarpa* León, *Calyptronoma clementis* (León) A. D. Hawkes ssp. *clementis*, *C. clementis* (León) A. D. Hawkes ssp. *orientensis* Muñiz & Borhidi, *C. dulcis* (Wright ex Griseb.) Bailey, *C. intermedia* (Griseb. & H. Wendl.) H. Wendl., *C. microcarpa* (León) A. D. Hawkes, *Geonoma dulcis* Wright ex Griseb., *G. intermedia* Griseb. & H. Wendl., *G. plumeriana* Mart.	chapelet, palme-à-vin (H); flor de confite, manaca, manaca colorada, manacla, palma de arroyo, palma manaca (RD, C)

ARECACEAE (=PALMAE)

SPECIES	SYNONYMS	COMMON NAMES
Calyptronoma rivalis (Cook) Bailey	*Calyptrogyne quisqueyana* (Bailey) León, *C. rivalis* (O. F. Cook) León, *Calyptronoma quisqueyana* L. H. Bailey, *Cocops rivalis* O. F. Cook	palme-à-vin, palma (H); manaca, manacla, palma manaca, palmilla (RD, PR)
Chrysalidocarpus lutescens H. A. Wendl.	*Areca lutescens* Bory	areca (H, RD, PR, US); palma areca (C); palm dorada (RD); bamboo palm, butterfly palm, Madagascar palm, yellow palm (English)
Coccothrinax argentea (Lodd. ex Schult. f.) Sarg. ex Becc.	*Acanthorriza argentea* (Lodd.) O. F. Cook, *C. argentea* of Britton & Wilson, *Thrinax argentea* Lodd. ex Schult. & Schult. f., *T. longistyla* Becc., *T. multiflora* Mart. in part	gouane, gwenn, latanier bourrique, latanier marron, latanier savanne, palme coyau (H); guano, palma de guano (RD)
Coccothrinax ekmanii Burret	*C. munizii* Borhidi, *Haitiella ekmanii* (Burret) L. H. Bailey, *H. munizii* (Borhidi) Borhidi	gouane, gwenn (H)
Coccothrinax gracilis Burret Endemic to Hispaniola		latanier (H)
Coccothrinax miraguama (Kunth) León	Henderson et al. (1995) list 42 synonyms including *C. montana* Burret, *C. scoparia* Becc.	latanier balai (H); miraguano, yuraguana (C)
Coccothrinax spissa Bailey Endemic to Hispaniola		
Cocos nucifera L.	*Palmas cocos* Miller	cocotier, cocoyer, coq au lait, noix de coco (H); coco, cocotero, palma de coco (RD, PR); coconut (US)
Copernicia berteroana Becc.		dyaré (H); yarey (RD)
Copernicia ekmanii Burret Endemic to northwestern Haiti		homme de paille, jambe de paille (H)
Elaeis guineensis L.	*E. melanococca* Gaert.	corossier, crocro, crocro guinée (H); corozo (RD); corojo de Guinea (C); African oil palm (PR, US)
Geonoma interrupta (Ruiz & Pav.) Mart. var. *interrupta*	Henderson et al. (1995) list 22 synonyms including *G. oxycarpa* Mart.	coco macaque, palme (H, M)
Phoenix canariensis Hort. ex Chabaud		Canary Island date palm (PR, US)
Phoenix dactylifera L.		datte, dattier (H); dátil (RD, C, PR); datilera, palmera (RD, C); date, date palm (PR)
Prestoea acuminata (Willd.) H. E. Moore	Henderson et al. (1995) list 36 synonyms including *Euterpe globosa* Gaertn., *Prestoea montana* (Graham) Nicholson	macoutouca, palme-à-vin, palmiste-à-chapelet (H); palma de manacla, manacla (RD); mountain palm (PR)
Pseudophoenix lediniana Read Endemic to Fauché River, Haiti	*P. elata* O. F. Cook ex Burret	pal, petit palmiste marron (H)
Pseudophoenix sargentii H. A. Wendl. ex Sarg. ssp. *saonae* 1) var. *saonae* 2) var. *navassana* Read	var. *saonae*: *Cyclospathe northropii* O. F. Cook, *P. gracilis* Ekm., *P. linearis* O. F. Cook, *P. saonae* O. F. Cook var. *navassana*: *P. navassana* Ekm. ex Burret	cacheo (RD); palma de guinea (C); Florida cherrypalm, Sargent cherrypalm (US); hog cabbage, hog palmetto (B)

ARECACEAE (=PALMAE)

SPECIES	SYNONYMS	COMMON NAMES
Pseudophoenix vinifera (Mart.) Becc. Endemic to Hispaniola	*Aeria vinifera* (Mart.) O. F. Cook, *Cocos vinifera* (Mart.) Mart., *Euterpe vinifera* Mart., *Gaussia vinifera* (Mart.) H. Wendl., *P. insignis* O. F. Cook, *Raphia vinifera* Descourt.	catié, palmiste-à-vin (H); cacheo (RD); guano de Guinea (C); buccaneer palm (US)
Roystonea borinquena O. F. Cook	*Oreodoxa borinquena* (O. F. Cook) Reasoner ex L. H. Bailey, *R. hispaniolana* Bailey, *R. hispaniolana* f. *altissima* Moscoso, *R. peregrina* L. H. Bailey	palmier royal, palmiste (H); palma, palma deyagua (RD); palma real (RD, PR); Hispaniolan royal palm, Puerto Rico royal palm, royal palm (PR,US)
Sabal causiarum (O. F. Cook) Becc.	*Inodes causiarum* O. F. Cook, *I. glauca* Dammer, *S. haitensis* Becc., *S. questeliana* L. H. Bailey	latanier chapeau, latanier franc, latanier jaune (H); palma cana (RD); palma de sombrero, Puerto Rican hat palm, yarey (PR)
Sabal domingensis Becc.	*S. neglecta* Becc.	latanier chapeau, paille (H); cana, palma de cana (RD); Hispaniola palmetto (PR)
Thrinax morrisii H. A. Wendl.	*Simpsonia microcarpa* (Sarg.) O. F. Cook, *T. bahamensis* O. F. Cook, *T. drudei* Becc., *T. ekmanii* Burret, *T. keyensis* Sarg., *T. microcarpa* Sarg., *T. ponceana* O. F. Cook, *T. punctulata* Becc.	latanier de mer, latanier la mer (H); guanillo (RD); guano de sierra, miraguano, palmita (C); brittle thatch palm, palma de cojollo, palma de escoba, pandereta, yaray (PR); buffalo top (B); guano campêche (G)
Thrinax radiata Lodd. ex Schult. & Schult. f.	*Coccothrinax martii* (Griseb. & H. Wendl.) Becc., *C. radiata* (Lodd. ex Schult. & Schult. f.) Sarg., *Porothrinax pumilio* H. Wendl. ex Griseb., *T. floridana* Sarg., *T. martii* Griseb. & H. Wendl. ex Griseb., *T. wendlandiana* Becc.	latanier de mer, latanier la mer (H); guanillo (RD); guano de costa (C); thatch palm (J, US)
Zombia antillarum (Desc. ex Jackson) Bailey Monotypic species endemic to Hispaniola	*Chamaerops antillarum* Descourt. ex Jackson, *Coccothrinax anomala* Becc., *Oothrinax anomala* (Becc.) O. F. Cook, *Z. antillarum* var. *gonzalezii* Jiménez	latanier piquant, latanier zombi (H); guanito (DR)

ASCLEPIADACEAE

SPECIES	SYNONYMS	COMMON NAMES
Calotropis procera (Ait.) R. Br.		arbre soie, coton soie (H); algodón extranjero (RD); cazuela (C); algodón de seda, giant milkweed (PR); arbre à soie (G)

ASTERACEAE (=COMPOSITAE)

NB: Judd (1987) describes 19 shrub species of the following genera that might be considered small trees *sensu* Little and Wadsworth (1964): *Baccharis* (1), *Eupatorium* (10), *Lantanopsis* (1), *Narvalina* (1), *Pluchea* (1), *Senecio* (3), and *Vernonia* (2).

BETULACEAE

SPECIES	SYNONYMS	COMMON NAMES
Alnus acuminata Kunth. ssp. *acuminata*	*A. acutissima* (Winkler) Callier, *A. castanaefolia* Mirbel, *A. ferruginea* Kunth., *A. jorullensis* Kunth. var. *acuminata* (Kunth.) Kuntze, *A. jorullensis* Kunth. var. *ferruginea* (Kunth.) Kuntze, *A. jorullensis* Kunth. var. *mirbelli* (Spach.) H. J. Winkler, *A. lanceolota* Philippi, *A. lindeni* Regel, *A. spachii* (Regel) Callier	aile, aliso, jaúl (C, RD, PR); alder, Andes alder (US)

BIGNONIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Catalpa longissima (Jacq.) Dum. Cours.	*Bignonia longissima* Jacq., *B. quercus* Lam., *C. longissima* (Jacq.) Sims, *Macrocatalpa longissima* (Jacq.) Britton	bois chêne, chêne, chêne haitien, chenier (H); roble, roble de olor (RD); Jamaica-oak, mastwood, yokewood (J); Haiti catalpa, Haitian oak, roble dominicano (PR); chêne noir (H, M); radégonde (M)
Crescentia cujete L.	*C. acuminata* HBK., *C. fasciculata* Miers	calebasse, calebassier (H); güira (C, RD); higüero (RD, PR); calabasa (C); calabash (PR)
Crescentia linearifolia Miers		calebasse marron (H); higüera (RD, PR); calabash, higüerillo, higüerita, higüerito (PR)
Dendrosicus latifolius (Mill.) A. Gentry	*Crescentia cucurbitina* L., *Enallagma cucurbitina* (L.) Baill., *E. latifolia* (Mill.) Small [Also spelled *E. latifolio.*]	calebasse zombie, calebasse marron (H); güira cimarrona, higüerillo, higüero galión, higüero jamo (RD); güera de olor (C); black-calabash, higüerita (PR)
Jacaranda mimosifolia D. Don	*J. acutifolia*, not Humb. & Bonpl.	flamboyant bleu, jacaranda (H); flamboyán azul (RD); framboyán azul (C)
Spathodea campanulata Beauv.		immortel étranger (H); amapola, mampolo (RD); espatodea (C); African tuliptree, tulipán africano (PR)
Tabebuia acrophylla (Urb.) Britt.		bois nago, bois savane (H); paragua (RD); cucharillo, roble caiman (C); roble blanco, roble de mona (PR)
Tabebuia berteri (DC.) Britt		bois du sip, sip (H)
Tabebuia conferta Urb. Endemic to Massif de la Hotte		calebassier (H)
Tabebuia heterophylla (DC.) Britton	*T. dominicensis* Urb., *T. heterophylla* ssp. *pallida* (Miers) Stehlé, *T. lucida* Britton, *T. pallida* (Lindl.) Miers, *T. pallida* ssp. *dominicensis* (Urb.) Stehlé, *T. pallida* ssp. *heterophylla* (DC.) Stehlé, *T. pentaphylla* auth., not (L.) Hemsl.	poirier (H); capá bobo, roble blanco (RD); prieto, roble, roble de costa, roble de yugo, roble prieto (PR); pink cedar, pink trumpet tree (J)
Tecoma stans (L.) HBK.	*Bignonia stans* L., *Stenolobium incisum* Rose & Standl., *S. stans* (L.) Seem., *T. tronodora* (Loes.) Johnst.	chevalier, fleur de St. Pierre, herbe de St. Nicolas (H); saúco amarillo (RD, C); ginger-thomas, roble amarillo (PR)

BIXACEAE

SPECIES	SYNONYMS	COMMON NAMES
Bixa orellana L.	*B. katangensis* Delpierre	chiote, roucou, roucouyer (H); achiote, bija (RD, C, PR); lipstick bush (PR); anatto (J, PR)

BLECHNACEAE

SPECIES	SYNONYMS	COMMON NAMES
Blechnum underwoodianum (Broudh.) C. Chr.		tree fern (US)

BOMBACACEAE

SPECIES	SYNONYMS	COMMON NAMES
Adansonia digitata L.	*A. baobab, A. situla, A. somalensis, A. sphaerocarpa* A. Chev.	mapou étranger, mapou zombi (H); baobab (RD, C, PR, G, M); monkey bread tree, sour gourd (J)
Bombacopsis emarginata (A. Rich.) A. Robyns	*Bombax emarginatum* Dcne., *Pachira emarginata* A. Rich	colorade (H); caimán, colorado, juan colorado (RD)
Ceiba pentandra (L.) Gaertn.	*Bombax guineense* Thonn., *B. orientale* Sprengel, *B. pentandrum* L., *C. casearia* L. Medicus, *C. guineense* (Thonn.) A. Chev., *C. thonningii* A. Chev., *Eriodendron anfructuosum* DC., *E. caribaeum* (DC.) G. Don, *E. guineese* (Thonn.) G. Don. ex Lond.	fromager, mapou, mapou coton (H); ceiba (RD, C, PR); kapok, silk cotton (PR); cotton tree (J)
Chorisia insignis HBK.		estrella federal (RD)
Chorisia speciosa St. Hil.		estrella federal (RD)
Neobuchia paulinae Urb.		mapou blanc (H)
Ochroma pyramidale (Cav.) Urb.	*Bombax angulata* Sessé & Moç, *B. pyramidale* Cav., *O. bicolor* Rowlee, *O. boliviana* Rowlee, *O. grandiflora* Rowlee, *O. lagopus* Sw., *O. lagopus* var. *bicolor* (Rowlee) Standl. et Steyerm., *O. lagopus* var. *occigranatensis* Cuatr., *O. limonensis* Rowlee, *O. obtusa* Rawl., *O. peruviana* Sohnst., *O. tomentosa* Willd., *O. velutina* Rowlee	bois madame, coton fleur, coton soie, fleurs mahaudème, mahaudème (H); lana, lanero, palo de lana (RD); balsa, corcho, corkwood, guano (PR)
Pachira aquatica Aubl.	*Carolinea princeps* L. f., *P. grandiflora* Tuss.	colorade (H); cacao cimarrón, carolina, colorado, pachira (RD); ceiba de agua (PR)
Pachira insignis (Sw.) Sw.		cacao cimarrón (RD); shaving-brush tree (PR); carolina (C)
Pseudobombax ellipticum (HBK.) Dugand	*Bombax ellipticum* HBK.	don diego de día (RD)
Quararibea turbinata (Sw.) Poir.	*Myrodia turbinata* Sw.	molinero, molinillo, paragüita (RD)

BORAGINACEAE

SPECIES	SYNONYMS	COMMON NAMES
Bourreria succulenta Jacq.	*B. succulenta* var. *canescens* O. E. Schulz., *Cordia bourreria* L., *Ehretia bourreria* L. [Also spelled *Beureria.*]	café marron, mapou gris (H); palo bobo (RD); ateje de costa, curaboca, fruta de catey, roble guayo (C); palo de vaca, pigeon-berry (PR)
Bourreria virgata (Sw.) G. Don	*B. domingensis* (DC.) Griseb. [Also spelled *Beureria.*]	guazumillo (RD); cafecillo, raspalengua (C); palo de vaca, roble de guayo (PR)
Cordia alba (Jacq.) Roem. & Schult.	*Calyptracordia alba* (Jacq.) Britton, *Cordia calyptrata* Bert., *C. dentata* Poir., *Varronia calyptrata* DC.	bois chique (H); muñeco blanco, yagua (RD); ateje amarillo, uva gomosa, uvita, varía blanca (C); cereza blanca, white manjack (PR)
Cordia alliodora (Ruiz Lopez & Pavon) Oken	*Cerdana alliodora* Ruiz & Pavon, *Cordia alliodora* (Ruiz Lopez & Pavon) Cham. ex DC., *C. gerascanthus* Jacq., non L.	bois de rose, bois soumis, chêne caparo, chêne franc, chêne noir (H); capá de olor, capá de sabana, capá o laurel, caparó, guacimilla (RD); capá, capá prieto (RD, PR); Spanish elm (PR, J); varía, varía amarilla, varía colorado, varía prieta (C)
Cordia collococca L.	*C. glabra* auth.	trois pieds (H); muñeco, palo de muñeco blanco (RD); ateje, ateje hembra (C); cerezo, manjack, palo de muñeco (PR)
Cordia fitchii Urb.		
Cordia gerascanthes L.		capá prieto, muñeco (RD); varía, varía prieta (C)
Cordia laevigata Lam.	*C. nitida* Vahl	bois paupit, bois poupée (H); ateje costa, ateje cimarrón, atejillo, cerezo (C); capá colorado, red manjack (PR)
Cordia mirabiloides (Jacq.) Roem. & Schult.		bonbon chat, bonbon codine, croque chien, dent de chien blanc, fleur dentition, fleurs dents (H); rompe ropa (RD); ateje globoso (C); white cordia (PR)
Cordia obliqua Willd.	*C. tremula* Griseb.	ateje amarillo, ateje americano (C); cereza blanca, manjack (PR)
Cordia sebestena L.	*C. brachycalyx* Urb., *C. speciosa* Salisb., *Sebesten sebestena* (L.) Britton	bois d'Inde, coquelicot, petit soleil (H); avellana criolla, caramboli (RD); anacagüita (C); vomitel colorado (C, PR); aloe wood, geiger-tree (PR)
Cordia sulcata DC.	*C. macrophylla* R. & S., *C. toqueve* Sieb.	fleurs dent à fleurs blanches, parésol (H); ateje cimarrón, ateje macho, palo tabaco (C); moral, white manjack (PR)
Ehretia tinifolia L.		bois chapeau, bois noir, chêne noir, filière (H); arrayán, muñeco baboso, roblecillo, roblillo (RD); guayo prieto (C); roble prieto (C, RD)
Rochefortia acanthophora (DC.) Griseb.	*Ehretia acanthophora* DC., *E. spinosa* Spreng.	bois ébène, ébène, ébénier noir, galle-galle, gratte-galle (H); corazón de paloma, ébano, trejo (RD); carbonero, espuela de caballero (C); juso (PR)

NB: Judd (1987) lists 3 *Cordia* shrub species that might be considered as small trees *sensu* Little and Wadsworth (1964). These species are not listed.

BURSERACEAE

SPECIES	SYNONYMS	COMMON NAMES
Bursera brunea (Urb.) Urb. & Ekm. Endemic to Hispaniola	*Spondias brunea* Urb.	

BURSERACEAE

SPECIES	SYNONYMS	COMMON NAMES
Bursera glauca Griseb.	*B. nashii* (Britt.) Urb., *Terebinthinus glauca* Britt., *T. nashii* Britt.	
Bursera gracilipes Urb. & Ekm. Endemic to Hispaniola		
Bursera ovata Urb. & Ekm. Endemic to Hispaniola		
Bursera simaruba (L.) Sarg.	*B. gummifera* L., *B. ovalifolia* (Schldl.) Engl., *Elaphrium ovalifolium* Schldl., *E. simaruba* (L.) Rose, *Pistacia simaruba* L.	bois d'encens, chiboue, chique, gommier, gommier blanc, gommier rouge (H); almácigo (RD, PR, C); almácigo blanco, almácigo colorado, jobo (RD); gum tree, gumbo limbo, turpentine tree, West Indian birch (PR)
Protium glaucescens Urb. Endemic to Hispaniola		
Tetragastris balsamifera (Sw.) Kuntze	*Hedwigia balsamifera* Sw., *T. ossaea* Gaertn., *T. panamensis* OK.	bois cochon, bois cochon marron, sucrier des montagnes (H); abey, amacey, amacey hembra (RD); hogwood, masa, palo de aceite (PR); azucarero, palo cochino (C)

BUXACEAE

SPECIES	SYNONYMS	COMMON NAMES
Buxus glomerata (Griseb.) Muell. Arg.	*Tricera glomerata* Griseb.	bois petite feuille (H)

CACTACEAE

SPECIES	SYNONYMS	COMMON NAMES
Cereus hexagonus (L.) Mill.		cayuco (RD); cacto columnar (C, PR); tall columnar cactus (PR)
Consolea macracantha (Mill.) Lem.		cactier, cactus, raquette (H)
Lemaireocereus hystrix (Haw.) Britton & Rose	*Cereus hystrix* (Haw.) Salm.-Dyck.	catastres (H); cayuco (RD); cardón (C); dildo español, Spanish dildo (PR)
Opuntia ficus-indica (L.) Mill.		raquette (H); alquitira, higo chumbo, tuna mansa (RD); spineless tuna, tuna de España (PR)
Opuntia moniliformis (L.) Haw.	*Consolea moniliformis* (L.) Britton	patte de tortue, raquette espagnole (H); alpargata (RD); tuna (PR)

CAMPANULACEAE

SPECIES	SYNONYMS	COMMON NAMES
Lobelia assurgens L.		coq shango (H); chicoria cimarrona (PR); cardinale rouge, lobélie cardinale (French)
Lobelia robusta Graham var. *robusta*		

CANELLACEAE

SPECIES	SYNONYMS	COMMON NAMES
Canella winterana (L.) Gaertn.	*C. alba* Murray, *Laurus winterana* L., *Winterana canella* L.	canille, camille, cannelle, cannelle poivrée (H); canela, canela de la tierra, canelilla (RD); barbasco, canella, pepper cinnamon, whitewood bark, wild cinnamon, winter bark (PR); cúrbana, malambo (C)
Cinnamodendron angustifolium Sleumer Endemic to Hispaniola		
Cinnamodendron ekmanii Sleumer Endemic to Hispaniola		canelilla (RD)
Pleodendron ekmanii Urb. Endemic to Hispaniola		

CAPPARACEAE (=CAPPARIDACEAE)

SPECIES	SYNONYMS	COMMON NAMES
Capparis amplissima Lam.	*C. portoricensis* Urb.	matabecerro (RD)
Capparis cynophallophora L.	*C. emarginata* A. Rich., *C. jamaicensis* Jacq., *C. odoratissima* Spreng., *C. torulosa* Sw., *Quadrella cynophallophora* Hutch.	bois caca, bois couleuvre, bois d'argent, bois de couille, bois fétide, bois puant, bois sénégal, caca chien, cacache, caprier rampant (H); frijol, frijolillo, olivo, olivo frijol (RD); bejuco inglés, black wattle (PR); Jamaica caper (J)
Capparis dolichopoda Helwig Endemic to Hispaniola		avocat marron (H)
Capparis ferruginea L.	*C. incana* Spreng., *C. octandra* Jacq., *Linnaeobreynia ferruginea* Hutch.	balai four, balai velours, bois rave, bois sénégal (H); frijol (RD); mostacilla chica (C); olivo (C, RD); bois caca, bois puant (G,M); mustard shrub (J)
Capparis flexuosa (L.) L.	*Morisonia flexuosa* L.	bois caca, bois moutarde, bois rave (H); frijol de monte, huevo de perro, mostazo (RD); mostacilla (C); caper tree, limber tree, palinguán (PR)
Capparis frondosa Jacq.	*C. baducca* L.	bois bourrique, saint-esprit (H)
Capparis gonaivensis Helwig Endemic to Hispaniola	*Quadrella gonaivensis* Hutch.	bois rave (H); frijol, huevo de perro, mostazo (RD)
Capparis grisebachii Eichl.	*Linnaeobreynia grisebachii* Hutch.	
Capparis hastata Jacq.	*C. coccolobifolia* Mart.	sapo (PR)
Capparis indica (L.) Fawc. & Rendle	*Breynia indica* L., *C. amygdalina* Lam., *Linnaeobreynia indica* Hutch.	burro (PR); bois de mêche, bois puant (G); bois noir (M)
Crataeva tapia L.	*C. apetala* Urb.	
Forchhammeria haitiensis (Urb. & Ekm.) Alain Endemic to Hispaniola	*Murbeckia haitiensis* Urb. & Ekm.	
Morisonia americana L.		aguacatillo, guarapo (RD); rat apple (PR)

CARICACEAE

SPECIES	SYNONYMS	COMMON NAMES
Carica papaya L.	*Papaya carica* Gaertn., *P. sativa*, *P. vulgaris* DC.	papailler, papaye, papayer (H); lechosa, papaya (PR, RD); pawpaw (J)

CASUARINACEAE

SPECIES	SYNONYMS	COMMON NAMES
Casuarina cristata Miq. ssp. *cristata*	*C. lepidophloia* F. Muell.	pich pin, pin d'Australie, filao (H); casuarina (RD, PR, US); pino, pino australiano, pino de Australia (RD, PR); belah (Australia)
Casuarina equisetifolia L. ex J. R. & G. Forst. var. *equisetifolia*	*C. litorea* L. (illegit. name)	pich pin, pin d'Australie, filao (H); casuarina (RD, PR, US); pino, pino australiano, pino de Australia (RD, PR); Australian beefwood, horsetail casuarina (PR, US); coast sheoak (Australia)
Casuarina glauca Sieb. ex Sprengel		pich pin, pin d'Australie, filao (H); casuarina, pino de Australia (RD, PR); longleaf casuarina, scaly bark beefwood (PR, US); swamp sheoak (Australia)

CELASTRACEAE

SPECIES	SYNONYMS	COMMON NAMES
Cassine ehrenbergii (Urb.) Alain Endemic to Hispaniola	*Elaeodendron ehrenbergii* Urb.	
Cassine lanceolata (Urb. & Ekm.) Alain Endemic to Hispaniola	*Elaeodendron lanceolatum* Urb. & Ekm.	
Cassine xylocarpa Vent. var. *attentuata* (A. Rich.) Alain	*C. attenuata* Ktze., *Elaeodendron attenuatum* A. Rich.	coscorrón, guayarote, marble tree, spoon tree (PR); laurel de costa, mate prieto, palo blanco, penipeniche de sabana, piñi-piñi, roñoso, sangre de doncella (C); bois tan, prune bord de mer (G, M)
Crossopetalum rhacoma Crantz	*Myginda rhacoma* Sw., *Rhacoma crossopetalum* L.	tsewal (H); coral, manto, maravedí, palo de paloma, poison cherry, wild cherry (PR); limoncillo, limonejo de costa (C)
Gymindia latifolia (Sw.) Urb.	*Myginda latifolia* Sw.	amansa guapo (C); coscorroncito, West Indian falsebox (PR)
Maytenus buxifolia (A. Rich.) Griseb.	*Monteverdia buxifolia* A. Rich.	acajou sauvage, bois fourmi, os devants marrons, raisin marron (H); aguacero, gangre de toro (RD); rockwood (J)
Maytenus domingensis Krug & Urb. Endemic to Hispaniola		albulito, añi, arbolito, yaya dura (RD)
Maytenus elliptica (Lam.) Krug & Urb.	*Rhamnus laevigatus* Vahl, *Senacia elliptica* Lam.	arbolito (RD)
Maytenus haitiensis Urb. Endemic to Hispaniola		
Maytenus jamaicensis Krug & Urb.		
Maytenus microphylla Urb. Endemic to Hispaniola		
Maytenus mornicola Urb. & Ekm. Endemic to Hispaniola		

CELASTRACEAE

SPECIES	SYNONYMS	COMMON NAMES
Schaefferia frutescens Jacq.	*S. berterii* Griseb., *S. buxifolia* Nutt., *S. completa* Sw.	balai de montagne, bois capable, bois petit garçon, capable, marguerite, petit bois blanc, petit garçon (H); cabra cimarrona, palo de araña (RD); Florida boxwood, jibá (PR); amansa guapo, cambia voz, guairaje (C)
Torralbasia cunefolia (Wr.) Krug & Urb.	*Euonymus cuneifolius* Wr., *Myginda cuneifolia* Griseb., *T. domingensis* Urb.	palo amarillo (RD); guairaje (C); boje (PR)

CHLORANTHACEAE

SPECIES	SYNONYMS	COMMON NAMES
Hedyosmum nutans Sw.		

CHRYSOBALANACEAE

SPECIES	SYNONYMS	COMMON NAMES
Chrysobalanus icaco L. var. *icaco*		icaque, icaquier (H); hicaco, jicaco (RD, PR); icaco de costa, icaco dulce (C); coco plum (PR, US); pork fat apple, white plum (B)
Chrysobalanus icaco L. var. *pellocarpus* (G. F. W. Meyer) DC.	*C. pellocarpus* G. F. W. Meyer	hicaco, jicaco (RD)
Hirtella triandra L.		caimito cimarrón, caimito de perro, cocuyo (RD); icaque poileur (M); icaque à poils, icaque à ramiers, icaque pendant (G)

CLUSIACEAE (=GUTTIFERAE, including HYPERICACEAE)

SPECIES	SYNONYMS	COMMON NAMES
Calophyllum calaba L.	*C. antillarum* Britt., *C. brasiliense* var. *antillarum* Standl., *C. calaba* Jacq., *C. jacquini* Fawc. & Rendle	dalmagre, dalmarie, damage, dame marie, galba, galba des Antilles (H); baria, malagueta, mara, maría, palo maría (RD); santa maría (RD, PR); palo de maría (PR); bastard mammee (J)
Clusia clusiodes (Griseb.) D'Arcy	*C. abbottii* Urb., *C. grisebachiana* Alain, *C. krugiana* Urb., *Tovomita clusioides* Griseb., *T. grisebachiana* Planch:	cupeíllo (PR)
Clusia domingensis Urb. Endemic to Hispaniola		
Clusia major L.		bois pâle, figuier maudit, figuier maudit marron, gros figuier (H); copey, cupey (RD, C, PR); balsam fig, mammee, pitch apple (PR)
Clusia minor L.	*C. cartilaginosa* Vesque	figuier, figuier maudit (H); copeyejo, cupey, cupey chiquito, cupeyito (RD)
Clusia picardae Urb. Endemic to Hispaniola		
Clusia plumieri Planch. & Triana Endemic to Hispaniola		
Clusia rosea Jacq.		bois pâle, figuier maudit, figuier maudit marron (H); copey (RD); cupey (PR, RD); balsam fig, monkey apple (PR)

CLUSIACEAE (=GUTTIFERAE, including HYPERICACEAE)

SPECIES	SYNONYMS	COMMON NAMES
Garcinia aristata (Griseb.) Borhidi	*Rheedia aristata* Griseb.	palo de cruz (RD)
Garcinia mangostana L.		mangosteen (H, French, English); jobo de la India (RD); mangostín (PR, Spanish); mangostán (Spanish)
Mammea americana L.		abricot, abricotier, abricotier des Antilles (H); mamey (RD, PR, C); mammee apple (PR); mamey apple, mammee sapote (J)
Marila biflora Urb. Endemic to Hispaniola		
Marila domingensis Urb. Endemic to Hispaniola		
Rheedia lateriflora L.	*Garcinia humilis* Adams, *Mammea humilis* Vahl	abricot, abricotier de St. Domingue (H)
Rheedia verticillata Griseb. Endemic to Hispaniola		bois de haut, bois de roux, bois diou (H); palo de cruz (RD); guayabacoa, wild rose-apple (PR)
Symphonia globulifera L.f.	*Moronobea coccinea* Aubl. (Barker & Dardeau, 1931)	bois à cochon (H); manni (Guayana); chewstick (US)

COCHLOSPERMACEAE

SPECIES	SYNONYMS	COMMON NAMES
Cochlospermum vitifolium (Willd.) Willd. ex Spreng.	*Bombax vitifolium* Willd., *C. hibisoides* Kunth., *Maximilianea vitifolia* Krug & Urb.	rosa imperial (RD, PR); Brazilian rose, cochlospermum (PR); botija, palo bobo (C)

COMBRETACEAE

SPECIES	SYNONYMS	COMMON NAMES
Buchenavia capitata (Vahl) Eichl.	*Bucida capitata* Vahl	bois gris-gris, bois margot, gris-gris, gris-gris jaune (H); ciruelillo, gri-gri, guaraguao (RD); jocuma, jucarillo, júcaro amarillo, júcaro mastelero (C); granadillo (PR); mountain wild olive, yellow sanders (J)
Bucida buceras L.	*Bucerus bucida* Crantz, *Bucida angustifolia* DC., *Terminalia buceras* C. Wright	bois gris-gris, bois margot, gris-gris des montagnes, gué-gué (H); gri-gri, guaraguao (RD); gregre, oxhorn bucida, ucar (PR); black olive (J); júcaro, júcaro negro (C)
Bucida spinosa (Northrop) Jennings	*Terminalia spinosa* North.	guaraguao (RD)
Conocarpus erectus L.	*C. sericeus* Forst. ex G. Don	manglier, manglier noir, palétuvier (H); botoncillo, botoncillo de costa, mangle prieto (RD); yana (C); mangle botón, button-mangrove (PR); mangle (H, RD)
Laguncularia racemosa (L.) Gaertn. f.	*Conocarpus racemosus* L.	gris-gris, manglier blanc (H); mangle (H,RD); mangle amarillo, mangle prieto (RD); patabán (C); white-mangrove (PR); mangle blanco (PR, RD)
Terminalia catappa L.	*Myrobalanus catappa* (L.) Kuntze, *T. badamia* Tul., *T. mauritiana* Lam., *T. moluccana* Lam., *T. myrobalana* Roth	amande, amandier des Indes, amandier tropical, badannier, zanmande (H); almendrón, almendro de la India (RD, C); Indian almond, tropical almond (PR); almendra (C, RD, PR)

COMBRETACEAE

SPECIES	SYNONYMS	COMMON NAMES
Terminalia domingensis Urb. ssp. *domingensis* Endemic to Hispaniola	*T. intermedia* auth., not Urb.	chicharrón (RD)

CUNONIACEAE (including BRUNELLIACEAE)

SPECIES	SYNONYMS	COMMON NAMES
Brunellia comocladiifolia H. & B. ssp. *domingensis* Cuatr.		bois mabel (H); guao, palo de cotorra (RD); West Indian sumac (J)
Weinmannia pinnata L.	*W. hirta* Sw.	casabito, tamarindo de loma, tamarindo de sierra (RD); oreganillo (PR, C); sabicú de pinares, sabicú marañón (C); bastard brasiletto, wild brasiletto (J)

CUPRESSACEAE

SPECIES	SYNONYMS	COMMON NAMES
Cupressus lusitanica Mill.	*C. benthamii* Endl., *C. glauca* Lam., *C. lindleyi* Klotzsch. ex Endl.	cyprès, cyprès de Mexico (H); ciprés (RD, C); ciprés mexicano, Mexican cypress (PR)
Cupressus sempervirens L.		cyprès, cyprès d'Italie (H); ciprés (RD, C); ciprés italiano, Italian cypress (PR)
Juniperus ekmanii Florin. Endemic to Massif de la Selle		
Juniperus gracilior Pilg. Endemic to Hispaniola		cèdre (H); sabina (RD)

CYATHEACEAE

SPECIES	SYNONYMS	COMMON NAMES
Alsophila hotteana (C. Chr. & Ekm.) Tryon Endemic to Massif de la Hotte		tree fern (US)
Alsophila minor (D. C. Eaton) Tryon		tree fern (US)
Alsophila woodwardioides (Kaulf.) Conant.	*Nephelea woodwardioides* (Kaulf.) Gastony var. *hieonymi* (Brause) Gastony	tree fern (US)
Cnemidaria horrida (L.) Presl.		tree fern (US)
Cyathea aquilina (Christ) Domain	*Alsophila aquilina* Christ.	helecho gigante, tree fern (PR)
Cyathea arborea (L.) J. E. Smith		Fougère arborescente (H); camarón, helecho, helecho arbóreo, helecho gigante, palmilla, tree fern (PR)
Cyathea escuquensis (Karst.) Domin	*Hemitelia escuquensis* Karst.	helecho gigante, tree fern (PR)
Cyathea furfuracea Baker		tree fern (US)
Cyathea harrisii Baker	*C. harrisii* Underw. ex Maxon (?)	tree fern (US)
Cyathea harrisii Baker x *Alsophila minor* (D. C. Eaton) Tyron		
Cyathea tenera (J. E. Sm.) Moore	*C. brittoniana* Maxon	helecho gigante, tree fern (PR)
Cyathea wilsonii (Hook.) Proctor	*Hemitelia wilsonii* Hook.	helecho gigante, tree fern (PR)

CYCADACEAE

SPECIES	SYNONYMS	COMMON NAMES
Cycas circinalis L.		cicadácea (RD); crozier cycad, false sago-palm (PR); cica (PR, RD)
Cycas revoluta L.		palmiste des Indes (H); alcanfor (C); sago-palm (US)

CYRILLACEAE

SPECIES	SYNONYMS	COMMON NAMES
Cyrilla racemiflora L.	*C. antillana* Michx.	granadillo, granado, palo colorado, palo de toro, palo prieto, sabina, sabina macho (RD)

DICHAPETALACEAE

SPECIES	SYNONYMS	COMMON NAMES
Tapura haitiensis Urb. & Ekm. Endemic to Massif de la Hotte		

DILLENIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Curatella americana L.	*C. grisebachiana* Eichl.	curatella, pomme torche (H); aperalejo, peralejo, peralejo de sabana (RD); rough-leaf tree (US)
Dillenia indica L.		coca (RD); dilenia, India dillenia (PR, US)

EBENACEAE

SPECIES	SYNONYMS	COMMON NAMES
Diospyros caribaea (A. DC.) Standl.	*Maba caribaea* Hiern., *Macreightia caribaea* A. DC.	bois raide (H)
Diospyros crassinervis ssp. *urbaniana* (Leonard) Alain	*Maba urbaniana* Leonard	
Diospyros domingensis (Urb.) Alain Endemic to Hispaniola	*D. leonardii* Alain, *Maba domingensis* Urb., *M. leonardii* Urb. & Ekm.	cocuyo (RD)
Diospyros oxycarpa (Urb.) Alain Endemic to Hispaniola	*Maba oxycarpa* Urb.	
Diospyros revoluta Poir.	*D. ebenaster* Retz	ébène (H); ébano (RD); guayabota, zapote negro (PR)
Diospyros tetrasperma Sw.		bois raide (H); ébano, ébano negro (RD)

ELAEOCARPACEAE

SPECIES	SYNONYMS	COMMON NAMES
Muntingia calabura L.		bois d'orme, bois de soie, bois de soie marron (H); memiso (RD, C); capulí, capulinas, guásima cereza (C); Jamaica cherry (J)
Sloanea amygdalina Griseb.	*S. domingensis* Urb.	acomât, bois coq, chapeau carré, comat (H); chicharrón (RD); berijúa, cresta de gallo, juba blanca (C); break-axe, ironwood (J)

ELAEOCARPACEAE

SPECIES	SYNONYMS	COMMON NAMES
Sloanea berteriana Choisy		cacaillo, cacao cimarrón (RD)
Sloanea ilicifolia Urb. Endemic to Hispaniola	*S. castor* Urb. & Ekm.	chapeau carré, châtaignier à petites feuilles (H); castor, chicharrón (RD)

ERICACEAE

SPECIES	SYNONYMS	COMMON NAMES
Lyonia buchii Urb. Endemic to Hispaniola		
Lyonia microcarpa Urb. & Ekm. Endemic to Hispaniola	*L. apiculata* Jiménez, *Xolisma apiculata* Sleumer	
Lyonia rubiginosa (Pers.) G. Don var. *costata* (Urb.) Judd Endemic to Hispaniola	*L. angulata* Urb. & Ekm., *L. costata* Urb., *L. darrasiana* Urb., *L. longelaminata* Jiménez, *Xolisma costata* Small, *X. longelaminata* Sleumer	
Lyonia tinensis Urb. Endemic to Hispaniola	*L. pseudotinensis* Jiménez, *Xolisma pseudotinensis* Sleumer, *X. tinensis* Small	
Lyonia truncata Urb. var. *montecristana* (Urb. & Ekm.) Judd Endemic to north central Hispaniola	*L. elongata* Jiménez, *L. montecristana* Urb. & Ekm., *Xolisma elongata* Sleumer	
Lyonia truncata Urb. var. *truncata* Endemic to southern Hispaniola	*L. brachycarpa* Urb. & Ekm., *L. furcyensis* Urb., *L. haitiensis* Urb., *L. plumeri* Urb. & Ekm., *Xolisma truncata* Small	
Vaccinium cubense (A. Rich.) Griseb.	*Thibaudia cubensis* A. Rich	

ERYTHROXYLACEAE

SPECIES	SYNONYMS	COMMON NAMES
Erythroxylum areolatum L.	*E. obtusa* DC. [Also spelled *Erythroxylon.*]	nagot, papelite, poirier (H); arabo (H, RD); fruto de paloma, higuillo, piragua (RD); red wood (J); arobillo (C); indio (PR)
Erythroxylum havanense Jacq. var. *haitiense* O. E. Schulz		quiebrahacha (RD)
Erythroxylum minutifolium Griseb.	*E. barahonense* O. E. Schulz	aguacero cimarrón (RD); cubanicú, sibanicú (C)
Erythroxylum rotundifolium Lunan	*E. brevipes* DC., *E. spinescens* O. E. Schulz, *E. suave* O. E. Schulz	yaría de costa (C); bois vinette, brésillette (M); brisselet, jiba, ratón, rocío (PR)

EUPHORBIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Adelia ricinella L.	*A. pedunculosa* A. Rich., *Ricinella pedunculosa* Muell. Arg., *R. ricinella* (L.) Britt.	citroin marron, grenade marron (H); trejo (RD); escambrón, espinillo (PR); jía, tarro de chiva (C)

EUPHORBIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Alchornea latifolia Sw.	*A. haitiensis* Urb., *Gouania paniculata* Spreng., *Manettia serrata* Spreng.	bois crapaud, bois mal aux dents, bois vache, feuilles crapaud, grain d'or, pois vache (H); aguacatillo (RD, C); arepa, bija cimarrona, bijilla, bijillo, bijo macho, lana, vacme (RD); baconá, chote (C); dogwod (J)
Alchorneopsis floribunda (Benth.) Muell.	*Alchornea glandulosa* var. *floribunda* Benth., *Alchorneopsis portoricensis* Urb.	palo de gallina (RD, PR); pendejo (RD)
Aleurites fordii Hemsl.		noisette (H); jabilla extranjera, javilla americana, javilla extranjera (RD); tung-oil tree (English)
Aleurites moluccana (L.) Willd.	*A. triloba* Forst., *Camirium moluccanum* Ktze., *Jatropha moluccana* L.	aleurites, noisette, noix, noyer, noyer des Indes (H); arbol llorón, avellano, avellano criollo (RD); nogal de la India, nuez (C); candle nut, Indian walnut (PR, J)
Aleurites trisperma Blanco		arbol de tung, javillo (RD)
Bernardia dichotoma (Willd.) Muell. Arg.	*Adelia bernardia* L., *B. bernardia* Millsp., *B. carpinifolia* Griseb., *Croton dichotomus* Willd.	
Chaetocarpus domingensis Proctor Endemic to Hispaniola		
Chaetocarpus globosus (Sw.) Fawc. & Rendle	*Croton globosus* Sw., *Mettenia globosa* Griseb., *Ricinus globosus* Willd.	guácima cimarrona, palo amargo (RD)
Codiaeum variegatum (L.) Blume	*Croton variegatus* L.	croton (H, RD); carácter de hombre, cola de paloma, pirulí, tirabuzón (RD); croton leaf (US)
Croton buchii Urb. Endemic to Hispaniola		
Croton corylifolius Lam.		hueledor, palo de perico (RD)
Croton eluteria (L.) Sw.	*Clutia cascarilla* L., *C. eluteria* L., *Croton cascarilla* Benn., *C. cascarilloides* Geisel.	cascarille, faux quinquina gris aromatique (H)
Croton glabellus L.	[Some authors consider *Croton eluteria* (L.) Sw. as a synonym.]	bois blanc, bois guêpes (H); palo bellaco, palo berraco (RD)
Croton hircinus Vent.	*C. populifolium* Lam.	
Croton jacmelianus Urb. Endemic to Hispaniola		
Croton lucidus L.		fait pime (H); caobilla de costa (RD)
Croton megaladenus Urb. Endemic to Hispaniola		
Cubanthus umbelliformis Urb. & Ekm. Endemic to Hispaniola		frangipani (H)
Ditta maestrensis Borhidi	[Some authors consider *D. maestrensis* as a variety of *D. myricoides* Griseb.]	
Ditta myricoides Griseb.		ditta, jaboncillo (PR)
Drypetes alba Poit.	*D. incurva* Muell. Arg., *Guatteria berteriana* Spreng., *G. prinoides* Spreng.	bois côtelette, labour cochon (H); azota criollo, lirio, palo blanco, palo blanco de sierra, palo de sierra, sota criollo, tárana (RD)
Drypetes diversifolia Krug & Urb.		

EUPHORBIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Drypetes glauca Vahl		cafeíllo, palo blanco, varital (PR); bois café, café grand bois (G)
Drypetes ilicifolia Krug & Urb.	*Gomphia ilicifolia* Bello	encinillo (PR); rosewood (J)
Drypetes lateriflora (Sw.) Krug & Urb.	*D. crocea* Poit., *Schaefferia lateriflora* Sw.	bois côtelette, côtelette (H); pae manuel (RD); cueriduro (C); Guiana plum (J)
Drypetes picardae Krug & Urb. Endemic to Hispaniola	*D. piriformis* Urb.	bois côtelette, côtelette (H); cuero duro, ramón blanco (RD)
Euphorbia cotinifolia L.	*Aklema cotinifolia* (L.) Millsp., *A. cotinoides* (Miq.) Millsp., *E. cotinoides* Miq.	
Euphorbia defoliata Urb. Endemic to Hispaniola		
Euphorbia lactea Haw.		candélabre, raquette (H); cacto, candelero, raqueta (RD)
Euphorbia leucocephala Lotsy		flor de ovejo, pascuita (RD)
Euphorbia milii Ch. des Moulins	*E. splendens* Bojar ex Hook, *Sterigmanthe splendens* Kl. & Garcke	couronne du Christ, euphorbe brilliant, petit flamboyant (H); tú-y-yo (RD); crown-of-thorns (J)
Euphorbia petiolaris Sims.	*Aklema petiolare* Millsp., *Alectoroctonum petiolare* Kl. & Garcke, *E. verticillata* Poir.	bois garçon, bon garçon (H); palo de leche, palo de yuca (RD)
Euphorbia pulcherrima Willd. ex Klotsch	*Poinsettia pulcherrima* Graham	dehomme, desaison, feuille St. Jean, poinsettia, St. Jean d'hiver (H); clavellina, flor de pascua, pascua (RD)
Euphorbia tirucalli L.		garde maison (H); alfabeto chino, antena, esqueleto, palito (RD)
Garcia nutans Vahl		almendro, avellana (RD)
Grimmeodendron eglandulosum (A. Rich.) Urb.	*Excoecaria eglandulosa* Muell. Arg., *E. sagraei* Muell. Arg., *Stillingia eglandulosa* A. Rich.	
Gymnanthes lucida Sw.	*Ateramnus lucidus* Rothman, *Excoecaria lucida* Sw., *Sebastiania lucida* Muell.	bois marbré (H); granadillo, greadilla, huevo de chivo, jabacón, juan prieto, palo de hueso, palo de tabacón (RD); aite, yaití (C); crabwood, oyster-wood (PR, J, US)
Gymnanthes pallens (Griseb.) Muell. Arg.	*Ateramnus pallens* Rothman, *Excoecaria pallens* Griseb., *Sebastiania pallens* Muell. Arg.	
Hevea brasiliensis (HBK.) Muell. Arg.	*Siphonia brasiliensis* HBK.	caoutchouc (H); caucho (RD)
Hippomane mancinella L.	*Mancinella venenata* Tuss.	hippomane, mancenillier, manchenille, maximilien, pomme zombi (H); manzanillo (C, RD); manchineel (H, J, PR, US)
Hippomane spinosa L. Endemic to Hispaniola	*Sapium ilicifolium* Willd.	pomme zombi (H)
Hura crepitans L.		arbre au diable, buis de sable, pet du diable, rabi, sablier (H); jabilla, jarilla, javilla, javillo, seda blanca, tabilla (RD); habá, habilla, salvadera (C); havilla, monkey pistol (PR); possum-tree, sandbox, sandbox tree (J)
Hyeronima domingensis Urb. Endemic to Hispaniola		chicharrón (RD)

EUPHORBIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Jatropha curcas L.	*Curcas curcas* (L.) Britt. & Millsp., *C. indica* A. Rich.	feuilles médecin, grand médecinier, médecinier, médecinier à grandes feuilles, médecinier béni, médecinier carthartique (H); piñón (RD); piñón botija, piñón criollo, piñón lechero, piñón purgante, piñón vóci (C); physic-nut, wild oil nut (J)
Jatropha hernandiifolia Vent.	*Curcas peltata* Baill., *J. hernandiifolia* var. *epeltata* Pax., *Loureira peltata* Desf.	
Jatropha integerrima Jacq.	*J. acuminata* Lam., *J. hastata* Jacq., *J. panduraefolia* Andr.	médecinier des Indes (H)
Jatropha multifida L.	*Adenoropium multifidum* (L.) Pohl.	médecinier des Indes, médecinier espagnol, médecinier multifide, papaye sauvage (H); piñón de España (RD); French physic nut (J)
Margaritaria nobilis L.	*M. nobilia* var. *antillana* (A. Juss.) Stehlé & Quentin, *Phyllanthus antillanus* (A. Juss.) Muell. Arg., *P. nobilis* var. *antillanus* (A. Juss.) Muell. Arg.	palo amargo (RD); azulejo, guaicaje, llorón (C); avispillo, higuillo, millo, siete-cueros, yuquillo (PR); bastard hog cherry (J); acomât bâtard (G)
Omphalea commutata Muell. Arg.	*Omphalandria commutata* O. Ktze.	noisetier, noisetier du pays (H)
Omphalea ekmanii Alain Endemic to Hispaniola		
Omphalea triandra L.		noisetier, noisetier d'Amérique, noisetier du pays, noisette (H); avellana, avellana criolla (RD); avellano de America, avellano de costa (C); cobnut, popnut (J)
Pera bumeliifolia Griseb.	*P. depressa* Urb. & Ekm., *P. domingensis* Urb.	casser hache, casser rage (H); ciguamo, corazón de paloma, cuerno de buey, jaiquí, palo damaso, palo prieto, pinillo (RD)
Pera glomerata Urb. Endemic to Hispaniola		cotelle (H)
Phyllanthus acidus (L.) Skeels	*Averrhoa acida* L., *Cicca acida* Merr., *C. distichia* L., *C. nodiflora* Lam., *Diasperus distichus* O. Ktze., *P. cicca* Muell. Arg., *P. distichus* Muell. Arg.	sybilline (H); grosella (RD, PR, C); cerezo occidental, manzana lora (C); cereza amarilla, otaheiti gooseberry (PR)
Phyllanthus cuneifolius (Britt.) Croizat	*Andrachne*? *cuneifolia* Britt.	
Phyllanthus epiphyllanthus L. ssp. *domingensis* Webster Endemic to Hispaniola		
Phyllanthus epiphyllanthus L. ssp. *epiphyllanthus*		
Phyllanthus juglandifolius Willd. ssp. *juglandifolius*	*Agyneia berterii* Spreng., *P. grandifolius genuinus* Muell. Arg.	bisiette marron, espagnol marron (H); bigleaf leafflower, gamo de costa (PR); grosella cimarrón (C)
Phyllanthus maleolens Urb. & Ekm. Endemic to Hispaniola		
Phyllanthus myriophyllus Urb. Endemic to southwestern Haiti		

EUPHORBIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Picrodendron baccatum (L.) Krug & Urb.	*Juglans baccata* L., *P. macrocarpum* Britt., *P. medium* Small, *Schmidelia macrocarpa* A. Rich.	ahoga becerro, algodón becerro, manzanilla, mata becerro, simarouba (RD); aceituna, guao negro, mangle negro, roblecillo, yana prieta, yanilla, yanilla prieta (C)
Ricinus communis L.		feuilles graines, huile mascristi, huile ricin, mascarite, mascristi, palma cristi, ricin (H); higuera, higuereta, palma Christi (RD); castor bean (US)
Sapium buchii (Urb.) Urb. Endemic to Hispaniola	*Sebastiania buchii* Urb.	bois brûlant (H); pela huevos (RD)
Sapium haitiense Urb. Endemic to southwestern Haiti		
Sapium jamaicense Sw.	*S. laurifolium* Griseb., *Stillingia laurifolia* A. Rich.	bois brûlant, bois lait (H); aburridero, daguilla, lengua de vaca, pela huevos (RD); tallow tree (US)
Savia erythoxyloides Griseb.		
Savia sessiliflora (Sw.) Willd.	*Croton sessiliflorus* Sw., *Phyllanthus laurifolius* A. Rich., *P. pubigerus* A. Rich.	Cuba negra (RD); ajorca jíbaro (C); amansa guapo, carbonero de costa, garrote (PR)
Securinega acidoton (L.) Fawcett & Randle	*Adelia acidoton* L., *Flueggea acidothamnus* Griseb., *S. acidothamnus* Muell. Arg.	cinazo (RD); green ebony (J)
Victorinia acranda (Urb.) León Endemic to Hispaniola	*Cnidoscolus acrandrus* Pax & Hoffm., *Jatropha acrandra* Urb.	pringa leche (RD)

FABACEAE (=LEGUMINOSAE)

SPECIES	SYNONYMS	COMMON NAMES
Acacia auriculiformis A. Cunn. ex Benth.	[Also spelled *A. auriculaeformis*.]	acacia (H); ear pod wattle, northern black wattle (Australia)
Acacia barahonensis Urb. Endemic to Hispaniola		acacia (H)
Acacia decurrens Willd. var. *decurrens*	*A. decurrens* (Wendl.) Willd. forma normalis Benth.	green wattle (Australia)
Acacia farnesiana (L.) Willd.	*A. acicularis* Willd., *Mimosa farnesiana* L., *Vachellia farnesiana* (L.) Wight et Arn.	acacia, acacia jaune, acacia odorant (H); bayahonda, cambrón, carabomba (RD); aroma (RD, PR, C); sweet acacia (PR); cassie flower (J); aroma amarilla (C)
Acacia macracantha H. & B. ex Willd.	*A. aroma* Gillies ex. Hook. & Arn., *A. flexuosa* H. & B., *A. lutea* (Mill.) Hitch., *A. lutea* (Mill.) Britt., not Leavenw., *A. macrocanthoides* Bert., *A. pellacantha* Meyen ex. J. Vogel., *A. subinermis* Bert., *Poponax macracantha* (Humb. & Bonpl.) Killip, *P. macracanthoides* (Bert.) Britton & Rose	acacia, acacia piquant, carambouba (H); aroma, cambrón, carabomba (RD); guatapaná (C); casha, stink casha, tamarindo silvestre, wild tamarind (PR); poponax macrantha, steel acacia (English)
Acacia mearnsii De Wild.	*A. decurrens* (Wendl.) Willd. var. *mollis* Lindley, *A. mollisima* sensu auct. mult. non Willd.	acacia negra (Spanish); Australian acacia, black wattle, green wattle (Australia)
Acacia melanoxylon R. Br.		Australian blackwood (Australia)

FABACEAE (=LEGUMINOSAE)

SPECIES	SYNONYMS	COMMON NAMES
Acacia muricata (L.) Willd.	*A. nudiflora* Willd., *Mimosa muricata* L., *Senegalia muricata* (L.) Britton & Rose	acacia nudosa, cajoba, spineless acacia, tamarindo cimarrón (PR); amourette, tendre à cailloux (M)
Acacia neriifolia A. Cunn. ex Benth.		
Acacia nilotica (L.) Delile ssp. *indica* (Benth.) Brenan	*A. arabica* (Lam.) Willd. var. *indica* Benth., *A. nilotica* (L.) Del. var. *indica* (Benth.) A. F. Hill	gommier (French); goma, goma arábica (Spanish); Amrad gum, gum arabic (English); acacia saline, pompons jaune (M)
Acacia scleroxyla Tuss. Endemic to Hispaniola	*Mimosa angustifolia* Lam., *Senegalia angustifolia* Britt. & Rose	basilic arbre, bois chandelle, bois savane, candélon, tendre à cailloux (H); candelón, córbano, taquito (RD)
Acacia senegal (L.) Willd. var. *senegal*	*A. rupestris* Stokes, *A. senegal* (L.) Willd. ssp. *senegalensis* (Houtt.) Roberty var. *verek*, *A. trispinosa* Stokes, *A. verek* Guill. & Perrott., *Mimosa senegal* L.	acacia du Sénégal, gommier (French); goma (Spanish); goma arábica, gum arabic (PR)
Acacia tortuosa (L.) Willd.	*Mimosa tortuosa* L., *Poponax tortuosa* Raf.	acacia, acacia noir, acacia rouge, bayahonde rouge (H); carabomba (RD); casia, twisted acacia (PR); wild poponax (J)
Acacia vogeliana Steud.	*A. ambigua* Vogel, not Hoffmannsegg, *Lysiloma vogeliana* Urb., *Senegalia vogeliana* Britt. & Rose	tcha-tcha marron (H); cha-cha venenoso, mata puerco, taquito (RD)
Acacia westiana DC.	*Senegalia westiana* Britt. & Rose	
Adenanthera pavonina L.		église, reglisse (H); coralitos peonía (RD); caralillo, caralín, coral (C); jumbie-bead, peronía, peronías (PR); red sandalwood (J)
Albizia guachapele (Kunth) Dugand.	*Acacia guachapele* Kunth, *A. longepedata*, *Lysiloma guachapele* (Kunth) Benth., *Pseudosamanea guachapele* (Kunth) Harms. [Also spelled *Albizzia*.]	cadeno, lagarto (Guatemala); careto real, frijolillo (Honduras); cenizero, guayaquil, igua, tabaca (CR); igus, masaguaro, sanaguaro (Colombia); guachapele (Ecuador)
Albizia lebbeck (L.) Benth.	*Acacia lebbeck* Willd., *Mimosa lebbeck* L., *M. sirissa* Roxb. [Also spelled *Albizzia lebbek*.]	bois noir, bois savane, tcha tcha (H); acacia, chachá (RD); algarroba de olor, aroma francesa, cabellos de ángel, faurestina, florestina (C); acacia amarilla, amor platónico, aroma, lengua de mujer, lengua viperina, siris tree, women's tongue (PR)
Albizia procera (Roxb.) Benth.	*Acacia procera* Willd., *Mimosa elata* Roxb., *M. procera* Roxb. [Also spelled *Albizzia*.]	acacia, albizia, tall abizia (PR); white siris (US)
Albizia saman (Jacq.) F. Muell.	*Enterlobium saman* (Jacq.) Prain, *Inga salutaris* Kunth., *I. saman* Willd., *Mimosa saman* Jacq., *Pithecellobium saman* (Jacq.) Benth., *Samanea saman* (Jacq.) Merr., *S. saman* (Willd.) Merr. [Also spelled *Albizzia*.]	gouannegoul, saman (H); delmonte, guannegoul (RD); samán (RD, PR); crow bean tree, dormilón, giant thibet, raintree (PR); algarrobo, algarrobo del país (C); guango (J, PR)
Andira inermis (W. Wr.) DC.	*A. jamaicensis* Urb., *Geoffroea inermis* W. Wr.	bois palmiste, pois palmiste (H); mata becerro, palo de burro, palo de maco (RD); yaba, yaba colorada (C); bastard mahogany, cabbage angelin, cabbage bark, moca, moca blanca (PR); angelin, bastard cabbage, pheasant wood, wormwood (J)
Arcoa gonavensis Urb. Endemic to Hispaniola		tamarinde marron, tamarinde mori (H)

FABACEAE (=LEGUMINOSAE)

SPECIES	SYNONYMS	COMMON NAMES
Ateleia gummifer (Bert.) D. Dietr.	*Pterocarpus gummifer* Bert. ex DC.	bois senti (H); azota potranca, goma (RD)
Ateleia microcarpa (Pers.) D. Dietr.	*Acacia revoluta* Mohlenbr., *Pterocarpus microcarpus* Pers.	azota potranca, palo de caimán (RD)
Bauhinia acuminata L.		
Bauhinia divaricata L. var. *angustiloba* Ekm. & Urb. Endemic to southwestern Haiti		bois caleçon (H)
Bauhinia divaricata L. var. *divaricata*	*B. aurita* Ait., *B. porrecta* Sw., *Casparea aurita* Griseb., *C. divaricata* HBK.	bois caleçon, collègue, collègue matourin, matourin, petit caleçon (H); huella de chivo, pata de chivo, pie de chivo (RD); pata de vaca (C)
Bauhinia monandra Kurz.	*B. kappleri* Sagot, *B. krugii* Urb., *Caspareopsis monandra* (Kurz) Britton & Rose	caractère des hommes, deux jumelles, jumelle (H); framboyán cubano, framboyán extranjero, palo de vaca, semi-rubia (RD); butterfly bauhinia, pariposa (PR); casco de mulo (C); pata de vaca (C, RD)
Bauhinia variegata L.	*Phanera variegata* (L.) Benth.	flamboyán orquídea (RD); palo de orquídeas, poor man's orchid (PR)
Byra buxifolia (Murr.) Urb.	*Pterocarpus buxifolius* Murr.	galle-galle (H); ébano de Santo Domingo, granadillo, tachuelo (RD)
Caesalpinia bahamensis Lam.		brasil (RD)
Caesalpinia barahonensis Urb. Endemic to Hispaniola		brésillet (H); brasil (RD)
Caesalpinia barkeriana Urb. & Ekm.	*Guilandina barkeriana* Britt.	
Caesalpinia bonduc (L.) Roxb.	*Guilandina bonduc* L. (1753), *G. bonducella* L.	canique, graines quinique, quinique, quinique jaune (H); mate, mate de costa (RD, C); bonduc, nickar tree, yellow nickar (J)
Caesalpinia brasiliensis L. Endemic to Hispaniola		brésillet (H); brasil, palo de Brasil (RD)
Caesalpinia buchii Urb. Endemic to Hispaniola		
Caesalpinia ciliata (Berg.) Urb.	*C. grisebachiana* Ktze., *Guilandina ciliata* Berg.	canique, ouary, quinique, quinique jaune (H)
Caesalpinia coriaria (Jacq.) Willd.	*C. thomaea* Spreng, *Libidibia coriaria* Schlecht., *Poinciana coriaria* Jacq.	guatapana, macasol (H); nacascol (RD); divi divi (H, RD, C, PR, J); guatapaná (RD, C); libidibi (H, RD); guaracabuya (C)
Caesalpinia globulorum Bakh. f. & v. Royen	*Bonduc majus* Medik., *C. bonduc* Roxb. (see Liogier, 1985), *C. major* Dandy & Exell, *Guilandina bonduc* L. (1762), *G. major* Small	mate prieto (RD); gray nickers, mato azul, mato de playa (PR); guacalote, mate, mate de costa (C); bonduc, nickar tree, yellow nickar (J)
Caesalpinia pellucida Vogel Endemic to Hispaniola	*Poincianella pellucida* Britt. & Rose	
Caesalpinia pulcherrima (L.) Sw.	*Poincianella pulcherrima* L.	francillade, francillade à fleurs jaunes, francillade à fleurs rouges, francillane, poincillade (H); carzazo, macata (RD); clavellina (C, PR, RD); guacamaya (C); Barbados pride, doddle-do (PR); flowerfence, Spanish carnation (J)
Caesalpinia vesicaria L.	*C. bijuga* Sw., *Nicarago vesicaria* Britt., *Poinciana bijugata* Jacq.	brasil, brasilete negro, guacamaya de costa (C); bastard nicarago, Indian savin tree, jack fishwood (J)
Calliandra calothyrsus Meissner	*C. confusa* Sprague & Riley, *C. similis* Sprague & Riley	calliandra, calliandre (H); palo de ángel (RD); cabello de ángel (PR)

FABACEAE (=LEGUMINOSAE)

SPECIES	SYNONYMS	COMMON NAMES
Calliandra caracasana (Jacq.) Benth.	*Acacia caracasana* Britt. & Rose, *Anneslia caracasana* (Jacq.) Britt. & Rose, *A. portoricensis* (Jacq.) Donn. Smith, *Mimosa caracasana* Jacq.	granolino (RD); acacia puertorigueña, cojobillo, moriviví cimarrón, white calliandra (PR); night-flowering acacia (J)
Calliandra cubensis (Macbr.) León	*Anneslia cubensis* Britt. & Rose, *C. formosa* var. *cubensis* Macbr.	bayahonda (RD)
Calliandra falcata Benth. & Hook		
Calliandra haematocephala Hassk.	*C. inaequilatera* Rusby	
Calliandra haematomma (Bert.) Benth.	*Acacia haematomma* Bert., *A. haematostoma* Bert., *Anneslia haematostoma* Britt.	clavellina, oreganillo, tabacuelo (RD)
Calliandra nervosa (Urb.) Ekm. & Urb. Endemic to Hispaniola	*Pithecellobium nervosum* Urb.	petit gaïac (H); granolino (RD); night-flowering acacia (J)
Calliandra pedicellata Benth. Endemic to Hispaniola	*Anneslia pedicellata* Britt. & Rose	
Calliandra picardae Alain Endemic to Hispaniola	*Anneslia minutifolia* Britt., *C. haematostoma* var. *minutifolia* Urb., *C. minutifolia* Urb. not Pittier	
Calliandra portoricensis (Jacq.) Benth.	*Mimosa portoricensis* Jacq.	granolino (RD)
Calliandra rivularis Urb. & Ekm. Endemic to Hispaniola		
Calliandra schultzei Harms		canasta mexicana, cuiji venezolano, pompón (RD)
Calliandra surinamensis Benth.		canasta mexicana (RD)
Calliandra urbanii Alain Endemic to Hispaniola		
Cassia fistula L.		bâton casse, casse, casse doux, casse espagnole (H); cañafístol, cañafístula mansa, chácara, guayaba cimarrona (RD); cañafístola (RD, C); cañafístula (RD, PR); golden shower (PR); cassia stick tree (J)
Cassia grandis L. f.	*C. brasiliana* Lam.	casse, casse espagnole, bâton casse (H); chácara, guayaba cimarrona (RD); cañafístula cimarrona (RD, C, PR); cañandonga (C); pink shower (PR); horse cassia (J)
Cassia javanica L.	*C. grandis* Hort. p.p., *C. nodosa* Buch-Hamilt.	casse (H)
Cercidium praecox (R. & P.) Harms	*Caesalpinia praecox* R. & P., *Cercidium spinosum* Tul.	baie à onde, printemps (H); bayahonda, bayahonda de la Virgen (RD)
Copaifera officinalis L.	*C. jacquini* Desf.	amacey, copaiba (RD)
Crudia spicata (Aubl.) Willd.	*Apalatoa spicata* Aubl., *C. antillana* Urb.	aquin, cacorne marron, cordon, graines plates (H); guamá (C)
Cynometra americana Vogel Endemic to Hispaniola		courbaril (H); pico de gallo (C)
Cynometra portoricensis Krug & Urb.		algarrobillo (RD); oreganillo (PR)
Dalbergia berterii (DC.) Urb.	*Ecastaphyllum bertii* DC., *Pterocarpus berterii* Spreng.	bejuco de peseta, samo (RD)

FABACEAE (=LEGUMINOSAE)

SPECIES	SYNONYMS	COMMON NAMES
Dalbergia ecastaphyllum (L.) Taub.	*Hedysarum ecastaphyllum* L., *Pterocarpus ecastaphyllum* L.	herbe à clous, liane à clous (H); bejuco de peseta (RD); bejuco de serna blanco, péndola (C); maray-maray, palo de pollo (PR); liane à barriques, liane bord-de-mer (G, M)
Dalbergia monetaria L.	*Ecastaphyllum plumieri* Pers.	liane à clous (H); bejuco de peseta (RD)
Dalbergia sissoo Roxb. ex DC.		Indian rosewood, sisu (PR); sissoo (India)
Delonix regia (Bojer) Raf.	*Poinciana regia* Bojer	poinciana royal (H); flamboyant (H, J, PR); flamboyán, framboyán (RD, PR, C); flame tree (PR, J)
Dussia sanguinea Urb. & Ekm. Endemic to Hispaniola		
Enterolobium cyclocarpum (Jacq.) Griseb.	*Mimosa cyclocarpa* Jacq., *Prosopis dubia* HBK.	bois tanniste rouge (H); framboyán extranjero, oreja (RD); earpod-tree (PR); elephant-ear (J); algarrobo de orejos, oreja de judío, orejón (C)
Erythrina berteroana Urb.	*E. neglecta* Krukoff & Mold.	brucal (H); amapola de cerca, machetico, piñón de España (RD); bucare enano, machette (PR); coralbean (J)
Erythrina buchii Urb.		immortelle (H)
Erythrina corallodendrum L.	*E. spinosa* Mill. [Also spelled *E. corallodendron.*]	arbre à corail (H); amapola (RD); búcare, piñón espinoso (PR); coraltree (J, PR); red bean tree (J); common coralbean (English)
Erythrina crista-galli L.		coral (RD); piñón francés (C); ceibo, cockscomb coralbean, cockspur, coraltree, cresta de gallo, flor nacional (PR); crête-de-coq (French)
Erythrina fusca Lour.	*E. glauca* Willd.	amapola (RD); búcare (C, PR); piñón del cauto, piñón francés (C); bucayo (PR); swamp immortelle (J, PR)
Erythrina leptopoda Urb. & Ekm.		bâton de sorcier, bois immortel, maurepas (H)
Erythrina poeppigiana (Walp.) Cook	*E. darienensis* Standley, *E. micropteryx* Peop. ex Urb., *E. pisamo* Pos.-Arang:, *Microteryx poeppigiana* Walp.	bois immortel (H); amapola, amapola de sombra, brucal, madre del cacao, mapola (RD); búcare (C, RD, PR); brucayo, bucayo, bucayo gigante, mountain immortelle, palo de boya (PR)
Erythrina variegata L.	*E. carnea* Blanco, *E. corallodendron* L. var. *orientalis* (L.) Merr., *E. indica* Lam., *E. spathacea* DC., *E variegata* L. var. *orientalis* (L.) Merr., *Piscidia indica*	arbor maurepasia, arbre à corail, bâton de sorcier, bois immortel vrai, erythrine des Antilles, fleurs immortels, fleurs mortelles, immortelle, maurepas, mortelle (H); amapola, mampolo, mapoleona (RD); beaumortel, bucayo haitiano, coraltree, piñón espinoso, pompón haitiano (PR)
Erythrina velutina Willd.	*E. splendida* Diels.	
Gliricidia sepium (Jacq.) Walp.	*G. lambii, G. sepium* (Jacq.) Steud., *Lonchocarpus sepium, Robinia maculata* HBK., *R. sepium* Jacq.	immortelle, lilas étranger, piyon (H); almácigo extranjero, palo de parque, piñón cubano, piñón de Cuba, varita de San José (RD); acacia, amor y celos, bien vestida, desnudo florecido, floresco, piñón florido (C); piñón amoroso (C, RD); madre de cacao, mata ratón, mother-of-cocoa (PR); quick stick, St. Vincent plum (J)
Haematoxylon brasiletto Karst.		campêche (H)
Haematoxylon campechianum L.		bois campêche, campêche, campechier (H, G, M); campeche, palo campeche (RD, C, PR); logwood (PR, J)

FABACEAE (=LEGUMINOSAE)

SPECIES	SYNONYMS	COMMON NAMES
Hymenaea courbaril L.	*H. candolleana* HBK., *Inga megacarpa* M. E. Jones	courbaril, gomme animée, pois confiture (H); algarrobo (RD); algarroba (RD, PR); West Indian locust (PR, J); algarrobo de las Antillas, curbaril (C); stinking toe (J)
Inga fagifolia (L.) Willd. ex Benth.	*I. laurina* (Sw.) Willd., *Mimosa fagifolia* L., *M. laurina* Sw.	gina, jina (RD); guamá, sweetpea (PR); pois doux, pois doux blanc (G, M)
Inga fastuosa (Jacq.) Willd.		guamá venezolana (RD); guaba peluda, guaba venezolana (PR)
Inga vera Willd. spp. *vera*	*I. inga* (L.) Britton, *Mimosa inga* L.	pois doux, pois sucrin, sucrier, sucrin (H); guamá, jina (RD); guaba (PR, C); guaba nativa, inga (PR)
Leucaena diversifolia (Schlecht.) Benth. subsp. *diversifolia*	*L. brachycarpa* Urb., *L. laxifolia* Urb., *L. trichandra* (Zucc.) Benth.	leucaena petite feuille (H); guaje (Spanish); diversifolia (English)
Leucaena leucocephala (Lam.) de Wit subsp. *glabrata* (Rose) S. Zarate	*L. glabrata* Rose	delin étranger, leucaena (H); Peru leucaena, Salvador leucaena, giant leucaena, (US, UK)
Leucaena leucocephala (Lam.) de Wit subsp. *leucocephala* (Rose) S. Zarate	*Acacia glauca* Willd. no L., *L. glauca* sensu Auct., *L. glauca* (Willd.) Benth., *L. latisiliqua* (L.) Gillis & Stearn, *Mimosa leucocephala* Lam.	bois bourro, graines de lin, graines de lin pays, madelin, marie jaune, tcha-tcha marron (H); granadillo bobo, granadino, granolino, lino, lino criollo (RD); aroma blanca, aroma boba, aroma mansa, soplillo (C); acacia, acacia pálida, barcillo, campeche, hediondilla, tamarindillo, wild tamarind (PR); Hawaiian leucaena (US, UK)
Leucaena trichodes (Jacq.) Benth. & Hook.	*Acacia pseudotrichodes* DC., *L. bolivarensis* Britt. & Killip, *L. canescens* Bent., *L. colombiana* Britt. & Killip, *L. pseudotichodes* (DC.) Britt. & Rose, *Mimosa trichodes* Jacq.	bois bourro (H); palo blanco, palo de burro (RD)
Lonchocarpus domingensis (Turp.) DC.	*Dalbergia domingensis* Turp., *L. domingensis* (Pers.) DC.	bois caïman (H); anón de majagua, anón de río, anoncillo (RD); guamá de soga (C); genogeno (PR); savonnette bois, savonnette rivière (G, M)
Lonchocarpus ellipticus Alain Endemic to Hispaniola		
Lonchocarpus latifolius (Willd.) DC.	*Amerimnum latifolium* Willd., *Dalbergia pentaphylla* Poir., *L. heptaphyllus* DC., *L. pentaphyllus* DC.	battre à caïman, bois caïman (H); anón, anón de majagua (RD); guamá de costa, guamá macho (C); forte-ventura, palo hediono, palo seco (PR); lancewood (US)
Lonchocarpus longipes Urb.		anón, anón de río (RD)
Lonchocarpus monophyllus Urb. Endemic to Hispaniola		
Lonchocarpus neurophyllus Urb. Endemic to Hispaniola	*L. ehrenbergii* Urb.	bois caïman, bois d'anneau, caïman (H); anón de majagua, anoncillo de majagua, azota criollo, biajama (RD)
Lonchocarpus neurophyllus Urb. var. *oligophyllus* Urb. & Ekm. Endemic to Hispaniola		
Lysiloma bahamensis Benth.		candelón (RD)
Lysiloma sabicu Benth.	*Acacia latisiliqua* Willd., *L. latisiliqua* Benth., *Mimosa latisiliqua* L.	tabernon, taverneau, tavernon (H); caracolí, caracolillo (RD); abey, bacona morada, frijolillo, jigüe, sabicú, sabicú amarillo, zapatero (C); horseflesh tree, West Indian sabicu, wild tamarind (J, PR)

FABACEAE (=LEGUMINOSAE)

SPECIES	SYNONYMS	COMMON NAMES
Machaerium lunatum (L.) Ducke	*Drepanocarpus lunatus* Mey., *Pterocarpus lunatus* L.	cambrón, escambrón (RD)
Mimosa buchii Urb. Endemic to Hispaniola		
Mimosa ceratonia L.		araña gato, zarza (RD)
Mimosa extranea Benth. Endemic to Haiti	*Haitimimosa extranea* Britt.	
Mimosa mornicola Urb. Endemic to Hispaniola		
Mimosa parvifoliolata Alain Endemic to Hispaniola		zarza (RD)
Mimosa scabrella Benth.	*M. bracaatinga* Hoehne.	mimosa (H); abarácaátinga, bracaátinga, bracatinga (Brazil)
Mora abbottii Rose & Leonard Endemic to Hispaniola		coi, cole (RD)
Mora ekmanii (Urb.) Britton & Rose Endemic to Hispaniola	*Dimorphandra ekmanii* Urb.	taverneau montagne, tavernon montagne (H); coi, cole (RD)
Myrospermum frutescens Jacq.		cereipo, sereipo (RD, PR); bálsamo de conconate, bálsamo de Guatemala (C)
Myroxylon balsamum (L.) Harms var. *pereirae* (Royle) Harms	*M. pereirae* Royale, *Toluifera pereirae* Baill.	bálsamo del Perú (RD); bálsamo de sonsonate, guatemala (C)
Ormosia krugii Urb.		bois nan non (H); palo de peonía, palo de peronía, peonía, peronía (RD); coralwood, palo de matos (PR)
Parkia roxburghii G. Don		lelé (H)
Parkinsonia aculeata L.	*P. spinosa* HBK.	madame naiz, madame yass (H); acacia de los masones, aroma extranjera, bayahonda blanca, capinillo, pino japonés, retama (RD); palo de rayo (PR, C); Jerusalem thorn (PR, J)
Peltophorum berteroanum Urb. Endemic to Hispaniola		abbé rouge (H); abey, abey hembra, guatapanal (RD); horse bush (B); abey moruro (C)
Peltophorum pterocarpum (DC.) Back. ex K. Heyne	*C. ferruginea* Dcne., *Caesalpinia inermis* Roxb., *Inga pterocarpa* DC., *P. ferrugineum* Benth.	flamboyán amarillo, yellow flamboyant (PR); palissandre (G); yellow poinciana (US)
Pictetia aculeata (Vahl) Urb.	*Aeschynomene aristata* Jacq., *Robinia aculeata* Vahl	gati-galle, gelle-galle, gratte-galle (H); tachuelo (RD)
Pictetia obcordata DC. Endemic to Hispaniola		tachuela (RD)
Pictetia spinifolia (Desv.) Urb. 1) var. *elongata* Urb. 2) var. *monophylla* Urb. 3) var. *obovata* Urb. 4) var. *plenophylla* Urb. 5) var. *ternata* (DC.) Urb. Varieties are endemic to Hispaniola	*P. desvauxii* (DC.), *Robinia spinifolia* Desv.	bois d'ébène, galle-galle, gelle-galle, grati-galle (H); cruz del copeyar, palo de tabaco, rabasco, tabaco, tachuela, tachuelo (RD); carrasquillo, yamaguey, zarcilla (C)
Piptadenia peregrina (L.) Benth.	*Acacia peregrina* Willd., *Anadenanthra pergrina* Speg., *Mimosa peregrina* L., *Niopa peregrina* Britt. & Rose	bois caïman, bois écorce, bois galle, oeuf de poule (H); candelón, candelón de teta, cojoba, tamarindo de teta (RD); bastard tamarind (J)

FABACEAE (=LEGUMINOSAE)

SPECIES	SYNONYMS	COMMON NAMES
Piscidia ekmanii Rudd Endemic to Hispaniola		
Piscidia piscipula (L.) Sarg.	*Erythrina piscipula* L.	bois ivrant (H); candelón, guamá candelón, guamá hediondo (C)
Pithecellobium abbottii Rose & Leonard Endemic to Hispaniola	*Jupunda abbottii* Britt. & Rose	abey (RD)
Pithecellobium arboreum (L.) Urb.	*Cojoba arborea* Britt. & Rose, *Mimosa arborea* L., *P. filicifolium* Benth.	bois collier, collier, poison lasinette (H); abey, abey hembra, lino (RD); red tamarind (J)
Pithecellobium carbonarium (Britt.) Niez. & Nevl.	*Albizia carbonaria* Britt.	
Pithecellobium circinale (L.) Benth.	*Inga circinalis* Willd., *I. spinifolia* Desv., *Mimosa circinalis* L., *P. spinifolium* Benth.	campêche marron, galle-galle, mangue cabrit (H); cinazo, gatigal (RD); bread-and-cheese, catclaw (US)
Pithecellobium domingense Alain Endemic to Hispaniola		
Pithecellobium dulce (Roxb.) Benth.	*Inga dulcis* (Roxb.) Willd., *Mimosa dulcis* Roxb.	jina extranjera (RD); inga dulce, tamarindo chino (C); guamá americano, guamuchil, madras thorn, Manila tamarind (PR); blackbead (US)
Pithecellobium glaucum Urb.	*Jupunda glauca* Britt. & Rose, *P. discolor* Britt.	caracolí (RD)
Pithecellobium hystrix (A. Rich.) Benth.	*Calliandra hystrix* A. Rich.	
Pithecellobium lentiscifolium (A. Rich.) C. Wr. ex Sauv.	*Acacia lentiscifolia* A. Rich., *Chloroleucon lentiscifolium* Britt. & Rose	losange (H)
Pithecellobium micranthum Benth. Endemic to Hispaniola	*Cojoba micrantha* Britt. & Rose, *Feuillea micrantha* Ktze.	
Pithecellobium obovale (A. Rich) C. Wr.	*Inga obovalis* A. Rich., *Jupunda obovalis* Britt. & Rose, *P. truncatum* Britt.	
Pithecellobium oppositifolium Urb.	*Jupunda trinitensis* Britt. & Rose, *P. trinitense* Britt.	
Pithecellobium striolatum Urb. Endemic to Hispaniola		
Pithecellobium unguis-cati (L.) Mart.	*Mimosa unguis-cati* L., *Zygia unguis-cati* Sudw.	cinazo, uña de gato (RD, C, PR); bread-and-cheese, catclaw, escambrón colorado, rolón (PR); blackbead (J)
Prosopis juliflora (Sw.) DC.	*Acacia cumanensis* Humb. & Bonpl. ex Willd., *Algarobia juliflora* (Sw.) Benth. ex Heynh., *Mimosa juliflora* Sw., *M. salinarum* Vahl, *Neltuma juliflora* (Sw.) Raf., *P. bracteolata* DC., *P. cumanensis* (Humb. & Bonpl. ex Willd.) Kunth., *P. dominguensis* DC., *P. vidaliana* Naves [Also spelled *P. domingensis*]	bayahonde, bayahonde français, bayarone, chambron, guatapana (H); bayahon, bayahonda, bayahonda blanca, bohahunda, vallahonda (RD); chachaca, guatapaná, plumo de oro (C); algarroba, aroma (PR); cambrón (RD, C); mesquite (PR, US)

FABACEAE (=LEGUMINOSAE)

SPECIES	SYNONYMS	COMMON NAMES
Pseudalbizzia berteriana (Balbis) Britt. & Rose	*Acacia berteriana* Balbis, *Albizia berteroana* G. Maza, *Pithecellobium berteroanum* Benth., *P. fragrans* Benth.	bois savane (H); córbano, córbano blanco, taquito (RD); abey blanco, hoja menuda, moruro blanco (C)
Pterocarpus officinalis Jacq.	*P. draco* L. (in part)	bois nago, bois pâle, sandragon des Antilles (H); drago (RD); palo de pollo, swamp blood wood (PR); dragon's blood (J); mangle médaille, palétuvier, sandragon (G, M)
Samanea filipes (Vent.) Britt. & Rose Endemic to Hispaniola	*Inga filipes* Vent., *Pithecellobium filipes* Benth., *P. impressum* Urb.	
Samanea valeuriana Alain Endemic to Hispaniola		
Senna angustiliqua (Lam.) Irwin & Barneby var. *angustisiliqua*	*Cassia angustisiliqua* Lam., *C. crista* Jacq., *C. crista* var. *oligophylla* Urb., *C. fitchiana* Jiménez, *C. frondosa* Ait., *C. haitiensis* Britt., *Peiranisia crista* Britt. & Rose, *P. fitchiana* Britt. & Rose, *P. haitiensis* Britt.	briser ménage, feuilles laousier, séné (H); carga agua (RD)
Senna atomaria (L.) Irwin & Barneby	*Cassia arborescens* Mill., *C. atomaria* L., *C. elliptica* HBK., *C. emarginata* sensu Benth. et al., no L., *Isandrina arborescens* Raf., *I. emarginata* Britt. & Rose	bois cabrit, casse à bâton, casse marron, manger cabrit (H); bruscón, palo de burro, palo de chivo, sopaipo extranjero (RD); frijolillo (C); senna tree, yellow candlewood (J); vela muerto (PR)
Senna domingensis (Spreng.) Irwin & Barneby	*Cassia domingensis* Spreng., *Cowellocassia domingensis* Britt.	senne (H)
Senna mexicana (Jacq.) Irwin & Barneby var. *berteriana* (DC.) Irwin & Barneby	*Cassia berteriana* Balbis ex DC.	
Senna mexicana (Jacq.) Irwin & Barneby var. *mexicana* Endemic to Hispaniola	*Cassia mexicana* Jacq., *C. mexicana* Jacq. var. *moustiquensis* Urb.	
Senna nitida (L. C. Rich.) Irwin & Barneby	*Cassia antillana* Liogier, *C. nitida* L. C. Rich., *C. quinquangulata* sensu Benth., *Chamaefistula antillana* Britt. & Rose	
Senna pendula (Willd.) Irwin & Barneby var. *advena* (Vogel) Irwin & Barneby	*Adipera bicapsularis* Britt. & Rose, *A. indecora* Britt. & Rose, *Cassia bicapsularis* var. *indicora* Benth., *C. bicarpsularis* var. *pubescens* Benth., *C. indecora* HBK.	bois d'anneau (H); sen de la tierra (RD); Christmas bush, hoja de sen (PR); sen del pais (C,PR); guanina negra, platanillo (C); cacabéqué, canéfice bâtard, casse-hallier, sou marqué (G, M)
Senna polyphylla (Jacq.) Irwin & Barneby var. *montis-christi* Irwin & Barneby Endemic to Hispaniola		
Senna polyphylla (Jacq.) Irwin & Barneby var. *polyphylla*	*Cassia polyphylla* Jacq., *Peiranisia polyphylla* (Jacq.) Britt. & Rose	hediondilla, retama, retama prieta (PR)
Senna septemtrionalis (Viviani) Irwin & Barneby	*Adipera laevigata* Britt. & Rose, *Cassia floribunda* sensu DeWit, not Cav., *C. septemtrionalis* Viviani	brusca (RD)

FABACEAE (=LEGUMINOSAE)

SPECIES	SYNONYMS	COMMON NAMES
Senna siamea (Lam.) Irwin & Barneby	*Cassia arborea* Macfad., *C. florida* Vahl, *C. gigantea* Bertero, *C. siamea* Lam., *Sciacassia siamea* (Lam.) Britton	casse de Siam, cassia (H); acacia amarilla, casia de Siam, flamboyán amarillo, la casia amarilla (RD); casia, casia siamea (PR, C); kassod-tree, Siamese senna, Siamese shower (US)
Senna spectabilis (DC.) Irwin & Barneby var. *spectabilis*	*Cassia humboldtiana* DC., *C. speciosa* Kunth, *C. spectabilis* DC., *Pseudocassia spectabilis* (DC.) Britt. & Rose	casse marron (H); bruscón, cañafistol, cañafístula cimarrona, chácaro, libertad, pela burro (RD); algarrobillo (C); calceolaria shower, yellow shower (US)
Sesbania bispinosa (Jacq.) W. Wight	*Aeschynomene aculeata* Shreber, *A. bispinosa* Jacq., *S. aculeata* (Willd.) Poir., *S. bispinosa* (Jacq.) Steud.	canicha, danchi (US)
Sesbania grandiflora (L.) Poir.	*Aeschynomene sesban* L., *Agati grandiflora* (L.) Desv., *Robinia grandiflora* L., *S. aegyptiaca* (Peir.) Pers., *S. grandiflora* (L.) Pers.	pois valette, pois vallier, pois vallière (H); gallito (C, RD, PR); cresta de gallo (C, PR); paloma, zapatón blanco (C); Australian corkwood tree (US); báculo (PR); colbri végétal, fleur papillon, papillon (G, M)
Sesbania sesban (L.) Merr.	*S. aegyptiaca* Pers., *S. aegyptiacus* Poir., *S. sesban* (L.) Fawcett & Rendle	sesbania, tamarindillo (RD, PR); añil francés (C)
Stahlia monosperma (Tul.) Urb.	*Caesalpinia monosperma* Tul., *S. maritima* Bello	caobanilla (RD); cóbana, cóbana negra, polisandro (PR)
Tamarindus indica L.		tamarinde, tamarinier (H); tamarindo, tamarin (RD)
Zygia latifolia (L.) Fawc. & Rendle	*Calliandra latifolia* Griseb., *Mimosa latifolia* L., *Pithecellobium latifolium* Benth.	bois ca (H); jasmín del río (C); hoopwood, horsewood (J)

FAGACEAE

SPECIES	SYNONYMS	COMMON NAMES
Castanea sativa Mill.		catin (H); castaño crenata, castaño del Japón (C); European chestnut (US)

FLACOURTIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Banara domingensis Benth. Endemic to Hispaniola	*B. ekmaniana* Urb.	
Banara excisa Urb. & Ekm. Endemic to Hispaniola		
Banara quinquenervis Urb. & Ekm. Endemic to Hispaniola		
Banara selleana Urb. & Ekm. Endemic to Hispaniola		
Banara splendens Urb. Endemic to Hispaniola	*B. hotteana* Urb. & Ekm.	
Casearia aculeata Jacq.	*C. hirta* Sw., *C. spinosa* Willd., *Samyda affinis* Spreng., *S. multiflora* Cav., *S. spinosa* L.	piquant arada (H); caborí, carambomba, jía, limoncillo, margarabomba, palo de avispas, palo de limoncillo, palo de perico (RD); cambrón (PR)

FLACOURTIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Casearia arborea (L.C. Rich) Urb.	*C. stipularis* Vent., *Samyda arborea* L. C. Rich.	cascarita, memiso, palo de yagua, palo salvaje, palo vara, piragua, yagua, yagüita (RD); rabo ratón (PR); guaguasí, jique (C)
Casearia decandra Jacq.	*C. parvifolia* Willd., *Samyda decandra* Jacq., *S. lancifolia* Sessé & Moç.	caracolillo, cereza, cotorrerillo, wild honey tree (PR); bois jaune, coco ravet (G); wild cherry (Barbados)
Casearia guianensis (Aubl.) Urb.	*C. ramiflora* Urb., *C. ulmifolia* DC., *Iroucana guianensis* Aubl., *Samyda octandra* Sessé & Moç.	café marron (H); café cimarrón, café de gallina, café de monte, cafetán (RD); palo blanco (PR, RD); wild coffee (PR); jía amarilla (C)
Casearia hirsuta Sw.		
Casearia ilicifolia Vent. Endemic to Hispaniola	*Samyda ilicifolia* Poir.	bois négresse, piquant carré (H); castor, chicharrón (RD)
Casearia nitida (L.) Jacq.	*Samyda nitida* L.	
Casearia spinescens (Sw.) Benth.	*Guidonia spinescens* Griseb., *Samyda spinescens* Sw.	
Casearia sylvestris Sw. var. *myricoides* Griseb.		
Casearia sylvestris Sw. var. *sylvestris*	*C. parviflora* Willd., *C. punctata* Spreng., *C. schulziana* O. C. Schm., *Samyda parviflora* L., not Loefl.	papelite (H); cafetillo, castor, palo carré, palo de cotorra (RD); aguedita blanca, aguedita macho, juabón, palo catorra (C); sarna de perro (PR, C)
Dovyalis caffra (Hook f. & Harv.) Warb.	[Also spelled *Doryalis.*]	kei apple, umkokolo (US)
Dovyalis hebecarpa (Gardn.) Warb.	[Also spelled *Doryalis.*]	grosella de Ceilán (RD); Ceylon-gooseberry, kitembilla, quetembila (PR); ketambilla (English)
Homalium racemosum Jacq.	*H. trichocladum* Blake	corazón de paloma (RD)
Laetia procera (Poepp. & Endl.) Eichl.	*Casearia bicolor* Urb., *Samyda procera* Poepp. & Endl.	cascarudo, palo de yagua, palo de yaqui, palo verbena, yagua, yagüita grande (RD)
Laetia thamnia L.	*L. americana* L.	guaguací (RD)
Lunania dentata Urb. Endemic to Hispaniola		
Lunania ekmanii Urb.	*L. buchii* Urb.	aniceto, hoja de ñame, mendrina (RD)
Lunania tenuifolia Urb. & Ekm. Endemic to Hispaniola		
Prockia crucis L.	*Trilix crucis* Griseb.	
Samyda dodecandra Jacq.	*S. oligostemon* Urb., *S. pubescens* L., *S. rosea* Sims, *S. serrulata* L., *S. velutina* DC.	bois d'orme, bois sec, casser sec, rose marron (H); amor seco, cajón seco, derrienga chivo, primavera, rosa cimarrona (RD); guayabilla (PR)
Xylosma buxifolium A. Gray	*Myroxylon buxifolium* Krug & Urb.	mala mujer, mucha gente, roseta (RD); hueso de costa, pega-pega (C); attrape-sot (G)
Xylosma coriaceum (Poit.) Eichl. Endemic to Hispaniola	*Hisingera nitida* Willd., *H. rumea* Clos, *Koelera laurifolia* Willd., *Myroxylon coriaceum* O. Ktze., *Rumea coriacea* Poit.	
Xylosma glaucescens Urb. Endemic to Hispaniola		
Xylosma lineolatum Urb. & Ekm.		piquant rosie (H); erizo (RD); palo de candela, roseta (PR); huesillo, hueso de costa (C)

FLACOURTIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Xylosma schaefferioides A. Gray	*Myroxylon schaefferioides* (A. Gray) Krug & Urb.	hueso de tortuga (C); white logwood (J)
Zuelania guidonia (Sw.) Britt. & Millsp.	*Laetia guidonia* Sw., *Z. laetioides* A. Rich.	cachiman marron, cachiman sauvage (H); guaguasí (C)

GARRYACEAE

SPECIES	SYNONYMS	COMMON NAMES
Garrya fadyenii Hook.	*Fadyenia hookeri* Endl.	bois amer (H); mangle, mata gallina cimarrona, palo amargo, palo de berraco (RD); fever bush, quinine bush, silk tassel bush, skunk bush (US)

GESNERIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Gesneria hypoclada Urb. & Ekm. Endemic to southern Hispaniola		

NB: Judd (1987) describes an additional 9 shrub species of the following genera that might be considered small trees *sensu* Little and Wadsworth (1964): *Besleria* (1), *Gesneria* (6) and *Rhitidophyllum* (3). These species are not listed.

HERNANDIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Hernandia obovata O. E. Schm. Endemic to Hispaniola		
Hernandia sonora L.		bombo, guaney, magá (RD); mago, toporite (PR); hernandia (C)

ICACINACEAE

SPECIES	SYNONYMS	COMMON NAMES
Mappia racemosa Jacq.		
Ottoschulzia domingensis Urb. Endemic to Hispaniola		abricot marron (H); cuero de puerco (RD)
Ottoschulzia rhodoxylon (Urb.) Urb.	*Poraqueiba rhodoxylon* Urb.	cuero de puerco, palomino (RD)

ILLICIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Illicium ekmanii A. C. Sm. Endemic to Hispaniola		anis étoilé marron, bois graine, bois graine noire (H)
Illicium parviflorum Michx. ex Vent.		badiana (C); allurement (English)

JUGLANDACEAE

SPECIES	SYNONYMS	COMMON NAMES
Juglans jamaicensis C. DC.	*J. insularis* Griseb.	nogal (H, RD, PR); nuez (C, RD); West Indian walnut (PR); nogal del país (C); Jamaica walnut (J)

LAURACEAE

SPECIES	SYNONYMS	COMMON NAMES
Beilschmiedia pendula (Sw.) Hemsl.	*Hufelandia pendula* Nees., *Laurus pendula* Sw.	bois noir (H); aguacatillo, carrasqueño, cigua amarilla (RD)
Cinnamomum alainii (C. K. Allen) Alain Endemic to Hispaniola	*Phoebe alainii* C. K. Allen	
Cinnamomum camphora (L.) Sieb.	*C. camphora* Blume, *C. camphora* (L.) J. S. Presl.	baume anglais, camphre, camphrier (H); alcanfor, alcanfor del Japón (C, RD); camphor tree (PR)
Cinnamomum elongatum (Nees) Kostermans	*C. cubense* Kosterm., *Phoebe cubensis* Nees, *P. elongata* Nees	laurier, laurier cannelle, laurier petites feuilles (H); avispillo, laurel bobo (C, RD, PR); boniatillo (C)
Cinnamomum montanum (Sw.) Bercht. & Presl.	*Laurus montana* Sw., *Phoebe montana* Griseb.	laurier rose (H); cigua blanca, cigua laurel, laurel (RD)
Cinnamomum triplinervis (R. & P.) Kostermans	*Phoebe grisebachiana* Mez., *P. triplinervis* Griseb.	laurier (H)
Cinnamomum verum J.S. Presl.	*C. zeylanicum* Blume, *C. zeylanicum* Nees, *C. zeylanicum* Breyne, *Laurus cinnamomum* L.	cannelle, cannellier (H); canela, canela legítima, cinnamon tree (PR)
Licaria triandra (Sw.) Kostermans	*Laurus triandra* Sw., *Licaria jamaicensis* Kosterm., *Misanteca triandra* (Sw.) Mez.	laurier jaune, laurier sassafras (H); cigua gorrita, cigua prieta (RD); laurel de loma, lebiza, leviza (C); lebisa, palo misanteco (PR); sassafras tree, sweetwood (J)
Ocotea acarina C. K. Allen Endemic to Hispaniola		
Ocotea athroanthes C. K. Allen Endemic to Hispaniola		
Ocotea caudato-acuminata (O. C. Schm.) Alain Endemic to Massif de la Hotte	*Nectandra caudato-acuminata* O. C. Schm.	
Ocotea cicatricosa C. K. Allen Endemic to Hispaniola		
Ocotea coriacea (Sw.) Britton	*Laurus coriacea* Sw., *Nectandra coriacea* Griseb., *N. sanguinea* Griseb., *N. willdernoviana* Ness.	laurier, laurier blanc (H); cabrima aromática, cigua, cigua blanca, cigua de costa (RD); lancewood (US)
Ocotea floribunda (Sw.) Mez	*Laurus floribunda* Sw., *Oreodaphne domingensis* Ness., *Persea retroflexa* Spreng.	laurier puant (H); cigua aguacatillo, cigua prieta, laurel, laurel blanco (RD); boniato laurel, lebisa (C); bois doux (G); black candlewood (J)
Ocotea foeniculacea Mez		cannelle marron (H); canelilla (RD)
Ocotea globosa (Aublet) Schlecht & Cham.	*Nectandra antillana* Meissn.	laurier à grandes feuilles (H); cigua, laurel, laurel blanco, laurel cambrón (RD)
Ocotea krugii (Mez) Howard	*Nectandra krugii* Mez	
Ocotea leucoxylon (Sw.) Mez	*Laurus leucoxylon* Sw.	d'olive, grande feuille, laurier, laurier blanc, laurier guêpes, laurier rose (H); cigua boba, cigua laurel, cigua prieta, laurel, laurel prieto (RD); loblolly sweetwood, false avocado, whitewood (PR, J)

LAURACEAE

SPECIES	SYNONYMS	COMMON NAMES
Ocotea membranacea (Sw.) Howard	*Laurus membranacea* Sw., *Nectandra membranacea* Griseb.	laurier jaune (H)
Ocotea nemodaphne Mez	*Nectandra cuneata* Griseb., *Nemodaphne cuneata* Meissn., *O. cuneata* (Griseb.) Urb., not R. & P.	sasafrás (RD); achetillo, bijote, canelillo, canélon, vencedor (C); canela (PR)
Ocotea oligoneura (Urb.) Alain Endemic to Hispaniola	*Nectandra oligoneura* Urb.	cigua blanca, cigua prieta (RD)
Ocotea patens (Sw.) Nees	*Laurus patens* Sw., *Nectandra patens* (Sw.) Griseb.	cigua laurel (RD); laurel, laurel geo colorado, laurel roseta (PR); cap berry, sweetwood (J)
Ocotea pulchra (Ekm. & Schmidt) Alain Endemic to Massif de la Hotte	*Nectandra pulchra* Ekm. & Schm.	
Ocotea sintenisii (Mez) Alain	*Nectandra sintenisii* Mez	laurel, laurel amarillo, laurel blanco, laurel geo, laurel macho (PR)
Ocotea sp. nov. (Judd and Skean, 1990) Endemic to Massif de la Hotte (?)		
Ocotea wrightii (Meissn.) Mez	*Acrodiclidium wrightii* Meissn.	cannelle (H); canelilla (RD)
Persea americana Miller	*Laurus persea* L., *P. americana* Miller var. *americana*, *P. edulis* Raf., *P. gratissima* Gaertner, *P. leiogyna* Blake, *P. persea* (L.) Cockerell	avocat, avocatier, zabelbok, zaboka (H); aguacate (RD); pagua (C); alligator pear, avocado (US)
Persea anomala Britt. & Wils.	*P. ekmanii* O. C. Schm.	pêche marron (H)
Persea krugii Mez	*P. domingensis* Mez	pêche marron (H); aguacatillo, almendrito, canela de la tierra, macao, mericao (RD); canela (PR)
Persea oblongifolia Kopp Endemic to Hispaniola		

LECYTHIDACEAE (including BARRINGTONIACEAE)

SPECIES	SYNONYMS	COMMON NAMES
Barringtonia asiatica (L.) Kurz	*B. speciosa* Forst., *Mammea asiatica* L.	arbol del seminario, birrete de arzobispo, bonete de arzobispo, calmante, coco de Cofrecí, pacana (RD); barringtonia, coco de mar (PR)
Couroupita guianensis Aubl.	*C. guianensis* var. *surinamensis* (Mart.) Eyma, *C. st. croixana* R. Knuth., *C. surinamensis* Mart.	arbre à bombes, boulet de canon (H); muco (RD); cannonball tree (PR); bala de cañón (PR, RD)

LILIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Dracaena fragrans Ker.	*Aechynomene grandiflora* L.	coco macaco (RD); dracaena (PR)
Yucca aloifolia L.		bayonette, pinguin (H); flor de Jericó (RD); espino (C, RD); maguey silvestre, piñón de puñal (C); aloe yucca, bayoneta, Spanish bayonet (PR); Spanish dagger (J)
Yucca elephantipes Regel		bayonette (H); bayoneta, bulbstem yucca, Spanish bayonet (PR)

LYTHRACEAE

SPECIES	SYNONYMS	COMMON NAMES
Adenaria floribunda HBK.		
Ginoria callosa O. C. Schm. Endemic to Hispaniola		
Ginoria jimenezii Alain Endemic to Hispaniola		
Ginoria rohrii (Vahl) Koehne	*Antherylium rohrii* Vahl	cereza, rosa de ciénega, serrazuela, ucarillo (PR)
Lagerstroemia indica L.		stragornia, stragornia blanc (H); almira, armira, astromelia, astromeria (RD); astroemia, gastronomía, júpiter (C); grape myrtle, queen of shrubs (PR); folie des filles, gestam (G, M)
Lagerstroemia speciosa (L.) Pers.	*L. flos-reginae* Retz., *Munchausia speciosa* L.	reina del jardín, reina del prado, rosa (RD)
Lawsonia inermis L.		fleurs jalousie, henné (H); henna, resedá (C, RD, PR); Egyptian privet, henna plant, mignonette tree (PR); réséda de France (G, M)

MAGNOLIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Magnolia domingensis Urb. Endemic to northern Hispaniola		
Magnolia ekmanii Urb. Endemic to Massif de la Hotte		
Magnolia emarginata Urb. & Ekm. Endemic to Hispaniola		
Magnolia grandiflora L.		magnolia (H, RD); southern magnolia (US)
Magnolia hamori Howard Endemic to Hispaniola		caimoní, cocuyo (RD)
Magnolia pallescens Urb. & Ekm. Endemic to Hispaniola		ébano verde (RD)
Michelia champaca L.		ilang-ilang (H, RD); champaca (RD)

MALPIGHIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Bunchosia glandulosa (Cav.) L.C. Rich	*Malpighia glandulosa* Cav.	bois caca, bois poulette (H); cabra, cabra hedionda, cabrita, palo de cabra (RD); café forastero (PR)
Bunchosia media (Ait.) DC.	*Malpighia media* Ait.	bois senti (H)
Bunchosia nitida (Jacq.) L.C. Rich.	*Malpighia nitida* Jacq., *M. nitida* var. *domingensis* Urb. & Ndz., *M. tinifolia* Desv.	bois ami, bois senti, caïman franc, merde rouge de la montagne (H); cabra, cabra hedionda, cabrita (RD); icaquillo, mierda de gallina (C)
Byrsonima coriacea (Sw.) DC. var. *coriacea*	*B. berteroana* Juss., *Malpighia coriacea* Sw.	bois corne (H); maricao, peralejo, piragua (RD); candleberry, palo de doncello (PR)
Byrsonima crassifolia (L.) HBK.	*B. cubensis* A. Juss., *Malpighia crassifolia* L.	cajuil cimarrón, doncella, madroño (RD); maricao, peralejo (RD, PR); peralejo de sabana (C); peralejo blanco (PR); café d'Ethiopie, quinquina des savanes (G, M)

MALPIGHIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Byrsonima lucida (Mill.) L. C. Rich. ex Juss.	*B. cuneata* (Turz.) P. Wils., *B. lucida* (Mill.) DC., *Malpighia cuneata* Turcz., *M. lucida* Mill.	doncella, uva, uvilla (RD); carne de doncella, sabica de costa (C); aceituna, Long Key byrsonima, palo de doncella, sangre de doncella (PR); locust berry (US)
Byrsonima spicata (Cav.) HBK.	*B. coriacea* (Sw.) DC. var. *spicata* (Cav.) Ndz., *B. spicata* (Cav.) DC., *Malpighia spicata* Cav.	liane à coliques, liane taureau, taureau-tigre (H); madroño, peralejo (RD); maricao (PR, RD); piragua (C, RD); paralejo de pinares, sangre de doncella (C); doncella (PR)
Heteropteris laurifolia (L.) A. Juss.	*Banisteria laurifolia* L., *B. pubiflora* DC.	liane bouhouque, liane jaune, liane taureau (H); amansa guapo, amansa hombre, bejuco de varraco, bejuco de verraco, varraco, verraco (RD)
Malpighia albiflora (Cuatr.) Cuatr. ssp. *antillana* Vivaldi	*M. biflora* auth., not Poir., *M. oxycocca* var. *biflora* sensu Ndz.	cerezo (RD)
Malpighia cnide K. Spreng.	*M. cnide* var. *domingensis* Urb. & Ndz., *M. cnide* var. *ovalis* Ekm. & Ndz., *M. velutina* var. *intermedia* Ekm. & Ndz.	
Malpighia emarginata Sessé & Moc. ex DC.	*M. punicifolia* auct., not L.	cerisier, cerisier de St. Domingue, petite cerise (H); cereza (RD, PR); acerola (C, PR); cereza de Barbados, cerezo (C); cereza colorada, Barbados cherry, West Indian cherry (PR)
Malpighia glabra L.	*M. biflora* Poir., *M. punicifolia* L. [The latter considered by some authors to be a separate species.]	capitaine, cerise, cerise d'Haiti, cerise de St. Domingue, cerisier, cerisier de St. Domingue, petite cerise (H); acerola, cereza (RD); Barbados cherry (PR)
Malpighia macracantha Urb. & Ndz. Endemic to Hispaniola	*M. ekmanii* Ndz., *M. galeottiana* Ndz.	
Malpighia megacantha (A. Juss.) Urb.	*M. urens* var. *megacantha* A. Juss.	capitaine (H)
Malpighia setosa Spreng.		bois capitaine, bonbon capitaine, cerisier capitaine, moureiller piquant (H); cerezo (RD)
Malpighia urens L. Endemic to Hispaniola	*M. domingensis* Small, *M. oblongifolia* Small	bonbon capitaine, capitaine, cerisier capitaine, moureiller piquant (H); cereza cimarrona (RD)

MALVACEAE

SPECIES	SYNONYMS	COMMON NAMES
Hibiscus elatus Sw.	*Pariti elatum* G. Don (Liogier, 1982), *Paritium elatum* (Sw.) G. Don (Little et al., 1974)	mahaut, mahaut bleu (H); majagua (C, RD); demajagua, majagua azul, majagua macho (C); blue mahoe (J, PR); emajagua excelsa, majó, mountain mahoe (PR)
Hibiscus rosa-sinensis L.		choublack, hibiscus à feuilles rouges (H); cayena, gallina, sangre de Cristo (RD); mar pacífico (C, RD); amapola (C, PR); hibiscus (RD, PR); borrachona, flor de chivo, guasitón, mar serena (C); candelá, candelada, carta abierta, Chinese hibiscus, hibisco, marimoña, pavona (PR)
Hibiscus tiliaceus L.	*Pariti tiliaceus* (L.) A. Juss.	coton mahaut, coton marron, grand mahaut, mahaut, mahaut franc (H); damajagua, majagua de Cuba (RD); majagua (C, RD, PR); emajagua (PR); seaside mahaut (J)

MALVACEAE

SPECIES	SYNONYMS	COMMON NAMES
Malvaviscus arboreus (L.) Cav.	*Hibiscus malvaviscus* L.	bombillito, plantanito (RD); majagüilla, malvavisco (C); capucha de monje, sleeping hibiscus (PR)
Thespesia populnea (L.) Soland. ex Correa	*Hibiscus populneus* L.	feuilles d'Haiti, grand mahaut, gros mahaut, mortel debout (H); álamo blanco, duartiana (RD); álamo (C, RD); higuillo, majagua de la Florida (C); caraña, clamor, cork-tree, emajagüilla, jaqueca, majagüilla, palo de jaqueca (PR); John-Bull-tree (J)
Wercklea horiida (Urb.) Fryxell Endemic to Hispaniola	*Hibiscus horridus* Urb.	majagua, pita (RD)
Wercklea hottensis (Helwig) Fryxell Endemic to Massif de la Hotte	*Hibiscus hottensis* Helwig	

MELASTOMATACEAE

SPECIES	SYNONYMS	COMMON NAMES
Calycogonium apiculatum Urb. & Ekm. Endemic to Massif de la Hotte		
Conostegia hotteana Urb. & Ekm.		
Ekmaniochraris crassinervis Urb. Endemic to Massif de la Hotte		
Henriettea barkeri (Urb. & Ekm.) Alain Endemic to southern Hispaniola	*H. elliptica* Urb.	
Henriettea fascicularis (Sw.) Gómez	*H. fascicularis* (Sw.) C. Wright	petites graines (H); cordobán (C); camasey peludo (PR)
Heterotrichum umbellatum (Mill.) Urb.		
Mecranium alpestre Urb. Endemic to Massif de la Hotte		
Mecranium amygdalinum (Desr.) C. Wright		bois pigeon (H); palito de vara, pega pollo, sangre de pollo (RD); cordobán (C); camasey, camasey almendro (PR)
Mecranium birimosum (Naud.) Triana Endemic to southern Hispaniola		macrio (H)
Mecranium crassinerve (Urb.) Skean Endemic to Massif de la Hotte		macrio (H)
Mecranium haitiense Urb. Endemic to Massif de la Hotte	*M. salicfolium* Urb.	macrio (H)
Mecranium microdictyum Urb. & Ekm. Endemic to Massif de la Hotte		macrio (H)
Mecranium multiflorum (L. C. Rich) Triana		macrio (H)
Mecranium revolutum Skean & Judd Endemic to Massif de la Hotte		macrio (H)

MELASTOMATACEAE

SPECIES	SYNONYMS	COMMON NAMES
Mecranium revolutum Skean & Judd x *M. haitiense* Urb. Endemic to Massif de la Hotte		macrio (H)
Mecranium tricostatum Urb. & Ekm. Endemic to Massif de la Hotte		macrio (H)
Meriania involucrata (Desr.) Naud. Endemic to Hispaniola		
Miconia apiculata Urb. & Ekm. Endemic to Massif de la Hotte		macrio (H)
Miconia hypiodes Urb. & Ekm. Endemic to Massif de la Hotte		macrio (H)
Miconia impetiolaris (Sw.) D. Don		macrio, trois côtes (H); auguey, jao-jao, jatico (RD); cordobán arbusto, quitasolillo (C); camasey colorado, camasey de costilla (PR)
Miconia laevigata (L.) DC.		macrio (H); granadillo (RD); cordobancillo de arroyo (C); camasey, camasey de paloma (PR); bois côtelette, petit crécré, soufrière (G, M)
Miconia lanceolota (Desr.) DC. Endemic to Hispaniola		macrio (H)
Miconia mirabilis (Aubl.) L. O. Wms.	*M. fothergilla* (Desr.) Naud., *M. guianensis* (Aubl.) Cogn., *Tamonea guanensis* Aubl.	macrio (H); tresfilos (RD); camasey, camasey blanco, camasey ciatrocanales, camasey de costilla (PR)
Miconia ottoschulzii Urb. & Ekm.	*Graffenriedia ottoschulzii* (Urb. & Ekm.) Urb. & Ekm.	macrio, petites graines (H)
Miconia prasina (Sw.) DC.		macrio (H); cenizoso, granadillo bobo (RD); camasey, camasey blanco (PR)
Miconia punctata (Desr.) D. Don		macrio (H); auquey, auquey bobo, jau-jau, rajador, tresfilos (RD); camasey (PR)
Miconia racemosa (Aubl.) DC.		caca poule, macrio (H); camasey felpa, camasey racimoso, terciopelo (PR)
Miconia rubiginosa (Bonpl.) DC.		macrio (H); peralejo (RD); camasey (PR)
Miconia selleana Urb. & Ekm. Endemic to Hispaniola		macrio (H)
Miconia serrulata (DC.) Naud.	*M. macrophylla* (D. Don) Triana, *Tamonea macrophylla* (D. Don) Krasser	macrio (H); auguey, jau-jau (RD); camasey (PR)
Miconia tetrandra (Sw.) D. Don		macrio (H); rajador, yarador (RD); camasey (PR)
Mouriri domingensis (Tuss.) Spach.	[Also spelled *Mouriria.*]	cormier (H); guayaba cimarrona, piragua (RD); caimitillo, guasávara, murta (PR)
Ossaea woodsii Judd & Skean Endemic to Massif de la Hotte		
Pachyanthus hotteana (Urb. & Ekm.) Ekm. Endemic to Hispaniola		
Tetrazygia angustifolia (Sw.) DC.		stinking-fish (PR); bois côtelette (G)
Tetrazygia elaeagnoides (Sw.) DC.		camasey cenizo, cenizo, verdiseco (PR)
Tibouchina longifolia (Vahl.) Baill.		bois dents marron (H); spider flower (English)

NB: Judd (1987) describes an additional 26 shrub species of the following genera that might be considered small trees *sensu* Little and Wadsworth (1964): *Calycogonium* (2), *Clidemia* (1), *Conostegia* (1), *Heterotrichum* (1), *Mecranium* (2), *Meriania* (4), *Miconia* (12), *Ossaea* (2), and *Pachyanthus* (1). These species are not listed.

MELIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Azadirachta indica Adr. Juss.	*Antelaea azadirachta* (L.) Adelbert, *Melia azadirachta* L., *M. indica* (Adr. Juss.) Brandis	neem, nim (H); neeb, nimba (India)
Carapa guianensis Aubl.	*Persoonia guianensis* Willd., *Xylocarpa carapa* Spreng.	cabirma de Guinea (H, RD); najesí (C); crabwood (PR); bois rouge, carapa (G, M)
Cedrela odorata L.	*C. dugessii* Watson, *C. glaziovii* C. DC., *C. guianensis* Adr. Juss., *C. mexicana* M. J. Roemer, *C. occidentalis* C. DC., *C. pavaguariensis* Martius, *C. sintenisii* DC., *C. velloziana* M. J. Roemer, *Surenus brownei* Ktze.	acajou à planches, acajou femelle, cèdre, cèdre blanc, cèdre espagnol (H); cedro, cedro del país, cedro hembra, cedro macho (C, RD, PR); Spanish cedar (PR); cedro real (Salvador); cedro blanco, clavel (Colombia); cedro colorado (Perú)
Guarea glabra Vahl	*G. humilis* Bert. ex DC., *G. ramiflora* Vent.	
Guarea guidonia (L.) Sleumer	*G. cabirma* C. DC., *G. guara* P. Wils., *G. perrottetiana* A. Juss., *G. trichilioides* L., *Melia guara* Jacq., *Samyda guidonia* L.	bois rouge, palmiste (H); cabilma, cabima, cabirma, cabirma santa, cedro macho (RD); yamagua, yamao (C); cramantree, guaraguao (PR); musk wood (PR, J); alligator wood, wild akee (J)
Guarea sphenophylla Urb. Endemic to Hispaniola	*Urbanoguarea sphenophylla* Harms	
Melia azedarach L.	*M. orientalis* M. Roemer, *M. sempervirens* Sw.	fleurs lilas, lilas, piment d'eau (H); alilaila, arbol enano, lila, lilayo, violeta (RD); alelaila, bead tree, chinaberry, hog bush, lilaila, pasilla, pride of India (PR)
Swietenia macrophylla G. King	*S. belizensis* Lundell, *S. candollei* Pittier, *S. krukovii* Gleason & Panshin, *S. tessmannii* Harms	acajou du Honduras, acajou du Venezuela, acajou étranger (H); caoba hondureña (RD); caoba de Honduras (PR); mahogany, Honduras mahogany, Venezuelan mahogany (J, PR, US)
Swietenia mahagoni (L.) Jacq.	*Cedrela mahagoni* L., *Cedrus mahagoni* L., *C. mahogani* (L.) Miller, *S. fabrilis* Salisbury, *S. mahogoni* (L.) Lam.	acajou, acajou pays (H); caoba, caoba de Santo Domingo, caoba dominicana, caobo (RD); Dominican mahogany, mahogany, West Indian mahogany, West Indies mahogany (PR)
Trichilia aquifolia P. Wils. Endemic to Hispaniola	*Celastrum jodinii* Steud., *Ilex cuneifolia* L., *T. cuneifolia* Urb. no Pulle.	bois diou, bois diou marron, bois marron (H); chicarrón, chicharrón de tres espinas (RD)
Trichilia havanensis Jacq.		bois loraille (H); hiede-hiede (RD)
Trichilia hirta L.	*T. spondioides* Jacq.	bois arada, boudou, brésillet bâtard, gommier sauvage, marie-jeanne, mombin bâtard, petit mombin, raisin des perroquets (H); jacobán, jobobán (RD); cabo de hacha (C, RD, PR); guabán, jubabán (C); broomstick, guaita, jobillo, molinillo, palo de anastasio, retamo (PR); bastard cedar, rough trichilia (J); bois amer blanc (G, M)
Trichilia pallida Sw.	*Guarea obstusifolia* Lam., *Portesia ovata* Cav., *T. diversifolia* Cook & Coll., *T. truncata* Leon.	bois arada, boudou, dombou, marie-jeanne, trois paroles (H); almendrillo, almendro, caracolí (RD); siguaraya macho (C)

MENISPERMACEAE

SPECIES	SYNONYMS	COMMON NAMES
Hyperbaena laurifolia (Poir.) Urb.	*Cissampelos laurifolia* Poir., *H. apiculata* Urb. & Ekm., *H. glauciramis* Urb. & Ekm., *H. pellucida* Urb. & Ekm.	
Hyperbaena lindmanii Urb. Endemic to Hispaniola	*H. gonavensis* Urb. & Ekm., *H. salicifolia* Urb. & Ekm.	bois coq (H); bonquito, chicharrón, pegoje (C)
Hyperbaena undulata Urb. Endemic to southwestern Haiti		

MORACEAE

SPECIES	SYNONYMS	COMMON NAMES
Artocarpus altilis (Parkinson) Fosberg, non subnudum.	*A. communis* J. R. & G. Forster, *A. incisus* L. f.	**Breadfruit:** âme veritable, arbre à pain, veritable (H); albopán (RD); breadfruit, panapén (PR) **Breadnut:** arbre à pain (H); lavapén (RD); breadnut, castaña, pana de pepitas (PR); castaño del Malabar (C)
Artocarpus heterophyllus Lam.	*A. brasiliensis* Gomez, *A. integer* auth., not (Thunb.) Merr., *A. integrifolius* Forst., *A. maxima* Blanco, *A. philippensis* Lam.	jaquier (H); buen pan, pan de fruta (RD); rima (C); jaca, jackfruit (PR)
Castilla elastica Sessé subsp. *elastica*	*C. elastica* Cervantes, *C. lactiflua* O. F. Cook	tirajala (RD); caucho (C, RD, PR); castilla rubber, cauchera, Central American rubber, goma, palo de goma (PR)
Cecropia peltata L.	*C. asperrma* Pittier	bois canon, bois trompette, trompette (H); yagrumo (RD); yagrumo hembra (C, RD, PR); trumpet-tree (PR)
Chlorophora tinctoria (L.) Gaud. ex Benth. & Hook	*Maclura tinctoria* (L.) D. Don, *M. xanthoxylon* Endl., *Morus tinctoria* (L.) Spec.	bois jaune (H); fustete, mora macho (C, RD); mora del país, palo amarillo, palo de mora (C); fustic, fustic mulberry, mora (PR)
Ficus benjamina L.		figuier (H); higo, higo cimarrón filipo (RD); Benjamin fig, laurel benjamín (PR)
Ficus carica L.	*F. colchica* Grossh., *F. hyrcana* Grossh., *F. kopetdagensis* Pachom.	figue, figue france (H); breva, higo, huguero (C, RD, PR); common fig (PR, US)
Ficus citrifolia Mill.	*F. bravifolia* Nutt., *F. laevigata* Vahl, *F. laevigata* var. *brevifolia* (Nutt.) Warb., *F. laevigata* var. *lentiginosa* (Vahl) Urb., *F. lentiginosa* Vahl, *F. populnea* Willd., *F. populnea* var. *brevifolia* (Nutt.) Warb.	higuillo (RD); jagüey blanco, shortleaf fig (PR); jagüerillo, jagüey (C)
Ficus elastica Roxb. ex Hornem.		caoutchouc (H); higuera (RD); caucho (C, RD); goma elástica (C); Indian-rubber fig, palo de goma (PR)
Ficus microcarpa L. f.	*F. retusa* L., *F. nitida* Thunb.	arbol de Washington, laurel (RD); álamo jagüey, laurel criollo (C); laurel de la India (C, RD, PR); India-laurel fig, jagüey (PR)
Ficus religiosa L.		higuillo, laurel (RD); álamo (C, RD); botree (PR)
Ficus suffocans Griseb.		
Ficus trigonata L.	*F. crassinervia* Desf., *F. crassinervia* Willd.	figuier, figuier rouge (H); higo cimarrón (RD); jagüey (C, PR); jagüey blanco, wild fig (PR)
Gyrotenia myriocarpa Griseb.		

MORACEAE

SPECIES	SYNONYMS	COMMON NAMES
Morus nigra L.		mûres (H); morero (C, RD); black mulberry, mora negra, morera negra (PR)
Pseudolmedia spuria (Sw.) Griseb.	*Brosimum spurium* Sw., *P. havanensis* Trec.	bois mérise, longue barbe, mérisse (H); macao, palo de leche (RD); macagua (C); negra lora (PR); bastard breadnut, milkwood (J)
Trophis racemosa (L.) Urb.	*Bucephalon racemosum* L., *T. americana* L.	bois neuf, rameau, ramon, ramon cheval (H); ramón de vaca (RD); ramón de bestia (RD, C); ramón (PR)

MORINGACEAE

SPECIES	SYNONYMS	COMMON NAMES
Moringa oleifera Lam.	*Guilandina moringa* L., *M. nux-ben* Perr., *M. pterygosperma* Gaertn.	ben oléifère, benzolive, d'olive, olive, olivier (H); libertad, moringa, palo de abejas, palo de aceite (RD); ben (C, PR); palo jeringa, paraíso francés (C); angela, jazmín francés (PR); horse-radish tree (J)

MUSACEAE

SPECIES	SYNONYMS	COMMON NAMES
Musa acuminata Colla x *M. balbisiana* Colla 'AAA'	*M. sapientum* Kuntze	figue, figue bananne, figue mûre (H); guineos, mampurreo (RD); banana, guineo (PR)
Musa acuminata Colla x *M. balbisiana* Colla 'AAB'	*M. paradisiaca* L., *M.* x *paradisiaca* L.	bananne (H); plátano (RD, C, PR); plantain (J); harton, rulo (PR); plátano burro, plátano hembra, plátano macho (C)
Ravenala madagascariensis Sonn.	*Urania speciosa* Willd.	palma de abanico (RD); arbol del viajero, traveler's palm (PR)

MYOPORACEAE

SPECIES	SYNONYMS	COMMON NAMES
Bontia daphnoides L.		mangle blanc, manglier marron, olivier batârd (H); aceituno (RD); mangle bobo, manzanillo, white-alling (PR); aceituna americana, olivo bastardo (C)

MYRICACEAE

SPECIES	SYNONYMS	COMMON NAMES
Myrica cerifera L.	*M. mexicana* Willd.	cannelle abeille, cannelle douce, cannelle miel (H); arbol de cera, palo de cera, perico, tiguapén (RD); arraiján (C); arrayán (RD, PR); cerero, southern bayberry, wax myrtle, waxberry (PR)
Myrica picardae Krug & Urb. Endemic to Hispaniola		

MYRISTICACEAE

SPECIES	SYNONYMS	COMMON NAMES
Myristica fragrans Houtt.		muscade, muscadier, noix de muscade (H); nuez moscada (RD); nutmeg (US)

MYRSINACEAE

SPECIES	SYNONYMS	COMMON NAMES
Ardisia angustata Urb. Endemic to Hispaniola		bois tremble, quatre chemins (H); tapa camino (C)
Ardisia brachypoda Urb. Endemic to Hispaniola		mala mujer (RD)
Ardisia escalloniodes C. & S.	*A. panniculata* Sudw., *A. pickeringia* T. & J., *Cyrilla panniculata* Nutt., *Tinus escallonioides* O. Ktze.	
Ardisia fuertesii Urb. Endemic to Hispaniola		
Ardisia obovata Hamilt.	*A. coriacea* A. DC., *A. guadalupensis* Duch. ex Griseb., *A. maculata* Poir. ex DC., *Icacorea guadalupensis* Britt. & Wils., *Tinus obovata* O. Ktze.	bádula, mameyuelo (PR); Guadeloupe marlberry (B)
Ardisia picardae Urb. & Mez		bois de tremble (H)
Myrsine acrantha Krug & Urb.	*Rapanea acrantha* Mez	
Myrsine coriacea (Sw.) R. Br. ex Roem. & Schult.	*Caballeria ferruginea* R. & P., *M. berterii* A. DC., *M. ferruginea* Spreng., *M. laeta* Griseb., *Rapanea coriacea* Mez, *R. ferruginea* (Ruiz & Pav.) Mez, *Samara coriacea* Sw.	bois plomb, bois savane, mangle (H); botoncillo cimarrón, hojita larga, palo de sabana, palo santo, perico macho (RD); camagüilla (C); arrayán, arrayán bobo, bádula, mantequero (PR)
Myrsine floridana A. DC.	*M. punctata* Stearn, *Rapanea guianensis* non Aublet	
Myrsine guianensis (Aubl.) Kuntze	*Rapanea guianensis* Aubl.	feuille canelle (H); mameyuelo (RD); camagüilla (C); bádula, Guiana rapanea (PR)
Myrsine magnoliifolia (Urb. & Ekm.) Alain Endemic to Hispaniola	*Rapanea magnoliaefolia* Urb. & Ekm.	palo santo cimarrón (PR)
Parathesis crenulata (Vent.) Hook. f. ex Hemsl.	*Ardisia crenulata* Vent.	raisin marron (H); jalapón (RD); rascagarganta, secagarganta (PR)
Parathesis serrulata (Sw.) Mez	*Ardisia serrulata* Sw.	raisin marron (H); jalapa, jalápago, jalapón (RD)
Wallenia apiculata Urb. Endemic to Hispaniola		caimonicillo, lengua de vaca (RD)
Wallenia ekmanii Urb. Endemic to Hispaniola		
Wallenia formonensis Judd Endemic to southern Haiti		
Wallenia laurifolia (Jacq.) Sw.	*Ardisia domingensis* Willd., *Petesioides laurifolium* Jacq., *W. clusiaefolia* Griseb.	bois crapaud, louisine mau, petit raisin, raisin, raisin marron, raisinier (H); caimón, caimoní (RD); jacanillo, mameyuelo (PR); carmoni, casmagua (C)

MYRTACEAE

SPECIES	SYNONYMS	COMMON NAMES
Callistemon citrinus (Curtis) Skeels	*C. lanceolatus* (Smith) DC.	limpia botella (RD); bottlebrush (PR)
Calyptranthes arborea Urb. & Ekm. Endemic to Hispaniola		
Calyptranthes barkeri Ekm. & Urb. Endemic to Hispaniola		
Calyptranthes bracteosa Urb. & Ekm. Endemic to Hispaniola		
Calyptranthes chrysophylloides Urb. Endemic to southwestern Haiti	*C. chrysophylloides* var. *minor* Urb.	
Calyptranthes collina Urb. Endemic to southern Hispaniola		
Calyptranthes densifolia Urb. & Ekm. Endemic to Massif de la Selle		
Calyptranthes depressa Urb. Endemic to Hispaniola		
Calyptranthes grandis Urb. & Ekm. Endemic to Hispaniola		
Calyptranthes heteroclada Urb. & Ekm. Endemic to Hispaniola		
Calyptranthes hotteana Urb. & Ekm. Endemic to Massif de la Hotte		
Calyptranthes involucrata Urb. & Ekm. Endemic to Massif de la Hotte		
Calyptranthes marmeladensis Urb. Endemic to northern Hispaniola		
Calyptranthes mornicola Urb. Endemic to southern Haiti		
Calyptranthes myrcioides Urb. & Ekm. Endemic to Hispaniola		
Calyptranthes nummularia Berg Endemic to southern Hispaniola		
Calyptranthes pallens Griseb.	*Eugenia pallens* Poir.	arrayán, limoncillo (RD); pale lidflower, tapón blanco (PR)
Calyptranthes palustris Urb. & Ekm. Endemic to Hispaniola		
Calyptranthes pitoniana Urb. & Ekm. Endemic to Hispaniola		
Calyptranthes salicifolia Urb. & Ekm. Endemic to Hispaniola		

MYRTACEAE

SPECIES	SYNONYMS	COMMON NAMES
Calyptranthes samuelssonii Urb. & Ekm. Endemic to Hispaniola		
Calyptranthes sintenisii Kiarersk.		petit bois pin (H); limoncillo cimarrón, malagueta (RD); hoja menuda, limoncillo del monte (PR)
Calyptranthes sordida Urb. & Ekm. Endemic to Hispaniola		
Calyptranthes syzygium (L.) Sw.	*Myrtus suzygium* L. [Also spelled *C. suzygium.*]	escoba, escobón, palo de puerco (RD); arraiján blanco, mondacapullo (C); myrtle-of-the-river (PR)
Calyptranthes yaquensis Urb. & Ekm. Endemic to Hispaniola		
Calyptrogenia biflora Alain Endemic to Hispaniola		
Calyptrogenia cuspidata Alain Endemic to Hispaniola		
Calyptrogenia jeremiensis (Urb. & Ekm.) Burret Endemic to Massif de la Hotte	*Eugenia jeremiensis* Urb. & Ekm.	
Cryptorhiza haitiensis Urb. Endemic to Hispaniola	*Pimenta haitiensis* Landrum	maguette (H); malaguette (H, RD); canelilla, canelillo, malagueta (RD)
Eucalyptus camaldulensis Dehnh. var. *camaldulensis*	*E. camaldulensis* Dehnh. var. *brevirostris* (F. Muell.) Blakely, *E. rostrata* Schldl.	eucalyptus (H); eucalipto (RD); river red gum (US, Australia)
Eucalyptus globulus Labill. ssp. *globulus*	*E. globulus* Labill. var. *compacta* L. Bailey	eucalyptus (H); eucalipto (RD); blue gum, fever tree (US, Australia)
Eucalyptus tereticornis Smith	*E. umbellata* (Gaertn.) Domin	eucalyptus (H); eucalipto (RD); forest red gum (US, Australia)
Eugenia aeruginea DC.		
Eugenia albimarginata Urb. & Ekm. Endemic to Massif de la Hotte		
Eugenia axillaris (Sw.) Willd.	*Myrtus axillaris* Sw.	mérise, mérisier (H); escobón colorado, escobón de vara, palo de hueso (RD); guairaje, guairaje colorado (C); white-stopper eugenia (PR); grajo (C, PR)
Eugenia belladerensis Urb. & Ekm. Endemic to Hispaniola		
Eugenia biflora (L.) DC.	*E. biflora* (L.) DC. var. *lancea* (Poir.) Krug & Urb., *E. biflora* (L.) DC. var. *ludibunda* (Bertero) Krug & Urb., *E. lancea* Poir., *E. lancea* Spreng., *E. ludibunda* Bert., *E. virgultosa* DC., *Myrtus biflora* L.	escobón (RD); pitangueira, hoja menuda (PR); rodwood (J)
Eugenia carophylla Thunb.	*Caryophyllus aromaticus* L.	girofle (H); clavero (RD, PR); clove (US)
Eugenia chrootricha Urb. & Ekm. Endemic to Hispaniola		
Eugenia confusa DC.		escobón colorado, escobón de vara, jayao, palo de hueso (RD); yarua (C); cienaguillo, redberry eugenia (PR)

MYRTACEAE

SPECIES	SYNONYMS	COMMON NAMES
Eugenia dictyophylla Urb. Endemic to Hispaniola		guayaba cimarrona (RD)
Eugenia domingensis Berg	*E. aeruginea* auth., not DC.	bois caïman, brignolle, brille (H); guásara, guázara (RD); comecará (C); guasábara (PR)
Eugenia foetida Pers.	*E. buxifolia* (Sw.) Willd., *E. maleolens* auth., not Pers., *E. myrtoides* auth., not Poir.	bois petites feuilles (H); escobón (RD); bálsamo, guairaje, guairaje blanco (C); anguila, boxleaf eugenia (PR)
Eugenia formonica Urb. & Ekm. Endemic to Massif de la Hotte		
Eugenia glabrata (Sw.) DC.	*E. affinis* DC., *Myrtus glabrata* Sw.	arrayán, arraiján (RD); cuaraje colorado (C); rodwood (J)
Eugenia holdridgei Alain Endemic to Hispaniola		
Eugenia laevis Berg	*E. baruensis* DC., not Jacq., *E. prenleloupii* Kiaersk., *E. subverticillaris* Berg	gros petites feuilles (H); arraiján, arrayán (RD)
Eugenia ligustrina (Sw.) Willd.	*Myrtus ligustrina* Sw., *Stenocalyx ligustrinus* (Sw.) Berg	arrayán, escobón de aguja (RD); arraiján (C, RD); birijí, cateicito (C); birchberry, granadilla, granadillo, hoja menuda, palo de muleta, palo de murta, privet stopper (PR)
Eugenia lindahlii Urb. & Ekm. Endemic to Hispaniola	*E. orthioneura* Urb.	
Eugenia lineata (Sw.) DC.	*E. lineata* var. *racemosa* Berg, *Myrtus lineata* Sw.	
Eugenia lineolata Urb. & Ekm. Endemic to Hispaniola		
Eugenia macradenia Urb. & Ekm. Endemic to Hispaniola		
Eugenia maleolens Pers.	*E. foetida* Poir., *E. myrtoides* Poir., *Myrtus buxifolia* Sw.	bois petites feuilles, maguette, malaguette, mérise, mérisier, petites feuilles (H); escobón (RD)
Eugenia minguetii Urb. Endemic to Hispaniola		
Eugenia monticola (Sw.) DC.	*E. baruensis* var. *latifolia* DC., *E. flavorirens* Berg, *E. monticola* var. *latifolia* Krug & Urb., *Myrtus monticola* Sw.	bois d'ine petites feuilles, petit bois d'Inde (H); arraiján, arrayán, escobón, escobón blanco, escobón grande (RD); rodwood (J); birijí, black-cherry (PR)
Eugenia odorata Berg Endemic to Hispaniola	*E. isabeliana* Kiaersk., *E. mornicola* Urb.	bois acajou (H); escobón, hoja fina, palo de hormiga (RD)
Eugenia procera (Sw.) Poir.	*Myrtus ?brachystemon* DC., *M. patrisii* Spreng., *M. procera* Sw.	arbre à petites feuilles (H); arrayán colorado lobo (RD); hoja menuda (PR)
Eugenia pseudopsidium Jacq.	*E. portoricensis* DC., *E. pseudopsidium* var. *portoricensis* Krug & Urb., *Stenocalyx portoricensis* Berg	guásara (RD); quiebrahacha, guayaba silvestre (PR)
Eugenia rhombea (Berg) Krug & Urb.	*E. foetida* var. *parvifolia* Berg, *E. foetida* var. *rhombea* Berg	bois myrte, myrte, tu-fais (H); arrayán (RD); guairaje, mije (C); hoja menuda, spiceberry eugenia (PR)
Eugenia samanensis Alain Endemic to Hispaniola		
Eugenia tiburona Urb. & Ekm. Endemic to Massif de la Hotte	*Myrtus tiburona* Borhidi	

MYRTACEAE

SPECIES	SYNONYMS	COMMON NAMES
Eugenia uniflora L.		cerise de Suriname (H); ciruela de Surinam, grosela de México (RD); cereza de Cayena, Surinam cherry (PR)
Eugenia vanderveldei Urb. & Ekm. Endemic to Hispaniola		
Gomidesia lindeniana Berg	*Myrcia fenzliana* Berg., *M. lindeniana* (Berg.) Kiaersk.	auquey, auquey blanco, auquey prieto (RD); yareicillo (C); cieneguillo (PR)
Hottea crispula (Urb.) Urb. Endemic to southwestern Haiti	*Psidium? crispulum* Urb.	
Hottea malangensis (Urb. & Ekm.) Urb. Endemic to southern Hispaniola	*Eugenia malangensis* Urb.	
Hottea miragoanae Urb. Endemic to southwestern Haiti		
Melaleuca quiquenervia (Cav.) S. T. Blake	*Cajuputi leucadendra* Rusby, *M. cajaputi* Roxb., *M. leucadendron* auct., not L., *M. minor* Sm., *M. saligna* Blume, *M. viridiflora* Gaertn., *Metrosideros quinquenervia* Cav.	melaleuca (H, C, US); cayeput (C, RD, PR); punk (RD); cayepur, cayeputi (PR)
Myrcia citrifolia (Aubl.) Urb.	*Aulomyrcia citrifolia* (Aubl.) Amsh., *A. coriacea* Berg, *Eugenia paniculata* Jacq., *E. saviaefolia* Alain, *M. coriacea* DC., *Myrtus citrifolia* Aubl., *M. coriacea* Vahl	bois d'amour, maguette, malaguette, myrte à feuilles de citron, poivrier de Jamaïque (H); malagueta (RD); hoja menuda, pimienta cimarrona (C); limoncillo del monte (PR)
Myrcia deflexa (Poir.) DC.	*Eugenia deflexa* Poir., *M. ferruginea* Berg	aquey del chiquito (RD); cieneguillo (PR)
Myrcia hotteana Urb. & Ekm. Endemic to Massif de la Hotte		
Myrcia leptoclada DC.	*Aulomyrcia leptoclada* (DC.) Berg	guayabón, huesito (RD); guayabacón, hoja menuda roja (PR); bois guépois, guépois (G, M)
Myrcia saliana Alain Endemic to Hispaniola		
Myrcia splendens (Sw.) DC.	*Eugenia laxiflora* Poir., *Myrtus splendens* Sw.	escoboncito (RD); arraiján, comecará, tinajero (C); hoja menuda (PR); petit merisier (G); birchberry (VI)
Myrcia tiburoniana Urb. & Ekm. Endemic to Massif de la Hotte		
Myrcianthes esnardiana (Urb. & Ekm.) Alain Endemic to Hispaniola	*Eugenia esnardiana* Urb. & Ekm.	maguette, malaguette (H)
Myrcianthes fragrans (Sw.) McVaugh	*Anamomis fragrans* (Sw.) Griseb., *A. punctata* Griseb., *Eugenia dicrana* Berg., *E. fragrans* (Sw.) Willd., *E. hetecroclita* Tuss., *E. punctata* Vahl, *Myrtus dichotoma* Poir. in Lam., *M. fragrans* Sw.	bois d'Inde, bois d'ine, bois haut-goût, bois mulâtre, myrte à feuilles de laurier (H); arrayán, coquillo, guayabillo, ozúa, peralejo (RD); guayabacón (PR); pimienta (C); rose-apple (J)
Myrciaria floribunda (West ex Willd.) Berg	*Eugenia floribunda* West ex Willd.	bois mulâtre (H); arrayán, mijo (RD); mije (C); guavaberry, mirto (PR)
Myrtus tussacii (Urb. & Ekm.) Burret Endemic to Hispaniola	*Eugenia tussacii* Urb. & Ekm.	

MYRTACEAE

SPECIES	SYNONYMS	COMMON NAMES
Pimenta anisomera (Urb. & Ekm.) Burret Endemic to Hispaniola	*Amomis anisomera* Urb. & Ekm.	
Pimenta crenulata Alain Endemic to Hispaniola		
Pimenta dioica (L.) Merr.	*P. officinalis* Lindl., *P. pimenta* (L.) Cock.	maguette, malaguette, poivre Jamaïque (H); limoncillo cimarrón, malagueta (RD); pimienta blanca, pimienta gorda, pimienta malagueta (C); pimienta (C, RD, PR); allspice (US)
Pimenta ozua (Urb. & Ekm.) Burret Endemic to Hispaniola	*Amomis ozua* Urb. & Ekm., *P. racemosa* var. *ozua* Landrum	ozúa (RD)
Pimenta pauciflora (Urb.) Burret	*Amomis pauciflora* Urb.	
Pimenta racemosa (Mill.) J. W. Moore var. *grisea* (Kiaersk.) Fosb.	*Amomis caryophyllata* var. *grisea* (Kiaersk.) Krug & Urb., *A. grisea* (Kiaersk.) Britt., *P. acris* var. *grisea* Kiaersk.	bois d'Inde français (H); ausubo, auzua, auzubo, canelilla, canelillo, ozúa (RD)
Pimenta racemosa (Mill.) J. W. Moore var. *racemosa*	*Amomis caryophyllata* (Jacq.) Krug & Urb., *Caryophyllus racemosus* Mill., *Myrtus acris* Berg, *M. caryophyllata* Jacq., *P. acris* (Sw.) Kostel.	bois bay-rhum, bois d'Inde français, bois d'ine franc, bois d'ine français, clou de girofle, fausse giroflée, girofle, myrte à feuilles de laurier (H); auzua, auzubo, bay-rum, berron, canelillo, malagueta, ozúa (RD); pimienta (C); bayberry tree, wild cinnamon (J); bay rum tree, malagueta (PR)
Pimenta terebinthina Burret Endemic to Hispaniola	*P. racemosa* var. *terebinthina* Landrum	terebinthina (H); canelilla (RD)
Plinia abeggii (Urb. & Ekm.) Urb. Endemic to Hispaniola	*Eugenia abeggii* Urb. & Ekm.	
Plinia acutissima Urb. Endemic to Hispaniola		
Plinia caricensis Urb. Endemic to Hispaniola		
Plinia cidrensis Urb. Endemic to Hispaniola	*P. acutissima* var. *cidrensis* Borhidi	
Plinia ekmaniana Urb. Endemic to Hispaniola		
Plinia haitiensis Urb. & Ekm. Endemic to Hispaniola	*P. montecristina* Urb. & Ekm.	
Plinia microcycla Urb. Endemic to Hispaniola		
Pseudanamomis umbellulifera (HBK.) Kausel	*Anamomis esculenta* Sarg., *Eugenia esculenta* Berg, *E. umbellulifera* Krug & Urb., *Mycianthes umbellulifera* Alain, *Myrcia*? *umbellulifera* DC., *Myrtus umbellulifera* HBK.	ciruela, ciruela de las ánimas, ciruelillo (RD)
Psidium acranthum Urb. Endemic to Hispaniola		
Psidium dictyophyllum Urb. & Ekm. Endemic to Hispaniola		maguette, malaguette (H)

MYRTACEAE

SPECIES	SYNONYMS	COMMON NAMES
Psidium guajava L.	*Guajava pyrifera* (L.) Kuntze, *G. pyriformis* Gaertn., *P. guayava* Raddi, *P. pomiferum* L., *P. pyriferum* L., *P. sapidissimum* Jacq.	goyave, goyavier (H); guayaba agria, guayaba común (RD); guayaba (C, PR); guava (PR, US)
Psidium hotteanum Urb. & Ekm. Endemic to Hispaniola		
Psidium longipes (Berg) McVaugh	*Anamomis bahamensis* Britt. ex Small, *A. longipes* Britt. ex Small, *Eugenia bahamensis* Kiaersk., *E. longipes* Berg, *Myrtus bahamensis* Urb., *M. elliptica* Urb.	
Psidium sessilifolium Alain Endemic to Hispaniola		
Psidium trilobum Urb. & Ekm. Endemic to Hispaniola		
Syzygium cumini (L.) Skeels	*Eugenia cumini* (L.) Druce, *E. jambolana* Lam., *Jambolifera chinensis* Spreng, *Myrtus cumini* L., *S. jambolanum* (Lam.) DC.	java plum (UK, US)
Syzygium jambos (L.) Alston	*Caryophyllus jambos* (L.) Stokes, *Eugenia jambos* L., *Jambos jambos* (L.) Millsp., *Jambosa vulgaris* DC.	jamboisie, jambol, jambul, pomme rose, pommier rose (H); pomo (RD); pomarrosa (C, RD, PR); manzana rosa (C); rose-apple (PR)
Syzygium malaccense (L.) Merr. & Perry	*Eugenia malaccensis* L., *Jambosa malaccensis* (L.) DC.	pomme de Jamaïque, pomme de Malaisie (H); cajuilito de Sulinám (RD); pera, pomarrosa de Malaca (C); Malay-apple, manzana malaya (PR)

NB: This family exhibits a high degree of endemism. Several species described by Liogier (1989) and listed as endemic to Hispaniola may, in fact, occur only in Haiti or the Dominican Republic.

NYCTAGINACEAE

SPECIES	SYNONYMS	COMMON NAMES
Guapira brevipetiolata (Heimerl) Alain Endemic to Hispaniola	*Pisonia brevipetiolata* Urb., *P. discolor* var. *bevipetiolata* Heimerl, *Torrubia brevipetiolata* Jiménez	
Guapira discolor (Spreng.) Little	*Pisonia discolor* Spreng., *P. discolor* var. *carnosa* Heim., *Torrubia discolor* Britt.	barrehorno (C, PR)
Guapira domingensis (Heim.) Alain Endemic to Hispaniola	*Pisonia obtusata* var. *domingensis* Heim., *Torrubia domingensis* Standl.	bois cassave (H); aguacate cimarrón, aguacatillo cimarrón, mala mujer, palo de perico, palo salvaje, perico, uña de gato, víbora (RD)
Guapira fragrans (Dum.-Cours.) Little	*Pisonia fragrans* Dum.-Cours., *P. fragrans oblanceolata* Heim., *Torrubia fragrans* Standl., *T. inermis* Britt. & Wils.	muñeco, palo de perico, perico (RD); barrehorno (C); black mampoo, corcho, emajagua, majagua, majagua de mona, palo de corcho (PR)
Guapira ligustrifolia (Heim.) Lundell	*Pisonia ligustrifolia* Heim., *Torrubia ligustrifolia* Standl.	palo salvaje (RD)

NYCTAGINACEAE

SPECIES	SYNONYMS	COMMON NAMES
Guapira obtusata (Jacq.) Little	*Pisonia obtusata* Jacq., *Torrubia obtusata* Britt.	bois cassave sylvestre (H); mala mujer, víbora (RD); macagüey, sapo (C); corcho, corcho prieto (PR); broad-leaved blolly (B)
Guapira rufescens (Heimerl) Lundell	*Pisonia calophylla rufescens* Heim., *P. obtusata* var. *rufescens* Heim., *P. rufescens* Griseb., *Torrubia rufescens* Britt.	
Neea collina Heimerl Endemic to Hispaniola		
Neea demissa Heimerl Endemic to Hispaniola		
Pisonia aculeata L.	*P. villosa* Poir.	croc de chien, mayacaule (H); uña de gato (C, RD, PR); zarza (C); escambrón, prickly mampoo (PR); cockspur, fingripo (J)
Pisonia albida (Heimerl) Britt. ex Standl.	*P. albida* var. *glutinosa* Heim., *P. albida platyphylla* Heim., *P. subcorta typica albida* Heim.	corcho, corcho blanco, corcho bobo (PR)
Pisonia helleri Standl.		uña de gato (RD)
Pisonia ochracea Heimerl Endemic to Hispaniola		
Pisonia rotundata Griseb.	*P. subcordata* var. *rotundata* Heim.	

OCHNACEAE

SPECIES	SYNONYMS	COMMON NAMES
Ouratea ilicifolia (P. DC.) Baill.	*Gomphia ilicifolia* DC., *Ochna ilicifolia* Poir., *Ouratea jaegeriana* Urb., *O. lenticellosa* Urb., *O. spinulosa* Urb.	arneau (H); chicharrón amarillo (RD); chicharrón (C, RD); arete, contraguao, cordón de soldado, rascabarriga, serrucho (C)

OLACACEAE

SPECIES	SYNONYMS	COMMON NAMES
Schoepfia chrysophylloides (A. Rich.) Planch.	*Diplocalyx chrysophylloides* A. Rich.	
Schoepfia haitiensis Urb. & Britt. Endemic to Hispaniola		
Schoepfia obovata C. Wr.		araña (PR); white beefwood (B)
Schoepfia olivacea Urb. Endemic to Hispaniola		
Schoepfia schreberi Gmel.		
Ximenia americana L.	*X. aculeata* Tuss., *X. elliptica* Spreng., *X. multiflora* Jacq.	cerise de mer, croc, macaby (H); hicaco (RD); ciruelillo, limoncillo (C, RD); almendro de costa, ciruelo cimarrón, jía amarilla, yana, zarza limón (C); fake sandalwood, wild lime (US)
Ximeniopsis horridus (Urb. & Ekm.)	*Ximenia horrida* Urb. & Ekm.	

OLEACEAE

SPECIES	SYNONYMS	COMMON NAMES
Chionanthus axilliflorus (Griseb.) Stearn	*Linociera axilliflora* Griseb., *Mayepea axilliflora* (Griseb.) Krug & Urb.	guaney negro, jico-tea (C); hueso (PR)
Chionanthus bumelioides (Griseb.) Stearn var. *bumelioides*	*Linociera bumelioides* Griseb., *L. miragoanae* Urb., *Mayepea bumelioides* Krug & Urb.	
Chionanthus bumelioides (Griseb.) Stearn var. *lanceolatus* (Knobl.) Alain Endemic to Hispaniola	*Linociera lanceolata* Knobl.	
Chionanthus compactus Sw.	*C. caribaeus* Jacq., *Linociera caribaea* (Jacq.) Knobl., *Mayepea caribaea* (Jacq.) Kuntze	tárana (RD); avispillo, hueso (PR); bois de fer blanc (G); bois de fer (M)
Chionanthus dictyophyllus (Urb.) Stearn Endemic to Hispaniola	*Linociera dictyophylla* Urb.	
Chionanthus domingensis Lam.	*Linociera domingensis* (Lam.) Knobl., *L. latifolia* Vahl, *Mayepea domingensis* (Lam.) Krug & Urb.	cayepon (H); cayepón, lirio, tárana (RD); white rosewood (J); hueso blanco, palo de hueso (PR)
Chionanthus ligustrinus (Sw.) Pers.	*Linociera ligustrina* Sw., *L. phylliraeoides* Gaertn. f., *Mayepea ligustrina* O. Ktze., *Thouinia ligustrina* Sw.	bois sagine (H); cabra blanca, cabra santa, lirio (RD); careicillo, perenqueta (C); hueso (C, PR)
Forestiera rhamnifolia Griseb.		hueso blanco, careicillo (C); buckthorn forestiera (J); caca ravet (M)
Forestiera segregata (Jacq.) Krug & Urb.	*Adelia porulosa* Michx., *A. segregata* O. Ktze., *F. porulosa* (Michx.) Poir., *Myrica segregata* Jacq.	yanilla blanca (C); ink-bush, Florida forestiera, Florida privet (B, PR, US)
Haenianthus salicifolius Griseb. var. *obvatus* (Krug & Urb.) Knobl.	*H. oblongatus* Urb., *H. obovatus* Krug. & Urb.	cara de hombre (RD); caney (C); hueso, hueso prieto, palo de hueso (PR)

OXALIDACEAE

SPECIES	SYNONYMS	COMMON NAMES
Averrhoa bilimbi L.		blimblin, blinblin, zibeline, zibeline blonde (H); pepinito, vinagrillo (RD); bilimbi, grosella china, grosella de Otahiti (C)
Averrhoa carambola L.		blinblin longue, carambolier, cornichon du pays, zibeline, zibeline longue (H); carambola (RD); carambold, carambole, jalea, star fruit, star pickle (PR)

PAPAVERACEAE

SPECIES	SYNONYMS	COMMON NAMES
Bocconia frutescens L.		arbre à pain, bois codine, bois coq d'Inde, bois de coq, bois jaunisse (H); gengibrillo, llorasangre, palo de toro, yagrumo macho (RD); palo amarillo, yagrumita (C); palo de pan cimarrón (C, PR); panilla (PR); celandine, parrot weed (J, PR)

PHYTOLACCACEAE

SPECIES	SYNONYMS	COMMON NAMES
Stegnosperma cubense A. Rich.	*S. halimifolium* not Benth.	bejuco de canasta blanco (C)
Trichostigma octandrum (L.) H. Walt.	*Rivina octandra* L., *T. rivinoides* A. Rich.	bonbon codine, bonbon coq d'Inde, liane barrique, liane panier (H); pabellón del rey (RD); bejuco de canasta (C); basket wiss, bejuco de nasa, bejuco de palma, hoop vine (PR); cooper withe, hoop withe (J)

PINACEAE

SPECIES	SYNONYMS	COMMON NAMES
Pinus caribaea Morelet var. *hondurensis* (Seneclauze) Barrett et Golfari	*P. hondurensis* Loock., *P. hondurensis* Seneclauze	bois pin, pich pin (H); pino de cuaba (RD); pino amarillo, pino macho (C); Caribbean pine (US)
Pinus occidentalis Sw. Endemic to Hispaniola		bois chandelle, bois pin, pich pin, pin (H); cuaba, pinchipin, pino, pino de cuaba (RD); Hispaniolan pine (US)

PIPERACEAE

SPECIES	SYNONYMS	COMMON NAMES
Piper aduncum L.		bois de sureau, bois major, sureau (H); anisillo, guayuyo, guayuyo blanco (RD); canilla de nuerte, platinillo de Cuba (C); higuillo, higuillo hoja menuda (PR)
Piper amalago L.	*P. medium* Jacq.	anis des bois, anis marron, anis sauvage, anisette, bois noyaux, feuilles noyaux, feuilles noyaux pays, feuilles sirop, gomme baume, grand baume, sureau plantain (H); guayuyo (RD); higuillo de limón, higuillo oloroso (PR)
Piper rugosum Lam.		
Piper tuberculatum Jacq.		guayuyo (RD); higuillo (PR)

NB: Judd (1987) describes 1 *Lepianthes* and 4 *Piper* shrub species that might be considered small trees *sensu* Little and Wadsworth (1964). These species are not listed.

POACEAE (=GRAMINAE)

SPECIES	SYNONYMS	COMMON NAMES
Bambusa vulgaris Schrad. ex Wendl.		bambou (H); bambú (RD, PR); bambúa (RD); common bamboo (PR)

PODOCARPACEAE

SPECIES	SYNONYMS	COMMON NAMES
Podocarpus angustifolius Griseb. var. *wrightii* Pilger		bois lubin (H); espuela de caballero, sabina cimarrón (C); yacca (J)
Podocarpus aristulatus Parl. Endemic to Hispaniola	*P. buchii* Urb.	

POLYGALACEAE

SPECIES	SYNONYMS	COMMON NAMES
Polygala fuertesii (Urb.) Blake Endemic to Hispaniola	*Badiera fuertesii* Urb.	
Polygala penaea L.	*Badiera domingensis* DC., *B. penaea* (L.) DC., *B. portoricensis* Britton, *P. chamaebuxus* L., *P. domingensis* Jacq., *P. portoricensis* (Britton) Blake	buis bénit, petit buis (H); crevajosa, guayacancillo, jaboncillo, quiebrahacha (RD)

POLYGONACEAE

SPECIES	SYNONYMS	COMMON NAMES
Coccoloba albicans Ekm. Endemic to Haiti		
Coccoloba buchii Schmidt. Endemic to Hispaniola	*C. ciferriana* Ekm., *C. revoluta* Leon., *C. tortuensis* Ekm. & Schm.	papelite (H)
Coccoloba ceibensis Schmidt. Endemic to Hispaniola		
Coccoloba costata Wr. ex Sauv.	*C. eggersiana* Lind., *C. helwigii* Schmidt., *C. rupicola* Urb., *C. samuelssonii* Ekm. & Schm., *C. verruculosa* Lind.	raisinier (H); guayaba de mulo (RD); uvilla (PR)
Coccoloba diversifolia Jacq.	*C. laurifolia* Lind., not Jacq.	maivisse, petit raisin ordinaire, raisin bouzin, raisinier, raisinier marron, zamon marron (H); guayabón, uva cimarrona, uva de sierra, uvero, uvilla, uvilla de sierra (RD)
Coccoloba fawcetti Schmidt Endemic to Hispaniola		
Coccoloba flavescens Jacq. Endemic to Hispaniola	*C. pungens* Urb.	
Coccoloba fuertesii Urb. Endemic to Hispaniola		
Coccoloba hotteana Schmidt Endemic to Hispaniola		
Coccoloba incrassata Urb. Endemic to Hispaniola	*C. mansfeldii* Schm.	
Coccoloba krugii Lindau	*C. borgensenii* Schm.	wild grape (PR); bow pigeon, crabwood (B)
Coccoloba leoganensis Jacq. Endemic to Haiti	*C. rotundifolia* Meisn.	uvero, uvilla (RD)
Coccoloba leonardii Howard		
Coccoloba microstachys Willd.		negra loca, uverillo, uvillo (PR)
Coccoloba nodosa Lindau Endemic to Hispaniola		
Coccoloba pauciflora Urb. Endemic to Hispaniola	*C. fulgens* Leon., *C. mornicola* Urb., *C. nalgensis* Schm., *C. neurophylla* Urb.	
Coccoloba picardae Urb. Endemic to Hispaniola		
Coccoloba pubescens L.	*C. grandifolia* Jacq., *C rubescens* L.	gamelle, magne la mer, raisin grandes feuilles (H); hojancha, oreja de burro (RD); grand leaf, moralón, sea grape (PR); bois rouge (G, M)

POLYGONACEAE

SPECIES	SYNONYMS	COMMON NAMES
Coccoloba samanensis Schm. Endemic to Hispaniola		
Coccoloba swartzii Meisn.		uvillón (C); ortegón, uvilla (PR); tie tongue (B)
Coccoloba uvifera (L.) L. (naturally hybridizes with other *Coccoloba* spp.)	*Guaiabara uvifera* House, *Polygonum uvifera* L.	guaiabara, raisin bord de mer, raisin de fer, raisin de la mer (H); uva de mar, uvero de playa (RD); uva caleta (C, RD); uvero (C, PR); uva de playa (RD, PR); uvas, sea grape (PR)
Coccoloba venosa L.	*C. nivea* Jacq.	guarapo (RD); calambreña, chicory grape (PR)
Coccoloba wrightii Lindau	*C. scrobiculata* Lind., *C. subtruncata* Urb.	chicharroncito (RD)
Leptogonum buchii Urb. Endemic to Hispaniola		
Leptogonum domingense Benth. Endemic to Hispaniola		
Leptogonum molle Urb. Endemic to Hispaniola		

PROTEACEAE

SPECIES	SYNONYMS	COMMON NAMES
Grevillea robusta A. Cunn. ex R. Br.	*G. peineta, G. umbratica* A. Cunn. ex Meissner	chêne d'Australie (H); grevilea (C, H); helecho (RD); agravilla, roble plateado (C); roble de seda (C, PR); roble australiano, silk oak, silver oak (PR)

PUNICACEAE

SPECIES	SYNONYMS	COMMON NAMES
Punica granatum L.		grenade, grenadier, pomme grenade (H); granadillo, pomogranado (RD); granada (C, RD, PR); granado (C, RD); granada agria, granado enano (C); pomegranate (H, PR)

RHAMNACEAE

SPECIES	SYNONYMS	COMMON NAMES
Colubrina arborescens (Mill.) Sarg.	*Ceanothus arborescens* Mill., *Colubrina colubrina* Millsp., *C. ferruginosa* Brongn., *Rhamnus colubrinus* Jacq.	bois de fer, bois fer blanc, bois mabi, bois pelé, bois pite, capable, gris-gris, poivrier, rougeole (H); candelón, corazón de paloma, cuerno de buey, palo amargo, trejo (RD); bijáguara, birijagua, fuego (C); abejuelo, achiotillo, aguacatillo, catire, greenheart, guitarán, mabi, ratón, sanguinaria, snake-bark, soap tree (PR); black velvet, mountain ebony, shake-wood, wild ebony (J)
Colubrina berteroana Urb. Endemic to Hispaniola		palo amargo (RD)
Colubrina elliptica (Sw.) Briz. & Stern	*Ceanothus reclinatus* L'Hér., *Colubrina reclinata* (L'Hér.) Brongn., *Rhamnus ellipticus* Sw.	bois de fer, bois mabi, mabi (H); corazón de paloma (RD); mabí (RD, PR); palo amargo (C, RD); carbonero, carbonero de costa, jayajabito (C); catire, guitarán, mabí, naked wood, smooth snake-bark, soldier wood (PR)

RHAMNACEAE

SPECIES	SYNONYMS	COMMON NAMES
Colubrina glandulosa var. *antillana* (M. C. Johnst.) M. C. Johnst.	*C. rufa* var. *antillana* M. C. Johnst.	bois zed, bois zet (H)
Karwinskia caloneura Urb. Endemic to Hispaniola		
Krugiodendron ferreum (Vahl) Urb.	*Rhamnus ferreus* Vahl, *Ziziphus emarginata* Sw.	bois de fer (H); boafierro, ciguamo, guafierro, hoja ancha, palo de hierro, quiebrahacha (RD); bariaco, black ironwood (PR)
Reynosia affinis Urb. & Ekm. Endemic to Hispaniola		vinuette (H)
Reynosia cuneifolia Urb. & Ekm. Endemic to Hispaniola		
Reynosia domingensis Urb. Endemic to Hispaniola		
Reynosia regia Urb. & Ekm. Endemic to Hispaniola		quiebrahacha (RD)
Reynosia uncinata Urb.		bois d'ébène, bois fer marron, brillol, galle-galle, grati-galle (H); casca hueso, palo tabaco (RD); darling plum, red ironwood (US)
Rhamnus sphaerosperma Sw.		West Indian buckthorn (J, PR, US)
Ziziphus crenata (Urb.) M. C. Johnston Endemic to Haiti	*Sarcomphalus crenatus* Urb.	
Ziziphus havanensis HBK.	*Sarcomphalus havanensis* Griseb.	
Ziziphus mauritiana Lam.	*Rhamnus jujuba* L., *Z. jujuba* (L.) Lam., *Z. jujuba* (L.) Gaertner, *Z. orthacantha* DC., *Z. tomentosa* Poir., *Z. vulgaris* L.	jujube, jujubier, jujubier commun, liane croc-chien, petite pomme, pomme mal carduc, pomme malcardi (H); perita haitiana, ponseré (RD)
Ziziphus reticulata (Vahl) DC.	*Paliurus reticulatus* Vahl, *Sarcomphalus reticulatus* (Vahl) Urb.	coque molle (H); saona, saona cimarrona, saona de puerco, sapaijo (RD); cascarroya (PR)
Ziziphus rhodoxylon Urb.		bois de rose, casse hache, crève à hache (H); hojancha, hojancha prieta, pancho prieto, parco prieto, quiebrahacha, yagua (RD)
Ziziphus rignonii Delp.	*Cassine domingensis* Spreng., *Sarcomphalus domingensis* Krug & Urb.	citroin marron, cogne-molle, coque molle, macarbie, zoraille (H); palpaguano, saona, saona de gente, saona dulce, sopaipo, yagua (RD)
Ziziphus urbanii M. C. Johnst.	*Sarcomphalus parvifolius* Urb. & Ekm.	

RHIZOPHORACEAE

SPECIES	SYNONYMS	COMMON NAMES
Cassipourea guianensis Aubl.	*C. alba* Griseb., *C. cubensis* Urb., *C. elliptica* (Sw.) Poir., *Leonotis elliptica* Sw.	palo Robinson (RD); murta, palo de gongolí, palo de orejas, palo de toro (PR); cuco (C); bois de l'ail (G, M)
Cassipourea obtusa Urb.		palo Robinson, parrilla (RD)

RHIZOPHORACEAE

SPECIES	SYNONYMS	COMMON NAMES
Rhizophora mangle L.	*R. mangle* var. *samoensis* Hochr., *R. samoensis* (Hochr.) Salvoza	manglier, manglier chandelle, manglier noir, manglier rouge (H); mangle (RD, PR); mangle colorado, mangle rojo (C, RD, PR); mangle de chifle, mangle zapatero (PR); mangrove, red mangrove (J, PR)

ROSACEAE

SPECIES	SYNONYMS	COMMON NAMES
Eriobotrya japonica (Thunb.) Lindl.	*Mespilus japonica* Thunb., *Photinia japonica* (Thunb.) Franchet & Savat.	loquat (H, English); níspero del Japón (Spanish)
Prunus americana Marsh.		prunier (H, French); American plum (English)
Prunus domestica L. subsp. *domestica*		prunier (H, French); ciruelo (Spanish); common plum, European plum, prune plum (English)
Prunus myrtifolia (L.) Urb.	*Celastrus myrtifolius* L., *Cerasus sphaerocarpus* Loisel., *Laurocerasus myrtifolia* (L.) Britt., *L. sphaerocarpa* (Sw.) Roem., *P. sphaerocarpus* Sw.	amandier à petites feuilles, mandit, mongier (H); almendrito, membrillito, membrillo, palo de hacha (RD); almendrillo (C, PR); cuajaní hembra (C)
Prunus occidentalis Sw.	*Cerasus occidentalis* Loisel., *Laurocerasus occidentalis* M. Roem.	amandier, amandier à grandes feuilles (H); almendrito, calla, cucaracha, membrillo, yaya boba (RD); almendro (C, RD); cuajaní (C); almendrillo (RD, PR); almendrón, West Indian laurel cherry (PR); pruan, prune tree (J)
Prunus persica (L.) Batsch. var. *persica*		pêche, pêcher (H, French); melocotón (Spanish); peach (English)
Pyrus communis L.		poirier (H, French); pera (Spanish); pear (English)

RUBIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Antirhea lucida (Sw.) Benth. & Hook. f.	*Laugeria lucida* Sw., *Stenostomum lucidum* (Sw.) Gaertn. f.	avocat marron, bois patate (H); aguacatillo, palo de cuello, palo de gallina (RD); almorrana, llorón, raizú (C); palo llorón (PR)
Chiococca alba (L.) Hitchc.		croc souris, quimaque (H); bejuco de barraco, bejuco timaque, timaque (RD); bejuco de verraco, cainco (C); bejuco de berac, West Indian snow-berry (PR)
Chione seminervis Urb. & Ekm.		
Chione venosa (Sw.) Urb.		martín avila, palo blanco, santa olalla (PR)
Coffea arabica L.		café (French, Spanish); caféier (French); cafeto (RD); coffee (English)
Erithalis fruticosa L.		cuaba prieta, rompe machete, víbona (C); jayajabico (C, PR); black torch, tea, teíllo (PR); bois d'huile bord de mer (G, M)

RUBIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Exostema caribaeum (Jacq.) Roem. & Schult.	*Chinchona caribae* Jacq.	chandelle anglaise, quinine, quinine des Antilles, quinquina des Caraïbes, quinquina pays (H); piñí-piñí, quina criolla, quino (RD); cerillo, lirio santana, macagua de costa (C); alborillo, palo de quina, prince wood, West Indian quinine bark, yellow torch (PR)
Exostema cf. *elegans* Krug & Urb.		
Exostema ellipticum Griseb.		lirio bobo, guina criolla, piñi-piñi (RD); plateado (C, PR); cayateje, chinchona, lirio santana, vigueta (C)
Exostema sanctae-luciae (Kentish) Britten	*E. floribundum* (Sw.) Roem. & Schult.	guina criolla, piñi-piñi (RD); bois tabac, quina-piton, quinquina caraïbe (M)
Faramea occidentalis (L.) A. Rich.	*F. odoratissima* DC.	cafetillo (RD); cafeíllo, false coffee (PR); café cimarrón, júcaro, jújano, nabaco (C); wild coffee (J)
Genipa americana L. var. *caruto* (Kunth.) Schumann	*Gardenia genipa* Sw., *Genipa americana* L., *G. caruto* Kunth., *G. pubescens* DC.	gêne-pas, génipayer (H); genipa, jagua (RD); genipap tree, genipot, marmelade-box genipe (PR)
Guettarda elliptica Sw.		cigüilla, cuero de sabana (C); cucubano liso, velvetseed (PR)
Guettarda multinervis Urb.		calle noire (H); guayabón (RD); blackberry, palo de cucubano, velvet berry (PR)
Guettarda ovalifolia Urb.		cucubano (PR)
Guettarda pungens Urb.		encinillo, palo de cruz, yaya (RD); roseta (PR)
Guettarda valenzuelana A. Rich.	*G. laevis* Urb.	cucubano de monte (PR); hueso, icaquillo, naranjito, vigueta (C)
Hamelia patens Jacq.	*H. erecta* Jacq.	corail, corail rouge, fleur corail (H); buzunuco, buzunuvo, desyerba conuco (RD); coralillo, palo coral, ponasí (C); bálsamo, scarletbush (PR)
Hamelia ventricosa Sw.		
Ixora ferrea (Jacq.) Benth.		dajao (RD); cafeíllo, palo de dajao, palo de hierro (PR); café cimarrón, cafetillo (C)
Morinda citrifolia L.	*M. macrophylla* Desf.	bois douleur, douleur, fromagier (H); bagá, coca, manzanilla, nigua, piña de puerto (RD); mora de la India (C); gardenia, hedionda, morinda, noni, painkiller (PR)
Neolaugeria resinosa (Vahl) Nicolson	*Antirhea resinosa* (Vahl) Cook & Collins, *Laugeria densiflora* (Griseb.) Hitchc., *L. resinosa* Vahl, *Stenostomum densiflorum* Griseb., *Terebraria resinosa* (Vahl) Sprague	aquilón (PR)
Palicourea alpina (Sw.) DC.		cafetán, cenizoso cimarrón, tafetán (RD); tapa camino (C)
Palicourea barbinervia DC.		ahoguey blanco (RD); tafetán (PR, RD); bálsamo real, showy palicourea (PR)
Palicourea crocea (Sw.) Roem. & Schult.	*P. brevithyrsa* Britton & Standl.	ponasí, tapa camino (C); cachimbo, red palicourea (PR); bois cabrit, bois de l'encore, bois fou-fou (M)
Palicourea domingensis (Jacq.) DC.		taburete (C)
Psychotria alpestris Urb. & Ekm. Endemic to Massif de la Hotte		

RUBIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Psychotria berteriana DC.		bois cabrit (H); cafetán, escobón (RD); cachimbo común (PR)
Psychotria fuertesii Urb. Endemic to southern Hispaniola		
Psychotria grandis Sw.		tapa camino (C); cachimbo grande, palo moro, wild coffee (PR)
Psychotria nutans Sw.		bois laitelle (H); brilloso, cabra blanca, cabra santa, café cimarrón, penda (RD); cachimbo de mona (PR)
Randia aculeata L.	*R. aculeata* var. *mitis* (L.) Griseb., *R. mitis* L.	croc-à-chien (H); ramo de navidad, resuelesuele (RD); box-briar, tintillo (PR); agalla de costa, café cimarrón (C)
Randia erythrocarpa Krug & Urb.		bois sadine (H); azota criollo (RD); box-briar, cambrón, dogwood, ink berry, tintillo (PR)
Rondeletia carnea Urb. & Ekm. Endemic to Massif de la Selle		
Rondeletia christii Urb.	?*R. selleana* Urb.	
Rondeletia formonia Urb. & Ekm. Endemic to Massif de la Hotte		
Stevensia hotteana Urb. & Ekm. Endemic to Massif de la Hotte		
Strumpfia maritima L.	*S. maritima* Jacq.	lirio (PR); faux romarin (G)

NB: Judd (1987) describes an additional 5 shrub species of the following genera that might be considered small trees *sensu* Little and Wadsworth (1964): *Exostema* (1), *Psychotria* (3), and *Rondeletia* (1). These species are not listed.

RUTACEAE

SPECIES	SYNONYMS	COMMON NAMES
Amyris apiculata Urb. & Ekm. Endemic to southwestern Haiti		
Amyris balsamifera L.	*A. sylvatica* Jacq., *Elemifera balsamifera* O. Ktze.	bois chandelle (H); guaconejo (RD); cuaba, cuaba blanca (C); balsam amyris, teflla (PR); candlewood, torchwood (J); rosewood (J, PR)
Amyris diatrypa Spreng.		bois chandelle (H); guaconejillo, guaconejo (RD); candlewood (PR)
Amyris elemifera L.	*A. maritima* Jacq., *Elemifera maritima* O. Ktze.	bois chandelle, chandelle blanc, chandelle marron, trois paroles (H); guaconejo, palo de tea (RD)
Amyris plumieri DC.		
Casimora edulis Llave ex Lex	*Fagara bombacifolia* Krug & Urb., *Zanthoxylum bombacifolium* A. Rich.	pera, pera criolla, pera mexicana (RD); mango tarango, sapote blanco, sapote blanco de México (C)
Citrus aurantifolia (Christm.) Swingle	*C. acida* Roxb., *C. lima* Lun., *Limonia aurantifolia* Christm.	citron, citron vert, citronnier (H); citrón, lima, lima boba, limón agrio (RD); key lime, Persian lime, West Indian lime (PR)
Citrus aurantium L. subsp. *aurantium*	*Aurantium acre* Mill., *C. bigarradia* Loisel., *C. vulgaris* Risso	orange amer, orange sûre (H, G, M); naranja de babor (RD); naranja agria (C, RD, PR); sour orange (PR); bigarade orange, bitter orange (J)
Citrus limetta Risso		calmouc (H); lima, limasa (RD); limón dulce (RD, PR); lime (G, PR)

RUTACEAE

SPECIES	SYNONYMS	COMMON NAMES
Citrus limon (L.) Burm.	*C. limonum* Risso, *C. peretta domingensis* Tuss., *Limon vulgaris* Mill.	citronnier, limon france (H); limón, limón agrio (C, RD, PR); limón persa (C); lemon, limón de cabro (PR)
Citrus maxima (J. Burm.) Merr.	*C. aurantium* var. *grandis* L., *C. decumana* L., *C. grandis* (L.) Osbeck	chadèque (H); pomelo, toronja, toronja de la India (RD); pummelo, shaddock (PR)
Citrus medica L.		citron, citronnier (H); cidra, toronja (RD)
Citrus reticulata Blanco	*C. deliciosa* Ten., *C. nobilis* Andr. not Lour.	mandarine (H); naranja mandarina (C, RD, PR); mandarine orange, tangerine (PR)
Citrus sinensis (L.) Osbeck	*Aurantium sinensis* Mill., *C. aurantium* var. *sinensis* L.	orange douce (H); naranja de China, naranja dulce (C, RD, PR); sweet orange (J, PR)
Citrus x *paradisi* Macf.	*C. maxima* var. *uvacarpa* Merr., *C. maxima* x *C. sinensis*	pamplemousse (H); grapefruit (PR)
Fortunella japonica (Thunb.) Swingle	*Citrus japonica* Thunb.	kumquat redondo (RD); kumquat (US)
Fortunella margarita (Lour.) Swingle	*Citrus margarita* Lour.	kumquat oval (RD); kumquat (US)
Murraya paniculata (L.) Jack	*Chalcas exotica* (L.) Millsp., *C. paniculata* L., *Murraea exotica* L.	bun, myrte (H); buis (G, H, M); azahar, azahar de jardín (RD); boj de Persia, jazmín de Persia, muralla, murallera (C); mirto (C, PR); orange jessemine (PR); China-box, mock orange (J)
Pilocarpus racemosus Vahl	*Raputia heterophylla* Griseb.	aceitillo (PR); bois blanc, flambeau caraïbe (G); flaboir noir, flambeau (M)
Zanthoxylum anadenium (Urb. & Ekm.) Jiménez Endemic to Hispaniola	*Fagara anadenia* Urb. & Ekm.	
Zanthoxylum bifoliolatum Leonard	*Fagara bifoliolata* Urb.	
Zanthoxylum coriaceum A. Rich.	*Fagara coriacea* Krug & Urb.	
Zanthoxylum elephantiasis Macf.	*Fagara elephantiasis* Krug & Urb., *Z. aromaticum* DC.	piné, piné jaune, pinit, pinit jaune (H); ayúa, pino macho (RD); ayúa amarilla, ayúa varía, bayúa (C)
Zanthoxylum fagara (L.) Sarg.	*Fagara fagara* Small., *F. lentiscifolia* HBK., *F. pterota* L., *Schinus fagara* L., *Z. pterota* HBK.	piné jaune (H); alba, pino rubial, uña de gato (RD); amoroso, aruña gato, chivo, limoncillo, tomeguín, zarza de tomeguín (C)
Zanthoxylum flavum Vahl	*Fagara flavum* Krug & Urb.	espinille, espinillo, misimieu, musimieu (RD); aceitillo (C, PR); yellow sanders (PR)
Zanthoxylum lenticellosum (Urb. & Ekm.) Jiménez Endemic to Hispaniola	*Fagara lenticellosa* Urb. & Ekm.	
Zanthoxylum leonardii (Urb.) Jiménez Endemic to Hispaniola	*Fagara leonardii* Urb.	
Zanthoxylum martinicense (Lam.) DC.	*Fagara martinicense* Lam., *Z. juglandifolium* Willd., *Z. lanceolatum* Poir.	bois épineux, bois peine, bois piné, bois piné blanc, bois pini (H); espino, pino, pino de teta, pino macho, pino rubial (RD); ayúa (C, PR); ayúa amarilla, ayúa macho, ayuda (C); prickly yellow, yellow hercules (J)
Zanthoxylum monophyllum (Lam.) P. Wils.	*Fagara monophylla* Lam., *Z. ochroleucum* DC., *Z. simplicifolium* Vahl	pino, pino de teta, pino macho (RD); enrubio, espino rubial, palo rubrio, yellow prickly ash (PR); bois noyer, lépiné jaune (G, M)

RUTACEAE

SPECIES	SYNONYMS	COMMON NAMES
Zanthoxylum nashii P. Wils. Endemic to Hispaniola	*Fagara nashii* Urb.	
Zanthoxylum obcordatum (Urb. & Ekm.) Jiménez Endemic to Hispaniola	*Fagara obcordata* Urb.	
Zanthoxylum pimpinelloides (Lam.) DC. Endemic to Hispaniola	*Fagara pimpinelloides* Lam.	feuilles baie (H)
Zanthoxylum punctatum Vahl	*Fagara trifoliata* Sw., *Tobinia ternata* Hamilt., *Z. ternatum* Sw., *Z. trifoliatum* Krug & Urb., not L.	alfiler (PR); toothache tree (J); bois d'Inde marron, bois flambeau, épineux rouge (G); bois flambeau noir l'épineux (M)
Zanthoxylum spinifex (Jacq.) DC.	*Fagara microphylla* Desf., *F. spinifex* Jacq., *Z. microphyllum* Desf.	bois campêche (H); uña de gato (RD)
Zanthoxylum venosum Leonard Endemic to Hispaniola	*Fagara venosum* Urb.	

SABIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Meliosma abbreviata Urb. Endemic to Massif de la Hotte		coma, coma jaune (H)
Meliosma herbertii Rolfe		cacao cimarrón, palo de caya prieto (RD); aguacatillo, arroyo, cacaillo (PR); cacao bobo (PR, RD); bois violet, graines vertes, graines violettes (G)
Meliosma impressa Krug & Urb. Endemic to Hispaniola		gounelle (H); cacao bobo, chicharrón bobo (RD); aguacatillo, algarrobo, arroyo, serillo (PR)
Meliosma recurvata Urb. Endemic to Massif de la Hotte		chicharrón, chicharrón bobo, palo de hacha (RD)

SAPINDACEAE

SPECIES	SYNONYMS	COMMON NAMES
Allophylus cominia (L.) Sw.	*Rhus cominia* L.	café marron, trois feuilles, trois paroles (H); parida, rompe caldero, tres palabras (RD); palo de caja (C, RD); caja, caja común (C)
Allophylus crassinervis Radlk.		amansa protranca (RD); palo blanco (PR)
Allophylus domingensis Alain Endemic to Hispaniola		
Allophylus haitiensis Radlk. & Ekm. Endemic to Haiti		
Allophylus montanus Alain Endemic to Hispaniola		
Allophylus occidentalis (Sw.) Radlk.	*A. racemosus* Sw., not L., *Schmidelia occidentalis* Sw.	trois feuilles, trois paroles (H); café jaune, petit café (H, G, M); cucharita prieta, palo de caja, parida, rompe caldero, tres palabras (RD); palo blanco, quiebrahacha (PR)
Allophylus rigidus Sw. Endemic to Hispaniola		bois nègre, chic-chic (H)

SAPINDACEAE

SPECIES	SYNONYMS	COMMON NAMES
Blighia sapida Koenig	*Akea solitaria* Stokes, *Akeesia africana* Tuss., *Cupania sapida* Voigt.	aki, arbre-à-fricasser (H); arbol del seso (RD); akee (PR); seso vegetal (PR, RD)
Cupania americana L.	*C. saponiarioides, C. tomentosa* Sw.	bois de satanier, chatague, châtaignier, satanier, satanju, trois côtes (H); guanara, guanarita, guara, guárana (C, RD, PR); candlewood tree (PR); loblolly tree (J)
Cupania glabra Sw.		guárana (RD)
Cupania triquetra A. Rich.		guara, guara blanca (PR)
Dodonaea viscosa (L.) Jacq. var. *arborescens* (Cunn.) Sherff	*D. asplenifolia* var. *arborescens* J. D. Hook, *D. ehrenbergii* Schlecht., *D. spathulata* Smith, *D. viscosa* var. *spathulata* Benth.	manglier petites feuilles, pativier (H); cucaracha, granadillo, palo de reina, palo del rey (RD); dodónea (C); chamiso, dogwood, guitarán, quitarán (PR); switch sorrel (J)
Dodonaea viscosa (L.) Jacq. var. *linearis* (Harv. & Sond.) Sherff	*D. angustifolia* L. f., *D. jamaicensis* DC., *D. thunbergiana* var. *linearis* Harv. & Sond., *D. viscosa* var. *angustifolia* Benth.	manglier petites feuilles, pativier (H); cucaracha, granadillo, palo de reina, palo del rey (RD)
Dodonaea viscosa (L.) Jacq. var. *viscosa*	*D. viscosa* var. *vulgaris* Benth., *Ptelea viscosa* L.	manglier petites feuilles, pativier (H); cucaracha, granadillo, palo de reina, palo del rey (RD)
Exothea paniculata (Juss.) Radlk.	*E. oblongifolia* Macf., *Hypelate paniculata* Camb., *Melicocca paniculata* Juss.	bois couleuvre, bois mûlet, quenepier marron (H); cuerno de buey, nisperillo (RD); guamacá, yaicuaje (C); butterbough, gaita (PR); inkwood (US)
Hypelate trifoliata Sw.	*Amyris hypelate, A. ?robinsonii* DC.	chandelle marron, gallipeau (H); granadillo (RD); cuaba de ingenio, hueso de costa, raspadura, vera (C); inkwood, melocha (PR)
Litchi chinensis Sonn.		litchi, quenèpe chinois, quenepier chinois (H); leché (RD)
Matayba apetala (Macf.) Radlk.	*Cupania apetala* Macf., *C. oppositifolia* A. Rich., *M. oppositifolia* Britt., *Ratonia apetala* Griseb.	bois de graines, bois de graines noirs (H); macurije (C); doncella (PR)
Matayba domingensis (DC.) Radlk.	*Cupania ratonia* Camb., *Ratonia domingensis* DC., *R. spathulata* Griseb.	bois de graines, bois de graines noirs (H); guara, ratón (RD); caraicillo, macurije (C); doncella, negra lora, tea cimarrona (PR)
Matayba scrobiculata (HBK.) Radlk.	*Cupania scrobiculata* HBK., *M. denticulata* Radlk.	châtaignier, châtaignier marron, satanier, satanier marron (H); guara, guárana (RD)
Melicoccus bijugatus Jacq.	*Melicocca bijuga* L., *Schinus melicoccus* L.	quenèpe, quenèpe-à-fruits, quenepier, quenepier mâle (H); canapé, limoncillo, quenepo (RD); quenepa (PR, RD); mamoncillo (C); genip tree, genipe, guenepa, Spanish lime (PR); wing-leaved honey berry (J)
Sapindus saponaria L.	*S. inaequalis* DC., *S. stenopterus* DC.	arbre-à-savon, bois savonnette pays, canique, graines canique, grenaillit, mombin bâtard, pomme de savon, savonnette, savonnette pays, savonier (H); cerote, chorote, mate de chivo, palo amargo, palo de jabón (RD); jaboncillo (C, RD, PR); soapberry (J)
Talisia jimenezii Alain Endemic to Hispaniola		cotoperí (RD)

SAPINDACEAE

SPECIES	SYNONYMS	COMMON NAMES
Thouinia domingensis Urb. & Radlk. var. *deflexa* (Radlk.) Votava ex Alain Endemic to Hispaniola	*T. deflexa* Radlk., *T. revoluta* Radlk.	
Thouinia domingensis Urb. & Radlk. var. *domingensis* Endemic to Hispaniola	*Leonardia haitiensis* Urb.	
Thouinia milleri Leonard Endemic to Hispaniola	*T. inaequalis* Radlk., *T. multinervis* Radlk.	
Thouinia racemosa Radlk. Endemic to Hispaniola	*T. scoparia* Radlk., *T. spicata* Radlk.	bois couré (H)
Thouinia trifoliata Poit.	*Thyana trifoliata* Ham., *Vargasia glabra* Bert.	bois couré, bois la fièvre, bois poivre (H); chicharrón, cuchara, cucharita, paría, parida (RD)
Thouinidium inaequilaterum Alain Endemic to Hispaniola		
Thouinidium pinnatum (Turpin) Radlk. Endemic to Hispaniola	*Thouinia pinnata* Turpin	gros peau (H); palo blanco (RD)
Thouinidium pulverulentum (Griseb.) Radlk.	*Thouinia pulverulenta* Griseb.	bois brulé (H)

SAPOTACEAE

SPECIES	SYNONYMS	COMMON NAMES
Bumelia cubensis Griseb.	*Dipholis angustifolia* Urb., *D. cubensis* (Griseb.) Pierre & Urb., *D. domingensis* Pierre & Urb.	bois d'Inde, tiquimite (H); caya de loma, jaiquí, yaití (RD); espejuelo (PR); cuyá (C)
Bumelia dominicana Whetstone & Atkinson Endemic to Hispaniola	*B. ferruginea* Stearn, not Nutt., *Dipholis ferruginea* Ekm. & Schm.	
Bumelia integra Cron. Endemic to Hispaniola	*Dipholis anomala* Urb. [not *B. anomala* Clark]	
Bumelia obovata (Lam.) A. DC. var. *obovata*	*B. heterophylla* Urb., *B. parvifolia* A. DC., *Sideroxylon obovatum* Lam.	araña gato, lechecillo, quiebrahacha (PR); breakbill (VI)
Bumelia salicifolia (L.) Sw.	*Achras salicifolia* L., *B. pentagona* Sw., ?*Dipholis leptopoda* Urb., *Dipholis salicifolia* (L.) A. DC.	acomât marron, acomât rouge, m'panache, sapotille marron, sapotillier marron, sip (H); caya colorada (RD); sanguinaria, wild mespel, willow bustic (PR); almendrillo, cuyá (C)
Bumelia sericea (Cronq.) Stearn Endemic to Hispaniola	*Dipholis sericea* Cronq.	
Chrysophyllum angustifolium Lam.	*C. montanum* Urb.	caimito cimarrón (RD)
Chrysophyllum argenteum Jacq.	*C. argenteum* var. *sphaerocarpum* Urb., *C. caeruleum* Jacq., *C. glabrum* Jacq.	petit caïmite (H); caimitillo, caimito blanco cimarrón, caimito cocuyo, carabana, yaya (RD); macanabo (C); caimito verde, lechecillo (PR)
Chrysophyllum bicolor Poir.	*C. eggersii* Pierre, *Cynodendron bicolor* (Poir.) Baehni	caimito cimarrón (PR, RD); caimitillo, lechecillo, wild cainit (PR)
Chrysophyllum cainito L.	*Cainito pomiferum* Tuss., *Lucuma cainito* L.	bon caïmite, caïmite, caïmite des jardins, caïmite franche, caïmitier, caïmitier à feuilles d'or, grande caïmite (H); caimito (PR, RD); star-apple (PR)

SAPOTACEAE

SPECIES	SYNONYMS	COMMON NAMES
Chrysophyllum oliviforme L. var. *oliviforme*	*C. acuminatum* Lam., *C. gonavense* Urb., *C. miragoaneum* Urb., *C. oliviforme* Lam., *C. pallescens* Urb., *C. platyphyllum* Urb.	caïmite, caïmite marron, caïmite sauvage, caïmitier ferrugineux, caïmitier marron, caïmitier olivaire (H); caimito cocuyo, caimito de perro (RD); caimitillo, caimito cimarrón (C, RD); caimito, macanabo (C); caimitillo de perro (PR); satinleaf (J, PR)
Chrysophyllum oliviforme L. var. *picardae* (Urb.) Cronq. Endemic to Hispaniola	*C. brachystylum* Urb., *C. heterochroum* Urb., *C. picardae* Urb.	
Manilkara albescens (Griseb.) Cronq.	*Bassia albescens* Griseb., *Mimusops albescens* (Griseb.) Hartog, *Murianthe albescens* Aubrév., *Muriea albescens* Hartog ex Baill., *M. eyerdamii* Gilly	bois huile, sapotille marron (H); ausubo, balatá (RD); nisperillo (PR, RD); acana, acana blanca (C)
Manilkara bidentata (A. DC.) Chev.	*M. balata* auth., *M. nitida* (Sessé & Moc.) Dubard, *M. riedleana* (Pierre) Dubard, *Mimusops balata* var. *domingensis* Pierre, *M. bidentata* A. DC., *M. domingensis* Moscoso, *M. domingensis* (Pierre) Huber., *M. riedleana* Pierre, *M. sieberi* A. DC.	sapotille, sapotille noir (H); acana, balatá, sapotillo (RD); ausuba, balata (PR); bois noir, sapotillier marron, sapotillier noir (G); balate (G, M)
Manilkara gonavensis (Urb. & Ekm.) Gilly ex Cronq. Endemic to Hispaniola	*Mimusops ?gonavensis* Urb. & Ekm.	sapotille marron (H)
Manilkara jaimiqui (C. Wright) Dubard ssp. *haitensis* (Cronq.) Cronq. Endemic to Hispaniola	*M. emarginata* ssp. *haitensis* Cronq.	jaiqui, jamiquí, nisperillo, nisperillo de hoja finas (RD)
Manilkara zapota (L.) P. v. Royen	*Achras zapota* L., *A. zapota* L. var. *zapotilla* Jacq., *A. zapotilla* Nutt., *M. achras* (Miller) Fosberg, *M. zapotilla* (Jacq.) Gilly, *Sapota achras* Mill.	sapotille, sapotillier, sapotillier commun (H); nisperillo (RD); níspero (RD, PR); sapodilla (PR, US); sapote (C); common naseberry, naseberry (J)
Mastichodendron foetidissimum (Jacq.) Cronq. ssp. *foetidissimum*	*M. foetidissimum* (Jacq.) H. J. Lam., *Sideroxylon domingense* Urb., *S. foetidissimum* Jacq., *S. mastichodendron* Jacq., *S. portoricense* Urb.	acomât, coma, coma blanc, coma franc (H); caya amarilla, caya blanca, caya prieta, goma (RD); tortugo amarillo, tortugo colorado, false mastic (PR); caguiní, jocuma, jocuma amarilla, jocuma blanca, jocuma lechera (C); mastic-bully (J, PR)
Micropholis polita (Griseb.) Pierre ssp. *hotteana* Judd Endemic to Massif de la Hotte		sapotille (H)
Pouteria dictyoneura (Griseb.) Radlk. ssp. *fuertesii* (Urb.) Cronq.	*Paralabatia fuertesii* Urb., *P. portoricensis* Britton & Wilson, *Pouteria dictyoneura* var. *fuertesii* Baehni	caracolet (H); caracol, cuero de puerco, tomasina (RD); cocuyo, sapote culebra de costa (C)
Pouteria domingensis (Gaertn. f.) Baehni var. *cuprea* (Urb. & Ekm.) Cronq. Endemic to Hispaniola	*Lucuma cuprea* Urb. & Ekm., *P. domingensis* f. *cuprea* Baehni [Some authors spell *P. dominigensis*.]	genièvre, jaune d'oeuf, toti marron (H); totuma (RD)
Pouteria domingensis (Gaertn. f.) Baehni var. *domingensis*	*Lucuma domingensis* Gaertn. f., *L. pauciflora* A. DC., *L. serpentaria* HBK. [Some authors spell *P. dominigensis* var. *dominigensis*]	genièvre, jaune d'oeuf, toti marron (H); locuma, tocuma, totuma (RD); acana, jácana (PR); egg fruit (B)
Pouteria hotteana (Urb. & Ekm.) Baehni	*Labatia? hotteana* Urb. & Ekm.	

SAPOTACEAE

SPECIES	SYNONYMS	COMMON NAMES
Pouteria multiflora (A. DC.) Eyma	*Lucuma multiflora* A. DC.	jácana (PR); bully tree (J)
Pouteria sapota (Jacq.) H. E. Moore & Stearn	*Acharadelpha mammosa* Cook, *Achras mammosa* L., *Calocarpum mammosum* (L.) Pierre, *C. sapota* (Jacq.) Merrill, *Lucuma mammosa* (L.) Gaertn. f., *P. mammosa* (L.) Cronq., *Sideroxylon sapota* Jacq.	grand sapotillier, sapotier, sapotier jaune d'oeuf, sapotillier marmelade (H); sapote (C, G, H, M, PR, RD); mamey colorado (C); mamey sapote (C, PR); mamey rojo, red mammee, red zapotee (PR); mammee sapota, marmelade plum (J); sapotille mamey (G, M)
Pouteria sessiliflora (Sw.) Poir. Endemic to Hispaniola	*Labatia sessiliflora* Sw.	

SIMAROUBACEAE (including PICRAMNIACEAE)

SPECIES	SYNONYMS	COMMON NAMES
Alvaradoa haitiensis Urb. Endemic to Hispaniola		abbé marron, petit abbé (H)
Castella depressa Turp. Endemic to Hispaniola	*Neocastela depressa* Small.	
Picramnia antidesma Sw.		aguedita (RD); brasilete bastardo, brasilete falso (C); macard bitter, mahoe bitter, Tom Bartein's bush (J)
Picramnia dictyoneura (Urb.) Urb. & Ekm. Endemic to Hispaniola	*Casabitoa perfae* Alain, *P. domingensis* Urb., *Trichilia dictyoneura* Urb.	
Picramnia macrocarpa Urb. & Ekm. Endemic to Hispaniola		
Picramnia pentandra Sw.	*P. antidesmoides* Griseb., *P. micrantha* Tul.	bois petit garçon, bois poisson, bois sardine, café marron, vaillant garçon (H); ojo de peje, palo de peje, palo de pez (RD); aguedita (C, RD); quina de la tierra, quina del país (C); bitterbush, guarema, palo de hueso (PR); macary bitter, majoe bitter (J)
Picrasma excelsa (Sw.) Planch.	*Aeschrion excelsa* O. Ktze., *A. excelsa microcarpa* Kr. & Urb., *Quassia excelsa* Sw., *P. excelsa* Lindl.	frêne, gorie frêne (H); goric (RD, H); cuasia, quasia (C); Jamaica quassia (J); leña amargo, palo amargo (PR); bitterwood (J, PR)
Picrasma selleana Urb. Endemic to Hispaniola	*Aeschrion selleana* Engl.	
Quassia amara L.		cuassia (H); palo muñeco (RD); cuasia (C, PR); quassia wood (PR)
Simarouba berteroana Krug & Urb. Endemic to Hispaniola		bois frêne, frêne étranger (H); aceituna, daguilla, juan primero, olivo (RD)
Simarouba glauca DC. var. *latifolia* Cronq.	*S. medicinalis* Endl., *S. officinalis* Macfad., *S. officinalis* DC., in part	bois blanc, bois frêne, bois négresse, d'olive, frêne, quinquina d'Europe (H); daguilla, daguillo, laguilla, juan primero, palo amargo, quassia amarga (RD); gavilán, palo blanco, roblecillo, simaruba (C); aceituno, bitter-ash, princess tree (PR); bitter damson (J); acajou blanc (G, M); simarouba (English)
Suriana maritima L.		christe marine, crisse marine, perce-pierre (H); guazumilla, jobero, jovero (RD); cuabilla, cuabilla de costa, incienso (C); guitarán, bay cedar, temporana (PR); sea samphire (J)

SOLANACEAE

SPECIES	SYNONYMS	COMMON NAMES
Acnistus arborescens (L.) Schlecht.	*Atropa arborescens* L., *Cestrum macrostemon* Sessé et Moc. Flor., *Dunalia arborescens* (L.) Sleumer	belladone, feuille douleur (H); mata gallina (RD); galán arbóreo, palo de gallina (PR)
Brunfelsia americana L.		aguacero, dama de noche (RD); alelí falso, rain shrub, trompeta de ángel, tulipán sencillo (PR); American brunfelsia, trumpet flower (J); fleur-à-pluie (G, M)
Cestrum diurnum L.		rufiana (RD); dama de día, day cestrum (PR); galán de día (C)
Cestrum macrophyllum Vent.		rufiana (RD); galán del monte (PR)
Cestrum nocturnum L.	*C. laurifolium* L'Her.	lilas de nuit, jasmin de nuit (H); jazmín de noche, rufiana (RD); galán de noche (C); dama de noche, lady-of-the-night (PR)
Cyphomandra betacea (Cav.) Sendtner	*C. crassifolia* (Ortega) Kuntze	tree tomato (US)
Datura suaveolens Humb. & Bonpl. ex Willd.	*D. arborea* L.	stramoine-en-arbre (H); campana (C); angel's trumpet (J)
Solanum antillarum O.E. Schulz		arito, mantequita (RD); ajicillo, tabaco cimarrón (C)
Solanum erianthum D. Don.	*S. verbascifolium* Jacq.	amorette mâle, amorette marron, amourette, tabac marron (H); friegaplatos, tabacón, tabacuelo (RD); pendejera macho, tabaco cimarrón (C); berenjena de paloma, mullein nightshade, wild tobacco (PR)
Solanum formonense O.E. Schulz Endemic to Massif de la Hotte		
Solanum polygamum Vahl		cackalaka berry (PR)
Solanum rugosum Dunal	*S. asperum* Vahl	tabacón (RD); sepi, tabacón áspero (PR)
Solanum torvum Sw.	*S. ficifolium* Ort.	amourette (H); berenjena de gallina, tabacón (RD); berenjena cimarrona (RD, PR); pendejera (C); turkey berry (PR)

NB: Judd (1987) lists 13 shrub species of the following genera that might be considered as small trees *sensu* Little and Wadsworth (1964): *Brunfelsia* (1), *Cestrum* (8), *Clerodendrum* (1), and *Solanum* (3). These species are not listed.

STAPHYLEACEAE

SPECIES	SYNONYMS	COMMON NAMES
Huertea cubensis Griseb.		alfiler, don juan, juan primero (RD)
Turpina occidentalis (Sw.) G. Don	*Dalrymplea domingensis* Spreng., *Staphylea occidentalis* Sw., *T. paniculata* Vent.	bija, cedro hembra, guarapo, juan primero prieto, violet cimarrona, violeta (RD); eugenio, lilayo (PR); saúco cimarrón (C, PR); roble güira, serrucho (C)
Turpina picardae Urb. Endemic to Hispaniola		

STERCULIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Cola acuminata (Beauv.) Schott. & Endl.	*Cola vera* K. Schum.	colatier, noix de cola (H); cola (H, RD); cola nut tree, nuez de cola (PR); bissy, kola (J)

STERCULIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Guazuma ulmifolia Lam.	*G. bubroma* Tuss., *G. guazuma* (L.) Cockerell, *G. polybotrya* P. DC., *G. tomentosa* HBK., *G. tomentosa* Kunth., *G. ulmifolia* var. *tomentosa* (HBK.) K. Schum., *Theobroma guazuma* L.	bois d'homme, bois d'orme, bois de hêtre, orme d'Amérique (H); guácima cimaronna, guazuma (RD); guácima de caballo (C); guácima (C, RD, PR); bastard cedar, West Indian elm (J, PR)
Helicteres jamaicensis Jacq.	*H. altheaefolia* Lam., *H. isora* Desc., *H. spiralis* Northr.	bois d'homme, coton rat, jeuçon (H); huevo de gato (RD, PR); majagüilla (C); cowbush, cuernecillo (PR)
Helicteres semitriloba Bert.		
Sterculia apetala (Jacq.) Karst.	*Helicteres apetala* Jacq., *S. carthaginensis* Cav.	pistache des Indes (H); anacahuita (C, RD); anacagüita (C, RD, PR); esterculia (C); Panama tree (J, PR)
Sterculia foetida L.		anacagüita, hazel sterculia (PR)
Theobroma cacao L. subsp. *cacao*	*Cacao theobroma* Tuss.	cacao (French, Spanish, English); cacaotier, cacaoyer (French); cacao amarillo, cacao criollo, cacao forastero, cacao morado (C, RD, PR)

STYRACACEAE

SPECIES	SYNONYMS	COMMON NAMES
Styrax obtusifolius Griseb.		
Styrax ochraceus Urb. Endemic to Hispaniola		

SYMPLOCACEAE

SPECIES	SYNONYMS	COMMON NAMES
Symplocos berteroi (DC.) Miers Endemic to Hispaniola	*S. hyboneura* Urb., *S. martinicensis* var. *berterii* DC., *S. pilifera* Urb.	aceituno, moradilla (RD)
Symplocos domingensis Urb. Endemic to Hispaniola		
Symplocos hotteana Urb. & Ekm. Endemic to southwestern Haiti		

THEACEAE

SPECIES	SYNONYMS	COMMON NAMES
Cleyera albopunctata (Griseb.) Krug & Urb.	*Eroteum albopunctatum* (Griseb.) Britt., *Eurya albopunctata* Melchior, *Ternstroemia albopunctata* Griseb.	copey vera (C)
Cleyera bolleana (O. C. Schm.) Kobuski Endemic to Hispaniola	*Eurya bolleana* O. C. Schm., *Freziera bolleana* Kobuski	
Cleyera orbicularis Alain Endemic to Haiti		
Cleyera ternstroemioides (O. C. Schmidt) Kobuski Endemic to Massif de la Hotte	*Eurya ternstroemioides* O. C. Schm., *Freziera ternstroemioides* Kobuski	

THEACEAE

SPECIES	SYNONYMS	COMMON NAMES
Cleyera vaccinioides (O. C. Schmidt) Kobuski Endemic to Hispaniola	*Eurya vaccinioides* O. C. Schm., *Freziera vaccinioides* Kobuski	
Laplacea alpestris (Krug & Urb.) Dyer Endemic to Hispaniola	*Haemocharis alpestris* Krug & Urb., *Wikstroemia alpestris* Blake	
Laplacea cymatoneura Urb. Endemic to Hispaniola		
Laplacea portoricensis (Krug & Urb.) Dyer	*Haemocharis portoricensis* Krug & Urb., *Wikstroemia portoricensis* (Krug & Urb.) Blake	
Ternstroemia barkeri Ekm. & Schm. Endemic to Massif de la Hotte		
Ternstroemia glandulosa Alain Endemic to Hispaniola		
Ternstroemia peduncularis A. DC.	*Taonabo peduncularis* (DC.) Britton, *Ternstroemia meridionalis* Sw., *T. obovalis* A. Rich.	bois d'Inde marron, bois d'ine marron (H); botoncillo (RD); copey vera (C); bois vert, cacao de montagne (G, M)
Ternstroemia selleana Ekm. & Schm. Endemic to Hispaniola		

THEOPHRASTACEAE

SPECIES	SYNONYMS	COMMON NAMES
Clavija domingensis Urb. & Ekm. Endemic to southwestern Haiti		bois jean louis, grand coquemollier, langue à boeuf (H)
Jacquinia arborea Vahl	*Chrysophyllum barbasco* Loefl., *J. armillaris* Jacq., *J. armillaris arborea* Griseb., *J. barbasco* Mez	azúcares, barbasco (PR)
Jacquinia berterii Spreng.	*J. aculeata* (L.) Mez., *J. berterii* var. *acutifolia* Griseb., *J. berterii* var. *angustior* Urb., *J. berterii* var. *portoricensis* Urb., *J. berterii* var. *retusa* Urb., *J. sphaeroidea* Urb.	bois bandé, bois cassave (H); palo de cruz (RD); espuela de caballero de pinar (C); ironwood, jue bush, sea myrtle (US)
Jacquinia comosa Urb. & Ekm. Endemic to Hispaniola		
Jacquinia keyensis Mez		

THYMELIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Daphnopsis americana (Mill.) J. R. Johnst. ssp. *cumingii* (Meissn.) Nevl.	*Daphne tinifolia* Sw., *Daphnopsis americana* ssp. *tinifolia* Nevl., *D. tinifolia* Sw., *Laurus americanus* Mill.	mahaut (H); guacacoa, guacacoa baría (C); emajagua de sierra, maho, majagua de sierra (PR)

THYMELIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Daphnopsis crassifolia (Poir.) Meissn. Endemic to Hispaniola	*Daphne crassifolia* Poir., *Daphnopsis crassifolia* var. *eggersii* Krug & Urb., *Hyptiodaphne crassifolia* Urb., *H. crassifolia* var. *eggersii* Urb.	ayay, guanantesi, guarantel, hayao, jayao (RD)
Daphnopsis cuneata (Griseb.) Radlk. ssp. *uniflora* (Urb. & Ekm.) Nevl. Endemic to Hispaniola	*D. uniflora* Urb. & Ekm.	
Daphnopsis ekmanii Domke Endemic to Hispaniola		
Lagetta lagetto (Sw.) Nash	*Daphne lagetto* Sw., *L. lintearia* Lam.	bois dentelle, daguille, laget (H); daguilla, palo de encaje (RD); daguilla común, daguilla de loma, guanilla (C); lagetto (J)

TILIACEAE

SPECIES	SYNONYMS	COMMON NAMES
Carpodiptera cubensis Griseb.	*Berrya cubensis* G. Maza	bois blanc, bois d'ortie, bois d'ortie blanche, bois d'ortie rouge, feuilles d'ortie, ortie blanche (H); majagua de Cuba, majagüilla (C)
Carpodiptera hexaptera Urb. & Ekm. Endemic to Hispaniola		
Carpodiptera simonis Urb. Endemic to southwestern Haiti		bois d'ortie, bois d'ortie rouge (H)

ULMACEAE

SPECIES	SYNONYMS	COMMON NAMES
Amoelocera cubensis Griseb.		bois blanc grandes feuilles (H); hueso, jatía blanca, purio (C)
Celtis trinervia Lam.		bois feuilles blanches, bois raie (H); amarguillo, anisillo, lejío, palo amargo (RD); gageda de gallina, guisacillo (C); almez, guacimilla (PR)
Phyllostylon brasiliense Cap.	*P. rhamnoides* Taub., *Samaroceltis rhamnoides* Poiss.	bois blanc (H); baitoa (RD); jatía (C); San Domingo boxwood, West Indian boxwood (PR, US)
Trema lamarckiana (Roem. & Schult.) Blume	*Celtis lamarkiana* R. & Sch., *C. lima* Lam., *T. lima* Hitch.	mahaut piment (H); majagua, memiso, memizo cimarrón, memizo de majagua (RD); palo de cabrilla, West Indian trema (PR); capulí cimarrón, guasimilla (C)
Trema micrantha (L.) Blume	*Celtis micranthus* Sw., *C. rugosa* Willd., *Sponia canescens* HBK., *S. micrantha* Denc.	bois de soie (H); memiso, memiso de paloma, memizo cimarrón (RD); capulí cimarrón, guacimilla, guacimilla boba (C); cabra, palo de cabra (PR); Florida trema (US)

URTICACEAE

SPECIES	SYNONYMS	COMMON NAMES
Urera baccifera (L.) Gaud.		feuilles enragées, maman guêpes (H); ortiga brava, stinging nettle (PR)

VERBENACEAE

SPECIES	SYNONYMS	COMMON NAMES
Avicennia germinans (L.) L.	*A. marina* (Forsk.) Vierh., *A. nitida* Jacq.	manglier noir, palétuvier (H); mangle prieto (RD); black mangrove, mangle negro, salado, siete-cueros (PR)
Citharexylum caudatum L.		café marron, café sauvage (H); café cimarrón, penda (RD); collarete, penda (C); péndula de sierra (PR); oval-leaved fiddlewood (J)
Citharexylum fruticosum L.		café marron, grenade marron, grenarde, jijiri marron, madame claude, pindoula (H); café cimarrón, péndula (RD); canilla de venado, guayo blanco (C); penda (C, RD); bálsamo, palo de guitarra (PR)
Cornutia pyramidata L.		indigotier (H); azulejo, palo de vidrio (RD); salvilla (C)
Duranta repens L.	*D. erecta* L., *D. plumieri* Jacq.	bois jambette, maïs bouilli (H); adonis (RD); azota-caballo, pigeon-berry, skyflower (PR); celosa (C)
Gmelina arborea Roxb.	*G. rheedii* Hook., *Premna latifolia* Roxb. var. *mucronata* Auct., not C. B. Clarke	gmelina, melina (H, RD); white teak (India)
Petitia domingensis Jacq.		bois d'ortie, chêne calebassier (H); capá blanco, capá de sabana, capá sabanero (RD); fiddlewood (J); guayo prieto (C)
Tectona grandis L. f.	*T. theka* Lour., *Theka grandis* (L. f.) Lam.	teck (H); teca (RD); teak (PR)
Vitex agnus-castus L.		malagueta, pimienta de Guinea, yerba de la suerte, yerba luisa (RD); chaste tree, chencherenche, sauzgatillo (PR)
Vitex divaricata Sw.	*V. multiflora* Sw.	bois lézard (H); higüerillo, péndula, péndula blanca, white fiddlewood (PR); ofón criollo, roble de olor, roble guayo (C)
Vitex heptaphylla A. Juss.		bois de savane, bois savane, gris-gris (H); matta becero, malagueta, palo perriro (RD); black fiddlewood, lizard wood (J); chicharrón (C)

NB: Judd (1987) describes 2 shrub species of *Lantana* that might be considered small trees *sensu* Little and Wadsworth (1964). These species are not listed.

ZYGOPHYLLACEAE

SPECIES	SYNONYMS	COMMON NAMES
Guaiacum officinale L.	[Also spelled *Guajacum*.]	arbre de vie, bois saint, gaïac, gaïac bâtard, gaïac franc, gaïac mâle, gaïac officinal (H); guayacán (C, RD, PR); palo santo (C); guayaco, lignum vitae (PR)
Guaiacum sanctum L.	*Guajacum guatemalense* Pl. [Also spelled *Guajacum*.]	bois saint, gaïac bâtard, gaïac blanc, gaïac cardasse, gaïac femelle (H); guayacán bastardo (RD); vera (C, RD); guayacancillo (C, RD, PR); guayacán blanco (C, PR); hollywood lignum vitae (PR)

Creole Names of Trees and Shrubs

◆◆ A ◆◆

COMMON NAME	SPECIES	FAMILY
abe mawon	*Alvaradoa haitiensis* Urb.	Simaroubaceae
akasya	*Acacia auriculiformis* A. Cunn. ex Benth.	Fabaceae (=Leguminosae)
aken	*Crudia spicata* (Aubl.) Willd.	Fabaceae (=Leguminosae)
aki	*Blighia sapida* Koenig	Sapindaceae
akoma	*Bumelia salicifolia* (L.) Sw.	Sapotaceae
akoma	*Mastichodendron foetidissimum* (Jacq.) Cronq. ssp. *foetidissimum*	Sapotaceae
akoma	*Meliosma abbreviata* Urb.	Sabiaceae
akoma	*Sloanea amygdalina* Griseb.	Elaeocarpaceae
akoma blan	*Mastichodendron foetidissimum* (Jacq.) Cronq. ssp. *foetidissimum*	Sapotaceae
akoma fran	*Mastichodendron foetidissimum* (Jacq.) Cronq. ssp. *foetidissimum*	Sapotaceae
akoma jòn	*Meliosma abbreviata* Urb.	Sabiaceae
akoma mawon	*Bumelia salicifolia* (L.) Sw.	Sapotaceae
akoma wouj	*Bumelia salicifolia* (L.) Sw.	Sapotaceae
alèrit	*Aleurites moluccana* (L.) Willd.	Euphorbiaceae
amourèt	*Solanum* spp.	Solanaceae
amourèt mal	*Solanum erianthum* D. Don	Solanaceae
amourèt mawon	*Solanum erianthum* D. Don	Solanaceae
anis mawon	*Piper amalago* L.	Piperaceae
anis zetwal	*Illicium ekmanii* A.C. Smith	Illiciaceae
anisèt	*Piper amalago* L.	Piperaceae
ano	*Ouratea ilicifolia* (P. DC.) Baill.	Ochnaceae
arabo	*Erythroxylum areolatum* L.	Erythroxylaceae
arali gran fèy	*Schefflera* spp.	Araliaceae
arokariya	*Araucaria heterophylla* (Salisb.) Franco	Araucariaceae
ayitye	*Cameraria latifolia* L.	Apocynaceae

◆◆ B ◆◆

CREOLE NAME	SPECIES	FAMILY
badanye	*Terminalia catappa* L.	Combretaceae
bagaj akolye	*Thevetia peruviana* (Pers.) K. Schum.	Apocynaceae
balay fou	*Capparis ferruginea* L.	Capparaceae
balay mòn	*Schaefferia frutescens* Jacq.	Celastraceae
bambou	*Bambusa vulgaris* Schrad. ex Wendl.	Poaceae (=Graminae)
ban	*Murraya paniculata* (L.) Jack	Rubiaceae
bannann	*Musa acuminata* Colla x *M. balbisiana* Colla 'AAB'	Musaceae

◆◆ B ◆◆

CREOLE NAME	SPECIES	FAMILY
bata kayman	*Lonchocarpus latifolius* (Willd.) DC.	Fabaceae (=Leguminosae)
baton kas	*Cassia* spp.	Fabaceae (=Leguminosae)
baton sòsiye	*Erythrina* spp.	Fabaceae (=Leguminosae)
bayawonn	*Acacia* spp.	Fabaceae (=Leguminosae)
bayawonn	*Cercidium praecox* (R. & P.) Harms	Fabaceae (=Leguminosae)
bayawonn	*Prosopis juliflora* (Sw.) DC.	Fabaceae (=Leguminosae)
bayawonn fran	*Prosopis juliflora* (Sw.) DC.	Fabaceae (=Leguminosae)
bayawonn wouj	*Acacia tortusosa* (L.) Willd.	Fabaceae (=Leguminosae)
bayonèt	*Yucca* spp.	Liliaceae
bèladonn	*Acnistus arborescens* (L.) Schlecht.	Solanaceae
benzoliv	*Moringa oleifera* Lam.	Moringaceae
biziyèt mawon	*Phyllanthus juglandifolius* Willd. ssp. *juglandifolius*	Euphorbiaceae
blinblin	*Averrhoa bilimbi* L.	Oxalidaceae
blinblin long	*Averrhoa carambola* L.	Oxalidaceae
bom zangle	*Cinnamomum camphora* (L.) Sieb.	Lauraceae
bon gason	*Euphorbia petiolaris* Sims.	Euphorbiaceae
bon kaymit	*Chrysophyllum cainito* L.	Sapotaceae
bonbon chat	*Cordia mirabiloides* (Jacq.) R. & S.	Boraginaceae
bonbon kapitenn	*Malpighia* spp.	Malpighiaceae
bonbon kodenn	*Cordia mirabiloides* (Jacq.) R. & S.	Boraginaceae
bonbon kodenn	*Trichostigma octandrum* (L.) H. Walt.	Phytolaccaceae
bonbon kòk denn	*Trichostigma octandrum* (L.) H. Walt.	Phytolaccaceae
boudou	*Trichilia* spp.	Meliaceae
boulèt kanon	*Couroupita guianensis* Aubl.	Lecythidaceae
bouziyèt	*Comocladia* spp.	Anacardiaceae
breziyèt	*Caesalpinia* spp.	Fabaceae (=Leguminosae)
breziyèt	*Comocladia* spp.	Anacardiaceae
breziyèt bata	*Trichilia hirta* L.	Meliaceae
brikal	*Erythrina berteroana* Urb.	Fabaceae (=Leguminosae)
bril	*Eugenia domingensis* Berg	Myrtaceae
brinyòl	*Eugenia domingensis* Berg	Myrtaceae
briyòl	*Reynosia uncinata* Urb.	Rhmanaceae
brize menaj	*Senna angustiliqua* (Lam.) Irwin & Barneby var. *angustisiliqua*	Fabaceae (=Leguminosae)
briziyèt	*Comocladia dentata* Jacq.	Anacardiaceae
bwa amè	*Garrya fadyenii* Hook.	Garryaceae
bwa amè blan	*Aspidosperma cuspa* (HBK.) Blake & Pittier	Apocynaceae
bwa ami	*Bunchosia nitida* (Jacq.) L.C. Rich.	Malpighiaceae
bwa anis	*Piper amalago* L.	Piperaceae
bwa arada	*Trichilia* spp.	Meliaceae
bwa bande	*Jacquinia berterii* Spreng.	Theophrastaceae

◆◆ B ◆◆

CREOLE NAME	SPECIES	FAMILY
bwa beròm	*Pimenta racemosa* (Mill.) J. W. Moore var. *racemosa*	Myrtaceae
bwa blan	*Carpodiptera cubensis* Griseb.	Tiliaceae
bwa blan	*Croton glabellus* L.	Euphorbiaceae
bwa blan	*Phyllostylon brasiliense* Cap.	Ulmaceae
bwa blan	*Simarouba glauca* DC. var. *latifolia* Cronq.	Simaroubaceae
bwa blan gran fèy	*Amoelocera cubensis* Griseb.	Ulmaceae
bwa bom	*Couroupita guianensis* Aubl.	Lecythidaceae
bwa bourik	*Capparis frondosa* Jacq.	Capparaceae
bwa bouwo	*Leucaena* spp.	Fabaceae (=Leguminosae)
bwa brilan	*Sapium* spp.	Euphorbiaceae
bwa brile	*Thouinidium pulverulentum* (Griseb.) Radlk.	Sapindaceae
bwa chandèl	*Amyris* spp.	Rutaceae
bwa chandèl	*Pinus occidentalis* Sw.	Pinaceae
bwa chapo	*Ehretia tinifolia* L.	Boraginaceae
bwa chenn	*Catalpa longissima* (Jacq.) Dum. Cours.	Bignoniaceae
bwa chik	*Cordia alba* (Jacq.) Roem. & Schult.	Boraginaceae
bwa dajan	*Capparis cynophallophora* L.	Capparaceae
bwa damou	*Myrcia citrifolia* (Aubl.) Urban	Myrtaceae
bwa dan mawon	*Tibouchina longifolia* (Vahl.) Baill.	Melastomataceae
bwa danjou	*Oreopanax capitatum* (Jacq.) Decne. & Planch.	Araliaceae
bwa danjou	*Schefflera tremula* (Krug & Urb.) Alain	Araliaceae
bwa dano	*Lonchocarpus neurophyllus* Urb.	Fabaceae (=Leguminosae)
bwa dano	*Senna pendula* (Willd.) Irwin & Barneby var. *advena* (Vogel)	Fabaceae (=Leguminosae)
bwa dantèl	*Lagetta lagetto* (Sw.) Nash	Thymeliaceae
bwa dehèt	*Guazuma ulmifolia* Lam.	Sterculiaceae
bwa dehò	*Rheedia verticillata* Griseb.	Clusiaceae (=Guttiferae)
bwa denn	*Bumelia cubensis* Griseb.	Sapotaceae
bwa denn	*Cordia sebestena* L.	Boraginanceae
bwa denn	*Myrcianthes fragrans* (Sw.) McVaugh	Myrtaceae
bwa denn franse	*Pimenta racemosa* (Mill.) J.W. Moore	Myrtaceae
bwa denn mawon	*Ternstroemia peduncularis* A. DC.	Theaceae
bwa dinn	*Myrcianthes fragrans* (Sw.) McVaugh	Myrtaceae
bwa dinn fran	*Pimenta racemosa* (Mill.) J. W. Moore var. *racemosa*	Myrtaceae
bwa dinn franse	*Pimenta racemosa* (Mill.) J. W. Moore var. *racemosa*	Myrtaceae
bwa dinn mawon	*Ternstroemia peduncularis* A. DC.	Theaceae
bwa dinn ti fèy	*Eugenia monticola* (Sw.) DC.	Myrtaceae
bwa diou	*Rheedia verticillata* Griseb.	Clusiaceae (=Guttiferae)
bwa diou	*Trichilia aquifolia* P. Wils.	Meliaceae
bwa diou mawon	*Trichilia aquifolia* P. Wils.	Meliaceae
bwa djab	*Hura crepitans* L.	Euphorbiaceae

◆◆ B ◆◆

CREOLE NAME	SPECIES	FAMILY
bwa dòm	*Guazuma ulmifolia* Lam.	Sterculiaceae
bwa dòm	*Helicteres jamaicensis* Jacq.	Sterculiaceae
bwa dòm	*Muntingia calabura* L.	Elaeocarpaceae
bwa dòm	*Samyda dodecandra* Jacq.	Flacourtiaceae
bwa dòti	*Carpodiptera* spp.	Tiliaceae
bwa dòti	*Petitia domingensis* Jacq.	Verbenaceae
bwa dòti blan	*Carpodiptera cubensis* Griseb.	Tiliaceae
bwa dòti wouj	*Carpodiptera* spp.	Tiliaceae
bwa doulè	*Morinda citrifolia* L.	Rubiaceae
bwa ebenn	*Pictetia spinifolia* (Desv.) Urban	Fabaceae (=Leguminosae)
bwa ebenn	*Reynosia uncinata* Urb.	Rhmanaceae
bwa ekòs	*Piptadenia peregrina* (L.) Benth.	Fabaceae (=Leguminosae)
bwa fè	*Colubrina* spp.	Rhamnaceae
bwa fè	*Krugiodendron ferreum* (Vahl) Urb.	Rhamnaceae
bwa fè blan	*Colubrina arborescens* (Mill.) Sarg.	Rhmanaceae
bwa fè mawon	*Reynosia uncinata* Urb.	Rhmanaceae
bwa fetid	*Capparis cynophallophora* L.	Capparaceae
bwa fèy blanch	*Celtis trinervia* Lam.	Ulmaceae
bwa foumi	*Maytenus buxifolia* (A. Rich.) Griseb.	Celastraceae
bwa fwenn	*Simarouba* spp.	Simaroubaceae
bwa gal	*Piptadenia peregrina* (L.) Benth.	Fabaceae (=Leguminosae)
bwa gason	*Euphorbia petiolaris* Sims.	Euphorbiaceae
bwa gèp	*Croton glabellus* L.	Euphorbiaceae
bwa grenn	*Illicium ekmanii* A.C. Smith	Illiciaceae
bwa grenn	*Matayba* spp.	Sapindaceae
bwa grenn nwa	*Illicium ekmanii* A.C. Smith	Illiciaceae
bwa grenn nwa	*Matayba* spp.	Sapindaceae
bwa grigri	*Buchenavia capitata* (Vahl) Eichl.	Combretaceae
bwa grigri	*Bucida buceras* L.	Combretaceae
bwa ivran	*Piscidia piscipula* (L.) Sarg.	Fabaceae (=Leguminosae)
bwa jambèt	*Duranta repens* L.	Verbenaceae
bwa jan louwi	*Clavija domingensis* Urb. & Ekm.	Theophrastaceae
bwa jòn	*Chlorophora tinctoria* (L.) Gaud.	Moraceae
bwa jònis	*Bocconia frutescens* L.	Papaveraceae
bwa ka	*Zygia latifolia* (L.) Fawc. & Rendle	Fabaceae (=Leguminosae)
bwa kabrit	*Psychotria berteriana* DC.	Rubiaceae
bwa kabrit	*Senna atomaria* (L.) Irwin & Barneby	Fabaceae (=Leguminosae)
bwa kachiman	*Annona* spp.	Annonaceae
bwa kajou	*Eugenia odorata* Berg	Myrtaceae
bwa kaka	*Bunchosia glandulosa* (Cav.) L.C. Rich	Malpighiaceae

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CREOLE NAME	SPECIES	FAMILY
bwa kaka	*Capparis* spp.	Capparaceae
bwa kalson	*Bauhinia divaricata* L.	Fabaceae (=Leguminosae)
bwa kampèch	*Haematoxylon campechianum* L.	Fabaceae (=Leguminosae)
bwa kampèch	*Zanthoxylum spinifex* (Jacq.) DC.	Rutaceae
bwa kano	*Schefflera morototoni* (Aubl.) Maguire Steverm. & Frodin	Araliaceae
bwa kanon	*Cecropia peltata* L.	Moraceae
bwa kapab	*Colubrina arborescens* (Mill.) Sarg.	Rhamnaceae
bwa kapab	*Schaefferia frutescens* Jacq.	Celastraceae
bwa kasav	*Guapira domingensis* (Heim.) Alain	Nyctaginaceae
bwa kasav	*Jacquinia berterii* Spreng.	Theophrastaceae
bwa kasav silvès	*Guapira obtusata* (Jacq.) Little	Nyctaginaceae
bwa kayman	*Eugenia domingensis* Berg	Myrtaceae
bwa kayman	*Lonchocarpus* spp.	Fabaceae (=Leguminosae)
bwa kayman	*Piptadenia peregrina* (L.) Benth.	Fabaceae (=Leguminosae)
bwa kochon	*Oreopanax capitatum* (Jacq.) Decne. & Planch.	Araliaceae
bwa kochon	*Symphonia globulifera* L.	Clusiaceae (=Guttiferae)
bwa kochon	*Tetragastris balsamifera* (Sw.) Kuntze	Burseraceae
bwa kochon mawon	*Tetragastris balsamifera* (Sw.) Kuntze	Burseraceae
bwa kodinn	*Bocconia frutescens* L.	Papaveraceae
bwa kòk	*Bocconia frutescens* L.	Papaveraceae
bwa kòk	*Hyperbaena lindmanii* Urban	Menispermaceae
bwa kòk	*Sloanea amygdalina* Griseb.	Elaeocarpaceae
bwa kòk denn	*Bocconia frutescens* L.	Papaveraceae
bwa kolye	*Pithecellobium arboreum* (L.) Urb.	Fabaceae (=Leguminosae)
bwa kòn	*Byrsonima* spp.	Malpighiaceae
bwa kòtlèt	*Drypetes* spp.	Euphorbiaceae
bwa koulèv	*Capparis cynophallophora* L.	Capparaceae
bwa koulèv	*Exothea paniculata* (Juss.) Radlk.	Sapindaceae
bwa koure	*Thouinia* spp.	Sapindaceae
bwa krapo	*Alchornea latifolia* Sw.	Euphorbiaceae
bwa krapo	*Wallenia laurifolia* Jacq.	Myrsinaceae
bwa kwil	*Capparis cynophallophora* L.	Capparaceae
bwa lafièv	*Thouinia trifoliata* Poit.	Sapindaceae
bwa lans	*Oxandra lanceolata* (Sw.) Baill.	Annonaceae
bwa lans bata	*Oxandra laurifolia* (Sw.) A. Rich.	Annonaceae
bwa lans fran	*Oxandra lanceolata* (Sw.) Baill.	Annonaceae
bwa lèt	*Cameraria latifolia* L.	Apocynaceae
bwa lèt	*Rauvolfia nitida* Jacq.	Apocynaceae
bwa lèt	*Sapium jamaicense* Sw.	Euphorbiaceae
bwa lèt	*Tabernaemontana citrifolia* L.	Apocynaceae

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CREOLE NAME	SPECIES	FAMILY
bwa lèt femèl	*Rauvolfia nitida* Jacq.	Apocynaceae
bwa lèt mal	*Tabernaemontana citrifolia* L.	Apocynaceae
bwa lètèl	*Psychotria nutans* Sw.	Rubiaceae
bwa leza	*Vitex divaricata* Sw.	Verbenaceae
bwa liben	*Podocarpus angustifolius* Griseb. var. *wrightii* Pilger	Podocarpaceae
bwa loray	*Trichilia havanensis* Jacq.	Meliaceae
bwa mabèl	*Brunellia comocladiifolia* H. & B. ssp. *domingensis* Cuatr.	Cunoniaceae
bwa mabi	*Colubrina* spp.	Rhamnaceae
bwa mabre	*Gymnanthes lucida* Sw.	Euphorbiaceae
bwa madam	*Ochroma pyramidale* (Cav.) Urb.	Bombacaceae
bwa mago	*Buchenavia capitata* (Vahl) Eichl.	Combretaceae
bwa mago	*Bucida buceras* L.	Combretaceae
bwa majò	*Piper aduncum* L.	Piperaceae
bwa malodan	*Alchornea latifolia* Sw.	Euphorbiaceae
bwa mawon	*Trichilia aquifolia* P. Wils.	Meliaceae
bwa meriz	*Pseudolmedia spuria* (Sw.) Griseb.	Moraceae
bwa milat	*Metopium* spp.	Anacardiaceae
bwa milat	*Myrcianthes fragrans* (Sw.) McVaugh	Myrtaceae
bwa milat	*Myrciaria floribunda* (West ex Willd.) Berg	Myrtaceae
bwa milèt	*Exothea paniculata* (Juss.) Radlk.	Sapindaceae
bwa mit	*Eugenia rhombea* (Berg) Krug & Urban	Myrtaceae
bwa mòtèl	*Erythrina* spp.	Fabaceae (=Leguminosae)
bwa mòtèl vre	*Erythrina variegata* L.	Fabaceae (=Leguminosae)
bwa moutad	*Capparis flexuosa* (L.) L.	Capparaceae
bwa nago	*Pterocarpus officinalis* Jacq.	Fabaceae (=Leguminosae)
bwa nago	*Tabebuia acrophylla* (Urb.) Britt.	Bignoniaceae
bwa nannon	*Ormosia krugii* Urban	Fabaceae (=Leguminosae)
bwa nèf	*Trophis racemosa* (L.) Urban	Moraceae
bwa nèf ramo	*Trophis racemosa* (L.) Urban	Moraceae
bwa nèg	*Allophylus rigidus* Sw.	Sapindaceae
bwa nègès	*Casearia ilicifolia* Vent.	Flacourtiaceae
bwa nègès	*Dendropanax* spp.	Araliaceae
bwa nègès	*Simarouba glauca* DC. var. *latifolia* Cronq.	Simaroubaceae
bwa nwa	*Albizia lebbeck* (L.) Benth.	Fabaceae (=Leguminosae)
bwa nwa	*Beilschmiedia pendula* (Sw.) Hemsl.	Lauraceae
bwa nwa	*Ehretia tinifolia* L.	Boraginaceae
bwa nwa	*Guatteria blainii* (Griseb.) Urb.	Annonaceae
bwa nwayo	*Piper amalago* L.	Piperaceae
bwa pal	*Clusia* spp.	Clusiaceae (=Guttiferae)
bwa pal	*Pterocarpus officinalis* Jacq.	Fabaceae (=Leguminosae)

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CREOLE NAME	SPECIES	FAMILY
bwa palmis	*Andira inermis* (W. Wr.) DC.	Fabaceae (=Leguminosae)
bwa panyòl	*Comocladia* spp.	Anacardiaceae
bwa patat	*Antirhea lucida* (Sw.) Benth. & Hook. f.	Rubiaceae
bwa pen	*Pinus* spp.	Pinaceae
bwa penn	*Zanthoxylum martinicense* (Lam.) DC.	Rutaceae
bwa pijon	*Mecranium* spp.	Melastomataceae
bwa pine	*Zanthoxylum* spp.	Rutaceae
bwa pine blan	*Zanthoxylum martinicense* (Lam.) DC.	Rutaceae
bwa pini	*Zanthoxylum* spp.	Rutaceae
bwa pit	*Colubrina arborescens* (Mill.) Sarg.	Rhamnaceae
bwa ple	*Colubrina arborescens* (Mill.) Sarg.	Rhamnaceae
bwa plòm	*Myrsine coriacea* (Sw.) R. Br. ex Roem. & Schult.	Myrtaceae
bwa popit	*Cordia laevigata* Lam.	Boraginaceae
bwa poulèt	*Bunchosia glandulosa* (Cav.) L. C. Rich	Malpighiaceae
bwa poupe	*Cordia laevigata* Lam.	Boraginaceae
bwa pwason	*Picramnia pentandra* Sw.	Simaroubaceae
bwa pwav	*Thouinia trifoliata* Poit.	Sapindaceae
bwa pwiant	*Capparis cynophallophora* L.	Capparaceae
bwa rai	*Celtis trinervia* Lam.	Ulmaceae
bwa raid	*Diospyros* spp.	Ebenaceae
bwa rav	*Capparis* spp.	Capparaceae
bwa rogou	*Myrcianthes fragrans* (Sw.) McVaugh	Myrtaceae
bwa sadinn	*Picramnia pentandra* Sw.	Simaroubaceae
bwa sadinn	*Randia erythrocarpa* Krug. & Urb.	Rubiaceae
bwa saginn	*Chionanthus ligustrinus* (Sw.) Pers.	Oleaceae
bwa santi	*Ateleia gummifer* (Bert.) D. Dietr.	Fabaceae (=Leguminosae)
bwa santi	*Bunchosia* spp.	Malpighiaceae
bwa sasiye bata	*Dendropanax arboreus* (L.) Decne. & Planch.	Araliaceae
bwa sasiye mawon	*Dendropanax arboreus* (L.) Decne. & Planch.	Araliaceae
bwa satanye	*Cupania americana* L.	Sapindaceae
bwa savann	*Acacia scleroxyla* Tuss.	Fabaceae (=Leguminosae)
bwa savann	*Albizia lebbeck* (L.) Benth.	Fabaceae (=Leguminosae)
bwa savann	*Myrsine coriacea* (Sw.) R. Br. ex Roem. & Schult.	Myrsinaceae
bwa savann	*Pseudalbizzia berteriana* (Balbis) Britt. & Rose	Fabaceae (=Leguminosae)
bwa savann	*Tabebuia acrophylla* (Urb.) Britt.	Bignoniaceae
bwa savann	*Vitex heptaphylla* A. Juss.	Verbenaceae
bwa savon	*Sapindus saponaria* L.	Sapindaceae
bwa savonèt peyi	*Sapindus saponaria* L.	Sapindaceae
bwa sèk	*Samyda dodecandra* Jacq.	Flacourtiaceae
bwa sen	*Guaiacum* spp.	Zygophyllaceae

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CREOLE NAME	SPECIES	FAMILY
bwa senegal	*Capparis* spp.	Capparaceae
bwa sèzisman	*Rauvolfia nitida* Jacq.	Apocynaceae
bwa sèzisman	*Thevetia peruviana* (Pers.) K. Schum.	Apocynaceae
bwa sip	*Bumelia salicifolia* (L.) Sw.	Sapotaceae
bwa sip	*Tabebuia berteri* (DC.) Britt.	Bignoniaceae
bwa siwo	*Piper aduncum* L.	Piperaceae
bwa soumi	*Cordia alliodora* (Ruiz Lopez et Pavon) Cham.	Boraginaceae
bwa swa	*Calotropis procera* (Ait.) R. Br.	Asclepiadaceae
bwa swa	*Muntingia calabura* L.	Elaeocarpaceae
bwa swa	*Trema micrantha* (L.) Blume	Ulmaceae
bwa swa mawon	*Muntingia calabura* L.	Elaeocarpaceae
bwa tanis wouj	*Enterolobium cyclocarpum* (Jacq.) Griseb.	Fabaceae (=Leguminosae)
bwa ti fayi	*Buxus glomerata* (Griseb.) Muell. Arg.	Buxaceae
bwa ti fèt	*Buxus glomerata* (Griseb.) Muell. Arg.	Buxaceae
bwa ti fèy	*Buxus glomerata* (Griseb.) Muell. Arg.	Buxaceae
bwa ti fèy	*Eugenia* spp.	Myrtaceae
bwa ti gason	*Picramnia pentandra* Sw.	Simaroubaceae
bwa ti gason	*Schaefferia frutescens* Jacq.	Celastraceae
bwa tramble	*Ardisia* spp.	Myrsinaceae
bwa tramble	*Schefflera* spp.	Araliaceae
bwa twompèt	*Cecropia peltata* L.	Cecropiaceae
bwa vach	*Alchornea latifolia* Sw.	Euphorbiaceae
bwa velou	*Capparis ferruginea* L.	Capparaceae
bwa wil	*Manilkara albescens* (Griseb.) Cronq.	Sapotaceae
bwa wouj	*Guarea guidonia* (L.) Sleumer	Meliaceae
bwa wòz	*Cordia alliodora* (Ruiz Lopez et Pavon) Oken	Boraginaceae
bwa wòz	*Ziziphus rhodoxylon* Urb.	Rhamnaceae
bwa zèd	*Colubrina glandulosa* var. *antillana* (M.C. Johnst.) M.C. Johnst.	Rhamnaceae
bwa zèt	*Colubrina glandulosa* var. *antillana* (M.C. Johnst.) M.C. Johnst.	Rhamnaceae
bwis	*Murraya paniculata* (L.) Jack	Rubiaceae
bwis beni	*Polygala penaea* L.	Polygalaceae
bwis sab	*Hura crepitans* L.	Euphorbiaceae

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COMMON NAME	SPECIES	FAMILY
chadèk	*Citrus maxima* (J. Burm.) Merr.	Rutaceae
chambron	*Prosopis juliflora* (Sw.) DC.	Fabaceae (=Leguminosae)
chandèl anglèz	*Exostema caribaeum* (Jacq.) Roem. & Schult.	Rubiaceae
chandèl blan	*Amyris elemifera* L.	Rutaceae
chandèl mawon	*Amyris elemifera* L.	Rutaceae
chandèl mawon	*Hypelate trifoliata* Sw.	Sapindaceae
chapelèt	*Calyptronoma plumeriana* (Martius) Lourteig	Arecaceae (=Palmae)
chapo kare	*Sloanea* spp.	Elaeocarpaceae
chatag	*Cupania americana* L.	Sapindaceae
chatanye	*Cupania americana* L.	Sapindaceae
chatanye	*Matayba scrobiculata* (HBK) Radlk.	Sapindaceae
chatanye mawon	*Matayba scrobiculata* (HBK) Radlk.	Sapindaceae
chatanye ti fèy	*Sloanea ilicifolia* Urb.	Elaeocarpaceae
chenn	*Catalpa longissima* (Jacq.) Dum. Cours.	Bignoniaceae
chenn dostrali	*Grevillea robusta* A. Cunn. ex R. Br.	Proteaceae
chenn fran	*Cordia alliodora* (Ruiz Lopez et Pavon) Cham.	Boraginaceae
chenn kalbas	*Petitia domingensis* Jacq.	Verbenaceae
chenn kapawo	*Cordia alliodora* (Ruiz Lopez et Pavon) Cham.	Boraginaceae
chenn nwa	*Catalpa longissima* (Jacq.) Dum. Cours.	Bignoniaceae
chenn nwa	*Cordia alliodora* (Ruiz Lopez et Pavon) Cham.	Boraginaceae
chenn nwa	*Ehretia tinifolia* L.	Boraginaceae
chenn peyi	*Catalpa longissima* (Jacq.) Dum. Cours.	Bignoniaceae
chevalye	*Tecoma stans* (L.) Kunth.	Bignoniaceae
chibou	*Bursera simaruba* (L.) Sarg.	Burseraceae
chik	*Bursera simaruba* (L.) Sarg.	Burseraceae
chiòt	*Bixa orellana* L.	Bixaceae
choublak	*Hibiscus rosa-sinensis* L.	Malvaceae

◆◆ D ◆◆

COMMON NAME	SPECIES	FAMILY
dagwi	*Lagetta lagetto* (Sw.) Nash	Thymeliaceae
dalmag	*Calophyllum calaba* L.	Clusiaceae (=Guttiferae)
dalmari	*Calophyllum calaba* L.	Clusiaceae (=Guttiferae)
damag	*Calophyllum calaba* L.	Clusiaceae (=Guttiferae)
damari	*Calophyllum calaba* L.	Clusiaceae (=Guttiferae)
dan chen blan	*Cordia mirabiloides* (Jacq.) R. & S.	Boraginaceae
dat	*Phoenix dactylifera* L.	Arecaceae (=Palmae)
de jimèl	*Bauhinia monandra* Kurz.	Fabaceae (=Leguminosae)

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COMMON NAME	SPECIES	FAMILY
de sezon	*Euphorbia pulcherrima* Willd. ex Klotsch	Euphorbiaceae
dehòm	*Euphorbia pulcherrima* Willd. ex Klotsch	Euphorbiaceae
delen	*Leucaena leucocephala* (Lam.) de Wit ssp. *leucocephala*	Fabaceae (=Leguminosae)
delen etranje	*Leucaena leucocephala* (Lam.) de Wit ssp. *glabrata* (Rose) S. Zarate	Fabaceae (=Leguminosae)
divi divi	*Caesalpinia coriaria* (Jacq.) Willd.	Fabaceae (=Leguminosae)
do jilèt	*Comocladia cuneata* Britt.	Anacardiaceae
doliv	*Moringa oleifera* Lam.	Moringaceae
doliv	*Ocotea leucoxylon* (Sw.) Mez.	Lauraceae
doliv	*Simarouba glauca* DC var. *latifolia* Cronq.	Simaroubaceae
doliv	*Thevetia peruviana* (Pers.) K. Schum.	Apocynaceae
doliv bata	*Bontia daphnoides* L.	Myoporaceae
dombou	*Trichilia pallida* Sw.	Meliaceae
dòti blanch	*Carpodiptera cubensis* Griseb.	Tiliaceae
dòti bwa blan	*Carpodiptera cubensis* Griseb.	Tiliaceae
doulè	*Morinda citrifolia* L.	Rubiaceae
dyare	*Copernicia berteroana* Becc.	Arecaceae (=Palmae)

◆◆ E, F ◆◆

COMMON NAME	SPECIES	FAMILY
ebenn	*Diospyros revoluta* Poir.	Ebenaceae
ebenn	*Rochefortia acanthophora* (DC.) Griseb.	Boraginaceae
ebenn nwa	*Rochefortia acanthophora* (DC.) Griseb.	Boraginaceae
endigo	*Cornutia pyramidata* L.	Verbenaceae
ene	*Lawsonia inermis* L.	Lythraceae
fèt pim	*Croton lucidus* L.	Euphorbiaceae
fèy anraje	*Urera baccifera* (L.) Gaud.	Urticaceae
fèy be	*Zanthoxylum pimpinelloides* (Lam.) DC.	Rutaceae
fèy dayiti	*Thespesia populnea* (L.) Soland. ex Correa	Malvaceae
fèy dòti	*Carpodiptera cubensis* Griseb.	Tiliaceae
fèy doulè	*Acnistus arborescens* (L.) Schlecht.	Solanaceae
fèy grenn	*Ricinus communis* L.	Euphorbiaceae
fèy kanèl	*Myrsine guianensis* (Aubl.) Kuntze	Myrsinaceae
fèy krapo	*Alchornea latifolia* Sw.	Euphorbiaceae
fèy lawouziye	*Senna angustiliqua* (Lam.) Irwin & Barneby var. *angustiliqua*	Fabaceae (=Leguminosae)
fèy medsen	*Jatropha curcas* L.	Euphorbiaceae
fèy nwayo	*Piper amalago* L.	Piperaceae
fèy nwayo peyi	*Piper amalago* L.	Piperaceae

◆◆ E, F ◆◆

COMMON NAME	SPECIES	FAMILY
fèy parèsè	*Polyscias* spp.	Araliaceae
fèy senjan	*Euphorbia pulcherrima* Willd. ex Klotsch	Euphorbiaceae
fèy sèzi	*Thevetia peruviana* (Pers.) K. Schum.	Apocynaceae
fèy sèzisman	*Thevetia peruviana* (Pers.) K. Schum.	Apocynaceae
fèy siwo	*Piper amalago* L.	Piperaceae
fèy wou	*Ilex macfadyenii* (Walp.) Rehder	Aquifoliaceae
fig	*Musa acuminata* Colla x *M. balbisiana* Colla 'AAA'	Musaceae
fig bannann	*Musa acuminata* Colla x *M. balbisiana* Colla 'AAA'	Musaceae
fig frans	*Ficus carica* L.	Moraceae
fig mi	*Musa acuminata* Colla x *M. balbisiana* Colla 'AAA'	Musaceae
figye	*Clusia minor* L.	Clusiaceae (=Guttiferae)
figye	*Ficus* spp.	Moraceae
figye modi	*Clusia* spp.	Clusiaceae (=Guttiferae)
figye modi mawon	*Clusia* spp.	Clusiaceae (=Guttiferae)
figye wouj	*Ficus trigonata* L.	Moraceae
filao	*Casuarina equisetifolia* L. ex J.R. & G. Forst.	Casuarinaceae
filiyè	*Ehretia tinifolia* L.	Boraginaceae
flambwayan	*Delonix regia* (Bojer) Raf.	Fabaceae (=Leguminosae)
flambwayan ble	*Jacaranda mimosifolia* D. Don	Bignoniaceae
flè dan	*Cordia mirabiloides* (Jacq.) R. & S.	Boraginaceae
flè dan flè blanch	*Cordia sulcata* DC.	Boraginaceae
flè dantisyon	*Cordia mirabiloides* (Jacq.) R. & S.	Boraginaceae
flè jalouzi	*Lawsonia inermis* L.	Lythraceae
flè koray	*Hamelia patens* Jacq.	Rubiaceae
flè lila	*Melia azedarach* L.	Meliaceae
flè mahodèm	*Ochroma pyramidale* (Cav.) Urb.	Bombacaceae
flè mòtèl	*Erythrina variegata* L.	Fabaceae (=Leguminosae)
flè senpiè	*Tecoma stans* (L.) HBK.	Bignoniaceae
flè siwo	*Sambucus* spp.	Adoxaceae
fo jiròf	*Pimenta racemosa* (Mill.) J. W. Moore var. *racemosa*	Myrtaceae
fo kenkena	*Croton eluteria* (L.) Sw.	Euphorbiaceae
fo salsparey	*Dendropanax arboreus* (L.) Decne. & Planch.	Araliaceae
franchipayn	*Plumeria obtusa* L.	Apocynaceae
franjipani	*Cubanthus umbelliformis* Urb. & Ekm.	Euphorbiaceae
franjipann	*Plumeria* spp.	Apocynaceae
franjipann blanch	*Plumeria subsessilis* A. DC.	Apocynaceae
franjipanye	*Plumeria* spp.	Apocynaceae
franjipanye blan	*Plumeria obtusa* L.	Apocynaceae
franjipanye mawon	*Plumeria* spp.	Apocynaceae
franjipanye pikan	*Plumeria tuberculata* Lodd.	Apocynaceae

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COMMON NAME	SPECIES	FAMILY
franjipanye sovaj	*Plumeria alba* L.	Apocynaceae
franjipanye wòz	*Plumeria rubra* L.	Apocynaceae
fransilad	*Caesalpinia pulcherrima* (L.) Sw.	Fabaceae (=Leguminosae)
fransilad flè jòn	*Caesalpinia pulcherrima* (L.) Sw.	Fabaceae (=Leguminosae)
fransilad flè wouj	*Caesalpinia pulcherrima* (L.) Sw.	Fabaceae (=Leguminosae)
fransilann	*Caesalpinia pulcherrima* (L.) Sw.	Fabaceae (=Leguminosae)
frasoyn	*Plumeria obtusa* L.	Apocynaceae
fwenn	*Picrasma excelsa* (Sw.) Planch.	Simaroubaceae
fwenn	*Simarouba* spp.	Simaroubaceae
fwenn etranje	*Simarouba berteroana* Krug & Urb.	Simaroubaceae
fwomaje	*Ceiba pentandra* (L.) Gaertn.	Bombacaceae
fwomaje	*Morinda citrifolia* L.	Rubiaceae

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COMMON NAME	SPECIES	FAMILY
gad mezon	*Euphorbia tirucalli* L.	Euphorbiaceae
galba	*Calophyllum calaba* L.	Clusiaceae (=Guttiferae)
galgal	*Byra buxifolia* (Murr.) Urb.	Fabaceae (=Leguminosae)
galgal	*Pictetia* spp.	Fabaceae (=Leguminosae)
galgal	*Pithecellobium circinale* (L.) Benth.	Fabaceae (=Leguminosae)
galgal	*Reynosia uncinata* Urb.	Rhmanaceae
galgal	*Rochefortia acanthophora* (DC.) Griseb.	Boraginaceae
galipo	*Hypelate trifoliata* Sw.	Sapindaceae
gamèl	*Coccoloba pubescens* L.	Polyganaceae
gayak	*Guaiacum officinale* L.	Zygophyllaceae
gayak bata	*Guaiacum* spp.	Zygophyllaceae
gayak blan	*Guaiacum sanctum* L.	Zygophyllaceae
gayak femèl	*Guaiacum sanctum* L.	Zygophyllaceae
gayak fran	*Guaiacum officinale* L.	Zygophyllaceae
gayak kadas	*Guaiacum sanctum* L.	Zygophyllaceae
gayak mal	*Guaiacum officinale* L.	Zygophyllaceae
gege	*Bucida buceras* L.	Combretaceae
gòm anime	*Hymenaea courbaril* L.	Fabaceae (=Leguminosae)
gòm bòm	*Piper amalago* L.	Piperaceae
gomye	*Bursera simaruba* (L.) Sarg.	Burseraceae
gomye blan	*Bursera simaruba* (L.) Sarg.	Burseraceae
gomye sovaj	*Trichilia hirta* L.	Meliaceae
gomye wouj	*Bursera simaruba* (L.) Sarg.	Burseraceae
gori fwenn	*Picrasma excelsa* (Sw.) Planch.	Simaroubaceae

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COMMON NAME	SPECIES	FAMILY
gorik	*Picrasma excelsa* (Sw.) Planch.	Simaroubaceae
gran bòm	*Piper amalago* L.	Piperaceae
gran fèy	*Ocotea leucoxylon* (Sw.) Mez.	Lauraceae
gran kaymit	*Chrysophyllum cainito* L.	Sapotaceae
gran kòkmolye	*Clavija domingensis* Urb. & Ekm.	Theophrastaceae
gran maho	*Hibiscus tiliaceus* L.	Malvaceae
gran maho	*Thespesia populnea* (L.) Soland. ex Correa	Malvaceae
gran medsinye	*Jatropha curcas* L.	Euphorbiaceae
gran monben	*Spondias mombin* L.	Anacardiaceae
gran sapoti	*Pouteria sapota* (Jacq.) H.E. Moore & Stearn	Sapotaceae
gratgal	*Pictetia aculeata* (Vahl) Urban	Fabaceae (=Leguminosae)
gratgal	*Reynosia uncinata* Urb.	Rhamnaceae
gratgal	*Rochefortia acanthophora* (DC.) Griseb.	Boraginaceae
gratigal	*Pictetia spinifolia* (Desv.) Urban	Fabaceae (=Leguminosae)
gratigal	*Reynosia uncinata* Urb.	Rhmanaceae
grenad	*Punica granatum* L.	Punicaceae
grenad mawon	*Adelia ricinella* L.	Euphorbiaceae
grenad mawon	*Citharexylum fruticosum* L.	Verbenaceae
grenadya	*Punica granatum* L.	Punicaceae
grenayit	*Sapindus saponaria* L.	Sapindaceae
grenn delen	*Leucaena leucocephala* (Lam.) de Wit subsp. *leucocephala*	Fabaceae (=Leguminosae)
grenn delen peyi	*Leucaena leucocephala* (Lam.) de Wit subsp. *leucocephala*	Fabaceae (=Leguminosae)
grenn dò	*Alchornea latifolia* Sw.	Euphorbiaceae
grenn kanik	*Sapindus saponaria* L.	Sapindaceae
grenn kinik	*Caesalpinia bonduc* (L.) Roxb.	Fabaceae (=Leguminosae)
grenn kininn	*Caesalpinia bonduc* (L.) Roxb.	Fabaceae (=Leguminosae)
grenn plat	*Crudia spicata* (Aubl.) Willd.	Fabaceae (=Leguminosae)
grevilya	*Grevillea robusta* A. Cunn. ex R. Br.	Proteaceae
grigri	*Buchenavia capitata* (Vahl) Eichl.	Combretaceae
grigri	*Colubrina arborescens* (Mill.) Sarg.	Rhamnaceae
grigri	*Laguncularia racemosa* (L.) Gaertner	Combretaceae
grigri	*Vitex heptaphylla* A. Juss.	Verbenaceae
grigri jòn	*Buchenavia capitata* (Vahl) Eichl.	Combretaceae
grigri mòn	*Bucida buceras* L.	Combretaceae
grigri sovaj	*Colubrina arborescens* (Mill.) Sarg.	Rhamnaceae
gwanegoul	*Albizia saman* (Jacq.) F. Muell.	Fabaceae (=Leguminosae)
gwanèl	*Meliosma impressa* Krug & Urb.	Sabiaceae
gwann	*Coccothrinax* spp.	Arecaceae (=Palmae)
gwatapana	*Caesalpinia coriaria* (Jacq.) Willd.	Fabaceae (=Leguminosae)
gwatapana	*Prosopis juliflora* (Sw.) DC.	Fabaceae (=Leguminosae)

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COMMON NAME	SPECIES	FAMILY
gwayabara	*Coccoloba uvifera* (L.) L.	Polygonaceae
gwayav	*Psidium guajava* L.	Myrtaceae
gwenn	*Coccothrinax* spp.	Arecaceae (=Palmae)
gwo figye	*Clusia major* L.	Clusiaceae (=Guttiferae)
gwo maho	*Thespesia populnea* (L.) Soland. ex Correa	Malvaceae
gwo monben	*Spondias mombin* L.	Anacardiaceae
gwo po	*Thouinidium pinnatum* (Turpin) Radlk.	Sapindaceae
gwo ti fèy	*Eugenia laevis* Berg	Myrtaceae

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COMMON NAME	SPECIES	FAMILY
ikak	*Chrysobalanus icaco* L.	Chrysobalanaceae
ilan ilan	*Cananga odorata* (Lam.) Hook. & Thoms.	Annonaceae
ilan ilan	*Michelia champaca* L.	Magnoliaceae
jakaranda	*Jacaranda mimosifolia* D. Don	Bignoniaceae
jakiye	*Artocarpus heterophyllus* Lam.	Moraceae
jambol	*Syzygium jambos* (L.) Alston	Myrtaceae
jambwazi	*Syzygium jambos* (L.) Alston	Myrtaceae
jamm de pay	*Copernicia ekmanii* Burret	Arecaceae (=Palmae)
jazmen nwi	*Cestrum nocturnum* L.	Solanaceae
jèlgal	*Pictetia spinifolia* (Desv.) Urban	Fabaceae (=Leguminosae)
jènièv	*Pouteria domingensis* (Gaertn. f.) Baehni	Sapotaceae
jèson	*Helicteres jamaicensis* Jacq.	Sterculiaceae
jijiri mawon	*Citharexylum fruticosum* L.	Verbenaceae
jimèl	*Bauhinia monandra* Kurz.	Fabaceae (=Leguminosae)
jinpa	*Genipa americana* L. var. *caruto* (Kunth.) Schumann	Rubiaceae
jiròf	*Eugenia carophylla* Thunb.	Myrtaceae
jiròf	*Pimenta racemosa* (Mill.) J. W. Moore var. *racemosa*	Myrtaceae
jòn dèf	*Pouteria domingensis* (Gaertn. f.) Baehni	Sapotaceae
joujoube	*Ziziphus mauritiana* Lam.	Rhamnaceae

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COMMON NAME	SPECIES	FAMILY
kachiman	*Annona* spp.	Annonaceae
kachiman kanèl	*Annona squamosa* L.	Annonaceae
kachiman kè bèf	*Annona reticulata* Linn.	Annonaceae
kachiman mawon	*Annona urbaniana* R.E. Fries	Annonaceae
kachiman mawon	*Zuelania guidonia* (Sw.) Britt. & Millsp.	Flacourtiaceae
kachiman sovaj	*Zuelania guidonia* (Sw.) Britt. & Millsp.	Flacourtiaceae

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COMMON NAME	SPECIES	FAMILY
kachiman zombi	*Annona rosei* Safford	Annonaceae
kafe	*Coffea arabica* L.	Rubiaceae
kafe jòn	*Allophylus occidentalis* (Sw.) Radlk.	Sapindaceae
kafe mawon	*Allophylus cominia* (L.) Sw.	Sapindaceae
kafe mawon	*Bourreria succulenta* Jacq.	Boraginaceae
kafe mawon	*Casearia guianensis* (Aubl.) Urb.	Flacourtiaceae
kafe mawon	*Citharexylum* spp.	Verbenaceae
kafe mawon	*Picramnia pentandra* Sw.	Simaroubaceae
kafe sovaj	*Citharexylum caudatum* L.	Verbenaceae
kajou	*Anacardium occidentale* L.	Anacardiaceae
kajou	*Swietenia mahagoni* (L.) Jacq.	Meliaceae
kajou etranje	*Swietenia macrophylla* G. King	Meliaceae
kajou femèl	*Cedrela odorata* L.	Meliaceae
kajou peyi	*Swietenia mahagoni* (L.) Jacq.	Meliaceae
kajou planch	*Cedrela odorata* L.	Meliaceae
kajou sovaj	*Maytenus buxifolia* (A. Rich.) Griseb.	Celastraceae
kajou venezwela	*Swietenia macrophylla* G. King	Meliaceae
kaka chen	*Capparis cynophallophora* L.	Capparaceae
kaka poul	*Miconia racemosa* (Aubl.) DC.	Melastomaceae
kakach	*Capparis cynophallophora* L.	Capparaceae
kakawo	*Theobroma cacao* L.	Sterculiaceae
kakòn mawon	*Crudia spicata* (Aubl.) Willd.	Fabaceae (=Leguminosae)
kal nwa	*Guettarda multinervis* Urb.	Rubiaceae
kalbas	*Crescentia cujete* L.	Bignoniaceae
kalbas mawon	*Crescentia linearifolia* Miers	Bignoniaceae
kalbas mawon	*Dendrosicus latifolius* (Mill.) A. Gentry	Bignoniaceae
kalbas zombi	*Dendrosicus latifolius* (Mill.) A. Gentry	Bignoniaceae
kaliandra	*Calliandra calothyrsus* Meissner	Fabaceae (=Leguminosae)
kaliptis	*Eucalyptus* spp.	Myrtaceae
kalmouk	*Citrus limetta* Risso	Rutaceae
kamf	*Cinnamomum camphora* (L.) Sieb.	Lauraceae
kamil	*Canella winterana* (L.) Gaertn.	Canellaceae
kampèch	*Haematoxylon* spp.	Fabaceae (=Leguminosae)
kampèch mawon	*Pithecellobium circinale* (L.) Benth.	Fabaceae (=Leguminosae)
kandelab	*Euphorbia lactea* Haw.	Euphorbiaceae
kandelon	*Acacia scleroxyla* Tuss.	Fabaceae (=Leguminosae)
kanèl	*Canella winterana* (L.) Gaertn.	Canellaceae
kanèl	*Cinnamomum verum* J. S. Presl.	Lauraceae
kanèl	*Ocotea wrightii* (Meissn.) Mez	Lauraceae
kanèl abey	*Myrica cerifera* L.	Myricaceae

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COMMON NAME	SPECIES	FAMILY
kanèl dous	*Myrica cerifera* L.	Myricaceae
kanèl mawon	*Ocotea foeniculacea* Mez	Lauraceae
kanèl miyèl	*Myrica cerifera* L.	Myricaceae
kanèl pwavre	*Canella winterana* (L.) Gaertn.	Canellaceae
kanik	*Caesalpinia* spp.	Fabaceae (=Leguminosae)
kanik	*Sapindus saponaria* L.	Sapindaceae
kanil	*Canella winterana* (L.) Gaertn.	Canellaceae
kapab	*Colubrina arborescens* (Mill.) Sarg.	Rhamnaceae
kapab	*Schaefferia frutescens* Jacq.	Celastraceae
kapitenn	*Malpighia* spp.	Malpighiaceae
kapris	*Tabernaemontana divaricata* (L.) R. Br. ex Roem. & Schult.	Apocynaceae
karakole	*Pouteria dictyoneura* (Griseb.) Radlk. ssp. *fuertesii* (Urb.) Cronq.	Sapotaceae
karaktè dezòm	*Bauhinia monandra* Kurz.	Fabaceae (=Leguminosae)
karambola	*Averrhoa carambola* L.	Oxalidaceae
karambouba	*Acacia macracantha* H.&B. ex Willd.	Fabaceae (=Leguminosae)
kas	*Cassia* spp.	Fabaceae (=Leguminosae)
kas baton	*Senna atomaria* (L.) Irwin & Barneby	Fabaceae (=Leguminosae)
kas dou	*Cassia fistula* L.	Fabaceae (=Leguminosae)
kas mawon	*Senna* spp.	Fabaceae (=Leguminosae)
kas panyòl	*Cassia* spp.	Fabaceae (=Leguminosae)
kase rach	*Pera bumeliifolia* Griseb.	Euphorbiaceae
kase rach	*Ziziphus rhodoxylon* Urb.	Rhamnaceae
kase raj	*Pera bumeliifolia* Griseb.	Euphorbiaceae
kase sèk	*Samyda dodecandra* Jacq.	Flacourtiaceae
kaskari	*Croton eluteria* (L.) Sw.	Euphorbiaceae
kasya	*Senna siamea* (Lam.) Irwin & Barneby	Fabaceae (=Leguminosae)
kat chemen	*Ardisia angustata* Urb.	Myrsinaceae
katast	*Lemaireocereus hystrix* (Haw.) Britton & Rose	Cactaceae
katen	*Castanea sativa* Mill.	Fagaceae
katie	*Pseudophoenix vinifera* (Mart.) Becc.	Arecaceae (=Palmae)
kawos	*Attalea crassispatha* (Mart.) Burret	Arecaceae (=Palmae)
kawos etranje	*Attalea crassispatha* (Mart.) Burret	Arecaceae (=Palmae)
kawotchou	*Ficus elastica* Roxb. ex Hornem.	Moraceae
kawotchou	*Hevea brasiliensis* (HBK) Muell. Arg.	Euphorbiaceae
kawoziye	*Attalea crassispatha* (Mart.) Burret	Arecaceae (=Palmae)
kawoziye	*Elaeis guineensis* L.	Arecaceae (=Palmae)
kayman	*Lonchocarpus neurophyllus* Urb.	Fabaceae (=Leguminosae)
kayman fran	*Bunchosia nitida* (Jacq.) L.C. Rich.	Malpighiaceae
kaymit	*Chrysophyllum* spp.	Sapotaceae
kaymit fèy dò	*Chrysophyllum cainito* L.	Sapotaceae

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COMMON NAME	SPECIES	FAMILY
kaymit fran	*Chrysophyllum cainito* L.	Sapotaceae
kaymit jaden	*Chrysophyllum cainito* L.	Sapotaceae
kaymit mawon	*Chrysophyllum oliviforme* L. var. *oliviforme*	Sapotaceae
kaymit sovaj	*Chrysophyllum oliviforme* L. var. *oliviforme*	Sapotaceae
kaypon	*Chionanthus domingensis* Lam.	Oleaceae
kazòwina	*Casuarina* spp.	Casuarinaceae
kè bèf	*Annona* spp.	Annonaceae
kenèp	*Melicoccus bijugatus* Jacq.	Sapindaceae
kenèp chinwa	*Litchi chinensis* Sonn.	Sapindaceae
kenèp fwi	*Melicoccus bijugatus* Jacq.	Sapindaceae
kenèp mal	*Melicoccus bijugatus* Jacq.	Sapindaceae
kenèp mawon	*Exothea paniculata* (Juss.) Radlk.	Sapindaceae
kenkena etranje	*Simarouba glauca* DC. var. *latifolia* Cronq.	Simaroubaceae
kenkena peyi	*Exostema caribaeum* (Jacq.) Roem. & Schult.	Rubiaceae
kimak	*Chiococca alba* (L.) Hitchc.	Rubiaceae
kinik	*Caesalpinia* spp.	Fabaceae (=Leguminosae)
kinik jòn	*Caesalpinia* spp.	Fabaceae (=Leguminosae)
kininn	*Exostema caribaeum* (Jacq.) Roem. & Schult.	Rubiaceae
kiratèla	*Curatella americana* L.	Dilleniaceae
klou jiròf	*Pimenta racemosa* (Mill.) J. W. Moore var. *racemosa*	Myrtaceae
kòdon	*Crudia spicata* (Aubl.) Willd.	Fabaceae (=Leguminosae)
kòk	*Cocos nucifera* L.	Arecaceae (=Palmae)
kòk mòl	*Ziziphus* spp.	Rhamnaceae
kòk shango	*Lobelia assurgens* L.	Campanulaceae
kòkèliko	*Cordia sebestena* L.	Boraginaceae
koko ginen	*Acrocomia aculeata* (Jacq.) Lodd. ex Mart.	Arecaceae (=Palmae)
koko makak	*Bactris plumeriana* Mart.	Arecaceae (=Palmae)
koko makak	*Geonoma interrupta* (Ruiz & Pav.) Mart. var. *interrupta*	Arecaceae (=Palmae)
kokoye	*Cocos nucifera* L.	Arecaceae (=Palmae)
kokoye miskèt	*Cocos nucifera* L. 'Jamaica Tall'	Arecaceae (=Palmae)
kokoye nenn	*Cocos nucifera* L. 'Malayan Dwarf'	Arecaceae (=Palmae)
kokoye panyòl	*Cocos nucifera* L. 'Panama Tall'	Arecaceae (=Palmae)
kokoye très pikos	*Cocos nucifera* L. 'Jamaica Tall'	Arecaceae (=Palmae)
kola	*Cola acuminata* (Beauv.) Schott. & Endl.	Sterculiaceae
kolèg	*Bauhinia divaricata* L.	Fabaceae (=Leguminosae)
kolorad	*Bombacopsis emarginata* (A. Rich.) A. Robyns	Bombacaceae
kolorad	*Pachira aquatica* Aubl.	Bombacaceae
kolye	*Pithecellobium arboreum* (L.) Urb.	Fabaceae (=Leguminosae)
koma	*Mastichodendron foetidissimum* (Jacq.) Cronq. ssp. *foetidissimum*	Sapotaceae
koma	*Meliosma abbreviata* Urb.	Sabiaceae

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COMMON NAME	SPECIES	FAMILY
koma	*Sloanea amygdalina* Griseb.	Elaeocarpaceae
koma blan	*Mastichodendron foetidissimum* (Jacq.) Cronq. ssp. *foetidissimum*	Sapotaceae
koma fran	*Mastichodendron foetidissimum* (Jacq.) Cronq. ssp. *foetidissimum*	Sapotaceae
koma jòn	*Meliosma abbreviata* Urb.	Sabiaceae
koma wouj	*Bumelia salicifolia* (L.) Sw.	Sapotaceae
kòmiye	*Mouriri domingensis* (Tuss.) Spach	Melastomataceae
kònichon peyi	*Averrhoa carambola* L.	Oxalidaceae
koray	*Hamelia patens* Jacq.	Rubiaceae
koray wouj	*Hamelia patens* Jacq.	Rubiaceae
kotèl	*Pera glomerata* Urb.	Euphorbiaceae
kotlèt	*Drypetes* spp.	Euphorbiaceae
koton flè	*Ochroma pyramidale* (Cav.) Urb.	Bombacaceae
koton maho	*Hibiscus tiliaceus* L.	Malvaceae
koton mawon	*Hibiscus tiliaceus* L.	Malvaceae
koton rat	*Helicteres jamaicensis* Jacq.	Sterculiaceae
koton swa	*Calotropis procera* (Ait.) R. Br.	Asclepiadaceae
koton swa	*Ochroma pyramidale* (Cav.) Urb.	Bombacaceae
koubari	*Cynometra americana* Vogel	Fabaceae (=Leguminosae)
koubari	*Hymenaea courbaril* L.	Fabaceae (=Leguminosae)
kouronn krist	*Euphorbia milii* Ch. des Moulins	Euphorbiaceae
kowos	*Acrocomia aculeata* (Jacq.) Lodd. ex Mart.	Arecaceae (=Palmae)
kowosòl	*Annona muricata* L.	Annonaceae
kowosòl mawon	*Annona glabra* L.	Annonaceae
kowosòl zombi	*Annona montana* Macf.	Annonaceae
koynmol	*Ziziphus rignonii* Delp.	Rhamnaceae
krèv rash	*Ziziphus rhodoxylon* Urb.	Rhamnaceae
kris marinn	*Suriana maritima* L.	Simaroubaceae
kriz marinn	*Suriana maritima* L.	Simaroubaceae
kròk	*Ximenia americana* L.	Olacaceae
kròk chen	*Cordia mirabiloides* (Jacq.) R. & S.	Boraginaceae
kròk chen	*Pisonia aculeata* L.	Nyctaginaceae
kròk chen	*Randia aculeata* L.	Rubiaceae
kròk souri	*Chiococca alba* (L.) Hitchc.	Rubiaceae
kwokwo	*Elaeis guineensis* L.	Arecaceae (=Palmae)
kwokwo ginen	*Elaeis guineensis* L.	Arecaceae (=Palmae)
kwoton	*Codiaeum variegatum* (L.) Blume	Euphorbiaceae

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COMMON NAME	SPECIES	FAMILY
laba bom	*Couroupita guianensis* Aubl.	Lecythidaceae
laba fwikase	*Blighia sapida* Koenig	Sapindaceae
laba koray	*Erythrina variegata* L.	Fabaceae (=Leguminosae)
laba pen	*Artocarpus altilis* (Parkinson) Fosberg	Moraceae
laba pen	*Bocconia frutescens* L.	Papaveraceae
labe wouj	*Peltophorum berteroanum* Urb.	Fabaceae (=Leguminosae)
labou kochon	*Drypetes alba* Poit.	Euphorbiaceae
labriziyèt	*Comocladia cuneata* Britt.	Anacardiaceae
lagèt	*Lagetta lagetto* (Sw.) Nash	Thymeliaceae
laitye	*Aspidosperma cuspa* (HBK.) Blake & Pittier	Apocynaceae
lam veritab	*Artocarpus altilis* (Parkinson) Fosberg	Moraceae
lamandi	*Prunus myrtifolia* (L.) Urb.	Rosaceae
lamandye	*Prunus* spp.	Rosaceae
lamandye gran fèy	*Prunus occidentalis* Sw.	Rosaceae
lamandye ti fèy	*Prunus myrtifolia* (L.) Urb.	Rosaceae
lang bèf	*Clavija domingensis* Urb. & Ekm.	Theophrastaceae
lanis sovaj	*Piper amalago* L.	Piperaceae
latanye balay	*Coccothrinax miraguama* (Kunth) León	Arecaceae (=Palmae)
latanye bourik	*Coccothrinax argentea* (Lodd. ex Schult.) Sarg. ex Becc.	Arecaceae (=Palmae)
latanye chapo	*Sabal* spp.	Arecaceae (=Palmae)
latanye fran	*Sabal causiarum* (Cook) Bailey	Arecaceae (=Palmae)
latanye jòn	*Sabal causiarum* (Cook) Bailey	Arecaceae (=Palmae)
latanye lamè	*Thrinax* spp.	Arecaceae (=Palmae)
latanye mawon	*Coccothrinax argentea* (Lodd. ex Schult.) Sarg. ex Becc.	Arecaceae (=Palmae)
latanye mè	*Thrinax* spp.	Arecaceae (=Palmae)
latanye pikan	*Zombia antillarum* (Desc. ex Jackson) Bailey	Arecaceae (=Palmae)
latanye savann	*Coccothrinax argentea* (Lodd. ex Schult.) Sarg. ex Becc.	Arecaceae (=Palmae)
latanye zombi	*Zombia antillarum* (Desc. ex Jackson) Bailey	Arecaceae (=Palmae)
legliz	*Adenanthera pavonina* L.	Fabaceae (=Leguminosae)
lele	*Parkia roxburghii* G. Don	Fabaceae (=Leguminosae)
lète	*Tabernaemontana citrifolia* L.	Apocynaceae
liann barik	*Trichostigma octandrum* (L.) H. Walt.	Phytolaccaceae
liann klou	*Dalbergia* spp.	Fabaceae (=Leguminosae)
liann kolik	*Byrsonima spicata* (Cav.) HBK.	Malpighiaceae
liann kròk chen	*Ziziphus mauritiana* Lam.	Rhamnaceae
liann panye	*Trichostigma octandrum* (L.) H. Walt.	Phytolaccaceae
liann towo	*Byrsonima spicata* (Cav.) HBK.	Malpighiaceae
libidibi	*Caesalpinia coriaria* (Jacq.) Willd.	Fabaceae (=Leguminosae)
lièj	*Annona glabra* L.	Annonaceae

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COMMON NAME	SPECIES	FAMILY
lila	*Melia azedarach* L.	Meliaceae
lila etranje	*Gliricidia sepium* (Jacq.) Walp.	Fabaceae (=Leguminosae)
lila nwi	*Cestrum nocturnum* L.	Solanaceae
limon frans	*Citrus limon* (L.) Burm.	Rutaceae
lisina	*Leucaena leucocephala* (Lam.) de Wit subsp. *glabrata* (Rose) S. Zarate	Fabaceae (=Leguminosae)
lisina ti fèy	*Leucaena diversifolia* (Schlecht.) Benth. susbsp. *diversifolia*	Fabaceae (=Leguminosae)
litchi	*Litchi chinensis* Sonn.	Sapindaceae
lokwat	*Eriobotrya japonica* (Thunb.) Lindl.	Rosaceae
lombay	*Ilex krugiana* Loes.	Aquifoliaceae
long bab	*Pseudolmedia spuria* (Sw.) Griseb.	Moraceae
lorie	*Cinnamomum* spp.	Lauraceae
lorie	*Licaria triandra* (Sw.) Kostermans	Lauraceae
lorie	*Ocotea* spp.	Lauraceae
lorie blan	*Nerium oleander* L.	Apocynaceae
lorie blan	*Ocotea* spp.	Lauraceae
lorie gèp	*Ocotea leucoxylon* (Sw.) Mez.	Lauraceae
lorie gran fèy	*Ocotea globosa* (Aublet) Schlecht & Cham.	Lauraceae
lorie jaden	*Nerium oleander* L.	Apocynaceae
lorie jòn	*Licaria triandra* (Sw.) Kostermans	Lauraceae
lorie jòn	*Ocotea membranacea* (Sw.) Howard	Lauraceae
lorie kanèl	*Cinnamomum elongatum* (Nees) Kostermans	Lauraceae
lorie piant	*Ocotea floribunda* (Sw.) Mez	Lauraceae
lorie ti fèy	*Cinnamomum elongatum* (Nees) Kostermans	Lauraceae
lorie twopikal	*Nerium oleander* L.	Apocynaceae
lorie wòz	*Cinnamomum montanum* (Sw.) Bercht. & Presl.	Lauraceae
lorie wòz	*Nerium oleander* L.	Apocynaceae
lorie wòz	*Ocotea leucoxylon* (Sw.) Mez	Lauraceae
losanj	*Pithecellobium lentiscifolium* (A. Rich.) C. Wr. ex Sauv.	Fabaceae (=Leguminosae)
lwisin mo	*Wallenia laurifolia* (Jacq.) Sw.	Myrsinaceae

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COMMON NAME	SPECIES	FAMILY
mabi	*Colubrina elliptica* (Sw.) Briz. & Stern	Rhamnaceae
machandèz	*Metopium toxiferum* (L.) Krug & Urb.	Anacardiaceae
machanwaz	*Metopium toxiferum* (L.) Krug & Urb.	Anacardiaceae
madam jan	*Aspidosperma cuspa* (HBK.) Blake & Pittier	Apocynaceae
madam klòd	*Citharexylum fruticosum* L.	Verbenaceae

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COMMON NAME	SPECIES	FAMILY
madam nayiz	*Parkinsonia aculeata* L.	Fabaceae (=Leguminosae)
madam yas	*Parkinsonia aculeata* L.	Fabaceae (=Leguminosae)
madlenn	*Leucaena leucocephala* (Lam.) de Wit subsp. *leucocephala*	Fabaceae (=Leguminosae)
magèrit	*Annona urbaniana* R.E. Fries	Annonaceae
magèt	*Cryptorhiza haitiensis* Urb.	Myrtaceae
magèt	*Eugenia maleolens* Pers.	Myrtaceae
magèt	*Myrcia citrifolia* (Aubl.) Urban	Myrtaceae
magèt	*Myrcianthes esnardiana* (Urb. & Ekm.) Alain	Myrtaceae
magèt	*Pimenta dioica* (L.) Merr.	Myrtaceae
magèt	*Psidium dictyophyllum* Urb. & Ekm.	Myrtaceae
maho	*Daphnopsis americana* (Mill.) J.R. Johnst. ssp. *cumingii* (Meissn.) Nevl.	Thymelaeaceae
maho	*Hibiscus* spp.	Malvaceae
maho ble	*Hibiscus elatus* Sw.	Malvaceae
maho fran	*Hibiscus tiliaceus* L.	Malvaceae
maho piman	*Trema lamarckiana* (Roem. & Schult.) Blume	Ulmaceae
mahodèm	*Ochroma pyramidale* (Cav.) Urb.	Bombacaceae
makabi	*Ximenia americana* L.	Olacaceae
makabi	*Ziziphus rignonii* Delp.	Rhamnaceae
makata	*Caesalpinia pulcherrima* (L.) Sw.	Fabaceae (=Leguminosae)
makoutouka	*Prestoea acuminata* (Willd.) H. E. Moore	Palmaceae
makrio	*Mecranium* spp.	Melastomataceae
makrio	*Miconia* spp.	Melastomataceae
maksmilyen	*Hippomane mancinella* L.	Euphorbiaceae
maksmiye	*Metopium toxiferum* (L.) Krug & Urb.	Anacardiaceae
malagèt	*Cryptorhiza haitiensis* Urb.	Myrtaceae
malagèt	*Eugenia maleolens* Pers.	Myrtaceae
malagèt	*Myrcia citrifolia* (Aubl.) Urban	Myrtaceae
malagèt	*Myrcianthes esnardiana* (Urb. & Ekm.) Alain	Myrtaceae
malagèt	*Pimenta dioica* (L.) Merr.	Myrtaceae
malagèt	*Psidium dictyophyllum* Urb. & Ekm.	Myrtaceae
mamiye mawon	*Annona glabra* L.	Annonaceae
mancheni	*Hippomane mancinella* L.	Euphorbiaceae
mancheni	*Metopium toxiferum* (L.) Krug & Urb.	Anacardiaceae
manchinil	*Hippomane mancinella* L.	Euphorbiaceae
mandaren	*Citrus reticulata* Blanco	Rutaceae
mang	*Avicennia germinans* (L.) L.	Verbenaceae
mang	*Conocarpus erectus* L.	Combretaceae
mang	*Laguncularia racemosa* (L.) Gaertn., f.	Combretaceae

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COMMON NAME	SPECIES	FAMILY
mang	*Mangifera indica* L.	Anacardiaceae
mang	*Myrsine coriacea* (Sw.) R. Br. ex Roem. & Schult.	Myrsinaceae
mang	*Rhizophora mangle* L.	Rhizophoraceae
mang blan	*Bontia daphnoides* L.	Myoporaceae
mang blan	*Laguncularia racemosa* (L.) Gaertn., f.	Combretaceae
mang chandèl	*Rhizophora mangle* L.	Rhizophoraceae
mang kabrit	*Pithecellobium circinale* (L.) Benth.	Fabaceae (=Leguminosae)
mang mawon	*Bontia daphnoides* L.	Myoporaceae
mang nwa	*Avicennia germinans* (L.) L.	Verbenaceae
mang nwa	*Conocarpus erectus* L.	Combretaceae
mang nwa	*Rhizophora mangle* L.	Rhizophoraceae
mang ti fèy	*Dodonaea viscosa* (L.) Jacq. var. *arborescens* (Cunn.) Sherff	Sapindaceae
mang wouj	*Rhizophora mangle* L.	Rhizophoraceae
mangiye	*Mangifera indica* L.	Anacardiaceae
mangiye	*Prunus myrtifolia* (L.) Urb.	Rosaceae
mangliye	*Avicennia germinans* (L.) L.	Verbenaceae
mangliye	*Conocarpus erectus* L.	Combretaceae
mangliye	*Laguncularia racemosa* (L.) Gaertn., f.	Combretaceae
mangliye	*Rhizophora mangle* L.	Rhizophoraceae
mango	*Mangifera indica* L.	Anacardiaceae
mangostinn	*Garcinia mangostana* L.	Clusiaceae (=Guttiferae)
manje kabrit	*Senna atomaria* (L.) Irwin & Barneby	Fabaceae (=Leguminosae)
manman gèp	*Urera baccifera* (L.) Gaud.	Urticaceae
manseniye	*Hippomane mancinella* L.	Euphorbiaceae
manseniye	*Metopium* spp.	Anacardiaceae
mapou	*Ceiba pentandra* (L.) Gaertn.	Bombacaceae
mapou blan	*Neobuchia paulinae* Urb.	Bombacaceae
mapou etranje	*Adansonia digitata* L.	Bombacaceae
mapou gri	*Bourreria succulenta* Jacq.	Boraginaceae
mapou koton	*Ceiba pentandra* (L.) Gaertn.	Bombacaceae
mapou zombi	*Adansonia digitata* L.	Bombacaceae
mari jinn	*Trichilia* spp.	Meliaceae
mari jòn	*Leucaena leucocephala* (Lam.) de Wit ssp. *leucocephala*	Fabaceae (=Leguminosae)
maskarit	*Ricinus communis* L.	Euphorbiaceae
maskristi	*Ricinus communis* L.	Euphorbiaceae
maskriti	*Ricinus communis* L.	Euphorbiaceae
matouren	*Bauhinia divaricata* L.	Fabaceae (=Leguminosae)
mayakayul	*Pisonia aculeata* L.	Nyctaginaceae
mayi bouyi	*Duranta repens* L.	Verbenaceae

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COMMON NAME	SPECIES	FAMILY
mayn lamè	*Coccoloba pubescens* L.	Polygonaceae
medsinye	*Jatropha* spp.	Euphorbiaceae
medsinye beni	*Jatropha curcas* L.	Euphorbiaceae
medsinye gran fèy	*Jatropha curcas* L.	Euphorbiaceae
medsinye miltifid	*Jatropha multifida* L.	Euphorbiaceae
medsinye panyòl	*Jatropha multifida* L.	Euphorbiaceae
melalika	*Melaleuca quiquenervia* (Cav.) S.T. Blake	Myrtaceae
meris	*Pseudolmedia spuria* (Sw.) Griseb.	Moraceae
meriz	*Eugenia* spp.	Myrtaceae
merizye	*Eugenia* spp.	Myrtaceae
mevis	*Coccoloba diversifolia* Jacq.	Polygonaceae
mi	*Morus nigra* L.	Moraceae
milat	*Metopium brownei* (Jacq.) Urb.	Anacardiaceae
miskad	*Myristica fragrans* Houtt.	Myristicaeae
miskadye	*Myristica fragrans* Houtt.	Myristicaeae
mit	*Eugenia rhombea* (Berg) Krug & Urban	Myrtaceae
mit	*Murraya paniculata* (L.) Jack	Rutaceae
mit fèy lorie	*Myrcianthes fragrans* (Sw.) McVaugh	Myrtaceae
mit fèy lorie	*Pimenta racemosa* (Mill.) J. W. Moore var. *racemosa*	Myrtaceae
mit fèy sitwon	*Myrcia citrifolia* (Aubl.) Urban	Myrtaceae
miwobalann	*Spondias mombin* L.	Anacardiaceae
monben	*Spondias mombin* L.	Anacardiaceae
monben bata	*Sapindus saponaria* L.	Sapindaceae
monben bata	*Trichilia hirta* L.	Meliaceae
monben fran	*Spondias mombin* L.	Anacardiaceae
monben jòn	*Spondias dulcis* Parkinson	Anacardiaceae
monben panyòl	*Spondias* spp.	Anacardiaceae
morepa	*Erythrina* spp.	Fabaceae (=Leguminosae)
mòtèl	*Erythrina* spp.	Fabaceae (=Leguminosae)
mòtèl	*Gliricidia sepium* (Jacq.) Walp.	Fabaceae (=Leguminosae)
mòtèl debou	*Thespesia populnea* (L.) Soland. ex Correa	Malvaceae
mòtèl etranje	*Spathodea campanulata* Beauv.	Bignoniaceae
moureye pikan	*Malpighia* spp.	Malpighiaceae
mpanash	*Bumelia salicifolia* (L.) Sw.	Sapotaceae

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COMMON NAME	SPECIES	FAMILY
nago	*Erythroxylum areolatum* L.	Erythroxylaceae
nim	*Azadirachta indica* Adr. Juss.	Meliaceae
nogal	*Juglans jamaicensis* C. DC.	Juglandaceae
nwa	*Aleurites moluccana* (L.) Willd.	Euphorbiaceae
nwa kajou	*Anacardium occidentale* L.	Anacardiaceae
nwa koko	*Cocos nucifera* L.	Arecaceae
nwa kola	*Cola acuminata* (Beauv.) Schott. & Endl.	Sterculiaceae
nwa miskad	*Myristica fragrans* Houtt.	Myristicaeae
nwa sèpan	*Thevetia peruviana* (Pers.) K. Schum.	Apocynaceae
nwaye	*Aleurites moluccana* (L.) Willd.	Euphorbiaceae
nwazèt	*Aleurites* spp.	Euphorbiaceae
nwazèt	*Omphalea* spp.	Euphorbiaceae
nwazèt peyi	*Omphalea* spp.	Euphorbiaceae

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COMMON NAME	SPECIES	FAMILY
olivye	*Moringa oleifera* Lam.	Moringaceae
olivye bata	*Bontia daphnoides* L.	Myoporaceae
om de pay	*Copernicia ekmanii* Burret	Arecaceae
pal	*Pseudophoenix lediniana* Read	Arecaceae (=Palmae)
paletiviye	*Avicennia germinans* (L.) L.	Verbenaceae
paletiviye	*Conocarpus erectus* L.	Combretaceae
palm	*Geonoma interrupta* (Ruiz & Pav.) Mart. var. *interrupta*	Arecaceae (=Palmae)
palm koyo	*Coccothrinax argentea* (Lodd. ex Schult.) Sarg. ex Becc.	Arecaceae (=Palmae)
palma	*Calyptronoma rivalis* (Cook) Bailey	Arecaceae (=Palmae)
palma kristi	*Ricinus communis* L.	Euphorbiaceae
palmaven	*Calyptronoma plumeriana* (Martius) Lourteig	Arecaceae (=Palmae)
palmaven	*Prestoea acuminata* (Willd.) H. E. Moore	Arecaceae (=Palmae)
palmis	*Guarea guidonia* (L.) Sleumer	Meliaceae
palmis	*Roystonea borinquena* O.F. Cook	Arecaceae (=Palmae)
palmis chapelèt	*Prestoea acuminata* (Willd.) H. E. Moore	Arecaceae (=Palmae)
palmis dezenn	*Cycas revoluta* L.	Cycadaceae
palmistaven	*Pseudophoenix vinifera* (Mart.) Becc.	Arecaceae (=Palmae)
pamplemous	*Citrus* x *paradisi* Macf.	Rutaceae
panyòl mawon	*Phyllanthus juglandifolius* Willd. ssp. *juglandifolius*	Euphorbiaceae
papay	*Carica papaya* L.	Caricaceae
papay sovaj	*Jatropha multifida* L.	Euphorbiaceae
papelit	*Casearia sylvestris* Sw. var. *sylvestris*	Flacourtaceae
papelit	*Coccoloba buchii* Schmidt.	Polygonaceae

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COMMON NAME	SPECIES	FAMILY
papelit	*Erythroxylum areolatum* L.	Erythroxylaceae
paresè	*Polyscias* spp.	Araliaceae
paresè kloti	*Polyscias pinnata* Forst.	Araliaceae
paresòl	*Cordia sulcata* DC.	Boraginaceae
pat tòti	*Opuntia moniliformis* (L.) Haw.	Cactaceae
pativiye	*Dodonaea viscosa* (L.) Jacq. var. *arborescens* (Cunn.) Sherff	Sapindaceae
pay	*Sabal domingensis* Becc.	Arecaceae
pèch	*Prunus persica* (L.) Batsch.	Rosaceae
pèch mawon	*Persea* spp.	Lauraceae
pen dostrali	*Casuarina* spp.	Casuarinaceae
pendoula	*Citharexylum fruticosum* L.	Verbenaceae
pengwen	*Yucca aloifolia*	Liliaceae
pepit pòm	*Ziziphus mauritiana* Lam.	Rhamnaceae
pes piè	*Suriana maritima* L.	Simaroubaceae
pèsiyèt	*Polyscias balfouriana* (Hort. Sander.) L.H. Bailey	Araliaceae
pèt djab	*Hura crepitans* L.	Euphorbiaceae
pich pen	*Casuarina* spp.	Casuarinaceae
pich pen	*Pinus* spp.	Pinaceae
pikan arada	*Casearia aculeata* Jacq.	Flacourtiaceae
pikan kare	*Casearia ilicifolia* Vent.	Flacourtiaceae
pikan wòz	*Xylosma lineolatum* Urb. & Ekm.	Flacourtiaceae
piman dlo	*Melia azedarach* L.	Meliaceae
pine	*Zanthoxylum* spp.	Rutaceae
pine blan	*Zanthoxylum martinicense* (Lam.) DC.	Rutaceae
pine jòn	*Zanthoxylum* spp.	Rutaceae
pini	*Zanthoxylum* spp.	Rutaceae
pistach	*Sterculia apetala* (Jacq.) Karst.	Sterculiaceae
piyon	*Gliricidia sepium* (Jacq.) Walp.	Fabaceae (=Leguminosae)
piyong	*Gliricidia sepium* (Jacq.) Walp.	Fabaceae (=Leguminosae)
ple	*Colubrina arborescens* (Mill.) Sarg.	Rhamnaceae
ple	*Schaefferia frutescens* Jacq.	Celastraceae
pòm	*Anacardium occidentale* L.	Anacardiaceae
pòm grenad	*Punica granatum* L.	Punicaceae
pòm jamayik	*Syzygium malaccense* (L.) Merr. & Perry	Myrtaceae
pòm kajou	*Anacardium occidentale* L.	Anacardiaceae
pòm kanèl	*Annona squamosa* L.	Annonaceae
pòm malezi	*Syzygium malaccense* (L.) Merr. & Perry	Myrtaceae
pòm malkadi	*Ziziphus mauritiana* Lam.	Rhamnaceae
pòm malkadik	*Ziziphus mauritiana* Lam.	Rhamnaceae
pòm savon	*Sapindus saponaria* L.	Sapindaceae

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COMMON NAME	SPECIES	FAMILY
pòm sitè	*Spondias dulcis* Parkinson	Anacardiaceae
pòm tòch	*Curatella americana* L.	Dilleniaceae
pòm wòz	*Syzygium jambos* (L.) Alston	Myrtaceae
pòm zombi	*Hippomane* spp.	Euphorbiaceae
prentan	*Cercidium praecox* (R. & P.) Harms	Fabaceae (=Leguminosae)
pwa dou	*Inga vera* Willd. ssp. *vera*	Fabaceae (=Leguminosae)
pwa konfiti	*Hymenaea courbaril* L.	Fabaceae (=Leguminosae)
pwa palmis	*Andira inermis* (W. Wr.) DC.	Fabaceae (=Leguminosae)
pwa sikren	*Inga vera* Willd. ssp. *vera*	Fabaceae (=Leguminosae)
pwa vach	*Alchornea latifolia* Sw.	Euphorbiaceae
pwa valèt	*Sesbania grandiflora* (L.) Pers.	Fabaceae (=Leguminosae)
pwa valye	*Sesbania grandiflora* (L.) Pers.	Fabaceae (=Leguminosae)
pwa valyè	*Sesbania grandiflora* (L.) Pers.	Fabaceae (=Leguminosae)
pwav jamayik	*Pimenta dioica* (L.) Merr.	Myrtaceae
pwavye	*Colubrina arborescens* (Mill.) Sarg.	Rhamnaceae
pwavye jamayik	*Myrcia citrifolia* (Aubl.) Urb.	Myrtaceae
pwaye	*Erythroxylum areolatum* L.	Erythroxylaceae
pwaye	*Pyrus communis* L.	Rosaceae
pwaye	*Tabebuia heterophylla* (DC.) Britton	Bignoniaceae
pwaye jamayik	*Myrcia citrifolia* (Aubl.) Urban	Myrtaceae
pwazon lasinèt	*Pithecellobium arboreum* (L.) Urb.	Fabaceae (=Leguminosae)
pwensiyad	*Caesalpinia pulcherrima* (L.) Sw.	Fabaceae (=Leguminosae)
pwensiyana	*Delonix regia* (Bojer) Raf.	Fabaceae (=Leguminosae)
pwensiyeta	*Euphorbia pulcherrima* Willd. ex Klotsch	Euphorbiaceae

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COMMON NAME	SPECIES	FAMILY
rabi	*Hura crepitans* L.	Euphorbiaceae
rakèt	*Consolea macracantha* (Mill.) Lem.	Cactaceae
rakèt	*Euphorbia lactea* Haw.	Euphorbiaceae
rakèt	*Opuntia ficus-indica* (L.) Mill.	Cactaceae
rakèt panyòl	*Opuntia moniliformis* (L.) Haw.	Cactaceae
ramo	*Trophis racemosa* (L.) Urban	Moraceae
ramon	*Trophis racemosa* (L.) Urban	Moraceae
ramon chwal	*Trophis racemosa* (L.) Urban	Moraceae
reglis	*Adenanthera pavonina* L.	Fabaceae (=Leguminosae)
rezen	*Coccoloba* spp.	Polygonaceae
rezen	*Wallenia laurifolia* (Jacq.) Sw.	Myrsinaceae
rezen bòdlamè	*Coccoloba uvifera* (L.) L.	Polygonaceae

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COMMON NAME	SPECIES	FAMILY
rezen bouzen	*Coccoloba diversifolia* Jacq.	Polygonaceae
rezen fè	*Coccoloba uvifera* (L.) L.	Polygonaceae
rezen gran fèy	*Coccoloba pubescens* L.	Polygonaceae
rezen lamè	*Coccoloba uvifera* (L.) L.	Polygonaceae
rezen mawon	*Coccoloba diversifolia* Jacq.	Polygonaceae
rezen mawon	*Maytenus buxifolia* (A. Rich.) Griseb.	Celastraceae
rezen mawon	*Parathesis* spp.	Myrsinaceae
rezen mawon	*Wallenia laurifolia* Jacq.	Myrsinaceae
rezen pèroke	*Trichilia hirta* L.	Meliaceae
risin	*Ricinus communis* L.	Euphorbiaceae

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COMMON NAME	SPECIES	FAMILY
sabliye	*Comocladia pinnatifolia* L.	Anacardiaceae
sabliye	*Hura crepitans* L.	Euphorbiaceae
salsparèy bata	*Dendropanax arboreus* (L.) Decne. & Planch.	Arialaceae
salsparèy mawon	*Dendropanax arboreus* (L.) Decne. & Planch.	Arialaceae
saman	*Albizia saman* (Jacq.) F. Muell.	Fabaceae (=Leguminosae)
sandragon	*Pterocarpus officinalis* Jacq.	Fabaceae (=Leguminosae)
sapoti	*Manilkara* spp.	Sapotaceae
sapoti	*Micropholis polita* (Griseb.) Pierre ssp. *hotteana* Judd	Sapotaceae
sapoti	*Pouteria sapota* (Jacq.) H.E. Moore & Stearn	Sapotaceae
sapoti mamelad	*Pouteria sapota* (Jacq.) H.E. Moore & Stearn	Sapotaceae
sapoti mawon	*Bumelia salicifolia* (L.) Sw.	Sapotaceae
sapoti mawon	*Manilkara* spp.	Sapotaceae
sapoti nwa	*Manilkara bidentata* (A. DC.) Chev.	Sapotaceae
sapotiye	*Pouteria sapota* (Jacq.) H.E. Moore & Stearn	Sapotaceae
sapotiye jòn dèf	*Pouteria sapota* (Jacq.) H.E. Moore & Stearn	Sapotaceae
satanjou	*Cupania americana* L.	Sapindaceae
satanye	*Cupania americana* L.	Sapindaceae
satanye	*Matayba scrobiculata* (HBK) Radlk.	Sapindaceae
satanye mawon	*Matayba scrobiculata* (HBK) Radlk.	Sapindaceae
savonèt	*Sapindus saponaria* L.	Sapindaceae
savonèt peyi	*Sapindus saponaria* L.	Sapindaceae
savonyè	*Sapindus saponaria* L.	Sapindaceae
sèd	*Cedrela odorata* L.	Meliaceae
sèd blan	*Cedrela odorata* L.	Meliaceae
sèd wouj	*Cedrela odorata* L.	Meliaceae
senjan divè	*Euphorbia pulcherrima* Willd. ex Klotsch	Euphorbiaceae

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COMMON NAME	SPECIES	FAMILY
senn	*Senna* spp.	Fabaceae (=Leguminosae)
sentèspri	*Capparis frondosa* Jacq.	Capparaceae
sèpan	*Thevetia peruviana* (Pers.) K. Schum.	Apocynaceae
seriz	*Malpighia glabra* L.	Malpighiaceae
seriz dayiti	*Malpighia glabra* L.	Malpighiaceae
seriz mè	*Ximenia americana* L.	Olacaceae
seriz sendoming	*Malpighia glabra* L.	Malpighiaceae
seriz sirinam	*Eugenia uniflora* L.	Myrtaceae
sewal	*Crossopetalum rhacoma* Crantz	Celastraceae
sibilinn	*Phyllanthus acidus* (L.) Skeels	Euphorbiaceae
sikren	*Inga vera* Willd. ssp. *vera*	Fabaceae (=Leguminosae)
sikriye	*Inga vera* Willd. ssp. *vera*	Fabaceae (=Leguminosae)
sikriye mòn	*Tetragastris balsamifera* (Sw.) Kuntze	Burseraceae
sip	*Bumelia salicifolia* (L.) Sw.	Sapotaceae
sip	*Tabebuia berteri* (DC.) Britt.	Bignoniaceae
siprè	*Cupressus* spp.	Cupressaceae
sirio	*Piper amalago* L.	Piperaceae
sitwan mawon	*Adelia ricinella* L.	Euphorbiaceae
sitwan mawon	*Ziziphus rignonii* Delp.	Rhamnaceae
sitwon	*Citrus* spp.	Rutaceae
sitwon vèt	*Citrus aurantifolia* (Christm.) Swingle	Rutaceae
siwèl	*Spondias purpurea* L.	Anarcardiaceae
siwo	*Piper aduncum* L.	Piperaceae
siwo	*Sambucus* spp.	Adoxaceae
siwo bannann	*Piper amalago* L.	Piperaceae
stragònya	*Lagerstroemia indica* L.	Lythraceae
stragònya blan	*Lagerstroemia indica* L.	Lythraceae
stramwann	*Datura suaveolens* Humb. & Bonpl. ex Willd.	Solanaceae

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COMMON NAME	SPECIES	FAMILY
tabak mawon	*Solanum erianthum* D. Don	Solanaceae
tabèno	*Lysiloma sabicu* Benth.	Fabaceae (=Leguminosae)
tamarenn	*Tamarindus indica* L.	Fabaceae (=Leguminosae)
tamarenn mawon	*Arcoa gonavensis* Urb.	Fabaceae (=Leguminosae)
tamarenn mowi	*Arcoa gonavensis* Urb.	Fabaceae (=Leguminosae)
tandrakayou	*Acacia scleroxyla* Tuss.	Fabaceae (=Leguminosae)
tavèno	*Lysiloma sabicu* Benth.	Fabaceae (=Leguminosae)
tavèno mòn	*Mora ekmanii* (Urb.) Britton & Rose	Fabaceae (=Leguminosae)

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COMMON NAME	SPECIES	FAMILY
tcha tcha	*Albizia lebbeck* (L.) Benth.	Fabaceae (=Leguminosae)
tcha tcha mawon	*Acacia vogeliana* Steud.	Fabaceae (=Leguminosae)
tcha tcha mawon	*Leucaena leucocephala* (Lam.) de Wit subsp. *leucocephala*	Fabaceae (=Leguminosae)
tèk	*Tectona grandis* L. f.	Verbenaceae
ti abe	*Alvaradoa haitiensis* Urb.	Simaroubaceae
ti bwa blan	*Schaefferia frutescens* Jacq.	Celastraceae
ti bwa denn	*Eugenia monticola* (Sw.) DC.	Myrtaceae
ti bwa pen	*Calyptranthes sintenisii* Kiaersk.	Myrtaceae
ti bwi	*Polygala penaea* L.	Polygalaceae
ti fèy	*Eugenia* spp.	Myrtaceae
ti flambwayan	*Euphorbia milii* Ch. des Moulins	Euphorbiaceae
ti gason	*Schaefferia frutescens* Jacq.	Celastraceae
ti gayak	*Calliandra nervosa* (Urb.) Ekm. & Urb.	Fabaceae (=Leguminosae)
ti grenn	*Henriettea fascicularis* (Sw.) Gómez	Melastomataceae
ti grenn	*Miconia ottoschulzii* Urban & Ekman	Melastomataceae
ti kafe	*Allophylus occidentalis* (Sw.) Radlk.	Sapindaceae
ti kalson	*Bauhinia divaricata* L.	Fabaceae (=Leguminosae)
ti kaymit	*Chrysophyllum argenteum* Jacq.	Sapotaceae
ti koko	*Attalea crassispatha* (Mart.) Burret	Arecaceae (=Palmae)
ti kwokwo	*Bactris plumeriana* Mart.	Arecaceae (=Palmae)
ti monben	*Trichilia hirta* L.	Meliaceae
ti palmis mawon	*Pseudophoenix lediniana* Read	Arecaceae
ti pòm	*Ziziphus mauritiana* Lam.	Rhamnaceae
ti rezen	*Wallenia laurifolia* Jacq.	Myrsinaceae
ti rezen òdinè	*Coccoloba diversifolia* Jacq.	Polygonaceae
ti seriz	*Malpighia* spp.	Malpighiaceae
ti soley	*Cordia sebestena* L.	Boraginanceae
ti wou	*Ilex macfadyenii* (Walp.) Rehder	Aquifoliaceae
tikimit	*Bumelia cubensis* Griseb.	Sapotaceae
toti mawon	*Pouteria domingensis* (Gaertn. f.) Baehni	Sapotaceae
towo tig	*Byrsonima spicata* (Cav.) HBK.	Malpighiaceae
tramble	*Schefflera* spp.	Araliaceae
twa fèy	*Allophylus* spp.	Sapindaceae
twa kòt	*Miconia impetiolaris* (Sw.) D. Don	Melastomataceae
twa pawòl	*Allophylus* spp.	Sapindaceae
twa pawòl	*Amyris elemifera* L.	Rutaceae
twa pawòl	*Trichilia pallida* Sw.	Meliaceae
twa pye	*Cordia collococca* L.	Boraginaceae
twazokòt	*Cupania americana* L.	Sapindaceae
twazokòt	*Miconia impetiolaris* (Sw.) D. Don	Melastomataceae

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COMMON NAME	SPECIES	FAMILY
twompèt	*Cecropia peltata* L.	Cecropiaceae
twompèt mal	*Schefflera morototoni* (Aubl.) Maguire Steverm. & Frodin	Araliaceae

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COMMON NAME	SPECIES	FAMILY
vayan gason	*Picramnia pentandra* Sw.	Simaroubaceae
vèritab	*Artocarpus altilis* (Parkinson) Fosberg	Moraceae
vinyèt	*Reynosia affinis* Urb. & Ekm.	Rhamnaceae
wan primè	*Sciadodendrun excelsum* Griseb.	Araliaceae
wawi	*Caesalpinia ciliata* (Berg.) Urb.	Fabaceae (=Leguminosae)
wil maskriti	*Ricinus communis* L.	Euphorbiaceae
wòb	*Spondias* spp.	Anacardiaceae
wou	*Ilex macfadyenii* (Walp.) Rehder	Aquifoliaceae
woujiòl	*Colubrina arborescens* (Mill.) Sarg.	Rhamnaceae
woukou	*Bixa orellana* L.	Bixaceae
wòż mawon	*Samyda dodecandra* Jacq.	Flacourtiaceae

◆◆ Y,Z ◆◆

COMMON NAME	SPECIES	FAMILY
zaboka	*Persea americana* Miller	Lauraceae
zaboka mawon	*Antirhea lucida* (Sw.) Benth. & Hook. f.	Rubiaceae
zaboka mawon	*Capparis dolichopoda* Helwig	Capparaceae
zabriko	*Mammea americana* L.	Clusiaceae (=Guttiferae)
zabriko	*Rheedia lateriflora* L.	Clusiaceae (=Guttiferae)
zabriko bata	*Spondias purpurea* L.	Anarcardiaceae
zabriko mawon	*Pithecellobium abbottii* Rose & Leonard	Fabaceae (=Leguminosae)
zakasya	*Acacia* spp.	Fabaceae (=Leguminosae)
zakasya jòn	*Acacia farnesiana* (L.) Willd.	Fabaceae (=Leguminosae)
zakasya nwa	*Acacia tortusosa* (L.) Willd.	Fabaceae (=Leguminosae)
zakasya pikan	*Acacia macracantha* H.&B. ex Willd.	Fabaceae (=Leguminosae)
zakasya wouj	*Acacia tortusosa* (L.) Willd.	Fabaceae (=Leguminosae)
zamann	*Terminalia catappa* L.	Combretaceae
zamon mawon	*Coccoloba diversifolia* Jacq.	Polygonaceae
ze poul	*Piptadenia peregrina* (L.) Benth.	Fabaceae (=Leguminosae)
zèb aklou	*Dalbergia ecastaphyllum* (L.) Taub.	Fabaceae (=Leguminosae)
zèb sennikola	*Tecoma stans* (L.) HBK.	Bignoniaceae
ziblinn	*Averrhoa* spp.	Oxalidaceae

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COMMON NAME	SPECIES	FAMILY
ziblinn blon	*Averrhoa bilimbi* L.	Oxalidaceae
ziblinn long	*Averrhoa carambola* L.	Oxalidaceae
zo devan mawon	*Maytenus buxifolia* (A. Rich.) Griseb.	Celastraceae
zoranj	*Citrus* spp.	Rutaceae
zoranj dous	*Citrus sinensis* (L.) Osbeck	Rutaceae
zoranj si	*Citrus aurantium* L. subsp. *aurantium*	Rutaceae
zoray	*Ziziphus rignonii* Delp.	Rhamnaceae

23 Tree Proverbs

Haitians often use the forest and trees in proverbs to express folk wisdom and wit. Most of the following proverbs are collected in *Paròl Granmoun: Haitian Popular Wisdom* by Edner A. Jeanty and O. Carl Brown (1976). Several of the English translations were modified for easier reading.

CREOLE	ENGLISH
Lamizè fè chen monte kaymit.	Hunger makes the dog climb the star-apple tree.
Pa okipe mesye, kochon manje santimanl nan po bannann.	Don't bother the guy, the pig has eaten his feelings in a plantain skin.
Kochon mawon konn sou ki bwa poul fwote.	The wild pig knows which tree to scratch.
Mapou tonbe, kabrit manje fèy li.	When the mapou tree falls, goats eat the leaves.
Sa zòtolan di sou bwa, se pa sal di lèl anba pèlen.	What the partridge says in the tree is not what it says in the trap.
De je pa koupe bwa kwochi.	Two eyes don't cut down crooked trees.
Fanm se kajou; li pa janm pèdi bonèl.	Woman is mahogany — she doesn't ever lose her good chances.
Fanm se kajou; plis li vye, plis li bon.	Woman is mahogany — the older she gets, the better she is.
Fanm se kokoye; yo gen twa je; yo wè nan youn.	Women are coconuts — they have three eyes, but see only in one.
Sitwon vèt konn tonbe, kite sitwon mi.	The green lime falls while the ripe lime stays.
Lè pye bwa joue ak van, li pèdi fèy li.	When the tree plays with the wind, it loses its leaves.
Fèy mapou sanble ak fèy manyòk.	Mapou leaves look like manioc leaves.
Ti mapou pa grandi anba gwo mapou.	The little mapou tree doesn't grow up under the big mapou tree.
Kale kokoye pou pol.	Peel the coconut for its husk.
Fe zami ak kouto avan zabriko mi.	Make friends with a knife before the mamey apple ripens.
Baton gomye miyò pase de men vid.	The gumbo-limbo stick is better than two empty hands.
Tout moun gen yon bwa dèyè bannann yo.	Everyone has a pole to support their plantain tree.
Ti bwa ou pa wè, se li ki pete je ou.	The twig you don't see is the one that gouges out your eye.
Kanpe sou bwa kwochi pou koupe yon bwa dwat.	Stand on a crooked board (tree) to cut a straight one.
Bwa ou pa bezwen, ou pa makel.	The tree you don't need, you don't mark.
Bwa gen zòrèy, sak ladanl se moun.	The woods have ears. What's in them are people.
Pye pay fèye pou rasin li.	The palm leafs out for its own roots.
Tout liann nan bwa se pèlen.	All the vines in the woods are traps.
Ou pa janm konn kote dlo pase poul antre nan kokoye.	You never know how water gets into the coconut.
Lò ou ap neye, ou kenbe branch ou jwenn.	When you're drowning, you grab the nearest branch.
Bwa kwochi pa janm dwat.	A crooked tree is never straight.
Tanbou fouye nan bwa, se lakay li vin bat.	The drum is hollowed out in the woods, but it's beaten at home.
Si ou renmen grenn li, ou dwe renmen pye a tou.	If you like the nut, you ought to like the tree.
Gwo branch anwo a konnen l wè, men se ti grenn pwomennen an ki wè pase l.	The big branch at the top of the tree thinks it sees all, but it is actually the little seed blown about by the wind which sees more.

How long does it take to make the woods?
As long as it takes to make the world.
The woods is present as the world is, the presence
of all its past, and of all its time to come.
It is always finished, it is always being made, the act
of its making forever greater than the act of its destruction.
It is a part of eternity, for its end and beginning
belong to the end and beginning of all things,
the beginning lost in the end, the end in the beginning.

What is the way to the woods, how do you go there?
By climbing up through the six days' field,
kept in all the body's years, the body's
sorrow, weariness, and joy. By passing through
the narrow gate on the far side of that field
where the pasture grass of the body's life gives way
to the high, original standing of the trees.
By coming into the shadow, the shadow
of the grace of the strait way's ending,
the shadow of the mercy of light.

Why must the gate be narrow?
Because you cannot pass beyond it burdened.
To come into the woods you must leave behind
the six days' world, all of it, all of its plans and hopes.
You must come without weapon or tool, alone,
expecting nothing, remembering nothing,
into the ease of sight, the brotherhood of eye and leaf.

—- Wendell Berry
V, 1984

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Index of Common and Scientific Tree Names

Scientific names adopted in this book are shown in bold-faced italics. All other scientific names appear in ordinary italics. Family names are capitalized and bold-faced. Common names appear in ordinary type.

—A—

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Bwa Yo: Important Trees of Haiti

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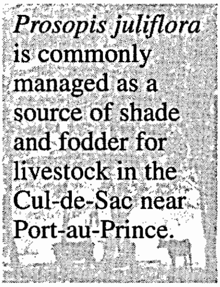
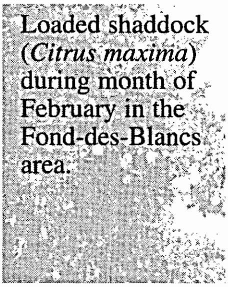
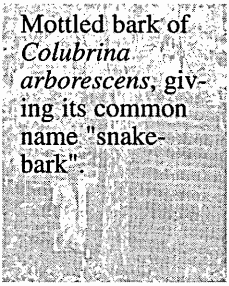
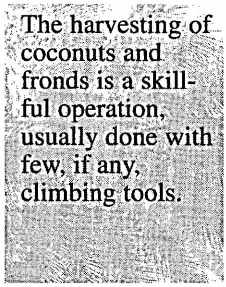
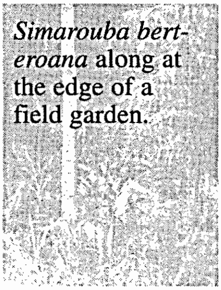
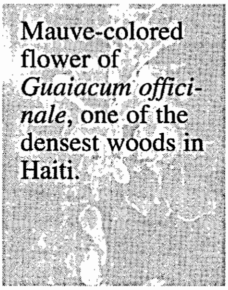

Prosopis juliflora is commonly managed as a source of shade and fodder for livestock in the Cul-de-Sac near Port-au-Prince.

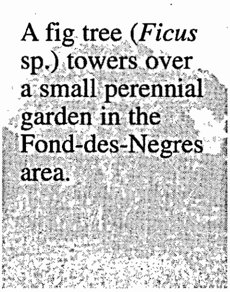

Loaded shaddock (*Citrus maxima*) during month of February in the Fond-des-Blancs area.

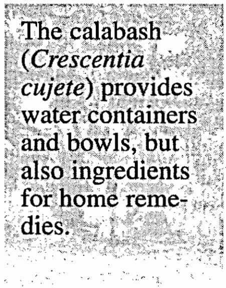

Mottled bark of *Colubrina arborescens*, giving its common name "snake-bark".

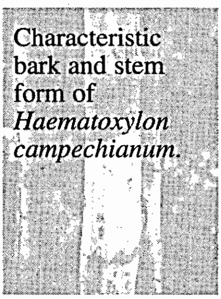

The harvesting of coconuts and fronds is a skillful operation, usually done with few, if any, climbing tools.

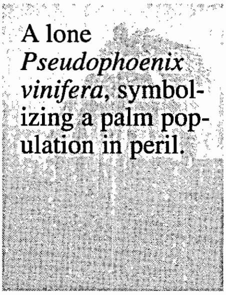

Simarouba berteroana along at the edge of a field garden.

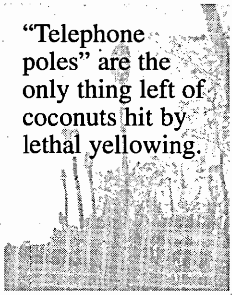

Mauve-colored flower of *Guaiacum officinale*, one of the densest woods in Haiti.

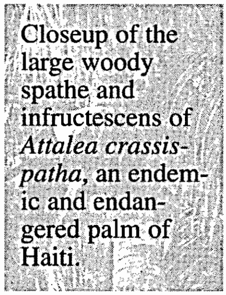

A fig tree (*Ficus* sp.) towers over a small perennial garden in the Fond-des-Negres area.

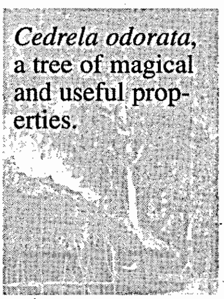

The calabash (*Crescentia cujete*) provides water containers and bowls, but also ingredients for home remedies.

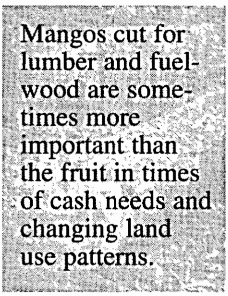

Characteristic bark and stem form of *Haematoxylon campechianum*.

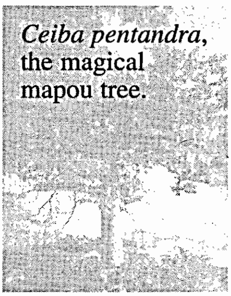

A lone *Pseudophoenix vinifera*, symbolizing a palm population in peril.


"Telephone poles" are the only thing left of coconuts hit by lethal yellowing.

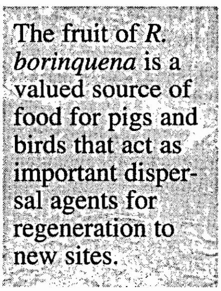

Closeup of the large woody spathe and infructescens of *Attalea crassispatha*, an endemic and endangered palm of Haiti.


Cedrela odorata, a tree of magical and useful properties.

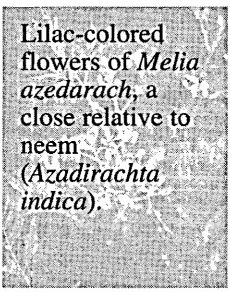

Mangos cut for lumber and fuelwood are sometimes more important than the fruit in times of cash needs and changing land use patterns.


Ceiba pentandra, the magical mapou tree.


Spondias mombin provides live-fence material to protect gardens from free-roaming livestock.


The fruit of *R. borinquena* is a valued source of food for pigs and birds that act as important dispersal agents for regeneration to new sites.


Farmer standing among the Haitian oaks (*Catalpa longissima*) she planted in a field garden for lumber.


Lilac-colored flowers of *Melia azedarach*, a close relative to neem (*Azadirachta indica*).


Copernicia berteroana provides a ready supply of thatch material in the drier parts of the Central Plateau and the Northwest.