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Toward a Woody Plant list for Antigua and Barbuda: Past and Present

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SUMMARY

During the 17th and 18th centuries, the island of Antigua was largely cleared for agriculture. Virtually all of the remaining forests were cut over, grazed, and burned. Since the abandonment of sugar cane cultivation, much of the land has returned to secondary forest. Barbuda suffered mainly from overcutting and overgrazing beginning in the 17th century. Very heavy grazing pressure continues in Barbuda. Despite great disturbance, a majority of the native species remain on both islands. Lists of native and exotic species are presented here. A protection plan should be established for several areas on both islands.

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INTRODUCTION AND HISTORY

Antigua and Barbuda are two small islands with a total area of 440 km² located in the Lesser Antilles in the eastern Caribbean. Although not differing greatly in size and separated by only 50 km, the origin and physiography of the islands are quite different. Antigua was formed by vulcanism more than 40 million years ago during the Eocene. The rock foundation of Barbuda is entirely of Pleistocene limestone. A land bridge apparently connected the two islands during the Pleistocene (Schuchert 1935). From the time the islands emerged, a flora began to assemble through chance introductions, mainly transported by birds. Intermittent human habitation of both Antigua and Barbuda has been dated from about 3,000 B.C. The aboriginal groups, archaic Amerindians, agricultural Amerindians, and Island Caribs never had large populations and probably did not clear a great deal of land for agriculture. However, they apparently introduced a number of plant species such as *Annona muricata* L. and ***Melicoccus bijugatus*** Jacq.

Christopher Columbus visited Antigua and named it after Santa Maria della Antigua during his second voyage in 1493. Because of the scarcity of fresh water and the presence of threatening Caribs, no attempt was made to colonize the island until a group of English settlers arrived in 1632. The first export crop, tobacco, was soon replaced by sugar cane. The sugar enterprise became profitable with the importation of slave labor, and a number of large plantations were established. By the early 1700's, most of the island had been cleared for sugar production. Subsistence farming extended to the top of Boggy Peak, the highest mountain. Even the rocky hills in the drier parts were cut over periodically for firewood and charcoal. Goats, cattle, and horses grazed and browsed all the uncultivated remnants of land. The phasing out of the sugar industry between 1960 and 1972 led to extensive abandonment of cultivation. At the same time, the emergence of the tourist industry and urbanization has moved hundreds of people off subsistance farms and has allowed thousands of hectares of Antigua to grow up as secondary forest while sparing the pre-existing secondary forest from further disturbance.

English attempts to settle Barbuda began in 1628 and continued intermittently with attacks of the Caribs and French until early in the 18th century. The small island community subsisted for almost three centuries by raising livestock. During this period, virtually every tree large enough to use for construction materials was felled. Grazing must have been intense, and fuelwood cutting heavy, at least near Codrington, the only town. Tourism, government services, and agriculture are the primary sources of income today for the island's 1,252 residents. Cement blocks and imported lumber are the current building materials.

Today, grazing may be as intense as ever in Barbuda's history. Domestic goats and cattle, feral donkeys and pigs,. and introduced deer have left the ground under the dry forest canopy nearly barren. All the shrubs and trees within reach, except for a few toxic or unpalatable species, are being consumed or cropped severely.

With the emergence of tourism as the driving force of the economy and the decline of agriculture, concern for the environment has grown. The protection of natural areas and the setting aside of areas to be used as parks are being suggested. This study was undertaken by the International Institute of Tropical Forestry (IITF) in response to a request to identify local plant species and classify them as native or exotic. This basic data will be important for future management of natural reserves.

METHODS

Lists of trees, shrubs, and woody vines, including ornamentals, were assembled from field observations (tables 1 and 2). The survey consisted of two visits to Antigua and one to Barbuda. In the spring of 1991, a botanist and a research forester spent 5 days on the island of Antigua. Six months later, they returned with

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a dendrologist and spent 3 days on Antigua and 2 days surveying Barbuda. Guided by local experts, the group visited as much of each island as possible.

Because Antigua is thoroughly interlaced with roads, the survey was conducted by driving through all portions of the island. Frequent walks were taken a few hundred meters into forest stands. The names of positively identified species and the locations of their sightings were noted. Samples of species that were not readily identifiable were collected for checking against references. Those specimens that could not be identified were brought to the University of Puerto Rico Herbarium for examination by resident taxonomists.

As a result, all but two of the observed species (represented by foliage only) were identified. All scientific names were checked for currency and spelling using Howard's "Flora of the Lesser Antilles" (1979, 1988, 1989a, 1989b). Other references consulted during the process of identification and correlation of species were Fournet (1978), Grisebach (1963), Liogier and Martorell (1982), Little and others (1974), and Little and Wadsworth (1964).

RESULTS

Plant lists derived from different surveys in Antigua and Barbuda are compared in tables 3 and 4. It should be noted that the lists by Howard (1979, 1988, 1989a, 1989b) were compiled from ranges documented by herbarium specimens deposited in world museums and that these specimens were collected from the early 18th century onward, many before the destruction and disturbance of Antiguan forests were complete.

A total of 286 woody species was observed on Antigua, of which 153 were determined to be native. A species was concluded to be native if its documented native range included Antigua or Barbuda and if it grew in uncultivated conditions. A few technically native species, mainly food producers such as *Annona squamosa* L. (sugar-apple) and *Manihot esculenta* Crantz (cassava), were apparently introduced in pre-Columbian times and today are rarely found growing outside cultivated areas.

Roystonea oleracea O.F. Cook is listed as exotic by Howard (1979), but may be native to Antigua. Antigua has established populations in moist secondary forests, and large *R. oleracea* trees may be seen in the oldest photos of Antiguan plantations. Two other islands with native populations of this species, Monserrat and Guadeloupe, lie within sight of Antigua. Because the seeds are bird-dispersed and the leaves are useful to humans for roofing material, it would be remarkable if the species had not become established before the arrival of Columbus.

Nearly all the exotic species are or were cultivated as ornamentals, shade, or crop plants. Most of the naturalized species are only rarely found growing outside cultivation in waste places near planted specimens. A handful of species, notably Acacia *nilotica* (L.) Delile, *Albizia lebbeck* (L.) Benth., *Azadirachta indica* Adr. Juss., *Cordia obliqua* Willd., *Haematoxylon campechianum* L., *Leucaena leucocephala* (Lam.) de Wit, *Phoenix dactylifera* L., *Prosopis juliflora (Sw.)* DC., *Thespesia populnea* (L.) Sol., and *Ziziphus mauritiana* Lam., compete successfully with native species in secondary forests on dry sites. A total of 127 woody species was observed on Barbuda, of which 65 were believed to be native to the island. The only exotic woody plant species competing significantly with native vegetation is *H. campechianum*.

As an exercise to evaluate the rate of tree species loss as a result of the clearing, cutting, grazing, and fire associated with settlement, in table 5 of this survey is used to compare the canopy tree species (excluding naturalized ornamentals and fruit trees) that were observed with those collected by botanists from the 18th century onward (Howard 1979, 1988, 1989a, 1989b). For Antigua, 39 species in common with the herbarium collections were listed. Howard lists six species that were not found, and two species not represented in the herbarium collections were found. Of those not found in the IITF survey, *Dacryodes excelsa* Vahl has certainly been lost (it is unknown to Antiguans today). *Beilschmiedia pendula (Sw.)* Hemsley, *Cecropia schreberiana* Miq., *Sapium caribaeum* Urban, and *Vitex divaricata Sw.* probably have disappeared from Antigua. All are present on other Antillian islands. The two new species noted were *Cordia laevigata* Lam. and *Ochroma pyramidale* (Cav.) Urban. The former probably was missed in earlier surveys; the latter may be a new natural introduction.

For Barbuda, the IITF survey and the herbariums had 15 canopy species in common. Howard lists three species that were not observed: Coccoloba *pubescens* L., *Sapindus saponaria* L., and *Sideroxylon salicifolium* (L.) Lam., which must be either rare or extinct on Barbuda. *Coccoloba diversifolia* Jacq. was observed in this survey as well as by Beard and Harris (1949, 1960). It was undoubtedly overlooked in other surveys.

DISCUSSION

In a single survey of a flora, one cannot be sure of finding every species. Field time in this survey was somewhat limited; an additional 10 to 25 native species on Antigua and a few on Barbuda may have been found if a thorough search of all parts of both islands had been completed. This survey, combined with previous efforts, adds a significant contribution to the compilation of a checklist of the woody flora of Antigua and Barbuda. The most satisfactory next step would be for

a resident botanist to conduct extensive field checking and eventually compile checklists and descriptive floras.

Because of the individual experience of the participants, the IITF survey was probably most reliable in identifying forest trees and introduced trees and shrubs (ornamentals and fruit species). Participants were less familiar and less attuned to the shrubs and woody vines, although an effort was made to collect and identify every species seen, Early botanists contributing to the collections used by Howard (1979, 1988, 1989a, 1989b) to compile his flora of the Lesser Antilles apparently missed a few species as well. There are undoubtedly errors of identification in this survey's lists and even in those from herbarium collections. Careful rechecking by future researchers is suggested.

Present and Presettlement Forests

Today, a large portion of Antigua is covered with secondary forests. Most of these forests are less than 30 years old, although a few areas, such as the Wallings watershed, have been largely undisturbed for more than 50 years. No primary forest remains, and, excluding the mangroves, only a few small areas were never cleared for agriculture. Consequently, tree diameters tend to be relatively small.

Four broad forest types that were probably more distinct in their pristine states than they are today were recognized (fig. 1). The upper portion of Boggy Peak is the wettest and coolest area of the island. It is currently dominated by *Ingu laurina (Sw.)* Willd. Other important canopy species in the area are *Clusia major* L., *Cordia sulcata* DC., *Ficus citrifoliu* Mill., *Lonchocurpus benthaniunus* (Jacq.) DC., and *Pisonia subcorduta Sw.* The original forest was probably dominated by *Dacryodes excelsa* Vahl, other important forest dominants being C. *major, I. laurina, Simaroubu amara* Aubl., and *Zanthoxylum murtinicense* (Lam.) DC.

The moist uplands of Antigua today have a mix of dominant *Andira inermis* (Wright) Kunth ex DC., *Bursera simarubu* (L.) Sarg., *Hymenaea courbaril* L., *I. Zuurinu, Mungiferu indica* L., *R. oleracea, Spondias mombin* L., and *Tabebuia heterophylla* (DC.) Britt. The primordial forest was probably dominated by *Cedrela odorata* L., I. *laurina, T. heterophylla,* Z. *murtinicense,* and a host of other species.

The dry hills and coastal plains support several forest types depending on the history of the site. The most recently abandoned or most abused sites are currently dominated by *Acacia* spp. and *Leucaena leucocephala* (Lam.) de Wit. They are succeeded by *Haematoxylon campechianum* and *Prosopis juliflora.* More advanced sites support *Capparis* spp., *Pisoniu* spp., *Pilosocereus royeni* (L.) Byles & Rowley, and *Ziziphus muuritianu.* Those that have developed further also support *Bourreriu succulenta* Jacq. and *Canella winterunu* (L.) Gaertn. Rocky hills that may have passed the settlement era as open woodland pasture are dominated today by large *Bucidu buceras* L. and *Bursera simaruba* trees. With some variation reflecting soil conditions, the dry hills and plains of Antigua would have been dominated in pre-Columbian times by *Bucida bucerus, Bursera simaruba, Guaiacum officinale* L., *Pimenta racemosa* (Miller) J. Moore, *Pisoniu subcordata,* and *Zanthoxylum flavum* Vahl.

Streams and nonsaline floodplains are still dominated by *Annonu glabra* L., *Ceiba pentundru* (L.) Gaertn., *Hippomane mancinella* L., and *Hura crepituns* L. The mangrove swamps also still contain the original species, *Avicennia germinuns* (L.) L., *Laguncularia racemosa* (L.) Gaertn. f., and *Rhizophora mangle* L.

Barbuda was divided into four broad site types (fig. 2): the highlands, clay slopes and plains, sandy coastal plains and beach strands, and mangrove swamps. The highlands are dominated today by *Canella winteranu, Haematoxylon campechianum,* and *Pilosocereus royeni* on the plateau and C. *winterana, F. citrifoliu, Krugiodendron ferreum* (M. Vahl) Urban, and *Pisonia subcordata* on the slopes. In presettlement times, the highlands were probably dominated by *Z. flavum* with associates C. *winteranu, F. citrifoliu, G. officinale, K.*

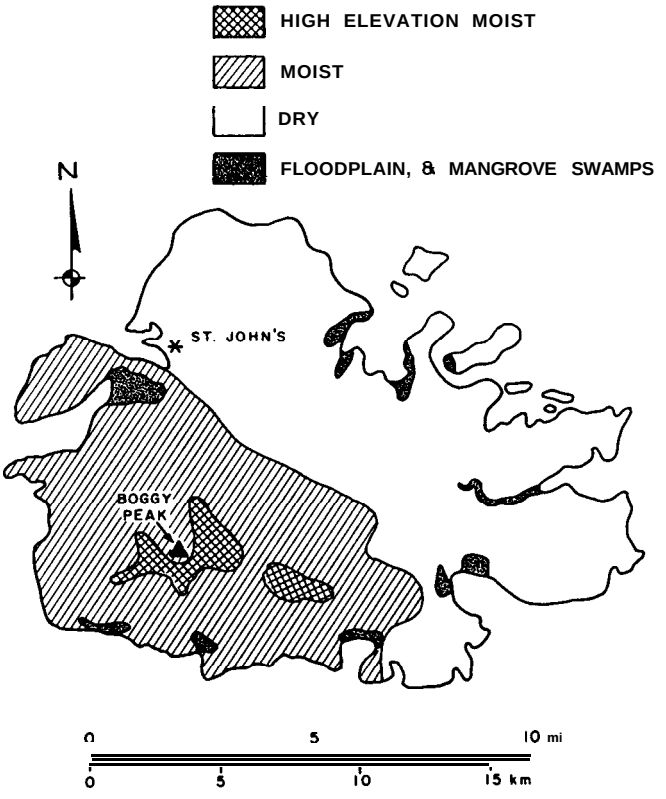

Figure 1. -Major *forest types on Antigua.*

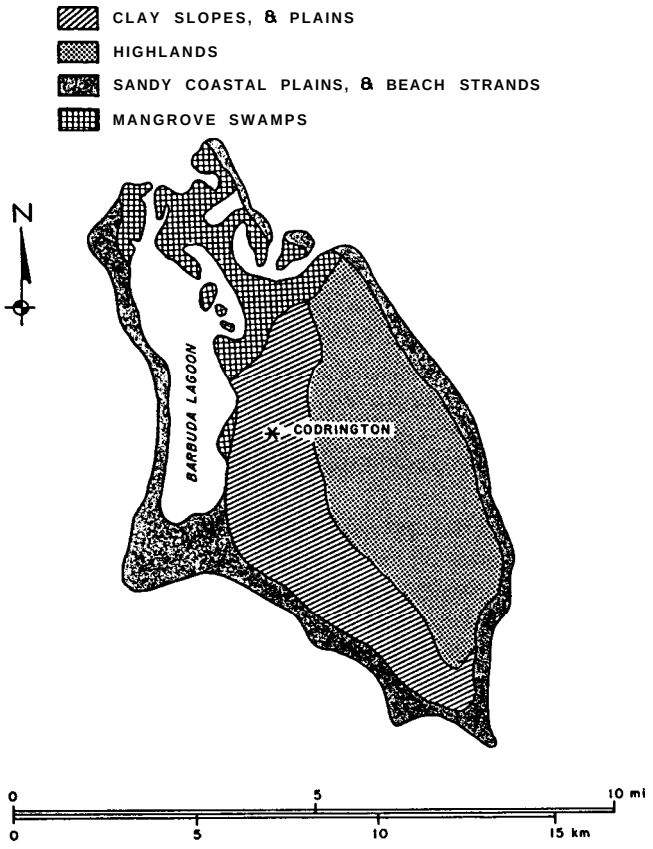

Figure 2. -Major forest types on Barbuda.

ferreum, and l? *subcordata.* The clay slopes and plains are dominated today by *Acacia farnesiana, C. winterana, Capparis* spp., G. *officinale, H. campechianum,* and *Pilosocereus royeni.* In former times, the site type was probably dominated by *Canella winterana, Capparis* spp., *Coccoloba diversifolia* Jacq., *Coccothrinax barbadensis* (Lodd. ex Mart.) Bacc., G. *officinale,* and *Pisonia subcordata.* The sandy coastal plains and beach-strand areas are dominated today by *Bucida buceras, Canella winterana, Chrysobalanus icaco* L., *Hippomane mancinella, Jaquinia armillaris* Jacq., and *Pilosocereus royeni.* The dominant species were probably much the same in former times. Mangrove vegetation, although it was heavily exploited for fuel before electricity and fossil fuels were available, is now much the same as it was in ancient times.

Disturbance and Extinction

The degree of disturbance to the terrestrial habitat of Antigua was very severe. Excluding the mangroves, probably 95 to 99 percent of the forest was cleared and converted to agricultural uses at least once in the 300-year history of its development. All the remaining forest was heavily disturbed by cutting and grazing. It is not surprising that extinctions and rarefaction occurred. In this survey, evaluation of tree loss indicates that about 13 percent of the native canopy tree species have disappeared from Antigua since the late 18th century. *Cedrela odorata,* once cut for its valuable wood, no longer grows in the wild. Guaiacum officinale and Z. flavum also produce very valuable wood and have become extremely rare in the wild. The rate of extinction of small trees, shrubs, and woody vines may be even more severe. Smaller plant forms are more short-lived, are more subject to browsing by goats and other livestock, and are more easily cut down than large trees. On the other hand, given the thorough destruction and disturbance of the forests of Antigua, it is remarkable that such a large percentage of species has survived.

The Barbudan forests suffered in different ways, and severe disturbances continue. Most trees large enough to use for construction materials were felled long ago, resulting in the near disappearance of several species. Grazing over the centuries and very heavy browsing by goats, donkeys, cattle, deer, and feral hogs in recent times have made reproduction difficult or impossible for all but toxic or very unpalatable species. The very survival of several species is threatened. *Coccothrinax barbadensis* and *Thrinax morrisii* H. Wendl., both palms, are cases in point. A hundred or more large C. *barbadensis* still grace the skyline in the northern part of the island; not a single plant less than 2 m high was found in this survey. *Thrinax morrisii* seems to have disappeared entirely. The heavy grazing has allowed G. *officinale* and *Canella winterana,* both untouched by grazing, to reproduce in large numbers.

The loss of biodiversity is somewhat offset by the naturalization of a number of exotic species. Notable on Antigua are *Acacia nilotica, Azadirachta indica* Adr. Juss., *Calotropis procera* (Ait.) Ait. f., Cocos *nucifera* L., C. *obligua, Haematoxylon campechianum, Leucaena leucocephala, Mangifera indica, Melicoccus bijugatus* Jacq., *Parkinsonia aculeata* L., *P. dactylifera, P. juliflora, Ricinus communis* L., *R. oleraceae, Solanum torvum Sw., Swietenia mahagoni* (L.) Jacq., *Tamarindus indica* L., *Terminalia catappa* L., *T. populnea, and Ziziphus mauritiana.*

Barbuda supports the naturalized exotics *Caparia biflora* L., C. *obliqua, Jatropha curcas* L., S. *mahagoni,* and *Tamarindus indica.* Because of its isolation, Barbuda has escaped many introductions. Noticeably absent are *P. juliflora, Calotropis procera, R. communis,* and *T. populnea.*

Plea for Conservation

The natural vegetation of the island of Antigua has passed through an era of neglect and abuse with surprisingly few species lost. The current trends of reforestation and succession toward stand composi-

tions more like the original forest should be aided through formalized protection of at least unique vegetative areas such as Boggy Peak, most of the remaining mangroves, the Wallings watershed, and representative dry forest sites. For these sites, statutory protection and some minimal physical protection are a minimum requirement. Likewise, in Barbuda, much of the mangroves, the salt ponds, and the dune areas should be protected. The highlands are certainly the most unique geological and biological area of the island and, for that reason, deserve complete protection. Any management scheme for Barbuda must address the problem of open-range grazing of domestic animals and control of the populations of feral animals. Without it, the highland thicket ecosystem will continue to deteriorate, and several species of plants will disappear from Barbuda.

Table 1. — *Tree* and *shrub species identified during field studies in Antigua*

Family and species	Where first seen	Life form*	Native range
Cycadaceae			
Cycas circinalis L.	St. John's	t	Asia and Africa+
Araucariaceae			
Araucaria heterophylla (Salisb.) Franco	St. John's	T	Norfolk Island'
Cupressaceae			
Cupressus sempervirens L.	Belleview Heights	t	South Europe'
Thuja orientalis L.	St. John's	t	West Asia+
Casuarinaceae			
Casuarina equisetifolia L.	Dickinson Bay	T	Oceania+
Piperaceae			
Piper aduncum L.	Figtree	s	Native*
Ulmaceae			
Trema micrantha (L.) Blume	Body Ponds	t	Native
Moraceae			
Artocarpus altilis (S. Park) Fosb.	St. John's	T	Oceania+
A. heterophyllus Lam.	Buckleys	t	India+
Ficus benjamina L.	St. John's	t	Malaya+
F. citrifolia Mill.	St. John's	T	Native
F. elastica Roxb. ex Hornem.	St. John's	T	Tropical Asia+
F. microcarpa L. f.	St. John's	T	Southeast Asia+
F. trigonata L.	St. John's	T	Tropical America
Trophis racemosa (L.) Urban	Jolly Beach	t	Native
Proteaceae			
Grevillea robusta A. Cunn.	Botanic Garden	T	Australia+
Olacacea			
Schoepfia arenaria Urban & Britt.	Boggy Peak	s	Probably native
S. Schreberi Gmel.	Boggy Peak	s	Native
Polygonaceae			
Antigonon leptopus Hook. & Arn.	English Harbour	v	Mexico+
Coccoloba diversifolia Jacq.	Shirley Heights	t	Native
C. *pubescens* L.	Boggy Peak	T	Native
C. *uvifera* (L.) L.	Runaway Bay	t	Native
C. *venosa* L.	Figtree	t	Native
Nyctaginaceae			
Bougainvillea spectobilis Willd.	Cedar Grove	v	Brazil†
Pisonia fragrans Dum.-Cours.	Cedar Grove	t	Native
P. subcordata Sw.	Cedar Grove	T	Native

Table 1. — *Tree* and *shrub species identified during field studies in Antigua — Continued*

Family and species	Where first seen	Life form*	Native range
Annonaceae			
Annona glabra L.	Collins	t	Native
A. montana Macfad.	Wallings	t	Native
A. *muricata* L.	St. John's	t	Probably native
A. reticulata L.	St. John's	t	Probably native
A. squamosa L.	St. John's	t	Tropical America+
Lauraceae			
Licaria parvifolia (Lam.) Kostermans	Wallings	t	Native
Ocotea cernua (Nees) Mez	Boggy Peak	t	Native
0. *coriacea* (Sw.) Britt.	Figtree	t	Native
Persea americana Mill.	St. John's	T	Mexico+
Capparaceae			
Capparis flexuosa (L.) L.	Cedar Grove	t	Native
C. *baducca* L.	Figtree	t	Native
C. *hastata* Jacq.	Mercers Creek	t	Native
C. *indica* (L.) Druce	Cedar Grove	t	Native
Moringaceae			
Moringa oleifera Lam.	English Harbour	t	South Asia+
Rosaceae			
Rosa spp.	St. John's	s	Asia+
Leguminosae-Mimosoideae			
Acacia farnesiana (L.) Willd.	Cedar Grove	t	Native
A. macracantha Humb. & Bonpl.	Collins	t	Native
A. nilotica (L.) Delile	Mercers Creek	t	Africa, Asia
A. tortuosa (L.) Willd.	Cedar Grove	t	Native
Albizia lebbek (L.) Benth.	Cedar Grove	T	South Asia
Desmanthus virgatus (L.) Willd.	Runaway Bay	s	Native
Enterolobium cyclocarpum (Jacq.) Griseb.	Botanic Garden	T	Tropical America+
Inga laurina (Sw.) Willd.	Boggy Peak	T	Native
Leucaena leucocephala (Lam.) de Wit	Airport	t	Tropical America
Mimosa ceratonia L.	Body Ponds	s	Native
Pithecellobium unguis-cati (L.) Benth.	St. John's	s	Native
Prosopis juliflora (Sw.) DC.	Cedar Grove	t	South America
Samanea saman (Jacq.) Merr.	Dickinson Bay	T	Tropical America+
Leguminosae-Caesalpinioideae			
Bauhinia monandm Kurz	Runaway Bay	t	Southeast Asia+
B. multinervia (Kunth.) DC.	Figtree	t	Probably native
Caesalpinia bonduc (L.) Roxb.	Shirley Heights	v	Native
C. *pulcherrima* (L.) Sw.	Dickinson Bay	s	South America+
Cassia *fistula* L.	Golden Grove	T	Asia+
C. *grandis* L.f.	St. John's	T	Tropical America+
C. *javanica* L.	Freemans	t	Southeast Asia+
Chamaecrista glandulosa (L.) Greene var *swartzii* (Wiks.) Irwin & Barneby	Shirley Heights	t	Native
Delonix regia (Bojer ex Hook.) Raf.	St. John's	T	Madagascar+
Haematoxylom campechianum L.	Wallings	t	Central America
Hymenaea courbaril L.	Boggy Peak	T	Native
Parkinsonia aculeata L.	Bethesda	t	Tropical America
Peltophorum pterocarpum (DC.) Back. & Heyne	Dickinson Bay	T	Southern Asia+
Senna alata (L.) Roxb.	Greencastle	s	Tropical America+
S. atomaria (L.) Irwin & Barneby	Shirley Heights	s	Native
S. bicapsularis (L.) Roxb. var. *bicapsularis*	Dark Valley	s	Native
S. siamea Irwin & Barneby	St. John's	T	Southeast Asia+
Tamarindus indica L.	Body Ponds	T	Africa
Leguminosae-Papilionoideae			
Andira inermis (Wright) Kunth	Wallings	T	Native
Cajanus cajun (L.) Huth	Scotts Hill	s	Africa+
Erythrina berteroana Urban	St. John's	t	Central America+
E. variegata L.	St. John's	t	India to Oceania+

Table 1. — *Tree* and *shrub species identified during field studies in Antigua — Continued*

Family and species	Where first seen	Life form*	Native range
Gliricidia sepium (Jacq.) Kunth	Runaway Bay	t	Tropical America+
Zndigofera suffruticosa Mill.	Shirley Heights	S	Native
Lonchocarpus violaceus (Jacq.) DC.	Boggy Peak	t	Native
Machaerium lunatum (L.f.) Ducke	Figtree	t	Probably native
Piscidia carthagenensis Jacq.	Shirley Heights	t	Native
Sesbania grandiflora (L.) Pers.	Body Ponds	t	South Asia+
Oxalidaceae			
Averrhoa carambola L.	Greencastle	t	Tropical Asia+
Erythroxylaceae			
Erythroxylon havanense Jacq.	Shirley Heights	t	Native
Zygophyllaceae			
Guaiacum officinale L.	Nelson's Dockyard	t	Native
Rutaceae			
Citrus aurantifolia (Christm. & Panzer) Swingle	St. John's	t	East Indies+
C. ***limon*** (L.) Burm.f.	St. John's	t	Southeast Asia+
C. ***maxima*** (J. Burm.) Merr.	Greencastle	t	East Indies+
C. ***pamdisi*** Macf.	Freemans	t	West Indies+
C. ***reticulata*** Blanco	Cades Bay	t	East Indies+
C. ***sinensis*** (L.) Osbeck	Christian Valley	t	China+
Murraya paniculata (L.) Jack	Mercers Creek	s	Southeast Asia†
Triphasia trifolia (Burm. f.) P. Wils.	Mercers Creek	s	Southeast Asia
Zanthoxylum flavum Vahl	Boggy Peak	T	Native
Z. martinicense (Lam.) DC.	Boggy Peak	T	Native
Z. monophyllum (Lam.) P. Wils.	Boggy Peak	t	Native
Z. spinifex (Jacq.) DC.	Freetown	t	Native
Simaroubaceae			
Castela erecta %-pin	Indian Town Point	s	Native
Picmmnia pentandm Sw.	Wallings	t	Native
Picrasma excelsa (Sw.) Planch.	Wallings	t	Native
Simarouba amara Aublet	Boggy Peak	T	Native
Surianaceae			
Suriana maritima L.	Cades Bay	s	Native
Burseraceae			
Bursera simaruba (L.) Sarg.	Jennings	T	Native
Meliaceae			
Azadirachta indica Adr. Juss.	Dickinson Bay	T	South Asia
Cedrela odorata L.	St. John's	T	Native+
Melia azedarach L.	Cedar Grove	t	South Asia
Swietenia mahagoni (L.) Jacq.	St. John's	T	Greater Antilles
Trichilia hirta L.	Figtree	t	Native
Malpighiaceae			
Bunchosia glandulosa (Cav.) L.C. Rich.	Flashes	8	Native
Byrsonima lucida (Mill.) DC.	Greencastle	t	Native
B. spicata (Cav.) DC.	Boggy Peak	t	Native
Malpighia emarginata DC.	Runaway Bay	t	West Indies
M. linearis Jacq.	Nelson's Dockyard	s	Probably native
Euphorbiaceae			
Acalypha amentacea Roxb. ssp. ***wilkesiana*** (Muell. Arg.) Fosberg	St. John's	s	Oceania+
Codiaeum variegatum (L.) Blume	Dickinson Bay	s	Sunda Islands+
Croton astroites Dryand.	Cedar Grove	s	Native
Euphorbia continifolia L.	St. John's	t	Tropical America+
E. lactea Haw.	Dickinson Bay	t	Old World+
E. neriifolia L.	Liberta	t	East Indies+
E. pulcherrima Willd.	St. John's	s	Tropical America+
E. tirucalli L.	Runaway Bay	s	North Africa+

Table 1. — *Tree* and *shrub species identified during field studies in Antigua — Continued*

Family and species	Where first seen	Life form*	Native range
Gymnanthes lucida Sw.	Shirley Heights	t	Native
Hippomane mancinella L.	Dickinson Bay	T	Native
Hum crepitans L.	Bethesda	T	Probably native
Jatropha curcas L.	St. John's	s	Central America
J. gossypiifolia L.	Cades Bay	s	Probably native
J. multifida L.	St. John's	s	Tropical America+
Manihot esculenta Crantz	Sea View Farm	s	South America+
Phyllanthus acidus (L.) Skeels	Cedar Grove	t	Tropical Asia+
F! *epiphyllanthus* L.	Shirley Heights	t	Native
Ricinus communis L.	Sea View Farm	s	Tropical Africa
Anacardiaceae			
Anacardium occidentale L.	Hamiltons	t	Probably native+
Comocladia dodonaea (L.) Urban	Shirley Heights	s	Native
Mangifera indica L.	Hodges Bay	T	Tropical Asia
Spondias cytherea Sonn.	English Harbour	T	Society Islands+
S. *mombin* L.	St. John's	T	Native
S. *purpurea* L.	St. John's	t	Tropical America+
Celastraceae			
Cassine xylocarpa Vent.	English Harbour	t	Native
Crossopetalum rhacoma Crantz	Freetown	s	Native
Schaefferia frutescens Jacq.	Shirley Heights	s	Native
Sapindaceae			
Allophylus racemosus Sw.	Boggy Peak	t	Native
Melicoccus bijugatus Jacq.	St. John's	T	South America
Sapindus saponaria L.	Wallings	t	Native
Schleichera oleosa (Lour.) Oken	Dark Valley	T	South Asia+
Rhamnaceae			
Colubrina arborescens (Mill.) Sarg.	Crabs Mill	t	Native
Krugiodendron ferreum (M. Vahl) Urban	St. Phillips	t	Native
Ziziphus mauritiana Lam.	Cedar Grove	t	Southeast Asia
Tiliaceae			
Triumfetta grandiflora M. Vahl	Body Ponds	s	Probably native
Malvaceae			
Hibiscus pernambucensis Arruda	St. John's	t	South America+
H. rosa-sinensis L.	St. John's	t	Tropical Asia+
H. schizopetalus (M.T. Mast.) Hook.f.	St. John's	s	Africa+
Malvastrum coromandelianum (L.) Garcke	Wallings	s	Tropical America
Malvaviscus arboreus Cav.	St. John's	s	Mexico-Brazil+
Thespesia populnea (L.) Sol.	Dickinson Bay	t	Old World
Bombacaceae			
Ceiba pentandm (L.) Gaertn.	Body Ponds	T	Native
Ochroma pymmidale (Cav.) Urban	Figtree	T	Native
Sterculiaceae			
Guazuma ulmifolia Lam.	Wallings	t	Native
Sterculia foetida L.	Botanic Garden	T	Tropical Asia+
Theobroma cacao L.	John Hugh's	t	Neotropics†
Ochnaceae			
Ouratea guildingii (Planch.) Urban	All Saints	s	Native
Clusiaceae			
Calophyllum calaba L.	Figtree	T	Native
Clusia *major* L.	Boggy Peak	T	Native
Mammea americana L.	Greencastle	T	West Indies+
Tamaricaceae			
Tamarix sp.	Old Road	t	Old World+

Table 1. — *Tree* and *shrub species identified during field studies in Antigua — Continued*

Family and species	Where first seen	Life form*	Native range
Cocblospermaceae			
Cochlospermum vitifolium (Willd.) Spreng.	All Saints	T	Tropical America+
Canellaceae			
Canella wintemna (L.) Gaertn.	Mercers Creek	t	Native
Flacourtiaceae			
Casearia decandra Jacq.	Wallings	t	Native
Samyda dodecandra Jacq.	Flashes	s	Native
Caricaceae			
Carica papaya L.	St. John's	t	Probably native
Cactaceae			
Opuntia cochenillifera (L.) Mill.	Mercers Creek	s	Jamaica+
O. rubescens Salm-Dyck	St. Phillips	s	Puerto Rico+
Pilosocereus royeni (L.) Byles & G. Rowley	Shirley Heights	t	Native
Thymelaeaceae			
Daphnopsis americana (Mill.) J. Johnston ssp. *americana* (Griseb.) Nevl.	Boggy Peak	t	Native
Lythraceae			
Lagerstmemia indica L.	St. John's	s	China+
Lawsonia inermis L.	Body Ponds	s	Africa to Asia
Punicaceae			
Punica granatum L.	St. John's	s	South Asia+
Lecythidaceae			
Barringtonia asiatica (L.) Kurz	St. Lukes	T	East Indies+
Rhizophoraceae			
Rhizophora mangle L.	Runaway Bay	t	Native
Combretaceae			
Bucida bucems L.	Runaway Bay	T	Native
Conocarpus erectus L.	Runaway Bay	s	Native
Laguncularia racemosa (L.) Gaertn. f.	Flashes	t	Native
Terminalia catappa L.	Body Ponds	T	East Indies
Myrtaceae			
Eucalyptus camaldulensis Dehnh.	St. John's	T	Australia+
Eugenia biflora (L.) DC.	Boggy Peak	t	Native
E. confusa DC.	Boggy Peak	s	Native
E. cordata Sw. DC. var. *sintenisii* (Kiaersk.) Krug & Urban	Boggy Peak	s	Native
E. pseudopsidium Jacq.	Boggy Peak	s	Native
E. rhombea Krug & Urban	Boggy Peak	s	Native
Myrcia platyclada DC.	Boggy Peak	t	Native
Pimenta racemosa (Mill.) J. Moore	Mercers Creek	t	Native
Psidium guajava L.	Wallings	t	Probably native
Syzygium jumbos (L.) Alston	Figtree	t	Malaya
S. *malaccense* (L.) Merr. & Perry	Greencastle	T	Malaya+
Melastomataceae			
Miconia laevigata (L.) D. Don	Boggy Peak	s	Native
M. mirabilis (Aubl.) L.O. Wms.	Body Ponds	s	Native
M. pmsina (Sw.) DC.	Boggy Peak	s	Native
Tetrazygia angustifolia (Sw.) DC.	Boggy Peak	s	Native
Araliaceae			
Brassaia actinophylla Endl.	Greencastle	s	Australia+
Polyscias guilfoylei (Bull) L.H. Bailey	St. John's	s	New Caledonia+

Table 1. — *Tree* and *shrub specks identifkd during field studies in Antigua — Continued*

Family and species	Where first seen	Life form*	Native range
Sapotaceae			
Chrysophyllum argenteum Jacq.	Boggy Peak	t	Native
C. *cainito* L.	St. John's	t	Greater Antilles+
Manilkara zapota (L.) P. Royen	Greencastle	T	Central America+
Sideroxylon foetidissimum Jacq.	Botanic Garden	T	Tropical America
S. *salicifdium* (L.) Lam.	Hamiltons	t	Native
Oleaceae			
Chionanthus compacta Sw.	Boggy Peak	t	Native
Apocynaceae			
Allamanda cathartica L.	Airport	v	South America
Nerium oleander L.	Airport	s	Mediterranean+
Plumeria alba L.	St. John's	t	Native
P. ruba L.	St. John's	t	Central America+
Rauvolfia viridis Willd.	Jolly Bay		Native
Tabernaemontana citrifdia L.	Boggy Peak		Native
Thevetia peruviana Schum.	Bolans	s	Tropical America
Adepiadaceae			
Calotropis procem (Ait.) Ait. f.	Dickinson Bay	s	Old World
Convolvulaceae			
Ipomoea carnea Jacq. ssp. *fistulosa* (C. Mart.) D. Austin	Runaway Bay	s	Tropical America+
Boraginaceae			
Bourreria succuknta Jacq.	Mercers Creek	t	Native
Cordia alliodom (Ruiz & Pav.) Oken	Boggy Peak	T	Native
c. *collococca* L.	Boggy Peek		Native
C. *curasavica* (Jacq.) Roem. & Schult.	Dark Valley		Native
C. *dentata* Poiret	Betty's Hope		Native
C. *nesophila* I.M. Johnston	Boggy Peak	t	Native
c. *laevigata* Lam.	Dark Valley	t	Native
C. *obliqua* Willd.	Dickinson Bay	t	India
C. *sebestena* L.	St. John's	t	Greater Antilles
C. sulcata DC.	Boggy Peak	T	Native
Heliotropium ternatum Vahl	Freetown	s	Native
Avicenniaceae			
Avicennia germinans (L.) L.	Runaway Bay	t	Native
A. *schaueriana* Stapf. & Leech. ex Mold.	Runaway Bay	s	Native
Verbenaceae			
Citharexylum spinosum L.	Boggy Peak	t	Native
Clerodendrum aculeatum (L.) Schlecht.	Shirley Heights	s	Native
Cornutia pymmidata L.	Boggy Peak	s	Native
Dumnta repens L.	Boggy Peak	s	Native
Lantana involucrata L.	Cedar Grove	s	Native
Lippia micnnnem Schauer var. *helkrii* (Britt.) Mold.	Freetown	s	Native
Tectona gmndis L.f.	Greencastle	T	Southeast Asia+
Solanaceae			
Cestrum macrophyllum Vent.	Boggy Peak	s	Native
Solanum racemosum Jacq.	Shirley Heights	s	Native
S. *rogosum* Dunal	Boggy Peak	s	Probably native
S. torvum Sw.	Figtree	s	Pantropical
Scrophulariaceae			
Capraria biflora L.	Runaway Bay	s	Tropical America
Bignoniaceae			
Crescentia cujete L.	St. John's	t	Probably native
Jacamnda mimasifolia D. Don	St. John's	t	South America+
Kiglia africana (Lam.) Benth.	Botanic Garden	T	Africa+

Table 1. — *Tree* and *shrub species identified during field studies in Antigua — Continued*

Family and species	Where first seen	Life form*	Native range
Spathodea campanulata Beauv.	St. John's	T	Central Africa+
Tabebuia chrysantha (Jacq.) Nichols.	Greencastle	t	Grenada-Trinidad+
T. heterophylla (DC.) Britt.	Cedar Grove	T	Native
T. rosea (Bertol.) DC.	Botanic Garden	T	South America+
Tecoma stuns (L.) Juss.	Valley Church	s	Probably native
Rubiaceae			
Catesbaea melanocarpa Urban	Shirley Heights	s	Native
Chiococca alba (L.) Hitchc.	Boggy Peak	s	Native
Coffea *ambica* L.	Body Ponds	t	Africa+
Erithalis fruticosa L.	Shirley Heights	t	Native
Exostema caribaeum (Jacq.) Roem. & Schult.	Freetown	s	Native
Fammea occidentalis (L.) A. Rich.	Boggy Peak	s	Native
Gardenia augusta (L.) Merrill	St. John's	s	Asia+
Guettarda crispiflora Vahl	Boggy Peak	t	Native
G. *ovalifolia* Urban	Wallings	t	Native
G. *parviflora* Vahl	Shirley Heights	t	Native
G. *scabra* (L.) Vent.	Boggy Peak	t	Native
G. *patens* Jacq.	St. John's	s	Tropical America+
Ixora coccinea L.	St. John's	s	East Indies+
I. thwaitesii Hook f.	St. John's	s	Sri Lanka+
Palicourea crocea (Sw.) Roem. & Schult.	Boggy Peak	s	Native
Psychotria nervosa Sw.	Boggy Peak	s	Native
P. tenuifolia Sw.	Body Ponds	s	Native
Randia aculeata L.	Boggy Peak		Native
Compositae			
Pluchea carolinensis (Jacq.) G. Don	Cedar Grove	s	Native
Pandanaceae			
Pandanus utilis Bory	St. Lukes		East Indies+
Gramineae			
Bambusa sp.	Collins Dam	t	Asia+
B. vulgaris Schrad.	Swetes	t	Tropical Asia+
Palmae			
Acrocomia aculeata (Jacq.) Lodd	Body Ponds	t	Native
Chrysalidocarpus lutescens (Borg) H. Wendl.	St. John's	t	Madagascar
Cocos *nucifem* L.	Cedar Grove	T	East Indies
Elaeis guineensis N.J. Jacquin	Figtree	T	Africa
Hyophorbe verschaffeltii Wendl.	St. John's	t	Mascarene†
Phoenix dactylifera L.	Airport	T	Africa, Asia
Pritchardia pacifica Seem. & Wendl.	St. John's	t	Hawaii+
Roystonea oleracea O.F. Cook	St. John's	T	Probably native
R. regia (HBK.) O.F. Cook	Botanic Garden	T	Cuba and Florida+
Sabal causiarum (O.F. Cook) Becc.	Old Road	T	Puerto Rico
Thrinax morrisii H. Wendl.	St. John's		Native
Veitchia merrillii (Bacc.) H.E. Moore	St. John's	t	Philippines+
Agavaceae			
Agave karatto Mill.	Johnsons Point	s	Native
Liliaceae			
Yucca aloifolia L.	Runaway Bay	t	united states+
Dmcaena fragrans (L.) Ker-Gawl.	St. John's	s	East Africa+

*t = small tree (sometimes shrub or medium tree), T = medium to large tree, s = shrub (sometimes a small tree).
†Species that were observed only under cultivation (not naturalized).
*Native means present on Antigua (and usually in other areas) before European settlement.

Table 2. --*Tree* and *shrub species observed in Barbuda*

Family and species	Where first seen	Life form*	Native range
Casuarinaceae			
Casuarina equisetifolia L.	Codrington	T	Oceania†
Moraceae			
Artocarpus altilis (S. Park) Fosb.	Codrington	T	Oceania+
Ficus benjamina L.	Codrington	s	Malaya
F. citrifolia Mill.	Codrington	T	Native
F. elastica Roxb.	Codrington	T	Tropical Asia+
Olacaceae			
Schoepfia schreberi Gmel.	Martello Tower	s	Native
Polygonaceae			
Coccoloba diversifolia Jacq.	South of Codrington	t	Native
C. krugii Lindau	South of Codrington	t	Native
C. uvifera (L.) L.	South of Codrington	t	Native
Nyctaginaceae			
Bougainvillia spectabilis Wild.	Codrington	v	Brazil†
Guapira discolor (Spreng.) Little	Highlands		Native
Pisonia subcordata Sw.	South of Codrington	I	Native
A n n -			
Annona muricata L.	Codrington	t	West Indies+
A. *squamosa* L.	Codrington	t	West Indies
Lauraceae			
Ocotea coriacea (Sw.) Britt.	Welsh Point	t	Native
Persea americana Mill.	Codrington	T	Mexico+
Capparaceae			
Capparis cynophallophora L.	Welsh Point	t	Native
C. *indica* (L.) Bruce	Pelican Point	t	Native
Chrysobalanaceae			
Chrysobalanus icaco L.	Martello Tower	s	Native
Rosaceae			
Rosa spp.	Codrington	s	India†
Leguminosae-Mimosoideae			
Acacia *farnesiana* (L.) Willd.	Codrington	t	Native
Leucaena leucocephala (Lam.) de Wit	South of Codrington	t	Probably native
Pithecellobium unguis-cati (L.) Benth.	South of Codrington	s	Native
Samanea *saman* (Jacq.) Merr.	Codrington	T	Tropical America†
Leguminosae-Caesalpinioideae			
Caesalpinia bonduc (L.) Roxb.	Martello Tower	v	Native
Delonix regia (Bojer) Raf.	Codrington	T	Madagascar+
Haematoxylon campechianum L.	South of Codrington	t	Mexico
Parkinsonia aculeata L.	Codrington	t	Texas to Mexico+
Senna siamea Irwin & Barneby	Codrington	T	Southeast Asia+
Tamarindus indica L.	Martello Tower	T	Africa
Leguminosae-Papilionoideae			
Cajanus cajan (L.) Huth	Codrington	s	Africa+
Erythrina berteroana Urban	Codrington	t	Tropical America†
Gliricidia sepium (Jacq.) Kunth	Codrington	t	Central America+
Pictetia aculeata (Vahl) Urban	South of Codrington	s	Native
Sesbania grandiflora (L.) Pers.	Codrington	t	Tropical Asia+
Erythroxylaceae			
Erytroxylum sp.	South of Codrington	t	Native

Table 2. — *Tree* and *shrub species observed in Barbuda- Continued*

Family and species	Where first seen	Life form*	Native range
Zygophyllaceae			
Guaiacum officinale L.	Codrington	s	Native
Rutaceae			
Amyris elemifera L.	Highlands	t	Native
Citrus aurantifolia (Christm. & Panzer) Swingle	Codrington	t	East Indies+
C. *reticulata* Blanco	Codrington	t	South Asia+
C. *sinensis* (L.) Osbeck	Codrington	t	South Asia+
Triphasia trifolia (Burm.f.) P. Wils.	Codrington	s	Java+
Zanthoxylum flavum Vahl	South of Codrington	T	Native
Z. *martinicense (Lam.)* DC.	Codrington	T	West Indies+
Simaroubaceae			
Castela erecta Turpin	South of Codrington	s	Native
Surianaceae			
Suriana maritima L.	South of Codrington	s	Native
Burseraceae			
Bursem simaruba (L.) Sarg.	Codrington	T	Native
Meliaceae			
Azadirachta indica Adr. Juss.	Codrington	T	India
Melia azedarach L.	Codrington	t	South Asia'
Swietenia mahagoni (L.) Jacq.	South of Codringtan	T	Antilles
Malpighiaceae			
Byrsonima lucida (Mill.) DC.	Codrington	t	Native
Malpighia linearis Jacq.	Salt Pond	s	Native
Euphorbiaceae			
Codiaeum variegatum (L.) Blume	Codrington	s	Sunda Islands+
Croton astroites Dryand.	Spanish Wells	s	Native
Euphorbia lactea Haw.	Codrington	t	Old World+
E. pulcherrima Willd.	Codrington	s	Mexico+
Hippomane mancinella L.	Msrtello Tower	T	Native
Jatropha curcas L.	Codrington	s	central America+
J. gossypiifolia L.	Martello Tower	s	Native
J. multifida L.	Cadrington	s	Tropical America+
Manihot esculenta Crantz	Codrington	s	South America+
Phyllanthus epiphyllanthus L.	South of Codrington	s	Native
Anacardiaceae			
Comocladia dodonaea (L.) Urban	South of Codrington		Native
Mangifem indica L.	Codrington	I	Tropical Asia+
Spondias purpurea L.	Codringtan	t	Tropical America†
Celastraceae			
Cassine xylocarpa Vent.	Martello Tower	t	Native
Cmssopetalum rhacoma Crantz	Highlands	s	Native
Sapindaceae			
Dodonaea viscosa (L.) Jacq.	Martello Tower	s	Native
Melicoccus bijugatus Jacq.	Codrington	T	Venezuela
Rhamnaceae			
Colubrina arborescens (Mill.) Sarg.	South of Codrington	t	Native
Krugiodendron ferreum (M. Vahl) Urban	Highlands	t	Native
Ziziphus mauritiana Lam.	Codrington	t	South Asia
Z. reticulata (M. Vahl) DC.	South of Codrington	t	Native
Malvaceae			
Gossypium barbadense L.	Welsh Point	s	Probably native
Hibiscus rosa-sinensis L. var. *rosa-sinensis*	Codrington	t	Tropical Asia+
Malvwiscus arboreus Cav.	Codrington	s	Tropical

Table 2. —*Tree* and *shrub species observed in Barbuda- Continued*

Family and species	*Where* first seen	Life form*	Native range
Bombacaceae			
Ceiba pentandra (L.) Gaertn.	Codrington	T	Tropical America+
Sterculiaceae			
Melochiu tomentosa L.	Highlands	s	Probably native
Canellaceae			
Canella winterana (L.) Gaertn.	Codrington	t	Native
Caricaceae			
Carica papaya L.	Codrington	t	Probably native
Cactaceae			
Opuntia rubescens Salm-Dyck	Codrington	s	Puerto Rico†
Pilosocereus royeni (L.) Byles & G. Rowley	Martello Tower	t	Native
Lythraceae			
Lagerstmemia indica L.	Codringkm	8	South Asia†
Punicaceae			
Punica granatum L.	Codrington	8	Mediterranean+
Rhizophoraceae			
Rhizophora mangle L.	Welsh Point	t	Native
Combretaceae			
Bucidu bucems L.	South of Codrington	T	Native
Conocarpus erectus L.	South of Codrington	s	Native
Laguncularia racemosa (L.) Gaertn. f.	Two Foot Bay	t	Native
Terminalia catappa L.	South of Codrington	T	Indonesia+
Myrtaceae			
Eugeniu biflora (L.) DC.	South of Codrington	s	Native
E. cordata Sw. DC. var. *sintenisii*	South of Codrington	s	Native
E. rhombea Krug & Urban	Highlands	t	Native
Psidium guajava L.	Codrington	t	Tropical America+
Araliaceae			
Polyscias guilfoylei (Bull.) L.H. Bailey	Codrington	s	New Caledonia†
Theophrastaceae			
Jacquinia arborea Vahl	Martello Tower	s	Native
Sapotaceae			
Sideroxylon obovatum Lam.	Martello Tower	t	Native
Apocynaceae			
Allamanda cathartica L.	Codrington	v	South America†
Nerium oleander L.	Codrington	s	Old World+
Plumeria alba L.	Codrington	t	Native
Rauvolfia viridis Willd.	South of Codrington	t	Native
Convolvulaceae			
Ipomoea carnea Jacq. ssp. *fistulosa* (C. Mart.) D. Austin	Codrington	s	Brazil+
Boraginaceae			
Argusia *gnaphalodes* (L.) Heine	Welsh Point	s	Native
Bourreria succulenta Jacq.	Salt Pond	t	Native
Cordia obliqua Willd.	Codrington	t	India
Avicenniaceae			
Avicennia germinuns (L.) L.	South of Codrington	t	Native

Table 2. – *Tree* and *shrub species observed in Barbuda- Continued*

Family and species	Where first seen	Life form*	Native range
Verbenaceae			
Citharexylum spinosum L.	Codrington	t	West Indies
Clerodendrum aculeatum (L.) Schlecht.	South of Codrington	s	Native
Lantana involucrata L.	South of Codrington	s	Native
Solanaceae			
Solanum racemosum Jacq.	Codrington	s	Native.
Scrophulariaceae			
Capraria biflora L.	Rubbish Bay	t	Old World
Bignoniaceae			
Crescentia cujete L.	Codrington	t	Tropical America+
Jacaranda mimosifolia D. Don	Codrington	s	South America+
Tabebuia heterophylla (DC.) Britt.	South of Codrington	T	Native
Tecoma stuns (L.) Juss.	Codrington	s	West Indies+
Acanthaceae			
Gmptophyllum pictum (L.) Griff.	Codrington	s	New Guinea+
Rubiaceae			
Erithalis fruticosa L.	Two Foot Bay	s	Native
Ernodea littoralis Sw.	Martello Tower	s	Native
Gardenia augusta (L.) Merrill	Codrington	s	Asia+
Ixora coccinea L.	Codrington	s	East Indies+
Randia aculeata L.	Spanish Well Point	s	Native
Compositae			
Eupatorium corymbosum Aubl.	Highlands	s	Native
Pluchea symphytifolia (Mill.) Gillis	Codrington	s	Tropical America
Palmae			
Coccothrinax barbadensis (Lodd. ex Mart.) Becc.	Martello Tower	t	Native
Cocos *nucifem* L.	Codrington	T	East Indies
Sabal causiarum (O.F. Cook) Becc.	Codrington	T	Puerto Rico†
Agavaeeae			
Agave karatto Miller	Highlands	s	Native

● T = medium to large tree, t = small tree (sometimes shrub or medium tree), s = shrub (sometimes a small tree).
†Species that were observed only in cultivation (not naturalized).

Table 3. —*Native* and *naturalized trees and shrubs observed or collected in Antigua*

Species	Source*				
	Beard	Harris	M&H	IITF	Howard
Casuarinaceae					
Casuarina equisetifolia L.	–	–	–	X	X
Piperaceae					
Lepianthes peltata (L.) Raf			–	–	X
Piper aduncum L.	–	–		X	
P. amalgo L.		–	–	–	X
P. dilatatum Rich.	–	–	–		X
P. dussii C. DC.			–	–	X
P. reticulatum L.	–				X
Ulmaceae					
Celtis iguanaea (Jacq.) Sarg.		–	–	–	X
Trema micrantha (L.) Blume	–				X
Moraceae					
Cecropia schreberiana Miq.		–	–	–	X
Ficus americana Aublet	–	–	–	–	X
F. citrifdia Mill.	–			X	X
F. nymphaeifolia Mill.		–	–	–	X
F. trigonata L.	X		X	X	X
Trophis racemosa (L.) Urban	–	–	–	X	
Loranthaceae					
Dendropemon caribaeus Krug. & Urban		–	–	–	X
Olacaceae					
Schoepfia arenaria Urban & Britt.	–	–		X	–
S. *schreberi* Gmel.	–		–	X	X
Polygonaceae					
Coccoloba dioersifolia Jacq.		X	–	X	X
C. *krugii* Lindau	–	–		–	X
C. *pubescens* L.	X	X	X	X	X
C. *swartzii* Meisn.	–		X	–	X
C. *uvifem* (L.) L.	X	X		X	X
C. *venosa* L.	–			X	X
Amaranthaceae					
Iresine angustifolia Euphrasen	–		–	–	X
Nyctaginaceae					
Pisonia aculeata L.	–	–	–	–	X
P. fragrans Dum.-Cours.	X	X	X	X	X
P. subcordata SW.	X		X	X	X
Phytolaccaceae					
Trichostigma octandrum (L.) H. Walter	–	–	–	X	X
Menispermaceae					
Hyperbaena domingensis (DC.) Benth.		–	–	–	X
Annonaceae					
Annona *glabra* L.	X	X	–	X	X
A. *montana* Macfad.	–	–	–	X	X
A. *muricata* L.		–	X	X	X
A. reticulata L.	–		–	X	X
A. *squamosa* L.		–		X	X

Table 3. —*Native* and *naturalized trees and shrubs observed or colkcted in Antigua — Continued*

Species	Source*				
	Beard	Harris	M&H	IITF	Howard
Lauraceae					
Beikchmkdiu pendula (Sw.) Hemsley		–			X
Licaria parvifolia (Lam.) Kostermans	–		X	X	–
Ocotea cernua (Nees) Mez	–	–	–	X	X
0. coriacea (Sw.) Britt.		–		X	X
0. *floribunda* (Sw.) Mez	–	–		X	X
0. *leucoxylon (Sw.) De Laness*	–		–	X	X
0. membmnacea (Sw.) R. Howard	X	X		X	X
0. *patens* (Sw.) *Nees*	–		–	X	X
capparaceae					
. *Capparis baducca* L.		–		X	X
C. cynophallophora L.	X	–			X
C. *flexuosa* (L.) L.	–		–	X	X
C. *hastata* Jacq.		–		X	X
C. *indica* (L.) Druce	X		–	X	X
Morisonia americana L.		–		–	X
Moringaceae					
Moringa okifem Lam.	–			X	X
Chrysobalanaceae					
Chrysobalanus icaco L.	–	X		–	X
Leguminosae-Mimosoideae					
Acacia *farnesiana* (L.) Willd.	X	X	X	X	X
A. *macracantha* Humb. & Bonpl.	X	X		X	X
A. *muricata* (L.) Willd.	–		–		X
A. *nilotica* (L.) Delile	X	X		X	X
A. polyacantha Willd.	–				X
A. *tortuosa* (L.) Willd.	X	X	–	X	X
Albizia kbbeck (L.) Benth.	X	X		X	X
Calliandra purpurea (L.) Benth.	–		–		X
Desmanthus virgatus (L.) Willd.			–	X	X
Znga *laurina* (Sw.) Willd.	X	X	X	X	X
Leucaena leucocephala (Lam.) de Wit	X	X	X	X	X
Mimosa *cemtonia* L.		–		X	X
Pithecellobium unguis-cati (L.) Benth.		X	–	X	X
Pmsopis juliflora (Sw.) *DC.*	X	X		X	X
Samanea saman (Jacq.) Merr.	–			X	X
Leguminosae-Caesalpinioideae					
Bauhinia aculeata L.	–			–	X
B. multinervia (Kunth.) DC.	–		–	X	X
Caesalpinia bonduc (L.) Boxb.		–		X	X
C. ciliata (Bergius ex Wikstrom) Urban	–		–		X
C. *coriaria* (Jacq.) Willd.		–	–		X
C. *pukherrima* (L.) Sw.		–		X	X
Chamaecrista glandulosa var. *swartzii* (Wikstrom) Irwin & Barneby	X			X	X
Delonix regia (Bojer) Raf.			–	X	X
Haematoxylum campechianum L.	X	X	X	X	X
Hymennea courbaril L.	X	X	X	X	X
Parkinsonia acukata L.	–			X	X
Senna atomaria (L.) Irwin & Barneby		–		X	X
S. *bacillaris* (L.f.) Irwin & Barneby var. *bacillaris*	–		–		X

Table 3. -Native and *naturalized trees and shrubs observed or collected in Antigua — Continued*

Species	Source*				
	Beard	Harris	M&H	IITF	Howard
S. bicapsularis (L.) Roxb. var. *bicapsularis*		–	–	X	X
Tamarindus indica L.	–		–	X	X
Leguminosae-Papilionoideae					
Andira inermis (wright) Kunth	X	X	–	X	X
A. sapindoides (DC.) Benth.	–	–	–		X
Dalbergia ecastaphyllum (L.) Taubert	–			–	X
Erythrina velutina Willd.	–	–	–	X	–
Flemingia stmbilifem (L.) Ait. f.	–		–	–	X
Zndigofem suffruticosa Mill.	–	–	–	X	X
I. tinctoria L.	–		–	–	X
Lonchocarpus pentaphyllus (Poir.) DC.	X	X	–	–	–
L. violaceus (Jacq.) DC.	–	–	–	X	X
Machaerium lunatum (L.f.) Ducke	–		–	X	–
Piscidia *carthagenensis* Jacq.	X	–	–	X	X
Erythroxylaceae					
Erythroxylon brevipes DC.	X	–	–		–
E. havanense Jacq.		–	–	X	X
Zygophylhceae					
Guaiacum officinale L.		X		X	X
Rutaceae					
Amyris elemifera L.		–		–	X
Triphasia trifolia (Burm. f.) P. Wils.	–		–	X	X
Zanthoxylum flavum Vahl	–	–		X	X
Z. *martinicense (Lam.)* DC.	X	–	X	X	X
Z. *monophyllum (Lam.)* P. Wils.	X	–	–	X	X
Z. *punctatum* Vahl		–	–		X
Z. *spinifex* (Jacq.) DC.	–			X	X
Simaroubaceae					
Castela erecta Turpin	–		–	X	X
Picmmnia pentandm Sw.		–		X	–
Picrasma excelsa (Sw.) Planch.			–	X	X
Simarouba amara Aubl.		–		X	X
Surianaceae					
Suriana maritima L.	–		–	X	X
Burseraceae					
Bursem simaruba (L.) Sarg.	X	X	X	X	X
Dacryodes excelsa Vahl	–			–	X
Meliaceae					
Azadirachta indica Adr. Juss.	–			X	X
Cedrela odorata L.	X	X	X	X	X
Guarea glabra Vahl	–	–			X
Melia azedarach L.				X	X
Swietenia mahagoni (L.) Jacq.	X		X	X	X
Trichilia hirta L.				X	X
Malpighiaceae					
Bunchosia glandulosa (Cav.) L.C. Rich.				X	X
Byrsonima lucida (Mill.) DC.				X	X
B. spicata (Cav.) DC.	X		–	X	X
B. trinitensis Adr. Juss.	–	–			X
Malpighia emarginata DC.			–	X	X
M. linearis Jacq.	–	–		X	X
M. *martinicensis* Jacq.				–	X

Table 3. —*Native* and *naturalized trees and shrubs observed* OF *collected in Antigua* — *Continued*

Species	Source* Beard	Harris	M&H	IITF	Howard
Krameriaceae					
Krameria ixine L.	–	–	–	–	X
Euphorbiaceae					
Actinostemon caribaeus Griseb.	–	–	–	–	X
Argythamnia polygama (Jacq.) Kuntze		–	–		X
Bernardia corensis (Jacq.) Muell. Arg.				–	X
Chamaesyce articulata (Aubl.) Britt.			–		X
C. *mesembrianthemifolia* (Jacq.) Dugand	–			–	X
Croton astroites Dryand.			–	X	X
C. *frowns* L.	X	–	–		X
Drypetes serrata (Maycock) Krug & Urban	–	–	–		X
Gymnanthes lucida Sw.	–	–		X	X
Hippomane mancinella L.	X	X	–	X	X
Hum crepitans L.	X	–		X	X
Jatropha curcas L.			–	X	–
J. gossypiifolia L.	–	–	–	X	X
Margaritaria nobilis L.f.	–			–	X
Pedilanthus tithymaloides (L.) Poit.	–	–	–	–	X
Phyllanthus epiphyllanthus L.	–	–		X	X
Richeria gmndis M. Vahl				–	X
Ricinus communis L.	–	–	–	X	X
Sapium caribaeum Urban	–	–			X
Anacardiaceae					
Anacardium occidentale L.			–	X	X
Comocladia dodonaea (L.) Urban	–	–	–	X	X
Mangifem indica L.	X	X	X	X	X
Spondias mombin L.	X	–	–	X	X
Celastraceae					
Cassine *xylocarpa* Vent.				X	X
Crossopetalum rhacoma Crantz		–	–	X	X
Gyminda latifolia (Sw.) Urban	–	–			X
Schaefferia frutescens Jacq.		–	–	X	X
Sapindaceae					
Allophylus racemosus Sw.	–	–		X	X
Dodonaea viscosa (L.) Jacq.			–	–	X
Melicoccus bijugatus Jacq.	X	–	–	X	X
Sapindus saponaria L.	X	X		X	X
Rhamnaceae					
Colubrina arborescens (Mill.) Sarg.		–		X	X
Krugiodendron ferreum (M. Vahl) Urban	–	–	–	X	X
Ziziphus mauritiana Lam.		–		X	X
Z. reticulata (M. Vahl) DC.					X
Tiliaceae					
Triumfetta grandiflora Vahl.	–	–	–	X	–
T. rhomboidea Jacq.	–	–	–		X
T. semitriloba Jacq.					X
Malvaceae					
Abutilon guineense (Schum.) E.G. Baker & Exell.					X
A. umbellatum (L.) Sweet		–	–	–	X

Table 3. *-Native and* naturalized *trees and shrubs observed or collected in Antigua — Continued*

Species	Source*				
	Beard	Harris	M&H	IITF	Howard
Bastardia viscosa (L.) Kunth. var. viscosa		–	–	–	X
Gossypium barbadense L.	–	–	–	–	X
Malvastrum coromandelianum (L.) Garcke		–	–	X	X
Sida *acuta* Burman f.	–	–	–	–	X
S. *spinosa* L.		–	–	–	X
Thespesia populnea (L.) Sol.	–	–	–	X	X
Urena lobata L.	–	–	–	–	X
Bombacaceae					
Ceiba pentandra (L.) Gaertn.	X	X	X	X	X
Ochroma pyramidale (Cav.) Urban	–	–	–	X	
Sterculiaceae					
Guazuma ulmifolia Lam.	X	–	X	X	X
Melochia tomentosa L.	X	–	–	X	X
Waltheria indica L.	–			–	X
Ochnaceae					
Ouratea guildingii (Planch.) Urban	–	–	–	X	X
Clusiaceae					
Calophyllum calaba L.	–	–	–	X	X
Clusia major L.	–	–	X	X	X
Canellaceae					
Canella wintemna (L.) Gaertn.	–	X	X	X	X
Flacourtiaceae					
Casearia decandra Jacq.		–	–	X	X
C. *guianensis* (Aubl.) Urban	X	–		–	–
Prockia crucis P. Browne ex L.	–		–	–	X
Samyda dodecandra Jacq.	–		–	X	X
Caricaceae					
Carica papaya L.	–	X	X	X	X
Thymeleaceae					
Daphnopsis americana (Mill.) J. Johnston ssp. *caribaea* (Griseb.) Navl.	X	–	X	X	X
Lythraceae					
Lawsonia inermis L.	–		–	X	X
Rhizophoraceae					
Rhiwphora mangle L.	X	X	–	X	X
Combretaceae					
Bucida buceras L.	X	X	X	X	X
Conocarpus erectus L.	X	X	–	X	X
Laguncularia racemosa (L.) Gaertn. f.	X	X		X	X
Myrtaceae					
Eugenia axillaris (Sw.) Willd.		–		–	X
E. biflora (L.) DC.	–	–	–	X	X
E. confusa DC.	–		–	X	X
E. cordata (Sw.) DC. var. *sintenisii* (Kiaersk.) Krug & Urban	–	–		X	X
E. monticola (Sw.) DC.	–	–	–		X
E. pseudopsidium Jacq.	–	–		X	

Table 3. -Native and naturalized trees and shrubs observed or collected in Antigua — Continued

Species	Source* Beard	Harris	M&H	IITF	Howard
E. rhombea Krug & Urban	–	–	–	X	X
E. uniflora L.	–		–		X
Myrcia citrifolia (Aubl.) Urban var. *imrayana* Greseb.	X	–	–	–	X
M. deflexa (Poir.) DC.	–		–	–	X
M. splendens (Sw.) DC.	–		–	–	X
M. platyclada DC.	–	–	–	X	–
Myrcianthes fragrans (Sw.) McVaugh	–	–	–		X
Myrciaria floribunda (West) 0. Berg.	–	–	–		X
Pimenta racemosa (Mill.) J. Moore	–	–	–	X	X
Psidium guajava *L.*	X	X	X	X	X
P. longipes (O.Berg) McVaugh var. *orbiculare* (O.Berg.) McVaugh	–	–	–	–	X
Syzygium *jambos* (L.) Alston	–		–	X	X
Terminalia catappa L.		X	X	X	X
Melastomataceae					
Clidemia hirta (L.) D. Don	–	–	–	–	X
Miconia laevigata (L.) D. Don	–	–	–	X	X
M. mirabilis (Aubl.) L.O. Wms.	–	–	–	X	X
M. prasina (Sw.) DC.	–		–	X	
M. striata (M. Vahl) Cogn.	–	–	–	–	X
M. trichotoma (Desr.) DC.	–		–	–	X
Mouriri domingensis (Tuss.) Spach		–	–		X
Tetrazygia angustifolia (Sw.) DC.	X	–	–	X	X
T. discolor (L.) DC.	–		–	–	X
Myrsinaceae					
Ardisia obovata Ham.		–	–		X
Plumbaginaceae					
Plumbago auriculata Lam.	–		–	–	X
P. scandens L.	–	–	–	–	X
Sapotaceae					
Chrysophyllum argenteum Jacq.	X	–		X	X
Micropholis guyanensis (A. DC.) Pierre	–	–	–	–	X
Sideroxylon foetidissimum Jacq.	X	–		X	X
S. *obovatum* Lam.	–	–	–	–	X
S. salicifolium (L.) Lam.	–			X	X
Oleaceae					
Chionanthus compacta Sw.	X	–	X	X	X
Forestiera segregata (Jacq.) Krug. & Urban	–	–	–	–	X
Apocynaceae					
Allamanda cathartica L.	–	–		X	X
Plumeria alba L.	–			X	X
Rauvolfia viridis Willd.		–		X	X
Tabernaemontana citrifolia L.	X	–	X	X	X
Thevetia peruviana (Pers.) Schum.	–	–		X	X
Asclepiadaceae					
Calotropis procera (Ait.) Ait. f.		–		X	X
Boraginaceae					
Argusia gnaphalodes (L.) Heine			–	–	X
Bourreria succulenta Jacq.	X	–	X	X	X
Cordia alliodora (Ruiz & Pav.) Oken	X	–		X	X
C. *collococca* L.	–	–		X	X

Table 3. —*Native* and *naturalized trees and shrubs observed or collected in Antigua — Continued*

Species	Source*				
	Beard	Harris	M&H	IITF	Howard
C. curasavica (Jacq.) Roem. & Schult.	–	–	–	X	X
C. *dentata* Poir.	–	–	–	X	X
C. globosa (Jacq.) Kunth	–	–	–		X
C. *laevigata* Lam.	–	–	–	X	–
C. *nesophila* I.M. Johnston	–	–	–	X	X
C. *obliqua* Willd.	–	–	–	X	X
C. *sebestena* L.	–	–	–	X	X
C. *sulcata* DC.	X	–	X	X	X
Heliotmpium microphyllum Sw. ox Witstrom	–	–	–	–	X
H. ternatum Vahl			–	X	–
Rochefortia acanthophora (DC.) Griseb.	–	–	–	–	X
R. spinosa (Jacq.) Urban	–				X
Tournefortia filiflora Griseb.	–	–	–	–	X
T. volubilis L.	–	–			X
Avicenniaceae					
Avicennia germinans (L.) L.	X	X	–	X	X
A. shaueriana Stapf. & Leech. ex Mold.	–	–		X	
Verbenaceae					
Aegiphila martinicensis Jacq.	X	–	–	–	X
Citharexylum spinosum L.	X	–		X	X
Clerodendrum aculeatum (L.) Schlecht.	–	–		X	X
Cornutia pyramidata L.		–	–	X	X
Duranta repens L.	–	–		X	X
Lantana camara L.	–	X	–	–	–
L. involucrata L.	X	–		X	X
L. urticifolia Mill.	–	–		–	X
Lippia alba (Mill.) N. E. Br.		–	–	X	X
Ocimum gratissimum L.	–	–	–	–	X
Stachytarpheta cayennensis (L.C. Rich.) Vahl			–	–	X
Vitex divaricata Sw.	–	–	–	–	X
Solanaceae					
Acnistus arborescens (L.) Schlecht.	–	–	–	–	X
Brugmansia suaveolens (Willd.) Berch. & Presl.	–	–	–		X
Brunfelsia americana L.	–		–	–	X
Cestrum laurifolium L'lterit.	–	–	–	–	X
C. *macrophyllum* Vent.	–		–	X	
Datum mete1 L.	–	–		–	X
Lycium americanurn Jacq.		–	–	–	X
Solanum racemosum Jacq.	X	–	–	X	X
S. *rugosum* Dunal		–	–	X	–
S. *torvum Sw.*	–		–	X	X
Bignoniaceae					
Amphitecna latifolia (Mill.) A. Gentry	X	–	X		–
Crescentia cujete L.	–	–	–	X	X
Tabebuia heterophylla (DC.) Britt.	X	X	X	X	X
Tecoma stans (L.) Juss.	X		–	X	X
Cactaceae					
Pilosocereus royenii (L.) Byles & G. Rowley	X	X	–	X	X
Acanthaceae					
Justicia carthaginensis Jacq.		–	–	X	X

Table 3. -Native and *naturalized trees and shrubs observed or collected in Antigua — Continued*

Species	Source*				
	Beard	Harris	M&H	IITF	Howard
Justicia carthaginensis Jacq.				X	X
J. eustachiana Jacq.	–	–	–	X	X
Odontonema nitidum (Jecq.) Kuntze	–	–			X
Oplonia microphylla (Lam.) Stearn			–	–	X
Myoporaceae					
Bontia daphnoides L.	–	–	–		X
Rubiaceae					
Antirhea acutata (DC.) Urban	–	–			X
Catesbaea melanocarpa Urban			–	X	X
Chiococca *alba* (L.) Hitchc.	–	–	–	X	X
C. *parvifolia* Wüllschl. ex Griseb	–	–			X
Erithalis fruticosa L.				X	X
E. odorifera Jacq.	–	–	–		X
Ernodea littoralis Sw.				–	X
Exostema caribaeum (Jecq.) Roem. & Schult.	X	X	X	X	X
Faramea occidentalis (L.) A. Rich.				X	X
Gonzalagunia hirsuta (Jecq.) Schum.	–	–	–		X
Guettarda crispiflora Vahl	–	–	–	X	
G. *odorata* (Jacq.) Lam.	–	–	–		X
G. *ovalifolia* Urban				X	
G. *parviflora* Vahl	–	–	–	X	
G. *scabra* (L.) Vent.	X	X	X	X	X
Ixora ferrea (Jacq.) Benth.				–	X
Palicourea crocea (Sw.) Roem. & Schult.	–	–		X	X
Psychotria domingensis Jacq.				–	X
P. microdon (DC.) Urban	–	–	–		X
l? *nervosa* Sw.	–	–		X	X
Z? tenuifolia Sw.	–	–	–	X	X
Randia aculeata L.	X			X	X
Spermacoce bahamensis (Britt.) Howard	–	–	–		X
Strumpfia maritima Jacq.					X
Compositae					
Eupatorium corymbosum Aubl.	–				X
E. odoratum L.			–	–	X
E. sinuatum Lam.	–	–	–	–	X
Pluchea carolinensis (Jecq.) G. Don			–	X	X
Verrwnia albicaulis Pers.	–	–	–	–	X
Wedelia calycina Rich.	–				X
Palmae					
Acmcomia aculeata (Jacq.) Lodd.	X	–	–	X	X
Coccothrinax barbadensis (Lodd.) Becc.	X	X		X	X
Cocos *nucifera* L.	–	X		X	X
Elaeis guineensis N.J. Jacquin	–	–	–	X	
Phoenix dactylifera L.				X	
Roystonea oleracea O.F. Cook	X	–		X	
Sabal causiarum (O.F. Cook) Becc.				X	X
Agavaceae					
Agave karatto Mill.	X	X		X	X

*Beard = Beard 1949; Harris = Harris 1960; M&H = Mackler end Hannah 1988; IITF = International Institute of Tropical Forestry survey; Howard = Howard 1987; 1988; 1989a, 1989b.

Table 4.—*Native* and *naturalized tree and shrub specks observed or collected in Barbuda*

Family and species	Source*			
	Beard	Harris	IITF	Howard
Ulmaceae				
Celtis iguanaea (Jacq.) Sarg.	–		–	X
Moraceae				
Ficus citrifolia Mill.	X		X	X
Olacaceae				
Schoepfia schreberi Gmel.	–	–	X	X
Polygonaceae				
Coccoloba diversifolia Jacq.	X	X	X	X
C. *krugii* Lindau	X	–	X	X
C. *pubescens L.*	–	–	–	X
C. uuifera (L.) L.	X	–	X	X
Nyctaginaceae				
Pisonia discolor Spreng.		–	–	X
P. fmgrans Dum.–Cours.	X	X		X
P. subcordata Sw.	X	X	X	X
Phytolaccaceae				
Trichostigma octandrum (L.) H. Walter		–	–	X
Annonaceae				
Annona glabra L.	X	X	–	X
A. squamosa L.	–	–	X	X
Lauraceae				
Ocotea coriacea (Sw.) Britt.	–		X	X
Capparaceae				
Capparis baducca L.	–		–	X
C. *cynophallophora* L.	X	–	X	X
C. *flexuosa* (L.) L.	X	–	–	–
C. *indica* (L.) Druce	–		X	X
Chrysobalanaceae				
Chrysobalanus icaco L.	X		X	X
Leguminosae–Mimosoideae				
Acacia farnesiana (L.) Willd.	–	–	X	X
A. *macmcantha* Humb. & Bonpl.	–	–		X
A. *nilotica* (L.) Delile		–	–	X
A. tortuosa (L.) Willd.	–	X	–	X
Leucaena leucocephala (Lam.) de Wit	–	–	X	X
Pithecellobium unguis-cati (L.) Benth.	X	–	X	X
Prosopis juliflora (Sw.) DC.	–		–	X
Leguminosae-Caesalpinioideae				
Caesalpinia bonduc (L.) Roxb.		–	X	
C. *pukherrima* (L.) Sw.	–		–	X
Chamaecrista glandulosa var. *swartzii* (Wikstrom) Irwin & Bameby	X	–	–	X
Haematoxylon campechianum L.	X	X	X	X
Senna *bicapsularis* (L.f.) Roxb. var. *bicapsularis*		–		X
Tamarindus indica L.		X	X	X
Leguminosae-Papilionoideae				
Indigofera tinctoria L.	–		–	X
Lonchocarpus pentaphyllus (Poir.) DC.	X		–	
Pictetia aculeata (Vahl) Urban	–		X	
Sophom tomentosa L.		–		X
Zygophyllaceae				
Guaiacum officinale L.	–	X	X	X
Rutaceae				
Amyris ekmifera L.	X	X	X	X
Zanthoxylum flawum Vabl		X	X	X
Z. spinifex (Jacq.) DC.		–		X
Simaroubaceae				
Castela erecta Turpin		–	X	X
Surianaceae				
Suriana maritima L.	X	–	X	X
Burseraceae				
Bursem simaruba (L.) Sarg.	X	X	X	X

Table I.-Native and *naturalized tree* **and *shrub species observed or collected in Barbuda -- Continued***

Family and species	Source*			
	Beard	Harris	IITF	Howard
Meliaceae				
Azadirachta indica Adr. Juss.	–		X	–
Swietenia mahagoni (L.) Jacq.	–	–	X	X
Malpighiaceae				
Bunchosia glandulosa (Cav.) L.C. Rich.	–	–	–	X
Byrsonima lucida (Mill.) DC.	X	–	X	X
Malpighiu linearis Jacq.	X	X	X	X
Euphorbiaceae				
Chamaesyce articulata (Aubl.) Britt.	X	–	–	X
C. *mesembrianthemifolia* (Jacq.) Dugand		–	–	X
Croton astroites Dryand.	–		X	X
c. *flavens* L.	X	X	–	X
Gymnanthes lucida Sw.			–	X
Hippomane mancinella L.	–		X	X
Hum crepitans L.		–	–	X
Jatropha gossypiifolia L.	–		X	X
Phyllanthus angustifolius (Sw.) Sw.	X	–		
l? epiphyllanthus L.			X	X
Ricinus communis L.	–	–		X
Anacardiaceae				
Comocladia dodonaea (L.) Urban	X	X	X	X
Celastraceae				
Cassine xylocarpa L.	–	–	X	
Crossopetalum rhacoma Crantz		–	X	X
Gyminda latifolia (Sw.) Urban	X			X
Sapindaceae				
Dodonaea elaeagnoides Rudolphi		–	–	X
D. viscosa (L.) Jacq.	X	X	X	X
Melicoccus bijugatus Jacq.	–	–	X	X
Sapindus saponaria L.		–	–	X
Rhamnaceae				
Colubrina arborescens (Mill.) Sarg.		–	X	X
Krugiodendron ferreum (M. Vahl) Urban		–	X	X
Ziziphus mauritiana Lam.			X	–
Z. reticulata (M. Vahl) DC.	–	–	X	X
Malvaceae				
Gossypium barbadense L.	–		X	X
Sida spinosa L.	–			X
Sterculiaceae				
Melochia tomentosa L.	–		X	X
Canellaceae				
Canella wintemna (L.) Gaertn.	X	X	X	X
Caricaceae				
Carica papaya L.	–		X	X
Cactaceae				
Opuntia cochenillifera (L.) Mill.	–	–		X
Pilosocereus royeni (L.) Byles & G. Rowley	X	X	X	
Rhizophoraceae				
Rhiwphom mangle L.	X	–	X	X
Combretaceae				
Bucida buceras L.	X	X	X	X
Conocarpus erectus L.	X		X	X
Laguncularia racemosa (L.) Gaertn. f.	X		X	X
Myrtaceae				
Eugenia axillaris (Sw.) Willd.	X	–		X
E. biflora (L.) DC.	–		X	–
E. cordata (Sw.) DC. var. *sintenisii* (Kiaersk.) Krug & Urban	X		X	X
E. rhombea Krug & Urban	–		X	X
Pimenta racemosa (Mill.) J. Moore	X			X

Table 4.-*Native and naturalized tree and shrub species observed or collected in Barbuda – Continued*

Family and species	Source*			
	Beard	Harris	IITF	Howard
Melastomataceae				
Tamonea boxiana (Mold.) Howard		–	–	X
Theophrastaceae				
Jacquinia armillaris Jacq.	X	–	X	X
Plumbaginaceae				
Plumbago scandens L.		–	–	X
Sapotaceae				
Sideroxylon obovatum Lam.	X	X	X	X
S. *salicifolium* (L.) Lam.	X	X	–	X
Oleaceae				
Forestiera segregata (Jacq.) Krug. & Urban	–	–	–	X
Apocynaceae				
Plumeria alba L.	X	X	X	X
Rauvolfia viridis Willd.	–	–	X	X
Asclepiadaceae				
Calotropis procera (Ait.) Ait. f.	–	–	–	X
Boraginaceae				
Argusia gnaphalodes (L.) Heine	–		X	X
Bourreria succulenta Jacq.	X	–	X	X
Cordia dentata Poir.	–	–	–	X
C. globosa (Jacq.) Kunth	–	–	–	X
C. *macrostachya* Roem. & Schult.	X	–	–	–
C. *nesophila* I.M. Johnston				X
C. *obliqua* Willd.	–	–	X	–
C. *sebestena* L.	–	–	–	X
Heliotropium microphyllum Sw. ex Wikström	–	–	–	X
Rochefortia acanthophom (DC.) Griseb.				X
Tournefortia volubilis L.	–	–	–	X
Avicenniaceae				
Avicennia germinans (L.) L.	–	–	X	X
Verbenaceae				
Citharexylum spinosum L.	–	–	X	X
Clerodendrum aculeatum (L.) Schlecht.	X	X	X	X
Lantana *camara* L.		X	–	X
L. involucrata L.	X	X	X	X
Solanaceae				
Solanum racemosum Jacq.			X	X
Bignoniaceae				
Tabebuia heterophylla (DC.) Britt.	X	X	X	X
T. lepidota (HBK.) Britt.	–			X
Acanthaceae				
Justicia carthaginensis Jacq.		–	–	X
J. eustachiana Jacq.	–	–	–	X
Rubiaceae				
Catesbaea melanocarpa Urban	–	–		X
Chiococca parvifdia Wüllschl ex Griseb	–	–	–	X
Erithalis fruticosa L.	X	–	X	X
Ernodea littoralis Sw.	X		X	X
Guettarda odorata (Jacq.) Lam.	–			X
G. *scabra* (L.) Vent.	X			X
Hamelia patens Jacq.		–	–	X
Randia aculeata L.			X	X
Spermacoce bahamensis (Britt.) Howard	–			X
Strumpfia maritima Jacq.	X			X
Goodeniaceae				
Scaevola Plumieri (L.) Vahl	X			X
Compositae				
Baccharis dioica Vahl	–			X
Borrichia arborescens (L.) DC.		–		X
Eupatorium corymbosum Aubl.	–	–	X	

Table 4.—*Native* and *naturalized tree and shrub specks observed or collected in Barbuda — Continued*

Family end species	Source* Beerd	Harris	IITF	Howard
Gundlachia corymbosa (Urban) Britt.		–	–	X
Pluchea carolinensis (Jacq.) G. Don	–	–	X	X
Wedela calycina Rich.		–	–	X
Palmae				
Coccothrinax barbadensis (Lodd.) Becc.	x	–	x	X
Thrinax morrisii H. Wendl.		–	–	X
Agavaceae				
Agave karotto Mill.	x	x	x	X

*Beard = Beard 1949; Harris = Harris 1960; IITF = the International Institute of Tropical Forestry survey; Howard = Howard 1987; 1988; 1989a, 1989b.

Table 5.—*Native* canopy *tree species listed in Howard (1979; 1988; 1989a, 1989b), identified in the International Institute of Tropical Forestry (IITF) survey of Antigua and Barbuda, and appearing in both surveys*

Location end species name	Howard	IITF	Both Surveys
Antigua			
Acrocomia aculeata (Jacq.) Lodd.	–		X
Andira inermis (Wright) Kunth	–		X
Avicennia germinans (L.) L.	–	–	X
Beikchmiedia pendula (Sw.) Hemsley	X		
Bourreria succuknta Jacq.	–		X
Bucida bucems L.	–		X
Bursera simaruba (L.) Sarg.	–	–	X
Byrsonima spicata (Cav.) DC.	–		X
Calophyllum calaba L.	–		X
Canella winterana (L.) Geertn.	–		X
Cecropia schreberiana Miq.	X		
Cedrela odorata L.	–		X
Ceiba pentandra (L.) Gaertn.	–		X
Clusia major L.	–	–	X
Coccoloba diversifolia Jacq.	–		X
C. *pubescens* L.	–		X
Coccothrinax barbadensis (Lodd.) Bacc.	–		X
Cordia alliodora (Ruiz & Pav.) Oken	–		X
C. collococca *L.*	–	–	X
C. laevigata Lam.	–	X	
C. sulcata DC.	–		X
Dacryodes excelsa Vahl	X	–	
Ficus citrifolia Mill.	–		X
F. trigonata L.	–	–	X
Guaiacum officinale L.	–	–	X
Guazuma ulmifolia Lam.	–	–	X
Hippomane mancinella L.	–		X
Hum crepitans L.	–		X
Hymenaea courbaril L.	–		X
Inga laurina (Sw.) Willd.	–		X
Laguncularia racemosa (L.) Geertn. f.	–		X
Lonchocarpus violaceus (Jacq.) DC.	–		X
Melicoccus bijugatus Jacq.	–		X
Ochroma pyramidale (Cav.) Urban	–	X	
Ocotea *membmnacea* (Sw.) R. Howard	–		X
Pimenta racemosa (Mill.) J. Moore	–		X
Pisonia *subcordata* Sw.	–		X
Rhiwphora mangle L.	–		X
Sapindus saponaria L.	X		
Sapium caribaeum Urban	X		
Sideroxylon foetidissimum Jacq.			X
Simarouba amara Aublet			X

Table 5.—*Native canopy tree species listed in Howard (1979; 1988; 1989a, 1989b), identified in the International Institute of Tropical Forestry (IITF) survey of Antigua and Barbuda, and appearing in both surveys-Continued*

Location and species name	Howard	IITF	Both Surveys
Spondias mombin L.		–	X
Tabebuia heterophylla (DC.) Britt.		–	X
Vitex divaricata Sw.	x	–	–
Zanthoxylum flavum Vahl		–	X
Z. martinicense (Lam.) DC.		–	X
Barbuda			
Avicennia germinans (L.) L.		–	X
Bourreria succulenta Jacq.		–	X
Bucida buceras L.		–	X
Bursera simaruba (L.) Sarg.		–	X
Canella winterana (L.) Gaertn.		–	X
Coccoloba *diversifolia* Jacq.		–	X
C. pubescens L.	X	–	–
Ficus citrifolia Mill.		–	X
Guaiocum officinale L.		–	X
Hippomane mancinella L.		–	X
Krugiodendron ferreum (M. Vahl) Urban		–	X
Laguncularia racemosa (L.) Gaertn. f.		–	X
Ocotea coriacea (Sw.) Britt.		–	X
Pisonia *subcordata* Sw.		–	X
Rhizophora mangle L.		–	X
Sapindus saponaria L.	X	–	–
Sideroxylon salicifolium (L.) Lam.	X	–	–
Tabebuia heterophylla (DC.) Britt.			X
Zanthoxylum flavum Vahl		–	X

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Beginning in the 17th century, the forest lands of Antigua and Barbuda were cleared for agriculture, burned, cut over, and grazed severely. A survey by personnel of the USDA Forest Service, International Institute of Tropical Forestry and previous surveys were used to assemble lists of native and exotic woody plants. A large majority of the original woody flora still grows on both islands.

Keywords: Botanical survey, extinction, Lesser Antilles native species, woody flora.

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