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FLORA OF BUCK ISLAND REEF NATIONAL MONUMENT (U.S. VIRGIN ISLANDS)

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RESUMEN

El Monumento Nacional del Arrecife de Buck Island es una isla de una milla de largo y queda a 1 2/3 millas al norte de la parte este de St. Croix, Islas Vírgines Americanas. Esta pequeña isla tiene una abundante flora de las caducifolias estacionales o bosque relativamente seco, zona tropical, haciendo un total de 228 especies de plantas productoras de semillas (incluyendo 17 especies introducidas). Allí no se encuentran helechos, y solamente hay una especie de orquídeas y 7 de cactos. Allí hay un total de 62 especies de árboles, de los cuales 6 son de especies introducidas. Estos datos sobre la presente flora podrían servir para hacer una comparación con otras áreas y para estudios futuros. Allí se provee protección para las especies endémicas, raras, y en peligro de extinción. Hay tres especies de árboles que son endémicos a Puerto Rico y las Islas Vírgenes, pero solamente una de las especies es rara y está en peligro de extinción. Dos especies de plantas más pequeñas son también de una zona limitada.

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FLORA OF BUCK ISLAND REEF NATIONAL MONUMENT

(U.S. Virgin Islands)

By Roy O. Woodbury[1/] and Elbert L. Little, Jr.[2/]

Buck Island is located in the Caribbean Sea only 1 2/3 miles north of the eastern part of St. Croix and about 5 miles northeast of Christiansted, United States Virgin Islands (map, figure 1, and figure 2). This "beautiful little uninhabited island" scarcely 1 mile long and less than half as wide supports a rich and representative land flora of the seasonal or relatively dry forest, tropical zone, totaling 228 listed species of seed plants but no ferns.

A major objective of this study was to obtain records at Buck Island Reef National Monument for the 2-volume illustrated reference on the trees of Puerto Rico and the Virgin Islands (Little, Woodbury, and Wadsworth 1964, 1974). That publication cites distribution of each native species by public forests and parks as well as by islands. The expanded list of trees and other seed plants is published separately here because no previous study has been made.

This summary of the plant names and vegetation will be available to visitors, especially scientists and students, who are attracted in increasing numbers. An inventory of the land flora of Buck Island Reef National Monument is needed because the land and surrounding reefs will be preserved in their natural state indefinitely by the National Park Service. Thus, the island is a refuge for species which might be destroyed elsewhere. The natural area with its known flora will serve as a control or check plot for comparing other islands with different land use, past, present, and future. Similar plant lists of other localities when combined will aid in understanding present plant distribution and past history. Also, the record of the present flora will serve as a basis for future studies of possible changes, such as gradual restoration of the original vegetation, migration and invasion by other plant species, and possible extinction of some now present.

This flora is a contribution to the International Biological Program from the United States Department of Agriculture Forest Service project on forest trees of the Caribbean area. It follows one on the trees of Jost Van Dyke (British Virgin Islands) (Little 1969).

DESCRIPTION OF BUCK ISLAND

St. Croix is approximately 500 miles north of the coast of Venezuela in northern South America, the nearest continent, and about 1,100 miles southeast of Miami, Florida, in North America. The Virgin Islands of the West Indies in the Caribbean Sea are oceanic and volcanic in origin and never have been connected with a continent through their long geologic history.

Buck Island is slightly more than 1 mile long in east-west dimension and less than 1/2 mile

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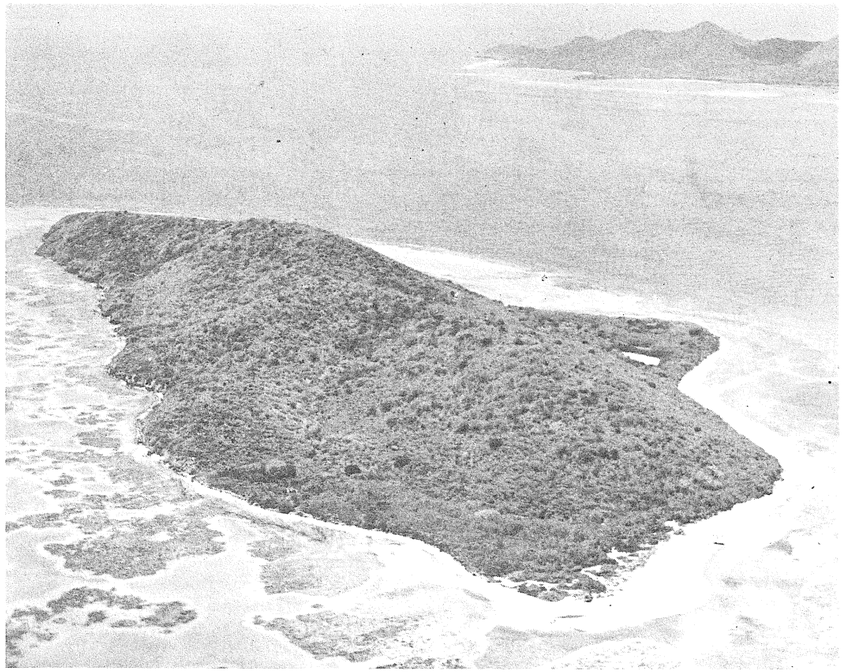

Figure 1. Air photo of Buck Island surrounded by reefs, looking southeast, with the east end of St. Croix at far right. Sandy coastal plain with beach forest in foreground and salt pond at right. (By John E. Randall from National Park Service, Randall and Schroeder 1962.)

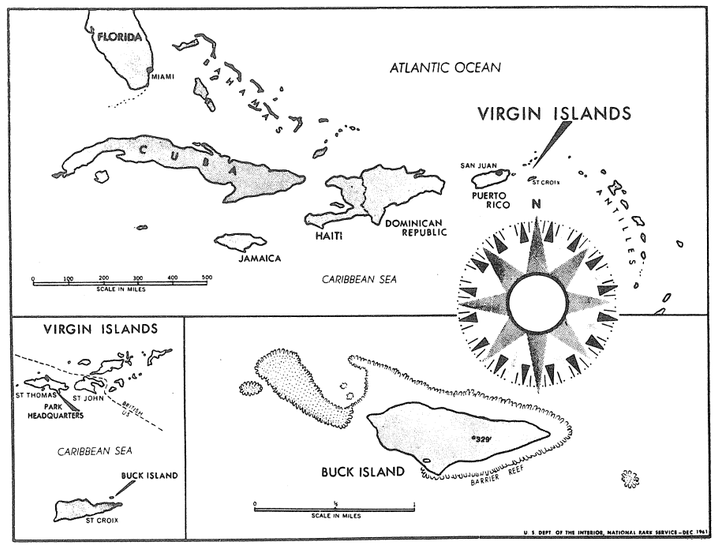

Figure 2. Map of Caribbean area showing location of Virgin Islands. Lower left, map of Virgin Islands. Lower right, Buck Island and reefs. (By Caroline G. Holcomb, National Park Service, Randall and Schroeder 1962.)

wide north-south and is 329 feet high. Precisely it is 2,000 yards long and 750 yards wide and has an area of 176.4 acres (71.4 hectares), according to the geographical reference by McGuire (1925). Its exact location is Lat. 17° 47' 08" to 31" N., Long. 64° 36' 41" to 37' 44" W. The island is surrounded by coral reefs except on the southwest side and is separated from St. Croix by a shallow channel scarcely 31 feet at its minimum depth.

These two islands probably were joined and slightly larger as recently as 10,000 years ago. At the time of maximum glaciation in the Pleistocene epoch, about 11,000 years ago, the ice sheets stored enough water to lower the sea level about 200 feet. A deep channel of 15,000 feet isolated St. Croix from the other Virgin Islands and Puerto Rico, which apparently were connected.

Buck Island with its reefs is shown from the air in figure 1. From rocky cliffs at the beach, gravelly slopes rise to a low east-west ridge along the summit. At the northwest end there is a sandy coastal plain and beach. Near the western end of the southern shore there is a salt pond about 400 ft. long and 150 ft. wide. Located at sea level, it contains brackish water with no outlet. There are no springs, streams, pools, or marshes of fresh water.

One derivation of the name was explained by McGuire. This small island was originally named Pocken-Eyland, because it was overgrown with Pokholt or Guayaco trees. With time, Pocken was changed to Bocken, Bokken, and Buck. Guayaco is a variation of guayacán, the Spanish name for common lignumvitae (*Guaiacum officinale* L.). That valuable self-lubricating wood was sold by weight for its special use in bearings and bushing blocks for steamship propeller shafts. Lignumvitae is not here now but has been nearly exterminated on the Virgin Islands except in cultivation (Little and Wadsworth 1964, p. 212).

Another version traces the name to the local term "buck" for the male goat. McGuire noted that several hundred wild goats formerly subsisted on the island. Incidentally, deer (including bucks) and other large land mammals are not native on these oceanic islands.

This National Monument is not to be confused with other small islands of the same name in the U.S. Virgin Islands, for example, one south of St. Thomas, where botanical collections were made earlier. Le Duck Island off Coral Harbor in St. John is sometimes called Buck.

Many centuries ago, groups of Arawaks and other Indians from northern South America migrated north into the West Indies and settled through the Virgin Islands. A shell mound on the eroding northwest tip of Buck Island indicates a considerable period of habitation by aboriginal peoples. Such natives practiced a limited agriculture, probably involving slash and burn. However, it is not known to what extent the vegetation was altered before Europeans arrived.

Christopher Columbus discovered the Virgin Islands on his second voyage in 1493. These small, accessible islands were settled by Europeans from several countries at early dates and were developed as colonies for their agriculture. The United States Virgin Islands, including St. Croix, St. John, St. Thomas, and a few adjacent isles, were purchased from Denmark in 1917 during World War I.

In 1754, Diedrichs Estate on Buck Island was patented. At the beginning of this century, according to old timers, a few persons still lived on the island. They grew sweet potatoes in a valley on the northwest side and cut trees for charcoal. Also, sheep and wild goats were present. Every year the exposed eastern part of the island burned, but the fire stopped at the wetter

western end. As recent as the 1920's, the island was leased for goat raising. Later notes were provided by Randall and Schroeder (1962).

The Virgin Islands Government obtained control of Buck Island in 1936 and in 1948 created Buck Island Park. After authorization by the Virgin Islands Legislature in 1961, Buck Island Reef National Monument became a unit of the National Park Service, United States Department of the Interior. The island and the surrounding barrier reefs contain 850 acres.

The National Park Service administers Buck Island in conjunction with the Christiansted National Historic Site at Christiansted, St. Croix, and under the Virgin Islands National Park on St. John (superintendent's office at Charlotte Amalie, St. Thomas). Self-guiding underwater nature trails, a beach, and a picnic area are maintained. However, there is no drinking water or other fresh water, and overnight camping is not permitted. Small ships and motor ferries from Christiansted bring visitors, mostly tourists, on scheduled daily trips. Others come in chartered or rented boats. There are no residents, but the National Park Service has a small building near the beach. A light tower of the U.S. Coast Guard is located on the highest point.

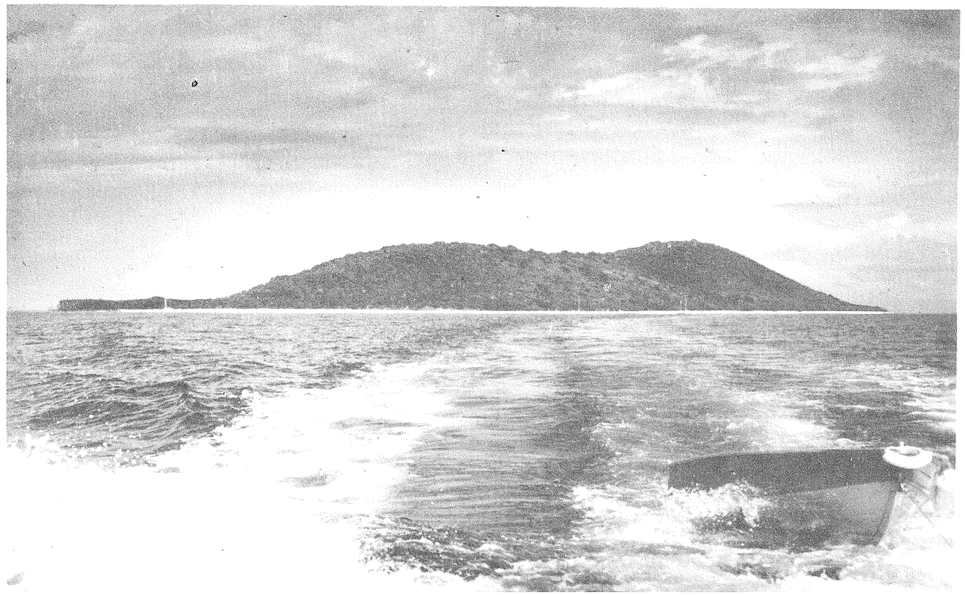

Figure 3. Buck Island from the southwest, with coastal plain at left.

CLIMATE

The climate of Buck Island is like that of other small West Indian islands of low altitude: tropical, warm, and slightly humid, with frequent brief showers and steady easterly trade winds (U.S. Dep. Commerce 1965). In the Virgin Islands, temperatures vary only 5° F. to 7° F. from the coolest to warmest month. A relatively dry season occurs in December and January, often with damaging drought, though there is no sharply defined period without precipitation. The heaviest rains generally are recorded from August to November at the height of the tropical storm season. Infrequent hurricanes during that period sweep directly over the islands, depositing torrential amounts of rain.

Weather records in nearby St. Croix may be noted in the absence of any from Buck Island (Smedley 1961). At Alexander Hamilton Field (airport) 7 miles west-southwest of Christiansted, the mean annual precipitation over a 10-year period was approximately 44 inches. However, at East Hill 4 miles east of that city and opposite Buck Island, the 5-year average was only about 36 inches. Mean annual temperature at the airport was 79.8° F. Mean daily maximum temperatures varied from 93° F. in August, the hottest month, to 88° F. in December and January, the coolest. Mean daily minimum temperatures ranged from 72° F. in August down to 61° F. in January.

STUDIES OF THE FLORA

The Virgin Islands were among the first in the Carribean to be explored by botanists. At the close of the 18th century a comprehensive flora of St. Croix was published in Danish and in German translation by H. West (1793), head of the Danish school there. Nearly a century ago, Henrik Franz Alexander von Eggers (1844-1903), Danish army captain in the Virgin Islands, prepared a flora of St. Croix and the other Virgin Islands, which was published in 1879 by the United States National Museum. Millspaugh (1902) wrote the third flora of St. Croix, based also upon large plant collections in 1895-96 by Alfred Edmund Ricksecker, college science professor from the United States, and his relatives.

Britton (1918) issued his flora of the American Virgin Islands the year after their purchase. The Virgin Islands, both United States and British, were covered in the descriptive flora of Puerto Rico and the Virgin Islands by Britton and Wilson (1923-30).

This annotated list of plant species is based upon four field trips to Buck Island in different years and seasons. The junior author collected three specimens on June 22, 1966 and April 14, 1967. Both authors made additional collections together on June 9-10, 1969 and November 10-12, 1970. At that time the senior author obtained specimens of shrubs and herbs to complete the list. The 1969 visit was made at an unusually favorable season. The vegetation was green and luxuriant following heavy rains (totaling 17 inches in May at St. Croix). Likewise, the 1970 trip coincided with continued high rainfall, and most plants, especially herbs, were in good condition for specimens. Credit is due the National Park Service for providing transportation by launch from Christiansted.

Herbarium specimens of nearly all species were collected and identified by the authors. Duplicate sets are being deposited in the U.S. National Herbarium (US), U.S. National Museum of Natural History, Washington, D.C., and Virgin Islands National Park, St. John, U.S. Virgin Islands. Additional tree specimens are being sent to the Arnold Arboretum (A), Harvard University Herbaria, Harvard University. Another set has been retained in herbaria at Río Piedras,

Puerto Rico, the tree specimens at the Institute of Tropical Forestry (RPPR) and the smaller plants at the University of Puerto Rico.

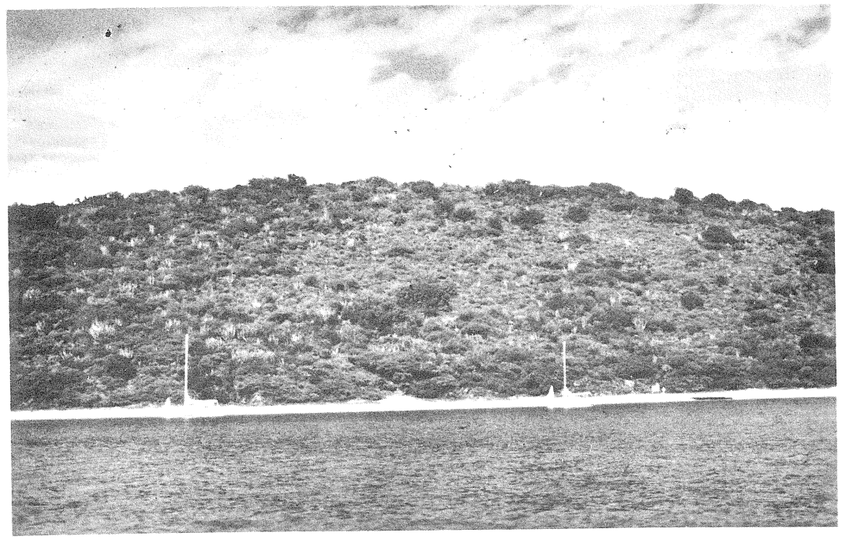

Figure 4. South slope showing shrub thicket of *Croton rigidus, Lantana involucrata, Acacia tortuosa,* and the columnar tree cactus, *Cephalocereus royenii.*

VEGETATION

The vegetation of Buck Island resembles that of other small West Indian islands. Most of the upland of Buck Island probably was once covered by a seasonal deciduous forest, tropical zone, like that described by Beard (1949) for the Windward and Leeward Islands. This type has been designated also as a dry forest in comparison with moist evergreen types such as the tropical rain forest. The vegetation is less luxuriant, because of the lighter rainfall, and the trees are not so tall.

Settlement of Buck Island produced changes in the original vegetation. Some of the forest was cleared and replaced by cultivated fields. Composition of tree species in the remaining forest may have been changed by heavy cutting through the centuries. Tree species left after logging generally have soft woods seldom used. Lignumvitae, *Guaiacum officinale*, and possibly other important timbers now absent might have become extinct here. Other trees were used for making charcoal.

Heavy grazing by goats and sheep probably caused a decrease in the wild forage plants and corresponding increase in nonpalatable shrubs. Introduced mongooses and rats destroyed wildlife, such as nesting birds and lizards. Annual fires through the exposed eastern slopes destroyed some vegetation.

This seasonal deciduous forest, a relatively dry forest, still occupies much of the upland of Buck Island. It is designated as upland forest in the annotated list. Rather open, it is composed of small, growing trees mostly about 20 ft. high and 1 ft. in trunk diameter at breast height (d.b.h., 4 1/2 ft.) sometimes to 35 ft. high and 2 ft. in diameter. The trees have mainly small leaves. Some species shed their foliage in the dry season. Common tree species are *Pisonia subcordata, Piscidia carthaginensis, Adelia ricinella, Bursera simaruba, Bourreria succulenta,* and *Cordia alba.*

Shrub thickets still cover some upland areas, including exposed, wind-swept slopes on the eastern part of the island. This secondary type following destruction of the forest by cutting, cultivation, grazing, and burning undoubtedly has been more extensive and now is decreasing. The crowded shrubs are mostly 5-12 ft. high. The most common species are *Acacia tortuosa* (also a tree), *Croton rigidus, Opuntia rubescens,* and *Lantana involucrata.* On exposed ridges and steep slopes bordering the sea, *Plumeria alba* and *Cephalocereus royenii,* a columnar tree cactus, are conspicuous.

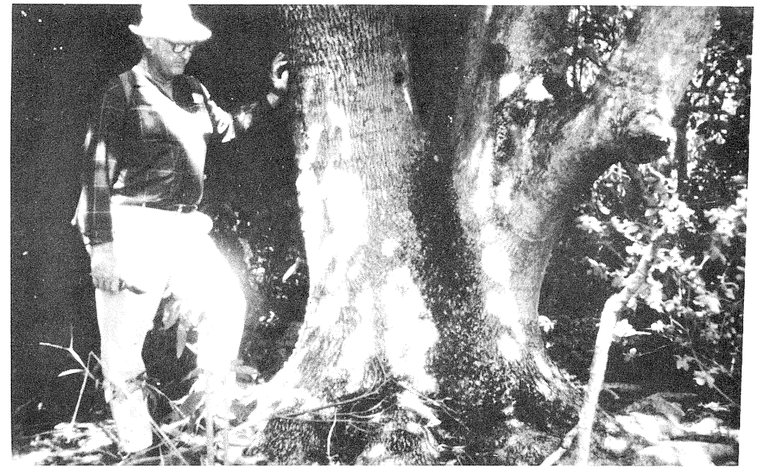

Figure 5. Large manchineel tree in the beach forest (with Woodbury).

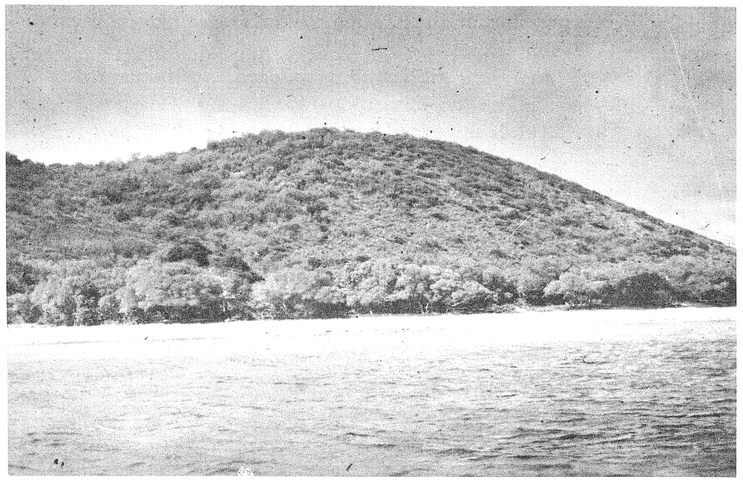

Figure 6. Beach forest of manchineel (*Hippomane mancinella*) on eroding sandy shore at west end, looking south. St. Croix at far right.

A coastal plain forest, or beach forest, occupies the sandy coastal plain at the western end of the island. This broad level area about 10 ft. above sea level probably was cleared and cultivated in the past. The large spreading trees attain 35 ft. in height and 2 ft. or more in trunk diameter. Characteristic tree species are *Hippomane mancinella* (figures 5,6), *Coccoloba uvifera, Pisonia subcordata, Ficus citrifolia,* and *Tamarindus indica* (introduced).

As the island has no silt shores, the only mangrove swamp forest forms a narrow zone around the salt pond. Three species of mangroves here, mostly 20-25 ft. high, are *Avicennia germinans* (most common), *Conocarpus erectus*, and *Laguncularia racemosa.* Red mangrove, *Rhizophora mangle* L., the most common species through the West Indies, is missing. Owing to the lack of suitable habitats, plants of fresh water and wet sites are also absent.

Introduced species are relatively few and include fruit trees on the coastal plain. The few coconuts, *Cocos nucifera*, are small and seem to be a recent introduction. One tree each were seen of lime, *Citrus aurantifolia*, and kinep or Spanish-lime, *Melicoccus bijugatus.* However, tamarind, *Tamarindus indica*, is common and both persistent around old home sites and naturalized.

STATISTICAL SUMMARY

The rich land flora of Buck Island Reef National Monument, as compiled here, contains 228 species of seed plants in 171 genera and 63 plant families. There are no native ferns.

As to size and habit or growth form, these 228 species may be classed as follows: trees, 62; shrubs, 68; vines (mostly woody), 15; herbs, 77; epiphytes, 3; and parasites, 3.

The division between these groups, especially between trees and shrubs, is not sharp. As defined here, trees are woody plants having one erect perennial stem or trunk at least 3 inches (7.5 centimeters) in diameter at breast height (d.b.h. or at 4 1/2 feet or 1.4 meters), a more or less definitely formed crown of foliage, and a height of at least 12 to 15 feet (about 4 meters). Several species of this list were not observed as large on Buck Island, though they probably were larger in the undisturbed vegetation and reach tree size elsewhere in the Virgin Islands. These species were counted as shrubs, though their occurrence on Buck Island is cited in tree ranges.

All except 17 species listed are native. Six of the 62 tree species are introduced, mostly planted for fruit, and are designated by an asterisk (*). Eleven herbaceous species are widespread introduced weeds likewise indicated (*). These species include 7 grasses, 2 shrubs, 1 vine, and 1 herb.

Largest families in numbers of species are:

Leguminosae (Legume family)	28
Gramineae (Grass family)	22
Euphorbiaceae (Spurge family)	17
Malvaceae (Mallow family)	9
Boraginaceae (Borage family)	9
Compositae (Composite family)	9
Rubiaceae (Madder family)	8
Amaranthaceae (Amaranth family)	7
Cactaceae (Cactus family)	7
Verbenaceae (Verbena family)	7

The remaining families have 5 or fewer species, many only 1 or 2. Largest families in numbers of tree species are Leguminosae, 5 species, and Boraginaceae, 4.

Largest genera are *Sida* with 6 species and *Chamaesyce, Cordia, Croton,* and *Opuntia*, 4 each. Most genera are represented by only 1 or 2 species. Genera with the most tree species are *Coccoloba, Capparis,* and *Eugenia*, 3 species each.

The 62 tree species are grouped in 51 genera (including 6 introduced) and 28 plant families (including 1 introduced). Most of these genera have only 1 native tree species here.

The richness of the tropical flora, even in a seasonal climate, is confirmed by the presence of 228 species of seed plants (all but 17 native) on this small island of only 176.4 acres. The seasonal or dry character of the vegetation is shown by the absence of ferns and presence of 7 species of cacti but only 1 of orchid. Representing the pineapple or bromeliad family are only 2 species, both mostly epiphytes or air plants. The only palms are a few small introduced coconuts.

Many species of seed plants of Buck Island are widely distributed. No unusual tree distribution records were found on this small island so near a larger one.

The seasonal deciduous forest, or dry forest, is widespread at low altitudes through the West Indies and extends northwest along the Greater Antilles and Bahama Islands to southern Florida. About 25 tree species of Buck Island, nearly one-half of the total, are native also in southern Florida. These are:

Ficus citrifolia
Coccoloba uvifera
Capparis cynophallophora
Capparis flexuosa
Pithecellobium unguis-cati
Amyris elemifera
Suriana maritima
Gymnanthes lucida
Hippomane mancinella
Bursera simaruba
Crossopetalum rhacoma
Schaefferia frutescens
Colubrina arborescens
Colubrina elliptica
Krugiodendron ferreum
Clusia rosea
Conocarpus erectus
Laguncularia racemosa
Eugenia axillaris
Eugenia rhombea
Avicennia germinans
Citharexylum fruticosum
Duranta repens
Erithalis fruticosa
Exostema caribaeum

ENDEMIC, RARE, AND ENDANGERED SPECIES

The National Monument provides protection for endemic, rare, and endangered species. Few native on Buck Island have limited distribution or would be classed as rare. All species of native seed plants cited here apparently are also on St. Croix. However, 7 species designated by a dagger (†) were not listed from St. Croix by Britton and Wilson (1923-30). All are on St. Croix.

Two tree species, noted below, are endemic or restricted to Puerto Rico and the Virgin Islands. Only the first is both rare and endangered. Additional species of valuable timbers not found here might possibly have been present in the natural forests of Buck Island. Two species of smaller plants have narrow ranges also.

Malpighia pallens, stingingbush, recorded by Britton and Wilson (1923-30; 6: 444) as endemic to St. Croix, is also on Buck Island and is both rare and endangered. This species known by its irritating hairs is perhaps most closely related and possibly derived from *M. fucata* Ker, of Vieques, Culebra, Puerto Rico, and east to Cuba. The stinging hairs make this tree objectionable and might lead to eradication on privately owned land. Thus, this species could easily become extinct on St. Croix and deserves protection on Buck Island.

Cordia rickseckeri, manjack, though not rare, is represented on Buck Island and St. Croix by the typical smooth-leaf form. On the other islands the upper leaf surfaces usually are very rough. This species with showy orange flowers like those of the related Geiger-tree, *Cordia sebestena* L., merits propagation as an ornamental. Cultivation would be further insurance against possible extinction.

Croton rigidus (Muell. Arg.) Britton, adormidera, also confined to the Virgin Islands and Puerto Rico, is a shrubby weed dominant in shrub thickets. Being unpalatable to livestock, it has increased in numbers, especially on areas cleared or heavily grazed in the past. This abundant weedy endemic species is an indicator of earlier overgrazing and obviously needs no protection.

Several tree species rare on Buck Island have wide distribution on other islands and thus are not endangered. For example, only 1 plant of *Zanthoxylum spinifex* was found on the island, and only 2 of *Colubrina arborescens*. Nevertheless, survival and perhaps increase on Buck Island may be expected and could be aided by removal of competing vegetation. Also, species that might disappear on other islands after intensive land use should be safe here.

Two species of smaller plants of Buck Island were cited by Britton and Wilson (1923-30) as endemic to Puerto Rico and the Virgin Islands. They are: *Alternanthera portoricensis*, a rare matted herb, and Opuntia repens, a common, low spreading pricklypear cactus. The first was recorded as far as Anegada and the second to Mona.

ANNOTATED LIST OF SPECIES

Scientific names of trees follow Little, Woodbury, and Wadsworth (1974). That reference and the earlier volume (Little and Wadsworth 1964) contain additional information, including other names, description, distribution, drawing, etc. As Buck Island now is uninhabited, local common names are lacking. English common names of trees are from the same reference, mostly those used on St. Croix and others of the Virgin Islands. For those tree species reaching Florida, common names accepted by the Forest Service have been added. Spanish names from Puerto Rico have been inserted in the absence of one in English. The reference cited lists Spanish common names in Puerto Rico and beyond. The articles by Liogier (1965, 1967) have been helpful in revision of the nomenclature of other plants from that of Britton and Wilson (1923-30). Names used by those authors have been added in parentheses.

Maximum heights and trunk diameters are given for trees observed on Buck Island. The forest or vegetation type is cited. Seventeen introduced species are indicated by an asterisk (*). Seven species not listed from St. Croix by Britton and Wilson (1923-30) and in part perhaps range extensions are designated by a dagger (†).

1. Gramineae (Grass family)

**Andropogon pertusus* (L.) Willd. A weedy uncommon introduced bluestem grass of trails and open areas and a pasture grass in the Antilles.

Anthephora hermaphrodita (L.) Kuntze. An uncommon grass of open woods.

Aristida adscensionis L., three-awn. A rather common grass of trails and open slopes.

Aristida cognata Trin., three-awn. A rare plant of slopes and ridges.

Cenchrus echinatus L., sandbur. A locally common grass of sandy beaches.

**Chloris ciliata* Sw. A rare fingergrass similar to the next species.

**Chloris inflata* Link. A rare weedy fingergrass of open areas.

**Chloris radiata* (L.) Sw. A very rare fingergrass found in only one location near the picnic area.

**Eleusine indica* (L.) Gaertn., goosegrass. An introduced weedy grass of the picnic area.

Eragrostis ciliaris (L.) Link, lovegrass. A common weedy grass of open areas.

Leptochloa filiformis (Lam.) Beauv., sprangletop. A very rare grass along one slope. St. Croix, according to Eggers (Britton and Wilson 1923-30; 5: 71).

Panicum adspersum Trin. A widespread grass but here rare in open coastal areas.

**Panicum maximum* Jacq., Guinea-grass. A common large introduced forage grass of open areas.

Panicum reptans L. A rare coastal grass.

Paspalum laxum Lam. (*P. glabrun* Poir.). A common native grass in all habitats of the island.

Setaria leiophylla (Nees) Kunth. Similar to the next species but with larger open flower clusters.

Setaria setosa (Sw.) Beauv. (*Chaetochloa setosa* (Sw.) Scribn.). An uncommon grass of trails and partly open areas.

†*Setaria utowanaea* (Scribn.) Pilger (*Panicum utowanaeum* Scribn.). A common forest grass.

Spartina patens (Ait.) Muhl. A tall grass of sandy beaches. Not common.

**Sporobolus indicus* (L.) R. Br. A weedy bunchgrass of trails.

Sporobolus virginicus (L.) Kunth, seashore dropseed. A common creeping grass of beaches and the salt pond.

Tragus berteronianus Schult. (*Nazia aliena* (Spreng.) Scribn.), burgrass. An uncommon native grass of partially open areas.

2. Cyperaceae (Sedge family)

Cyperus ligularis L. A rare sedge found in one location on the north beach.

Cyperus nanus Willd. (*C. granularis* (Desf.) Britton). A very rare fine-leaf sedge of ridges.

Cyperus planifolius L. C. Rich. A common sedge of coastal and sandy areas.

Scleria lithosperma (L.) Sw. A rare, white-fruited sedge of upper slopes.

3. *Palmae (Palm family)

**Cocos nucifera* L., coconut. Tree 20 ft. high, 10 in. d.b.h., uncommon on sandy beach, planted.

4. Bromeliaceae (Pineapple family)

Tillandsia recurvata L. A common epiphyte or air plant of upper slopes and ridges. Locally very abundant.

Tillandsia utriculata L. A common large epiphyte of upper slopes and ridges. Locally very abundant and even found in humus and on rocks.

5. Commelinaceae (Spiderwort family)

Commelina virginica L. (*C. elegans* H.B.K.), day-flower. A common succulent of forested areas.

6. Liliaceae (Lily family)

**Aloe vera* L., aloe. A rare and local succulent shrub of upper slopes near old homesite.

7. Amaryllidaceae (Amaryllis family)

Panchratium declinatum Jacq. (*Hymenocallis declinata* (Jacq.) M. Roem.), spider-lily. A rare lily of ornamental value found only on the north coast.

8. Orchidaceae (Orchid family)

Epidendrum brittonianum A. D. Hawkes (*E. bifidum* Sw., *Encyclia papilionacea* (Vahl) Schlechter). An uncommon orchid usually growing as an epiphyte near the bases of trees and shrubs.

9. *Casuarinaceae (Casuarina family)

**Casuarina equisetifolia* J. R. & G. Forst., Australian beefwood, horsetail casuarina. A very rare planted tree. One 20 ft. high in beach forest near the picnic area.

10. Piperaceae (Pepper family)

Peperomia humilis (Vahl) A. Dietr. A rare small succulent herb found only in thick humus.

11. Ulmaceae (Elm family)

Celtis iguanaea (Jacq.) Sarg. (*Momisia iguanea* (Jacq.) Rose & Sfandl.). An uncommon large woody and spiny vine of slopes and ridges.

12. Moraceae (Mulberry family)

Ficus citrifolia Mill. (*F. laevigata* Vahl), shortleaf fig. Tree 25 ft. high, 1 ft. d.b.h., with prop roots. One of the largest trees of beach and upland forests.

13. Loranthaceae (Mistletoe family)

Dendropemum caribaeum Krug & Urban (*Phthirusa caribaea* (Krug & Urban) Engler), mistletoe. A rare parasite on *Pisonia subcordata.*

14. Polygonaceae (Buckwheat family)

Coccoloba microstachya Willd. (*C. obtusifolia* auth.), uvilla. Tree 20 ft. high, 5 in. d.b.h. Rare at edge of beach forest.

Coccoloba swartizii Meisn. (*C. diversifolia* auth.), ortegón. Rare tree 25 ft. high, 8 in. d.b.h. A single tree seen on the north coast.

Coccoloba uvifera (L.) L., seagrape. Tree 30 ft. high, 1 ft. d.b.h., with edible fruit. Common in beach forest.

Coccoloba uvifera X *krugii.* Tree 20 ft. high, 6 in. d.b.h., regarded as a hybrid. Rare at edge of beach forest and in ravines.

15. Amaranthaceae (Amaranth family)

Achyranthes aspera L. (*Centrostachys aspera* (L.) Standl.). A rare weedy small shrub near the picnic grounds. Virgin Islands according to Eggers (Britton and Wilson 5: 278).

Alternanthera portoricensis Kuntze (*Achyranthes portoricensis* (Kuntze) Standl.). A rare matted herb of forested slopes. Endemic to Puerto Rico, smaller islands, and Virgin Islands to Anegada.

Amaranthus crassipes Schlecht. A rare herb of the beach forest.

Amaranthus gracilis Desf. Rare herb of beaches and beach forest, more weedy than the above species.

Celosia nitida Vahl. A rather common shrub, 3-4 feet, on the ridge running east.

Iresine angustifolia Euph. A weak shrub of local distribution.

Philoxerus vermicularis (L.) Nutt. A rare fleshy beach herb with prostrate habit.

16. Nyctaginaceae (Four-o'clock family)

Boerhaavea diffusa L. (*B. coccinea* Mill.). A rather common fleshy herb with small sticky fruit, on partly open weedy areas.

Boerhaavea erecta L. Similar to above but fruit not sticky.

†*Commicarpus scandens* (L.) Standley. A rare fleshy vinelike shrub.

Guapira fragrans (Dum.-Cours.) Little (*Torrubia fragrans* (Dum.-Cours.) Standley), black mampoo. Tree 30 ft., 8 in. d.b.h., upland and beach forests.

Pisonia subcordata Sw., water mampoo. Tree 40 ft. high, 2 ft. d.b.h., with enlarged base and with broad crown to 60 ft. wide, beach forest. Also common and dominant in upland forest.

17. Batidaceae (Saltwort family)

Batis maritima L., saltwort. An uncommon succulent shrub growing in mats near the salt pond.

18. Phytolaccaceae (Pokeweed family)

Petiveria alliacea L. A weedy small shrub near picnic area.

Rivina humilis L. A common small shrub of wooded areas.

19. Aizoaceae (Carpetweed family)

Mollugo nudicaulis Lam. A very rare herb on one ridge.

†*Mollugo verticillata* L., carpetweed. A very rare herb of open woods.

Sesuvium portulacastrum L. A common matted succulent herb of coastal areas.

20. Portulacaceae (Purslane family)

Portulaca oleracea L., purslane. A weedy succulent herb of trails and coastal areas.

Portulaca pilosa L. A very small succulent herb of rocky areas.

Talinum peniculatum (Jacq.) Gaertn. An uncommon succulent shrub of open wooded areas.

Talinum triangulare (Jacq.) Willd. Similar to the above species.

21. Lauraceae (Laurel family)

Cassytha filiformis L., love-vine. Parasitic greenish orange vine, herbaceous and leafless.

22. Cruciferae (Mustard family)

Cakile lanceolata (Willd.) O. E. Schulz, sea-rocket. Common annual beach shrub.

23. Capparidaceae (Caper family)

Capparis cynophallophora L., Jamaica caper. A glossy-leaved tree 20-30 ft. high, 6-8 in. d.b.h., of slopes and beach forest.

Capparis flexuosa (L.) L., limber caper. Vine and tree to 20 ft. high, 4 in. d.b.h., beach and upland forests.

Capparis indica (L.) Fawc. & Rendle, linguam. A frequent small tree 12 ft. high, of slopes, upland forest.

**Cleome viscosa* L. (*C. icosandra* L.). An uncommon viscous herb.

Morisonia americana L., rat-apple. Only one small tree seen on inner moist slope.

24. Leguminosae (Legume family)

Mimosoideae (Mimosa subfamily)

Acacia riparia H.B.K. A large spiny uncommon vine of slopes.

Acacia tortuosa (L.) Willd., twisted acacia. Shrub or tree 10-15 ft. high, sometimes to 30 ft., with several trunks to 6 in. d.b.h., and broad flat-topped crown. Common in upland, cutover forest, also in beach forest.

Desmanthus virgatus (L.) Willd. (*Acuan virgatum* (L.) Medic.). A frequent shrub of slopes and beach forest.

Leucaena latisquama (L.) W. T. Gillis (*L. leucocephala* (Lam.) de wit, *L. glauca* auth.), tantan. Tree 15 ft. high, 3 in. d.b.h., disturbed upland forest.

Pitehcellobium unguis-cati (L.) Benth., bread-and-cheese, catclaw. Tree 15 ft. high, upland forest. Spiny vinelike tree, not common.

Caesalpinioideae (Cassia subfamily)

Caesalpinia crista L. (*Guilandina crista* (L.) Small), gray nickerbean. A rather common very spiny woody vine with spiny gray-seeded fruit.

Caesalpinia divergens Urban (*Guilandina divergens* (Urban) Britton), yellow nickerbean. A very spiny shrublike vine with spiny yellow-seeded fruit.

Cassia occidentalis L. (*Ditremexa occidentalis* (L.) Britton & Rose). A rare weedy shrub near camp site.

Cassia swartzii Wickstr. (*Chamaecrista swartzii* (Wickstr.) Britton). A beautiful yellow-flowered shrub of open woods.

**Tamarindus indica* L., tamarind. Spreading tree to 40 ft. high, 3 ft. or more in trunk diameter, and 60 ft. in crown width. Naturalized in beach forest and on ridges.

Faboideae (Pea subfamily)

**Abrus precatorius* L. (*Abrus abrus* (L.) W. F. Wight), jumbie-bead. An uncommon weedy, slender vine. The small shiny red and black seeds are deadly poisonous.

Canavalia maritima (Aubl.) Thou. An annual large creeping vine of beaches.

Centrosema virginianum (L.) Benth. (*Bradburya virginica* (L.) Kuntze). A common small blue-flowered vine.

Cracca caribaea (Jacq.) Benth. (*Benthamantha caribaea* (Jacq.) Kuntze). An open shrub of forests.

Crotalaria incana L., rattlebox. A soft hairy small shrub of coastal woods and slopes.

Crotalaria latifolia L., rattlebox. A small shrub common on slopes.

Crotalaria retusa L., rattlebox. Showy yellow-flowered herb of open areas.

†**Crotalaria saltiana* Andr. (*C. striata* DC.), rattlebox. A large shrub rare to the island.

Desmodium molle (Vahl) DC. (*Meibomia mollis* (Vahl) Kuntze). A rare shrub near picnic area.

Galactia dubia DC. A common small vine of wooded areas.

Galactia striata (Jacq.) Urban. Similar to above but larger.

Indigofera suffruticosa Mill., indigo. A grayish shrub of beach forest and slopes.

Piscidia carthaginensis Jacq. (*Ichthyomethia piscipula* auth.), dogwood. Tree 30-40 ft. high, 1-2 ft. d.b.h., mostly in ravines of upland forest. Elsewhere the bark of this and other species of barbasco or fish-poison serves to stupefy fish. When ground bark is thrown into water, fish rise to the surface and are easily caught.

Rhynchosia minima (L.) DC (*Dolicholus minimus* (L.) Medic.). A weedy, small vine of open areas.

Rhynchosia reticulata (Sw.) DC. (*Dolicholus reticulatus* (Sw.) Millsp.). A small vine of wooded areas.

Stylosanthes hamata (L.) Taubert. A weedy herb of open areas.

Tephrosia cinerea (L.) Pers. (*Cracca cinerea* (L.) Morong.). A small grayish vine of beaches.

Teramnus labialis (L. f.) Spreng. A rare, twining, small vine of forested areas.

25. Erythroxylaceae (Coca family)

Erythroxylum rotundifolium Lunan (*E. brevipes* DC.), brisselet. Shrub or small tree to 15 ft. high, 4 in. d.b.h. Rare in upland and beach forests.

Zygophyllaceae (Caltrop family)

Guaiacum officinale L., common lignumvitae. Not seen. If formerly present, it has become extinct, as noted in the introduction. Recorded from St. Croix but nearly exterminated on Virgin Islands except where planted (Britton and Wilson 1923-30; 5: 435).

26. Malpighiaceae (Malpighia family)

Banisteria purpurea L. A small woody vine of forested areas.

Bunchosia glandulosa (Cav.) L. C. Rich., café forastero. Shrub or small tree to 15 ft. high, 4 in. d.b.h., upland forest.

Malpighia pallens Small, stingingbush. Tree to 25 ft. high, 3 in. d.b.h., scattered in beach forest. The English common name of a related species in the Virgin Islands is adopted here also for this species. Britton and Wilson (1923-30; 5: 444) stated: "The leaves are usually copiously armed beneath with long yellowish stinging hairs and contact with them is highly irritating." Actually, the lower leaf surfaces have many almost invisible needlelike hairs 2-branched or attached at middle and flat against leaf. A person touching the foliage is unaware of the source of the needles about 1/4 inch long that protrude painfully from his hand and fingers. However, these needlelike hairs do not inject a chemical into the flesh, as do nettles. Endemic to Buck Island and St. Croix and both rare and endangered.

Stigmaphyllon periplocifolia (Desf.) A. Juss. (*S. lingulatum* auth.). A very common yellow-flowered vine covering small trees.

27. Rutaceae (Rue family)

Amyris elemifera L., torchwood, sea amyris. Tree 15 ft. high, 4 in. d.b.h., upland forest.

**Citrus aurantifolia* (L.) Swingle, lime. One tree 12 ft. high seen in beach forest, introduced.

Zanthoxylum spinifex (Jacq.) DC. Shrub 12 ft. high, with several stems less than 2 inches in diameter (on other islands rarely a small tree). Rare in upland forest, only 1 plant seen.

28. Simaroubaceae (Ailanthus family)

Suriana maritima L., baycedar. Rounded shrub to 8 ft. high, rare and local at sandy beach

(elsewhere sometimes a small tree).

29. Burseraceae (Bursera family)

Bursera simaruba (L.) Sarg., gumbo-limbo, locally called "turpentine," from its resin. Tree 35 ft. high, with thick coppery smoothish trunk to 2 ft. d.b.h. Common and dominant in upland forest, also in beach forest.

30. Euphorbiaceae (Spurge family)

Adelia ricinella L. (*Ricinella ricinella* (L.) Britton), cotorro. Tree 25 ft. high, 3 in. d.b.h., upland forest.

Argythamnia candicans Sw. A small local shrub of slopes and ridges.

Chamaesyce articulata (Aubl.) Britton. A common milky-juiced shrub of slopes.

Chamaesyce buxifolia (Lam.) Small. (*Euphorbia buxifolia* Lam.). A very common beach herb.

Chamaesyce hirta (L.) Millsp. (*Euphorbia hirta* L.). A weedy plant near the picnic area.

Chamaesyce prostrata (Ait.) Small. (*Euphorbia prostrata* Ait.). A milky herb of open areas.

Croton astroites Dryand., marán. Common shrub, elsewhere reaching tree size.

Croton betulinus Vahl. A very common shrub of forested slopes.

Croton discolor Willd. A very common shrub of *Croton-Lantana* thickets.

Croton rigidus (Muell. Arg.) Britton, adormidera. Large shrub to 12 ft. high, common in shrub thicket. Endemic to Puerto Rico and Virgin Islands.

Euphorbia heterophylla L. (*Poinsettia heterophylla* (L.) Kl. & Garcke), wild poinsetta. A rare small shrub of weedy areas.

Gymnanthes lucida Sw., oysterwood. Tree to 20 ft. high, 5 in. d.b.h., upland forest.

Hippomane manchinella L., manchineel. Spreading tree 35 ft. high, 1-2 1/2 ft. d.b.h., and to 60 ft. in crown width. Abundant and dominant in beach forest. The yellowish applelike fruits tinged with pink are slightly fragrant but poisonous and have caused death when eaten, as explained in a large sign on the beach. Prompt treatment includes causing vomiting and use of a stomach pump. The milky sap is injurious both externally and internally.

Jatropha gossypifolia L. (*Adenoporium gossypifolium* (L.) Pohl). A rare weedy shrub.

Phyllanthus amarus Schum. & Thoms. (*Ph. niruru* auth.). A small herbaceous shrub of disturbed areas.

Securinega acidoton (L.) Fawcett & Rendle. Densely branched, very spiny shrub to 15 ft. high, on other islands sometimes a small tree.

Tragia volubilis L., seven-minute-itch. A common slender vine with stinging hairs.

31. Anacardiaceae (Cashew family)

Comocladia dodonaea (L.) Urban, Christmas-bush, chicharrón. Shrub or small tree to 20 ft. high, 5 in. d.b.h., with shiny spiny-margined leaflets and showy red fruits, common in upland forest. The watery sap which becomes blackish on drying is poisonous and irritating tothe skin of many persons, like the sap of poison-ivy and poison-sumac of the same family.

32. Celastraceae (Bittersweet family)

Crossopetalum rhacoma Crantz (*Rhacoma crossopetalum* L.). Florida crossopetalum. Tree 15 ft. high, 3 in. d.b.h., upland forest.

Schaefferia frutescens Jacq., Florida-boxwood. Tree 15 ft. high, 3 in. d.b.h., upland and beach forests.

33. Sapindaceae (Soapberry family)

**Melicoccus bijugatus* Jacq., kinep, Spanish-lime. One tree 35 ft. high, 16 in. d.b.h., at picnic grove, beach forest, apparently planted.

Serjania polyphylla (L.) Radlk. A rather common woody vine of wooded areas.

34. Rhamnaceae (Buckthorn family)

Colubrina arborescens (Mill.) Sarg. (*C. colubrina* (Jacq.) Millsp.), coffee colubrina. Rare tree (2 seen) in beach forest.

Colubrina elliptica (Sw.) Briz & Stern (*C. reclinata* (L'Hér.) Brongn.), mabí, soldierwood. Tree 15 ft. high, 4 in. d.b.h., upland forest, rare.

Krugiodendron ferreum (Vahl) Urban, leadwood. Tree 20-30 ft. high, 8-10 in. d.b.h., with very heavy wood (specific gravity 1.4). Upland forest. Ranges to Florida, where it is the heaviest native wood in continental United States.

35. Vitaceae (Grape family)

Cissus sicyoides L. An uncommon large vine of the beach forest.

Cissus trifoliata L. A rare to local fleshy vine.

36. Tiliaceae (Basswood family)

Corchorus hirsutus L. A common shrub of coastal areas.

37. Malvaceae (Mallow family)

Abutilon umbellatum (L.) Sweet. An uncommon small shrub of open woods.

Malvastrum corchorifolium (Desv.) Britton. A small weedy shrub.

Sida acuminata DC. A shrub to 6 feet, of open areas and slopes.

Sida acuta Burm.f. (*S. carpinifolia* L. f.). A small rare weedy shrub.

Sida cilaris L. An uncommon weedy herb of open areas.

Sida erecta Macf. A small, rare, weedy shrub of open areas.

Sida glabra Mill. A slender herb of open wooded slopes.

Sida procumbens Sw. A rare slender herb of eastern slopes.

**Thespesia populnea* (L.) Soland., otaheita, portiatree. Tree 15 ft. high, 3 in. d.b.h. Rare in beach forest at 2 localities on northwest and southern shores. Naturalized on tropical shores, native in Old World tropics.

38. Sterculiaceae (Chocolate family)

Ayenia pusilla L. An uncommon herb of open forest and trails.

Helicteres jamaicensis Jacq., cowbush. Shrub 8 ft. high, uncommon in upland and beach forests.

Melochia tomentosa L. (*Moluchia tomentosa* (L.) Britton). An uncommon or local shrub of thickets.

Waltheria indica L. (*W. americana* L.). An uncommon weedy shrub of slopes and trails.

39. Guttiferae (Mangosteen family)

Clusia rosea Jacq., wild-mammee, copey clusia. A rare tree on upper west slope.

40. Canellaceae (Canella family)

Canella winterana (L.) Gaertn., canella. A rare tree in beach forest.

41. Flacourtiaceae (Flacourtia family)

Samyda dodecandra Jacq., guayabilla. A large shrub rare on west slope.

42. Violaceae (Violet family)

Hybanthus linearifolius (Vahl) Urban (*Ionidium linearifolium* (Vahl) Britton). A rare small

herb on moist slopes.

43. Turneraceae (Turnera family)

Turnera diffusa Willd. A common shrub of open slopes.

Turnera ulmifolia L. An uncommon showy yellow-flowered shrub of ornamental value.

44. Passifloraceae (Passion-flower family)

Passiflora suberosa L. (*P. pallida* L.). An uncommon succulent vine of wooded areas.

45. Cactaceae (Cactus family)

Cephalocereus royenii (L.) Britton & Rose, dildo. Columnar tree cactus to 20 ft. high, rarely 25 ft., 1 ft. d.b.h. Common in shrub thickets, especially on rocky slopes.

†*Mammillaria nivosa* Link (*Neomammillaria nivosa* (Link) Britton & Rose), snow cactus. Local on rocky slopes.

Melocactus intortus (Mill.) Urban (*Cactus intortus* Mill.), Turks-cap cactus. Common along dry rocky shores.

Opuntia dillenii (Ker-Gawl.) Haw. A shrubby cactus with large pads.

Opuntia repens Bello, jumping cactus. A common, low spreading cactus with loose joints. Endemic to Puerto Rico and smaller islands to Mona and Virgin Islands.

Opuntia rubescens Salm-Dyck (*Consolea rubescens* (Salm-Dyck) Lemaire), pricklypear. Tree cactus 15 ft. high and 5 in. d.b.h., with oblong flat joints or pads. Common in shrub thickets.

Opuntia triacantha (Willd.) Sweet. A rare medium-sized cactus of slopes.

46. Malastomataceae (Melastome family)

Tetrazygia elaeagnoides (Sw.) DC., verdiseco. A single small tree 20 feet high on western slope.

47. Combretaceae (Combretum family)

Conocarpus erectus L., button-mangrove. Tree 20 ft. high, 6 in. d.b.h., in mangrove swamp forest at edge of salt pond.

Laguncularia racemosa (L.) Gaertn. f., white-mangrove. Tree 25 ft. high, 4 in. d.b.h. Common in mangrove swamp forest at edge of salt pond.

48. Myrtaceae (Myrtle family)

Eugenia axillaris (Sw.) Willd., grajo, white-stopper eugenia. Tree 25 ft. high, 6 in. d.b.h.,

beach and upland forests. Fruits green to orange, red, or black, edible but slightly bitter.

Eugenia ligustrina (Sw.) Willd., palo de muleta. A rare shrub of moist slopes.

Eugenia rhombea (Berg) Krug & Urban, spiceberry eugenia. Tree 20 ft. high, 3 in. d.b.h., beach and upland forests.

49. Theophrastaceae (Theophrasta family)

Jacquinia arborea Vahl (*J. barbasco* auth.), barbasco. Rare shrub in beach forest, elsewhere a small tree.

Jacquinia berterii Spreng. A shrub of eastern slopes and ridges, elsewhere reaching tree size.

50. Sapotaceae (Sapodilla family)

Bumelia obovata (Lam.) A. DC., araña gato. Tree 30 ft. high, 1 ft. d.b.h., beach and upland forests.

51. Oleaceae (Olive family)

†*Forestiera eggersiana* Krug & Urban. A tree to 20 ft. tall, near the picnic area. Not recorded from St. Croix (Britton and Wilson 1923-30; 6: 77; Little, Woodbury, and Wadsworth 1974). Endemic to Puerto Rico and smaller islands from Desecheo to Virgin Islands, also St. Martin and St. Barts.

52. Apocynaceae (Dogbane family)

Plumeria alba L., frangipani, milktree. Tree 20 ft. high, 10 in. d.b.h., with showy, fragrant white flowers and abundant white sap or latex. Common in shrub thickets.

Prestonia agglutinata (Jacq.) Woods. (*Echites agglutinata* Jacq.). An uncommon semiwoody vine of coastal woodland.

Rauvolfia viridis Roem. & Schult. (*R. lamarckii* A. DC.), Bitterbush. Shrub 12 ft. high, 3 in. d.b.h., beach forest.

Urechites lutea (L.) Britton, wild allamander. A frequent shrublike vine with yellow flowers.

53. Asclepiadaceae (Milkweed family)

Cynanchium grisebachianum (Schltr.) Alain (*Metastelma decaisneanum* Schlechter). An uncommon high-climbing slender vine.

Matelia maritima (Jacq.) Woods. (*Ibatia maritima* (Jacq.) Dcne.). Rare vine of coastal forests.

54. Convolvulaceae (Morning-glory family)

†*Cuscuta indecora* Choisy. A rare herbaceous vine parasitic on shrubs in beach forest. Only 1

colony seen.

Ipomoea arenaria (Choisy) Steud. (*Exogonium arenarium* Choisy). A rare red-to-pink-flowered slender vine of ridges.

Ipomoea triloba L. A rare slender vine of beach forest.

Jacquemontia nodiflora (Desv.) G. Don. An uncommon shrublike vine of slopes.

Jacquemontia pentantha (Jacq.) G. Don. A common blue-flowered small vine.

55. Boraginaceae (Borage family)

Bourreria succulenta Jacq., pigeon-berry. Tree 25-40 ft. high, 6-12 in. d.b.h., with fragrant white flowers. Common and dominant in upland forest, also in beach forest.

Cordia alba (Jacq.) Roem. & Schult. (*Cerdana alliodora* Ruíz & Pav.), white manjack. Tree 25 ft. high, 8 in. d.b.h., common in upland forest. Cited from St. Croix by Little, Woodbury, and Wadsworth (1974) but not by Britton and Wilson (1923-1930).

Cordia stenophylla Alain (*C.*) *angustifolia* (West ex Willd.) Roem. & Schult., *Varronia angustifolia* West. An uncommon shrub to 10 ft. in shrubby areas.

Cordia polycephala (Lam.) Johnst. (*Varronia corymbosa* Desv.). A rare vinelike shrub to 15 ft. in beach forest.

Cordia rickseckeri Millsp. (*Sebesten rickseckeri* (Millsp.) Britton), manjack, Geiger-tree. Tree 30 ft. high, 18 in. d.b.h., beach and upland forests. These trees are the typical smooth-leaf form, named from St. Croix. Endemic to Puerto Rico and Virgin Islands but not cited from St. Croix by Britton and Wilson (1923-30; 6: 124).

Heliotropium angiospermum Murray (*Schobera angiosperma* (Murray) Britton). An uncommon herbaceous shrub of the beach forest and slopes.

Heliotropium ternatum Vahl. An uncommon low shrub of open slopes.

Rochefortia acanthophora (DC.) Griseb., juso. Shrub or small tree to 20 ft. high, 3 in. d.b.h., upland forest.

Tournefortia microphylla Bert. A common vinelike shrub of slopes.

56. Verbenaceae (Verbena family)

Avicennia germinans (L.) L. (*A. nitida* Jacq.), black-mangrove. Tree 25 ft. high, 6 in. d.b.h. The most common of the 3 mangrove species in the mangrove swamp forest at edge of salt pond.

Citharexylum fruticosum L., Florida fiddlewood. Tree 15-30 ft. high, to 6 in. d.b.h., upland forest.

Clerodendron aculeatum (L.) Schlecht. (*Volkameria aculeata* L.), haggarbush. Spiny woody vine in beach forest, treelike on other islands. One plant in east end of beach forest 4 inches in diameter and 20 feet high but vinelike.

Duranta repens L., skyflower. Woody vine and small tree 12 ft. high, upland forest.

Lantana involucrata L. Shrub to 12 ft. high, dominant in the shrub thicket on disturbed slopes.

†*Lantana urticifolia* Mill. A rare shrub of open slopes.

Stachytarpheta jamaicense (L.) Vahl (*Valerianoides jamaicense* (L.) Kuntze). A weedy low shrub of open areas.

57. Solanaceae (Nightshade family)

Capsicum frutescens L., red-pepper. A rare shrub of open forests.

Solanum persicifolium Dunal. Treelike shrub 15 ft. high, 2 in. d.b.h., beach forest.

58. Scrophulariaceae (Figwort family)

Capraria biflora L. A common shrub of coastal areas.

59. Bignoniaceae (Bignonia family)

Batocydia unguis (L.) Mart. A rare woody vine of upper moist slopes.

Distictis lactiflora (Vahl) DC. A woody vine, rather common on slopes.

Tabebuia heterophylla (DC.) Britton (*T. pallida* (Lindl.) Miers), locally called "white-cedar," "pink-cedar," and "cedar." Tree 20 ft. high, 6 in. d.b.h., beach forest.

60. Acanthaceae (Acanthus family)

Anthacanthus spinosus (Jacq.) Nees, espinosa. An uncommon but local spiny shrubby vine of coastal areas.

Justicia periplocifolia Jacq. A rare shrub of moist ravines.

Justicia sessilis Jacq. A rather common herb of open forests.

61. Rubiaceae (Madder family)

Antirhea lucida (Sw.) Benth. & Hook. f. (*Stenostomum lucidum* (Sw.) Gaertn. f.), palo llorón. Tree 15 ft. high, 3 in. d.b.h., upland forest. Cited from St. Croix by Little, Woodbury, and Wadsworth (1974) but not by Britton and Wilson (1923-30).

Erithalis fruticosa L., black torch. Shrub to 15 ft. high, beach forest, elsewhere becoming a

small tree.

Ernodea littoralis Sw. A locally common matted shrub of the beach zone.

Exostema caribaeum (Jacq.) Roem. & Schult., yellow-torch, Caribbean princewood. Tree 25 ft. high, 4 in. d.b.h., upland forest, apparently rare.

Guettarda parviflora Vahl, "blackberry." Tree to 20 ft. high, 4 in. d.b.h., upland forest.

Psychotria microdon (DC.) Urban (*Ps. pinularis* Sessé & Moc.). A rare vinelike shrub of moist ravines.

Psychotria nervosa Sw. (*Ps. undata* Jacq.). An uncommon shrub of all forests.

Spermacoce confusa Rendle (*S. tenuior* auth.). A rare herb of trails.

62. Goodeniaceae (Goodenia family)

Scaevola plumieri (L.) Vahl. A rare thick-leaf beach shrub.

63. Compositae (Composite family)

Bidens pilosa L. A weedy herb near the picnic area.

Borrichia arborescens (L.) DC., sea oxeye. A common shrub of rocky coasts.

Eupatorium sinuatum Lam. (*Osmia sinuata* (Lam.) Britton & Wils.). A shrub of open slopes locally common.

Lactuca intybacea Jacq. (*Brachyramphus intybaceus* (Jacq.) (DC.). wild lettuce. A rare thistlelike plant near the beach.

Pectis humifusa Sw. A rare prostrate herb of the moist beach zone.

Pectis linifolia L. A common herb of open slopes and trails.

Pluchea odorata L. A large to small shrub of coastal forests.

Vernonia cinerea (L.) Less. A weedy low shrub, common.

Widelia calycina L. C. Rich. A rare shrub of the north slopes.

Also a single large woody vine with short branches, sterile and not identified to family. Just west of picnic area.

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