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A taxonomic revision of Antillean *Symplocos* (Symplocaceae)

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Abstract

We present a taxonomic revision of *Symplocos* (Symplocaceae, Ericales, Angiospermae) for the Antilles. The seventeen species recognized are distributed among three major clades of the genus corresponding to *S.* sect. *Hopea*, *S.* ser. *Symplocos*, and *S.* ser. *Urbaniocharis*, the latter two comprising *S.* sect. *Symplocos*. Fifteen of the species are endemic to the Antilles and only one (*S. cubensis*) occurs in more than one major island group. The revision includes keys, descriptions, distribution maps, and a conservation assessment for each species. **Symplocos baracoensis** is described as new, and lectotypes are designated for **S. apiculata, S. domingensis, S. guadeloupensis, S. harrisii, S. hyboneura, S. jamaicensis, S. jurgensenii, S. lanata, S. latifolia, S. micrantha, S. pilifera, S. polyantha, S. tubulifera, and S. urbaniana.**

Key words: Caribbean, lectotype, new species

Introduction

Symplocos Jacquin (1760: 24) comprises *ca.* 340 species of woody, mostly evergreen flowering plants distributed in the Americas and the lands bordering the western Pacific Rim (Nooteboom 1975, Fritsch *et al*. 2008). The genus is found primarily in humid tropical montane forests, but several species extend into the north-temperate zone. The infrafamilial classification of the Symplocaceae was recently revised in accordance with strict monophyly on the basis of phylogenetic data from morphology and DNA sequences (Fritsch *et al.* 2008). Two genera are recognized, i.e., the strictly Asian *Cordyloblaste* Henschel ex Moritzi (1848: 606), and *Symplocos*; the latter is divided into two subgenera [*Palura* G.Don (1837: 3 and *Symplocos*], three sections within *S.* subg. *Symplocos* [*Hopea* Linnaeus (1767: 105) Candolle (1844: 253), *Lodhra* G.Don (1837: 2), and *Symplocos*], and two series within *S.* sect. *Symplocos* [*Symplocos* and *Urbaniocharis* (Brand) P.W.Fritsch in Fritsch *et al.* (2008); Fritsch *et al*. 2008; Table 1].

A number of taxonomic studies conducted since 1990 have updated the family-wide species-level taxonomy of Brand (1901). These studies encompass all species in most of Andean South America (Ståhl 1991, 1993, 1994, 1995b, 1996, 2010a, 2010b), the Venezuelan Guayana (Steyermark & Berry 2005), central French Guiana (Mori & Brown 2002), Mexico and Mesoamerica (Kelly & Almeda 2009, Kelly *et al*. in preparation), and the United States (Almeda & Fritsch, 2009), as well as the species in *S.* sect. *Hopea* in South America (Aranha Filho 2011, Aranha Filho *et al*. 2012) and those of *S.* sect. *Symplocos* in part (the "Neosymplocos group", endemic to South America; Aranha Filho *et al*. 2007, 2009). The major areas still remaining to be covered with detailed taxonomic treatments of New World *Symplocos* are non-Guayanan Venezuela [a treatment of Venezuelan species (Aristeguieta 1957) appears to be outdated], most of the Guianas, the Brazilian members of *S.* ser. *Symplocos*, and the Antilles.

In terms of biogeography and endemism, the Antilles may represent the most significant gap in taxonomic knowledge of the genus. The region, here defined as the islands of the Caribbean from Cuba through Puerto Rico (the Greater Antilles) south through Grenada (the Lesser Antilles) and excluding the Bahamas and the islands off the north coast of Venezuela (the latter of which are sometimes included in the Lesser Antilles), is poised between the two large continental landmasses of North America and South America. Its tropical climate and complex geology have resulted in both high biotic diversity and high endemism, with many plant species endemic to

specific islands of the chain (Borhidi 1996, Fritsch & McDowell 2003, Santiago-Valentin and Olmstead 2004). A historical biogeographical analysis within a phylogenetic framework provides strong evidence for the Antilles having served as a conduit for dispersal between North and South America in several *Symplocos* lineages (Fritsch *et al.*, in press). The genus also generally appears to harbor high endemism in the Antilles, but specific instances of island endemism are uncertain owing to poorly resolved taxonomy.

Here we present a comprehensive taxonomic revision of *Symplocos* in the Antilles. The revision includes a dichotomous key to species, and, for each species, a detailed description, complete synonymy, a map of geographic distribution, an assessment of conservation status, and an illustration. A list of all collections examined is also included (Appendices I and II). One new species is described, and lectotypes for 14 species names are designated.

TABLE 1. Number of Antillean species and Antillean endemic species in each of the subdivisions of *Symplocos* sensu Fritsch *et al*. (2008).

Taxon	Approx. No. species	No. Antillean species/endemics
Cordyloblaste Henschel ex Moritzi (1848: 606)	2	0/0
Symplocos Jacquin (1760: 24)	340	17/15
S. subg. *Palura* G.Don (1837: 3) P.W.Fritsch in Fritsch *et al.* (2008: 842)	1	0/0
S. subg. *Symplocos*	339	17/15
S. sect. *Lodhra* G.Don (1837: 2)	143	0/0
S. sect. *Symplocos*	162	14/12
S. ser. *Symplocos*	154	6/4
S. ser. *Urbaniocharis* (Brand) P.W.Fritsch in Fritsch *et al.* (2008)	8	8/8
S. sect. *Hopea* Linnaeus (1767: 105) Candolle (1844: 253)	34	3/3

Prior taxonomic work on Antillean *Symplocos*

The first species of *Symplocos* described from the Antilles, *S. martinicensis* Jacquin (1760: 24), is also the type species of the entire genus. As of 1844 only two additional taxa of Antillean *Symplocos* [*S. octopetala* Swartz (1788: 109) and *S. martinicensis* var. *berteroi* Candolle (1844: 250)] had been added, and later four Cuban species were published on the basis of Charles Wright's collections (Grisebach 1866). Miers (1879), in a global revision of *Symplocos* mainly at the genus level, recognized ten segregate genera, into two of which [*Praealstonia* Miers (1879: 291) and *Barberina* Vellozo (1829: 235)] several species of Antillean *Symplocos* were transferred. These ten genera are now all subsumed under *Cordyloblaste* and *Symplocos*.

In a major review of Antillean *Symplocos*, Urban (1893) retained most species recognized to date while newly describing eight others, for a total of 16 species. He also moved all Antillean species in the segregate genera recognized by Miers (1879) to *Symplocos*, along with combinations made in *Eugeniodes* Kuntze (1891), an illegitimate name for *Bobua* Adanson (1763: 88, 526) (Nooteboom 1975). Henceforth, the Symplocaceae of the Antilles have been recognized exclusively in the genus *Symplocos*. Urban's treatment was adopted nearly in its entirety by Brand (1901) in the latter's global revision of *Symplocos*, the only modification being the addition of one new species.

From the time of Urban's (1893) revision to 1986, changes to the taxonomy of Antillean *Symplocos* occurred only through the individual publication of new species, such that by the end of this period a total of 24 total Antillean species were recognized. Floristic treatments of local areas during this time (e.g., those of Britton and Wilson 1925, Moscoso 1943, León and Alain 1957–1963, Adams 1972) incorporated the latest species additions without further modification.

Mai (1986) conducted the last global revision of Antillean *Symplocos*, recognizing 17 species. This treatment emphasized features of the leaves, pollen, and endocarps, to provide both a species-level taxonomic assessment and a basis for comparison of the extant species with the fossil record of the Symplocaceae. One new species was described from sterile material (*S. azuensis* Mai (1986: 13) and two species were reduced to subspecies of *S. martinicensis*. Mai's revision added a wealth of valuable data to the otherwise sparsely documented features of leaf architecture, pollen, and endocarps of Antillean *Symplocos*, and the status of some of the previously recognized

species was appropriately resolved through synonymy. However, the work is problematic in several respects. The treatment for the most part lacks keys and specimen citations. Species descriptions are brief and focus mainly on features of the leaves, pollen, and endocarps despite the clear significance of other characters in the delimitation of *Symplocos* species, such as trichome presence and variation, bracteole number, arrangement and persistence, the degree of connation and adnation of the corolla and stamens, corolla size, stamen arrangement, and fruit size and shape (see, e.g., Nooteboom 1975; Ståhl 2010b; Kelly & Almeda 2009; Kelly *et al.*, in preparation). Moreover, some species circumscriptions in *S.* subg. *Symplocos* appeared problematic to us, e.g., the recognition of three Jamaican species based on variation in the number of flowers per inflorescence, corolla size, and the number of staminal series, all of which appeared to vary continuously throughout the island. Finally, the placement of some of the species into certain higher-level taxa appeared to be questionable, albeit the higher-level classification of the family had yet to be clarified with detailed morphological and molecular studies at the time of publication.

Work after Mai's (1986) revision consisted of local floristic treatments of *Symplocos*. Howard (1989) and Fournet (2002) reduced *S. urbaniana*, endemic to the island of Guadeloupe in the Lesser Antilles, to synonymy under the more widespread *S. martinicensis*. Liogier (1989), in the treatment of *Symplocos* for *La Flora de la Española*, mostly followed Mai's work but did not mention *S. azuensis*, whose status thus remained unclear. Mai (2005) published a treatment of the Symplocaceae for the *Flora de la República de Cuba*, the species accounts in which were taxonomically identical to those in Mai (1986) but more detailed, i.e., with a key, extensive descriptions, and distribution maps.

The revision presented here differs in several substantial ways from all global and most local treatments of the genus for the Antilles. It contrasts with that of Mai (1986, 2005) in subsuming *Symplocos azuensis* under *S. hotteana* Urb. & Ekman in Urban (1929: 85), subsuming *S. martinicensis* subsp. *jamaicensis* (Krug & Urb.) Mai (1986: 15) and *S. tubulifera* Krug & Urb. in Urban (1893: 331) under *S. octopetala*, subsuming *S. berteroi* (A.DC.) Miers (1879: 286) and *S. lindeniana* Krug & Urban in Urban (1893: 332) under *S. cubensis* Grisebach (1862: 518), subsuming *S. martinicensis* subsp. *strigillosa* (Krug & Urb.) Mai (1986: 15) under *S. jurgensenii.* Hemsley (1881: 301), until now considered to occur only in Mexico and Central America, and treating *S. micrantha* Krug & Urb. in Urban (1893: 336) as distinct from *S. lanata* Krug & Urb. in Urban (1893: 335). Our treatment contrasts with those of Howard (1989) and Fournet (2002), but agrees with that of Mai, in recognizing *S. urbaniana* as distinct from *S. martinicensis*. We place all species into higher-level taxa within the Symplocaceae on the basis of the revised classification of Fritsch *et al.* (2008). Our treatment comprises 17 species of Antillean *Symplocos*, 15 of which are endemic to the region, with no infraspecific taxa (Table 1; Appendix 1). We recognize 14 species in *S.* sect. *Symplocos* (six in *S.* ser. *Symplocos*, eight in *S.* ser. *Urbaniocharis*) and three in *S.* sect. *Hopea* (Appendix 1).

Geographic distribution, endemism, and ecology

Regions

Symplocos is distributed throughout much of the Antilles, including all four phytogeographical provinces of the Greater Antilles sensu Borhidi (1996; i.e., Cuba, Hispaniola, Jamaica, and Puerto Rico) and on many islands of the Lesser Antilles Province. Fourteen of the 17 species of *Symplocos* are found in the Greater Antilles, whereas only three are found in the Lesser Antilles (Table 2). Cuba has more species than any other Antillean province (eight), as might be expected from its distinction as the largest of the provinces in land area. Puerto Rico, Hispaniola, and the Lesser Antilles each have three species, and Jamaica one. Eighty-eight percent of the species (15/17) are endemic to the Antilles, which is higher than the 50–60% overall estimated degree of species endemism in the Caribbean islands/West Indies (Heywood & Davis 1997, Myers *et al*. 2000). Of the non-endemic species, *S. martinicensis* occurs in northern South America, and *S. jurgensenii* occurs from Mexico through Nicaragua. Except for *S. jurgensenii*, all species found in the Greater Antilles are endemic there. Six species are endemic to Cuba, two to Hispaniola, one to Jamaica, three to Puerto Rico, and two to the Lesser Antilles. *Symplocos cubensis*, distributed in both Cuba and Hispaniola, is the only species of *Symplocos* that occurs in more than one Antillean province.

In Cuba, species of *Symplocos* can be found in areas among the three phytogeographical subprovinces sensu Borhidi (1996), i.e., Western, Central, and Eastern, with diversity the highest in the Eastern Subprovince. *Symplocos jurgensenii* and *salicifolia* are the most widespread species, occurring in all three subprovinces, including the Isla de la Juventad. *Symplocos ovalis* is restricted to the Sierra del Rosario in the Western Subprovince. The remaining Cuban species are restricted to the Eastern Subprovince and occur primarily in the Sierra de Maestra on the southeastern coast. Several species in the Eastern Subprovince are narrow endemics, all in

S. ser. *Urbaniocharis*: *S. ciponimoides* at middle elevations in the eastern part of the Sierra de Maestra, *S. leonis* in high-elevation wet montane forests of the Sierra de Maestra on silica-based substrates (Mai 2005), *S. moaensis* in middle-elevation xeromorphic vegetation of serpentine soils in extreme eastern Cuba, and *S. baracoensis* also in middle elevations in extreme eastern Cuba and possibly also growing in serpentine.

In Hispaniola, *Symplocos* occurs from the Massif de la Hotte in Haiti to the Cordillera Septentrional in the Dominican Republic. All three species of *Symplocos* in Hispaniola are found both in the Dominican Republic and Haiti. *Symplocos cubensis* is widely distributed from the Massif de la Selle in southwestern Haiti to the Cordillera Septentrional across a wide elevational range (400–1900 m). Both *S. domingensis* and *S. hotteana* are much rarer, mainly occurring in cloud forests from the Massif de la Hotte at the eastern end of the Southern Peninsula to the Cordillera Central in the Dominican Republic.

Puerto Rico harbors more species of *Symplocos* than Jamaica despite its smaller size. Two of the three species occur in cloud forests. *Symplocos lanata* is restricted to the highest elevations of the Cordillera Central, whereas *S. micrantha* is restricted to the Sierra de Luquillo region in the northeast. *Symplocos latifolia* is a low- to middle-elevation species widespread throughout much of the island. Jamaica's sole species, *S. octopetala*, occurs in the north-central and eastern parts of the island at middle elevations.

In the Lesser Antilles, *Symplocos* is restricted to islands of volcanic origin; it avoids those of the limestone geological facies, i.e., the eastern Leeward Islands including the Grand Terre part of Guadeloupe. *Symplocos martinicensis* is widespread from the Virgin Islands to Grenada, occurring on most of the major islands of the Lesser Antilles. In contrast, *S. guadeloupensis* is found only on the islands of Dominica, Grenada, and Guadeloupe, and *S. urbaniana* is apparently restricted to forests of Nez Cassé in Basse-Terre, Guadeloupe.

Clades

The three major clades of Antillean *Symplocos* each have distinct patterns of distribution within and outside the Antilles. *Symplocos* ser. *Symplocos* is strictly Neotropical, occurring from central Mexico to northern Argentina. The series is widespread across the Antilles, occurring from Cuba and Jamaica to Grenada on every major island. Three of the species are each endemic to a single province of the Antilles: *S. latifolia* to Puerto Rico, *S. octopetala* to Jamaica, and *S. urbaniana* to the Lesser Antilles (Table 2). This is the only one of the three clades that has species extending outside of the Antilles, and the only one that ranges across more than one province.

TABLE 2. Species and (with an asterisk) endemics of *Symplocos* in the Antilles, by region.

Region	No. species/ No. endemics	Species
Antilles	17/15	
Greater Antilles	14/13	
Cuba	8/6	*S. baracoensis**, *S. ciponimoides**, *S. cubensis*, *S. jurgensenii*, *S. leonis**, *S. moaensis**, *S. ovalis**, *S. salicifolia**
Hispaniola	3/2	*S. cubensis*, *S. domingensis**, *S. hotteana**
Jamaica	1/1	*S. octopetala**
Puerto Rico	3/3	*S. lanata**, *S. latifolia**, *S. micrantha**
Lesser Antilles	3/2	*S. guadeloupensis**, *S. martinicensis*, *S. urbaniana**

Except for *Symplocos urbaniana*, the Antillean species of *S.* ser. *Symplocos* appear to be closely related on the basis of the general features of leaves that dry dark green to brown, small racemose inflorescences, persistent bracteoles, usually white flowers, 3 to 5 carpels, and medium-sized ellipsoid fruit. Their close morphological similarity has prompted prior workers to treat several of the taxa here considered species as subspecies or varieties of other Antillean species. Borhidi (1996) has argued against the use of categories below the species level for many morphologically similar Antillean island endemics because of the strong likelihood for little to no gene flow among such vicariads; we also adhere to this view in the present treatment. In phylogenetic analyses based on DNA sequence data, *S. cubensis* and *S. martinicensis* (the only Antillean species for which such data are available) form a well supported clade that is sister to a clade comprising two Brazilian species (Wang *et al*. 2004, Fritsch *et al*. 2006, 2008).

Each of the eight species in the Antillean endemic *Symplocos* ser. *Urbaniocharis* is endemic to a single island,

and all appear to be uncommon to rare in the cloud forest habitats where they grow. *Symplocos baracoensis*, *S. ciponimoides*, *S. leonis*, and *S. moaensis* are endemic to the Eastern Subprovince of Cuba, *S. domingensis* and *S. hotteana* to Hispaniola, and *S. lanata* and *S. micrantha* to Puerto Rico. No species of *S.* ser. *Urbaniocharis* occurs in Jamaica, possibly because this island, through its nearly complete submergence up to the Late Miocene (Buskirk 1985, Lewis and Draper 1990), has been available for colonization for much less time than the other islands of the Greater Antilles. No phylogenetic resolution has been detected among *S. domingensis*, *S. lanata*, and *S. micrantha*, the only samples to be tested for molecular phylogenetic analyses in the clade (Fritsch *et al*. 2006, 2008).

The other Antillean endemic major clade, *Symplocos* sect. *Hopea*, is sister to *S.* sect. *Symplocos* (Wang *et al.* 2004, Fritsch *et al*. 2006, 2008). Of the three Antillean species in this section, *S. ovalis* and *S. salicifolia* are endemic to Cuba, and *S. guadeloupensis* is endemic to the Lesser Antilles (Table 2). In phylogenetic analyses based on DNA sequence data, *S. salicifolia* groups as sister to the Mesoamerican endemic *S. culminicola* Standley & Steyermark (1947: 222), and *S. guadeloupensis* groups as sister to a clade of strictly South American species (Wang *et al*. 2004, Fritsch *et al*. 2006, 2008, in press). The other Antillean species of *S.* sect. *Hopea*, i.e., *S. ovalis*, might be expected to group as sister to *S. salicifolia* on the basis of shared paniculate inflorescences and thin-walled endocarps.

Material and methods

Approximately 489 collections and *ca.* 1064 specimens (i.e., accounting for duplicates) were examined from the following herbaria: A, B, C, CAS, DS, F, GH, GOET, HAC, JBSD, JE, K, LL, MO, NY, S, SJ, UPR, UPRRP, US, and W. Some specimens (mainly types) from additional herbaria, as well as all specimens of Antillean *Symplocos* at B, were examined only in digital form. Numbers after some on-line image collection citations are specimen barcodes or other herbarium numbers. Descriptions include variation only within the treatment area. For more comprehensive descriptions above the species level, see, e.g., Nooteboom (2004) and Fritsch *et al*. (2008). Extralimital material of *Symplocos* from A, CAS, DS, F, GH, LL, MO, MEXU, NY, and US was examined to assess whether Antillean species also occur outside the Antilles, and to estimate the distributional limits of these species. Botanical terminology generally follows that of Harris & Harris (2001).

Field observations by the first author over several days of field work in Puerto Rico and one week in the Dominican Republic supplemented the study of herbarium specimens. One day in Cuba was also spent in the field to try to relocate *S. ovalis* in the vicinity of the type locality. *Symplocos cubensis*, *S. lanata*, *S. latifolia*, and *S. micrantha* were studied in the field by the first author, by which flower color and other floral features, as well as mature fruit color (the latter for *S. micrantha* only) were observed and recorded.

All descriptions and illustrations were derived from the examination of herbarium specimens except where noted. Observations were made by eye or with the aid of a dissecting microscope (maximum magnification = 60×). Flowering and fruiting times, flower color variation, elevation ranges, habitats, distributions, and common names were derived from label information of herbarium specimens. The term "pubescent" is used in the general sense indicating the presence of trichomes. Leaf measurements were taken from the larger examples on each herbarium sheet because these are more useful for species delimitation than smaller leaves. Because our study is based primarily on herbarium specimens, we employ the morphological species concept for species delimitation, as discussed in Stuessy (2008).

Specimen information of all collections examined was entered into a database, available on request from the authors. Non-English label information was translated and presented in English. Some types and other specimens, as well as handwriting samples of authors of some taxa were examined on-line at the Jstor Plant Science web site (http://plants.jstor.org/). Specimens without geographic coordinates on labels (most collections) were georeferenced whenever possible by using the descriptive information on the label to georeference with published or on-line maps, gazetteers, or other sources such as published papers or on-line plant collections with more detailed label information for specific localities. The georeferenced database was then linked to the geographic information system software ArcView (ESRI, Inc.), with which all distribution maps were constructed. The coordinates for specimens with locality information considered too vague were not mapped. Sometimes geographic precision was increased beyond that provided by the coordinates on specimen labels through assessing the rest of the label information, e.g., elevation or distances along a mapped road.

Each species entry includes a section on conservation assessment. All species were assessed with the IUCN

conservation ratings system (IUCN Standards and Petitions Subcommittee 2014). As part of the assessment, the extent of occurrence (EOO) and area of occupation (AOO) of each species were estimated from the georeferenced database of collections with the on-line resource GeoCAT (Bachman *et al.* 2011).

The collections on which the treatment of Mai (2005) were based for the *Flora de Cuba* have been made available in database form on-line (Greuter & Rodríguez 2011), to which we refer the reader for any Cuban collections of *Symplocos* species that we have not seen. We sometimes cite in the text collections that we have not seen from this database, if they represent notable localities from which we have not seen specimens.

The collections of Charles Wright in Cuba were sorted by a number assigned by Asa Gray to each species rather than by individual field collection numbers, and these specimens usually lack detailed collection data (Howard 1988). As such, it is usually difficult if not impossible to establish whether the specimens under a given number were collected as part of a single gathering. We follow Graham (2010) in treating as isolectotypes (referred to as isotypes in Graham 2010) Wright's specimens with the same species number as the lectotype, even though they may not have been collected at the same time or from the same place. The one exception occurs when a specimen's indicated date of collection clearly differs from that of the lectotype, in which case it is treated as a paratype.

Morphology

Morphological characters important in the infrafamilial delimitation of supraspecific groups (clades) and species of the Symplocaceae have been previously described (e.g., Brand, 1901; Nooteboom, 1975; Fritsch *et al.*, 2008). Character variation among the species of *Symplocos* from Mexico and Central America is summarized by Kelly *et al*. (in preparation). Because most morphological features of Antillean species of *Symplocos* are also found in the species from Mexico and Central America, we refer the reader to the latter work for a general summary of morphological characters important in the delimitation of Antillean species, with exceptions and additional information below.

Indument. Trichome presence, density, color, and orientation are important features in Antillean *Symplocos* species. To avoid potential confusion between the description of surface colors and the color of the trichomes on the surface, we describe surface characters and trichome characters separately when colors are referenced. We avoid the use of the terms sericeous, hirsute, etc., for surface features relating to trichomes, although we employ such terms when color is not part of the description. The indument of the bracts, bracteoles, calyx lobes and corolla refers to that of their abaxial surfaces; the adaxial surfaces are always glabrous.

Leaves. The colors of the abaxial and adaxial leaf blade surfaces in the dried state can be important in distinguishing species of *Symplocos*; we describe the color of each surface separately (versus using the terms "bicolorous" and "concolorous"). Leaf blades usually have regularly spaced marginal glands, and these can be early caducous or persist into maturity. Marginal teeth can often subtend these glands or gland scars if the glands are caducous, and some species can have entire margins, on which glands may persist.

Bracts and bracteoles. We assume that all of the Antillean species possess a single bract per flower and all more distal structures on the pedicel are bracteoles; in *Symplocos urbaniana* the bract and bracteoles strongly overlap and appear undifferentiated. The bract and bracteoles of *S.* ser. *Symplocos* are roughly equivalent in size (the bract being only slightly larger), and are described together. As in Kelly *et al.* (in preparation), bracts and bracteoles that fall off prior to anthesis are described as caducous; those that fall off during anthesis or early fruiting are described as deciduous; and those that remain attached through fruiting (and sometimes remaining attached to the fallen fruit) are described as persistent. In all Antillean species in which a bract can be readily distinguished from the bracteoles (i.e., all except *S. urbaniana*), the bract is usually deciduous or occasionally persistent in the species of *S.* ser. *Symplocos* and caducous in the species of *S.* sect. *Hopea* and *S.* ser. *Urbaniocharis*. The bracteoles are generally persistent in all species of *S.* ser. *Symplocos* and generally caducous in all species of *S.* sect. *Hopea* and *S.* ser. *Urbaniocharis*.

Corolla. In the species of *Symplocos* sect. *Hopea* and *S.* ser. *Urbaniocharis*, the petals are connate only at the base, whereas in those of *S.* ser. *Symplocos*, the petal margins are connate only at the base but the medial portions of the petals are connate to roughly half the total length of the corolla. The corollas (and flowers in general) of the species in *S.* ser. *Urbaniocharis* are notably smaller than those of *S.* sect. *Hopea* and *S.* ser. *Symplocos*. The corolla lobes in the species of *S.* sect. *Hopea* and *S.* ser *Symplocos* are more or less spreading, whereas those of *S.* ser. *Urbaniocharis* are upcurved, forming a cupuliform structure.

Stamens. Staminal features distinguish the three major clades in Antillean *Symplocos*. In the species of *Symplocos* sect. *Hopea*, the stamens are both connate and adnate to the corolla only at the base, exserted from the corolla, and more or less form a brush-like arrangement. The filaments are terete and gradually tapered apically. In those of *S.* ser *Urbaniocharis*, the stamens are also both connate and adnate to the corolla only at the base but are included within the corolla and aligned into a ring nearly abutting its inner surface. The filaments are tangentially flat and gradually tapered or somewhat constricted apically. In the species of *S.* ser. *Symplocos*, the stamens are both connate and adnate to the medial portions of the petals (i.e., excluding the petal margins) to roughly half the total length of the corolla, exserted from the corolla, and monadelphous, being arranged in irregular rings of 2 to 4 indefinite series. The filaments are tangentially flat and strongly constricted apically.

Floral disk. The part of the ovary that occurs inside the calyx is covered by a nectar-producing disk. The disk can be glabrous (*Symplocos* sect. *Hopea*; rarely also in *S.* ser. *Symplocos*) or pubescent (*S.* ser. *Symplocos*, *S.* ser. *Urbaniocharis*); in *S.* ser. *Symplocos*, the pubescence is restricted to the apex, whereas in *S.* ser. *Urbaniocharis*, it is either strictly apical or can occur laterally as well and thus extend throughout the disk. The disk is persistent and often slightly enlarged in fruit. It can be either completely covered by the calyx lobes or partly to completely uncovered. In *S.* ser. *Symplocos* and *S.* sect. *Hopea*, the conspicuous part of the fruiting disk is derived from the flowering disk at maturity, but in *S.* ser. *Urbaniocharis*, it is apparently derived from the style base (except in *S. moaensis*). In the latter, the style is dilated proximally in flower and this dilated part enlarges in fruit; the disk itself remains unexpanded.

Stigma. Species of *S.* ser. *Symplocos* thus far studied have the receptive surface of the stigmas located laterally, below the presumably inert apex of the style (Kelly and Nicholson 2009; Kelly, unpubl. data). Other species of *Symplocos* have stigmas that are terminal on the style. In the latter species, the stigmatic papillae are barely distinguishable from the other cells on the surface of the style. As examined by the first author under 64× magnification, the stigmas of the Antillean species of *Symplocos* ser. *Symplocos* appear to be lateral, whereas those of *S.* sect. *Hopea* and *S.* ser. *Microsymplocos* appear to be terminal, but these observations should be confirmed through anatomical study.

Fruit. When the fruit is described as pubescent, the pubescence referred to is that on the lateral walls (i.e., the main body, exclusive of any pubescence that might be on either the fruiting calyx or fruiting disk). Fruit length was measured from the base to the tip of either the persistent calyx lobes or fruiting disk, whichever is longer. The fruiting calyx lobes are not measured separately because they maintain roughly the same size and shape in fruit as in flower.

Systematic treatment of Antillean *Symplocos*

Symplocos Jacquin (1760: 24). Type:—*Symplocos martinicensis* Jacquin (1760: 24).

Evergreen shrubs or trees. Trichomes simple. Leaves alternate, spirally arranged, exstipulate, simple, penninerved, petiolate, margin of young leaf blade glandular-serrate or entire, glands early caducous or persistent. Inflorescences axillary or pseudo-terminal (if 1-flowered then sometimes between axils) bracteate/bracteolate, racemose, paniculate, or fasciculate, rarely 1- or few-flowered, subtending leaves sometimes reduced and bract-like. Flowers actinomorphic, bisexual, epigynous, fragrant. Articulation present immediately below hypanthium. Calyx limb 5-lobed; lobes generally erect. Corolla sympetalous, 5(to 11)-lobed, lobes imbricate in bud, usually glabrous. Stamens generally numerous, with indefinite number, adnate to corolla, united at base only or distinctly beyond base, monadelphous or indistinctly and irregularly clustered; filaments terete or flattened tangentially, glabrous; anthers subglobose, 2-locular, opening by longitudinal slits. Ovary inferior, 2- to 5-carpellate, unilocular, the 3 to 5 septa not meeting distally; placentation essentially axile; ovules 2 to 4 per carpel; intrastaminal epigynic disk present; style 1, filiform or subulate; stigma capitate or prominently and irregularly 3- to 5-lobed. Fruit a drupe crowned by persistent calyx and disk; endocarp woody, 1- to 5-celled (one or more cells sometimes abortive and crushed), wall smooth to irregularly and shallowly grooved longitudinally, grooves often reticulate, apex porate. Seeds 1 per cell, with copious endosperm, straight; embryo straight.

Key to sections and series of *Symplocos* in the Antilles

1. Young branchlets green to yellowish green; leaf midvein flat or prominent adaxially; stamens forming a brush-like arrangement; filaments terete; disk glabrous; endocarp wall hyaline ..... *S.* sect. *Hopea*
- Young branchlets brown to black; leaf midvein sulcate adaxially; stamens aligned in one or more rings; filaments tangentially flat; disk pubescent (rarely glabrous); endocarp wall osseous ..... *S.* sect. *Symplocos*
2. Bracteoles usually persistent or sporadically deciduous; corolla adnate to androecium (and corolla gamopetalous) distinctly beyond base; stamens monadelphous, in 2 to 4 indefinite series of different lengths, outer stamens columnar, exserted from corolla, inner stamens incurved or inflexed; style 3.5–10 mm long; endocarp 3- to 5-celled, septa osseous . ..... *S.* ser. *Symplocos*
- Bracteoles caducous; corolla adnate to androecium (and corolla gamopetalous) at base only; stamens indistinctly and irregularly clustered, aligned into a ring of different lengths but not in series, all incurved, included within and nearly abutting the corolla lobes (often situated away from the lobes in dried material); style 0.5–2 mm long; endocarp (1)2(3)-celled, septa hyaline ..... *S.* ser. *Urbaniocharis*

I. *Symplocos* sect. *Symplocos*

Young branchlets brown to black. Leaves generally olive green to brown abaxially; leaf midvein sulcate adaxially. Corolla adnate to androecium (and corolla gamopetalous) at base only or distinctly beyond base, lobes spreading; stamens aligned in one or more rings. Stamen filaments tangentially flat, constricted or gradually tapered apically. Ovary 2- to 5-carpellate; style 0.5–10 mm long. Fruiting disk broadly cylindrical; endocarp (1)2- to 5-celled, wall osseous, septa osseous or hyaline.

IA. *Symplocos* ser. *Symplocos*

= *Ciponima* Aublet (1775: 567). Lectotype (designated by Nooteboom 1975):—*Ciponima guianensis* Aublet (1775: 567) [≡ *Symplocos guianensis* (Aubl.) Gürke (1891: 172)].
= *Alstonia* Mutis ex Linné (1782: 39), *non* Scopoli (1777: 198), *nom. rej., nec* R. Brown (1811: 75), *nom. cons. Praealstonia* Miers (1879: 291). Lectotype (designated by Nooteboom 1975):—*Alstonia theiformis* Linné (1782: 264) [≡ *Symplocos theiformis* (L.f.) Gürke (1891: 172)].
= *Mongezia* Vellozo (1829: 229). Lectotype (designated by Fritsch *et al*. 2008):—*Mongezia pilosa* Vellozo (1829: 229) [= *Symplocos pubescens* Klotzsch ex Bentham (1839: 233)].
= *Stemmatosiphum* Pohl (1831: 86). Lectotype (designated by Fritsch *et al*. 2008):—*Stemmatosiphum platyphyllum* Pohl (1831: 87) [≡ *Symplocos platyphylla* (Pohl) Bentham (1839: 233)].
= *Hypopogon* Turczaninow (1858: 246). Lectotype (designated by Nagamasu 1993):—*Hypopogon brevipes* Turczaninow (1858: 246) [= *Symplocos coccinea* Bonpland (1808)].
= *Symplocos* sect. *Neosymplocos* Brand (1901: 26, 70). Lectotype (designated by Fritsch *et al*. 2008):—*Symplocos tenuifolia* Brand (1901: 71).
= *Symplocos* subsect. *Pseudoalstonia* Brand (1901: 26, 73). Lectotype (designated by Fritsch *et al.* 2008):—*Symplocos mapiriensis* Brand (1901: 74).

Old branchlets generally grayish brown. Bracts and bracteoles indistinct (in *S. urbaniana*: combined number 5 to 8) or bract 1 (by convention) and bracteoles 2 to 5 per flower, bract (when differentiated from bracteoles) usually deciduous or occasionally persistent, bracteoles usually persistent or sporadically deciduous. Corolla adnate to androecium (and corolla gamopetalous) distinctly beyond base, lobes spreading. Stamens monadelphous, in 2 to 4 indefinite series of different lengths, *ca.* 27–52, outer stamens columnar, exserted from corolla, inner stamens incurved or inflexed, often included within corolla; filaments tangentially flat, strongly constricted apically. Ovary (2)3- to 5-carpellate; disk broadly cylindrical, truncate or slightly depressed around style, pubescent apically and glabrous laterally, or rarely glabrous throughout; style 3.5–10 mm long, of equal width throughout or slightly dilated proximally. Fruiting disk broadly cylindrical or dome-shaped with flattened apex, apically pubescent; endocarp (2- by abortion) 3- to 5-celled, septa osseous.

Key to *Symplocos* [sect. *Symplocos*] ser. *Symplocos* in the Antilles

1. Old branchlets stout, *ca.* 3–5 mm wide; leaf blade subcoriaceous, margin slightly revolute, marginal teeth indurate;

inflorescences fasciculate, often borne proximal to leaves along branchlet; bract plus bracteoles 5 to 8 per flower, all tightly overlapping ..... *S. urbaniana*

- Old branchlets slender, *ca.* 1.5–3 mm wide; leaf blade chartaceous, margin flat, marginal teeth (when present) chartaceous; inflorescences racemose or 1-flowered, usually borne among leaves along branchlet; bract plus bracteoles 3 to 6 per flower, not all tightly overlapping, at least when >3 2

2. Larger branchlet trichomes 0.7–1.1 mm long; leaf blade 2.6–3.7 times as long as wide; corolla 3–5(–7) mm long ..... *S. jurgensenii*

- Larger branchlet trichomes to 0.4 mm long (rarely absent, or to 0.8 mm long in *S. cubensis*); leaf blade 1.3–2.8 times as long as wide; corolla 5–13 mm long 3

3. Inflorescences 1- to 7-flowered (usually some inflorescences > 3-flowered); disk strigillose or pilosulose or rarely glabrous, longer disk trichomes 0.2–0.4 mm long 4

- Inflorescences 1- to 3-flowered; longer disk trichomes 0.5–1.1 mm long 5

4. Leaf blade margin irregularly serrulate-crenulate to nearly entire; calyx lobes 1.2–2.1 × 1.4–2.3 mm ..... *S. latifolia*

- Leaf blade margin ± regularly serrate-crenate; calyx lobes 0.9–1.2 × 1.0–1.6 mm ..... *S. martinicensis*

5. Petiole 3–8 mm long; larger leaf blades 2.6–8.8 cm long; inflorescences 1-flowered; pedicel glabrous or nearly so; corolla white, pink, blue, or lavender; fruiting disk apex not visible, exceeded by calyx ..... *S. cubensis*

- Petiole (including leaf blade attenuation) 7–15 mm long; larger leaf blades 7.9–11.5 cm long; inflorescences 1- to 3-flowered; pedicel strigose; corolla white; fruiting disk apex completely visible, equal to or exceeding calyx ... *S. octopetala*

1. *Symplocos cubensis* Grisebach (1862: 518). Lectotype (designated by Mai 2005):—CUBA. Guantánamo: near Monte Verde, [20°19'N, 75°0'W], 3 January 1859, *C. Wright 1135* (GOET, isolectotypes GH!, K!, MO!, NY!, PH on-line image 29760!).

= *Symplocos martinicensis* var. *berteroi* Candolle (1844: 250) ('*Berterii*') ≡ *Symplocos berteroi* (A.DC.) Miers (1879: 286). Type:—DOMINICAN REPUBLIC. [Distrito Nacional:] Santo Domingo, *C. G. L. Bertero s.n.* (holotype G-DC, isotypes M on-line image 152538!, MO!).

= *Barberina cubensis* Miers (1879: 294) ≡ *Symplocos lindeniana* Krug & Urban in Urban (1893: 332). Type:—CUBA. Santiago de Cuba: near Santiago at Nimanima [protologue], [19°59'39"N, 75°58'10"W], August 1843–1844, *J. J. Linden 2089* (holotype BM on-line image 952627!, isotypes BR on-line image 542064!, F [2: 976346, 1540552]!, K [2]!, W!).

= *Barberina antillana* Miers (1879: 294) ≡ *Symplocos antillana* (Miers) Gürke in Engler (1891: 170). Type:—CUBA. 1843–1844, *J. J. Linden 1831* (holotype BM on-line image 952626!, isotypes K [3]!, MO!, W!).

= *Symplocos pilifera* Urban (1929: 84). Lectotype (designated here):—HAITI. Ouest: Massif de la Selle, Pétionville, Furcy, 1540 m, [18°25'04"N, 72°18'0"W], May, *W. Buch in E. L. Ekman 5420* (S 03-2070!, isolectotype S 03-2068!).

= *Symplocos hyboneura* Urban (1929: 84). Lectotype (designated here):—HAITI. Ouest: Massif de la Selle, high plateau of Morne de la Selle above Badeau, *ca.* 2200 m, [18°20'N, 72°0'W], 28 January 1925, *E. L. Ekman 3109* (S 03-2074!, isolectotypes S 03-2073!, US [2]!).

Tree to 10 m tall. Old branchlets irregularly ridged or angled, *ca.* 1.5–3 mm wide; young branchlets with sparse to dense appressed to ascending white or light ferrugineous trichomes 0.2–0.8 mm long, trichomes of roughly equivalent length or occasionally of mixed lengths; pseudo-terminal vegetative buds pilosulose or pilose-sericeous. Petiole 3–8 mm long; leaf blade elliptic to obovate, 2.6–8.8 × 1.5–5.0 cm, 1.3–2.6 times as long as wide, chartaceous, abaxial surface generally olive green, glabrous or less commonly with appressed to erect white to light orange trichomes, longer trichomes 0.4–0.9 mm long, midvein trichomes denser and rarely expanded at base, adaxial surface dark greenish brown, glabrous, base rounded-acute to cuneate, slightly attenuate, margin flat or slightly revolute, serrulate-denticulate (often shallowly so), occasionally entire, with 0 to 20 chartaceous teeth per side and with glands often persistent, apex rounded to abruptly short-acuminate. Inflorescences borne among leaves along branchlet, sometimes between leaf axils, 1-flowered, subtending leaves often highly reduced and bract-like, often caducous. Bract and bracteoles not all tightly overlapping, ovate, 1.2–2.1 × 1.0–1.7 mm, bract sometimes larger and leaf-like, glabrous or sericeous medially, margin ciliate and usually not glandular. Pedicel 2–9 mm long, glabrous or rarely sparsely strigose to pilose; bracteoles 2 to 5, situated at pedicel apex or sometimes 1 or more situated along pedicel. Flowers 8.5–14 mm long. Hypanthium glabrous. Calyx lobes hemispherical to broadly ovate, 1.3–2.1 × 1.5–3.1 mm, glabrous, margin ciliate, not glandular, apex obtuse to rounded. Corolla white, pink, blue, or lavender, 6.5–12 mm long, 5-lobed; tube 1–3 mm long; lobes oblong-obovate, adnate to filament tube for 4–6 mm proximally, glabrous, margin erose. Stamens in ± 3 series; filaments connate proximally for 5–7 mm, distinct portions 2–3 mm long. Disk trichomes white to tawny, longer trichomes 0.5–1 mm long; style 6–10 mm long, pilose proximally or rarely glabrous. Fruit blue to purple, ellipsoid, 12–17 × 5–9 mm, glabrous; calyx lobes erect to incurved; disk apex not visible, exceeded by calyx.

Vernacular names—Aceituno (Dominican Republic: Liogier 1989), Azulejo de Sabana (Cuba: León and Alain 1957–1963), Moradilla (Cuba: *E. L. Ekman 11237*), Moradillo (Dominican Republic: *E. J. Valeur 863*).
Illustration—Figure 1.

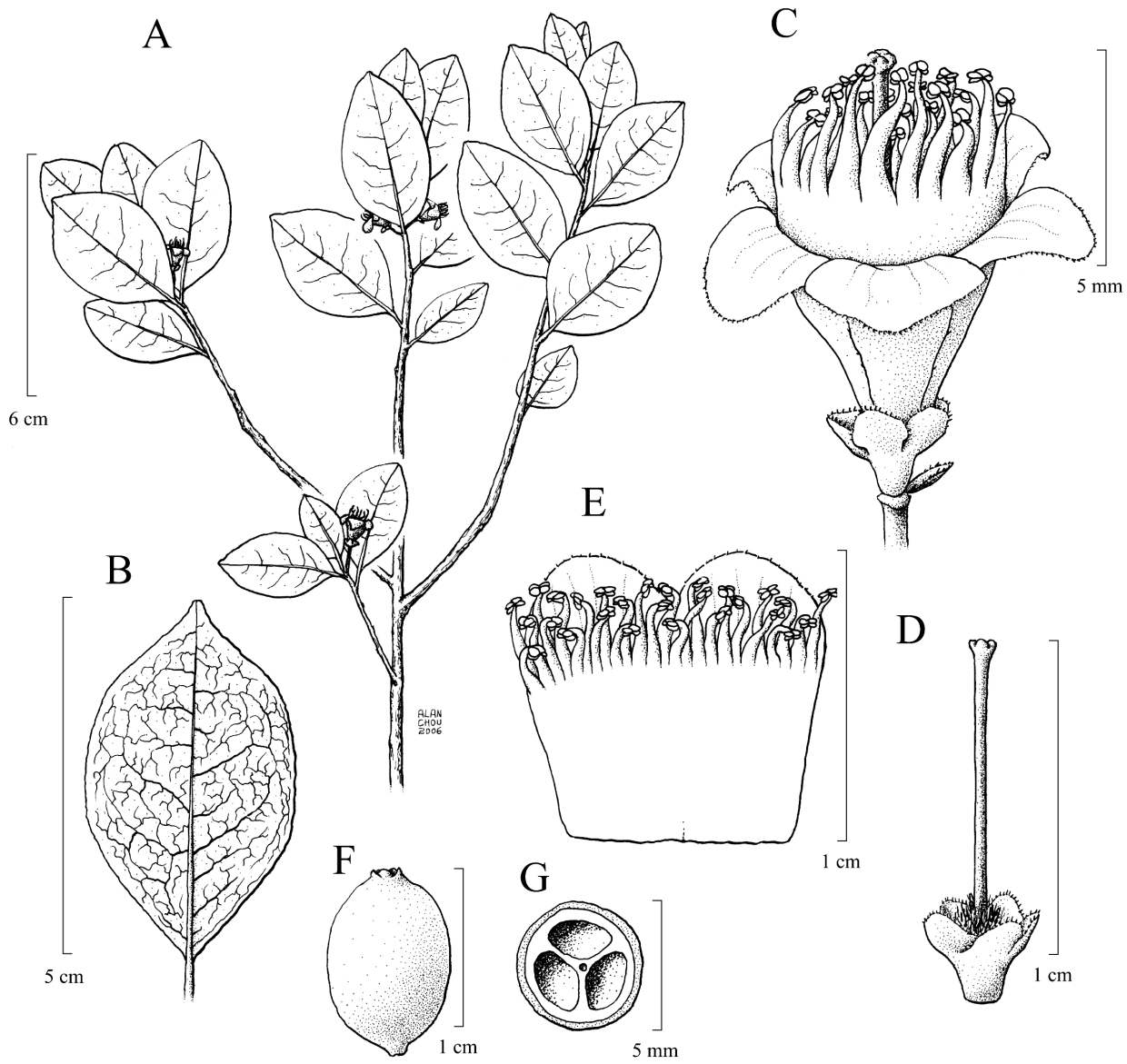

FIGURE 1. *Symplocos cubensis*. **A.** Flowering branch. **B.** Leaf, abaxial view. **C.** Flower with upper part of pedicel and bracteole. **D.** Calyx and gynoecium. **E.** Section of corolla and androecium, inner view. **F.** Drupe. **G.** Drupe in cross section. (A–E drawn from *E. L. Ekman 10079*, S; F–G drawn from *L. R. Holdridge 977*, US.)

Image—Figure 2A.

Phenology—Flowering April–August; fruiting January, April–August, October–December.

Habitat and distribution—Edges of woods, along watercourses in montane cloud forests, pine forests, altiplano, broadleaved forests, mixed pine and broadleaved forests, thickets, limestone ridges at 500–2200 m elev. Cuba, Hispaniola (Haiti, Dominican Republic). Figure 3.

Conservation assessment—Distributed in both Cuba and Hispaniola, *Symplocos cubensis* is one of the most commonly collected species of *Symplocos* in the Antilles. It is rather widespread in Hispaniola, especially in the Dominican Republic where it occurs in the Sierra de Bahoruco, Sierra de Neiba, Cordillera Central, and Cordillera Septentrional. In Haiti, it is restricted to the Massif des Cahos and Massif de la Selle and in Cuba it is restricted to the Eastern Subprovince in the Sierra de Maestra. Collections have been made from > 40 locations. Therefore we categorize this species as Least Concern (LC).

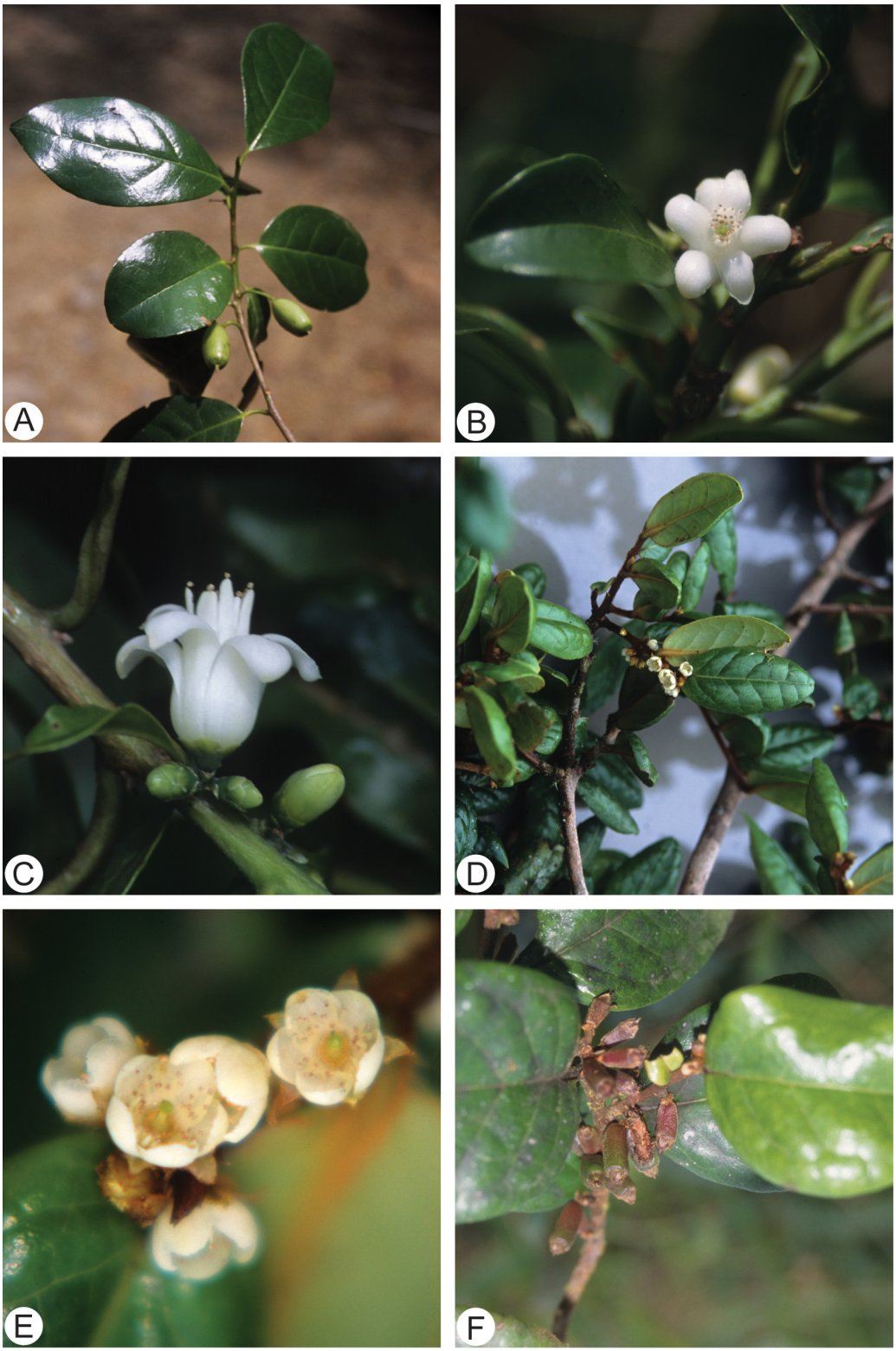

FIGURE 2. Images of Antillean *Symplocos* species. **A.** *Symplocos cubensis*, fruiting branchlet (*Fritsch et al. 1780*). **B, C.** *Symplocos latifolia*, flowering branchlets with flower in apical view (**B**) and side view (**C**; Axelrod & *Fritsch 12564*). **D, E**. *Symplocos lanata*, flowering branchlet (**D**) and flowers (**E**; *Axelrod & Fritsch 12546*). **F.** *Symplocos micrantha*, fruiting branchlet (*Axelrod et al. 12554*). Photographs by PWF.

Discussion—This species exhibits perhaps the most morphological variation of any Antillean member of *Symplocos*. Primarily based on flower color, branchlet pubescence, leaf shape, and pedicel length variation, Mai

(1986, 2005) followed Urban (1893) and Brand (1901) in recognizing *S. cubensis*, *S. lindeniana*, and *S. berteroi* as distinct species, with the first two endemic to Cuba and the third distributed in both Cuba and Hispaniola. Several of Mai's (2005) key character states separating the Cuban representatives of these taxa, however, overlap (*e.g.*, leaf blade apex acute versus acute or obtuse, base rounded versus cuneate to rounded, endocarp 3-locular versus 3- to 5-locular, and drupe ≤ 14 mm long versus ≤ 18 mm long). Thus, only flower color remains to distinguish all three species (white in *S. lindeniana*, red in *S. cubensis*, and purple in *S. berteroi*) and pedicel length to distinguish *S. cubensis* from *S. berteroi* (shorter than or equal to the length of the petiole in *S. cubensis* versus longer than the petiole in *S. berteroi*). Flower color is only rarely recorded on Cuban specimens of this group, but apparently can vary from nearly white to pink and purple among Hispaniolan populations.

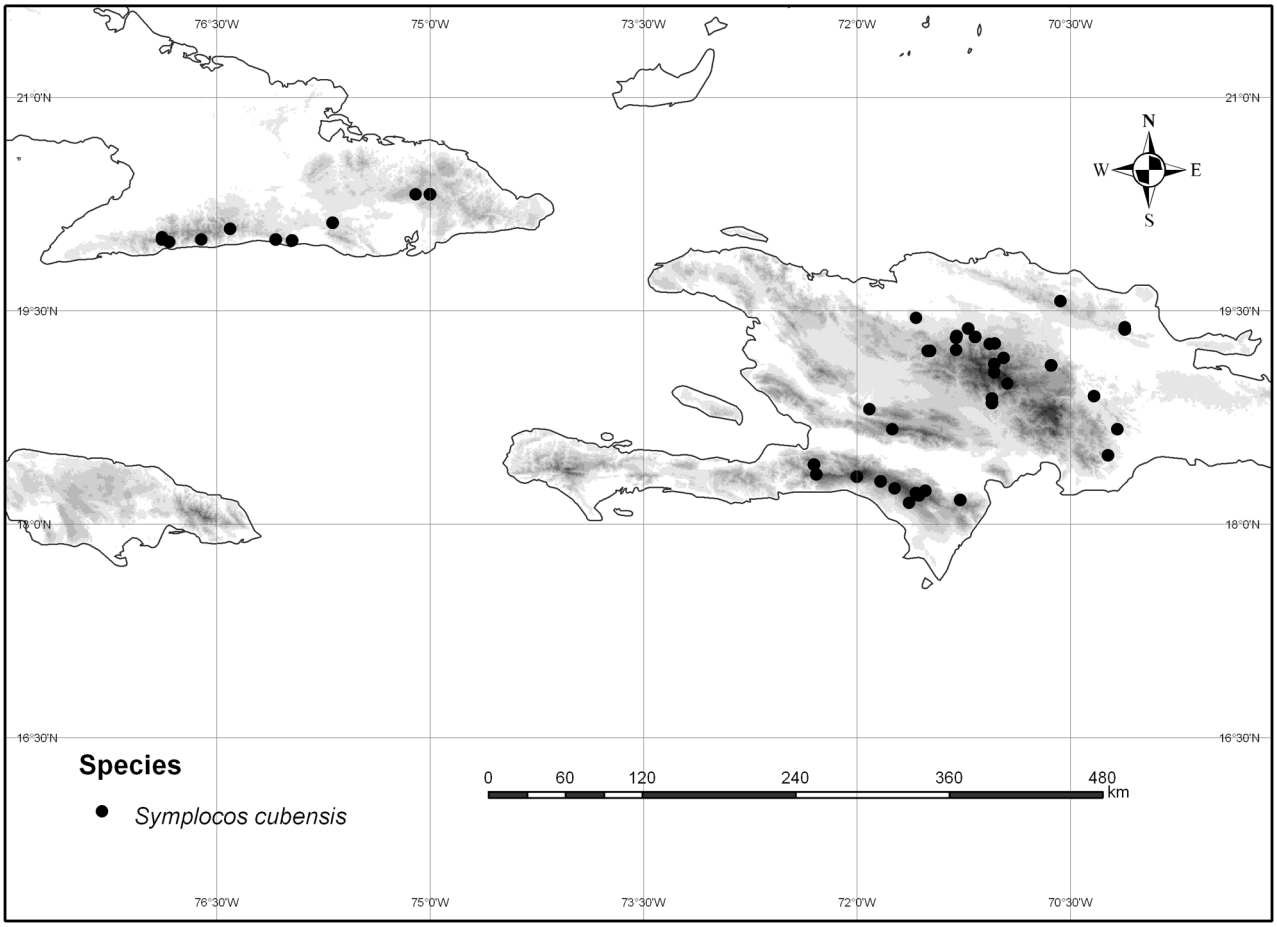

FIGURE 3. Geographic distribution of *Symplocos cubensis*.

We consider flower color and pedicel length to vary more or less continuously. In Hispaniola, we observed considerable variation between high- and low-elevation populations of *Symplocos cubensis* from the Sierra de Bahoruco and the northwestern foothills of the Cordillera Central, respectively. The Sierra de Bahoruco populations are small trees (*ca.* 4 m) with a dense crown and smaller leaves, whereas foothill populations are larger trees (*ca.* 8 m) with a less dense crown and larger leaves. This variation also appears to be continuous. We can detect no further basis for keeping these species separate.

In Hispaniola, sterile individuals of *Symplocos cubensis* might be confused with chartaceous-leaved sterile individuals of *S. hotteana* in *S.* ser. *Urbaniocharis*. Sterile specimens of *S. cubensis* can be distinguished from those of *S. hotteana* by their glabrous or nearly glabrous leaves abaxially (versus densely pubescent) that are typically rather dull (versus typically glossy) and with the veins darker than the surface (versus nearly the same color as the surface or lighter). Moreover, the hairs on the abaxial surface of *S. cubensis* are typically coarser, more irregularly distributed across the surface, and not as neatly parallel to each other as those of *S. hotteana*.

In Cuba, sterile specimens of *Symplocos cubensis* might be confused with those of the four Cuban species of *Symplocos* ser. *Urbaniocharis*, but can be distinguished from these as follows: old branchlets generally grayish

brown (versus old branchlets generally grayish brown with purplish cast, to dark purple); young branchlets with sparse to dense appressed to ascending white or light ferrugineous trichomes 0.2–0.8 mm long (versus ascending light ferrugineous trichomes 1–1.5 mm long in *S. baracoensis*, tawny brown appressed trichomes 0.6–0.7 mm long in *S. ciponimoides*, appressed ferrugineous trichomes 0.2–0.5 mm long in *S. leonis*, and glabrous in *S. moaensis*); and leaf blade chartaceous (versus subcoriaceous to coriaceous except usually chartaceous in *S. leonis*), with the midvein abaxially strigose to pilose (versus hirsute, sericeous, or glabrous).

Sterile individuals of *Symplocos jurgensenii*, a species whose range slightly overlaps that of *S. cubensis* in eastern Cuba, can be distinguished from those of *S. cubensis* by branchlet trichomes 0.7–1.1 mm long (versus 0.2–0.8 mm long), narrowly elliptic to slightly oblanceolate leaf blades 2.6–3.7 times as long as wide (versus elliptic to obovate, 1.3–2.6 times as long as wide) and an occurrence at relatively low elevations (200–500 m versus *S. cubensis* in Cuba at 700–1800 m elevation). In flower, *S. jurgensenii* is also readily distinguished from *S. cubensis* by having at least some inflorescences multi-flowered on each individual (versus consistently 1-flowered), and disk trichomes that are 0.3–0.4 mm long (versus 0.5–1 mm long).

A specimen indicated only as collected in the year 1859, *C. Wright s.n.* (GH!) may also constitute a part of the type material of *Symplocos cubensis*.

Although Mai (2005) lectotypified *Barberina cubensis* Miers on the K specimens of *J. J. Linden 2089*, the holotype is the BM specimen, as demonstrated by the following: 1) Miers' herbarium was BM (Stafleu & Cowan 1981); 2) in the protologue, Miers (1879) states "In Cuba: *v. s. in herb. meo* (13170), Cuba (*Linden 2089*)"; the number 13170 is the same as that on the illustration affixed to the BM specimen; 3) a comparison of the handwriting on the BM specimen annotation "ID *Barberina Cubensis Linden 2089*" with that in several of Miers' letters to W. J. Hooker (e.g., Miers 1838) strongly suggests that the handwriting on the annotation is that of Miers. No similar writing style appears on either of the K specimens; 4) the BM specimen possesses the annotation "Herb. John Miers.—Bequeathed 1879."; no such annotation occurs on the K specimens.

Two specimens of the type collection of *Symplocos pilifera* are housed at S, both of which have "typus" written on their label. We have chosen the specimen 03-2070 as the lectotype because it has better flowering material than the specimen 03-2068.

Two specimens of the type collection of *Symplocos hyboneura* are housed at S, both of which have "typus" written on their label. We have chosen the specimen 03-2074 as the lectotype because it has better fruiting material than the specimen 03-2073.

See also comments under *Symplocos ovalis* and *S. salicifolia*.

***Additional specimens examined*—CUBA. Granma:** Mpio. Bartolomé Masó, Sierra Maestra, Meriña zone 700–800 m, [20°01'N, 76°53'W], 27 April 1978, *Bisse et al. HFC 37720* (B [image 10 0354209]!). **Guantánamo:** Monte Cristi [Montecristo], 700 m, [20°19'N, 75°06'W], May 1968, *Bisse & Köhler 8204* (JE!); near Monte Verde, [20°19'N, 75°0'W], 20 June 1859, *Wright 1321* (GH!, K!, MO!, MO [2: on-line images, 694177, 694178]!, NY!, PH [on-line image, 29761]!, W!). **Santiago de Cuba:** Mpio. Guamá, Sierra Maestra, Lomas de Joaquín y Regino, 1400 m, [20°0'N, 76°36'26"W], 20 April 1979, *Bisse et al. HFC 40558* (B [image 10 0409484]!); Sierra Maestra, on the water divide between Río Yara and Río Plata in Monte Frio, *ca.* 1000 m, [20°0'N, 76°53'W], 12 July 1922, *Ekman 14236* (NY!, S!, US!); Sierra Maestra, Loma del Gato, La Finca de los Hermanos, *ca.* 750 m, [20°07'N, 75°41'W], 9 November 1922, *Ekman 15688* (S!); Loma del Gato and vicinity, Tamboril, Cobre Range of Sierra Maestra, 850–900 m, [20°0'N, 76°05'W], 11–14 July 1921, *León et al. 10272* (NY!, US!); Loma del Gato and vicinity, Cobre Range of Sierra Maestra, 1000 m, [20°0'N, 76°05'W], 11–14 July 1921, *León et al. 10372* (NY!); on the crest of Sierra Maestra, Pico Turquino region, 1800 m, [19°59'N, 76°50'W], July 1922, *León 10817* (GH!, NY!, US!); Loma del Gato, Cobre Range of Sierra Maestra, [20°0'N, 76°05'W], August 1924, *León 12329* (HAC!, NY!); region [Loma] del Gato, above Tamboril, [20°07'N, 75°41'W], 5 August 1944, *Liogier 242* (GH!); Loma del Gato, Sierra Maestra, 1000 m, [20°07'N, 75°41'W], December 1919, *Téteau 1814* (US [2]!); Loma del Gato, [20°07'N, 75°41'W], August 1944, *Téteau 4235* (US!); La Alcarraza, Sierra Maestra, [20°04'32"N, 76°24'12"W], July 1946, *Téteau 5055* (NY!, US!).

HAITI. Centre: Massif des Cahos, group Las Caobas, Las Caobas [Lascahobas], Chapelle Ste.-Claire, *ca.* 875 m, [18°48'32"N, 71°54'41"W], 16 February 1926, *Ekman 5548* (S!). **Ouest:** Massif de la Selle, Furcy, in front of Morne Rouche house, *ca.* 1540 m, [18°25'04"N, 72°18'0"W], 5 August 1924, *Ekman 1311* (S!, US!); **Sud-Est:** Massif de la Selle, Marigot, Jardins Bois-Pin, *ca.* 1900 m, [18°21'N, 72°17'W], 10 June 1928, *Ekman 10079* (K!, NY!, S!); near Pétite Source, Mornes [Mont] des Commissaires, 1300 m, [18°18'N, 71°50'W], 29 January 1942, *Holdridge 977* (F!, GH!, NY!, US!).

DOMINICAN REPUBLIC. Barahona: Sierra de Bahoruco, summit of Morne La Jo, 1550–1600 m, [18°10'05"N, 71°16'16"W], 6 June 1984, *Zanoni & García 30413* (JBSD!, MO!, NY!, S!). **Dahabón:** Cordillera Central, above Cerro Chacuey (SE way in El Pomo), 400–800 m, 19°27'N, 71°35'W, 27 November 1984, *Zanoni et al. 32378* (JBSD!). **Duarte:** Cordillera Septentrional, Loma Quita-Espuela [Firme de Quita Espuela], *ca.* 700 m, [19°22'N, 70°07'W], 25 April 1929, *Ekman 12261* (LL!, S [2]!, US!); Cordillera Septentrional, above Loma La Camela (near Loma Quita Espuela) NE of San Francisco de Macorís, study site of Instituto Superior de Agricultura students, 460–500 m, 19°23'N, 70°07'W, 23 February 1990, *Zanoni & Hager 44133* (JBSD!). **Elías Piña:** Nalga de Maco, [19°13'N, 71°29'W], 28 November 1942, *Canela L. s.n.* (US!); Cordillera Central, SE of Colonia Río Límpio, Loma Nalga de Maco, 1750 m, [19°13'N, 71°30'W], 16–23 April 1983, *Dod s.n.* (NY!); Cordillera Central, Loma Nalga de Maco, on the ridge towards Piña Blanca, *ca.* 1600 m, [19°13'N, 71°29'W], 9 June 1924, *Ekman 6326* (NY!, S!, US!); Loma Nalga de Maco between Pinar Clara and summit, 1700–1995 m, 19°13'N, 71°29'W, 15 August 1992, *Santana 791* (JBSD!). **Independencia:** near La Doscientos, Sierra de Neiba, between Hondo Valle and La Descubierta, 1750–1850 m, [18°40'N, 71°45'W], 5–7 September 1968, *Liogier 12552* (NY!); Pueblo Viejo, above Puerto Escondido, Sierra de Bahoruco, 1850 m, [18°14'N, 71°31'W], 19 February 1969, *Liogier 14067* (GH!, NY!, US!); Cabeza de Agua to Los Arroyos, along the International Hwy, 800 m, 3–8 July 1971, *Liogier 18164* (GH!, NY!, US!). **La Vega:** near Jarabacoa, 1000 m, [19°07'N, 70°38'W], June 1912, *Fuertes 1616* (A [2]!, F [2]!, GH!, NY!, S!, US!, W!). **Monseñor Nouel:** Loma [la] Peguera, Bonao, 500 m, [18°54'N, 70°20'W], *Liogier 17590* (F!, GH!, NY!). **Pedernales:** Parque Nacional Sierra Bahoruco, *ca.* 4 km S of Caseta Number 2 Guardia Forestal (Forest Service) on rd from El Aceitillar to Puerto Escondido, 1897 m, 18°12.152'N, 71°33.806'W, 14 June 2001, *Fritsch et al. 1782* (CAS!, F!, MO!, US!); Sierra de Bahoruco, Las Abejas, 1050–1100 m, 18°09'N, 71°38'W, 13 May 1993, *García & Caminero 4734* (JBSD!); near crest on trail to Pedernales from Puerto Escondido and El Aguacate, 6500 ft, [18°13'N, 71°35'W], 24 August 1950, *Howard 12589* (A!, S!, US [2]!); above Los Arroyos, along the International Hwy from Pedernales to Duvergé, 1600 m, [18°15'N, 71°44'W], 18–20 February 1969, *Liogier 13977* (NY!); Sierra de Bahoruco, 30.5 km S of Puerto Escondido on the rd to Aceitillar (3.9 km S of Forest Station No. 2), 1875 m, [18°12'09"N, 71°33'48"W], 17 March 1985, *Zanoni et al. 33687* (JBSD!); Sierra de Bahoruco, in Charco de la Paloma, 37.4 km S of Puerto Escondido on the rd to Aceitillar and continuing on the rd to Aguacate, 1810 m, [18°12'09"N, 71°33'48"W], 19 March 1985, *Zanoni et al. 33921* (JBSD!, MO!, S!); Sierra de Bahoruco, highest part of the rd from Aceitillar to Puerto Escondido, 1900 m, [18°12'09"N, 71°33'48"W], 27 August 1987, *Zanoni & Pimental 40357* (JBSD!, MO!, NY!, UPRRP!); Sierra de Bahoruco, *ca.* 3 to 4 km S of Caseta No. 2 de Foresta (Monte Jota) on the rd to Aceitillar, 1800 m, [18°12'09"N, 71°33'48"W], 10 April 1988, *Zanoni et al. 40769* (JBSD!, MO!, NY!). **Puerta Plata:** Cordillera [Altos Gurabitos] de Yaroa, near the trail to Arroyo del Toro, 800–850 m, [19°34'N, 70°34'W], 28–29 June 1968, *Liogier 11862* (GH!, NY!). **San Cristóbal:** Villa Altagracia, [18°40'N, 70°10'W], 19 January 1929, *Ekman 11237* (F!, S!); Cordillera Central, Cajón, 11.7 km WNW of Cambita Garabito in el Camino a Los Cacaos, 18°29'N, 70°14'W, 620 m, 3 May 1984, *Zanoni et al. 29764* (JBSD!, MO!, NY!). **San Juan:** Cordillera Central, Parque J. del Carmen Ramírez, above Tetero along the trail to the valley, 1900–2000 m, [18°59'14" N, 70°56'34" W], 30 November 2001, *Clase et al. 3167* (CAS!); Cordillera Central, El Genebre, 9.4 km N of Poblado Arroyo Cano, 1080 m, 18°51'N, 71°03'W, 30 April 1986, *García & Pimentel 1225* (JBSD!, MO!, NY!, S!); Cordillera Central, Parque Nacional José del Carmen Ramírez, 14 km N of the village of Arroyo Cano, Los Fríos, 400 m E of the caseta of the Dirección Nacional de Parques, 1380 m, 18°53'N, 71°03'W, *García & Pimentel 1269* (JBSD!, MO!, NY!). **Santiago:** Cordillera Central, Mpio. San José de las Matas, Sección Mata Grande, Montes Prietos, headwaters of Río Bao, Parque A. Bermúdez, 1760 m, [19°04'N, 71°02'W], 24 April 1999, *Clase et al. 1064* (CAS!, MO!); [Pico de] Igua, 960 m, [19°16'16"N, 71°01'47"W], 12 August 1946, *Jiménez 1184* (US!), 13 August 1946, *Jiménez 1217* (US!); La Diferencia, S of El Rubio, 700–800 m, [19°16'N, 71°04'W], 20–21 May 1968, *Liogier 11302* (NY!); Bao to Guácara, Valley of Bao River, 1200 m, [19°07'37"N, 71°01'54"W], 1–7 October 1968, *Liogier 12933* (F!, NY!, US!); Loma del Oro, S of Mata Grande, San José de Las Matas, 1100 m, [19°10'N, 70°58'W], 13 June 1969, *Liogier 15694* (NY!, US!); Cordillera Central, 1.8 km S of Jicomé [de Monción] along the banks of Río Vallecito, 530 m, 19°19'N, 71°10'W, 16 July 1985, *Mejia et al. 1378* (JBSD!, MO!, NY!, S!); District of San José de las Matas, above Jicomé [de Monción], 600–700 m, [19°19'N, 71°10'W], 12 May 1933, *Valeur 863* (C!, F!, K!, LL!, MO!, NY!, US!). **Santiago Rodríguez:** Cordillera Central, Mpio. Monción, Parque A. Bermúdez, Paraje Los Calimetes, near Río El Gallo, 1125 m, [19°13'23"N, 71°18'03"W], 16 June 1999, *Clase et al. 1315* (MO!); 2.3 km N of the village of [El] Aguacate [El Aguacate de Toma] on the way to La Lionora [La Leonor], 3 km S of La Lionora, 711 m, 19° 19.282' N, 71° 17.969' W, 10 June 2001, *Fritsch et al. 1780* (CAS!, MO!, US!); Cordillera

Central, Arroyo La Rejoya, 2 km S of the village of La Meseta, 510 m, 19°22.5'N, 71°13'W, 10 June 1987, *García & Pimentel 2260* (JBSD!, MO!, NY!, S!); Cordillera Central, El Aguacate de Toma [El Aguacate], Monción, S of La Leonor, 500 m, 19°18.5'N, 71°18'W, 20 April 1988, *García & Pimentel 2641* (JBSD!, NY!); La Leonor, 600 m, [19°18'30"N, 71°18'W], 6 April 1955, *Jiménez et al. 2890* (US!).

2. *Symplocos jurgensenii* Hemsley (1881: 301). Lectotype (designated here):—MEXICO. [Oaxaca:] Sierra San Pedro Nolasco, Talea, etc., 1843–1834, *C. Jürgensen 746* (G on-line image 164229!, isolectotypes BM [2: on-line images 952632, 952633]!), G on-line image 164230!).

= *Symplocos strigillosa* Krug & Urb. in Urban (1893: 332) ≡ *Symplocos martinicensis* Jacq. subsp. *strigillosa* (Krug & Urb.) Mai (1986: 15). Lectotype (designated by Mai 1986):—CUBA. Pinar del Río: Retiro, 13 July 1863, *C. Wright 2932* (GOET!, isolectotypes BM on-line image 952623!, GH!, GOET!, MO!, NY [2]!, S [4]!, US!, W!).

= *Symplocos bicolor* L.O.Williams (1967: 265). Type:—BELIZE. Mullins River Rd, 100 ft, [17°05'58"N, 88°19'26"W], 15 December 1931, *W. A. Schipp 862* (holotype F!, isotypes C, CAS!, GH!, MICH on-line image 1192774!, MO!, NY!, S!).

Shrub or tree to 8 m tall. Old branchlets irregularly ridged or angled or occasionally nearly smooth, *ca.* 1.5–3 mm wide; young branchlets with ascending white to light orangish brown trichomes, trichomes 0.7–1.1 mm long, usually mixed with shorter trichomes; pseudo-terminal vegetative buds pilose-sericeous. Petiole 2–8(–12) mm long; leaf blade narrowly elliptic to slightly oblanceolate, 5.2–9.6 × 1.9–3.4 cm, 2.6–3.7 times as long as wide, chartaceous, abaxial surface generally olive green, with appressed white to orangish brown trichomes at least proximally or occasionally glabrous, longer trichomes 0.7–1.1 mm long, midvein trichomes spreading-erect, adaxial surface dark greenish brown, glabrous, base acute to attenuate, margin flat, ± regularly crenate-serrate, with 10 to 24 chartaceous teeth per side and with glands occasionally persistent, apex acuminate or abruptly acuminate. Inflorescences racemose, usually borne among leaves along branchlet, 0.6–2.0 cm long, 1- to 7-(to 10-) flowered (usually at least some inflorescences > 3-flowered), peduncle 1–5 mm long, rachis pilosulose to pilose or strigillose, often with a mixture of short and long trichomes. Bract and bracteoles not all tightly overlapping (at least when > 3), deltoid-ovate to ovate, 0.8–2.9 × 0.7–1.4 mm, glabrous to strigillose or hirtellous, margin ciliate and frequently glandular. Pedicel nearly absent to 1 (to 2) mm long; bracteoles 2 (to 5), situated at pedicel apex (or sometimes 1 or more situated along pedicel). Flowers 5–9 mm long. Hypanthium glabrous. Calyx lobes hemispherical to deltoid-ovate, 0.4–1.5 × 0.9–1.6 mm, glabrous or rarely with sparse appressed tawny to orangish brown trichomes medially, margin ciliate, not glandular, apex obtuse to rounded. Corolla white, 3–5(–7) mm long, 5-lobed; tube 0.5–1 mm long; lobes oblong to obovate-oblong, adnate to filament tube for 1.5–4 mm proximally, glabrous, margin erose. Stamens in ± 3 series; filaments connate proximally for 2–3.5(–5) mm, distinct portions 1.5–3 mm long. Disk trichomes white, longer trichomes 0.3–0.4 mm long; style 3.5–5(–6) mm long, glabrous. Fruit ellipsoid to ellipsoid-cylindrical, 7–10 × 4–6 mm, glabrous; calyx lobes incurved or appressed to disk, disk apex not or partly visible, exceeded by calyx.

Vernacular names—Azulejo de Pinar (León and Alain, 1957–1963), Azulejo de Pinares (Roig y Mesa 1988), Azulejo de Sabana (*E. L. Ekman 5955*), Guaranillo (*E. L. Ekman 5139*), Jibacoa (*M. Curbelo ex J. T. Roig 6229*).

Illustration—Figure 4.

Phenology—Flowering February, March, May–December; fruiting January, April, July–November.

Habitat and distribution—Ravines, banks of rivers, and hillsides in pine forest, savannas, thickets, low scrub forest at (200?–)350–500 m elev. Cuba, Mexico [Veracruz, Oaxaca, Chiapas], Belize, Guatemala, Nicaragua. Figure 5.

Conservation assessment—Collections have been made from more than 30 locations from western, central, and eastern Cuba and Isla de Juventad, as well as from more than 20 locations in Mexico and Central America. Therefore we categorize this species as Least Concern (LC).

Discussion—In addition to its distribution in Cuba, *Symplocos jurgensenii* occurs in Mexico, Belize, Guatemala, and Nicaragua [Kelly & Almeda 2009 (as *S. bicolor* L.O. Williams), Kelly *et al.*, in preparation; see also "Selected extralimital specimens examined" below]. All authors assessing the taxonomy of Antillean *Symplocos* have considered this to be a species distinct from others in the Antilles except Mai (1986, 2005), who reduced it to a subspecies under *S. martinicensis*. This taxon is separable from *S. martinicensis* by the long (0.7–1.1 mm) trichomes on the branchlets (versus 0.2–0.4 mm), generally narrower leaf blades (2.6–3.7 times as long as wide versus 1.8–2.8 times as long as wide) and smaller calyx lobes (0.4–1.5 mm long versus 1.3–2.1 mm long) and corollas [3–5(–7) mm long versus 6.5–12 mm long]. The long branchlet trichomes of *S. jurgensenii* is a character

shared with no other species of *S.* ser. *Symplocos* in the Antilles (rest of the species up to 0.8 mm long), and the ranges of leaf blade shape (rest of the species 1.3–2.8 times as long as wide) and corolla size (rest of species 5–13 mm long) only rarely overlap those of the other species. In our view, these character differences justify recognition of this taxon at the species level.

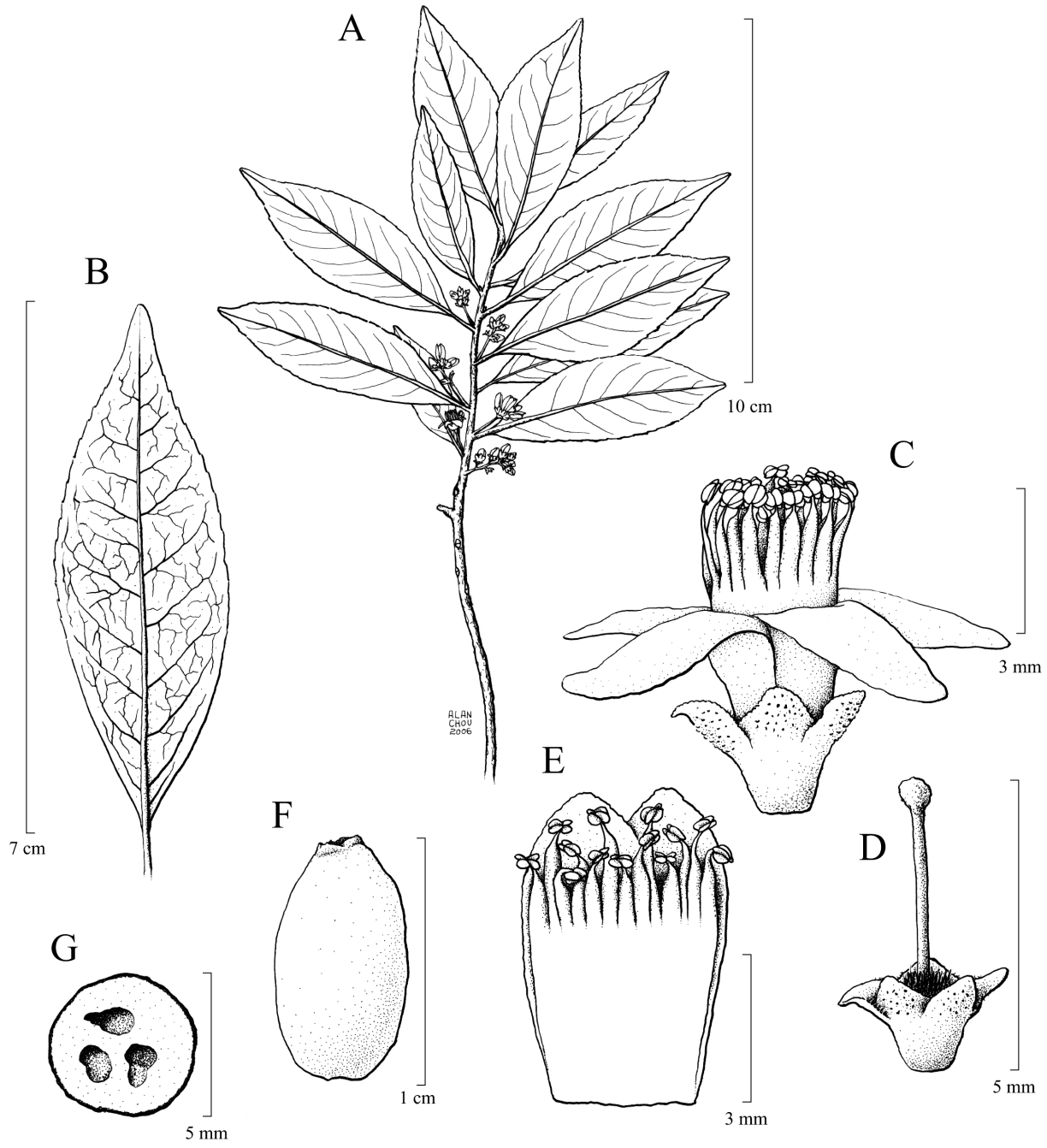

FIGURE 4. *Symplocos jurgensenii*. **A.** Flowering branch. **B.** Leaf, abaxial view. **C.** Flower. **D.** Calyx and gynoecium. **E.** Section of corolla and androecium, inner view. **F.** Drupe. **G.** Drupe in cross section. (A–B drawn from *E. L. Ekman 6126*, NY; C–E drawn from *E. L. Ekman 6126*, S; F–G drawn from *J. S. S. León 11530*, NY.)

In publishing *Symplocos strigillosa*, Urban (1893) compared this species only to *S. martinicensis*, making no reference to other similar species. Subsequent authors have treated *S. strigillosa* (species or variety) as distinct from the species in the North American/Central American mainland. In our examination of herbarium material of *Symplocos* from these regions, we could discern no substantial difference between *S. jurgensenii*, heretofore known only from the mainland, and the Cuban material referred to *S. strigillosa*, other than on-average slightly smaller

flowers and fruit in the latter. Critical similarities include the long branchlet pubescence, leaf shape (elliptic to slightly oblanceolate), leaf margin (crenulate or crenate-serrate), inflorescences (multiple-flowered), flowers (white), hypanthium and style (glabrous), disk (densely pubescent), and fruit (similar size and shape). We observed endocarps in this species that are 3- to 5-locular in the mainland material and 3- to 4-locular in the Cuban specimens, but the lack of an observed 5-locular condition in Cuba could be due merely to sampling error. The elevation ranges also overlap [0 to 1600 m on the mainland, (200?–)350–500 m in Cuba]. There may be habitat differences, because that of the mainland specimens is described as tropical rain forest (Kelly *et al.* in preparation), whereas those of Cuban specimens are described as pine forest, savanna, thicket, and low scrub forest, but no characters appear to be correlated with these differences. We thus consider the lack of distinct characters between the mainland and Cuban plants to warrant the treatment of *S. strigillosa* as a synonym of *S. jurgensenii*.

In the protologue of *Symplocos jurgensenii*, Hemsley cited a Kew collection of *C. Jürgensen 746*. Kew had two sheets of this collection but both of these have been lost and are preserved only as photographs (K!, NY!). We located two duplicates of *C. Jürgensen 746*, one at BM, the other at G (two sheets each), and the name is lectotypified with the best specimen among the four specimens, with several branches and many flowers.

The specimens aggregated under *C. Wright 2932* as type material of *Symplocos strigillosa* were gathered on five different days (Howard 1988). Two specimens of *C. Wright 2932* occur at GOET, one with the Retiro locality indicated with a date of 13 July, the other without locality or date. The annotation label of D. H. Mai on the Retiro specimen states "isotype," whereas that on the specimen without locality lacks any reference to type status. Because only " GOET" was cited in the lectotypification of *S. strigillosa*, the lectotype specimen must be that from the Retiro locality even though Mai's annotation label identifies the specimen as an isotype.

One of the S specimens of *Symplocos strigillosa* collected by C. Wright has a collection number of *3932*. This is an apparent transcription error of *2932*, because *C. Wright 3932* is listed as the fern genus *Alsophila* in Howard (1988).

See also comments under *Symplocos cubensis*, *S. ovalis*, and *S. salicifolia*.

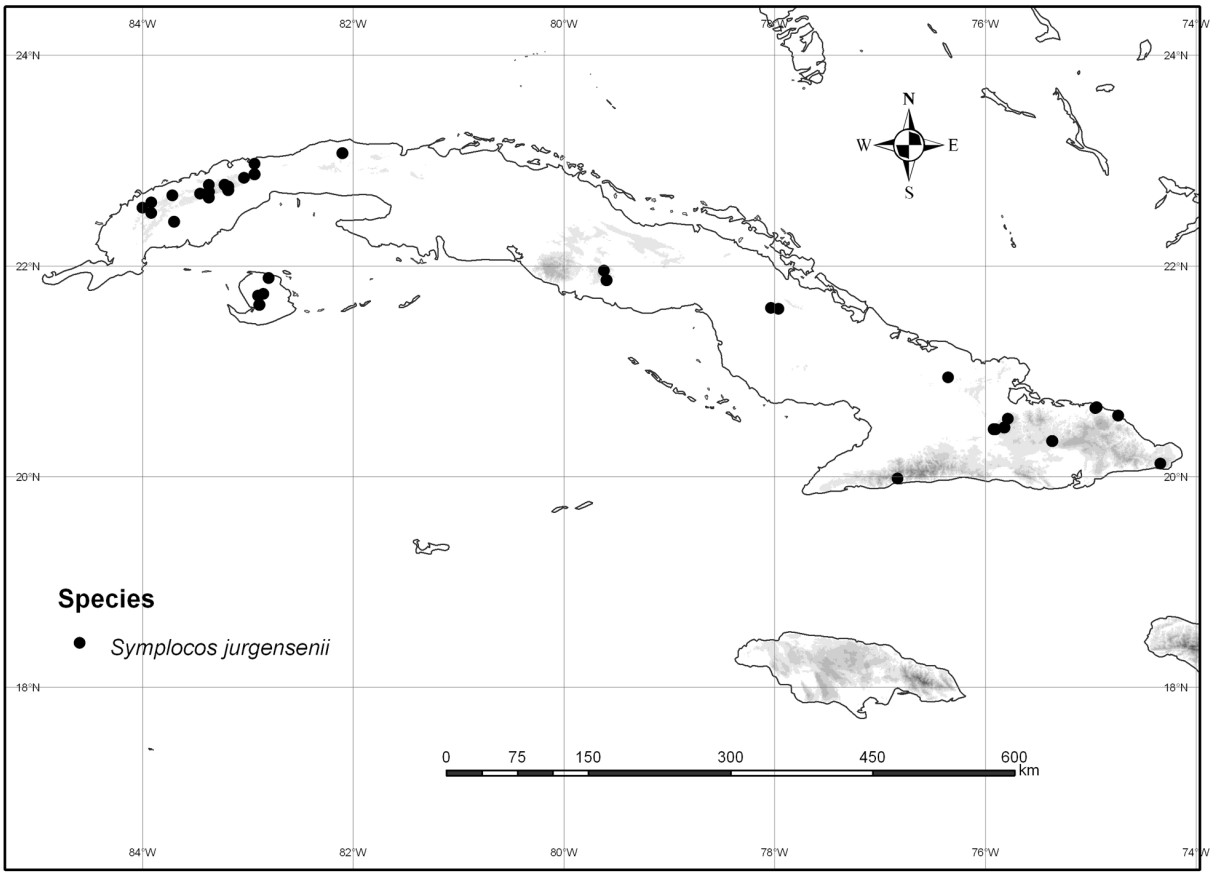

FIGURE 5. Geographic distribution of *Symplocos jurgensenii* in Cuba.

***Additional specimens examined*—CUBA.** Province undetermined: Palmanto de Canto, 2 June 1932, *Curbelo*

ex Roig 6229 (NY!); Prov. Oriente, Corojo toward Pinar del Jigue, *ca.* 500 m, 29 March 1915, *Ekman 5139* (S!; municipality of Guisa, according to Greuter & Rodriguez 2011); Loma del Tibisial, 1–11 August 1916, *León & Téteau 6667* (NY!). **Artemisa:** Mpio. Candelaria, Soroa, Finca Esperanza, *ca.* 8 km N of Soroa, [22°50'N, 83°02'W], 25 November 1977, *Bässler & Meyer HFC 36207* (B [image 10 0408104]!); Mpio. Candelaria, Sierra del Rosario, Loma Pelada de Cayajabos (Loma del Mulo), 400 m, [22°52'N, 82°56'W], 16 April 1983, *Bisse et al. HFC 49032* (B [10 0415577]!); Mpio. Candelaria, Sierra del Rosario, Las Terrazas, Loma Pelada de Cayajabos, 300–400 m, [22°52'N, 82°56'W], 18 March 1984, *Bisse et al. HFC 51923* (B [10 0377530]!); El Retiro, Rangel, Río Taco-Taco, [22°46'N, 83°13'W], 18 December 1917, *Fortún 6794* (HAC!); Rangel, Sierra del Rosario, 500 m, [22°45'N, 83°11'W], 8–14 August 1926, *León 12673* (GH!, US!), August 1926, *León 12714* (GH!, NY!, US!); Rangel, Rosario Mtns., Tres Marías, 500 m, [22°43'N, 83°11'W], April 1942, *Liogier 56* (GH!, HAC!, US!); Rangel, Arroya de la Plata [Río La Plata], [22°58'N, 82°56'W], 23–24 December 1951, *Liogier & Killip 2020* (US!); source of Río Taco-Taco, Sierra de Los Organos, 400–500 m, [22°46'N, 83°13'W], 18 November 1941, *Morton 4358* (US!); Sierra del Rosario, Las Peladas, [22°52'N, 82°56'W], 18 June 1994, *Ståhl et al. 1314* (S!); Rangel, 10 July 1863, *Wright 2932 p.p.* (GH!). **Camagüey:** Mpio. Camagüey, Loma de San Felipe [Lomas de San Felipe] (ca. 10 km S of Las Veguitas [La Veguita], 170 m, [21°35'38"N, 77°57'42"W], 24 April 1984, *Arias et al. HFC 53725* (B [image 10 0415576]!); Mpio. Florida, Florida, Caobilla, NE of Embalse Caonao near Vacabueyal [Bacabueyal], 100 m, [21°36'N, 78°02'W], 28 April 1984, *Arias et al. HFC 54208* (B [image 10 0409485]!). **Cienfuegos:** Banao Mtns., Gavilancito, 31 July 1918, *León & Roca 8017* (HAC!, NY!). **Guantánamo:** Sabana Miranda, near Bayate, [20°20'07"N, 75°21'47"W], 11 July 1914, *Ekman 1944* (S!); Bayate, Sabana Miranda, [20°20'07"N, 75°21'47"W], 1 June 1915, *Ekman 5855* (NY!, S!), 16 June 1915, *Ekman 6068* (S), 25 June 1915, *Ekman 6126* (F!, NY!, S!, US!); Mpio. Maisí, La Tinta, Alto de Lebeyé [Lebeche], [20°07'17"N, 74°20'19"W], 1 May 1986, *E. Genes et al. HFC 59581* (B [image 10 0415531]!). **Holguín:** Mpio. Mayarí, Pinares de Mayarí, Pinar Redondo, along the rd from La Chivera to Río Piloto, 400 m, [20°33'N, 75°47'W], 25 May 1983, *Arias et al. HFC 50194* (B [image 10 0415562]!); Cuevas de Purnio, [20°56'33"N, 76°21'05"W], 5 and 6 November 1971, *Bisse et al. 20764* (B [images 10 0392725 and 10 0389828]!, JE!); Sierra de Nipe near Río Piloto, [20°28'N, 75°49'W], 25 August 1914, *Ekman 2598* (S)!; Sierra de Nipe, Río Jimbambay, [20°27'N, 75°54'W], 23 February 1915, *Ekman 4712* (NY!, S!); Sierra de Nipe, Río Piloto, *ca.* 350 m, [20°28'N, 75°49'W], 16 December 1915, *Ekman 6692* (F!, S!, US!), 7–9 September 1919, *Ekman 9674* (NY, S); Sierra de Nipe, Río Piloto, [20°28'N, 75°49'W], 4 October 1919, *Ekman 9826* (S!); Moa region, [20°39'25" N, 74°56'25"W], 21–22 July 1947, *León & Téteau 23236* (HAC!, NY!); Moa, Baracoa, [20°39'N, 74°57'16"W], July 1947, *León & Téteau 23360* (US!); Baracoa, Cañete, [20°34'48"N, 74°44'14"W], 10 September 1917, *Roig y Mesa 78* (NY!), 2 September 1917, *Roig y Mesa 6602* (HAC!). **Isla de la Juventad:** 2 km W of Cerro [de] Mal Pais, [21°44'N, 82°51'W], 3 March 1967, *Bisse 1663* (JE!); unspecified, May, *Blain 157* (F!); San Pedro and vicinity, [21°37'53"N, 82°53'23"W], 12 February–March 22 1916, *Britton et al. 15805* (F!, GH!, MO!, NY!, S!, US!); Nueva Gerona, [21°53'N, 82°48'W], February 1904, *Curtiss s.n.* (NY!), 1 May 1904, *Curtiss s.n.* (NY!); Lomas de Cañada [Loma la Cañada], [21°43'N, 82°54'W], 7 November 1920, *Ekman 12130* (S!). **La Habana:** Loma Pelada de Cayajabos [Las Peladas], 200–400 m, [22°52'N, 82°56'W], September? 1972, *Bisse 23408* (B [image 10 0392981]!, JE!); Guanabo, Campo Florido, Loma de la Pita, W of Guanaja, [23°04'N, 82°06'W], 30 August 1975, *Bisse & Meyers 28031* (JE!); Loma Pelada de Buenavista de Cayajabos [Las Peladas], Sierra del Rosario, [22°52'N, 82°56'W], 15 November 1978, *Borhidi 15138* (HAC!); Loma de la Pita, San Miguel de Casanova, [23°04'N, 82°06'W], 12 October 1923, *León 11530* (GH!, NY!). **Pinar del Río:** Mpio. Matahambre, Sumidero, Loma Cayo Malo, 400 m, [22°30'N, 83°55'W], 12 December 1978, *Bisse et al. HFC 38572* (B [image 10 0358597]!); Mpio. Minas de Matahambre, Santa Lucía, 4 km S of Camp Malas Aguas, [22°36'N, 83°55'W], 28 March 1982, *Bisse et al. HFC 46532* (B [image 10 0415532]!); Mpio. Minas de Matahambre, W of Minas de Matahambre along the old rd to Macurije, 100–200 m, [22°33'N, 84°0'W], 30 March 1982, *Bisse et al. HFC 46656* (B [image 10 0378082]!); San Diego de Los Baños, [22°42'N, 83°22'W], 31 August–3 September 1910, *Britton et al. 6747* (F!, NY!, US!); Baños de San Vicente, [22°40'N, 83°43'W], 12–16 September 1910, *Britton et al. 7484* (NY!, US!); vicinity of Pinar del Río, [22°25'03"N, 83°41'53"W], 3 March 1911, *Britton et al. 9715* (K!, NY!, US!); Mpio. Los Palacios, Sierra de Güira, Baño de los Bermejales, near Camp Galalón, [22°41'N, 83°27'W], 18 January 1980, *Géigel & Gutiérrez HFC 41620* (B [image 10 03 64635]!); N of San Diego de Los Baños, [22°42'N, 83°22'W], 18 August 1914, *León & Lagorce 4373* (GH!, NY!, US!); Valle de las Río Yeguas, San Diego de Los Baños, [22°38'48"N, 83°22'11"W], 29 August 1914, *León 4616* (NY!); Río de las Yeguas, San Diego de los Baños, [22°38'48"N, 83°22'11"W], 3 July

1915, *León 5139* (NY!). **Sancti Spiritus:** Loma[s] de Banao, [21°51'42"N, 79°35'35"W], November 1967, *Bisse & Rojas 4748* (JE!); Mpio. Fomento, Alturas de Sancti Spíritus, Gavilanes, Caballete de Casas, 400–700 m, [21°57'12"N, 79°37'03"W], 8 November 1979, *Bisse et al. HFC 40984* (B [image 10 0362528]!); Lomas de Banao, [21°51'42"N, 79°35'35"W], 9 January 1920, *Luna 14* (NY!), January 1920, *Luna 132* (HAC!, NY!). **Santiago de Cuba:** Bayate, Cayo del Rey, [20°27'N, 75°55'W], 21 February 1915, *Ekman 4678* (F!, S!), *Ekman 4695* (S!, US!); southern Oriente and Pico Turquino, Sierra Maestra, July 1922, *León 11015* (NY [2]!).

Selected extralimital specimens examined—**MEXICO. Chiapas:** *E. Martínez S. 16434* (CAS!). **Oaxaca:** *H. Hernández G. 582* (CAS!). **Veracruz.** *C. D. Mill s.n.* (US!). **BELIZE.** *P. Gentle 3486* (CAS!). **GUATEMALA. Izabal:** *P. C. Standley 73114* (F!). **Petén:** *M. Aguilar H. 217* (F!). **La Libertad:** *C. L. Lundell 3571* (F!). **Alta Verapaz:** *E. Contreras 4536* (CAS!). **NICARAGUA. Zelaya:** *P. Moreno 24640* (CAS!).

3. *Symplocos latifolia* Krug & Urb. in Urban (1893: 334). Lectotype (designated here):—PUERTO RICO. Adjuntas: Mount [Cerro] Bajaya, 30 April 1886, *P. E. E. Sintenis 4270* (S!, isolectotypes BM on-line image 952624!, LD [2: on-line images 1220123, 1244490]!, GH!, GOET!, K!, M on-line image 0152539!, MO!, US [2]!; photograph of K at A!).

= *Symplocos polyantha* Krug & Urb. in Urban (1893: 333). Lectotype (designated here):—PUERTO RICO. Sierra de Luquillo, El Sobrante, 700 m, May 1883, *H. F. A. Eggers 1211* (K!, isolectotypes C [3]!, M on-line image 152512!, NY!, US!; photograph of K at A!).

Tree to 10 m tall. Old branchlets irregularly ridged or angled, *ca.* 1.5–3 mm wide; young branchlets rarely glabrous or with sparse but evenly distributed appressed white trichomes 0.1–0.2 mm long, trichomes of roughly equivalent length; pseudo-terminal vegetative buds strigillose or pilosulose-sericeous. Petiole 6–14 mm long; leaf blade broadly elliptic to slightly obovate, 8.0–14.6 × 3.4–6.5 cm, 1.8–2.4 times as long as wide, chartaceous, abaxial surface generally olive green, with sparse appressed to erect white to tawny trichomes proximally at least along midvein or rarely glabrous, longer trichomes 0.3–0.6 mm long, adaxial surface dark greenish brown, glabrous, base acute to attenuate, margin flat, irregularly serrulate-crenulate to nearly entire (then faintly undulate), with 0 to 18 chartaceous teeth per side and with glands rarely persistent, apex abruptly acuminate. Inflorescences racemose, usually borne among leaves along branchlet, 1.2–2.8 cm long, 1- to 7-flowered (usually at least some inflorescences > 3-flowered), peduncle 1–7 mm long, rachis strigillose. Bract and bracteoles not all tightly overlapping (at least when >3), deltoid-ovate to ovate, 1.0–1.8 × 0.8–1.5 mm, strigose, margin ciliate and often glandular. Pedicel nearly absent to 1 mm long; bracteoles 2 (or 3), situated at pedicel apex. Flowers 8.5–12 mm long. Hypanthium glabrous. Calyx lobes hemispherical to deltoid-ovate, 1.2–2.1 × 1.4–2.3 mm, glabrous, margin ciliate, not glandular, apex obtuse to rounded. Corolla white, 6.5–12 mm long, 5-lobed; tube 1–3 mm long; lobes oblong-obovate, adnate to filament tube for 4–6 mm proximally, glabrous, margin erose. Stamens in ± 3 series; filaments connate proximally for 5–8 mm, distinct portions 2–4 mm long. Disk trichomes white (disk rarely nearly glabrous), longer trichomes 0.2–0.4 mm long; style 6–8 mm long, glabrous to pilosulose proximally. Fruit blue, purple, or black, ellipsoid-cylindrical, 11–14 × 3–8 mm, glabrous; calyx lobes erect to slightly incurved; disk apex not visible to partly or completely visible, shorter than or exceeding calyx.

Vernacular names—Aceituna (Urban 1893), Aceituna Blanca (*F. H. Sargent 363*), Aceituna Cimarrona (Stahl 1937), Cafeillo (*F. H. Sargent 363*), Candlewood, Cuero de Sapo (Liogier 1995), Palo de Cabra (*H. F. A. Eggers 1211*).

Illustration—Figure 6.

Images—Figure 2B, 2C.

Phenology—Flowering January–August, October, November; fruiting March, June–September.

Habitat and distribution—Dry limestone forest, coastal scrub forest, thickets, wet premontane forest, pine plantations at 0–700 (–820?) m elev. Puerto Rico. Figure 7.

Conservation assessment—*Symplocos latifolia* is a commonly collected low-elevation tree endemic to Puerto Rico. It is widely distributed across much of the island, with more than 30 locations known to us. Therefore we categorize this species as Least Concern (LC).

Discussion—Britton & Wilson (1925) and Little & Wadsworth (1964) treated *Symplocos latifolia* as conspecific with *S. martinicensis*. In addition to the characters in the key presented here, several other more minor

or subtle differences serve to delimit two species. In *S. latifolia*, the leaf blade tends to be more broadly elliptic and with less teeth (0 to 18 versus 12 to 30 per side), the bracts and bracteoles are often glandular (versus not glandular except for an often gland-tipped apex), the calyx lobes tend to be more strongly rounded apically (versus depressed-rounded), and the corolla tends to be larger (6.5–12 versus 5–9 mm long).

Sterile specimens of *Symplocos latifolia* can be distinguished from the other two species of *Symplocos* in Puerto Rico (*S. lanata* and *S. micrantha*, both of *S.* ser. *Urbaniocharis*) by branchlets with sparse but evenly distributed appressed white trichomes 0.1–0.2 mm long or rarely glabrous (versus appressed or ascending ferrugineous trichomes 0.3–1.3 mm long) and chartaceous (versus thick-chartaceous to subcoriaceous) leaves with a flat margin (versus revolute at least proximally). In addition, the species are modally distinct in elevation and habitat, with *S. latifolia* occurring between 0 and 720 or perhaps 820 m in dry limestone, coastal, and wet premontane forests, and *S. lanata* and *S. micrantha* occurring between 500 and 1338 m in wet montane forests, cloud forests, and dense montane scrub.

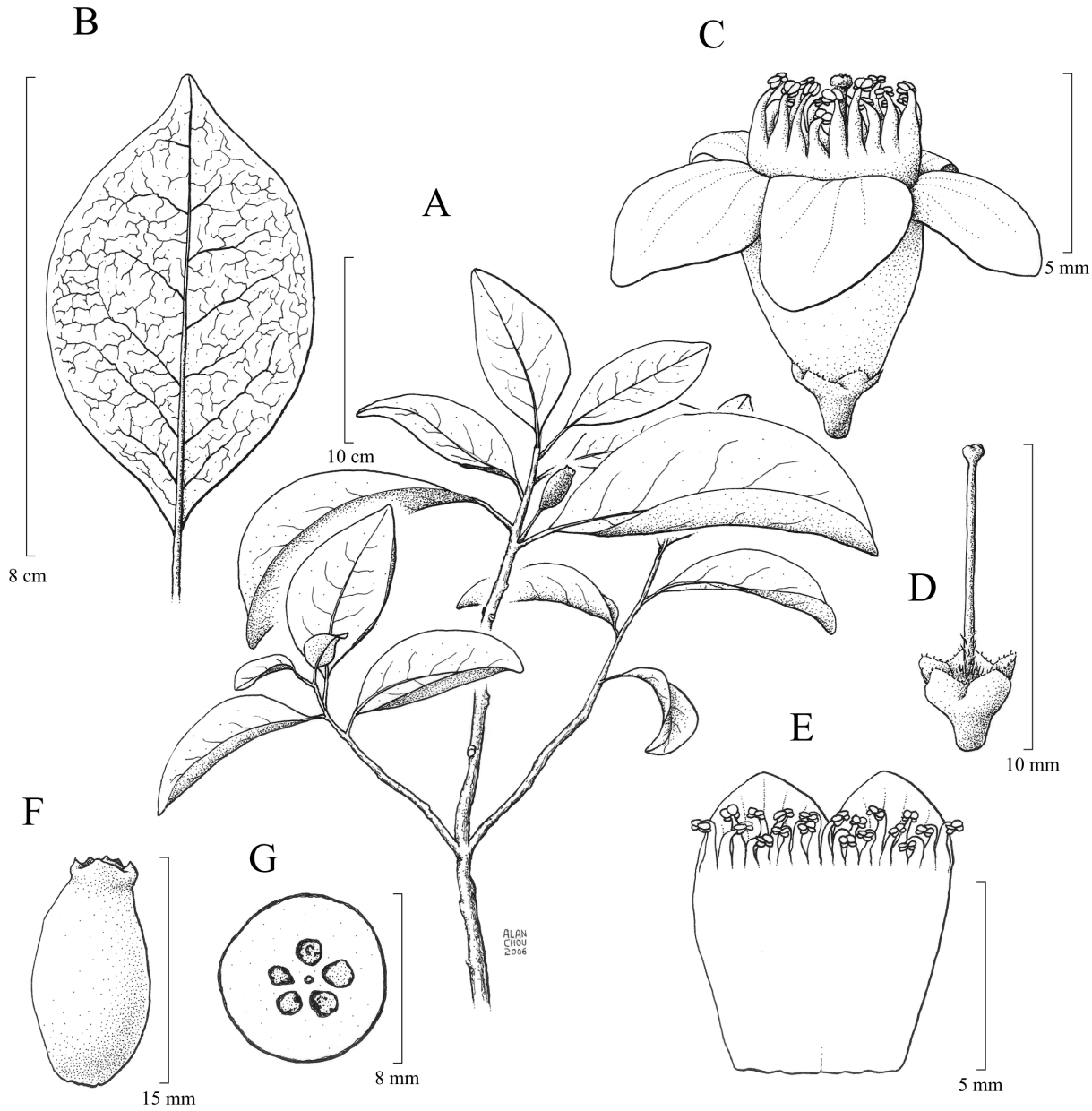

FIGURE 6. *Symplocos latifolia*. **A.** Fruiting branch. **B.** Leaf, abaxial view. **C.** Flower. **D.** Calyx and gynoecium. **E.** Section of corolla and androecium, inner view. **F.** Drupe. **G.** Drupe in cross section. (A drawn from *B. M. Boom & C. Rivera 6788*, NY; B–E drawn from *A. H. & P. Liogier 30704*, NY; F–G drawn from *A. H. Liogier 9502*, NY.)

Nine collections of P. E. E. Sintenis were cited in the protologue of *Symplocos latifolia*. We selected *Sintenis 4270* as the lectotype of this name because it has the most widespread herbarium distribution. We specifically chose the S specimen because it has the best flowering material.

Two collections of H. F. A. Eggers (*983* and *1211*) are cited in the protologue of *Symplocos polyantha*. The B specimens of these collections presumably have been destroyed. We selected *Eggers 1211* as the lectotype of this name because it has the most widespread herbarium distribution. We specifically chose the K specimen because it has the best flowering material.

Additional specimens examined—**PUERTO RICO.** Municipality undetermined: Sierra Luquillo, El Sobrante, 700 m, May 1883, *Eggers 983* (BR [on-line image, 542031]!, JE!, W!); Moca, 175 m, 2 May 1938, *Sargent 363* (US!). **Aguas Buenas:** Aguas Buenas (Forest Service), [18°15'32"N, 66°06'12"W], March 1995, *Liogier 37409* (UPR!). **Aibonito:** Aibonito, towards La Lima, [18°08'31"N, 66°15'59"W], 28 October 1885, *Sintenis 2094* (C [2]!, GOET!, K!, US!, photograph of A at K!); Aybonito [Aibonito], towards Barrio del Pasto, [18°08'31"N, 66°15'59"W], 25 November 1885, *Sintenis 2847* (MO!, US!). **Bayamón:** near Pueblo Viejo [San Juan], [18°24'02"N, 66°09'22"W], 11 March 1924, *Britton & Britton 8095* (GH!, NY!, UPR!, US!); unspecified, [18°24'02"N, 66°09'22"W], 29 June 1916, *Stevenson 5535* (UPR!, US!). **Ciales:** near Adjuntas, Cerro Cedro, [18°15'38"N, 66°28'18"W], 2 May 1886, *Sintenis s.n.* (S [2]!), 21 September 1886, *Sintenis 4231* (BM [on-line image, 952625]!, F!, NY!, US!, W!). **Gurabo:** Barrio Mamey, wooded hill near Río de Gurabo, 75–120 m, [18°14'40"N, 65°57'24"W], 13 November 1994, *Axelrod & Perez 8496* (UPRRP!). **Humacao:** Luquillo Mtns., Caribbean National Forest, La Perla Tract, Luquillo Unit, 22 August 1940, *Holdridge 205* (A!, GH!, NY!, UPR!, US [2]!). **Isabela:** Reserva Forestal Bosque Guajataca, La Caballa Trail, 18°24'08" N, 66°38[58]'33"W, 16 July 2001, *Acevedo-Rodriguez & Siaca 11723* (US!); Bosque Insular de Guajataca [Bosque Estatal de Guajataca], 900–1000 ft, [18°25'0"N, 66°58'30"W], 28 July 1950, *Little 13506* (A!, F!, NY!, UPR!, US!). **Lares:** near Lares, [18°16'20"N, 66°52'10"W], June 1887, *Sintenis s.n.* (GH!). **Las Marías:** Las Marías, [18°17'43"N, 67°08'48"W], 21 January 1887, *Sintenis 5983* (C!, F [2]!, JE!, MO!, NY!, PH [on-line image, 1079576]!, US!, W!). **Luquillo:** Barrio Sabana, Route 988, *ca.* 1 km E of jct. with Route 983, *ca.* 125 m, 18°18.9'N, 65°44.6'W, 25 April 2003, *Axelrod et al. 12549* (CAS!); Fajardo to Colonia San Miguel, [18°21'32"N, 65°42'10"W], 2–6 March 1913, *Britton & Shafer 1614* (F!, NY!, US!); Sabana, [18°19'36"N, 65°43'41"W], 4 October 1938, *Gregory 350* (UPR!); E part of Luquillo Mtns., Pitahaya, 400 m, [18°20'39"N, 65°43'01"W], 7 April 1983, *Liogier & Liogier 34147* (MO!, NY!, UPR!); Route 191, Km 5.4, near El Yunque, *ca.* 10 [100?] m, [18°21'38"N, 65°46'10"W], 3 September 1988, *Mercado 44* (UPRRP!); along Route 988, 1 km E of the intersection with Route 983, 160 m, [18°19'20"N, 65°44'15"W], 16 June 1991, *Miller & Sherman 6390* (MO!, UPRRP!); S of Luquillo on Route 988 between Route 9988 and Route 983, 100–200 m, [18°19'23"N, 65°43'08"W], 17 October 1987, *Taylor 7717* (NY!, UPRRP!); Route 983 in the Caribbean National Forest, [18°19'36"N, 65°43'48"W], 24 April 1988, *Taylor & Druitt 8013* (NY!, UPRRP!); El Verde field station, Route 186 at Río Sonadora, 350 m, [18°20'27"N, 65°49'34"W], 22 April 1992, *Taylor et al. 10899* (MO!, UPRRP!). **Manatí:** Laguna Tortuguero, track at E end of mogotes (haystack hills) to S shore of lake, 2–5 m, [18°27'29"N, 66°26'36"W], 24 September 1992, *Axelrod & Sastre 5243* (MO!, NY!, UPRRP!, US!); Barrio Nuevas Tierra Saliente, S-central edge of Laguna Tortuguero, just E of mogotes (limestone hills), *ca.* 3 m, 18°27.49'N, 66°26.64'W, 26 April 2003, *Axelrod & Fritsch 12564* (CAS!); [Laguna] Tortuguero area, 0 m, [18°27'29"N, 66°26'36"W], 25 March 1982, *Liogier & Liogier 32928* (MO!, NY!, UPR!); near Manatí, mtns. towards Coto, [18°27'09"N, 66°27'24"W], 12 April 1887, *Sintenis 6686* (US!). **Mayagüez:** unspecified, 16 May 1913, *Hess 1994* (NY!); Las Mesas, 300 m, [18°11'N, 67°06'W], 18 July 1962, *Liogier 9502* (NY!); Las Mesas, 400 m, [18°10'53"N, 67°05'59"W], 16 June 1980, *Liogier & Liogier 30704* (NY [2]!, UPR!), 12 August 1980, *Liogier & Liogier 30921* (NY!, UPR!, US!); Cerro Las Mesas, 4 km SE of the intersection of Liceo street and Hwy 349, near the Centro Recreativo de Oportunidades Educativas de Mayagüez "CROEM", *ca.* 300 m, 18°10'06"N, 67°05'40"W, 2 September 1987, *Mejia & Santiago 2126* (UPR!, UPRRP!). **Naguabo:** Caribbean National Forest, near Catalina Field Office, 200 m, 18°17'N, 65°47'W, 31 July 1986, *Boom & Rivera 6788* (GH!, MO!, NY!). **Río Grande:** El Verde Research Station, Route 186 at the Río Sonadora, 350 m, 18°20'N, 65°50'W, 3 June 1994, *Taylor & Bithorn 11849* (MO!). **San Germán:** Arroyo de Banerley [spelling uncertain], Casa María, [18°05'22"N, 67°02'43"W], 28 February 1933, *Britton & Britton 10096* (NY!); Maricao Insular Forest [Bosque Estatal de Maricao], [18°07'33"N, 66°58'41"W], 26 July 1935, *Gerhart 614* (NY!, UPR!); unspecified, 6 September 1947, *Gregory 630* (UPR [2]!); Bosque Insular de Maricao [Bosque Estatal de Maricao], near Buena Vista, 2000–2700 ft, [18°07'33"N, 66°58'41"W], 12 July 1950, *Little 13353* (A!, F!, NY!, UPR!, US!). **San Juan:**

Río Piedras, [18°23'51"N, 66°03'0"W], 2 June 1912, *Cowgill 284* (UPR!); 2 mi E of Río Piedras, [18°23'58"N, 66°03'01"W], 30 March 1899, *Heller & Heller 962* (F!, K!, NY!, US!); near Río Piedras, [18°23'58"N, 66°03'01"W], 7 July 1935, *Holdridge 370* (UPR!); Río Piedras, [18°23'51"N, 66°03'0"W], 2 June 1912, *Johnston & Cowgill 302* (NY!), March 1913, *Lagorce s.n.* (NY [2]!), 16 May 1914, *Stevenson 541* (US!), 12 July 1916, *Stevenson 5623* (UPR!); Polytechnic Institute [University] of Puerto Rico, [18°25'21"N, 66°03'21"W], June 1938, *Velez 1333* (US!). **Trujillo Alto:** near Trujillo Alto, [18°21'24"N, 66°0'28"W], 6 March 1931, *Britton & Britton 9703* (NY!, UPR!); Saint Just N District, [18°22'05"N, 66°0'43"W], *Gregory 507* (UPR!). **Utuado:** near Utuado at Cayuco, [18°17'35"N, 66°44'23"W], 9 March 1887, *Sintenis 6376* (GH!). **Vega Alta:** Barrio Sabana, NE of Regadera, 5–10 m, [18°27'16"N, 66°19'36"W], 16 February 1987, *Proctor 43048* (SJ!, US!). **Vega Baja:** Tortuguero Nature Preserve, S of lagoon, *ca.* 0 m, [18°27'26"N, 66°26'07"W], 20 April 1986, *Axelrod & Ackerman 548* (UPRRP!); Laguna Tortuguero, E of Route 687, [18°27'32"N, 66°25'16"W], 17 January 1968, *Howard & Nevling 16960* (US!); Barrio Algarroba, S of Laguna Tortuguero, 0 m, [18°27'26"N, 66°26'07"W], 3 April 1997, *Proctor 51199* (SJ [2]!); [Laguna] Tortuguero, [18°27'26"N, 66°26'07"W], 12 [17?] May 1960, *Woodbury s.n.* (NY!, UPR!). **Yabucoa:** Sierra de Yabucoa, [18°01'45"N, 65°52'41"W], 4 September 1885, *Sintenis 2555* (JE!, M [on-line image, 152540]!, NY!, S!).

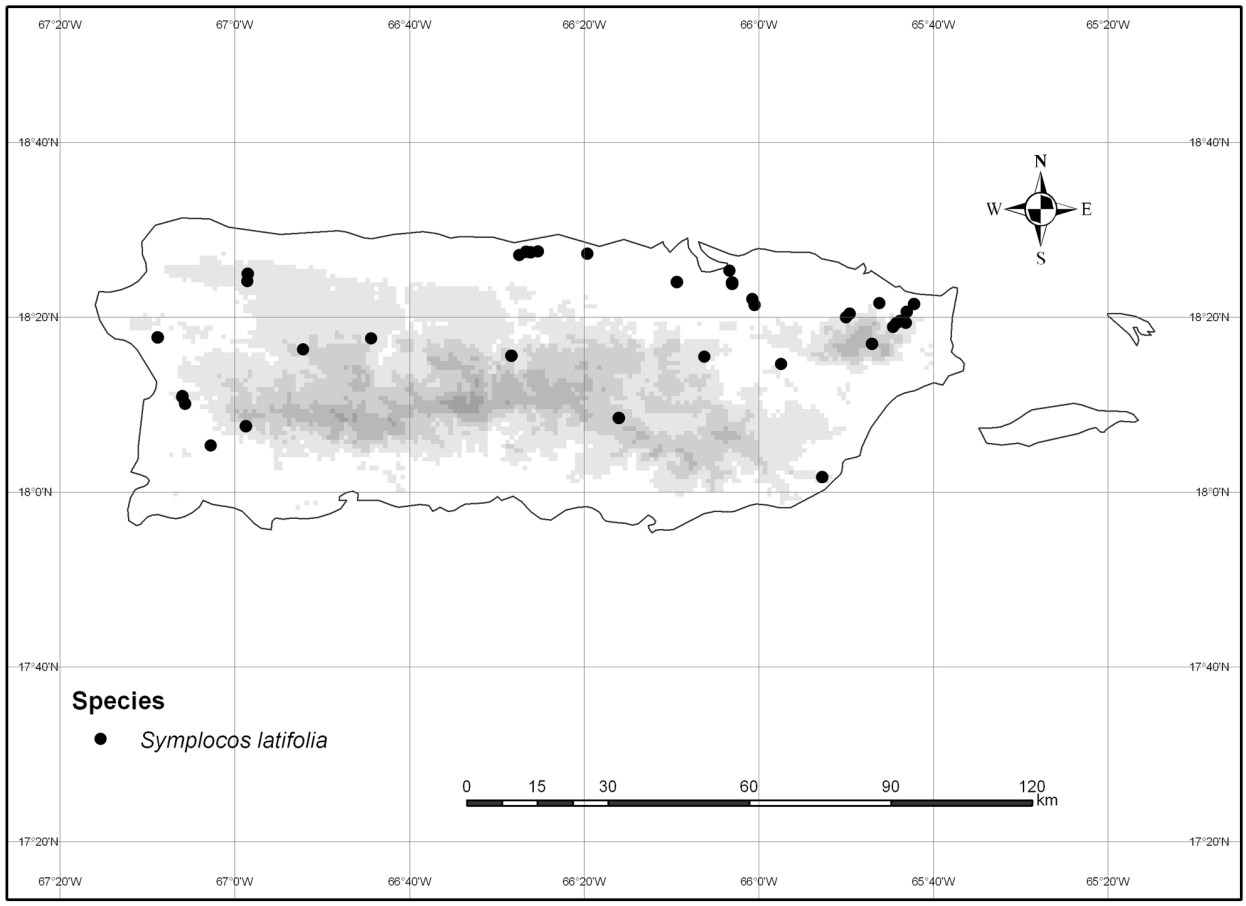

FIGURE 7. Geographic distribution of *Symplocos latifolia*, endemic to Puerto Rico.

4. *Symplocos martinicensis* Jacquin (1760: 24). Lectotype (designated by Howard 1989):—Select. stirp. amer. hist. 166, t. 175, fig. 68. 1763 (Enum. syst. pl., t. 175, fig. 68. 1760).

= *Symplocos apiculata* Brand (1901: 85) ≡ *Symplocos martinicensis* var. *apiculata* (Brand) Stehlé (1945: 266). Lectotype (designated here):—LESSER ANTILLES. Guadeloupe, Basse-Terre: Camp Jacob-Matouba, Bagatelle, 450–900 m, [16°01'42"N, 61°41'39"W], 1892, *A. Duss 2236* (NY [99959]!, isolectotypes A!, F [2]!, NY [2]!, US [2]!).

Shrub or tree to 27 m tall. Old branchlets irregularly ridged or angled, *ca.* 1.5–3 mm wide; young branchlets with sparse to dense appressed or ascending white trichomes 0.2–0.4 mm long, trichomes of roughly equivalent length;

pseudo-terminal vegetative buds pilosulose-sericeous. Petiole 7–15 mm long; leaf blade elliptic to slightly obovate, 6.7–14.0 × 3.0–6.5 cm, 1.8–2.8 times as long as wide, chartaceous, abaxial surface generally olive green, with appressed to ascending white trichomes proximally at least on midvein, longer trichomes 0.2–0.5 mm long, adaxial surface dark greenish brown, glabrous, base acute to attenuate, margin flat, ± regularly serrate-crenate, with 12 to 30 chartaceous teeth per side and with glands rarely persistent, apex abruptly acuminate. Inflorescences racemose, usually borne among leaves along branchlet, 1–2.4 cm long, 1- to 7-flowered (usually at least some inflorescences > 3-flowered), peduncle 1–12 mm long, rachis strigillose or pilosulose. Bract and bracteoles not all tightly overlapping (at least when > 3), deltoid-ovate to ovate, 1.2–2.0 × 0.5–1.2 mm, strigose, margin ciliate and not glandular except for often gland-tipped apex. Pedicel nearly absent to 1 (to 4) mm long; bracteoles 2 or 3, situated at pedicel apex. Flowers 7–11 mm long. Hypanthium glabrous. Calyx lobes hemispherical to deltoid-ovate, 0.9–1.2 ´ 1.0–1.6 mm, glabrous or with moderately dense appressed white trichomes, margin ciliate, not glandular, apex obtuse to rounded. Corolla white, 5–9 mm long, 5-lobed; tube 1–4 mm long; lobes oblong-ovate to oblong-obovate, adnate to filament tube for 3–7 mm proximally, glabrous, margin erose. Stamens in ± 3 series; filaments connate proximally for 4.5–7 mm, distinct portions 2–3.5 mm long. Disk trichomes white (disk rarely glabrous), longer trichomes 0.2–0.3 mm long; style 5–8 mm long, glabrous or sparsely pilosulose proximally. Fruit blue, purple, or black, ellipsoid-cylindrical, 9–15 ´ (4–)5–9 mm, glabrous; calyx lobes erect; disk apex completely visible, equal to or exceeding calyx, or rarely shorter than calyx.

Vernacular names—Aceituna Blanca, Aceituna Cimarrona (Puerto Rico: Urban 1893), Bois Blanc (Grenada, *J. S. Beard 198*), Bois Bleu (Saint Lucia, *S. Barrier 4432*), Bwa Blan (Guadeloupe, Martinique: Fournet 2002), Cacarat (or Caca-Rat, Dominica, *S. R. Hill 25323*), Grenn Blé (or Gran Bwa; Guadeloupe, Martinique: Fournet 2002), Graines Bleues (Dominica, *J. S. Beard 24*; Martinique, *H. Stehlé & M. Stehlé 4598*), Kakarat (Guadeloupe, Martinique: Fournet 2002), Petits Feuilles (Guadeloupe, *H. Stehlé & R. Bena 5350*), Prino (Guadeloupe, Martinique: Fournet 2002), Pruneau (Guadeloupe,*E. P. Duchassaing de Fontbressin s.n.*), White Ash (Montserrat, *J. A. Shafer 645*), White Beech (Montserrat, *R. A. Howard 11885*), Zolive (Guadeloupe, Martinique: Fournet 2002), Z'Olive (Saint Lucia, *G. R. Proctor 21619*).

Illustration—Figure 8.

Phenology—Flowering January–December; fruiting January–December.

Habitat and distribution—Edges of woods, exposed ridges, forest slopes, swampy areas, and ravines in montane forests, lower montane forest, cloud forest, rain forest, dry-mesic forest, coastal scrub, thickets at 50–1556 m elev. Lesser Antilles (British Virgin Islands, U.S. Virgin Islands, Netherlands Antilles, Saint Kitts and Nevis, Montserrat, Guadeloupe, Dominica, Martinique, Saint Lucia, Saint Vincent and the Grenadines, Grenada), Trinidad and Tobago, northern Venezuela, Guyana, and French Guiana. Figure 9.

Conservation assessment—*Symplocos martinicensis* is the most commonly collected species of Antillean *Symplocos*, with more than 50 locations known to us among many islands of the Lesser Antilles. Although absent from the rest of the Antilles, the species also occurs on the adjacent mainland of South America. Therefore we categorize this species as Least Concern (LC).

Discussion—Despite its wide range in the Lesser Antilles, *Symplocos martinicensis* exhibits a relatively narrow range of morphological variation, less than that of, e.g., *S. cubensis* or *S. hotteana*. In most of the islands of the Lesser Antilles on which *Symplocos* species occur, it is the sole representative of the genus. The exceptions to this are Guadeloupe, Dominica, and Grenada. Both *S. guadeloupensis* and *S. urbaniana* also occur on Guadeloupe (all on Basse-Terre), and *S. guadeloupensis* also occurs on the islands of Dominica and Grenada. These other species are easily distinguishable from *S. martinicensis* by the characters in the keys.

The species also occurs in Trinidad and Tobago, northern Venezuela, Guyana, and French Guiana (Maguire & Huang 1978, Boggan *et al.* 1997, Mori & Brown 2002, Steyermark & Berry 2005; see also "Selected extralimital specimens examined" section below). Aristeguieta (1957) misapplied the name *Symplocos nitens* Bentham to specimens of *S. martinicensis* in Venezuela. Maguire & Huang (1978) consider the South American range of *S. martinicensis* to include coastal Brazil, but this appears to be a misapplication to specimens of either *S. nitens* or other Brazilian species.

Mai (1986, 2005) treated plants from Cuba and Jamaica as varieties of *Symplocos martinicensis* (subspp. *strigillosa* and *jamaicensis*, respectively, the latter based on *S. jamaicensis*). In contrast, we consider the Cuban plants sufficiently distinct to warrant recognition at the species level, and we place subsp. *jamaicensis* under *S. octopetala*, the latter being the only taxon of *Symplocos* in Jamaica in our view (see comments under *S. octopetala* and *S. jurgensenii*). See also comments under *S. latifolia* and *S. urbaniana*.

Urban (1893), who, like us, considered *Symplocos martinicensis* distinct from the Puerto Rican endemic *S. latifolia*, reported two collections of *S. martinicensis* from Puerto Rico ("Pagan in hb. Krug n. 687, Stahl n. 753"). The B specimens of these collections presumably have been destroyed and we have seen no duplicates or other collections that could otherwise substantiate the presence of *S. martinicensis* in Puerto Rico.

Two collections were cited in the protologue of *Symplocos apiculata* (*A. Duss 2236* and *N. Funck and L. J. Schlim 64*), without designation of the type. We chose *Duss 2236* as the lectotype because it has open flowers, whereas *Funck and Schlim 64*, as far as we know, has only flower buds. We specifically selected the NY-99959 specimen because it possesses the most material in both flower and fruit; the specimen at B presumably has been destroyed.

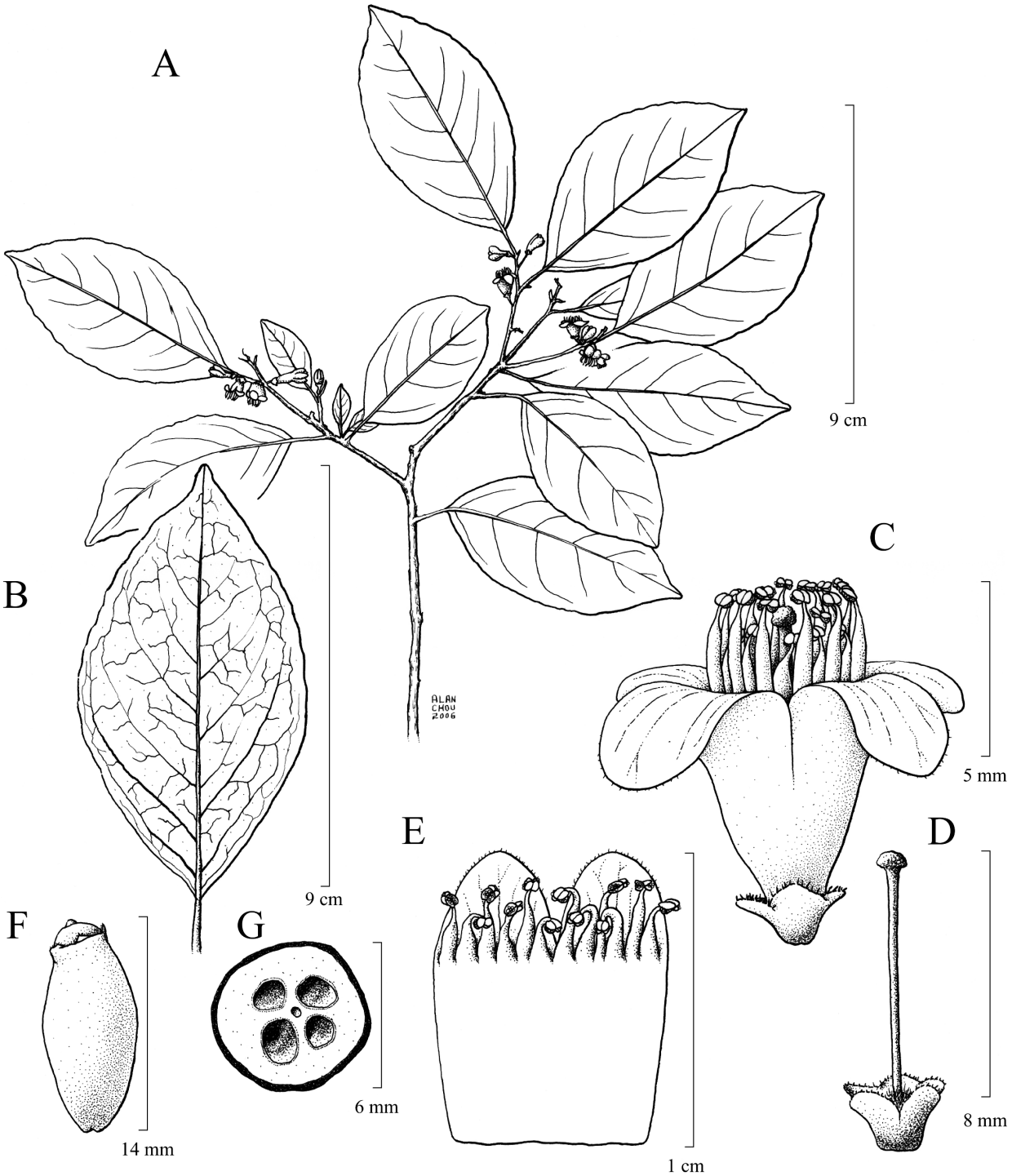

FIGURE 8. *Symplocos martinicensis*. **A.** Flowering branch. **B.** Leaf, abaxial view. **C.** Flower. **D.** Calyx and gynoecium. **E.** Section of corolla and androecium, inner view. **F.** Drupe. **G.** Drupe in cross section. (A–E drawn from *S. R. Hill 25504*, NY; F–G drawn from *J. S. Beard 242*, A.)

See also comments under *Symplocos guadeloupensis*, *S. latifolia*, and *S. urbaniana*.

Additional specimens examined—Country unspecified: West Indies, *Anderson s.n.* (NY!), *Forster s.n.* (K!), *Sieber 372* (GOET!).

BRITISH VIRGIN ISLANDS. Tortola: Sage Mtn., 375 m, [18°24'35"N, 64°39'21"W], 11 July 1965, *D'Arcy 97A* (A), *D'Arcy 97C* (MO!); Sage Mtn., 380 m, [18°24'35"N, 64°39'21"W], 6 February 1966, *D'Arcy 714* (MO!); Sage Mtn., [18°24'35"N, 64°39'21"W], 8 February 1919, *Fishlock 378* (F!, GH!, K!), 26 July 1919, *Fishlock 477* (F!, GH!, NY!, US!); Sage Mtn., 1700 ft, [18°24'35"N, 64°39'21"W], 21 July 1954, *Little 16389* (GH!, NY!, UPR!, US!); Sage Mtn. National Park, 1600 ft, [18°24'35"N, 64°39'21"W], 15 March 1972, *Little 26066* (NY!, US!); Sage Mtn., 530 m, [18°24'35"N, 64°39'21"W], 18–21 February 1913, *Shafer 1151* (F!, NY!, US!). **Virgin Gorda:** [18°29'N, 64°24'W], June 1969, *Woodbury 26066* (MO!, UPR!).

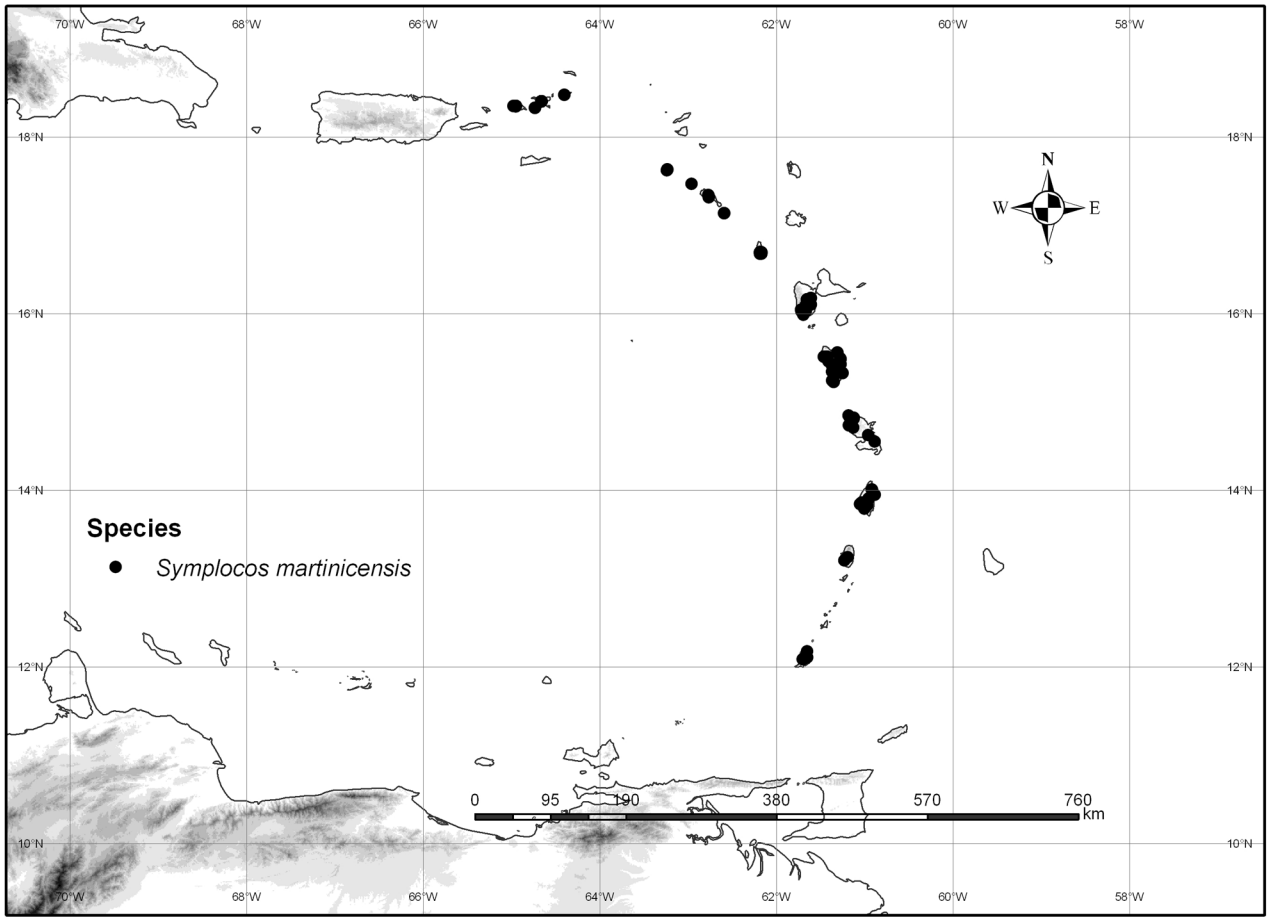

FIGURE 9. Geographic distribution of *Symplocos martinicensis* in the Lesser Antilles.

U. S. VIRGIN ISLANDS. St. John: Coral Bay Quarter, Bordeaux Mtn. Rd, 1 km from Center Line Rd, 350 m, [18°20'10"N, 64°43'42"W], 21 August 1992, *Acevedo-Rodriguez et al. 5107* (NY!, UPRRP!, US!). **St. Thomas:** Crown Mtn., 1556 ft, [18°21'26"N, 64°58'29"W], 12 February 1991, *Acevedo-Rodriguez et al. 4212* (MO!, NY!, UPR!); unspecified, December 1880, *Eggers 383* (GH!); unspecified, June 1881, *Eggers s.n.* (US!); Signal Hill, 1200 ft, [18°21'16"N, 64°56'41"W], 21 July 1876, *Eggers s.n.* (C!), 1300 ft, 28 July 1876, *Eggers s.n.* (C!, GH!), 1200 ft, 18 March 1877, *Eggers s.n.* (C!); St. Peter, 230 m, [18°21'29"N, 64°56'51"W], 21 November 1875, *Eggers s.n.* (MO!), March 1881, *Eggers 392* (CAS!, US!, GH!, K!, W!); unspecified, *Krebs s.n.* (C!).

NETHERLANDS ANTILLES. Saba: unspecified, *Boldingh 2152* (K!); Island Gut, N side of Mt. Scenery, [17°38'N, 63°14'W], 15 July 1977, *Howard 18423* (A!); trail from Hell's Gate [Hellsgate] to Sandy Cruz, [17°38'30"N, 63°14'0"W], 10–16 December 1989, *Howard & Howard 20666* (MO!, NY!); upper slopes and summit of Maskehorne Hill, 500–555 m, [17°37'50"N, 63°14'13"W], 1 April 1966, *Proctor 50646* (SJ!); mtn. near windward side, 400–475 m, 21 May 1953, *Stoffers 3343* (A!). **St. Eustatius:** unspecified, [17°28'34"N, 62°57'36"W], year 1906, *Boldingh 474* (NY!).

SAINT KITTS AND NEVIS. Unspecified, *Eggers 392b* (W!). **Nevis:** Nevis Peak, S slope, 300–600 m, [17°08'43"N, 62°35'12"W], 11 April 1956, *Smith 10500* (A!, NY!, S!, US!).

Saint Kitts: Camps Mtns. [Camp Crater], 3000 ft, [17°19'53"N, 62°45'42"W], 1 August 1967, *Howard 16617* (A!); Camps Mt. [Camp Crater], SE range, 2500 ft, [17°19'53"N, 62°45'42"W], 3 January 1968, *Howard & Nevling 16842* (A!); The Crater, 2000–2100 ft, [17°19'17"N, 62°45'52"W], 22 February 1959, *Proctor 19235* (A!); Phillips Level, 1400 ft, [17°21'N, 62°46'W], 17 March 1959, *Proctor 19557* (A!, US!).

MONTSERRAT. Lower slopes of Chance's Mtn. [Chances Peak], [16°42'N, 62°11'W], 14–18 June 1950, *Howard 11885* (A!); area of Gages Soufriere [Gages Estate], [16°42'N, 62°11'W], 5–14 January 1961, *Howard & Howard 15094* (A!); Galloways [Galway's] Soufriere, [16°41'N, 62°10'W], 5–14 January 1961, *Howard & Howard 15187* (A!); S of Galway's Soufriere, 19 Mar–16 April 1979, *Howard et al. 18967* (UPR!, US!); Galways [Galway's] Estate, [16°41'N, 62°11'W], 19 Mar–16 April 1979, *Howard et al. 19186* (NY!, US!); unspecified, *Ryan s.n.* (C-2!); Gages Mtn., near Soufriere, [16°42'N, 62°11'W], 23 January 1907, *Shafer 198* (F!, NY!, US!); Fergus Mtn., [16°41'16"N, 62°10'28"W], 1500 ft, 30 January 1907, *Shafer 357* (F!, NY!, US!); Gages Mtn., [16°42'16"N, 62°10'28"W], 2 February 1907, *Shafer 628* (F!, NY!, US!); base of Roche's Mtn., [16°42'N, 62°10'W], 13 February 1907, *Shafer 645* (F!, NY!, US!).

GUADELOUPE. Island unspecified: Mar, *Duchassaing de Fontbressin s.n.* (GOET!, K!, US!, W [2]!); 2300 ft, year 1845, *Funck & Schlim 64* (BM [on-line image, 952673]!, BR [2: on-line images, 542289, 542239]!, photograph of P at US!, US!); *Perrottet s.n.* (NY!, W!); Fontarabie, 150 m, 9 Mai 1937, *Stehlé 1695* (A!, NY!); 100 m, 18 May 1946, *Stehlé & Stehlé 6901* (US!). **Basse-Terre:** Camp Jacob, [16°02'N, 61°42'W], *anonymous s.n.* (A!, MO!, US!); route to Bains Jaunes, [16°02'07"N, 61°40'02"W], 30 March 1983, *Douvillez 32* (A!); Basse-Terre, along trail to Morne Le Soufrière, just above Ste. Claude [Saint-Claude], 500 m, [16°02'07"N, 61°40'02"W], 17 November 1940, *Holdridge 436* (NY!); Ravine Chaude, 150 m, [16°06'32"N, 61°36'32"W], 10 March 1938, *Questel 767* (US [2]!); Petit-Bourg (Tangier), 50 m, [16°11'N, 61°36'30"W], 4 May 1938, *Questel 880* (US [2]!); Petit-Montagne, 2 March 1939, *Questel 2086* (US!); Petit-Bourg, Tangier, 60 m, [16°11'N, 61°36'30"W], July 1938, *Questel 2229* (US!); Bains-Jaunes, 600 m, [16°02'07"N, 61°40'02"W], 16 March 1938, *Questel 2283* (US!); Petit-Bourg, [16°10'N, 61°39'W], 20 March 1942, *Questel 5076* (US!); Basse-Terre, Saint Claude [Saint-Claude], Parnasse Road, 700 m, [16°01'N, 61°41'W], 22 February 1934, *Rodriguez 2845* (A!); near Petit-Bourg, 200 m, [16°10'N, 61°39'W], 16 April 1968, *Sastre 401* (A!); near Duclos, Petit-Bourg, 200 m, [16°10'N, 61°39'W], 30 March 1956, *Smith 10359* (A!, NY!, S!, US!); Popaye (above Matouba), 780 m, [16°02'25"N, 61°41'25"W], 3 January 1937, *Stehlé 1386* (NY!); Dugominer (heights of [Morne] Gourbeyre), 720 m, [16°06'N, 61°40'W], 21 November 1936, *Stehlé 1878* (US!); Dugominer (heights of [Morne] Gourbeyre), 700 m, [16°06'N, 61°40'W], 21 November 1936, *Stehlé 1915* (US!); Rivière Rouge, 650 m, [16°03'N, 61°43'W], 18 August 1944, *Stehlé et al. 5348* (US!); Gourbeyre, Morne Boucanier, 680 m, [15°59'38"N, 61°41'29"W], 19 August 1944, *Stehlé et al. 5349* (US!); Bains Jaunes, 1050 m, [16°02'07"N, 61°40'02"W], 5 September 1944, *Stehlé & Béna 5350* (US!).

DOMINICA. Providence, 500 m, 30 June 1982, *Barrier 3638* (B [image 10 0460432]!); Riversdale, 200 m, [15°25'N, 61°22'W], 9 March 1944, *Beard 242* (A!, MO!, NY!, US!); vicinity of Sophia Bay and Walkers Rest, near Londonderry, on NE corner of the island, [15°34'05"N, 61°18'17"W], 21 January 1966, *Chambers 2612* (MO!, UPR!, US!); between Laudat and Fresh Water Lake, 2300 ft, [15°20'02"N, 61°19'02"W], 3 February 1966, *Chambers 2691* (B [image 10 0460429]!, CAS!, UPR!, US!); Sylvania Estate, 1500–1800 ft, [15°21'N, 61°22'W], 21 January 1933, *Cooper 32* (F!, GH!, NY!, US!); unspecified, 22 June 1933, *Cooper 49* (F!, GH!, NY!, US!); Lisdara Estate, 1800–2000 ft, 6 March 1933, *Cooper 143* (NY!, US!); St. Peter Parish, near SE corner of St. John Parish, Syndicate Estate, S of Northern Forest Reserve, near base of trail to Morne Diablotins summit, 2000 ft, [15°30'51"N, 61°25'28"W], 17 March 1991, *Hill 22055* (NY!); Saint Mark Parish, Soufrière, trail above first sulphur pile, above Sulphur Springs, 750 ft, [15°14'N, 61°21'W], 8 December 1993, *Hill 25323* (MO!, NY!, US!); Saint George Parish, trail from Titou Gorge to the Sandwich River, Laudat, near Sandwich River, 2500 ft, [15°20'N, 61°20'W], 16 December 1993, *Hill 25504* (MO!, NY!, US!); Sylvania [Estate], Imperial Road, 549 m, [15°21'18"N, 61°21'28"W], 13 February 1940, *Hodge 1111* (GH!); South Chiltern Estate, trail up to South Chiltern home, 500 m, [15°14'48"N, 61°21'47"W], 27–28 February 1940, *Hodge & Hodge 1586* (GH!, US!); 1 mi E of Laudat, 665 m, [15°20'02"N, 61°19'02"W], 11 March 1940, *Hodge & Hodge 1959* (GH!, US [2]!); near base of Morne [Morne Cola] Anglais, [15°21'N, 61°22'W], 21 March 1940, *Hodge 2253* (GH!, US!); Lisdara Estate, 457 m, 28 March 1940, *Hodge 2426* (GH!), *Hodge 2433* (GH!, US!); E of Dublanc, on trail to Milton Estate, 20–200 m, [15°31'15"N, 61°27'38"W], 6 April 1940, *Hodge & Hodge 2553* (GH!, US!); Carib Trail from Salybia [Salibia] to Hatton Garden, [15°30'N, 61°16'30"W], 22 April 1946, *Hodge 3096* (GH!); Castle Bruce, [15°26'N, 61°16'W], 5

February 1889, *Imray s.n.* (K!); unspecified, year 1862, *Imray 54* (K!); Laudat, [15°20'N, 61°20'W], 25 April 1888, *Imray 302* (GOET!, K!); St. Joseph Parish, Salisbury Heights, Salisbury Water Catchment, Salisbury to Carholm Road, 740–780 m, 15°28'04"N, 61°24'20"W, 27 January 1997, *Merello et al. 1715* (MO!); probably near L'Impreune, March 1950, *Naroduy s.n.* (US!); St. George Parish, Laudat, 2300 ft, [15°20'N, 61°20'W], 10 November 1964, *Nicolson 1963* (B [image 01 0460431]!, US!); St. Peter Parish, Syndicate Estate, 530 m, [15°31'12"N, 61°25'25"W], 22 January 1969, *Nicolson 4075* (B [10 0460430]!, CAS!, US!); unspecified, year 1888, *Ramage s.n.* (S!); vicinity of Fresh Water Lake, near Laudat, 450–600 m, [15°20'39"N, 61°18'38"W], 26 March 1956, *Smith 10274* (A!, NY!, S!, US!); heights of Bataca [Bataka], Reserve Caraibe, 280 m, [15°29'35"N, 61°16'10"W], 22 April 1946, *Stehlé & Stehlé 6366* (US!); St. Luke Parish, vicinity of South Chiltern Estate, 1300–1600 ft, [15°14'48"N, 61°21'47"W], 20 July 1966, *Stern & Wasshausen 2510* (B [image 10 0460428]!, US!); St. David Parish, Point Cassé Roundabout, along Imperial Road, 250 m, [15°22'53"N, 61°20'33"W], 5 May 1992, *Tuxill & Williams 104* (CAS!, MO!, NY!); unspecified, September 1889, *Walsh s.n.* (NY!); St. George Parish, near Fresh Water Lake, 2300 ft, [15°20'39"N, 61°18'38"W], 5 June 1965, *Webster 13247* (GH!, MO!, US!); NW slope of Morne Diablotins, Syndicate Estate, 650 m, [15°31'12"N, 61°25'25"W], 7 October 1983, *Whitefoord 3907* (US!); down the rd from Syndicate, towards Fond Hunte Estate, [15°31'12"N, 61°25'25"W], 5 October 1984, *Whitefoord 4347* (US!); NW slope of Morne Diablotins, 27 October 1984, *Whitefoord 4576* (US!); rd from Baiac, near Middleham Track, 31 October 1984, *Whitefoord 4608* (US!); St. Patrick Parish, La Plaine, near police station, [15°20'N, 61°15'W], 9 February 1986, *Whitefoord 5408* (US!); St. Patrick Parish, La Plaine, near police station, [15°20'N, 61°15'W], 9 February 1986, *Whitefoord 5417* (A!, US!); NW slopes of Morne Diablotin, Syndicate Estate, [15°31'12"N, 61°25'25"W], 26 March 1988, *Whitefoord 5869* (US!).

MARTINIQUE. Unspecified, *anonymous s.n.* (W!); unspecified, 1844, *Denisse s.n.* (DS!); Morne Rouge, Ajouba [L'Ajoupa]-Bouillon, 400–750 m, [14°48'25"N, 61°08'40"W], year 1879, *Duss 1727, 1494* (NY [3]!); St. Pierre, [14°44'38"N, 61°10'31"W], November 1867, *Hahn 268 p.p.* (F!, K!, W!); Mont Parnasse, May 1870, *Hahn 268 p.p.* (S!); St. Pierre, [14°44'38"N, 61°10'31"W], November 1867, *Hahn 269* (C!, F!, W!); Gorges de la Falaise, Ajouba [L'Ajoupa]-Bouillon, [14°49'03"N, 61°07'21"W], 8 March 1978, *Howard 18695* (A!, NY!); Gorges de la Falaise, Ajouba [L'Ajoupa]-Bouillon, [14°49'33"N, 61°07'21"W], 8 March 1978, *Howard 18696* (A!, NY!); unspecified, *Isert s.n.* (C!); unspecified, year 1787, *Isert s.n.* (C-2!); unspecified, *Sieber 81* (MO!), *Sieber 382* (NY!); Mongane du Vauclin, 502 m, [14°33'27"N, 60°53'10"W], 8 March 1939, *Stehlé & Stehlé 4355* (US!); Camp de Colson, 450 m, 28 September 1940, *Stehlé & Stehlé 4598* (F!, US!); Urion [Union], Morne Vert [Le Morne-Vert], 560 m, [14°42'58"N, 61°07'33"W], 17 July 1942, *Stehlé & Stehlé 5060* (US!); Heights of Balata, Plateau Larcher, 550 m, [14°37'48"N, 60°57'36"W], 11 December 1942, *Stehlé & Stehlé 5131* (US!); Grand Rivière, 380 m, [14°51'13"N, 61°10'41"W], 19 May 1946, *Stehlé & Stehlé 6660* (US!).

SAINT LUCIA. Louvet Estate, [13°57'30"N, 60°53'11"W], 12 October 1983, *Barrier 4432* (B [image 10 0460434]!, F!, K!, S!); Marquis [River] Valley, [14°01'N, 60°55'W], 31 May 1945, *Beard 1063* (F!, MO!, S!, US!); Solfatara area near Soufriere, [13°51'N, 61°03'W], 22 Apr–18 May 1950, *Howard 11560* (A!, S!, US [2]!); Barre de l'Isle [Ridge] Trail to Mt. LaComb, [13°54'30"N, 60°57'0"W], 24 January 1985, *Howard et al. 19863* (A!, NY!, US!); Quilesse Forest Reserve, [13°50'N, 60°58'W], 7 October 1984, *Jean-Pierre 3* (A!); 0.5 mi SW of Piton Troumassee, 2150 ft, [13°50'41"N, 60°58'48"W], 4 Apr–12 June 1958, *Proctor 17884* (A!, US!); Morne Tuer Moi un Fois district, W of Morne Gimie, 1800–2200 ft, [13°51'54"N, 61°01'55"W], 23 November 1960, *Proctor 21619* (A!, US!); unspecified, year 1888, *Ramage s.n.* (S!); Saltibus, 1000 ft, [13°48'N, 61°0'W], 13 April 1985, *Slane 494* (A!); Barre de l'Isle [Ridge], 900 ft, [13°55'N, 60°57'W], 2 August 1986, *Slane 992* (A!).

SAINT VINCENT AND THE GRENADINES. Saint Vincent, Cumberland Mtn., 750–1000 m, [13°14'54"N, 61°11'30"W], 14 May 1947, *Morton 5894* (GH!); Saint Vincent, Saint Patrick Parish, Upper Bellwood district, inland from Layou, 800–1500 ft, [13°12'43"N, 61°13'28"W], 24 February 1965, *Proctor 25904* (GH!); St. Vincent, 500–2000 ft, May–July, *Smith & Smith 354* (GH!, NY!).

GRENADA. Unspecified, year 1891, *Alexander 5517* (K [2]!); Balthazar [Estate], 150 m, [12°07'N, 61°39'W], 28 December 1943, *Beard 198* (A!, MO!, NY!); St. Andrew Parish, Grand Etang, [12°05'46"N, 61°41'51"W], 31 March 1897, *Broadway s.n.* (MO!, NY!, US!), 2 April 1987, Broadway s.n. (F!, GH!); Plaisance, 1600 ft, [12°11'N, 61°39'W], December 1889, *Eggers 6147* (US!); St. Andrew Parish, vicinity of Grand Etang, 1600–1800 ft, [12°05'46"N, 61°41'51"W], 30 October–11 December 1957, *Proctor 17005* (A!); St. Andrew Parish, Grand Etang Forest Reserve near shore of Grand Etang, 1700 ft, [12°05'46"N, 61°41'51"W], 8–9 August 1959, *Webster et al. 9540* (S!).

Selected extralimital specimens examined—**TRINIDAD AND TOBAGO. Trinidad:** *W. E. Broadway 5896* (K!). **VENEZUELA. Aragua:** *H. Pittier 15745* (MO!). **Distrito Capital:** *J. A. Steyermark 92111* (F!). **Nueva Esparta:** *A. M. Sugden 1117* (MO!). **Lara:** *C. Burandt & W. Clark V1237* (MO!). **Miranda:** *H. Pittier 13374* (MO!). **Monogas:** *C. Bosque N.CB-J-02* (MO!). **Sucre:** *J. A. Steyermark 62401* (F!). **Zulia:** *J. A. Steyermark et al. 123287* (MO!). **GUYANA.** *B. Maguire & D. B. Fanshawe 32445* (F!). **FRENCH GUIANA.** *S. Mori & B. Boom 15037* (CAS!).

5. *Symplocos octopetala* Swartz (1788: 109) ≡ *Praealstonia octopetala* (Sw.) Miers (1879: 291). Type:—JAMAICA. *O. P. Swartz s.n.* (holotype S on-line images S-R-5995 *p.p.* (one leaf is not *Symplocos*), S-R-5996!, isotypes B on-line image -W14381-010!, BM on-line image 952628!, C!, LD on-line images 1212316!, 1212256!, 1260525!, LINN on-line image HS1245-4!, M on-line image 152523!).

= ?*Ternstroemia crenata* Macfadyen (1837: 114). Type:—not designated and otherwise unknown. The description matches *Symplocos*. Because only one species of *Symplocos* is known from Jamaica, this taxon likely belongs in synonymy under *S. octopetala*, in accordance with the opinion of Adams (1972).

= *Symplocos tubulifera* Krug & Urb. in Urban (1893: 331). Lectotype (designated here):—JAMAICA. Saint Ann: Moneague, on the Rose Hall Estate, [18°16'32"N, 77°06'42"W], January–February 1850, *R. C. Alexander Prior s.n*. (K!, isolectotypes GH [2]!, GOET!, MO!, NY!, US [2]!; photograph of lectotype at A!).

= *Symplocos harrisii* Brand in Urban (1912: 331). Lectotype (designated here):—JAMAICA. Trelawny: near Troy, 660 m, [18°15'N, 77°37'W], 12 January 1909, *W. Harris 10662* (NY!, isolectotypes F!, K!, P on-line image 650501!, US on-line image 848531!).

= *Symplocos jamaicensis* Krug & Urb. in Urban (1893: 330). ≡ *Symplocos martinicensis* subsp. *jamaicensis* (Krug & Urb.) Mai (1986: 15). Lectotype (designated here):—JAMAICA. *W. Purdie s.n.* (NY!).

Shrub or tree to 13 m tall. Old branchlets irregularly ridged or angled, *ca.* 2–3 mm wide; young branchlets with appressed white to orangish brown trichomes 0.2–0.4 mm long, trichomes of roughly equivalent length; pseudoterminal vegetative buds sericeous. Petiole (including leaf blade attenuation) 7–15 mm long; leaf blade elliptic to oblong-elliptic, 7.9–11.5 × 3.3–6.6 cm, 1.7–2.7 times as long as wide, chartaceous, abaxial surface generally olive green to brown but veins often red or cinnamon, with sparse appressed trichomes at least proximally, longer trichomes 0.2–0.7 mm long, midvein trichomes denser, adaxial surface dark brown, glabrous, base acute to subrounded, often abruptly attenuate, margin flat, serrulate, serrulate-crenulate, or subentire, with 0 to 30 chartaceous teeth per side and with glands occasionally persistent, apex subacute to abruptly acuminate. Inflorescences 1.5–2 cm long, usually borne among leaves along branchlet, 1- to 3-flowered, peduncle 3–10 mm long, rachis 2–8 mm long (appearing pedicel-like in 1-flowered inflorescences), strigillose, subtending leaves often reduced, often bract-like, caducous. Bract and bracteoles not all tightly overlapping (at least when > 3), deltoid-ovate to suborbicular, 1.0–2.0 × 1.0–1.8 mm, strigose, margin ciliate and often glandular. Pedicel absent to 4 mm long, strigose; bracteoles 2 to 4, situated at pedicel apex or sometimes 1 or more situated along pedicel. Flowers 11–15 mm long. Hypanthium glabrous. Calyx lobes broadly ovate to suborbicular, 1.0–2.0 × 2.1–3.0 mm, glabrous or occasionally with sparse appressed white to tawny trichomes, margin ciliate and often glandular, apex obtuse to rounded. Corolla white, 9–13 mm long, 5- to 11-lobed; tube 1–1.5 mm long; lobes ovate-oblong to oblong, adnate to filament tube for 4–5 mm proximally, glabrous, margin erose. Stamens in ± 4 series; filaments connate proximally for 5–9 mm, distinct portions 2.5–6 mm long. Disk trichomes white, longer trichomes 0.8–1.1 mm long; style 5–9 mm long, pilose-villous at least proximally. Fruit purplish black, ellipsoid-cylindrical, often narrowly so, 12–18 × 5–7 mm, glabrous; calyx lobes erect; disk apex completely visible, equal to or exceeding calyx.

Illustration—Figure 10.

Phenology—Flowering January–March, May–July; fruiting July, November.

Habitat and distribution—Slopes of wet forests at 600–1363 m elev. Jamaica. Figure 11.

Conservation assessment—Endemic to Jamaica, *Symplocos octopetala* is known to us from 18 collections distributed among *ca.* 10 locations. The most recent of these was made in 1961 by G. R. Proctor. This species is mentioned in an ecological study of the Blue Mountains (Bellingham *et al*. 1995), where 30 individuals are cited as having been observed, but it is not known if voucher specimens were made to confirm identification. The EOO is 1385 km^2 and the AOO is 28 km^2. At least three populations are in Blue Mountains National Park. Based on these data, we categorize this species as Vulnerable (VU): B2 ab(iii).

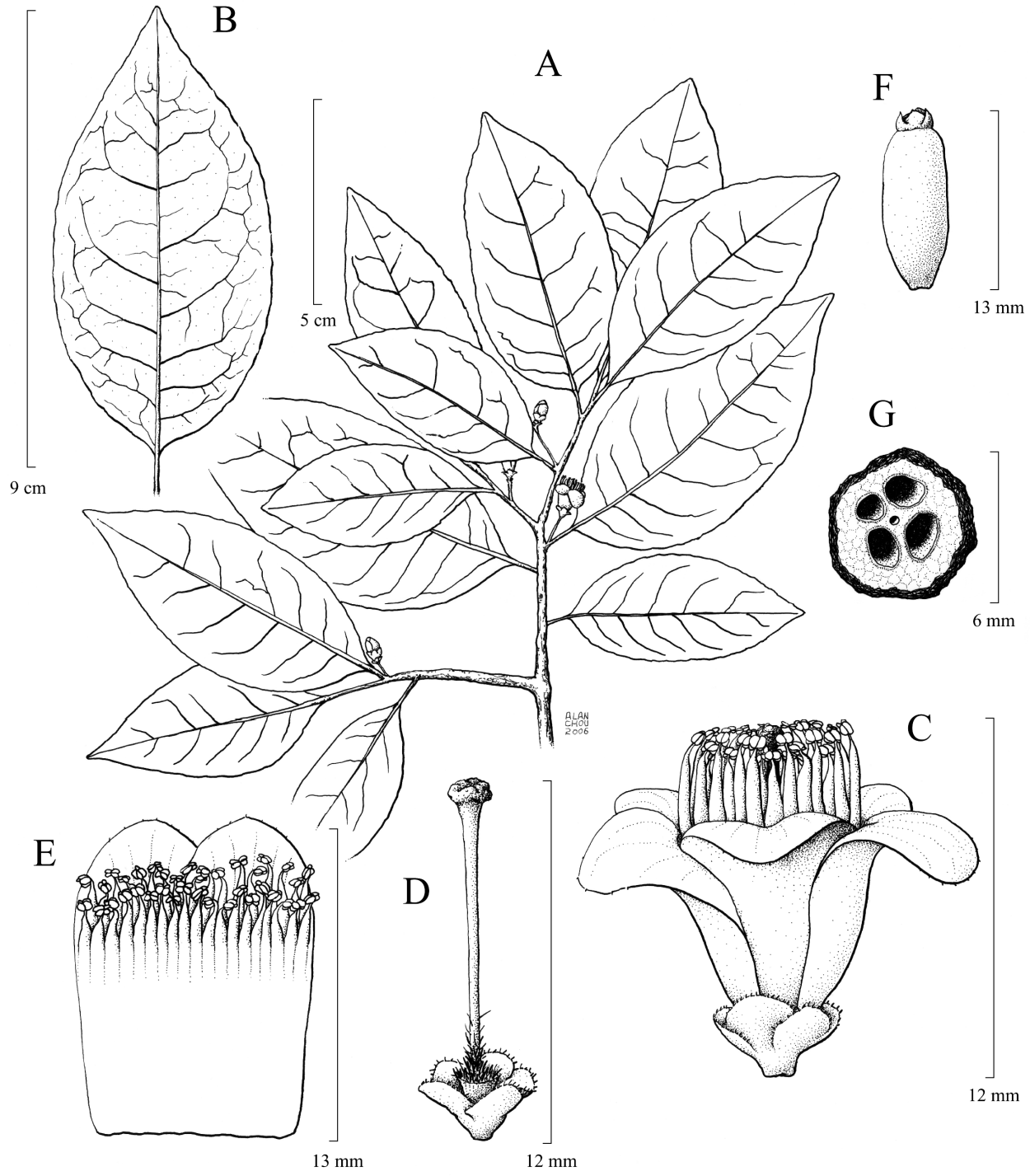

FIGURE 10. *Symplocos octopetala*. **A.** Flowering branch. **B.** Leaf, abaxial view. **C.** Flower. **D.** Calyx and gynoecium. **E.** Section of corolla and androecium, inner view. **F.** Drupe. **G.** Drupe in cross section. (A–B drawn from *W. H. Harris 10662*, NY; C–E drawn from *G. R. Proctor 22121*, A; F–G drawn from *R. C. Alexander Prior s.n.*, K.)

Discussion—Previous authors have differed in their taxonomic assessment of *Symplocos* from Jamaica, although they all agree in recognizing more than one taxon from the island. Urban (1893) and Brand (1901) recognized *S. jamaicensis*, *S. octopetala*, and *S. tubulifera*, and later Brand in Urban (1912) added *S. harrisii*. Adams (1972) largely followed the treatment of Urban, but considered *S. jamaicensis* to be a synonym of *S. martinicensis* (and did not mention *S. harrisii*). Mai revised the Jamaican taxa by reducing *S. jamaicensis* to a subspecies of *S. martinicensis* and *S. harrisii* to a synonym of *S. tubulifera*.

In contrast, we recognize only a single species of *Symplocos* from Jamaica, without infraspecific taxa.

Symplocos octopetala was previously distinguished by its 7- to 9-lobed corolla (versus strictly 5-lobed) by Urban (1893). This was later modified in Adams' treatment to (5-)7- to 10-lobed [versus 5(-6) lobed], presumably as more information accrued about variation in the number of corolla lobes per flower. In our view, the number of corolla lobes can vary continuously within a single species, from five to 11. We have observed this type of variation in other species of *Symplocos* with more than five corolla lobes [e.g., *S. coccinea* Bonpl. in Mexico, where the number ranges from 10 to 15 (Kelly *et al*. in preparation)]. The other characters used to delimit more than one species of *Symplocos* in Jamaica (e.g., corolla width, corolla tube length, sepal width, and leaf margin serration) vary continuously.

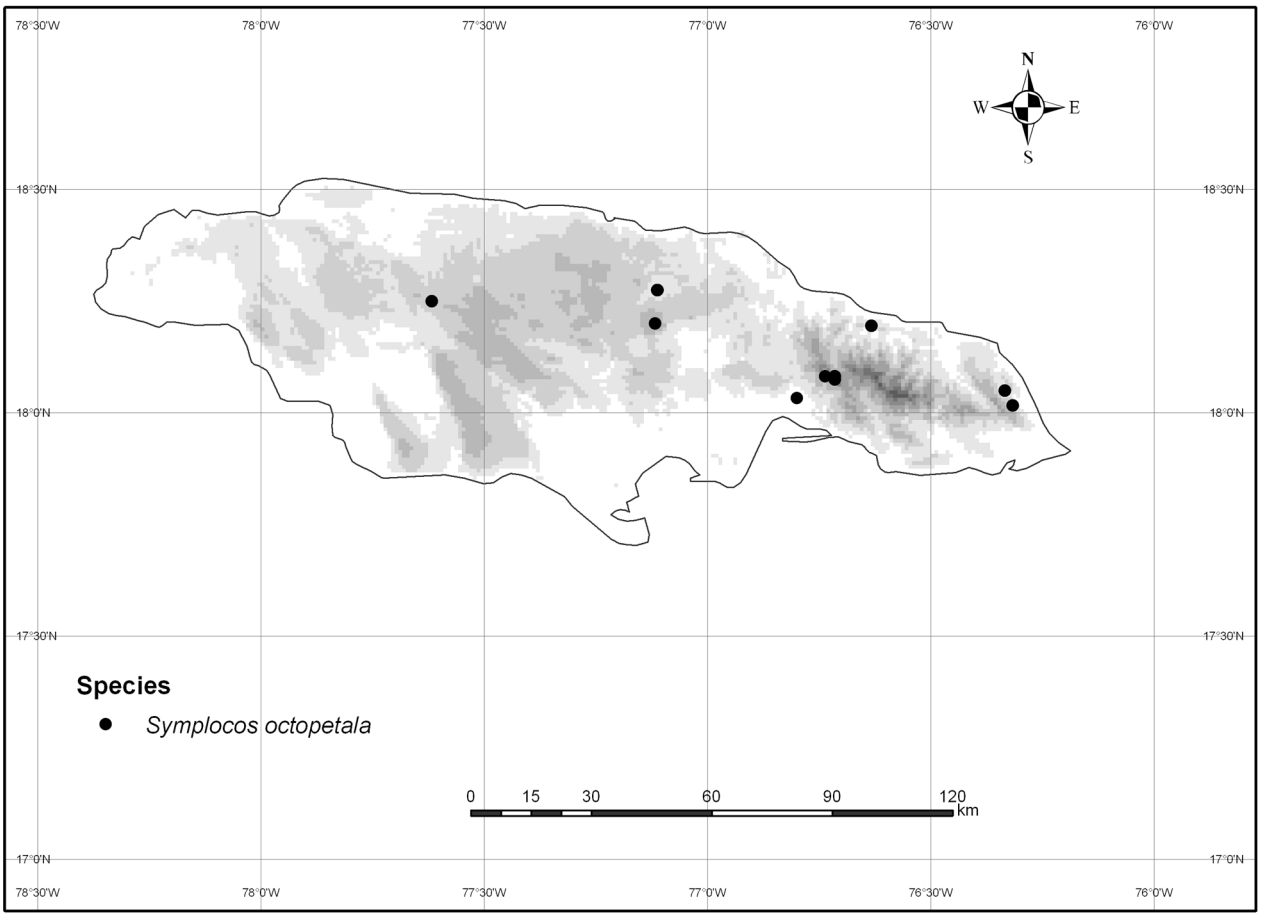

FIGURE 11. Geographic distribution of *Symplocos octopetala*, endemic to Jamaica.

A character that has apparently been neglected previously to separate Antillean *Symplocos* species is the size and shape of the trichomes on the epigynic disk. *Symplocos octopetala* has a disk with the longer trichomes 0.8–1.1 mm long. The only other species of *S.* ser. *Symplocos* in the Antilles with disk trichomes this long is *S. cubensis* (longer trichomes 0.5–1 mm); the length of the longer disk trichomes in the other species ranges from 0.2–0.4 mm in *S. jurgensenii*, *S. latifolia*, and *S. martinicensis*, to 0.5–0.6 mm long in *S. urbaniana*. This, plus the combination of a petiole 7–15 mm long, relatively large leaf blades (7.9–11.5 cm), consistently 1-flowered inflorescences, and a corolla with often more than five lobes provides strong justification for recognizing Jamaican *Symplocos* as a single distinct species.

The holotypes of *Symplocos harrisii*, *S. jamaicensis*, and *S. tubulifera* at B presumably have been destroyed. We have selected the NY specimen as the lectotype of *S. harrisii* because it has more flowering material than the other duplicates of *W. Harris 10662* that we have seen. We have selected the NY specimen of *W. Purdie s.n.* as the lectotype of *S. jamaicensis* because it is the only material of the type collection that we have seen. We have selected the K specimen as the lectotype of *S. tubulifera* because it is the only sheet of *R. C. Alexander Prior s.n.* that we have seen that possesses both flowers and fruit (we consider all sheets with *Alexander Prior s.n.* from the Rose Hall Estate to be duplicates of the same collection).

Additional specimens examined—**JAMAICA.** Parish undetermined: Lancaster, below Moodys Gap, 14 November 1895, *Harris 6080* (F!, NY!, S!); *Hart s.n.* (NY!); year 1886, *Hart 1411* (US [2]!). **Portland:** Spanish River, [18°11'43"N, 76°37'57"W], 24 August 1894, *Harris 5318* (F!, NY!); Spanish River, Colthirst, [18°11'43"N, 76°37'57"W], 5 December 1894, *Harris 5449* (C!, F!, GH!); below Vinegar Hill, 1160 m, [18°01'N, 76°19'W], 15 July 1899, *Harris 7672* (F!, NY!, US!); E slopes of S end of John Crow Mtns., [18°03'N, 76°20'W], 10 March 1909, *Harris & Britton 10736* (F!, NY!, US!); E slope of the John Crow Mtns., 1.5 to 2.5 mi SW of Ecclesdown, 1500–2500 ft, [18°03'N, 76°20'W], 1 March 1961, *Proctor 22121* (A!); Hardwar Gap, trail up Mt. Horeb, 4500 ft, [18°04'57"N,76°42'52"W], 9 June 1959, *Webster et al. 8053* (F!, S!, US!). **Saint Andrew:** Dunrobbin Cartto [Dunrobin], [18°02'N, 76°48'W], July 1848, *anonymous s.n.* (K!); rd between Newcastle and Hardwar Gap, 3800–4000 ft, [18°04'30"N, 76°42'52"W], 8 May 1961, *Proctor 22275* (F!, GH!, US!); Hardwar Gap, 4000 ft, [18°04'57"N, 76°44'10"W], July 1952, *Robbins s.n.* (MO!). **Saint Catherine:** Holly Mount, near Ewarton, 2400 ft, [18°12'N, 77°07'W], 17 February 1905, *Harris 8899* (F!, NY!). **Saint Thomas:** along forestry rd N of Union Hill, 3000–3500 ft, 19 December 1977, *Proctor 37372* (MO!).

6. *Symplocos urbaniana* Brand (1906: 749). Lectotype (designated here):—LESSER ANTILLES. Guadeloupe, Basse-Terre: Bois du Nez-Cassé [16°3'N, 61°40'W], 29 June or 15 July 1904, *A. Duss 4202* (US!, isolectotypes CAS!, NY!).

Small tree. Old branchlets angled, *ca.* 3–5 mm wide; young branchlets with appressed white trichomes 0.5–0.8 mm long, of roughly equivalent length; pseudo-terminal vegetative buds sericeous. Petiole 8–12 mm long; leaf blade elliptic, 8.0–9.7 × 3.2–4.0 cm, 2.4–2.5 times as long as wide, subcoriaceous, abaxial surface olive green, with appressed white trichomes, glabrescent, longer trichomes 0.5–0.8 mm long, adaxial surface greenish brown, glabrous, base cuneate, margin slightly revolute, serrate-crenate, with 17 to 29 indurate teeth per side and with glands occasionally persistent, apex abruptly acuminate. Inflorescences fasciculate, often borne proximal to leaves along branchlet, 1.2 cm long, 2- to 4-flowered, peduncle 2–4 mm long, rachis glabrous or sparsely strigillose or pilosulose. Bract plus bracteoles 5 to 8 per flower, all tightly overlapping and apparently undifferentiated, hemispherical to broadly ovate, 1.4–3.0 × 1.3–2.1 mm, sericeous to nearly glabrous, margin often ciliate, infrequently glandular, apex cuspidate to rounded. Pedicel absent to 0.5 mm long. Flowers *ca.* 9 mm long. Hypanthium glabrous. Calyx lobes hemispherical to deltoid-ovate, 1.2–1.8 x 2.4–2.8 mm, glabrous or rarely with sparse appressed white trichomes near apex, margin ciliate, apex obtuse to rounded. Corolla *ca.* 6 mm long, 5-lobed; tube *ca.* 2 mm long; lobes oblong-obovate, *ca.* 4–5 mm long, glabrous, margin erose. Stamens in ± 3 series; filaments connate proximally for *ca.* 1 mm, distinct portions *ca.* 2 mm long. Ovary 5-celled; disk trichomes white, longer trichomes 0.5–0.6 mm long; style 4–5 mm long, glabrous. Fruit unknown.

Illustration—Figure 12.

Phenology—Flowering June or July.

Habitat and distribution—Montane forest, elev. unknown. Lesser Antilles (Guadeloupe). Figure 13.

Conservation assessment—The sole specimens of *Symplocos urbaniana* were collected from the forests of Nez Cassé on Guadeloupe, where it was described as very rare. It is unknown whether this population still exists. Because *S. urbaniana* is only known from the type collection, we categorize this species as Data Deficient (DD).

Discussion—Mai (1986) recognized *Symplocos urbaniana* as distinct, whereas Howard (1989) and Fournet (2002) both reduced it to synonymy under *S. martinicensis*. Howard asserted that the type material of *S. urbaniana* does not differ from the variation represented in other specimens of *S. martinicensis*, except for the short axillary inflorescences. We agree with Mai (1986) and moreover consider *S. urbaniana* to be perhaps the most distinctive among the species of *S.* ser. *Symplocos* in the Antilles. This is reflected in the key to the species of *S.* ser. *Symplocos*, where it falls out in the first lead. In addition to the key characters, *S. urbaniana* differs from *S. martinicensis* in having bracteoles 1.3–2.1 mm wide (versus 0.5–1.2 mm), calyx lobes that are 1.2–1.8 × 2.4–2.8 mm (versus 0.9–1.2 × 1.0–1.6 mm), stamen filaments that are connate proximally for *ca.* 1 mm (versus for 4.5–7 mm), and a style that is 4–5 mm long (versus 5–8 mm long).

Symplocos urbaniana appears similar to several species from mainland South America. In a floristic treatment of the Symplocaceae of Venezuela (Aristeguieta 1957), *S. urbaniana* keys to *S. lasseri* Steyermark (1953: 492) from the Cordillera del Avila, Distrito Federal, Venezuela. The type of *S. lasseri*, *T. Lasser & J. A. Steyermark*

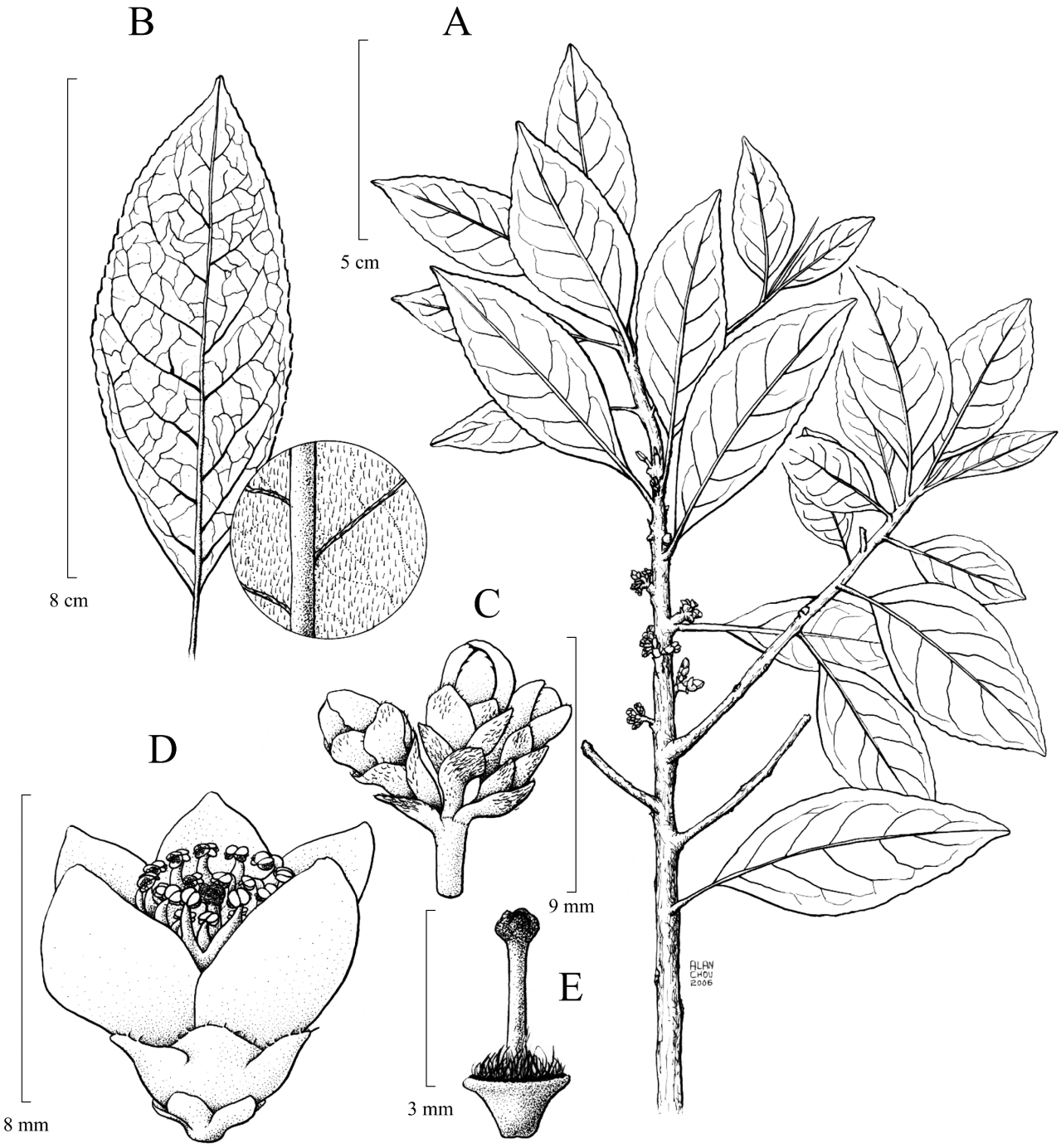

FIGURE 12. *Symplocos urbaniana*. **A.** Branch with flower buds. **B.** Leaf, abaxial view, including close-up at midvein region. **C.** Inflorescence in bud. **D.** Flower with distal bracteoles. **E.** Gynoecium. (A–E drawn from the holotype.)

55103 (holotype F!) and other specimens cited by Aristeguieta (1957) that we have examined [*E. Delgado 181* (US!), *266* (US!); *F. Tamayo 389* (US!)] differ from *S. urbaniana* in their thinner branchlets and thinner leaf blades with more diminutive serrations. *Symplocos amplifolia* Brand (1901: 75), a species apparently endemic to the Cordillera de Mérida in the states of Mérida and Táchira, Venezuela, differs from *S. urbaniana* in its abaxial leaf blade surfaces, which are glabrous or nearly so except sometimes on the midvein (versus rather densely strigose throughout), and (on the type) larger leaves [specimens examined: *J. W. K. Moritz 1009* [holotype B (presumably destroyed), isotype F (photograph and leaf fragment)!], *F. J. Breteler 3073* (MO!, US!), *L. Ruiz Terán 1077* (MO!), and *J. A. Steyermark et al. 98807* (US!)]. Ståhl (1996; p. 352) notes the morphological resemblances among *S. amplifolia*, *S. andicola* Ståhl (1993: 373), *S. fuliginosa* Ståhl (1991: 9), and *S. mucronata* Bonpland (1808: 196),

and, in a separate publication, between *S. fuliginosa* and *S. serratifolia* Ståhl (2010b: 79) (Ståhl 2010b). These species are likely close relatives of *S. urbaniana*, and one or more of them possibly may be conspecific with it. Too few specimens of these species yet exist, however, to assess with any confidence how variation within and among these species would affect the status of *S. urbaniana*. On the basis of the characters denoted above and for the purpose of the present treatment, we maintain *S. urbaniana* as endemic to Guadeloupe, with the caveat that more collections are needed to better assess the delimitation of *S. urbaniana* and the other species of this complex. With this designation *S. urbaniana* joins the list of vascular plants endemic to Guadeloupe, variously reported as 23 (Adams 1997) or 30 (CBAF Guadeloupe 2007).

The holotype of *Symplocos urbaniana* at B presumably has been destroyed. We selected the US specimen from among the duplicates of *A. Duss 4202* as the lectotype because it has two open flowers, whereas the other duplicates that we have seen either have only one (CAS) or are only in flower bud (NY).

See also comments under *Symplocos guadeloupensis*.

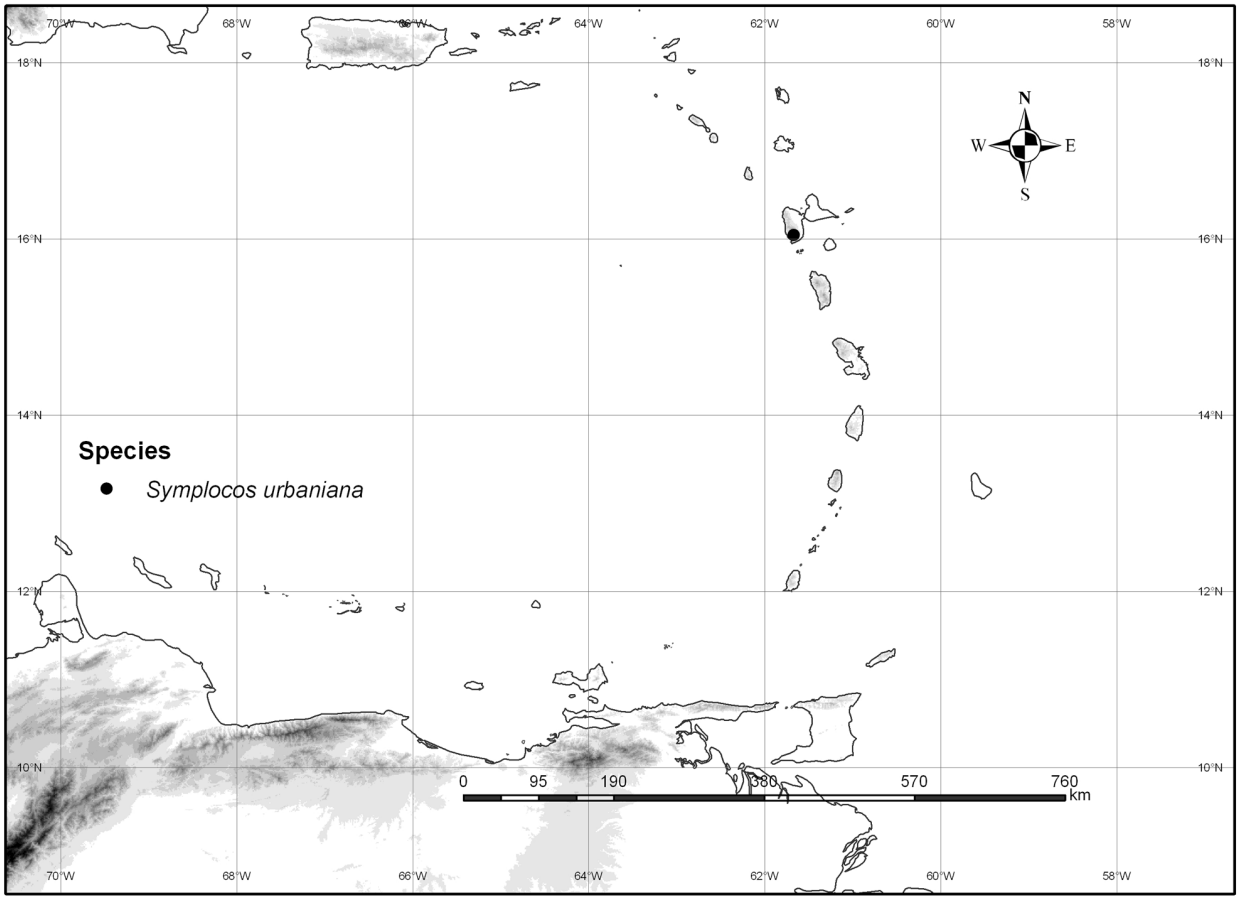

FIGURE 13. Geographic distribution of *Symplocos urbaniana*, endemic to Guadeloupe.

IB. *Symplocos* ser. ***Urbaniocharis*** (Brand) P.W.Fritsch in Fritsch *et al*. (2008: 845) ≡ *Symplocos* sect. *Urbaniocharis* Brand (1901: 25, 70). Lectotype (designated by Fritsch *et al*. 2008):—*Symplocos lanata* Krug & Urb. in Urban (1893: 335).

= *Symplocos* subg. *Microsymplocos* Brand (1901: 25, 70). Lectotype (designated by Fritsch *et al.* 2008):—*Symplocos micrantha* Krug & Urb. in Urban (1893: 336).

Old branchlets generally grayish brown with purplish cast, to dark purple; Bract 1 and bracteoles 2 per flower, caducous. Corolla adnate to androecium (and corolla gamopetalous) at base only, lobes upcurved. Stamens indistinctly and irregularly clustered, aligned into a ring, of different lengths but not in series, *ca.* 27–34, all incurved, included within and nearly abutting the corolla lobes (often situated away from the lobes in dried

material); filaments tangentially flat, gradually tapered or occasionally somewhat constricted apically. Ovary 2(3)-carpellate; disk low-annular (high-undulate-annular in *S. moaensis*), pubescent throughout or rarely pubescent apically and glabrous laterally; style 0.5–2 mm long, usually dilated proximally (not in *S. moaensis*; often hidden by pubescence). Fruiting disk generally ovoid or conical, rarely dome-shaped, pubescent at base only or throughout; endocarp (1)2(3)-celled, septa hyaline.

Key to *Symplocos* [sect. *Symplocos*] ser. *Urbaniocharis*

1. Young branchlets and pseudo-terminal vegetative buds glabrous or sparsely pubescent at bud scale margins; abaxial surface of leaf blade glabrous; hypanthium glabrous or rarely (*S. domingensis*) sparsely pubescent 2
- Young branchlets, pseudo-terminal vegetative buds, abaxial surface of leaf blade and hypanthium moderately to densely pubescent 3
2. Inflorescence rachis and calyx lobes glabrous; calyx lobes 1.5–1.8 mm wide; corolla 4–5 mm long; fruit 14–22 × 6–7 mm; fruiting disk narrow-conical ..... *S. domingensis*
- Inflorescence rachis and calyx lobes pubescent; calyx lobes 1–1.2 mm wide; corolla 2.5–3 mm long; fruit *ca.* 10 × 3 mm; fruiting disk ovoid ..... *S. moaensis*
3. Corolla lobes densely sericeous except at margins, or moderately strigillose medially 4
- Corolla lobes glabrous or rarely sparsely sericeous or strigillose medially 5
4. Young branchlets with erect trichomes 1–1.5 mm long; leaf blade narrowly elliptic, 2.8–4.4 times as long as wide, abaxial surface with erect trichomes; corolla lobes pubescent only medially ..... *S. baracoensis*
- Young branchlets with appressed trichomes 0.6–0.7 mm long; leaf blade elliptic to oblong-elliptic, 1.7–2 times as long as wide, abaxial surface with appressed trichomes; corolla lobes pubescent throughout except at margins ..... *S. ciponimoides*
5. Leaf blade margin with at least several glands persistent on most leaves; inflorescence trichomes pale orange; fruit 11–14 × 5–6 mm ..... *S. hotteana*
- Leaf blade margin with glands not or only occasionally persistent; inflorescence trichomes ferrugineous; fruit 7–11 × 3–5 mm 6
6. Abaxial surface of leaf blade with the longer trichomes 1.1–1.7 mm long, midvein with the longer trichomes 1.8–2 mm long; fruiting disk exceeded by calyx ..... *S. lanata*
6. Abaxial surface of leaf blade with the longer trichomes 0.2–0.4 mm long, midvein with the longer trichomes 0.6–0.8 mm long; fruiting disk equal to or exceeding calyx 7
7. Leaf blade 1.3–2.2 times as long as wide, adaxial surface of midvein pubescent proximally; leaf blade margin revolute at least proximally; hypanthium with the longer trichomes 0.6–0.7 mm long; corolla lobes ciliolate; fruit ovoid-cylindrical to cylindrical ..... *S. micrantha*
7. Leaf blade (1.8–)2.3–2.6 times as long as wide, adaxial surface of midvein glabrous; leaf blade margin flat or rarely irregularly revolute; hypanthium with the longer trichomes 0.2–0.4 mm long; corolla lobes without cilia; fruit ellipsoid ..... *S. leonis*

7. *Symplocos baracoensis* P.W.Fritsch & Almeda, *sp. nov.*

Haec species *Symplocos ciponimoides* Griseb. simillima, sed ab eo ramulis juvenibus erectis-hirsutis, trichomatibus ramulorum 1–1.5 mm longis, laminis anguste ellipticis in pagina inferiore erectis-pilosis, lobis corollae in pagina inferiore secus medium strigillosis differt.

Type:—CUBA. Guantánamo: Baracoa, Loma de Buena Vista, W part, W of Camarones, 500–600 m, [20°26'59"N, 74°38'36"W], 12 August 1975, *A. Álvarez de Zayas, J. Bisse & F. K. Meyer 27396* (holotype JE!, isotypes B image 10 0415561!, HAJB).

Shrub or tree. Old branchlets irregularly ridged or angled; young branchlets with light ascending ferrugineous trichomes 1–1.5 mm long; pseudo-terminal vegetative buds sericeous. Petiole *ca.* 5 mm long; leaf blade narrowly elliptic, 7.4–9.5 × 1.7–3.2 mm, 2.8–4.4 times as long as wide, subcoriaceous, abaxial surface brown, with erect ferrugineous trichomes, longer trichomes 0.5–0.7 mm long, midvein trichomes denser, the longer 1.1–1.3 mm long, adaxial surface dark green, glabrous, base acute, margin revolute, entire and with glands caducous, apex acute. Inflorescences paniculate, 1–1.5 cm long, 8- to 11-flowered, peduncle 1–2 mm long, rachis with dense erect ferrugineous trichomes. Bract and bracteoles sericeous-hirsute throughout, margin not glandular; bract linear to subulate, 1.5–3 × 0.3–0.5 mm, sometimes larger and leaf-like. Pedicel absent; bracteoles subulate to narrow-

deltoid, 0.8–1.5 × 0.2–0.3 mm. Flowers *ca.* 4 mm long. Hypanthium with dense ascending to erect ferrugineous trichomes, longer trichomes 0.46–0.6 mm long. Calyx lobes deltoid-ovate, 1.2–1.5 × 0.7–1 mm, with dense appressed or ascending ferrugineous trichomes throughout, margin not glandular, apex acute. Corolla *ca.* 2.3 mm long, 5-lobed; lobes obovate, moderately strigillose medially, margin erose, without cilia. Stamens up to 1.5 mm long. Disk pubescent throughout, trichomes white; style *ca.* 1 mm long, glabrous. Fruit unknown.

Illustration—Figure 14.

Phenology—Flowering August.

Habitat and distribution—500–600 m elev. Cuba. Figure 15.

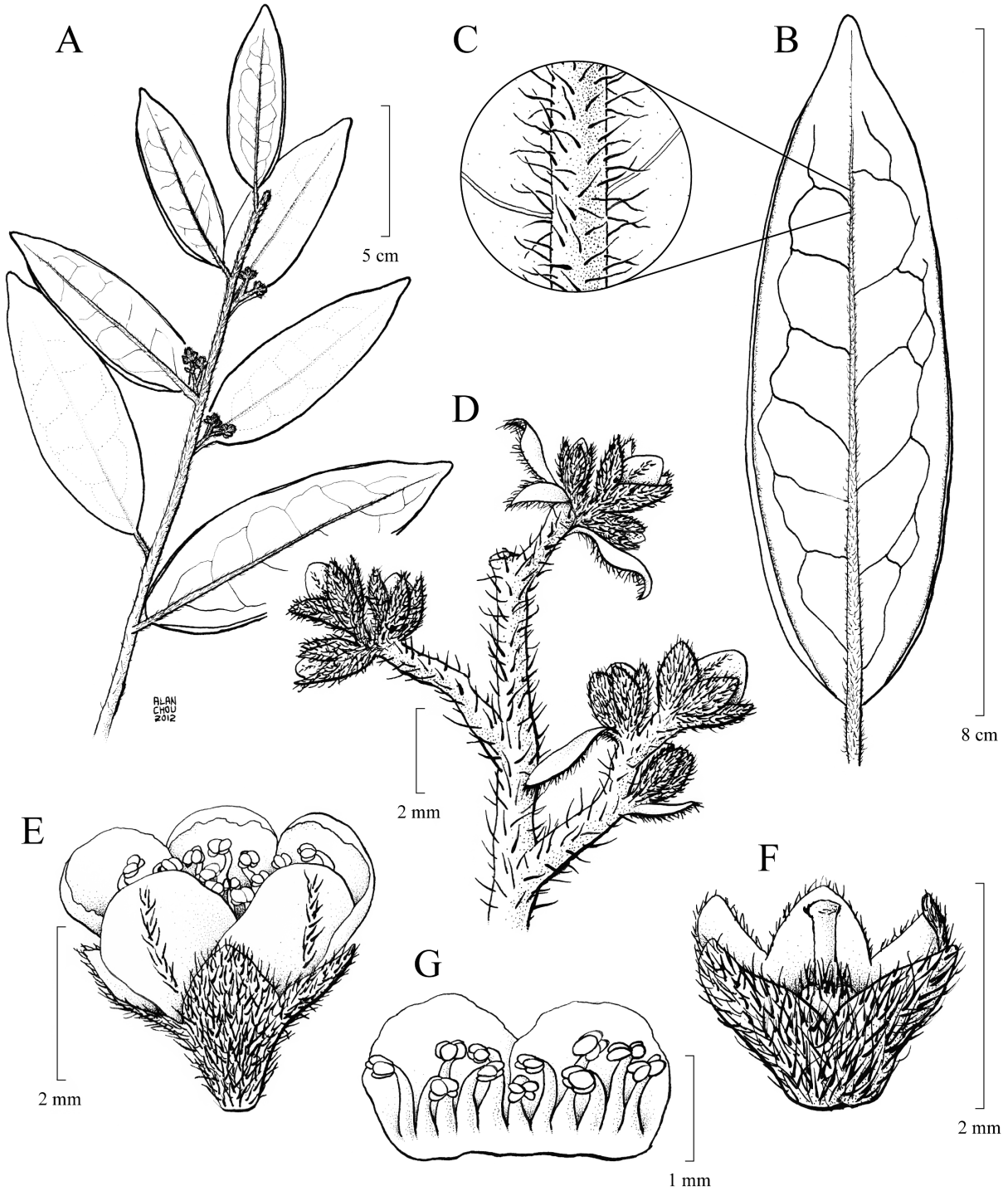

FIGURE 14. *Symplocos baracoensis*. **A.** Flowering branch. **B.** Leaf, abaxial view. **C.** Close-up of leaf, abaxial view at midvein region. **D.** Inflorescence in bud. **E.** Flower. **F.** Calyx and gynoecium. **G.** Section of corolla and androecium, inner view. (A–G drawn from the holotype.)

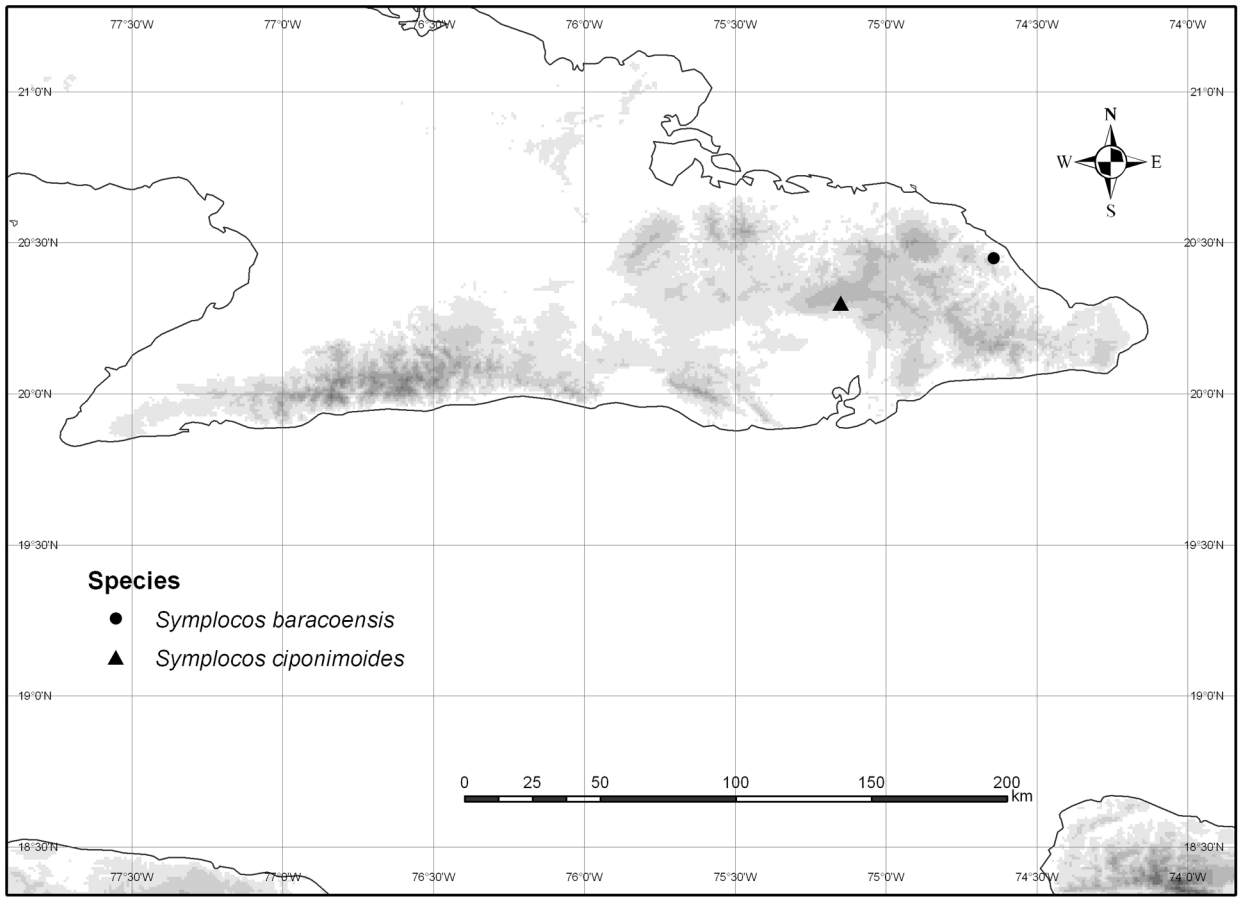

FIGURE 15. Geographic distribution of *Symplocos baracoensis* and *S. ciponimoides*, endemic to eastern Cuba.

Conservation assessment—*Symplocos baracoensis* is known only from the type collection made in Baracoa Municipality, Guantánamo Province, Cuba. We therefore categorize it as Data Deficient (DD). The species appears to have been afforded some means of protection by its occurrence within Parque Nacional Alejandro de Humboldt.

Etymology—The species epithet refers to the municipality of Baracoa in Guantánamo Province, Cuba, from which the type was collected.

Discussion—The label information on the type material of *Symplocos baracoensis* makes no mention of habitat, but the specimens were collected on the same day and at the same general locality by Álvarez de Zayas, Bisse, and Meyer as their collection 27367 of *Symplocos moaensis*. The latter also contains no habitat information, but Mai (2005) states that *S. moaensis* is a species of serpentine soils. We georeferenced "Loma de Buena Vista" as occurring within Parque Nacional Alejandro de Humboldt (based on the locality name "Buena Vista" from the Geonet Names Server at http://earth-info.nga.mil/gns/html/index.html). This park is known for its complex geology and particularly its abundance of serpentine soil formations (Quesada 2002). Thus it is possible that *S. baracoensis* is a serpentine endemic, although this must be confirmed with direct field observations.

Symplocos baracoensis is most similar to *S. ciponimoides* and S. *leonis*. In addition to the characters in the key, it can be distinguished from *S. ciponimoides* by paniculate inflorescences 1–1.5 cm long and 8- to 11-flowered (versus fasciculate inflorescences 0.7–1.0 cm long, 1- to 6-flowered), eglandular bract and bracteole margins (versus glandular), linear to subulate bracts (versus ovate to suborbicular), subulate to narrow-deltoid bracteoles 0.8–1.5 × 0.2–0.3 mm (versus narrow-deltoid to subulate, 1.8–2.2 × 0.5–1 mm), and acute calyx lobes (versus rounded). It can be distinguished from *S. leonis* by branchlets with erect trichomes 1–1.5 mm long (versus appressed trichomes 0.2–0.5 mm long), narrowly elliptic leaf blades 2.8–4.4 times as long as wide [versus elliptic, (1.8–)2.3–2.6 times as long as wide], longer leaf blade surface trichomes 0.5–0.7 mm long and longer midvein trichomes 1.1–1.3 mm long (versus 0.2–0.4 mm long on surface and midvein, respectively), paniculate inflorescences 1–1.5 cm long and 8- to 11-flowered (versus racemose, 0.5–0.9 cm long and 1- to 4-flowered), and corolla lobes abaxially moderately strigillose medially (versus glabrous or rarely sparely strigillose medially). The

geographic range of *S. baracoensis* is close to or overlaps that of *S. moaensis*. *Symplocos baracoensis* can be easily distinguished from *S. moaensis* by its pubescent branchlets, abaxial leaf blade surfaces, and hypanthium (versus glabrous), narrowly elliptic leaf blade 2.8–4.4 times as long as wide with acute apex (versus elliptic, oblong-elliptic, or oblong-obovate 1.8–2.9 times as long as wide with obtuse to rounded apex), and sericeous-hirsute bracts and bracteoles (versus strigillose).

8. *Symplocos ciponimoides* Grisebach (1866: 167). Type:—CUBA. Guantanamó: Monte Líbano, [20°18'N, 75°09'W], 7 October 1861, *C. Wright 2933* (holotype GOET, isotypes BM on-line image 952629!, GH!, HAC, K!, MO!, NY!, S!, W!).

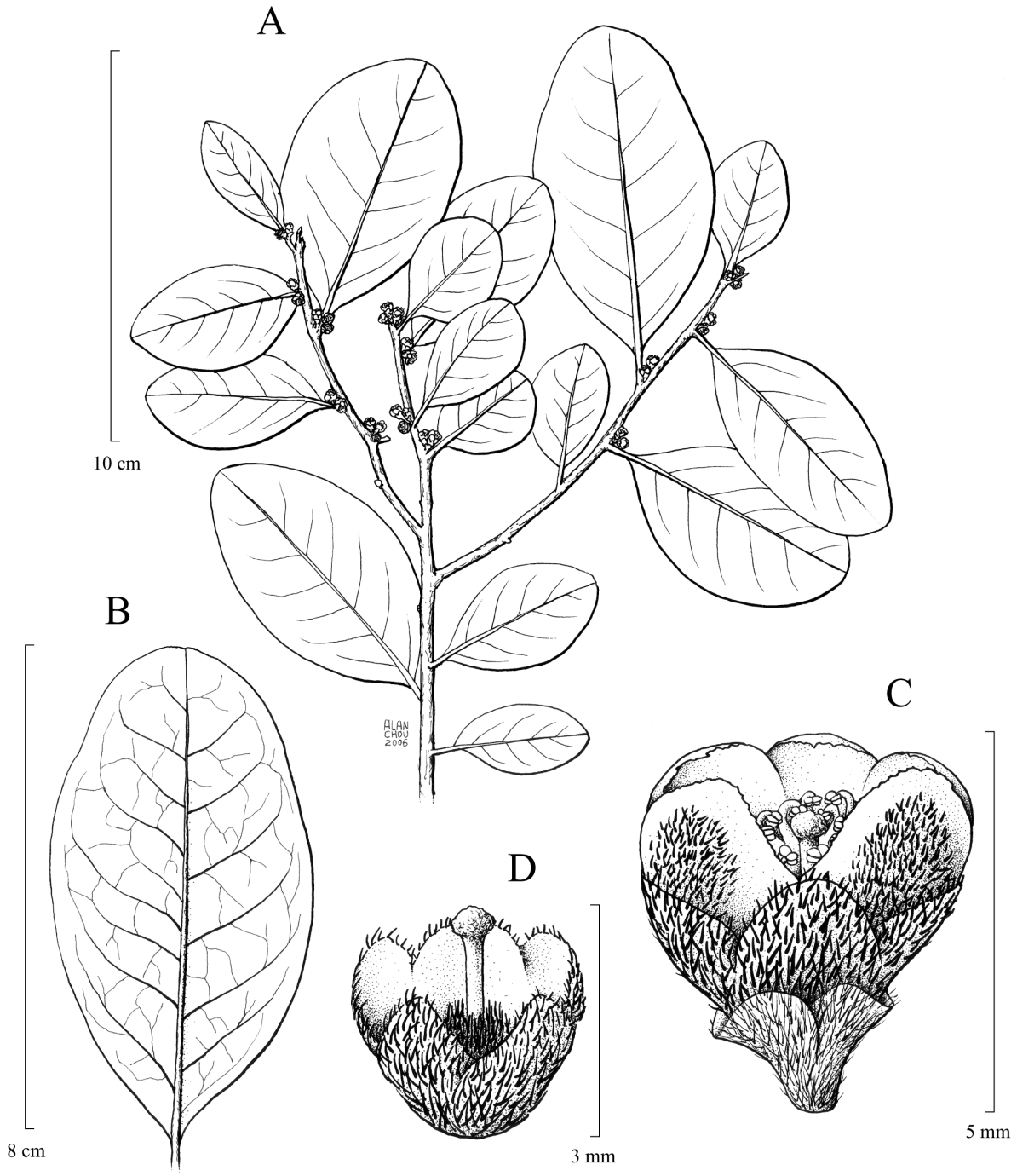

FIGURE 16. *Symplocos ciponimoides*. **A.** Flowering branch. **B.** Leaf, abaxial view. **C.** Flower and bracteoles. **D.** Calyx and gynoecium. (A–D drawn from *C. Wright 2933*, GH.)

Tree to 8 m tall. Old branchlets irregularly ridged or angled; young branchlets with appressed tawny brown trichomes 0.6–0.7 mm long; pseudo-terminal vegetative buds pilose-sericeous. Petiole 5–7 mm long; leaf blade elliptic to oblong-elliptic, 6.9–9.5 × 3.5–4.7 cm, 1.7–2 times as long as wide, subcoriaceous, abaxial surface olive green, with appressed tawny orange trichomes, longer trichomes 0.5–0.6 mm long, midvein trichomes denser, ferrugineous, adaxial surface dark greenish brown, glabrous, base cuneate-attenuate, margin revolute, entire and with glands caducous, apex obtuse to rounded. Inflorescences fasciculate, 0.7–1.0 cm long, 1- to 6-flowered, peduncle up to 1 mm long, rachis with dense ascending to erect ferrugineous trichomes. Bract and bracteoles sericeous-pilose throughout, margin glandular; bract ovate to suborbicular, 2–2.7 × 1–2 mm. Pedicel absent; bracteoles narrow-deltoid to subulate, 1.8–2.2 × 0.5–1 mm. Flowers *ca.* 4.5 mm long. Hypanthium with dense erect ferrugineous trichomes, longer trichomes *ca.* 0.7 mm long. Calyx lobes hemispherical, *ca.* 1.2 × 0.8 mm, with dense ascending ferrugineous trichomes throughout, margin often glandular, apex rounded. Corolla *ca.* 2.5 mm long, 5-lobed; lobes oblong-obovate, densely sericeous except at margin, margin erose, without cilia. Stamens up to 1.6 mm long. Ovary 2-locular. Disk pubescent throughout, trichomes tawny; style *ca.* 0.5 mm long, glabrous. Fruit unknown.

Illustration—Figure 16.

Phenology—Flowering October.

Habitat and distribution—200–700 m elev. (Mai 2005). Cuba. Figure 15.

Conservation assessment—*Symplocos ciponimoides* is known to us only from two localities in Guantanamó Province in eastern Cuba, one (the type) from Monte Líbano, the other from the Sierra del Purial (20°12'N, 74°42'W) at La Gurbia [Mai 2005; *J. Bisse & E. Köhler HFC 8431* (HAJB; Greuter & Rodríguez 2011)]. The AOO is 8 km^2, and neither of the known collections occurs in a protected area. We therefore categorize this species as Critically Endangered (CR): B2 ab(iv).

Discussion—*Symplocos ciponimoides* is easily distinguished from all other species of *S.* ser. *Urbaniocharis* by its densely sericeous (versus glabrous or at most sparsely sericeous) corolla lobes abaxially. It is one of four species of *S.* ser. *Urbaniocharis* endemic to eastern Cuba. In addition to the dense corolla pubescence, it differs from the others by several other characters. From *S. moaensis* it differs in its densely sericeous young branchlets and vegetative buds (versus glabrous), subcoriaceous leaves that are abaxially pubescent (versus coriaceous and glabrous), densely pubescent hypanthium (versus glabrous), and rounded calyx lobe apices (versus acute). From *S. leonis* it differs in its thicker leaves with the longer trichomes on the abaxial surface 0.5–0.6 mm long excluding midvein trichomes (versus 0.2–0.4 mm) and revolute (versus flat) margin. See comments under *S. baracoensis* for differences from that species.

See also comments under *Symplocos cubensis* and *S. jurgensenii*.

9. *Symplocos domingensis* Urban (1912: 330). Lectotype (designated here):—DOMINICAN REPUBLIC. Barahona: heights of Noche Buena, 1800 m, [18°10'07"N, 71°27'32"W], April 1912, *M. D. Fuertes L. 1499* (NY!, isolectotypes A!, CAS!, F [2]!, K!, P on-line image 648435!, US!, W!).

Shrub or tree to 7 m tall. Old branchlets irregularly ridged or angled; young branchlets glabrous; pseudo-terminal vegetative buds glabrous or sparsely strigose at scale margins proximally. Petiole 3–11 mm long; leaf blade elliptic to suborbicular, 4.7–9.6 × 3.0–5.8 cm, 1.2–2.6 times as long as wide, subcoriaceous, abaxial surface brown, glabrous or rarely with sparse erect trichomes on midvein, adaxial surface green to dark olive green, glabrous, base acute to rounded, often slightly attenuate, margin revolute, entire and with glands caducous, apex rounded, broadly obtuse, cuspidate, short-acuminate, or abortive. Inflorescences racemose, 0.8–2.0 cm long, 1- to 4-flowered, peduncle 1–3 mm long, rachis glabrous. Bract and bracteoles glabrous or sparsely strigillose medially, margin ciliate and glandular; bract broadly ovate to subrotund, 2.5–4 × 2–3.5 mm. Pedicel 0.5–5.0 mm long; bracteoles lanceolate, *ca.* 2.5 × 1 mm. Flowers 6–8 mm long. Hypanthium with sparse appressed pale orange trichomes, longer trichomes *ca.* 0.4 mm long. Calyx lobes hemispherical to deltoid-ovate, 1–1.7 × 1.5–1.8 mm, glabrous, margin ciliate and glandular, apex acute to rounded. Corolla white, 4–5 mm long, 5-lobed; lobes short-oblong-obovate to suborbicular, glabrous, margin erose and sometimes ciliolate, cilia to *ca.* 0.2 mm long. Stamens up to 3.5 mm long. Ovary 2-(3-)locular. Disk pubescent throughout, trichomes white; style gradually and narrowly dilated proximally, 1.5–2 mm long, glabrous. Fruit white when immature, purple at maturity, cylindrical, 14–22 ×

6–7 mm, glabrous; calyx lobes erect; disk narrow-conical, glabrous except at very base, apex completely visible, equal to or exceeding calyx; endocarp 1- to 3-celled.

Illustration—Figure 17.

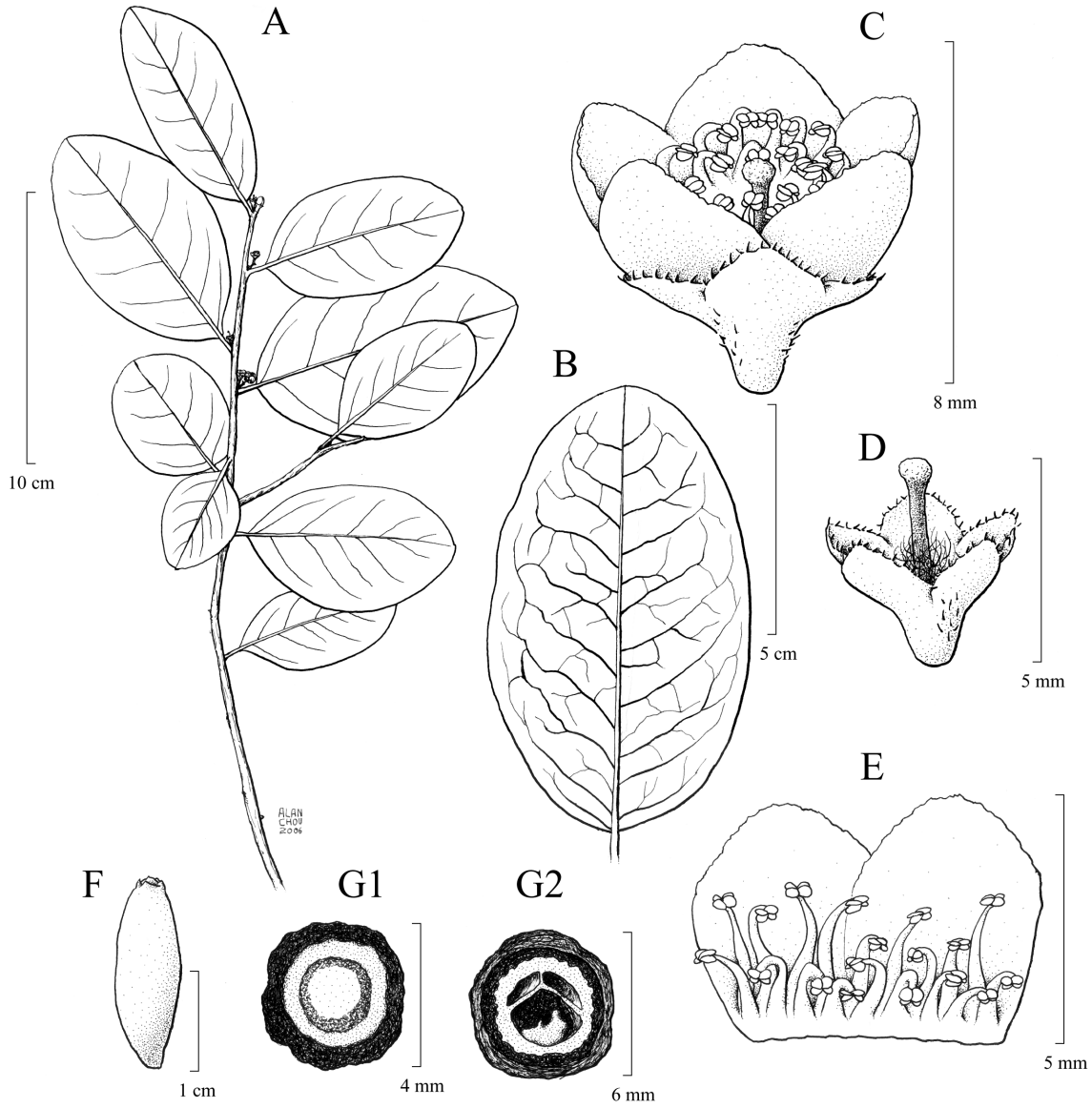

FIGURE 17. *Symplocos domingensis*. **A.** Flowering branch. **B.** Leaf, abaxial view. **C.** Flower. **D.** Calyx and gynoecium. **E.** Section of corolla and androecium, inner view. **F.** Drupe. **G.** Drupe in cross section with one locule (**G1**) and three locules (**G2**). (A–B drawn from *E. L. Ekman 5906*, NY; C–E drawn from *E. L. Ekman 10068*, S; F–G1 drawn from *T. Clase & B. Peguero 608*, CAS); G2 drawn from *E. L. Ekman 5467*, US.)

Phenology—Flowering April–June; fruiting January–May, September.

Habitat and distribution—Broadleaved cloud forest at 1250–2100 m elev. Hispaniola (Haiti, Dominican Republic). Figure 18.

Conservation assessment—*Symplocos domingensis* is endemic to the island of Hispaniola, where it is known to us from *ca.* 13 localities. In the Dominican Republic, the EOO is 7,014 km² and the AOO is 36 km². Five of the nine populations occur in José del Carmen National Park and thus appear to be afforded some means of protection. We therefore categorize this species as Vulnerable (VU): B2ab(iii) in the Dominican Republic. In Haiti, the species has an EOO of 1,604 km² and an AOO of 16 km². The last Haitian collection of this species was made in 1928 by E. L. Ekman and only one of the four known populations occurs in a protected area (Pic Macaya National Park). We thus categorize this species as Endangered (EN): B2ab(iii) in Haiti.

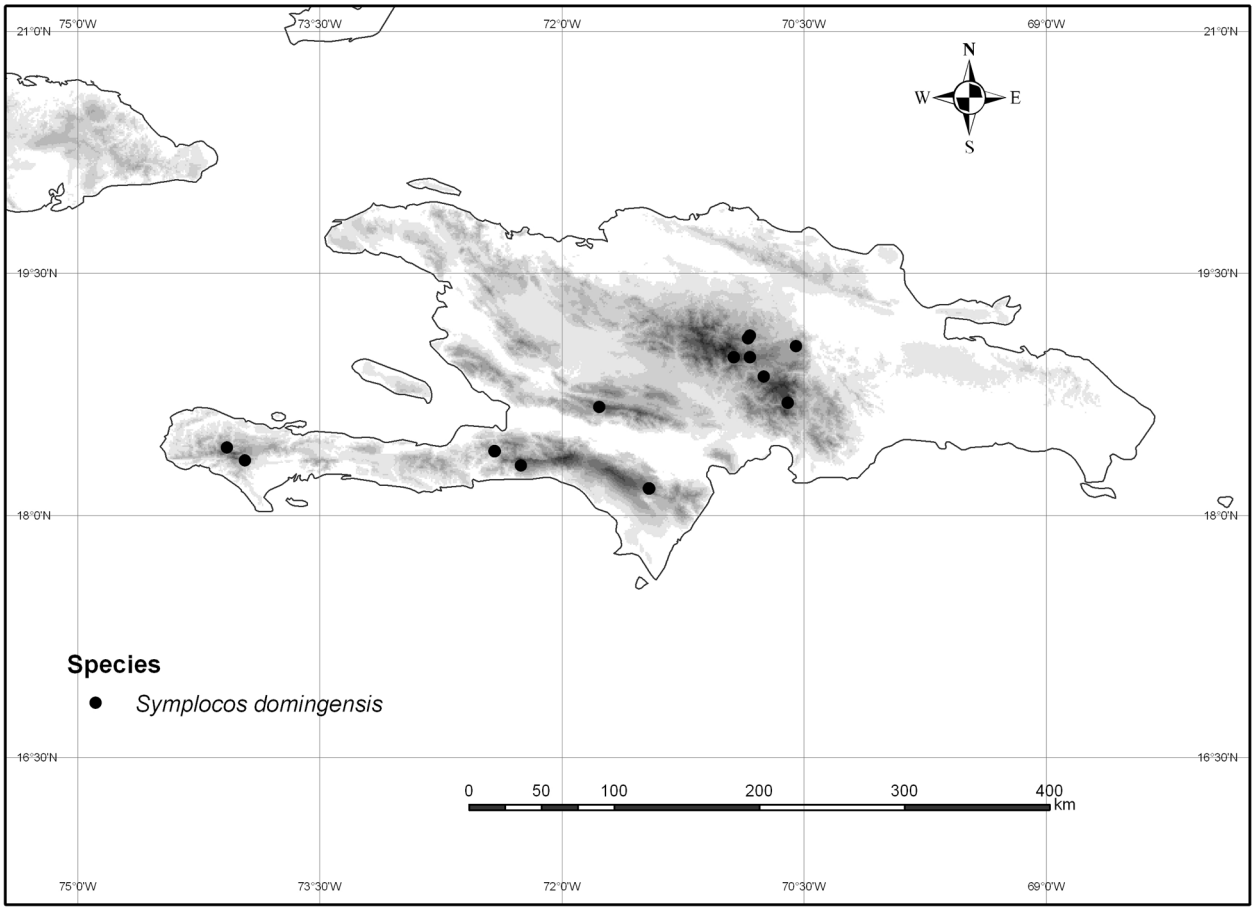

FIGURE 18. Geographic distribution of *Symplocos domingensis*, endemic to Hispaniola.

Discussion—*Symplocos domingensis* is easily distinguished from both *S. hotteana* (the only other species of *S.* ser. *Urbaniocharis* in Hispaniola) and *S. cubensis* (of *S.* ser. *Symplocos*), even when sterile. In addition to the characters in the key, *S. domingensis* can be distinguished from *S. hotteana* by its generally larger leaves [4.7–9.6 × 3.0–5.8 cm versus 3.1–5.2(–7.2) × 1.5–3.3(4.2) cm] with entire margins (versus irregularly denticulate), and rachis, bracts and bracteoles, hypanthium, calyx, and fruit glabrous or nearly so (versus pubescent). When flowers and fruits are not present, *S. domingensis* can be distinguished from *S. cubensis* by its coriaceous leaves (versus chartaceous) with entire margins (versus serrulate-denticulate).

The holotype of *Symplocos domingensis* at B presumably has been destroyed. We selected the NY specimen as the lectotype because it is the only one of the duplicates of *M. D. Fuertes L. 1499* seen by us with both fruit and open flowers.

Additional specimens examined—**HAITI. Grand Anse:** Massif de la Hotte, western Group, Jérémie, Morne l'Etang, *ca.* 1500 m, [18°25'22"N, 74°04'27"W], 22 July 1928, *Ekman 10367* (S!). **Sud:** Massif de la Hotte, western group, Torbec [Torbeck], top of high ridge above La-Mare-Proux [Proux], 1725–1780 m, [18°20'39"N, 73°57'47"W], *Ekman 5322* (S!). **Sud-Est:** Massif de la Selle, group Crèt-à-Piquants, Port-au-Prince, Morne Malanga, *ca.* 1475 m, [18°24'N, 72°25'W], *Ekman 5467* (A!, F!, S!, US!); Massif de la Selle, group Crèt-à-Piquants, Port-au-Prince, Morne Malanga, *ca.* 1250 m, [18°24'N, 72°25'W], *Ekman 5906* (NY!, S!); Massif de la Selle, Marigot at Cd. Bassin Chatard, 1650 m, [18°18'43"N, 72°15'06"W], 9 June 1928, *Ekman 10068* (S!).

DOMINICAN REPUBLIC. Independencia: Sierra de Neiba, Hondo Valle, near La Doscientos Cuatro, 1800–1900 m, [18°40'30"N, 71°46'08"W], 31 March 1969, *Liogier 14626* (NY!). **La Vega:** Cordillera Central, Constanza, top of Loma de Vieja [Loma Vieja], 2075 m, [18°51'43"N, 70°44'55"W], 7 November 1929, *Ekman 14042* (S!); La Nevera, from Valle Nuevo to San José de Ocoa, 2100 m, [18°42'N, 70°36'W], 31 May 1969, *Liogier 15475* (GH!, NY!); Loma Redonda, Ciénaga de la Culata, Constanza, 1600–1950 m, [18°59'N, 70°50'W], 23 September 1969, *Liogier 15997* (NY!, US!); Cordillera Central, Reserva Ebano Verde, summit of Loma

Golandrina (antenna tower road), 1400–1565 m, [19°03'N, 70°33'W], 29 May 1992, *Zanoni et al. 46149* (JBSD!). **San Juan:** Cordillera Central, Parque J. del Carmen Ramírez, above [Valle] del Tetero on the trail toward the valley, 1900–2000 m, [18°59'N, 70°56'W], 30 November 2001, *Clase et al. 3162* (CAS!). **Santiago:** Mpio. Franco Bidó, Paraje Cerro Prieto, Parque National Armando Bermúdez, Loma Alto de Serapio, 1670 m, [19°07'N, 70°50'W], 18 Feb. 1999, *Clase & Peguero 555* (JBSD!); Cordillera Central, Mpio. Franco Bidó, Paraje Cerro Prieto, Parque Nacional Armando Bermúdez, Loma Firme del Barraco [Loma del Barraco], 1670 m, [19°06'0"N, 70°50'41"W], 19 February 1999, *Clase & Peguero 608* (B [image 10 0006544]!, CAS!, JBSD!).

10. *Symplocos hotteana* Urb. & Ekman in Urban (1929: 85). Type:—HAITI. Sud: Massif de la Hotte, western group, near Torbec, summit of Morne Formon, 2225 m, [18°22'N, 74°02'W], 1 January 1927, *E. L. Ekman 7486* (holotype S 32-075!, isotypes K!, NY!, S!, US [2: 1479660 and on-line image 1303780]!).

= *Symplocos azuensis* Mai (1986: 13). Type:—DOMINICAN REPUBLIC. Azua: Cordillera Central, Las Lagunas, 750–800 m, [18°47'N, 70°53'W], 17 June 1926, *E. L. Ekman 6405* (holotype S!, isotypes LL!, US!).

Shrub or tree to 5 m tall. Old branchlets irregularly ridged or angled; young branchlets with appressed to ascending tawny to pale orange trichomes 0.3–0.7 mm long; pseudo-terminal vegetative buds sericeous or pilosulose-sericeous. Petiole 3–5 mm long; leaf blade broadly elliptic, oblong-elliptic, or slightly obovate, 3.1–5.2(–7.2) × 1.5–3.3(4.2) cm, 1.4–2.0 times as long as wide, subcoriaceous or less commonly ± chartaceous, abaxial surface generally olive green to greenish brown, with appressed or erect pale orange trichomes, longer trichomes 0.3–1.0 mm long, adaxial surface greenish brown to dark brown, glabrous or with erect trichomes on midvein proximally, base subcuneate to rounded, margin flat to strongly revolute, entire, with 1 to *ca.* 20 persistent glands on most leaves, apex abruptly short-acuminate to rounded. Inflorescences racemose, 0.7–1.1 cm long, 1- to 4-flowered, peduncle 2–3 mm long, rachis with appressed to erect pale orange trichomes. Bract and bracteoles sericeous, margin ciliate and not glandular except for gland-tipped apex; bract ovate, *ca.* 2.5 × 1.5 mm. Pedicel 0.3–2 mm long; bracteoles subulate to ovate, 1–1.8 × 0.2–0.8 mm. Flowers 5–7 mm long. Hypanthium with appressed pale orange trichomes, longer trichomes *ca.* 0.3 mm long. Calyx lobes deltoid to deltoid-ovate, 1.2–1.7 × 1.1–1.5 mm, with appressed pale orange trichomes, margin ciliate and glandular, apex acute to obtuse. Corolla white, sometimes tinged with red, 3.5–5 mm long, 5-lobed; lobes suborbicular, ovate, or broadly obovate, glabrous or rarely sparsely sericeous proximal-medially, margin erose, without cilia. Stamens up to 2.5 mm long. Ovary 2-locular. Disk pubescent throughout, trichomes white; style abruptly to gradually dilated proximally, 1.7–2 mm long, glabrous. Fruit 11–14 × 5–6 mm, ellipsoid-cylindrical, pilosulose or strigillose with pale orange trichomes, ± glabrescent; calyx lobes erect; disk ovoid or dome-shaped, villous toward base, apex completely visible, equal to or exceeding calyx; endocarp 2-celled.

Illustration—Figure 19.

Phenology—Flowering January; fruiting January, June, August.

Habitat and distribution—Scrub forest, pinelands, cloud forest at 750–2325 m elev. Hispaniola (Haiti, Dominican Republic). Figure 20.

Conservation assessment—*Symplocos hotteana* is endemic to the island of Hispaniola, where it is known to us from five localities. In the Dominican Republic, the AOO is 8 km^2. Both of the known populations occur outside of protected areas and the species has not been recollected in the Dominican Republic since 1950. We therefore categorize this species as Critically Endangered (CR): B2ab(iii) in the Dominican Republic. In Haiti, the EOO is 129 km^2 and AOO is 12 km^2. Two of the three known populations occur in a protected area (Pic Macaya National Park). We categorize this species as Endangered (EN): B2ab(iii) in Haiti.

Discussion—Leaf blade morphology of *Symplocos hotteana* appears to vary with elevation. In localities above 2000 m, i.e., the western Massif de la Hotte in southwestern Hispaniola and the Sierra de Bahoruco in the south-central part of the island, the leaves are subcoriaceous, strongly revolute, and the secondary and tertiary veins are strongly impressed adaxially (e.g., *E. L. Ekman 7486*, *R. A. Howard 12596*). In contrast, in the Cordillera Central in the Dominican Republic at 800 m the leaves are more or less chartaceous and flat, and the secondary and tertiary veins are only faintly impressed adaxially (*E. L. Ekman 6405*). The only other locality in which the species is known to occur, the eastern Massif de la Hotte (*E. L. Ekman 9542*), is situated at 1150 m and is intermediate in leaf morphology.

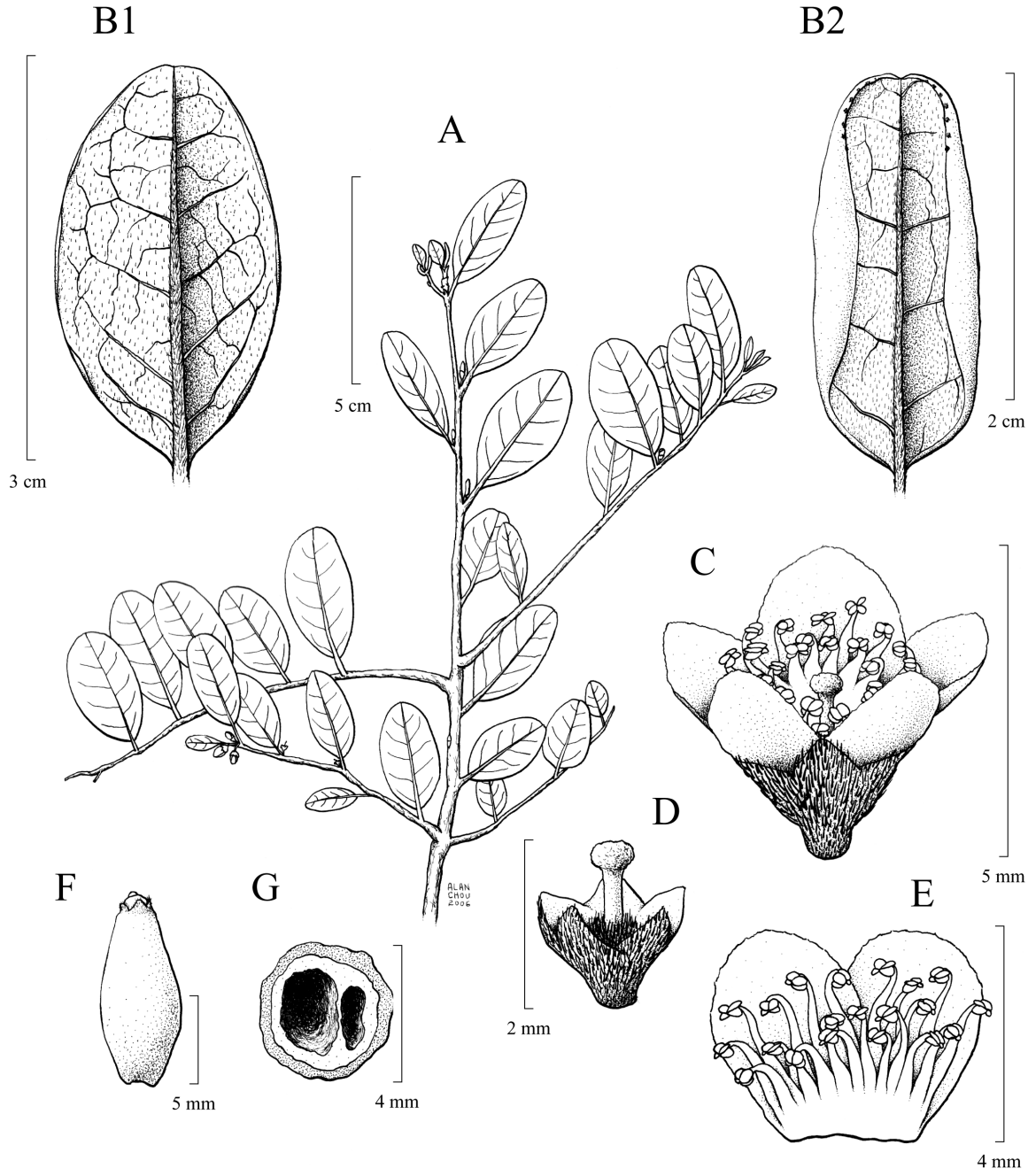

FIGURE 19. *Symplocos hotteana*. **A.** Flowering branch. **B1**–**B2.** Variation in leaf morphology, abaxial view. **C.** Flower. **D.** Calyx and gynoecium. **E.** Section of corolla and androecium, inner view. **F.** Drupe. **G.** Drupe in cross section. (A–B1 drawn from *E. L. Ekman 7486*, K; B2 drawn from *W. S. Judd 3854*, NY; C–E drawn from *E. L. Ekman 7486*, US; F–G drawn from *R. A. Howard 12596*, US.)

Symplocos azuensis was described by Mai (1986) from *E. L. Ekman 6405*, a sterile collection from Las Lagunas in the Cordillera Central. Mai suggested an affinity of this species with *S. ovalis*, and on this basis placed it in *S.* subg. *Hopea* (≡ *S.* sect. *Hopea*). Mai stated that *S. ovalis* differed from *S. azuensis* by its leaves with slightly raised midvein adaxially and with non-lanate nerves abaxially. If correct, this collection would represent the only known occurrence of *S.* sect. *Hopea* in Hispaniola.

In our view, however, the impressed midvein adaxially (versus flat or prominent) and olive green to olive brown color of the leaves abaxially when dry (versus green to yellowish green) serve to effectively exclude *Ekman 6405* from *Symplocos* sect. *Hopea*. Moreover, several features of the collection indicate that it is part of *S. hotteana* rather than a distinct species. In particular, the leaf surface with appressed light orange trichomes abaxially, the irregularly denticulate leaf margin with several persistent glands, and the general size and shape of the leaf are all

consistent with a thin-, flat-, and relatively smooth-leaved low-elevation form of *S. hotteana* located at the extreme eastern end of the species range. On this basis, we consider *S. azuensis* to be a synonym of *S. hotteana*, with the caveat that flowering and fruiting collections of *Symplocos* made from the Las Lagunas region of the Cordillera Central are needed to corroborate this view.

See also comments under *Symplocos cubensis and S. domingensis*.

***Additional specimens examined*—HAITI. Grand Anse:** Massif de la Hotte, western group, Les Roseaux, Morne La Hotte [Pic de Macaya], *ca.* 2325 m, [18°23'N, 74°02'W], 13 September 1928, *Ekman 10630* (F!, S!). **Ouest:** Massif de la Hotte, eastern group, Cd. Goave, Morne Descassiers [Decassiere], *ca.* 1150 m, [18°18'N, 72°45'W], 28 January 1928, *Ekman 9542* (S!). **Sud:** Massif de la Hotte, Parc National Pic Macaya, along crest of Morne Formon, 1800–2070 m, [18°22'N, 74°02'W], 29 January 1984, *Judd 3854* (GH!, NY!, S!); Massif de la Hotte, western group, Morne Formon, along ridge of mtn. down into the Ravine du Sud, 2000–2100 m, [18°22'N, 74°02'W], 12 June 1993, *Judd & Skean, Jr. 6965* (NY!); Massif de la Hotte, Morne Formon, 1 km above Brent's Camp, 2100 m, [18°22'N, 74°02'W], 5 July 1985, *Skean, Jr. 1670* (NY!).

DOMINICAN REPUBLIC. Pedernales: near crest on trail to Pedernales from Puerto Escondido and El Aguacate, 6500 ft, [18°13'N, 71°35'W], 24 August 1950, *Howard 12596* (A!, US!).

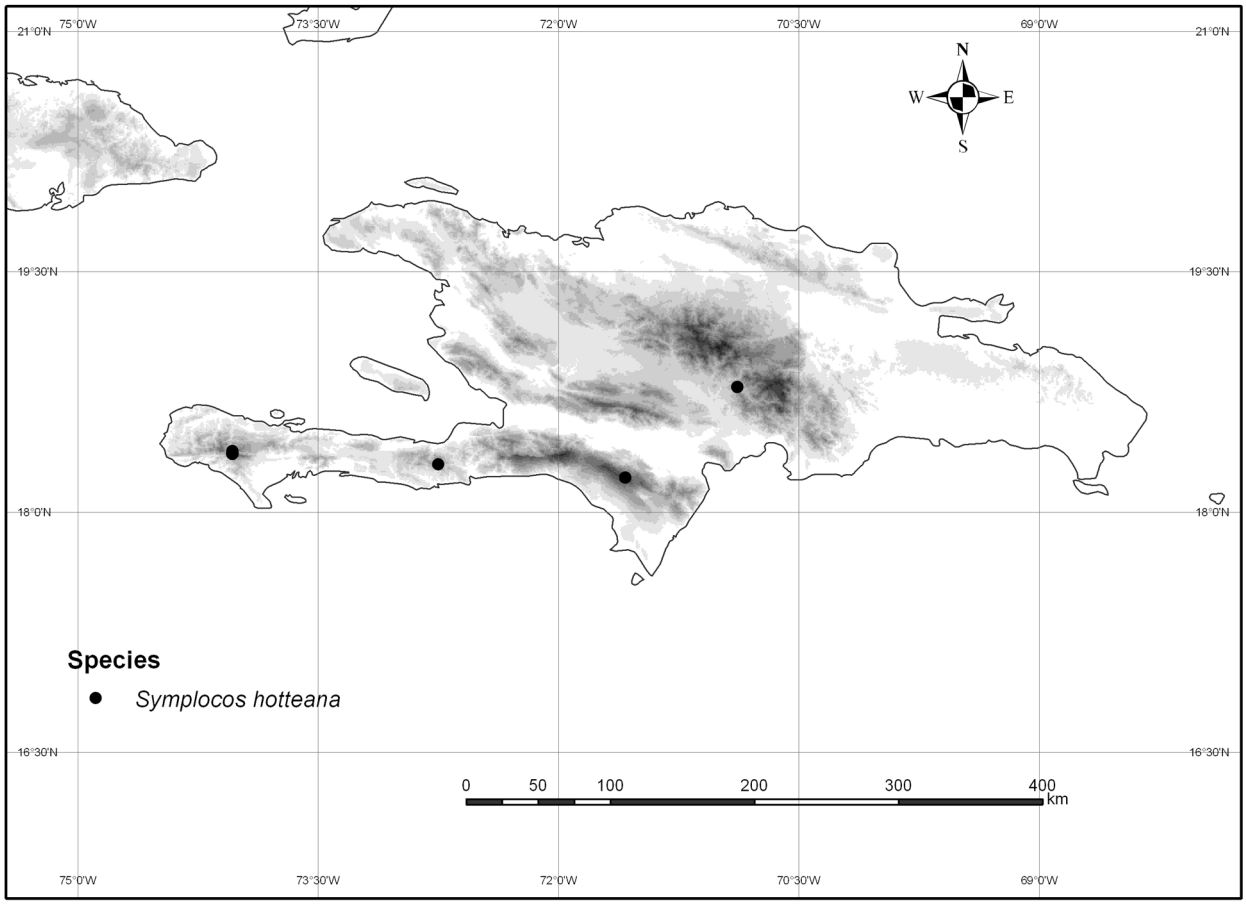

FIGURE 20. Geographic distribution of *Symplocos hotteana*, endemic to Hispaniola.

11. *Symplocos lanata* Krug & Urb. in Urban (1893: 335). Lectotype (designated here):—PUERTO RICO. Adjuntas: Mount Cienega near Adjuntas, 11 April 1886, *P. E. E. Sintenis 4171b* (NY!, isolectotypes C!, F!, GOET [2]!, LD on-line image 1244610!, MO!, S [2]!).

Tree to 6 m tall. Old branchlets irregularly ridged or angled; young branchlets with ascending ferrugineous trichomes mostly 1–1.3 mm long; pseudo-terminal vegetative buds densely hirsute. Petiole 1–3(–6) mm long; leaf blade elliptic, 4.0–7.7 × 2.2–4.2 cm, 1.5–2.0 times as long as wide, thick-chartaceous to coriaceous, abaxial surface

generally olive green, light brown, or brown, with appressed to erect ferrugineous trichomes, longer trichomes 1.1–1.7 mm long, midvein trichomes denser, ferrugineous, spreading-erect, the longer 1.8–2 mm long, adaxial surface dark green to dark brown, with erect trichomes on midvein proximally, otherwise glabrous, base broadly acute to rounded, margin strongly revolute, entire, with glands occasionally persistent, apex obtuse to abruptly acuminate. Inflorescences fasciculate, 0.7–1.0 cm long, 1- to 4-flowered, peduncle 0.5–1 mm long, rachis with dense erect ferrugineous trichomes. Bract and bracteoles pilose throughout, margin not glandular or sometimes glandular; bract deltoid-ovate, 1.8–3 × 1.4–1.7 mm. Pedicel absent; bracteoles subulate to narrow-deltoid, 1.2–2.3 × 0.2–0.7 mm. Flowers 5–6 mm long. Hypanthium with dense ascending to erect ferrugineous trichomes, longer trichomes 0.8–1.3 mm long. Calyx lobes narrow-deltoid, 1.8–2.3 × 1.2–1.5 mm, with dense appressed to erect ferrugineous trichomes throughout, margin often glandular, apex acute. Corolla white, 3–4 mm long, 5-lobed; lobes broadly obovate, glabrous or rarely sparsely sericeous proximal-medially, margin erose, without cilia. Stamens up to 1.5 mm long. Ovary 2-locular. Disk pubescent throughout, trichomes white; style abruptly to gradually dilated proximally, 1.5–1.7 mm long, glabrous. Fruit dark purple, ellipsoid-cylindrical, 10–11 × *ca.* 3.5 mm, villous with orange trichomes; calyx lobes erect to spreading-recurved; disk ovoid or dome-shaped, lanate toward base only or throughout, apex completely visible, exceeded by calyx; endocarp 2-celled.

Vernacular names—Níspero Cimarrón (Britton and Wilson 1925, Liogier 1995); Palo de Níspero Cimarrón (Urban 1893).

Illustration—Figure 21.

Images—Figure 2D, 2E.

Phenology—Flowering January, March–June; fruiting July, August.

Habitat and distribution—Cloud forests, dwarf forests, dense montane scrub at 800–1338 m elev. Puerto Rico. Figure 22.

Conservation assessment—*Symplocos lanata* is endemic to the Cordillera Central of Puerto Rico at middle to high elevations, with an EOO of 325 km² and AOO of 32 km². It was cited as endangered by Woodbury (1975) and rare by Little & Woodbury (1980). Although six of the nine populations known to us occur in the Bosque Estatal de Toro Negro, during field work by the first author *S. lanata* was difficult to locate in the Cerro Punta/Cerro Jayuya area of the Cordillera Central, with only two individuals ultimately found. We therefore categorize this species as Vulnerable (VU): B2ab(iii).

Discussion—In contrast to the opinion of Mai (1986), who considered this species to be conspecific with *Symplocos micrantha*, we consider *S. lanata* to be morphologically distinct and geographically disjunct from *S. micrantha*. The latter is the only other species of *S.* ser. *Urbaniocharis* in Puerto Rico and is circumscribed here as endemic to the Sierra de Luquillo in the northeastern part of the island. *Symplocos lanata* is easily distinguished from *S. micrantha* by branchlet trichomes 1–1.3 mm long (versus 0.3–0.6 mm long), abaxial leaf blade surface trichomes 1.1–1.7 mm long (versus 0.3–0.4 mm long), and abaxial leaf blade midvein trichomes 1.8–2 mm long (versus 0.6–0.8 mm long). In addition, the leaf blades of *S. lanata* are generally smaller (4.0–7.7 × 2.2–4.2 cm versus 6.0–10.6 × 3.4–5.5 cm) and the inflorescences have fewer flowers (1 to 4 versus 2 to *ca.* 30).

The collections *P. E. E. Sintenis 4171*, *4171b*, and *4503* were all cited in the protologue of *Symplocos lanata* without indication of the type. We selected *Sintenis 4171b* as the lectotype because it has better flowering material than *Sintenis 4503* and its duplicates are more widely distributed than those of *Sintenis 4171*. We selected the NY specimen because the B specimen presumably has been destroyed, and among the remaining material, the NY specimen has the best flowering material.

See also comments under *Symplocos latifolia*.

Additional specimens examined—**PUERTO RICO.** County unspecified: near Peñuelas, Mt. Tagua, 10 November 1886, *Sintenis 4503* (GH!, K!, US!, W!). **Adjuntas:** summit of Pico Guilarte, 1200 m, [18°08'29"N, 66°46'08"W], 18 July 1963, *Liogier 10021* (F!, NY!, US!); Mt. Cienega, 13 May 1886, *Sintenis 4171* (GH!, JE!). **Ciales:** Cordillera Central, Barrio Toro Negro, Upper E slopes and summit of middle peak, Los Tres Picachos, 1150–1200 m, [18°13'0"N, 66°32'30"W], 23 August 1986, *Proctor 42050* (SJ!); Cordillera Central, Toro Negro State Forest, NNW of Lago El Guineo Dam, 1000–1110 m, [18°09'41"N, 66°31'38"W], 26 March 1988, *Proctor 44590* (MO!, SJ!, US!). **Jayuya:** Toro Negro Forest Reserve, N slope of Monte Jayuya, *ca.* 1300 m, [18°10'11"N, 66°34'30"W], 17 January 1992, *Axelrod et al. 3737* (UPRRP!); along Route 143, E of Cerro de Punte [Punta], Bosque Toro Negro, [18°10'28"N, 66°35'32"W], 22–30 January 1963, *Howard & Nevling 15435* (A!); Cordillera Central, Bosque Toro Negro, near summit of Cerro de Punta, 1300 m, [18°10'28"N, 66°35'32"W], 13 June 1975,

Judd 516 (A!); mtns. of Toro Negro, Cerro de Punta, 1300 m, [18°10'28"N, 66°35'32"W], 10 July 1962, *Liogier 9454* (NY!), 11 July 1962, *Liogier 9467* (A!, NY!); Cerro Maravilla [Maravillas] area, 800–900 m, [18°09'18"N, 66°33'16"W], 30 January 1979, *Liogier et al. 28264* (NY!, UPR!); Cerro de Punta, 1300 m, [18°10'28"N, 66°35'32"W], 9 may 1979, *Liogier & Liogier 28911* (NY!, UPR!, US!); between Cerro de Punta and Cerro Maravilla, 1000 m, [18°10'02"N, 66°34'51"W], 23 May 1984, *Liogier & Martorell 35091* (MO!, NY!, UPR!); Caribbean National Forest, Cerro [de] Punta, Toro Negro Division, 4000 ft, [18°10'28"N, 66°35'32"W], 16 August 1950, *Little 13676* (GH!, NY!, UPR!); summit of Cerro de Punta, Toro Negro Forest, 4390 ft, [18°10'28"N, 66°35'32"W], 19 June 1954, *Little 16319* (GH!, NY!, UPR!, US!); Cordillera Central, Toro Negro State Forest, upper slopes and summit of Cerro de Punta, 1300–1338 m, [18°10'28"N, 66°35'32"W], 17 July 1985, *Proctor 41250* (NY!, SJ!, UPR!). **Ponce:** Barrio Anón, Toro Negro Forest Reserve, trail along SE side of Monte Jayuya, *ca.* 1225 m, 18°9.99'N, 66°34.54'W, 24 April 2003, *Axelrod & Fritsch 12546* (CAS!), 21 July 2003, *Axelrod et al. 12666* (CAS!). **San Lorenzo:** Cerro la Santa, Caribe Forest, [18°06'56"N, 66°03'09"W], 31 October 1967, *Wagner 1271* (A!).

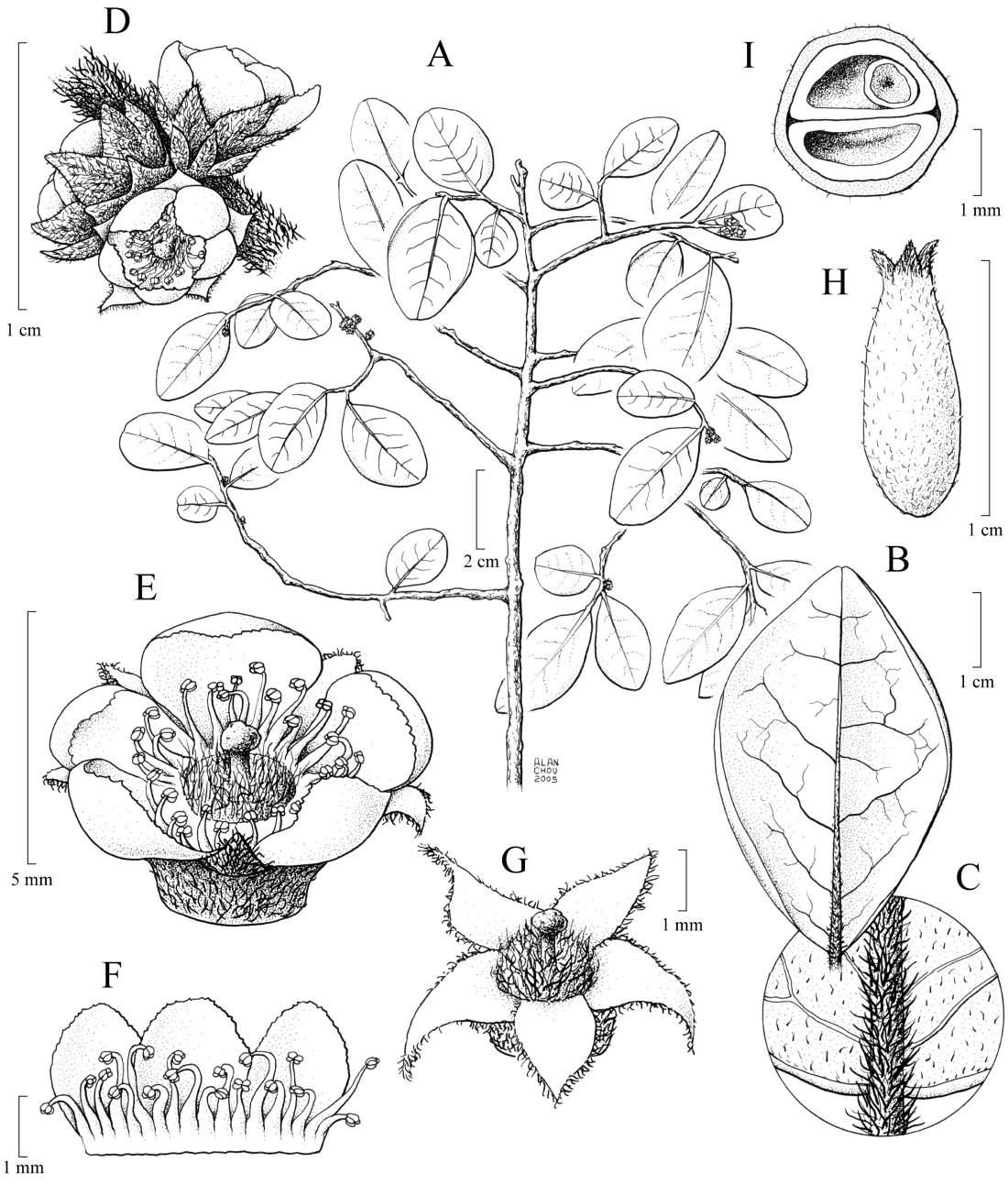

FIGURE 21. *Symplocos lanata*. **A.** Flowering branch. **B.** Leaf, abaxial view. **C.** Close-up of abaxial leaf surface at midvein region. **D.** Inflorescence. **E.** Flower. **F.** Section of corolla and androecium, inner view. **G.** Calyx and gynoecium. **H.** Drupe. **I.** Drupe in cross section. (A–G drawn from *F. Axelrod & P. W. Fritsch 12546*, CAS; H–I drawn from *F. Axelrod et al. 12666*, CAS.)

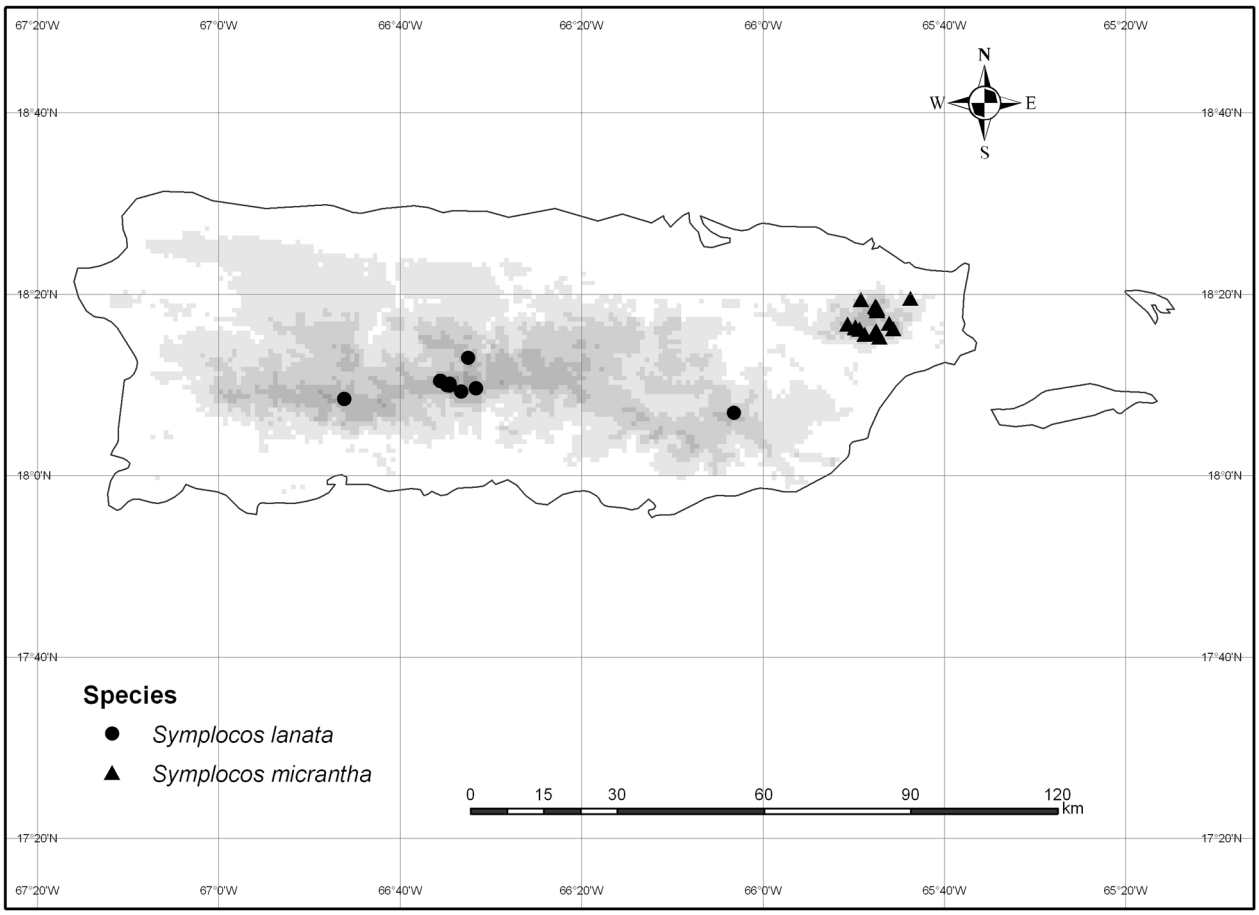

FIGURE 22. Geographic distribution of *Symplocos lanata* and *S. micrantha*, endemic to Puerto Rico.

12. *Symplocos leonis* Britton & P. Wilson in Britton (1923: 46). Type:—CUBA. Sierra Maestra, Pico Turquino, [19°59'N, 76°50'W], July 1922, *J. S. S. Léon 10738* (holotype NY!, isotype HAC).

Shrub or small tree. Old branchlets irregularly ridged or angled; young branchlets with appressed ferrugineous trichomes 0.2–0.5 mm long; pseudo-terminal vegetative buds sericeous or pilosulose-sericeous. Petiole 3–6 mm long; leaf blade elliptic, (3.5–)6.3–9.4 × (2.0–)2.7–4.0 cm, (1.8–)2.3–2.6 times as long as wide, ± chartaceous to rarely subcoriaceous, abaxial surface generally light brown, with appressed tawny trichomes, longer trichomes 0.2–0.4 mm long, midvein trichomes appressed, tawny, the longer 0.6–0.7 mm long, adaxial surface dark green to dark brown, glabrous, base acute, margin flat or rarely irregularly revolute, entire, with glands caducous, apex obtuse to slightly short-acuminate. Inflorescences racemose, 0.5–0.9 cm long, 1- to 4-flowered, peduncle 0.5–2 mm long, rachis with ascending to erect ferrugineous trichomes. Bract and bracteoles sericeous throughout, margin often glandular; bract ovate to deltoid or linear, 1.8–3.5 × 1.1–1.5 mm. Pedicel nearly absent to 1 mm long; bracteoles subulate or narrow-deltoid, 1–1.6 × 0.2–0.3 mm. Flowers 5–6 mm long. Hypanthium with appressed to erect ferrugineous trichomes, longer trichomes 0.2–0.4 mm long. Calyx lobes ovate to deltoid-ovate, 1.2–1.8 × 0.9–1.2 mm, with appressed ferrugineous trichomes, margin ciliate and often glandular, apex acute to rounded. Corolla white, 3–4 mm long, 5-lobed; lobes obovate, glabrous or rarely sparsely strigillose medially, margin erose, without cilia. Stamens up to 1.8–2.0 mm long. Ovary 2-locular. Disk pubescent throughout, trichomes white; style gradually dilated proximally, *ca.* 1 mm long, glabrous. Fruit ellipsoid, 7–10 × 4–5 mm, sparsely villous with pale orange trichomes; calyx lobes erect; disk ovoid, lanate toward base, apex completely visible, exceeding calyx; endocarp 2-celled.

Illustration—Figure 23.

Phenology—Flowering July, August; fruiting July [August (Mai 2005)].

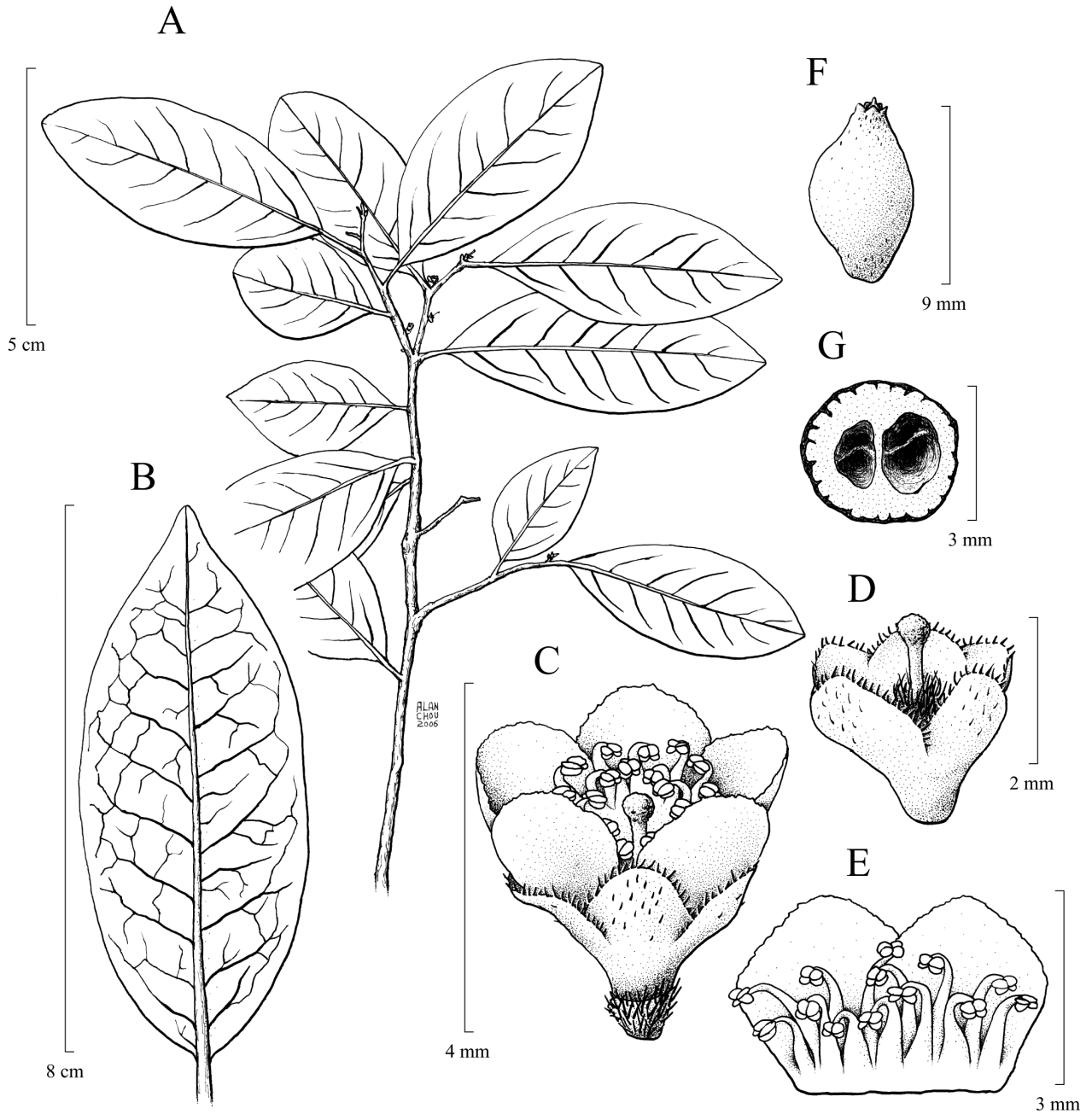

FIGURE 23. *Symplocos leonis*. **A.** Flowering branch. **B.** Leaf, abaxial view. **C.** Flower. **D.** Calyx and gynoecium. **E.** Section of corolla and androecium, inner view. **F.** Drupe. **G.** Drupe in cross section. (A–B drawn from the holotype; C–E drawn from *A. Álvarez de Zayas et al. 27467*, JE; F–G drawn from *E. L. Ekman 14511*, S.)

Habitat and distribution—Woods, steep rocky slopes, cloud forest at 1000–2040 m elev. Cuba. Figure 24.

Conservation assessment—*Symplocos leonis* is endemic to the high elevations of the Sierra Maestra in Granma and Santiago de Cuba provinces. It is represented by the most collections of the four species of *S.* ser. *Urbaniocharis* in Cuba, although the number of collections made is still small and the species must be uncommon. The EOO is 231 km² and the AOO is 20 km²; all of the five populations known to us are apparently afforded some means of protection by their occurrence within Parque Nacional de Turquino. Therefore, we categorize this species as Near Threatened (NT).

Discussion—*Symplocos leonis* appears not to overlap in range with the other Cuban species of *S.* ser. *Urbaniocharis*, i.e., *S. baracoensis*, *S. ciponimoides*, and *S. moaensis*. See comments under respective species for differences between *S. leonis* and each of these species.

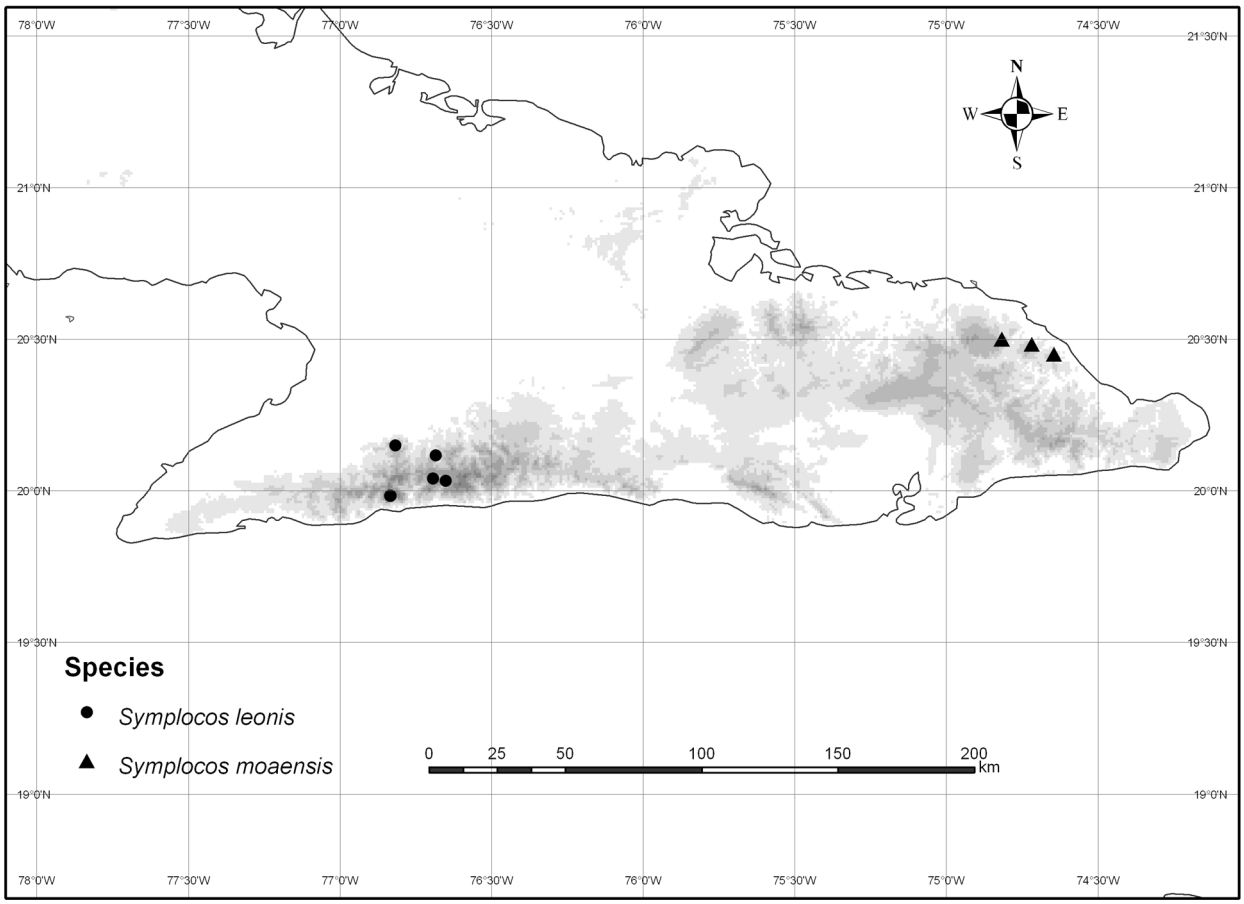

FIGURE 24. Geographic distribution of *Symplocos leonis* and *S. moaensis*, endemic to eastern Cuba.

Additional specimens examined—**CUBA.** Province undetermined: Sierra Maestra, W slope of Loma Joaquim, *ca.* 1400 m, 20 July 1922, *Ekman 14460* (NY!, S [2]!, US!). **Granma:** Mpio. Buey Arriba, Sierra Maestra, vicinity of Barrio Nuevo (ca. 4 km S of El Manguito), 1400 m, [20°02'24"N, 76°41'31"W], 10 May 1988, *Álvarez de Zayas et al. HFC 63825* (B [image 10 0386290]!); Sierra Maestra, Alto de la Maestriza [Maestrica], 1300–1400 m, [20°09'N, 76°49'W], 10 April 1969, *Bisse & Lippold 14433* (JE!). **Santiago de Cuba:** summit of Pico Turquino, Sierra Maestra, 5960 ft, [19°59'N, 76°50'W], 1–2 August 1935, *Acuña Galé 6155* (NY!); Mpio. Guamá, Sierra Maestra, between Lagunitas and Aguada de Joaquín, 900–1300 m, *Bisse et al. HFC 40421* (B [image 10 0409483]!); Pico Suecia, [19°59'N, 76°50'W], 7 December 1969, *Borhidi et al. 54/12* (HAC!); Sierra Maestra between Pico Turquino and Punta de Palmamocha [Palma Mocha] in "Zangales", 18 April 1915, *Ekman 5553* (B!); summit of Pico Turquino, Sierra Maestra, 2040 m, [19°59'N, 76°50'W], 22–24 July 1922, *Ekman 14511* (S!); Sierra Maestra, Loma Region on the N spur of Pico Turquino, *ca.* 1700 m, [19°59'N, 76°50'W], 24 July 1922, *Ekman 14596* (S!); summit of Pico Turquino, Sierra Maestra, 2040 m, [19°59'N, 76°50'W], 22–24 July 1922, *Ekman 14815* (S!); Loma del Gato, Sierra Maestra, 1000 m, [20°07'N, 76°41'W], July 1921, *León 10372* (US!); near Pico Turquino, Sierra Maestra, 1700–2000 m, [19°59'N, 76°50'W], July 1922, *León 10907* (GH!, NY!, US!); Pico Turquino, [19°59'N, 76°50'W], July 1922, *León 10972* (NY!); summit of Pico Turquino, Sierra Maestra, 1980 m, [19°59'N, 76°50'W], 11 May 1971, *Lippold & Gonzalez 18841* (JE!); Sierra Maestra, Río Peladero, Alto Valenzuela, [20°02'N, 76°39'W], 12 August 1955, *López-Figueras 2327* (HAC!).

13. *Symplocos micrantha* Krug & Urb. in Urban (1893: 336). Lectotype (designated here):—PUERTO RICO. Sierra de Luquillo, Mount Jimenes, 26 June 1885, *P. E. E. Sintenis 1517* (K!, isolectotypes C!, F [2]!, GH!, LD on-line image 1244550!, MO!, NY!, S!, US!, W!).

Shrub or tree to 9 m tall. Old branchlets irregularly ridged or angled; young branchlets with appressed to ascending

ferrugineous trichomes 0.3–0.6 mm long; pseudo-terminal vegetative buds densely hirsute or hirsute-sericeous. Petiole 2–7 mm long; leaf blade broadly elliptic, ovate-elliptic, elliptic, suborbicular, or oblong-elliptic, 6.0–10.6 × 3.4–5.5 cm, 1.3–2.2 times as long as wide, subcoriaceous, abaxial surface generally olive green, with appressed tawny to orange trichomes, longer trichomes 0.3–0.4 mm long, midvein trichomes denser, ascending, ferrugineous, the longer 0.6–0.8 mm long, adaxial surface dark greenish brown, with erect trichomes on midvein proximally, otherwise glabrous, base acute or more commonly subrounded to rounded, margin revolute at least proximally, occasionally strongly revolute throughout, entire or subdenticulate, with glands occasionally persistent, apex abruptly acuminate, rounded, or abortive. Inflorescences racemose or fasciculate, 0.5–1.2 cm long, 2- to ± 30-flowered, peduncle 0–3 mm long, rachis with erect ferrugineous trichomes. Bract and bracteoles sericeous-pilose, margin ciliate and occasionally glandular; bract narrow-deltoid to nearly linear, 1–2.8 × 0.7–1 mm. Pedicel absent; bracteoles narrow-deltoid to subulate, 0.7–1.5 × 0.2–0.6 mm. Flowers 4–5 mm long. Hypanthium with dense appressed to erect ferrugineous trichomes, longer trichomes 0.6–0.7 mm long. Calyx lobes deltoid to deltoid-ovate, 1.5–2.4 × 0.9–1.3 mm, with appressed ferrugineous trichomes, margin ciliate and occasionally glandular, apex acute to acuminate. Corolla white, occasionally tinged with pink, 2.5–3.5 mm long, 5-lobed; lobes suborbicular, glabrous or rarely sparsely sericeous proximal-medially, margin erose and ciliolate, cilia to 0.1 mm long. Stamens up to 1.3–1.5 mm long. Ovary 2-locular. Disk pubescent throughout or pubescent apically and glabrous laterally, trichomes white; style gradually dilated proximally, 1–1.2 mm long, glabrous or proximally lanate. Fruit ovoid-cylindrical to cylindrical, 9–10 × 3–4 mm, pilose or villous with orange trichomes; calyx lobes erect to spreading-recurved; disk ovoid, lanate toward base only or throughout, apex completely visible, equal to or exceeding calyx; endocarp (1-)2-celled.

Vernacular names—Aceitunillo (Liogier 1995).

Illustration—Figure 25.

Images—Figure 2F.

Phenology—Flowering February–April; fruiting April, June.

Habitat and distribution—Wet montane forest, montane dwarf forest, wet sclerophyllous forest, high open areas, river banks at 500–970 (–1075?) m elev. Puerto Rico. Figure 22.

Conservation assessment—*Symplocos micrantha* is endemic to the Sierra de Luquillo in northeastern Puerto Rico, with an EOO of 68 km² and area of occupancy is 52 km². The species is known to us from 12 localities, all of which occur in the Bosque Nacional El Yunque. Little & Woodbury (1980) list the species as rare. Considering the limited area of occurrence and the probability that the entirety of *S. micrantha* may consist of less than 1000 individuals, we categorize this species as Vulnerable (VU): D1.

Discussion—Two collections were cited in the protologue of *Symplocos micrantha*: *P. E. E. Sintenis 1517* and *6922*. We chose *Sintenis 1517* as the lectotype of *S. micrantha* because we have not located material of *Sintenis 6922*. The B specimens of both collections presumably have been destroyed. We selected the K specimen of *Sintenis 1517* because it has the most fruiting material of any of the duplicates of this collection that we have seen. See also comments under *Symplocos lanata* and *S. latifolia*.

Additional specimens examined—**PUERTO RICO.** County undetermined: Sierra de Naguabo. Barrio de Maizales, 850 m, 9 March 1914, *Britton & Hess 2273* (CAS!, F!, NY!, S!, US!); Catalina-Yunque Trail, Luquillo Mtns., 500 m, 23–26 February 1923, *Britton & Bruner 7658* (NY!, UPR!, US!); Luquillo Mtns., year 1935, *Gerhart 290* (NY!); above Km 15 on Route 191, S side of Luquillo Mtns., [18°15'44"N, 65°47'41"W], 26 October 1967, *Howard 16807* (A!); **Ceiba:** Pico del Oeste, Sierra de Luquillo, 1020 m, [18°19'36"N, 65°43'4"W], 24 March 1966, *Evans 138* (C!); **Luquillo:** Sabana, Luquillo, [18°19'36"N, 65°43'41"W], 6 October 1939, *Gregory 349* (UPR!); El Yunque Rock, [18°18'44"N, 65°47'36"W], 5 April 1965, *Howard & Nevling 15781* (US!). **Naguabo:** Caribbean National Forest, El Yunque, El Toro Peak Trail, 850–1075 m, 18°16.2'N, 65°49.3'W, 4 January 1995, *Acevedo-Rodriguez 7109* (UPRRP!, US!); Barrio Río Blanco, Caribbean National Forest, along 1.5 km stretch up Río Sabana S of closed portion of Route 191, 480–680 m, [18°15'19"N, 65°47'06"W], 29 February 1991, *Axelrod & Chavez 4129* (NY!, UPRRP!); Barrio Río Blanco, Caribbean National Forest, *ca.* 2 km from Pico del Este, *ca.* 900 m, [18°16'49"N, 65°46'04"W], 25 April 2003, *Axelrod et al. 12554* (CAS!); Luquillo Mtns., upper Hicaco [Río Icacos] Valley, Luquillo Experimental Forest, 2400 ft, [18°16'N, 65°47'30"W], 23 August 1952, *Little 14899* (GH!, NY!, UPR!); along Navy rd to Pico del Este, *ca.* 3000 ft, [18°16'14"N, 65°45'34"W], 9 March 1989, *Taylor 8574* (NY!, UPRRP!); near cabins at La Mina, Luquillo Mtns., [18°15'38"N, 65°48'44"W], 2 February 1965, *Wagner 760* (A!); along Route 191 at Km 15.2 on S side of Luquillo Mtns., [18°16'N, 65°47'30"W], 21 April

1968, *Wagner 1472* (A!). **Río Grande:** Barrio Jiménez/Barrio Cubuy, Caribbean National Forest, upper part of El Toro Trail from Route186, *ca.* 900 m, 18°16.72' N, 65°50.63'W, 21 April 2003, *Axelrod & Fritsch 12511* (CAS!); Barrio Jiménez/Barrio Cubuy, Caribbean National Forest, upper part of El Toro Trail from Route 186, *ca.* 950 m, 18°16.72' N, 65°50.63'W, 21 April 2003, *Axelrod & Fritsch 12512* (CAS!); [Pico] El Toro, Luquillo Mtns., 3200 ft, [18°16'20"N, 65°49'45"W], May 1935, *Gerhart 281* (UPR!); along Baño de Oro Trail, 3/4 mi above pool, [18°18'29"N, 65°47'24"W], 23 December 1939, *Holdridge 87* (NY!, UPR [2]!); along Espíritu Santo River, El Verde, Luquillo Mtns., 500 m, [18°19'27"N, 65°49'10"W], 14 August 1990, *Liogier 36872* (NY!, UPR!); Luqillo Mtns., Luquillo Expt. Forest, trail to El Toro Peak, 2500–3500 ft, [18°16'20"N, 65°49'45"W], 9 March 1972, *Little 26013* (NY!, US!); Sierra de Luquillo, Caribbean National Forest along El Toro Trail, *ca.* 2 km from Route 191, 750–800 m, [18°18'12"N, 65°47'22"W], 8 January 1989, *Proctor 45660* (SJ!); Sierra de Luquillo, Caribbean National Forest along El Toro Trail, Km 0.5 to 1.5, 780 m, [18°18'12"N, 65°47'22"W], 19 July 1995, *Proctor 50067* (SJ!); [Pico] El Yunque, 600 m, [18°18'38"N, 65°47'29"W], 10 April 1938, *Sargent 294* (US!); [Pico] El Yunque, [18°18'38"N, 65°47'29"W], April 1961, *Woodbury s.n.* (UPR!); Toro Negro [Pico El Toro], Luquillo, [18°16'27"N, 65°49'47"W], April 1971, *Woodbury s.n.* (NY!, US!).

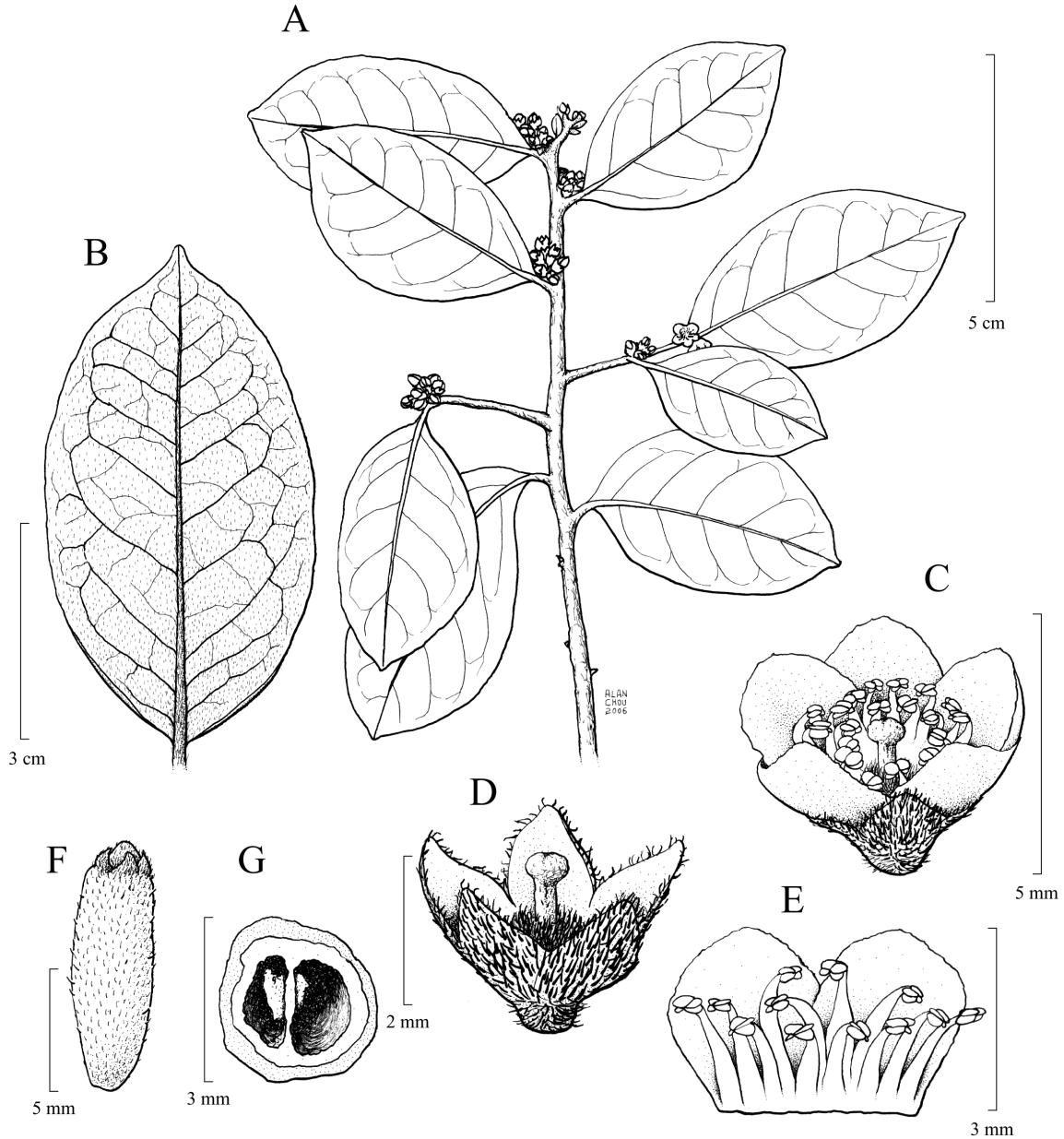

FIGURE 25. *Symplocos micrantha*. **A.** Flowering branch. **B.** Leaf, abaxial view. **C.** Flower. **D.** Calyx and gynoecium. **E.** Section of corolla and androecium, inner view. **F.** Drupe. **G.** Drupe in cross section. (A–E drawn from *N. L. Britton & W. E. Hess 2273*, NY; F–G drawn from *E. L. Ekman 14511*, S.)

14. ***Symplocos moaensis*** Borhidi in Borhidi & Muñíz (1976: 315) . Type:—CUBA. Guantánamo: Mina Iberia [La Altiplanicie de Monte Iberia], Taco Bay, Baracoa, [20°29'N, 74°43'W; see Quesada 2002], *E. Del-Risco 27167* (holotype HAC; photograph of holotype at NY!).

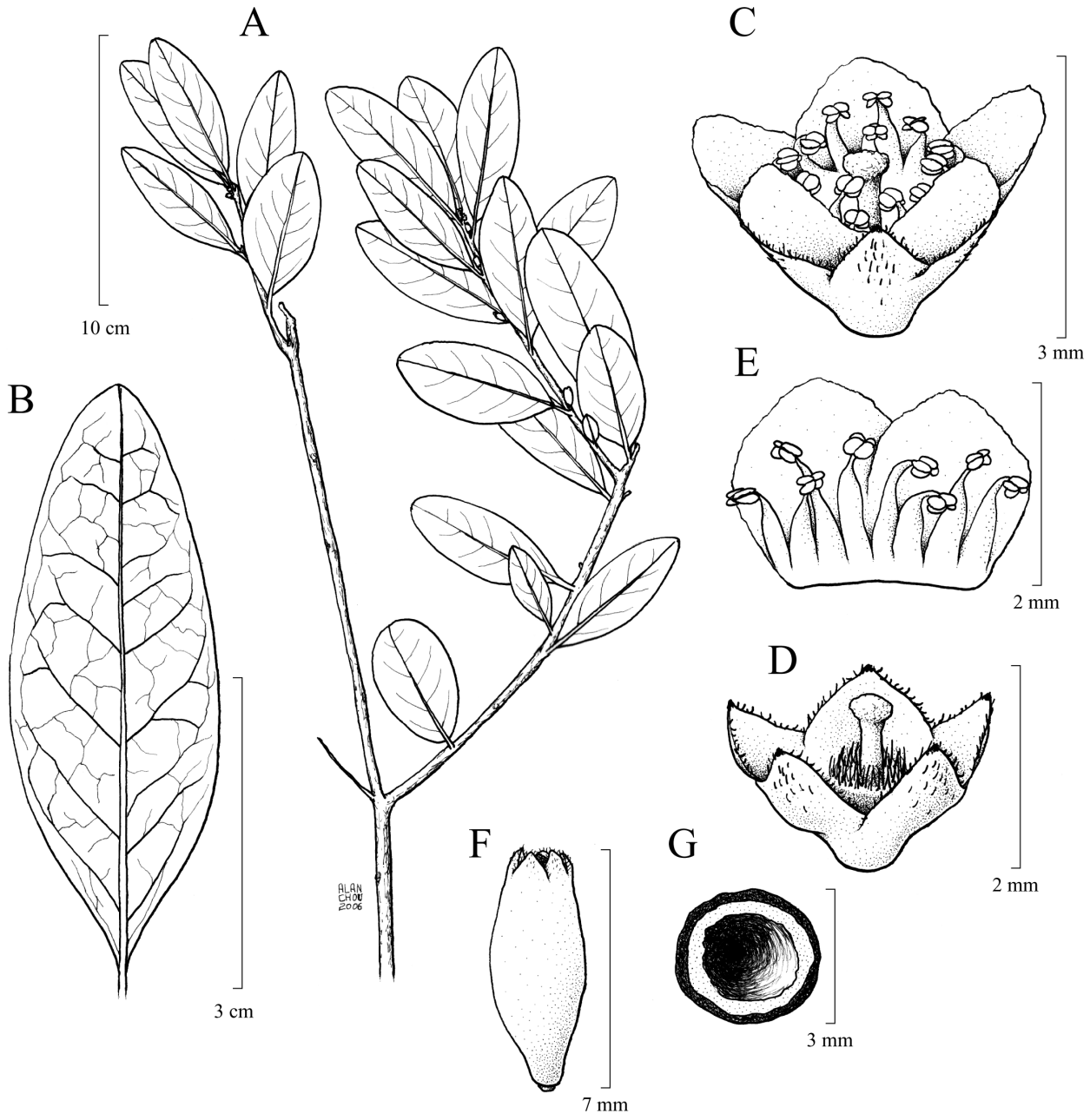

FIGURE 26. *Symplocos moaensis*. **A.** Flowering branch. **B.** Leaf, abaxial view. **C.** Flower. **D.** Calyx and gynoecium. **E.** Section of corolla and androecium, inner view. **F.** Drupe. **G.** Drupe in cross section. (A–G drawn from *J. Bisse & H. Lippold 11648*, JE.)

Shrub or small tree. Old branchlets irregularly ridged or angled; young branchlets and pseudo-terminal vegetative buds glabrous. Petiole 2–4 mm long; leaf blade elliptic, oblong-elliptic, or slightly oblong-obovate, 6.3–8.6 × 3–3.6 cm, 1.8–2.9 times as long as wide, coriaceous, abaxial surface dark green to brown, glabrous, adaxial surface olive green to yellowish green, glabrous, base cuneate-attenuate, margin revolute, entire, with glands caducous, apex obtuse to rounded, slightly emarginate, or abortive. Inflorescences racemose, 0.4–1.4 cm long, 1- to 6-flowered, peduncle 1–2 mm long, rachis with appressed ferrugineous trichomes. Bract and bracteoles strigillose, margin ciliate, not glandular except for the gland-tipped apex; bract ovate to narrow-deltoid, 1.5–1.7 × 0.4–0.6 mm.

Pedicel absent or up to 2 mm long; bracteoles 1–1.2 × 0.2–0.3 mm. Flowers 4–5 mm long. Hypanthium glabrous. Calyx lobes deltoid-ovate, 1–1.5 × 1–1.2 mm, with sparse appressed ferrugineous trichomes, margin ciliate and glandular, apex acute. Corolla 2.5–3 mm long, 5-lobed; lobes ovate, glabrous, margin erose, without cilia. Stamens up to 1.8 mm long. Ovary 2-locular. Disk high-undulate-annular, pubescent apically, glabrous laterally, trichomes white; style 1–1.3 mm long, glabrous, of equal width throughout. Fruit cylindrical-turbinate, *ca.* 10 × 3 mm, glabrous; calyx lobes erect; disk ovoid, lanate toward base, apex completely visible, equal to calyx; endocarp 2-celled.

Illustration—Figure 26.

Phenology—Flowering December; fruiting December (flowering August-March, fruiting August, according to Mai 2005).

Habitat and distribution—Wet montane forest, charrascal ("matorral xeromorfo subespinoso sobre serpentina"; Mai 2005) at 400–600 m elev. Cuba. Figure 24.

Conservation assessment—*Symplocos moaensis* is known from only three localities in far eastern Cuba in the municipalities of Moa and Baracoa, Holguín and Guantánamo provinces, respectively, with an EOO of 11 km² and AOO of 12 km². All three populations occur within Parque Nacional Alejandro de Humboldt, although mining activities in the area are a threat. Therefore we categorize this species as Vulnerable (VU): D2.

Discussion—Large portions of Parque Nacional Alejandro de Humboldt, to which the species is apparently restricted, contain serpentine soils. Although none of the specimen labels that we have examined mention soil composition, Mai (2005) states that this species occurs on serpentine. This is corroborated by the plant's coriaceous leaf blade, a sclerophyllous xerophytic morphology common in species found in areas with such soils and high annual precipitation (Borhidi 1996). The only other leaf blade described as coriaceous among the species of *S.* ser. *Urbaniocharis* is that of *S. domingensis* from Hispaniola. The blades of *S. moaensis*, however, clearly tend more toward sclerophylly than that species.

In addition to leaf texture, the combination of glabrous branchlets and leaves (or nearly so) and a pubescent inflorescence rachis easily distinguishes *Symplocos moaensis* from all other species of *S.* ser. *Urbaniocharis*. The flowering disk appears also to be unique among the species of the series in its high-undulate-annular shape with apical pubescence and glabrous sides. In this respect, the disk of *S. moaensis* more closely resembles those of the Antillean species of *S.* ser. *Symplocos* than those of other species of *S.* ser. *Urbaniocharis*, although the ovoid fruiting disk is similar to those in the latter. See also comments under *S. baracoensis* and *S. ciponimoides*.

Additional specimens examined—**CUBA. Guantanamó:** Baracoa, Loma de Buena Vista, W part, W of Camarones, 500–600 m, [20°26'59"N, 74°38'36"W], 12 August 1975, *Álvarez de Zayas et al. 27367* (B [image 10 0415560]!, JE!). **Holguín:** Mpio. de Moa, La Melba, near the aserrio, 400–500 m, [20°30'N, 74°49'W], March 1968, *Bisse & Köhler 7620* (JE!), 22 December 1968, *Bisse & Lippold 11331* (JE!); Mpio. de Moa, La Melba, near the aserrio, 500 m, [20°30'N, 74°49'W], 27 December 1968, *Bisse & Lippold 11648* (JE!); 1 km before the Aserradero at Km 26, Moa, [20°30'N, 74°49'W], 28 March 1972, *Del Risco et al. 27442* (HAC!).

II. *Symplocos* sect. ***Hopea*** (L.) Candolle (1844: 253) ≡ *Hopea* Linnaeus (1767: 105), *nom. rej., non* Roxburgh (1811: 7), *nom. cons.* ≡ *Protohopea* Miers (1879: 289) ≡ *Symplocos* subg. *Hopea* (L.) C.B.Clarke in Hooker (1882: 572). Type:—*Hopea tinctoria* Linnaeus (1767: 105) [≡ *Symplocos tinctoria* (L.) L'Héritier (1791: 176)].

= *Barberina* Vellozo (1829: 235) ≡ *Symplocos* sect. *Barberina* (Vell.) Candolle (1844: 253) ≡ *Symplocos* subsect. *Barberina* (Vell.) Bentham & Hooker (1876: 668). Type:—*Barberina hirsuta* Vellozo (1829: 235) [≡ *Symplocos hirsuta* (Vell.) Candolle (1844: 253)].

= *Epigenia* Vellozo (1829: 183) ≡ *Symplocos* subg. *Epigenia* (Vell.) Brand (1901: 25, 26). Lectotype (designated by Fritsch *et al.* 2008):—*Epigenia crenata* Vellozo (1829: 184).

= *Symplocos* sect. *Pseudosymplocos* Brand (1901: 25, 30). Lectotype (designated by Fritsch *et al*. 2008):—*Symplocos salicifolia* Grisebach (1866: 168).

Old branchlets grayish brown with dark purplish cast; young branchlets green to yellowish green. Leaves generally green to yellowish green abaxially; leaf midvein flat or prominent adaxially. Bract 1 and bracteoles 2 per flower, caducous. Corolla adnate to androecium (and corolla gamopetalous) at base only, lobes ± spreading. Stamens indistinctly grouped into irregular clusters, forming a ± brush-like arrangement, *ca.* (40–)57–90, exserted from

corolla; filaments terete, gradually tapered apically. Ovary 3-carpellate; disk glabrous, low-annular or 5- to 7-lobed, truncate or sharply depressed around style, glabrous; style 3–4 mm long, of equal width throughout. Fruiting disk flat to disciform, glabrous; endocarp 1- to 3-celled, wall and (when evident) septa hyaline.

Key to *Symplocos* sect. *Hopea* in the Antilles

1. Pseudo-terminal vegetative buds glabrous; leaf margin gland scar located within sinus of each serration; base of leaf blade long-attenuate; inflorescences racemose; fruit narrow-urceolate, 16–20 mm long ..... *S. guadeloupensis*
- Pseudo-terminal vegetative buds strigillose or pilosulose at least proximally; leaf margin gland scar located at apex of each serration or margin entire; base of leaf blade acute, cuneate, or slightly attenuate; inflorescences paniculate; fruit ellipsoid or subglobose, 6–11 mm long..... 2
2. Apex of leaf blade obtuse to rounded; inflorescences 0.6–1.2 cm long; fruit ellipsoid, ca. 11 mm long..... *S. ovalis*
- Apex of leaf blade acuminate; inflorescences 1.5–5 cm long; fruit subglobose, 6–8 mm long ..... *S. salicifolia*

15. ***Symplocos guadeloupensis*** Krug & Urb. in Urban (1893: 337). Lectotype (designated here):—LESSER ANTILLES. Guadeloupe: Bains Jaunes, *L. Funck & L. J. Schlim 63* (P on-line image 648445!).

Shrub or tree to 6 m tall. Old branchlets irregularly ridged or angled; young branchlets and pseudo-terminal vegetative buds glabrous. Petiole (including attenuated portion of leaf blade) 5–18 mm long; leaf blade narrowly elliptic to oblanceolate, 4.9–8.0 × 1.4–2.7 cm, 2.6–3.7 times as long as wide, thick-chartaceous, generally yellowish green, glabrous, base long-attenuate, margin narrowly revolute, proximally entire, distally serrate-crenate, with 1 to 7 indurate teeth per side, with the teeth often overlapping the adaxial leaf surface and with gland scar or occasionally persistent gland located within the sinus of each serration, apex acuminate or caudate. Inflorescences racemose, 3.5–7 cm long, 5- to 10-flowered, peduncle 0–20 mm long, rachis glabrous. Bract and bracteoles glabrous, margin ciliate and not glandular; bract ovate-elliptic to linear-elliptic, leaf-like, 4–17 × 2.2–3.5 mm. Proximal pedicels 6–15 mm long, distal pedicels shorter; bracteoles situated at pedicel apex or sometimes 1 or both situated along pedicel, ovate-deltoid, 1.9–2.5 × 0.9–1.7 mm. Flowers 5–9 mm long. Hypanthium glabrous. Calyx lobes hemispherical, 0.5–1.0 × 1.3–1.8 mm, glabrous, margin ciliate, not glandular, revolute, apex rounded. Corolla white, 4–7 mm long, 5-lobed; lobes oblong-obovate, glabrous, margin ciliate, cilia up to 0.2 mm long. Stamens *ca.* 70–85, up to 3–5 mm long. Disk low, 5- to 7-lobed, sharply depressed around style; style 3.5–4 mm long, glabrous. Fruit narrow-urceolate, 16–20 × 6–8 mm, glabrous; calyx lobes incurved; disk broadly cylindrical, apex completely visible, equal to or slightly exceeding calyx.

Vernacular names—Bois Caco des Haus, Bois Vert (Howard 1989), Bwa Kako Montann, Bwa Vè, (Guadeloupe: Fournet 2002), Graine Bleue des Hauts (Guadeloupe, *A. Duss 2989*), Graine Bleue des Montagnes (Guadeloupe, *A. Duss 3407*), Graines Bleues des Haus (Howard 1989), Grenn Blé Montann (Guadeloupe: Fournet 2002), Petits Feuilles (Guadeloupe, *Stehlé et al. 5643*).

Illustration—Figure 27.

Phenology—Flowering January–April, July; fruiting July.

Habitat and distribution—Dwarf forest, elfin woodland, dense humid low forest, elfin cloud forest at 800–1390 m elev. Lesser Antilles (Guadeloupe, Dominica, Grenada). Figure 28.

Conservation assessment—*Symplocos guadeloupensis* is known to us from only seven localities: three in Guadeloupe, three in Dominica, and one in Grenada. In Guadeloupe, the EOO is 6.6 km^2 and AOO is 12 km^2, and all populations are located within Parc National de la Guadeloupe. We categorize this species as Vulnerable (VU): D2 in Guadeloupe. In Dominica, the EOO is 50 km^2 and AOO is 12 km^2, with only one of the three populations occurring in a protected area (Morne Trois Pitons National Park). We categorize this species as Endangered (EN): B2ab(iii) in Dominica. Because there is only one collection known from Grenada, we categorize this species as Data Deficient (DD) for this island.

Discussion—*Symplocos guadeloupensis* is notably disjunct between Guadeloupe/Dominica and Grenada. There seems to be no evident reason why the species does not occur on any of the intervening islands of Martinique, St. Lucia, and St. Vincent, because all of these possess the same type of humid forests, volcanic soils, and appropriate elevations as islands on which the species is known to occur. The species may as yet remain undiscovered on one or more intervening islands as a rarity.

This species is easy to distinguish from *Symplocos martinicensis* and *S. urbaniana*, the other two species of *Symplocos* in the Lesser Antilles, even when sterile, by its green to yellowish green branchlets (versus brown to black) and flat or prominent leaf midvein adaxially (versus sulcate).

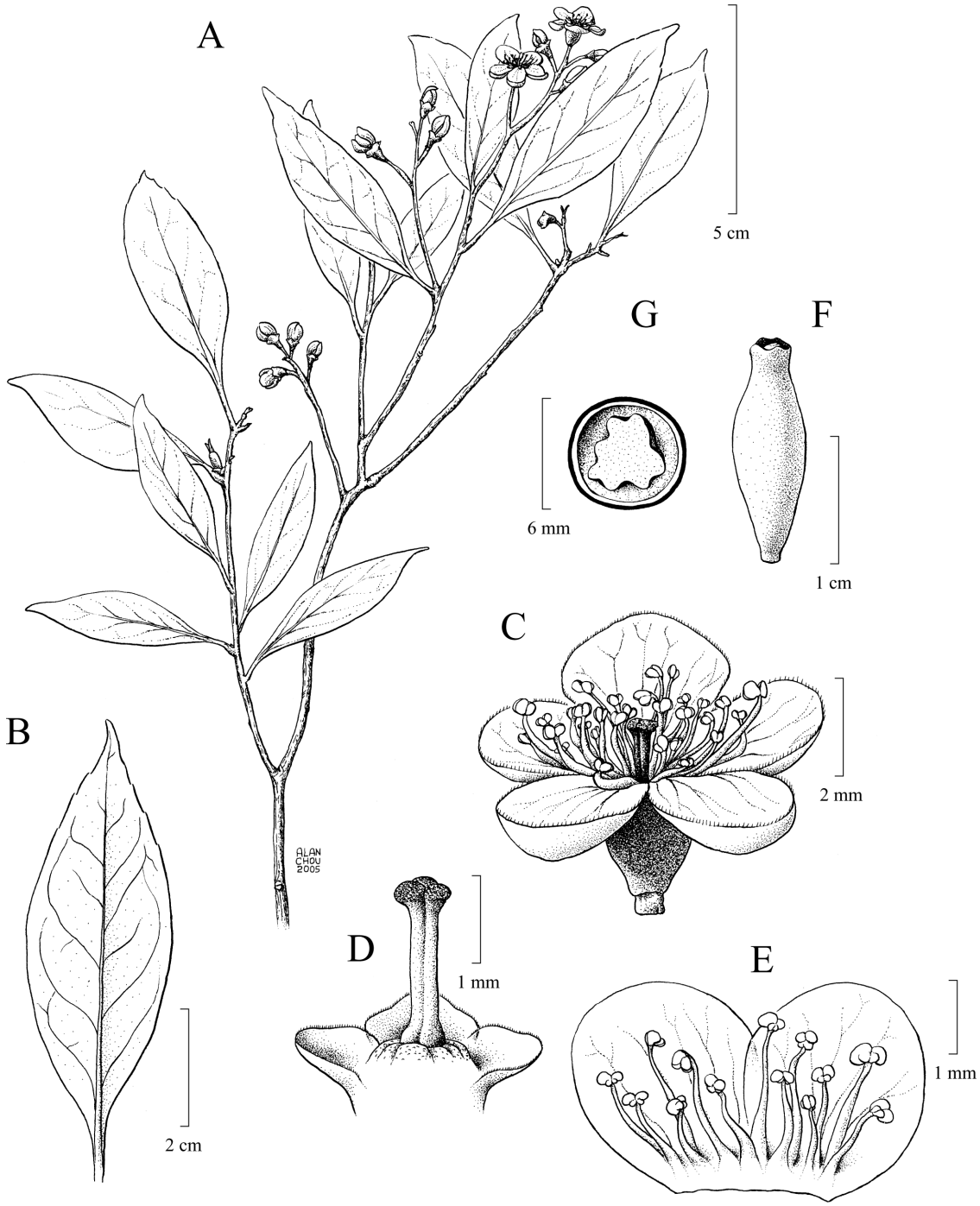

FIGURE 27. *Symplocos guadeloupensis*. **A.** Flowering branch. **B.** Leaf, abaxial view. **C.** Flower. **D.** Three calyx lobes and top of gynoecium. **E.** Section of corolla and androecium, inner view. **F.** Drupe. **G.** Drupe in cross section. (A drawn from *A. Duss 2989*, GH; B drawn from *R. A. Howard 19807*, US; C–E drawn from *R. A. Howard 18762*, A; F–G drawn from *A. Duss* "*2989, 3407*", NY.)

Urban (1893) cited only *L. Funck & L. J. Schlim 63* in the protologue of *Symplocos guadeloupensis*, without specifying the holotype. The specimen at B presumably has been destroyed. We have selected the P specimen as lectotype because it is the only type specimen we have located.

***Additional specimens examined*—GUADELOUPE.** Island unspecified: *Perrottet s.n.* (K!, photograph of K at A!); **Basse-Terre:** Morne Matelyane [Mateliane], summit of Matouba, 850–910 m, [16°05'N, 61°39'W], years

1893, "1893, 1895", and 1897, *Duss 2989* (A!, F [2]!, GH [2]!, MO [2]!, NY!, PH [on-line image 29766]!, US [3]!; "*2989, 3407*" (NY!); [Morne de la] Grande Dècouverte, 1000–1100 m, [16°03'N, 61°40'W], February 1894, *Duss 3407* (NY!); near summit of Nez Cassé, *ca.* 1000 m, [16°03'N, 61°40'W], 31 March 1982, *Howard 19807* (A!, NY!, US!); Nez Cassé, 1000 m, [16°03'N, 61°40'W], 31 March 1982, *Howard 19814* (A!); [Mt.] Carmichael, 1300 m, [16°03'N, 61°40'W], 5 February 1979, *Sastre 6726* (A!); Victor Hugues Trail, between the Marches and the Savane [Col] aux Ananas, 1100 m, [16°05'N, 61°41'W], 7 February 1979, *Sastre 6747* (A!); Nouvelle Trail, center of the island [Basse-Terre], 1100 m, 5 September 1944, *Stehlé et al. 5643* (US!).

DOMINICA. Near summit of Morne Diablotins, 4500 ft, [15°30'N, 61°24'W], 28 January 1966, *Chambers 2645* (A [2]!, US!); St. George Parish, trail to summit of Morne Anglais from Giraudel, 3000–3600 ft, [15°17'N, 61°20'W], *Hill 28123* (US!); E. Roseau, on the trail to Valley of Desolation, *ca.* 800 m, [15°18'N, 61°18'W], 20 July 1983, *Jérémie 1273* (A!); summit of Morne Diablotin [Diablotins], *ca.* 4600 ft, [15°30'N, 61°24'W], 11 June 1965, *Webster 13362* (A!, B [image 10 0460433]!, CAS!, US!); St. Andrew Parish, summit of Morne Diablotin [Diablotins], [15°30'N, 61°24'W], 5 April 1987, *Whitefoord 5725* (US!).

GRENADA. Trail from Grand Etang to Mt. Quaqua [Qua Qua], [12°05'30"N, 61°42'0"W], 29 March 1977, *Howard 18303* (A!); trail from Grand Etang to Morne Quaqua [Mt. Qua Qua], *ca.* 1000 ft, [12°05'30"N, 61°42'0"W], 5 March 1979, *Howard 18762* (A!).

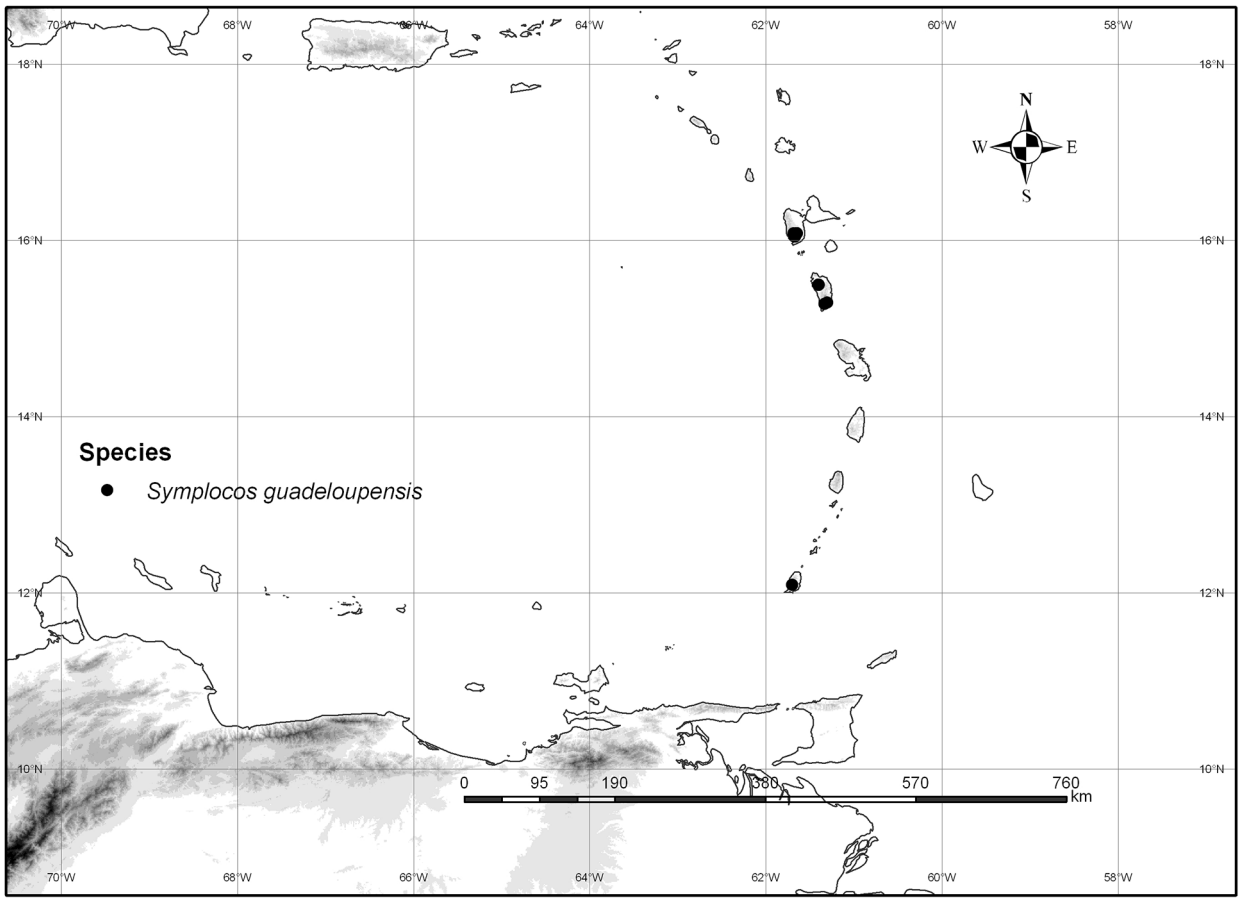

FIGURE 28. Geographic distribution of *Symplocos guadeloupensis*, endemic to the Lesser Antilles (Guadeloupe, Martinique, and Grenada).

16. *Symplocos ovalis* C.Wright ex Grisebach (1866: 168). Lectotype (designated by Mai 2005):—CUBA. Pinar del Río: El Rosario, 16 July 1863, *C. Wright 2935* (GOET, isolectotypes B, CAS!, GH!, K!, MO!, NY [2]!, S [2]!, US [2]!, W!).

Shrub or tree to 10 m tall. Old branchlets irregularly ridged or angled; young branchlets with ascending white to ferrugineous trichomes 0.1–0.2 mm long; pseudo-terminal vegetative buds strigillose or pilosulose at least

proximally. Petiole 2–5 mm long; leaf blade elliptic, broadly elliptic or slightly obovate, 2.9–5.6 × 1.5–3.6 cm, 1.2–2.1 times as long as wide, subcoriaceous, generally yellowish green, glabrous, base acute to slightly attenuate, revolute or rarely flat, margin entire with glands caducous, apex obtuse to rounded. Inflorescences paniculate, 0.6–1.2 cm long, 1- to 5-flowered, rarely grading into the branchlet (and upper leaves then reduced), peduncle 0–6 mm long, rachis or panicle branches glabrous or hirtellous. Bract and bracteoles deltoid, glabrous, margin often slightly ciliate and glandular; bract *ca.* 1 × 0.5 mm. Pedicel 0–4 mm long; bracteoles situated at pedicel apex or sometimes one or both situated along pedicel, 0.3–0.4 × 0.2–0.4 mm. Flowers 3–4.5 mm long. Hypanthium glabrous. Calyx lobes broadly deltoid, 1–1.5 × 1.2–1.6 mm, glabrous, apex rounded, margin entire or ciliate, occasionally glandular, apex rounded. Corolla 2–3.5 mm long, 5-lobed; lobes oblong-ovate, glabrous, margin entire or ciliate. Stamens *ca.* (40–)57–80, up to 1.5–2.5 mm long. Disk low-annular or slightly pentagonal, truncate around style; style 3 mm long, glabrous. Fruit ellipsoid, *ca.* 11 × 5 mm, glabrous; calyx lobes incurved; disk flat to disciform, apex completely visible, exceeded by calyx.

Vernacular name—Azulejo del Rosario (Gómez de la Maza 1889, León and Alain 1957–1963, Mai 2005).

Illustration—Figure 29.

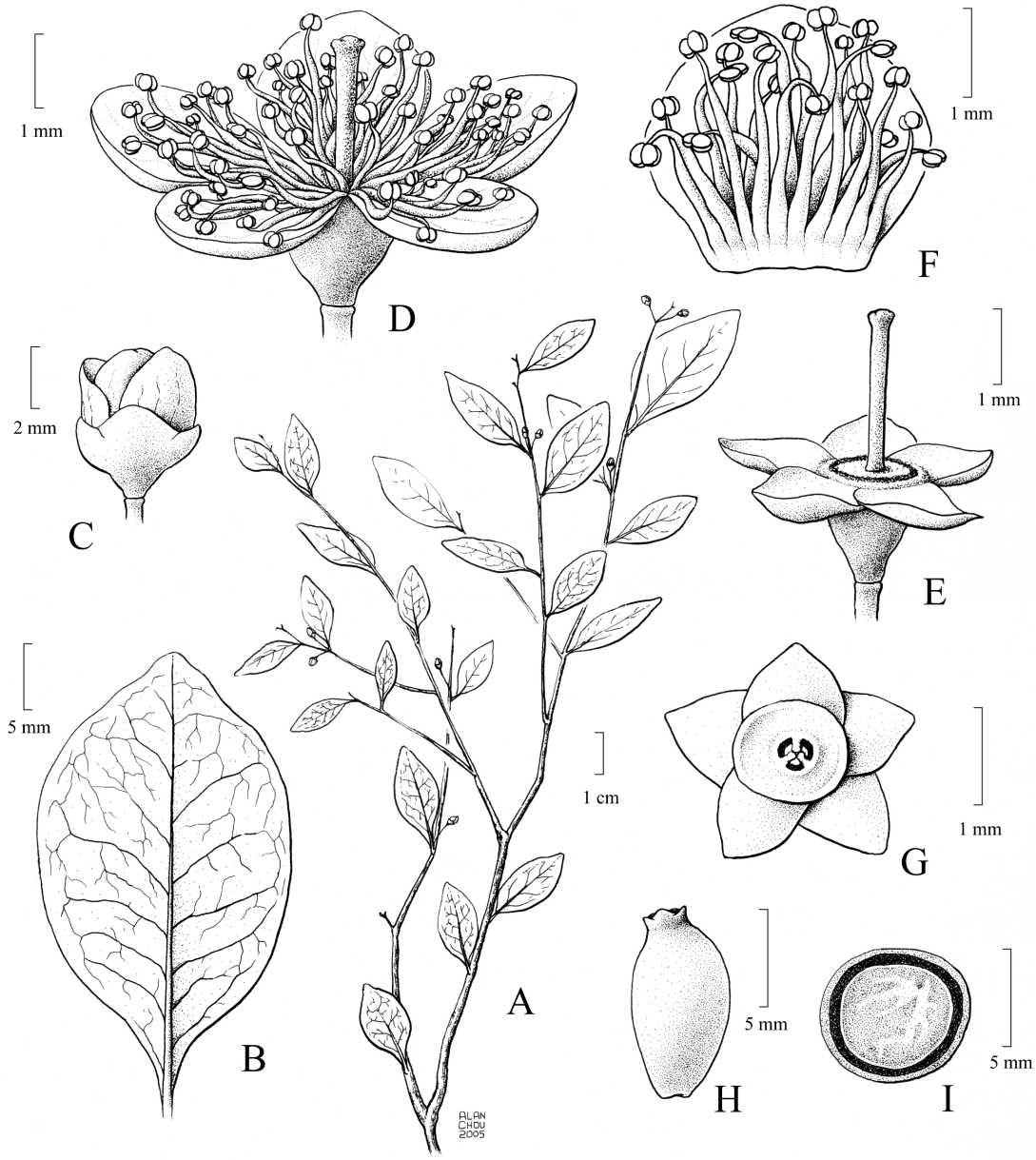

FIGURE 29. *Symplocos ovalis*. **A.** Branch with flower buds. **B.** Leaf, abaxial view. **C.** Flower bud. **D.** Flower. **E.** Pedicel apex, calyx, and gynoecium. **F.** Section of corolla and androecium, inner view. **G.** Calyx and top of ovary removed from rest of flower and viewed from below, showing three carpels and incomplete septa. **H.** Drupe. **I.** Drupe in cross section. (A–B drawn from *C. Wright 2935*, GH; C–E drawn from *E. L. Ekman 17514*, S; F–G, I drawn from *J. S. S. León 14116*, NY; H drawn from *C. Wright 2935*, NY.)

Phenology—Flowering August; fruiting August.

Habitat and distribution—Wooded slopes, savannas, limestone rocks, forested sandstone hills, serpentine at 400–450 m elev. Cuba. Figure 30.

Conservation assessment—*Symplocos ovalis* is known to us only from four locations in the western half of the Cordillera de Guaniguanico, i.e., the Sierra del Rosario of eastern Pinar del Río Province and western Artemisa Province, Cuba. We could not corroborate the location of an unspecified collection locality to the southwest of the Sierra del Rosario (Mai 2005: Map 2; see also Greuter & Rodríguez 2011). The most recent collection known to us was made in 1952, and an attempt to relocate this species in the type locality by the first author was unsuccessful, the forest in the region being highly degraded. The EOO is 59 km² and AOO is 16 km², and none of the known populations are located in a protected area. We therefore categorize this species as Critically Endangered (CR): B1ab(iii).

Discussion—*Symplocos ovalis* is easily distinguished from all other species of *Symplocos* in Cuba except *S. salicifolia*, even when sterile, by its green to yellowish green branchlets (versus brown to black) and flat or prominent midvein adaxially (versus sulcate). From *S. salicifolia* it can be distinguished by its obtuse to rounded leaf blade (versus acuminate) 0.6–1.2 cm-long inflorescences (versus 1.5–5 cm long), and ca. 11 mm long, ellipsoid fruit (versus 6–8 mm long, subglobose).

The GH sheet of *C. Wright 2935* includes two labels clearly corresponding to two collections, one from El Rosario with a date of July 16, 1863, the other from La Palma, Los Organos, with a date of August 11, 1863. Only the upper specimen (from El Rosario) on the GH sheet is an isolectotype. The US specimen of *C. Wright 2936* is undoubtedly a transcription error of *2935*, because Howard (1988) lists *C. Wright 2936* as *Diospyros halesioides*.

Additional specimens examined—**CUBA. Artemisa:** Rancho Mundito, Santa Cruz de los Pinos, [22°44'18"N, 83°08'19"W], 9 November 1952, *Acuña Galé 18279* (HAC!); Sierra de los Organos, Grupo del Rosario, Loma Molejones, *ca.* 400 m, [22°45'50"N, 83°06'17"W], 15 May 1922, *Ekman 13854* (NY!, S!); Sierra de los Organos, Grupo del Rosario, at Río Taco-Taco, Anemados de Gloria, [22°43'N, 83°10'W], 13 October 1923, *Ekman 17630* (S!). **Pinar del Río:** Sierra de los Organos, Grupo del Rosario, Río Palacias, near Mameyar [Mameyal], [22°44'N, 83°22'W],13 September 1923, *Ekman 17514* (S!); Sabana de Troncones, El Rosario, Rosario Mtns., Rangel, August 1929, 450 m, *León 14116* (GH!, HAC!, NY!, US [2]!); La Palma, Los Organos, 11 August 1863, *Wright 2935 p.p.* (GH!).

17. *Symplocos salicifolia* Grisebach (1866: 168). Lectotype (designated by Mai 2005):—CUBA. Pinar del Río: Viñales to Cajalbana, Imlicon, [22°37'N, 83°43'W], 9 February 1863, *C. Wright 2934* (GOET, isolectotypes B, GH!, K!, MO!, S!; photograph of K at A!, W!).

Shrub or tree to 10 m tall. Old branchlets irregularly ridged; young branchlets glabrous or with appressed to ascending white to ferrugineous trichomes 0.1–0.4 mm long; pseudo-terminal vegetative buds strigillose or pilosulose at least proximally. Petiole 2–9 mm long; leaf blade elliptic, 4.0–9.2 × 1.7–4.9 cm, 1.7–3.3 times as long as wide, chartaceous to subcoriaceous, generally green or yellowish green, glabrous or occasionally abaxially strigillose proximally and along midvein, base acute to cuneate, margin narrowly revolute, crenate-serrate to entire, with 0 to 12 chartaceous teeth per side and glands caducous, with the teeth not overlapping the leaf surface and the gland scar located at apex of each serration, apex acuminate. Inflorescences paniculate, 1- to *ca.* 30-flowered, rarely grading into the branchlet (and upper leaves then reduced), 1.5–5 cm long, peduncle 0–13 mm long, rachis or panicle branches glabrous or rarely proximally hirtellous. Bract and bracteoles glabrous, margin occasionally ciliate and not glandular except for the often gland-tipped apex; bract linear-deltoid, 3–5 × 1–1.5 mm. Pedicel 0–4 mm long; bracteoles situated at pedicel apex or sometimes 1 or both situated along pedicel, deltoid, 0.5–2.2 × 0.4–1 mm. Pedicels absent to 19 mm long. Flowers 4.5–7 mm long. Hypanthium glabrous. Calyx lobes broadly ovate, 0.9–1.6 × 1.1–1.8 mm, glabrous, margin entire or often ciliate, not glandular, apex rounded. Corolla white, 2.5–5 mm long, 5-lobed; lobes oblong-ovate, glabrous, margin entire or erose. Stamens *ca.* 90, up to 4 mm long. Disk low-annular or slightly pentagonal, truncate around style; style 3.5–5 mm long, glabrous. Fruit subglobose, 6–8 × 5–6.5 mm, glabrous; calyx lobes incurved; disk flat, disciform or annular, apex completely visible, exceeded by calyx.

Vernacular name—Azulejo de Isla de Pinos (León and Alain 1957–1963, Roig y Mesa 1988, Mai 2005).

Illustration—Figure 31.

Phenology—Flowering December–April, August; fruiting January, June–July.

Habitat and distribution—Wooded hillsides, mountain slopes, rocky pine forests, thickets, near watercourses at 300–950 (–1060?) m elev. Cuba. Figure 30.

Conservation assessment—This Cuban endemic is widely distributed across the island but concentrated in four areas: the region of the Cordillera de Guaniguanico, the Isla de la Juventad, the Sierra de Escambray, and the western part of the Sierra Maestra. It also occurs in the municipality of Esmeralda in Camagüey Province and has been reported from far eastern Cuba at La Melba, Holguín Province (20°36'N, 74°49'W; *J. Bisse & L. Rojas HFC 3257* (HAJB; Greuter & Rodríguez 2011). It is known to us from more than 20 localities. Therefore, we categorize this species as Least Concern (LC).

Discussion—*Symplocos salicifolia* is easily distinguished from all other species of *Symplocos* in Cuba except *S. ovalis*, even when sterile, by its green to yellowish green branchlets (versus brown to black) and flat or prominent midvein adaxially (versus sulcate). See also comments under *Symplocos ovalis*.

Additional specimens examined—**CUBA.** Current province undetermined: Prov. Santa Clara, Trinidad Mtns., El Porvenir to Aguacate, 700–900 m, 10 March 1910, *Britton & Wilson 5360* (NY!); Prov. Santa Clara, Los Guineos, *ca.* 850 m, 27 January 1923, *Ekman 16262* (NY!, S!). **Artemisa:** Laguna de Piedra [Piedras], [Las] Mangas, [22°42'N, 82°51'W], 9 November 1952, *Acuña Galé 18277* (HAC!); Sierra del Rosario, Las Peladas, [22°52'N, 82°56'W], 17 June 1994, *Baró et al. 40331* (HAC!); Mengas [Las Mangas], Pueblo Nuevo, towards

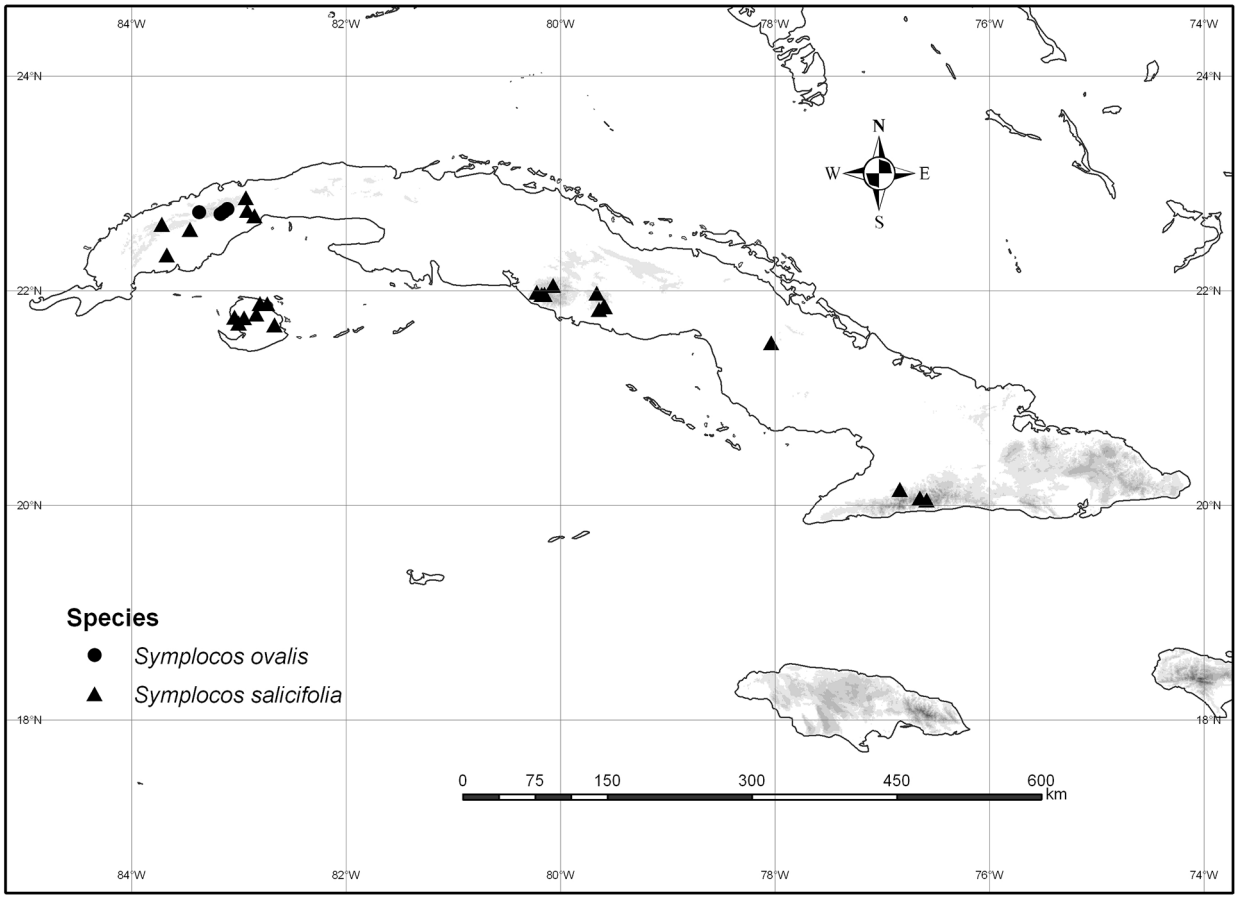

FIGURE 30. Geographic distribution of *Symplocos ovalis* and *S. salicifolia*, endemic to Cuba.

Laguna de Piedros [Piedras], [22°42'N, 82°51'W], 9 October 1923, *Ekman 17593* (S!); Sabana Hermosa, between Mangas and Candelaria, [22°45'N, 82°55'W], 27 January 1931, *León 14767* (HAC!). **Camagüey:** Mpio. de Esmeralda, Caobillo [Coabillas], NW of Camagüey, [21°31'N, 78°02'W], 28 April 1984, *Trujillo 695* (HAC!). **Cienfuegos:** Sierra del Escambray, near Buenos Aires, [21°58'N, 80°09'W], 3 August 1972, *Bisse 23257* (JE!); Mpio. Cumanayagua, Maciso de Guamuhaya (Escambray), San Blás, Sabanita de la Cruz, rd to la Finca Las

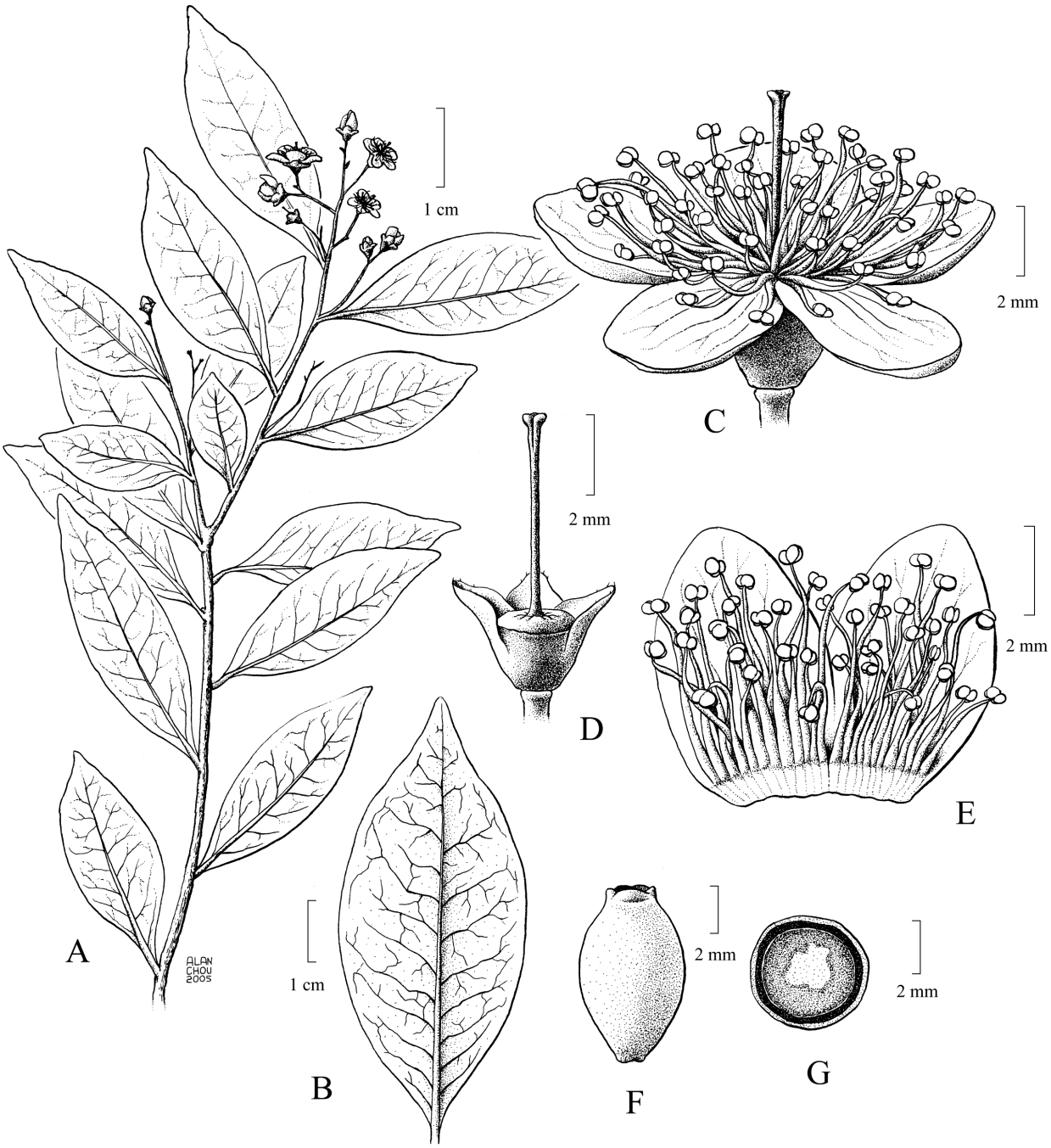

FIGURE 31. *Symplocos salicifolia.* **A.** Flowering branch. **B.** Leaf, abaxial view. **C.** Flower. **D.** Three calyx lobes and gynoecium. **E.** Section of corolla and androecium, inner view. **F.** Drupe. **G.** Drupe in cross section. (A–E drawn from *A. H. Curtiss 365*, NY; F–G drawn from *A. Luna 19*, NY.)

Cuevas, 700–900 m, [21°59'22"N, 80°13'20"W], 7 May 1977, *Bisse et al. HFC 34935* (B [image 10 0361946]!); Monte de Guavairo [Guabairo], Guavairo [Guabairo], vicinity of Soledad, *Gonzales 99* (A!, NY!); Trinidad Hills, Buenos Aires, San Blas, *ca.* 2500 ft, [21°59'22"N, 80°13'20"W], 8 April 1928, *Jack 5995* (A!, HAC!, US!); Buenos Aires, Trinidad Hills, *ca.* 2500 ft, [21°58'N, 80°09'W], 6 December 1928, *Jack 6841* (A!, NY!, US!); Buenos Aires, Trinidad Hills, Gaviñas [Gaviña], *ca.* 2500 ft, [21°58'N, 80°10'25"W], 18 March 1928, *Jack 7120* (A!, HAC!); Buenos Aires, Trinidad Hills, 2500–3500 ft, [21°58'N, 80°09'W], 16 March 1932, *Jack 8585* (A!, DS!, F!, NY!, US!); Trinidad Hills, Buenos Aires, E of Cienfuegos, [21°58'N, 80°09'W], July 1929, *León & Jack 13992* (US!). **Granma:** Sierra Maestra, [Pico] La Bayamesa between Río Oro and Río Yao, [20°03'N, 76°35'W], 5 May 1916, *ca.* 500 m, *Ekman 7234* (NY!, S!); Sierra Maestra, Pinar de Caridad, SE of Yara, [20°09'N, 76°50'W], 31 July

1922, *Ekman 14688* (F!, NY [2]!, S!, US!); Sierra Maestra, lower N slopes of main ridge above Río Yao, 300–1000 m, [20°04'N, 76°39'W], 27–28 October 1941, *Morton & Acuña Galé 3464* (F!, HAC!, MO!, NY!, US!). **Isla de la Juventad:** Nueva Gerona, Sierra la Cañada, 300 m, [21°45'N, 82°57'W], 1 April 1967, *Bisse 1586* (JE!); unspecified, *Blain 137* (F!); vicinity of Los Indios, [21°42'N, 83°0'W], 13 February 1916, *Britton et al. 14237* (F!, GH!, MO!, NY!, S!, US!); [Cerros de] San Juan, [21°41'N, 82°40'W], 15, 17 March 1916, *Britton et al. 15002* (F!, GH!, NY!, US!); near Nueva Gerona, [21°53'N, 82°48'W], 23 February 1904, *Curtiss 365* (F!, GH!, NY!, US!); Nueva Gerona towards [Loma] Bibijagua, [21°53'N, 82°44'W], 6 December 1920, *Ekman 12527* (S!); between Mina de Oro and Playa del Soldado, [21°45'13"N, 83°02'11"W], 6 April 1954, *Killip 43871* (F!, GH!, NY!, US!); along rd to San Francisco de las Piedras, [21°47'N, 82°50'W], 23 February 1955, *Killip 44878* (US!). **Pinar del Río:** Herradura, [22°34'25"N, 83°27'09"W], 13 April 1920, *Ekman 10801* (F!, S!, US!), 22 June 1922, *Ekman 14100* (S!); Km 13 of the high rd to La Coloma S of Pinar del Río city, [22°20'N, 83°40'W], 30 November 1923, *Ekman 18240* (NY!, S!). **Sancti Spiritus:** Banao, Arroyo Agabama Valley, N of the town, [21°51'N, 79°35'W], 15 November 1975, *Areces-Mallea et al. 28683* (B [image 10 0415530]!, JE!); Mpio. Fomento, Alturas de Sancti Spíritus, valle de Arroyo Gavilancito, 300–400 m, 10 November 1979, *Bisse et al. HFC 41083* (B [image 10 0364099]!); Banao Mtns. [Lomas de Banao], summit of Loma [Lomas] de la Gloria, 950 m, [21°58'37"N, 79°39'47"W], 30 July 1918, *León & Roca 7987* (HAC!, NY!); La Güira Mtn., Tope[s] de Collantes, [21°49'30"N, 79°38'19"W], 19 July 1957, *Liogier 6476* (GH!, HAC!, US!); Lomas de Banao, [21°51'42"N, 79°35'35"W], 9 January 1920, *Luna 19* (NY!). **Villa Clara:** Trinidad Mtns., [Valle de la] Siguanea, 400 m, [22°03'N, 80°04'W], 2–5 March 1910, *Britton & Wilson 4970* (F!, NY [2]!).

Excluded name

Symplocos glabra Euphrasén (1798: 224).

The main part of Euphrasén's collections is reportedly in the Thunberg Herbarium at UPS, with a small portion at S (Stafleu and Cowan, 1976). Like Howard (1988), we were not able to locate type material. Howard (1988) considered it possible that this is conspecific with *Symplocos martinicensis* by the single-flowered axillary peduncles. Although the racemes of *S. martinicensis* can be single-flowered, usually there are several flowers. The glabrous leaves, however, differ from the leaves of *S. martinicensis*, which are at least sparsely strigillose to pilosulose proximally on the midvein of the abaxial surface.

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Appendix I. Numerical list of Antillean *Symplocos* species recognized in the present revision and their occurrence in higher-level categories.

S. sect. *Symplocos*

S. ser. *Symplocos*

1. *Symplocos cubensis* Griseb.
2. *Symplocos jurgensenii* Hemsley
3. *Symplocos latifolia* Krug & Urb.
4. *Symplocos martinicensis* Jacq.
5. *Symplocos octopetala* Sw.
6. *Symplocos urbaniana* Brand

S. ser. *Urbaniocharis* (Brand) P.W.Fritsch

7. *Symplocos baracoensis* P.W.Fritsch & Almeda
8. *Symplocos ciponimoides* Griseb.
9. *Symplocos domingensis* Urb.
10. *Symplocos hotteana* Urb. & Ekman
11. *Symplocos lanata* Krug & Urb.
12. *Symplocos leonis* Britton
13. *Symplocos micrantha* Krug & Urb.
14. *Symplocos moaensis* Borhidi

S. sect. *Hopea* (L.) A.DC.

15. *Symplocos guadeloupensis* Krug & Urb.
16. *Symplocos ovalis* C.Wright ex Griseb.
17. *Symplocos salicifolia* Griseb.

Appendix II. Index to exsiccatae. Collections are listed alphabetically by collector. Numbers in parentheses correspond to those in the numerical list of species. For collections with multiple collectors, only the first collector is cited.

Anonymous s.n. (4); s.n. (5).

Acevedo-Rodriguez, P. 4212 (4); 5107 (4); 7109 (13); 11723 (3). Acuña Galé, J. B. 6155 (12); 18277 (17); 18279 (16). Alexander, D. W. 5517 (4). Alexander Prior, R. C. s.n. (5). Álvarez de Zayas, A. 27367 (14); 27396 (7); 63825 (12). Anderson, J. s.n. (4). Areces-Mallea, A. E. 28683 (17). Arias, I. 50194 (2); 53725 (2); 54208 (2). Axelrod, F. 548 (3); 3737 (11); 4129 (13); 5243 (3); 8496 (3); 12511 (13); 12512 (13); 12546 (11); 12549 (3); 12554 (13); 12564 (3); 12666 (11).

Baró, I. 40331 (17). Barrier, S. 3638 (4); 4432 (4). Bässler, M. 36207 (2). Beard, J. S. 198 (4); 242 (4). Beard, P. 1063 (4). Bertero, C. G. s.n. (1). Bisse, J. 1586 (17); 1663 (2); 4748 (2); 7620 (14); 8204 (1); 11331 (14); 11648 (14); 14433 (12); 20764 (2); 23257 (17); 23408 (2); 28031 (2); 34935 (17); 37720 (1); 38572 (2); 40421 (12); 40588 (1); 40984 (2); 41083 (17); 46532 (2); 46656 (2); 49032 (2); 51923 (2). Blain, J. 137 (17); 157 (2). Boldingh, I. 474 (4); 2152 (4). Boom, B. M. 6788 (3). Borhidi, A. 54/12 (12); 15138 (2). Britton, N. L. 1614 (3); 2273 (13); 4970 (17); 5360 (17); 6747 (2); 7484 (2); 7658 (13); 8095 (3); 9703 (3); 9715 (2); 10096 (3); 14237 (17); 15002 (17); 15805 (2). Broadway, W. E. s.n. (4).

Canela L., M. s.n. (1). Chambers, K. L. 2612 (4); 2645 (15); 2691 (4). Clase, T. 555 (9); 608 (9); 1064 (1); 1315 (1); 3162 (9); 3167 (1). Cooper III, G. P. 32 (4); 49 (4); 143 (4). Cowgill, H. B. 284 (3). Curbelo, M. ex Roig, J. T. 6229 (2). Curtiss, A. H. s.n. (2); 365 (17).

D'Arcy, W. G. 97A (4); 97C (4); 714 (4). Del Risco, E. 27167 (14); 27442 (14). Denisse, E. s.n. (4). Dod, D. D. s.n. (1). Douvillez, F. 32 (4). Duchassaing de Fontbressin, E. P. s.n. (4). (Rev. Père) Duss, A. 1494, 1727 (4); 1727, 1494 (4); 2236 (4); 2989 (15); 2989, 3407 (15); 3407 (15); 4202 (6).

Eggers, H. F. A. von s.n. (4); 383 (4); 392 (4); 392b (4); 983 (3); 1211 (3); 6147 (4). Ekman, E. L. 1311 (1); 1944 (2); 2598 (2); 3109 (1); 4678 (2); 4695 (2); 4712 (2); 5139 (2); 5322 (9); 5420 (1); 5467 (9); 5548 (1); 5553

(12); 5855 (2); 5906 (9); 6068 (2); 6126 (2); 6326 (1); 6405 (10); 6692 (2); 7234 (17); 7486 (10); 9542 (10); 9674 (2); 9826 (2); 10068 (9); 10079 (1); 10367 (9); 10630 (10); 10801 (17); 11237 (1); 12130 (2); 12261 (1); 12527 (17); 13854 (16); 14042 (9); 14100 (17); 14236 (1); 14460 (12); 14511 (12); 14596 (12); 14688 (17); 14815 (12); 15688 (1); 16262 (17); 17514 (16); 17593 (17); 17630 (16); 18240 (17). Evans, L. 138 (13).

Fishlock, W. C. 378 (4); 477 (4). Forster, E. s.n. (4). Fortún, G. M. 6794 (2). Fritsch, P. W. 1780 (1); 1782 (1). Fuertes, L. [M. D.] 1499 (9); 1616 (1). Funck, N. 64 (4).

García, R. 1225 (1); 1269 (1); 2260 (1); 2641 (1); 4734 (1). Géigel, G. 41620 (2). Genes, E. 59581 (2). Gerhart, G. A. 281 (13); 290 (13); 614 (3). Gonzales, A. 99 (17). Gregory, L. E. 349 (13); 350 (3); 507 (3); 630 (3). Hahn, L. 268 (4); 269 (4). Harris, W. H. 5318 (5); 5449 (5); 6080 (5); 7672 (5); 8899 (5); 10662 (5); 10736 (5). Hart, J. H. s.n. (5); 1411 (5). Heller, A. A. 962 (3). Hess, W. E. 1994 (3). Hill, S. R. 22055 (4); 25323 (4); 25504 (4); 28123 (15). Hodge, W. H. 1111 (4); 1586 (4); 1959 (4); 2253 (4); 2426 (4); 2433 (4); 2553 (4); 3096 (4). Holdridge, L. R. 87 (13); 205 (3); 370 (3); 436 (4); 977 (1). Howard, R. A. 11560 (4); 11885 (4); 12589 (1); 12596 (10); 15094 (4); 15187 (4); 15435 (11); 15781 (13); 16617 (4); 16807 (13); 16842 (4); 16960 (3); 18303 (15); 18423 (4); 18695 (4); 18696 (4); 18762 (15); 18967 (4); 19186 (4); 19807 (15); 19814 (15); 19863 (4); 20666 (4). Imray, J. s.n. (4); 54 (4); 302 (4).

Isert, P. E. s.n. (4).

Jack, J. G. 5995 (17); 6841 (17); 7120 (17); 8585 (17). Jean-Pierre, L. L. 3 (4). Jérémie, J. 1273 (15). Jiménez, J. de Js. 1184 (1); 1217 (1); 2890 (1). Johnston, J. R. 302 (3). Judd, W. S. 516 (11); 3854 (10); 6965 (10).

Killip, E. P. 43871 (17); 44878 (17). Krebs, H. J. (4).

Lagorce, J. F. [Frère H. J.; Hermano H. J.] s.n. (3). León, Frère [Brother] J. S. S. 4373 (2); 4616 (2); 5139 (2); 6667 (2); 7987 (17); 8017 (2); 10272 (1); 10372 (1); 10372 (12); 10738 (12); 10817 (1); 10907 (12); 10972 (12); 11015 (2); 11530 (2); 12329 (1); 12673 (2); 12714 (2); 13992 (17); 14116 (16); 14767 (17); 23236 (2); 23360 (2). Linden, J. J. 1831 (1); 2089 (1). Liogier, A. H. [Brother Alain] 56 (2); 242 (1); 2020 (2); 6476 (17); 9454 (11); 9467 (11); 9502 (3); 10021 (11); 11302 (1); 11862 (1); 12552 (1); 12933 (1); 13977 (1); 14067 (1); 14626 (9); 15475 (9); 15694 (1); 15997 (9); 17590 (1); 18164 (1); 28264 (11); 28911 (11); 30704 (3); 30921 (3); 32928 (3); 34147 (3); 35091 (11); 36872 (13); 37409 (3). Lippold, H. 18841 (12). Little, E. L. 13353 (3); 13506 (3); 13676 (11); 14899 (13); 16319 (11); 16389 (4); 26013 (13); 26066 (4). López-Figueras, M. 2327 (12). Luna, A. 14 (2); 19 (17); 132 (2).

Mejia, M. 1378 (1); 2126 (3). Mercado, Z. 44 (3). Merello, M. 1715 (4). Miller, J. S. 6390 (3). Morton, C. V. 3464 (17); 4358 (2); 5894 (4).

Naroduy, L. H. s.n. (4). Nicolson, D. H. 1963 (4); 4075 (4).

Perrottet, G. S. s.n. (4); s.n. (15). Proctor, G. R. 17005 (4); 17884 (4); 19235 (4); 19557 (4); 21619 (4); 22121 (5); 22275 (5); 25904 (4); 37372 (5); 41250 (11); 42050 (11); 43048 (3); 44590 (11); 45660 (13); 50067 (13); 50646 (4); 51199 (3). Purdie, W. s.n. (5).

Questel, A. 767 (4); 880 (4); 2086 (4); 2229 (4); 2283 (4); 5076 (4).

Ramage, G. A. s.n. (4). Robbins, R. G. s.n. (5). Rodriguez, L. 2845 (4). Roig y Mesa, J. T. 78 (2); 6602 (2). Ryan, J. s.n. (4).

Santana, B. 791 (1). Sargent, F. H. 294 (13); 363 (3). Léon Sastre, C. H. 401 (4); 6726 (15); 6747 (15). Shafer, J. A. 198 (4); 357 (4); 628 (4); 645 (4); 1151 (4). Sieber, F. W. 81 (4); 372 (4); 382 (4). Sintenis, P. E. E. s.n. (3); s.n. (11); 1517 (13); 2094 (3); 2555 (3); 2847 (3); 4171 (11); 4171b (11); 4231 (3); 4270 (3); 4503 (11); 5983 (3); 6376 (3); 6686 (3). Skean, Jr., J. D. 1670 (10). Slane, V. 494 (4); 992 (4). Smith, H. H. 354 (4). Smith, A. C. 10274 (4); 10359 (4); 10500 (4). Ståhl, B. 1314 (2). Stehlé, H. 1386 (4); 1878 (4); 1915 (4); 4355 (4); 4598 (4); 5060 (4); 5131 (4); 5348 (4); 5349 (4); 5350 (4); 5643 (15); 6366 (4); 6660 (4); 6901 (4). Stern, W. L. 2510 (4). Stevenson, J. A. 541 (3); 5535 (3); 5623 (3). Stoffers, A. L. 3343 (4). Swartz, O. P. s.n. (5).

Taylor, C. M. 7717 (3); 8013 (3); 8574 (13); 10899 (3); 11849 (3). Téteau, A. Clément 1814 (1); 4235 (1); 5055 (1). Trujillo 695 (17). Tuxill, J. 104 (4).

Valeur, E. J. 863 (1). Velez, I. 1333 (3).

Wagner, R. J. 760 (13); 1271 (11); 1472 (13). Walsh, J. J. s.n. (4). Webster, G. L. 8053 (5); 9540 (4); 13247 (4); 13362 (15). Whitefoord, C. 3907 (4); 4347 (4); 4576 (4); 4608 (4); 5408 (4); 5417 (4); 5725 (15); 5869 (4). Woodbury, R. O. s.n. (3); s.n. (13); 26066 (4). Wright, C. s.n. (1); 572 (2); 1135 (1); 1321 (1); 2932 (2); 2933 (8); 2934 (17); 2935 (16); 2936 (16).

Zanoni, T. A. 29764 (1); 30413 (1); 32378 (1); 33687 (1); 33921 (1); 40357 (1); 40769 (1); 44133 (1); 46149 (9).