

other than "habitat in Jamaica," and the choice of a lectotype will require study of material in European herbaria. The name *Cordia glabra* has been improperly applied to this species; Johnston (1940) showed that this name should be considered a synonym of *Bourreria succulenta*.

Additional specimens examined. PANAMA. BOCAS DEL TORO: Almirante, *Cooper 406* (CFMR, F, NY, US); on lower Changuinola River, *Stork 273* (UC, US). CANAL AREA: between Farfan beach and Vera Cruz, *Duke 11733* (MO). CHIRIQUÍ: Progresso, *Cooper & Slater 300* (CFMR, F, US); without definite locality, *Cooper & Slater 307* (CFMR, F, NY, US). COLÓN: Santa Rita Ridge, 500 m, *McPherson 8456* (MO). HERRERA: carretera a Pesé, *Lao 585* (MO). LOS SANTOS: Punta Mala, *Croat 9756* (DUKE), *9763B* (MO (2)). PANAMÁ: vicinity of Pacora, 0–20 m, *Allen 3455* (BM, BR, F, G, MO); cerca del Río Chame, *Moron 28* (MO). SAN BLAS: Permé, *Cooper 235* (NY, US).

Cordia correae James S. Miller, sp. nov.

TYPE: Panama. Coclé: La Mesa, 4 km north of El Valle, disturbed tropical wet forest and roadside, 875 m, 3 Jan. 1974, *M. Nee & J. D. Dwyer 9164* (holotype, MO 2414635; isotype, DUKE). Figure 2.

Arbor vel frutex ad 8 m alta, ramunculis glabris ad strigillosis. Folia persistens, petiolis 5–10(–14) mm longis, strigillosis; laminae anisophyllae, coriaceae, foliis maioribus ovatis ad anguste ovatis, 10.3–17.6 cm longis, 4.8–8.8 cm latis, apice acuminatis, basi rotundatis ad obtusis, superficie sparsim strigillosa, pagina inferiore minute strigillosa. Inflorescentiae internodales vel axillares, cymosae, ad 5.5 cm latae. Flores sessiles; calyx urceolatus, 5.6 mm longus, rufostrigillosus. Fructus drupaceus, aurantiacus, putamine inaequaliter ovoideo, 8.4–13 cm longo, 6.2–9 mm lato, ruminato.

Tree or shrub 4(–8) m tall, the twigs nearly glabrous to strigillose. Leaves persistent; petioles 5–10(–14) mm long, canaliculate adaxially, unevenly and often sparsely strigillose; blades anisophyllous, coriaceous, the larger ones ovate to narrowly ovate, 10.3–17.6 cm long, 4.8–8.8 cm wide, the smaller ones ovate, 7–8 cm long, 4–5.5 cm wide, the apex acuminate, the base rounded to obtuse or rarely acute, the margin entire, the adaxial surface with widely scattered appressed hairs, the abaxial surface minutely strigillose. Inflorescences subterminal, internodal or axillary, few per stem, cymose, to 5.5 cm broad, expanding somewhat in fruit, peduncle 1.8–5.3 cm long,

strigillose, the hairs brown. Flowers sessile; calyx urceolate, 5.6 mm long, 3 mm wide at the mouth, the 5 lobes deltate, 0.7–1.4 mm long, ribs absent, rufous-strigillose; corolla white, tubular with reflexed lobes, 8.5 mm long, 5-merous, the lobes oblong, 3.6 mm long, 1.9 mm wide, the tube 7.8 mm long; stamens 5, the filaments 10.5 mm long, the upper 6 mm free, glabrous, the anthers oblong, ca. 1 mm long; ovary ovoid, glabrous; style ca. 4 mm long, the stylar branches 2.3 mm long, the stigma lobes clavate. Fruits borne in the slightly expanded, saucer-shaped calyx, orange at maturity, drupaceous, glabrous, the stone inequilaterally ovoid, 8.4–13 mm long, 6.2–9 mm broad, ruminant, the endocarp bony.

Distribution. *Cordia correae* occurs in wet forests from 800 to 1,000 m in elevation and is known only from Panama in the provinces of Coclé, Panamá, and Veraguas.

Cordia correae is known from only a few collections from Panama in the region of El Valle and from Cerro Jefe. Its closest relative is probably *C. protracta* I. M. Johnston, a species of low elevations along the Atlantic coast of San Blas and adjacent Colombia. The two species share similar habits of growth, branching patterns, anisophyllous leaves, and distinctly five-lobed calyces. The fruits of *C. correae*, however, are orange, subglobose, and have a ruminant surface, while those of *C. protracta* are white, elongate, and ridged longitudinally. *Cordia correae*, which is endemic to Panama, is named in honor of Profesora Mireya D. Correa A., who has done much to advance the study of Panamanian plants.

Additional specimens examined. PANAMA. COCLÉ: La Mesa above El Valle, along road which ends in pasture, 810 m, *Croat 25310* (MO, NY); vicinity of La Mesa, N of El Valle, 1,000 m, *Gentry 6813* (AAU, MO, NY); Cerro Pilon, El Valle Site Area of WEP COR, *Kirkbride 1071* (NY); La Mesa, 4 km N of El Valle, 850–875 m, *Nee & Dwyer 9214* (MO (2), NY). PANAMÁ: along road, 18.9 km N of Cerro Azul, *Mori & Kallunki 4998* (AAU, DUKE, NY, (2)). VERAGUAS: vicinity of Cerro Tute, forested slopes along trail to summit, 850–1,000 m, *McPherson 10684* (MO).

Cordia croatii James S. Miller, sp. nov.

TYPE: Panama. Veraguas: 5 mi. west of

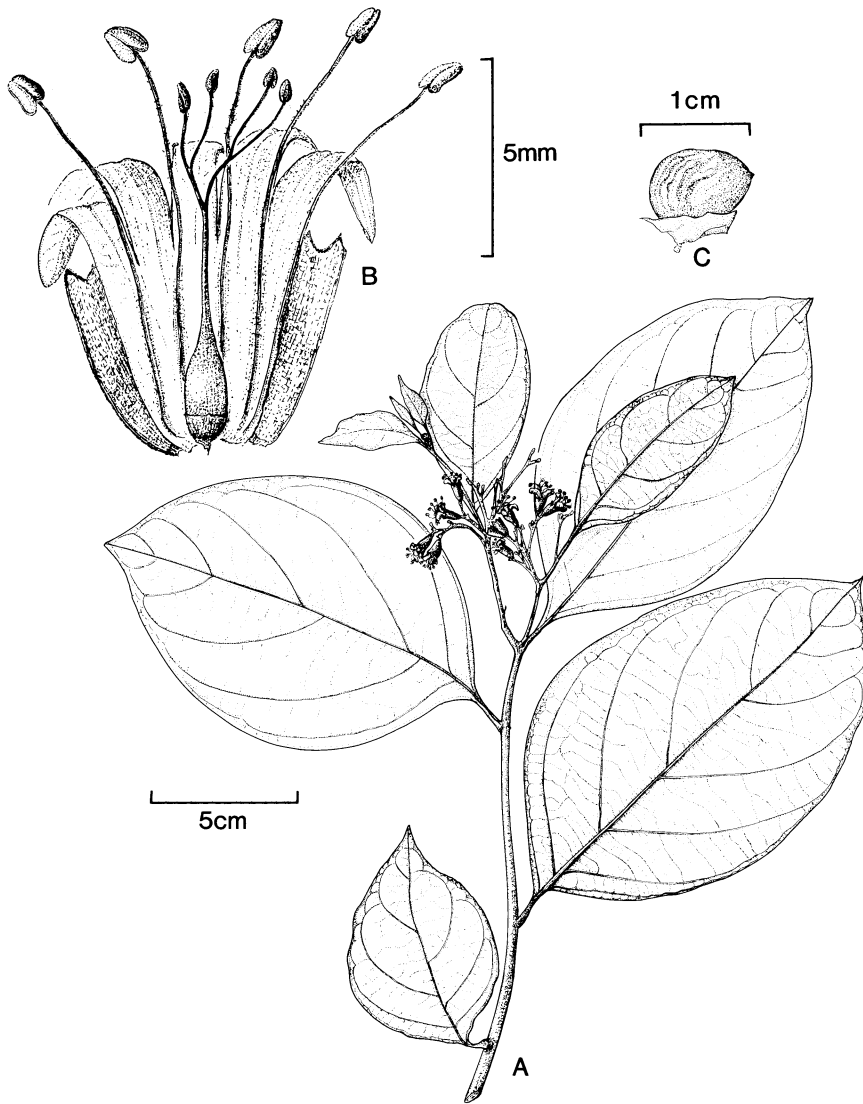


FIGURE 2. *Cordia correae*.—A. Flowering branch.—B. Flower with calyx and corolla opened.—C. Dried fruit. A, B from Nee & Dwyer 9164 (MO), Coclé, Panamá; C from Mori & Kallunki 4998 (NY), Panamá, Panamá.

Santa Fe on road past Escuela Agricola Alto Piedra on Pacific side of divide, 800–1,200 m, *T. B. Croat 23059* (holotype, MO 2198065; isotypes, AAU, BR, C, CAS, CR, DUKE, F, L, LL, MEXU, NY, RSA, US, WIS). Figure 3.

Arbor ad 20 m alta, ramunculis glabris ad strigillosis. Folia persistentia, petiolis 6–12 mm longis, laminae ellipticae ad elliptico-ovatae, (4.5–)5.7–8.2(–11.2) cm longae, (2–)3–4.3(–4.8) cm latae, apice acuto ad leviter acuminato, basi acuta ad obtusa. Inflorescentiae termi-

nales, cymosae (3–)8–12(–15) cm latae. Flores bisexuales; calyx campanulatus, 3–4.3 mm longus, glaber, 3(–4)-lobatus; corolla alba, tubularis, 5–7.2 mm longa, 5-lobata, lobis reflexis, ovatis; stamina 5, filis 4–6.5 mm longis, villosis, antheris oblongis, 1.1 mm longis. Fructus drupaceus, putamine inaequilateraliter ovoideo, 8–11 mm longo, 6–8(–11) mm lato.

Tree to 20 m tall, the twigs nearly glabrous to sparsely strigillose, often with considerable waxy deposits. Leaves persistent; petioles 6–12 mm long, deeply canaliculate adaxially, nearly glabrous to sparsely strigillose; blades

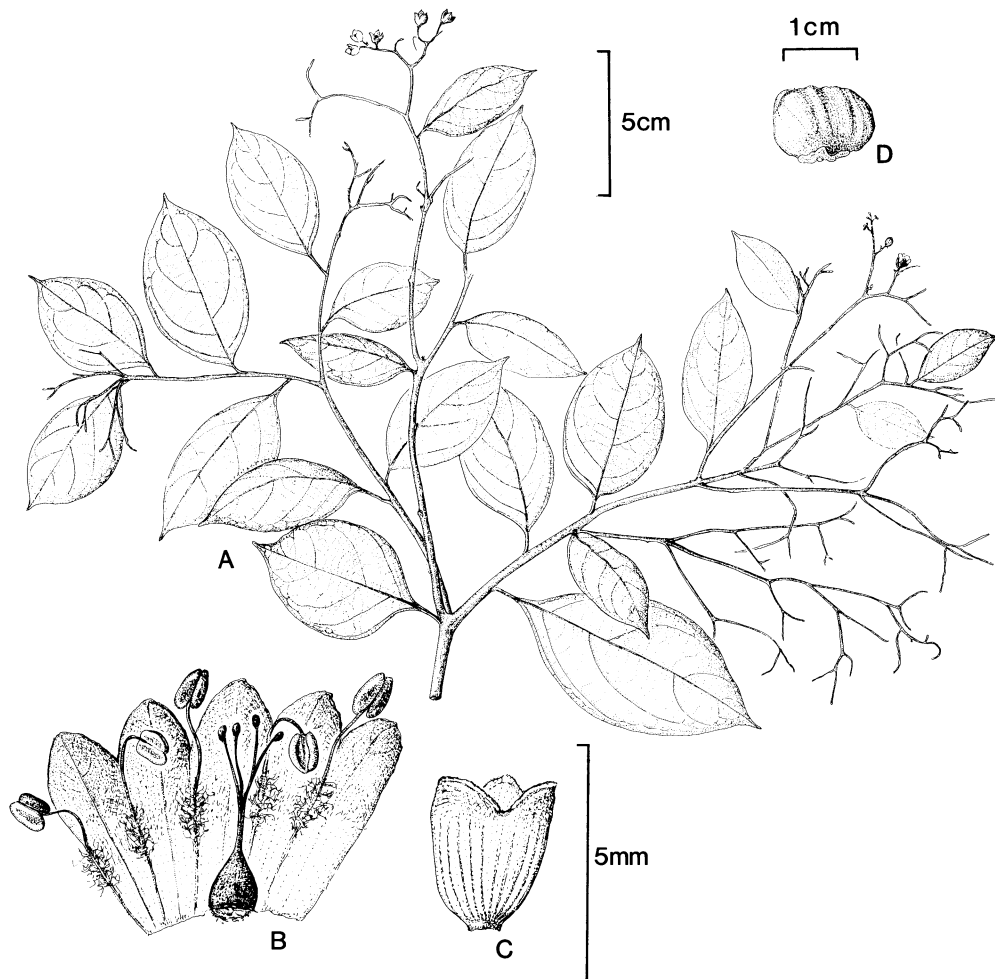


FIGURE 3. *Cordia croatii*.—A. Flowering branch.—B. Flower with corolla opened.—C. Calyx.—D. Dried fruit.—A–C from Croat 23059 (MO), Veraguas, Panama; D from Tonduz 12520 (US), Alajuela, Costa Rica.

elliptic to elliptic-ovate, (4.5–)5.7–8.2(–11.2) cm long, (2–)3–4.3(–5) cm wide, the apex acute to slightly acuminate, the base acute or less commonly obtuse and slightly decurrent, the margin entire, the adaxial surface glabrous to papillose with widely scattered appressed hairs, the abaxial surface glabrous. Inflorescence terminal, cymose (3–)8–12 (–15) cm broad, the branches sparsely brown-strigillose to ferruginous-puberulent. Flowers sessile, monomorphic, the stamens longer than style; calyx campanulate, 3–4.3 mm long, 3.4–4 mm wide at mouth, the 3(–4) lobes ovate, rounded at apex, 1–1.8 mm long, ribs absent, glabrous; corolla white, tubular with

reflexed lobes, 5–7.2 mm long, 5-merous, the lobes ovate, 2–4.3 mm long, 1.5–3 mm wide, the tube 2.2–3 mm long, glabrous; stamens 5, the filaments 4–6.5 mm long, the upper 2–2.5 mm free, villous along the lower free portion, the anthers oblong, 1.1 mm long; ovary ovoid to conical, 1–1.6 mm long, 1–1.4 mm broad, glabrous; disc crateriform, 0.4–0.5 mm tall, 1–1.1 mm broad, glabrous; style 2–2.3 mm long, the stylar branches 1.7–2.5 mm long, the stigma lobes discoid. Fruits borne in the saucer-shaped calyx, drupaceous, glabrous, the stone inequilaterally broadly ovoid, 8–11 mm long, 6–8(–11) mm broad, the endocarp bony.

Distribution. *Cordia croatii* occurs in cloud forests from 800 to 1,200 m in elevation and is known from the San Ramón region of Costa Rica and the provinces of Coclé and Veraguas in Panama.

Cordia croatii is distinct in its small elliptic leaves. It is known only from a few Panamanian collections and several from the San Ramón region of Costa Rica, although further collecting efforts may reveal it in cloud forests in between. This species is somewhat unusual in sect. *Myxa* in that it occurs at relatively high elevations, unlike the majority of its relatives, which are usually found in lowland wet forests. *Cordia croatii* shares a three-lobed calyx with *Cordia lasiocalyx* Pittier, *C. lucidula* I. M. Johnston, and *C. porcata* Nowicke and is probably closely related to these species. *Cordia croatii* is named in honor of Dr. Thomas B. Croat who collected the type material and has contributed greatly to the study of Panamanian botany.

Additional specimens examined. PANAMA. COCLÉ: Cerro Pilón, 2,900 ft., *Lallathin 1F* (MO); *1-1* (MO).

Cordia curassavica (Jacq.) Roemer & Schultes, *Syst. Veg.* 4: 460. 1819. *Varronia curassavica* Jacq., *Enum. Syst. Pl.* 14. 1760. TYPE: Curassao, *Jacquin* (not seen).

Cordia obliqua Kunth in Humb., *Bonpl. & Kunth, Nov. Gen. Sp.* 3: 74. 1818. *Cordia peruviana* var. *mexicana* DC., *Prodr.* 9: 491. 1845. TYPE: Mexico. Campeche: collector unknown (holotype, P, not seen; microfiche, MO).

Cordia brevispicata Martens & Galeotti, *Bull. Acad. Roy. Sci. Bruxelles* 11(2): 331. 1844. TYPE: Mexico. Puebla: Tehuacán, Apr. 1840, *Galeotti 7192* (holotype, BR; isotypes, BR, G, K).

Cordia linearis A. DC., *Prodr.* 9: 493. 1845. TYPE: Mexico: *Herb. Pavón* (holotype, G-DC, not seen; microfiche, MO).

Cordia hispida Benth., *Bot. Voy. Sulphur* 139. 1845. TYPE: Honduras: Gulf of Fonseca, *Sinclair s.n.* (holotype, K).

Cordia palmeri S. Watson, *Proc. Amer. Acad. Arts* 24: 62. 1889. TYPE: Mexico. Sonora: Guaymas, 1887, *E. Palmer 281* (holotype, GH; isotypes, C, K, NY, UC, US (3)).

Cordia socorrensis Brandegee, *Erythea* 7: 5. 1899. TYPE: Mexico. Colima: Socorro Island, Mar.-June 1897, *Anthony 384* (holotype, UC 78381; isotypes, DS, F, GH, K, MEXU, MO, POM, SD, US).

Cordia brevispicata var. *hypomalaca* Greenman, *Publ. Field Columbian Mus., Bot. Ser.* 2: 338. 1912. TYPE: Mexico. Oaxaca: Cerro San Filipe, 1,700 m, 30 June 1907, *Conzatti 1831* (lectotype, here designated, F 225986; isotypes, F, GH). In describing this variety Greenman designated Conzatti's collection at the Field Museum as the type and listed two accession numbers (225986 and 246873). Neither sheet had been clearly marked as holotype by Greenman, and the better of the two specimens is selected as a lectotype here to rectify this situation.

Cordia imparilis J. F. Macbr., *Contr. Gray Herb.* 49: 16. 1917. TYPE: Mexico. Michoacán or Guerrero: 1 Aug. 1898, *E. Langlasse 265* (holotype, GH; isotypes, G (2), K, US).

Cordia chepensis Pittier, *Contr. U.S. Natl. Herb.* 18: 253. 1917. TYPE: Panama. Panamá: Chepo, 60 m, Oct. 1911, *H. Pittier 4511* (holotype, US 679672; isotype, US).

Cordia littoralis Pittier, *Contr. U.S. Natl. Herb.* 18: 253. 1917. TYPE: Costa Rica. Limón: Porto Limón, 27 May 1911, *H. Pittier 3641* (holotype, US 678699; isotype, GH).

Cordia mollis Pittier, *Contr. U.S. Natl. Herb.* 18: 294. 1917. TYPE: Guatemala: between Chiguin and Trapiche Grande, 900 m, 19 Apr. 1905, *H. Pittier 134* (holotype, US 472788).

Shrub to 2(-4) m tall, the twigs glabrous to strigillose or puberulent or rarely hirsute but always with small, globose wax particles. Leaves deciduous, on short spurs to 1 mm long; petioles 1-8(-21) mm long, strigillose or puberulent to hirsute; blades lanceolate to narrowly elliptic or elliptic-ovate, (1-)2-9.4 (-16) cm long, 0.5-4(-7.3) cm wide, the apex acute, the base cuneate to acute and sometimes decurrent, the margin serrate, occasionally merely undulate, the adaxial surface scabrous to papillose, the abaxial surface strigillose with most hairs restricted to the major veins, or tomentulose. Inflorescence terminal, spicate, 1.5-8.8(-15) cm long, the peduncle 1.8 cm long, puberulent or strigillose to nearly glabrous. Flowers sessile, distylous; calyx campanulate, 2-3.2(-3.8) mm long, the 5(-6) lobes deltate; corolla white, tubular with reflexed to spreading lobes, (3.8-)4.8-6.8 (-8.2) mm long, 5(-6)-merous, the lobes ovate to depressed ovate, 1.2-1.8(-2.8) mm long, the tube 2.4-3.4 mm long; stamens 5, the filaments 3.2-5(-6) mm long, the upper 0.8-2 mm free, the free portion glabrous, puberulent to pubescent beneath the point of insertion, the anthers el-