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A NEW SPECIES OF *CEREUS* S. STR. (CACTACEAE) ENDEMIC TO HAITI

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ABSTRACT

A species of *Cereus* s. str. (Cactaceae) endemic to Haiti is here described and discussed. The species has long gone unnoticed by most botanists and cactologists, with a few exceptions such as Areces-Mallea. It has been misidentified as a species of *Harrisia*, *Leptocereus*, and *Pilosocereus*. As we are unaware of any clearly applicable name, here it is provided with a name, *C. haitiensis*, and a type specimen. This cactus is characterized by its shrubby habit to 4 m tall, stems 3–4.5 cm wide, 10–15 crenate ribs, flowers ca. 5–7 cm long, and smooth, obscurely ribbed, green to yellow fruits 9–11 cm long.

REZIME

Tèks sa a dekri yon espès *Cereus* s. str. (Cactaceae) ki leve ann Ayiti. Pandan yon bon tan, pi fò espesyalis nan domèn botanik ak rechèch sou plant kaktis pa t janm remake espès sa a, anwetan de twa espesyalis. Youn pami de twa espesyalis sa yo se Areces-Mallea. Yo te konfonn Cactaceae ak lòt espès: *Harrisia*, *Leptocereus*, ak *Pilosocereus*. Kòm nou pa okouran gen okenn non ki te deja etabli pou espès la, nan atik sa a n ap rele l *C. haitiensis*, epi nou mete l nan yon espès patikilye. Kaktis sa a prezante tankou yon ti pyebwa kout e l ka rive 4 mèt wotè, lajè tij li yo kapab 3–4.5 santimèt, arebò yo dantle (10–15 pwent), li gen flè 5–7 santimèt longè, epi li gen fwi ki lis, ki gen nèvi kip a fin twò parèt, ki gen koulè vè rive sou jòn epi ki mezire 9–11 santimèt longè.

RESUMEN

Se describe y discute una especie de *Cereus* s. str. (Cactaceae) endémica de Haití. La especie ha pasado desapercibida por la mayoría de los botánicos y especialistas en cactáceas, con algunas excepciones como la de Areces-Mallea. Se ha identificado erróneamente como una especie de *Harrisia*, *Leptocereus*, y *Pilosocereus*. No conocemos ningún nombre que le sea claramente aplicable, le damos el nombre *C. haitiensis*, y asignamos un especimen tipo. Este cactus se caracteriza por su hábito arbustivo de 4 m de altura, tallos de 3–4,5 cm de ancho, 10 a 15 costillas crenadas, flores ca. 5–7 cm de largo, y frutos entre verde y amarillo, 9–11 cm de longitud, lisos, y acanalados.

The Cactaceae contain ca. 1800 species (Nyffeler & Eggli 2010), all endemic to the Americas except a few taxa of *Rhipsalis* Gaertn. (Cota-Sánchez & Bomfim-Patrício 2010). Approximately 30 species of cacti are native to Hispaniola (Acevedo-Rodríguez & Strong 2012). During field work in northwestern Haiti by Brígido Peguero and Brett Jestrow, an unknown cactus encountered was

immediately realized to represent a species never formally described for Hispaniola. A description and discussion of the species are provided, which hereafter is referred to as *Cereus haitiensis*, sp. nov.

CEREUS HAITIENSIS A.R. Franck & B. Peguero, **sp. nov**. **TYPE**: **Haiti**. Nord-Ouest Dept., W of Môle gorge, vicinity of Môle-St-Nicolas, arid thickets, tree 10 ft. high, seeds black, fruit pendant and glabrous, 16 Feb 1929 [specific date from holotype], *E.C. Leonard & G.M. Leonard 13311* (holotype, US [Fig. 1]; isotype, NY). Figs. 1–14.

Cereus haitiensis is most easily identified by its relatively slender stems (3–4.5 cm wide) with spines overlapping those of adjacent areoles, 10–15 ribs per stem that are distinctly crenate with the areoles residing in the indentations, relatively short flowers (ca. 5–7 cm long), and large (9–11 cm long), obscurely ribbed fruits.

Shrubs, to 4 m high, the trunk scarcely evident or to 1 m high and 20 cm thick, branches numerous, mostly erect to ascending, occasionally divergent, bending, or breaking. **Stems** indeterminate, 3–4.5 cm wide distally, green. **Ribs** 10–15 per stem, 2–10 mm high, crenate with areoles placed at the indentations along the ribs, the areoles spaced every 11–17 mm. **Areoles** circular in outline, ca. 3–4 mm wide, white tomentose with up to 20 spines on distal portions of stems. **Spines** straw-colored, to 3.5 cm long distally on stems and usually overlapping spines of adjacent areoles, to 7 cm long basally on trunk. **Flower buds** (when well-developed, just prior to anthesis) bulbous, green, the basal tube to ca. 2.5 cm long and 1.5 cm wide with areoles with tufts of white trichomes subtended by deltoid-lanceolate bracts that are green basally and brownish red distally with acute to acuminate tips, the engorged flower bud apex to ca. 2 cm long by 2.5 cm wide and enclosed by greenish sepaloid bracts with brownish to pinkish margins and apices. **Flowers** ca. 4.5–5.5 cm long, the tube ca. 3 cm long by 6–8 mm wide, the scales near the base of the tube ca. 1 mm long by 0.5 mm wide, the scales just below the sepaloid tepals ca. 3 mm long by 1 mm wide, the upper tepals ca. 1.5 cm long by ca. 5 mm wide, containing ca. 75–150 stamens. **Fruit**s 9–11 cm long by 3.5–6 cm wide, obscurely ca. 10-ribbed, surface smooth and without evident areoles, green to yellow, the outer rind 6–11 mm thick internally with few white conspicuous veins, pulp pellucid grayish to white with hundreds of seeds embedded. **Seeds** 1.6–2.1 mm long by 1.2–1.6 mm wide, brown when immature to black when mature.

Distribution. Endemic to Haiti.

Phenology. Areces-Mallea (2003: 333, 492) stated that during Dec–Jan over 80% of flowers produced in a year open synchronously in 2–4 days; buds and flowers have also been noted in Feb–Mar.

Ethnobotany. During the 2015 expedition to northwest Haiti, a Haitian guide said the fruit of this cactus was used to “alisarse el cabello” [straighten and untangle hair] (also mentioned by Julien of Boukan Guinguette, pers. comm.). The common name “grifin” in Haitian Creole has been used to refer to the plant locally (Julien of Boukan Guinguette, pers. comm.).

Additional Specimens Examined. **HAITI**. NORD-OUEST DEPT.: road Jean-Rabel to Môle-St-Nicolas, near Môle-St-Nicolas, terrace mountain, quaternary coral limestone, arid region, 3–4 m high, profusedly branched, branches nearly as long as the main stem, upward bent, 14-ribbed, spines yellowish in color, fl. not seen, fruits greenish yellow, size of a duck’s egg, perfectly smooth, pulp grayish, seeds black, 3 Jul 1925, *Ekman H-4446* (S [Fig. 2], US); along Môle Road, vicinity of Jean Rabel, arid thicket, tree 10 ft. high, branches numerous, flowers green, ripe fruit yellow, 3 Mar 1929, *Leonard & Leonard 13682* (NY, US [Fig. 1]); Môle-St-Nicolas, 2.5 m o más y muy ramificada, fl. seca ahora, Feb 1985, *Zanoni et al. 33542* (JBSD [Fig. 2]). OUEST DEPT.: Plaine Cul-de-Sac, Croix-des-Bouquets, Hab. Jouon, low limestone hills, not very common, 4–5 m tall, broom-shaped, many branched, branches erect, long as main trunk, 11–13 ribbed, fl. white, brownish on the outside, fruits

perfectly smooth, indistinctly c. 10-ribbed, elongated pear-shaped, olive-green, seeds nearly black in a gray-green pulp, 18 Dec 1925, *Ekman H-5377* (S, US).

Discussion

The description above of *Cereus haitiensis* is based on original observations, but Areces-Mallea (2003) provided additional and thorough descriptions for many characters. Notably, Areces-Mallea (2003: 488–491) reported spines on the trunk to 14 cm long, flowers usually 6.7–7.1 cm long by 5–6.5 cm wide when fully expanded with a 11–14-lobed stigma, and seeds ca. 1 mm long by 0.5 mm wide (Areces-Mallea 2003: 154). The flower measurements provided here are shorter and based solely on the dried specimen *Leonard & Leonard 13682*.

The flowering areoles devoid of long hairs, bulbous flower bud, and relatively smooth, cylindrical green to yellow fruit of *Cereus haitiensis* favor its inclusion in *Cereus* Mill. s. str. or *Monvillea* Britton & Rose (=*Praecereus* Buxb.). Britton & Rose (1920: 1, 3, 21) established *Monvillea* for slender-stemmed cacti with flowers persistent on the developing fruit, compared to their concept of *Cereus* s. str. as being thicker-stemmed with flowers quickly deciduous after anthesis (see Heath 1992; Kiesling 2010a, 2010b). The morphological differences between the two genera seem tenuous (see Croizat 1943: 258). A phylogeny based on the plastid *trnS-trnG* locus indicated that *Monvillea* could be included in a monophyletic *Cereus*, depending on the inclusion or exclusion of *Cipocereus* F. Ritter and *Cereus* subg. *Mirabella* (F. Ritter) N.P. Taylor (Romeiro-Brito et al. 2016: Appendix S1; Franco et al. 2017). The limited sampling and poorly supported clades in this group in Hernández-Hernández et al. (2011) also hinted at this relationship. Here we opt to include this Haitian endemic cactus within *Cereus* and consider *Monvillea* a synonym of *Cereus*, pending further taxonomic clarification in the group.

Cereus haitiensis may bear some relation with Venezuelan or Antillean species with short flowers and oblong fruits such as *C. fricii* Backeb. (=*C. russelianus* Salm-Dyck, nom. illeg., non *C. russelianus* (Hook.) Gardner ex Lem., fide Hunt et al. 2006; Britton & Rose 1920: 33), *C. repandus* (L.) Mill. (Britton & Rose 1920: 18, 223–224, including *C. grenadensis* Britton & Rose [=*C. repandus*, fide Hunt et al. 2006]; Howard 1989: 403, as *C. margaritensis* J.R. Johnst. [=*C. grenadensis*]), or *C. smithianus* (Britton & Rose) Werderm. (Britton & Rose 1920: 37). *Cereus russelianus*, though illegitimate (McNeill et al. 2012: Art. 53.1), was validly published, and is the type species of *Pilocereus* subg. *Oblongicarpi* Croizat (see Croizat 1943: 255; Areces-Mallea 2003: 491–492). Despite the overall similarities, no other species of *Cereus* have as many ribs (consistently) and such large fruits as *C. haitiensis*. Phylogenetic analyses of DNA sequences will be useful to determine the relationship of *C. haitiensis* with other species of cacti.

The Haitian endemic *Cereus haitiensis* has long been overlooked and until now had no name clearly applicable to it. Recent treatments have not reported any native species of *Cereus* s. str. or *Monvillea* for Hispaniola (e.g. Hunt et al. 2006; Acevedo-Rodríguez & Strong 2012). Barker & Dardeau (1930) did not report any such species or genera in their treatment of the cacti of Haiti. Erik L. Ekman remains the most prolific plant collector in Haiti (Ekman 1926; Howard 1952; Dubé 2008), and Werdermann (1931: 239–240) was apparently one of the first to recognize that the collections *Ekman H-4446* (Fig. 2) and *H-5377* were the same species and distinct from all other cacti on Hispaniola. Werdermann applied the name *C. repandus* (L.) Mill. to these Ekman specimens and is credited with having made the determination in Dec 1929 on the original labels. The protologue of the basionym of *C. repandus* described eight ribs and its references therein (Boerhaave 1720: 293; Linnaeus 1737: 182) gave an origin of Curaçao and curiously mentioned “lanungine flava”, none of which correspond to *C. haitiensis*. Moscoso (1941, 1943: 402) followed Werdermann’s treatment for *C. repandus*, the name of which must be regarded as misapplied to *C. haitiensis*. Later these same

two Ekman specimens (*H-4446* and *H-5377*) were determined as *Cereus* sp. by Hummelinck on 12 Nov 1937 and as *Harrisia* Britton sp. by M. Hjertson & N. Taylor in 2003.

Emery C. Leonard also collected extensively in Haiti around the same time as Ekman (Leonard 1925a, 1925b, 1927; Zanoni 1986). Two other collections of *Cereus haitiensis*, *Leonard & Leonard 13311* and *13281* (Fig. 1), were first identified on the original labels as *Cephalocereus nobilis* (Haw.) Britton & Rose and later reclassified as *Pilosocereus nobilis* (Haw.) Byles & G.D. Rowley by D.H. Nicolson and R.A. DeFilipps in Jun 1969. The basionym protologue of this name described five ribs, clearly not applicable to this Haitian endemic. Later these same two specimens were determined as cf. *Leptocereus* (A. Berger) Britton & Rose by N.P. Taylor in Oct 1992. Another collection of this species, *Zanoni et al. 33542* (Fig. 2), was determined as *Harrisia* sp. on the original label.

Three options have been considered in giving this endemic Haitian cactus a name. One option would be to validly publish the name of *Cereus fabiolae*, nom. inval. This name was introduced for this Haitian endemic in a dissertation focused on *Leptocereus*, for which this Haitian endemic was included and thoroughly analyzed (Areces-Mallea 2003: vii, 12–13, 28–29, 39–42, 49–56, 64–68, 74–75, 80–81, 86, 89–93, 99–100, 113–116, 119. 124–125, 131–132, 139–140, 150–154, 171, 174, 177–178, 180–181, 185–186, 196–197, 202–203, 205–208, 216–217, 220, 230, 235–236, 257–261, 272–276, 293, 333, 484–493). Efforts to locate the cited type specimen (*Areces 6795*) at NY or EKK (Areces-Mallea 2003: 488), or the type specimen (*Areces-Mallea & Proctor 6399*) of *Mammillaria jamaicensis* Areces at IJ and NY (Areces-Mallea 2001), have so far been unsuccessful. Other new names were also introduced in this dissertation (Areces-Mallea 2003), including several currently invalid names of *Leptocereus* and a subgenus of *Cereus* to accommodate this Haitian endemic cactus. These novel names are invalid since the dissertation contains no evidence of being effective publication (McNeill et al. 2012: Art. 30.8).

It was suggested that a Plumier illustration (Burman 1758: pl. 195, fig. 1; Hunt 1984: 43, 60; Mottram 2002: 90, 113; Fig. 15) represented this Haitian endemic cactus (Areces-Mallea 2003: vii, 484–486). If this were the case, then *Cereus serruliflorus* Haw. would be the appropriate earlier name for this taxon, since the Plumier illustration (Fig. 15) is the type of that name (Lourteig 1991). However, the numerous and relatively long scales on the flower tube and the rather short spines on the stem with eight somewhat rounded ribs of the Plumier illustration (Fig. 15) are more consistent with *Harrisia divaricata* (Lam.) Backeb, native to the Dominican Republic and Haiti. In contrast, *C. haitiensis* has few, sparse and relatively short scales on the flower tube and stems with rather long spines and 10–16 rather narrow ribs. The exserted stigma does not readily distinguish *H. divaricata* from *C. haitiensis* (see Franck 2016: Figs. 56A, 64B, 65A, 68B, 80, 83C, 85, 86, 88, 89, 99, 103, and 104). Only the narrowly triangular, serrulate inner perianth segments and the radial symmetry of stamens in the Plumier illustration (Fig. 15) appear to represent *C. haitiensis*. The stamens in *H. divaricata* are clustered in the bottom of the flower opening, although they circle along the upper portion as well. The inner perianth segments of *H. divaricata* are oblanceolate with an apiculate apex and can be denticulate on the margin. The other anomalous piece in the Plumier illustration, for which a cross-section is also provided, is like the apex of an oblong fruit of *C. haitiensis* fused to the floral tube of *H. divaricata* (Hunt 1984: 60; Mottram 2002: 113). Given that *Harrisia* has been confused with this Haitian endemic by others, it is likely that Plumier conflated two different species, the inner flower parts representing *Cereus haitiensis* and the flower tube and stem representing *H. divaricata*.

The second option would then be to apply the name of *Cereus serruliflorus* and restrict its lectotype to portions of the flower. Because the illustration appears to be a chimera of two species with parts fused into one flower (and fruit?), it is not straightforward to delineate precisely which

parts (such as the outer sepaloid whorl or the fruit-like object [Hunt 1984: 60; Mottram 2002: 113]) would represent the type and be confident in such an approach. Additionally, the protologue of *C. serruliflorus* is problematic in referencing the eight ribs of *Harrisia divaricata*. Since both the Plumier illustration and the protologue are admixtures of two species, the application of *C. serruliflorus* will always contain conflict.

The depiction of the stem in the Plumier illustration (Fig. 15) seems to clearly represent *Harrisia divaricata.* It seems best then to restrict the type of *Cereus serruliflorus* to the stem in order to be able to clearly apply the name *C. serruliflorus* to a single species, i.e. *H. divaricata*. Alternatively, the name *C. serruliflorus* could be proposed for formal rejection. In either case, this would allow for an extant herbarium specimen that is not a mixed collection of different plant species to represent the type of this Haitian endemic. The third and chosen option is to publish a new name (*C. haitiensis*) and declare an extant type specimen with rather specific provenance that exhibits important identifying features for this Haitian endemic cactus.

Since *Cereus haitiensis* Schelle (1907: 89; Britton & Rose 1923: 283) was a nomen nudum and invalidly published, originating apparently from horticulture, it does not affect the valid publication of *C. haitiensis* (see McNeill et al. 2012: Art. 53.1) as applied here to the Haitian endemic species.

Conservation Assessment. The species is only known to be extant in extreme northwestern Haiti, which is here considered to comprise the population for conservation assessment. The subpopulation in the Cul-de-Sac region (Mottram 2002: 90, 113) represented by Burman (1758: pl. 195, fig. 1) and *Ekman H-5377* (near Croix-des-Bouquets) is presumed extinct. We propose classifying *Cereus haitiensis* as endangered (EN), given our perceived extent of its occurrence as less than 5000 km^2 (B1), extant as a subpopulation at a single location (B1a), and its presumed population decline (B1b) (IUCN 2012). It is possible that a more precise survey may find the species to be confined to an area less than 100 km^2, which would favor its assessment as critically endangered. Though localized to one location, it appeared to be relatively abundant there.

Lectotypification of *Cereus serruliflorus* (= *Harrisia divaricata*). In a second-step lectotypification (McNeill et al. 2012: Art. 9.17), the lectotype of *Cereus serruliflorus* is restricted to the stem depicted in the Plumier illustration (Fig. 15). In this way, the name *C. serruliflorus* is more clearly applied and the chimeric elements are removed from the lectotype. Since the protologue seemed to have described elements of both *Harrisia divaricata* and *C. haitiensis*, any attempt to restrict the lectotype to one species will result in conflict (McNeill et al. 2012: Art. 9.19) with parts of the protologue that described the other species. As this is unavoidable, we have chosen what we feel is the best approach in obtaining a clearly applied name with an unambiguous and extant type specimen to the Haitian endemic cactus here referred to as *C. haitiensis*.

Cereus serruliflorus Haw., Philos. Mag. Ann. Chem. 7: 113. 1830. *Harrisia serruliflora* (Haw.) Lourteig, Bradea 5: 408. 1991. **LECTOTYPE** (first-step designated by Lourteig 1991; second-step designated here): **Haiti**. Cul-de-sac, Plumier illustration. Reproduced in Burman 1758, 8: tab. 195, fig. 1; in Hunt 1984, p. 60; and in Mottram 2002, p. 113. [Here only the stem is considered part of the type specimen, excluding the chimeric flower and the peculiar fruit-like objects from the type specimen]. Fig. 15.

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LITERATURE CITED

Acevedo-Rodríguez, P. and M.T. Strong. 2012. Catalogue of Seed Plants of the West Indies. Smithson. Contr. Bot. 98:1-1192.

Areces-Mallea, A.E. 2001. A new species of *Mammillaria* series *Supertextae* (Cactaceae) from Jamaica. Cactus Succ. J. (Los Angeles) 73: 35–41.

Areces-Mallea, A.E. 2003. *Leptocereus* (A. Berger) Britton and Rose: A monographic study of a West Indian genus of Cactaceae (Cactoideae). Ph.D. dissertation, City University of New York.

Barker, H. D. and W. S. Dardeau. 1930. La Flora d'Haiti. Service Technique de Département de l'Agriculture etde l'Enseignement Professionnel, Port-au-Prince.

Boerhaave, H. 1720. Index alter Plantarum quae in Horto Academico Lugduno-Batavo aluntur, vol. 1. Petrum Vander Aa, Leiden.

Britton, N.L. and J.N. Rose. 1919–1923. The Cactaceae, vols. 1-4. Carnegie Institution of Washington, Washington, D.C.

Burman, J. 1758. Plantarum Americanarum, Fasciculus Octavus. Pp. 169–194, plates 176–201. Petrum Schouten, Leiden and Gerard. Potuliet, & Theodor. Haak.

Cota-Sánchez, J.H. and M.C. Bomfim-Patrício. 2010. Seed morphology, polyploidy and the evolutionary history of the epiphytic cactus *Rhipsalis baccifera* (Cactaceae). Polibotánica 29: 107–129.

Croizat, L. 1943. Notes on *Pilocereus*, *Monvillea* and *Malacocarpus* with special reference to Colombian and Venezuelan species. Caldasia 8: 251--260.

Dubé, M. 2008. A brief description of the E. L. Ekman Herbarium, Haiti. Moscosoa 16: 202–216.

Ekman, E.L. 1926. Botanizing in Haiti. U.S. Naval Med. Bull. 24: 483–497.

Franco, F.F., G.A. Rodrigues Silva, E.M. Moraes, N. Taylor, D.C. Zappi, C.L. Jojima, and M.C. Machado. 2017. Plio-Pleistocene diversification of *Cereus* (Cactaceae, Cereeae) and closely allied genera. Bot. J. Linn. Soc. 183: 199–210.

Franck, A.R. 2016. Monograph of *Harrisia* (Cactaceae). Phytoneuron 2016-85: 1–159.

Heath, P.V. 1992. The type of *Monvillea* Britton & Rose (Cactaceae). Taxon 41: 85–87.

Hernández-Hernández, T., H.M. Hernández, J. Arturo De-Nova, R. Puente, L.E. Eguiarte, and S. Magallón. 2011. Phylogenetic relationships and evolution of growth form in Cactaceae (Caryophyllales, Eudicotyledoneae). Amer. J. Bot. 98: 44–61.

Howard, R.A. 1952. The society of plant taxonomists' plaque honoring Erick L. Ekman. Bull. Torrey Bot. Club 79: 80–95.

Howard, R.A. 1989. Flora of the Lesser Antilles, vol. 5. President and Fellows of Harvard College, Jamaica Plain, Massachusetts.

Hunt, D. 1984. The Cactaceae of Plumier's Botanicum Americanum. Bradleya 2: 39–64.

Hunt, D.R., N.P. Taylor, and G. Charles (eds.). 2006. The New Cactus Lexicon. dh Books, Milborne Port, England.

IUCN (International Union for Conservation of Nature and Natural Resources). 2012. IUCN Red List Categories and Criteria: Version 3.1, 2nd ed. IUCN, Gland, Switzerland and Cambridge, UK, 32 pp.

Kiesling, R. 2010a. Rehabilitation of the genus *Monvillea*. Haseltonia 16:3–8.

Kiesling, R. 2010b. Una nueva especie de *Monvillea* de la Argentina y la validez del género *Monvillea* (Cactaceae). Bonplandia 19:59–64.

Leonard, E.C. 1925a. Fern collecting in Haiti: I. Amer. Fern J. 15: 69–80.

Leonard, E.C. 1925b. Fern collecting in Haiti: II. Amer. Fern J. 15: 107–117.

Leonard, E.C. 1927. Fourteen new species of plants from Hispaniola. J. Washington Acad. Sci. 17: 65–73.

Linnaeus, C. 1737. Hortus Cliffortianus. "Med. Doct. & Ac. Imp. N. C. Soc.," Amsterdam, Netherlands.

Lourteig, A. 1991. Nomenclatura plantarum Americanum. XVI. Cactaceae. Bradea 5: 400–411.

McNeill, J., F.R. Barrie, W.R. Buck, V. Demoulin, W. Greuter, D.L. Hawksworth, P.S. Herendeen, S. Knapp, K. Marhold, J. Prado, W.F. Prud'homme Van Reine, G.F. Smith, J.H. Wiersema, and N.J. Turland (eds.). 2012. International Code of Nomenclature for algae, fungi, and plants (Melbourne Code). Regnum Veg. 154: 1–208. Koeltz Scientific Books, Königstein, Germany.

Moscoso, R.M. 1941. Las Cactáceas de la Flora de Santo Domingo. Univ. de Santo Domingo, Ciudad Trujillo.

Moscoso, R.M. 1943. Catalogus Florae Domingensis, Pt. 1. New York.

Mottram, R. 2002. Charles Plumier, the King's Botanist – his life and work. With a facsimile of the original cactus plates and text from *Botanicon Americanum* (1689–1697). Bradleya 20: 79–120.

Nyffeler, R. and U. Eggli. 2010. A farewell to dated ideas and concepts – molecular phylogenetics and a revised suprageneric classification of the family Cactaceae. Schumannia 6: 109–149.

Romeiro-Brito, M., E.M. Moraes, N.P. Taylor, D.C. Zappi, and F.F. Franco. 2016. Lineage-specific evolutionary rate in plants: Contributions of a screening for *Cereus* (Cactaceae). Appl. Pl. Sci. 4: apps.1500074. doi: 10.3732/apps.1500074.

Schelle, E. 1907. Handbuch der Kakteenkultur. Eugen Ulmer, Stuttgart.

Werdemann, E. 1931. Die von E. L. Ekman in Westindien, besonders auf Cuba und Hispaniola gesammelten Cactaceae. Repert. Spec. Nov. Regni Veg. 29: 222–243.

Zanoni, T.A. 1986. Las expediciones botanicas de William L. Abbott y Emery C. Leonard a la Isla de la Española. Moscosoa 4: 6–38.

Figure 1. Specimens of *Cereus haitiensis*: *Leonard & Leonard 13311* (holotype, US) (left) and *Leonard & Leonard 13682* (US) (right). Photos courtesy of United States National Herbarium, Smithsonian Institution.

Figure 2. Specimens of *Cereus haitiensis*: *Ekman H-4446* (S) (left) and *Zanoni et al. 33542* (JBSD) (right). Photo of Ekman specimen (left) courtesy of the Swedish Museum of Natural History.

Figure 3. Habit of *Cereus haitiensis* (right foreground), at the water tank of La Batterie du Morne-à-Cabris. Photo by Barry R. Procter.

Figure 4. Habit of *Cereus haitiensis.* Photo courtesy of Boukan Guinguette - Môle / Haïti.

Figure 5. Crenate stems of *Cereus haitiensis*, with a dead stem showing the interwoven inner fibers. Photo courtesy of Boukan Guinguette - Môle / Haïti.

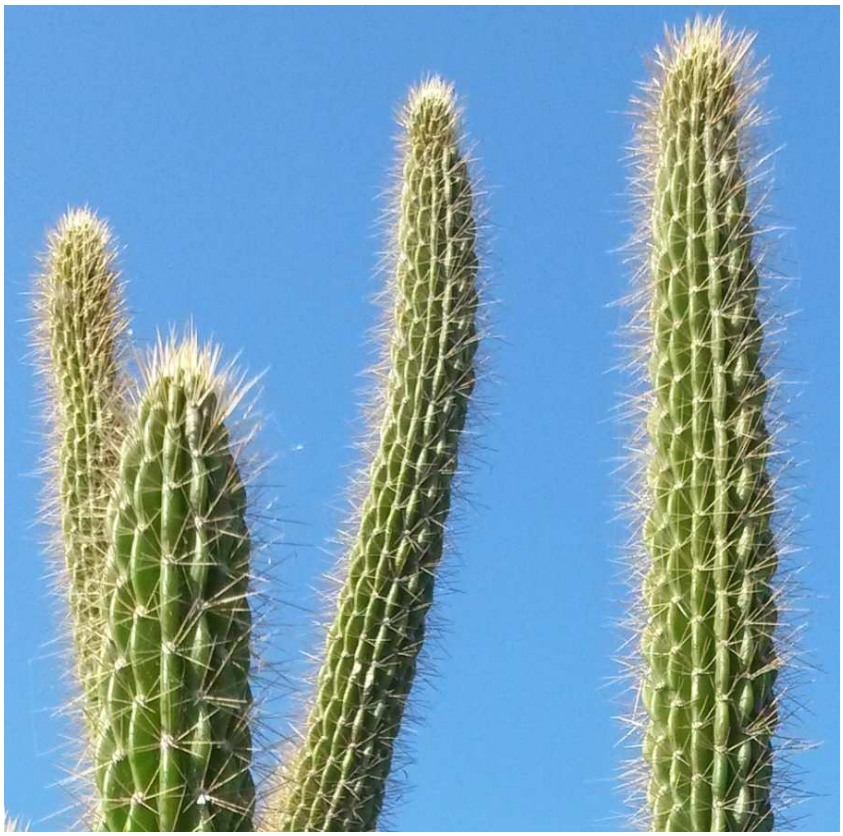

Figure 6. Crenate stems of *Cereus haitiensis*. Photo courtesy of Boukan Guinguette - Môle / Haïti.

Figure 7. Stems of *Cereus haitiensis* with bulbous flower buds, at the water tank of La Batterie du Morne-à-Cabris. Photo by Barry R. Procter.

Figure 8. Stems of *Cereus haitiensis* with one recently closed flower. Photo courtesy of Boukan Guinguette - Môle / Haïti.

Figure 9. Stems of *Cereus haitiensis* with one blackened, dried, persistent flower. Photo by Brett Jestrow.

Figure 10. Stems of *Cereus haitiensis* with one green immature fruit. Photo courtesy of Boukan Guinguette - Môle / Haïti.

Figure 11. Obscurely ribbed fruit of *Cereus haitiensis*, held by Brígido Peguero. Photo by Brett Jestrow.

Figure 12. Obscurely ribbed fruit of *Cereus haitiensis*. Photo courtesy of Boukan Guinguette - Môle / Haïti.

Figure 13. Longitudinal section of fruit of *Cereus haitiensis*, held by Brígido Peguero. Photo by Brett Jestrow.

Figure 14. Longitudinal section of fruit of *Cereus haitiensis*. Photo courtesy of Boukan Guinguette - Môle / Haïti.

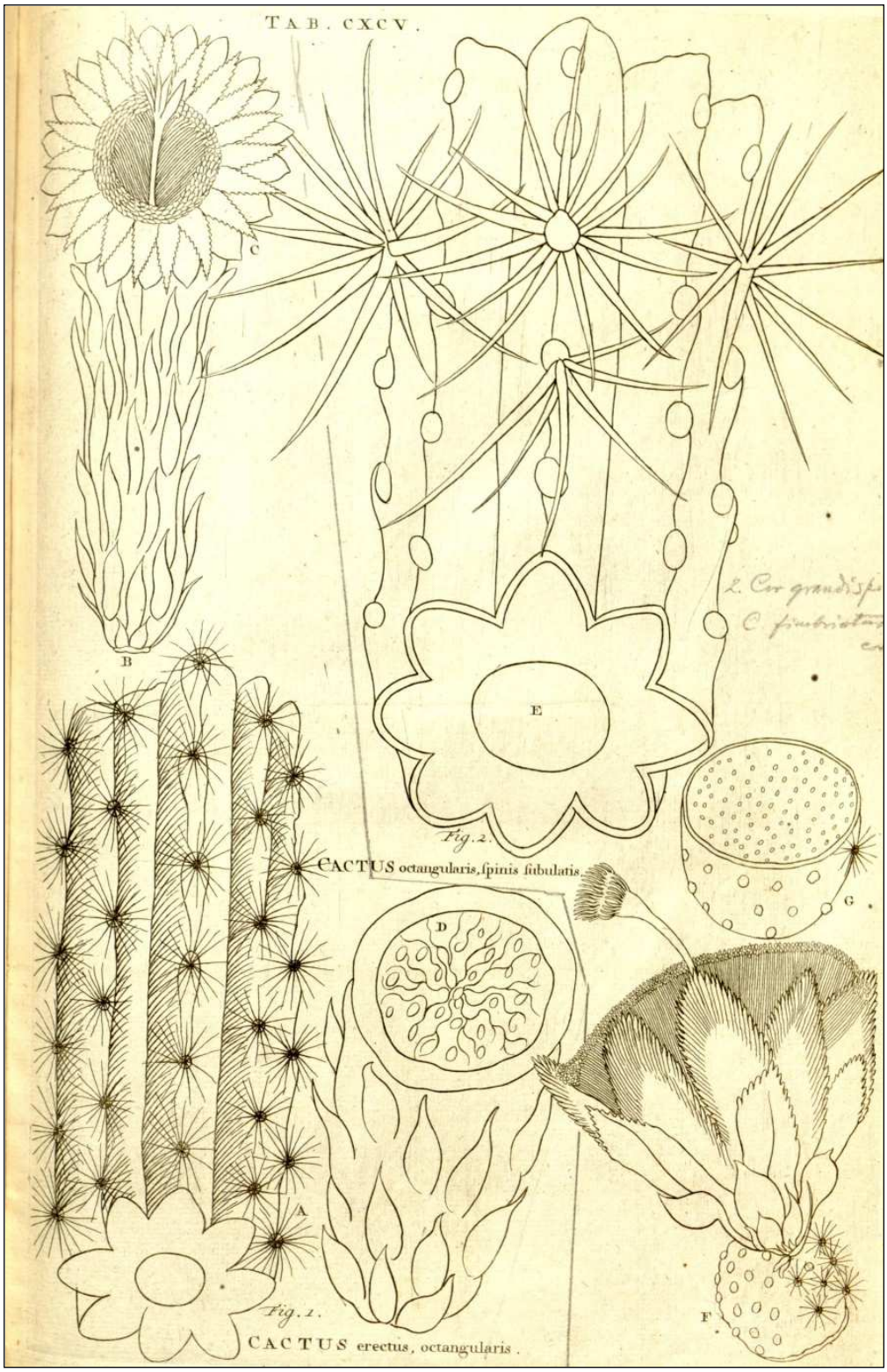

Figure 15. Plumier illustration in Burman (1758: pl. 195). The stem in the lower left corner (part of "Fig. 1" in this illustration) is designated the lectotype of *Cereus serruliflorus*. The flower in the upper left (and probably also the fruit-like object) of "Fig. 1" in the illustration is likely chimeric, with the inner perianth parts probably representing *C. haitiensis* and the tube representing *Harrisia divaricata*. Image courtesy of Peter H. Raven Library, Missouri Botanical Garden.