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The genus Plinia (Myrtaceae) in Cuba

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Novitiae florae cubensis No. 45

ZENIA ACOSTA RAMOS[1]

The genus *Plinia (Myrtaceae)* in Cuba

Abstract

Acosta Ramos Z.: The genus *Plinia* (*Myrtaceae*) in Cuba [Novitiae florae cubensis 45]. – Willdenowia 44: 269–277. 2014. – Version of record first published online on 11 July 2014 ahead of inclusion in August 2014 issue; ISSN 1868-6397; © 2014 BGBM Berlin-Dahlem.

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Fifteen species of *Plinia* have been previously recognized as occurring in Cuba, all of them endemic. Field and herbarium studies have resulted in their present reappraisal, based on morphological features. Two species, *P. rubrinervis* Urb. and *P. rupestris* Ekman & Urb., are transferred to *Myrciaria* as a single species, *M. rupestris* (Ekman & Urb.) Z. Acosta, comb. nov. One species, *P. acunae* Borhidi & O. Muñiz, is transferred to *Eugenia* as *E. borhidiana* Z. Acosta, nom. nov. One species is described as new: *P. bissei* Z. Acosta & Urquiola, sp. nov. Thus the number of Cuban species assigned to the genus *Plinia* is reduced to 13: five restricted to W Cuba, seven restricted to E Cuba, and one in both C and E Cuba. Morphological descriptions of the genus and its Cuban species, with a dichotomous identification key, are presented, together with data on phenology, distribution and ecology. The conservation status for each species (where data were available) has been assessed according to IUCN categories and criteria.

Additional key words: conservation, *Myrtoideae*, taxonomy, identification key

Introduction

Myrtaceae are a large family with c. 150 genera and c. 3600 species (Govaerts & al. 2008). At least in the Americas, it is one of the taxonomically most complex families, as genus and species boundaries are still controversial. Recent results (Lucas & al. 2007) show that the current delimitation of *Plinia* L. is artificial. However, as the reappraisal of natural generic limits is beyond the scope of the present paper, the traditional generic concept that is still widely used is accepted here.

Berg (1855–1861) emphasized the importance of flower and fruit morphology for *Myrtaceae* systematics, accepting Candolle's (1828) criterion of embryo morphology for defining the subfamily *Myrtoideae*, to which all American genera except the Chilean *Tepualia* Griseb. belong, and defining the three subtribes found in the New World: *Eugeniinae*, *Myrciinae* and *Myrtinae*. The genus *Plinia*, which under Berg's (l.c.) scheme belongs to the latter subtribe, is characterized by an embryo with two completely separate homogeneous cotyledons, a deciduous calyx leaving an umbilicate scar on the fruit, and leaf blades with conspicuous, parallel and closely set lateral (secondary) veins.

Plinia consists of c. 70 Antillean and South American species (Govaerts & al. 2008), 15 of which have been described from Cuba, the majority of them based on sterile material. Seven species from W Cuba, specifically from Pinar del Río province, were enumerated by Acosta & Urquiola (2009) and briefly characterized but

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with a fuller treatment of one new species. The present study includes fuller treatments of all 13 species of *Plinia* currently known from Cuba, including five of the western species treated by Acosta & Urquiola (2009), with the other two western species (*P. rubrinervis* Urb. and *P. rupestris* Eckman & Urb.) excluded from *Plinia*.

Material and methods

This study is based on the *Plinia* specimens held in the main Cuban herbaria (HAC, HAJB, HAJU; herbarium codes following Thiers 2012+) as well as the Cuban gatherings of Charles Wright (collected in 1856–1867), Erik L. Ekman (collected in 1914–1924) and others kept in European and North American herbaria (B, GH, GOET, JE, K, MO, NY, S, US). Furthermore, living material was collected during expeditions to the type localities.

Shape, venation and dimensions of the leaf lamina, petiole length, features of the flower inclusive of the hypanthium, shape and colour of the fruit as well as embryo type were taken into consideration, supplemented by the presence of foliar glandular dots, number of ovary locules and of ovules per locule.

Specimens were grouped on the basis of these morphological parameters, and the natural taxonomic units thus obtained were tested by a numerical treatment (results not detailed here) to corroborate the justification of that grouping.

A thorough analysis is made for the genus *Plinia* in Cuba. The following information is provided for each species: accepted scientific name and any synonyms including author(s) and place of valid publication, types, morphological description, phenology, distribution and ecology, and conservation status according to IUCN threat categories and criteria (IUCN 2001). In addition, a dichotomous identification key is provided for the Cuban species.

Results

Altogether 13 species of *Plinia* are recognized as occurring in Cuba. Of these, five are endemic to W Cuba, seven are endemic to E Cuba (including one new species described here), and one is endemic to C and E Cuba.

One species previously described from E Cuba, *Plinia acunae* Borhidi & O. Muñiz (Borhidi & Muñiz 1977), does not fit within *Plinia* but instead evidently belongs to *Eugenia* L., because the lateral veins of the leaf blade are very prominent abaxially and deeply sunken adaxially, reticulate on both surfaces and merging toward the margin, the sepals are connivent in fruit, the seed testa is cartilaginous, and the embryo is pseudomonocotylous, as is typical for *Eugenia*. It is transferred here to that genus, as *E. borhidiana* Z. Acosta, a replacement name necessary because the heterotypic name *E. acunae* Alain (1953) already exists.

Two of the western species previously treated in *Plinia* by Acosta & Urquiola (2009) are in the present study transferred to other genera. Examination of the embryo of *P. rubrinervis* and *P. rupestris* (Urban 1928), previously unknown, revealed it to be solid or pseudomonocotylous, which has not been reported for *Plinia* but rather for other genera of *Eugeniinae* such as: *Eugenia*, *Myrciaria* O. Berg and *Myrcianthes* O. Berg. This form of the embryo, the parallel and very closely set lateral veins of the leaf blade, and the circumscissile calyx refer these taxa to *Myrciaria*. The dimensions and shape of the leaf blade differ between these two entities: in *P. rubrinervis* the blade is larger, ovate-elliptic, with the base broadly cuneate to rounded; in *P. rupestris* it is smaller, elliptic, with the base broadly cuneate. These are characters that can change according to the ecological conditions where the plants are growing: *P. rupestris* may have smaller leaves because of the xerophytic environment in which it grows, but in the wettest part of its type locality both kinds of leaf blade shape were observed on the same plant. Even after evaluating all the diagnostic characters, these two entities showed no consistent differences between each other. Therefore, *P. rubrinervis* is here reduced to synonymy and the united species is treated in *Myrciaria* as the new combination *M. rupestris* (Ekman & Urb.) Z. Acosta.

Synopsis of Cuban *Plinia*

Plinia L., Sp. Pl.: 516. 1753. – Type: *Plinia pinnata* L.

Description — *Shrubs or small trees* to 8 m tall; *young branchlets* cylindrical, glandular or pubescent. *Leaves* opposite, petiolate; *leaf blade* obovate, elliptic to ovate-elliptic, or linear, coriaceous, subcoriaceous or chartaceous, usually with glandular spots apparent, glabrous or pubescent, margin entire, revolute to involute, apex emarginate to obtuse-rounded, acute, or acute-acuminate, sometimes mucronulate; *midrib* ± raised abaxially, ± sunken adaxially; *lateral (secondary) veins* parallel, very closely set. *Inflorescence* axillary or terminal; *flowers* solitary or grouped in clusters of up to 4, sessile or subsessile, bisexual. *Hypanthium* prolonged beyond apex of ovary; *calyx* irregularly rupturing, pubescent or glabrous, persistent after anthesis as 4 vestigial sepals, later deciduous leaving an umbilicate scar on fruit. *Petals* 4, ephemeral, white, membranous, with transparent glands, margin rarely pubescent. *Stamens* numerous; *filaments* c. 3 mm long; *anthers* 2-thecate, shortly oblong, c. 0.5 mm long; *connective* hairy. *Ovary* inferior, 2-locular, globose or subglobose, rarely pubescent; *ovules* 2 per locule; *style* filiform, surpassing stamens; *stigma* truncate. *Fruit* a berry, sessile or subsessile, purple, red or orange when ripe, globose or subglobose, rarely pubescent. *Seeds* 1–4, mostly reniform; *testa* membranous, adherent to endocarp; *embryonic cotyledons* 2, separate to halfway or fully separate, planoconvex; *hypocotyl* entire.

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Distribution — West Indies and tropical South America (east of the Andes and south to Paraguay).

Key to the species of *Plinia* in Cuba

1. Leaf blade elliptic-oblong to elliptic, margin strongly revolute . . . . . **12. *P. recurvata***
– Leaf blade linear to ovate or obovate, margin involute to revolute **2**
2. Leaf blade without glandular spots apparent **3**
– Leaf blade with glandular spots apparent on both surfaces **4**
3. Leaf blade 6–7.5(–8) cm long . . . . . **7. *P. formosa***
– Leaf blade 1–2.5 cm long . . . . . **8. *P. moaensis***
4. Leaf blade obovate-elliptic . . . . . **10. *P. punctata***
– Leaf blade linear to elliptic or ovate **5**
5. Leaf blade linear; fruit purple when ripe . . . . . **13. *P. stenophylla***
– Leaf blade not linear; fruit purple, violet or red when ripe **6**
6. Fruit red when ripe, glabrous . . . . . **5. *P. cubensis***
– Fruit purple or violet when ripe, glabrous or pubescent **7**
7. Fruit pubescent; leaf blade membranous, becoming-subcoriaceous . . . . . **1. *P. arenicola***
– Fruit glabrous; leaf blade chartaceous to coriaceous **8**
8. Leaf blade chartaceous; embryonic cotyledons separate to halfway . . . . . **2. *P. asa-grayi***
– Leaf blade chartaceous to coriaceous; embryonic cotyledons fully separate **9**
9. Terminal buds protected by a cover of densely imbricate scales . . . . . **4. *P. bissei***
– Terminal buds not as above **10**
10. Leaf blade lateral veins inconspicuous, at least in living material . . . . . **6. *P. dermatodes***
– Leaf blade lateral veins conspicuous **11**
11. Leaf blade ovate- or elliptic-oblong to lanceolate; petiole 0.5–1.5 mm long . . . . . **11. *P. ramosissima***
– Leaf blade elliptic to ovate-elliptic; petiole 2–4 mm long **12**
12. Leaf blade white tomentose abaxially, glabrous adaxially . . . . . **3. *P. baracoensis***
– Leaf blade glabrous on both surfaces . . . . . **9. *P. orthoclada***

1. *Plinia arenicola* Urquiola & Z. Acosta in Willdenowia 39: 143. 2009. – Holotype: Cuba, Prov. Pinar del Río, Guane, Santa Teresa, El Gato, 22°06'03"N, 84°00'48"W, 3 m, 17 Feb 2007, *A. J. Urquiola*, *Z. Acosta & R. Novo 10872* (HAJU [HPPR]; isotypes: HAC, HAJB).

Description — *Shrubs* to 4 m tall, strongly branched. *Indumentum* of whitish or reddish, simple, 0.1–0.7 mm-long hairs. *Branches* longitudinally striate, strigose-pubescent when young, grey or light grey when dry, greenish grey to light cinnamon when older. *Petiole* stout, 2–4 mm long, 1–2 mm wide, sometimes grooved adaxially, densely strigose, glabrescent with age; *leaf blade* reddish to pale green or brown when dry, elliptic to ovate-elliptic, 2.5–5.5 cm long, 1–2.5 cm wide, membranous, becoming subcoriaceus, densely hairy (but glabrescent) along midrib and distally abaxially, less so but papillose with abundant convex glands adaxially, base cuneate to rounded, margin sometimes revolute, apex acute to somewhat acuminate; *midrib* raised abaxially, sunken adaxially; *lateral veins* 13–15, at angle of 45° to midrib, conspicuous; *marginal vein* similar to lateral ones. *Axillary buds* with a cover of 4–6 imbricate bracts, brownish, narrowly ovoid, 1–5 mm long, pubescent, apex acute. *Flowers* solitary or in glomerules of up to 4, surrounded by an involucre of hairy bracts persistent until maturity. *Fruit* subsessile, dark purple to blackish when ripe, pubescent.

Phenology — Flowering from January to February; fruiting from March to May.

Distribution and ecology — Endemic to W Cuba (Prov. Pinar del Río) and known only from the type locality, where it grows in semi-natural scrub on white quartzitic sands near sea level.

Conservation status — Critically Endangered: CR D.

Remarks — *Plinia arenicola* is located in the Floristic Reserve Sabanalamar-San Ubaldo, with only four known individuals. There is an ex situ population of c. 100 individuals in the Jardín Botánico de Pinar del Río.

2. *Plinia asa-grayi* (Krug & Urb.) Urb., Symb. Antill. 9: 474. 1928 ≡ *Eugenia asa-grayi* Krug & Urb. in Bot. Jahrb. Syst. 19: 658. 1895. – Holotype: "Habitat in Cuba orientali prope Nouvelle Sophie", 29 Sep 1859, *C. Wright 1610* (S n.v.; isotypes: BR 00000526948, G 00227932, GH 00069168, NY 00084489, YU 066190).

Description — *Shrubs* glabrous; *branches* thin, greyish brown, longitudinally striate, glandular; *young branchlets* reddish brown with abundant oil glands. *Petiole* 1–3 mm long, 0.3–0.7 mm wide; *leaf blade* reddish brown when dry, ovate, 1.8–5.5 cm long, 0.7–1.7 cm wide at widest part, chartaceous, with blackish translucent glandular spots abaxially, glabrous on both surfaces, margin flat or slightly revolute, base rounded to broadly cuneate, apex acute, mucronulate or acuminate; *lateral veins* at angle of 40° to midrib, conspicuous. *Flowers* solitary or in glomerules of up to 4. *Fruit* purple when ripe, c. 1 cm in diam., glabrous. *Seeds* 1 or 2; *embryonic cotyledons* separate to halfway.

Phenology — Flowering from July to August; fruiting from August to September.

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Distribution and ecology — Endemic to C and E Cuba (Prov. Villa Clara, Camagüey, Las Tunas, Granma, Holguín, Santiago de Cuba and Guantánamo), growing in thorn scrub (charrascal), rainforest, gallery woods and limestone cliff vegetation.

Conservation status – Not Evaluated: NE.

3. *Plinia baracoensis* Borhidi in Bot. Közlem. 64: 19. 1977. – Holotype: Cuba, Prov. Guantánamo, Baracoa, "en los pinares al Norte del Yunque de Baracoa", c. 250 m, 13 Jan 1960, *H. Alain Liogier 7617 & J. B. Acuña Galé* (HAC [SV]).

Description — *Shrubs*; *branches* brown-grey, longitudinally striate; *young branchlets* reddish brown, with numerous glands. *Petiole* 2–4 mm long, 0.6–0.8 mm wide, slightly grooved adaxially, glabrous; *leaf blade* discolorous when dry, light brown abaxially, dark brown adaxially, elliptic, (1.5–)2.5–3(–3.2) cm long, (0.9–)1.2–1.4(–1.9) cm wide, glandular, white tomentose abaxially, glabrous adaxially, base broadly cuneate, margin revolute, smooth, apex acute, slightly acuminate, mucronulate; *lateral veins* 15 or 16 pairs, at angle of 40° to midrib, conspicuous. *Flowers* axillary, subsessile. *Fruit* subsessile, purple when ripe, glabrous. *Embryonic cotyledons* fully separate.

Phenology — Flowering from March to April; fruiting from April to July.

Distribution and ecology — Endemic to E Cuba (Prov. Guantánamo), growing in thorn scrub (charrascal), rainforest, and pine woods on limestone.

Conservation status — Endangered: EN B1ab(ii,iii)+2ab (ii,iii); C1.

Remarks — *Plinia baracoensis* occurs in the Alejandro de Humboldt National Park.

4. *Plinia bissei* Z. Acosta & Urquiola, **sp. nov.** – Fig. 1 & 2.
Holotype: Cuba, Prov. Holguín, "Moa, al este de Yamanigüey, entronque Mina Potosí y Río Jaguaní", 80 m, 16 Apr 1981, *J. Bisse & al.* (HAJB 44349; isotypes: B, JE).

Diagnosis — *Plinia bissei* differs from the other described species of *Plinia* in having terminal buds protected by a cover of densely imbricate scales, which are shed as the young branches sprout leaving round scars at the base; the leaf blade is ovate-elliptic to elliptic-lanceolate, coriaceous, with the apex rounded to acute, mucronulate; the flowers are solitary or 2 together, axillary.

Description — *Shrubs* little branched, to 3 m tall; *branchlets* reddish brown when young, longitudinally striate, later light grey to whitish; *terminal buds* protected by a cover of densely imbricate scales, which are shed as young branches sprout leaving round scars at base. *Petiole* 1–3 mm long, 0.4–0.8 mm wide, grooved adaxially, glabrous; *leaf blade* light green to reddish when young, drying light brown abaxially and dark brown adaxially, ovate-elliptic to elliptic-lanceolate, (1–)2–2.4(–2.8) cm long, (0.3–) 0.7–1.1(–1.5) cm wide, coriaceous, glandular dotted, glabrous, base cuneate, margin revolute, smooth, apex rounded to acute, mucronulate; *lateral veins* inconspicuous. *Flowers* solitary or 2 together, axillary; *pedicel* 0.5–1 mm long. *Fruit* subsessile, violet when ripe, glabrous. *Embryonic cotyledons* fully separate.

Phenology — Flowering from November to January; fruiting from January to March.

Distribution and ecology — Endemic to E Cuba (Prov. Holguín and Guantánamo), growing in thorn scrub (charrascal) on serpentine.

Conservation status — Endangered: EN B2ab(ii,iii); C1.

Remarks — *Plinia bissei* occurs in the Alejandro de Humboldt National Park.

5. *Plinia cubensis* (Griseb.) Urb. in Repert. Spec. Nov. Regni Veg. 15: 413. 1919 ≡ *Calycorectes cubensis* Griseb., Cat. Pl. Cub.: 90. 1866 ≡ *Marlierea cubensis* (Griseb.) Krug & Urb. in Bot. Jahrb. Syst. 19: 589. 1895. – Holotype: "Cuba occidentalis, in districtu S. Christobal" [from protologue], "Arroyo veintecinco" [from label on holotype], 1860–1864, *C. Wright 2435* (GOET 008265; isotypes: BM 000812191, GH 00069910, GOET 008266, K 000170037, MO 2049517, NY 00084426 fragment, S S03-2101, YU 066171).

Description — *Shrubs* up to 4 m tall. *Branches* brownish, longitudinally striate; *young branchlets* glandular, densely hairy, glabrescent with age. *Petiole* 2–4 mm long, 0.5–0.8 mm wide, grooved adaxially, glabrous; *leaf blade* matt abaxially, lustrous adaxially, elliptic to ovate-elliptic, 2–5 cm long, 1.5–3 cm wide, chartaceous, glabrous, margin involute; *midrib* raised abaxially, sunken adaxially; *lateral veins* 17–23 pairs, at angle of 30° to midrib, conspicuous. *Flowers* solitary or in glomerules of up to 4, axillary. *Fruit* sessile, red when ripe, glabrous.

Phenology — Flowering from April to June; fruiting from July to September.

Distribution and ecology — Endemic to W Cuba (Prov. Pinar del Río and Artemisa), growing in gallery forests along

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Fig. 1. *Plinia bissei* – holotype specimen: *J. Bisse & al.* (HAJB 44349).

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Fig. 2. *Plinia bissei* – A: leafy branchlet with flower and flower bud; B: leafy branchlet with unripe fruit; C: leafy branchlet with ripe fruit. – Cuba, Prov.Holguín, Yamanigüey, Jan 2004. – Photographs by Zenia Acosta Ramos.

rivers that cross areas of slates. Isolated individuals have been found in other forest types with poorly drained soils.

Conservation status — Endangered: EN B2ab(ii,iii)+2ab (ii,iii); C1.

Remarks — *Plinia cubensis* is known from Viñales National Park and the Mil Cumbres Protected Area of Managed Resources. The species is widely distributed in the province of Pinar del Río, but represented by few individuals. There is an ex situ population of c. 15 individuals in the Jardín Botánico de Pinar del Río.

6. *Plinia dermatodes* Urb., Symb. Antill. 9: 476. 1928. – Holotype: Cuba, Prov. Pinar del Río, "Pinar de Cajálbana, on the very top of the mountain", 28 Aug 1923, *E. L. Ekman 17345* (S S-R-8352; isotypes: G 00227822, NY 00099363).
= *Plinia toscanosia* Urb., Symb. Antill. 9: 477. 1928. – Holotype: Cuba, Prov. Pinar del Río, "Finca Cochinatas in woods bordering on manglares", 7 Sep 1923, *E. L. Ekman 17443* (S S-R-8360; isotypes: A 00071227, G 00227823, NY 00099354 fragment, NY 00099355).

Description — *Shrubs or small trees* up to 5 m tall, sparsely branched; *branches* elongate, straight, brown-grey; *branchlets* grey, longitudinally striate, reddish and sparsely hairy when young. *Petiole* 2–4 mm long, grooved adaxially, with whitish hairs; *leaf blade* matt abaxially, lustrous adaxially, elliptic, 2.7–4.5 cm long, 1.6–2.1 cm wide, coriaceous, with numerous conspicuous glands, glabrous, base cuneate, acute or obtuse, margin revolute, apex acute; *lateral veins* 18 or 19 pairs, at angle of 30° to midrib, parallel, inconspicuous in living material, becoming conspicuous when dry. *Flowers* solitary or up to 3 together, axillary, sessile; *flower buds* subglobose, 2–3 mm in diam. *Fruit* purple when ripe, subglobose, slightly ribbed when immature, glabrous. *Seeds* subreniform, 0.3–0.4 cm long; *embryonic cotyledons* fully separate.

Phenology — Flowering and fruiting all year round.

Distribution and ecology — Endemic to W Cuba (Prov. Pinar del Río and Artemisa), growing on mountain summits and in woods bordering coastal mangroves, on serpentine.

Conservation status — Critically Endangered: CR B1ab (i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v).

Remarks — *Plinia dermatodes* occurs in the Mil Cumbres Protected Area of Managed Resources. It is poorly represented in the Cajálbana area and has totally disappeared from the Toscano area.

7. *Plinia formosa* Urb., Symb. Antill. 9: 89. 1923. – Holotype: Cuba, Prov. Guantánamo, "prope Baracoa in collibus Lomas de Cuaba", 15 Jan 1915, *E. L. Ekman 4263* (S S-R-8353; isotypes: NY 00099357, NY 00099358 fragment).

Description — *Shrubs or trees* up to 5 m tall; *branches* grey, reddish when young, longitudinally striate, smooth or rough by bark detachment, glandular. *Petiole* 4–5 mm long, 0.8–1.1 mm wide, grooved adaxially, glabrous; *leaf blade* matt abaxially, lustrous adaxially, elliptic to elliptic-lanceolate, 6–7.5(–8) cm long, 2–3.6 cm wide, chartaceous, glabrous, glandular spots not apparent, base cuneate, margin plane, entire, apex acuminate; *midrib* raised abaxially, sunken adaxially; lateral veins 22 or 23 pairs, at angle of 25° to midrib, conspicuous. *Flowers* solitary or in glomerules of up to 4, axillary, subtended by an involucre of 7 or 8 imbricate bracts; bracts brownish, 1–1.5 mm long, lanceolate, apex acute. *Fruit* sessile, globose.

Phenology — Flowering from January to February; fruiting from February to April.

Distribution and ecology — Endemic to E Cuba (Prov. Guantánamo), growing in gallery woods, rainforest and limestone cliff vegetation.

Conservation status — Endangered: EN B1ab(ii,iii)+2ab (ii,iii); C1.

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Remarks — *Plinia formosa* occurs in the Alejandro de Humboldt National Park. There is an ex situ population of more than 15 individuals in the Jardín Botánico de Pinar del Río.

8. *Plinia moaensis* Borhidi in Bot. Közlem. 64: 18. 1977. – Holotype: Cuba, Prov. Holguín, Moa, "arroyo junto a la casa", 3 Nov 1945, *J. B. Acuña Galé* (HAC SV-13247).

Description — *Shrubs* densely dichotomously branched; *older branches* cinereous, glabrous; *young branches*, densely hirsute, hairs patent, ferruginous. *Petiole* 0.5-2 mm long, densely shortly hairy; *leaf blade* matt, ovate-lanceolate, 1–2.5 cm long, 0.4–1.5 cm wide, chartaceous, minutely foveolate adaxially, without glandular spots on either surface, glabrous on both surfaces, base cuneate to obtuse, margin slightly revolute, apex acute and acuminate, often shortly mucronate; *lateral veins* 7–12 pairs, slightly raised abaxially, flat adaxially. *Bracts* numerous, persistent, ovate, 0.2–0.5 mm long, membranous. *Flowers* solitary, axillary, sessile; *flower buds* obovoid, 1.5–2 mm long, glandular dotted, glabrous, apex apiculate. *Petals* oblong-elliptic, c. 1.5 mm long, glabrous, base shortly stipitate, apex rounded to truncate and slightly emarginate. *Style* 2–3 mm long, attenuate at apex. *Fruit* not seen.

Phenology — Flowering in September.

Distribution and ecology — Endemic to E Cuba (Prov. Holguin) and known only from the type gathering, growing in gallery forests.

Conservation status — Data Deficient: DD.

Remarks — The type locality is very ambiguous and I have not been able to locate it.

9. *Plinia orthoclada* Urb., Symb. Antill. 9: 476. 1928. – Holotype: Cuba, Prov. Pinar del Río, "Sábalo, in pinelands", 17 Jun 1923, *E. L. Ekman 16767* (S S-R-8354; isotype: NY 00099360).

Description — *Shrubs* 0.5–3 m tall, much branched; *branches and branchlets* twisted, mostly light grey to reddish, glandular when young, glabrescent with age. *Petiole* 2–4 mm long, 0.3–0.5 mm wide; *leaf blade* elliptic to ovate-elliptic, 2–3.2 cm long, 1.1–1.3 cm wide, chartaceous, with numerous conspicuous glands, glabrous on both surfaces, base cuneate, margin plane, entire when dry, apex acute; *lateral veins* 17–20 pairs, at angle of 40° to midrib, conspicuous. *Flowers* solitary or 2 together, axillary or terminal, subsessile; *flower buds* subglobose. *Fruit* purple when ripe, globose, glabrous. *Embryonic cotyledons* fully separate.

Phenology — Flowering from January to March; fruiting from March to May.

Distribution and ecology — Endemic to W Cuba (Prov. Pinar del Río), growing in pine forest on white quartzitic sands.

Conservation status — Critically Endangered: CR B1ab (ii,iii)+2ab(ii,iii); D.

Remarks — *Plinia orthoclada* is located in the Managed Floristic Reserve Sabanalamar-San Ubaldo. It is poorly represented there with fewer than 50 individuals known. There is an ex situ population of more than 150 individuals in the Jardín Botánico de Pinar del Río.

10. *Plinia punctata* Urb., Symb. Antill. 9: 89. 1923. – Holotype: Cuba, Prov. Holguín, "in Sierra de Nipe prope Río Piloto in savannis pineti", 1 Sep 1914, *E. L. Ekman 2694* (S S-R-8355; isotypes: A 00071225, NY 00099361).

Description — *Shrubs or trees* to 8 m tall; *branches* grey, longitudinally striate, smooth or rough by bark detachment; *young branchlets* reddish, glandular, glabrous. *Petiole* 2–3 mm long, 0.7–0.9 mm wide, grooved adaxially, glabrous; *leaf blade* matt abaxially, lustrous adaxially, obovate-elliptic, 3.2–3.4 cm long, 1–1.2 cm wide, coriaceous, with abundant conspicuous glands, glabrous, base narrowly cuneate, margin revolute, entire, apex rounded to emarginate, obtuse, or acute; *lateral veins* 14 or 15 pairs, at angle of 35° to midrib, conspicuous. *Flowers* solitary or in clusters of a few, subsessile. *Fruit* subsessile, orange when ripe, globose.

Phenology — Flowering from April to June; fruiting from July to September.

Distribution and ecology — Endemic to E Cuba (Prov. Holguín and Guantánamo), growing in thorn scrub (charrascal), rainforest and gallery woods.

Conservation status — Endangered: EN B1ab(ii,iii)+2ab (ii,iii); C1.

Remarks — *Plinia punctata* is present in the Alejandro de Humboldt National Park and Mayari Pinewoods. There is an ex situ population of c. 20 individuals in the Jardín Botánico de Pinar del Río.

11. *Plinia ramosissima* (Urb.) Urb., Symb. Antill. 9: 475. 1928 ≡ *Calyptranthes ramosissima* Urb., Symb. Antill. 9: 92. 1923. – Holotype: Cuba, Prov. Santiago de Cuba, "Bayate, in monte calcareo Picote, in cacumine montis", c. 550 m, 16 Jul 1916, *E. L. Ekman 7396* (S S05-3014;

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isotypes: A 00068905, NY 00084445, NY 00084446 fragment).

Description — *Shrubs* 0.5–3 m tall; *branches* brownish, longitudinally striate, pubescent when young. *Petiole* 0.5–1.5 mm long, 0.3–0.5 mm wide; *leaf blade* ovate-oblong or elliptic-oblong to lanceolate, 1.7–3 cm long, 0.5–1.5 cm wide, chartaceous, with numerous conspicuous black ± translucent glands adaxially, glabrous on both surfaces, base obtuse, margin slightly revolute, apex acute; *lateral veins* 4–6, conspicuous. *Flowers* solitary or 2 together, subaxillary on young branchlets, subsessile; *flower buds* subglobose. *Fruit* purple when ripe, globose, glabrous. Seeds subhemispherical; *embryonic cotyledons* fully separate.

Phenology — Flowering from July to December; fruiting in September.

Distribution and ecology — Endemic to E Cuba (Prov. Santiago de Cuba and Guantánamo), growing in thorn scrub, pine woods and gallery woods.

Conservation status — Endangered: EN B2ab(ii,iii); C1.

Remarks — *Plinia ramosissima* is located in the Alejandro de Humboldt National Park.

12. *Plinia recurvata* Urb., Symb. Antill. 9: 477. 1928. – Holotype: Cuba, Prov. Pinar del Río, "Sierra de los Organos, grupo del Rosario, Peña Blanca, on rocky, limestone, ledges, c. 700 m", 16 May 1922, *E. L. Ekman 13863* (S S-R-8356; isotype: NY 00099349).

Description — *Shrubs*; *branches* brownish hairy to glabrous. *Petiole* 1–1.5 mm long, 0.3–0.5 mm wide, grooved adaxially; *leaf blade* elliptic to elliptic-oblong, 1.5–2.2 cm long, 5–8 mm wide, coriaceous, with poorly translucent glandular spots abaxially, base cuneate, narrowing into petiole, margin strongly revolute, apex obtuse; *lateral veins* inconspicuous. *Flowers and fruit* not seen.

Phenology — Unknown.

Distribution and ecology — Endemic to W Cuba (Prov. Pinar del Río) and known only from the type locality, growing on rocky limestone ledges at c. 700 m.

Conservation status — Critically Endangered: CR B1ab (ii,iii) +2ab(ii,iii); D.

Remarks — *Plinia recurvata* is not known to occur in protected areas and is not subject to a recovery plan. Expeditions to the type locality have failed to re-find the species, and it has not therefore been possible to predict a trend in the population size. The species could be extirpated.

13. *Plinia stenophylla* Urb., Symb. Antill. 9: 90. 1923. – Holotype: Cuba, Prov. Holguín, "in Sierra de Nipe ad viam Bio dictam", 750 m, 18 Aug 1914, *E. L. Ekman 2530* (S S-R-8359; isotype: NY 00099353).

Description — *Shrubs*; *branches* brownish when mature, hairy and reddish brown when young. *Leaf blade* linear, 1.7–3 cm long, 2–5 mm wide, coriaceous, with glandular spots that are black abaxially and sunken adaxially, base obtuse, margin revolute, apex rounded to obtuse or acute; *lateral veins* inconspicuous. *Flowers* subsessile. *Fruit* purple when ripe, globose, to 7 mm long, glandular. *Seeds* kidney-shaped.

Phenology — Flowering from May to June; fruiting from July to August.

Distribution and ecology — Endemic to E Cuba (Prov. Holguín and Guantánamo), growing in gallery woods.

Conservation status — Critically Endangered: CR B2ab (ii,iii); C1.

Excluded species

Eugenia borhidiana Z. Acosta, **nom. nov.** ≡ *Plinia acunae* Borhidi & O. Muñiz in Bot. Közlem. 64: 19. 1977 [non *Eugenia acunae* Alain in Revista Soc. Cub. Bot. 10: 30. 1953, "*acunai*"]. – Holotype: Cuba, Prov. Holguín, Sierra de Moa, "in pluviisilvis rivi Rio Jaguani prope La Melba", 3 Feb 1973, *E. Del-Risco & R. Oviedo* (HAC SV-27493).

Myrciaria rupestris (Ekman & Urb.) Z. Acosta, **comb. nov.** ≡ *Plinia rupestris* Ekman & Urb. in Urban, Symb. Antill. 9: 474. 1928. – Holotype: Cuba, Prov. Pinar del Río, "prope Mendoza in Cerro de Mendoza", c. 150 m, 16 Jun 1923, *E. L. Ekman 16741* (S S-R-8358; isotypes: A 00071226, F 0065676F, NY 00099351).
= *Plinia rubrinervis* Urb., Symb. Antill. 9: 474. 1928. – Holotype: Cuba, Prov. Pinar del Río, "prope Sumidero in Sierra Caliente", 24 Nov 1923, *E. L. Ekman 18188* (S S-R-8357; isotype: NY 00099350).

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