

REVISION OF *BAUHINIA* SUBGENUS *BAUHINIA* SECTION *AMARIA* (CERCIDEAE: CAESALPINIOIDEAE: FABACEAE)

Richard P. Wunderlin

Department of Biology
University of South Florida
Tampa, Florida 33620-5200 U.S.A
rwunder@cas.usf.edu

ABSTRACT

A taxonomic treatment of *Bauhinia* subgenus *Bauhinia* section *Amaria* is presented. Fifteen species are recognized in series *Decandrae* and one species is recognized in series *Stenanthae*. ***Bauhinia amatlana*** Wunderlin from southern Mexico, ***Bauhinia arborea*** Wunderlin from Ecuador, ***Bauhinia ayabacensis*** Wunderlin from Ecuador and Peru, and ***Bauhinia geniculata*** Wunderlin from Colombia are described and the combination ***Bauhinia petiolata*** (DC.) Triana ex Hooker f. var. ***caudigera*** (S.F. Blake) Wunderlin is proposed. Keys, descriptions, and distribution data are provided.

RESUMEN

Se presenta un tratamiento taxonómico de *Bauhinia* subgénero *Bauhinia* sección *Amaria*. Se reconocen quince especies en la serie *Decandrae* y una en la serie *Stenanthae*. Se describen ***Bauhinia amatlana*** Wunderlin del Sur de México, ***Bauhinia arborea*** Wunderlin de Ecuador, ***Bauhinia ayabacensis*** Wunderlin de Ecuador y Perú, y ***Bauhinia geniculata*** Wunderlin de Colombia, y se propone la combinación ***Bauhinia petiolata*** (DC.) Triana ex Hooker f. var. ***caudigera*** (S.F. Blake) Wunderlin. Se aportan claves, descripciones, y datos sobre la distribución.

The pantropical genus *Bauhinia* with approximately 300 species consists of four subgenera: *Bauhinia*, *Piliostigma* [= *Elayuna*], *Barklya*, and *Phanera* (Wunderlin et al. 1987). *Bauhinia* subgenus *Bauhinia*, as defined by Wunderlin et al., contains nine sections, of which three (*Bauhinia*, *Pauletia*, and *Amaria*) are New World.

This is the first of several proposed taxonomic treatments of the New World species of *Bauhinia*. Previous regional treatments in the last half-century such as those for Argentina (Fortunato 1986, 1997), Nicaragua (Wunderlin 2001), Panama (Wunderlin 1976), western Mexico (McVaugh 1987), Venezuelan Guayana (Wunderlin 1998), Middle America (Wunderlin 1983), and parts of the genus for Brazil (Vaz 1979; Vaz and Tozzi 2003) will be placed in the larger context of the entire genus for the Americas following Wunderlin et al. (1987).

In the following revision, 16 species are recognized as comprising section *Amaria*. Fifteen of these are in series *Decandrae* and one in series *Stenanthae*. Series *Triandrae*, containing the single species *Bauhinia pansamalana* Donn. Sm. and placed in section *Amaria* by Wunderlin et al. (1987), is here transferred to section *Bauhinia* and combined in series *Remotae* with *B. pinheiroi*

Wunderlin with which it shares the characters of three fertile stamens and the same pollen type. The pollen sexine of *B. pansamalana* is striate-reticulate and lacks the infratectal processes characteristic of section *Amaria*.

Bauhinia section **Amaria** (S. Mutis ex Caldas) Endl., Gen. Pl. 1318. 1840. *Amaria* S. Mutis ex Caldas, Semanario Nueva Granada 2:25. 1810. TYPE: *Amaria petiolata* S. Mutis ex DC. [= *Bauhinia petiolata* (S. Mutis ex DC.) Triana ex Hook. f.]. Lectotype designated by Britton and Killip (Ann. New York Acad. Sci. 36:164. 1936).

Trees or shrubs; branches lacking infrastipular spines. Leaves unlobed, bilobed, or rarely bifoliolate. Inflorescence terminal or axillary; floral bud ellipsoid to clavate. Hypanthium cupulate or turbinate to short-tubular; calyx spathaceous, sometimes irregularly splitting into several lobes in late anthesis; petals 5, subequal; fertile stamens 10, the inner 5 shorter than the outer 5, or the inner 5 staminodial, the filaments connate at the base or free; pollen spheroidal, inaperturate or 3-colporoidate, the tectum reticulate or rarely striate-reticulate, with blunt spine-like or rarely low tectal processes continuous from the foot layer through the tectum (infratectal) or rarely supracteal; gynophore partly adnate to the abaxial wall of the hypanthium; stigma oblique-capitate. Fruit dehiscent.

KEY TO THE SERIES OF *BAUHINIA* SECTION *AMARIA*

1. Fertile stamens 10; petals spreading _____ I. Series **Decandrae**
1. Fertile stamens 5; petals strongly imbricate, the corolla forming a pseudotube _____ II. Series **Stenanthae**

I. **Bauhinia** series **Decandrae** Wunderlin, K.Larsen & S.S.Larsen, Biol. Skr. 28:14. 1987. TYPE: *Bauhinia petiolata* (S. Mutis ex DC.) Triana ex Hook. f.

KEY TO *BAUHINIA* SPECIES IN SERIES *DECANDRAE*

1. Leaves unlobed (rarely bilobate or bifoliolate in *B. beguinotii*).
 2. Innermost pair of lateral nerves closer to the mid-nerve than to the adjacent lateral nerves _____ **B. beguinotii**
 2. Innermost pair of lateral nerves equidistant or closer to the adjacent lateral nerves than to the mid-nerve.
 3. Petals 3.5–4.5 cm long; fruit 21–27 cm long _____ **B. petiolata**
 3. Petals 1–2 cm long; fruit 8–13 cm long.
 4. Leaves 12–30 cm long, 6–13 cm wide; staminal sheath glabrous; gynoecium tomentose; fruit elliptic-oblong, 3.5–4 cm wide _____ **B. arborea**
 4. Leaves 7–11 cm long, 3–5.5 cm wide; staminal sheath pilose; gynoecium glabrous or glandular; fruit linear, 1.5–2.5 cm wide _____ **B. brachycalyx**
1. Leaves bilobate (rarely bifoliolate or unlobed in *B. beguinotii*).
 5. Leaves with the innermost pair of lateral nerves closer to the mid-nerve than to the adjacent lateral nerves _____ **B. beguinotii**
 5. Leaves with the innermost pair of lateral nerves equidistant or closer to the adjacent lateral nerves than to the mid-nerve.
 6. Calyx prominently 5-winged _____ **B. geniculata**
 6. Calyx not winged or only very slightly winged (*B. amatlana*)

- 7. Ovary glabrous or glabrate.
 - 8. Corolla yellow; flowers in fasciculate clusters, often appearing before the leaves; Mexico to Costa Rica _____ **B. cookii**
 - 8. Corolla other than yellow; flowers in racemes or panicles, appearing well after the leaves; Ecuador or Peru.
 - 9. Leaves 1–4 cm long, bilobed to ca. 3/4 the blade length; fruit 4–5 cm long; Peru _____ **B. weberbaueri**
 - 9. Leaves 5–13 cm long, bilobed to ca. 1/2 the blade length; fruit 15–25 cm long; Ecuador.
 - 10. Corolla white; staminal sheath ca. 1/8 the stamen length _____ **B. seminarioi**
 - 10. Corolla red; staminal sheath 3/5 the stamen length _____ **B. haughtii**
- 7. Ovary tomentose or pilose.
 - 11. Corolla pink, rose, or white with red or pink at the base.
 - 12. Leaves ovate, 4–10 cm long, 4–7.5 cm wide; corolla white with red or pink at the base; Colombia and Panama _____ **B. picta**
 - 12. Leaves suborbicular, 3–4 cm long, 3–4 cm wide; corolla deep pink or rose; Ecuador and Peru _____ **B. ayabacensis**
 - 11. Corolla white.
 - 13. Inflorescence and the lower surface of the leaves brown-tomentose _____ **B. seleriana**
 - 13. Inflorescence and the lower surface of the leaves other than brown-tomentose.
 - 14. Leaf blade 3.5–5.5 cm long; petals 2–2.7 cm long; Peru _____ **B. augusti**
 - 14. Leaf blade 0.8–3 cm long; petals ca. 1 cm long; Mexico.
 - 15. Leaf blade 2–3 cm long, bilobed to 1/2 the length _____ **B. andrieuxii**
 - 15. Leaf blade 0.8–1.5 cm long, bilobed nearly to the base _____ **B. amatlana**

1. *Bauhinia amatlana* Wunderlin, sp. nov. (**Fig. 1**). TYPE: MEXICO. OAXACA: ca. 1.5 km NE of San Cristobal Amatlán, ca. 80 km S of Oaxaca and 20 km E of (San Andrés) Miahuatlán (ca. 16°19.6'N, 96°22'W), ca. 1,500 m, 8 Jun 2000, *J. Santiago Martínez s.n.* (HOLOTYPE: USF; ISOTYPES: BRIT, F, MO, NY).

A Bauhinia andrieuxii Hemsley foliis minoribus bilobis prope basin differt.

Shrub; branches brown-tomentose when young, soon glabrate. Leaves with the blade chartaceous, 5–7-nerved, broadly suborbicular, broader than long, bilobate nearly to the base, 0.8–1.5 cm long, 1.2–2.2 cm wide, the innermost pair of lateral nerves equidistant or closer to the adjacent lateral nerves than to the mid-nerve, the base truncate to slightly cordate, the apex of the lobes rounded, the upper surface glabrous, the lower surface sparsely subappressed, short-pubescent, the petiole 4–6 mm long, brown-tomentose; stipules ovate-lanceolate, ca. 1 mm long, caducous; adpetiolar intrastipular excrescence enlarged, forming a flattened subulate projection ca. 1 mm long, the others minute. Inflorescence terminal, 1- to 3-flowered, the peduncle or rachis strigose; floral bud linear-lanceolate, 10–12 mm long, strigose, the apex usually with free calyx lobes

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PLANTS OF MEXICO

HOLOTYPE:

Bauhinia amatlana Wunderlin

OAXACA, Ca. 1.5 km NE of San Cristobal Amatlan, ca.
80 km S of Oaxaca and 20 km E. of (San Andres)
Mihuatlan (ca. 16° 19' N, 96° 22' W), ca. 1,500 m.
"Yag yee ketazh" (Zapoteco dialect)

8 June 2000
Jesus Santiago Martinez s. n.

UNIVERSITY OF SOUTH FLORIDA
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FIG. 1. *Bauhinia amatlana* (holotype, USF).

to 0.5 mm long, sometimes slightly winged and contorted, the pedicel 5–7 mm long; bract and bracteoles lanceolate, ca. 0.5 mm long. Hypanthium turbinate, 1–1.5 mm long; calyx spathaceous at anthesis; petals white, 10–12 mm long, slightly spreading, short-clawed, glabrous, the blade broadly elliptic, 5–6 mm wide, the margin entire or slightly crisped, the claw 1–2 mm long; fertile stamens 10, the outer five 7–8 mm long, the inner ones slightly shorter, the filaments short-connate at the base, forming a staminal sheath with lacinate projections extending 1–2 mm above the sheath, the sheath short-pilose on the inner surface, glabrous or glabrate on the outer, the anthers linear-oblong, 1–2 long, sparsely pilose; gynoecium 5–7 mm long, the gynophore, ovary, and style subequal, brown-tomentose. Fruit not seen.

PARATYPE. **MEXICO. Oaxaca:** ca. 1.5 km NE of San Cristobal Amatlán, ca. 80 km S of Oaxaca and 20 km E of (San Andrés) Miahuatlán (ca. 16°19.6'N, 96°22'W), ca. 1,500 m, 29 Aug 1995, *J. Santiago Martínez s.n.* (USF).

Etymology.—The name is derived from the Spanish name of the village San Cristobal Amatlán, this in turn derived from *Amatla*, the Aztec name for the place of the tree (*Ficus* sp.) from which the bark is used to make paper.

Distribution and ecology.—Mexico (Oaxaca). Known only from the type locality. Deciduous thorn scrub at ca. 1,500 m.

Bauhinia amatlana is closely related to *B. andrieuxii*, also of Oaxaca, but differs by its leaf blade 0.8–1.5 cm long and bilobed nearly to the base (vs. 2–3 cm long and divided only to the middle in *B. andrieuxii*).

2. *Bauhinia andrieuxii* Hemsley, *Diagn. Pl. Nov. Mexic.* 48. 1880; *Biol. Cent.-Amer., Bot.* 1:336. 1880. TYPE: MEXICO. OAXACA: near Oaxaca, Jul 1834 (fl), *G. Andrieux 411* (HOLOTYPE: K; ISOTYPES: F-fragment, G, K, P; photo ex G: F, MO, US).

Shrub or small tree; branches tomentose when young, soon glabrate. Leaves with the blade chartaceous, 7–9-nerved, suborbicular or broader than long, bilobate to 1/2 the length, 2–3 cm long, 2.5–3 cm wide, the innermost pair of lateral nerves equidistant or closer to the adjacent lateral nerves than to the mid-nerve, the base cordate to rounded, the apex of the lobes rounded, the upper surface glabrous, the lower surface tomentellous, the petiole 5–15 mm long, tomentellous; stipules ovate, ca. 1 mm long, caducous; adpetiolar intrastipular excrescence enlarged, forming a subulate projection ca. 1 mm long, the others minute. Inflorescence terminal, racemose, 3- to 8-flowered, the rachis strigose to tomentellous; floral bud linear-lanceolate, 12–18 mm long, strigose, the apex with free calyx lobes ca. 1.5 mm long, the pedicel ca. 5 mm long; bract and bracteoles lanceolate, ca. 1.5 mm long. Hypanthium cupulate, 2–3 mm long; calyx spathaceous at anthesis; petals white, ca. 1 cm long, slightly spreading, subsessile, glabrous, the blade broadly elliptic, 4–6 mm wide, the apex rounded, the margin entire; fertile stamens 10, the outer five ca. 1 cm long, the inner ones ca. 5 mm long, the filaments unequally connate near the base for 1–3 mm, glabrous, the anthers

linear-oblong, ca. 2 mm long on the longer stamens, ca. 1.5 mm long on the shorter ones, glabrous; gynoecium ca. 1 cm long, the gynophore, ovary, and style subequal, tomentose. Fruit linear, 8–10 cm long, ca. 1.5 cm wide, apiculate with the persistent style, dark brown, tomentose, the gynophore 5–10 mm long; seeds not seen.

Distribution and ecology.—Western Mexico (Morelos, Oaxaca, and Sinaloa). Deciduous thorn scrub at elevations from near sea level to ca. 1,700 m.

Bauhinia andrieuxii is closely related to *B. amatlana*, also of Oaxaca, but differs by its leaf blade 2–3 cm long, bilobed to the middle (vs. 0.8–1.5 cm long, bilobed nearly to the base in *B. amatlana*).

Specimens examined. **MEXICO. Morelos:** Cañón de Lobos, 14 km on Cuernavaca–Yautepec road, Fryxell 764 (MEXU); Cañón de Lobos, Vázquez 1776 (MEXU). **Oaxaca:** without precise locality, Andrieux 371 (G, P); Monte Albán, Rose & Hough 4590; Mitla, Smith 107 (US); ruins at Monte Albán, Sousa et al. 6077 (K, MEXU, MO, WIS); 3 km NE of La Ollaga, Téllez & Magallanes 233 (K). **Sinaloa:** Cerro Llano Redondo, W of Caimanero, Gentry 7018 (NY).

3. *Bauhinia arborea* Wunderlin, sp. nov. (**Fig. 2**). TYPE: ECUADOR. NAPO: Añangu, Parque Nacional Yasuní, 260–350 m, 30 May–21 Jun 1982 (fl), SEF [Studies of Ecuadorean Forests] 8935 (HOLOTYPE: AAU; ISOTYPES: AAU, NY).

A *Bauhinia brachycalyx* Ducke foliis majoribus, fructibus latioribus, staminum vagina glabra, nec non gynoecio tomentoso differt.

Tree to 30 m; branches glabrous. Leaves with the blade coriaceous, (3–)5–7-nerved, elliptic-oblong, unlobed, 12–30 cm long, 6–13 cm wide, the innermost pair of lateral nerves equidistant or closer to the adjacent lateral nerves than to the mid-nerve, the base rounded to obtuse, the apex abruptly short-caudate, the upper surface glabrous, the lower surface minutely strigulose, slightly lighter in color than the upper surface, the petiole 2–4.5 cm long, glabrous; stipules broadly lanceolate, ca. 1 mm long, caducous; adpetiolar intrastipular excrescence enlarged, forming a laterally flattened, obtuse projection to 1 mm long, the others minute. Inflorescence subterminal, short-racemose, 10- to 18-flowered, the flowers usually paired, the rachis strigose; floral bud elliptic-lanceolate, 1.5–2 cm long, strigose, the apex acute, the pedicel 1–3 mm long; bract and bracteoles triangular-ovate, ca. 1 mm long. Hypanthium short-tubular, 7–10 mm long; calyx spathaceous at anthesis; petals white, 12–15 mm long, slightly spreading, sessile, glabrous, the blade oblanceolate, 5–7 mm wide, the apex obtuse, the margin slightly crisped; fertile stamens 10, the outer five 12–14 mm long, the inner ones slightly shorter, the filaments free to the base or very short-connate, the anthers lanceolate, 4–6 mm long, sparsely short-pilose on the dorsal surface; gynoecium ca. 8 mm long, the gynophore and style ca. 2 mm long, tomentose, the ovary ca. 5 mm long, tomentose. Fruit elliptic-oblong, ca. 13 cm long, 3–4 cm wide, apiculate with the persistent style base, brown, glabrous, the gynophore 5–8 cm long; seeds not seen.



STUDIES OF ECUADOREAN FORESTS

SEF No. 8935

Prov. NAPO:
Añangu. Rain forest on well drained hilly ground in
the Parque Nacional Yasuni. Soil temperature 24-25°C.
Alt. 260-350 m. (76°23'W 0°31-32'S) May 30 - June 21,
1982.

DBH 13 cm. Stems reddish-brown. Slash yellow-brown.
Bark fissured longitudinally.



ISOTYPE

Bauhinia arborea Wunderlin

Richard P. Wunderlin
University of South Florida

1985

Vouchers from permanent study plots. A collaboration between the Universidad Católica, Quito, The New York Botanical Garden (supported by Charles A. Lindbergh Fund), and the Botanical Institute, University of Aarhus. Citr collection as SEF no.

FIG. 2. *Bauhinia arborea* (isotype, NY).

PARATYPES. **ECUADOR. Morona-Santiago:** 15 km N of Taisha (02°32'S, 77°43'W), *Ortega* 96 (USF). **Napo:** Reserva Etnica Huaorani, highway and pipeline "Maxus" under construction (00°51'S, 76°26'W), *Aulestia & Andi* 938 (MO, USF); Parque Nacional Yasuní, trail toward Río Daymi (00°52'S, 76°5'W), *Cerón* 3371 (MO, USF); ca. 30 km NNW of Coca, Río Huashito, *Pennington* 10592 (K); Añangu, Parque Nacional Yasuní (00°31–32'S, 76°23'W), *SEF* 8762 (AAU), *SEF* 8834 (AAU), *SEF* 8867 (AAU), *SEF* 8922 (AAU), *SEF* 10235 (AAU). **Sucumbios:** Lago Agrio Cantón, Reserva Cuyabeno, Tarapoa-Tipischa, Río Cuyabeno crossing (76°15'W, 00°00'S), *Palacios et al.* 8917 (USF).

Etymology.—The name is derived from the tree habit remarkable for its size within section *Amaria* in Ecuador.

Distribution and ecology.—Eastern Ecuador (Napo, Morona-Santiago, and Sucumbios). Rain forest on well-drained hilly ground at 250–450 m.

The species is most closely related to *B. brachycalyx* but differs by having larger leaves, wider fruits, a glabrous staminal sheath, and a tomentose gynoeceum. *Bauhinia arborea* is a tree to 30 m while *B. brachycalyx* is a shrub or small tree to 6 m, rarely to 15 m.

4. *Bauhinia augusti* Harms, *Repert. Spec. Nov. Regni Veg.* 18:234. 1922. TYPE: PERU. CAJAMARCA: near the confluence of the Río Chinchipe and Río Marañón, 700–800 m, 1 May 1912 (fl). A. Weberbauer 6224 (LECTOTYPE: F, here designated to replace destroyed B holotype; ISOLECTOTYPES: F-fragment, G, NY, US; photo ex B: F, MO, NY, US).

Shrub to 2 m; branches pubescent when young, soon becoming glabrate. Leaves with the blade chartaceous, 7–9-nerved, broadly ovate, bilobed to ca. 1/2 the length, 3.5–5.5 cm long, 3–5 cm wide, the innermost pair of lateral nerves equidistant or closer to the adjacent lateral nerves than to the mid-nerve, the base cordate, the apex of the lobes obtuse, the upper surface glabrous, the lower surface short-pilose, especially on the nerves, the petiole 0.5–1.5 cm long, short-pilose; stipules triangular-lanceolate, ca. 1.5 mm long, caducous; adpetiolar intrastipular excrescence occasionally enlarged, forming a subulate projection to 2 mm long, the others minute. Inflorescence terminal or subterminal and axillary, short-racemose or paniculate, 4- to 12-flowered, the rachis densely short-pilose; floral bud narrowly ellipsoid, slightly arcuate, 2–2.5 cm long, short-pilose, the apex obtuse or acute, the pedicel 0.5–1 cm long; bract and bracteoles triangular-lanceolate, ca. 1 mm long. Hypanthium short-tubular, 4–6 mm long; calyx spathaceous at anthesis; petals white, 2–2.7 cm long, slightly spreading, short-clawed, glabrous, the blade narrowly elliptic-oblong, 0.5–0.7 cm wide, the apex obtuse, the margin slightly crisped, the claw 3–4 mm long; fertile stamens 10, the outer five 3–3.5 cm long, the inner ones slightly shorter, the filaments short-connate at the base, sparsely pilose, especially toward the base, the anthers elliptic-oblong, ca. 5 mm long, glabrous; gynoeceum 3–3.5 cm long, the gynophore, ovary, and style subequal, the ovary densely short-pilose, the style and the gynophore sparsely pilose. Fruit not seen.

Distribution and ecology.—Peru (Cajamarca). Known only from the type collection. At 700–800 m.

Bauhinia augusti is related to the new species *B. ayabacensis* of Ecuador and Peru. *Bauhinia augusti* differs by its white corolla and lower leaf surface with erect trichomes in contrast to the pink corolla and lower leaf surface with appressed trichomes of *B. ayabacensis*.

5. *Bauhinia ayabacensis* Wunderlin, sp. nov. (**Fig. 3**). TYPE: PERU. PIURA: on road to Ayabaca, 18 km above Puente Tandopa (Río Quiroz), 1,700 m, 24 Sep 1964 (fl), P.C. Hutchinson & J.K. Wright 6689 (HOLOTYPE: F; ISOTYPES: K, MO, NY, P, US).

A *Bauhinia augusti* Harms corolla rosea lata, foliorum lamina inferiori trichomatibus brevibus adpressis obsita differt.

Shrub or small tree to 4 m; branches pubescent when young, soon becoming glabrate. Leaves with the blade chartaceous, 7(-9)-nerved, suborbicular, bilobed to ca. 1/3 the length, 3-4 cm long, 3-4 cm wide, the innermost pair of lateral nerves equidistant or closer to the adjacent lateral nerves than to the mid-nerve, the base cordate, the apex of the lobes obtuse to rounded, the upper surface glabrous, the lower surface appressed short-puberulent, especially on the nerves, the petiole 1-1.5 cm long, pubescent; stipules triangular-lanceolate, ca. 1.5 mm long, caducous; adpetiolar intrastipular excrescence occasionally enlarged, forming a subulate projection to 2 mm long, the others minute. Inflorescence terminal or subterminal and axillary, short-racemose, 2- to 10-flowered, the rachis brown-tomentose; floral bud narrowly ellipsoid, slightly arcuate, 2-2.5 cm long, brown-tomentose, the apex acute, the pedicel 6-8 mm long; bract and bracteoles triangular-lanceolate, ca. 1 mm long. Hypanthium short-tubular, 4-6 mm long; calyx spathaceous at anthesis; petals deep pink or rose, 2.5-3 cm long, spreading, short-clawed, glabrous, the blade narrowly elliptic-obovate, 1-1.5 cm wide, the apex apiculate, the margins slightly crisped, the claw 3-4 mm long; fertile stamens 10, the outer five 2-2.5 cm long, the inner ones 1-2 cm long, the filaments short-connate at the base, sparsely pilose, the anthers elliptic-oblong, ca. 5 mm long, glabrous; gynoecium 2-2.5 cm long, the gynophore, ovary, and style subequal, the gynophore and ovary tomentose, the style sparsely pilose. Fruit linear-elliptic, ca. 6 cm long, ca. 1.7 cm wide, apiculate with the persistent style base, brown, strigose to glabrate, the gynophore ca. 1 cm long; seeds ovate-reniform, ca. 1 cm long, 7-8 mm wide, the surface dark brown, dull, the funicular aril-lobe scars unequal, 1-3 mm long.

PARATYPES. **ECUADOR. Loja:** 5 km E of Celica on road to El Empalme, Harling & Andersson 18183 (GB, MO); El Empalme-Celica road, ca. 5 km above El Empalme, Harling & Andersson 18221 (MO). **PERU. Cajamarca:** on the crossing to San Luis, Cabanillas & Guevara 509 (F); El Camote, Carretera Chilete-Contumazá, Sagástegui & López 7636 (F, MO, USF); between Rupe and Contumazá, Sagástegui et al. 9817 (MO); near San Pablo, Sagástegui et al. 15380 (F); Caserío de Chilili, Sánchez 200 (F); between Chilete and Rupe, E of the Chilete-Contumazá highway, Sánchez 4222 (F).

Etymology.—The name derived from the town of Ayabaca (Province Ayabaca) near the type locality.



1641236

FIELD MUSEUM OF
NATURAL HISTORYHOLOTYPE
Bauhinia ayabacensis WunderlinRichard P. Wunderlin
University of South Florida 1982Collection number: 6689 . Size of set: 11 . Set 1, UC,
determiner's set, NY Duplicates: USM, US, F, NY, MO, K,
MICH, M, P, LE, [REDACTED]UNIVERSITY OF CALIFORNIA
Seventh Botanical Garden Expedition to the Andes, 1963-1964
Director, Paul C. HutchisonAdditional field notes for 6689 : Tree 4 m. tall
and 3 m. in diameter. Flowers deep pink.Irwin, 1966, comments "type description
gives color as white."

PERU

Bauhinia augusti Harms
dupl. det. H. S. Irwin, 1966Dry open hillsides, scattered brush. On road to Ayabaca,
18 km. above Puente Tandopa (Rio Quiroz).

Altitude 1700 m.

Province of Ayabaca, Department of Piura

PAUL C. HUTCHISON 6689

J. KENNETH WRIGHT 24 September 1964
DISTRIBUTED BY THE HERBARIUM OF THE UNIVERSITY OF CALIFORNIAFIG. 3. *Bauhinia ayabacensis* (holotype, F).

Distribution and ecology.—Ecuador (Loja) and Peru (Cajamarca and Piura). Dry, open hillsides in scattered brush or seasonal evergreen forest at 1,200–2,400 m.

Bauhinia ayabacensis is closely related to *B. augusti* from which it differs by its wider deep pink- or rose-colored corolla (vs. white in *B. augusti*) and the lower leaf surface with appressed trichomes (vs. short pilose in *B. augusti*). The petals of *B. ayabacensis* are 1–1.5 cm wide, while those of *B. augusti* are 0.5–0.7 cm wide.

6. *Bauhinia beguinotii* Cufod., Arch. Bot. Sist. 9:192. 1933. TYPE: COSTA RICA. LIMÓN: between Waldeck and Río Barbilla, 40 m, 12 May 1930 (fl), G. Cufodontis 664 (HOLOTYPE: W, not seen; photo ex W; ISOTYPES: F, MO, US).

Shrub or small tree to 6(–10) m; branches brown-tomentose to -tomentellous when young, soon becoming glabrate. Leaves with the blade chartaceous, 7–9-nerved, oblong-ovate, unlobed or slightly bilobate (deeply bilobate or bifoliolate in var. *gorgonae*), 10–24 cm long, 5–16 cm wide, the innermost pair of lateral nerves closer to the mid-nerve than to the adjacent lateral nerves, the base rounded to truncate, the apex (if the leaf unlobed) or the lobes (if the leaf bilobed or bifoliolate) acuminate to caudate, the upper surface glabrous, the lower surface brown-tomentellous to glabrate, the petiole 1.5–3.5 cm long, glabrate; stipules broadly ovate, 1–1.5 mm long, caducous; adpetiolar intrastipular excrescence occasionally enlarged, forming a subulate projection to 1 mm long, the apex glandular, the others minute. Inflorescence terminal or subterminal and axillary, racemose, 5–10-flowered, the rachis brown-tomentose to -tomentellous; floral bud elliptic-lanceolate, 1.5–2 cm long, brown-tomentose, the apex with minute free calyx lobes, the pedicel 2–5 mm long; bract and bracteoles ovate, ca. 1 mm long. Hypanthium short-tubular, 5–6 mm long; calyx spathaceous at anthesis; petals white, 2.5–3 cm long, spreading, short-clawed, glabrous, the blade oblanceolate, 8–13 mm wide, rounded, the margin entire, the claw 3–5 mm long; fertile stamens 10, the outer five 2–3 cm long, the inner ones shorter, the filaments connate for ca. 1/2 the length of the shorter stamens, sparsely pilose near the base, the anthers triangular at anthesis, ca. 3 mm long on the longer stamens, ca. 2 mm long on the shorter ones, sparsely pilose to glabrate; gynoecium 2–3 cm long, the gynophore, ovary, and style subequal, brown-tomentose. Fruit linear, 12–15 cm long, ca. 2 cm wide, apiculate with the persistent style, brown, minutely strigose to glabrate, the gynophore 1–1.5 cm long; mature seeds not seen.

KEY TO THE VARIETIES OF *BAUHINIA BEGUINOTII*

1. Leaves unlobed or only slightly bilobate; Costa Rica and Panama _____ var. **beguinotii**
1. Leaves deeply bilobate or bifoliolate; Colombia _____ var. **gorgonae**

6a. *Bauhinia beguinotii* var. *beguinotii*

Distribution and ecology.—Costa Rica (Limón) and Panama (Bocas del Toro, Panamá, and San Blas). Tropical evergreen forest from near sea level to ca. 500 m.

Specimens examined. **COSTA RICA. Limón:** drainage of the Rio Estrilla Valley, *Shank & Molina* 4466 (F, US). **PANAMA. Bocas del Toro:** Cerro Bracha, NE of the encampment Changuinola I of Corriente Grande (IRHE), *Correa et al.* 3227 (PMA, USF); SE and NE of the encampment Changuinola I of the IRHE, *Correa et al.* 3316 (PMA, USF). **Panamá:** 14.8 km N of the Pan-American Highway, *Folsom & Maas* 5202 (MO); Cartí road, 7 mi from turnoff at El Llano (9°15'N, 78°50'W), *Hammel* 13547 (MO, USF); 10–12 km N of Pan-American Highway, *Mori & Kallunki* 2847 (MO); El Llano–Cartí–Tupile road, 16 km N of Pan-American Highway at El Llano, *Nee* 9362 (MO); ca. 10 km N of Pan-American Highway, *Nee et al.* 8881 (MO). **San Blas:** El Llano–Cartí road (09°20'N, 79°0'W), *Hamilton & Stockwell* 1089 (MO, USF); El Llano–Cartí road, 19.1 km (09°19'N, 78°55'W), *de Nevers* 5946 (MO, USF); Nusagandi, along continental divide on El Llano–Cartí road (09°19'N, 78°15'W), *de Nevers & Pérez* 3701 (MO, USF); Nusagandi, along the continental divide on the El Llano–Cartí road (09°19'N, 78°15'W), *de Nevers & Pérez* 3582; Nusagandi, along the continental divide on the El Llano–Cartí road (09°19'N, 78°15'W), *de Nevers & Pérez* 3781 (MO, USF); Nusagandi ridge running NW from Punta Mamá, (09°19'N, 78°15'W), *de Nevers et al.* 3728 (MO, USF); El Llano–Cartí road, 19.1 km from Interamerican Hwy, (09°19'N, 78°55'W), *de Nevers et al.* 4957 (MO, USF); El Llano–Cartí road, near Nusagandi, along Sendero Nusagandi, W of buildings (09°15'N, 79°0'W), *McPherson* 11033 (MO, USF).

6b. *Bauhinia beguinotii* var. *gorgonae* (Killip ex R.S. Cowan) Wunderlin, *Ann. Missouri Bot. Gard.* 60:570. 1973. *Bauhinia gorgonae* Killip ex R.S. Cowan, *Bol. Soc. Venez. Ci. Nat.* 22:281. 1961. TYPE: COLOMBIA. NARIÑO: E side of Isla Gorgona, 50–100 m, 11 Feb 1939 (fl), *E.P. Killip & H. García-Barriga* 33170 (HOLOTYPE: US; ISOTYPES: COL, not seen, BM, US).

Distribution and ecology.—Colombia (Nariño). Tropical evergreen forest from near sea level up to 100 m.

The Colombian material is recognized at the varietal level and is distinguished from the Panamanian and Costa Rican material only in having the leaves deeply bilobate or bifoliolate rather than unlobed or only slightly bilobate. Since the degree of lobing of leaves in *Bauhinia* is often quite variable within species, further collections may prove var. *gorgonae* to be unworthy of recognition.

Specimens examined. **COLOMBIA. Nariño:** Isla Gorgona, *Cheeseman* [St. George Expedition] 380 (F, K, US), *Collenette* [St. George Expedition] 628 (F, K, US), *Kelsall* [St. George Expedition] 360 (K, US).

7. *Bauhinia brachycalyx* Ducke, *Trop. Woods* 90:12. 1947. TYPE: BRAZIL. AMAZONAS: region of the Rio Purus near the mouth of the Rio Pauini [based on plant cultivated in the Horto Botánico do Museu Goeldi, Belém, Pará, specimen made 30 Dec 1946 (fl)], *A. Ducke* 2045 (HOLOTYPE: MG, not seen; ISOTYPES: NY, US).

Shrub or small tree to 6(–15) m; branches glabrous. Leaves with the blade subcoriaceous, 5-nerved, oblong-ovate, unlobed, 7–11 cm long, 3–5.5 cm wide, the innermost pair of lateral nerves equidistant or closer to the adjacent lateral nerves than to the mid-nerve, the base rounded to subtruncate, the apex with a caudate tip 1–2 cm long, the upper surface glabrous, the lower surface glabrous,

the petiole 0.8–1.4 cm long, glabrous; stipules ovate, ca. 1 mm long, caducous; adpetiolar intrastipular excrescence often enlarged, forming a subulate projection to 2 mm long, the others minute. Inflorescence terminal or subterminal and axillary, short-racemose, 6- to 12-flowered, the flowers usually paired, the rachis minutely puberulent; floral bud elliptic-oblong, ca. 1.5 cm long, minutely puberulent, the apex apiculate, the pedicel 3–4 mm long; bract and bracteoles ovate-lanceolate, ca. 1 mm long. Hypanthium short-tubular, 4–6 mm long; calyx spathaceous at anthesis; petals white, ca. 1.5(–2) cm long, slightly spreading, subsessile, glabrous, the blade linear-oblong, 4–5 mm wide, the apex acute, the margins slightly crisped; fertile stamens 10, the outer five 8–10 mm long, the inner ones ca. 1/2 as long, the filaments short-connate at the base, forming a staminal sheath with a lacinate projection extending 1–2 mm above the sheath, the sheath tomentose on the inner surface, glabrous on the outer, the anthers linear-oblong, ca. 3 mm long, sparsely pilose at the apex and the base; gynoecium 12–15 mm long, subequaling the androecium, arcuate, the ovary 5–6 mm long, the gynophore and the style 3–4 mm long, subequal, the style and the upper portion of the ovary with glandular trichomes in lines, the gynophore glabrous, the stigma oblique. Fruit linear, 10–12 cm long, 1.5–2.5 cm wide, apiculate with the persistent style, brown, glabrous, the gynophore ca. 0.5 mm long; seeds suborbicular, 11–12 mm long, 9–10 mm wide, dark brown, the surface dull, the funicular aril-lobe scars subequal, extending ca. 1/2 way around the seed.

Distribution and ecology.—Ecuador (Napó and Sucumbíos), Peru (Amazonas, Loreto, and Pasco), and Brazil (Amazonas). In forest on well drained upland, also often on inundated clay soil and along rivers at 200 m.

Specimens examined. **ECUADOR. Morona-Santiago:** oil well “Garza” of Tenneco, ca. 35 km NE of Montalvo (01°49'S, 76°42'W), *Zak & Espinoza* 4618 (MO, USF) **Napó:** road construction on the Yuca Road, ca. 3 km from the Auca oil-field Road (ca. 00°31'S, 76°58'W), *Brandbyge et al.* 30287 (AAU, USF); Parque Nacional Yasuní, oil well “bogi” of Conoco (00°43'S, 76°28'W), *Coello* 225 (MO, USF); Añangu, N side of Río Napó, trail from village to laguna (00°31'S, 76°23'W), *Lawesson et al.* 39571 (AAU, USF); Añangu, near the outlet of Río Añangu into Río Napó in the Parque Nacional Yasuní, *SEF 10133* (AAU); Añangu, near the outlet of Río Añangu into Río Napó in the Parque Nacional Yasuní, *SEF 10389* (AAU). **Sucumbíos:** Río Gueppi, tributary of Río Putumayo, above Peruvian border post of Puerto Perú, 8 km above mouth of river, *Gentry et al.* 21805 (MO, USF); Lago Agrio Cantón Reserva Faunística Cuyabeno, Río Lagarto, on border with Peru (00°33'S, 75°16'W), *Palacios et al.* 8055 (MO, USF). **PERU. Amazonas:** Yamayakat, Quebrada Kusu-Chapi, Río Marañón (00°55'S, 78°19'W), *Vásquez et al.* 20104 (MO, USF). **Loreto:** Chambira, near Yurimaguas, Río Huallaga Valley, *Ferreyra* 4952 (NY, US); Río Gueppi, tributary of Río Putumayo, northernmost tip of Peru on border with Ecuador, between mouth of River and the border post of Puerto Perú ca. 8 km upriver, *Gentry et al.* 21772 (MO, USF); trail from Indiana on Río Amazonas to Río Napó, *Gentry et al.* 22188 (MO, USF); Río Nanay on the road to the Marina across from Bellavista, *Rimachi* 2800 (MO); San Miguel (Quebrada Tamshiyacu) (04°15'S, 72°40'W), *Vásquez & Jaramillo* 7153 (MO, USF); Iquitos Buena Suerte (Río Itaya), *Vásquez & Jaramillo* 8418 (MO, USF); Indiana, Yanamono, Río Amazonas (03°30'S, 72°50'W), *Vásquez & Jaramillo* 11103 (MO, USF); Indiana, Yanamono, Explorama Lodge (03°28'S, 72°50'W), *Vásquez et al.* 12113 (MO, USF). **Pasco:** Palcazú Valley, Iscozacín (10°12'S, 75°15'W), *Foster* 9463 (MO, USF). **BRAZIL. Amazonas:** Río Javari, Mirafior, *Lleras et al.* [Prance] P16927 (K, MO, US).

8. *Bauhinia cookii* Rose in Britton & Rose, N. Amer. Fl. 23:205. 1930. TYPE: COSTA RICA. ALAJUELA: Cuesta de la Vieja, road to San Carlos, 300 m, 11 Apr 1903 (fl), O.F. Cook & C.B. Doyle 41 (HOLOTYPE: US; ISOTYPES: NY-fragment, US).

Casparia calderonii Rose in Britton & Rose, N. Amer. Fl. 23:217. 1930. *Bauhinia calderonii* (Rose) Lundell, Phytologia 1:214. 1937. TYPE: EL SALVADOR. SONSONATE: San Julián, 1924 (fr), S. Calderón 2226 (HOLOTYPE: US; ISOTYPES: NY-fragment, US).

Bauhinia gigas Lundell, Phytologia 1:213. 1937. TYPE: BELIZE. EL CAYO: Valentín, Jun-Jul 1936 (st), C.L. Lundell 6298 (HOLOTYPE: MICH; ISOTYPES: NY, US).

Tree to 15(-40) m; branches strigose or puberulent when young, soon becoming glabrate. Leaves with the blade submembranaceous or chartaceous, 7-9-nerved, broadly ovate, bilobate to ca. 1/2 the length, 5-10(-15) cm long, 7-10(-12) cm wide, the innermost pair of lateral nerves equidistant or closer to the adjacent lateral nerves than to the mid-nerve, the base cordate to truncate, the apex of the lobes acute to obtuse, the upper surface glabrous, the lower surface strigose, at least on the nerves, the petiole 2-3(-5) cm long, slightly strigose; stipules lanceolate, ca. 1.5 mm long, caducous; adpetiolar intrastipular excrescence enlarged, forming a subulate projection to 1.5 mm long, the others minute. Inflorescence paniculate, congested into a fasciculate cluster, sometimes produced before the leaves and appearing cauliflorous or ramiflorous, 15- to 60-flowered, the rachis strigose; floral bud linear-elliptic, 8-10 mm long, strigose, the apex with minute free calyx lobes, the pedicel 5-7 mm long, strigose; bract and bracteoles ovate-lanceolate, ca. 1 mm long. Hypanthium cupulate, 2-3 mm long; calyx spathaceous at anthesis; petals light sulfur-yellow, 10-15 mm long, spreading, sessile or short-clawed, glabrate, the blade elliptic to oblanceolate, 5-7 mm wide, the apex obtuse, the margin entire; fertile stamens 10, the outer five 10-15 mm long, the inner ones 5-10 mm long, the filaments connate at the base for ca. 1 mm, with a laciniate rim projecting above, glabrate, the anthers linear-oblong, ca. 2 mm long on the longer stamens, ca. 1.5 mm long on the shorter ones; gynoecium 5-10 mm long, the gynophore, ovary, and style subequal. Fruit linear, 5-7 cm long, ca. 1.5 cm wide, apiculate with the persistent style, light brown, glabrous, the gynophore 5-10 mm long; seeds obovate, 7-10 mm long, 5-8 mm wide, the surface dull, dark brown, the funicular branch scars equal, ca. 4/5 the length of the seed.

Distribution and ecology.—Western Mexico in Sinaloa southeast through Mexico and Central America to Costa Rica. Not known from Nicaragua, but to be expected there. Tropical deciduous or semideciduous forests at elevations from near sea level to ca. 4,200 m, but more commonly 300-1,000 m. It apparently flowers throughout the year, but usually from March to July. Flowers are sometimes produced before the leaves appear or are much developed.

The species is unusual not only in section *Amaria* by having yellow flowers, but in fact, no other New World species of subgenus *Bauhinia* has flowers of this color.

Specimens examined. **MEXICO. Chiapas:** vicinity of La Chacona, *Miranda* 6485 (US). **Colima:** vicinity of Manzanillo, *Ferris* 6022 (A, F, US); ca. 15 mi SSW of Colima on Manzanillo road (3 mi above Terolapa), *McVaugh* 15541 (MICH); ca. 14 mi WNW of Santiago on road to Cihuatlán, Jalisco, *McVaugh* 20776 (G, MICH, US). **Guerrero:** Cañón de la Mano Negra, near Iguala, *Rose et al.* 9344 (F, GH, NY, US). **Jalisco:** between Bahía Navidad and La Manzanilla on Bahía Tenacatita, 3 mi W of Autlán-Navidad road, *McVaugh* 21007 (MICH); near Playa de Cuastecomate, 8 km by road NW of Navidad, *McVaugh & Koelz* 1674 (MICH). **Nayarit:** 7–8 mi W of Compostela along road to Mazatlán, *Gentry & Gilly* 10848 (DUKE, MEXU, TEX, WIS); 6–7 mi S of Compostela, *McVaugh* 18753 (G, MICH, US). **Oaxaca:** Ejido Benito Juárez, Sebástopol, Tuxtepec, *Dioscorea Brigade* 2741 (MEXU). **Sinaloa:** Mazatlán, *Reko* 4520 (MEXU, US). **Veracruz:** Barranca de Panoaya, *Purpus* 8797 (UC), *Purpus* 8896 (GH, MO, NY, UC, US); near Rancho Remundadero, *Purpus* 11068 (NY, US), *Purpus* 11069 (A), *Purpus* 11170 (MO); Municipio Puente Nacional, La Ceiba, *Ventura* 12760 (MEXU). **GUATEMALA. Escuintla:** Hacienda Aguna, *Salas* 1406 (F); Río Guacalate, *Standley* 60187 (F, US). **Guatemala:** without precise locality, *Aquilar* 610 (F). **Retalhuleu:** Río Talculán, 5 mi W of Retalhuleu, *Standley* 87377 (F). **Suchitepéquez:** along Río Madre Vieja above Patulul, *Standley* 62207 (F). **HONDURAS. Comayagua:** Pito Solo, Lake Yojoa, *Edwards P-404* (F, K, US). **EL SALVADOR. Ahuachapán:** Finca San Benito, near Río Guayapa (13°49'N, 89°56'W), *Reyna et al.* 1095 (USF); Finca San Benito, along Río Nacimiento del Guayapa (13°51'N, 89°55'W), *Witsberger* 600 (USF). **COSTA RICA. Alajuela:** along road between Cañas and Upala, 10 km N of Bijagua, *Croat* 36478 (MO, USF); plains of the Río San Carlos, *Pittier* 16695 (US). **San José:** Cerro Bijaqualito-Tárcoles, *Poveda* 1097 (MO).

9. *Bauhinia geniculata* Wunderlin, sp. nov. (**Fig. 4**). TYPE: COLOMBIA. RISARALDA: Hacienda Alejandría, 6 km on highway between La Virginia and Cerrito, low hills of the extreme north of the wide part of the Valle del Río Cauca, ca. 940 m, 27 May 1989 (fl), *P.A. Silverstone-Sopkin, J. Giraldo, & M. Cabrera* 5270 (HOLOTYPE: CUVIC; ISOTYPE: USF).

A *Bauhinia petiolata* (DC.) Triana ex Hooker f. foliis lobatis, calyce alto, nec non androecii forma singulari differt.

Tree to 5 m; branches glabrous. Leaves with the blade coriaceous, 7–9-nerved, oblong-ovate, bilobed to ca. 2/3 the length, 14–26 cm long, 9.5–17 cm wide, the innermost pair of lateral nerves equidistant or closer to the adjacent lateral nerves than to the mid-nerve, the base shallowly cordate to subtruncate, the apex of the lobes acuminate, the upper surface inconspicuously reticulate, glabrous, the lower surface evidently reticulate, with inconspicuous, colorless, medially attached, biradiate, glandular trichomes, minutely strigose, at least on the veins near the base, the petiole 2–3(–4) cm long, glabrous; stipules triangular-ovate to lanceolate, 1–1.5 mm long, caducous; adpetiolar intrastipular excrescence sometimes enlarged and forming a laterally flattened, blunt projection to 2 mm long, others minute. Inflorescence terminal or subterminal and axillary, racemose, 2- to 10-flowered, the flowers solitary or paired, the rachis reddish brown-tomentose; floral bud linear-clavate, 4–4.5 cm long, sparsely brown-tomentose, evidently 10-nerved, becoming prominently 5-winged above the hypanthium with the wings gradually enlarging toward the apex to 4 mm, the pedicel ca. 1.5 cm long; bract and bracteoles triangular-ovate, ca. 1 mm long. Hypanthium short-tubular, 1.5–2.2 cm long; calyx green, spathaceous at anthesis, each sepal with a thickened nectiferous area ca. 5–7 mm long and wide near the base; petals white, 3.5–4.5 cm long, slightly spreading, subsessile, glabrous,

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ISOTYPE PLANTAS DE COLOMBIA FLOR EST. SECORON
 Depto.: Risaralda Mun.: Pereira
 Nombre: Bauhinia geniculata Wunderlin
 Det.:
 Familia: CAESALPINIACEAE Ali.: C. V. G. M.

Hacienda Alejandría, Km 6 carretera La Virginia-Cer. 109,
 lomas bajas en extremo norteño de parte ancha del Valle del
 Rfo Cauca, mancha de bosque primario con muchas palmas
 (*Syngnathus sancta*).
 Arbol ca 5 m altura; hojas coriáceas; base y ápice de pecíolo
 ensanchados; cáliz verde claro; corola, filamentos,
 estilo blancos; no se ve color de anteras; ovario rojo-
 violeta vivo.

Fecha: 27 de mayo de 1989 No. 5270
 Philip A. Silverstone-Sopkin
 con Jorge Gilardo y Marino Cabrera

FIG. 4. *Bauhinia geniculata* (isotype, USF).

the blade oblanceolate, 15–18 mm wide, gradually tapering to the thickened midrib at the base, the apex rounded to slightly emarginate; fertile stamens 10, the outer five 4–4.5 cm long, the inner ones shorter, the filaments connate at the base for 2–3 mm and forming a staminal sheath, the uppermost stamen of the inner whorl the shortest and strongly geniculate near the point of attachment near the apex of the shield-like portion of the staminal sheath, the staminal sheath with a ligulate projection ca. 1 mm long behind the lower 3 stamens of the outer whorl and with a minute projection behind the lower 2 stamens of the inner whorl, the sheath reddish tomentose on the inner surface, the anthers linear, 7–8 mm long, glabrous; gynoecium 3.5–4.5 cm, the gynophore ca. 1.5 cm long, reddish tomentose, the ovary ca. 2 cm long, reddish tomentose, the style ca. 1.5 cm long, reddish tomentellous to glabrate near the apex. Fruit linear, 29–41 cm long, 2.8–3.3 cm wide, apiculate with the persistent style base, brown, puberulent, the gynophore 2.5–4 cm long; seeds suborbicular to oblong, strongly compressed, 17–18 mm long, 12–15 mm wide, the surface dull brown, the funicular scars subequal, extending 2/3 to nearly the length of the seed.

PARATYPE. **COLOMBIA. Risaralda:** Hacienda Alejandría, 6 km on highway between La Virginia and Cerrito, low hills of the extreme north of the wide part of the Valle del Río Cauca, *Silverstone-Sopkin et al.* 5809 (CUVC, USF).

Etymology.—The name derived from the bent uppermost stamen of the inner staminal whorl.

Distribution and ecology.—Colombia (Risaralda). Primary forest at 900–940 m.

Bauhinia geniculata is most closely related to *B. petiolata*, but differs by its lobed leaves (vs. unlobed in *B. petiolata*), winged calyx (vs. not winged in *B. petiolata*), and unique androecial morphology.

10. *Bauhinia haughtii* Wunderlin, *Brittonia* 35:337. 1983. TYPE: ECUADOR. MANABÍ: Bella Vista, SE of Santa Ana, 100 m, 5 Sep 1942 (fl, fr), *O. Haught* 3481 (HOLOTYPE: US; ISOTYPES: K, NY).

Shrub or tree to 10 m; branches glabrous. Leaves with the blade submembranaceous, 9(–11)-nerved, suborbicular, bilobed to ca. 1/2 the length, 5–8 cm long, 6–10 cm wide, the innermost pair of lateral nerves equidistant or closer to the adjacent lateral nerves than to the mid-nerve, the base deeply cordate, the apex of the lobes obtuse to rounded, the upper surface glabrous, the lower surface minutely strigose, the petiole 3–5 cm long, glabrous; stipules triangular-lanceolate, ca. 1 mm long, caducous; intrastipular excrescences minute. Inflorescence terminal or subterminal and axillary, racemose, 6- to 10-flowered, the flowers usually paired, the rachis minutely strigulose-tomentose; floral bud narrowly elliptic, 5–6 cm long, minutely strigulose-tomentose, red, the apex attenuate, the pedicel 2–5 mm long; bract and bracteoles triangular-lanceolate, ca. 1 mm long. Hypanthium tubular, 2–2.5 cm long, slightly arcuate; calyx spathaceous at anthesis; petals red, 4.5–5 cm long, slightly spreading, short-clawed, glabrous, the blade

oblanceolate, 1–1.5 cm wide, the apex rounded, the margin entire, the claw 3–4 mm long; fertile stamens 10, red, the outer five 4.5–5.5 cm long, the inner ones slightly shorter, 9 connate into a staminal tube for ca. 3/5 their length, the other one free to ca. 0.5 cm lower and slightly longer, the staminal sheath sparsely short pilose on the inner surface, the anthers elliptic-oblong, ca. 5 mm long, glabrous; gynoecium 6.5–8.5 cm long, the gynophore, ovary, and style subequal, glabrous. Fruit linear, 16 cm long, 1.7 cm wide, apiculate with the persistent style, light brown, glabrous, the gynophore 4.5 cm long; seeds not seen.

Distribution and ecology.—Ecuador (Manabí and Pichincha). In tropical wet forest at 100–300 m.

Bauhinia haughtii is a distinctive species most closely related to *B. seminarioi*, also endemic to Manabí, Ecuador. It differs from that species by its red flowers (vs. white in *B. seminarioi*) and a much longer staminal sheath (ca. 3.5 cm vs. ca. 6 mm in *B. seminarioi*). The only other red-flowered species in Ecuador, *B. stenantha*, is readily distinguished by its five fertile stamens (vs. ten) and smaller flowers (2.5–3.0 cm long) and smaller fruits (6–10 cm long).

Specimen examined. **ECUADOR. Manabí:** 170–175 km on road between Santa Domingo and Quininde, Acosta-Solis 13653 (F).

11. *Bauhinia petiolata* (DC.) Hook. f., Bot. Mag. 103: tab. 6277. 1877. *Amaria petiolata* DC., Prodr. 2: 519. 1825. TYPE: COLOMBIA: without precise locality, 1760–1808, S. Mutis 2398 (HOLOTYPE: MA, not seen; ISOTYPE: US).

Amaria sessilifolia DC., Prodr. 2:519. 1825. *Bauhinia sessilifolia* (DC.) Quiñones, Ann. Missouri Bot. Gard. 75:1156. 1988. TYPE: COLOMBIA: without precise locality, 1760–1808, S. Mutis 2724 (HOLOTYPE: MA, not seen; ISOTYPE: US-fragment).

Shrub or tree to 15 m; branches glabrous. Leaves with the blade chartaceous to coriaceous, 5-nerved, ovate, unlobed, 8–14 cm long, 4–8 cm wide, the innermost pair of lateral nerves equidistant or closer to the adjacent lateral nerves than to the mid-nerve, the base rounded to deeply cordate, the apex acute, sometimes with a caudate tip to 3 cm long, the upper surface glabrous, the lower surface glabrous, often glaucous, conspicuously reticulate-nerved, the petiole 0.5–3.5 cm long, glabrous; stipules triangular, ca. 1 mm long, caducous; adpetiolar intrastipular excrescence often enlarged and forming a blunt subulate projection ca. 1 mm long, the others minute. Inflorescence terminal or subterminal and axillary, short-racemose, 4- to 8-flowered, the rachis sparsely strigose-tomentellous to glabrate; floral bud elliptic-ovate, 2–3 cm long, strigulose-tomentose, the apex attenuate, glabrous, the pedicel to 1 cm long; bract and bracteoles triangular-ovate, ca. 1 mm long. Hypanthium short-tubular, ca. 1.5 cm long; calyx spathaceous at anthesis; petals white, 3.5–4.5 cm long, slightly spreading, short-clawed, glabrous, the blade narrowly oblanceolate, 1.2–1.5 cm wide, the apex rounded, the margin slightly crisped, the claw 2–3 mm long; fertile stamens 10, the outer five 3–5(–7.5) cm long, the inner ones slightly shorter,

the filaments short-connate at the base, glabrous, the anthers linear-oblong, 8–12 mm long, glabrous; gynoecium 4–5 cm long, the gynophore ca. 1 cm long, glabrous, the ovary ca. 3 cm long, tomentose (glabrous or glabrate in var. *caudigera*), the style ca. 1.5 cm long, glabrous. Fruit linear, 21–27 cm long, 2–2.5 cm wide, apiculate with the persistent style, brown, sparsely pubescent, glabrescent at maturity, the gynophore ca. 2.5 cm long; seeds not seen.

Bauhinia petiolata is a highly distinctive though poorly known species represented by two varieties. The species is most closely related to *B. geniculata* which is also from the upper Magdalena Valley (Risaralda Prov.) in Colombia but is readily distinguished by its unlobed leaves and flower buds not winged. It also has affinities with *B. arborea* (Ecuador) and *B. brachycalyx* (Ecuador, Peru, and Brazil), two other species with unlobed leaves in section *Amaria*.

Quiñones (1988) argues that *B. sessilifolia* is a distinct species and differs from *B. petiolata* by its sessile leaves, the leaf base deeply cordate, the inflorescence of axillary umbels, the petals emarginate, the stamens of five long and five short and included, and the fruit 2 cm wide. *Bauhinia petiolata* on the other hand has leaves with the petiole 0.5–3 cm long, the leaf base truncate or rounded, the inflorescence a terminal or axillary in a short raceme, the petals acute, the stamens subequal and excluded, and the fruit 1.5 cm wide. These characters, with the exception of the sessile leaves, do not hold up in the material examined. Even though I have not seen the MA material cited by Quiñones, I believe that *B. sessilifolia* is based on aberrant, sessile-leaved specimens of *B. petiolata*. The sessile-leaved condition is approached in some material seen for *B. petiolata*. For example, *André 1810* has petioles only 5 mm long.

KEY TO THE VARIETIES OF *BAUHINIA PETIOLATA*

1. Ovary tomentose; central Colombia _____ var. **petiolata**
 1. Ovary glabrous or glabrate; Panama and Venezuela _____ var. **caudigera**

11a. *Bauhinia petiolata* var. *petiolata*

Distribution and ecology.—Upper Magdalena Valley of central Colombia (Cundinamarca and Tolima). Wet forest at ca. 500 m.

Specimens examined. **COLOMBIA. Cundinamarca:** Quebrada Cachimbulo near Tocaima, Río Funza valley, *André 1810* (K); Río Magdalena valley, *Goudot s.n.* (P); Hacienda El Cucharo, between Tocaima and Pubenza, *Killip et al. 38314* (COL, F, NY, US), *Killip et al. 38350* (COL, K, US); between Nilo and Puebla Nuevo, *Murillo & Jaramillo 260* (COL, NY); Tocaima, *Triana 4412* (BM, COL, G, NY); La Parada Limba and the Río Magdalena valley, *Triana s.n.* (P); Tocaima, *Triana s.n.* (K); Tocaima, Río Magdalena, *Triana s.n.* (K). **Tolima:** Chicoral, *Haught 6306* (COL, NY, US). **State unknown:** without locality, *Mutis 2377* (fragment ex MA: US); *Mutis 2549* (fragment ex MA: US); *Mutis 4146* (fragment ex MA: US). Cultivated at Kew from material provided by Linden from Colombia (K).

11b. *Bauhinia petiolata* var. *caudigera* (S.F. Blake) Wunderlin, comb. nov. BASIONYM:

Bauhinia caudigera S.F. Blake, Contr. U.S. Natl. Herb. 20:522. 1924. TYPE: VENEZUELA. CARABOBO: Guaremales, along road from Puerto Cabello to San Felipe, 10–100 m, 20 May–10

Jun, 1920 (fl), *H. Pittier 8851* (HOLOTYPE: US; photo ex US: US, NY; ISOTYPE: P).

Distribution and ecology.—Panama (Colón) and Venezuela (Carabobo and Falcón). Rainforest and wet forest at 10–600 m. The variety was probably more widely distributed from Panama through northern Colombia to Venezuela in the past. Its present disjunct distribution is relictual, apparently now confined to wet river valley refugia.

This taxon was placed in synonymy of *B. petiolata* by Wunderlin (1983). Since then, additional material has become available and it is here considered as a distinct variety on the basis of its glabrous or glabrate ovary (vs. tomentose in var. *petiolata*).

Specimens examined. **PANAMA. Colón:** ca. 2–3 mi up the Río Guanche from mouth, *Kennedy & Foster 2127* (MO, USF). **VENEZUELA. Carabobo:** upper Guaremales, road from Puerto Cabello to San Felipe, *Pittier 8914* (NY, US). **Falcón:** Parque Nacional Quebrada de la Cueva El Toro (10°50'N, 69°07'W), *Liesner et al. 7727* (MO, USF), *Liesner et al. 7736* (MO), *Wingfield 7501* (USF).

12. *Bauhinia picta* (Kunth) DC., Prodr. 2:515. 1825. *Pauletia picta* Kunth, in Humboldt et al., Nov. Gen. Sp. 6:316. 1824. TYPE: COLOMBIA. SANTANDER: along the Río Magdalena near the confluence with Río Opon, between Bojorque and Isla de Brujas, May 1801 (fl), *F.W.H.A. Humboldt & A.J.A. Bonpland 1604* (HOLOTYPE: P, not seen, microfiche IDC 156/C6; ISOTYPES: P, B(W) not seen; photo ex B(W): F, G, MO, NY, US).

Bauhinia ligulata Pittier, Contr. U.S. Natl. Herb. 20:112. 1918. TYPE: PANAMA. SAN BLAS: near Puerto Obaldía, 0–50 m, Aug 1911 (fl), *H. Pittier 4334* (HOLOTYPE: US; ISOTYPES: BM, F, NY, US).

Bauhinia kalbreyeri Harms, Repert. Spec. Nov. Regni Veg. 19:65. 1923. TYPE: COLOMBIA. ANTIOQUIA: Murri, 1,000–1,100 m, Jun 1880 (fl), *W. Kalbreyer 1802* (LECTOTYPE: K, here designated to replace destroyed B holotype; ISOLECTOTYPES: F-fragment, US; photo ex K: F, NY, US; photo ex B: F, K, MO, NY, US).

Tree to 20(–40) m; branches ferruginous-tomentose when young, soon becoming glabrate. Leaves with the blade chartaceous, 9–13-nerved, ovate, bilobate to ca. 1/4 the length, 4–10(–21) cm long, 4–7.5(–15) cm wide, the innermost pair of lateral nerves equidistant or closer to the adjacent lateral nerves than to the mid-nerve, the base cordate to rounded, the apex of the lobes apiculate to obtuse or rounded, the upper surface glabrous, the lower surface finely ferruginous-tomentellous (at least on the nerves), the petiole 2–3.5 cm long, ferruginous-tomentellous to glabrate; stipules ovate, ca. 1 mm long, caducous; adpetiolar intrastipular excrescence enlarged, forming a subulate projection to 2 mm long, the apex with a lateral glandular area, the others minute. Inflorescence axillary, subterminal, short-racemose, 10- to 20-flowered, the flowers solitary or paired, the rachis ferruginous-tomentose; floral bud linear-clavate, 2–2.5 cm long, ferruginous-tomentose, the apex with minute free calyx lobes, the pedicel 2–6 mm long; bract and bracteoles lanceolate, ca. 1 mm long. Hypanthium short-tubular, 6–8 mm long; calyx spathaceous at anthesis, soon splitting partly or fully to the hypanthium into 2 to 5 lobes; petals white with pink or roseate base, sometimes lavender-pink or rose, 2–3 cm long, spreading, short-clawed,

glabrous, the blade ovate-elliptic, 6–13(–20) mm wide, the apex rounded, the margin entire, the claw 2–4 mm long; fertile stamens 10, the outer five 2–3 cm long, the inner ones slightly shorter, the filaments free to base or short-connate, short-hirsute or with only a few short trichomes on the lower 1/2, the upper stamen attached near the apex or the middle of the ligulate part of the staminal sheath, short-hirsute (rarely glabrate); gynoecium 2–3 cm long, the gynophore, ovary, and style subequal, the gynophore sparsely tomentose below the ovary on the lower surface or glabrate, the ovary tomentose, the style sparsely tomentellous to glabrate. Fruit linear, 15–25 cm long, ca. 2 cm wide, apiculate with the persistent style, brown, tomentellous to glabrate, the gynophore 1–2 cm long; seeds elliptic-ovate, ca. 15 mm long, ca. 12 mm wide, dark brown, the surface dull, the funicular aril-lobes 6–7 mm long.

Distribution and ecology.—Colombia (Antioquia, Bolívar, Boyaca, Chocó, Cundinamarca, Risaralda, and Santander) and Panama (San Blas). In open to closed forest from near sea level to about 1,500 m.

The species is apparently most closely related to *B. petiolata*, but differs in having bilobed leaves and petals white with a pink or roseate base. The type of *B. ligulata* from Panama is a large tree (40 m) with slightly smaller flowers and the adaxial stamen attached lower on the ligulate portion of the staminate sheath. It agrees in all other respects with the Colombia material. The material from Chocó Province, Colombia differs by its slightly larger leaves (16–21 cm long compared with the usual 4–10 cm long), the glabrate staminal sheath and filament bases (these usually short-hirsute), and the less tomentose ovary.

Bauhinia picta is occasionally cultivated in Colombia for its showy flowers.

Specimens examined. **COLOMBIA. Antioquia:** 14–17 km N of Remedios on the way to Zaragoza, Cerro Cabeza region, along the Río Tucupé (07°20'N, 74°30'W), *Callejas et al.* 5177 (USF); Vereda Alicante, Finca Penjamo, Quebrada Penjamo, on the San Juan de Bedout–La Cabaña road (06°39'N, 74°31'W), *Callejas et al.* 9388 (HUA, USF); Vereda La Pava, 14 km by Andes highway toward La Vereda El Líbano, *Fonnegra et al.* 2441 (USF); Segovia, *Sandeman* 5575 (K). **Antioquia/Bolívar:** near the confluence of the Río Ité and Río Tamar into the Río Cimitarra, ca. 38 km W of Barrancanermeja (06°55'N, 74°15'W), *de Bruijn* 1554 (MO, NY, US). **Boyaca:** El Umbo region, *Lawrence* 492 (K). **Chocó:** Río Tagachi, ca. 12 km W of Río Atrato (06°15'N, 76°50'W), *Gentry et al.* 37068 (MO, USF); Mecana, *Juncosa* 1923 (MO, USF). **Cundinamarca:** 16 km NW of Albán along highway to Villeta, *Barclay et al.* 3666 (US). **Risaralda:** Hacienda Alejandría, 6 km on La Virginia–Cerritos highway, extreme northern part of Valle del Río Cauca, *Silverstone-Sopkin* 5895 (CUVC, USF). **Santander:** Puerto Berrio, between Río Carare and Río Magdalena, *Haught* 1772 (P); Bucaramanga and vicinity, *Killip & Smith* 14978 (NY). **State unknown:** Río Carare, *Dawe* 456 (K); Cordillera Orientale, *Goudot s.n.* (P).

13. *Bauhinia seleriana* Harms in Loes., Bull. Herb. Boissier 7:549. 1899. TYPE: GUATEMALA. HUEHUETENANGO: near Quen Santo, ca. 1,100 m, *C. Seler & E. Seler* 2797 (LECTOTYPE: K, here designated to replace destroyed B holotype; ISOLECTOTYPE: F-fragment, NY, US; photo ex K: F, NY, US; photo ex B: F, G, MO, NY, US;).

Bauhinia paradisi Standley & L.O. Williams, Ceiba 1:80. 1950. TYPE: HONDURAS. EL PARAÍSO: Río Lizapa floresta de Robles area, between Galeras and Lizapa Grande, 1,000 m, 14 May 1948 (fl), *A. Molina* 860 (HOLOTYPE: US; photo ex US: NY, US; ISOTYPES: BM, F).

Shrub or small tree to 12 m; branches short-hirsute when young, soon becoming glabrate. Leaves with the blade chartaceous, 9–11-nerved, broadly ovate, bilobate to ca. 1/3 the length, 6–10 cm long, 6–10 cm wide, the innermost pair of lateral nerves equidistant or closer to the adjacent lateral nerves than to the mid-nerve, the base cordate to rounded, the apex of the lobes obtuse to rounded, the upper surface glabrous, the lower surface short hirsute or tomentellous, the petiole (1–)2–4(–5) cm long, hirsute or tomentellous; stipules triangular-ovate, ca. 4 mm long, caducous; adpetiolar intrastipular excrescence often enlarged and forming a subulate projection to 1.5 mm long, the others minute. Inflorescence terminal or subterminal and axillary, racemose, 5- to 30-flowered, the rachis short-hirsute or tomentellous; floral bud elliptic, 8–15 mm long, short-hirsute or tomentellous, the apex with free lobes to 2 mm long, the pedicel 4–5 mm long; bract and bracteoles lanceolate to linear, 1–4 mm long. Hypanthium cupulate, 1–2 mm long; calyx spathaceous at anthesis; petals white, 11–18 mm long, spreading, subsessile or short-clawed, glabrous except for the blade apex, the blade elliptic, 4–8 mm wide, the apex apiculate, the margin entire, the claw ca. 1 mm long, glabrous; fertile stamens 10, the outer five 11–18 mm long, the inner ones 1/2 the length of the outer, the filaments unequally connate at the base for 1–3 mm, with a laciniate rim extending above the point of adnation, the inner surface tomentose, the anthers linear-oblong, ca. 2 mm long on the longer stamens, ca. 1.5 mm long on the shorter; gynoecium 11–18 mm long, the gynophore, ovary, and style subequal, tomentose. Fruit linear, 8–10 cm long, ca. 1.5 cm wide, apiculate with the persistent style, dark brown, tomentose, the gynophore 0.5–1 cm long; seeds not seen.

Distribution and ecology.—Southern Mexico, Guatemala, and Honduras. Deciduous forest at 700–1,500 m.

The species is closely related to *B. andrieuxii* of western Mexico from which it is distinguished by its larger leaves 6–10 cm long (vs. 2–3 cm in *B. andrieuxii*) and conspicuously hirsute parts. *Bauhinia seleriana* is a forest species while *B. andrieuxii* occurs in open deciduous scrub.

Representative specimens examined: **MEXICO. Chiapas:** along Mexican Highway 190 3 mi S of La Trinitaria, *Breedlove 14485* (NY). **México:** Pungaranchó, *Hinton et al. 8570* (K). **Oaxaca:** ca. 3 km to the NE of Laollaga, *Télliez & Magallanes 233* (MEXU, MO). **GUATEMALA. Huehuetenango:** between Nenton and Las Palmas, *Steyermark 51582* (F, US). **Zacapa:** Loma El Picacho, above Santa Rosalia, *Steyermark 42730* (F, NY, US). **HONDURAS. Choluteca:** 6 km SW of Panamerican Highway, *Harmon & Fuentes 5962* (UMO). **El Paraíso:** along Río California, Sierra de la Villa Santa, *Williams & Molina 10479* (F, MO, UC, US, VT). **Francisco Morazán:** along Quebrada Suyapa, near Suyapa, *Molina 553* (F, MO, US).

14. *Bauhinia seminaroi* Harms ex Eggers, Bot. Centralbl. 73:69. 1898. TYPE: ECUADOR. MANABÍ: near Hacienda El Recreo, 16 Aug 1893 (fl, fr), *H.F.A. von Eggers 14925* (LECTOTYPE: F-fragment, here designated to replace destroyed B holotype; photo ex B: ISOLECTOTYPES: F, MO, US).

Shrub or small tree 2–3(–5) m; branches sparsely tomentellous when young,

soon becoming glabrate. Leaves with the blade submembranaceous to chartaceous, (5-)7-9-nerved, suborbicular, bilobed to ca. 1/2 the length, 5-13 cm long, 6-12 cm wide, the innermost pair of lateral nerves equidistant or closer to the adjacent lateral nerves than to the mid-nerve, the base cordate, the apex of the lobes obtuse to rounded, the upper surface glabrous, the lower surface minutely strigulose, short-pilose along the veins, especially near the base, the petiole 2-4.5 cm long, tomentellous, soon becoming glabrate; stipules triangular-lanceolate, ca. 1 mm long, caducous; adpetiolar intrastipular excrescence occasionally enlarged and forming a subulate projection to 2 mm long, the others minute. Inflorescence terminal or subterminal and axillary, racemose, 8- to 18-flowered, the flowers usually paired, the rachis tomentellous to glabrate; floral bud linear-clavate, 4-6 cm long, tomentellous to glabrate, the apex rounded, the pedicel 0.5-1.8 cm long; bract and bracteoles triangular-lanceolate, 0.5 mm long. Hypanthium short-tubular, 1.5-2 cm long; calyx spathaceous at anthesis; petals white, ca. 5 cm long, slightly spreading, short-clawed, glabrous, the blade linear-oblongate, 5-6 mm wide, the apex acute to obtuse, the margin slightly crisped, the claw ca. 0.5 cm long; fertile stamens 10, the outer five ca. 4 cm long, the inner ones slightly shorter, the filaments short-connate at the base to ca. 6 mm, the staminal sheath pilose on the inner surface near the apex and slightly above on the filaments, the anthers elliptic-oblong, ca. 5 mm long, glabrous; gynoecium 5.5-6.5 cm long, the gynophore, ovary, and style subequal, glabrous. Fruit linear, 15-25 cm long, 2-2.3 cm wide, apiculate with the persistent style, dehiscent, brown, glabrous, the gynophore 2-3 cm long; seeds not seen.

Distribution and ecology.—Ecuador (Guayas and Manabí). Tropical moist forest on inner coastal hills at 100-150 m.

The type collection (*von Eggers 14925*) is apparently a mixture of this species and *Bauhinia aculeata* subsp. *grandiflora* (Jussieu ex Poiret) Wunderlin of subg. *Bauhinia* section *Bauhinia*. Specimens of *B. aculeata* subsp. *grandiflora* with various collection dates were distributed as the type of *B. seminarioi* by C to K, F, and undoubtedly elsewhere. The description, except for the statement that the species is aculeatous, clearly fits what is known to be *B. seminarioi* as represented by the photograph of the holotype (now destroyed) and not *B. aculeata* subsp. *grandiflora*. The adpetiolar intrastipular excrescences in *B. seminarioi* sometimes enlarge to 2 mm, especially in the inflorescence, but the older branches can not be described as aculeatous. Since the holotype is of young floriferous material with evident enlarged excrescences, Harms apparently incorrectly interpreted the materia. The *Iltis & Iltis E-221* specimen bears only small blunt excrescences.

Specimens examined. **ECUADOR. Guayas:** Bosque Protector Cerro Blanco, road to Salinas, 15 km (02°10'S, 79°58'W), *Rubio 2020* (MO, USF). **Manabí:** Hacienda El Recreo, *von Eggers 14886* (F, K, P, US); 4 km E of Hacienda El Recreo (2 km S along coast from Canoa, 18 km due N of Bahía de Caraquez; 00°27'S, 80°26'W) and the Pacific Ocean, *Iltis & Iltis E-221* (USF, WIS).

15. *Bauhinia weberbaueri* Harms, Bot. Jahrb. Syst. 42:91. 1908. TYPE: PERU. CAJAMARCA: near Rambrán, 2,000–2,100 m, Jan 1905 (fl), A. *Weberbauer* 4802 (LECTOTYPE: G, here designated to replace destroyed B holotype; ISOLECTOTYPE: F-fragment; photo ex B: F, MO).

Bauhinia ruiziana Harms, Repert. Spec. Nov. Regni Veg. 18:234. 1922. TYPE: PERU. HUÁNUCO: Ambo, 1778–1788 (fl), H. *Ruiz López* 1795 [H. *Ruiz López* & J.A. *Pavón* 1300] (LECTOTYPE: K, here designated to replace destroyed B holotype; ISOLECTOTYPES: F, MA, not seen, P; photo ex K, F, US; photo ex MA, F; photo ex B, F, G, MO, US).

Shrub to 1.5 m; branches strigulose when young, soon becoming glabrous. Leaves with the blade chartaceous, 7-nerved, suborbicular, bilobed to ca. 3/4 the length, 1.5–4 cm long, 1.5–4 cm wide, the innermost pair of lateral nerves equidistant or closer to the adjacent lateral nerves than to the mid-nerve, the base cordate, the apex of the lobes obtuse to rounded, the upper surface glabrous, the lower surface strigulose, the petiole 0.5–1 cm long, minutely strigulose or glabrous; stipules triangular-lanceolate, 1–1.5 mm long, caducous; adpetiolar intrastipular excrescence occasionally enlarged and forming a subulate projection to 2 mm long, the others minute. Inflorescence terminal or subterminal, the flowers solitary, the rachis strigulose; floral bud elliptic-lanceolate, ca. 2 cm long, red, strigulose, the pedicel ca. 1 cm long; bracts and bracteoles triangular, ca. 1 mm long. Hypanthium short-tubular, 4–6 mm long; calyx spathaceous at anthesis; petals bright pink or rose-red, 3–4 cm long, spreading, short-clawed, glabrous, the blade oblanceolate, 1–1.8 cm wide, the apex rounded, the margin entire, the claw 3–5 mm long; fertile stamens 10, red, the outer five 2.5–3 cm long, the inner ones slightly shorter, the filaments very short-connate, sparsely pilose toward the base, the anthers elliptic-oblong, 3–4 mm long, glabrous; gynoecium 3–4 cm long, the gynophore, ovary, and style subequal, glabrous. Fruit narrowly elliptic, 4.5–5 cm long, ca. 1.5 cm wide, apiculate with the persistent style, dehiscent, light brown, glabrous, the gynophore 4.5–5 cm long; seeds irregularly elliptic-ovate, dark brown, the surface dull, the funicular aril-lobe scars subequal, 2–3 mm long.

Distribution and ecology.—Peru (Cajamarca, La Libertad, and Huánuco). On steep rocky slopes above rivers at 2,100–2,400 m.

Bauhinia weberbaueri is related to *B. ayabacensis* and *B. augusti*, but is easily distinguished from both by its glabrous ovary (vs. tomentose in *B. augusti* and *B. ayabacensis*) and from *B. augusti* by its pink to rose petals (vs. white in *B. augusti*).

Specimens examined. **PERU. La Libertad:** between Los Alisos and Pataz, *Alayo* 18 (USF). **Huánuco:** above Hacienda Quicacan, between Ambo and Huánuco, *Ferreya* 6553 (F); Ambo, *Macbride & Featherstone* 2411 (F), *Macbride* 3164 (F, G), *Pavon* s.n. (BM), *Sawada* P-103 (F); Huánuco, *Macbride* 3503 (F, G), *Matthews* 927 (K), without precise locality, *Vita*, *McLean* s.n. (K).

II. Series *Stenanthae* Wunderlin, K.Larsen & S.S.Larsen, Biol. Skr. 28: 14. 1987. TYPE: *Bauhinia stenantha* Diels.

Petals strongly imbricate, the corolla forming a pseudotube; fertile stamens 5.

1. *Bauhinia stenantha* Diels, *Biblioth. Bot.* 29(116):93. 1937. TYPE: ECUADOR. CHIMBORAZO: canyon of the Río Chanchan near Huigra, 1,220–1,370 m, 7–14 May 1945 (fl, fr), *W.H. Camp E-3041* (NEOTYPE: F, here designated to replace destroyed B holotype; ISONEOTYPE: K, P). [ECUADOR. CHIMBORAZO: canyon of the Río Chanchan near Huigra, 1,260 m, 21 Sep 1933 (fl, fr), *F.L.E. Diels 1130* (HOLOTYPE: B, destroyed)].

Shrub or small tree to 3 m; branches puberulent when young, soon becoming glabrate. Leaves with the blade submembranaceous or chartaceous, 7–9-nerved, suborbicular, bilobed to ca. 3/4 the length, 2.5–5.5 cm long, 3–5.5 cm wide, the innermost pair of lateral nerves equidistant or closer to the adjacent lateral nerves than to the mid-nerve, the base cordate, the apex of the lobes obtuse to rounded, the upper surface glabrous, subglaucous, the lower surface sparsely to moderately tomentose, the petiole 1–3 cm long, tomentellous to glabrate; stipules triangular-ovate, ca. 1 mm long, caducous; adpetiolar intrastipular excrescence occasionally enlarged and forming a subulate projection to 2 mm long, the others minute. Inflorescence terminal or subterminal, short-racemose, 2- to 10-flowered, the rachis tomentellous or strigulose; floral bud elliptic-oblong, ca. 2.5 cm long, rose-red, tomentellous or strigulose, the apex apiculate, the pedicel 1–1.5 cm long; bract and bracteoles triangular-lanceolate, ca. 1 mm long. Hypanthium short-tubular, subgibbous at the base, 6–8 mm long; calyx spathaceous at anthesis, soon splitting to the hypanthium into 2 to 5 lobes; petals rose-red, 2.5–3 cm long, erect and pseudotubular, short-clawed, glabrous, the blade oblanceolate, 7–8 mm wide, the apex rounded, the margin slightly crisped, the claw 8–9 mm long; fertile stamens 5, red, 2.5–3 mm long, the filaments very short-connate, the staminal sheath with a small lacinate rim, glabrous, the anthers oblong, ca. 5 mm long, glabrous, the staminodes 5, rudimentary or to 1/2 the length of the fertile stamens, the aborted anthers globose; gynoecium 3.5–4.5 cm long, the gynophore, ovary, the style subequal, glabrous. Fruit linear, 6–10 cm long, ca. 1.5 cm wide, apiculate with the persistent style base, dehiscent, light brown, glabrous, the gynophore ca. 1.5 cm long; mature seeds not seen.

Distribution and ecology.—Ecuador (Azuay and Chimborazo). Dry scrub hillsides at (600–)1,200–1,800 m.

Specimens examined. **ECUADOR. Azuay:** along Pasaje–Santa Isabel–Girón highway, valley of the Río Jubones, *Harling & Andersson 14404* (GB, USF); Cuenca–Machala road, between Girón and Santa Isabel, 17 km from Girón (03°14'S, 79°13'W), *Løjtnant & Molau 14176* (AAU); 17 km SW of Girón, *MacBryde 451* (MO). **Chimborazo:** Huigra, *Asplund 7736* (S), *Asplund 15507* (K, S); vicinity of Huigra, *Rose & Rose 22119* (photo ex NY: US); Huigra, *White s.n.* (BM). **State unknown:** without definite locality, *Acosta-Solis 11675* (F).

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REFERENCES

- FORTUNATO, R.H. 1986. Revisión del género *Bauhinia* (Cercideae, Caesalpinioideae, Fabaceae) para la Argentina. *Darwiniana* 27:527–557.
- FORTUNATO, R.H. 1997. *Bauhinia*. Flora Fanerogámica Argentina. 33:4–9. Programa Proflora (CONICET), Córdoba, Argentina.
- McVAUGH, R. 1987. Leguminosae. In: W.R. Anderson, ed. *Flora Novo-Galiciana*. 5:1–786. University of Michigan Press, Ann Arbor.
- QUIÑONES, L.M. 1988. Una nueva combinación en *Bauhinia* (Fabaceae–Caesalpinioideae). *Ann. Missouri Bot. Gard.* 75:1155–1156.
- VAZ, A.M.S. DA F. 1979. Considerações sobre a taxonomia do género *Bauhinia* L. sect. *Tyloteae* Vogel (Leguminosae–Caesalpinioideae) do Brasil. *Rodriguésia* 31:127–234.
- VAZ, A.M.S. DA F. and A.M.G. DE A. TOZZI. 2003. *Bauhinia* ser. *Cansenia* (Leguminosae: Caesalpinioideae) no Brasil. *Rodriguésia* 54:55–143.
- WUNDERLIN, R.P. 1976. The Panamanian species of *Bauhinia* (Leguminosae). *Ann. Missouri Bot. Gard.* 63:346–354.
- WUNDERLIN, R.P. 1983. Revision of the arborescent *Bauhinias* (Fabaceae: Caesalpinioideae: Cercideae) native to Middle America. *Ann. Missouri Bot Gard.* 70:95–127.
- WUNDERLIN, R.P. 1998. *Bauhinia*. In: J.A. Steyermark, P.E. Berry, and B.K. Holst, eds. *Flora of Venezuelan Guayana*. 4:5–13. Missouri Botanical Garden Press, St. Louis.
- WUNDERLIN, R.P. 2001. *Bauhinia*. In: W.D. Stevens, C.U. Ulloa, A. Poole, and O.M. Montiel, eds. *Flora de Nicaragua*. 1:522–526. Missouri Botanical Garden Press, St. Louis.
- WUNDERLIN, R.P., K. LARSEN, and S.S. LARSEN. 1987. Reorganization of the Cercideae (Fabaceae: Caesalpinioideae). *Biol. Skr.* 28:1–40.