

SYNOPSIS OF THE SOUTH AMERICAN SPECIES OF *VISMIA* (GUTTIFERAE)

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Introduction

Vismias are mostly low, leafy-crowned trees or tall shrubs, with opposite, broad, poplar-like leaves, and white, green, yellowish or brownish flowers borne in more or less crowded panicles. The flowers recall those of the genus *Hypericum*, the St.-John's-worts, and, indeed, Vismias were first described as species of *Hypericum*. The petals are usually hairy or even woolly, but the amount of hairiness varies in many instances among individuals of the same species. The usually black berry of *Vismia*, subtended by a rather prominent calyx, early attracted attention and provides a ready means of distinguishing this genus from *Hypericum*, with which it agrees in most technical characters, but which has a dry capsular fruit.

The first Vismias described were based on collections originating in Brazil and the Guianas. About four-fifths of the species of the genus are confined to tropical South America and these constitute the subject of the present synopsis. The few *Vismia* species known from Central America have been reviewed in connection with this study; they are mostly referred to the South American species but present some special problems. The only species from Mexico and Central America not otherwise mentioned in this treatment are *V. mexicana* Schlecht. and *V. camparaguay* Sprague. *Vismia* demonstrates Afro-American relationships, spanning as it does the South Atlantic Ocean, with five or six species occupying tropical West Africa, and one species isolated in the Pugu Range and near Dar es Salam on the coast of East Africa. Adolph Engler, in the last summary of the genus as a whole (1925), recognized about 30 species of *Vismia* but in all probability there are in the genus between 45 and 50 species. Knowledge of the ecological relationships and life histories is scanty but there are data that some species are giant forest trees whereas others are

characteristically early invading "weedy" species in disturbed vegetation and do not usually attain true tree stature.

The present study was undertaken in 1946 at the suggestion of Mr. E. P. Killip of the United States National Museum, while I was a member of the Museum staff, and his continuing interest in the problem and the placing of supplementary collections in my hands for study are appreciated. Work on the study was considerably advanced during the summer of 1947 by a grant from the Smithsonian Institution. Since then Dr. Elbert Little, Jr., and Dr. Richard Evans Schultes have made their Colombian collections available. The kindness of Mr. N. Y. Sandwith in checking types at Kew early in the progress of this study was particularly valuable. P. J. Eyma's careful notes on the types in European herbaria were often useful. The photographs of type specimens preserved in European herbaria made by Dr. J. Francis Macbride under the Rockefeller Foundation, together with fragments of authentic material now filed at the Chicago Museum of Natural History, have been of decisive importance in several instances. The use of three of these photographs to illustrate this paper is an appreciated privilege. Opportunity to examine the *Vismia* collections in person in European herbaria presented itself in 1954-55 when as a Guggenheim Fellow I visited 15 different institutions primarily for the study of archive materials bearing on the early botanical contacts between America and Europe. I am indeed grateful to the John Simon Guggenheim Memorial Foundation for this opportunity. The only important *Vismia* series not seen was that of Martius in the Botanische Staatssammlung, München, but duplicates of most of these were examined at Vienna and Paris.

It is a pleasure to acknowledge my indebtedness to several curators of herbaria in this country and abroad for making their series of *Vismias* available to me: Arnold Arboretum, Cambridge, Mass., (A); British Museum (Natural History), (BM); Academy of Sciences, San Francisco, Calif., (CAS); Botany School, Cambridge University, (CGE); Herbario Nacional Colombiano, Bogotá, (COL); Botanical Museum and Herbarium, Copenhagen, (C); Dudley Herbarium, Stanford University, (DS); The Royal Botanic Garden, Edinburgh, (E); Chicago Museum of Natural History, formerly the Field Museum, (F); Herbarium Universitatis Florentinae, Florence, (FI); Conservatoire et Jardin Botanique, Geneva, (G); Herbar de Candolle, Geneva, (G-DC); Dept. of Botany, Glasgow University, (GL); The Herbarium, Kew, (K); Rijksherbarium, Leiden, (L); Missouri Botanical Garden, (MO); National Arboretum Herbarium, Beltsville, Md., (NA);

Tulane University, New Orleans, (NO); Fielding Herbarium, Oxford University (OXF); Muséum National d'Histoire Naturelle, Paris, (P); Academy of Natural Sciences of Philadelphia, (PH); Naturhistoriska Riksmuseum, Stockholm, (S); Trinity College, Dublin, (TCD); Botanical Museum and Herbarium, Utrecht, (U); University of California, Berkeley, (UC); United States National Herbarium, (US); Naturhistorisches Museum, Vienna, (W); and Botanisches Institut and Botanisches Garten der Universität, Vienna, (WU).

The citation of abbreviations following the citation of specimens indicates that specimens have been studied by the writer in the herbaria concerned. The few specimens cited without such abbreviations, mostly types, have not been seen.

Finally, I am sincerely grateful to C. V. Morton for a careful scrutiny of this paper in editing it for publication.

TAXONOMIC HISTORY

The genus *Vismia* was established by Domingos Vandelli, Professor in Lisbon, in a small quarto volume entitled "Florae lusitanicae et brasiliensis specimen," published in Coimbra, Portugal, in 1788. Prof. Vandelli was first director of the Jardim Botânico da Universidade, Coimbra, from its founding in 1772 (or 1773?) until 1791. He was succeeded by the better known botanist Felix de Avellar Brotero (1744–1828), whose name is commemorated in the name of the Coimbra garden's bulletin, *Broteroa*. An examination of a copy of Vandelli's work (1788), in the Arnold Arboretum Library, shows that the re-publication of this rare volume by J. J. Roemer (Scriptores, pp. 67–164. 1796) is a *verbatim* textual copy and, as such, completely reliable. The original generic description of *Vismia* appears in Vandelli (1788) as shown in plate 1.

The illustration of the flower only, in his figure 24 which accompanies the original description, shows the petals about equal to the sepals, obovate, spotted, and ciliate all around. The illustration clearly fixes the generic identity of the plant Vandelli had before him, but its specific identity can hardly be determined because of its too generalized nature.

Vismia comprises the baccate-fruited species of *Hypericum*, including *Hypericum bacciferum*, mentioned in 1648 in Georg Marcgrav's *Historia naturalis Brasiliae*¹ (p. 96). In 1760 Jacquin proposed *Hypericum cayennense*, based on plants from French Guiana. In

¹ Published posthumously in a separately paged folio work by Willem Piso.

1775 Aublet described three additional species from French Guiana, *H. sessilifolium*, *H. latifolium* and *H. guianense*. J. B. C. Frisee Aublet (1720-1778) arrived in Cayenne on July 23, 1762, and remained two years collecting plants of the country as he had done during his previous nine-year sojourn in Mauritius. What is generally believed to be Aublet's principal herbarium is preserved at the British Museum (Natural History) and the *Vismias* contained therein have been studied by N. Y. Sandwith. A small collection of Aublet's uncovered at Carignan (Ardennes), France, apparently does not contain any *Vismia* types.²

In 1764 the elder Linnaeus³ published *Hypericum petiolatum*; it was credited to Brazil, but without citation of earlier references. Reichardt, who wrote the notable account of the genus for the Flora Brasiliensis,⁴ was unable to place *Hypericum petiolatum* L. *Hypericum petiolatum* L. is quite a different species, moreover, from the *H. petiolatum* of Linnaeus the Younger,⁵ a species based upon a collection, communicated by Mutis, which without doubt originated in Colombia. Authentic Mutis material is preserved in the United States National Herbarium and was studied in the preparation of this synopsis. *Hypericum petiolatum* L.f. is a homonym, however, and therefore not available for this Colombian species, which must be called *Vismia lauriformis* (Lam.) Choisy. A little later (1790), Loureiro used the name *Hypericum petiolatum* for the third time, quite independently and without any reference to the two separate uses of the name by Linnaeus, father and son, and he thus created a third homonym.⁶ Choisy was justifiably in doubt that Loureiro's name for a plant of southeast Asia concerned the Brazilian *Vismia* previously described as *Hypericum petiolatum* L. Merrill, in his "commentary" upon the binomials of Loureiro,⁷ refers *Hypericum petiolatum* Lour. to *Cratogeomys ligustrinum* (Spach) Blume (Guttiferae), as a synonym. In 1797 Lamarck added two more species to the genus under the generic name *Hypericum*, *H. rufescens* and *H. acuminatum*. In 1797 Ruiz and Pavon adopted the name *Vismia* and established two Peruvian species under that name, *V. glabra* and *V. tomentosa*.

¹ J. Lanjouw and H. Uittien, Rec. trav. bot. neerl. 37 1: 133-170. 4 pls. 1940.

² Sp. Pl. ed. 3. 1102. 1764.

³ 12 1: 210. 1878.

⁴ Supplementum 345. 1781.

⁵ Fl. Cochinch. 472. 1790 (Willd. reprint 577. 1793).

⁷ Amer. Philos. Soc. Trans. 24 1: 268. 1935.

Subsequent to 1800, additions to *Vismia* were made, either as transfers from *Hypericum* or as proposals under the name *Vismia*, by the following 23 botanists:

Persoon (1807)	Sagot (1880)
Poiret (1813)	Hieronimus (1895)
Choisy (1821)	Ruhland (1901)
Humboldt, Bonpland, and Kunth ⁸ (1822)	Huber (1901, 1906)
St. Hilaire (1827)	Sprague (1905)
Schlechtendal and Chamisso (1828)	Rusby (1912)
Martius (1828)	Blake (1918)
Miquel (1844, 1851)	Hochreutiner (1919)
Triana and Planchon (1862)	Engler (1925)
Turczaninow (1863)	Ducke (1939)
Reichardt (1878)	A. C. Smith (1939)
	Cuatrecasas (1946)

Jacques Denys Choisy, son of a minister in Geneva, studied under Augustus Pyramus de Candolle and prepared a thesis entitled "Prodrômus d'une monographie de la famille des Hypericineés," which was published in Geneva in 1821. The presentation copy to his master, now in the Conservatoire Botanique library, contains a letter from Choisy dated "1 Jan^r 1821," which would indicate that the "little work," as Choisy called it, was actually printed in 1820.

Engler summarized the genus in the second edition of Engler and Prantl's *Die natürlichen Pflanzenfamilien*,⁹ recognizing at that time the two sections in the genus founded by Reichardt in 1878, *Trianthera* and *Euvismia* (including *Stictopetalum*). N. Y. Sandwith, in his studies of the British Guiana flora,¹⁰ revived Miquel's name *Vismia angusta* for a species that was up to that time confused with either *Vismia latifolia* (Aubl.) Choisy or *V. macrophylla* H. B. K. Pierre Joseph Eyma, a student of Prof. A. Pulle, critically reviewed the Caribbean South American *Vismias* in the course of his doctoral thesis at the University of Utrecht.¹¹

British, French, and American botanists have remarked upon the need for realignment in the genus *Vismia*. A representative comment is that of L. A. M. Riley who has said that since "many of the old species [are] imperfectly known or misunderstood," the genus is in

⁸ Kunth wrote the botanical text of the *Nov. Gen. et Sp.* and perhaps should carry the credit alone, but for bibliographic purposes and in accordance with historical tradition it is desirable to use the well-established designation "H. B. K."

⁹ 21:185. 1925.

¹⁰ *Kew Bull.* 1931:174. 1931.

¹¹ *Polygonaceae, Guttiferae, and Lecythidaceae of Surinam*, 1932. cf. pp. 48-53. Reprinted in *Meded. Bot. Mus. & Herb. Utrecht* 4: 41-46. 1932. His tragic death is related by C. G. J. Van Steenis in *Bull. Bot. Gard. Buitenzorg*, ser. III, 18: 403-406. portr. 1950.

"urgent need of revision."¹² Sagot made in effect the same comment in 1880, and S. F. Blake wrote in 1918 that "the genus as a whole . . . is rather badly in need of a thorough revision."¹³

Though Adanson's characterization of the genus as *Caopia* in 1763 is clear and unmistakable, founded as it is on the references to Brazilian species in the works of Piso and Marcgrav, the generic name *Vismia* has been admitted to the *Nomina Generica Conservanda* of the International Code of Botanical Nomenclature, over the prior name *Caopia* of Adanson. *Vismia cayennensis* (Jacq.) Pers. was designated as the type species.

ECONOMIC USES

Vismia as a genus has no known commercial uses as a timber tree, since the boles are generally too small for lumber or of too poor quality for cabinet woods. However, some individuals of *Vismias* in Brazilian Amazonia attain a height of 25 meters. Among the Andean peasant farmers the genus is familiar as a conspicuous member of the second-growth woodland or along the borders of cleared land, where it may serve as an important species in erosion control because of its quick growth. It is also a tree of the lowland selva and occasional in the mountain rain forest. In both of these sites the trees flower more inconspicuously and lack the rather large panicles of bloom characteristic of trees growing in the open potreros. Certainly the large number of vernacular names for the genus attest to the familiarity of the trees among the natives over its wide range. Some of these folk names refer to the characteristic yellow or orange resinous sap which exudes rather freely from the cut stem. This resin is used in local folk medicines. The juice of the bark of *Vismia baccifera* is used in Boyacá, Colombia, by the Indians there to paint their faces (*teste* A. E. Lawrance). *Vismias* having the same vernacular name may be used for different purposes in different but adjacent regions. Thus, "swinani" was reported to be used as a fish poison by Pichoto, a Carib native, near Paramaribo, in November 1934 (W. A. Archer, Ms. report, p. 377, in files of U.S. Agricultural Research Service), whereas at Carolina, Surinam, "swinani" is not used as a fish poison but as a medicine (Dec. 16, 1934, W. A. Archer report). Perhaps it may be found that two different species of *Vismia* are involved here under the name "swinani." The bark of the *Vismia* is scraped and the juice used to cure "lota," a skin disease which Archer suggests may be of a fungal origin. Rudolf Graves, a gardener of Paramaribo, Surinam, reported to Archer that "pina" was used as a fish poison there, the bark being scraped into the water. The orange

¹² Kew Bull. 1925:134. 1925.

¹³ Contrib. Gray Herb. 53:42. 1918.

POLYADELPHIA.

— *aurantinum* * *Larangei-
ra*.

Vis. *fruct.* Corrobo-
rans, anthelmintica,
pellens.

POLYANDRIA.

VISMIA. Fig. 24.

CAL. Per. coriaceum, mo-
nophyllum, inferum, 5-
partitum, persistens,
foliolis ovato-acutis,
concavis.

COR. Petala 5, ovata,
intus pilosa.

STAM. filamenta plura in
5 phalanges s: corpora
connata, brevia, plana
incurva, apice multifida,
filamentis capillaribus,

villosis: *Antherae* pluri-
mae, subrotundae facie
externa filamenti spi-
rae instar dispositae, s:
secundae.

Nectaria corpuscula s:
Glandulae 5. ovatae, pi-
losae inter phalanges.

PIST. Germen subrotun-
dum. *Styli* 5. filiformes.

Stigmata peltata.

PER. Capsula 5-ocularis,
pentagona.

SEM. plurima. B.

Hypericum androsaemum.

— *quadrangulare*.

— *perforatum*. *Iperica* ♂.

Vis. vulneraria, resol-
vens, anthelmintica.

— *humifusum*.

— *crispum*.

— *montanum*.



Vismia macrophylla
H.B.K. 1792

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...
...

VISMIA MACROPHYLLA H. B. K.



9165

Vismia parviflora W.
Wright & S. Wats.

Vismia parviflora Schlecht. & Cham.

Typus!

VISMIA PARVIFLORA SCHLECHT. AND CHAM.



VISMIA RUFESCENS (LAM.) PERS. — PETIOLATE FORM OF V. SESSILIFOLIA

TYPE COLLECTED BY
AMERICAN BOTANICAL SOCIETY (1912)
COLUMBIA UNIVERSITY
NEW YORK



VISMIA SESSILIFOLIA (AUBL.) DC.

TYPE COLLECTOR
Cycas latifolia Aublet (Vismia)
Kuhn.
V. Aublet.
Negative of U.S. Nat. Herbarium



Type Specimen

VISMIA LATIFOLIA (AUBL.) CHOISY



VISMIA BILLBERGIANA BEURL.

latex of *V. baccifera* subsp. *ferruginea* is said to color fabrics with a fast color called "carate colorado" (*teste* F. R. Fosberg).

VERNACULAR NAMES

Some of the more frequent vernacular names applied to species of *Vismia* though without significant constancy for any one species include the following:

achiotillo (Venezuela, Colombia, etc.)	lacre (Amazonian drainage)
bloodwood (British Guiana)	pichirina (northern Peru)
caopia (Brazil)	punta de lanza (Colombia)
caparosa (Orinoco drainage)	sangrito (Venezuela), Colombia
capianga (State of Bahia, Brazil)	swinani (Carib name)
carate (Colombia)	

Additional vernacular names will be found in the text below and in S. J. Record and R. W. Hess's "Timbers of the New World," p. 186. 1943.

GENERAL MORPHOLOGY AND DESCRIPTIVE TERMINOLOGY

LEAF: The leaf-blades of *Vismia* species vary from thick, shining but concolorous structures on short stout petioles to thin-textured, deltoid, long-petiolate blades with a strongly bifacial aspect. The blades are mostly plane but may at times be plicate. Drip-tips are well developed in forms of *Vismia cayennensis*. The secondary veins may be weak to strongly impressed, camptodrome or simply diminishing towards the margin. Dot-like glands may be borne singly and centrally within an areole of fine veins, two or more may occur within an areole, or they may be absent altogether. There is no correlation between glandular-punctate leaves and vittate sepals or petals occurring together within a given group of species. When a leaf-blade is glabrous both above and beneath it is described as amphiglabrous, a term introduced in my studies of *Delphinium* (Univ. Colorado Stud. ser. D. 2:78. 1945) and employed in my revision of *Macrocarpaea* and elsewhere. The comparative anatomy of the leaves of *Vismia* species should prove an engaging study.

FLOWER: The inflorescence of *Vismia* is generally paniculate, but the panicle may be supplemented by lateral few-flowered axes borne in the upper leaf-axils. In *Vismia cauliflora*, the flowers are borne directly on the stems on short stalks. The sepals often have a scarious flange-like margin. The petals are generally comose within and glabrous on the back; there may be dark glands on one or both surfaces of the petals, called vittae, in which case the members are described as vittate. The androecium provides the fundamental basis for distinguishing subgeneric groupings. The stamens are connate for about half their length into what I have called a stamen

column ("staminal bundle" of Eyma,¹⁴ "androphora" of Bentham,¹⁵ or "phalange" of Reichardt¹⁶). The stamen column may persist as an almost wire-like stiff structure in old flowers, but usually shrivels after anthesis. The ovoid or globose anthers are included and dehisce longitudinally. The ovary does not offer significant differences usable in taxonomy. The five styles are generally coherent but may at times spread like antennae.

FRUIT: *Vismia baccifera* attracted the attention of the early systematists by its heavy, fleshy, smooth-coated fruits, which led to the recognition of the genus as distinct from the capsular-fruited *Hypericums*. But most *Vismias* have rather inconspicuous spherical to oblong berries with shriveled walls, these sometimes vittate with wart-like epidermal appendages but usually unmarked.

Systematic Treatment

Genus *Vismia*

Hypericum pro parte, sensu Jacq. (1760), L. (1764), L.f. (1781), Lamarck (1797).

Caopia Adans. Fam. 2:448. 1763.

Caspia Scop. Intr. 276. 1777.

Vismia Vandelli, Fl. Lus. Bras. Spec. 51, t. 3, fig. 24. 1788, *nomen conservandum*.

Acrossanthes Presl, Bot. Bemerk., in Abhandl. Boehm. Gesell. Wiss. V, 3:452. 1845.

Trees or shrubs, often with orange sap; leaves opposite, the blades oblong or narrowly ovate to deltoid-ovate, acute to truncate or cuspidate, short- to long-petiolate, exstipulate, glabrous or stellulate-tomentose, sometimes ferruginously so, punctate-glandular or without glands, sometimes lustrous on both surfaces; inflorescences terminal, simply paniculate or corymbose-paniculate or with supplementary lateral floriferous branchlets, or at times altogether lateral; sepals generally ovate, more or less prominently scarious margined; petals equaling or exceeding the sepals, often oblanceolate and densely comose within with matted hairs, the petal-blades lineate, vittate, or eglandular, glabrous on the back; stamens numerous, included, more or less united half their length into 3 or 5 staminal columns, the stamens tardily deciduous or persistent into fruiting stage, the anthers globose or ovoid; ovary 5-celled, each locule with numerous, seldom few ovules; styles 5, more or less free, at times prominently spreading in age; stigmas capitate or subcapitate; fruit a berry, the pericarp thick and fleshy or thin and withering, dark brown or blackish, some-

¹⁴ Eyma in Pulle, Fl. Surinam 3:66. 1934.

¹⁵ Hooker, London Journ. Bot. 2: 371. 1843.

¹⁶ Mart. Fl. Bras. 12^o: 195. 1878.

times vittate with black scab-like glands, the calyx usually persistent on the fruits.

TYPE (i.e. Standard Species): *Vismia cayennensis* (Jacq.) Pers.

Key to the Species

Flowers borne in sessile glomerules along the stems; leaf-blades pandurate-obovate, large, 35–65 cm. long **1. *V. cauliflora***

Flowers paniculate; leaf-blades seldom as much as 35 cm. long.

Stamen column villous or comose, persisting as a stiff spreading appendage after flowering; leaf-blades shallowly cordate at base (or merely rounded in *V. lateriflora* and at times in *V. angusta*), the veins prominently raised beneath **SUBKEY A**

Stamen column not villous, or if hairy then soon deciduous after flowering; leaf-blades not cordate at base, the veins not very strongly raised beneath.

Flowers small, inconspicuous, usually very numerous (50–150 in an inflorescence or more, or only 5–8 in *V. billbergiana*); sepals less than 5 mm. long, often less than half as long as the petals; inflorescence shorter than the uppermost subtending leaves and hidden by them; leaf-blades finely black-glandular-dotted beneath (except in *V. rufa*) **SUBKEY B**

Flowers larger, generally fewer (mostly 40–80 in an inflorescence, or more numerous in *V. tomentosa* and *V. lehmannii*); sepals 5 mm. long or more, at least half as long as the petals; inflorescence generally exceeding the uppermost leaves or not hidden by them; leaf-blades with or without glandular dots on the lower surface.

Leaf-blades glabrous or glabrate on both surfaces (the immature blades sometimes puberulent in *V. lauriformis*); sepals 5–6 mm. long, spreading or reflexed in fruit (cf. also *V. amazonica* and *V. pentagyna*).

SUBKEY C

Leaf-blades variously pubescent beneath, varying from felty-tomentose to merely cinereous with a fine close puberulence under a lens (cf. also *V. rusbyi*); sepals 7–10 mm. long, more or less erect in fruit (5 mm. long in *V. amazonica* and *V. pentagyna*) **SUBKEY D**

SUBKEY A

Rachises of the panicle only sparsely tomentulose with scattered flocs of stellate hairs or subglabrous; leaves subglabrous or sparsely dark-tomentulose beneath, the tomentum not obscuring the fine sessile black dot-like glands, the blades usually lustrous above **2. *V. macrophylla***

Rachises of the panicle densely rufous-tomentulose throughout; leaves more or less copiously rufous-tomentulose beneath, the tomentum obscuring the glands (if these are present), the upper surface dull.

Rachises and upper stems heavily rufo-pubescent with long, much-branched hairs; leaf-blades both apiculate at apex and acute at base, long-petiolate.

3. *V. sandwithii*

Rachises pubescent but the hairs simple, rarely much-branched; leaf-blades either apiculate at apex or acute at base but not both, rarely long-petiolate.

Panicles terminal, ample, openly branching; leaf-blades cordate at base, thick, the principal nerves prominently raised beneath; petals comose, the hairs matted, wholly obscuring the blade of the petal . **4. *V. angusta***

Panicles axillary (sometimes both axillary and terminal, rarely terminal alone), congested, compactly branching; leaf-blades truncate or subcordate at base, rather thin-textured, the principal nerves conspicuous but not raised beneath; petals ciliate-comose, the hairs not usually obscuring the blade of the petal **5. *V. lateriflora***

SUBKEY B

Panicle cymose, few-flowered (5-8); leaf-blade apiculate, the cusp 1 cm. long. **30. *V. billbergiana***

Panicle racemose, generally more than 8-flowered or if fewer then not cymose; leaf-blade acute but not strictly apiculate.

Under-surface of the leaves rich ferruginous-tomentose; sepals about 4 mm. long, felty-tomentose; stamen column very short, only 1.0-1.5 mm. long; leaves felty-tomentose beneath, not finely black-glandular . . **6. *V. rufa***

Under-surface of the leaves variously puberulent but never ferruginous-tomentose; sepals mostly 1.5-2.0 (3.0) mm. long, not felty-rufous-tomentose; stamen column more than 2 mm. long; leaves finely black-glandular beneath.

Each stamen column bearing 3 or 5 stamens; leaf-blade ovate, lance-ovate, or broadly ovate, hairy along the veins beneath; sepals without glands. Stamen column triandrous; leaf-blades acute at base, hairy chiefly along the veins beneath; fruit globose, coal-black, small (less than 5 mm. in diameter) **7. *V. micrantha***

Stamen column pentandrous; leaf-blades rounded or subcordate at base, puberulent over the whole blade beneath with short, crisp, white hairs; fruits ovoid, dull black, larger (more than 5 mm. in diameter).

8. *V. brasiliensis*

Each stamen column bearing numerous stamens; leaves lanceolate to oblong-lanceolate, not hairy along the veins beneath; sepals bearing glands. Sepals 3- to 5-nerved, punctate with a few scattered black, dot-like glands; petioles 10-12 mm. long **9. *V. parviflora***

Sepals with a single median raised confluent black gland; petioles 2-4 mm. long **10. *V. minutiflora***

SUBKEY C

Principal leaf-blades mostly (3) 7-12 cm. wide; petals 8-14 mm. long, mostly twice as long as the sepals or more (except in glabrous forms of *V. lauriformis*).

Sepals perfectly glabrous even in bud (rarely hairy at the tips); leaf-blades 3-7 cm. wide, ovate, less often lanceolate, acute at base, shining beneath.

43. *V. sprucei*

Sepals finely pubescent on the back; leaves 7-12 cm. wide, dull beneath.

Leaf-blades lance-ovate, acute at base; flowers not at all showy, the petals 5-7 mm. long; glabrous form of **25. *V. lauriformis***

Leaf-blades broadly ovate or ovate-oblong, rounded at base; flowers sometimes rather showy, the petals 7-9 (14) mm. long.

Leaf-blades ovate-oblong, often punctate, thin-textured, commonly wrinkling in drying, the veins prominently arcuate, the secondary veins 6-10 pairs.

Petals 11-16 mm. long, very finely lineate for their whole length, sparsely vittate toward the tips; sepals 8-9 mm. long, the hyaline margin nearly obsolete; panicles always terminal . . . **23. *V. cuatrecasasii***

Petals smaller, 7–10 mm. long, black-glandular toward the tips but not finely lineate; sepals 4–5 mm. long, the hyaline margin distinct; panicles either terminal or lateral 42. *V. obtusa*

Leaf-blades broadly ovate, not punctate, firm-textured; veins anastomosing at the margin, inconspicuously if at all areolate, with usually 12 pairs of secondary veins or more.

Leaf-blades usually less than 15 cm. long, acuminate at apex, brownish, golden or silvery beneath, more or less contrasting with the green upper surface; petals glanduliferous 24. *V. baccifera*

Leaf-blades usually 15–20 cm. long, abruptly acute at apex, sooty or ashy beneath, hardly contrasting with the dark olive-green upper surface; petals not glanduliferous, usually merely vittate or dark lineate 41. *V. confertiflora*

Principal leaf-blades mostly less than 5 cm. wide; petals less than 8 mm. long, about half again as long as the sepals.

Sepals rusty or ashy with a close felt-like tomentum on the back (cf. also *V. glabra* with often thinly floccose-hairy buds); leaf-blades lanceolate, gradually acuminate, pinnately veined or areolate; petioles 1–2 cm. long.

Leaf-blades areolate-veined, thin-textured, dull on the upper surface, ovate. 36. *V. glaziovii*

Leaf-blades pinnately veined, firm-textured (usually not folding or wrinkling in drying), shining or dull above, generally lanceolate, often narrowly so.

Leaf-blades acute or acuminate, dull or less often shining and dark green on the upper surface; panicle not compact-pyramidal; widespread species 27. *V. guianensis*

Leaf-blades often shortly cuspidate, lustrous upper surface; panicle compact-pyramidal; eastern Brazil 35. *V. reichardtiana*

Sepals glabrous on the back (sometimes tomentulose in *V. plicatifolia*); leaf-blades ovate or lanceolate, the veins usually prominently areolate; petals always vittate-glandular outside; petioles 1 cm. long or less (1.0–1.5 cm. long in *V. glabra* subsp. *pozuzoensis* and *V. laevis*).

Leaf-blades lanceolate to oval, long-acuminate or merely acute but not apiculate, plane; fruit ovoid to fusiform, tapering to often persistent styles.

Leaf-blades 5–7 cm. wide, acute, coriaceous, the midrib stout; branchlets stout, stiffly spreading, the knoblike joints of pedicels prominent. 18. *V. laevis*

Leaf-blades 3.5–4 cm. wide, long-acuminate, firm but hardly coriaceous, the midrib not prominent; branchlets slender, the pedicels inconspicuously jointed.

Leaves spreading, the blades lanceolate, shortly acute or rounded at base; petioles 6–10 mm. long 19. *V. glabra* subsp. *glabra*

Leaves ascending, the blades oval, cuneate at base; petioles 10–15 mm. long 19a. *V. glabra* subsp. *pozuzoensis*

Leaf-blades ovate, shortly acute or apiculate, plane or plicate; fruit oblong to subglobose.

Tree 3–10 (35) m. high; internodes not noticeably short; leaves only moderately if at all plicate, generally markedly glandular-punctate beneath, the 1 to few black dot-like glands prominent within each areole 17. *V. cayennensis*

Shrub or low tree 2–3 m. high; internodes short; leaves strongly plicate, usually finely glandular-punctate beneath, the glands rather faint in the areoles 20. *V. plicatifolia*

SUBKEY D

- Calyx gibbously enlarged below, constricted above, the sepals all erect, the alternate sepals prominently hyaline-margined; petals included, short, 5-7 mm. long, tardily expanding **15. *V. urceolata***
- Calyx not urceolate; petals distinctly longer than the sepals, expanding early.
- Sepals broadly deltoid, 6-8 mm. wide at base, thick, proportionately narrowly hyaline-margined, hard or corky-ribbed in fruit; flowers few, mostly 5-12 in a rather compact short-pedunculate panicle **12. *V. japurensis***
- Sepals oblong or ovate, not deltoid; panicle more than 15-flowered or if fewer-flowered then not compact.
- Membranous border of sepals conspicuous, wide, ciliolate; sepals 5 mm. long. **40. *V. amazonica***
- Membranous border of sepals inconspicuous or if evident then not ciliolate; sepals 7-10 mm. long.
- Panicle freely and shortly branching, diffuse, with supplementary short lateral upper clusters, ample, 100-140-flowered.
- Sepals felty-tomentose, the tomentum dense dark chocolate-brown; flowers 10-12 mm. long; leaf-blades 18-24 cm. long, 10-13 cm. wide, the lower surface rich red-brown, finely hairy (under a lens) with discrete rufous hairs **29. *V. tomentosa*** forms
- Sepals pale- or yellow-green-pubescent; flowers 8-9 mm. long; leaf-blades 9-15 cm. long, 5-7 cm. wide, the lower surface silvery or yellowish, cinereous-puberulent beneath **22. *V. lehmannii***
- Panicle not both freely and compactly branching or if so then less ample, fewer than 100-flowered, the flowers generally 10 mm. long or more. Uppermost floral leaves reduced (except in *V. tomentosa* and *V. mandurr*).
- Outer surface of sepals permanently felty with a thick tomentum (cf. also *V. lateriflora*); petioles of even the uppermost leaves noticeably long (1-2 cm. long); sepals of fruiting calyx reflexed (spreading in *V. panamensis*).
- Leaves permanently felty-tomentose, thick-textured; sepals tomentose with a thick raised dark chocolate-brown tomentum.
- Leaf-blades narrowly lanceolate or oval, acuminate, 3-5 cm. wide, waxy-shining above, the veins obscure beneath . **32. *V. crassa***
- Leaf-blades ovate to broadly ovate, shortly acute, 6-11 cm. wide, dull above, the veins prominent beneath, areolate. **29. *V. tomentosa***
- Leaves more or less densely tomentose beneath when young, thinly tomentose in age, thinner in texture and wrinkling; sepals tomentose with an appressed brown or gray tomentum.
- Leaf-blades gray-tomentulose beneath, oval to elliptic, acute at base; pubescence of rachises and pedicels straw-colored; panicle cymose, compactly branching, with 3 axes or more. **26. *V. mandurr***
- Leaf-blades reddish-tomentulose beneath, ovate to oblong-ovate, rounded at base or if acute not also cinereous; pubescence of rachises and pedicels rufous; panicle more or less pyramidal with one principal axis.
- Flowers large, the petals nearly twice as long as the sepals, 14 mm. long, 5-6 mm. wide; leaf-blades 15-18 cm. long, glossy above; endemic species of central Colombia. **28. *V. cavanillesiana***

Flowers much smaller, the petals little exceeding or at most 1.5 times as long as the sepals; leaf-blades 7-12 cm. long or if 15-18 cm. long or more then not glossy above.

Leaf-blades 12-22 cm. long, 6-10 cm. wide; petals hardly exceeding the sepals; lowland forest of Pacific coast of Panama and northern South America.

14. *V. panamensis*

Leaf-blades smaller, 7-12 cm. long, 5-8 (10) cm. wide; petals 1.5 times as long as the sepals; species of eastern Brazil.

Leaf-blades broadly ovate, shortly acute; margins of calyx-lobes vittate with black glands; panicle subtended by many small supplementary leaves . . . **33. *V. martiana***

Leaf-blades oval to narrowly ovate, acuminate; margin of calyx-lobes without glands; panicle subtended by few if any small supplementary leaves . **34. *V. magnoliifolia***

Outer surface of sepals glabrous to variously puberulent but never with a thick felt-like tomentum, the veins or wrinkles clearly visible beneath the pubescence (cf. also *V. mandurr*); petioles mostly less than 1 cm. long (longer in *V. baccifera*); sepals of fruiting calyx spreading or appressed against the fruit (except in *V. baccifera*).

Mature leaf-blades 3-6 (8) cm. wide.

Leaves densely rufous-tomentose beneath with stellate or branched hairs at least when young.

Leaf-blades broadly ovate, shortly acute; margins of calyx-lobes black-glandular-vittate; panicle foliose . . . **33. *V. martiana***

Leaf-blades narrowly ovate, acuminate; margins of calyx-lobes without glands; panicle without supplementary leaves.

34. *V. magnoliifolia*

Leaves all merely cinereous or yellowish with a close puberulence beneath, sometimes appearing glaucous (reddish tomentulose in forms of *V. lauriformis*).

Branches of the panicle glabrous, puberulent, or with occasional flocs of short-branched hairs; leaf-blades ovate, elliptic- or lance-acuminate, the petioles slender.

Principal leaf-blades ovate to ovate-elliptic, rather abruptly acuminate, sometimes plicate, not at all falcate; sepals of the fruiting calyx strongly reflexed.

Petals not vittate; leaves strongly bicolored, dull above, conspicuously glandular-punctulate beneath.

37. *V. rusbyi*

Petals vittate; leaves not strongly bicolored, shining above, not punctulate (or obscurely so on the youngest blades), appearing more or less glaucous beneath.

38. *V. pentagyna*

Principal leaf-blades lance-acuminate, more or less long-tapering to a slender tip, not at all plicate; sepals of the fruiting calyx spreading.

Leaf-blades more or less falcate, dull above, glandular-punctulate beneath; petals black-glandular-vittate.

16. *V. falcata*

Leaf-blades ovate or narrowly lanceolate, not at all falcate, lustrous above, not punctulate beneath; petals not glandular-vittate.

Panicle many-flowered, compact-pyramidal; veins closed-areolate, distinct; petals densely villous-tomentose within 35. *V. reichardtiana*

Panicle few- and loosely-flowered; veins not areolate or weakly so; petals only thinly tomentose within.

39. *V. buchtienii*

Branches of the panicle ferruginous-tomentose throughout with branched hairs; leaves elliptic or lanceolate, not falcate, the petioles generally short, rather stout.

Leaf-blades oval or elliptic, 8–12 cm. long, 5–8 cm. wide, acute or abruptly acuminate, rather prominently areolate; fruit usually oblong, the sepals spreading to strongly reflexed.

Leaf-blades tapering equally at both ends or only shortly acuminate, strictly elliptic, 5–6 cm. wide; petioles 1–1.5 cm. long; sepals in fruit strongly reflexed.

31. *V. lindeniana*

Leaf-blades rather rounded at base, acuminate at apex, 6–8 cm. wide; petioles less than 1 cm. long; sepals in fruit spreading or somewhat reflexed . . . 11. *V. sessilifolia*

Leaf-blades lanceolate, 8–12 cm. long, 3.5–4.5 cm. wide, tapering to an acuminate apex, not prominently areolate; fruit globose, the sepals not strongly reflexed.

21. *V. viridiflora*

Mature leaf-blades mostly broader, 7–13 cm. wide.

Leaves finely but densely punctate with minute dots . . . 13. *V. latifolia*

Leaves not punctate beneath.

Leaf-blades uniformly rufous-tomentose beneath with stellate or branched hairs at least when young . . . 34. *V. magnoliifolia*

Leaf-blades all merely cinereous or yellowish puberulent beneath (or thinly tomentulose in *V. baccifera*).

Flowers not at all showy, the petals 5–7 mm. long; leaf-blades lance-ovate, acute at base, yellowish or cinereous beneath with a very fine close puberulence . . . 25. *V. lauriformis*

Flowers rather showy, the petals 9–10 mm. long (7 mm. in *V. baccifera* subsp. *subcuneata*); leaves mostly broadly ovate (narrowly ovate in *V. baccifera* subsp. *ferruginea*), subtruncate or rounded at base, ferruginous, cinereous or canescent beneath.

Leaf-blades uniformly acuminate, tomentulose beneath with fine but discrete stellate hairs (as seen under a lens); petals glanduliferous with irregular black dot-like or welt-like glands 24. *V. baccifera*

Leaf-blades abruptly acute at apex, cinereous-puberulent beneath with minute simple hairs; petals usually non-glandular, often evenly lineate with fine dark lines extending to the tips of the blades . . . 41. *V. confertiflora*

1. *Vismia cauliflora* A. C. Smith, Journ. Arn. Arb. 20: 299. 1939.

TYPE: Along the road to Aleixo, Munic. Manaus, basin of Rio Negro, Amazonas, Brazil, *Krukoff* 7947 (NY; isotypes, A, BM, G, K, MO, S, U). Paratype from Livramento, Munic. Humaytá, basin of Rio Madeira, Amazonas, Brazil, *Krukoff* 6976 (A; dupl. paratypes, BM, G, K, S, U, US).

ADDITIONAL SPECIMENS EXAMINED:

BRAZIL: AMAZONAS: Colonia João Alfredo, Manaus, *Ducke* 930 (US); Estrada do Aleixo, *Ducke* 25055 (K).

Shrub-like tree 4–8 m. high, often with few, short branches. In some particulars this *Vismia* is the most distinctive species in the genus, though evidently rarely collected. Its affinities are clearly with *V. angusta*, but, as *Ducke* has commented,¹⁷ the sessile glomerate inflorescence alone would easily separate it from all other species. The striking leaves with blades measuring up to 65 cm. long, or longer than originally described, display an unusual shape recalling those of *Ficus lyrata* (*F. pandurata*); they are evenly narrowed for their lower half and shallowly cordate at the very narrow base. The common name is reported as "lacre."

2. *Vismia macrophylla* H. B. K. Nov. Gen. & Sp. 5: 184. 1822. PLATE 2

Caopia macrophylla Kuntze, Rev. Gen. Pl. 1: 59. 1891.

V. macrophylla var. *glabrescens* Hochr. Ann. Cons. Jard. Genève 21: 53. 1919.

Type from "Prope San Gabriel de Cochoeira, ad Rio Negro, Brasiliae borealis," *Spruce*, Jan.–Aug. 1852 (isotypes, BM, E, F, FI, Boissier at G, NY, P, TCD, W).

TYPE: Banks of Río Cassiquiare, Amazonas, Venezuela, *Humboldt & Bonpland* (P; isotype B, numbered 1151, Photo FM 9497); cf. *Sandwith*, Kew Bull. 1931: 174.

ADDITIONAL SPECIMENS EXAMINED:

SURINAM: Tawa Creek, Saramacca River headwaters, *Maguire* 23766 (NY, U, US); Groningen, 10 May 1916, *Samuels* (US).

BRITISH GUIANA: Aruka River, Barima, *Anderson* 40 (NY); Waini River, Northwest District, *de la Cruz* 3841 (NY, UC, US); Kamakusa, Upper Mazaruni River, *de la Cruz* 2115 (UC, US), 2383 (US), *Jenman* 5324 (BM, NY); Rockstone, *Gleason* 480 (US), 551 (US); Potaro River, Tumatumari, *Gleason* 340 (US); Essequibo River Basin, *A. C. Smith* 2162 (U, US); Barima River, *de la Cruz* 3382 p.p. (US); Upper Rupununi River, *de la Cruz* 1446 p.p. (US), 1744 (US); Malali, Demarara River, *de la Cruz* 2614 (UC, US); sand reef at head of Hoorubia Creek, southeast of Georgetown, *Hitchcock* 16950 (S, US); Demerara River, *Jenman* 5035 (BM); Good Hope, *Persaud* 44 p.p. (F); Berbice, *Schomburgk* 405 p.p. (CGE, F, FI, OXF, W); Kabakaburi, Pomeroon District, *de la Cruz* 3255 (NY, UC, US).

VENEZUELA: ZULIA: Río Lora, *Pittier* 10961 (US). TÁCHIRA: San Félix, *Curran & Haman* 1011 (US). BOLÍVAR: Río Karuai, west of La Laja, 1220 m., "minchu-warei-yek," *Steyermark* 60784 (F, US); wooded slopes of Quebrada O-paru-má, between Santa Teresita de Kavanayén and Río Pacairao, 1065–1220 m., *Steyermark* 60434 (US); Roraima, *Schomburgk* 560 (P), 815 (BM, W). AMAZONAS: San Carlos, 100 m., *Holt & Gehriger* 331 (US).

COLOMBIA: BOLÍVAR: Palotal, *Romero C.* 1158 (US). SANTANDER: Quebrada Angulo, 4 km. south of Lebrija, 955 m., *St. John* 20589 (NO, US). META: Near junction of Río Güejar and Río Zanza, Cordillera Macarena, 500 m., *Smith & Idrobo* 1464 (US); 20 km. southeast of Villavicencio, *Killip* 34245 (US); Cano Ciervo, Sierra Macarena, 600 m., *Philipson et al.* 2088 (US). VAUPÉS: Mitú, Río

¹⁷ *Arquiv. Serv. Florest.* 1: 34. pl. 13, figs. a, b. 1939.

Vaupés, Cuatrecasas & Pérez-Arbeláez 6750 (NY). CAQUETÁ: Solano, near Tres Esquinas, Little 9783 (NO, US). AMAZONAS: Leticia, Schultes & Black 46-317 (US). CHOCÓ: Darien region, Dawe 871 (K); Palestina, Río San Juan, 5-50 m., Cuatrecasas 16903 (US).

BRAZIL: AMAZONAS: Ega, Poeppig 2905 (F, W); along Rio Castanho, tributary of Rio Padauri, Upper Rio Negro Basin, 100-140 m., Cardona 1418 (US); São Paulo do Olivença, "laere," Ducke 392 (A, F, US); San Gabriel de Cachoeira, Spruce (F, NY); Cachoeira Caranguejo, Rio Canabury, Holt & Blake 537 (US). MATO GROSSO: Rio Jatuarana, Rio Machado region, Krukoff 1692 (A, S).

Vismia macrophylla was widely misunderstood up to Sandwith's commentary on the species (Kew Bull. 1931: 174), in which he pointed out that Hochreutiner had misinterpreted the species and introduced a var. *glabrescens* "which agrees well with the type [of *V. macrophylla*]." The two sheets of the Spruce collection that served as the basis of var. *glabrescens* show the distinct black punctate glands of the lower leaf surface and the thinly tomentulose rachis of the panicle of *Vismia macrophylla*.

"Oralli" is the forester's name for *Vismia macrophylla* in British Guiana and one collection (Mazaruni Station, Fanshawe F627, US) is annotated "low branchy tree peculiar to swampy savannahs on white sand where it is co-dominant with *Tabebuia longipes*."

A West Indian collection of this species labeled in Walker Arnott's hand merely "St. Vincents (Dr. Hooker)" in the Glasgow Herbarium is almost certainly a cultivated specimen grown at the botanic garden on the island and communicated by Rev. Lansdowne Guilding to W. J. Hooker with whom he was in active correspondence.

The Triana collection "8," February 1856, from Llano San Martín, Villavicencio, Meta, Colombia, 400 m. (BM) cited by Triana and Planchon¹⁸ as *Vismia macrophylla*, represents the extreme form of this species. Triana's No. "7" from the same locality is very puzzling, combining as it does the flower characters of *V. macrophylla* with the leaf shape and vestiture of *V. baccifera* subsp. *dealbata*. On the other hand Fendler 8, from Chagres, at the mouth of the Chagres River, now in the Panama Canal Zone, represents a less frequent intermediate phase between this species and true *Vismia latifolia*. This Fendler collection is the basis of Sprague's doubt as to the correctness of Triana and Planchon's interpretation of *V. macrophylla*. But, judging from a photograph, Fendler 8 closely approaches the isotype collection (formerly at Berlin, but destroyed in World War II) in leaf shape, panicle characters, and the rather strong nervation. In many characters these collections stand between *Vismia angusta* and *V. macrophylla* and were it not for their fascicled stamens might be taken for a variant of *V. tomentosa*.

Two Brazilian collections, Ducke 1068 (NY, US), and Corner 63 (NY), from the vicinity of Manaus, Amazonas, are unique in the

¹⁸ Ann. Sci. Nat. IV. Bot. 17: 306. 1862.

abundance and character of the pepperlike black dot glands on the lower leaf-surfaces, which in these collections are so prominent as to show clearly through to the upper surface. The leaves furthermore are of an unusually thin texture for this species.

3. *Vismia sandwithii* Ewan sp. nov.

Arbor parva vel frutex 5 m. altus vel minus, ramis superioribus firmis subquadrangularibus, dense rufo-tomentosis, rache atque ramis conspicue subpannatis; laminis foliorum oblanceolatis vel obovatis, basi cuneatis vel vix cordatis, apice apiculatis vel caudatis, subtus atropunctatis, tomentosis, venulis supra subglabris, nitentibus, 18–30 cm. longis, 7–10 cm. latis; petiolis crassis, 1–2 cm. longis, rufo-tomentosis; paniculis compactis atque breviter ramosis; sepalis oblongis breviter acutis, 5–6 mm. longis, viridi-rufidulis dense tomentosis, intus viridescens, atro-vittatis; petalis oblongo-spathulatis, breviter acutis, ochroleucis, atro-vittatis, intus dense comosis; staminibus ad anthesin conspicuis filamentis persistentibus; fructibus immaturis conico-ovoideis, 1 cm. longis.

Small tree or shrub to 5 m. high, the upper branches stout somewhat quadrangular, densely, almost velvety rufous-tomentose with long, branched hairs; upper leaves little if at all reduced below the panicle and surpassing it, all the blades strongly bifacial, dark green, subglabrous and shining above, light green below, sparsely rufous-tomentose but densely so along the veins, the blades oblanceolate or obovate, apiculate at tip or even caudate, acute at base or at most weakly cordate, 18–30 cm. long, 7–10 cm. wide, the submarginal veins well-defined; petioles stout, 1–2 cm. long; panicle compact, shortly branching, 6–9 cm. long, the rachis and branches densely rufous-tomentose; sepals oblong, shortly acute, 5–6 mm. long, densely rufous-tomentose becoming greenish in fruit, greenish within, black-vittate; petals oblong-spatulate, acute, pale cream, densely comose on face, black vittate on back; stamen column conspicuous at anthesis, becoming indurated in fruit; immature fruit conic-ovoid, 1 cm. long, "pale green, brown-dotted."

Type in the Royal Botanic Garden Herbarium, Kew, collected at Mahdia River, Potaro River, 107 miles on the Bartica-Potaro road, British Guiana, 8 January 1943, by an unrecorded collector for the Forest Department of British Guiana (no. 3726); isotype in the New York Botanical Garden.

PARATYPES:

BRITISH GUIANA: Mahdia River, Potaro River, Jan. 21, 1943 (fruit), *Forest Dept. B.G.* 3805 (K, NY); 111 miles Potaro River Road, May 10, 1952, *Forest Dept. B.G.* 6480 (K,U).

Vismia sandwithii is clearly an extreme morphological development of the *V. macrophylla-angusta* alliance. The bifacial leaves, their shape, venation, and apiculate tips are suggestive of *V. sessilifolia* and so this plant may prove to be a hybrid between that species

and *V. macrophylla*. Then too, the large floral leaves subtending the compact and at times lateral panicles suggest *V. lateriflora*. Although *V. macrophylla* and *V. angusta* represent "exceedingly variable populations" (cf. Maguire, Bull. Torrey Club 75: 417, 418. 1948), I am not including *V. sandwithii* within them because of its possible hybrid origin involving genetic relationships with *V. sessilifolia* as well as with *V. macrophylla*, and because of the extreme nature of its sepal, leaf, and pubescence differences. *Vismia sandwithii* is a small local population of coastal British Guiana where it has been described as a "very common" small understory tree or shrub in second-growth forest. One collection, (*Forest Dept. B.G.* 6480) mentions its growing on "ironstone gravel," another (3805), on "white sand," and the type collection (3726), "of all [types of] soils."

It is appropriate to associate this British Guiana *Vismia* with Noel Yvri Sandwith, of the Royal Botanic Gardens, Kew, who has botanized in British Guiana and who published on this genus in 1931, and who in many ways has assisted me in the present revision.

4. *Vismia angusta* Miq. *Linnaea* 18: 27. 1844.

?*Hypericum reticulatum* Poir. in Lam. *Encycl. Suppl.* 3: 694. 1813. Type from Cayenne, no collector designated, in Desfontaine Herb. at Paris. Sagot reports the Poiret type as consisting of a single leaf with no record of the country of origin. Sagot's drawing and short memorandum of the lost type, examined at Paris, are not sufficient to affect the rejection of Poiret's name as a *nomen dubium*.

?*V. reticulata* Choisy, *Prodr. Monog. Hyper.* 34. 1821.

V. macrophylla sensu Benth. in Hook. *London Journ. Bot.* 2: 371. 1843. as, for example, *Schomburgk* 405 (K); non H.B.K.

V. latifolia sensu Reich., in Mart. *Fl. Bras.* 12¹: 208. *t.* 38. 1878, excluding var.; non *V. latifolia* (Aubl.) Choisy.

?*V. latifolia* var. *reticulata* Reich. in Mart. *Fl. Bras.* 12¹: 208, 1878, as to basionym.

Caopia cordata Rusby, *Bull. N. Y. Bot. Gard.* 8: 105. 1912. Type: Apolo, Bolivia, 1440 m., *R. S. Williams* 99 (NY; isotypes, BM, K, US).

V. cordata Blake, *Contr. Gray Herb.* 53: 41. 1918.

TYPE: "Surinami ad Osembo in Para, m[ense] Aprilis 1842," *Focke* 382 (U). Eyma cited "584" in error.

ADDITIONAL SPECIMENS EXAMINED:

FRENCH GUIANA: Cayenne, *Martin* (BM); Godebert, *Wachenheim* 107 (K, US).

SURINAM: Without locality, *Hostmann & Kappler* 162 (MO, NY, P, S, U); Cottica River, *Lanjouw* 398 (U); Watramiri, *B.W.* 4543 (NY); Sectie O, *B.W.* 2711 (US), 2919 (NY); Zanderij I, *B.W.* 4362 (NY).

BRITISH GUIANA: Morabelli Creek, *Sandwith* 395 (K, NY, U); Mora Landing, Moruka River, *de la Cruz* 1853 (UC, US); Mazaruni Station, *Forest Dept. B.G.* 6469 (tree in open creek swamp 4 in. diam., 40 ft. high) (K); below Kaieteur, Potaro River, *Jenman* 977 (K).

VENEZUELA: BOLÍVAR: Río Karún, Alto Río Paragua, "uadama-yek," Cardona 1229 (US); Mojasilla, south of La Paragua, 75 m., "sangrito," L. Williams 12773 (US); Río Uairén, Sabanas de Santa Elena, Tamayo 2958 (US).

COLOMBIA: META: Between Villavicencio and Río Ocoa, 450 m., Dugand & Jaramillo 2917 (US); Villavicencio, Apiai, 500 m., Cuatrecasas 4772 (US); Villavicencio, Schiefer (US). PUTUMAYO: Quebrada del Río Mulato, Mocoa, Cuatrecasas 11305 (US). CAQUETÁ: Solano, near Tres Esquinas, 200 m., "lacre," Little & Little 9502 (NO, US). AMAZONAS-VAUPÉS: Soratama, Río Apaporis, Schultes & Cabrera 12724 (NO, US). TOLIMA: Falán, region of "Calamonte," 1120 m., "puntelanza," Garcia-Barriga 8377 (US). ANTIOQUIA: San Carlos, Kalbreyer 1374 (C); near Yolombó, Lehmann 4003¹⁹ (BM, K, US); [Río] Samaná, 500-1300 m., Lehmann 7547 (US); Mulatos, 50 m., Haught 4885 (NO, US). ?CAUCA: El Chorro, 800 m., March 1853, Triana (COL), same loc. no. "5" (BM). EL VALLE: Quebrada de La Brea, Río Calima, region of Chocó, 20-40 m., Cuatrecasas 21279 (US). CHOCÓ: Río Atrato, vicinity of Quibdó, 400 m., Araque-Molina & Barkley 19Ch 134 (NO, US, a variable coll.)

PERU: LORETO: Iquitos, ca. 100 m., Sandeman 2273 (K), L. Williams 1385 (F), 1460 (F), 1533 (F), Tessmann 3614 (NY), 5040 (G), Killip & Smith 26923 (US), 27221 (US); Mishuyacu, near Iquitos, "pichirina blanca," 100 m., Klug 888 (US); Pebas, Río Amazonas, L. Williams 1734 (US), 1748 (US); Maquisapa, Upper Río Nanay, L. Williams 1205 (F); Caballo-Cocha, Río Amazonas, L. Williams 2194 (US); Gamitanacocha, Río Mazán, 100-125 m., Schunke 133 (F, NA, NY, UC, US).

BRAZIL: Without locality, Sellow 159 (P.) AMAZONAS: Rio Embira, at Rio Tarauaca, basin of Rio Jurua, Krukoff (G, K, S, UC, US); San Jose de Rio Negro, Riedel 1427 (US). BAHIA: Without locality, Salzmann (P); Ilheos, Riedel 187 (US), Blanchet 1933 (C, F, FI, G, K, NY, W).

This widely distributed *Vismia*, a tree 4 to 12 meters high or more, is characteristic of selva borders or in Amazonian Brazil it grows on higher ground back from the seasonally inundated lands. Vernacular names, arising in most instances from the orange sap that bleeds freely from the cut stems, include: "Bloodwood" (British Guiana); "sangrito" (Amazonian Venezuela, Amazonas); "puntelanza" (Colombia); "lacre" (Amazonas). See Eyma²⁰ for Surinam vernacular names.

N. Y. Sandwith drew attention (Kew Bull. 1931: 174) to the identity of *Vismia angusta* as distinguished from *V. macrophylla* H. B. K., and determined the oldest name for this species, which long passed as *Vismia ferruginea*, to be Miquel's *V. angusta*. Eyma followed Sandwith in this conclusion.

The cordate leaf-base is a characteristic feature of *Vismia angusta* yet some Peruvian collections have a rounded leaf-base. Furthermore, these non-cordate specimens average to have distinctly smaller leaves. In British Guiana *V. macrophylla* likewise has cordate-based leaves.

¹⁹ A wrong number. In the Lehmann fieldbook (US), no. 4003 is listed as *Masdevallia*, an orchid.

²⁰ Pulle, Fl. Surinam 3: 75. 1934.

On Gorgona Island, off the Pacific Coast of Colombia (*Collenette* 588, K, US), *Vismia angusta* likewise exhibits smaller leaves which are not prominently cordate as is so characteristic of the species over its principal continental range. Perhaps this tree of Gorgona Island and the Peruvian-Colombian transmontane forests merits description as a subspecies of *V. angusta*.

Vismia angusta reaches its southern limit in Bolivia, where, as in the interior of Peru and Colombia, the leaves average smaller as noted above. Rusby's *Caopia cordata* was a collection of Bolivian *V. angusta* named for the cordate leaf-bases, which are conspicuous in the type collection.

Though the name *Vismia angusta* has been adopted for this distinctive species there is considerable evidence that the oldest valid name may prove to be *V. reticulata* (Poir.) Choisy. The basionym, *Hypericum reticulatum* Poir., rests on a good description and the source of the material, though not documented, might well have been from typical *angusta* territory. Neither Sandwith nor Eyma succeeded in locating the type. In view of the complex nature of this group of *Vismias* and the undoubted basis for the adoption of the name *V. angusta*, it has seemed in the interest of stability to regard *Hypericum reticulatum* as a *nomen dubium*.

TABLE 1.—Comparison of the characters of *Vismia angusta*, *macrophylla*, and *sandwithii*

<i>Vismia macrophylla</i>	<i>Vismia angusta</i>	<i>Vismia sandwithii</i>
Tree 2-5 (or 10) m. high at flowering time.	Tree 5-10 m. high or more at flowering time.	Shrub or small tree less than 5 m. high (?), the stem 5 cm. diam.
Leaves often thin-textured, ovate to ovate-lanceolate, acuminate, weakly cordate.	Leaves generally leathery, oblong, shortly acute, distinctly cordate at the base (except Gorgona Island and interior Colombia and Peru-Bolivia).	Leaves rather thin-textured, oblanceolate or obovate, cuneate, apiculate to caudate, acute or at most weakly cordate.
Secondary veins prominent or at times rather faint, esp. toward tip of blade.	Secondary veins generally all very prominent, raised below.	Secondary veins rather faint toward tip of blade.
Submarginal veins indistinct.	Submarginal veins indistinct.	Submarginal veins prominent, well defined.
Petioles 1.5 cm. long or more.	Petioles usually 1 cm. long or less.	Petioles 1-2 cm. long.
Rachis of inflorescence glabrate in age, with only flocs of persistent brown tomentum of stellate hairs.	Rachis of inflorescence permanently rusty-tomentose with stellate hairs or tardily deciduous- to floccose-tomentose.	Rachis of inflorescence conspicuously densely rufous-tomentose, branching hairs almost velvety.

TABLE 1.—Comparison of the characters of *Vismia angusta*, *macrophylla*, and *sandwithii*—Continued

<i>Vismia macrophylla</i>	<i>Vismia angusta</i>	<i>Vismia sandwithii</i>
<i>Flower buds</i> dark fuscous to almost blackish.	<i>Flower buds</i> light yellowish brown.	<i>Flower buds</i> rufous.
<i>Flowers</i> without odor (?).	<i>Flowers</i> fragrant.	<i>Flowers</i> without odor (?).
<i>Petals</i> obovate, greenish, tomentose on inner face but not so densely as to obscure the blades.	<i>Petals</i> linear-spatulate, whitish or cream-colored, so heavily comose as to obscure the blade, the hairs often twice as long as the width of the petal.	<i>Petals</i> oblong-spatulate, acute, whitish, densely comose on face, black-guttate on back.
<i>Fruit</i> globose, green.	<i>Fruit</i> globose to ovoid, green or olive-brown.	<i>Fruit</i> conic-ovoid, pale green.
<i>Sepals</i> 4–5 mm. long; veins usually obscured by dense tomentum.	<i>Sepals</i> 4–5 mm. long; veins evident beneath tomentum.	<i>Sepals</i> 5–6 mm. long, the tomentum so dense as to obscure the venation.

5. *Vismia lateriflora* Ducke, Arquiv. Serv. Florest. Rio Janeiro 1: 33. 1939.

LECTOTYPE: Esperança, at the mouth of Rio Javary, Amazonas, Brazil, Ducke 25054 (isolectotype, K). Syntype: Presidente Marquez Station, on the Madeira-Mamoré Railway, Mato Grosso, Brazil, Kuhlmann 21223 (duplicate syntypes, K, US).

ADDITIONAL SPECIMENS EXAMINED:

COLOMBIA: Río Loretoyacu, Trapecio amazónico, 100 m., Schultes & Black 8448 (US), 8449 (US).

PERU: [probably Huánuco but without loc.] Dombey (F). Cuzco: Cerro San Pedro, 1600 m., Vargas 8504 (US). LORETO: Pebas, L. Williams 1793 (F); La Victoria, Río Amazonas, L. Williams 2691 (F); Caballo Cocha, L. Williams 2192 (F), 2364 (F); Soledad, Río Itaya, 110 m., Killip & Smith 29689 (F, US); Maynas, Poeppig 421 (P); Mishuyacu, Iquitos, 100 m., "pichirina," Klug 354 (F, US); Iquitos, 100 m., Killip & Smith 27085 (F, US); Yurimaguas, Lower Río Huallaga, 155–210 m., L. Williams 3821 (F), 4899 (F, US), 5003 (F, US), Killip & Smith 27550 (US); San Antonio, Río Itaya, 110 m., Killip & Smith 29475 (F, US). HUÁNUCO: Pampayacu, 1050 m., Macbride 5019 (F).

BRAZIL: AMAZONAS: Near Tres Casas, basin of Rio Madeira, Munic. Humaytá, Krukoff 6325 (A, G, S, U, US, W); near Palmares, basin of Rio Solimões, Munic. São Paulo de Olivença, Krukoff 8328 (A, G, K, P, S, U, US).

Vismia lateriflora may prove to be but a seasonal phase of *V. angusta* with axillary inflorescences produced through suppression of the usual terminal panicle, induced perhaps at times of exceptional water supply or by some other microclimatic factor. Still, the oblong leaves of *V. angusta* are dull above, whereas the ovate, acute leaves of *V. lateriflora* are more or less shining above as if varnished. *Vismia angusta* typically has distinctly cordate leaves, the midrib and secondaries prominently raised beneath, and marginal or submarginal areolate venation. Its spherical flower buds, opening tardily, are

yellowish-green or sulphur-colored on the outside, the petals heavily yellowish comose, with the hairs often so long as to extend beyond the petals, forming a kind of tuft in the center of the flower. *V. lateriflora*, on the other hand, has ovate leaves of a distinctly thinner texture, a truncate or at most subcordate base, and the nerves not prominently raised beneath, areolate with loop veins well inside the leaf margin. Moreover, the flower buds in *Vismia lateriflora* are long-ovoid, early opening, brownish on the outside, the petals less densely comose, the hairs not exceeding the petals. The pubescence of the lower leaf surfaces of the two species is similar but in *V. angusta* it has a dusky quality, due to the presence of minute black glands, one gland to each areole of the lower leaf surface. In *V. lateriflora* the thin-tomentulose lower leaf surface is distinctly reddish and, though the minute dark glands are present in this species as well, they are obscure. Though the lateral axillary panicles especially characterize *V. lateriflora*, both lateral and terminal inflorescences may occur (e.g., *Macbride* 5019 and *Krukoff* 8328), or, again, lateral panicles may be wholly absent and only the terminal ones present. In this connection, *V. ramuliflora*, which might from the name be thought to be an earlier name for this species, is, in fact, a synonym of *V. sessilifolia*, of the coast of northern South America.

6. *Vismia rufa* Cuatrecasas, Rev. Acad. Colomb. Cienc. 7: 47. fig. 1. 1946.

TYPE: Forest, Río Cajambre, Department of El Valle, Colombia, 5-80 m., 5-15 May 1944, *José Cuatrecasas* 17449 (Comision de Bot. del Valle, Cali, Colombia) (isotypes, NY, US).

ADDITIONAL SPECIMENS EXAMINED:

COLOMBIA: EL VALLE: La Trojita, Río Calima (region of Chocó), 5-50 m., *Cuatrecasas* 16614 (US); hills near Quebrada de la Brea, Río Calima (region of Chocó), 30-50 m., *Cuatrecasas* 21102 (US); near Buenaventura, April 8, 1882, *J. Ball* (K).

Vismia rufa is a tree 16 to 30 meters tall, the trunk 25 to 40 centimeters in diameter, the bark dark reddish-brown, scaly and breaking into narrow rough plates from longitudinal cracks; wood soft-textured, red; latex bleeding bright orange-red; leaves thick, leathery, conspicuously petiolate, the petioles 12-25 mm. long, subterete or grooved on the upper side, the blades ovate or ovate-elliptic, shortly acute, 11-18 cm. long, 4.5-7 cm. wide, lustrous-shining and glabrous above, the midrib impressed, strikingly rufous beneath with a heavy felt-like tomentum; inflorescence much-branched, sometimes few-flowered and lateral but generally with very numerous small crowded flowers in a diffuse panicle; sepals early spreading, ovate-oblong, small, 3.5-4.5 mm. long, narrowly hyaline-margined, evenly ferruginous-tomentose on the back; petals a little longer than the sepals, thick-textured, spatulate-ovate, rounded at the tips, roscate, vittate with a few dark

lines; stamens reddish, very short, about half as long as the ovary; fruit unknown.

This interesting endemic *Vismia* of the Pacific rain forests of Colombia is most singular for its small flowers, a character not evidently appreciated by Cuatrecasas as significant when the tree was described. Its taxonomic position may be near *V. brasiliensis*, judging from the five small stamen-columns, the rufous-tomentose leaves, and the ample panicle of numerous crowded flowers, but the leaves are wholly unlike that Brazilian species, recalling rather *V. cavanillesiana*.

7. *Vismia micrantha* Mart. ex St. Hilaire, Fl. Bras. Merid. 1: 327. 1827; Mart. in Spix & Mart., Reise Bras. 2: 552. 1828.

Trianthera floribunda Pohl ex Reich. in Mart. Fl. Bras. 12¹: 198. 1878, pro syn. *V. micranthae*. Authentic material from Villa Rica, Brazil, E. Pohl 3738 (F, W).

Caopia micrantha Kuntze, Rev. Gen. Pl. 1: 59. 1891.

TYPE: Syntypes "in sylvis et campis provinciae Minas Geraës prope San Gabriel, vicum vulgo Catas Altas, urbem Villa Rica, et in monte Serra Negra," presumably referring to St. Hilaire collections, now at Paris. Presumably authentic material for the Spix & Martius description: Without locality, *Martius* 970 (BM, G, K, L, MO, P, W, WU).

ADDITIONAL SPECIMENS EXAMINED:

BRAZIL: MINAS GERAIS: Serra de Ouro Preto, en route to Antonio Pereira, *Schenck* 3577 (C); Ouro Preto, *Riedel* 2634 (K); Morro de Cruziero, Ouro Preto, *Damazio* 1328 (G); Serro de Cipó, Munic. Santa Luzia, *Barreto* 1274 (F); "Minas sylvis montosis," *Riedel* 25 (P); Monte Itacoluni, Santa Luzia, *Casaretto* 3510 (G); Monte Capanema, *Riedel* 1474 (S); São Juliaõ, Santa Luzia, *Schwacke & Glaziou* (P); Ressaca, Bello Horizonte, *Barreto* 2910 (F); Serra do Caraça, Munic. Santa Barbara, *Barreto* 2912 (F).

Tree; leaves rather thin, more or less green on both surfaces, the blades short-ovate, 6–10 cm. long, 3–4 cm. wide, finely glandular-punctate and often thinly hirtellous beneath, especially along the veins, with mostly simple hairs; panicle often very compound, rather compact, the flowers numerous; sepals oblong, rounded, thinnish, with no or a barely distinct marginal flange, glabrate; petals about twice as long as the sepals, cream-colored, obovate, tomentulose within, punctate on the back with black glands; stamen column bearing 3 anthers; ripe fruit globose to short-pyriform, black, 4 mm. long, usually tipped with 5 persistent styles, the sepals spreading.

Vismia micrantha is easily distinguished from all other species by the unique character of its stamens, but a certain affinity with *V. brasiliensis* is suggested by characters of both the foliage and the inflorescence. It will be noted that both species differ from the section *Euvismia* in having a reduced number of stamens borne on a single stamen column. These two *Vismias* are in fact not easily distinguished in sterile condition. However, the secondary veins in *Vismia micrantha* in anastomosing at or near the margin unite by a weak con-

necting vein, this often freely branching. In *V. brasiliensis*, on the other hand, the secondaries anastomose by a single strong connecting vein, without branches to the margin. The shape, size, and pubescence of the leaves of the two species are very similar, but on the whole *V. micrantha* has thinner leaf-blades than those of *V. brasiliensis*. The tomentulose sepals of *V. brasiliensis* often contrast easily with the glabrate sepals of *V. micrantha*; the fruit of the former is larger and generally the styles are earlier deciduous than those of *V. micrantha*.

8. *Vismia brasiliensis* Choisy, Prodr. Monog. Hyper. 35. t. 2 1821.

V. longifolia St. Hil. Fl. Bras. Merid. 1: 326. t. 68. 1827. TYPE: "In sylvis caeduis prope tabernam vulgo Rancho de José Henriquez, haud longe ab urbe Villa Rica, in provincia Minas Geraës; florebat Januario," Brazil, St. Hilaire. Not distinguished among the St. Hilaire colls. at Paris. The illustration though generalized in details is conclusive evidence of its taxonomic position here.

V. laccifera Mart. in Spix & Mart. Reise Bras. 2: 552. 1828. TYPE: A Martius collection, presumably from the vicinity of Villa Rica, in the state of Minas Gerais, Brazil. St. Hilaire evidently saw the manuscript description of Martius' species prior to its publication the following year, for he refers to it in 1827 (in his Fl. Bras. Merid. 1: 326. 1827). Reichardt evidently believed *laccifera* to be a typographical error for *baccifera*, and ignored it as a synonym of *brasiliensis*; however, *laccifera* was supported by a full description, which shows it to be a synonym of *brasiliensis*.

V. brasiliensis var. *lasiantha* Reich. in Mart. Fl. Bras. 12¹: 198. 1878. TYPE: Sellow 530, from Brazil (Delessert Herb. and Boissier Herb. G, GL, K, L, W, fragments of isotype ex Geneva, F; Photo FM 9166, of specimen in Berlin Herbarium).

V. lasiantha Klotzsch ex Reich. in Mart. Fl. Bras. 12¹: 198. 1878, *pro syn.*

V. brasiliensis var. *longifolia* Reich. in Mart. Fl. Bras. 12¹: 198. 1878.
Caopia brasiliensis Kuntze, Rev. Gen. Pl. 1: 59. 1891.

TYPE: "In Brasilia", according to the description but not so labeled, simply "Mr. Steven, 1820" (in de Candolle Herb., G). The name ticket is in the hand of Choisy. The plate, drawn directly from the specimen, is too generalized in detail, and fails to show the thin pubescence on the lower leaf-surfaces, the lineate-guttate sepals, and the fine hairs of the pedicels.

ADDITIONAL SPECIMENS EXAMINED:

BRAZIL: SÃO PAULO: Penha, in 1839, *Guillemin* 498 (G), Jan. 1840, *Guillemin* 498 (TCD); Jardim Botânico, São Paulo, *Hoehne* 198 (F, S; this no. at A and G is *V. micrantha*). MINAS GERAIS: Jardim Botânico, Bello Horizonte, *Barreto* 2909 (F); Serra do Taquaril, *Barreto* 2908 (F); Matta de Empreza, *Barreto* 4035 (F); Lagoa Santa, *Warming* (C); Caa do Campo, *Claussen* 3 (F), *Claussen* 4 (FI, G, W); Caldas, *Regnell* III 298 (FI, S, US, WU); Gongo-soco, Jan. 1825, *Riedel* (NY, US); "on border of the forest Gongo-Soco," in 1834, *Bunbury* (CGE); without locality, *Claussen* 134 (BM, K).

Tree; leaves rather thin, generally green on both surfaces, the blades ovate or short-ovate, 6-10 cm. long, 3-7 cm. wide, finely glandular-punctate and generally simply hirtellous beneath, especially pubescent along the veins with both simple and branched hairs; panicle rather

compactly branching, the flowers numerous, the whole inflorescence cano-tomentulose; sepals oblong-ovate, bordered by a distinct flange-like membranous margin, tomentose over the back with a close felt-like tomentum; petals about 1.5 times as long as the sepals, obovate, cream-colored, densely tomentulose within, punctate with black glands on the back; stamen column bearing 5 anthers; ripe fruit pyriform or globose, acute, dull black, 4-9 mm. long, the styles persistent.

Vismia brasiliensis comprises two distinguishable geographic races, a more northern and southern Brazilian race, and each has been named in the past and maintained as varieties by Reichardt. The Minas Gerais race, which tends toward longer leaves and only moderately tomentose flowers, is evidently St. Hilaire's *V. longifolia*. The São Paulo race, with short-ovate leaves, recalling those of the garden apricot in size and texture, and with truly lanuginous flowers, is what Klotzsch designated in the herbarium as *V. lasiantha*. Choisy's type evidently represents this southern phase, but if so the pubescence is somewhat deciduous from the fruiting branchlets. Both forms are inconstant and many more collections from the vast regions of Brazil are needed before a clear conclusion may be reached.

Vismia brasiliensis has been compared with *V. micrantha* under the latter species. The leaves of *V. brasiliensis* generally have a slightly developed cordate base, and the blades tend to be plicate, a condition not seen in *V. micrantha*.

St. Hilaire listed three *Vismias* for central Brazil,²¹ namely, *V. longifolia*, *V. guianensis*, and *V. micrantha*. When he described *V. longifolia* he overlooked Choisy's recent publication of *V. brasiliensis* (1821) or its inclusion in the account of the genus in de Candolle (1824). *V. longifolia* was described by St. Hilaire as having "stamini-bus 25-30." It is singular that if he was describing a phase of *V. brasiliensis* he did not refer to the distinctive character of that species, namely, that each stamen column bears only five stamens. However, Reichardt aligned *V. longifolia* with *V. brasiliensis*, and certainly the very detailed original description of *V. longifolia* is not out of harmony with *V. brasiliensis*.

It is possible that the "Ubapitanga" of Marcgrav (Hist. Nat. Brasil. 293) and his "Caopia arbore ejusque facultatibus" (op. cit. 60), accompanied by a crude line drawing of a thick-leaved plant with variable-shaped leaves and globose fruits, may represent *Vismia brasiliensis*. If so, it constitutes the earliest mention of this *Vismia*, or, indeed, of any Brazilian *Vismia* in literature.

We may be much more certain of the fact that the *Vismia* described by Vandelli when he established the genus (1788) was *V. brasiliensis*,

²¹ Fl. Bras. Merid. 1:325-328. 1827.

for he characterized it as having "filamenta plura in 5 phalanges s[ive] corpora connata." *V. brasiliensis* was certainly therefore the original species of the genus, although it was not so chosen when *Vismia* was conserved. Vandelli indicates the origin of his *Vismia* by the initial "B," meaning Brasilia.

9. *Vismia parviflora* Schlecht. & Cham. *Linnaea* 3: 119. 1828. PLATE 3
Caopia parviflora Kuntze, *Rev. Gen. Pl.* 1: 59. 1891.

TYPE: "Brasilia tropica," Sellow (B, Photo FM 9168, which carries a ticket reading "Sello 1365") (Isotype CGE).

"*V. Calycibus pellucidis 3-nervibus subpunctatis, petalis punctatis, phalangibus triandris calyce brevioribus, stylis longis, foliis ellipticis nigro-punctatis, pilis sparsis.*

"In Brasilia tropica collegit Sellow.

"Folia elliptica v. elliptico-lanceolata, acuminata, saepius in ovatum rarius in obovatam vergentia formam, basis subinde inaequali acuta vel rarius obtusa rotundata, acumine brevi subtrilineari saepe obliquo, submembranacea, quam in congeneribus paulo tenuiora, subtus punctulata, punctis opacis nigris prominentibus, obsitaeque pilis stellatis rufescentibus sparsis; maxima 4 poll. longa. 1½ lata, petiolo semipollicari. Rami novelli cum petiolis, panicula alabastrisque tomento tenui rufo-canesciente oblitterante obducti. Panicula multiflora, laxiflora, quam in congeneribus uberior, pyramidata, e ramorum primariorum paribus circiter sex constans, quam panicula *Syringae persicae* paulo minor.—Flores brevissime pedicellati, parvi, expansi 2 lin. circiter metientes. Lacinae calycinae ellipticae, obtusae, lineam circiter longae, subpellucidae, 3–5 nerves, evittatae, nunc punctis resinosis paucis (rarius 6), in aliis aliter dispositis, notatae, nunc omnino impunctatae. Petala elliptica, obtusa, calyce longiora, intus villis brevibus parce obsita, punctis resinosis irregulariter adspersa. Staminum phalanges calyce breviores, omnino glabrae, triandrae, filamentis medio longiori supra tertia parte libero. Squamae villosae, subspathulatae, phalangibus paulo breviores. Germen glabrum. Styli 5 longiusculi, filiformes, e calyce demum exserti, stigmate depresso-capitato. Fructus—?"

Vismia parviflora is a rare species evidently closely related to *V. micrantha* but that species has vittate sepals. Prior to my visit to the Paris Herbarium I had not seen any collection of this *Vismia* and rested my disposition of what is certainly a distinctive species on the original description, reproduced here, and the Macbride photograph of the type, Sellow's collection in the Berlin Herbarium having been destroyed. However, one collection of *Vismia parviflora* came to light in Paris: "Minas Gerais, 1816–1821," *St. Hilaire* D55 (P). Dwyer²² identifies this *St. Hilaire* collection as one taken in 1821–22 when he visited the provinces of Rio de Janeiro (nos. 1–30), Minas Gerais (31–587) and São Paulo (588–818). There is a second collection, Minas Gerais, 1841, *Claussen* 5 (P), which is referred to this species with reservations. It is notable that no recent collections of *Vismia parviflora*, evidently of extreme local occurrence in Brazil, have been made.

²² *Ann. Missouri Bot. Gard.* 42:162. 1955.

10. *Vismia minutiflora* Ewan, sp. nov.

Arbor parva vel frutex 2.5 m. altus, ramis superioribus gracilibus, fissuratis, griseo-brunneis, raches atque ramis rufo-tomentulosis, inferioribus glabrescentibus; foliis superioribus non reductis, laminis omnibus submembranaceis, ovato-lanceolatis, 7–9 (13) cm. longis, acuminatis vel cuspidatis, ad basim breviter acutis vel subrotundatis, amphiglabris, infra atro-punctatis, supra venis impressis; petiolis brevibus, 2–4 mm. longis; paniculis compactis et brevi-ramosis; sepalis minimis, 1.5–2 mm. longis, flavibus, partibus centralibus atro-pubescentibus; petalis breviter oblongis, albis, atro-vittatis, intus sparse comosis; staminibus ad anthesin exsertis; fructibus ignotis.

Small tree or shrub 2.5 m. high or more, the trunk slender, the branchlets clothed with thin gray-brown bark splitting into narrow shreds, rufous-tomentulose with fine branched hairs on young wood and rachis of the panicle, glabrescent below; leaves little if at all reduced at the inflorescence and exceeding it, thin, amphiglabrous except at the extreme base beneath where weakly stellate-pubescent, finely black gland-dotted beneath and impressed-venose above, ovate-lanceolate, 7–9 (or 13) cm. long, acuminate to cuspidate, shortly acute or barely rounded at the base, the petioles slender, short, 2–4 mm. long; flowers short-pedicellate, the panicle compactly and shortly branched; calyx very small, 1.5–2 mm. long, yellowish with a narrow central black pubescent ridge, spherical in bud; petals short-oblong, white, vittate with impressed black glands, rather lightly comose within; stamens exceeding the corolla at anthesis; fruit unknown.

Type in the U.S. National Herbarium, No. 1,795,145, collected at San José del Guaviare, Río Guaviare, Intendencia of Meta, Colombia, in savana, alt. 240 meters, Nov. 11, 1939, by José Cuatrecasas (No. 7658); isotypes in the herbaria of the Royal Botanic Garden, Kew, and the New York Botanical Garden.

PARATYPES:

PERU: Río Azara, Upper Río Marcapata, east of Urcos, 1050 m., Sandeman 3730 (K); Moro, 1200–1500 m., Jan. 1866, Pearce (K); "Perou," Gay 939 (P).

The affinities of *Vismia minutiflora* are with the section *Vismia* and not with the section *Trianthera*, to which *Vismia micrantha* belongs, as might well be expected upon the basis of the small flowers, although the combination of characters shown in *Vismia minutiflora* are not closely approached by other species of the section *Vismia*. The leaves recall *Vismia cayennensis* but are thinner and more herbaceous. The short-pedunculate panicle suggests a species of *Sambucus*, an impression further borne out by the small flowers crowded into small cymules. Individually, the flowers are rather showy for their white petals which far exceed the exceptionally small calyx.

A Peruvian collection, Klug 2344 (A, US), from the mouth of the Río Zubineta, near Florida, Río Putumayo, Department of Loreto, has

much larger leaves, 12–14 cm. long, and a more compound diffuse panicle—quite unlike the Colombian type collection from the Río Guaviare. In points of flower structure this Peruvian collection is in agreement, but the curious callosities on the sepals and the unusual twisting of the long petals suggests a diseased plant. Aside from the short-petiolate leaves, *Klug* 2344 resembles the type collection of *Vismia parviflora* in several particulars.

11. *Vismia sessilifolia* (Aubl.) DC. Prodr. 1: 542. 1824. PLATES 4, 5

Hypericum sessilifolium Aubl. Pl. Guian. 2: 787. t. 312, fig. 2. 1775.

V. rufescens Lam. Encycl. 4: 150. 1796. TYPE: Aroua, a village opposite the Isle of Cayenne (cf. Bellin's map of 1763), French Guiana, 17–21 Nov., 1785, *Stoupy* (P, Photo FM 35239, Photo Killip 911).

V. rufescens Pers. Syn. Pl. 2: 86. 1806.

V. rufescens var. *sessilifolia* Pers. loc. cit.

V. ramuliflora Miq. Stirp. Surinam 88. 1850. TYPE: "Sylvis umbrosis regionum interiorum," Surinam River, Surinam, April 1847, *Hostmann & Kappler* 1823 (holotype, U; isotypes, G, S; Photo FM 35238, of specimen in Paris Herbarium).

Caopia sessilifolia Kuntze, Rev. Gen. Pl. 1: 59. 1891.

Caopia sessilifolia var. *rufescens* Kuntze, loc. cit.

TYPE: Cayenne, *Aublet* (holotype, BM, Photo NY; isotype, G-DC). *Gleason* 64 (US) is a close match for *Aublet*'s figure.

ADDITIONAL SPECIMENS EXAMINED:

FRENCH GUIANA: Maroni, *Wachenheim* 58 (E); Karouany, *Sagot* 65 (BM, S, W), 69 (P); Godebert, *Wachenheim* 49 (P); Roura, 1859, *Sagot* (P).

SURINAM: Patrick Savannah, *B. W.* 672 (NY, U); Sectie O, *Krukoff* 12315 (NY); Grote Zwiebelzwamp, *Lanjouw & Lindeman* 1255 (U).

BRITISH GUIANA: Vicinity of Kartabo Station, junction of Mazaruni and Cuyuni Rivers, *Graham* 292 (US); Arawak Matope, Cuyuni River, *Tutin* 374 (BM, U, US); Tumatumari, Potaro River, *Gleason* 64 (NY, US); Potaro, 10 miles south of Potaro Landing, *Hitchcock* 17389 (US); Waini River, *de la Cruz* 3730 (UC, US); Kurupung, Tacoba, *Lang & Persaud* 286 (F); Barima River, *Jenman* 7017 (NY); "Roraima," *Schomburgk* 917 (BM, CGE, FI, G), certainly from lowlands, possibly from Venezuelan side of boundary, where essentially all of *Schomburgk*'s collections originate.

VENEZUELA: Angostura, *Humboldt & Bonpland* 1070 (H. & B. Herb., P).

COLOMBIA: EL CHOCÓ: Istmina, *Killip* 35453 (US). CAUCA: Córdoba, Dagua Valley, 30–100 m., *Pittier* 511 (US). EL VALLE: Buenaventura, *Killip* 11734 (US); Road to Buenaventura, 400 m., *Triana* 6 (COL); Río Dagua, 10 km. from Buenaventura, *Core* 1519 (NO).

BRAZIL: PARÁ: Faro, Campos do Tigre, *Ducke* 12494 (K).

In *Vismia sessilifolia* the lower surface of the leaves has a close fulvous or rufous pubescence with usually a single, raised, dot-like gland in a single areole; the upper surface is not impressed-reticulate, as are both *V. baccifera* and *lauriformis*. The leaves in this species are oblong-ovate, shortly acuminate, the petioles short, noticeably broad, often wing-margined, the blades rather bifacial, glabrous and shining, green above, reddish-puberulent beneath with a thin deciduous scattering of fine hairs. The sepals are narrowly ovate, acute,

tomentulose on the back, about half as long as the narrowly oblong petals.

Though most often with petioles about 1 cm. long, *Vismia sessilifolia* occasionally has sessile leaves, and it was this form that Aublet described and illustrated as *Hypericum sessilifolium*. Gleason describes his sessile-leaved collection (no. 64) as from a "shrub 15 feet high." The types of the two forms, the petiolate *rufescens* (Pl. 3) and the sessile *sessilifolia* (Pl. 4), came from the same district of Cayenne and I cannot separate the two on any geographic grounds. Persoon aligned the sessile-leaved plant as a variety of *Vismia rufescens*, and de Candolle admitted both as full species and even placed them some distance apart in his treatment of the genus in the *Prodromus*, but it does not seem necessary to give them taxonomic recognition.

Vismia sessilifolia develops lateral axillary racemes either along with, or in the absence of, the usual terminal inflorescence, and it is this latter condition that led Miquel to distinguish *V. ramuliflora*. Miquel believed its relationship to be with *V. cayennensis*, overlooking *V. sessilifolia* and Persoon's *V. rufescens*. Nearly all the specimens cited that are in flower bear at least some reduced axillary racemes. I cannot determine any morphological basis for Miquel's proposed species. Incidentally, the Amazonian *V. lateriflora*, which might be presumed to belong here, is rather a relative of *Vismia angusta*.

Vismia sessilifolia is one of the most clearly marked species of the genus. However, Eyma did not admit it in his account of the flora of Surinam, an omission the more singular in that Eyma particularly concerned himself with the typification of species of Guttiferae of Surinam. Triana's collection from the vicinity of Buenaventura, 400 meters, agrees well with Choisy's plate²³ and with the photograph of Stoupy's type at Paris of *Hypericum rufescens* Lam. Neither Triana and Planchon, who remark on this Buenaventura collection, nor Sandwith mention having examined the Stoupy specimen at Paris.

12. *Vismia japurensis* Reich. in Mart. Fl. Bras. 12¹: 209. t. 39. 1878.

Caopia japurensis Kuntze, Rev. Gen. Pl. 1: 59. 1891.

TYPE: "Prov. do Alto Amazonas in silva ad ripas fluminis Japura," Martius.

SPECIMENS EXAMINED:

SURINAM: Zanderij I, Maguire & Stahel 25053 (K, NY, US).

BRITISH GUIANA: Pomeroon River, Pomeroon District, *de la Cruz* 3149 (F, UC, US), 3170 (F, UC, US); Adaro River, Mazaruni drainage, near Wupaima Mountain, *Pinkus* 166 (NA, US); Bootooba, Demerara River, *Persaud* 16 (F); Canister Falls, Demerara River, *Beccari* 16 (FI, K); "Massaroonie & Cuyounie," *Appun* 277 (K).

²³ Prodr. Monog. Hyper. t. 1. 1821.

VENEZUELA: BOLÍVAR: Cerro Sarisarinama, Alto Caurá River, 800 m., Cardona 386 (US). AMAZONAS: Maroa, Río Guainía, 127 m., L. Williams 14348 (US); San Carlos, Río Negro, 100 m., Holt & Gehriger 297 (US), 302 (US), L. Williams 14478 (US), Holt & Blake 633 (US); Sabana de Río Sanariapo, 120 m., L. Williams 16003 (US), 13064 (US); Yavita, 128 m., L. Williams 13912 p.p. (US).

COLOMBIA: META: Puerto López, 240 m., "papa de lacre," Little & Little 8252 (NO, US). VAUPÉS: Vicinity of Raudal de Yuruparí, Gutierrez & Schultes 931 (MEDEL, US). CAQUETÁ: Sucre, 1000-1300 m., Cuatrecasas 9047 (US). AMAZONAS-VAUPÉS: Raudal Yayacopi, Río Apaporis, Schultes & Cabrera 15404 (NO, US).

BRAZIL: Without locality, Burchell 9697 (K, L), 10042 (K). AMAZONAS: Tapurucuará, Rio Negro, Schultes & López 8954 (US); São Gabriel, Rio Negro, Holt & Blake 599 (US); Yucabi, Tate 966 (NY); Manaus, Rio Negro, Ule 5964 (G, L). PARÁ: Belém, Archer 8053 (US), 8243 (US).

Vismia japurensis is at once recognizable for its deltoid, acute sepals which are noticeably thick, so that the fruiting calyx is almost woody. The ovate leaves appear nearly glabrous beneath, but are actually puberulent with microscopic golden glands. The leaf-base is nearly shallowly cordate at times, but, unlike *Vismia macrophylla* with which it might be confused, the peduncle and rachis of the panicle are merely puberulent, not at all conspicuously tomentose. The fruits are few, globose, and more pulpy than those of *Vismia macrophylla*.

13. *Vismia latifolia* (Aubl.) Choisy, Prodr. Monog. Hyper. 36. 1821. PLATE 6
Hypericum latifolium Aubl. Pl. Guian. 2: 787 and 4: t. 312, fig. 1. 1775.
Caopia latifolia Kuntze, Rev. Gen. Pl. 1:58. 1891.

TYPE: Cayenne (BM, photo, NY).

ADDITIONAL SPECIMENS EXAMINED:

SURINAM: Brownsberg, B. W. 1676 (L, US), 2372 (K, NY), 2869 (K, NY); Zanderij I, B. W. 459 (S), 1404 (K, NY), 1564 (K, L, NY); Paramaribo, Splitgerber 184 (L); Forest of Zandery, Samuels 275 p.p. (L, K).

FRENCH GUIANA: Rowea, Mar. 1859, Sagot (K); Cayenne, Martin 27 (BM); Maroni, in 1864, Melinon (NY).

Small tree about seven meters high. Apparently a well-known forest tree in Surinam, judging from the number of vernacular names mentioned by Eyma in Pulle's *Flora of Surinam*, but few collections seem to have reached herbaria.

Sandwith drew attention (Kew Bull. 1931: 174) to the long persisting confusion of this *Vismia* with *V. angusta*. The few collections seen, however, do not uniformly conform to Aublet's description of the leaves as "superne viridibus, inferne tomentosis, rufescentibus." The inflorescence is congested and the flowers are small but in the collections seen the sepals and fruits are blistered with a plant disease which may have affected their development. A noteworthy character not stressed in the literature is the narrowly oblong, abruptly acutish sepals, which form an oblong-ellipsoid flower bud very truncate at the base.

14. *Vismia panamensis* Duchass. & Walp. Linnaea 23: 748. 1850.*Caopia panamensis* Kuntze, Rev. Gen. Pl. 1: 59. 1891.TYPE: "Panama," *Duchassaing*, probably from the vicinity of Panama City.

SPECIMENS EXAMINED:

CANAL ZONE: Ancón Hill, *Gillespie* P-12 (DS); woods at Gatún, *Hayes* 921 (NY).COLOMBIA: EL CHOCÓ: Small quebrada opposite Palestina, Río San Juan, 0-5 m., *Cuatrecasas* 21389 (US). EL VALLE: Río Cajambre, 5-80 m., *Cuatrecasas* 17120 (US), 17551 (US); Puerto Merizalde, Río Naya, 5-20 m., *Cuatrecasas* 14081 (US); La Trojita, Río Calima, 5-50 m., *Cuatrecasas* 16354 (US); La Cuarentena, Buenaventura Bay, *Killip & Cuatrecasas* 38976 (US); Quebrada de Aguadulce, Bahía de Buenaventura, 0-10 m., *Cuatrecasas* 19738 (US); between Isla de Golondro and La Amargura, Río Yurumanguí, 10-40 m., *Cuatrecasas* 16068 (NO, US).ECUADOR: ESMERALDAS: Mangrove swamp, San Lorenzo, near Río Nadadero, "sangre de gallina," *Marrero & Little* 6274 (NY, US).

Vismia panamensis is here interpreted as a lowland rain-forest tree of the Pacific Coast from Panama to Ecuador, having much the aspect of *V. lauriformis* on the one hand and of *V. baccifera* subsp. *ferruginea* on the other, and is probably most closely related to the former. The leaves of *V. panamensis* are more prominently venose than those of *V. lauriformis*, and these together with the leaf axils, rachises, etc., are much more rufous-tomentellous. *V. panamensis* is altogether a more heavily pubescent plant than *V. lauriformis*, from the stellate-tomentulose pedicels to the rich rufous-tomentulose sepals that remain erect in flower. *V. panamensis* is distinguished from *V. baccifera* subsp. *ferruginea* by the more heavily tomentose leaves which remain tomentose when the plant is in flower, and by the petals being only a little longer than the sepals, these twice as long in *V. baccifera* subsp. *ferruginea*.

Triana and Planchon examined a *Duchassaing* collection at Montpellier, the type of *Vismia panamensis*, and referred a Triana collection from Susumuco, Colombia, to that species. I have not seen a specimen or photograph of a *Duchassaing* collection, but I have studied a Triana sheet from Susumuco (now in Meta, near the Cundinamarca boundary) preserved at Bogotá (COL), which probably is a duplicate of the collection referred to by Triana and Planchon. Susumuco is out of the expected range of *V. panamensis*, but the Triana collection is a close match for a Panama specimen made by N. J. Andersson, April 1852 (US). I am suggesting that Triana's "Susumuco" collection of *V. panamensis* was taken, not in the interior of Colombia but in the Chocó, where we know he botanized,²⁴ and that a mixture of labels ensued.

²⁴ Cf. A. Dugand, Rev. Acad. Colomb. Cienc. 5: 488. 1944.

15. *Vismia urceolata* Ewan, sp. nov.

Arbor parva 5 m. alta, ramis gracilibus, apicibus puberulentis, deorsum glabris; laminis foliorum ovatis vel lanceolato-ovatis, acuminatis, 10–11 cm. longis, 4–5 cm. latis, non crassis, supra obscuris, infra minute cinereis vel brunneo-puberulentis praecipue secus nervos tenuiter (vel non) glandulosis, omnibus petiolatis, petiolis saepe reflexis, prominentibus, ca. 2 cm. longis; paniculis parvis, paucifloris, 4–5 cm. longis; calycis valde urceolatis vel deorsum gibbosis, 7–8 mm. latis, apice abrupte acutis, 9–10 mm. longis, deorsum aliquantum glabris, lobis persistente clausis, tantum erectis ad anthesin, ferrugineo-tomentulosis, marginibus hyalinis latis, minute atrosanguineo-vittato-glandulosis; petalis anguste ovatis fulvis, lineatis, intus comosis ad apicem; staminibus inclusis.

Small tree 5 m. high, with gray smooth bark, the branchlets puberulent above, glabrate below; leaf-blades ovate or lance-ovate, 10–11 cm. long, 4–5 cm. wide, rather thin-textured, dull above, finely cinereous or brownish puberulent beneath, especially along the nerves, only microscopically glandular-punctulate (if at all), the secondary veins faintly anastomosing to form a submarginal vein, the petioles slender, rather prominent, often reflexed, about 2 cm. long; flowers few, loosely clustered in small panicles 4–5 cm. long; calyces strongly urceolate, enlarged below, 7–8 mm. wide, abruptly tapering to an acute summit, 9–10 mm. long, glabrate below, the lobes tardily spreading, and merely erect at anthesis, ferruginous-tomentulose on the back, the broad hyaline margin prominent, very finely black vittate-glandular; petals only a little exceeding the calyx, narrowly ovate, dark brown, finely lineate, comose on the inner face near the tips; stamens included; fruit unknown.

Type in the U.S. National Herbarium, No. 2,166,544, collected in cutover flood-plain forest of Río Meta, Puerto López, Intendencia of Meta, Colombia, alt. 240 meters, July 28, 1944, by Elbert L. Little, Jr., and Ruby Rice Little (no. 8275); isotype in the herbarium of Tulane University.

Vismia urceolata, known only from the type collection, is perhaps restricted to the llanos of Colombia. The urceolate calyx distinguishes this *Vismia* at once from all other species. From the leaf characters, habit, and panicle characters it is evidently most closely related to *V. lauriformis* of cismontane Colombia.

The collectors record the vernacular name "lacre" for this species. I am grateful to Dr. Little for the opportunity to study this and his other *Vismia* collections.

16. *Vismia falcata* Rusby, Descr. S. Amer. Pl. 59. 1920.

V. angustifolia Rusby, Descr. S. Amer. Pl. 59. 1920. TYPE: Sacupana, Venezuela, April 1896, *Rusby & Squires* 141 (holotype, NY; isotypes, A, BM, E, G, K, MO, US, W, WU).

TYPE: Santa Catalina, Lower Orinoco River, Venezuela, May 1896, *Rusby & Squires* 142 (holotype, NY; isotypes, BM, K).

ADDITIONAL SPECIMENS EXAMINED:

TRINIDAD: Cumuto, *Broadway* 5726 (UC); Caroni, *Eggers* 1420 (US), *Britton & Mendelson* 837 (US); Arima, *Eggers* 1118 (E, UC, US); (?) Mount Tucouche, *Broadway* 5291 p.p. (A, UC, young shoots); (?) Blanchisseuse Road, *Broadway* 5661 (UC); "Fl. Trinitatis," *Sieber* 100 (E, G).

TOBAGO: Bacolet, *Broadway* 4139 (S, US, W); without locality, May 6, 1925, *R. O. Williams* (NY).

BRITISH GUIANA: Kamakusa, Upper Mazaruni River, *de la Cruz* 2819 p.p. (UC, US, somewhat atypical); Rockstone, *Gleason* 481 (US); Barima River, *Jenman* 7017 p.p. (NY); Demerara River, *Jenman* 5029 (NY); without locality, *Schomburgk* 182 (GL, US).

VENEZUELA: BOLÍVAR: Roraima, *Schomburgk* 935 p.p. (CGE); Guayapo, Bajo Caurá River, 100 m., "sangrito rastrojero," *L. Williams* 11754 p.p. (UC, US); La Paragua, 285 m., *Killip* 37579 (US).

BRAZIL: AMAZONAS: (?) San Carlos, Rio Negro, *Spruce* 3115 (MO, P).

Vismia falcata is marked by its usually falcate peach-like leaves, borne on slender petioles. The thin, crisp blades measure 3 to 4 times as long as broad, tapering to a slender acuminate tip. The leaves are finely puberulent, punctulate beneath with black pepper-dot glands.

Vismia falcata is certainly closely related to *V. lauriformis*. Some collections from the State of Bolívar, Venezuela, suggest morphological points of kinship with *V. lauriformis* in having broader ovate leaves and a more diffuse panicle than usual.

Two of the Trinidad collections, *Broadway* 5291 and 5661, suggest another and possibly unrecognized *Vismia*. These specimens show smaller leaves, long-acuminate at the tips, the surface more shining above and more suggestive of *V. guianensis*. It is noteworthy that *Broadway* 5291 comes from the summit of Mt. Tucouche, a locality recognized for its peculiar flora, as yet only partially known.

The Brazilian collection, *Spruce* 3115, is variable; a sheet in the Meisner Herbarium (NY) is very much like typical *V. falcata*, but another (NY) is broader leaved, like *V. guianensis*.

17. *Vismia cayennensis* (Jacq.) Pers. Syn. Pl. 2: 86. 1807.

Hypericum cayennense Jacq. Enum. Pl. Carib. 28. 1760.

H. acuminatum Lam. Encycl. 4: 150. 1796. TYPE: Herb. Lamarck from "Aroura, [a precinct of] Cayenne," French Guiana, *Stoupy* (P, Photo FM 35234, Photo Killip 712). Type labeled "ex roura in 17 au 21 novembre 1785."

Vismia acuminata Pers. Syn. Pl. 2: 86. 1806.

H. eugeniaefolium Willd. ex. Spreng. Syst. Veg. 3: 351. 1826, *pro syn.* Based on *Humboldt* coll. (no. 1038) from Curichana, Orinoco, Venezuela, in Willdenow Herb. (Photo FM 9498). Authentic specimen in *Humboldt & Bonpland* Herb. (P).

V. latifolia var. *acuminata* Sagot, Ann. Sci. Nat. VI, Bot. 11: 163. 1881.

Caopia acuminata Kuntze, Rev. Gen. Pl. 1: 59. 1891.

C. cayennensis Kuntze, *op. cit.* 58.

Vismia floribunda Sprague, Trans. Bot. Soc. (Edinburgh) 22: 428. 1905.

TYPE: Mocoa, Caquetá [now Com. Putumayo], Colombia, *Sprague* 401 (holotype, K; isotypes, BM, US).

TYPE: Not designated by Jacquin, but undoubtedly from Cayenne, French Guiana (cf. Jacq. Stirp. Amer. 213. 1763).

ADDITIONAL SPECIMENS EXAMINED:

TRINIDAD: Arima, *Eggers* 1363 (US); Toco Road, Valencia, *Britton, Hazen & Mendelson* 1778 (NY, US); Fort St. Georges Hill, *Johnston* 106 (US); Ortoire River, Guayaguayare Road, *Britton, Freeman & Nowell* 2542 (US); Caroni River, south of Dabadie, *Britton & Hazen* 724 (US); Caroni North Bank Road, *Britton & Mendelson* 824 (US).

TOBAGO: Big River Bridge, Mason Hall, *Broadway* 3035 (L, NY); Greenhill, *Broadway* 4140 (S, US); Cocoawattee, 15 Jan. 1913, *Broadway* (US); Bacolet River, *Eggers* 5731 (S, US).

FRENCH GUIANA: Karouany, *Sagot* 66 (G, K, NY, S, W); Cayenne, 1792, *Leblond* (A, NY); Cayenne, 1838, *Leprieur* (K, NY); Godebert, *Wachenheim* 40 (K, US); vicinity of Cayenne, *Broadway* 399 (NY, US), 209 (NY).

SURINAM: Raleigh Falls, Coppename River, *Lanjouw* 972 (NY); Kabelstation, *Lanjouw* 1180 (NY); Tamarinal, Cottica River, *Linder* 105 (NY); Charlesburg, near Paramaribo, *Lanjouw* 96 (U); near Oude Ryweg, Paramaribo, *Samuels* 212 (A), 213 (S); Juden-Savanne, *Kappler* 1722 (G, S); Charlesburg Rift, 3 km. north of Paramaribo, *Maguire & Stahel* 22779 (NY, US); Tawa Creek, *Maguire* 23765 (NY, US); forest of the Station, Groningen, *Samuels* 112 (A, K); Scotelweg, "swinani," "pina," *Archer* 2660 (NA, S, US), 2706 (NA, US); without locality, *Hostmann* 438 (BM, CGE, DS, G, K, OXF, S); Sectie O, *Maguire & Stahel* 23624 (US), *B.W.* 635 (US), 1772 (US)

BRITISH GUIANA: Without locality, *Schomburgk* 607 (CGE, G, GL, K, S, US); Pirara, *Schomburgk* 240 (BM, FI); Mabaruma Compound, "bloodwood," *Archer* 2304 (K, US); Kamakusa, Upper Mazaruni River, *Lang* 370 (NY); Isherton, Basin of Rupununi River, *A.C. Smith* 2443 (K, S, US).

VENEZUELA: AMACURO: Manoa, *Rusby & Squires* 143 (US). ANZOÁTEGUI: Cabeceras de Guaraguara, *Pittier* 14843 (US); Río Cochama, Mesa de Guanipa, 240 m., *Pittier* 14331 (US). BOLÍVAR: Quebrada O-paru-má, between Santa Teresita de Kavanayén and Río Pacairao, 1065-1220 m., "minchu-warei-yek," *Steyermark* 60423 (US); Medio Caurá River, Salto de Pará, 170 m., *L. Williams* 11472 (US); Sabana de Guayapo, Bajo Caurá River, 100 mi., *L. Williams* 11863 (US); La Paragua, 70 m., *L. Williams* 12612 (US); between Ciudad Bolívar and Río Caroni, 100 m., *Steyermark* 57579 (US); Gran Sabana, between Kun and Ruémerú, south of Mount Roraima, 1065 m., *Steyermark* 59142 (US); vicinity of Tumeremo, 305 m., "sangrito," *Steyermark* 60936 (US); Ciudad Bolívar, *Holt & Gehriger* 190 (US), *Bailey & Bailey* 1335 (US). AMAZONAS: San Carlos de Río Negro, 100 m., "lacre blanco," *L. Williams* 14529 (US).

COLOMBIA: BOLÍVAR: San Martín de Loba, *Curran* 67 (US). VAUPÉS: San Felipe, below confluence of Río Guainía and Río Cassiquiare, Río Negro, ca. 180 m., "puinave," "teen-ká," *Schultes, Baker, & Cabrera* 18083 (US). CAQUETÁ: Morelia, 150 m., *von Sneidern* 1318 (US). AMAZONAS: Leticia, Trapecio amazónico, 100 m., *Schultes* 8208 (US); Río Humacayacu, Trapecio amazónico, above 100 m., *Schultes* 8252 (US). EL VALLE: Prov. Buenaventura, 1200 m., July 1853, *Triana* 3 (BM, COL).

ECUADOR: SANTIAGO-ZAMORA: Above Valladolid, Río Valladolid, 2100-2400 m., *Steyermark* 54726 (US).

PERU: SAN MARTÍN: Zepelacio, near Moyobamba, 1200–1600 m., *Klug* 3455 (F, K, S, US). LORETO: Yurimaguas, Lower Río Huallaga, 135 m., *Killip & Smith* 27580 (US), 28205 (US); Iquitos, 100 m., *Killip & Smith* 27039 (F, US).

BRAZIL: AMAZONAS: Near Livramento, on Rio Livramento, Munic. Humaytá, *Krukoff* 6865 (A, US); Paranagua, basin of Rio Jurua, *Krukoff* 4566 (A, US); road to Boa Vista, Caracarahy, *Froes* 22948 (NY); Ega, *Poeppig* 2532 (W); Esperança, mouth of Rio Javari, *Ducke* 1882 (US); Cucuhy, Rio Negro, 120 m., *Holt & Gehriger* 373 (US); Amapa, *Huber* 1219 (G); Manáus, 25 m., *Killip & Smith* 30089 (US); near mouth of Rio Embira, tributary of Rio Tarauaca, *Krukoff* 8479 (S, US); Parintins, *Ducke* 117 (US); near Palmares, Munic. São Paulo de Olivença, *Krukoff* 8479 (S, US). PARÁ: Santarém, August 1850, *Spruce* (E, G, NY, TCD).

Vismia cayennensis and *V. glabra* are very close in nearly all morphological characters. The buds of *V. glabra* are hairy on the outside, and those of *V. cayennensis* glabrous. The most noticeable feature of *V. glabra* is that the panicle-branches are pubescent right up to the peg-like swelling upon which each pedicel articulates; sometimes this swelling is clothed with a minute fringe of hairs. *V. cayennensis* is without this pubescence. The leaves of *V. glabra* are often larger than those of its relative but this is not uniformly true.

When Persoon established *Vismia cayennensis* he did not mention the earliest use of the epithet by Jacquin, but by following back through the literature by way of Willdenow,²⁵ to whom Persoon refers, the ultimate name-bringing basionym is established.

In Humboldt, Bonpland, and Kunth's "Nova Genera et Species Plantarum," *V. acuminata* (Lam.) Pers. is included on the basis of a specimen collected near Curichana, on the Río Orinoco near the confluence of the Río Meta. I have examined the Humboldt and Bonpland collection at Paris and find that it represents almost typical *V. cayennensis*. It does not have the long-acuminate leaf-tips of the form described as *acuminata*. The sheet bears the *nomen nudum* *Hypericum eugeniaefolium* Willd., indicated as a synonym by Sprengel.

18. *Vismia laevis* Triana & Planch. Ann. Sci. Nat. IV. Bot. 17: 303. 1862.

Caopia laevis Kuntze, Rev. Gen. Pl. 1: 59. 1891.

TYPE: "Forêts du Quindio, alt. 2000 metres, prov. de Mariquita et forêts d'Antioquia (Tr.)." The first syntype is represented by a specimen "Forêts du Quindio, 1400 m.," *Triana* 262 (K). The second syntype is represented by "Prov. Antioquia, 2000 [meters ?], n.v. 'carate,' Mayo 1852," *Triana* 1 (COL, Photo U.S. Nat. Herb. 2967). The latter is designated as lectotype; isolectotypes, BM, P, Photo FM 35235.

ADDITIONAL SPECIMENS EXAMINED:

COLOMBIA: ANTIOQUIA: Río Negro, Medellín, 2100 m., *Sandeman* 5552A (K), 5712 (K), *Archer* 313a (US); La Sierra, 2000 m., *Archer* 1323 (NY, US); Llano Grande, near Río Negro, 2200 m., "punta de lanza," *Daniel* 3852 (US); Santa Elena, 2500 m., *Rios C. et al.* 619 (US); San Pedro, "carate," *Tomás* 168

²⁵ Sp. Pl. 3: 1439. 1803.

(US); La Ceja, *Daniel* 2197 (US); Alto Catatumbo, north of Yarumal, 2300 m., *Core* 620 (NO). CALDAS: Portachuela, Quindio, 1844, *Goudot* (P). TOLIMA: El Líbano to Murillo, in subpáramo, 2200–2900 m., *García-Barriga* 12261 (US).

Vismia laevis, a relative of *V. cayennensis*, is an endemic species of central Colombia, characterized by longer, more narrowly lanceolate leaves than those of its relative, the blades tapering to long-acuminate tips, the texture distinctly more coriaceous. The sepals are more prominently hyaline-bordered, with a distinct broad flange. The pedicels are stout, peg-like, and tend to persist on older fruiting branchlets. The fruits average larger than those of *V. cayennensis* (12–20 mm. long), and are fusiform rather than subspherical, with conspicuous spreading or reflexed sepals. In certain of these characters *V. laevis* stands between *V. cayennensis* and *V. glabra*.

19. *Vismia glabra* Ruiz & Pav. Syst. Veg. Peruv. Chil. 183. 1798.

Caopia glabra Kuntze, Rev. Gen. Pl. 1: 59. 1891.

TYPE: "Peru," without further indication. An authentic specimen in the Delessert Herbarium (G, Photo FM 23954) received from Pavon is designated as lectotype; there is another specimen in the Delessert Herbarium (G, Photo FM 8005) which is presumably a duplicate. Other authentic collections, perhaps isotypes: ex Herb. Lambert (BM), ex Herb. Pavon (K), and Herb. Boissier (G). Possible isotypes are "*Dombey* 640" (P) and "Cochero, *Dombey*" (P). Another collection *Dombey* 639, without locality (F) may be a syntype.

ADDITIONAL SPECIMENS EXAMINED:

PERU: LORETO: Above Pongo de Manseriche, 205 m., "pichirina," *Mexía* 6306 (CAS, F, S, UC, US); Pumayacu, *Klug* 3140 (A); Mishuyacu, near Iquitos, 100 m., *Klug* 1009 (F, US); Paraiso, Alto Río Itaya, 145 m., *L. Williams* 3366 (F), *L. Williams* 41 (F), 136 (F), 3310 (US); San Antonio, Río Itaya, 110 m., *Killip & Smith* 29410 (US), *L. Williams* 3324 (F), 3396 (F); Iquitos, 100 m., *Killip & Smith* 27075 (F, US), *Tessmann* 3659 (G, NY); Pebas, Río Amazonas, *L. Williams* 1639 (F); Caballo-Cocha, *L. Williams* 2061 (F); Yurimaguas, Lower Río Huallaga, *Killip & Smith* 27987 (F, US); Lower Río Nanay, *L. Williams* 357 (F). SAN MARTÍN: Upper Río Huallaga, *L. Williams* 5826 (F); San Roque, 1350–1500 m., *L. Williams* 7043 (US), 7044 (US); Tarapoto, *Mathews* 1310 (CGE, GL), *L. Williams* 5546 (F). HUÁNUCO: La Purísima, Distrito Churubamba, 1750 m., *Mexía* 8232 (F, K, NA, S, U, UC, US); Pampayaco, *Poeppig* 1020 (G, W, with remarkable ferruginous raceme branches).

BRAZIL: AMAZONAS: São Paulo de Olivença, near Palmares, Rio Solimões Basin, *Krukoff* 8479 (A, US); Rio Macauhan, basin of Rio Purus, Rio Acre, *Krukoff* 5241 (UC, US); Cobija, Rio Acre *Ule* 9613 (K, Photo FM 9171 of a specimen in the Berlin Herbarium), 9639 (K); Seringal, Taraguassu, *Ule* 9909 (K, Photo FM 9172 of a specimen in the Berlin Herbarium).

Vismia glabra is a polymorphic species, the distinguishable forms being more or less correlated with the topography of the central Andes and their adjacent plains. Some forms are so strongly marked as to their vegetative features as to have been named, although not published, by Melchior of the Berlin Herbarium. The Amazonas collections—and there are many in our herbaria—are marked by unusually thin leaves borne on slender petioles, at more or less right

angles to the stem and long-pedunculate, loosely-flowered panicles. However, the flowers do not differ in their technical characters from those of the usual *Vismia glabra* of higher elevations in the Andes. These Amazonas collections commonly display lateral as well as terminal panicles, recalling *V. lateriflora* from the same region in this particular.

Vismia glabra is certainly most closely related to *V. cayennensis*, and, indeed, some collections are not easily identified; the *differentiae* are discussed in the account of *V. cayennensis*.

Although there was no mention made of Dombey collections when the species was described, *Dombey* 639 (F), consisting of merely a small but mature leaf, agrees closely with the leaf characters of the authentic collections preserved at Geneva.

19a. *Vismia glabra* subsp. *pozuzoensis* (Engler) Ewan, comb. nov.

V. pozuzoensis Engler, Bot. Jahrb. Engler 58, Beibl. 130: 1. 1923.

TYPE: Pozuzo, Department of Huánuco, Peru, *N. Esperto* (Photo FM 9170, of a specimen in the Berlin Herbarium).

SPECIMENS EXAMINED:

PERU: CAJAMARCA: Tambillo, *Jelski* 252 (S, US, W). HUÁNUCO: Moyobamba, *Weberbauer* 4515 (G); Cueva Grande, near Pozuzo, *Macbride* 4763 (F); Pozuzo, *Macbride* 4574 (F). JUNÍN: Carpapata, *Soukup* 3434 (US). Without locality, *Mathews* 1310 (BM).

BOLIVIA: SANTA CRUZ: Yungas de San Mateo, 2500 m., *Steinbach* 8403 p.p. (S).

Resembling typical *Vismia glabra* but the leaves strongly ascending, the blades oval, cuneate at the base, rather thick or firm, plane, sometimes punctate beneath with pin-point pits, the petioles 10–15 mm. long; panicles loosely fewer-flowered, often lateral as well as terminal; flower buds often ferruginous-woolly on the outside.

This subspecies is evidently restricted in its range. It is described as a "compact shrub or small tree" of "sunny brushy slopes" by J. F. Macbride, who has collected it at the type locality. Plants that appear to represent the same subspecies, though geographically at some distance from the Peruvian stations, have been collected in the Trapecio amazónico, Department of Amazonas, Colombia: Río Loretoyacu, 100 m., *Schultes* 8264 (US), 6691 (US), *Schultes & Black* 8389 (US); Río Boiauassú, 100 m., *Schultes* 6876 (US).

Hipolito Ruiz describes the location of the pueblo of Puzuzo [sic!] in some detail in Chapter 38 of his *Travels*,²⁶ and I believe he collected subsp. *pozuzoensis* there. In any event there is in the British Museum (Nat. Hist.) a sheet labeled in Pavon's (?) hand "Vismia sp. nova del Peru," from the herbarium of Lambert, who acquired the Ruiz and Pavon collection. It is a good example of this subspecies.

²⁶ Cf. Field Mus. Publ. Bot. 21:172-183, 1940.

20. *Vismia plicatifolia* Hochr. Ann. Cons. Jard. Genève 21: 54. 1919.

Caopia parvifolia Rusby, Phytologia 1: 65. 1934. TYPE: Chuquini, Cordillera Real, 900 m., Bolivia, 17-19 April 1926, Tate 1128 (NY).

TYPE: Polo-Polo near Coroico, North Yungas, Bolivia, *Buchtien* 222 (G, Holotype, Photo FM 9169, from B; isotypes, C, E, F). Paratypes: Yungas, *Bang* 595 (C, E, F, G, K, L, US).

ADDITIONAL SPECIMENS EXAMINED:

BOLIVIA: Without locality, *Bang* 2933²⁷ (K, US). Coroico, North Yungas, 2000 m., *Mexia* 4268 (MO, UC); Polo-Polo, near Coroico, *Buchtien* 6014 (US); Yungas, 1800 m., *Rusby* 720 (F, K, US), *Bang* 621 (US); San Francisco, *Werdermann* 2525 (Photo FM 9159 of specimen B); Hacienda Simaco, on road to Tipuani, 1400 m., *Buchtien* 5464 (MO, S, US); Ixiamas (Isiamas), 240 m., *Cárdenas* 1947 (K, NY, US), *White* 1149 (US); Milluhuaya, south of Coripata, 1300 m., *Buchtien* 4645 (US); Songo, *Bang* 835 (BM, E, G, K, US); San José, 1500 m., *R. S. Williams* 385 (K, US); Buena Vista, Santa Cruz, 450 m., *Steinbach* 5081 (NY), 6519 (BM, F, K), 7252 (BM, E, K, MO, U, UC); Yungas de San Mateo, *Steinbach* 8403 p.p. (F, K, US); Riberalta, Beni, 300 m., *Cárdenas* 4172 (US).

PERU: SAN MARTÍN: San Roque, *L. Williams* 7043 p.p. (F).

The type of *Caopia parvifolia* has small, hardly plicate leaves, unusual for this species, and weaker, more delicate panicles. Tate's collection is unique, but another collection, *Steinbach* 6519, is transitional to the typical phase. This Bolivian collection from Santa Cruz comes from a lower elevation than the Tate specimen. However a second *Steinbach* collection (no. 7252) from the same locality is more nearly typical. In short, *C. parvifolia* can hardly represent more than the normal variation to be expected within a species.

Certain Peruvian collections prove difficult to place, showing characters of both *Vismia sprucei* and *V. cayennensis*, as well as *V. plicatifolia*. These include: Puerto Bermúdez, Junín, 375 m., *Killip & Smith* 26439 (US) and Pumayacu, Loreto, 600-1200 m., *Klug* 3140 (US; but no. 3140 at A and MO is *V. glabra*).

21. *Vismia viridiflora* Duchass. ex Triana & Planch. Ann. Sci. Nat. IV. Bot. 17: 302. 1862.

Caopia viridiflora Kuntze, Rev. Gen. Pl. 1: 59. 1891.

TYPE: Panama, *Duchassaing* (likely from the vicinity of Panama City; cf. Contr. U.S. Nat. Herb. 27: 44). Paratype: Chagres, on Chagres River [now Canal Zone], Feb. 9, 1850, *Fendler* 6 (K, OXF, TCD, US).

ADDITIONAL SPECIMENS EXAMINED:

PANAMA: Without locality, *Seemann* 466 (BM, K, S); Campana, 600-800 m., *Allen* 1692 (NY, US); Matachin, *Hayes* 456 (NY); Ancón Hill, 180 m., *R. S. Williams* 7 (NY, US); Bismarck, above Penonome, *R. S. Williams* 559 (NY, US). CANAL ZONE: Bohio, 10-20 m., *Maxon* 4774 (S, US); Chiva-Chiva Trail, *Piper* 5763 (S, US); Río Tapia, *Standley* 30688 (K, US); Chagres, *Fendler* 299 (K).

COLOMBIA: Chocó: Cordillera Occidental, 1200 m., *Triana* (P).

Vismia viridiflora has the general appearance of *V. cayennensis*, from which it differs in its fine, almost microscopic puberulence on

²⁷ No locality data supplied by account in Bull. N.Y. Bot. Gard. 4:327. 1907.

the lower surfaces of the more narrowly lanceolate leaves. The other distinguishing characters mentioned by Triana and Planchon, and illustrated by *Fendler* 6 from Panama, are minor and without taxonomic significance.

22. *Vismia lehmannii* Hieron. Bot. Jahrb. Engler 20, Beibl. 49:53. 1895.

Caopia lehmannii Hieron. loc. cit.

TYPE: Vicinity of Popayán, Department of Cauca, Colombia, 1750 m., *Lehmann* 3551 (isotypes BM, K, US).

ADDITIONAL SPECIMENS EXAMINED:

COLOMBIA: CAUCA: Popayán, *Lehmann* K74 (probably part of type collection) (K, S, US), BT1086 (A, K, L); Capilla, *Lehmann* BT450 (L). EL VALLE: Piedra de Moler, Rio Digua, 900–1180 m., *Cuatrecasas* 14893 (US). CAQUETÁ: Florencia, 420 m., "lacre," *Pérez-Arbeláez* 692 (US).

Vismia lehmannii is more closely related to *V. baccifera* than to *V. cayennensis*, contrary to the opinion of Hieronymus. The leaves are nearly farinose-puberulent, recalling the vestiture of *V. confertiflora* Spruce, although smaller than those of that species. From forms of *V. baccifera* growing in the Popayan region, this local species may be identified by the small flowers crowded in a compact panicle.

23. *Vismia cuatrecasasii* Ewan, sp. nov.

Arbor gracilis 20 m. alta, ramis ad 25 cm. diam., castaneis, internodiis superioribus aliquantum brevibus, 5–7 cm. longis; laminis foliorum magnis, ovatis vel oblongo-ovatis, ad basim rotundatis, 12–20 cm. longis, 7–10.5 cm. latis, cuspidatis, supra vitreo-viridibus, glabris, infra puberulentis, sparse atro-punctatis vel eglandulosis, prominente venosis, coriaceis, atque flexilibus, siccitate submembranaceis, omnibus breviter petiolatis, petiolis subalatis, 5–12 mm. longis; paniculis oblongo-pyramidalibus, cum adjunctis ramis in axillis superiorum foliorum, rache atque pedicellis rufo-puberulentis; calycibus subcampanulatis, submembranaceis, minute tomentulosis, pruinosis, sepalis ovatis, acutis, 8–9 mm. longis, divaricatis, interdum paullo atro-pustulato-glandulosis in margine, marginibus hyalinis atque subobsoletis; petalis lanceolato-ovatis, obtusis, ochroleucis, extus subtiliter atro-lineatis, apice sparse vittatis, intus dense tomentosis, 11–16 mm. longis; fasciculis staminorum quinque omnibus dense comosis, apice ramosis.

Slender tree up to 20 m. high, the stems to 25 cm. in diameter, the bark brown scaly, the upper internodes rather short, 5–7 cm. long; leaves large, leathery and flexible when fresh, thinner when dried, all shortly petiolate, the petioles 5–12 mm. long, more or less wing-margined or channeled above, the blades ovate to oblong-ovate, rounded at the base, 12–20 cm. long, 7–10.5 cm. wide, abruptly acute at apex, the upper surfaces bright lustrous green when fresh, rather dull in the herbarium, glabrous, the lower surface finely puberulent,

weakly punctate with black dot-like glands or at times evidently without glands, the midrib and secondary veins distinct and wholly anastomosing in submarginal loops; panicle oblong-pyramidal, at times with supplementary lateral branches in axils of the uppermost leaves, the rachises and pedicels rufous-puberulent; calyx subcamp-anulate, thin-textured and early withering, finely but unevenly tomentulose, more or less pruinose, the sepals ovate, acute, 8–9 mm. long, spreading, sometimes with a few black pustulate glands on the margins, the hyaline margin nearly obsolete; petals lance-ovate to narrowly lanceolate, obtuse, cream-colored, finely lineate with black pencil markings on outside, weakly vittate toward the summits, densely tomentose within, 11–16 mm. long; stamen columns 5, all densely comose, branching about midway into several branches; fruit unknown.

Type in the U.S. National Herbarium, no. 1,950,013, collected between La Herradura de Ordóñez and Peña de Campotraste, Río Calima (region of Chocó), Department of El Valle, Colombia, alt. 5–10 meters, 3 March 1944, by José Cuatrecasas (no. 16687); isotype in the herbarium of Tulane University.

PARATYPES:

COLOMBIA: EL VALLE: (Costa del Pacifico): Barco, Río Cajambre, 5–80 m., *Cuatrecasas* 17199 (NO, US); between Isla de Golondro and La Amargura, Río Yurumanguí, 10–40 m., *Cuatrecasas* 16049 (US); Puerto Merizalde, Río Naya, 5–20 m., *Cuatrecasas* 13954 (US); Silva, Río Cajambre, 5–80 m., *Cuatrecasas* 17641 (US); Quebrada de Guapecito, Río Cajambre, 0–5 m., *Cuatrecasas* 17694 (US).

Vismia cuatrecasasii is evidently restricted to the lowland rain forests of the Pacific Coast of Colombia. The collections at hand, all made by Dr. José Cuatrecasas, are very uniform for the genus. The taxonomic position of this species is clearly with *V. obtusa* of Ecuador and Peru, from which it is at once separable by its larger flowers. From the form of *V. lauriformis* that grows in the same region, this species may be distinguished by the darker red tint of the lower leaf surface, the pubescence obscuring the secondaries, whereas the dark-colored veins in *V. lauriformis* contrast prominently with the red-brown pubescence.

The distinguished botanist, José Cuatrecasas, is commemorated in the name of this *Vismia*; he has made the largest and most critical collections not only of *Vismia* but of the rich Colombian flora in general.

24. *Vismia baccifera* (L.) Triana & Planch. Ann Sci. Nat. IV, Bot. 17: 298. 1862.

Hypericum bacciferum L. Mant. 277. 1771.

Vismia guttifera Pers. Syn. Pl. 2: 86. 1807. Based on *Hypericum bacciferum* L. An illegitimate renaming.

Caopia baccifera Kuntze, Rev. Gen. Pl. 1: 58. 1891.

TYPE: Said to be from Mexico, collected by J. C. Mutis, but undoubtedly from Colombia and likely from the vicinity of Mariquita, where Mutis lived and worked.

There is an authentic Mutis collection in the U.S. National Herbarium (sheet no. 1,561,386) and another from Lambert's Herbarium now in the British Museum (Natural History). Eyma reported in 1932 that no type exists in the herbarium of the Linnaean Society, London.

Vismia baccifera is the most polymorphic species of the genus. Typical plants, which are trees of Colombia, are here associated with three subspecies, each with a more or less consistent geographic range but commonly connected by a series of morphologically transitional forms that prove difficult to separate.

Key to the Subspecies

Leaves strongly bicolored, white-tomentulose beneath, bright lively green above, generally broadly deltoid-ovate or at times ovate or lance-ovate.

V. baccifera subsp. *dealbata*

Leaves not strongly bicolored white and green, more or less ferruginous or unevenly cinereous or canescent beneath, usually dull dark green above, varying from cordate-ovate or suborbicular to ovate or even lanceolate, seldom exactly broadly deltoid-ovate.

Leaves ferruginous-tomentulose beneath, lance-ovate, acuminate to an acute narrow apex, rounded or often subcordate at the base, the principal blades averaging 14–18 cm. long; petioles often 2 cm. long or more; lowland and middle elevations of Venezuela, Colombia, and Panama.

V. baccifera subsp. *ferruginea*

Leaves not ferruginous-tomentulose beneath, varying from cinereous to ochre-yellow sometimes on same branchlet, chiefly broadly ovate but variable, generally not lanceolate, if the principal blades as much as 14 cm. long then proportionately broader; petioles less than 2 cm. long; interior and upland Andes from Colombia to Bolivia.

Petals short, 7–9 mm. long; fruiting panicle rather compact, the branches short, stout; Peru and Bolivia. . . . *V. baccifera* subsp. *subcuneata*

Petals longer, 10 mm. long or more; fruiting panicle diffuse, the branches spreading, slender; Colombia and northern Ecuador.

V. baccifera subsp. *baccifera*

24a. *Vismia baccifera* subsp. *baccifera*.

SPECIMENS EXAMINED:

COLOMBIA: NORTE DE SANTANDER: Hoya del Río Margua, Quebrada del Río Negro, region of Sarare, 1200–1300 m., *Cuatrecasas* 12932 (US). CUNDINAMARCA: Between Cachipay and Quebrada del Hueso, 1600–1700 m., *Cuatrecasas* 13591 (US); 11 km. south of La Palma, 1950 m., *Little* 7392 (NA, NO). ANTIOQUIA: Angelopolis, 1950 m., *Gutierrez & Barkley* 17C679 (US). CHOCÓ: Nuqui, *Romero C.* 418 (US). EL VALLE: Below Queremal, Río San Juan, Hoya del Río Digua, 1300–1500 m., *Cuatrecasas* 23868 (US); Córdoba, *Killip* 5079 (NY, US). CAUCA: La Capilla, 25 km. n. of Popayán, 1740 m., *Killip* 38469 (US); "Las Guacas," Morales, 1600–1650 m., *Pennell & Killip* 6298 (US).

The typical tree of Colombia has broadly ovate rather long-petiole leaves, that are not strongly bifacial, but have a pale yellowish or ashy lower surface, a diffuse panicle whose branches are spreading at right angles to its rachis, moderately large flowers with white petals, about half again as long as the sepals, the sepals with a prominent

membranous flange, and baccate fruits. It is these large (12–13 mm. in diameter, 15–17 mm. long), heavy fruits that must have suggested the original specific name "baccifera" to Linnaeus, who, indeed, may have received the manuscript name from Mutis.

There is a fragmentary collection in the Chicago Museum of Natural History Herbarium (no. 940,497) bearing two labels, one a form label provided by the Museum d'Histoire Naturelle, Paris, and a second more important ticket which bears the characteristic mark of the Willdenovian Herbarium at Berlin and the words "*Hyperic[um] bacciferum* [vol.] 3 p. 1440." The pagination refers to Willdenow's *Species Plantarum*. The leaves of this collection, though fragmentary, are a remarkably close match for some of the leaves accompanying Mutis 3718 (US 1,563,038), an authentic sheet of *Vismia baccifera*. It is possible that this incompletely labeled collection from Bonpland's herbarium may represent portions of the Mutis material.

24b. *Vismia baccifera* subsp. *dealbata* (H.B.K.) Ewan, comb. nov.

V. dealbata H. B. K. Nov. Gen. & Sp. 5:184. t. 454. 1822.

Caopia dealbata Kuntze, Rev. Gen. Pl. 1: 59. 1891.

V. hamanii Blake, Contr. Gray Herb. 53: 41. 1918. Type: San Félix-Táchira, Táchira, Venezuela, 16 May 1917, "lancetillo," H. M. Curran & M. Haman 1010 (GH; isotypes, A, K, NY, P, US, WU). The label of an isotype reads, "Estación Táchira," which is a pueblo in the Río Táchira valley; "San Félix" has not been located in the State of Táchira; it was transcribed by Blake as "San Felipe."

TYPE: Labeled "No. 1152. Rio Negro. Cassiquiare" from Río Negro and Río Cassiquiare, Venezuela, *Humboldt & Bonpland* (P, Killip photo 714).

ADDITIONAL SPECIMENS EXAMINED:

SURINAM: Forest of Zandery, 31 May 1916, *Samuels* (US), 275 (P).

FRENCH GUIANA: Without locality, in 1792, *Leblond* (BM); Maroni, in 1862, *Melinon* (E, US); Cayenne, *Jelski* (K, P, US).

VENEZUELA: ANZOÁTEGUI: Cerro Peonia (Cerro Coroy), northeast of Bergantín, *Steyermark* 61394 (F). CARABOBO: Buenavista, *Linden* 1502 (FI, G). DISTR. FEDERAL: Without locality, *Birschel* (TCD); Caracas, 1400 m., *Pittier* 9184 (US); El Junquito, 1500 m., *Lasser* 1122 (US); between Caracas and La Guaira, 1100–1300 m., *Pittier* 9558 (NY, US); between La Guaira and Río Grande, "onotillo," *Curran & Haman* 985 (paratype of *V. hamanii*) (A, US). MÉRIDA: Tabay, 1900–2200 m., "punta de lanza," *Gehriger* 351 (MO, US); Los Teques, 1140 m., *Eggers* 13031 (US); Capellania, 1600 m., "lancetillo," *Tamayo* 2436 (UC, US); Mérida, 1700 m., *Pittier* 12748 (G, US); along Río Albarregas, Monte Serpa, 1675–2135 m., "mancha ropa," *Steyermark* 55934 (US). TÁCHIRA: Alto de Lirio, between Bramón and Las Delicias, 1890–2285 m., *Steyermark* 57440 (US). TRUJILLO: "Andes de Truxillo," *Linden* 332 (P).

COLOMBIA: ANTIOQUÍA: Fredonia, *Toro* 1037 (NY). BOYACÁ: La Chapón, 1050 m., *Lawrance* 303 (K, MO). CAQUETÁ: Solano, near Tres Esquinas, 200 m., "laere," *Little & Little* 9501 (transitional to subsp. *ferruginea*) (NO, US). CUNDINAMARCA: 10 km. south of Gachalá, 2150 m., *Fosberg & Grant* 21966 (NO, US); Finca "La Esmeralda," Vereda Tórriba, San Francisco, 1550 m., "punta de lanza," *García-Barriga* 10989 (US); near Sasaima, 1600–1800 m., *Cuatrecasas* 9632 (US); between El Salto and El Colegio, 1680 m., *Cuatrecasas*

8242 (US); above El Colegio, 1500–1600 m., *Dugand* 3688 (US); Estación Santana, 1600–1700 m., *Dugand & Jaramillo* 3977 (US); between Sueva and Gachetá, 1800–2100 m., *Cuatrecasas & Jaramillo* 11991 (US). HUILA: Santa Ana, alt. 1650 m., “lacre, small tree to 8 m., 10 cm. D.B.H., bark gray, slightly fissured; flowers brown; produces mucilage for sealing letters; fruit produces red coloring, and also medicine for livestock, common in dry forest,” *Little & Little* 7110 (NO, US). MAGDALENA: Río Hacha, *Purdie* (K); around San Andrés de la Sierra, western slope of Sierra de Santa Marta, 1100–1300 m., *Pittier* 1651 (US); Santa Marta, *Purdie* (TCD), 600 m. *H. H. Smith* 803 (K, MO, UC, US). META: Puerto López, *Fosberg* 20173 (NA, NO), *Little & Little* 8273 (NO, US); Villavicencio, toward El Parrao, 500 m., *Cuatrecasas* 4568 (US); Cabuyaro, Los Llanos, Río Meta, 235 m., *Cuatrecasas* 3593 (US); Cano Ciervo, Sierra de la Macarena, 600 m., *Philipson et al.* 2092 (BM, US); along Río Ocoa, southeast of Villavicencio, 500 m., *Killip* 34381 (US). NORTE DE SANTANDER: Toledo, 1700–1900 m., *Killip & Smith* 20037 (US); Río Pamplonita, between Cúcuta and Pamplona, 700 m., *Cuatrecasas & García-Barriga* 10177 (US). SANTANDER: Charta, 2000–2600 m., *Killip & Smith* 19232 (US); Bucaramanga, 1000 m., *Weir* 93 (K), “sangrito,” *Killip & Smith* 16335 (NY, US); 10 km. north of Bucaramanga, 1500 m., *Araque-Molina & Barkley* 18S215 (US); 18 km. south of Socorro, 1200 m., *St. John* 20540 (NO, US); Mesa de los Santos, 1500 m., *Killip & Smith* 15074 (US). TOLIMA: Líbano, 1100–1300 m., *Pennell* 3446 (NY, US).

BRAZIL: PARÁ: Santarém, May 1850, *Spruce* (BM, E, FI, K, OXF), *Spruce* 766 (K).

This subspecies *dealbata* has long been treated as a full species perhaps because of the rather striking whitish lower leaf-surface but a study of a large series of specimens shows this tree of Venezuela and northern Colombia with strongly bicolored leaves to be a variable geographic population of the widespread *Vismia baccifera*. The number of intermediate specimens that cannot be assigned to the subspecies or the typical *baccifera* is too large to regard this subspecies as distinct from *V. baccifera*.

There is a notable collection in the Harvey Herbarium of the Dudley Herbarium, Stanford University, with a ticket reading “*Vismia guianensis*, Pers. DC. 5, Porto Rico, 1844.” which is in fact this subspecies *dealbata*. No *Vismia* is known from the island of Puerto Rico and I find no record of botanical collections having been made on the island during the year 1844. The specimen matches collections of this subspecies from coastal localities in Venezuela. Henrik Johannes Krebs botanized in Puerto Rico, according to Urban, and traveled on occasion to both North and South America. Though Urban is not detailed in his dates, Krebs’ period of activity supports the conjecture that this specimen was taken, not in Puerto Rico, but at a Venezuelan port on one of these trips. Duplicates of this collection are preserved at Dublin and at Geneva (ex Delessert Herbarium).

The type of *Vismia dealbata* H.B.K. at Paris does not closely resemble the illustration of the species (*Pl.* 454) accompanying the original description. Perhaps the artist somewhat idealized the plant for purposes of illustration, but the leaves are drawn as being more or less undulate, apparently of a firm, thick texture, and tending to fold along the midrib, whereas the type shows a plant with plane leaf-blades of a thin or membranous texture, at least as preserved in the herbarium. However, the leaves are described as "integerrima," which conforms with the type. The word "subcoriacea" might be interpreted as fortifying the artist's figure, yet I believe that a firm, cutinized leaf surface is intended, in spite of the evidently thin texture of the type specimen. In interpreting the species as distinguished from its close relatives the phrase "subtus pilis stellulatis tenuissime albido-tomentosa," descriptive of the white-tomentose character of the leaves, is important.

24c. *Vismia baccifera* subsp. *ferruginea* (H. B. K.) Ewan, comb. nov.

V. ferruginea H. B. K., *Nov. Gen. & Sp.* 5: 183. 1821.

Hypericum cuspidatum Willd. ex Spreng. *Syst. Veg.* 3: 351. 1826, *pro syn.*

V. ferrugineae.

V. cuspidata Steud. *Nom. Bot.*, ed. 2, 1: 787. 1840, *nom. nud.* Based on *H. cuspidatum* Willd.

Caopia ferruginea Kuntze, *Rev. Gen. Pl.* 1: 59. 1891.

TYPE: Orinoco River, between Atures and Maypures, in the present state of Bolívar, Venezuela, *Humboldt & Bonpland s.n.* (Humboldt & Bonpland Herbarium P, Killip photo 713).

ADDITIONAL SPECIMENS EXAMINED:

VENEZUELA: Forests of Guamita, "cedrillo," *Delgado* 132 (US). **CARABOBO:** Near Tinaquiolo, *Chardon* 137 (US). **AMAZONAS:** Esmeralda, 143 m., *L. Williams* 15375 (US). **BOLÍVAR:** Guayapo, 100 m., *L. Williams* 11754 p.p. (K); La Union, Medio Caurá River, 120 m., *L. Williams* 11689 (US).

COLOMBIA: **ANTIOQUIA:** Salto de Guadalupe, 1600 m., *Hodge* 6964 (US); Llano Grande, near Río Negro, 2200 m., *Daniel* 3850 (US); Angostura, 2000 m., *Fosberg* 21604 (NO); Angelópolis, 1950 m., *Gutierrez & Barkley* 17C680 (US); Fredonia, *Toro* 187 (NY); Primavera, Medellín, 1560 m., Oct. 1945, *Ruiz* (US); Palmitas, 1700 m., *Scolnik et al.* 532 (US). **BOLÍVAR:** San Martín de Loba, *Curran* 183 (US). **BOYACÁ:** Between Moniquirá and Arcabuco, 2150 m., *Pérez-Arbeláez & Cuatrecasas* 8168a (US). **CAUCA:** 4 km. north of Popayán, 1680 m., *Ewan* 15860 (NO, US); "El Ramal" to Río Sucio, west of Popayán, 1600-1900 m., "a tree in prairie, petals white," *Pennell & Killip* 8146 (NY, US). **CHOCÓ:** Río Atrato, near Quibdó, 400 m., *Araque-Molina & Barkley* 19ChO47 (NO, US); between Oveja and Quibdó, *Archer* 1741 (NY, US); Istmina, Río San Juan, 75 m., *Killip* 35455 (BM, S, US); banks of Quebrada Togoromá, *Killip & Cuatrecasas* 39090 (K, US). **CUNDINAMARCA:** Fusagasugá, *André* 1411 (NY); Buenavista to Pipiral, southeast of Quetame, 1000-1200 m., "lacre," *Pennell* 1674 (US). **HUILA:** 30 km. northwest of Palermo, 2100 m., *Little* 8727 (NO, US); drainage of Quebrada de la Cuandinosá, 15-20 km. east of Gigante, 1500 m., *Fosberg* 19851 (NO, US). **META:** Susumuco to Villavicencio, *Triana* 12 (BM). **SANTANDER:** Quebrada Angulo, 4 km. south of Lebrija, 955 m., "manchador," *St. John* 20588 (NO, US). **EL VALLE:** Alto de las Brisas, Pichindé, Hoya del Río

Cali, 2050–2100 m., *Cuatrecasas* 18331 (US); Alto de Miravalle, Pichindé, 2020–2080 m., *Cuatrecasas* 18327 (US).

The rich red-brown lower surface of the leaves of this subspecies is the first feature to attract attention. The leaf-blades vary widely from long-acuminate to shortly ovate; they are not usually as distinctly truncate at the base as those of subsp. *dealbata*. This subspecies is frequent in Colombia and in transmontane Venezuela.

24d. *Vismia baccifera* subsp. *subcuneata* (Huber) Ewan, comb. nov.

V. subcuneata Huber, Bol. Mus. Goeldi 4: 588. 1906.

TYPE: "Quebrada grande do Cerro de Canchahuaya," basin of Río Ucayali, Junín, Peru, Nov. 13, 1898, *Huber* 1479.

SPECIMENS EXAMINED:

PERU: JUNÍN: Middle Uca Yali, *Tessmann* 3279 (G, NY, S); Schunke Hacienda, above San Ramón, 1300–1700 m., *Schunke* A103 (US); Pichis Trail, Porvenir, 1500–1900 m., *Killip & Smith* 25911 (F, NY, US). SAN MARTÍN: Tingo María, 800 m. *Allard* 21629 (US). San Carlos, *Mathews* 1309 (CGE, GL, K); Moyobamba, *Mathews* 1311 p.p. (CGE).

BOLIVIA: Charopampa, 570 m., Nov. 1907, *Buchtien* 1907 (L, US); San Carlos, 850 m., *Buchtien* 889 (F, US), 890 (US), 890a (US), 750 m., 9 Nov. 1907, *Buchtien* 2114 (US), 750 m., 11 Sept. 1907, *Buchtien* 2114 p.p. (K, US); Mapiri, *Rusby* 1810 p.p. (US); Sorata, *Bang* 1724 p.p. (US), 850 m., 16 Dec. 1926, *Buchtien* (US); Tumupasa, *R. S. Williams* 339 (K, NY, US), 517 (K), 547 (K, NY); Río Chimate, 570 m., *Tate* 545 (NY).

This subspecies is separated geographically from the other components of *Vismia baccifera*, being restricted to Peru and Bolivia, and is the most distinct morphologically of its subspecies. The leaves resemble subsp. *dealbata* at times in being somewhat bifacial but less uniformly cinereous, and oblong rather than deltoid. The crowded panicle is perhaps the most striking difference from other subspecies of *V. baccifera*, but in this regard the collections are not uniform and the lack of other distinctive characters leads me to conclude that like the other taxa of *V. baccifera* this subspecies is a recent variation maintained especially by geographic isolation.

25. *Vismia lauriformis* (Lam.) Choisy, Prodr. Monog. Hyper. 35. 1821.

Hypericum petiolatum L. f. Suppl. Plant. 345. 1781; non *H. petiolatum* L. (1764).

H. lauriforme Lam. Encycl. 4: 152. 1789. Renaming of *H. petiolatum* L. f. (1781) non L. (1764).

H. arboreum J. F. Gmel. in L. Syst. Nat., ed. 13, 2: 1156. 1792. A renaming of *H. petiolatum* L. f. (1781) non L. (1764). Illegitimate.

H. laurifolium Willd. Sp. Pl. 3: 1440. 1803. A renaming of *H. petiolatum* L. f. (1781) non L. (1764). Illegitimate.

Vismia laurifolia Pers. Syn. Pl. 2: 86. 1806. A renaming of *Hypericum lauriforme* Lam. Illegitimate.

H. sanguineum L. ex Triana & Planch. Ann. Sci. Nat. IV, Bot. 17: 301. 1862. A manuscript name "fide specim. authenticici Mutisiani in herb. Linn," now in Herb. Linnaean Soc., London.

Caopia lauriformis Kuntze, Rev. Gen. Pl. 1: 59. 1891.

V. calvescens Gilg & Hieron. Bot. Jahrb. Engler 21: 322. 1895. TYPE: Vicinity of Popayán, Department of Cauca, Colombia, *Stuebel* 259. Presumably lost at Berlin.

TYPE: "Nova Granada," i.e. Colombia, communicated by José Celestino Mutis (authentic coll. US 1,562,666). The type was taken most probably in the Department of Cundinamarca. The fruit was described by Linnaeus *filius*, but the US sheet is only in early flower, and so it is doubtful if that represents an exact duplicate of the collection in the Linnaean Herbarium.

ADDITIONAL SPECIMENS EXAMINED:

FRENCH GUIANA: Maroni, 1864, *Melinon* (NY); Cayenne, in 1839(?), *Leprieur* (F).

VENEZUELA: BOLÍVAR: Roraima, *Schomburgk* 861 (BM, G, NY, P), 552 (FI, G, P); along mesa escarpment between Santa Teresita de Kavanayén and wooded quebrada about 8 km. northwest of Kavanayén, 1220 m., *Steyermark* 60481 (US); along Río Karuai, northwest of Santa Teresita de Kavanayén, 1220 m., "minchuba-rei-yek," *Steyermark* 60827 (US); Gran Sabana, between Kun and Uaduara-parú, south of Mount Roraima, 1065–1220 m., *Steyermark* 59091 (US), 59099 (US). ANZOATEGUI: Ijigua, northeast of Bergantín, 600–800 m., "lacre," *Steyermark* 61234 (US). SUCRE: Los Altos, *Tamayo* 2168 (US).

COLOMBIA: META: Villavicencio, *Pennell* 1403 (NY); Apiai, Villavicencio, 500 m., *Cuatrecasas* 4757 (US). ANTIOQUIA: Medellín, *Toro* 757 (NY); Puerto Valdivia, Río Cauca, 240–260 m., *Metcalf & Cuatrecasas*, 30070 (UC, US). NORTE DE SANTANDER: Quebrada de Gibraltar, Río Cubugón, region of Sarare, 320 m., *Cuatrecasas* 13228 (US). SANTANDER: Between Puerto Wilches and Puerto Santos, *Killip & Smith* 14852 (NY, US), 14890 (NY, US). CUNDINAMARCA: La Mesa, 1200 m., *Triana* (K); Guaduas to Palmar (Quebrada Honda), road to Guaduoero, 1040–1150 m., *García-Barriga* 11778 (US). CAUCA: Río Ortega to San Antonio, 1500 m., *Pennell & Killip* 7263 (NY); Popayán, *Lehmann* 2832 (K), 5543 (K). TOLIMA: Libano, 1100–1300 m., *Pennell* 3446 p.p. (MO). Mariquita, *Humboldt & Bonpland* 1715 (P).

Vismia lauriformis is highly variable over its range and at times is separable from typical *V. baccifera* and its subsp. *dealbata* only with difficulty. The leaves of *V. lauriformis*, however, are generally smaller and glossy above. The acute, at times almost cuneate, leaf-base is an especially useful character for recognition.

In the Popayán region of southern Colombia, Department of Cauca, a peach-leaved form of *Vismia lauriformis* with narrower leaf-blades, often acuminate to a long point in the manner of adult leaves of *Eucalyptus globulus*, more or less replaces the typical tree of the more northern districts of Colombia. This form has never been distinguished nomenclaturally, and it does not seem necessary to do so at this time, but it illustrates again the local endemism of that interesting region. Collections representative of this form include: Popayán, *Lehmann* 2832 (US), 5543 (S, US); La Capilla, 25 km. north of Popayán, 1740 m., *Killip* 38480 (US); Tres Cruces, Popayán, *Yepes, Araque, & Barkley* 18Ca063 (NO, US).

Vismia lauriformis is related both to *V. baccifera* and to *V. guianensis*, especially to *V. baccifera* subsp. *ferruginea*, and through *V. falcata* forms an almost complete phyletic series to *V. guianensis*.

26. *Vismia mandurr* Hieron. Bot. Jahrb. Engler 20, Beibl. 49: 54. 1895.
Caopia mandurr Hieron. loc. cit.

TYPE: Three syntypes were originally cited, *Lehmann* 920, 5593, and 6617, the originals all probably destroyed in Berlin. Lectotype: *Lehmann* 5593 (US); isolectotype K; the original was without locality; according to *Lehmann's* field-book (US), no. 5593 has the data: "*Vismia mandurr* Hieron. Species of trees up to 15 m. in height, with large, close, nutant crowns. Leaves dark yellow-green, shiny. Flowers brownish yellow-green. Fruit of the size and shape of a sparrow's egg. Colombia. Grows in moderately dense forests on the mountain slopes above Popayán, 1800–2400 m." In the field-book, the data for 6617 (K) are: "*Vismia mandurr* Hieron. Trees up to 12 m. in height with large crowns. Leaves leathery, dark green. Flowers brownish green. Colombia. Grows in the dense forest formations around Paisbamba above Popayán, 1800–2300 m. Flowers in March." No. 920 (not seen) according to Hieronymus had the data: "Crescit in altiplanitie prope urbem Popayán, alt. s. m. 1200–2000 m., mense Augusto florens et fructifera."

ADDITIONAL SPECIMENS EXAMINED:

COLOMBIA: META: Hacienda El Pao, southeast of San Antonio Fortalecillas, 1710 m., *Little* 7982 (NO, US). HUILA: Parque Arquelógico, 3 km. west of San Agustín, 1800 m., *Little* 7617 (NO); San Agustín, *Daniel* 4101 (US); north of Santa Ana, 1800 m., *Little* 7071 (NO, US). EL VALLE: La Laguna, Río Sanquinini, 1250–1400 m., *Cuatrecasas* 15678 (NO, US, rather atypical). CAUCA: Quebrada de Santo Domingo, Río Palo, 2470 m., *Cuatrecasas* 19373 (US); around Huila, Río Paez Valley, 1600–1900 m., *Pittier* 1300 (US); Popayán, *Lehmann* K75 (F, K); Cristalores, 10 km. east of Timbío, 2225 m., *Grant & Drew* 10653 (NO, US); between Aguabonita and Candelaria, Río San José, region of Moscopán, 2280–2350 m., *Cuatrecasas* 23561 (US). NARIÑO: Piedranca, 1550 m., *Fosberg* 21090 (US).

From this large series mostly of recent collections, made in part by field botanists under the Foreign Economic Administration, it is desirable to draw up an emended description of this endemic *Vismia* of southern Colombia:

Leaves dark yellowish-green, rather densely crowded at the ends of the nodose branchlets, the internodes generally short; leaf-blades elliptic or oval, often very variable as to size on a single shoot, at times punctate beneath, long-petiolate, the petioles about 2 cm. long, rather stout, stellate-tomentose; panicle cymose, compactly short branching; sepals early spreading, narrowly ovate, reflexed in fruit, the hyaline margin distinct but narrow; petals narrowly ovate, greenish glandular dotted above, tomentose within; fruits large, 10–15 mm. long, greenish.

Vismia mandurr is evidently closely related to *V. lauriformis*, and, like *V. panamensis*, probably represents a recent derivative from that

variable polymorphic species. *V. mandurr* displays a large close crown of dark yellowish-green shining leaves, which are at times punctate, more elliptic and longer petiolate than those of *V. lauriformis*. Also, the sepals are more heavily tomentulose than in *V. lauriformis*, and only becoming thinly so in advanced fruit. The usual crowded panicle recalls that other endemic of southern Colombia, *V. lehmannii*, but that species has more numerous and smaller flowers. From the label records *V. mandurr* may become a forest tree 6 to 15 meters high with a D. B. H. of 8 to 30 centimeters. The cinereous leaves give a glaucous appearance in the field and droop on the tree from their long petioles like the leaves of the garden peach.

F. R. Fosberg records an interesting bit of folk-lore for this species from the Department of Nariño to the effect that the tree is said to grow from the dead body of a worm. "The worm shown me was a scarab larva which had a club-shaped fungus growing from it."²⁸ In alternate years the beetle is supposed to emerge, the other years the tree" (label accompanying *Fosberg* 21090).

27. *Vismia guianensis* (Aubl.) Choisy, Prodr. Monog. Hyper. 34. 1821.

Hypericum guianense Aubl. Pl. Guian. 2: 784. t. 311. 1775.

V. caparosa H. B. K. Nov. Gen. & Sp. 5: 182. 1822. TYPE: "In monte Hyguerote, prope Buena Vista Caracasorum," which is in the vicinity of Los Teques, Aragua, Venezuela (cf. Kew Bull. 1925: 302) (Photo FM 9160 of specimen in Berlin Herbarium, bearing the number 676); isotype labeled "676. Caracas prope Buenavista" in Humboldt & Bonpland Herbarium (P).

V. acuminata var. *caparosa* Choisy in DC. Prodr. 1: 543. 1824.

Caopia guianensis Lyons, Plant Names Sci. & Pop. ed. 2, 94. 1907.

TYPE: "Sylvis et pratis Caiennae et Guianae," that is, the island of Cayenne and the mainland of French Guiana. Brazilian references from Marcgrav and Piso are cited as well, which are discussed below.

ADDITIONAL SPECIMENS EXAMINED:

TRINIDAD: Caroni North Bank Road, *Britton & Mendelson* 821 (US); Mount Tocuche, *Britton, Hazen, & Mendelson* 1336 (US); Long Stretch, 25-26 mile posts, *Broadway* 6837 (S, US); Blanchisseuse Road, top of Morne Bleu, *Broadway* 6208 (US); Aripo Savanna, *Britton, Broadway, & Hazen* 307 (US); woods at Ganapo, *Eggers* 1380 (US); woods near Omora, *Eggers* 1411 (US); Ganapo, *Eggers* 1078 (P, UC, US).

SURINAM: Sectie O, *B. W.* 159b (NY, US); Forest Reserve, *Lanjouw* 344 (NY); "reg. inter. ad fl. Surinam," *Hostmann & Kappler* 1249 p. p. (S).

FRENCH GUIANA: Godebert, *Wachenheim* 41 (US); Maroni, 1863, *Melinon* (NY, US); Karouany, *Sagot* 64 (P, S); Cayenne, 1838, *Leprieur* (NY).

BRITISH GUIANA: Without locality, *Schomburgk* 607 (FI, OXF); drainage of Takutu River, Kanuku Mountains, 600 m., *A. C. Smith* 3187 (S, US); Kurupukari, Essequibo River, *A. C. Smith* 2158 (MO, S, US); Mount Iramaikpang, Kanuku Mountains, 975 m., *A. C. Smith* 3653 (US); Malali, Demerara River, *de la Cruz* 2705 (US); Assakatta, Northwest District, *de la Cruz* 4321

²⁸ For a discussion of *Cordyceps*, the "vegetable fly," see John Ramsbottom, *Mushrooms and Toadstools* (London, 1953), 149-153.

(UC, US), 4281 (UC, US); Kamwatta, Pomeroon District, *de la Cruz* 1213 (US); Kamakusa, *Lang* 370 p.p. (NY, US), 337 (NY, US), *de la Cruz* 2760 (US), 2820 (US), 4175 (US); Akyma, Demerara River, above Wismar, *Hitchcock* 17415 (S, US); Kalakoon, junction of Mazaruni and Cuyuni Rivers, *Graham* 147 (US); Kaieteur Falls, Potaro River, *de la Cruz* 4471 (UC, US); Wanama River, *de la Cruz* 3896 (US); bank of Potaro River, Tumatumari, *Gleason* 345 (US); Butukari, *Gleason* 709 (US); upper Demerara River *Jenman* 4279 (US), 6278 (NY); vicinity of Bartica, Essequibo River, *de la Cruz* 2011 (US).

VENEZUELA: SUCRE: Aricagua, vicinity of Cristóbal Colón, *Broadway* 555 (US). BOLÍVAR: Sabañas de Santa Teresa, Santa Elena, Gran Sabaña, *Tamayo* 2804 (US); Paraguara, *Velez* 2389 (US); El Palmar, 300 m., *Cardona* 2113 (US); Cerro Upuima, Caroní, "uadamá," 1300 m., *Cardona* 2244 (US); fields near Río Tirica, Caroní, Guayana, 500 m., *Cardona* 2200 (US).

COLOMBIA: BOLÍVAR: San Martín de Loba, *Curran* 193 (US). META: Villavicencio, 500 m., *Killip* 34340 (US); Puerto López road, near Villavicencio, *Schiefer* 729 (UC, US). CAQUETÁ: Florencia, 400 m., *Cuatrecasas* 8819 (US); 50 km. southeast of Algeciras, Huila, 1650 m., *Little* 7732 (NO, US). ANTIOQUIA: Bocaná, 1900 m., *Araque-Molina et al.* 350 (US); vicinity of Santa Elena, between Medellín and Río Negro, 2500 m., *Barkley et al.* 387 (US); La Ceja, 2430 m., *Johnson & Barkley* 18C770 (US); Guarne, 2500 m., *Gutiérrez V. et al.* 125 (US); Medioluna, 1700 m., *Molina* 15 (US); Boquerón de Medellín, 2500 m., *Barkley et al.* 113 (US); Bello, 1500 m., *Molina* 21 (NO, US); between Medellín and Río Negro, 2500 m., *Killip et al.* 39878 (US).

BRAZIL: AMAZONAS: San Gabriel da Cachoeira, *Spruce* 2170 p.p. (E, G, OXF, S); San Carlos, Río Negro, *Spruce* 3115 p.p. (BM, E, NY, OXF), erroneously cited as "2115" by Reichardt; Santa Izabel, Río Negro, *Black* 48-2421 (NY). PARÁ: Para, Jul.-Aug. 1849, *Spruce* (BM, TCD). PERNAMBUCO: Tapera, *Pickel* 333 (US).

Vismia guianensis is a frequent tree in the Central Cordillera of Antioquia, where it shows certain morphologic differences. The sepals are sparingly tomentulose on the back and at times subglabrous. The leaf-blades are thicker, average broader and more obtuse than the Guiana collections, and the leaves are often crowded on the ends of the branchlets. The sepals are very prominently reflexed in fruit. The flowers are now green, now whitish.

Aublet cited a Marcgrav reference under his *Vismia guianensis* which may not represent that species. Marcgrav's descriptions, often amounting to characterizations of genera rather than of species, are not precise enough to add certainty to the establishment of the species. On geographic grounds there is some question that Marcgrav could, by the known distribution of Brazilian *Vismias*, have encountered *V. guianensis*. However, Aublet's species is sufficiently validated on other grounds so that this discordant Marcgrav element does not vitiate its standing.

The Colombian collections of *Vismia guianensis* from the headwaters of the Meta and east of the Andes are notably different in leaf-shape, being narrower, more acuminate, and more closely set on the branchlets, recalling certain populations of *Vismia lauriformis*. From

their resemblance to leafy shoots of the garden peach this transandean subspecies may be distinguished as:

27a. *Vismia guianensis* subsp. *persicoides* Ewan, subsp. nov.

A *V. guianensi* subsp. *guianensi* laminis foliorum lanceolatis, tenuiter attenuatis, conspicue petiolatis differt.

Type in the herbarium of Tulane University, collected at Soratama, Río Apoporis, between Río Pacoa and Río Kananari, alt. 250 meters, Amazonas-Vaupés, Colombia, 15 June 1951, by Richard Evans Schultes and Isidoro Cabrera (no. 12570) (NO); isotype in the U.S. National Herbarium.

PARATYPES:

COLOMBIA: AMAZONAS-VAUPÉS: Soratama, *Schultes & Cabrera* 12747 (NO, US). META: Flood plain forest of Río Meta, Puerto Lopez, 240 m., *Little & Little* 8281 (NO, US).

This subspecies is recorded as a "small tree" or "Tree 8 m., 12 cm. D. B. H. Bark gray, rough, deeply furrowed. Flowers brownish." The leaves are rusty, a little paler above, with a microscopic puberulence beneath, the areoles very small, epunctate. The petals are long, spatulate, rounded at the tip, and a little black-vittate. The sepals are ciliolate, with a distinct membranous flange.

28. *Vismia cavanillesiana* Cuatrecasas, Rev. Acad. Colomb. Cienc. 7: 47. 1946.

TYPE: "Abajo de Gabinete en la Hoya del Abra de San Andrés," Department of Huila, Colombia, 1900-2100 m., Mar. 24, 1940, collected by José Cuatrecasas (no. 8605) (Isotypes, NY, US).

ADDITIONAL SPECIMENS EXAMINED:

Colombia: Llano de St. Martín, *Karsten* (W). CAUCA: Popayán, 1700 m., *Triana* 2 (BM). CUNDINAMARCA: Fusagasugá, 1500 m., *Triana* 4 (BM). META: "Susumuco et Villavicencio, 400-1000 m." *Triana* (G, K, W).

Vismia cavanillesiana is a remarkable endemic in several respects. The large flowers are almost unique in the genus, the petals being sparingly glandular-dotted on the outside and heavily villous on the inside. The leaves are unusual, by their large oval long-petiolate blades, dark green and glossy above, ferruginous-tomentulose beneath, with all the nerves prominent and raised beneath. In some respects the leaves recall *V. lindeniana* but the leaf characters approach some forms of *V. baccifera* and perhaps *V. cavanillesiana* is most closely related to that species. Certain Colombian collections of *V. tomentosa* (for example, *Sprague* 265, US) approach this species in their leaf characters but the flowers are smaller. The heavily rufous-tomentose sepals ally this *Vismia* with the Brazilian species *Vismia martiana* and *V. magnoliifolia*, as shown in the key, but the floral characters are otherwise very different.

A collection transitional between *Vismia cavanillesiana* and *V. tomentosa* and further discussed under the latter species is *Cuatrecasas* 22276 (US), from above Las Brisas, Monte El Tabor, Department of El Valle, Cordillera Occidental, 1970-2100 m., Colombia.

29. *Vismia tomentosa* Ruiz & Pav. Syst. Veg. Peruv. Chil. 183. 1798.

Caopia tomentosa Kuntze, Rev. Gen. Pl. 1: 59. 1891.

This species, originally inadequately described, may be given an amplified description on the basis of a good series of collections as follows: Slender tree 3 to 10–20 m. high, the trunk 10–140 cm., in diameter breast high, the branchlets slender, the ultimate branchlets finely red-tomentellous, including the rachises of the panicles; leaves typically large, little if at all reduced above, the blades broadly ovate, rarely oblong, rounded to cordate at the base, 15–23 cm. long, typically 10–12.5 cm. wide or less, often only 5–8 cm., rather abruptly acuminate at tip or cuspidate, rich red-brown-tomentellous beneath, speckled with minute simple hairs in addition, dull coppery-brown above, the veins 12 to 16 pairs, extending to the margin and ascending, raised beneath, impressed above, all petiolate, the petioles stout, 1–2.5 cm. long; panicle ample and compound, or small and few-flowered, much shorter than the uppermost leaves, the flowers short-pedicellate, lustrous chocolate-brown; calyx 7–8 mm. long, the sepals felty-tomentose with a well-defined marginal flange, this becoming increasingly evident in fruit, the fruiting sepals spreading or reflexed; petals spatulate-obovate, floccose with curling hairs on the inner face, yellow or pale green, 8–11 mm. long, shining with a silk-like sheen, lineate or vittate; stamens included; fruit ovoid to conical, acute, more or less 5-grooved, 10 mm. long, wine red or dark brown.

TYPE: "Perou," likely from vicinity of either Cuchero or Chinchao, Department of Huánuco. Authentic collections: Moricand Herb. (G, photographed by Macbride, Photo FM 23957), and ex Lambert Herb. (BM, photographed by Morton, Photo 8049), and ex Herb. Hooker (K, ticketed "Chinchao," which is surely a portion of the same plant as represented by the collection at Geneva). Cf. Field Mus. Publ. Bot. 21: 78. 1940.

ADDITIONAL SPECIMENS EXAMINED:

COLOMBIA: PUTUMAYO: Mocoa, about Puerto Viejo, 580–600 m., *Cuatrecasas* 11385 (US). VAUPÉS: Río Kananarí and Cerro Isibukuri, 250 m., *García-Barriga* 13784 (US). AMAZONAS-VAUPÉS: Raudal de Jirijirimo, Río Apaporis, "tin-ká," *Schultes & Cabrera* 14548 (US), 14946 (US); Raudal Yayacopi, Río Apaporis, *Schultes & Cabrera* 15364 (US), 16938 (US); Soratama, Río Apaporis, 250 m., *Schultes & Cabrera* 12728 (US); Jinogojé, Río Apaporis, 210 m., *Schultes & Cabrera* 15669 (US).

ECUADOR: SANTIAGO-ZAMORA: Along Quebrada Achupallas, 2500–2800 m., *Steyermark* 54542 (F, US); trail between Mirador and Pailas, 2010–2255 m., *Steyermark* 54288a (sterile, F, US).

PERU: LORETO: Yurimaguas, Maynas, *Poeppig* 2421 p.p. (G, L, OXF); Florida, Río Putumayo, at mouth of Río Zubineta, 180 m., *Klug* 2263 (A, BM, F, G, K, US); Timbuchi, on Río Nanay, *L. Williams* 966 (F); Moyobamba, *Mathews* 1311 p.p. (CGE, GL); Manfinfa, on upper Río Nanay, *L. Williams* 1144 (F); lower Río Nanay, *L. Williams* 571 (F, US); Lower Río Huallaga, 155–210 m., *L. Williams* 4016 (F), 4231 (F, US), 4953 (F), 5002 (F, US). SAN MARTÍN: Tarapoto, 750 m., *L. Williams* 6104 (F). HUÁNUCO: Cuchero, *Poeppig* 1361 p.p.

(K, P, W); Mirador, between Acomayo and Chanchao, 2400 m., *Mexia* 7760 (BM, K, S, U, UC, US), *Mexia* 04138 (UC). JUNÍN: Tarma, Huacapistana, 1800 m., *Velarde-Nuñez* 781 (US); Huacapistana, 1680 m., *Sandeman* 4510 (K, OXF).

BOLIVIA: LA PAZ: Mapiri, 750 m., *Rusby* 1810 p.p. (F, K).

BRAZIL: AMAZONAS: Municipality São Paulo de Olivença, basin of Belem Creek, *Krukoff* 8728 (A, BM, F, G, MO, S, U, US); Manáus, Cachoeira Grande, *Ule* 8923, 31 May 1936, *Ducke* 206 (F, US), 22 Nov. 1942, *Ducke* 206 (A, MO, S, US). Manáus, Feb.-Mar. 1945, *Froes* (US); Itapumua, Lower Rio Madeira, *Cooper* III (US).

Vismia tomentosa grows in both the high forest or selva back from the rivers and in the montaña along the river banks. Ynes Mexía describes the bark as "gray flaky over cinnamon brown" and the juice as "thick, gummy, and brick-red." It is evidently a tree that begins flowering when it attains three meters in height and a trunk diameter of ten centimeters. The flowers are variously described as yellow or pale green, and the capsule wine-red.

Both Choisy and A. P. de Candolle relegated *Vismia tomentosa* to the group of dubious species because the description was too brief to be readily identifiable. The original description reads:

"V. foliis ovatis acutis subtus tomentosis, racemis terminalibus.

Flor. Per. et Chil. tom. 5.

Arbor quadriorgyalis

Habitat in *Peruviae* nemoribus versus *Cuchero Chinchao*, *Muña*, *Pozuzo* et *Pillao* ad *Chacahuassi* tractus.

Floret a Julio ad Octobrem."

The type collection preserved in the Conservatoire botanique de Genève bears a label reading in part "Perou M^{ons}. Pavon. 1827." This label, added perhaps at the time the material was received by Moricand, is overlaid, however, by what appears to be the smaller original ticket, fortunately preserved, reading "*Vismia tomentosa*. Peru." That this collection is authentic is corroborated by the fact that the branch is only in bud, a point consistent with Ruiz and Pavon's having failed to mention floral characters in the original description. Contemporary descriptions of *Vismia* so often included the glands or vestiture of the petals. The characters of the leaves and of the panicle are both well matched by *Cuatrecasas* 11385, from Colombia, and less closely by *Krukoff* 8728 from Brazil. Both of these collections originate in altitudes considerably below that of the type localities.

Actually the collections here referred to *Vismia tomentosa* are not morphologically alike in all their characters. Especially variable are leaf size and texture, and the degree of persistence of the distinctive red-brown tomentum of the under-surface. The collections from the lower Río Huallaga are hardly typical, though this may be due in part to the immaturity of the specimens, in that the leaves are

smaller, narrower, and pale red-brown beneath. All of the collections agree in having terminal panicles (auxiliary panicles present in *Steyermark* 54542), exceeded by the uppermost leaves, and in the singular rich cinnamon-brown-tomentellous lower leaf surface free from glands, the broad almost cordate base and the acute tips of the mature leaves.

Of particular interest is the excellent collection from above Las Brisas, Monte El Tabor, Department of El Valle, Cordillera Occidental, 1970–2100 m., Colombia, made by Cuatrecasas (no. 22276, US), which suggests *Vismia cavanillesiana* in its long-petiolate leaves with prominent impressed nerves and ample many-flowered panicle, but the flowers of this collection are smaller than those of that species and in many respects this collection agrees with *V. tomentosa*.

Of interest are two specimens from central Colombia: San Agustín, Tolima, *Sprague* 265 (BM, K, US), and an immature collection made Sept. 22, 1948, by *A. Gärtner N.*, from between Medellín and Río Negro, Antioquia, 2300–2500 m. (Herb. Fac. Nat. de Agronomía, Medellín).

30. *Vismia billbergiana* Beurl. Vet. Akad. Nya Handl. (Stockholm) 1854: 117. 1856. PLATE 7

Caopia billbergiana Kuntze, Rev. Gen. Pl. 1: 59. 1891.

Evidently a small slender tree or shrub 3 to 6 m. high with almost vinelike branches; leaves of the same size up to the inflorescence, the blades thin-textured, ovate and distinctly apiculate to lanceolate and long-acuminate, the tip 1 cm. long or more, sometimes sub-orbicular, 8–13 (17) cm. long, 5–7 (9) cm. wide, the venation closed, arcuate, each areole with a single central dot, bifacial, finely pubescent beneath with light brown hairs, dark green and very sparsely pubescent above with scattered stellate hairs, the petioles short, 1 cm. long; panicle cymose, the flowers small, few, less than 8 in a few-branched terminal raceme; sepals narrowly lanceolate, acute, finely rufous-tomentose, 4–5 mm. long, the flange margin narrow to broad, with a single submarginal black gland; petals lanceolate or narrowly ovate, 9 mm. long, 4 mm. wide, acute or rounded, vittate, comose within; fruit globose, 4–8 mm. long.

TYPE: "In montibus, Porto Bello," Panama, April 1826, by Johan Immanuel Billberg (no. 231) (S, photo NO and US).

ADDITIONAL SPECIMENS EXAMINED:

PANAMA: Fató River, Prov. Colón, 10–100 m, *Pittier* 3876 (C, US); Loma de la Gloria, Prov. Colón, 10–104 m., *Pittier* 4238 (US); Porto Bello, Prov. Colón, 5–100 m., *Pittier* 2437 (US); Frijoles, Canal Zone, *Piper* 5826 (US), *Standley* 27488 (US), 27510 (US); Fish Creek lowlands, Prov. Bocas del Toro, vicinity of Chiriquí Lagoon, *von Wedel* 2383 (US).

Vismia billbergiana is an endemic of Panama recalling *V. sessilifolia* on one hand, and *V. tomentosa* on the other, but certainly more closely

related to the latter. The leaves which are variable (as is frequent in mosaic forming vine shoots) are thinner than those of *V. sessilifolia* and even more prominently apiculate. The cymose panicles are distinctive in this *Vismia*; the inflorescence is inconspicuous since the flowers are both few and small. The apiculate thin-textured leaves and few-flowered racemes recall *V. viridiflora* of Panama and the possibility of hybrid origin between that species and *V. sessilifolia* is suggested. *V. billbergiana* has evidently been overlooked both in the field and in the literature. Standley did not mention the species even in synonymy in considering the Panama flora.

31. *Vismia lindeniana* Dene. in Turcz., Bull. Soc. Nat. Moscou 31¹: 381. 1858.

LECTOTYPE: Galipan, Venezuela, 1350 m., *Funck & Schlim* 101 (Photo FM 23955, fragment of isotype, F).

ADDITIONAL SPECIMENS EXAMINED:

SURINAM: Forest of Zandery, *Samuels* 275 p.p. (A).

VENEZUELA: Without locality, *Fendler* 41 (US). DISTRITO FEDERAL: Sabañas de Agua Negra, *Pittier* 13785 (US). Matorrales de Agua Negra, 1400 m., *L. Williams* 9939 (US). ANZOÁTEGUI: Quebrada Seca, northeast of Los Chorros, east of Bergantín, *Steyermark* 61528 (F). MONAGAS: Forested summit of mountain northwest of Caripe, 1300–1350 m., "lacre" *Steyermark* 61975 (F, US).

The name "*Vismia lindeniana*" was proposed by Funck, later taken up by Decaisne, and ultimately published by Turczaninow. A collection bearing a label with Funck's manuscript name has been chosen as the type, although the first cited collection, *Linden* 13, from Cerro de Avila, Province of Caracas, alt. 7000 feet, might well have been designated as the lectotype. However, in choosing types for photographing Macbride and Killip independently selected the Funck and Schlim collection in the Delessert and Paris herbaria respectively.

Vismia lindeniana grows to be a small tree four to six meters high with a trunk as much as twenty centimeters in diameter.

A unique collection made in 1917 in the vicinity of Perija, State of Zulia, Venezuela, *Tejera* 10 (US), with the fruit finely pubescent is possibly teratological for its relatively large fruits, 15–21 mm. long; it is doubtfully referred here. The hirsutulose or strigulose leaves with stiff pustulate-based hairs, are notable, but the shape and the size of the leaves would place it with *Vismia lindeniana*.

32. *Vismia crassa* (Rusby) Blake, Contr. Gray Herb. 53: 41. 1918.

Caopia crassa Rusby, Mem. Torrey Club 4: 204. 1895.

TYPE: Yungas, Bolivia, *Bang* 683 (NY; isotypes, BM, E, F, G, K M, O, US).

ADDITIONAL SPECIMENS EXAMINED:

BOLIVIA: Without locality, *Miers* 178 (BM), *Bang* 2931 (BM, C, E, F, G, S, US, W, WU); Incacorral to Paracti, 2200–2400 m., *Herzog* 2298 (L); Sirupaya, near Yanacachi, South Yungas, 2150 m., *Buchtien* 364 (US); San José, South Yungas, 480 m, *R. S. Williams* 239 (BM, NY).

Vismia crassa is a small tree about four meters high, well marked in the genus for its noticeably thick, firm, ovate leaf-blades, white-lanate beneath, smooth and shining above, borne on stout petioles. This endemic of eastern Bolivia must be allied to *Vismia lindeniana* of cismontane Venezuela.

33. *Vismia martiana* Reich. ex Mart. Fl. Bras. 12¹: 204. t. 37. 1878.

Caopia martiana Kuntze, Rev. Gen. Pl. 1: 59. 1891.

TYPE: "Ad urbem Mariana," Prov. Minas Gerais, Brazil, *Martius* (cf. *Martius*, Observ. 890). The sheet in the Munich Herb. bears a number "576" and an annotation in Reichardt's hand (Photo FM 19549). It agrees well with the plate but lacks the flowers illustrated there.

SPECIMENS EXAMINED:

BRAZIL: RIO DE JANEIRO: Therezopolis, *Barreto* 4013 (F); Nova Friburgo, *Glaziou* 12465 p.p. (P); Canto Gallo, *Peckolt* (F, labeled in Reichardt's hand). BAHIA: Ilheos, 1821-1824, *Riedel* (US). MINAS GERAIS: *Langsdorff* (US). CEARÁ: Serra Araripa, Taquara, *von Luetzelburg* 26248A (F). PARÁ: Belterra, *Black* 47-937 (NY).

Vismia martiana has a small congested panicle overtopped by the uppermost leaves which are little reduced and are augmented by leaf-like bracts. The principal leaves are ovate, thick, dull above and felty-tomentose beneath, the punctate dots fainter than suggested by *Martius*'s Plate 37, fig. 15, and the veinlets of the interspaces between the secondaries more obscure. From *V. magnoliifolia* this species differs in its rounded, not acute, leaf-bases, its shorter petioles, 8-12 mm. long rather than 15-20 mm. long, and less ferruginous-tomentose rachises of the panicles. The persistent stigmas of the fruits are conspicuous in both species, and in both the fruiting sepals are spreading. Reichardt contrasted the few-flowered panicle of *V. magnoliifolia* with the many-flowered panicle of *V. martiana*, and the vittate sepals of the former with the evittate sepals of the latter. Neither of these characters, however, are very useful. Only the exceptional specimen of *V. martiana* (for example, *Peckolt s. n.*) shows a many-flowered panicle and *Sello* 1366 (Field Museum photo 9165), cited by Reichardt as *V. magnoliifolia*, displays as many flowers as average specimens of *V. martiana*. The vittate character of the sepals of *V. magnoliifolia* is hardly convincing and at least occasional specimens of *V. martiana* (for example, *Peckolt s. n.*) show dark raised lines on the inner face of the sepals. In short, the two species are indeed closely related and more study of a larger series of collections than I have seen may show that only a single species exists. Nothing is known to me of the ecology of the two *Vismias* in Brazil. Reichardt describes *V. martiana* as becoming a tree whereas *V. magnoliifolia* is a shrub, suggesting from other instances among Andean species that there may be habitat preferences.

34. *Vismia magnoliifolia* Schlecht. & Cham. *Linnaea* 3: 118. 1828 (as "*magnoliaefolia*").

V. hilairii Gardn. ex Hook. *London Journ. Bot.* 2: 334. 1843. TYPE: Serra dos Orgãos, Rio de Janeiro, 900 m., "dry bushy places," January 1837, Brazil, *Gardner* 329 (OXF, isotypes, BM, E, F, FI, G, K, NY, P, S, TCD, US, W).

Caopia magnoliaefolia Kuntze, *Rev. Gen. Pl.* 1: 59. 1891.

TYPE: "Brasilia aequinoctiali," *Sellow* (Photo FM 9165 of specimen in Berlin Herbarium; probable isotypes, K (but lvs. attacked by fungus!), L)

ADDITIONAL SPECIMENS EXAMINED:

BRAZIL: Without locality, *Glaziou* 11804 (BM, C, K, NY, P, US). RIO DE JANEIRO: Serra da Estrella, *Glaziou* 2946 (P). MINAS GERAIS: Lagoa Santa, 9 May 1866, *Warming* (C); without locality, *Langsdorff* (US); Campos, Itacolumi, *Schenck* 3623 (C); Viçosa Agricultural College Grounds, 680 m., *Mexia* 4186 (NY, UC, US), 4373 (NY, U, UC, US); Ouro Preto, *Damazio* 1358 (G); Saraninha, *Macedo* 2740 (US); Gongosoco, Dec. 1834, "a large shrub, full of deep yellow juice similar to gamboge; flowers straw-colored, streaked and speckled with dark red; very common in the coppice woods and on the skirts of the forest," *Bunbury* (CGE).

The relationships of *Vismia magnoliifolia* with *V. martiana* have been discussed under the latter species. When Gardner published *V. hilairii* he correctly removed the plant he was describing from *V. guianensis*, but he did not consider its possible relationships with *V. magnoliifolia*, of which it seems to represent a narrow-leaved form; the long-petiolate leaves with acute bases, and the generally few-flowered panicles are evidences of relationship. Collections of this narrow-leaved form include, in addition to the Gardner type collections:

BRAZIL: Without locality, in 1835, *Riedel* (P); without data, no. 6278 (US), possibly *Glaziou*. RIO DE JANEIRO: Serra dos Orgaos, *Gardner* 321 (CGE); *Wilkes Exped.* (NY, US). MINAS GERAIS: Without locality, *Langsdorff* (US 1,573,893), *Riedel* (US 1,573,615, possibly same source as last, cf. Reichardt); Serra do Caraça, *Claussen* 27 (P).

35. *Vismia reichardtiana* (Kuntze) Ewan, comb. nov.

V. guttifera Salzm. ex Turcz. *Bull. Soc. Nat. Moscou* 31¹: 382. 1858; non Pers. (1807). Syntypes: "Collibus Bahiae," *Salzmann*, *Blanchet* 3041. The Salzmann collection may be designated as lectotype; a duplicate has been examined at E. Duplicates of the syntype *Blanchet* 3041 have been seen at BM, FI, and W. Another collection, *Blanchet* 3520, is cited by Turczaninow as a narrower, more acuminate leaved variant (cf. *V. baccifera* var. *angustifolia* Reich. below).

V. baccifera sensu Reich. in *Mart. Fl. Bras.* 12¹: 204. 1878; non *V. baccifera* (L.) Triana & Planch. (1862). The collections cited as *V. baccifera* by Reichardt are: Bahia, *Salzmann*, *Lhotzky*; Rio das Contas, *Martius*; Ilheos, Jacobina, and Moritiba, *Blanchet* 990, 1863, 3041, 3520; Piaui, *Gardner* 2491; Surinam, *Wullschlaegel*.

V. baccifera var. *angustifolia* Reich. loc. cit. No specimens were referred to the variety as distinguished from the species in original publication. Lectotype: Jacobina, Bahia, Brazil, *Blanchet* 3520 (an authentic sheet

labeled var. *angustifolia* by Reichardt in Herb. Delessert, G.) (Isolectotypes: BM, F, FI, G, P, W).

Caopia reichardtiana Kuntze, Rev. Gen. Pl. 1: 59. 1891. Based on *V. baccifera* sensu Reich. non *V. baccifera* (L.) Triana & Planch.

V. cearensis Huber, Bull. Herb. Boiss. II, 1: 313. (28 Feb.) 1901. Type: Between Fortaleza and Bemfica, Ceará, Brazil, Huber 92 (Boissier Herb. G).

V. guaramirangae Huber, loc. cit. Type: Guaramiranga, Serra de Baturité, Ceará, Brazil, alt. ca. 700 m., Huber 263 (Boissier Herb. G). Topotype: 25 July 1908, Ducke 21274 (Photo FM 9163, of specimen in Berlin Herbarium).

TYPE: No type cited by Kuntze; all the specimens cited as *baccifera* by Reichardt are thus syntypes. As lectotype may be selected: Gardner 2491 (US), from Flores, banks of Rio Gurgea, South Piauí, Brazil, August 1839; isoelectotypes: BM, CGE, E, F, FI, G, K, NY, OXF, P, W.

ADDITIONAL SPECIMENS EXAMINED:

BRAZIL: PARÁ: Vicinity of Pará, Baker 172 (BM, E, G, L, P, S, W); Belém, Schultes 8671 (US), Silva 162 (US); Thomé Assú, Distr. Acará, 50 m., Mexia 5981 (CAS, G, MO, P, S, U, UC, US), 5988 (US); Garupá, Rio Amazonas, Killip & Smith 30579 (NY, US); Island of Marajó, Kauffman 7 (US). CEARÁ: Baturité, Loefgren 91 (S); near Fortaleza, Ule 9071 (F, K, L, US); Serra de Ibiapaba, Campo Grande, Dahlgren 965 (narrow-leaved form, F). PERNAMBUCO: Without locality, Gardner 939 (BM, CGE, E, FI, NY, OXF, P, S, US), 946 (GL). BAHIA: Without locality, Bondar 3017 (F), Blanchet 595 (NY); Ilha de Cal, "capianga," Curran 107 (US); Maranhas, Salzmann 234 (CGE). RIO DE JANEIRO: Porto d'Estrella, Sellow 185 (L, UC).

Vismia reichardtiana in its typical form is a shrub four to six meters high of the State of Ceará with shiny, stiff, lanceolate leaves; it is well exemplified by Ule 9071 from that state. The extreme leaf form is the narrowly lanceolate *V. baccifera* var. *angustifolia* Reich., well illustrated by Dahlgren 965, also from Ceará. This may prove to be but a developmental state of the species when more ample collections are available.

Vismia guttifera Salzm. (1858) is a clearly identifiable name for this species, but is invalidated by an earlier use of the same epithet by Persoon (1807).

The morphological distinctions between *Vismia reichardtiana* and *V. pentagyna* are indicated under the treatment of the latter. Judging from annotated collections at Florence and Geneva, this is the plant Choisy called *Vismia rufescens*.

36. *Vismia glaziovii* Ruhl. Bot. Jahrb. Engler 30: Beibl. 67: 27. 1901.

"Frutex ramis teretiusculis vel paullum compresso-tetragonis, pruinoso-canescens, cito glabriusculis, internodiis 5-6 cm longis; foliorum petiolis circiter 1 cm longis, supra leviter canaliculatis, primum dense incano-puberulis, foliorum lamina ovata, basi rotundata, cuspidato-acuminata, apice ipso obtuso instructa, 10-15 cm longa, paulo infra medium 5-6 cm lata, integerrima subcoriaceo-

chartacea, supra pallide subolivaceo-vel glaucescenti-viridi, nitida, glaberrima, subtus tomento in junioribus uberiore, canescente, e pilis stellatis, hyalinis vel basi spadiceolis formato instructa, penninervi, venis ordinis primarii 12-16 parallelis, 7-14 mm distantibus, reticulatim anastomosantibus; thyrsis terminalibus et axillaribus, pedunculatis, 4-8 cm longis, rhachide, ramis, pedicellis dense incano-, rare subferrugineo-tomentosis; calycis laciniis oblongo-ellipticis vel lato-lanceolatis, extus densissime et persistenter incano-tomentosis, intus glabris et 3-5-vittatis, integerrimis, tenuiter membranaceo-marginatis, planis vel vix concavis; petalis flavescensibus calycem dimidio superantibus, evittatis et epunctatis, obovatis, brevissime unguiculatis, acutiusculis, flabellato-venosis, flavis (?), extus glabris, intus dense pilis incanis, rigidulis vestitis; staminibus multipartitis, villosis, calycem superantibus; staminodiis parvis, ellipticis, obtusiusculis, crassiusculis, praesertim apice longe villosis, vix 1 mm aequantibus; germine globoso, glabro, 2-2.5 mm longo; stylis 3 mm longis, filiformibus, rectis vel subflexuosis, capitellatis."

SYNTYPES: "Brasilia: civit. Goyaz ad Corrego Fundo in sylvis prope Jaragua, m. Aug. fl. (Glaziou n. 20694), ibidem in sylvis ad Rio Areas, m. Sept. fl. (Glaziou n. 20695)." Photo FM 9162, of a specimen in the Berlin Herbarium, bears a printed label indicating it as *Glaziou* 20695, the second syntype cited, and a handwritten ticket reading "*Glaziou* 20694, Corrego Fundo dans le bois près de Jaragua, Goyaz, 23 Août 1895; arbuste; fl. jaunâtre," indicating the first syntype. The plant is certainly authentic, but which syntype it is is uncertain.

I was first inclined to include the name as a synonym of *Vismia pentagyna* or, less satisfactorily, of *V. reichardtiana*. However, *V. glaziovii* comes from an area floristically different from Ceará and, on the basis of other instances of local Brazilian species studied in this and other genera, I am tentatively accepting the species pending more evidence. The leaves, judging from the type collection alone, are broadly ovate, more like those of *V. latifolia* than either *V. pentagyna* or *V. reichardtiana*, and the raceme is more densely crowded and the small flowers are more numerous. The pubescence of the lower leaf-surface agrees with that of *V. reichardtiana*.

37. *Vismia rusbyi* Ewan, sp. nov.

Planta fruticosa vel arborescens, intricate ramosa, dense foliosa, ramis superioribus tomentulosis, inferioribus glabrescentibus; laminis foliorum ovatis vel lanceolato-ovatis, 11-13 cm. longis, 5-6 cm. latis, submembranaceis, supra pallidis, venis subtus obscuris, subtus cano-pubescentibus, punctulatis, venulis secundariis anastomosantibus in venulam submarginalem; petiolis gracilibus, 10-15 mm. longis; paniculis cymosis, compactis, 4-5 cm. longis; calycibus brevibus, divaricatis, sepalis anguste ovatis, 5 mm. longis, sparse tomentulosis,

valde membranaceis secus margines, atro-vittatis; petalis valde exsertis, intus glanduloso-vittatis, extus venulis hirsutis, laminis rufo-tomentosis.

Shrub or small tree with shortly branching leafy branchlets, these finely tomentulose above, glabrescent below; leaf-blades ovate or lance-ovate, 11–13 cm. long, 5–6 cm. wide, rather thin-textured, dull above, the veins obscure, finely brownish or silvery pubescent beneath, glandular-punctulate, the secondary veins connecting in a submarginal vein; petioles slender, 10–15 mm. long; flowers crowded in a short cymose panicle 4–5 cm. long; calyces short, the sepals soon spreading, narrowly ovate, 5 mm. long, thinly tomentulose, the thin membranous border prominent, more or less black glandular-vittate; petals about 1.5 times as long as the calyx, vittate-glandular, the veinlets appressed-hairy beneath with simple hairs, heavily reddish tomentose; fruit unknown.

Type in the U. S. National Herbarium, no. 1,516,639, collected at San Carlos, Mapiri region, Bolivia, alt. 850 meters, flowers Dec. 16, 1926, fruit Feb. 21, 1927, by Otto Buchtien (no. 888); isotypes in the herbaria of the Royal Botanic Garden, Edinburgh, the Chicago Natural History Museum, the Missouri Botanical Garden, and the New York Botanical Garden.

PARATYPES:

PERU: SAN MARTÍN: Moyobamba, *Mathews* 1311 (OXF). HUÁNUCO: Cuchero, *Poeppig* 1361 p.p. (BM, F, OXF). PUNO: Santo Domingo, 1550 m., *McCarroll* 99 (NY); (?) 3 km. above Santo Domingo, 1950 m., *Metcalf* 30643 (US, cf. below).

BOLIVIA: Hacienda Casana, Tipuani Valley, 1400 m., *Buchtien* 7610 (US). Tipuani-Guanai, *Bang* 1695 (E, F, G, K, US, WU). Mapiri, 1500 m., *Rusby* 722 (BM, E, F, G, K, MO, P, US). Rurrenabaque, 300 m., *Rusby* 837 p.p. (K, NY, US), 1271 (NY, US). Sorata, *Bang* 1724 p.p. (F). Guanai, 600 m., *Rusby* 860 (NY). Lake Rogagua, 300 m., *Rusby* 1667 (NY, US).

Vismia rusbyi is related to *V. guianensis* and may be considered the southern Andean representative of that more northern species, from which it differs in having the petals prominently vittate with black glands. Furthermore, the leaves are finely pubescent and generally larger than those of *V. guianensis*; were it not for the glandular-punctulate lower surface, collections might be taken for the Bolivian *V. buchtienii*.

Though *Rusby* 722 is unquestionably *Vismia rusbyi* the specimens of that collection are variable among different herbaria; evidently specimens were collected from several trees in making up the sets. For this reason it has seemed preferable to select the more uniform series of *Buchtien* 888 as type.

Metcalf 30643 (US) from Peru may prove to be another, perhaps undescribed species. The leaves are oblong and notably thicker, and the petioles are longer and thicker, but more technical characters are wanting.

Tentatively placed here is another Peruvian collection, *Stork & Horton* 9582 (F, G, NA), from west and above Puente Durand, north of Huánuco, 1800 m., Department of Huánuco, Peru, which has the vestiture and floral characters of this species but deltoid-ovate, acute leaves that are unusually coriaceous for *V. rusbyi* and suggest *V. baccifera* subsp. *subcuneata*. It is described by the collectors as a "tree to 6 m., bark brown; wood hard." Evidently *Poeppig* 1361 from Cuchero, Peru, cited above, is the same form.

As indicated under *Vismia pentagyna*, there is a close affinity between that species of eastern Brazil and *V. rusbyi*, and both species seem to be extralimital segregates of the more northern typically glabrate *V. guianensis*.

38. *Vismia pentagyna* (Spreng.) Ewan, comb. nov.

Symplocos pentagyna Spreng. Syst. Veg. 3: 340. 1826.

Vismia decipiens Schlecht. & Cham. Linnaea 3: 116. 1828. Renaming of *Symplocos pentagyna* Spreng.

V. decipiens var. *laurifolia* Schlecht. & Cham. loc. cit. Based on *Symplocos pentagyna*.

V. decipiens var. *pyrifolia* Schlecht. & Cham. op. cit. 117. Type: Brazil, *Sellow*. Probable isotypes are *Sellow* 158, from "prov. Bahia inter Bahia et Victoria," (E, K, L, Photo FM 9161, of a specimen in the Berlin Herbarium; the latter photograph is labeled var. *pyrifolia* and may be part of the holotype).

Acrossanthes lhotzkyanus Presl, Bot. Bemerk. in Abhandl. Boehm. Gesell. Wiss. V, 3: 453. 1845. Type: Rio de Janeiro, Brazil, *Lhotzky* (not seen).

Caopia decipiens Kuntze, Rev. Gen. Pl. 1: 59. 1891.

TYPE: Brazil, *Sellow*.

ADDITIONAL SPECIMENS EXAMINED:

SURINAM: Without locality, *Hostmann & Kappler* 1249 p.p. (F, FI, G, NY, P).

BRAZIL: RIO DE JANEIRO: *Glaziou* 10341 (K), 13571 (K). AMAZONAS: Manaus, *Schulles* 8086 (US), *Corner* 65 (NY); Parintins, January 16, 1936, *Ducke* 130 p.p. (US); Patua, Rio Negro, *Baldwin* 3270 (atypical, US), *Ule* 5963 (G); San Gabriel, *Spruce* 2170 p.p. (P). PARÁ: Belém, *Dahlgren & Sella* 355 (US), *Archer* 7712 (NY, US). PERNAMBUCO: Victoria, *Pickel* 3594 (US). BAHIA: Without locality, *Blanchet* 1862 (FI, OXF, P), *Glocker* 88 (G); Mount Toboa, Bomfim, *Curran* 156 (F, NY, UC, US).

Vismia pentagyna is related to *V. rusbyi* of the more interior districts of the Amazonian basin, and perhaps even more closely related to *V. reichardtiana* of eastern Brazil. *V. pentagyna* and *V. rusbyi* are contrasted in the key to the species. *V. reichardtiana* may be compared with *V. pentagyna* as follows:

	<i>pentagyna</i>	<i>reichardtiana</i>
Leaves	ovate to ovate-elliptic, attenuate at the base	lanceolate, rounded or acute at the base
Panicle	small, crowded, sessile	larger, loosely flowered, pedunculate
Petals	punctate, vittate, usually strongly so	not punctate, weakly vittate, if at all

The description of *Symplocos pentagyna* Spreng. is brief but adequate. It reads:

“pentagyna* 15. S [ymplocos] foliis oppositis oblongo-lanceolatis acuminatis integerrimis glabris, floribus racemosis 5-gynis. *Brasil. Sello.*”

The superscript asterisk indicates in the customary manner a species described as new. Chamisso and Schlechtendal recognized this Sellow collection as a *Vismia* and, according to a procedure then common in systematic botany, renamed it rather appropriately “*Vismia decipiens*.” There is no reason for abandoning Sprengel’s original epithet.

It is singular that when A. Brand monographed the Symplocaceae in Engler’s *Das Pflanzenreich* (1901) he did not dispose of Sprengel’s binomial in the section “Species excludendae,” nor mention the species in the account elsewhere. Evidently the inclusion of the binomial *Acrossanthes lhotskyanus* in the *Index Kewensis* was based on Reichardt’s citation of it since Presl’s obscure name is not listed elsewhere.

When describing *Vismia decipiens* Schlechtendal and Chamisso recognized two component varieties among Sellow’s material, differentiated on the basis of leaves, calyx segments, and petals. Of these distinctions the most obvious is the shorter-leaves of var. *pyrifolia* (leaves 9–10 cm. long) as contrasted with the longer-leaves of var. *laurifolia* (leaves 10–16 cm. long). Unfortunately, the number of sheets available of *V. pentagyna* are too limited to warrant conclusions on these varieties.

Reichardt placed *Vismia decipiens* near *V. confertiflora* in his treatment of the Brazilian species, but I do not believe its relationship with that species is very close. Both *Vismia pentagyna* (i.e. *V. decipiens* of former accounts) and *V. reichardtiana* are more closely related to *Vismia guianensis* than to *V. confertiflora*, when one disregards the pubescence character unduly stressed by Reichardt in his groupings “Rufescentes” and “Dealbatae.” The very youngest leaves of *Vismia pentagyna* may be rufous-tomentose beneath (e.g. *Curran* 156 (F) from Bomfim, Bahía), but the pubescence is early deciduous and the mature leaves are glabrescent with a very fine close, at times grayish, puberulence.

39. *Vismia buchtienii* Ewan, sp. nov.

Arbor nana vel suffrutex 5–9 m. altus, ramis gracilibus, paulo compressis, glabrescentibus, apicibus rufo-pubescentibus; laminis foliorum lanceolato-ovatis, acuminatis, 9–15 cm. longis, 3.5–5.5 cm. latis, supra lucidis, infra opacis, argenteo-pubescentibus vel minute stellato-lepidotis, costa prominente, venis secundariis manifestis, petiolatis, petiolis longis (12–16 mm.); paniculis ramosis, ramis divaricatis et patentibus, interdum inflorescentiis adjunctis in axillis

foliorum supremorum, omnibus rachibus et ramis rufo-tomentellis; sepalis brevibus, anguste ovatis, vix acutis, cinereo-tomentellis, 4.5–5.0 mm. longis, sepalis alternis anguste marginatis, marginibus membranaceis vittatis et minute ciliolatis; petalis ovatis, quam sepalis duplo longioribus, minute lineatis, intus dense tomentosus; staminibus inclusis; fructibus oblongis vel ovoideis, 6–12 mm. longis.

Low tree or shrub 5–9 m. high, with slender branchlets, these a little flattened, glabrescent in age, finely rufous-pubescent at the tips; leaves lance-ovate, acuminate, 9–15 cm. long, 3.5–5.5 cm. wide, shining above, dull, more or less silvery pubescent or lepidote beneath with scattered fine stellate hairs, especially along the midrib, the secondary veins evident, moderately long-petiolate, the petioles 12–16 mm. long; flowers in a short, loosely divaricate panicle with at times supplementary floriferous branchlets in the uppermost leaf-axils, the rachis and branchlets rufous-tomentulose; calyx short, cinereous-tomentulose, the tomentum in low longitudinal ribs, the sepals narrowly ovate, barely acute, 4.5–5.0 mm. long, the alternate sepals with narrow dark-vittate membranous margins, finely ciliate; petals ovate, about twice as long as the sepals, finely lineate, densely tomentose within; stamens included; fruit oblong or ovoid, blackish 6–12 mm. long.

Type in the U.S. National Herbarium, no. 1,159,313 collected at San Antonio, Mapiri region, Bolivia, alt. 850 meters, in December 1907, by Otto Buchtien (no. 2022); isotype in the Rijksherbarium, Leiden.

PARATYPES:

PERU: SAN MARTÍN: Moyobamba, 800–900 m., *Weberbauer* 4520 (G), in 1838, *Mathews* (FI, K); Corico, 1500–1800 m., Dec. 1865, *Pearce* (K); Tarapoto, 750 m., *L. Williams* 5954 (F); Lamas, 840 m., *L. Williams* 6344 (F).

BOLIVIA: LA PAZ: Basin of Río Bopi, San Bartolomé, near Calisaya, 750–900 m., *Krukoff* 10215 p.p. (G, K, MO, NY, US); San Carlos, Mapiri region, 850 m., *Buchtien* 886, (US), 887 (US); Copacabana, about 10 km. south of Mapiri, Prov. Larecaja, 850–950 m., *Krukoff* 11042 (F, G, K, S, US); Unduavi, 2400 m. *Rusby* 719 (NY). SANTA CRUZ: Buena Vista, Province of Sara, *Steinbach* 6527 (BM, E, F, K, MO, NY, S, U, UC).

BRAZIL: MATO GROSSO: *Moore* 137 (BM), 609 (BM, E, NY, WU); Santa Anna da Chapada, *Malme* 2076 (S, one sheet of leaves pinked by leaf cutting ants!); Burity, northeast of Cuyabá, 675 m. *Collenette* 167 (K, NY).

Vismia buchtienii is most closely related to *V. rusbyi*, which it resembles in its leaf characters, but that species has shorter, more broadly ovate leaf-blades, which are finely punctate beneath. The pubescence of the lower leaf-surfaces is very similar; however, *V. rusbyi* is finely pubescent with short curling but unbranched hairs. The sepals are more densely tomentose in *V. buchtienii*. In *V. rusbyi* the secondary veins anastomose in a submarginal loop, whereas in *V. buchtienii* they are free to the margin.

40. *Vismia amazonica* Ewan, sp. nov.

Arbor 3–15 m. alta, trunco gracili, 3–5 cm. diam., ramis castaneis, deorsum glabris, sursum aliquantum rufo-tomentulosis sicut axibus panicularum; foliis superioribus non reductis, laminis omnibus ovatis, basi obtusis, apice acuminatis, cuspidatis, vel saepe subcaudatis, supra glabris et nitentibus, subtus subglabris, valde sparse rufo-tomentellis praecipue in venis secundariis, 12–15 cm. longis, 5.5–8.0 cm. latis, petiolatis, petiolis gracilibus 12–14 mm. longis; paniculis dense cymiformibus 8–10 (13) cm. longis, pedicellis ultimis ca. 5 mm. longis; floribus parvis; sepalis 5 (6) mm. longis, dense tomentellis, marginibus membranaceis et angustis 0.5 mm. latis, ciliolatis vel subciliatis; petalis obovatis ovalibusve, breviter unguiculatis, 5–8 mm. longis, simpliciter lineatis, intus villosissimis viridi-flavis; staminibus inclusis; fructibus ignotis.

Tree 3–15 m. high, the trunk slender, 3–5 cm. in diameter breast high, the branchlets chestnut-brown and more or less rufous-tomentulose, like the rachis of the inflorescence; leaves little if at all reduced up to the panicle, the blades all ovate, rounded at the base, acuminate or cuspidate or often contracted to a slender subcaudate tip, glabrous and shining above, appearing glabrous below, but actually thinly rufous-tomentulose beneath, more strongly so along the larger veins, 12–15 cm. long, 5.5–8.0 cm. wide, the petioles slender, 12–14 mm. long; panicle compactly cymosely branching, 8–10 or 13 cm. long, the ultimate pedicels about 5 mm. long; flowers small, the sepals mostly 5 (rarely 6) mm. long, closely tomentulose with a narrow membranous border about 0.5 mm. wide, ciliate along the whole margin or at least on the distal half; petals obovate or oval, short-clawed, 5–8 mm. long, simply lineate with fine dark lines, copiously hairy within, greenish-yellow, the unopened buds light gray-green; stamens included; fruit unknown.

Type in the U.S. National Herbarium, no. 1,461,142, collected at Iquitos, Department of Loreto, Peru, alt. about 100 meters, Aug. 2–8, 1929, by E. P. Killip and A. C. Smith (no. 27378).

PARATYPES:

BRITISH GUIANA: Karinyi, Upper Essequibo River, *Myers* 5764 (K, panicle exceptionally open).

COLOMBIA: CAQUETÁ: Sucre, banks of Río Hacha, 1000 m., *Cuatrecasas* 9015 (US).

PERU: LORETO: Mishuyacu, near Iquitos, 100 m., *Klug* 317 (F, US), "pichirina," *Klug* 1524 (US). SAN MARTÍN: Tarapoto, 750 m., *L. Williams* 5379 (F, US); Moyobamba, *Sandeman* 163 (K, OXF).

BOLIVIA: COCHABAMBA: Colonia Presidente Busch, Puerto Polonia, Río Coni, 14 km. east of San Antonio, 395 m., *Cárdenas & Cutler* 7202 (US).

BRAZIL: AMAZONAS: Parintins, *Ducke* 130 p.p. (A, F); near Urucurituba, Munic. Borba, *Krukoff* 5946 (BM, G, K, S, U, US). PARÁ: Upper Rio Cupary,

plateau between Xingu and Tapajos Rivers, *Krukoff* 1075 (A, BM, G, K, S, U), 1175 (A, BM, G, K, S, U); Belém, Utinga, *Schultes* 8071 (US); Santarem, May 1850, *Spruce* (CGE, NY, TCD).

Most of the collections of *Vismia amazonica* have been identified previously as *V. confertiflora*. *V. amazonica* was distinguished from that species, however, by Eyma, in the Utrecht Herbarium without proposing a name for it. Its small flowers recall *V. micrantha*, although actually they are somewhat larger and intermediate in size between the *V. micrantha* group and the Section *Euvismia*. The leaves of *V. amazonica* average definitely smaller than those of *V. confertiflora* and are ovate and acuminate rather than ovate-oblong and obtuse. *V. amazonica* may be distinguished from *V. reichardtiana* of eastern Brazil, which it recalls in its lustrous shining leaves, by the ovate rather than lanceolate blades. *V. amazonica* differs from *V. confertiflora* in that the sepals of the former have the hyaline border distinctly ciliolate. The upper surface of the leaf-blades in *V. amazonica* is yellowish-green and shining, and the leaf-blades are smaller and often rhomboid, whereas in *V. confertiflora* they are generally larger and ovate.

41. *Vismia confertiflora* Spruce ex Reich. in Mart. Fl. Bras. 12¹: 205. 1878.

Caopia confertiflora Kuntze, Rev. Gen. Pl. 1: 59. 1891.

? *V. gracilis* Hieron. Bot. Jahrb. Engler 20. Beibl. 49: 52. 1895. TYPE:

Zamora, "East Andes of Loja," Ecuador, 500-1200 m., *Lehmann* 7735.

The locality determined by reference to Lehmann's ms. field notes in the U.S. National Herbarium. (Isotype, K).

? *Caopia gracilis* Kuntze, loc. cit.

TYPE: Vicinity of Santarem, Pará, Brazil, September 1850, *Spruce* 1087 (isotypes BM, CGE, E, FI, G, K, NY, OXF, TCD, W).

ADDITIONAL SPECIMENS EXAMINED:

COLOMBIA: META: Sabanas de San Juan de Arama, Río Güejar, 500 m., *Idrobo & Schultes* 1199 (US). VAUPES: Río Piraparaná, *Schultes & Cabrera* 17321 (NO, US), 17363 (US). AMAZONAS-VAUPÉS: Raudal Yayacopi, 240 m., *Schultes & Cabrera* 15365 (US); Raudal Jirijirimo, 270 m., *Schultes & Cabrera* 14978 (US); Jinogojé, 210 m., *Schultes & Cabrera* 19830 (US). AMAZONAS: Loretoyacu River, Trapecio Amazonico, 100 m., *Schultes* 6668 (US), *Schultes & Black* 8542 (US); Caño Guacayá, Río Miritiparaná, *Schultes & Cabrera* 16272 (NO, US). PUTUMAYO: Mocoa, *Sprague* 361 (BM, K), *Schultes & Cabrera* 19070 (US); Río Putumayo, Puerto Porvenir, near Puerto Ospina, 250 m., *Schultes* 3401A (US), *Schultes & Cabrera* 18986 (US); Umbría, 325 m., "pichirina," *Klug* 1861 (A, F, K, S, US).

ECUADOR: EL ORO: Along quebrada on south and west slopes of Montaña Sichicay, near Cachicarán, on a tributary of Río Minas Nuevas, above Huertas, east and northeast of Paccha, 2135-2285 m., "jerigoa," "leaves buff-brown below; calyx ferruginous-brown without, pale green within; petals green without, white-hairy within; ovary orange; bark brownish-ruddy, peeling like sycamore or Myrtaceae, inside of bark orange, staining orange and with gummy resin; wood white, inferior," *Steyermark* 54112 (US) [cf. *V. gracilis* Hieron.]. LOJA: *André* 4600 (K). NAPO-PASTAZA: Zatzayacu, 400-500 m., *Mexía* 7084 (NA, UC, US),

7113 (F, NA, NY, UC, US); Puyo, *Sydow* 876 (US). SANTIAGO-ZAMORA: Along Quebrada Achupallas, 3000–3500 m., *Steyermark* 54530 (US) [cf. *V. gracilis* Hieron.].

BRAZIL: AMAZONAS: Santarem, *Spruce* 766 p.p. (P); Tabatinga, *Ducke* 1883 (K, US).

The sepals of *Vismia confertiflora* have a broad hyaline flange contrasting sharply with the body of the sepal. The leaves have a silvery, almost lepidote appearance from the very thin puberulence, distinguishing it from *V. obtusa*, of the same region, which is wholly glabrous, and punctate beneath with scattered raised black dots. Both species may have at times short-acuminate leaf-tips.

Vismia confertiflora is a tree of dense bushy habit about 10 to 15 meters high, with gummy orange-red juice, and yellow petals. The fruit is evidently green when ripe, to judge from the collectors' field-notes. *V. tomentosa*, another species of the upper Amazon basin, agrees with *V. confertiflora* in its narrowly obovate, finely vittate, yellow petals, but the pubescence of the sepals in *V. tomentosa* is truly a tomentum, being denser, more felt-like, than the close fine puberulence of *V. confertiflora*. Both have the floral leaves exceeding the panicles, long-petiolate, broadly ovate principal leaves, prominent flanges on the evittate sepals in flower, and strongly spreading to reflexed sepals in fruit. The fruit in *V. confertiflora*, however, is green at maturity and in *V. tomentosa* dark brown. There is some evidence that the habitats contrast to some degree, *V. confertiflora* being a spreading tree of the dense upland forests and *V. tomentosa* a taller, more ponderous species of the lowland "high forests." The collections studied of *V. confertiflora* from British Guiana show smaller leaves and not so prominent hyaline margins of the sepals. In British Guiana the species is a shrub or small tree about four meters high. *V. gracilis*, of Ecuador, represents a narrow-leaved phase which may prove distinct when better known.

42. *Vismia obtusa* Spruce ex Reich. in Mart. Fl. Bras. 12¹: 207. 1878.

Caopia obtusa Kuntze, Rev. Gen. Pl. 1: 59. 1891.

TYPE: "Rio Negro, gapó, Feb. 1851, slender tree 25 ft.," vicinity of Manaus, Brazil, *Spruce* 1352 (Photo FM 19550, of specimen in Munich Herbarium; isotypes, K, P).

ADDITIONAL SPECIMENS EXAMINED:

COLOMBIA: HUILA: Río Suaza, 1650 m., *Little* 8540 (NA, atypical). AMAZONAS: Río Hamacayacu, Trapecio Amazónico, between Amazon and Putumayo watersheds, 100 m., *Schultes* 8242 (US).

ECUADOR: PICHINCHA: Mindó, *Sydow* 297 (US); Santo Domingo de Colorado, *Little* 6171 (F, US). NAPO-PASTAZA: Tena, 400 m., *Mexía* 7153 (US, NA, UC), 7167 (UC, US). ESMERALDAS: San Lorenzo, *Little* 6330 (F, US).

PERU: LORETO: Gamitanacocha, Río Mazán, 100–125 m., *Schunke* 264 (A, F, NA, UC, US).

BRAZIL: AMAZONAS: Banks of Igarapé do Crespo, above Cachoeirinha, near Manaus, "lacre," *Ducke* 697 (US).

Vismia obtusa occasionally bears axillary panicles, supplementary to the usual terminal inflorescence, as in the type collection, or in lieu of it, as in *Mexia* 7153. When the panicles are axillary rather than terminal the species suggests *V. lateriflora* *Ducke*, which has the leaves more or less cordate at the base and tomentose beneath. Ynes Mexia described this species as a spreading shrub with white flowers (label of *Mexia* 7153).

Spruce (or Bentham?) may have divided the original collection into two portions: the February, 1851, "Manaus" collection, and a second, Dec.-Feb. 1850-51, "Barra" collection (CGE, E, F, G, OXF, TCD, W) sometimes numbered "1352," which is a very close match for the Manaus type.

43. *Vismia sprucei* Sprague, *Trans. Bot. Soc. (Edinburgh)* 22: 428. 1905.

TYPE: Vicinity of Panuré, Rio Vaupés, Brazil, *Spruce* 2601 (K). (Isotypes, BM, C, F, G, NY, OXF, TCD, W).

ADDITIONAL SPECIMENS EXAMINED:

COLOMBIA: VAUPÉS: Guaracapuri Cachoeira, east of Mitú, Rio Vaupes, *Allen* 3375 (US).

ECUADOR: NAPO-PASTAZA: Rio Pastaza, between Rio Topo, at Topo, and Mera, 1158-1675 m., *Steyermark* 54899 (F, inflorescences both axillary and lateral, US).

PERU: LORETO: Yurimaguas, Lower Rio Huallaga, 135-180 m., *Poeppig* 2411 (W), *Killip & Smith* 27541 (F, US), *Mexia* 6078 (BM, CAS, F, G, K, NO, NY, S, U, UC, US); Caballo-Cocha, *L. Williams* 2074 (F); La Victoria, *L. Williams* 3014 (F, US); Mishuyacu, 100 m., *Klug* 745 (US). HUÁNUCO: Huacachi, near Muña, *Macbride* 4089 (F); Lower Rio Huallaga, *L. Williams* 3827 (F); Huallaga, 1500-1600 m., *Weberbauer* 6803 (F, US), ca. 1200 m., *Macbride* 4229 (F); Chinchao, *Sawada* 84 (F); Middle Rio Ucayali, "pichirina," *Tessmann* 3278 (F, NY, Photo FM 9167, of specimen in Berlin Herbarium bearing manuscript name meaning oval-leaved).

BRAZIL: AMAZONAS: Matupiry, basin of Rio Jurua, *Krukoff* 4597 (UC, US); Borba, Rio Madeira, August 1828, *Riedel* 1318 (US); Cobija, Rio Acre, *Ule* 9614 (G, K, L).

Vismia sprucei is well marked by the shining amphiglabrous leaves with areolate veins. *V. obtusa* shares the same crowded habit of its foliage, especially below the inflorescence, but in that species the blades are rounded or barely acute not apiculate, the upper leaf surface is dull, the petioles are generally longer, and the texture thinner. The sepals even in bud are glabrous; in *V. obtusa*, they are tomentose, the tomentum thinning in age. *V. sprucei* varies in leaf shape from oval, the usual typical condition, to lanceolate. Like *V. obtusa*, it is constant in having the leaves punctate, with marginal vein-loops.

On the trail to San Ramón, near Yurimaguas, Loreto, Peru, Mrs. Mexia noted this species (her no. 6078) as a "shrub 3 m. high, many

branched; white flowers; juice orange-colored, staining. Abundant." She recorded the vernacular name as "pichirina."

During my early studies of the genus I thought *Vismia sprucei* undescribed, overlooking Sprague's description and the isotype preserved in the New York Botanical Garden, and named the presumed new species for Ynes Mexía (1870–1938). Collections encountered that are so annotated should be referred to this species.

Uncertain Species or Names

Hypericum lanceolatum Lam. ex Steud. Nom. Bot., ed. 1, 420. 1821. *Nom. nud.*

No specimen so labeled was found in the Lamarck Herbarium at Paris.

Hypericum petiolatum L. Sp. Pl., ed. 3, 1102. 1764.
Caopia petiolata Kuntze, Rev. Gen. Pl. 1: 59. 1891.

Not identifiable. There is no specimen so labeled in the Linnaean Herbarium, London. The original description is as follows:

"*Hypericum floribus trigynis, foliis ovatis petiolatis integerrimis subtus tomentosus, caule fruticoso tetragono compresso.*

"*Habitat in Brasilia.*

"*Statura & Stamina H. Lasianthi. Caulis tetragonus, obtusus. Stipulae nullae. Folia Citri, petiolata, acuta, subtus obsolete tomentosa. Corymbus brachiatus. Stamina phalanges oblongae, maxime spectabiles.*"

Vismia guianensis var. β *glabrata* Choisy in DC. Prodr. 1: 542. 1824.

Based on *Hypericum bacciferum* Marcgr. bras. 96. fig. 1., a Brazilian plant, and, in part, on a drawing of a Mexican plant identified by the citation "Moc. et Sesse, Ic. fl. Mex. ined."

A supporting collection has not been located in the de Candolle Herbarium.

Vismia humboldtiana Schlecht. & Cham. Linnaea 3: 118. 1828.

Vismia latifolia H.B.K. Nov. Gen. & Sp. 5: 183. 1822; non *V. latifolia* (Aubl.) Choisy (1821).

TYPE: Banks of Río Cassiquiare, Amazonas, Venezuela, *Humboldt & Bonpland* (presumably at P).

Vismia humboldtiana Schl. & Cham. is a renaming of *V. latifolia* H.B.K., non *V. latifolia* Choisy, which is based on *Hypericum latifolium* Aublet. The type has not been studied. The original description is as follows:

"*V. ramulis subpuberulis; foliis ovato-ellipticis, acuminatis, subcordatis, supra nitidis, subtus calycibus tenuissime ferrugineo-tomentosis; paniculis terminalibus, simplicibus, pedunculatis.*

"Crescit ad ripam fluminis Cassiquiare. Floret Aprili.

"Arbor ramulis compresso-tetragonis, laevibus, glabris, junioribus tenuissime puberulis. Folia opposita, petiolata, ovato-elliptica, acuminata, basi rotundata, subcordata, integerrima, reticulato-venosa, nervo medio venisque primariis subtus prominentibus, subcoriacea, supra glabra, viridia et nitida, subtus punctulata et tenuissime ferrugineo-tomentosa, pilis stellulatis, 4-4½ pollices longa, 2-2½ pollices lata. Petioli semipollicares, tenuissime fuscescenti-tomentosi. Paniculae terminales, pedunculatae, solitariae, simplices, breves; pedunculo, pedicellis, rhachi ramisque angulatis, tenuissime ferrugineo-tomentosis. Flores pedicellati; in specimine nostro nondum aperti; pedicellis 2 lineas longis. Calyx quinquepartitus, externe tenuissime fusco-tomentosus; foliolis ovato-oblongis, acutiusculis, coriaceis, margine membranaceo-diaphanis, subaequalibus. Petala 5, subrotundo-obovata, externe glabra, interne villosa. Stamina Vismiae, in quinque phalanges coalita. Ovarium ovatum, glabrum. Styli 5 (?). Fructus desideratur."

Vismia jelskii Szyszyłowicz, Rozprawy, Akademia Umiejętności w Krakowie, Wydział Matematyczno-przyrodniczy, II, 9: 225. 1895.

The original description, taken from a copy in the National Library of Medicine, Washington, D.C., is as follows:

"Arborescens. Folia petiolata, petiolis dense nigro punctatis 2-3 cm. longis, laminibus ovato-ellipticis, basi rotundatis vel attenuatis, 12-17 cm. longis, 6-10 cm. latis, integerrimis, coriaceis, supra viridibus, glabris, subtus pruinoso-canescens glandulisque prominentibus nigro punctatis. Gemmae axillares stipitatae, glaberrimae. Thyrsi terminales 4-7 cm. longe pedunculati, prostrati, 8 cm. longi, 8-10 cm. lati, ramis patentibus glabris. Pedicelli 10-20 mm. longi, media parte articulati bracteolatique. Calyx intus glaber, extrinsecus pruinoso canescens, laciniis lanceolatis, 7-8 mm. longis, coriaceis, margine integerrimo anguste membranaceis, albo pubescentibus. Petala calyce subduplo longiora, oblongo spathulata, extrinsecus glabra, intus dense ferrugineo villosa. Staminodia claviformia, apicem versus pilosa. Staminum phalanges quinque, 8 mm. longae, multiandrae, filamentis specialibus, capillaceis, denso ferrugineo villosis. Ovarium ovoideum, glabrum, styli quinque, erecto-patentes, stigmatibus depresso-capitatis. Fructus (immaturus ?) baccatus, oblongus, 15 mm. longus, 10 mm. latus, glaber, calyce reflexo basi cinctus.

"*Vismiae dealbatae* H. B. K. et *Vismiae confertiflorae* Spr. proxima.

"Cutervo, Jelski no. 253."

Szyszyłowicz indicates (op. cit. 216) that Cutervo is in the Department of Cajamarca. The species is not definitely identifiable from the

description; it may be allied with *V. rusbyi*, since the description suggests very much the specimen *Metcalf* 30643, mentioned above under *V. rusbyi*. Szyszyłowicz work was perhaps issued as a doctoral dissertation under Zahlbruckner.

Vismia latifolia* var. *glabrescens Sagot, Ann. Sci. Nat. VI, 11: 163. 1881.

TYPE: An undesignated specimen in the de Candolle Herbarium, Geneva, "sub nomine *V. reticulata* Poiret."

This may represent *V. macrophylla* H. B. K.

Vismia laxiflora Reich. in Mart. Fl. Bras. 12¹: 203. 1878.

Caopia laxiflora Kuntze, Rev. Gen. Fl. 1: 59. 1891.

TYPE: Roraima, British Guiana [actually probably Venezuela], in 1841, *R. Schomburgk* 835 [an error for 837] (Isotypes: BM, F, FI, G, K, P, W, Photo FM 32271 of a specimen in the Vienna Herbarium). The type collection represents an immature, few-flowered plant of almost vinelike habit, unique among hundreds of collections examined. The corollas are unknown, but the calyx in bud and the characters of the leaves agree with *V. falcata* Rusby. No other *Vismia* has been collected on or near Roraima, unless a collection of *V. falcata* so labelled was in fact taken there [*Schomburgk* 935 (CGE)] and a collection of *V. sessilifolia* (*Schomburgk* 917).

Vismia schomburgkiana Klotzsch ex Schomburgk, Reisen in Brit.-Guiana 3: 999. 1848, *nom. nud.*

"Am oberen Pomeron auf lichten Waldstellen. Blüht im September und October. Strauch," without a reference to a Schomburgk collection number.

Vismia sieberiana Klotzsch ex Schomburgk, loc. cit., *nom. nud.*

Based on an undesignated Schomburgk collection, identified by the same phrase as the preceding.

Numbered Specimens Cited

- ALLARD, H. A.
21629 *baccifera* subsp. *subcuneata*
- ALLEN, P. H.
1692 *viridiflora*
3375 *sprucei*
- ANDERSON, C. W.
40 *macrophylla*
- ANDRÉ, E.
1411 *baccifera* subsp. *ferruginea*
4600 *confertiflora*
- APPUN, C. F.
277 *japurensis*
- ARAQUE-MOLINA, J., and BARKLEY, F. A.
18S215 *baccifera* subsp. *dealbata*
19Ch047 *baccifera* subsp. *ferruginea*
19Ch134 *angusta*
- ARAQUE-MOLINA, N., et al.
350 *guianensis*
- ARCHER, W. A.
313a *laevis*
1323 *laevis*
1741 *baccifera* subsp. *ferruginea*
2304 *cayennensis*
2660 *cayennensis*
2706 *cayennensis*
7712 *pentagyna*
8053 *japurensis*
8243 *japurensis*
- BAILEY, L. H., and BAILEY, E. Z.
1335 *cayennensis*
- BAKER, C. F.
172 *reichardtiana*
- BALDWIN, J. T.
3270 *pentagyna*
- BANG, M.
595 *plicatifolia*
621 *plicatifolia*
683 *crassa*
- 835 *plicatifolia*
1695 *rusbyi*
1724 *p.p. baccifera* subsp. *subcuneata*, *p.p. rusbyi*
2931 *crassa*
2933 *plicatifolia*
- BARKLEY, F. A., et al.
113 *guianensis*
387 *guianensis*
- BARRETO, M.
1274 *micrantha*
2908 *brasiliensis*
2909 *brasiliensis*
2910 *micrantha*
2912 *micrantha*
4013 *martiana*
4035 *brasiliensis*
- BECCARI, N.
16 *japurensis*
- BILLBERG, J. I.
231 *billbergiana*
- BLACK, G. A.
2421 *guianensis*
47-937 *martiana*
24-2421 *guianensis*
- BLANCHET, J.
595 *reichardtiana*
1862 *pentagyna*
1933 *angusta*
3041 *reichardtiana*
3520 *reichardtiana*
- BONDAR, G.
3017 *reichardtiana*
- BRITTON, N. L., et al.
307 *guianensis*
724 *cayennensis*
821 *guianensis*
824 *cayennensis*
837 *falcata*
1336 *guianensis*
1778 *cayennensis*
2542 *cayennensis*

BROADWAY, W. E.

- 399 cayennensis
 555 guianensis
 3035 cayennensis
 4139 falcata
 4140 cayennensis
 5291 falcata?
 5661 falcata?
 5726 falcata
 6208 guianensis
 6837 guianensis

BUCHTIEN, O.

- 222 plicatifolia
 364 crassa
 886 buchtienii
 887 buchtienii
 888 rusbyi
 889 baccifera subsp. subcuneata
 890 baccifera subsp. subcuneata
 890a baccifera subsp. subcuneata
 1907 baccifera subsp. subcuneata
 2022 buchtienii
 2114 baccifera subsp. subcuneata
 4645 plicatifolia
 5464 plicatifolia
 6014 plicatifolia
 7610 rusbyi

BURCHELL, W. J.

- 10042 japurensis
 B[OSCH] W[ESSEN] (Surinam)
 459 latifolia
 635 cayennensis
 672 sessilifolia
 1404 latifolia
 1564 latifolia
 1676 latifolia
 1772 cayennensis
 2711 angusta
 2732 latifolia
 2869 latifolia
 2919 angusta
 4362 angusta
 4543 angusta

CÁRDENAS, M.

- 1947 plicatifolia
 4172 plicatifolia

CÁRDENAS, M., and CUTLER, H.

- 7202 amazonica

CARDONA, F.

- 386 japurensis
 1229 angusta
 1418 macrophylla
 2113 guianensis
 2200 guianensis
 2244 guianensis

CASARETTO, J. (GIOVANNI)

- 3510 micrantha

CHARDON, C. E.

- 137 baccifera subsp. ferruginea

CLAUSEN, P.

- 3 brasiliensis
 4 brasiliensis
 5 parviflora?
 27 magnoliifolia
 134 brasiliensis

COLLENETTE, C. L. ("ST. GEORGE
EXPEDITION")

- 167 buchtienii
 588 angusta (forma)

CORE, E. L.

- 620 laevis
 1519 sessilifolia

CORNER, A.

- 63 macrophylla
 65 pentagyna

CUATRECASAS, J.

- 3593 baccifera subsp. dealbata
 4568 baccifera subsp. dealbata
 4757 lauriformis
 4772 angusta
 7658 minutiflora
 8242 baccifera subsp. dealbata
 8605 cavanillesiana
 8819 guianensis
 9015 amazonica
 9047 japurensis
 9632 baccifera subsp. dealbata
 11305 angusta
 11385 tomentosa
 12932 baccifera
 13228 lauriformis
 13591 baccifera
 13954 cuatrecasasii

- 14081 panamensis
 14893 lehmannii
 15678 mandurr
 16049 cuatrecasasii
 16068 panamensis
 16354 panamensis
 16614 rufa
 16687 cuatrecasasii
 16903 macrophylla
 17120 panamensis
 17199 cuatrecasasii
 17449 rufa
 17551 panamensis
 17641 cuatrecasasii
 17694 cuatrecasasii
 18327 baccifera subsp. ferruginea
 18331 baccifera subsp. ferruginea
 19373 mandurr
 19738 panamensis
 21102 rufa
 21279 angusta
 21389 panamensis
 22276 tomentosa?
 23561 mandurr
 23868 baccifera
- CUATRECASAS, J., and GARCIA-BARRIGA, H.
- 10177 baccifera subsp. dealbata
- CUATRECASAS, J., and JARAMILLO, R.
- 11991 baccifera subsp. dealbata
- CUATRECASAS, J., and PÉREZ-ARBELÁEZ, E.
- 6750 macrophylla
- CURRAN, H. M.
- 67 cayennensis
 107 reichardtiana
 156 pentagyna
 183 baccifera subsp. ferruginea
- CURRAN, H. M. and HAMAN, M.
- 1010 baccifera subsp. dealbata
 1011 macrophylla
- DAMAZIO, L.
- 1328 micrantha
 1358 magnoliifolia
- DAHLGREN, B. E.
- 965 reichardtiana
- DAHLGREN, B. E., and SELLA, E.
- 355 pentagyna
- DANIEL, BROTHER
- 2197 laevis
 3850 baccifera subsp. ferruginea
 3852 laevis
 4101 mandurr
- DAWE, M. T.
- 871 macrophylla
- DE LA CRUZ, J. S.
- 1213 guianensis
 1446 p.p. macrophylla, p.p. sessilifolia.
 1744 macrophylla
 1853 angusta
 2011 guianensis
 2115 macrophylla
 2383 macrophylla
 2614 macrophylla
 2705 guianensis
 2760 guianensis
 2819 falcata
 2820 guianensis
 3149 japurensis
 3170 japurensis
 3255 macrophylla
 3382 macrophylla
 3730 sessilifolia
 3841 macrophylla
 3896 guianensis
 4175 guianensis
 4281 guianensis
 4321 guianensis
 4471 guianensis
- DELGADO, E.
- 132 baccifera subsp. ferruginea
- DOMBEY, J.
- 639 glabra
 640 glabra
- DUCKE, A.
- 117 cayennensis
 130 p.p. amazonica, p.p. pentagyna
 206 tomentosa
 392 macrophylla
 697 obtusa
 930 cauliflora

- 1068 *macrophylla*
 1882 *cayennensis*
 1883 *confertiflora*
 12494 *sessilifolia*
 21274 *reichardtiana*
 25054 *lateriflora*
 25055 *cauliflora*
- DUGAND, A.
- 3688 *baccifera* subsp. *dealbata*
- DUGAND, A., and JARAMILLO, R.
- 2917 *angusta*
 3977 *baccifera* subsp. *dealbata*
- EGGERS, H. F. A.
- 1078 *guianensis*
 1118 *falcata*
 1363 *cayennensis*
 1380 *guianensis*
 1411 *guianensis*
 1420 *falcata*
 5731 *cayennensis*
 13031 *baccifera* subsp. *dealbata*
- EWAN, J. A.
- 15860 *baccifera* subsp. *ferruginea*
- FANSHAWE, D. B.
- F627 *macrophylla*
- FENDLER, A.
- 6 *viridiflora*
 8 *macrophylla*
 41 *lindeniana*
 299 *viridiflora*
- FOCKE, H. C.
- 382 *angusta*
- FORESTRY DEPARTMENT B[BRITISH]
 G[GUYANA]
- 3726 *sandwithii*
 3805 *sandwithii*
 6469 *angusta*
 6480 *sandwithii*
- FOSBERG, F. R.
- 19851 *baccifera* subsp. *ferruginea*
 20173 *baccifera* subsp. *dealbata*
 21604 *baccifera* subsp. *ferruginea*
- FOSBERG, F. R., and GRANT, M. L.
 21966 *baccifera* subsp. *dealbata*
- FROES, R. L.
- 22948 *cayennensis*
- FUNCK, N., and SCHLIM, L.
- 101 *lindeniana*
- GARCIA-BARRIGA, H.
- 8377 *angusta*
 10989 *baccifera* subsp. *dealbata*
 11778 *lauriformis*
 12261 *laevis*
 13784 *tomentosa*
- GARDNER, G.
- 321 *magnoliifolia*
 329 *magnoliifolia*
 939 *reichardtiana*
 946 *reichardtiana*
 2491 *reichardtiana*
- GAY, C.
- 939 *minutiflora*
- GEHRIGER, W.
- 351 *baccifera* subsp. *dealbata*
- GILLESPIE, J. W.
- P12 *panamensis*
- GLAZIOU, A. F. M.
- 2946 *magnoliifolia*
 10341 *pentagyna*
 11804 *magnoliifolia*
 12465 *martiana*
 13571 *pentagyna*
 20694 *glaziovii*
 20695 *glaziovii*
- GLEASON, H. A.
- 64 *sessilifolia*
 340 *macrophylla*
 345 *guianensis*
 480 *macrophylla*
 481 *falcata*
 551 *macrophylla*
 709 *guianensis*
- GLOCKER, C.
- 88 *pentagyna*

- GRAHAM, E. H.
 147 guianensis
 292 sessilifolia
- GRANT, M. L., and DREW, W. B.
 10653 mandurr
- GUILLEMIN, J. B. A.
 498 brasiliensis
- GUTIERREZ, G., and BARKLEY, F. A.
 17C679 baccifera subsp. baccifera
 17C680 baccifera subsp. ferruginea
- GUTIERREZ, G., ET AL.
 125 guianensis
 931 japurensis
- HAUGHT, O.
 4885 angusta
- HAYES, S.
 456 viridiflora
 921 panamensis
- HERZOG, T.
 2208 crassa
- HITCHCOCK, A. S.
 16950 macrophylla
 17389 sessilifolia
 17415 guianensis
- HODGE, W. H.
 6964 baccifera subsp. ferruginea
- HOEHNE, F. C.
 198 p.p. brasiliensis, p.p. micrantha
- HOLT, E. G., and BLAKE, E. R.
 537 macrophylla
 599 japurensis
 633 japurensis
- HOLT, E. G., and GEHRIGER, W.
 190 cayennensis
 297 japurensis
 302 japurensis
 331 macrophylla
 373 cayennensis
- HOSTMANN, F. W., and KAPPLER, A.
 162 angusta
 438 cayennensis
 1249 p.p. guianensis and p.p. pentagyna
 1823 sessilifolia
- HUBER, J.
 92 reichardtiana
 263 reichardtiana
 1219 cayennensis
 1479 baccifera subsp. subcuneata
- HUMBOLDT, A. VON, and BONPLAND, A.
 676 guianensis
 1038 cayennensis
 1070 sessilifolia
 1151 macrophylla
 1152 baccifera subsp. dealbata
 1715 lauriformis
- IDROBO, J., and SCHULTES, R. E.
 1199 confertiflora
- JELSKI, C. DE
 252 glabra subsp. pozuzoensis
 253 jelskii (see Appendix I)
- JENMAN, G. S.
 977 angusta
 4279 guianensis
 5029 falcata
 5035 macrophylla
 5324 macrophylla
 6278 guianensis
 7017 p. p. falcata, p. p. sessilifolia
- JOHNSON, W. M., and BARKLEY, F. A.
 18C770 guianensis
- JOHNSTON, J. R.
 106 cayennensis
- KALBREYER, W.
 1374 angusta
- KAPPLER, A.
 1722 cayennensis
- KAUFFMAN, E.
 7 reichardtiana

- KILLIP, E. P.
- 11734 sessilifolia
 34245 macrophylla
 34381 baccifera subsp. dealbata
 35453 sessilifolia
 35455 baccifera subsp. ferruginea
 37579 falcata
 38469 baccifera
 38480 lauriformis
- KILLIP, E. P., BARKLEY, F. A., and DANIEL, BRO.
- 39878 guianensis
- KILLIP, E. P., and CUATRECASAS, J.
- 38976 panamensis
 39090 baccifera subsp. ferruginea
- KILLIP, E. P., and SMITH, A. C.
- 14852 lauriformis
 15074 baccifera subsp. dealbata
 16335 baccifera subsp. dealbata
 19232 baccifera subsp. dealbata
 20037 baccifera subsp. dealbata
 25911 baccifera subsp. subcuneata
 26439 plicatifolia?
 26923 angusta
 27039 cayennensis
 27075 glabra
 27085 lateriflora
 27221 angusta
 27378 amazonica
 27541 sprucei
 27550 lateriflora
 27580 cayennensis
 27987 glabra
 28205 cayennensis
 29410 glabra
 29475 lateriflora
 29689 lateriflora
 30089 cayennensis
 30579 reichardtiana
 34340 guianensis
- KLUG, G.
- 317 amazonica
 354 lateriflora
 745 sprucei
 888 angusta
 1009 glabra
 1524 amazonica
- 1861 confertiflora
 2263 tomentosa
 2344 minutiflora?
 3140 p.p. glabra, p.p. plicatifolia?
 3455 cayennensis
- KRUKOFF, B. A.
- 1075 amazonica
 1175 amazonica
 1692 macrophylla
 4566 cayennensis
 4597 sprucei
 4735 angusta
 4946 cayennensis
 5241 glabra
 5946 amazonica
 6325 lateriflora
 6865 cayennensis
 6976 cauliflora
 7947 cauliflora
 8328 lateriflora
 8479 p.p. cayennensis, p.p. glabra
 8728 tomentosa
 10215 buchtienii
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