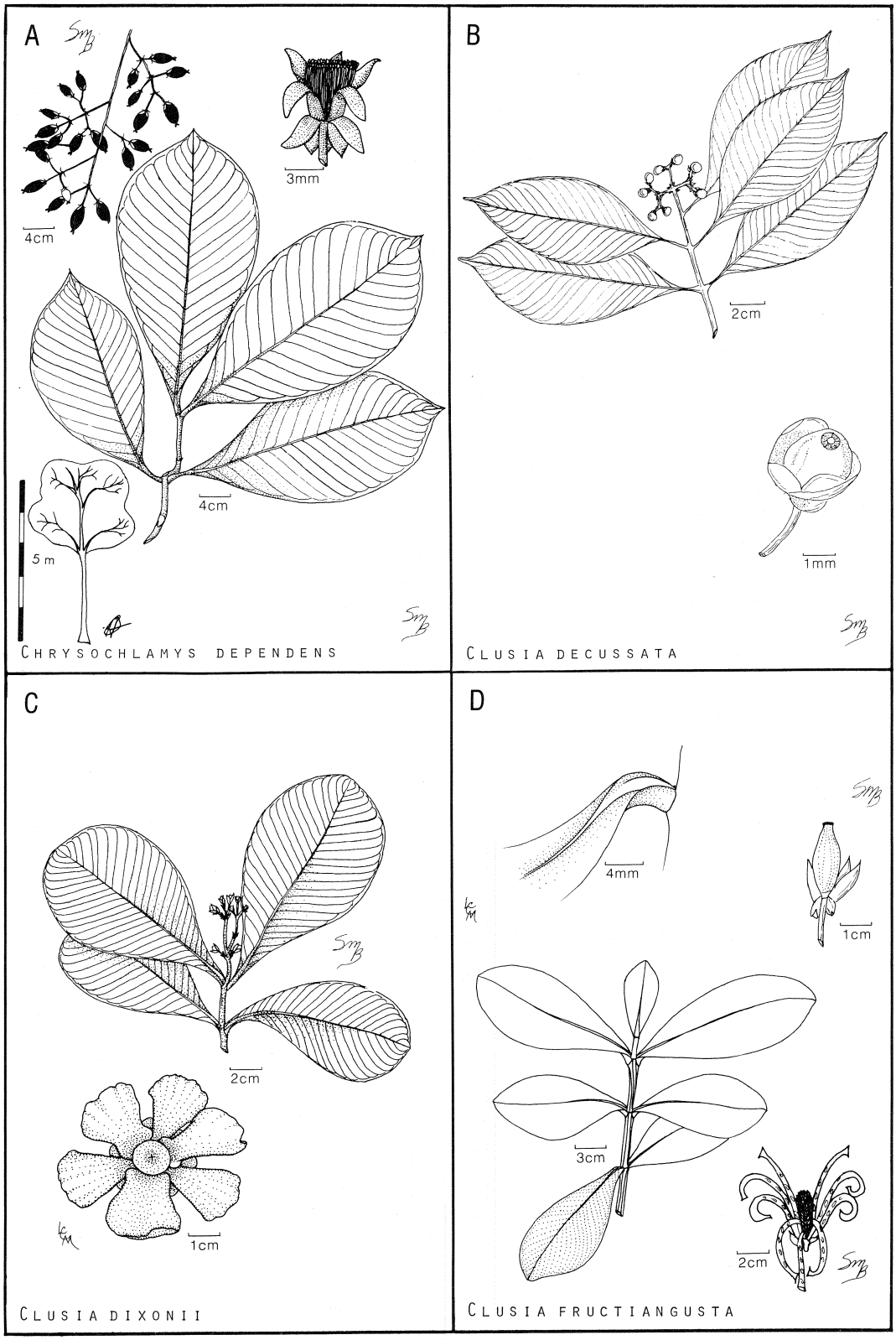

A
3mm
4cm
4cm
5 m
CHRYSOCHLAMYS DEPENDENS
B
2cm
1mm
CLUSIA DECUSSATA
C
2cm
1cm
CLUSIA DIXONII
D
4mm
1cm
3cm
2cm
CLUSIA FRUCTIANGUSTA

Plate 165

Clusia dixonii Little Plate 165-C

Epiphytic tree. Leave percoriaceous, obovate, ca. 25 × 14 cm, rounded at the apex, cuneate at the base, sessile, the secondary venation not evident. Flowers 6 cm across; sepals ca. 1 cm long; petals pale pink, ca. 2.5 cm long. Uncommon, in mature forest. Endemic to Pacific Ecuador.

Clusia fructiangusta Cuatr. Plate 165-D

Epiphytic. Leaves opposite, coriaceous, obovate, rounded at the apex, cuneate at the base, sessile, the secondary veins very close together and obscure. Sepals ca. 1 cm long. Fruit valves many, narrow, 2.5-5 cm long and 2-3 mm wide. Uncommon, in mature forest. Panama to Ecuador.

Clusia cf. **rosea** Jacq. Plate 166-A

Epiphytic tree. Leaves broadly obovate, rounded at the apex, broadly cuneate at the base, sessile, ca. 15 × 10 cm, the secondary veins very close together and obscure. Sepals ca. 5 mm long. Fruit valves ca. 10. Rare, in mature forest. This may prove to be merely an extreme form of *C. fructiangusta.*

Clusia venusta Little Plate 166-B

Epiphytic shrub or tree. Petiole to 3 cm long, forming a ring around the stem. Leaves elliptic, acuminate, to 28 × 15 cm, the nerves very prominent on both sides. Flowers large; petals bright pink, to 8 cm long. Rare, in trees overhanging the river. Endemic to coastal Ecuador.

***Mammea americana** L. Plate 166-C

Tree. Leaves coriaceous, elliptic, rounded at the base and the apex, the secondary and tertiary veins parallel, close together, not differentiated from each other. Flowers borne singly along branchlets; petals ca. 1.5 cm long. Fruit globose, fleshy, soft-ball sized or larger. Cultivated around homesites. Native to the West Indies; widely cultivated.
Common name: "Mamey Colorado"+

Tovomita weddelliana Tr. & Pl. Plate 166-D

T. sphenophylla Diels

Terrestrial tree with stilt roots and orangish-yellow sap. Leaves coriaceous, oblanceolate, to ca. 20 × 5 cm, rounded or cuspidate at the apex, long-attentuate to the base and essentially sessile, the secondary veins not evident. Inflorescence a terminal panicle. Flowers white, ca. 2.5 cm across; sepals ca. 0.8 cm long; petals ca. 1 cm long. Infrequent, in mature forest. Costa Rica to Bolivia.

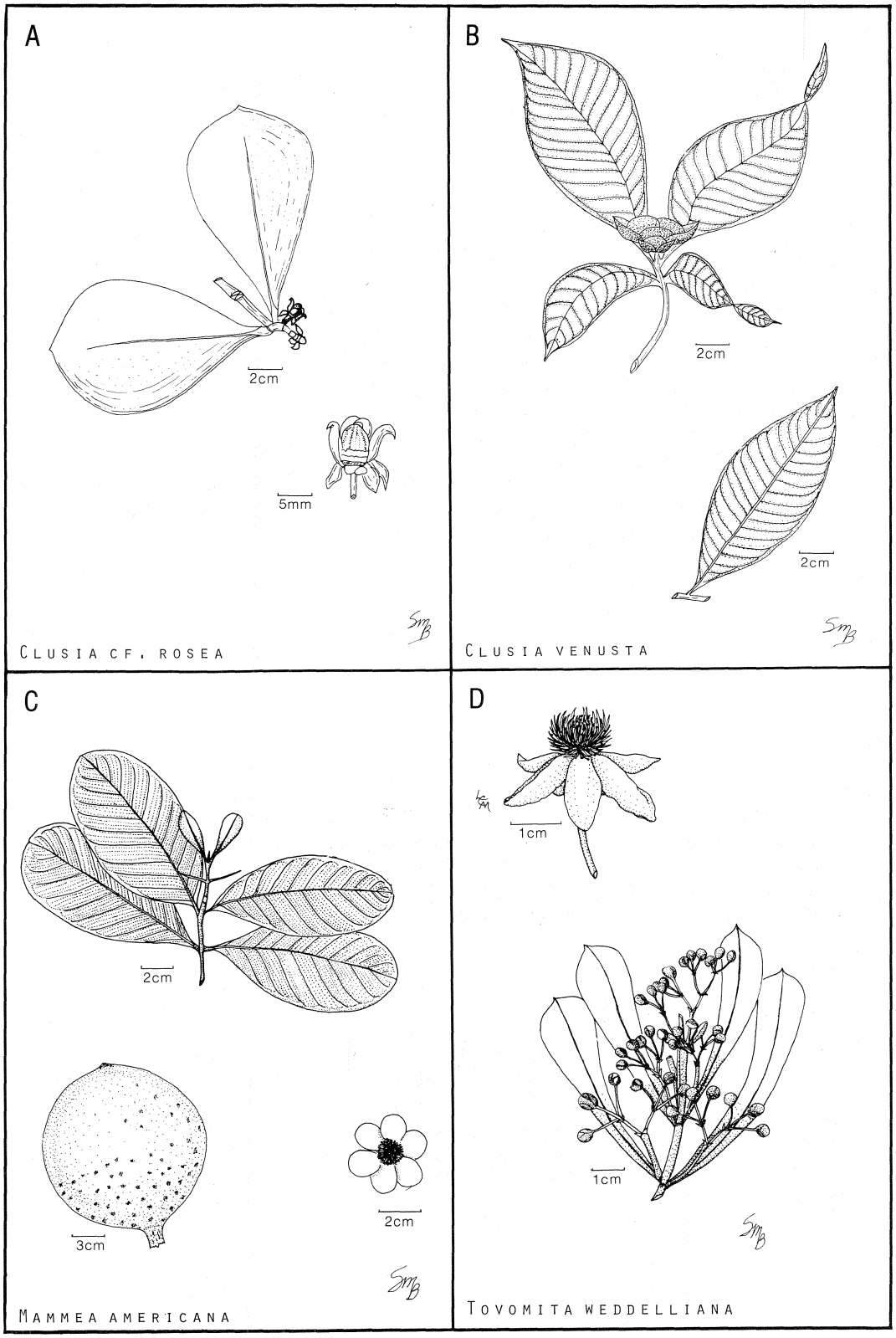

A
2cm
5mm
CLUSIA CF. ROSEA
B
2cm
2cm
CLUSIA VENUSTA
C
2cm
3cm
2cm
MAMMEA AMERICANA
D
1cm
1cm
TOVOMITA WEDDELLIANA

Plate 166

HERNANDIACEAE

Trees. Leaves alternate, simple, usually palmately veined, without stipules. Flowers bisexual or unisexual, regular; sepals 4-8; petals 4-8, green; stamens 3-5, opposite the sepals; ovary inferior, 1-loculed. Fruit surrounded by the expanded receptacle, large, lantern-like in appearance.

Hernandia stenura Standl. Plate 167-A

Large canopy tree to 30 m tall. Leaves broadly ovate to subrotund, widely cordate at the base, usually rounded and abruptly short-apiculate at the apex, finely puberulous beneath, partially glabrescent with age, palmately veined. Inflorescence paniculate, bracteate. Flowers white, subtended by bracteoles. Fruit black, to 4 cm in diameter, completely surrounded by a free (except at the base) expanded, fleshy, white cupule (expanded receptacle) to 10 cm in diameter. Common, in mature forest. This species, characterized by a broadly cordate leaf base and the leaves puberulent beneath, was previously known only from Costa Rica and western Panama. It was recorded by Little as *H. sonora* L., a species which has conspicuously peltate leaves.
Common name: "Pechuga"+

ICACINACEAE

Trees, shrubs or vines. Leaves alternate, simple without stipules. Flowers usually bisexual (but our genus dioecious), regular; calyx 4-5 lobed, small; petals 4-5; stamens as many as the petals and alternate with them, distinct; ovary superior, unilocular, 3-5 carpelled, the placentation apical, usually with 2 pendulous ovules. Fruit usually a drupe.

Calatola costaricensis Standl. Plate 167-B

Tree to 20 m tall, the trunk without buttresses. Branches tending to be pendent at the apex. Leaves obovate, drying black, serrate on the margin, acute at the apex, 25 × 10 cm. Flowers small, green, in axillary inflorescences. Fruit large, to 8 × 4 cm, green, with a hard inner shell, strongly ribbed. Rare, in mature forest. Identified with *C. venezuelensis* Pittier by Howard, but we are unable to distinguish our plant from the older *C. costaricensis* Standl. of Costa Rica and Panama.
Common name: "Erepe"

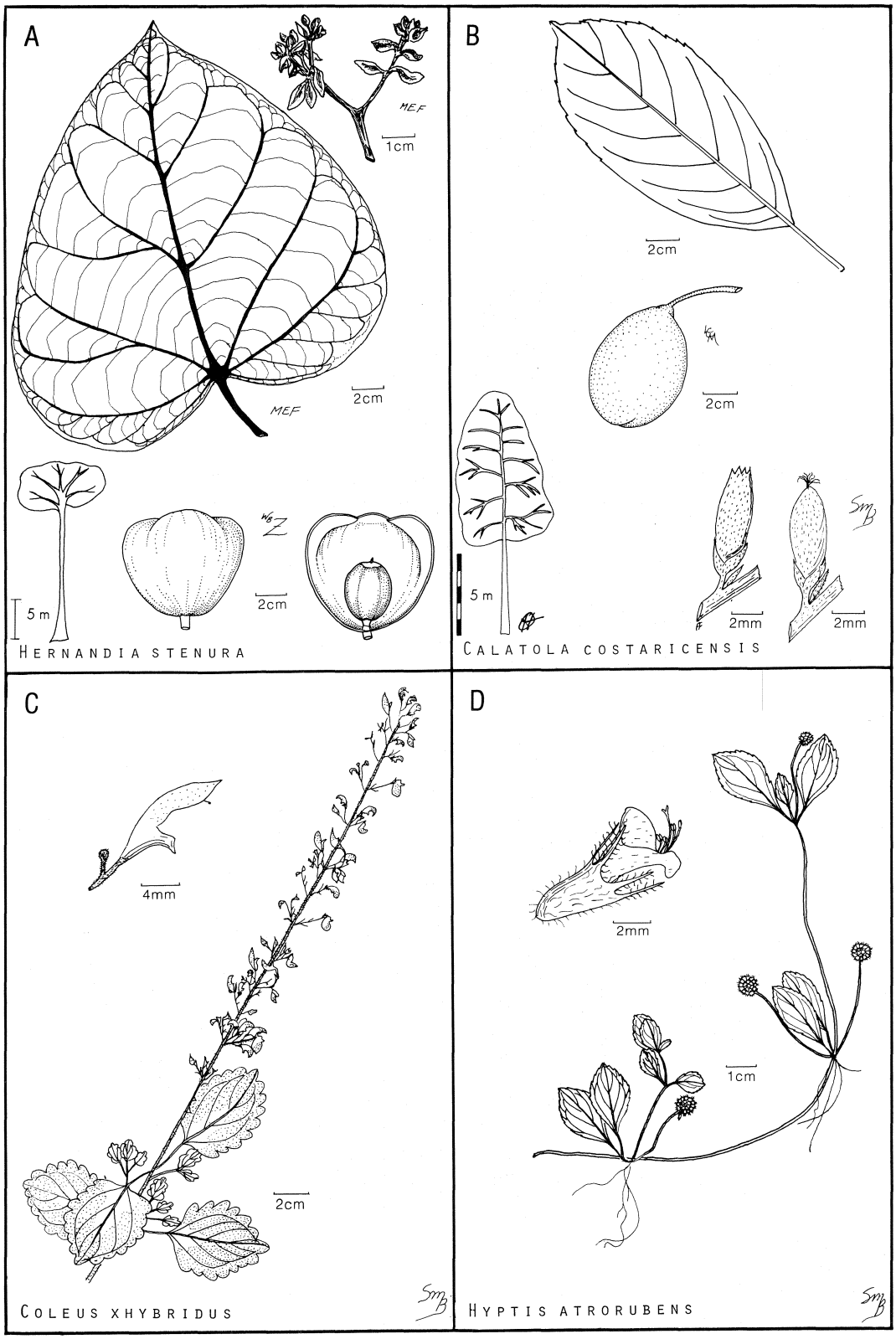

A
MEF
1cm
MEF
2cm
5 m
2cm
HERNANDIA STENURA
B
2cm
2cm
5 m
2mm
2mm
CALATOLA COSTARICENSIS
C
4mm
2cm
COLEUS XHYBRIDUS
D
2mm
1cm
HYPTIS ATRORUBENS

Plate 167

LABIATAE

Annual or perennial herbs or subshrubs, usually with aromatic oils, the stems and the twigs usually quadrangular. Leaves opposite or whorled, simple to compound, without stipules. Flowers often congested at the nodes, bisexual; stamens 2 or 4, mounted on the bilabiate corolla, with a nectariferous disc between the stamens and the ovary; ovary superior, 2-loculed. Fruit of 4 nutlets.

Key to the species.

1. Inflorescence a terminal raceme, glabrous or puberulous; corolla 5-20 mm long; stamens 2 or 4.
   2. Corolla ca. 2 cm long, red; cultivated ..... *Salvia coccinea*
   2. Corolla 5-10 mm long, blue; cultivated or native.
      3. Stamens 4; leaves colorfully variegated ..... *Coleus ×hybridus*
      3. Stamens 2; leaves green.
         4. Leaves more than 6 × 4 cm; calyx conspicuously bilabiate, 7-8 mm long ..... *Salvia alvajaca*
         4. Leaves less than 6 × 3 cm; calyx subbilabiate, 3-4 mm long ..... *Salvia occidentalis*
1. Inflorescence usually an axillary head or a terminal panicle (racemose but few-flowered and conspicuously long pilose in *Stachys*); corolla 2-5 mm long; stamens 4.
   5. Inflorescence racemose, the flowers subsessile, not in verticels; the stem and petioles densely long pilose; leaf base more or less cordate ..... *Stachys micheliana*
   5. Inflorescence an axillary head or a terminal panicle, the flowers in verticels; the stem and petioles usually puberulous or glabrescent; leaf base attenuate to truncate. *(Hyptis)*
      6. Flowers in few-flowered verticels, these arranged in terminal panicles.
         7. Verticels shortly pedunculate, 3-10 flowered; leaves ovate ..... *Hyptis mutabilis*
         7. Verticels sessile, 12-15 flowered; leaves narrowly ovate..... *Hyptis verticillata*
      6. Flowers in congested globose heads, these axillary and solitary in leaf axils.
         8. Shrubs; stems pilose with trichomes 1 mm long; flowers purple..... *Hyptis sidaefolia*
         8. Herbs (sometimes woody at the base); stems puberulous with minute trichomes; flowers white.
            9. Peduncles less than 1 cm long.
               10. Calyx less than 2 mm long, the teeth triangular..... *Hyptis obtusiflora*
               10. Calyx more than 3 mm long, the teeth spine-tipped ..... *Hyptis brevipes*
            9. Peduncles 1.5-6 cm long.
               11. Prostrate herbs; heads less than 1 cm across; leaves obtuse, less than 3 cm long ..... *Hyptis atrorubens*
               11. Erect herbs; heads more than 2 cm across; leaves acute, more than 3 cm long..... *Hyptis capitata*

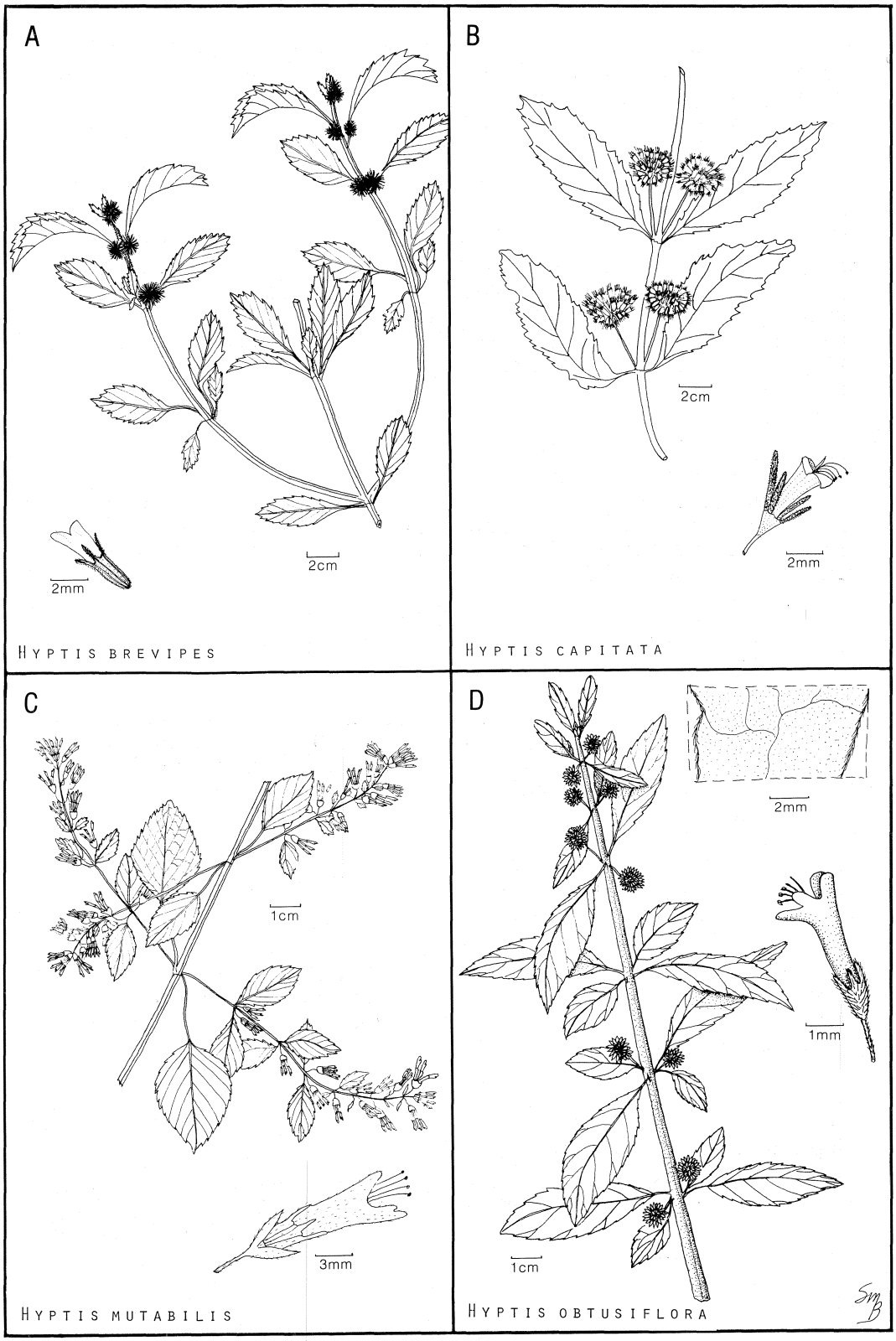

A
2cm
2mm
HYPTIS BREVIPES
B
2cm
2mm
HYPTIS CAPITATA
C
1cm
3mm
HYPTIS MUTABILIS
D
2mm
1mm
1cm
HYPTIS OBTUSIFLORA

Plate 168

Coleus ×hybridus Voss Plate 167-C

Herb to 2 m tall. Stems square. Leaves cordate, simple, variegated, brightly colored, the margin lobed. Inflorescence elongate, to 40 cm long, terminal on the branches. Corollas bilabiate, blue. Cultivated around homesites and escaped along the river bank. Introduced to cultivation from Java.

Hyptis atrorubens Poit. Plate 167-D

Prostrate herb, rooting at the nodes. Leaves opposite, rhombic-elliptic, to 2.5 × 1.7 cm. Inflorescences axillary, the dense heads 6-8 mm across, the peduncles 1.5-2.5 cm long. Flowers minute, whitish to pinkish. Local and uncommon, in mature forest, especially in wet areas. Mexico and the West Indies to northern South America.

Hyptis brevipes Poit. Plate 168-A

Herb to 90 cm tall. Leaves opposite, elliptic, serrate, to 5.5 × 1.7 cm (including the petiole). Inflorescence axillary, the dense heads ca. 1 cm across, the peduncles 5-7 mm long. Flowers white; corolla ca. 3 mm long. Common lawn weed. Mexico to Argentina.

Hyptis capitata Jacq. Plate 168-B

Erect herb to 1 m tall. Leaves opposite, ovate-rhombic, irregularly serrate, to 11 × 5 cm. Inflorescence axillary, the dense head 2-2.5 cm across, the peduncles 4-6 cm long. Flowers white; corolla 3-4 mm long. Common, in disturbed areas. Mexico to Venezuela and Peru.

Common name: "Biojo"

Hyptis mutabilis (A. Rich.) Briq. Plate 168-C

Erect herb to 1 m tall. Leaves ovate, serrate, the bases obtuse, to 6 × 3.5 cm. Inflorescence terminal. Flowers in small (3-10 flowered) verticellate clusters scattered along a central rachis, the peduncles 2-5 mm long, the flowers lavender; corolla 5 mm long. Common, in disturbed areas, especially near the river. Throughout the neotropics.

Hyptis obtusiflora Presl ex Benth. Plate 168-D

Erect herb to 1.5 m tall. Leaves narrowly elliptic to ovate-elliptic, serrate, to 8 × 3.5 cm, resin-dotted. Inflorescence axillary, the dense heads 5-8 mm across, the peduncles 3-5 mm long. Flowers white; corolla 3 mm long. Uncommon, in disturbed areas. Costa Rica to northwest South America.

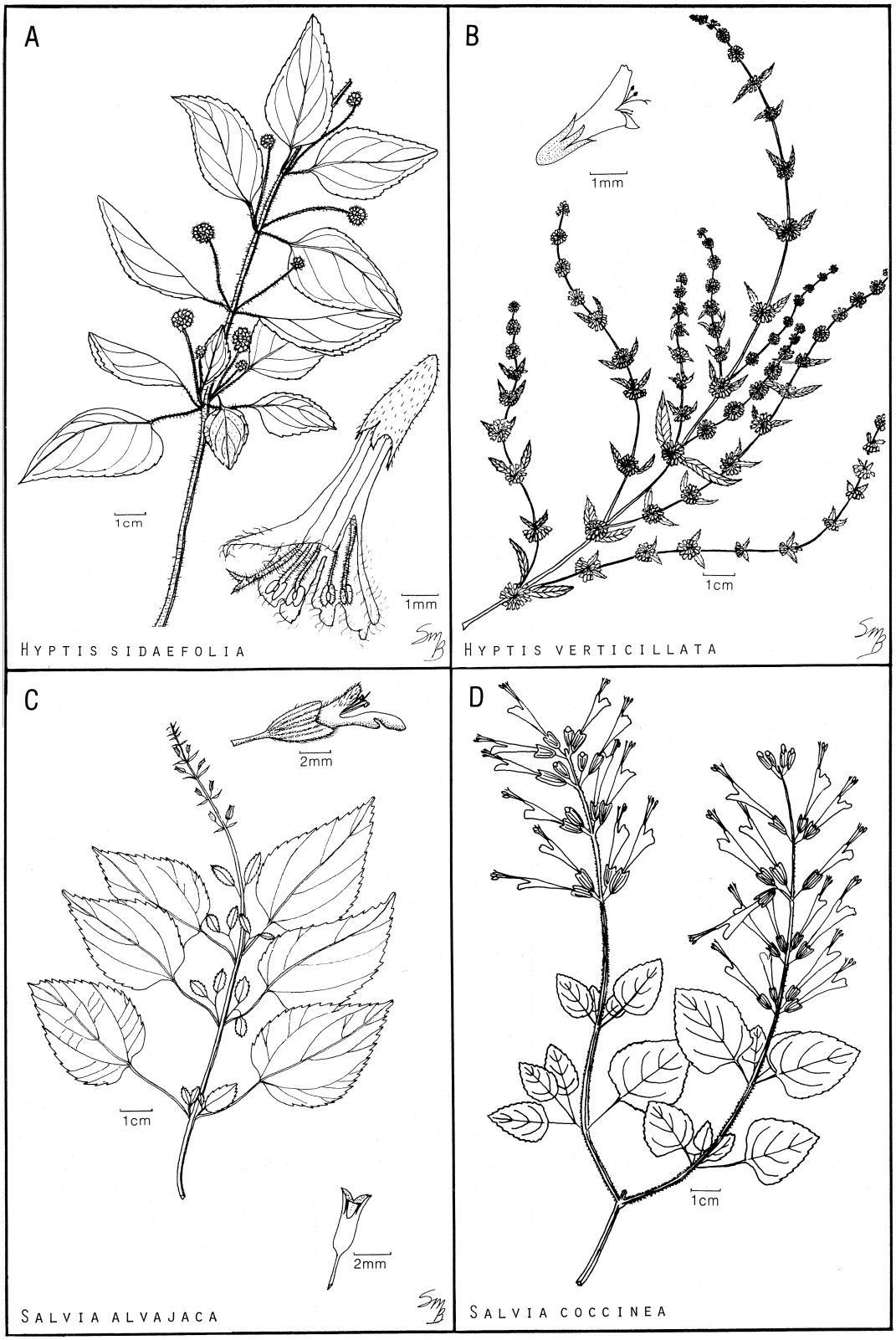

A
1cm
1mm
HYPTIS SIDAEFOLIA
B
1mm
1cm
HYPTIS VERTICILLATA
C
2mm
1cm
2mm
SALVIA ALVAJACA
D
1cm
SALVIA COCCINEA

Plate 169

Hyptis sidaefolia (L'Her.) Briq. Plate 169-A

Shrub to 2 m tall. Stems pilose. Leaves opposite, ovate, serrate, the base truncate, to 5 × 2.5 cm. Inflorescence axillary, the dense heads 5-7 mm across, the peduncules 2-3 cm long. Flowers purple; corolla ca. 4 mm long. Infrequent, in disturbed areas. Endemic to western Ecuador and adjacent Peru, also the Galapagos.

Hyptis verticillata Jacq. Plate 169-B

Erect shrubby herb to 2 m tall. Leaves opposite, lanceolate, serrate, to 6 × 1.5 cm. Flowers in small (12-15 flowered), sessile, verticellate clusters, arranged along a central rachis, these disposed in terminal panicles. Flowers white; corolla 2-3 mm long. Common, in disturbed areas. Throughout the neotropics.
Common name: "Juanilama Mocha"

Salvia alvajaca Oerst. Plate 169-C

Erect herb to 1 m tall. Leaves ovate, serrate, acuminate, the base more or less obtuse, to 12 × 7 cm; petioles 2-6 cm long. Flowers in 3-6-flowered sessile, verticellate clusters disposed in a terminal raceme. Flowers blue; calyx bilabiate, ca. 8 mm long; corolla ca. 1 cm long. Uncommon, on rocky beaches. Previously known only from Costa Rica and Panama.
Common name: "Albajaca"

***Salvia coccinea** Juss. ex Murr. Plate 169-D

Erect herb to 60 cm tall. Leaves broadly ovate, somewhat serrate, 2-5 cm long; petiole less than 2 cm long. Inflorescences racemose, many-flowered, with 4-6 pedicellate flowers at a node; calyx bilabiate, 7-9 mm long; corolla red, ca. 2 cm long; bilabiate. Cultivated around homesites. Cultivated and escaped throughout neotropics, probably native to Brazil.

Salvia occidentalis Sw. Plate 170-A

Prostrate or erect herb, to 50 cm tall. Leaves elliptic-rhombic, serrate, acute at the base and the apex, to 5 × 3 cm; petiole 1-1.5 cm long. Inflorescences composed of small (ca. 6-flowered) sessile verticellate clusters disposed in a terminal raceme, the flowers blue; calyx subbilabiate, 3-4 mm long; corolla 5 mm long. Uncommon, in disturbed areas. Through most of the neotropics.
Common name: "Verbena"

Stachys micheliana Briq. Plate 170-B

Low herb, stem densely long-pilose. Leaves ovate, subacute, slightly cordate at the base, serrate, ca. 3 × 2 cm; petiole 1-1.5 cm long, densely pilose. Inflorescence more or less racemose, composed of several few-flowered clusters in the axils of the reduced terminal leaves. Flowers subsessile; calyx not bilabiate, the lobes awn-tipped; corolla small, pink. Rare, on gravel bars in the riverbed. Colombia to Paraguay and northern Argentina, mostly at higher altitudes in Ecuador.

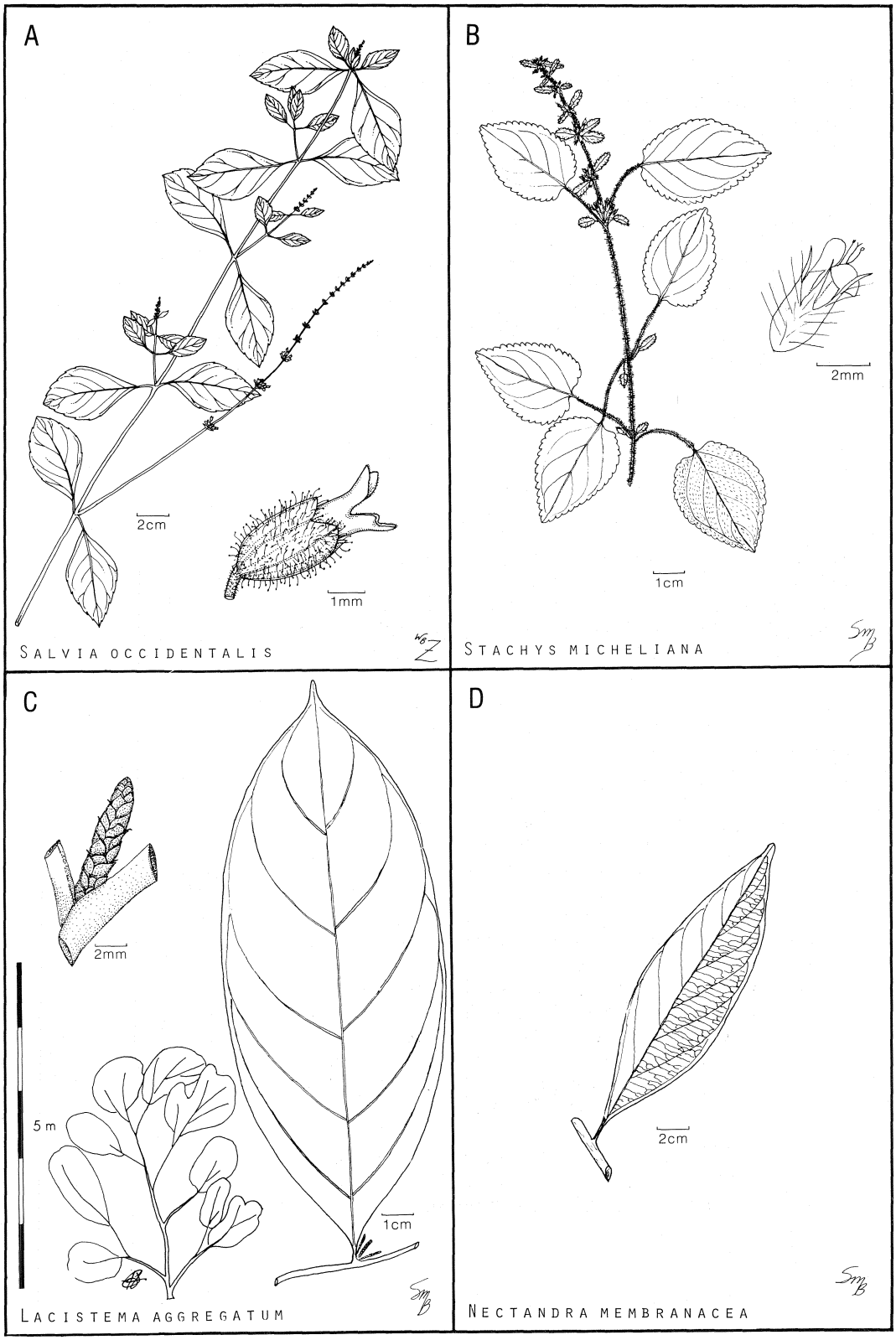

A
2cm
1mm
SALVIA OCCIDENTALIS
B
2mm
1cm
STACHYS MICHELIANA
C
2mm
5 m
1cm
LACISTEMA AGGREGATUM
D
2cm
NECTANDRA MEMBRANACEA

Plate 170

LACISTEMACEAE

Shrubs or trees without latex. Leaves alternate, entire, simple. Flowers in small dense bracteolate spikes in the axils of the leaves. Flowers tiny, reduced, bisexual; anther connective forked; stigma exserted. (This family is sometimes placed in the Flacourtiaceae).

Lacistema aggregatum (Berg) Rusby Plate 170-C

Understory tree to 4 m tall. Leaves elliptic, acuminate, rounded at the base. Inflorescences densely spicate, ca. 1 cm long, clustered in the leaf axils. Flowers minute, greenish white. Fruit a red, globose capsule. Infrequent, in mature forest. Mexico and the West Indies to Bolivia and Brazil; apparently not previously reported for Ecuador.

LAURACEAE

Trees. Leaves aromatic, usually alternate, simple, entire, without stipules. Flowers bisexual or unisexual, regular, small, greenish, yellow or white; sepals and petals 3 or 6; stamens 12 in 4 whorls of 3 each, joined to the perianth, often some of the staminal whorls petaloid or absent, the anthers opening by 2 or 4 valves; ovary superior, 1-loculed. Fruit a drupe, sometimes large, commonly subtended by the cupular perianth. This is a large and taxonomically difficult family; several of the Río Palenque species are known only from sterile material and their suggested identifications with Panamanian species are tentative.

Key to the species.

1. Fruits very large (more than 6 cm long), not subtended by the receptacle; cultivated or the leaves opposite.
   2. Leaves opposite, 3-veined from the base; native . . . . . *Persea theobromifolia*
   2. Leaves alternate, pinnately veined; cultivated . . . . . *Persea americana*
1. Fruits less than 4 cm long, subtended by a cupular perianth tube; native; leaves alternate.
   3. Leaves conspicuously pubescent beneath, soft to the touch.
      4. Leaf base more or less truncate, the leaves oblong, 9-16 cm wide, the tomentum of short trichomes . . . . . *Ocotea cooperi*
      4. Leaves tapered to the base, obovate and 14-27 cm wide or oblong to elliptic-oblong and 6-8 cm wide; tomentum of longer trichomes.
         5. Leaves large, obovate, more than 14 cm wide . . . . . *Ocotea* sp. nov. (6302)
         5. Leaves oblong to elliptic-oblong, 6-8 cm wide. . . . . *Nectandra reticulata*
   3. Leaves glabrous or sparsely puberulous beneath.

6. Leaves elliptic, less than 20 (-22) cm long (if more than 14 cm long, the surface above smooth and without noticeable reticulation of the tertiary venation).
   7. Leaves less than 14 cm long, acuminate. . . . . *Ocotea cernua*
   7. Leaves 13-22 cm long, acute to subacuminate. . . . . aff. *Ocotea dendrodaphne*
6. Leaves oblong or obovate to obovate-elliptic, usually in part 20 or more cm long; tertiary venation obvious above.
   8. Leaves more than 30 cm long, the bases with conspicuous auriculate lobes . . . . . *Ocotea sodiroana*
   8. Leaves less than 30 cm long when mature, not auriculate.
      9. Leaves more or less oblong; usually more than twice as long as wide, with a distinct petiole 1-2 mm long.
         10. Tree with stilt roots; anther valves all dehiscing laterally; cupule in the fruit warty and 2 cm in diameter. . . . . *Nectandra* aff. *trianae*
         10. Tree without stilt roots; at least two valves on each anther dehiscing more or less toward the center of the flower; cupule in the fruit not warty and less than 2 cm in diameter.
            11. Tertiary venation obscure and conspicuously parallel beneath, the surface between secondary veins smooth; leaves foul-smelling when crushed. . . . . *Nectandra membranacea*
            11. Tertiary venation reticulate and prominulous; leaves aromatic when crushed.
               12. Leaves more than 7.5 cm wide, oblong-elliptic, ca. twice as long as wide. . . . . *Nectandra* cf. *purpurea*
               12. Leaves less than 7.5 cm wide, narrowly obovate-oblong, ca. 3 times as long as wide . . . . . aff. *Ocotea oblonga*
      9. Leaves obovate, ca. twice as long as wide, subsessile . . . *Ocotea ira*

Nectandra membranacea (Sw.) Griseb. Plate 170-D

N. standleyi C. Allen

Known only as a juvenile sterile tree 10 m tall at Río Palenque. Petiole ca. 1 cm long; leaves rather foul-smelling, oblong to elliptic-oblong, 11-24 × 4-6.5 cm, acuminate, cuneate at the base, coriaceous, the tertiary ventation beneath obscure and conspicuously parallel (± perpendicular to the midvein), the surface between the secondary veins noticeably smooth-looking. Rare, in the forest near trail 7 at the edge of cliff. A good match with Panamanian material of *N. standleyi* which seems well-characterized by the parallel tertiary venation, similar to that of *Compsoneura* (Myristicaceae). Bernardi synonymizes this species with *N. membranacea*, thus distributed from Costa Rica and the West Indies to Bolivia and Brazil.

Nectandra cf. **purpurea** (R. & P.) Mez Plate 171-A

N. latifolia (HBK) Mez

Known only as a small sterile tree 7 m tall and 15 cm dbh, branching low on the trunk. Petiole 1-1.5 cm long; leaves oblong-elliptic, 15-28 × 7.5-12 cm, membranaceous, obtuse at the base and the apex, the tertiary venation beneath prominulous, reticulate. Rare, in mature forest near beginning of trail 2. Closer to *N. latifolia*, which occurs from Nicaragua to Brazil but has been synonymized with the earlier *N. purpurea* by Bernardi, than to any other Panamanian species.

Nectandra reticulata (R. & P.) Mez Plate 171-B

Canopy tree to 25 m tall, the trunk light-colored, the base with narrow buttresses. Petiole 1.5-3 cm long; leaves oblong to elliptic-oblong, 15-24 × 6-8 cm, acute at the base and the apex, softly pubescent beneath, the secondary and tertiary venation conspicuously raised-reticulate, glabrous or glabrate above. Uncommon, in mature forest. This name is used in the broad sense of Bernardi (1962). The closest match at MO for the sterile Río Palenque material is with *N. kunthiana* (Nees) Karst. from Guayana (Schomburgk 798, cited by Mez but not treated by Bernardi), an unlikely range disjunction. The few other similarly pubescent-leaved species of Lauraceae at MO (mostly treated as variants of *N. reticulata* by Bernardi) have a denser tomentum (*N. mollis* Nees) an incurved leaf base (*N. reticulata* sensu stricto), or a wider leaf with different shape [*N. macrophylla* (HBK) Nees]. Sensu lato, the species ranges from Mexico to Brazil and Peru.
Common name: "Jigua"+

Nectandra aff. **trianae** Mez Plate 171-C

Canopy tree to 30 m tall, the base completely buttressed and with stilt roots. Petiole 1-2.5 cm long; leaves narrowly elliptic-oblong, rounded or short-apiculate at the apex, cuneate at the base, mostly 20-30 × 7-9 cm, glabrate or very minutely puberulous along the veins. Inflorescence axillary, paniculate, shorter than the leaves. Flowers bisexual, greenish white, ca. 6 mm in diameter, puberulous; outer stamens with club-shaped anthers on a stipitate filament; ovary glabrous, the style short. Fruit ellipsoid, ca. 2 cm long; subtended by a truncate cupule 1-1.5 cm long and 2-2.5 cm in diameter, woody, reddish with raised brownish warts. Rare, in mature forest along trail 5. In Mez's monograph this keys to *N. trianae* on account of its stipitate outer series of anthers, dehiscing laterally, glabrous ovary and glabrous filaments. As the species is known only from a Colombian type (locality unknown) and no specimens are available for comparison, identification of the Río Palenque plant, which may well be an undecribed species, is tentative.
Common name: "Jigua"+

Ocotea cernua (Nees) Mez Plate 171-D

Tree 6-10 m tall with an unpleasant medicinal odor. Leaves elliptic, conspicuously acuminate, acute at the base, 5-13 cm long, glabrous. Inflorescence a raceme or very narrow racemose panicle; perianth tube cupular, 5-dentate, 1 mm long. Flowers cream. Fruits 1-1.5 cm long, subtended by the expanded perianth tube. Infrequent, in mature forest. Mexico and the West Indies to Bolivia.

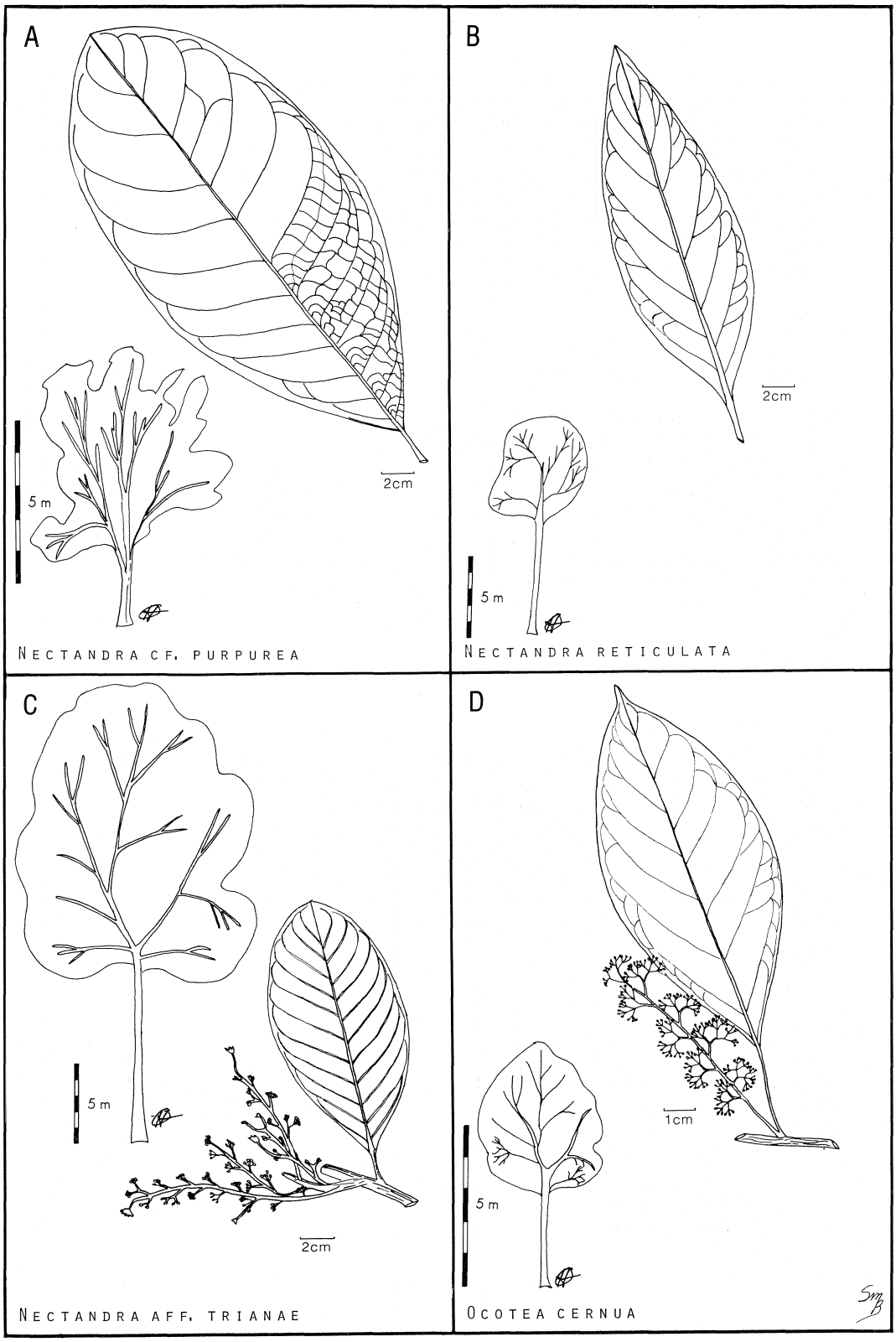

A
2cm
5 m
NECTANDRA CF. PURPUREA
B
2cm
5 m
NECTANDRA RETICULATA
C
5 m
2cm
NECTANDRA AFF. TRIANAE
D
1cm
5 m
OCOTEA CERNUA

Plate 171

Ocotea cooperi C. K. Allen Plate 172-A

Canopy tree 20-25 m tall, the base with narrow buttresses; outer bark dark, inner bark and wood conspicuously yellow, lacking lauraceous odor. Petiole thick, 1-1.5 cm long; leaves without noticeable odor, oblong, 22-40 × 11-16 cm, short-acuminate, truncate at the base, prominently reticulate below and conspicuously puberulous, especially along the veins and veinlets, drying dark, almost black. Inflorescence a terminal panicle, bracteate, tomentose. Flowers cream. Fruit (in Panama) ellipsoidal, to 3.5 cm long, the base subtended by an enlarged cupular perianth tube 2 cm in diameter. Infrequent, in mature forest. Costa Rica to Pacific Ecuador.
Common name: "Jigua amarilla"+

aff. **Ocotea dendrodaphne** Mez Plate 172-B

Known only from a juvenile tree to 8 m tall. Leaves alternate, elliptic, acute at the base, acute to acuminate at the apex, 13-22 × 5-8 cm, glabrous, the secondary veins raised below, the tertiary veins prominulous below, not visible above. Rare, in mature forest. This plant seems closest vegetatively to *O. dendrodaphne* among Panamanian species especially on account of the very smooth, non-reticulate upper surface of the leaf, but even generic placement remains tentative in the absence of fertile material. *Ocotea dendrodaphne* has been reported from Mexico to Panama.

Ocotea ira Mez & Pittier Plate 172-C

Large canopy or subcanopy tree, 20-30 m tall. Leaves obovate, apically rounded (abruptly acuminate or apiculate on juvenile plants), basally attenuate-cuneate, 15-20 cm long, with tufts of trichomes in the lateral nerve axils below, reddish when young. Inflorescence a much-branched panicle. Flowers cream; calyx cupular, 5-dentate, 1 mm long. Fruit ellipsoidal, 12-15 mm long, the base subtended by an expanded conspicuously 5-dentate red perianth tube 6-8 mm wide. Infrequent in mature forest. Costa Rica to Ecuador. Little reported this species from Ecuador as *O. tonduzii* which C. Allen differentiated chiefly by somewhat smaller leaves.
Common name: "Ira"

aff. **Ocotea oblonga** (Meissner) Mez Plate 172-D

Known only from a juvenile tree 8 m tall. Vegetative parts with kerosene-like odor. Leaves alternate, oblong-oblanceolate, obtuse to obtusely short-acuminate at the tip, cuneate at the base, 16-24 × 5-7 cm, glabrous, the upper epidermis minutely beaded-papillate, the secondary veins plane or slightly impressed above, prominent below. Rare, in mature forest off trail 2 near laboratory clearing. The suggested affinity is based on superficial similarity of leaf shape and form with Panamanian material of *O. oblonga*.

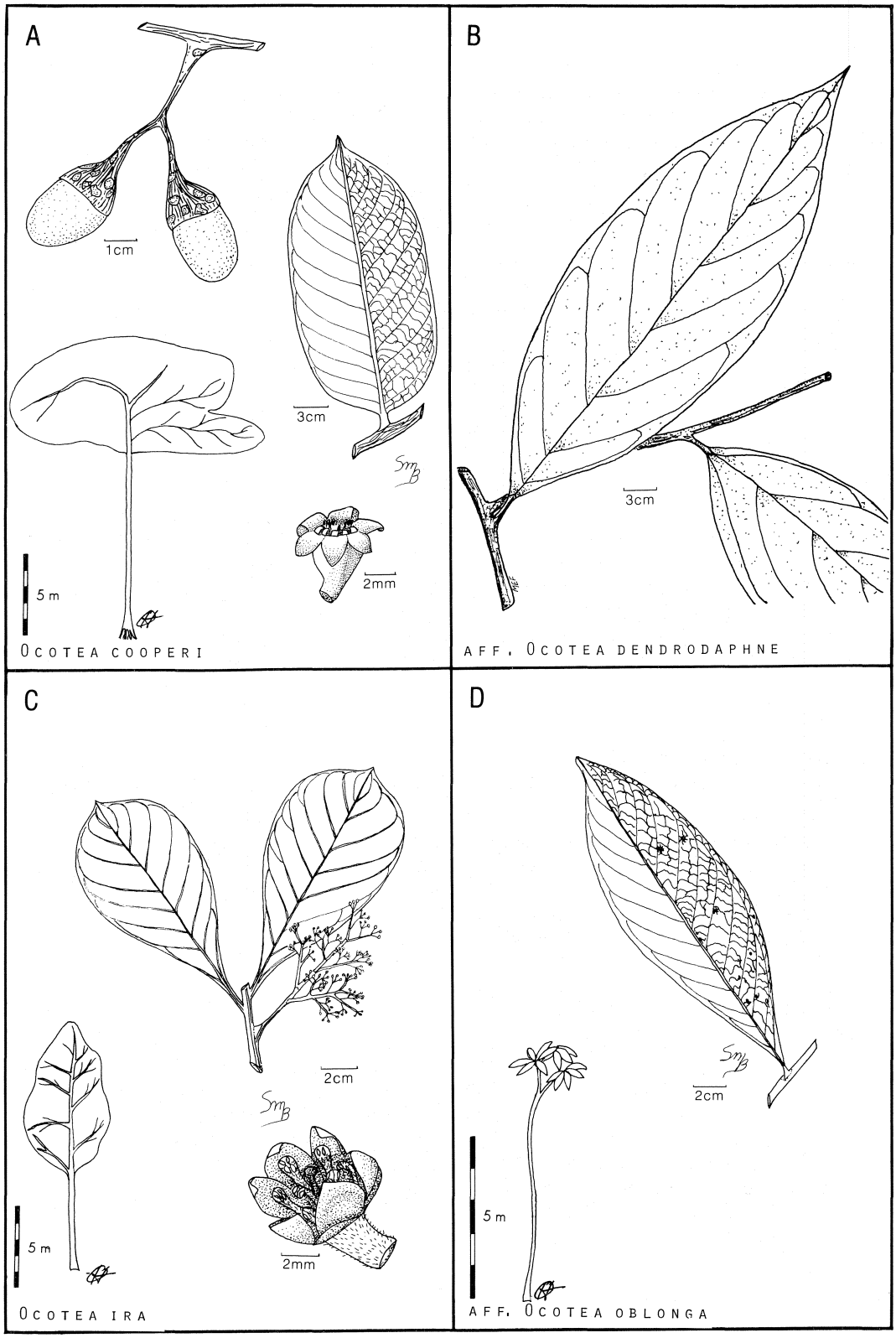

A
1cm
3cm
5 m
2mm
OCOTEA COOPERI
B
3cm
AFF. OCOTEA DENDRODAPHNE
C
2cm
5 m
2mm
OCOTEA IRA
D
2cm
5 m
AFF. OCOTEA OBLONGA

Plate 172

Ocotea sodiroana Mez Plate 173-A

Large canopy tree 30 m tall. Petiole hardly evident, thick, less than 1 cm long; leaves coriaceous, obovate, 30 cm or more long, apically rounded, cuneate toward the base, the base conspicuously auriculate with the auricles reflexed, the midvein prominent below, the many barely ascending secondary veins very obscure. Inflorescence (fallen fragments only) in bud, conspicuously bracteate and highly congested, the perianth tube cupular, truncate, appressed-pubescent, ca. 2 mm long. Fruit ellipsoid, 2 × ca. 1.2 cm, the lower one-third subtended by an enlarged truncate perianth tube ca. 1 cm in diameter. Rare, in mature forest near Dodson house. Western Ecuador; previously known only from the type from Angamarca, probably from ca. 2000 m altitude. The remarkable giant leaves with striking auricles are quite unlike any species of Lauraceae represented at MO or NY. In Bernardi's (1962) treatment it keys out with *O. auriculata* Lasser, of Rancho Grande, Venezuela which has smaller leaves, oval or oboval and with prominent secondary veins beneath. Identification with *O. sodiroana* is based only on the inadequate description and the stated resemblance to *O. calophylla* Mez.

Ocotea sp. nov. (6302) Plate 173-B

Tree to 20 m tall. Petiole very thick, less than 1 cm long; leaves with an aromatic odor, obovate, 35-45 × 14-27 cm, abruptly apiculate-acuminate at the apex, cuneate at the base, conspicuously rufous-pilose beneath, especially along the veins, the secondary and tertiary venation raised beneath, appressed above. Uncommon, in mature forest. This is unmatched at MO, but the large leaves and thick, robust branchlets ally it with Bernardi's "Group III" where it is perhaps closest to *O. caracasana* (Nees) Mez which has leaves only about a third the size of our plant's leaves. Although so distinctive that it is almost certainly undescribed, description of the Río Palenque species must await discovery of fertile material.

***Persea americana** Mill. Plate 173-C

Tree 10-15 m tall. Leaves alternate, crowded near the tips of the branchlets, ovate to obovate-oblong, acute to obtuse at the apex, the base cuneate to obtuse. Inflorescence of small, axillary many-flowered panicles. Flowers small, greenish-yellow; petals 6 mm long. Fruit (avocado) to 20 × 10 cm, pear-shaped to globose, not subtended by a perianth tube, fleshy with a single large seed. Cultivated around homesites. Probably native to Mexico and Central America, cultivated throughout the tropics.
Common name: "Aguacate"+

Persea theobromifolia A. Gentry Plate 173-D

Large canopy or emergent tree 30-50 m tall. Petiole 1-2 cm long; leaves opposite, elliptic, obtuse to subacute at the base and the apex, 11-18 × 4-9 cm, conspicuously 3-veined from the base, glabrous and lepidote-puncticulate below. Inflorescence a small, axillary, few-branched panicle, to 8 cm long. Flowers grey-green; the 3 petals 2.5 mm long. Fruit 8.5 cm long, 5.5 cm wide, obovoid, drupaceous, not subtended by the perianth tube. Common, in mature forest. This was the commerical mahogany of the region. Now known only from Río Palenque.
Common name: "Caoba"+

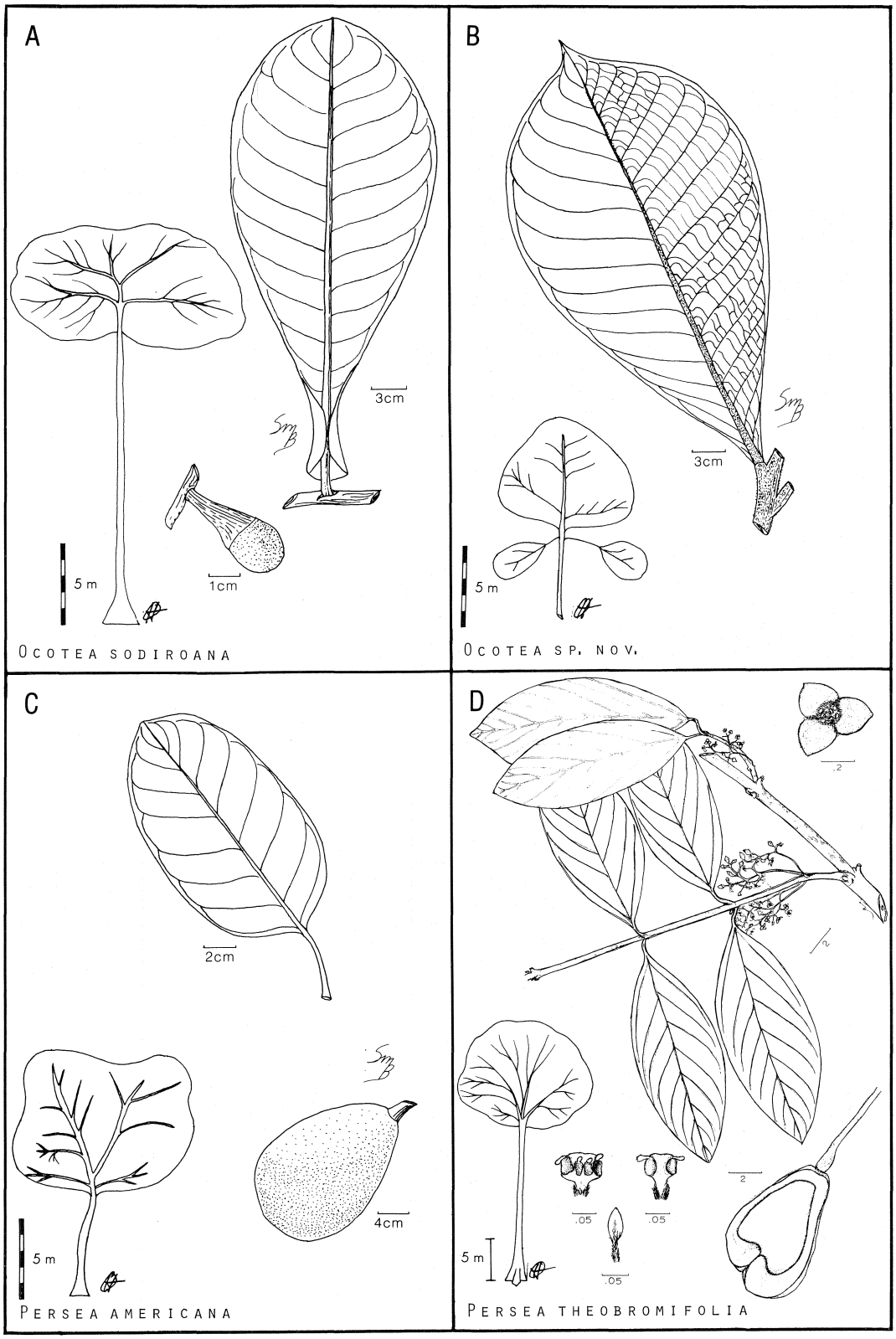

A
3cm
5 m
1cm
OCOTEA SODIROANA
B
3cm
5 m
OCOTEA SP. NOV.
C
2cm
4cm
5 m
PERSEA AMERICANA
D
.2
.2
.05
.05
.05
5 m
PERSEA THEOBROMIFOLIA

Plate 173

LECYTHIDACEAE

Trees. Leaves alternate, sometimes whorled, simple, entire to serrate, sometimes very large. Inflorescences terminal, in the axils of the uppermost leaves, or cauline; flowers bisexual; sepals 4-6; petals white, yellow, pink or various shades of red, maroon, or violet, 4-8 (-18); androecium forming a specialized structure termed the androphore, this consisting of a connate, symmetrical ring with numerous stamens arising from the summit or an annular ring variously prolonged on one side, in the most extreme cases forming a strap-like structure which curls over the pistil; ovary inferior.

Key to the species.

1. Inflorescences produced from the trunk and along the large branches; fruits with a single seed; flowers yellow. . . . . *Grias tessmannii*
1. Inflorescences produced above or among the leaves, not on the trunk or the large branches; fruits with 2 or more seeds; flowers pink or yellow.
   2. Flowers pink, androphore ring-like . . . . . *Gustavia dodsonii*
   2. Flowers yellow, androphore strap-shaped, curling over the pistil. . . . . *Lecythis tuyrana*

Grias tessmannii R. Knuth Plate 174-A

Tree to 25 m tall. Leaves to 50 × 20 cm. Inflorescences produced on the trunk and large branches; pedicel to 5 cm long. Petals 4 (-5), yellow, to 3 cm long; stamens 100-150, the anthers globose, less than 1 mm long, dehiscing by longitudinal slits. Infrequent, in mature forest. Transandean in distribution, confined to Pacific Ecuador and from northern Ecuador to northern Peru east of the Andes.
Common name: "Jagua Lechosa"+, "Soda"

Gustavia dodsonii Mori Plate 174-B

Tree to 19 m tall. Leaves to 90 × 20 cm. Flowers produced at the apices of the stems, above the previous flush of leaves; pedicels to 17 cm long. Petals (5-) 6 (-7), pink, to 10 cm long; stamens more than 500, the anthers linear, ca. 3 mm long, dehiscing by apical pores. Uncommon, in the middle story of mature forest. Known only from Río Palenque.
Common name: "Membrillo"+

Lecythis tuyrana Pittier Plate 174-C

Tree to 40 m tall, DBH to 60 cm, the wood very hard. Leaves rectangular, to 40 × 15 cm. Inflorescences produced at the apices of the stems; pedicels to 8 cm long. Petals 6, yellow, to 3 cm long; androphore yellow. Uncommon, in marshy areas in mature forest. Eastern Panama to Pacific Ecuador.
Common name: "Sabroso"+, "Quiebra Hacha"+

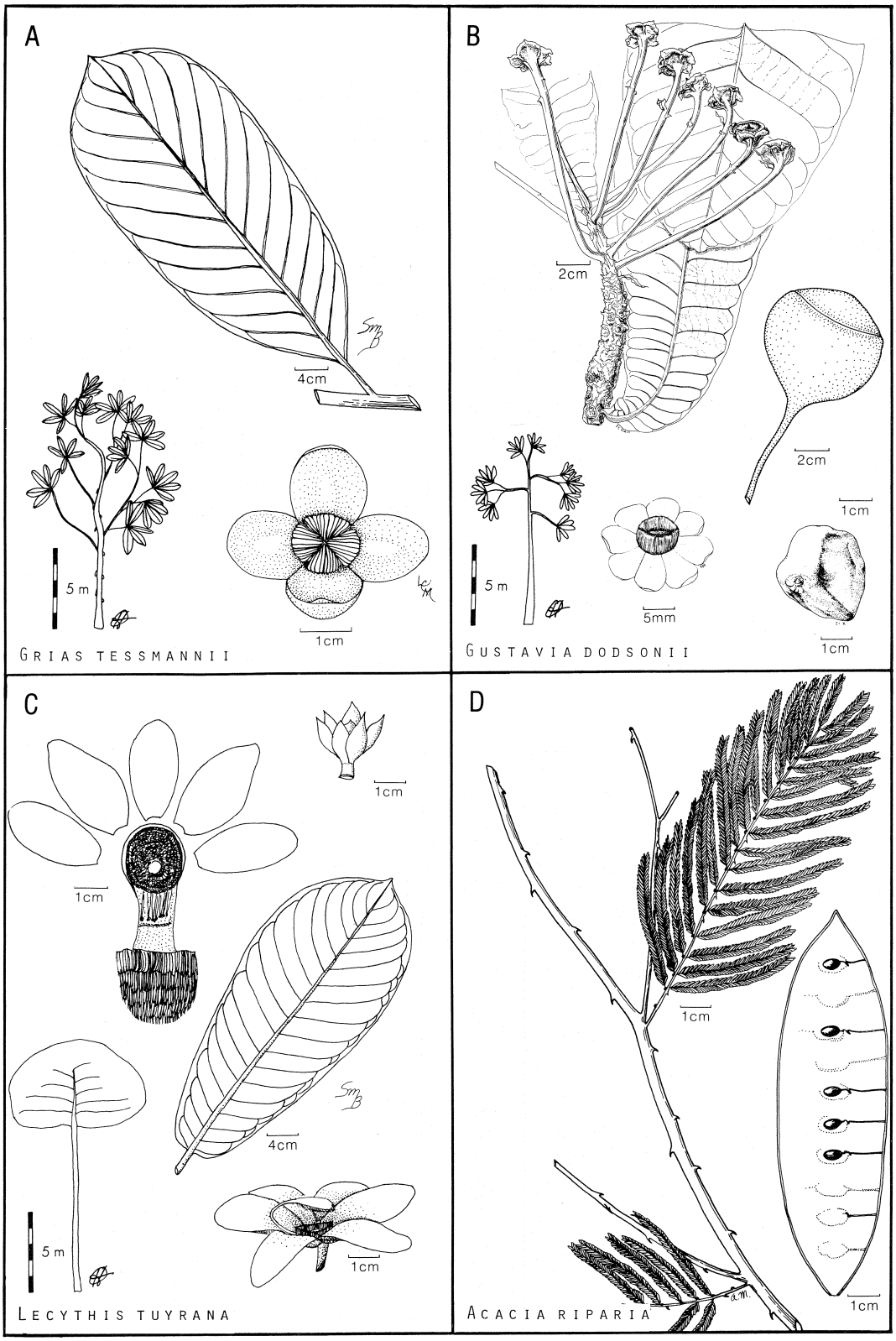

A
4cm
5 m
1cm
GRIAS TESSMANNII
B
2cm
2cm
1cm
5 m
5mm
1cm
GUSTAVIA DODSONII
C
1cm
1cm
4cm
5 m
1cm
LECYTHIS TUYRANA
D
1cm
1cm
ACACIA RIPARIA

Plate 174

LEGUMINOSAE

Herbs, shrubs, vines or trees. Leaves mostly alternate, compound (usually) or simple, usually with stipules. Flowers bisexual, commonly zygomorphic; calyx 5-lobed; corolla usually with 5 petals, distinct or with the petal bases joined; stamens mostly 10; ovary superior, 1-loculed. Fruit a legume, variously dehiscent or indehiscent, sometimes one-seeded and globose.

Key to the species.

1. Leaves pinnate or bipinnate.
   2. Leaves pinnate.
      3. Flowers radially symmetrical; petals valvate in bud; leaves with glands between each pair of leaflets.
         4. Inflorescence long, narrowly racemose; calyx ca. 1 mm long.
            5. Leaves 4-to 6-foliolate, the leaflets with less than 7 pairs of secondary nerves; fruit less than 2 cm wide. . . . . *Inga coruscans*
            5. Leaves mostly 8-foliolate, the leaflets with ten or more pairs of secondary nerves; fruit more than 3 cm wide . . . . . *Inga riopalenquensis*
         4. Inflorescence congested-racemose; calyx more than 1 mm long.
            6. Leaves 8-to 10-foliolate; calyx 2-9 mm long.
               7. Calyx 2-4 mm long; fruit flat, to 16 cm long. . . . . *Inga ruiziana*
               7. Calyx 7-9 mm long; fruit terete, more than 16 cm long. . . . . *Inga edulis*
            6. Leaves 4-to 6-foliolate; calyx more than 8 mm long.
               8. Leaves thin, puberulous beneath; calyx more than 10 mm long, native.
                  9. Rachis winged; petiole and peduncle puberulous. . . . . *Inga alatocarpa*
                  9. Rachis unwinged; petiole and peduncle villous . . . . . *Inga rhabdotocalyx*
               8. Leaves thick, glabrous; calyx 8-9 mm long; cultivated . . . . . *Inga spectabilis*
      3. Flowers bilaterally symmetrical; petals imbricate in the bud; leaves not glandular between all pairs of leaflets, sometimes with glands between lower leaflet pairs.
         10. Flowers not pea-like, the petals not modified into banner, standards, and keel; stamens distinct.
            11. Leaves eglandular, 6-to 13-foliolate, the leaflets acuminate; flowers yellow, red, or cream, usually more or less cauliflorous.
               12. Fruit subterete, contracted between the seeds; flowers yellow; inflorescence an open raceme . . . . . *Swartzia haughtii*
               12. Fruit flattened, not narrowed between the seeds; flowers orange-red, or cream; inflorescence a very contracted raceme.
                  13. Flowers orange-red, mostly on smaller branches . . . . . *Brownea angustiflora*
                  13. Flowers cream, mostly near the base of the trunk . . . . . *Brownea disepala*

11. Leaves with glands between lower leaflet pairs; 4-foliolate and subacuminate or ca. 10-foliolate and rounded; flowers yellow, borne on leafy branches.
    14. Leaves 4-foliolate, acute to acuminate, more than 7 cm long ..... *Cassia fruticosa*
    14. Leaves ca. 10-foliolate, rounded, less than 5 cm long ..... *Cassia pendula*
10. Flowers pea-like with banner, standards and keel; stamens mostly fused (except *Ormosia* and *Dussia*).
    15. Herbs or vines; leaves 20-to 60-foliolate, the leaflets less than 3 cm long.
        16. Herbs; the leaflets less than 4 mm long ..... *Aeschynomene americanum*
        16. Spiny vines; the leaflets more than 15 mm long ..... *Machaerium isadelphum*
    15. Trees; leaves 5-to 17-foliolate, the leaflets in part more than 3 cm long.
        17. Leaflets oblong-elliptic with round tips; flowers white ..... *Sesbania brenningii*
        17. Leaflets ovate or elliptic, with acute or obtuse or acuminate tips; flowers yellow or pinkish or purplish.
            18. Leaflets less than 5 cm long. ..... *Gliricidia sepium*
            18. Leaflets more than 7 cm long.
                19. Flowers yellow; fruits orbicular with a single seed and a continuous wing; leaves mostly 5-foliolate ..... *Pterocarpus rohrii*
                19. Flowers purple; fruits more or less elongate, several-seeded; leaves (3-) 5-to 11-foliolate.
                    20. Vines (shrubby when young); leaves 3-to 5-foliolate, the leaflets pellucid-punctate, narrowly elliptic, 14-38 cm long ..... *Lonchocarpus* sp. A (6136)
                    20. Trees; leaves mostly 7-to 11-foliolate, the leaflets not pellucid-punctate, broadly elliptic, less than 21 cm long.
                        21. Twigs conspicuously angled and grooved, not lenticellate; leaves mostly glabrescent beneath ..... *Ormosia macrocalyx*
                        21. Twigs terete, often lenticellate; leaves more or less persistently puberulous beneath.
                            22. Twigs conspicuously lenticellate; leaflets obtuse or round-tipped, not whitish beneath. ..... *Dussia lehmannii*
                            22. Twigs inconspicuously or not at all lenticellate; leaflets acuminate, the undersides macroscopically somewhat silvery from the appressed whitish pubescence ..... *Lonchocarpus* sp. B (6260)

2. Leaves bipinnate.
23. Woody vines, spiny or with tendrils.
24. Spiny vines without tendrils; leaflets 3 mm by 1 mm . . . . . *Acacia riparia*
24. Unarmed vines with tendrils; leaflets more than 3 cm by 2 cm . . . . . *Entada gigas*
23. Unarmed trees or shrubs.
25. Flowers bilaterally symmetrical, orange yellow to orange red . . . . . *Caesalpinia pulcherrima*
25. Flowers radially symmetrical; pink or white.
26. Leaves 6-foliolate with the two primary leaflets each bearing a single leaflet pair and an unpaired basal leaflet; largest leaflets of each leaf more than 2.5 cm long.
27. Fruits straight, held erect and elastically dehiscent from the tip; longest leaflets less than 4 cm long. . . . . *Calliandra angustifolia*
27. Fruits curved, dehiscent along the margin; longest leaflets more than 10 cm long. . . . . *Pithecellobium longifolium*
26. Leaves many foliolate with 3 or more pairs of multifoliolate pinnae; leaflets 1-3 cm long.
28. Petiole with a very large (5 mm long and 4 mm in diameter) gland below the basal pair of pinnae; fruit curved more than 180°; large tree . . . . . *Pithecellobium macradenium*
28. Petiole eglandular; fruit straight; shrub . . . . . *Calliandra caracasana*

1. Leaves simple or 2-to 3-foliolate.
29. Leaves all simple . . . . . *Crotalaria nitens*
29. Leaves 2-to 3-foliolate.
30. Leaves 2-foliolate; woody lianas with flattened stems . . . . . *Bauhinia guianensis*
30. Leaves 3-foliolate.
31. Fruits breaking into separate segments (loments); vines or herbs.
32. Flowers in short dense racemes; calyx pilose. . . . . *Desmodium barbatum*
32. Flowers in elongate, open racemes; calyx not pilose.
33. Plants erect or procumbent; fruit 2-4 mm wide.
34. Flowers 8-9 mm long; plant viscid-pubescent; loments rounded on both margins . . . . . *Desmodium intortum*
34. Flowers less than 5 mm long; plant not at all viscid; loments more or less straight on the upper margin.
35. Plants erect; leaflets oval to suborbicular, the apex rounded . . . . . *Desmodium adscendens*
35. Plants trailing, rooting at the nodes; leaflets rhombic-elliptic, the apex subacute. . . . . *Desmodium axillare*
33. Plants scandent vines; loments 1.5-2 cm wide . . . . . *Desmodium poeppigianum*
31. Fruits not breaking into segments; vines, trees, or cultivated shrubs.
36. Trees; flowers orange-red, the standard much larger than the other petals.
37. Calyx 7-8 mm long; leaflets more than 25 long. . . . . *Erythrina* aff. *edulis*
37. Calyx 1.5 cm long; leaflets less than 10 cm long . . . . . *Erythrina smithiana*

36. Vines or cultivated shrubs; flowers purple, white, yellow, or cream; flowers similar to those of a pea or a bean or the keel larger than the other petals.
    38. Flowers not similar to those of a pea or bean; keel larger than the other petals, more than 6 cm long; fruit oblong, covered by irritating hairs; calyx campanulate, 2.5 cm wide . . . . . *Mucuna rostrata*
    38. Flowers resembling those of a pea or a bean; keel not larger than the other petals, less than 5 cm long; fruit linear or oblong and glabrous; calyx cupular or tubular, less than 1.5 cm wide.
        39. Cultivated shrub; flowers yellow; fruit flattened, linear-oblong, pubescent . . . . . *Cajanus cajan*
        39. Vines; native or cultivated; flowers usually white to purple, yellow only when the fruit is linear.
            40. Keel spirally coiled; fruit often subterete, either linear and glabrous or falcate-oblong or the plant cultivated, the fruits never with raised longitudinal ridges.
                41. Flowers purple or magenta; fruit either falcate-oblong or linear and less than 4 mm wide.
                    42. Flowers less than 1 cm long; fruits falcate-oblong, more than 1.4 cm wide . . . . . *Phaseolus lunatus*
                    42. Flowers 2 cm long; fruits linear, 3 mm wide . . . . . *Phaseolus* sp. (6390)
                41. Flowers white or cream; fruit linear, more than 4 mm wide.
                    43. Native; flower more than 2 cm long; keel of corolla elongate and twisted into several spiral coils; inflorescence ebracteate . . . . . *Phaseolus caracalla*
                    43. Cultivated; flower ca. 1 cm long; keel of corolla closely twisted into 1-2 coils; inflorescence with 5 mm long leafy bracts . . . . . *Phaseolus vulgaris*
            40. Keel almost straight, not coiled; fruit compressed, pubescent or oblong or with raised longitudinal ridges.
                44. Calyx 4-to 5-labiate, less than 12 mm long; fruit pubescent or oblong and 5 cm wide, not ridged.
                    45. Calyx ca. 12 mm long; fruit oblong, glabrous, 5 cm wide . . . . . *Dioclea reflexa*
                    45. Calyx less than 9 mm long; fruit linear, or constricted between the seeds, less than 1.5 cm wide, pubescent.
                        46. Stems villous or hirsute or the leaves gland-dotted; fruit 3-5 mm wide.
                            47. Calyx lobes long-acuminate; leaflets less than 3 cm wide.
                                48. Inflorescence with a few terminal flowers; corolla pinkish; leaves not gland-dotted. . . . . *Vigna vexillata*
                                48. Inflorescence racemose; corolla yellow; leaves gland-dotted . . . *Rhychosia minima*
                            47. Calyx lobes acute; leaflets more than 6 mm wide . . . . . *Pueraria phaseoloides*
                        46. Stems puberulous or glabrate; fruit more than 6 mm wide.
                            49. Leaves more or less glabrate beneath; fruit more than 10 mm wide . . . . . *Pachyrrhizus tuberosus*
                            49. Leaves densely pubescent beneath; fruit less than 10 mm wide.
                                50. Leaves densely sericeous beneath; fruit ca. 7 mm wide, not constricted; seeds not red and black. . . . . *Calopogonium caeruleum*

50. Leaves viscid pubescent beneath; fruit 8-10 mm wide, constricted between the seeds; seeds red and black . . . *Rhynchosia precatoria*

44. Calyx bilabiate, more than 23 mm long; fruit glabrous, less than 2.5 cm wide, with 2 longitudinal ridges. . . . . *Canavalia brasiliensis*

Acacia riparia HBK Plate 174-D

Thorny vine. Leaves bipinnately compound, the many leaflets 3 mm long, less than 1 mm wide, the pinnae 2-4 cm long, each with more than 50 leaflets. Inflorescence a terminal panicle composed of pedunculate umbellate heads. Flowers sessile, white; calyx 1 mm long. Fruits linear, 8-10 × ca. 2 cm, extremely thin. Infrequent, at forest edge. Mexico to Amazonian Peru.

Aeschynomene americana L. Plate 175-A

Herb to 1 m tall in disturbed places. Leaves pinnately compound, multifoliolate (ca. 20 leaflets), the minute leaflets ca. 3 × 1 mm. Inflorescence a few-flowered axillary raceme. Flowers small (ca. 5 mm long), the banner brownish-pink with a yellow spot at the base. Fruits lomentiferous, serially constricted. Rare, along the entrance road. Mexico and the West Indies through much of South America.

Bauhinia guianensis Aubl. Plate 175-B

Liana with strikingly flattened stems. Leaves 2-foliolate, the leaflets sessile, one-sidedly ovate, rounded at the base and the apex, to 8 × 5 cm, sparsely brownish sericeous beneath. Flowers white; calyx campanulate, conspicuously toothed, longitudinally ridged. Fruit irregularly oblong, brown with a dense tomentum of appressed trichomes, 6-9 × 2-2.5 cm. Rare, in mature forest. Belize to Brazil and Amazonian Peru. We have been unable to relocate the single vine seen several years ago by C. D. at Río Palenque but this is the species of monkey's ladder which occurs across the river.
Common name: "Escalera de Mono"+

Brownea angustiflora Little Plate 175-C

Tree to 10 m tall. Leaves even-pinnate, 2-to 8-foliolate, the leaflets long-acuminate, 8-15 cm long (with the acumen), 3-6 cm wide. Flowers bright orange-red, mostly borne in clusters on leafy branches, also cauliflorous. Fruits woody, flat, 20-30 cm long. Common, along creeks. Endemic to western Ecuador.
Common name: "Clavellin"+

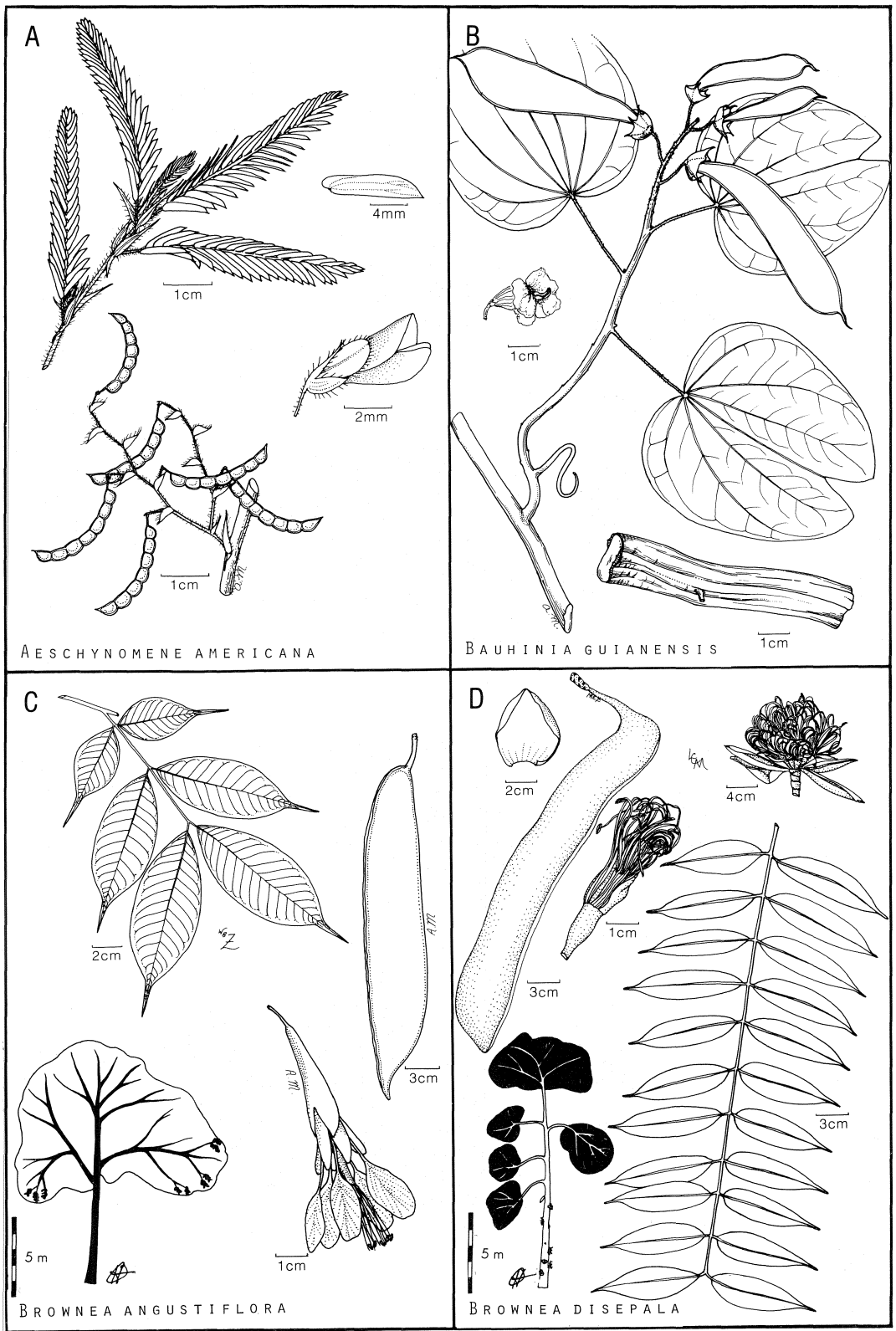

A
4mm
1cm
2mm
1cm
AESCHYNOMENE AMERICANA
B
1cm
1cm
BAUHINIA GUIANENSIS
C
2cm
3cm
1cm
5 m
BROWNEA ANGUSTIFLORA
D
2cm
4cm
1cm
3cm
3cm
5 m
BROWNEA DISEPALA

Plate 175

Brownea disepala Little Plate 175-D

Tree to 20 m tall. Leaves even-pinnate, 20 or more foliolate, the leaflets acuminate, 8-12 × ca. 3 cm. Flowers white with yellow anthers, strictly cauliflorous on short thick racemes from the lower trunk. Fruits elongate, flattened. Uncommon, in mature forest. Endemic to western Ecuador.

Caesalpinia pulcherrima Sw. Plate 176-A

Shrub or small tree to 3 m tall. Leaves bipinnate, pinnae 12-16 foliolate, the leaflets oblong, round at the apex and the base, slightly oblique at the base. Inflorescences paniculate, terminal on the branches. Flowers with peduncles to 10 cm long; sepals obovate, orange; petals stalked, yellow-orange. Anthers on elongate filaments to 8 cm long. Cultivated around homesites, sometimes escaped. Cultivated throughout the tropics, native region unknown.
Common name: "Clavellina"

***Cajanus cajan** (L.) Millsp. Plate 176-B

C. bicolor DC.

Shrub. Leaves 3-foliolate, narrowly elliptic, acute at the base and the apex, densely whitish puberulous beneath, darker and scattered puberulous above, to 8 × 2.5 cm. Inflorescence a pedunculate axillary cluster of a few flowers. Flowers yellow, ca. 1.5 cm long; calyx campanulate, 5-toothed to near the middle. Fruit linear-oblong, compressed, to 6 × 1 cm, yellowish puberulous. Cultivated around homesites. Probably native to Asia; cultivated pantropically.
Common name: "Frejol de Palo"+

Calliandra angustifolia Spruce ex Benth. Plate 176-C

Shrubby tree to 4 m tall. Leaves 6-foliolate, the two primary leaflets, each bearing a single terminal leaflet pair and a basal unpaired leaflet or unequal leaflet pair, the longest leaflets less than 4 cm long. Flowers sessile, in umbellate clusters. Stamens white at the base, pink at the tip. Fruits upright, elastically dehiscent from the tip. Common, along river banks. Much of tropical South America; as *C. glaberrima* (Benth.) Br. & Killip north to Panama.

Calliandra caracasana (Jacq.) Benth. Plate 176-D

C. portoricensis (Jacq.) Benth.

Shrub ca. 2 m tall, branchlets terete. Leaves bipinnate, each of the 6 primary pinnae ca. 30-foliolate, the leaflets narrowly oblong, 10-20 × 3-5 mm, obtuse. Inflorescence (in Panama) axillary, pedunculate, capitate, several-flowered. Flowers whitish or pinkish; calyx 1 mm long, subglabrous; corolla ca. 2 mm long; stamens numerous, ca. 15 mm long. Fruit linear, flattened, 8 × 1 cm, glabrous or glabrate. Rare, at the upper end of Isla Arana. Mexico and the West Indies to Bolivia. The Río Palenque material is sterile. Its relatively large multifoliolate leaflets are those of *C. portoricensis* (Jacq.) Benth., if distinct, but that species was tentatively synonymized with *C. caracasana* in the Flora of Panama.

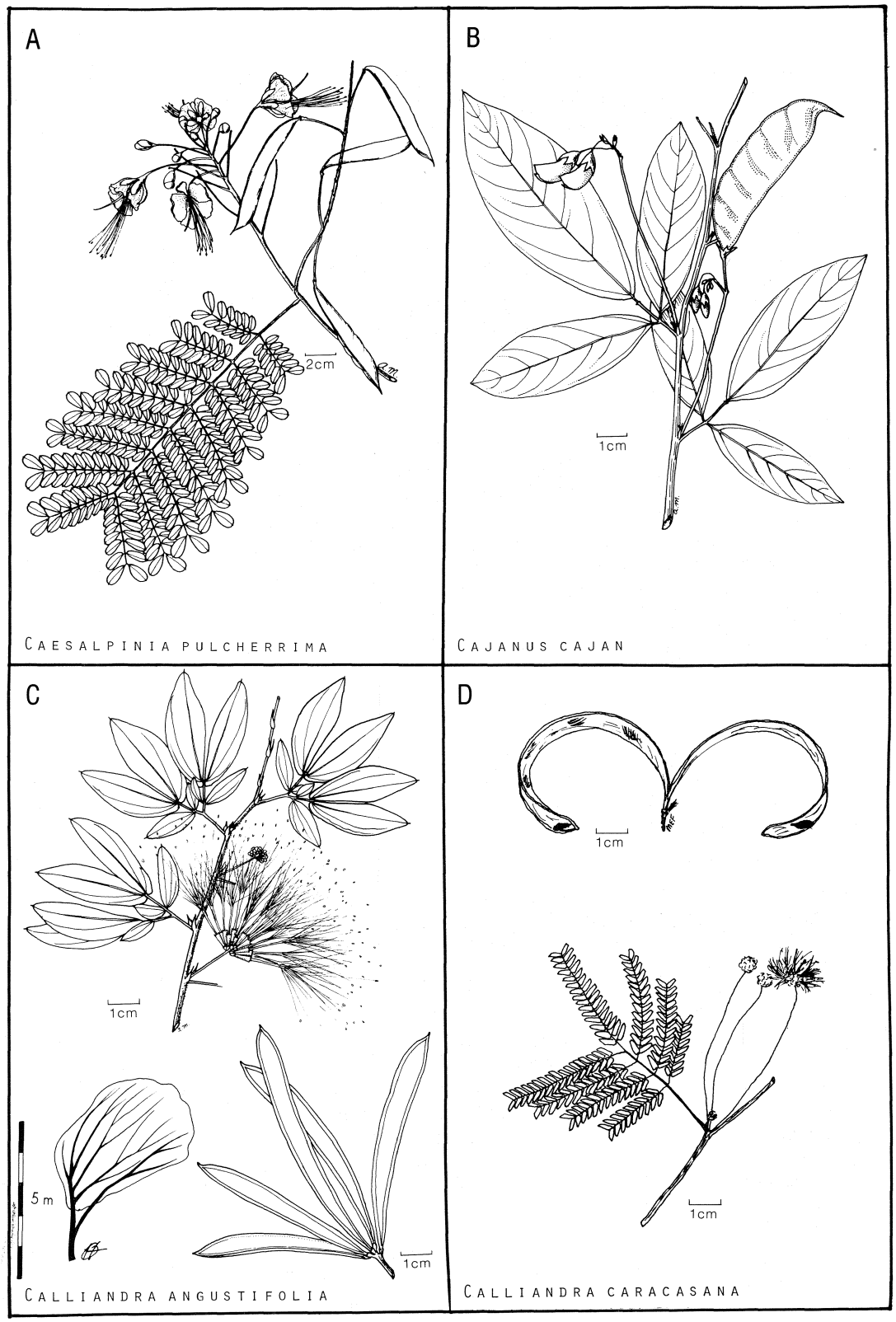

A
2cm
CAESALPINIA PULCHERRIMA
B
1cm
CAJANUS CAJAN
C
1cm
5 m
1cm
CALLIANDRA ANGUSTIFOLIA
D
1cm
1cm
CALLIANDRA CARACASANA

Plate 176

Calopogonium caeruleum Benth. Plate 177-A

Vine. Leaves 3-foliolate, the leaflets rhombic, to 9 cm long, densely sericeous-pubescent beneath. Inflorescence spicate, upright, the flowers blue. Fruits linear, 5-7 cm long, 7 mm wide, pubescent. Infrequent, at forest edge. Mexico and the West Indies to Brazil.

Canavalia brasiliensis Mart. ex Benth. Plate 177-B

Subwoody vine. Leaves 3-foliolate, oblong-ovate, 8-15 × 5-9 cm, glabrate. Inflorescence pendent, racemose. Flowers mostly white, the upper half of the banner pink; calyx bilabiate to subspathaceous, 12-15 mm long. Fruit elongate, somewhat compressed, glabrous, with two raised longitudinal ridges. Common, in mature forest and at the forest edge. Argentina to Panama.

Cassia fruticosa Mill. Plate 177-C

Tree to 5 m tall. Leaves 4-foliolate, a conspicuous gland between the lower pair, the leaflets acute, to 25 × 9 cm. Inflorescence a pendent panicle composed of several open racemes. Flowers yellow. Fruit linear, compressed, curved, ca. 15 cm × 6-7 mm. Uncommon, in mature forest. Mexico and the West Indies to Brazil and Amazonian Peru.
Common name: "Sen de Palillos"

Cassia pendula HBK ex Willd. Plate 177-D

Woody liana. Leaves mostly 10-foliolate, with a conspicuous gland between all but the terminal pair, the leaflets oval to suborbicular, less than 5 cm long. Inflorescence an axillary raceme. Flowers yellow. Fruits linear, compressed, ca. 7 × 0.3 cm. Rare, in mature forest. Mexico and extreme southern Florida to northern Argentina.

Crotalaria nitens HBK Plate 178-A

Shrub to 2 m tall. Leaves simple, obovate, to 9 cm long. Inflorescence a foliaceously bracteate axillary raceme. Flowers yellow. Fruit an inflated pod. Uncommon, in disturbed areas, mostly along the river. Throughout tropical America.

Desmodium adscendens (Sw.) DC. Plate 178-B

Erect herb. Leaves 3-foliolate, the leaflets suborbicular, to 3 cm long. Inflorescence an upright raceme. Flowers purple. Fruit lomentiferous, of several separately detaching adhesive segments, each ca. 3 × 2 mm. Common, roadside weed. Throughout tropical America.
Common name: "Pega-pega"

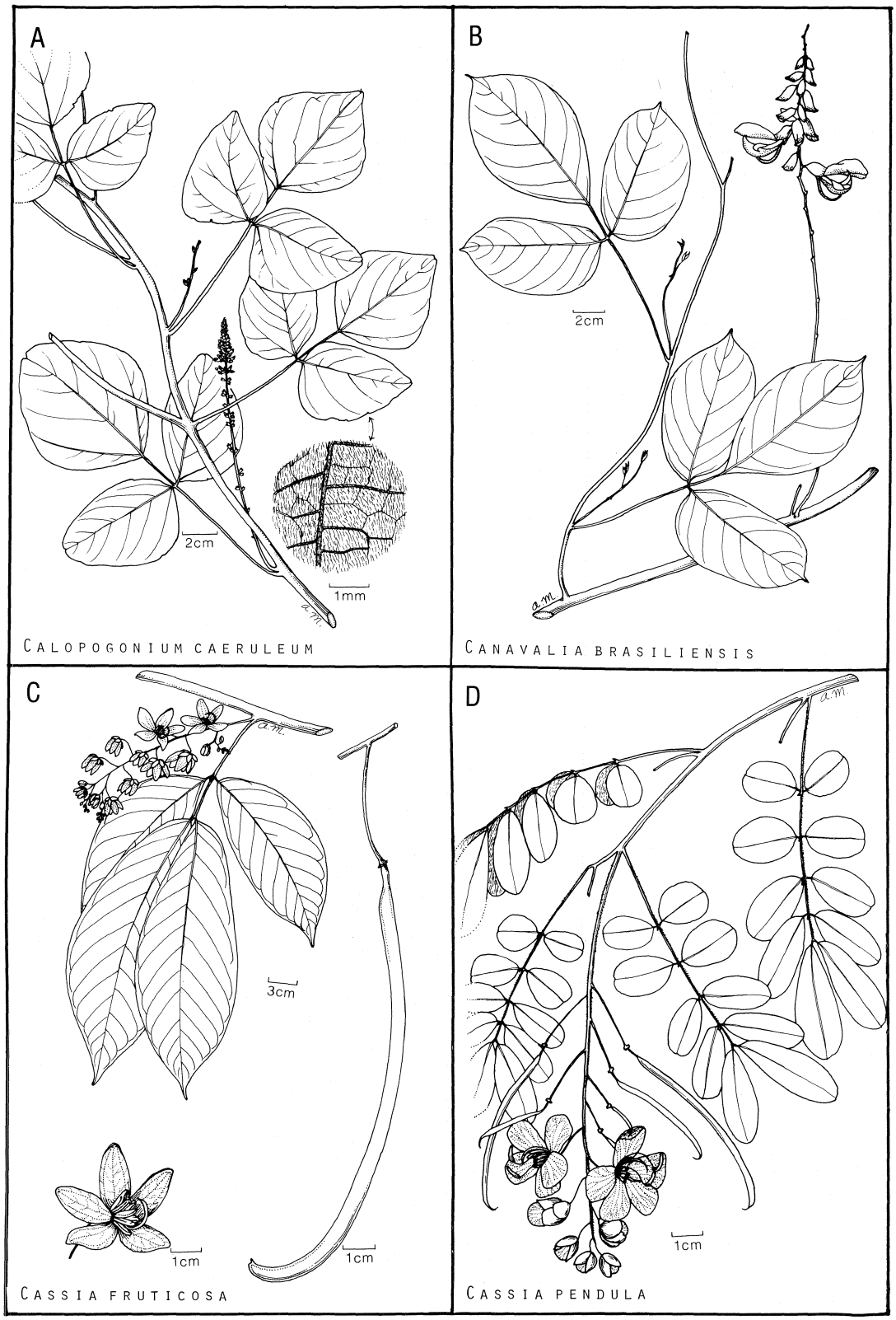

A
2cm
1mm
CALOPOGONIUM CAERULEUM
B
2cm
CANAVALIA BRASILIENSIS
C
3cm
1cm
1cm
CASSIA FRUTICOSA
D
1cm
CASSIA PENDULA

Plate 177

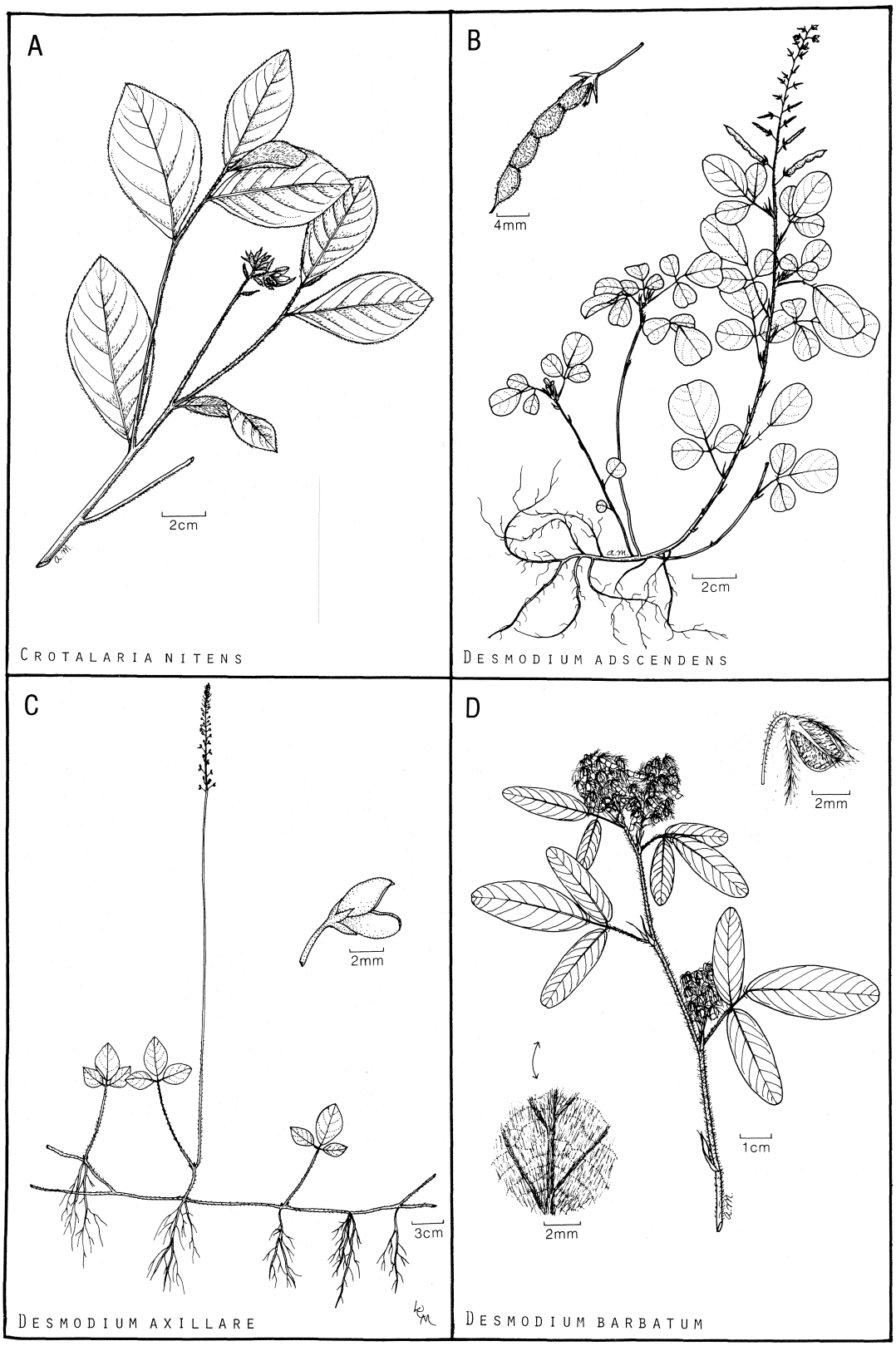

A
2cm
CROTALARIA NITENS
B
4mm
2cm
DESMODIUM ADSCENDENS
C
2mm
3cm
DESMODIUM AXILLARE
D
2mm
1cm
2mm
DESMODIUM BARBATUM

Plate 178

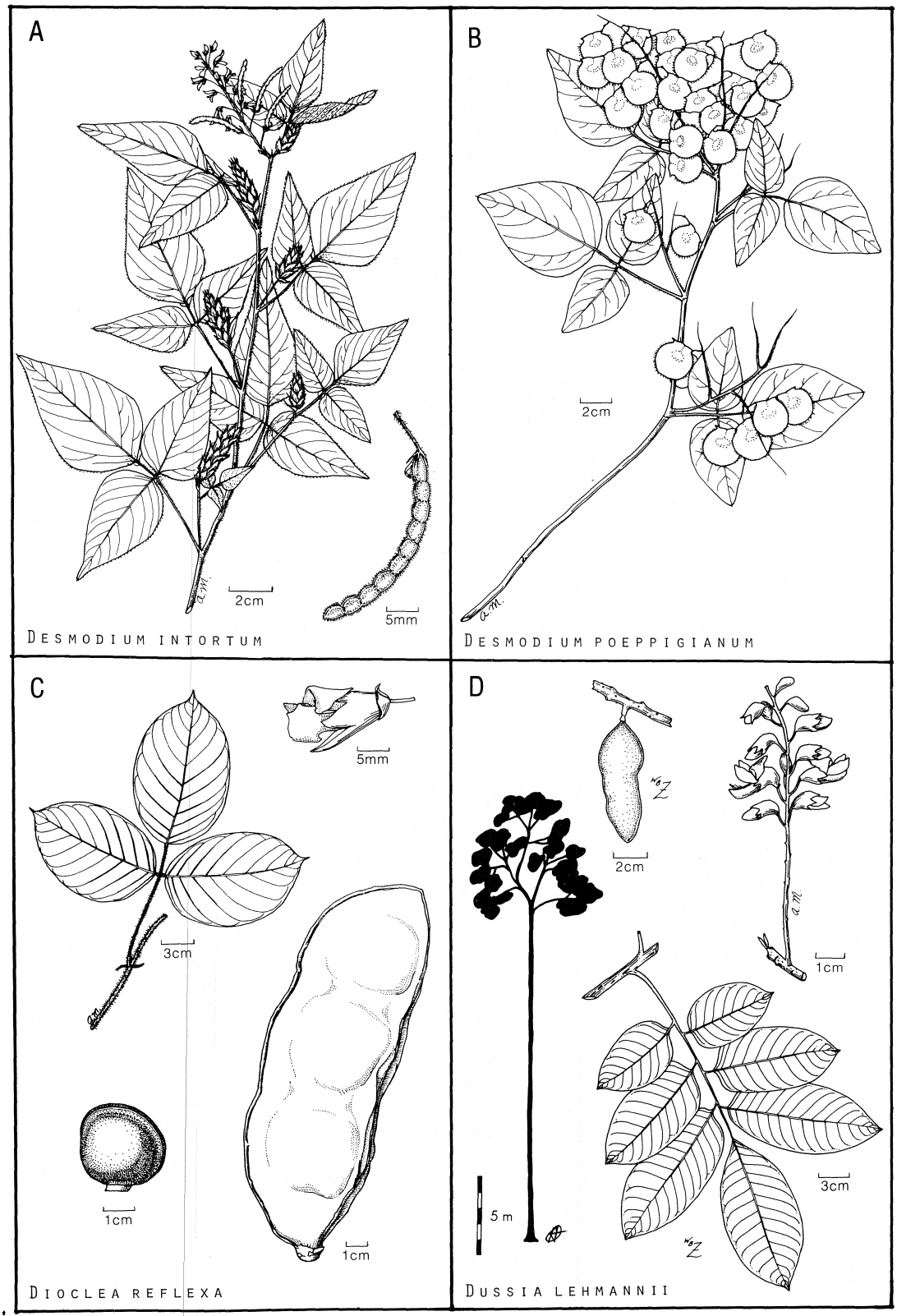

A
2cm
5mm
DESMODIUM INTORTUM
B
2cm
DESMODIUM POEPPIGIANUM
C
5mm
3cm
1cm
1cm
DIOCLEA REFLEXA
D
2cm
1cm
5 m
3cm
DUSSIA LEHMANNII

Plate 179

Desmodium axillare (Sw.) DC. Plate 178-C

Herbaceous vine. Leaves 3-foliolate, the leaflets rhombic-elliptic, to 4.5 cm long. Inflorescence an erect raceme, the small flowers pinkish. Fruits lomentiferous, serially constricted. Common, roadside weed. Throughout tropical America.
Common name: "Pega-pega"

Desmodium barbatum (L.) Benth. Plate 178-D

Many-branched, pubescent, erect herb. Leaves 3-foliolate, the leaflets narrowly elliptic, to 3.5 cm long. Inflorescences congested, villous, the small flowers bluish lavender. Fruits lomentiferous, regularly constricted. Infrequent, roadside weed. Throughout tropical America.
Common name: "Pega-pega"

Desmodium intortum (Mill.) Urb. Plate 179-A

Erect or semi-prostrate herb. Leaves 3-foliolate, the leaflets ovate, obtusely acute, the base obtuse, puberulous, to ca. 6 × 3.5 cm, the petioles puberulous. Inflorescence racemose, the flowers lavender, 8-9 mm long. Fruits lomentiferous, serially constricted, 3 mm wide. Infrequent, roadside weed. Southern Mexico and Jamaica to Amazonian Brazil and Peru.
Common name: Pega-pega"

Desmodium poeppigianum (Schindl.) Macbr. Plate 179-B

Vine. Leaves 3-foliolate, the leaflets ovate, to 7 cm long. Inflorescence axillary, racemose, sticky-puberulous. Fruits breaking into segments, each 1.5-2 cm in diameter. Rare, along the river bank. Through most of continental tropical America; known as *D. lunatum* Brandeg. in Panama.

Dioclea reflexa Hook. f. Plate 179-C

Liana. Stems usually glabrate, sometimes brownish pilose when young. Leaves 3-foliolate, the leaflets oblong-elliptic, 6-15 × 3.5-12 cm, with scattered, long-appressed trichomes below. Inflorescence elongate-racemose, subspicate. Flowers purple; calyx campanulate, 5-dentate, 10-12 mm long, to 12 mm wide. Fruit oblong, 15-19 × ca. 5 cm, flattened, sulcate along both margins, more or less glabrescent. Infrequent, in mature forest. Southern Mexico and the West Indies to Brazil and Peru; also tropical Africa and Asia. Vegetative material from Río Palenque is much more pilose than usual for *D. reflexa* and is more like *D. megacarpa* Rolfe. Unattached fruits *(Gentry s.n.)* are clearly *D. reflexa* but it is possible that both species are present.

Dussia lehmannii Harms Plate 179-D

Canopy tree to 30 m tall; the sap sometimes bleeding red. Leaves odd-pinnately compound, the usually 7 leaflets elliptic-oblong, to 15 × 7 cm, often alternate along the rachis. Inflorescence terminal, racemose. Flowers purple; stamens not united. Fruits subterete, dehiscent, 1 to several-seeded, turning yellowish, the green seeds covered with a white pulp with a red outer coating. Infrequent, in mature forest. Western Colombia and Ecuador.
Common name: "Sangre de Gallina"+

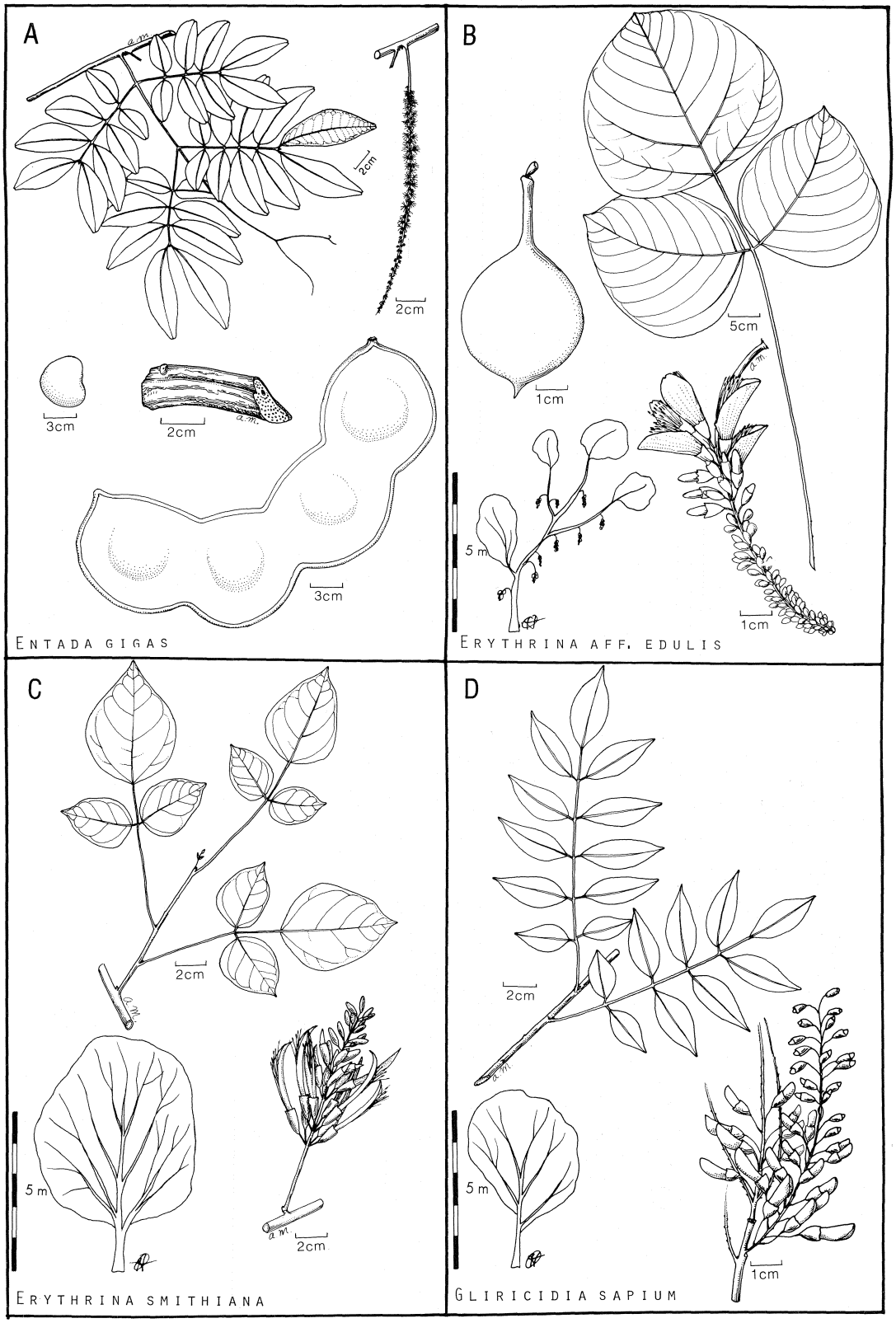

A
2cm
2cm
3cm
2cm
3cm
ENTADA GIGAS
B
5cm
1cm
5 m
1cm
ERYTHRINA AFF. EDULIS
C
2cm
5 m
2cm
ERYTHRINA SMITHIANA
D
2cm
5 m
1cm
GLIRICIDIA SAPIUM

Plate 180

Entada gigas (L.) Fawc. & Rendle Plate 180-A

Woody vine; stem subangulate. Leaves bipinnate, with four 6-10 foliolate pinnae and a terminal tendril. Leaflets asymmetrically rhombic-elliptic, abruptly retuse at the apex, rounded at the base, 3-8 × 2-3.5 cm, the petiolules ca. 1 mm long. Inflorescence spicate, congested, ca. 10 × 1.5 cm. Flowers white. Fruit 30 cm or more long, ca. 10 cm wide, compressed, contracted between the seeds, the seeds round, flattened, shiny, blackish, ca. 5 cm in diameter. Infrequent, in mature forest and disturbed forest. Tropical Africa and America.
Common name: "Habilla"

Erythrina aff. **edulis** Triana Plate 180-B

Soft-wooded tree to 4 m tall. Leaves 3-foliolate, the leaflets ovate, to 30 cm or more long. Inflorescence racemose, pendent; banner orange; calyx green. Fruit globose, single-seeded, to 10 cm in diameter. Common, in mature and disturbed forest. Panama to Bolivia. This plant was identified by Krukoff but is very different from other *E. edulis* collections in its single-seeded, baseball-size fruit. It has been described as *E. megistophylla* Diels.
Common name: "Poroton"

***Erythrina smithiana** Krukoff Plate 180-C

Tree to 10 m tall. Leaves 3-foliolate, the leaflets ovate, to 9 × 7 cm, glabrous. Inflorescence erect, racemose. Flowers borne in whorls along the central axis. Flowers bright red, ca. 6 cm long; calyx tubular, truncate, 1.5 cm long. Fruit linear, terete, contracted between the seeds, the seeds red. Infrequently used as living fenceposts. Endemic to western Ecuador.

***Gliricidia sepium** Kunth ex Walp. Plate 180-D

Tree to 7 m tall. Leaves odd-pinnate to 36 cm long; leaflets 7-17, elliptic, 3-6 × 2-3 cm, acute to acuminate at the apex, rounded at the base. Inflorescence lateral, a several-flowered raceme. Flowers pink; petals 1.5 cm long. Fruits linear, blackish when mature. Infrequent, as living fence posts. Mexico to northern South America; introduced in the Old World tropics.
Common name: "Mata Raton"+

Inga alatocarpa Elias Plate 181-A

Tree to 10 m tall. Leaves even pinnate, ca. 6-foliolate, the rachis winged, the leaflets to 21 × 13 cm. Inflorescence congested-racemose. Flowers white; calyx ca. 12 mm long. Fruit a subterete, linear, longitudinally sulcate, indehiscent legume with 2 mm wide lateral wings. Common, in old second growth. Endemic to Pacific Ecuador; this is the second collection of the species which was described from Esmeraldas Province. This species is close to the polymorphic and widespread *Inga edulis*.

Inga coruscans Willd. Plate 181-B

Tree to 20 m tall. Leaves 4-to 6-foliolate, the rachis not winged. Inflorescence axillary, spicate, to 9 cm long. Flowers white; calyx ca. 1.5 mm long. Fruit a fairly flat, linear-oblong legume, the margins slightly raised. Infrequent, in disturbed forest. Costa Rica to Ecuador.

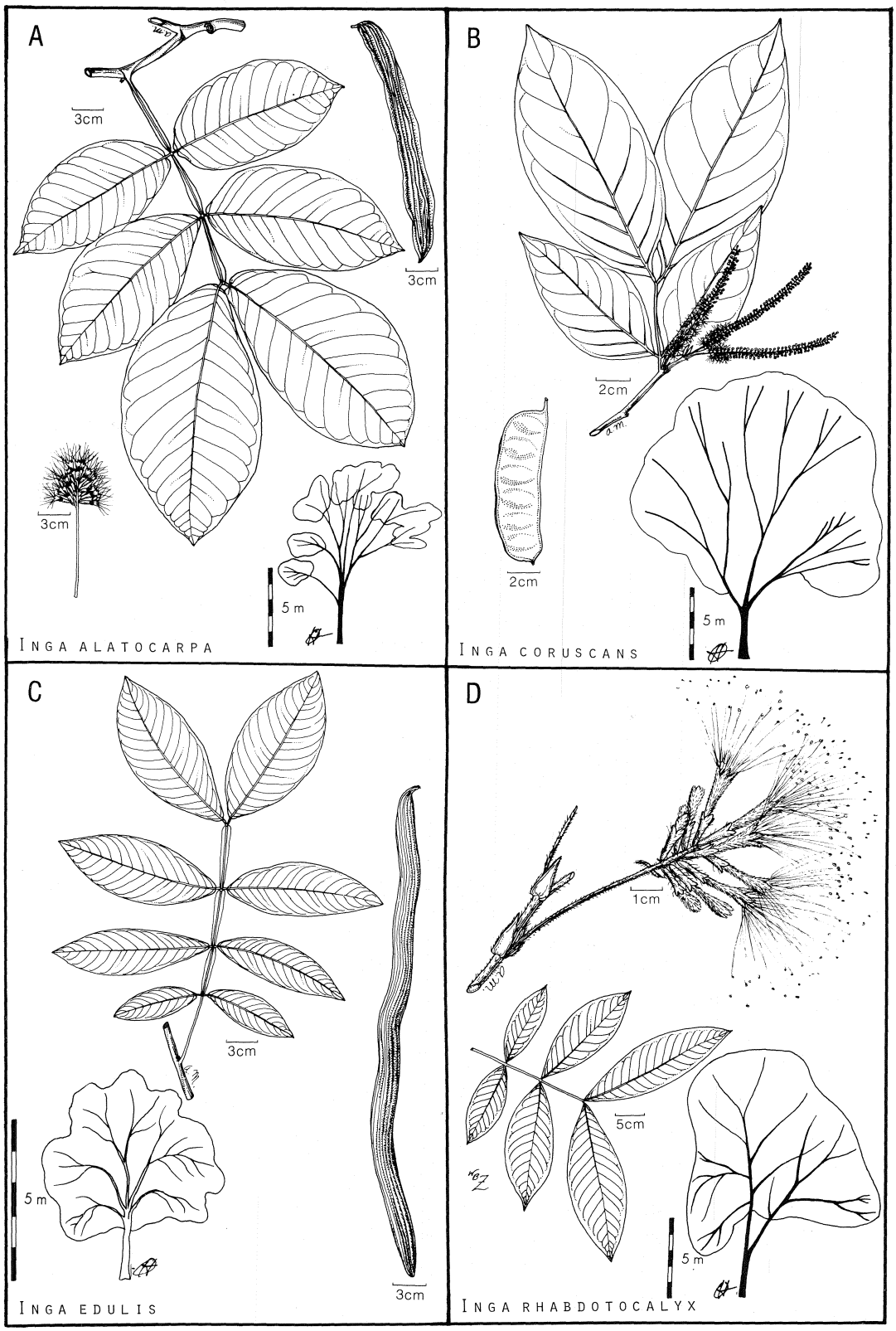

A
3cm
3cm
3cm
5 m
INGA ALATOCARPA
B
2cm
2cm
5 m
INGA CORUSCANS
C
3cm
5 m
3cm
INGA EDULIS
D
1cm
5cm
5 m
INGA RHABDOTOCALYX

Plate 181

***Inga edulis** Mart. Plate 181-C

Tree to 10 m tall. Leaves mostly 10-foliolate, the rachis broadly winged. Inflorescences axillary, paniculate. Flowers sessile, white; calyx 7-9 mm long; corolla 15-20 mm long, pubescent. Fruit subterete, linear, 30-80 cm long, prominently longitudinally striate-ridged. Cultivated around homesites. Honduras to Brazil, but probably only in cultivation in Central America.
Common name: "Guaba Mansa"+, "Guaba de Bejuco"+

Inga rhabdotocalyx Harms Plate 181-D

Tree of primary forest, to 6 meters or more tall. Leaves 6-foliolate, the rachis unwinged, the leaflets oblong-elliptic to obovate, hirsute below and on the rachis. Inflorescence congested-racemose. Flowers white; calyx 13-14 mm long. Fruit unknown. Infrequent, in mature and disturbed forest. Endemic to western Ecuador. These are apparently the first collections of this species since Sodiro's type collection and were identified from the type photograph.

Inga riopalenquensis A. Gentry Plate 182-A

Tree to 25 m tall. Leaves mostly 8-foliolate, the rachis unwinged, the leaflets elliptic, slightly puberulous only along the main veins above and below, 15-25 × 8-10 cm. Inflorescence narrowly spicate, to 14 cm long, the flowering portion much longer than the peduncle. Flowers white, 7-9 mm long (with stamens); calyx 1 mm long; corolla 5-6 mm long. Fruit elongate-oblong, flattened, 19-26 × 3-4.5 mm, the margins slightly raised, also with a raised projection over each seed. Rare, in mature forest. Known only from Río Palenque. The tiny flowers and spicate inflorescence ally this plant with section *Bourgonia*. It differs from all species of that alliance in its large leaves and much larger fruits which are reminiscent of *I. spectabilis*.

Inga ruiziana Don Plate 182-B

Tree, to 9 meters or more tall. Leaves 8-to 10-foliolate, the rachis unwinged, the leaflets narrowly ovate to obovate, glabrescent 9-18 × 4-8 cm. Known only in vegetative condition at Río Palenque. Infrequent, in mature and disturbed forest. Nicaragua to Brazil and Amazonian Peru.

***Inga spectabilis** (Vahl.) Willd. var. **schimpfii** (Harms) Little Plate 182-C

Tree to 10 m tall. Leaves 4-to 6-foliolate, the rachis winged. Inflorescences congested, conspicuously bracteate with 1 cm long bracts, often on lateral short-shoots. Flowers yellow-white; calyx 7-8 mm long; corolla ca. 2 cm long. Fruit linear-oblong, flattened, woody, to 70 × 8 cm and 5 cm thick, glabrous. Cultivated around homesites for its fruit and as shade trees for coffee. Mexico to Venezuela.
Common name: "Guaba Vaina de Machete"+

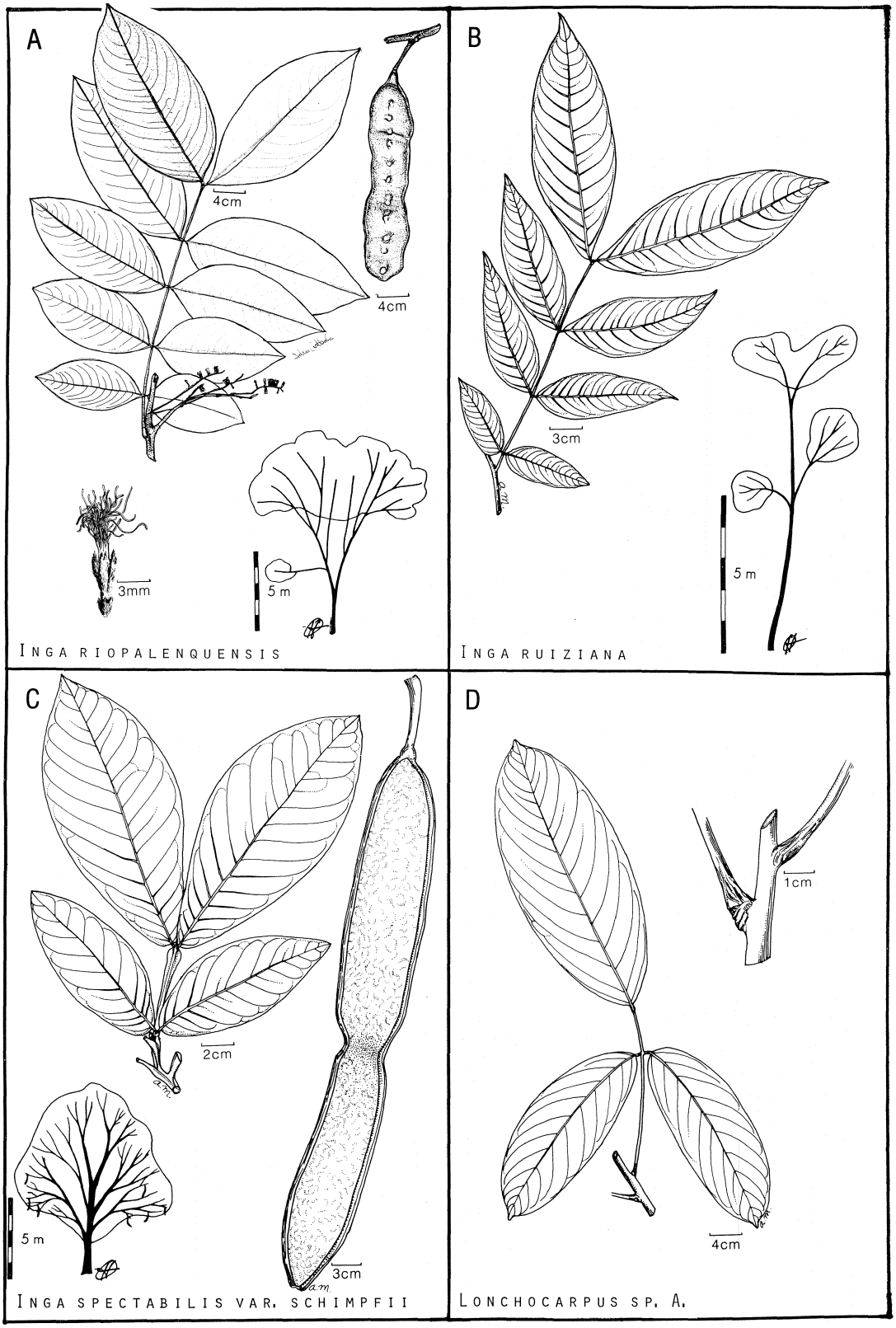

A
4cm
4cm
3mm
5 m
INGA RIOPALENQUENSIS
B
3cm
5 m
INGA RUIZIANA
C
2cm
5 m
3cm
INGA SPECTABILIS VAR. SCHIMPFII
D
1cm
4cm
LONCHOCARPUS SP. A.

Plate 182

Lonchocarpus sp. A (6136) Plate 182-D

Small tree to a large vine. Petioles swollen at the base, 20 cm long, wrinkled; leaves simple or 3-to 5-foliolate; leaflets entire, obovate, acuminate at the apex, rounded at the base, pellucid-punctate, 25-40 × 10-16 cm, glabrous, petiolules swollen, 1 cm long. Flowers and fruits not seen. This is a tentative determination but some species of *Lonchocarpus* can have pellucid, punctate leaves and can also be vines, which fits our plant as well. The plants form an understory tree to 2 m tall in mature forest, with the apices of the branches becoming vine-like and growing on into the canopy.

Lonchocarpus sp. B (6260) Plate 183-A

Tree to 8 m or more tall. Twigs terete, striate, elenticellate. Leaves odd-pinnately compound, 7-to 9-foliolate, the leaflets elliptic, short-acuminate, obtuse at the base, to 15 × 8 cm, glabrescent above, puberulous over the whole surface below with appressed whitish trichomes and macroscopically somewhat silvery below. Known only in sterile condition at Río Palenque. We have been unable to match this material in the herbarium; assignment to *Lonchocarpus* is highly tentative.

Machaerium isadelphum (E. H. Mey.) Amsh. Plate 183-B

Spiny liana, the stipules modified into spines. Leaves 20-to ca. 60-foliolate, the leaflets oblong, 1.5-3 × 1 cm. Inflorescences paniculate. Flowers purple, ca. 1 cm long; calyx campanulate, ca. 4 mm long, 5-denticulate. Fruit winged, including the wing 5-6 × 1.5 cm. Uncommon, at forest edge. Southern Mexico to Bolivia. Illustration of the fruit adapted from Panamanian material.

Mucuna rostrata Benth. Plate 183-C

Woody vine. Leaves 3-foliolate, broadly rhombic-elliptic. Inflorescences pendent. Flowers yellow to orangish, 5-7 cm long; calyx broadly campanulate, densely sericeus. Uncommon, in mature forest. Guatemala to Brazil.
Common name: "Pasquinque"+

Ormosia macrocalyx Ducke Plate 183-D

Tree to 20 m tall, the bark very hard outside, with a slight creosote-kerosene odor. Twigs conspicuously angled, striate, not lenticellate. Leaves odd-pinnately compound, 9-to 11-foliolate, the leaflets elliptic, obtuse or rounded at the base and the apex, to 21 × 12 cm, essentially glabrous except for a few subappressed trichomes along the main veins below; mostly opposite on the petiole. Known only in sterile condition at Río Palenque. Although this genus was not reported for Ecuador in Rudd's 1965 monograph, the match of our sterile material with Panamanian collections of *O. macrocalyx* is excellent and the identification unlikely to be mistaken. Southern Mexico to Amazonian Brazil and Peru.

Pachyrhizus tuberosus (Lam.) Spreng. Plate 184-A

Subwoody vine. Leaves 3-foliolate, the leaflets rhombic-ovate, the lower two very asymmetrical. Inflorescence upright, racemose. Flowers purple. Fruit linear, ca. 11 × 1.2 cm, flat, densely rufous-pubescent. Uncommon, in disturbed areas. Ecuador and Peru.

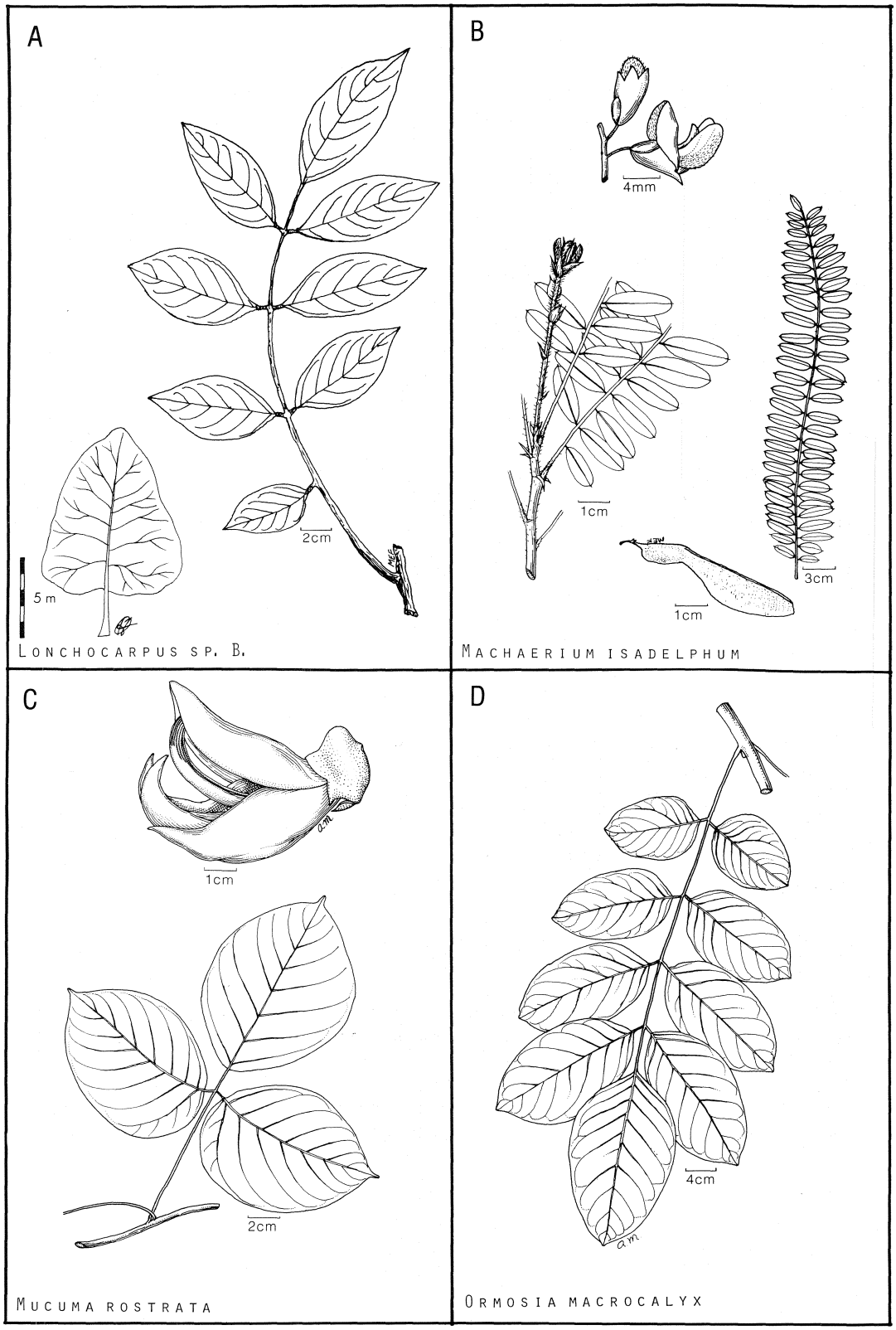

A
2cm
5 m
LONCHOCARPUS SP. B.
B
4mm
1cm
3cm
1cm
MACHAERIUM ISADELPHUM
C
1cm
2cm
MUCUMA ROSTRATA
D
4cm
ORMOSIA MACROCALYX

Plate 183

Phaseolus caracalla L. Plate 184-B

Vine. Leaves 3-foliolate, the leaflets ovate, the lower two very asymmetric. Inflorescence racemose. Flowers greenish cream with pink tinge; keel spirally twisted. Fruit linear, subterete, glabrous, to 18 × 1.3 cm. Uncommon, in mature forest. Mexico to Brazil and Peru.

Phaseolus lunatus L. Plate 184-C

Vine. Leaves 3-foliolate, ovate, acute, rounded to truncate at the base, more or less glabrous, to 8 × 5 cm. Inflorescence racemose. Flowers magenta, less than 1 cm long. Fruit compressed, falcate-oblong, one margin nearly straight, the other strongly curved, 5-7 × 1.5-1.7 cm, glabrous. Rare, in disturbed areas along the river. Mexico and the West Indies through most of South America; naturalized in the Old World.
Common name: "Vaina de Manteca"+

***Phaseolus vulgaris** L. Plate 184-D

Vine. Leaves 3-foliolate, the leaflets rhombic-ovate, the lateral two asymmetric, acute, the base truncate or rounded, more or less glabrous, to 12 × 10 cm. Inflorescence racemose. Flowers white, ca. 1 cm long. Fruit linear, ca. 5 mm wide. Cultivated around homesites. Native to tropical America but natural range obscure; cultivated through most of the world.
Common name: "Frejol"+

***Phaseolus** sp. (6390) Plate 185-A

Vine. Leaves 3-foliolate, rhombic-ovate, usually more or less lobed at the base, essentially glabrous, to 12 × 8 cm. Inflorescence of a few flowers clustered at the end of a long peduncle. Flowers purple, ca. 2 cm long; calyx broadly campanulate, to 9 mm long including the longest of the 5 linear-lanceolate lobes. Fruit linear, slightly curved, ca. 2 mm wide, to at least 9 cm long. Cultivated around homesites. This does not key out in the Floras of Guatemala or Peru and is matched at MO only by a single unidentified collection, also from western Ecuador.
Common name: "Verdura"+

Pithecellobium longifolium (H. & B.) Standl. Plate 185-B

Tree, often rather contorted, to 20 m tall. Leaves 6-foliolate, the two primary leaflets each bearing a single leaflet pair and an unpaired basal leaflet, the leaflets narrowly elliptic, acute at the base and the apex, 4-7 × 1-2.5 cm. Inflorescence a short spicate raceme, several often fasciculate at a node, borne mostly along the branches below the leaves. Flowers pinkish; calyx 1 mm long; corolla 6-7 mm long. Fruit linear, slightly curved, 19-25 × 1.2-1.3 cm. Very common, along the river. Honduras to Amazonian Peru.
Common name: "Guabilla"+

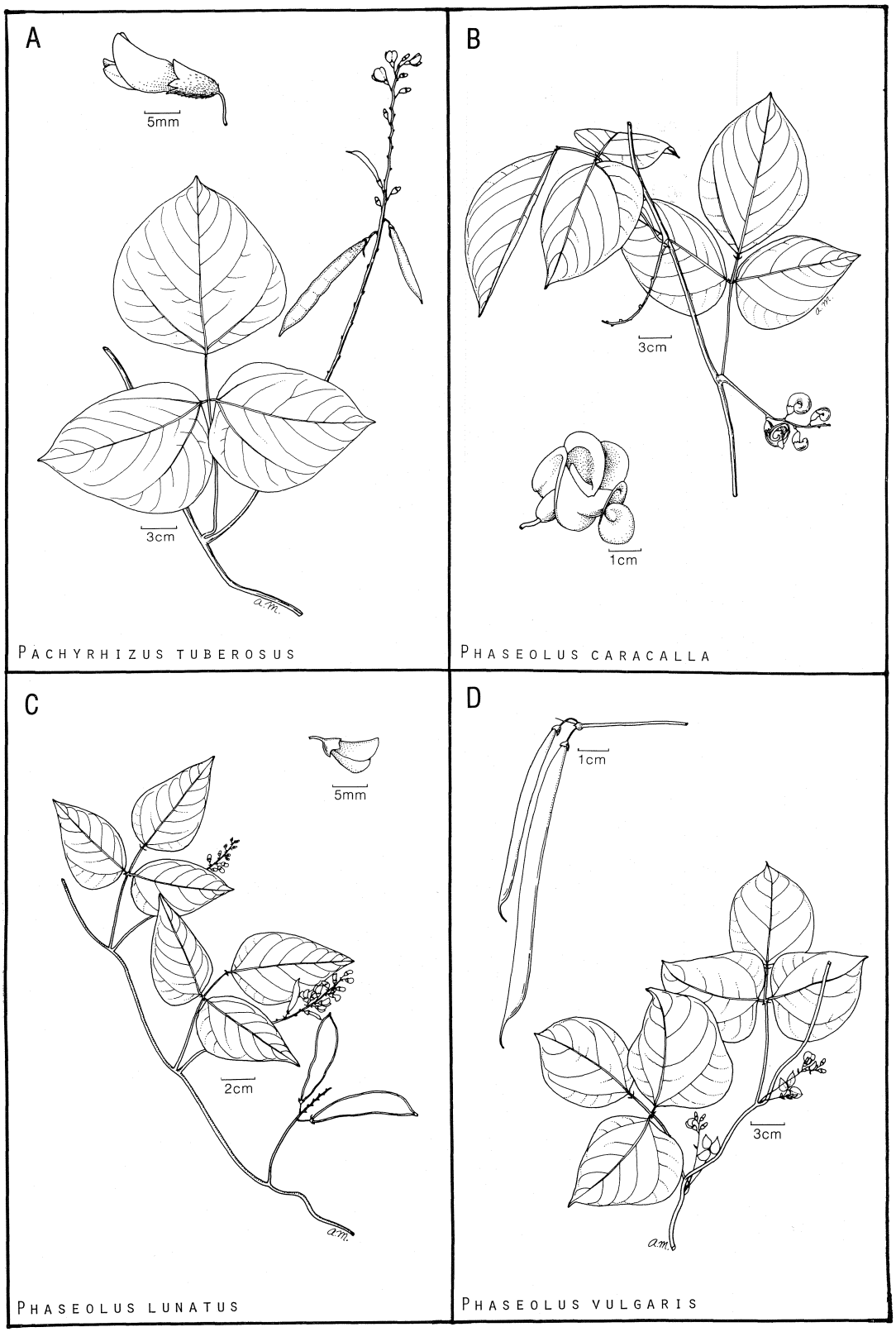

A
5mm
3cm
PACHYRHIZUS TUBEROSUS
B
3cm
1cm
PHASEOLUS CARACALLA
C
5mm
2cm
PHASEOLUS LUNATUS
D
1cm
3cm
PHASEOLUS VULGARIS

Plate 184

Pithecellobium macradenium Pitt. Plate 185-C

Canopy tree to 50 m tall. Leaves bipinnate, the 9-10 paired pinnae each 8-to 12-foliolate, the subsessile leaflets asymmetrically oblong, 1-3 × 0.7-2 cm, with a very large (5 mm long, 4 mm diameter) gland just below basal pinnae pair. Inflorescence a long-pedunculate, terminally congested raceme. Flowers white; calyx 2 mm long. Fruit a flattened legume with prominent borders, curved about 360°. Uncommon, in mature forest. Panama to Ecuador. This is the first record from Ecuador or South America.
Common name: "Bantano"+

Pterocarpus rohrii Vahl. Plate 185-D

Canopy tree. Leaves odd-pinnate, ca. 5-foliolate, the leaflets elliptic, alternating on the rachis, 4-9 × 2-5 cm, slightly puberulous along the main veins beneath. Inflorescences racemose, axillary, numerous. Flowers orange-yellow with a purple throat; calyces 4-5 mm long. Fruit flat, circular, one-seeded, indehiscent, winged, the papery wing completely surrounding seed, 6-7 cm in diameter. Rare, in mature forest. Southern Mexico to Amazonian Brazil and Peru. At Río Palenque we have collected only fallen fruits and are unable to locate the tree from which they came. Illustration of the leaf adapted from Colombian material.

***Pueraria phaseoloides** Benth. Plate 186-A

Herbaceous vine. Stems hirsute. The petioles villous-puberulous; leaves 3-foliolate, the leaflets rhombic-ovate, obtusely acute, pilose, to 10 × 10 cm. Inflorescence racemose, the numerous flowers at the apex of the hirsute peduncle 25 cm tall. Flowers purple and white, ca. 1.5 cm long. Fruit linear, to 15 × 0.7 cm, pilose. Cultivated in the palm plantation.
Common name: "Pueraria"+, "Kudzu"

Rhynchosia minima (L.) DC. Plate 186-B

Vine. Leaves 3-foliolate, the leaflets ovate to rhombic-ovate, obtuse, rounded at the base, conspicuously gland-dotted below, pubescent along the main veins, to 3.5 × 3 cm. Inflorescence racemose. Flowers yellow, ca. 5 mm long. Fruit linear, ca. 10 cm long and 4 mm wide, puberulous, gland-dotted. Fairly common roadside weed but the nearest known locality is 2 km from Río Palenque. Southern United States south through the West Indies, Central America, and most of tropical South America.

Rhynchosia precatoria (Willd.) HBK Plate 186-C

Vine. Leaves (not seen at Río Palenque) 3-foliolate, the leaflets rhombic-ovate, acute, obtuse at the base, to 6 × 5 cm, rather viscid puberulous beneath. Inflorescence racemose. Flower ca. 8 mm long. Fruit linear-oblong, 0.8-1 × 1.5 cm, puberulous, with conspicuous half-red and half-black seeds. Rare, along the river. Central America to Ecuador. Illustration of the leaf adapted from Colombian material.

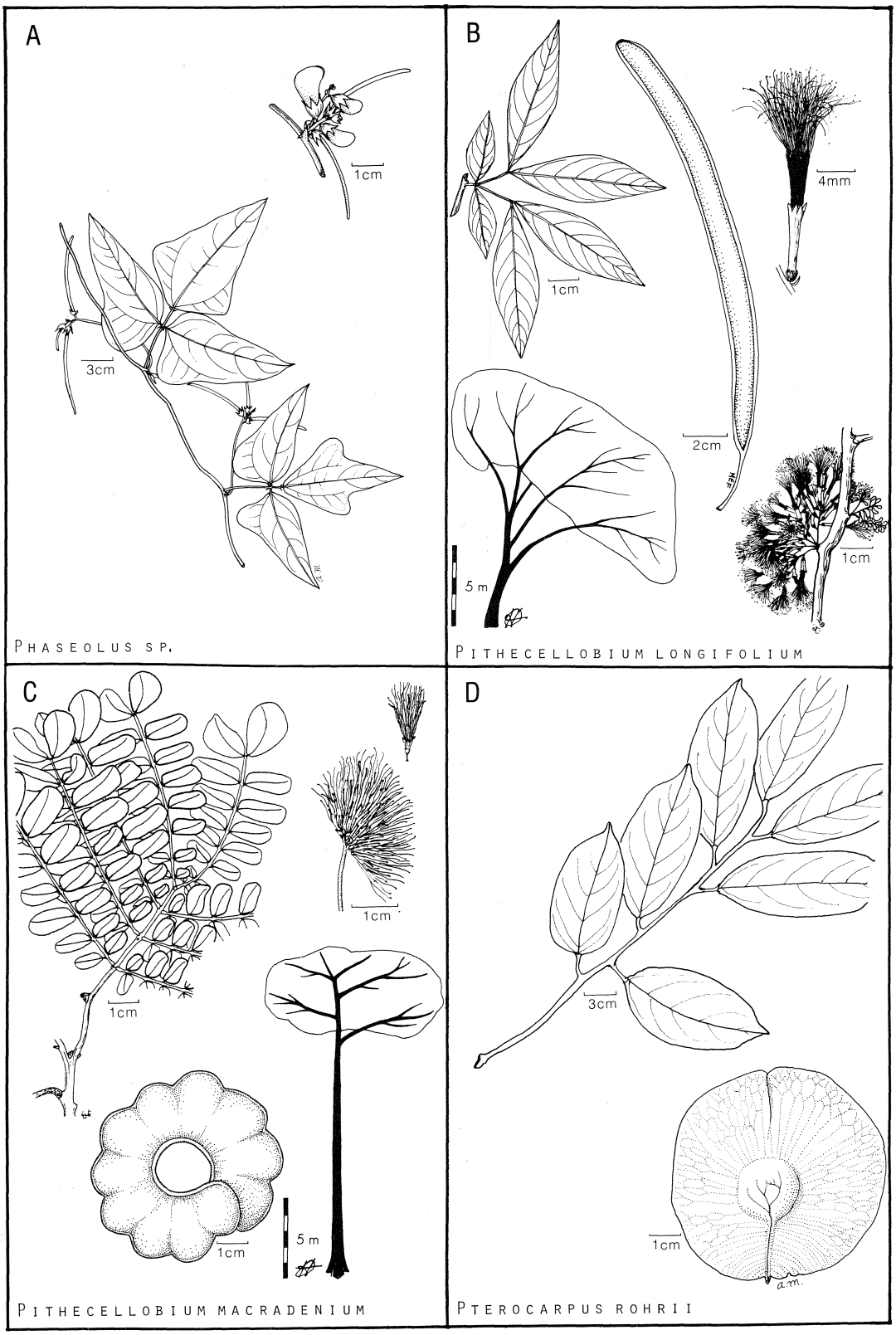

A
1cm
3cm
PHASEOLUS SP.
B
1cm
4mm
2cm
5 m
1cm
PITHECELLOBIUM LONGIFOLIUM
C
1cm
1cm
1cm
5 m
PITHECELLOBIUM MACRADENIUM
D
3cm
1cm
PTEROCARPUS ROHRII

Plate 185

***Sesbania brenningii** Harms Plate 186-D

Tree to 5 m tall. Leaves odd-pinnate, the 13-17 elliptic-oblong leaflets alternating along the rachis. Inflorescence a several-flowered raceme. Flowers white; petals subtruncate, 6-7 mm long and wide. Fruits linear, slender, with cross partitions between the seeds. Infrequent, as living fence posts. Western Ecuador.
Common name: "Estaquilla"+

Swartzia haughtii Cowan Plate 187-A

Tree 10-15 m tall. Leaves odd-pinnate, 9-to 13-foliolate, the shortly petiolulate leaflets oblong, short acuminate, 3.5-14 × 2.3-6 cm. Inflorescence a pendent raceme to 18 cm long, mostly cauliflorous. Petals yellow, ca. 2 cm long. Fruits 19-40 cm long, linear, 3-to 7-seeded, subterete, contracted between the seeds. Uncommon, in mature forest. Western Ecuador.

Vigna vexillata (L.) A. Rich. Plate 187-B

Herbacous vine. Stems hirsute. Leaves 3-foliolate, the leaflets rhombic-ovate, acute, to 7 × 3 cm, hirsute. Inflorescence of a few flowers at the apex of a slender peduncle. Flowers pinkish. Fruit linear, to 10 cm long and 5 mm wide, densely pilose. Infrequent, in disturbed areas. Throughout the neotropics.

LENTIBULARIACEAE

Herbs, often aquatic, with minute trap-like vegetative organs adapted for capture of small organisms. Leaves basal or often absent and replaced by finely dissected leaflike organs. Flowers zygomorphic; calyx 2, 4, or 5-parted; corolla sympetalous, ±2-lipped, usually spurred; stamens 2; ovary superior, 1-locular with basal or free central placentation. Fruit a capsule.

Utricularia obtusa Sw. Plate 187-C

Small leafless aquatic herb sometimes forming floating mats. Photosynthetic organs numerous, finely dissected to 2 cm long, bearing 1-1.5 mm long short-stalked traps. Inflorescence erect, racemose, few-flowered. Flowers with calyx 2-lobed, the lobes 3-4 mm long; corolla yellow, spurred, bilabiate, ca. 1 cm long. Fruit a dehiscent globose capsule. Rare, in backwashes from river. Mexico and the West Indies to Argentina; also tropical Africa.

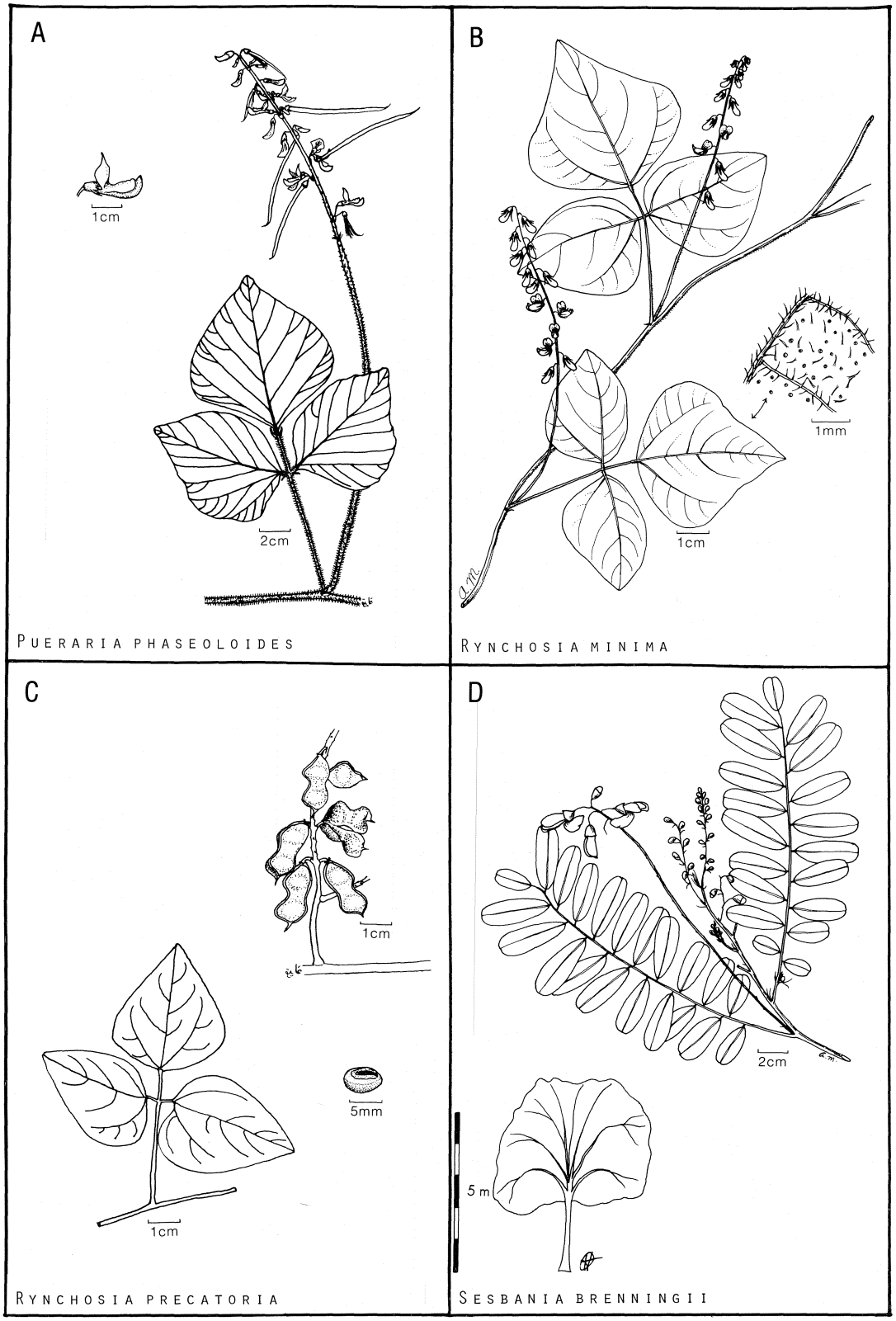

A
1cm
2cm
PUERARIA PHASEOLOIDES
B
1mm
1cm
RYNCHOSIA MINIMA
C
1cm
5mm
1cm
RYNCHOSIA PRECATORIA
D
2cm
5 m
SESBANIA BRENNINGII

Plate 186

LOASACEAE

Herbs or shrubs, often with stinging hairs. Leaves opposite or alternate, simple or variously divided, usually serrate, without stipules. Flowers bisexual, regular; sepals 4 or 5; petals 4 or 5, distinct; stamens numerous, usually gathered in bundles opposite the petals or all the filaments joined to form a low ring; ovary inferior, locules 1-3. Fruit a capsule.

Key to the species.

1. Leaves simple ..... *Sclerothrix fasciculata*
1. Leaves pinnately or bipinnately compound.... *Loasa triphylla* var. *rudis*

Loasa triphylla Juss. var. **rudis** (Benth.) Urb. & Gilg Plate 187-D

L. papaverifolia HBK

Urticating herb. Leaves pinnately or bipinnately compound, the leaflet margins irregularly and jaggedly doubly serrate. Flowers white; calyx lobes 5, narrowly ovate; white petals 1 cm long. Capsules campanulate, to 2 cm long, the calyx lobes persistent at the apex. Rare, on rocky beaches. Southern Mexico to Chile. This plant, which is widely treated under this name in Central America may not be conspecific with mostly 3-foliolate *L. triphylla*, in which case *L. papaverifolia* is its correct name.

Common name: "Pringamoza"

Sclerothrix fasciculata Presl Plate 188-A

Herb to 1 m tall. Leaves simple, ovate, serrate. Flowers tiny, ca. 1 mm wide; petals white, ca. 1 mm long. Fruit spirally twisted, ca. 5 mm long, the calyx lobes persistent at the apex. Common, in disturbed areas, especially along river. Southern Mexico to Bolivia.

LOGANIACEAE

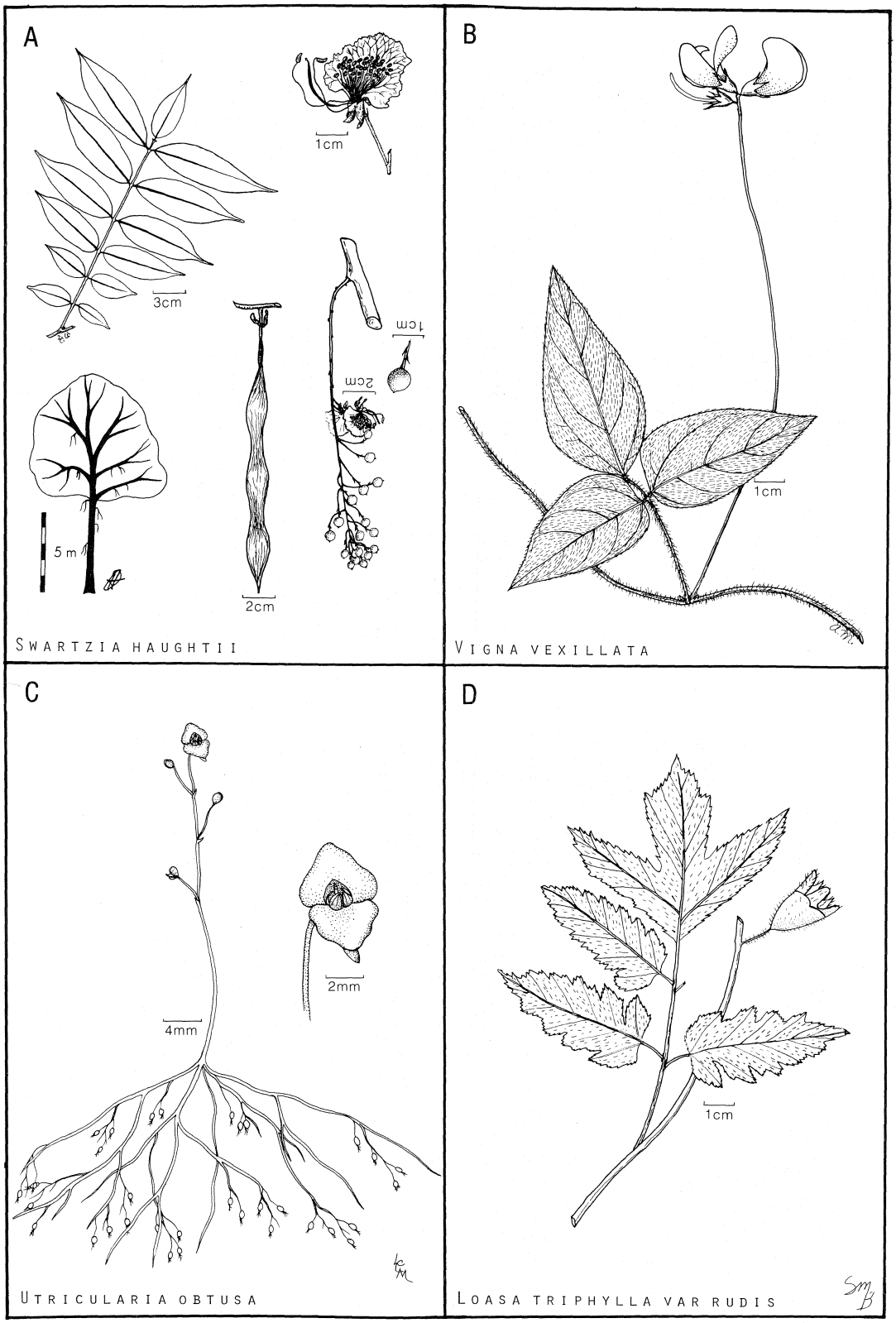
Herbs, shrubs, or trees. Leaves opposite, simple, usually with stipules. Flowers bisexual, regular; calyx 4- to 5-lobed; corolla tubular, 4-to 5-lobed; stamens as many as the lobes of the corolla and alternate with them, mounted on the corolla tube; ovary superior, locules 2. Fruit a capsule, rarely a berry or drupe.

Key to the species.

1. Upper leaves whorled; inflorescences spicate, unbranched.....
..... *Spigelia anthelmia*
1. All leaves opposite; inflorescences dichotomously few-branched.....
..... *Cynoctonum mitreola*

Cynoctonum mitreola (L.) Britton Plate 188-B

Herb to 30 cm tall. Leaves opposite; ovate, acute, rounded at the base, to 8 × 4 cm. Inflorescence dichotomously few-branched. Flowers subsessile; corolla white, the tube and the lobes both 1-2 mm long. Fruit 2-4 × 2-3 mm, glabrate, rather smooth-surfaced. Rare, on gravel bars along river. Southeastern United States through the West Indies to northern South America.


A
1cm
3cm
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5 m
2cm
SWARTZIA HAUGHTII
B
1cm
VIGNA VEXILLATA
C
2mm
4mm
UTRICULARIA OBTUSA
D
1cm
LOASA TRIPHYLLA VAR RUDIS

Plate 187

Spigelia anthelmia L. Plate 188-C

Herb less than 1 m tall. Leaves opposite (a whorl of 4 apically), ovate, acute, rounded and abruptly short-attenuate at the base. Inflorescence one or two terminal spikes. Flowers with calyx lobes unequal, free to the base, 2-5 mm long; corolla tubular-funnelform, pink or white, ca. 1 cm long. Fruits subspherical, ca. 4 mm long, conspicuously muricate. Infrequent, in mature forest and disturbed areas. Mexico and Florida to Peru and Brazil, naturalized in the palaeotropics.

Common name: "Lombricera"

LORANTHACEAE

Parasitic shrubs or vines. Leaves opposite, entire, coriaceous and inconspicuously nerved. Inflorescence usually spicate, sometimes corymbose or racemose, the flowers minute to large; tepals 3-6; stamens equalling the tepals and adnate to them; ovary inferior, usually 1-celled. Fruit a berry.

Key to the species.

1. Corolla more than 3 cm long, green at the apex, yellow at the middle, red at the base. . . . . *Psittacanthus cupulifer*
1. Corolla minute (less than 5 mm long), yellow or greenish.
   2. Flowers 2-4 mm long, borne in discrete clusters scattered along the rachis, not at all immersed in the rachis.
      3. Flowers 4 mm long; flower clusters completely sessile; leaves drying brownish . . . . . *Struthanthus leptostachya*
      3. Flowers 2 mm long; flower clusters very shortly pedunculate; leaves drying lead gray. . . . . *Phthirusa pyrifolia*
   2. Flowers minute, 1-2 mm long, somewhat immersed in the rachis and leaving conspicuous scars on the rachis, borne singly and close together along the rachis.
      4. Tepals 6; leaves rounded at the base and the apex.
         5. Leaves suborbicular, sessile, palmately veined . . . . . *Oryctanthus occidentalis*
         5. Leaves elliptic, petiolate, pinnately veined . . . . . *Oryctanthus spicatus*
      4. Tepals 3; leaves acute at the base and the apex . . . . . *Phoradendron piperoides*

Oryctanthus occidentalis (L.) Eichl. Plate 188-D

Parasitic shrub. Leaves suborbicular, rounded at the apex, rounded to broadly subcordate at the base, palmately 5-to 7-veined from near the base, sessile. Inflorescences spicate, one to few per node, the rachis thick. Flowers ca. 1 mm long, partially immersed, borne singly along the inflorescence. Infrequent, mostly in cacao. Panama to Ecuador.

Oryctanthus spicatus (Jacq.) Eichl. Plate 189-A

Parasitic shrub. Leaves elliptic, rounded at the base and the apex, the midvein raised beneath, the secondary veins obscure, 2-5 × 1-3 cm, petiolate. Inflorescences spicate, one or two per node, the rachis thick. Flowers ca. 1 mm long, partially immersed, borne singly along the inflorescence. Infrequent, in mature forest. Colombia to Brazil.