

Solanum coconilla Huber

Plate 258-D

Shrub to 2 m tall. Leaves ovate, subacute, asymmetrically truncate at the base, conspicuously shallowly serrate-lobed, stellate pubescent. Inflorescence axillary, few-flowered, very shortly pedunculate; calyx stellate pubescent, 5-dentate, ca. 1 cm long; corolla green, pubescent, ca. 1.5 cm long. Fruit globose, dark red-brown, 5-6 cm in diameter, lightly and glabrescently covered with scurfy trichomes, Rare, near old homesites, possibly persisting from cultivation; otherwise known from upper Amazonia.

Common name: "Huevo de Tigre"

Solanum dolichorhachis Bitt.

Plate 259-A

Vine. Leaves ovate, acute at the apex, rounded at the base, 8-16 × 4-8 cm, red-variegated when juvenile. Inflorescence a pendent raceme to 20 cm long; flowers produced in succession over a prolonged period. Flowers to 1.2 cm in diameter; petals green; stamens yellow. Uncommon, in understory trees in mature forest along trail 3. Endemic to western Ecuador.

Solanum dulcamaroides Dun.

Plate 259-B

Vine. Leaves narrowly ovate, acute to acuminate, the base rounded to truncate, to 11 × 4 cm. Inflorescence lateral, short, few-flowered (in Ecuador); calyx 5-lobed, ca. 3 mm long; corolla blue (sometimes white), 5-lobed, 5-6 mm long. Fruit an ellipsoid berry, red, to 1.3 or more cm long. Uncommon, in mature forest. Previously known only from Guatemala and Mexico, this is the first South American record and a surprising disjunction. This may be a distinct species.

Solanum evolvulifolium Greenm.

Plate 259-C

S. loxophyllum Bitter

Slender vine. Petiole 2-3 mm long; leaves ovate-oblong, subacute, rounded at the base, 4-6 × ca. 2 cm. Inflorescences mostly cauliflorous below the leaves, few-flowered, borne clear to the ground; calyx 5-dentate ca. 3 mm long; corolla white, deeply 5-lobed, 7 mm long. Fruit an ellipsoid berry to 1.6 or more cm long. Uncommon, in mature forest. The Río Palenque plant is the second collection of *S. loxophyllum*, endemic to Pacific Ecuador, which seems indistinguishable from *S. evolvulifolium* otherwise known from Costa Rica to Colombia.

Solanum flavescens Dun.

Plate 259-D

S. tequilense A. Gray

Densely villous usually spiny shrub to 2 m tall. Leaves broadly ovate, obtuse, truncate, conspicuously shallowly lobed, velvety pubescent. Inflorescence axillary, few-flowered, very shortly pedunculate; calyx velvety pubescent, 5-dentate, 6-7 mm long; corolla white, pubescent, ca. 7 mm long. Fruit globose, hirsute with several mm long trichomes, orange, ca. 3 cm in diameter. Uncommon, in disturbed areas. Mexico to Ecuador; this species has been called *S. tequilense* by Heiser.

Common name: "Berenjena"+

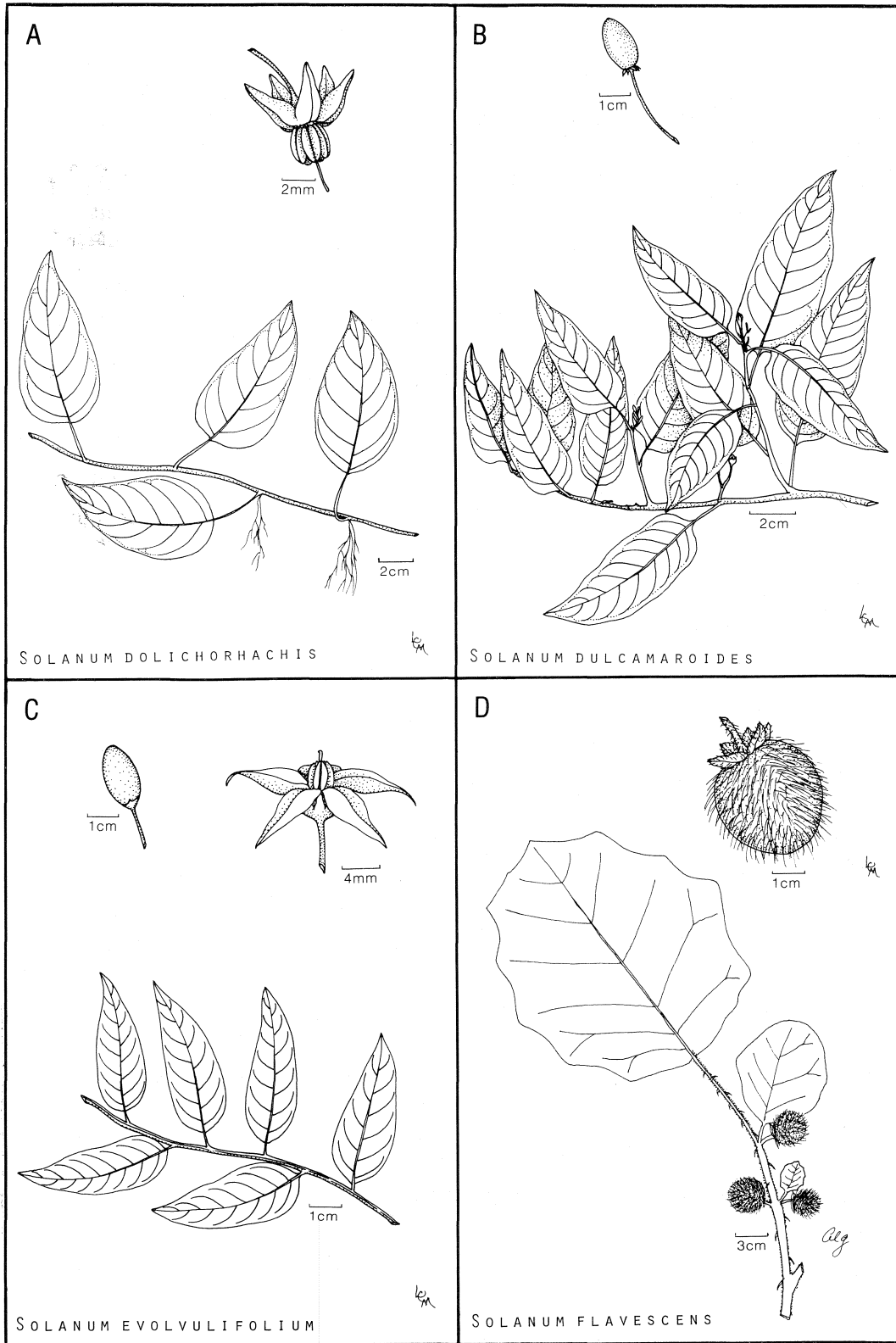


Plate 259

Solanum macrotonum Bitter

Plate 260-A

Subshrub ca. 1 m tall. Leaves elliptic to ovate-elliptic, acute at the base and the apex, 6-15 × 2-7 cm. Inflorescence a lateral 2-several-flowered umbel; calyx 5-dentate; corolla small, white, the lobes apparently not reflexed; anthers ca. 2.2 mm long. Fruit a black berry ca. 5 mm in diameter. Uncommon, in mature forest. Costa Rica to Bolivia and Brazil. The Río Palenque material is unusual in being subwoody, having large leaves and reduced inflorescences and in growing at a relatively low altitude.

Solanum nudum Dun.

Plate 260-B

Tree 2 m tall. Leaves elliptic or ovate, acute, more or less rounded at the base, glabrous except for tufts of trichomes in the nerve axils beneath. Inflorescence subumbellate, short, axillary; calyx subtruncate, 1 mm long; corolla white, split nearly to the base, ca. 3 mm long. Fruit a globose berry, yellow, to 1.3 cm in diameter. Common, in disturbed areas, mostly along the river. Guatemala to Argentina.

Solanum ochraceo-ferrugineum (Dun.) Fern.

Plate 260-C

Spiny shrub 1.5-2 m tall. Leaves broadly ovate, acute, truncate, the margins shallowly lobed, usually with a few spines on the midvein beneath, to ca. 15 cm long and broad. Inflorescence lateral, tomentose; calyx 5-dentate, 4-5 mm long; corolla white, deeply 5-lobed ca. 10 mm long in mature bud. Fruit a yellow berry 1-1.5 cm in diameter. Common, in disturbed areas. Mexico to Brazil.

Solanum palenquense D'Arcy

Plate 260-D

Canopy vine. Leaves elliptic, acuminate, the base asymmetric, rounded, to 26 × 12 cm, the margin subentire when smaller, becoming conspicuously remotely spiny-toothed when older, densely whitish stellate-lepidote below. Calyx subtruncate, 4 mm long, 8 mm wide; corolla split almost to base, the petals purple, 1.8-2 cm long. Fruit a spherical berry ca. 1.3 cm in diameter. Infrequent, in mature forest. Known only from Río Palenque.

Solanum rovirosanum J. D. Sm.

Plate 261-A

S. confertiseriatum Bitter

Small tree. Leaves oblong-elliptic, acute, asymmetrically rounded, to 20 × 11 cm, glabrous. Inflorescence axillary, paniculate, rather freely branched but somewhat congested; calyx 5-dentate, 1-2 mm long; corolla white, deeply 5-lobed, 5-6 mm long. Fruit a globose berry 1 cm in diameter. Infrequent, in disturbed areas. Guatemala to Ecuador.

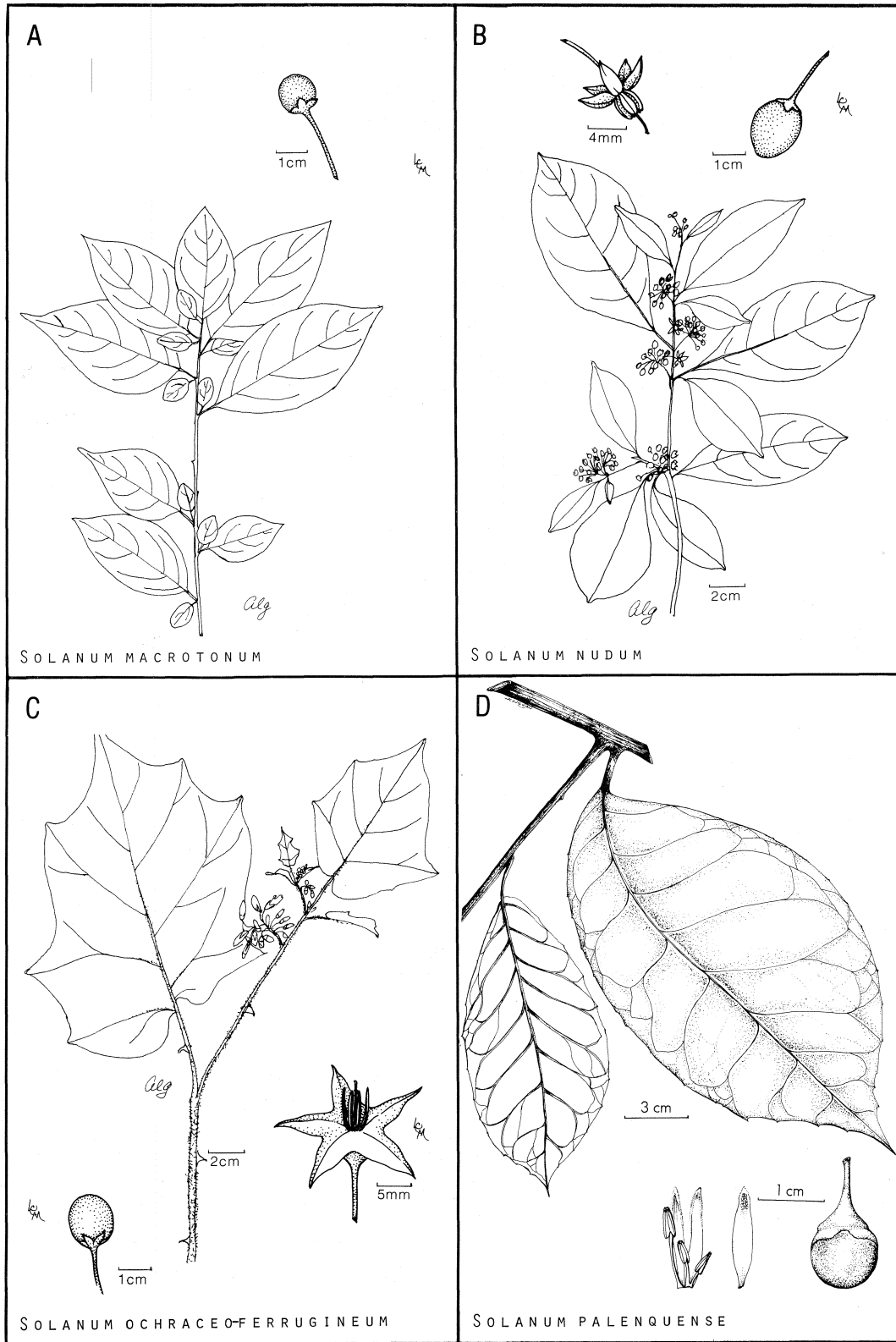


Plate 260

Solanum schlechtendalianum Walp.

Plate 261-B

Vine. Leaves ovate, acuminate, rounded, to 16 × 8 cm, the undersurface densely canescent with stellate trichomes. Inflorescence usually more or less terminal; calyx 5-dentate, 3 mm long; corolla white, deeply lobed, 7-9 mm across. Fruit a globose berry 7-9 mm in diameter. Infrequent, in mature forest. Mexico and the West Indies south to the Andes.

Solanum styracioides Rusby

Plate 261-C

S. granelianum D'Arcy

Large vine in the tops of tall trees; stem to 4 cm in diameter. Leaves elliptic to ovate-elliptic, obtuse to rounded at the base, acute at the apex, margin entire, the blade essentially glabrous, to 13 × 5 cm. Inflorescence terminal, paniculate; calyx truncate, saucer-shaped, ca. 2 mm long; corolla purple, deeply and narrowly lobed, ca. 1 cm long. Fruit spherical, red when ripe, to 4 cm in diameter. Infrequent, in mature forest. Flowers from August to October. This species is now known from three collections (D'Arcy pers. comm.): the type from Amazonian Bolivia, the type of *S. granelianum* from Panama, and the Río Palenque collection! It constitutes a monotypic section (*Andropedus*) of *Solanum* whose fruits are unknown but our leafless fruiting material (6003) is not positively identified.

Solanum suaveolens Kunth & Bouche

Plate 261-D

Scrambling herb. Like *S. canense* except that the corolla is split less than half its length. Uncommon, on rocky beaches in the riverbed. Mexico to Costa Rica and Colombia to Bolivia.

Solanum subinerme Jacq.

Plate 262-A

Shrubby vine with recurved spines. Leaves elliptic, acuminate, acute and asymmetric at the base, with numerous spines on the midvein beneath. Inflorescence lateral, racemose; calyx 2-3 mm long, 5-dentate; corolla white (usually purple or bluish elsewhere), 5-lobed nearly to base, the lobes 15-20 mm long. Fruit a globose berry, red or red-orange, 6-9 mm in diameter. Rare, at the forest edge. Mexico and the West Indies into South America.

Solanum umbellatum Mill.

Plate 262-B

Shrubby tree 2-3 m tall. Leaves elliptic, acute, attenuate at the base, to 20 or more cm long, densely stellate pubescent below, scabrous above. Inflorescence a long-stalked branching terminal cyme; calyx lobed, 2-5 mm long; corolla white, lobed, 10-15 mm across. Fruit a globose berry, yellow, 8-10 mm in diameter. Infrequent, in disturbed areas. Mexico and the West Indies to Ecuador.

Common name: "Zorillo"

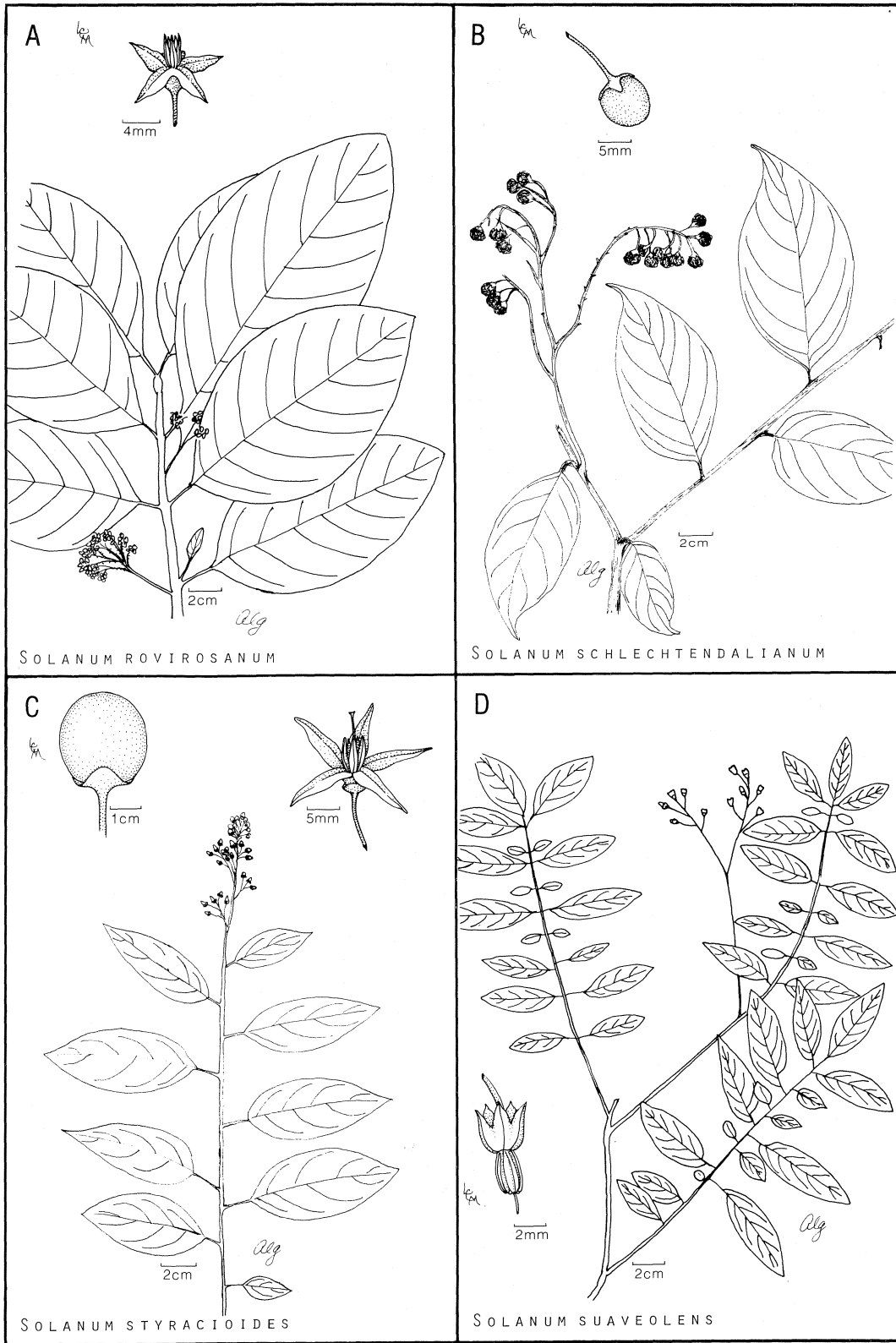


Plate 261

Witheringia riparia HBK

Plate 262-C

Tree to 3 m tall. Leaves elliptic to narrowly elliptic, acute at the base and the apex, somewhat asymmetric at the base, to 23 × 10 cm, borne in pairs of very unequal size and appearing opposite, the smaller of each pair suborbicular. Inflorescence an axillary few-flowered fascicle; calyx subtruncate (inconspicuously sub 5-denticulate) 2 mm long; corolla yellowish-green, ca. 6 mm long, deeply parted. Fruit almost covered by the calyx. Infrequent, in mature forest. Costa Rica to Ecuador.

Witheringia solanacea L'Hér.

Plate 262-D

Shrub or subshrub. Leaves broadly ovate, acute to acuminate, basally rounded, to 20 cm long, borne in pairs of unequal size and appearing opposite. Inflorescence an axillary many-flowered fascicle; calyx truncate, 1 mm long; corolla yellow, ca. 5 mm long in bud, deeply parted. Fruit a globose berry, orange-red, to 8 mm in diameter. Common, mostly near the forest edge. Mexico and the Antilles to Brazil.

STAPHYLEACEAE

Shrubs and trees. Leaves opposite, pinnately compound, with stipules. Flowers usually bisexual, regular; sepals 5; petals 5; stamens 5, alternating with the petals, distinct, inserted near the outside of a large, cup-shaped disc; ovary superior, 2-to 3-loculed, with axile placentation. Fruit a berry (at Río Palenque) or a membranaceous, often inflated, capsule.

Turpinia occidentalis Sw.

Plate 263-A

T. heterophylla (R. & P.) Tul.

Tree to 10 m. Wood soft and brittle. Leaves compound, to 50 cm long; leaflets 5-9, elliptic, obtuse at the base, margin dentate, 10-12 × 15-25 cm; petiole unwinged. Inflorescence a terminal panicle; petals white, to 4 mm long. Fruits red when ripe, to 2 cm in diameter. Uncommon, in mature forest. Mexico and the West Indies to Brazil and Amazonian Peru.

Common name: "Cuero de Puerco"+

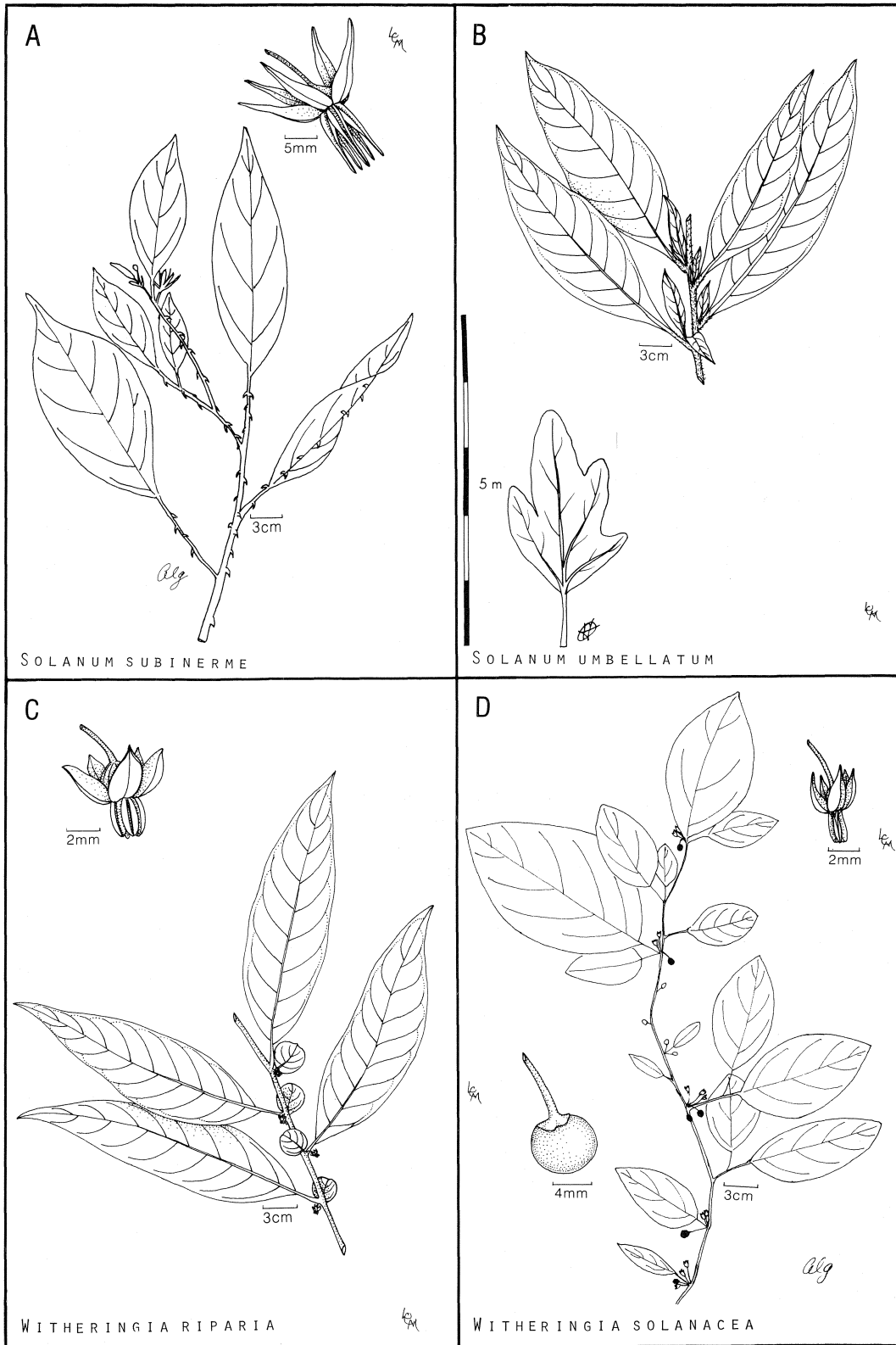


Plate 262

STERCULIACEAE

Trees, shrubs, vines or herbs. Leaves alternate, simple, entire or palmately lobed or compound, hairs often stellate, stipules falling early. Flowers generally bisexual, regular or zygomorphic, often on trunks or larger stems; sepals 3-5; petals small and reduced or lacking; stamens in 2 whorls, monodelphous or distinct, the outer whorl reduced to staminodes; ovary superior, 4-to 5-lobed with axile placentation. Fruit leathery or fleshy, the carpels sometimes splitting into cocci.

Key to the species.

1. Leaves palmately compound *Herrania balaensis*
1. Leaves simple.
 2. Leaf margins entire; tree *Theobroma cacao*
 2. Leaf margins serrate; herb *Melochia lupulina*

Herrania balaensis Pruess

Plate 263-B

Erect, often unbranched treelet to 7 m tall. Leaves palmately compound; leaflets obovate, 35 × 20 cm, the undersurface covered with brown stellate pubescence. Inflorescence produced from the trunk, glomerate; sepals, petals and corona wine-red; staminodes white, to 30 mm long. Fruits longitudinally ribbed, to 20 cm long, red when ripe. Infrequent, in mature forest. Endemic to western Ecuador. Said to be preferred by residents over cultivated chocolate.

Common name: "Cacao de Monte"+, "Cacao Silvestre"

Melochia lupulina Sw.

Plate 263-C

Erect, slightly viscid herb to 1 m tall. Petiole to 6 cm long; leaves ovate, acuminate, shallowly cordate, to 10 × 7 cm, the margins conspicuously serrate. Inflorescence axillary, reduced, ± racemose but appearing almost fasciculate, stellate pubescent. Flowers ca. 4 mm long; petals white with a yellow spot at the base. Fruits (not seen at Río Palenque) with 5 cocci, surrounded by the enlarged calyx lobes. Infrequent, but locally common at the edge of the cacao plantation. Throughout the American tropics. Our plant has larger more glabrescent leaves than other collections of this variable species.

***Theobroma cacao** L.

Plate 263-D

Branching tree to 10 m. Leaves simple, entire, narrowly elliptic, acuminate, to 30 × 10 cm. Inflorescence produced from the trunk, glomerate; sepals and petals pale yellow; corona purple. Fruits ribbed, yellow or red when ripe, to 40 cm long. Cultivated in the plantation near the river. Widespread in tropical America but the natural range is obscure; introduced to Africa. Common name: "Cacao"+

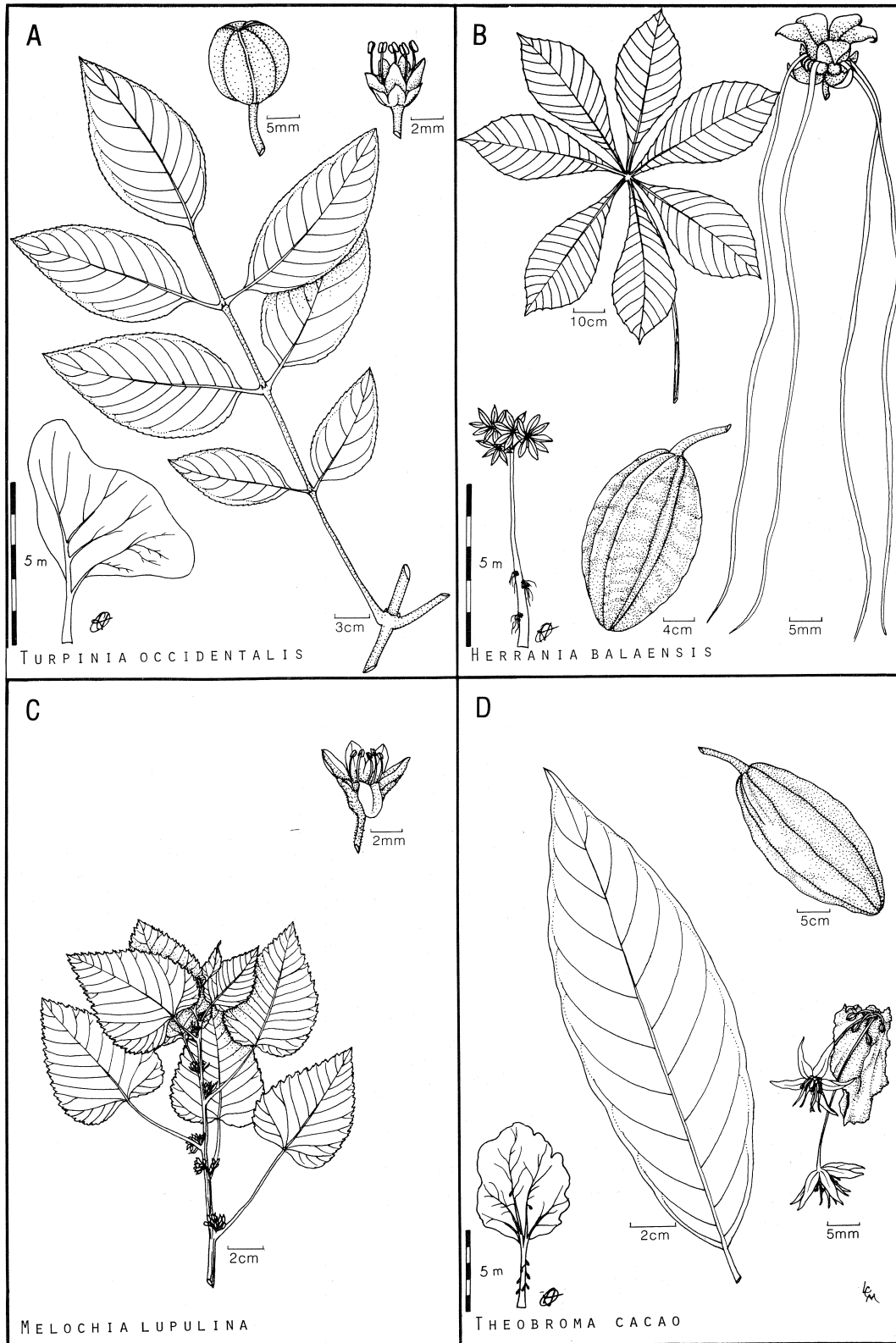


Plate 263

***Daphnopsis occulta* Neuling**

Plate 264-B

Tree 3-10 m tall. Leaves obovate, to 18 × 5-8 cm, the apex abruptly short-acuminate, the base tapering to a distinct petiole over 1 cm long. Flowers white. Fruit ovoid or ellipsoid, broadest at or below the middle, subtended by an inconspicuous calyx with 1 mm long lobes. Uncommon, in mature forest. Known only from Río Palenque.

Common name: "Sapán de Venado"+

***Schoenobiblus panamensis* Standl. & L. Wms.**

Plate 264-C

Diocious tree 2-5 m tall. Leaves oblanceolate, to 16 × 3-4(-5) cm, the apex long-acuminate with 1-2 cm long tip, tapering to the base, the petiole hardly differentiated. Flowers smell strongly of coriander; 4-parted; petals 3-4 mm long. Fruit obovoid, broadest above the middle, subtended by a conspicuous calyx with 4 mm long lobes. Uncommon, in mature forest. Previously known only from the Panamanian type.

TILIACEAE

Trees or shrubs, rarely herbaceous, usually with stellate trichomes. Leaves alternate, simple, 3-veined from the base, stipulate. Flowers perfect, regular; calyx usually valvate with 4-5 sepals; petals 4-5, rarely absent; stamens 10 to many, the filaments usually not fused into a staminal tube; ovary superior, usually 2-to 5(-10)-carpellate, placentation usually axile. Fruit a berry, drupe, or capsule.

***Apeiba membranacea* Spruce ex Benth.**

Plate 264-D

Canopy tree 30 m tall; trunk often somewhat fluted toward the base, narrowly buttressed. Leaves oblong-elliptic, short-acuminate, rounded at the base, to 16 × 9 cm, stellate puberulous and whitish beneath, dark above, entire, 3-veined at the base. Inflorescences opposite the leaves, paniculate, few-flowered. Flowers with sepals 5, slightly fused at the base, 2-2.5 cm long; petals 5, yellow, 1.5-2 cm long; stamens fused at the extreme base. Fruit a sea-urchin-like spiny, depressed-globose capsule, ca. 5 cm in diameter. Rare, in mature forest along Lodo Creek at the junction with trail 1. Costa Rica to Bolivia.

Common name: "Peine de Mono"+

TROPAEOLACEAE

Herbs or vines without tendrils. Leaves alternate, simple, without stipules. Flowers bisexual, zygomorphic and spurred; calyx bilabiate, of 5 distinct sepals, the dorsal one produced into a spur; corolla of 5 distinct petals, the upper 2 differing in shape from the lower 3; stamens 8 in two whorls; ovary superior, 3-locular with axile placentation. Fruit 3-seeded.

Tropaeolum repandum Heilb.

Plate 265-A

Herbaceous vine. Leaves peltate, broader than long, lobed; petiole to 10 cm long. Flowers red-orange, single, pendent on a filamentous pedicel to 10 cm long, the spur to 4 cm long, red; petals black on the edges, with dense red hairs inside, 1 cm long. Infrequent, at the forest edge. Ecuador and Peru, on both sides of the Andes.

ULMACEAE

Trees or shrubs, sometimes scandent, usually monoecious. Leaves simple, alternate, the base usually oblique, 3-veined from the base, the stipules falling early. Flowers bisexual or unisexual, zygomorphic; 4-8 more or less joined sepals; no petals; stamens the same number as and opposite the sepals; ovary superior, usually unilocular, 2-carpellate, with a single pendulous ovule. Fruit a drupe or samara.

Key to the species.

1. Spiny vine or vining shrub *Celtis iguaneus*
1. Unarmed trees.
 2. Leaves entire (sometimes serrulate when young), barely or not at all scabrous, ovate.
 3. Leaf base truncate; fruits less than 4 mm long
 *Trema integerrima*
 3. Leaf base obtuse to subacute; fruits more than 10 mm long
 *Celtis schippii*
 2. Leaves serrate, strongly scabrous, narrowly ovate
 *Trema micrantha*

Celtis iguaneus (Jacq.) Sarg.

Plate 265-B

Shrubby vine or vining shrub, the branches armed with recurved axillary spines. Leaves ovate, to 10 × 4 cm, acute, rounded at the base, 3-nerved, serrate. Staminate and bisexual inflorescences axillary and paniculate; pistillate flowers solitary or in pairs, the flowers greenish, small, 5-parted. Fruit ovoid, ca. 1 cm long, turning orange. Rare, along Arana Estero. Mexico and the West Indies to Argentina.

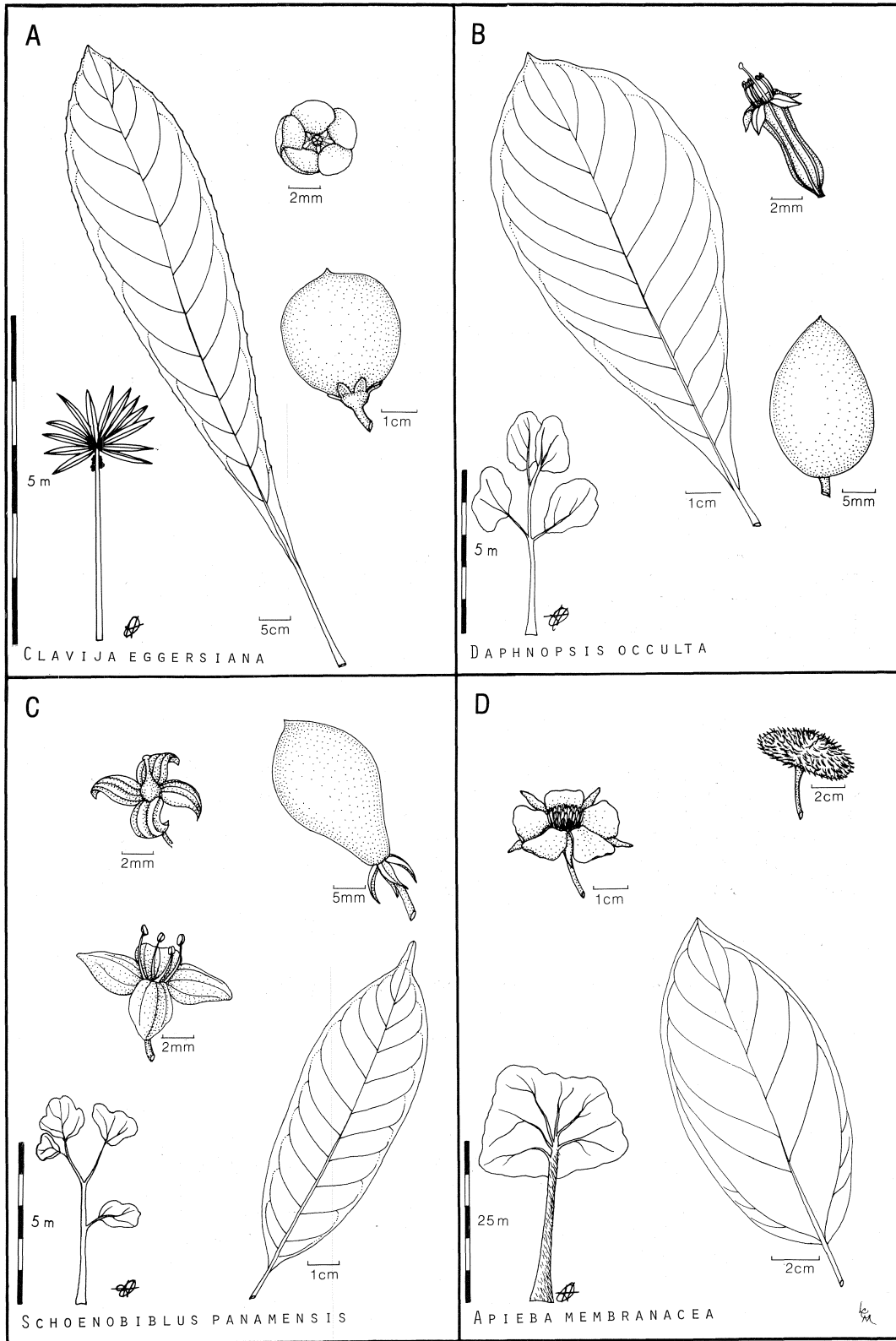


Plate 264

Celtis schippii Standl.

Plate 265-C

Tree to at least 20 m tall. Bark light gray, smooth; buttresses prominent. Leaves ovate, acute to acuminate, entire, glabrous, 3-veined from the base, to 16 × 7 cm. Inflorescence axillary, few-flowered, the flowers tiny, greenish. Fruits ovoid, ca. 1.3 cm long. Infrequent, in moderately disturbed forest. Previously known only from Belize and Barro Colorado Island, Panama; also doubtfully recorded by Little from Esmeraldas.

Common name: "Gallinazo", "Tillo Blanco", "Camaroncillo"

Trema integerrima Standl.

Plate 265-D

Canopy tree to 30 m tall. Leaves ovate, acute to short-acuminate, entire (somewhat serrulate in immature plants), barely scabrous, 3-veined from the base. Inflorescence a small axillary panicle, the small flowers greenish yellow. Fruits ovoid, yellow, 2-3 mm long. Common, in mature and disturbed forest. Panama to Pacific Ecuador.

Common name: "Sapán de Paloma"+

Trema micrantha (L.) Blum.

Plate 266-A

Tree to 20 m tall. Leaves narrowly ovate, acuminate, serrate, conspicuously scabrous, 3-veined from the base. Inflorescence a small axillary panicle, the flowers greenish. Fruits ovoid, orange, 2-3 mm long. Rare, along the river bank. Florida and Mexico to Argentina.

Common name: "Sapán"+

UMBELLIFERAE

Usually herbs. Leaves alternate, often compound and much dissected; petioles usually sheathing. Inflorescence a simple, or compound umbel. Flowers bisexual, rarely unisexual, regular; calyx 5-lobed; corolla of 5 distinct petals; stamens 5, alternate with the petals, arising from a disc; ovary inferior, bicellular, with axile placentation, a solitary pendulous ovule in each locule. Fruit a schizocarp, the 2 carpels united by their faces and separating at maturity.

Key to the species.

1. Prostrate, creeping plant; leaves subrotund, not spiny. *Hydrocotyle leucocephala*
1. Erect plant; leaves narrowly obovate, spiny. *Eryngium foetidum*

Eryngium foetidum L.

Plate 266-B

Erect glabrous herb to 40 cm tall with a basal rosette of leaves. Leaves narrowly obovate, obtuse, 3-lobed or toothed and armed with spines. Flowers green, in dense heads surrounded by spiny leaf-like bracts. A weed, locally common, around homesites, also semi-cultivated throughout tropical America, adventive in the Old World tropics. Much used as a spice in soups.

Common name: "Culantro"+, "Cilantro"+, "Coriander"

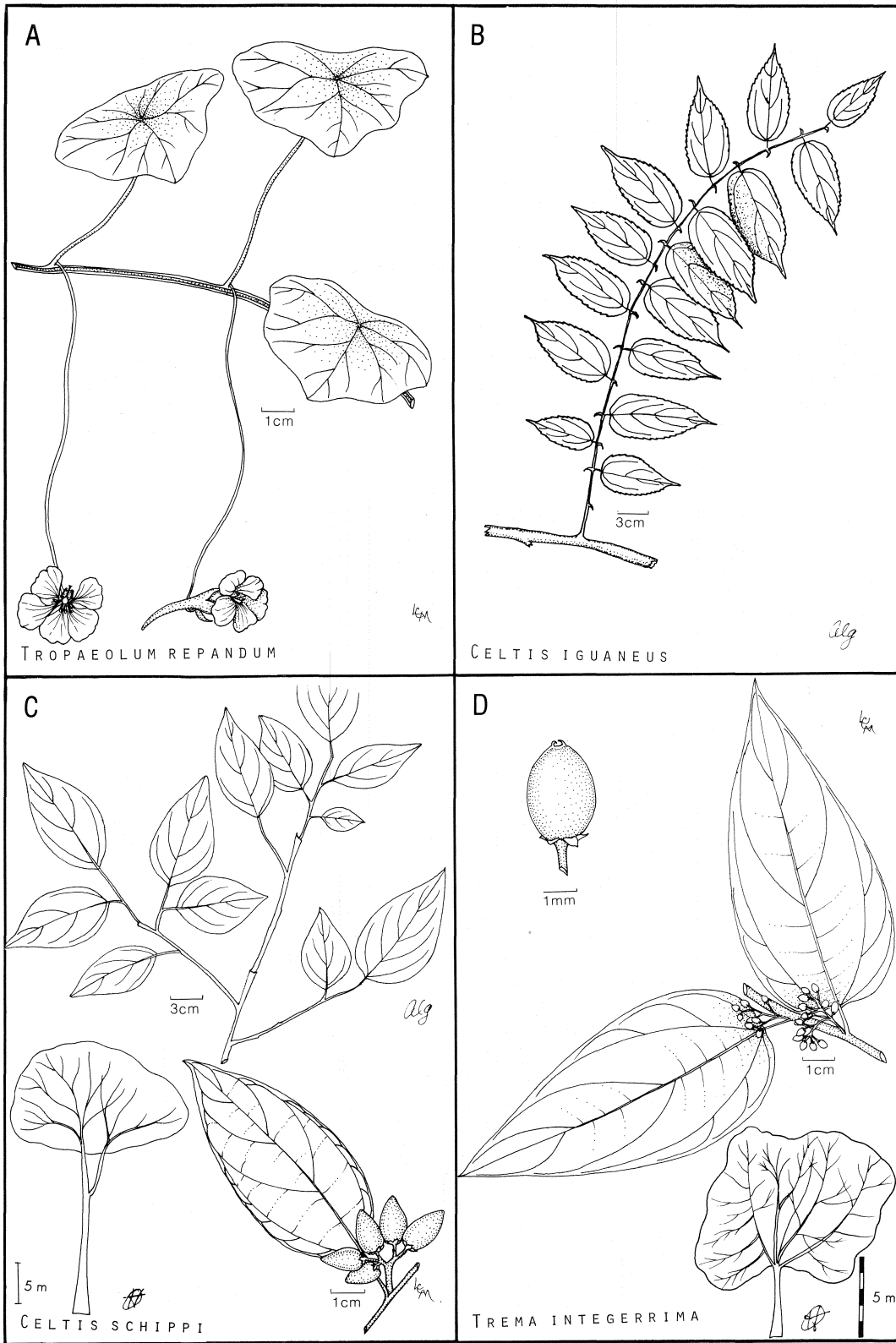


Plate 265

Hydrocotyle leucocephala C. & S.

Plate 266-C

Prostrate creeping herb. Leaves long-petiolate, subrotund but cordately split at the base, serrulate. Inflorescence an axillary pedunculate capitate umbel. Flowers sessile, greenish white, minute, the entire head 4 mm across. Fruit small, laterally flattened. Locally common, in mowed areas. Southern Mexico to Bolivia.

URTICACEAE

Monoecious or dioecious herbs, shrubs, or small trees, sometimes subscandent, armed with stinging hairs in some genera, sap usually watery. Leaves alternate or opposite, simple, with stipules. Flowers unisexual, regular, minute, usually greenish; perianth of 2-5 parts undifferentiated into sepals and petals; staminate flowers with 2-5 stamens, opposite the perianth parts, filaments distinct; ovary superior, 1-loculed. Fruit an achene.

Key to the species.

1. Herbs.
 2. Leaves less than 15 mm long; prostrate or erect plants.
 3. Larger leaves ca. 15 mm long; erect plants. *Pilea hyalina*
 3. Larger leaves less than 8 mm long; prostrate or suberect plants.
 4. Leaves obovate, rounded at the tip, larger leaves 4-6 mm wide *Pilea herniarioides*
 4. Leaves narrowly obovate-elliptic, acutish at the tip, less than 2 mm wide *Pilea microphylla*
 2. Leaves more than 30 mm long; erect plants.
 5. Leaves peltate *Pilea selbyanorum*
 5. Leaves not peltate.
 6. Inflorescence axillary, contracted.
 7. Leaf pairs strongly unequal, 3-veined from above the base; stem red, strongly angled *Pilea riopalenquensis*
 7. Leaf pairs nearly equal, 3-veined from the base; stem green, terete *Pilea costaricensis*
 6. Inflorescence terminal, openly paniculate.
 8. Leaves variegated, blade to 4 cm long, without stinging hairs *Pilea involucrata*
 8. Leaves green, blade 3 to 10 cm long, usually armed with stinging hairs *Laportea aestuans*
 1. Shrubs or vines.
 9. Undersurface of leaves silver-gray *Pouzolzia guatemalana*
 9. Undersurface of leaves green.
 10. Inflorescences dense, less than 1 cm in diameter.
 11. Leaf margin entire. *Pouzolzia obliqua*
 11. Leaf margin dentate *Boehmeria ramiflora*
 10. Inflorescences compact to elongate, 3-30 cm long.
 12. Inflorescence spicate, pendent, 20-30 cm long; plant non-stinging *Myriocarpa stipitata*
 12. Inflorescence to 10 cm long, openly paniculate or densely congested; plant usually urticating.

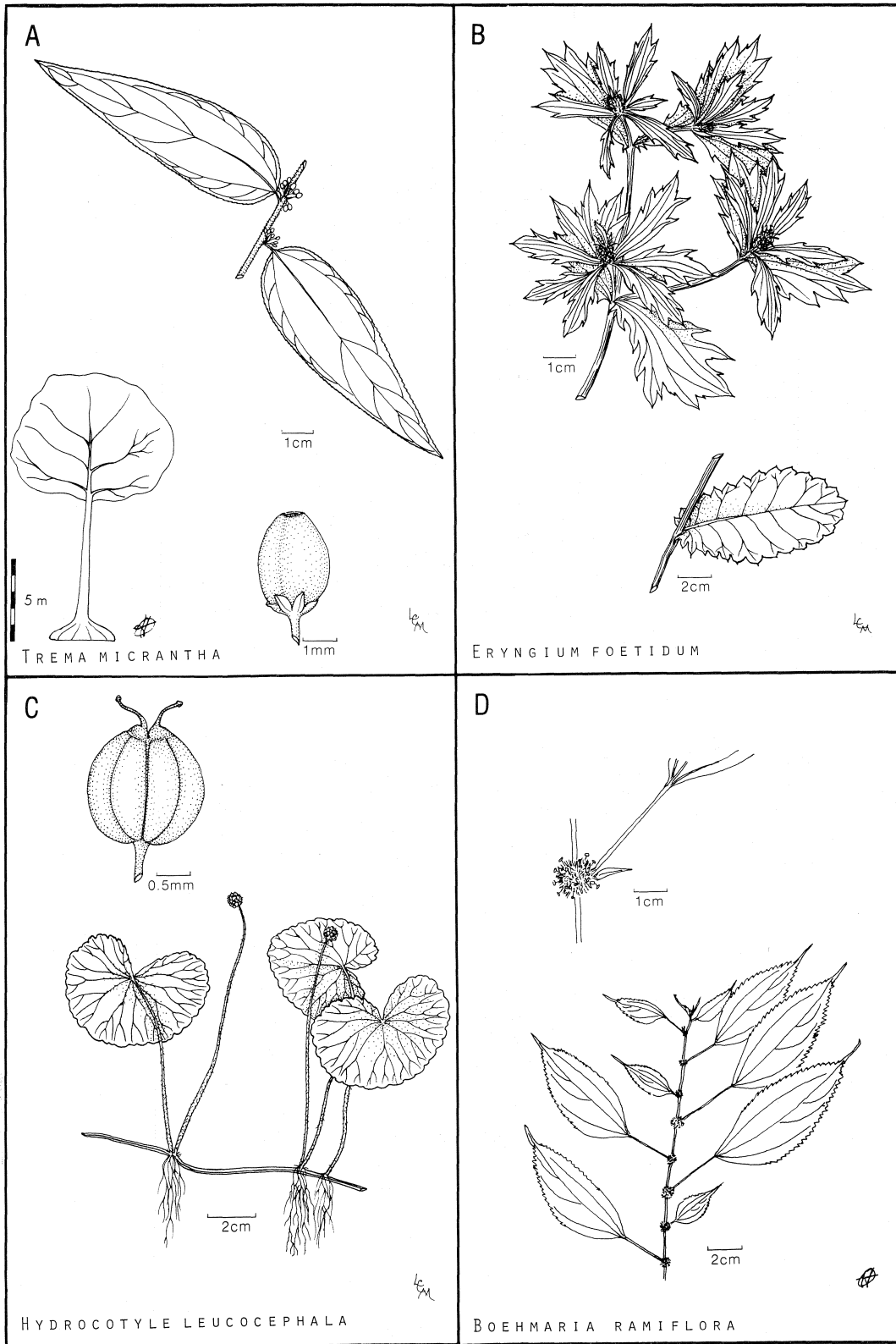


Plate 266

13. Stem spineless; leaf evenly serrate with small teeth.
 14. Leaf elliptic, the base rounded; vines. *Urera elata*
 14. Leaf broadly ovate; small trees *Urera caracasana*
 13. Stem armed with stout spines; leaf remotely and more or less irregularly serrate to serrulate.
 15. Leaves evenly remotely serrate or serrulate; spines relatively short; inflorescence relatively congested *Urera baccifera*
 15. Leaves irregularly laciniate-lobed ca. halfway to the midvein; spines often longer; inflorescences open *Urera laciniata*

Boehmeria ramiflora Jacq.

Plate 266-D

Scrambling shrub to 2 m tall. Leaves long petiolate to 5 cm; blade elliptic, oblique, 11 × 4 cm, margin serrate through the middle portion of the blade, the apex acuminate, the base acute. Inflorescences in dense axillary cymes, less than 1 cm in diameter. Common, near the forest edge. Southern Mexico to Ecuador.

Laportea aestuans (L.) Benth.

Plate 267-A

Fleurya aestuans (L.) Gaud.

Herb to 1.5 m tall. Leaves broadly ovate, to 10 × 7 cm, the margin broadly serrate, the base truncate, the apex acuminate; petiole to 7 cm long. Stinging hairs usually present. Inflorescence a dense cyme to 8 cm long, light green; petals white. Common, in disturbed areas. Southern Mexico and the West Indies through tropical South America; also in the Old World tropics.
 Common name: "Ortiguilla"+

Myriocarpa stipitata Benth.

Plate 267-B

Large scrambling shrub to 4 m tall. Leaves with petioles 3-9 cm long; blade ovate, to 25 × 16 cm, the margin dentate, the base truncate, the apex acute. Inflorescence an elongate catkin-like panicle branched from the base, pale green to whitish. Infrequent, in disturbed areas. Tropical South America on both sides of the Andes. Burger (pers. comm.) notes that this species combines the leaves of *M. longipes* Liebm. with the fruit of *M. cordifolia* Liebm. and that it and the two Central American species may prove only subspecifically distinct.

Common name: "Ortiguilla Macho"+

Pilea costaricensis J. D. Sm.

Plate 267-C

Terrestrial herb. Stems terete, green. Leaves lanceolate-elliptic, tapering-acuminate, acute at the base, serrate, 3-veined from the base, the two leaves of each pair weakly or not at all anisophyllous. Inflorescence axillary, contracted, sessile, greenish, the flowers minute. Rare, in disturbed forest on the Bates property. Previously known from Costa Rica to Panama. Our plant differs from typical *P. costaricensis* in only slightly or not at all anisophyllous leaves but some of the Central American material referred to this species also has equal-sized leaves.

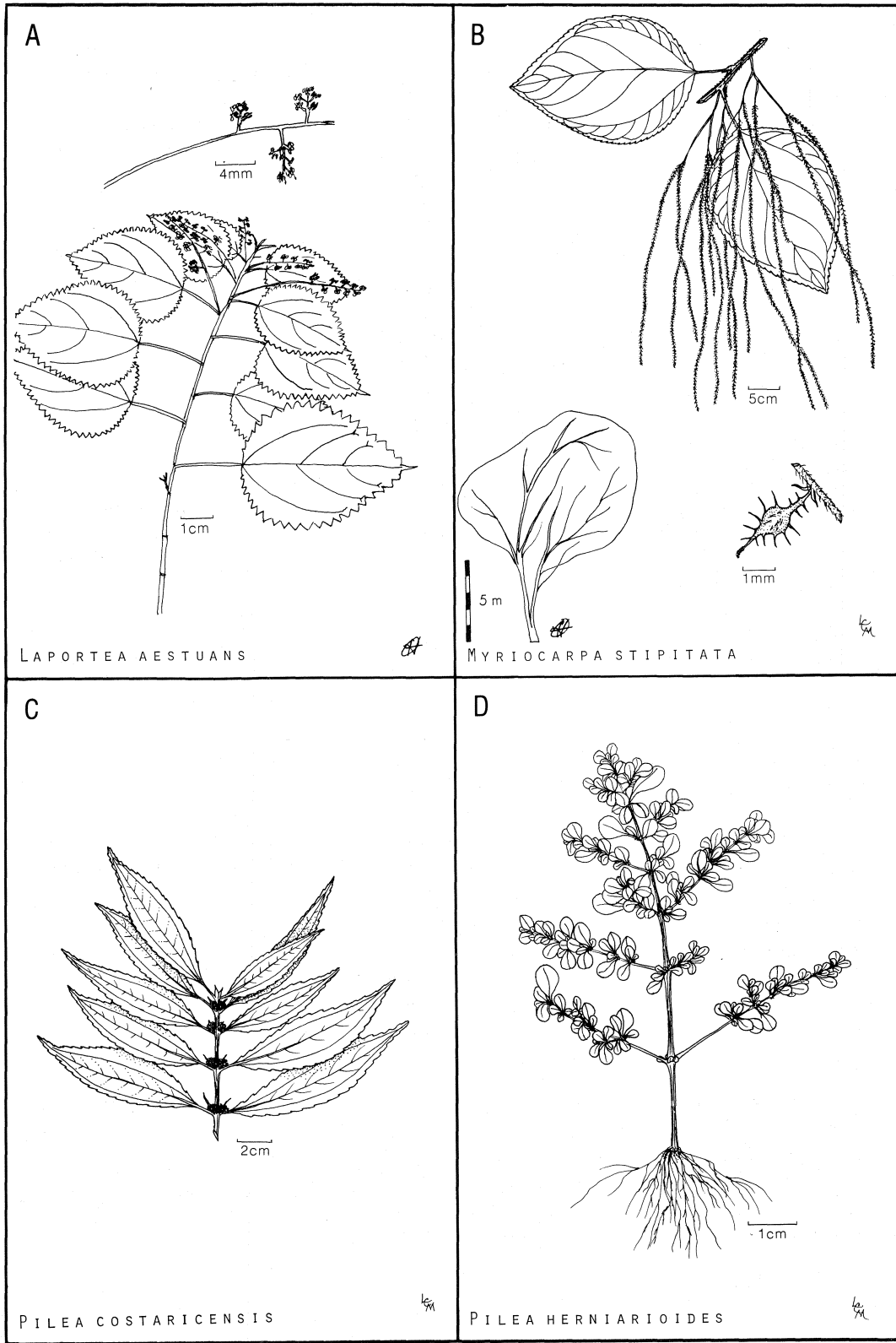


Plate 267

***Pilea herniarioides* (Sw.) Lindl.**

Plate 267-D

Small suberect terrestrial herb. Leaves obovate, rounded at the apex, cuneate at the base, the margin entire, to 8×6 mm. Inflorescence minute, axillary, fasciculate, the tiny flowers greenish, subsessile. Rare, on gravel bars in the riverbed. Previously reported from southern Mexico and southern Florida, south through the West Indies and Costa Rica; also occurs in Panama; this is apparently the first South American record.

***Pilea hyalina* Fenzl**

Plate 268-A

Small suberect terrestrial herb. Leaves rhombic-ovate, acute, obtuse at the base, margin serrate, to 1.5×1.2 cm; petiole to 1.3 cm long. Inflorescence axillary, paniculate, the tiny flowers greenish. Rare, on gravel bars in riverbed. Mexico and the Lesser Antilles to Chile and Argentina.

***Pilea involucrata* (Sims) Urban**

Plate 268-B

Herb to 40 cm tall. Leaves reddish to red with silver veins, the blade ovate, 4×3 cm, broadly serrate, truncate at the base, acute at the apex, without stinging hairs. Inflorescence a dense, axillary cyme, to 2 cm long. Flowers greenish. Infrequent, at the forest edge. Panama and the West Indies to Venezuela and Ecuador.

***Pilea microphylla* (L.) Liebm.**

Plate 268-C

Small prostrate terrestrial herb. Leaves minute, elliptic, subacute at the base and the apex, subsessile, entire, to 4×2 mm. Inflorescence axillary, fasciculate. The tiny flowers greenish, sessile. Rare, on gravel bars in the riverbed. Southern Mexico and the West Indies to Argentina.
Common name: "Lentejilla"+

***Pilea riopalenquensis* A. Gentry & Dodson**

Plate 268-D

Terrestrial or hemiepiphytic herb. Stems quadrangular, reddish. Leaves elliptic, acuminate, acute at the base, margin serrate, 3-veined from above the base, the two leaves of each pair very unequal in size on mature plants. Inflorescence dense, axillary, more or less sessile. Flowers minute, reddish. Uncommon, in disturbed forest on Hacienda Cerecita. Known only from Río Palenque.

***Pilea selbyanorum* Dodson & A. Gentry**

Plate 269-A

Succulent herb to 1 m tall. Stems quadrangular. Leaves peltate, ovate, the margin entire to unevenly serrulate, the apex acuminate, the base truncate, the stipules foliaceous, to 2 cm long. Inflorescence a much branched dense cyme to 10 cm long, axillary, white. Locally common, in mature forest. Known only from the Science Center.

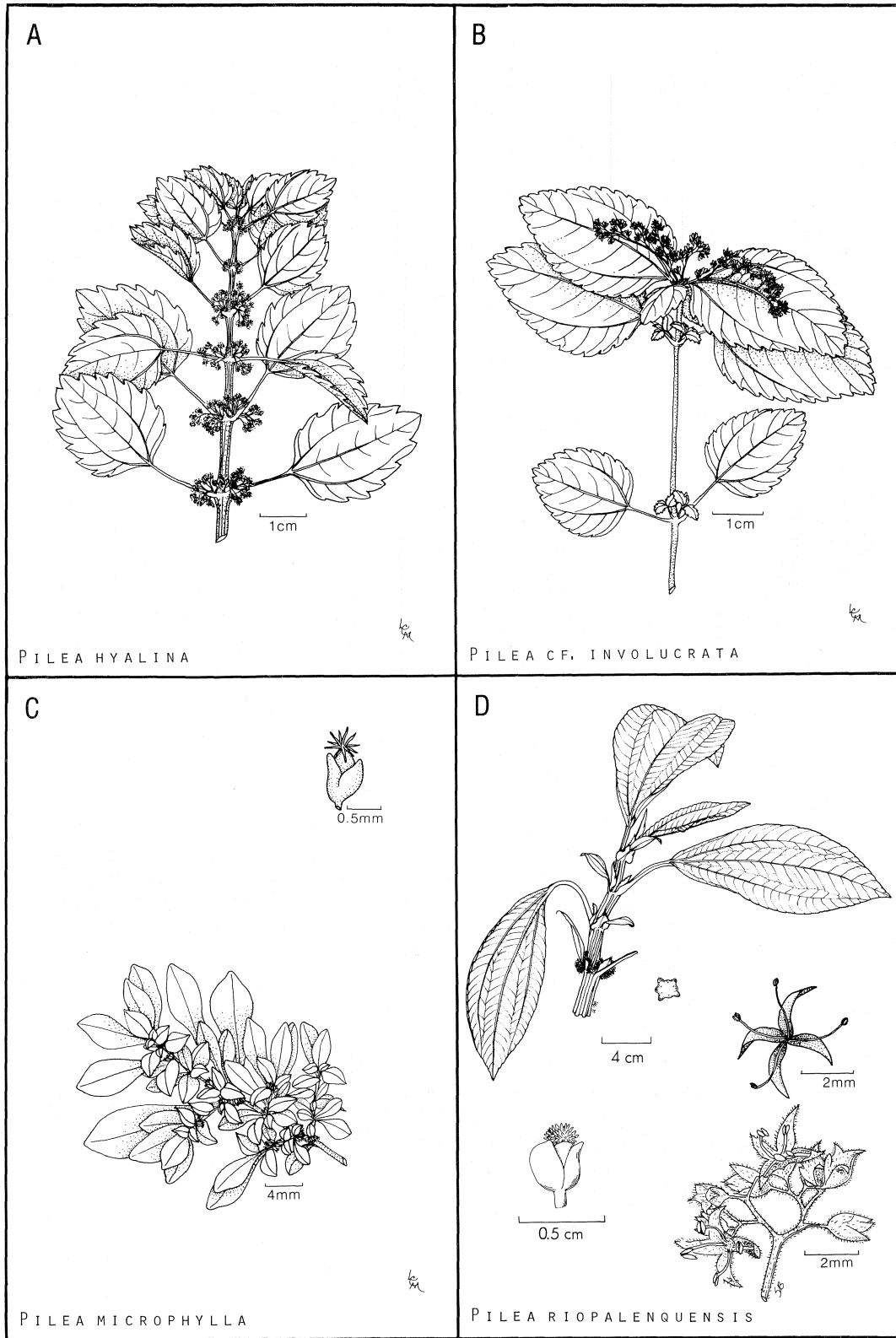


Plate 268

Pouzolzia guatemalana (Blume) Wedd.

Plate 269-B

Shrub to 3 m. Leaves long petiolate, petiole to 10 cm long; blade elliptic, entire, acuminate at the apex, acute at the base, undersurface silver-grey. Inflorescence a dense axillary cyme, less than 1 cm in diameter. Infrequent, in disturbed areas. Previously known only from Costa Rica to Panama.

Pouzolzia obliqua (Poepp.) Wedd.

Plate 269-C

Shrub with woody stems. Leaves short petiolate, petiole to 1 cm long; blade obliquely elliptical, scabrous, the apex acuminate, the base truncate, 7 × 3 cm. Inflorescence a dense axillary cyme, less than 1 cm in diameter. Uncommon, in disturbed areas. Southern Mexico to Venezuela and Peru.

Urera baccifera (L.) Gaud.

Plate 269-D

Shrub to 2 m tall; stems succulent. Stems and leaves armed with severely stinging spines. Leaf blade ovate, 3-veined, the apex acute, the base acute to truncate, to 40 × 25 cm. Inflorescence a densely packed cyme, axillary, to 5 cm long, the peduncles red or purple. Flowers and fruits whitish. Common, in the mature forest understory and at the forest edge. Southern Mexico and the West Indies through tropical South America. We suspect that this complex may contain two species at Río Palenque one with larger barely serrulate leaves and shorter thicker spines ("Ortiguilla Morada") grows in mature forest and a second with smaller conspicuously but remotely serrate leaves, longer thinner spines and a more open inflorescence ("Ortiguilla de Tigre") occurs in disturbed areas (6464 & 6567). The forest plant loses its urticating properties soon after picking while the disturbed-area plant retains its urticating ability much longer.

Common name: "Ortiguilla de Tigre"+, "Ortiguilla Morada"+

Urera carcasana (Jacq.) Griseb.

Plate 270-A

Tree to 7 m tall. Leaves ovate, margin denticulate, the apex acuminate, the base truncate, the blade 15 × 9 cm, without stinging hairs or spines. Female inflorescence a dense axillary cyme to 2 cm long, green; male inflorescence an open axillary panicle. Uncommon, in disturbed forest. Southern Mexico and the West Indies through tropical South America.

Common name: "Crespon"

Urera elata (Sw.) Griseb.

Plate 270-B

Large vine. Leaf blade elliptic, dentate, long-acuminate at the apex, obliquely acute to truncate at the base, without stinging hairs or spines. Inflorescence axillary, of densely packed flowers on a much-branched cyme to 10 cm long. Flowers white. Fruit red or orange when ripe. Uncommon, in mature forest. Through most of the neotropics. Collections 5837 and 6642 may represent a distinct species.

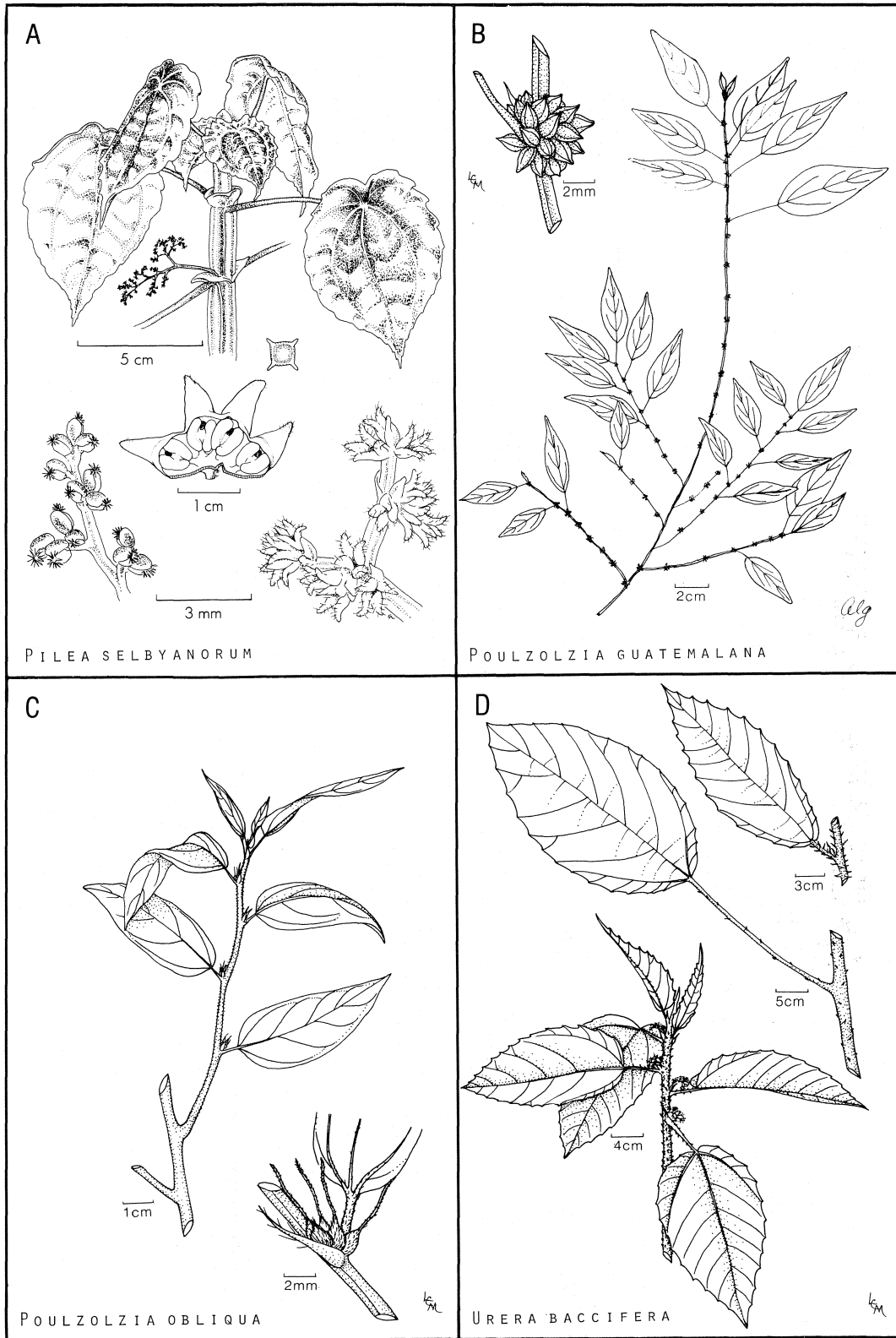


Plate 269

Urera laciniata (Goudot) Wedd.

Plate 270-C

Shrub to 3 m tall; branches with urticating spines. Petiole to 11 cm long, spiny; leaves urticating, ovate in outline, deeply incised-lobed about halfway to the midvein, the lobes acute and usually themselves toothed, to at least 25 × 25 cm, truncate to shallowly cordate at the base, the midrib beneath with scattered spines. Inflorescence an open axillary panicle. Flower minute, greenish. Infrequent, in disturbed areas, especially at the forest edge. Costa Rica to Venezuela and Peru.

VALERIANACEAE

Herbs, the roots with a characteristic odor. Leaves opposite, simple or compound, often much divided. Flowers bisexual or unisexual, regular; calyx scarcely evident; corolla tubular, 4-lobed, usually spurred or saccate; stamens 1-4, borne on the corolla tube; ovary inferior, 3-carpellate, but with only a single pendulous ovule. Fruit indehiscent, 1-seeded.

Astrephia chaerophylloides (J. D. Sm.) DC.

Plate 270-D

Succulent, hollow-stemmed weedy herb. Leaves pinnately compound with deeply divided leaflets, sometimes bicomponent with the primary leaflets parted to midrib. Inflorescence few-flowered. Flowers white, tubular, ca. 2 mm long. Infrequent, on the rocky beaches in the riverbed. Panama to Peru.

VERBENACEAE

Herbs, shrubs, vines or trees; stems or twigs often tetragonal. Leaves usually opposite or whorled, mostly simple, sometimes palmately compound, without stipules. Flower typically bisexual, zygomorphic or rarely regular; calyx usually 5-lobed; corolla usually 4-to 5-lobed, the lobes unequal; stamens 4 or 2, rarely 5; ovary superior. 2-carpellate, mostly 4-lobed, becoming 4-to 10-lobed through false partition, the placentation axile. Fruit a drupe, nutlet or capsule.

Key to the species.

1. Trees; leaves entire, more than 16 cm long.
 2. Cultivated; inflorescence open and paniculate. *Tectona grandis*
 2. Native; inflorescence narrowly racemose or fasciculate and sessile in leaf axils.
 3. Inflorescence fasciculate and sessile in the leaf axils *Aegiphila alba*
 3. Inflorescences compounded of several narrow racemes *Citharexylum gentryi*
1. Herbs or shrubs; leaves serrate, less than 16 cm long.
 4. Inflorescence capitate on a long peduncle; flowers orange. *Lantana camara*

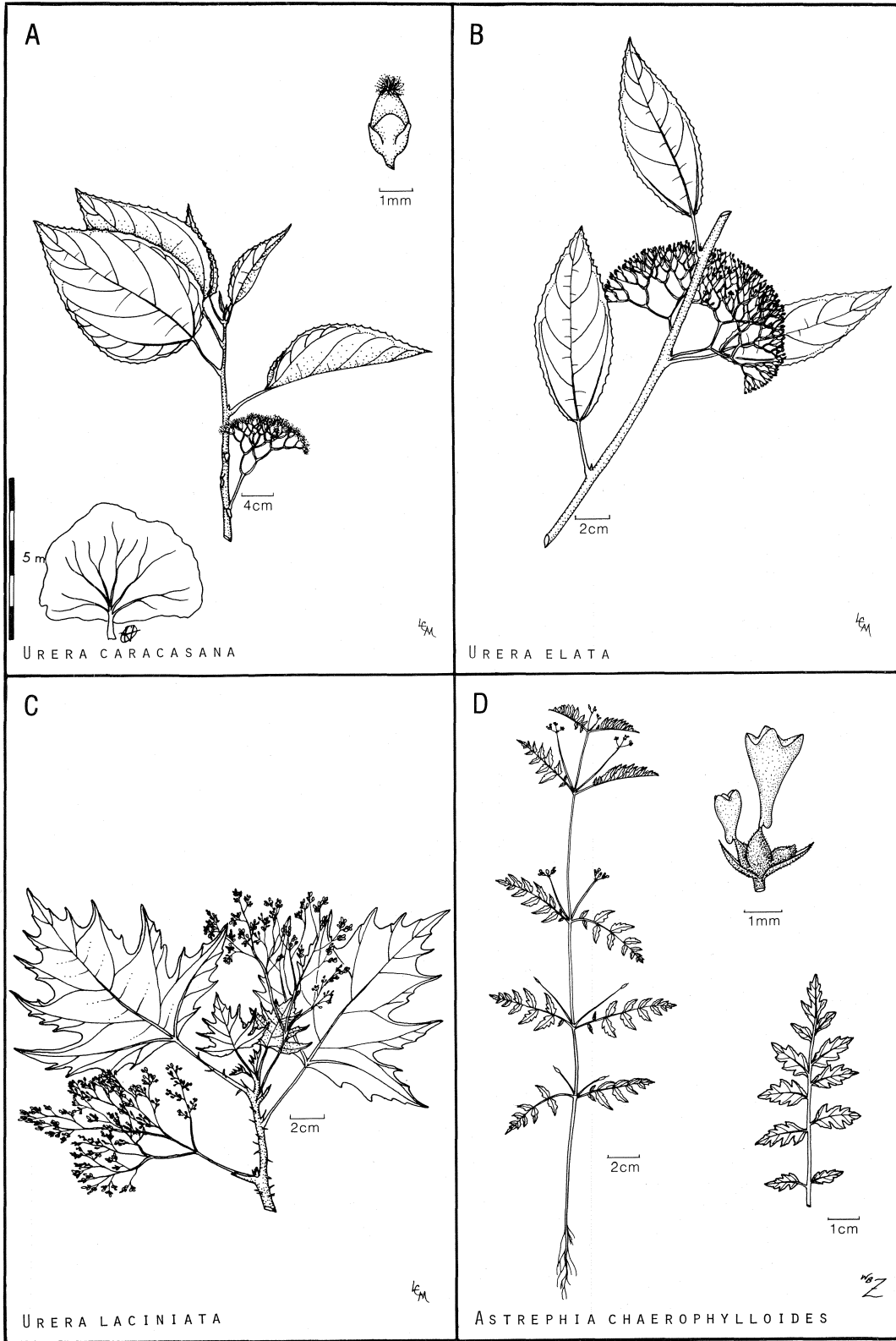


Plate 270

4. Inflorescence narrow and elongate; flowers pink to blue.
5. Inflorescence racemose, the flowers pedicellate; fruits round, covered with recurved trichomes *Priva lappulacea*
5. Inflorescence spicate or a panicle composed of spikes, the flowers sessile; fruits oblong to lanceolate, glabrous or with straight trichomes.
6. Spikes single; flowers and fruits appressed against the rachis, the fruits partially sunken into it. *Stachytarpheta cayennensis*
6. Spikes compounded into a panicle; flowers and fruits diverging from the rachis, the oblong fruits not at all immersed.
 *Verbena litoralis*

Aegiphila alba Moldenke

Plate 271-A

Tree 10-15 m tall. Leaves obovate, entire, obtuse at the apex, acute at the base, mostly 25-30 × 12-15 cm; petiole 3-4 cm long. Inflorescence fasciculate in the leaf axils. Flowers with the calyx campanulate, 3-5 mm long; corolla white, to 1 cm long including lobes; stigma long-exserted. Fruits globose, enclosed by the expanded calyx. Common, in disturbed forest. Endemic to Pacific Ecuador and Colombia.

Common name: "Lulu"+, "Margarita"

Citharexylum gentryi Moldenke

Plate 271-B

Slender midcanopy tree to 20 m tall. Leaves opposite on fertile branches, whorled on some sterile branches, entire, acute, more or less rounded at the base, to 18 × 10 cm, conspicuously and softly puberulous. Pedicels ca. 2 mm long. Flowers with calyx cupular, ca. 2 mm long; corolla white. Fruits ellipsoid, ca. 6 mm long, the fruiting calyx patelliform. Uncommon, in mature and disturbed forest. Endemic to Río Palenque.

Lantana camara L.

Plate 271-C

Herb or shrub to 3 m tall. Leaves ovate, acute to acuminate, serrate, to 16 × 9 cm. Inflorescence capitate at the end of a long axillary peduncle, bracteate. Flowers with the calyx 3 mm long; corolla orange, ca. 1 cm long. Fruit a fleshy black drupe. Infrequent, in disturbed areas. Pantropical.

Common name: "Cinco Negritos"

Priva lappulacea (L.) Pers.

Plate 271-D

Weedy herb to 0.7 m tall. Leaves ovate, serrate, acuminate, the base truncate, to 6 × 4 cm. Inflorescence racemose. Flowers with the calyx 2-3 mm long; corolla lavender or pink, ca. 4 mm long. Fruits globose-ovoid, 3-4 mm long, covered with recurved trichomes. Uncommon, weed in disturbed areas. Florida and Texas to Bolivia.

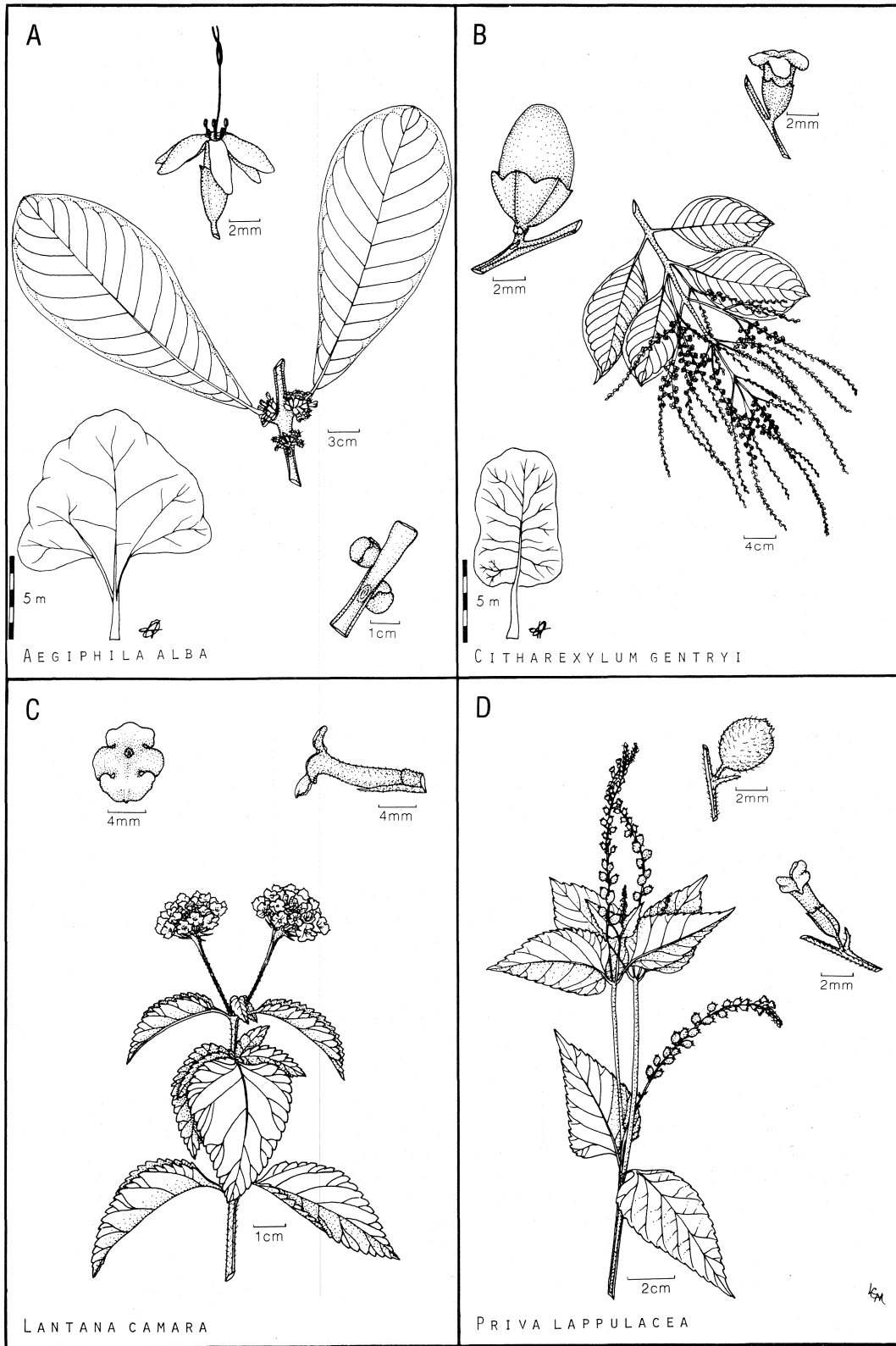


Plate 271

Stachytarpheta cayennensis (L. Rich.) Vahl

Plate 272-A

Herb to 1 m tall. Leaves rhombic, serrate, acute, attenuate to the base, to 8 × 3 mm. Inflorescence spicate, the spikes to 34 cm long. Flowers with the calyx ca. 4 mm long; corolla bluish purple, the tube ca. 4 mm long. Fruits lanceolate, half-immersed in depressions in the rachis. Infrequent, in disturbed areas. Mexico and West Indies to Argentina, becoming pantropical.

***Tectona grandis** L. f.

Plate 272-B

Tree to 30 m tall. Leaves elliptic, entire, acute, resinous punctate, 23-55 × 22-37 cm. Inflorescence a large open panicle. Flowers with the calyx 3-4 mm long; corolla white, the tube 1.5-3 mm long. Fruits subglobose, surrounded by an inflated calyx to 2.5 cm long. Cultivated along fence rows. Native to southeast Asia; widely cultivated.

Common name: "Teca"+, "Teak"

Verbena litoralis HBK

Plate 272-C

Weedy herb to 1 m tall. Leaves oblanceolate, serrate, acute to acuminate at the base and the apex, to 10 × 1.5 cm. Inflorescence a terminal panicle composed of numerous spikes. Flowers with the calyx 2-2.5 mm long; corolla blue, ca. 3 mm long. Fruits oblong, ca. 1.5 mm long. Infrequent, in disturbed areas. Southern United States to Argentina.

Common name: "Verbena"+

VIOLACEAE

Shrubs, herbs or trees. Leaves alternate or opposite, simple; stipules minute or leafy. Flowers bisexual, zygomorphic or regular; sepals 5, distinct; petals 5, the lowermost often spurred; stamens 5, closely held around the pistil; ovary superior, unilocular with 3 parietal placentae. Fruit a capsule or berry, usually 3-parted.

Key to the species.

1. Fruit indehiscent; inflorescence minute, almost fasciculate.
 *Gloeospermum sphaerocarpum*
1. Fruits dehiscent; inflorescence elongate, narrowly paniculate.
 *Rinorea cf. roureoides*

Gloeospermum sphaerocarpum Tr. & Pl.

Plate 272-D

Shrub or small tree to 8 m tall. Leaves alternate, acute at the base and the apex, remotely serrate, 4-12 × 1-4 cm wide; stipules early caducous. Inflorescence reduced, axillary, few-flowered, the white, bell-shaped flowers appearing almost fasciculate. Fruit globose, yellow. Infrequent, in mature forest. This is presumably *G. portobellensis* A. Robyns, known only from Panama, but that species seems inadequately separated from *G. sphaerocarpum* which ranges from Colombia to Peru and Brazil.

Common name: "Guayabito"+

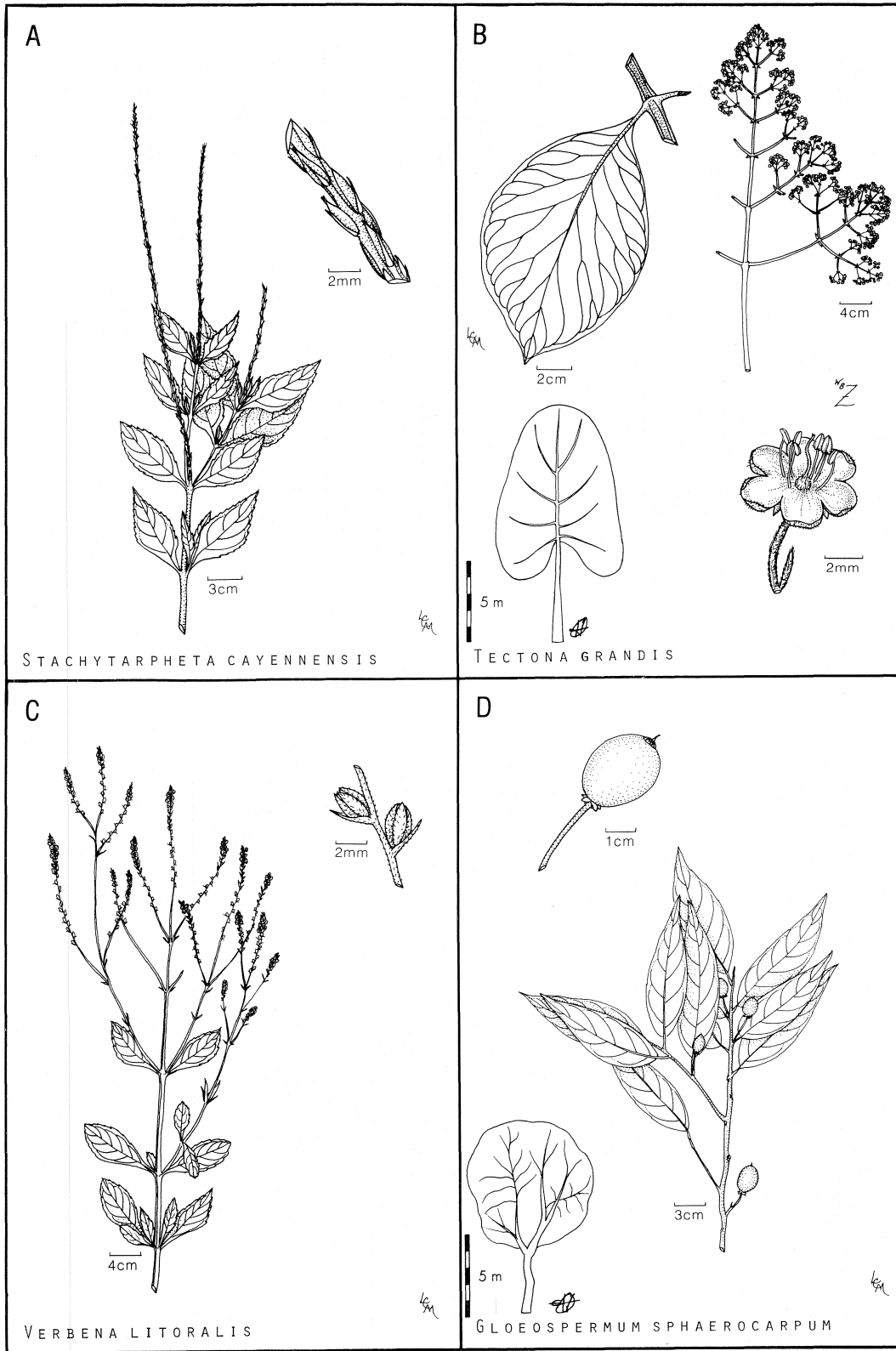


Plate 272

Rinorea cf. roureoides Woodson

Plate 273-A

Midcanopy tree to 15 m tall. Leaves alternate, elliptic, acute to acuminate, obtuse at the base, the margin serrulate, to 16 × 7 cm. Inflorescence very narrowly paniculate, elongate, axillary. Flowers small, whitish. Fruit (immature) more or less 3-lobed, ca. 6 mm long. Rare, in mature forest. The Río Palenque plant is probably an undescribed species (Fernandez-Perez, pers. comm.) related to *R. roureoides*, otherwise known from Panama, by its paniculate inflorescence.

VITACEAE

Climbing shrubs or vines with tendrils, the nodes often swollen or jointed. Leaves alternate, simple or pinnately or palmately compound; stipules petiolar or none. Inflorescences opposite a leaf; flowers minute, bisexual or unisexual, regular, sepals 4-5; petals the same number as the sepals, minute or obsolete, flat, distinct or apically joined and dehiscent as a cap; disc evident; stamens as many as the petals and opposite them, arising from the base of the disc; ovary superior and usually 2-loculed, the placentation axile. Fruit a berry.

Key to the species.

1. Leaves 3-foliolate; flowers red. *Cissus microcarpa*
1. Leaves simple, undivided; flowers greenish.
 2. Leaves narrowly elliptic, acute at the base; petiole ca. 1 cm long *Cissus brevipes*
 2. Leaves ovate to oblong-ovate, truncate or cordate at the base; petiole more than 1 cm long.
 3. Inflorescence appressed-pubescent, open, ca. 8 cm long *Cissus biformifolia*
 3. Inflorescence glabrate (trichomes erect when present), relatively dense, 3-4 cm long. *Cissus pseudosicyoides*

Cissus biformifolia Standl.

Plate 273-B

Vine. Lower leaves broadly ovate, obtuse to apiculate, deeply cordate, to 30 × 23 cm, upper leaves smaller, truncate at the base; petiole 4-12 cm long. Inflorescence an axillary umbellately-branched panicle, appressed puberulous. Flowers minute, greenish. Fruit ellipsoid, turning black, ca. 1 cm long. Common, at the forest edge. Previously known from Belize to Panama. This is the first report for Ecuador. The Río Palenque material has a much more open inflorescence than typical *C. biformifolia*, but this same form is included under this species in Panama.

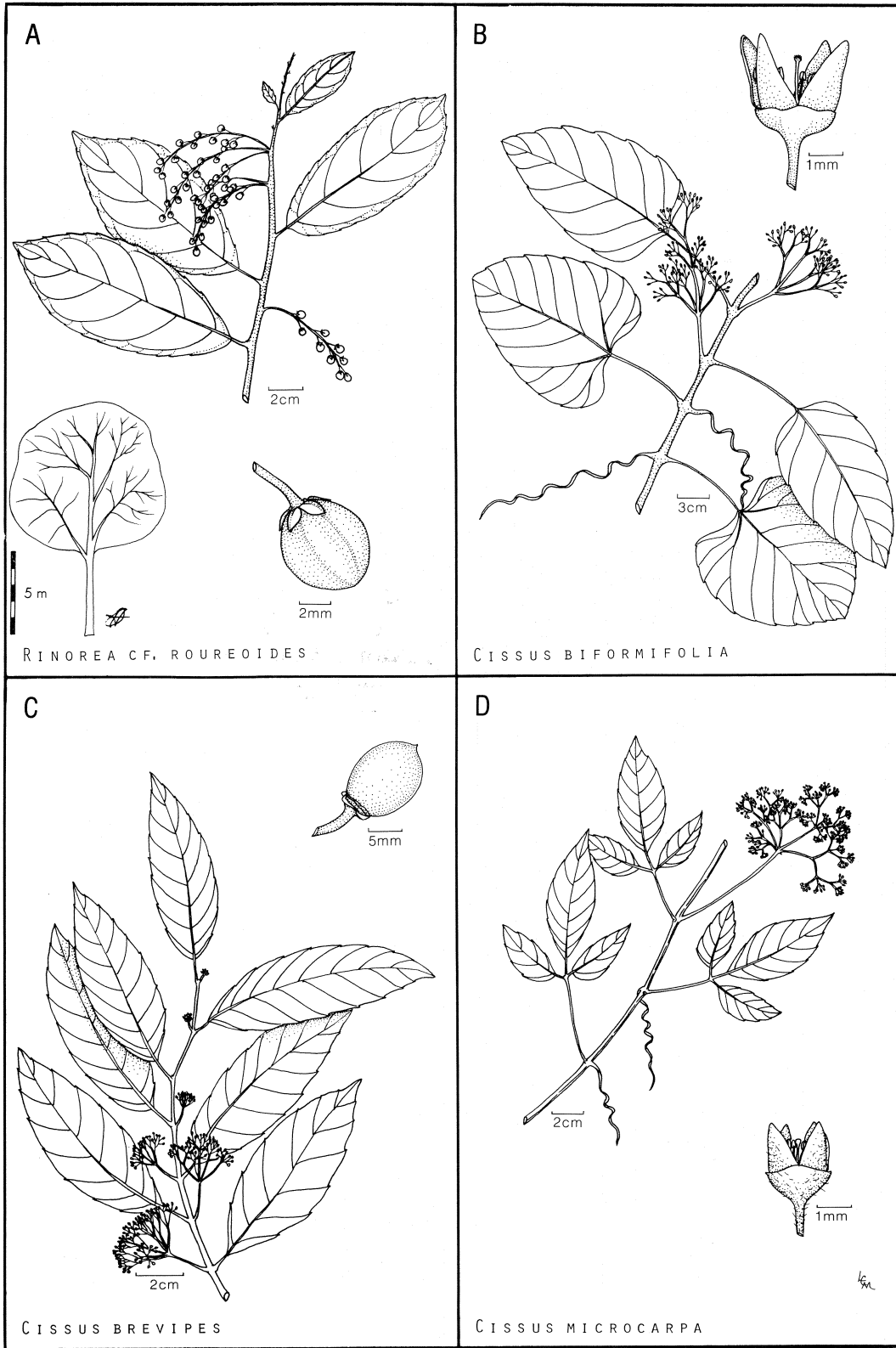


Plate 273

Cissus brevipes Morton & Standl.

Plate 273-C

Vine. Leaves narrowly elliptic, acute to acuminate, the base acute, to 12 × 6 cm; petiole to 1 cm long. Inflorescence cymose-umbellate, appressed puberulous to glabrate. Flowers minute, greenish. Fruit globose, turning black, ca. 8 mm in diameter. Uncommon, at the forest edge. Previously known only from Costa Rica and Panama, this is the first South American record.

Cissus microcarpa Vahl

Plate 273-D

Vine. Leaves 3-foliolate; leaflets to 10 × 6 cm; petiole 1.5-6 cm long. Inflorescence cymose-umbellate, glabrate. Flowers minute, reddish. Fruit subglobose, 6-8 mm in diameter. Uncommon, at the forest edge. Mexico and the West Indies to Bolivia.

Cissus pseudosicyoides Croat

Plate 274-A

Vine. Leaves ovate or oblong-ovate, to 13 × 10 cm, obtuse, the base more or less truncate, sometimes cordate in older leaves; petiole 2-7 cm. Inflorescence axillary, cymose-umbellate, glabrate, puberulous with erect trichomes when young. Flowers minute, greenish. Fruit subglobose, ca. 6 mm in diameter. Infrequent, at the forest edge. Previously known from Mexico to Venezuela, this is the first report for Ecuador but the species also occurs in Amazonian Ecuador. The Río Palenque plant is intermediate between this species and widespread *C. sicyoides* L., resembling the latter in lacking T-shaped trichomes, glabrous pedicels and the midvein flattening when dried.

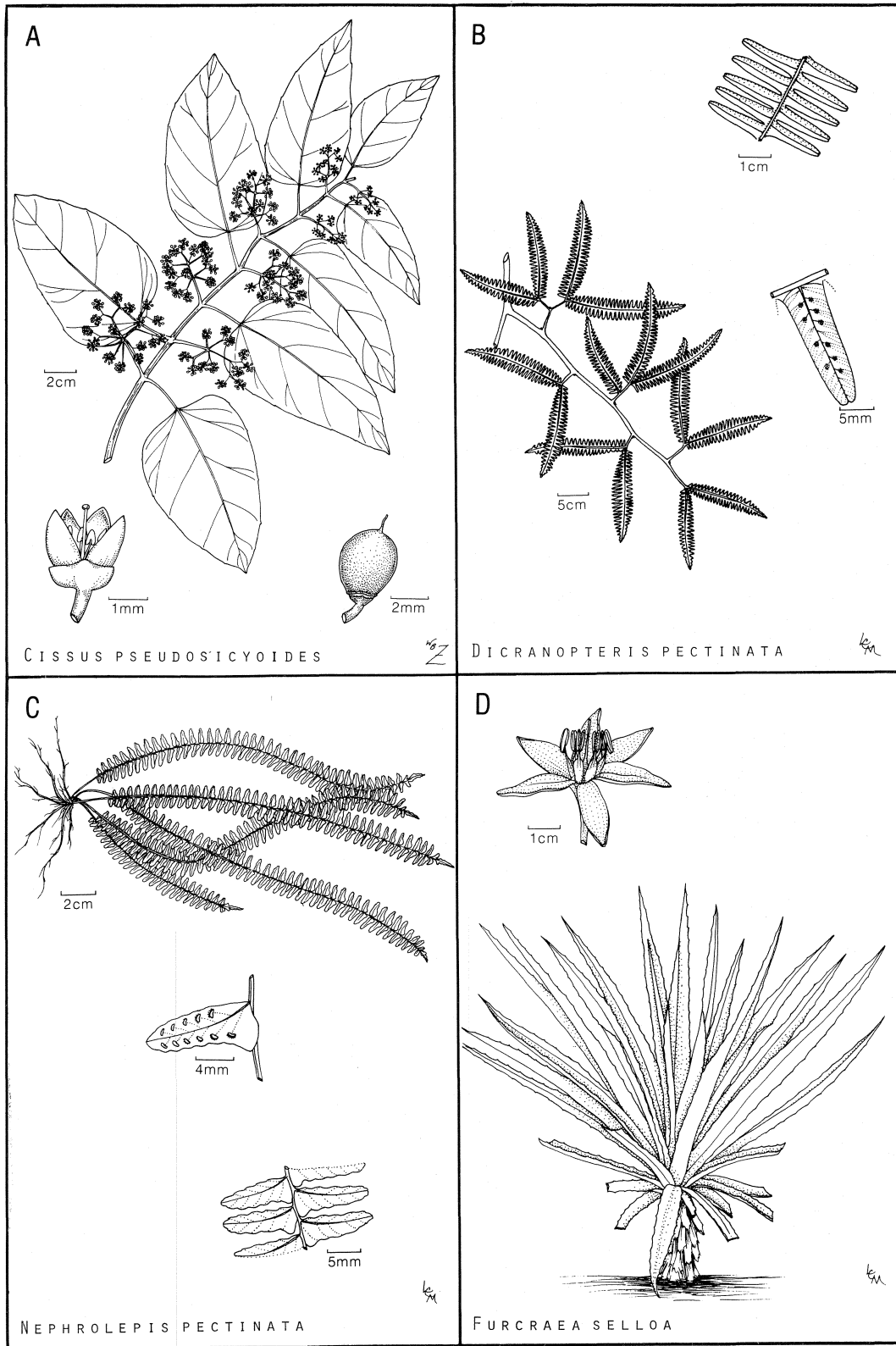


Plate 274

ADDENDUM

Several species were collected or identified after the main body of the text was set. In some cases it was possible to fit them in the text, but the illustrations are included here. Ten species could not be accommodated and are therefore placed here.

FERNS

Dicranopteris pectinata (Willd.) Underw.

Plate 274-B

Terrestrial plant with branched creeping rhizomes. Leaves reclining, somewhat vine-like, of indefinite growth, several times dichotomously branched, ultimate branches in pairs, deeply incised to form leaflets; each leaflet to 3 × 0.5 cm. Sori round, in a single row in each side of the midvein. Uncommon, on cliffs above the river. Widely distributed in tropical America.

Fits in the key to the Ferns at couplet 70, but differs from *Ctenitis subincisa* by the extensive dichotomous branching of the leaf.

AGAVACEAE

Plants usually with woody, erect stems. Leaves basal or in rosettes at the apex of the stem, thick, fibrous, with or without marginal prickles. Flowers bisexual, regular, trimerous; stamens 6; pistil 3-carpellate, ovary inferior or superior, 3-locular. Fruit a capsule or a berry.

Furcraea selloa C. Koch

Plate 274-D

Stem woody, erect, to 3 m tall. Leaves in a massive rosette, succulent, thick, margins with prickles and the apex with a spine, to 1.5 m long. Inflorescence to 10 m tall. Flowers in dense panicles on the branches, yellow-green. Cultivated near homesites. Widespread in tropical America.

AMARYLLIDACEAE

Crinum amabile Donn ex Ker-Gawl.

Plate 275-A

Bulbous plant with columnar apex to 60 cm tall. Leaves in a rosette, blade broadly linear, to 1.5 m long, 8 cm wide. Inflorescence to 1.20 m long. Flowers clustered at the top of the scape; backs of segments wine-red, front white, to 20 cm long. A large colony of 30 or more plants occurs on Arana Island. They were probably established by being washed down river during a flood.

Differs from *Urceolina grandiflora* by its linear leaves.

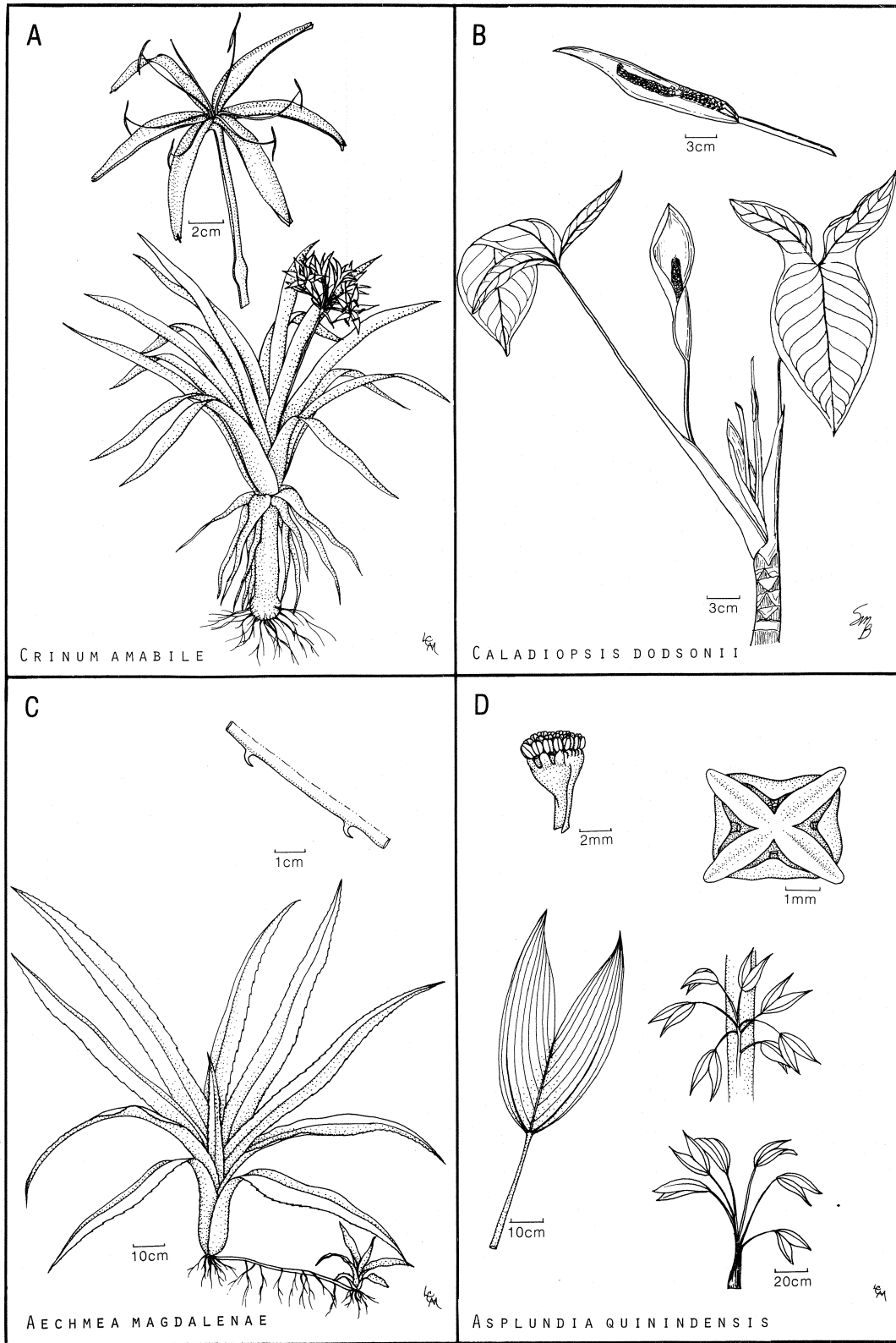


Plate 275

BROMELIACEAE

Aechmea magdalenae André ex Baker

Plate 275-C

Very large terrestrial plant. Leaves with sharp, hooked spines on the margins, to 2.5 m long, 12 cm wide. Inflorescence not seen at Río Palenque. Local and uncommon, in lowland mature forest at Hacienda Cerecita. Southern Mexico to Ecuador. The identification is tentative since the plants have not been collected in fertile condition.

Common name: "Pita Floja"

GRAMINAE

**Cymbopogon citratus* (DC.) Staph.

Plate 276-C

Perennial grass forming a low hummock to 70 cm tall. Leaves linear, 50-70 × 1.5-2 cm, glaucous-green. Inflorescence rarely produced, compound, composed of small awnless or obscurely awned racemes. Cultivated around homesites. Native to Asia. All parts of the plant smell strongly of lemon.

Common name: "Hierba Luisa"+, "Limoncillo", "Lemon Grass"

**Oriza sativa* L.

Plate 276-D

Erect grass to 90 cm tall. Leaves linear, 50-60 × 2-3 cm. Inflorescence a large many-flowered panicle; spikelets short-awned, perfect, laterally compressed; glumes minute; lemma awned. Cultivated in ponds and fields, sometimes escaped. Native to Asia.

Common name: "Arroz"+, "Rice"

**Stenotaphrum secundatum* (Walt.) Kuntze

Plate 277-A

Creeping, stoloniferous perennial. Leaves linear, distichous, to 15 × 1 cm, sheaths flattened. Spikelets embedded in two alternating rows on one side of a thickened, compressed rachis, falling with disarticulating joints; inflorescence to 10 cm long, terminal or axillary on the shoot. Cultivated as lawn grass. Widespread in the western hemisphere.

Common name: "Paja San Augustin"+, "St. Augustine"

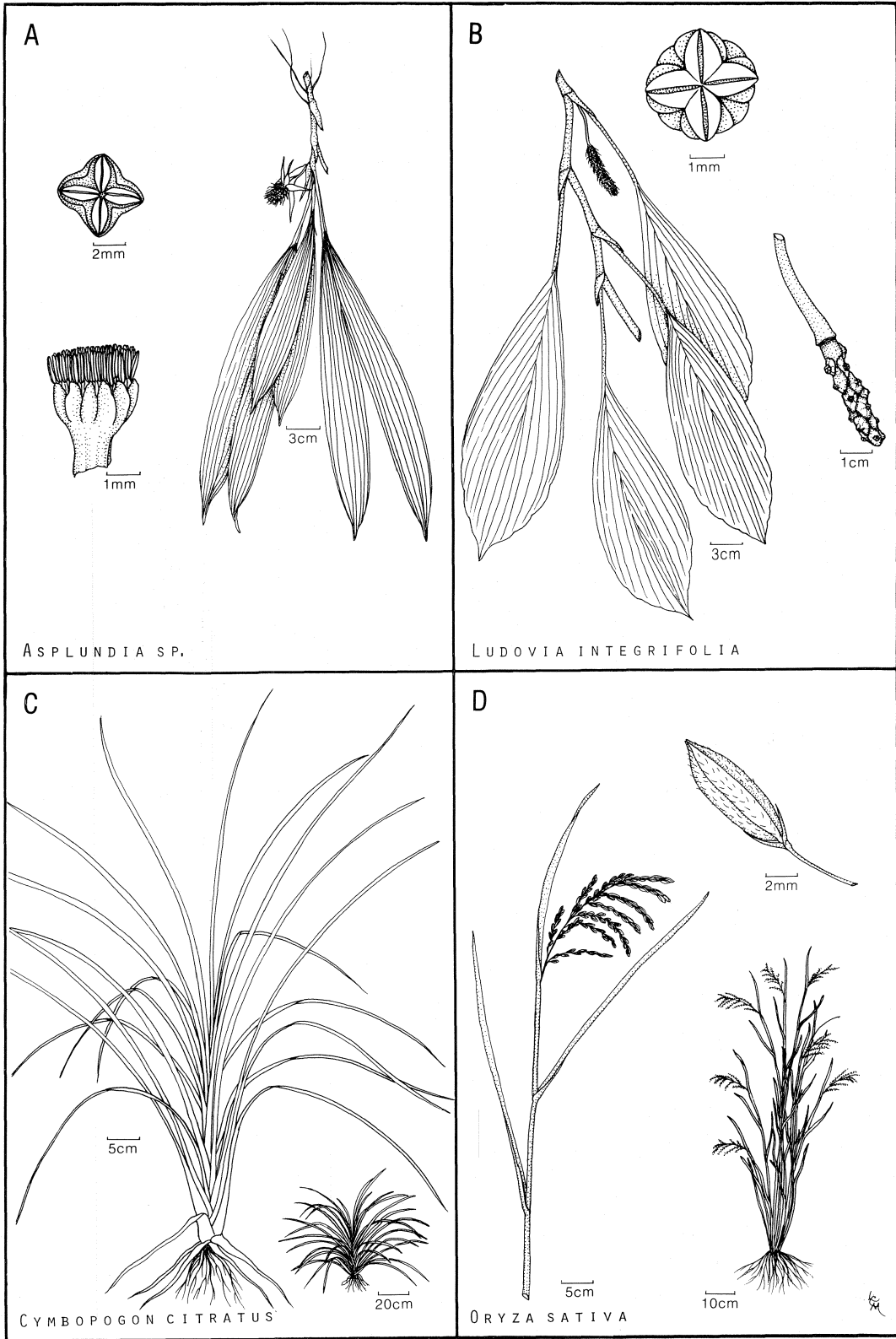


Plate 276

GESNERIACEAE

Chrysothemis friedrichsthaliana (Hanst.) H.E. Moore Plate 278-B

Herbaceous terrestrial to 50 cm tall produced from a large fleshy corm. Stems succulent, glabrous. Leaves opposite, equal, ovate, broadly crenate, to 15 × 10 cm; petiole to 6 cm long. Inflorescences apical; calyx green; corolla orange-yellow with red spots on the limb. Escaped around homesites. Northern South America.

PIPERACEAE

Peperomia aff. tamayoi Trel. & Yunck. Plate 278-C

Small, terrestrial, stoloniferous plants forming rosettes. Stems terete, very short. Leaves alternate, broadly ovate, cordate at the base, sparsely pubescent, punctate, to 7 × 4 cm; petiole to 8 cm long. Inflorescences to 10 cm long by 3 mm thick, prostrate along the ground, green. Local and uncommon along the trail to the generator. Venezuela and Ecuador, but identification is tentative.

Peperomia velutina Linden & André Plate 278-D

Terrestrial or epiphytic plants. Stems erect, red, to 25 cm tall. Leaves alternate, rhombic-ovate, nearly glabrous, to 8 × 4 cm, dark green above with light green veins, red on the underside; 3 veins, palmate from the base, with 2 veins about ½ way to the apex; petiole to 1 cm long. Inflorescences unbranched, from the apex of the stem and axillary, to 8 cm long. Originally from nearby hills, now escaped around the Science building. Western Ecuador.

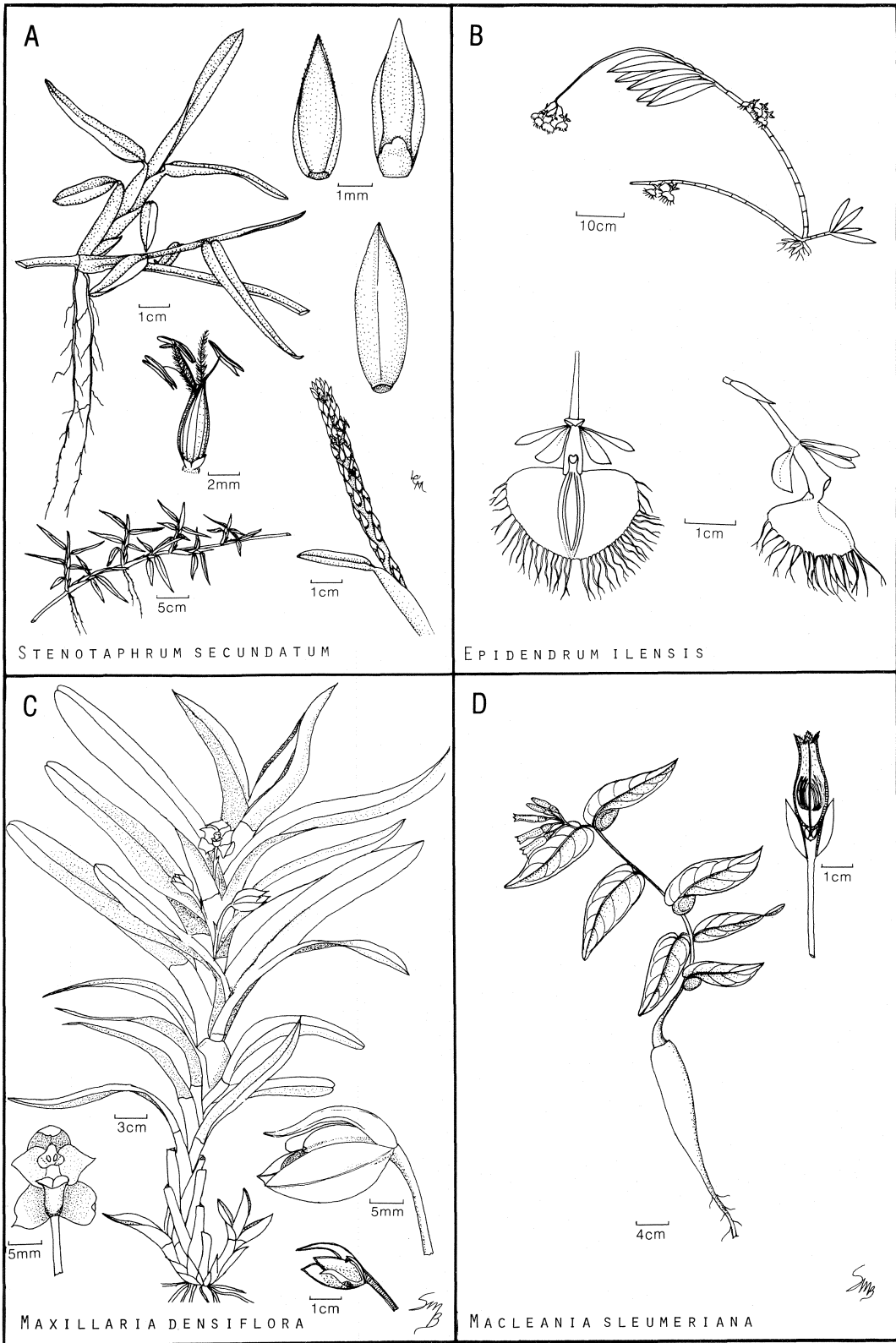
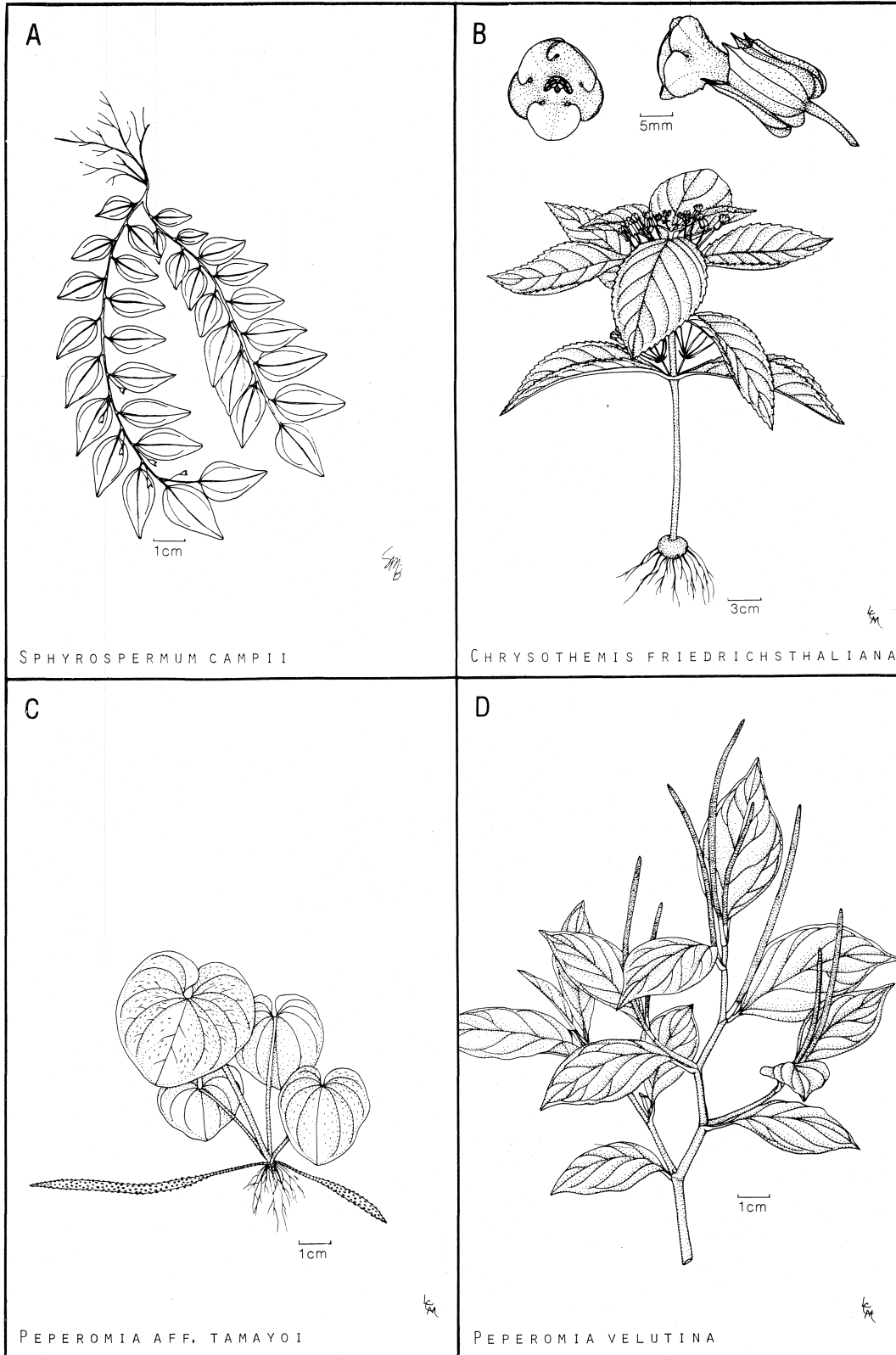


Plate 277



SPHYROSPERMUM CAMPII

CHRYSOthemis FRIEDRICHSTHALIANA

PEPEROMIA AFF. TAMAYOI

PEPEROMIA VELUTINA