

First published on the Flora Mesoamericana Website, 31 Dec. 2011.

Last major revision Mar. 2003, still incomplete and under further revision (Dec. 2011).

## 142. PASSIFLORACEAE

Family description and key to genera by J.M. MacDougal

Woody or herbaceous perennial (rarely annual) tendril-climbing vines, or shrubs or trees without tendrils, occasionally with anomalous secondary growth, hermaphroditic, functionally andromonoecious, sequentially monoecious, or rarely dioecious. Cyclopentenoid cyanogenic. Leaves alternate, simple (compound), pinnately to often palmately veined, unlobed or palmately lobed, entire or serrate, often bearing extrafloral nectary glands, especially on the petiole; stipules setaceous to foliaceous, persistent or often deciduous; accessory bud distal to primary axillary bud, the primary axillary bud often developing into an inflorescence or tendril. Inflorescences axillary, fundamentally cymose, part of the inflorescence often developed into a tendril; bracts setaceous to foliaceous (absent). Flowers bisexual (unisexual), basically actinomorphic; sepals (3-)5(-8), quincuncial; petals as many as sepals (or absent); perianth sometimes connate basally into a floral tube; corona usually present at base of perianth as 1-many series of filaments or outgrowths, sometimes membranous; extrastaminal disk of staminodal origin usually present, often nectariferous; stamens (4)5-many, usually alternate with the petals, borne on hypanthium or on androgynophore, sometimes the filaments connate into a tube around the ovary; pollen binucleate, 3-12-colporate; carpels (2)3(-5), ovary unilocular, superior, (sessile) borne on short gynophore to elongate androgynophore, placentation parietal, ovules mostly anatropous; styles distinct, connate at the base (rarely united to apex), the stigmas capitate, clavate, or reniform. Fruits capsules or berries. Seeds few to many, arillate, usually compressed, the testa nearly always pitted, reticulate, or grooved; endosperm oily, abundant; embryo straight.

See MacDougal 1994 *Syst. Bot. Monogr.* 41 for definitions of peduncles, pedicels, floral stipe and more.

DEFAULTS: UNLESS NOTED IN SPECIES DESCRIPTIONS,

Stems dry more sulcate & striate than in living material-terete often dries sulcate/striate!

Secondary growth, usually present, is normal.

Stipules persistent, greenish, entire, eglandular.

Leaves described from reproductive nodes; immediately prereproductive nodes usually have larger leaves; juveniles have smaller leaves, sometimes of different shape.

Length of leaves is measured along central vein, even if that is shorter than outline of leaf.

Laminar Width/Length ratios also use this measurement.

"Laminar lobe angle" used in text to mean the angle between the primary veins of the lateral lobes.

Variation - many small flowered or bilobed species have variegated juveniles, but not adults

Leaves Palmately lobed if lobed.(put in genus..?)

Lamina shapes are general outline

Leaves not peltate. Laminar nectaries marginal or abaxial.

Tendrils without adhesive disks, & are unbranched (simple).

Peduncle or pedicel length does not include floral stipe length.

Bracts 3, free to the base, entire, without nectaries

Length of sepal does not include subapical projection, if any.

Sepal color given for adaxial surface unless specified.

Corona color is for outer or longest corona, or impression as a whole

Inner coronal filaments not conspicuously capitate

Length of the coronal filaments refers to free portions if basal portions are connate or adnate.

Fruit c. terete, indehiscent.

Fruit length measurement always includes length of fruit stipe, if any.

Arils whitish to pale yellow, often translucent, except as noted.

Seeds: Brown to black, no. of foveae/sulcae refers to no. per side

Floral stipe: considered to be without stipe if stipe is less than 1 mm

Floral stipe: given separately for fruit only if known to be significantly larger/different

Sepals considered to be without projection if cornus/awn/ keel is apical and less than 0.5-1 mm

"Corona" refers to the filamentous series. "Operculum," is used for that the innermost coronal series that functions to protect the nectar...

Fruits: many purplish black fruits may be covered with glaucous wax, thus the appearing bluish.

1. Perianth and androecium 4-merous; gynoecium 4-merous; androgynophore absent or to 4 mm; petioles eglandular; laminas unlobed, glabrous, eglandular; stipules minutely setaceous on youngest growth, 1(-2) mm or less, early caducous; woody liana. **1. Dilkea**

1. Perianth and androecium 5-merous; gynoecium 3-merous (rarely 4-merous); androgynophore (absent) 4-100 mm; petioles 2-12-glandular or eglandular; laminas unlobed or 2-7-lobed, glabrous or pubescent, often glandular; stipules setaceous to foliaceous; herbaceous climber to woody liana or small tree. **2. Passiflora**

### 1. *Dilkea* Mast.

Perennial woody lianas, shrubs, or small trees?, glabrous. Stem terete. Stipules minute, less than 2 mm long on youngest growth, early caducous. Petioles 2-glandular or usually eglandular. Laminas simple, unlobed, c. obovate or oblanceolate to elliptic (ovate), entire, not variegated, pinnately veined, laminar nectaries absent. Tendrils present at some stages in some (all?) species, axillary, (simple? or) apically 3-fid. Peduncles axillary, very short, apparently uniflorous, solitary on young growth or usually clumped on very condensed leafless axillary short-shoots on woody stems; bracts triangular to subulate, less than 3 mm, free. Flowers bisexual, white, funnelform, floral stipe longer than peduncle, the perianth connate basally into a short floral tube; sepals 4, with no projection; petals 4; corona 2-seriate, the outer series filamentous, 1-3 cm, free, the inner series connate and membranous basally, tubular, apically filamentous and adaxially pubescent to floccose or plumose; androgynophore absent or to 4 mm; disk absent; stamens 8, anthers dorsifixed, versatile; gynoecium 4-merous, borne on a short gynophore, styles united in basal half. Fruit 4-carpellate, indehiscent, globose to ovoid, terete, glabrous, pericarp thick-coriaceous; arils colorless or whitish; seeds large, few, bean-like, oblong, not strongly compressed, brown, smooth to obscurely finely pustulate-rugose. c. 7-10 spp. C. Panama to Amazonian Basin and SE. Brasil.

Literature: Masters, M.T. *Trans. Linn. Soc. London* 27: 627-628 (1871). Killip, E.P. *Publ. Field Mus. Nat. Hist., Bot. Ser.* 19 (1938). Holm-Nielsen, L.B., et al. *Flora of Ecuador* 31 (1988). Tillett, S.S. in *Flora of the Venezuelan Guyana* 7: 628-630.

**1. *Dilkea acuminata*** Mast., *Trans. Linn. Soc. London* 27: 628 (1871). Holotype: Brasil, *Spruce 1320-3* (K).

Shrub 2-3 m, or woody liana 5 m or to canopy, glabrous throughout. Stipules minute, less than 1.5 mm long, caducous on youngest growth; petioles eglandular; laminae 10-25 × (3-)4-8 cm, entire, unlobed, oblanceolate, abruptly acuminate to abruptly acute (obtuse), coriaceous. Tendrils present (only?) on young plants, often shortly distally 3-fid. Plants often cauliflorous, the inflorescence a compact condensed leafless axillary short-shoot. Peduncles 1-3.5 mm, uniflorous; bracts 1-2 mm, triangular to linear-subulate. Flowers white, the corona white; stipe 6-10 mm; sepals c. 25-30 mm, glabrous or with a few trichomes apically; petals c. 25-30 mm; outer corona c. 20 mm long, inner corona c. 10-15 mm; androgynophore c. 1-2 mm; ovary glabrous, styles united basally. Fruit 3.5-4 cm diam., c. globose to ovoid, pale to light yellow to yellowish orange, with conical stipe 5-10 mm, the apex sometimes also conical or with a “nipple;” arils white-translucent, fleshy to mucilaginous; seeds 15-18 × 10-11 mm, finely pustulate to c. smooth, brown, bean-like. *Bosque primario húmedo o pluvial tropical, o premontaño*. P (McPherson 12512, MO). (100-)300-500 m. (Mesoamerica to S. America.)

*Dilkea* is a little-collected and poorly understood genus, and there are probably a number of undescribed species in South America. Ours is assigned to *D. acuminata* with some reservation. The growth habit is probably usually a canopy liana, with the shrubby form perhaps a result of regrowth after cutting, as in *Passiflora pittieri*. Tillett (2003) notes that the petioles of *Dilkea* rarely can have 1 or 2 scar like glands near their apex, but that has not been seen in Mesoamerica. In Panama, a documented visitor to the flowers of *Dilkea* is *Exaerete frontalis*.

## **2. *Passiflora*** L., nom. cons. N.v.: granadilla, flor de pasión

Woody or herbaceous perennial (rarely annual) tendril-climbing vines or lianas, rarely shrubs or small trees. Leaves simple (compound), often heteroblastic, unlobed or palmately lobed, entire or serrate, often bearing extrafloral nectaries on the petiole and/or lamina; stipules setaceous to foliaceous, entire, serrate, or cleft; tendrils axillary, simple or rarely 3-5-parted. Inflorescences axillary, cymose, the central pedicel developed into a tendril, usually the peduncle greatly reduced or lost, the pedicels (called peduncles here) then arising colateral to the tendril, paired or

solitary, inflorescences often reduced to a single flower per peduncle; secondary inflorescences sometimes present as condensed axillary or terminal shoots; pedicels articulate distal to the bracts, that distal portion called the floral stipe; bracts setaceous and scattered to foliaceous or pinnatifid and forming an involucre below the flower, or rarely bracts absent. Flowers bisexual (sometimes female-sterile), actinomorphic (or the reproductive parts c. zygomorphic); hypanthium flattish to campanulate, the perianth sometimes connate/adnate basally into a more or less conspicuous floral tube; sepals 5, quinquencial; petals 5 or absent; corona 1-many series of often showy, perfumed filaments, the innermost series usually connate and membranous, shielding the nectar chamber, and called the operculum; extrastaminal nectariferous disk ("limen") present as ring or cup around base of androgynophore or ovary; stamens 5(-8), borne on an elongate androgynophore (or rarely the androgynophore absent); carpels 3(-4); stigmas 3(-4); ovary borne on androgynophore (rarely sessile). Fruits few-many seeded berries (rarely dehiscent capsules or capsule-like berries). Seeds arillate, usually dark, compressed, punctate-reticulate or transversely sulcate. Germination epigeal (hypogeal).

Bibliography: Armour, R.P. *Check list of plants growing at Lancetilla Experiment Station*. La Lima, Honduras: Research Department, Tela Railroad Company (1950); Calderón, S. *Passifloras dilobatas de El Salvador. Datos para la botánica médica de El Salvador*. Escuela de Medicina, Química, y Farmacia, San Salvador (s.d. [1915-1936]); Cervi, A.C. [*Passifloraceae*/subg. *Passiflora* of Brazil], *Fontqueria* 45: xxx-xxx (1997); D'Arcy, W. *Flora of Panama: checklist and index. Monogr. Syst. Bot. Missouri Bot. Gard.* 17, 18 (1987); Deginani, N.B. *Las especies Argentinas del género Passiflora (Passifloraceae)*, *Darwiniana* 39(1-2): 43-129 (2001). Gentry, A. *Additional Panamanian Passifloraceae. Ann. Missouri Bot. Gard.* 63: 341-345 (1976); Hansen, A.K. [*thesis title?*]. Ph.D. dissertation, Univ. Texas Austin (2003); Hernández, A. & R. Bernal, *Lista de especies de Passifloraceae de Colombia*, *Biota Colombiana* 1(3): 320-355 (2000). Holm-Nielsen, L.B., et al. 126. *Passifloraceae. Flora of Ecuador* 31, eds. G. Harling & L. Andersson (1988); Killip, E.P. *Botany of the Maya area. Publ. Carnegie Inst. Wash.* 461: 299-328 (1936); ---. *The American species of Passifloraceae. Publ. Field Mus. Nat. Hist., Bot. Ser.* 19: 1-613 (1938); MacDougal, J. *Revision of Passiflora subgenus Decaloba section Pseudodysosmia. Syst. Bot. Monogr.* 41: 1-146 (1994). Masters, M.T. (1871) *Contributions to the natural history of the Passifloraceae. Trans. Linn. Soc. London* 27: 593-645 (1871); ---. *Passifloraceae. Pt. 1 in Fl. Bras.* 13, ed. Martius (1872); ---. *A classified synonymic list of all the*

species of *Passifloreae* cultivated in European gardens, with references to the works in which they figured. *J. Roy. Hort. Soc.* n.s. 4:125-149 (1877); Molina R., A. Passifloraceae. P. 79 In *Enumeración de las plantas de Honduras. Ceiba* 19(1) (1975); Petit-Thouars, M.A. du. *Comparaison spécifique du Passiflora mauritiana avec les Passiflora alata et quadrangularis. Ann. Mus. Natl. Hist. Nat.* 6: 457-462, pl. 65 (1805); Porter-Utley, K. *Revision of section Cieca* (Passifloraceae) [Schk\$]. Ph.D. dissertation, Univ. of Florida Gainesville (2003); Skutch, A.F. Scarlet passionflower. *Nat. Mag.* 45: 523-525, 550 (1952); Snow, A.A. Pollination intensity and potential seed set in *Passiflora vitifolia*. *Oecologia (Berl.)* 55: 231-237 (1982); Sowerby, J. Account of the difference of structure in the flowers of six species of *Passiflora*. *Trans. Linn. Soc. London* 2: 19-28 (1794); Standley, P.C. Passifloraceae. In *Flora of the Lancetilla Valley. Publ. Field Mus. Nat. Hist., Bot. Ser.* 10: 292-293 (1931); Tillett, S. *Passionis passifloris*, II. Terminología. *Ernstia* 48: 1-40 (1988); ---. Passifloraceae. In *Flora of the Venezuelan Guyana* 7: 625-667.

**Note: 13Mar2003. Key needs to be completely checked, new species added, new measurements added.**

1. Bracts (1.2-)1.5-4.5 cm, profoundly 2-3-pinnatisect, the segments **gland-tipped** and linear-triangular to filiform; stipules deeply cleft nearly to base into elongate gland-tipped segments (rarely reduced to a few gland-tipped elongate teeth); leaves simple, never peltate, unlobed to 3-5-lobed, never 2-lobed, the central vein always longest. .... **Key 1**
1. Bracts absent or 0.08-8.5 cm, setaceous to foliaceous, entire to glandular-serrate (or fimbriate/setiferous in 2 species), but not 2-3-pinnatisect with gland-tipped segments; stipules setaceous to foliaceous, entire to serrate or glandular-serrate, but if margin fimbriate or with filiform segments, then leaves peltate or compound; leaves simple (rarely compound), in a few species peltate, unlobed or 2-7-lobed, the central vein longer or shorter than the lateral veins.
  2. **Petiole nectaries present** as (1)2 or more sessile or stipitate glands, (usually conspicuous, but in species 1-4 borne abaxially on the sides of the

laminar midvein at or just distal to the junction with the petiole).

.....

**Key 2**

2. **Petiole nectaries absent.** ..... **Key 3**

**KEY 1**

1. Stem glabrous. ...to 2

2. Leaves completely glabrous, or with a few gland-tipped cilia on leaf margin and petiole, or sometimes glabrous adaxially and glandular-pubescent on abaxial surface; fruits red. .... **77. P. ciliata**

2. Leaves with both surfaces at least slightly pubescent; fruits yellow, orange, light green to yellowish green, or red. .... **78. P. foetida**

1. Stem pubescent. ...to 3

3. Androgynophore more than 15 mm; petals bright pink or magenta; fruit red (Yucatán). .... **79. P. sublanceolata**

3. Androgynophore 5-8 mm; petals white, light pink, light purplish (rarely purplish blue); fruit red, yellow, orange, or light green to yellowish green (widespread).

...to 4

4. Leaf unlobed or obscurely 3-lobed (to shallowly 3-lobed and subhastate), very densely short-pubescent (but never glandular-pubescent) on both surfaces, the lateral lobes if present rounded to obsolete, never with a sharp final apex; stem densely short-pubescent; petioles with the glandular trichomes hidden under dense short tomentum; petals light pink to purplish blue; fruits red; (Belize). .... **80. P. urbaniana**

4. Leaf obscurely to deeply 3-5-lobed, pubescence various (often glandular-pubescent), the lateral lobes abruptly acute to rounded, the final apex sharp or not; stem short-pubescent to sparsely long-pilose, sometimes of mixed types of trichomes; petioles usually with the glandular trichomes visible; petals white to light pink or light purplish; fruits yellow, orange, light green to yellowish green, or red; (widespread).

..... **78. P. foetida**

**KEY 2**

1. Petals absent; sepals 5-15(-22) mm; petiolar nectaries 2; bracts absent or to 0.025(-0.05) cm; leaf margins entire. ...to 2

2. Nectaries borne on the basal 1/4 of the petiole; peduncle 1 per node; bracts present; leaves not peltate, the lobe apices rounded; fruit red; arils red to orange.  
..... **23. P. gracilis**

2. Nectaries borne distal to the basal 1/4 of the petiole; peduncles 2(1) per node; bracts absent or present; leaves peltate or not, the lobe apices acuminate to acute, rarely rounded; fruit purplish-black; arils whitish, translucent. ...to 3

3. Stipules (2.5-)3.5-8 mm wide; leaves not peltate; (Guatemala).  
..... **15. P. trinifolia**

3. Stipules less than 1.5 mm wide; leaves peltate or not. ...to 4

4. Leaves (as long as wide) longer than wide, not peltate.  
..... **10. P. suberosa, 11. P. pallida**

**[\$add obtusifolia, tacanensis...]**

4. Leaves wider than long, peltate 2-13 mm. ...to 5

5. Petiolar nectaries on the distal 1/4 of the petiole or at the apex; floral stipe 12-30 mm; coronal filaments in 4-6(-8) series. .... **19. P. xiikzodz, 20. P. itzensis**

5. Petiolar nectaries near or proximal to the middle of the petiole (rarely slightly distal to the middle); floral stipe 1.5-16 mm; coronal filaments in 2 series. ...to 6

6. Laminar nectaries 6 or more per lamina, some borne proximally (exmedially) to the lateral veins; petioles pubescent to puberulent (c. glabrescent); outer corona 6-11 mm. .... **17. P. sexocellata, 18. 'megacoriacea'**

6. Laminar nectaries 1-2 per lamina, or absent, borne only distally to the lateral veins; petioles glabrous or



glabrescent; outer corona c. 3.5-4 mm; (Guatemala).

..... **16. P. clypeophylla**

1. Petals present; sepals 9-85 mm; petiolar nectaries (1)2 or more; bracts 0.06-8.5 cm long; leaf margins various, from entire to serrate. ...to 7

7. Bracts 2, 1-6.3 cm wide, foliose, free to the base; peduncle longer than 4 cm, uniflorous; petioles 1-2-glandular, the nectaries 0.3-1 mm; plants completely glabrous; leaves with 3 main veins, shallowly 3-lobed to c. unlobed. ...to 8

8. Peduncle (6.3-)8-17.5 cm; bracts 2.7-4.6 cm, pink to vivid purplish-red; sepals 35-63 mm; androgynophore (27-)30-40 mm.

..... **25. P. membranacea**

8. Peduncle c. 4.5-6 cm; bracts c. 0.9-1.3 cm, greenish; sepals c. 20 mm; androgynophore shorter than 10 mm.

..... **24. P. quetzal**

7. Bracts (absent or 1-)3, 0.015-6 cm wide, setaceous to foliose, free or connate at the base, but if bracts 2 then less than 0.2 cm wide; peduncle 0.15-13.5 cm, uniflorous to several-flowered; petioles 1-12-glandular, the nectaries sessile or to 13 mm long; plants glabrous or pubescent (to hirsute); leaves with 1-7 main veins, variously unlobed to deeply lobed (or compound). ...to 9

9. Leaves unlobed. ...to 10

10. Bracts 5 × 2.5 mm, or smaller; sepals without a subapical projection, (or to 1.5 mm in *P. dioscoreifolia*, and then the petiole with uncinata trichomes). ...to 11

[\*\*\*\*\***LEAVES UNLOBED, BRACTS SMALL**]

11. Petiolar nectaries 4-8(-10) ...to 12

12. Tendrils 3-5-parted at sterile nodes; leaves 2.2-6(-7) cm; petiolar nectaries 4(6), c. sessile, borne at the junction of the petiole and the laminar midvein; laminar midvein usually with a small gland abaxially at its apex; ovary glabrous.

..... **3. P. arbelaezii**

12. Tendrils simple at sterile nodes; leaves 9-18(-22) cm; petiolar nectaries 4-8(-10), at least 0.5 mm high, scattered or paired along the petiole (usually in distal half);

laminar midvein lacking a small gland at its apex; ovary puberulent to pubescent.

...to 13

13. Leaves peltate at least 9 mm from margin (Costa Rica to Panama).

..... **5. P. eueidipabulum**

13. Leaves not peltate (Mexico to Honduras). ...to 14

14. Leaves abaxially glabrous or nearly so; (Mexico).

..... **4. P. microstipula**

14. Leaves abaxially evenly puberulent to pubescent; (N Honduras, Belize). ..... **7. P. lancetillensis**

11. Petiolar nectaries (1)2 ...to 15

15. Peduncles 1 per node and branched or forked, (1)2-4-flowered, or tendril and flower(s) arising from a common peduncle that is at least 3 mm; tendrils 3-5-parted or simple at sterile nodes; petiolar glands 2-4(-6) ...to 16

16. Floral stipe 28-40; petiolar glands borne slightly distal to the middle of the petiole; flowers 1(2) per peduncle; (Guatemala). ..... **6. P. pedicellaris**

16. Floral stipe 4-19 mm (to 27 mm in fruit); petiolar glands borne at or just distal to the junction of the petiole and the laminar midvein; flowers 1-4 per peduncle. ...to 17

17. Tendrils 3-5-parted at sterile nodes; leaves 2.2-6(-7) cm, very widely ovate (or c. circular) to ovate-elliptic, rounded to retuse (rarely c. acute to obtuse); laminar midvein usually with a small gland abaxially at its apex; androgynophore 6-8 mm; ovary glabrous. .... **3. P. arbelaezii**

17. Tendrils simple or absent; leaves (7-)11 cm or longer, obovate to oblong-elliptic, abruptly acuminate to obtuse (rounded or retuse); laminar midvein lacking a gland at its apex; androgynophore 20-40 mm; ovary tomentose. ...to 18

18. Vine or liana, (or shrub); stem minutely puberulent-strigillose; tendrils present or absent; floral stipe 5-13 mm; coronal filaments in 4-5 series; androgynophore 30-40 mm;

seeds larger than 6 × 5 mm; elevation 0-500(-1250) m.

..... **1. P. pittieri**

18. Small tree; stem glabrous; tendrils absent; floral stipe 12-19 mm; coronal filaments in 2(3) series; androgynophore 20-24 mm; seeds smaller than 5 × 4 mm; elevation 600-1450 m. .... **2. P. tica**

15. Peduncles 2 per node, or 1 per node and not branched, uniflorous; tendrils and flowers not arising from a common peduncle; tendrils simple, never branched; petiolar glands 2. ...to 19

19. Petiolar nectaries borne on the basal half of the petiole; conspicuous nonmarginal laminar nectaries always present. .... **21. P. auriculata**

19. Petiolar nectaries borne slightly to well distal to the middle of the petiole; nonmarginal laminar nectaries absent or rarely present. ...to 20

20. Stipules 7 mm or longer, persistent; floral stipe absent; carpels 4; adaxial surface of leaves, petioles, and peduncles with (sparse) uncinatate trichomes (Costa Rica). .... **30. P. dioscoreifolia**

20. Stipules shorter than 2 mm, deciduous; floral stipe 15-40 mm; carpels 3; leaves, petioles, and peduncles glabrous. ...to 21

21. Floral stipe 28-40 mm; hypanthium minutely puberulent outside; outer corona distally bright orange-yellow; ovary puberulent (Guatemala). ..... **6. P. pedicellaris**

21. Floral stipe 15-28 mm; hypanthium glabrous; outer corona distally white or cream; ovary glabrous. ...to 22

22. Leaves with 3 major veins at the base; coronal filaments in (2-)3 series; exterior of sepals and buds without conspicuous nectaries. .... **8. P. obovata**

22. Leaves with 5 major veins at the base; coronal filaments in 8-10 series; exterior of sepals and buds with conspicuous nectaries. .... **9. P. macdougaliana**

10. Bracts 7 mm or longer, 4 mm or more wide (except as narrow as 2.3 mm in *P. <menispermifolia*); sepals with a subapical projection [size range](except absent in *P. <quadrangularis*). ...to 23

[\*\*\*\*\*LEAVES UNLOBED, BRACTS LARGE]

23. Stem quadrangular and conspicuously 4-carinate or 4-winged, glabrous; leaf margins entire. ...to 24
24. Petiolar nectaries 4-6; laminas with (7-)8-12 main secondary veins per side; stipules 19 × (3-)5 mm or larger; bracts 2.5 × 1.5 cm or larger; sepals without subapical projection. .... **99. P. quadrangularis**
24. Petiolar nectaries 2-4; laminas with 5-7(-8) main secondary veins per side; stipules 12 × 5 mm or smaller; bracts 1.5 × 1 cm or smaller; sepals with subapical projection 3-6 mm. .... **98. P. alata**
23. Stem terete, or subterete and often striate (or sulcate to obtusely angled when dried), glabrous or pubescent; leaf margins various, entire to serrate. ...to 25
25. Stipules 3-25 mm wide. ...to 26
26. Petiolar nectaries 4-6, the nectaries 3-13 mm; leaves glabrous beneath; bracts connate at the base. .... **100. P. ligularis**
26. Petiolar nectaries 2-12, the nectaries sessile or to 2.5 mm; leaves glabrous or pubescent beneath; bracts connate or free to the base. ...to 27
27. Bracts shorter than 4 cm, free to the base; leaves pubescent or glabrous beneath; peduncles (1.5-)3-6(-8) cm. ...to 28
28. Petiolar nectaries 4-12, the nectaries longer than wide; leaves entire or denticulate only near the base; stipules 3.5-18 mm wide. .... **90. P. oerstedii**

[\$complex. check:: add 91. choconiana, 89. chocoensis, 92. dispar, near here etc.?)

28. Petiolar nectaries 2, the nectaries wider than long; leaves serrate to the apex; stipules 3.5 mm or less wide. .... **85b. P. edulis** forma **flavicarpa**
27. Bracts longer than 4 cm, connate at the base; leaves glabrous beneath; peduncles 2-4.5 cm. ...to 29

- 29. Petiolar nectaries (2-)4-6; bracts 2.8-5 cm wide; [outermost coronal series]. .....**102. P. nelsonii**
- 29. Petiolar nectaries 1-3; bracts 2.8-3.2 cm wide; [outermost coronal series]. ..... **101. P. veraguasensis**
- 25. Stipules 0.4-2 mm wide. ...to 30
  - 30. Leaves evenly pubescent beneath; leaves serrulate to coarsely doubly-serrate. ...to 31
    - 31. Leaves glabrous on upper surface except for the main veins, serrulate; petiolar nectaries (4-)6-9, on the upper 2/3 of the petiole; bracts acuminate; perianth purplish; androgynophore 12-15 mm. .... **81. P. serratifolia**
    - 31. Leaves densely pubescent on both sides, coarsely serrate to doubly-serrate; petiolar nectaries 2, at the very base of the petiole; bracts obtuse to rounded; perianth vivid red or orange-red; androgynophore more than 25 mm; (cultivated). ..... **74. P. coccinea**
  - 30. Leaves glabrous beneath, or with minute puberulence on the main veins only; leaves entire to serrate. ...to 32
    - 32. Leaves cordiform, ovate to c. orbicular, deeply cordate; bracts basally connate 1.2-3.3 cm; stipe of fruit 1-1.5 cm; seeds 4 × 3 mm or smaller. .... **103. P. seemannii**
    - 32. Leaves widely ovate to lanceolate-elliptic (rarely obovate-elliptic), but not deeply cordate; bracts free to the base or connate less than 1 cm; fruit estipitate or the stipe 0.5 cm or less; seeds 5 × 3.5 mm or larger. ...to 33
    - 33. Laminar margin denticulate to serrate; petiolar nectaries at or above the middle. ...to 34
      - 34. Leaf denticulate to serrulate; bracts 3-5.2 cm, glabrous; sepals without marginal glands; seeds c. 5 mm wide or wider. .... **97. P. nitida**
      - 34. Leaf serrate; bracts 1.5-2.8 cm, glabrous or minutely puberulent; outermost sepals with 1-2(4) conspicuous

marginal glands; seeds c. 4 mm wide or narrower.

..... **85b. P. edulis** forma **flavicarpa**

33. Laminar margin entire or with obscure glandular indentations; petiolar nectaries above or below the middle. ...to 35

35. Petiolar nectaries 2-4(-6), the glands less than 1 mm in diameter; bracts connate 3-9 mm at the base, entire, acute to acuminate; outermost coronal series longest. ....

**84. P. brevifila**

35. Petiolar nectaries 2, the glands 1 mm or larger in diameter; bracts free to the base, (c. entire to) glandular-crenate at least apically, obtuse to rounded; outermost coronal series 1/2 or less as long as the next. ...to 36

36. Petiolar nectaries at or near the apex of the petiole; (cultivated). .... **96. P. laurifolia**

36. Petiolar nectaries near or below the middle of the petiole. .... **95. P. ambigua**

9. Leaves (2-)3-7-lobed or compound, or both lobed and unlobed on the same plant ...to 37

[\*\*\*\*\*LEAVES LOBED]

37. Peduncles branched, each with (2-)3(-4) flowers; petiolar nectaries 2; plant pubescent throughout. .... **22. P. holosericea**

37. Peduncles not branched, uniflorous; petiolar nectaries (1)2 or more; plant pubescent or glabrous. ...to 38

38. Plants finely pubescent with sharply uncinuate trichomes (at least on adaxial surface of lamina or petiole); bracts [0.3-11] mm wide; coronal filaments in 1 series. ...to 39

39. Carpels 4; androecium strikingly zygomorphic with anthers borne on one side of androgynophore; leaf margins entire or obscurely 1-4-toothed near the base; fruit red or purplish red, the stipe 3.5-9 cm. .... **29. P. lobata**

39. Carpels 3; androecium actinomorphic; leaf margins obscurely denticulate to coarsely serrate-dentate; fruit bluish black to purplish, the stipe 0.15-3 cm. ...to 40
40. Ovary glabrous; fruit glabrous. ...to 41
41. Petiolar nectaries borne below 0.60 the distance from the base of the petiole to the lamina; fruit terete, not carinate. .... **35. P. dolichocarpa**
41. Petiolar nectaries borne above 0.75 the distance from the base of the petiole to the base of the lamina; fruit acutely and deeply carinate. .... **34. P. pterocarpa**
40. Ovary pubescent; fruit hispidulous to finely and lightly pubescent. ...to 42
42. Bracts 0.9-11 mm wide, 3-7-cleft, the segments entire or incised; corona with 4-7 colored bands; seeds with 27-47 hoyuelos per side. ...to 43
43. Peduncles 2-4.8 cm; bracts 5-11 mm wide, 3-7-cleft or -lacinate, the segments incised; leaves 5(-7)-lobed; coronal filaments 10-20 mm. .... **31. P. adenopoda**
43. Peduncles 5.5-8 cm; bracts less than 2 mm wide, 3-cleft, the segments caudate and entire; leaves 3(-5)-lobed; coronal filaments c. 25 mm. .... **32. P. pendens**
42. Bracts 0.2-0.5 mm wide, entire, lanceolate to linear or capillary; corona with 1-2(-3) colored bands; seeds with 9-12 hoyuelos per side. .... **33. P. morifolia**
38. Plants glabrous or if pubescent, the trichomes not uncinata; bracts 0.05-6 cm wide; coronal filaments in 1 to many series. ...to 44

44. Bracts 1.2 mm wide or narrower, not glandular, scattered along the peduncle or obscurely crowded at the base; sepals 9-20 mm, without a subapical projection (or the projection less than 0.8 mm); coronal filaments in 1-2 series. ...to 45
45. Plant hispidulous; leaves 3-5-lobed, denticulate to serrate; laminar nectaries absent; coronal filaments in 1 series; seeds finely reticulate (S. Mexico to Guatemala). ..... **36a.**  
**P. pilosa** subsp. **dimidiata**
45. Plant minutely puberulent to glabrescent; leaves 3-lobed or obscurely so, entire; laminar nectaries present; coronal filaments in 2 series; seeds transversely sulcate or rugose (Nicaragua to S. America). ..... **21. P. auriculata**
44. Bracts 2 mm wide or wider (or rarely as narrow as 1.5 mm in *P. vitifolia*, and then glanduliferous), with or without marginal glands, usually borne at or near the apex of the peduncle; sepals (16-)23-70 mm, with a subapical projection (0.8-)1.5-18 mm; coronal filaments in (1-)3-many series. ...to 46
46. Flower long-tubular, the hypanthium and associated floral tube 6-10 cm, longer than the sepals, c. cylindrical; corona uniseriate, the teeth less than 2 mm. .... **75a. P. tripartita var. mollissima, 76. P. tarminiana**

**[leaves vest. adax.; stipules, sepals/tube ratio]**

46. Flower plate-like, dish-like, or short-tubular, the hypanthium 2.5 cm or less, shorter than the sepals, patelliform to campanulate; coronal filaments multiseriate, the longest longer than 7 mm. ...to 47
47. Leaves 5-7-lobed or compound. ...to 48
48. Leaves 5-7-pedately compound (or leaves 3-pedately compound, the lateral lobes deeply lobed); stem and leaves pubescent. ....**105. P. pedata**
48. Leaves 5-7-lobed; stem and leaves glabrous. ...to 49
49. Laminar lobes serrulate, acuminate; stipules 0.6-2.5 mm wide; stems terete; bracts basally connate. ....**104. P. serratodigitata**



49. Laminar lobes entire, rounded or rarely c. acute; stipules 4-10 mm wide; stems c. angular; bracts free to base. ....**86. P. caerulea**
47. Leaves (2)3-lobed, or both lobed and unlobed on the same plant. ...to 50
50. Stipules 0.3-2.5(-3.0) mm wide; bracts connate or free to the base. ...to 51
51. Internodes densely puberulent or pubescent. ...to 52
52. Bracts 0.15-1.3 cm wide, free to the base; flowers vivid red or orange red; androgynophore more than 3 cm. .... **73. P. vitifolia**
52. Bracts 1.5-3.4 cm wide, connate or free to the base; flowers whitish to purplish; androgynophore less than 2 cm. ...to 53
53. Bracts free to the conspicuously glandular base; laminar nectaries inconspicuous, 2-5 borne in sinus of lobes; subapical projection of sepal 8-18 mm; outermost coronal series slightly longer than the next. .... **83. P. mayarum**
53. Bracts connate 2 cm or more at the base, not glandular; laminar nectaries conspicuous, 2 borne in sinus of lobes; subapical projection of sepal 3-6 mm; outermost coronal series slightly to conspicuously shorter than the next. .... **106b. P. platyloba** var. **pubescens**
51. Internodes glabrous. ...to 54

- 54. Bracts free to the base. ...to 55
  - 55. Petiolar nectaries 2, the nectaries more than 1 mm in diameter; laminar lobes acute to acuminate (c. obtuse); bracts shorter than 3 cm, serrate to short-pectinate; ovary densely puberulent. ...to 56
  - 56. Sepals without marginal glands; bracts with 2-4(-6) conspicuously enlarged basal marginal glands; fruit purple. .... **85a. P. edulis** forma **edulis**
  - 56. Outermost sepals with 1-2(-4) conspicuous marginal glands; bracts without marginal glands (or rarely with small glands); fruit yellow. .... **85b. P. edulis** forma **flavicarpa**
  - 55. Petiolar nectaries (1)2(-4), the nectaries less than 1 mm in diameter; laminar lobes long-acuminate; bracts longer than 4 cm, entire or c. entire; ovary glabrous. .... **82. P. prolata**
- 54. Bracts connate at least 1 cm at the base. ...to 57
  - 57. Petiolar nectaries 2-4, with at least 1 pair at the apex; leaves glabrous; sepals and ovary glabrous. .... **103. P. seemannii**
  - 57. Petiolar nectaries 2-4, with at least 1 pair below the middle, and never a pair at the apex; leaves puberulent adaxially at least on the main veins; sepals (minutely) puberulent; ovary glabrous or pubescent. ...to 58
    - 58. Ovary glabrous; peduncle 4 cm or longer; bracts 4.5-8.5 cm, connate c. 1/3 their length or less, abaxially usually glabrous. .... **106a. P. platyloba** var. **platyloba**
    - 58. Ovary densely puberulent to pubescent; peduncle 4 cm or shorter; bracts 3-4 cm, connate c. 2/3 their length or more, abaxially densely puberulent. .... **106b. P. platyloba** var. **pubescens**
- 50. Stipules 3-25 mm wide; bracts free to the base. ...to 59

59. Stem hirsute; leaf hirsute or pubescent on both sides; bracts 2.3-5 mm wide.

..... **88. P. menispermifolia**

59. Stem glabrous (or at most, minutely puberulent at the nodes); leaf glabrous or abaxially pubescent; bracts 2-36 mm wide. ...to 60

60. Leaves abaxially pubescent; petiolar nectaries 4-12. ....

..... **90. P. oerstedii**

**[\$complex. check:: add 91. choconiana, 89. chocoensis, 92. dispar, near here etc.?]**

60. Leaves abaxially glabrous; petiolar nectaries 2-12. ...to 61

61. Margins of laminar lobes evenly serrate to the apex; ovary densely puberulent; stipules 3-3.5 mm wide. ...to 62

62. Sepals without marginal glands; bracts with 2-4(-6) conspicuously enlarged basal marginal glands; fruit purple. .... **85a. P. edulis** forma **edulis**

62. Outermost sepals with 1-2(-4) conspicuous marginal glands; bracts without marginal glands (or rarely with small glands); fruit yellow. .... **85b. P. edulis** forma **flavicarpa**

61. Margins of laminar lobes entire to c. entire, or if serrate basally, then merely denticulate distally; ovary glabrous; stipules 3.5-25 mm wide. ...to 62

62. Bracts apically widely obtuse to rounded; petiolar nectaries 2(-4); laminar nectaries absent; stipules 3-11 mm wide; stems 4-5-angular or -ridged; fruit not formed (cultivated sterile hybrid). .... **87. P. × belotii**

62. Bracts apically acuminate to acute (rarely obtuse or rounded in *P. subpeltata*); petiolar nectaries 2-12; laminar nectaries marginal, submarginal, or absent; stipules 3.5-25 mm wide; stems c. terete, often drying striate. ...to 63

63. Central lobe of lamina apically obtuse to broadly rounded; petiolar nectaries 2-4(-6); bracts acute (to rounded); seeds 4.5-5.3 mm. .... **93. P. subpeltata, 94. aff subpeltata**

- 63. Central lobe of lamina apically acuminate to acute (the very apex sometimes rounded); petiolar nectaries 4-12; bracts acuminate to acute; seeds (5-)6-7.7 mm. ...to 64
  - 64. Lateral lobes of lamina lanceolate to oblong-ovate; central lobe often somewhat narrowed at the base.  
..... **90. P. oerstedii**

**[\$complex. check:: add 91. choconiana, 92. dispar, near here etc.]**

- 64. Lateral lobes of lamina ovate-deltate to shallowly triangular or obscure; central lobe broadest at the base; (Osa Peninsula, Costa Rica). ..... **88. P. menispermifolia**

**KEY 3**

- 1. Laminar nectaries absent, or if present then strictly marginal and the peduncles with foliose bracts; bracts absent or 0.3-63 mm wide; adaxial surface of lamina glabrous to densely pubescent. ...to 2
  - 2. Floral stipe c. 28-40 mm; leaves ovate, unlobed, acute, glabrous; bracts less than 0.5 mm wide. .... **6. P. pedicellaris**
  - 2. Floral stipe 0.5-15(-22) mm; leaves various shapes, glabrous or pubescent; bracts various, absent, setaceous, or foliaceous. ...to 3
    - 3. Peduncles branched, (2)3-many-flowered; bracts 0.2-12 mm wide; fruit less than 2.5 cm; leaves densely pubescent on both surfaces. ...to 4
      - 4. Peduncles (2)3-5-flowered, 1.5-10(-15) mm to first branch; bracts 0.2-2.5(-3.5) mm wide; outer corona 3.5-6 mm.  
..... **45. P. sexflora**
      - 4. Peduncles 5-8(-10)-flowered, (10-)14-40 mm to first branch; bracts (1-)3-8(-12) mm wide; outer corona 2.5-3.5 mm.  
..... **46. P. rugosissima**

3. Peduncles not branched, 1-flowered (although sometimes grouped together on a condensed axillary branch); bracts absent or to 63 mm wide; fruit 0.5-11 cm; leaves glabrous or pubescent. ...to 5
  5. Bracts present, 0.2-63 mm wide; leaves peltate or not; laminar nectaries absent or marginal; stipules 0.3-42 mm wide, sometimes deciduous ...to 6
6. Stem pubescent, leaves pubescent; bracts 0.2-10 mm wide; leaves not peltate; laminar nectaries absent; fruits less than 2 cm wide; seeds [L short?], transversely sulcate ...to 7
  7. Leaves unlobed or a mixture of unlobed and asymmetrically 2-3-lobed, the apex or central lobe acuminate (acute); petals less than 6 mm; androgynophore 2.5-3.5 mm. .... **48. P. malletii**
  7. Leaves 2-3-lobed, the central lobe obtuse, rounded, or obsolete; petals 6-13 mm; androgynophore 3.8-8 mm. ...to 8
    8. Stipules 0.4-1.0 mm wide; bracts 0.2-2.5(-3.5) mm wide; outer corona 3.5-6 mm ..... **45. P. sexflora**
    8. Stipules 4-10 mm wide; bracts 4.5-10 mm wide; outer corona (7-)10-13 mm. .... **47a. P. porphyretica** var. **porphyretica**
6. Stem glabrous [check the one specimen of memb.], even at shoot tip, leaves glabrous (pubescent); bracts 13-63 mm wide; leaves peltate or not; laminar nectaries marginal or absent; fruits (3-)3.5-4.5 cm wide; seeds [L long?], reticulate. ...to 9
  9. Bracts 3, basally connate c. 1 cm or more, persistent in fruit, the free lobes acute to acuminate; stipules 3.5-6 mm wide, not clasping, deciduous; leaves unlobed, not peltate, with 1 main vein, abruptly acuminate; peduncles less than 5 cm. .... **101. P. veraguasensis**
  9. Bracts 2 (or 3, with 1 much smaller and borne proximal to the 2 larger bracts), free to the base, usually deciduous in fruit, obtuse or rounded (and often apiculate); stipules 11-45 mm wide, amplexicaule; leaves glabrous, 3-lobed or unlobed, peltate or barely peltate, with 3 main veins, acuminate to rounded; peduncles 2.5-17.5 cm. ...to 10
    10. Stipules deeply dentate-fimbriate or setiferous, the teeth conspicuously apically attenuate or filiform; laminar nectaries

almost always absent (sometimes present at very base in Chiapas); peduncles shorter than 2.5(-3.5) cm; bracts mostly pale greenish.

.[androgyn L]..... **26. P. guatemalensis**

10. Stipules entire, minutely denticulate, or crenate; laminar nectaries usually present marginally at least near laminar base; peduncles 2.5-17.5 cm; bracts pale green to pink or purplish-red. .[androgyn. L]..to 11

11. Leaf only c. peltate or peltate 1-3.5(-5) from the margin; peduncle (6.3-)8-17.5 cm; androgynophore (27-)30-40 mm. .... **25. P. membranacea**

11. Leaf peltate (5-)6-16(-22) mm from the margin; peduncle 2.5-6.5 cm; androgynophore 6-8 mm. .... **27. P. hahnii**

11X. [ADD 28. *cissampeloides* in this area #22A]

5. Bracts absent (very rarely 1, then less than 0.5 mm wide); leaves not peltate (or peltate less than 2 mm from margin), laminar nectaries absent; stipules less than 2 mm wide (or to 9 mm in *P. eglandulosa*, persistent; seeds transversely sulcate. ...to 12

12. Leaves unlobed, ovate to lanceolate. .... **37. P. cobanensis**

12. Leaves 2-3-lobed or truncate at the apex. ...to 13

13. Stipules (2.5-)3-9 mm wide; petals absent; leaves 3-lobed, the central lobe acuminate to caudate. .. **13. P. eglandulosa**

[**14. P. tacanensis near here?**]

13. Stipules 0.3-1.5(-2) mm wide; petals present; leaves 2-3-lobed, the central lobe, if present, (acute) obtuse or rounded to truncate (retuse). ...to 14

14. Ovary glabrous (or rarely a few trichomes in *P. pavonis*); fruit less than 2 cm, (oblate) c. globose to c. ellipsoid, terete or slightly 3-sulcate, purplish black, indehiscent; stem terete (drying striate and often c. angular); leaves 1-7.5 cm, abaxially glabrous to pubescent, adaxially glabrous to sparsely pubescent, the lateral lobes acute to rounded (or truncate) but never acuminate; sepals 6-12 mm. ...to 15

15. Plant completely glabrous; peduncles (1.5-)3-5(-6) cm; petals 3-4.5(-5) mm; seeds usually 3-4(-5)-sulcate; elevation 1100 m or less.  
 ..... **70. P. filipes**
15. Plant minutely puberulent to pubescent (except adaxial surface of lamina) at least on young growth and petioles; peduncles 1.1-2.6 cm; petals 5-8 mm; seeds usually 6-13-sulcate; plants of 1300-2800 m elevation. ...to 16
16. Stems pubescent, or sparsely so below; leaves 1.5-5.5(-7) cm wide; corona 3-4 mm; androgynophore 4.8-5.5 mm; seeds 6-7-sulcate (rarely irregularly rugose); plants of (1350-)1900-2800 m elevation. .... **71. P. pavonis**
16. Stems minutely or sparsely puberulent, or glabrescent below; leaves (4.7-)6-11.2 cm wide; corona 2-3 mm; androgynophore 3-4.1 mm; seeds 10-13-sulcate; elevation 1300-1500 m. .... **72. P. sanctae-mariae**
14. Ovary minutely puberulent to pubescent; fruit (2.5-)3 cm or longer, fusiform, ellipsoid, or stipitate-obovoid, 6-angular to 6-carinate, reddish, red and white, (or greenish), often dehiscent; stem 3-5-angular (drying striate and angular); leaves 1-12(-16.5) cm, abaxially puberulent to pubescent, adaxially puberulent to hirsute (sometimes adaxially glabrescent in forms of *P. pusilla* and *P. capsularis*), the lateral lobes acuminate to rounded; sepals 13-34 mm (except c. 7 mm in *P. pusilla*). ...to 17
17. Plant smaller than 0.5 m; leaves 2.5 cm or less, the lateral lobes obtuse to rounded; sepals c. 7 mm. .... **38. P. pusilla**
17. Plant 1-7 m or more; leaves 2-16.5 cm, the lateral lobes acuminate to rounded; sepals 13-34 mm. ...to 18
18. Androgynophore 21-28 mm; flowers all light to bright yellow; coronal filaments free 3-6 mm; fruit (2.5-)3-4.3 cm. .... **41. P. citrina**
18. Androgynophore 7-10 mm; flowers white to pale green or pale yellow, with or without purplish or reddish on corona; coronal filaments free 9-18 mm; fruit 3-11 cm. ...to 19
19. Leaves with the angle between the veins of the lateral lobes (45-)55-80°, adaxially pubescent, or nearly glabrous and only the main veins puberulent, sometimes variegated, 2-7(-10) cm; stems c. 3(-

- 4)-angular; peduncles 0.6-2(-2.5) cm; corona white to cream, unmarked. .... **39. P. capsularis**
19. Leaves with the angle between the veins of the lateral lobes 22-45(-55/), adaxially puberulent to hirsute, not variegated, 4-16.5 cm; stems 3-5-angular; peduncles (0.2-)0.5-5.5 cm; corona whitish to light yellow, unmarked or basally purplish to red. ...to 20
20. Stem sharply 3-angular and 3-carinate; laminae adaxially hirsute with most of the trichomes 1 mm or longer, the lateral lobes acuminate to acute; coronal filaments in 1-2 series. .... **42. P. costaricensis**
20. Stem 5-angular; laminae adaxially puberulent to pubescent with the trichomes shorter than 1 mm, the lateral lobes acute to rounded; coronal filaments in 2 series. ...to 21

**[\$where does 44. escobariana fit?]**

21. Leaves widest proximal to the middle, or rarely at the middle, the lateral lobes acute, the angle between their veins 22-30(-42/); peduncles usually 2 per node, 0.5-1.6(-2.3) cm; floral stipe 6-22 mm [diam.]; fruit 6-10.5 cm. .... **43. P. rovirosae**
21. Leaves widest at or distal to the middle, the lateral lobes acute to rounded, the angle between between their veins (30-)35-45(-55/); peduncles usually 1 per node, (1.5-)3-5.5 cm; floral stipe 3-7 mm [diam.]; fruit 3-4.5(-6) cm. .... **40. P. quinquangularis**
1. Laminar nectaries conspicuously present abaxially between the primary veins, the nectaries not restricted to the margin, sessile, c. round (or elliptic); bracts present, less than 1.2 mm wide (or to 19 mm wide in *P. bicornis*); adaxial surface of lamina glabrous (or minutely, inconspicuously, and very sparsely puberulent). ...to 22
22. Peduncles branched, 2-3-flowered; central vein of laminae less than 4.5 cm; sepals 5-6.6 mm. .... **63. P. allantophylla**
22. Peduncles not branched, uniflorous; central vein of laminae 0.3-17.5 cm; sepals 5-33 mm. ...to 23
23. Bracts (3.5-)5-19 mm wide. .... **61. P. bicornis**
23. Bracts 0.05 [[check?]]-0.8(-1.2) mm wide. ...to 24



- 24. Distal half of laminas with nectaries proximal (exmedial) to the lateral veins as well as between the lateral and central veins. ...to 25
- 25. Central laminar vein equal to or longer than lateral veins. .... **53. P. panamensis**
- 25. Central laminar vein much shorter than lateral veins. .... **57. P. punctata**
- 24. Distal half of laminas with nectaries only distal to lateral veins, i.e., only between the lateral and central veins. ...to 26
- 26. Central laminar vein longer than or equal to leaf width. ...to 27
- 27. Ovary pubescent. ...to 28
- 28. Leaves unlobed to obscurely 3-lobed (shallowly 3-lobed), the central vein conspicuously longer than the lateral veins; stipules 0.3-0.8 mm (or to 3 mm in Chiapas, and then the leaves c. unlobed and acute to acuminate); floral stipe 8-22 mm; seeds 4-6.6 mm wide. .... **60. P. lancearia**
- 28. Leaves 2-3-lobed or truncate, the central vein slightly longer or shorter than the lateral veins; stipules 1.5-5(-7) mm; floral stipe 3.5-8 mm; seeds 3 mm wide or less. ...to 29
  - 29. Leaves variegated along lateral veins; petals 2-3.5 mm; (outer) corona filiform, bright yellow; (Costa Rica). .... **67. P. gilbertiana**
  - 29. Leaves not variegated; petals 10-16 mm; (outer) corona dilated near middle, (slightly) laterally compressed, greenish, yellowish, or purplish brown. ...to 29
  - 30. Coronal filaments in 1 series, (Veracruz to C. Costa Rica). .... **56. P. helleri**
  - 30. Coronal filaments in 2 series, (S. Nicaragua to W. Panama). .... **52. P. talamancensis**
- 27. Ovary glabrous. ... to 31

- 31. Central laminar vein conspicuously longer than lateral veins; leaves never variegated; floral stipe 8-22 mm. .... **60. P. lancearia**
- 31. Central laminar vein c. equal to or shorter than lateral veins; leaves often variegated; floral stipe 2-6.5 mm. ...to 32
  - 32. Sepals 9-11.5 mm; androgynophore 5 mm or less; outer corona 3 mm or less. .... **64b. P. ornithoura** var. **chiapasensis**
  - 32. Sepals 14-33 mm; androgynophore 5.5-7 mm; outer corona 6-30 mm. ...to 33
    - 33. Lamina completely glabrous adaxially, even at base of veins; sepals 14-17 mm; outer corona 6-10 mm, slightly laterally compressed. .... **55. P. sandrae**
    - 33. Lamina minutely sparsely puberulent adaxially; sepals 28-33 mm; outer corona 24-30 mm, filiform. .... **59. P. aff. micropetala/ aff. candollei**
- 26. Central laminar vein shorter than leaf width. ...to 34
  - 34. Angle between veins of lateral lobes greater than 100/. ...to 35
    - 35. Peduncles 0.1-2.8 cm; coronal filaments thick, c. angular, yellow in distal half. .... **49. P. biflora**
    - 35. Peduncles 3.3-10.2 cm; coronal filaments slender, filiform, whitish in distal half. .... **58. P. misera**
  - 34. Angle between veins of lateral lobes 100/ or less. ...to 36
    - 36. Floral stipe (pedicel distal to articulation) 8-12 mm in bud and flower ..... **49. P. biflora**
    - 36. Floral stipe 1-7 mm in bud and flower ...to 37
      - 37. Ovary pubescent to very sparsely puberulent. ...to 38
        - 38. Coronal filaments in 1 series; petals 5-8 mm; flower generally green and orange or red to purple. .... **68a. P. jorullensis** var. **salvadorensis**
        - 38. Coronal filaments in 2 series; petals 10-14 mm; flower generally white or white and yellowish. ...to 39

- 39. Androgynophore 8-9 mm; (widespread).  
..... **49. P. biflora**
- 39. Androgynophore 11-14 mm; (Isla Cozumel).  
..... **54. P. yucatanensis**
- 37. Ovary glabrous ...to 40 [40 is a weak couplet; true but difficult]
- 40. Plant completely glabrous, even on stem at shoot tip; ratio of laminar width to central vein length greater than 2.2.  
..... **69. P. mexicana**
- 40. Plant minutely puberulent to glabrescent, but with at least a few small trichomes on stem at shoot tip; ratio of laminar width to central vein length various. ...to 41
- 41. Androgynophore 5 mm or less. ...to 42
- 42. Flowers apetalous (or rarely petals to 2.5 mm, and then the sepals 7.5-12 mm).  
..... **66. P. apetala**
- 42. Petals 2.3-7.5 mm (if 3 mm or less, then the sepals less than 7 mm). ...to 43
- 43. (Outer) coronal filaments greenish at base; leaves not variegated, or variegated with a few discontinuous patches of white between (not along) the veins. .... **50. P. nubicola**
- 43. (Outer) coronal filaments purplish or reddish at base; leaves usually variegated along the lateral veins. ...to 44
- 44. Leaves less than 6 cm long in outline, shallowly 2(-3)-lobed, the angle between the lateral veins 65-93°; petals 2.3-3.8 mm.  
..... **63. P. allantophylla**
- 44. Leaves 2-15 cm long in outline, shallowly to deeply 2(-3)-lobed, the angle between the lateral veins 21-80°; petals 4-6 mm. ...to 45
- 45. Leaves 2-lobed 2/3 or more the distance to the base (rarely lobed only to c. 1/2), the angle between the lateral veins (35-41-75(-81)°), the ratio of laminar width to (central vein) length (2.4-)3-7(-15); floral stipe 1.4-3.5 mm; sepals 6-8.5 mm; coronal filaments 2-seriate (inner row often reduced).  
..... **64a. P. ornithoura var. ornithoura**

45. Leaves 2-lobed c. 1/3 or less the distance to the base (rarely lobed as deeply as c. 1/2), or shallowly 3-lobed with the central vein shortest, the angle between the lateral veins (21-)26-46(-62)/, the ratio of laminar width to (central vein) length (0.64-)0.75-1.5(-2.6); floral stipe 3.5-5 mm; sepals 9-11.5 mm; coronal filaments 1-seriate ..... **64b.**

**P. ornithoura** var. **chiapasensis**

41. Androgynophore longer than 5 mm. ...to 46
46. Sepals 7.5-11 mm; longest coronal filaments 2-3 mm.  
..... **50. P. nubicola**
46. Sepals 13-33 mm; longest coronal filaments 6-30 mm. ...to 47
47. Coronal filaments in 1 series, filiform, uniformly orange to red (or purplish); petals 5-8 mm. .... **68a. P. jorullensis** var. **salvadorensis**
47. Coronal filaments in 2(-4) series, filiform to ligulate, subapically dilated and laterally compressed, basally light greenish, apically whitish to light yellow (orange); petals 10-25 mm. ...to 48
48. Sepals 28-33 mm; outer coronal filaments 24-30 mm; adaxial surface of leaf sparsely and minutely puberulent; (Panama).  
..... **59. P. aff. micropetala/ aff. candollei**
48. Sepals 13-23 mm; outer coronal filaments 5-11 mm; adaxial surface of leaf glabrous or sparsely minutely pubescent. ...to 49
49. Petals and sepals pale to strong purplish-blue or violet (often white-tipped); floral stipe 2-3 mm; corona in (2?)3-4 series, the outer series filiform to capilliform.  
..... **62. P. standleyi**
49. Petals and sepals white or greenish-white, (sometimes flushed purplish-red or purplish in *P. biflora*); floral stipe (3-)5-20 mm; corona in 2 series, the outer dilated near or distal to the middle, laterally compressed. ...to 50
50. Leaf usually variegated along the lateral veins; laminar nectaries usually dark-purple-edged, those most proximal conspicuously enlarged; floral stipe 2-6.5 mm; prophyll of vegetative bud 1; (Panama). ..... **55. P. sandrae**

50. Leaf not variegated, or rarely with a few discontinuous blotches of white scattered between the veins; laminar nectaries not edged in dark purple (or rarely so), those most proximal conspicuously enlarged or not, floral stipe (3-)5-20 mm; prophylls of vegetative bud 1 or 2; (widespread). ...to 51

51. Prophylls of axillary vegetative bud 2; lateral leaf lobes acute to rounded; floral stipe (3)6-20 mm; prophylls of vegetative bud 2; (common).

..... **49. P. biflora**

51. Prophyll of axillary vegetative bud 1; lateral leaf lobes acuminate to acute; floral stipe 5-9 mm; prophyll of vegetative bud 1; (rare, in Guatemala).

..... **51. P. subfertilis**

**1. *Passiflora pittieri*** Mast. in J.D. Smith, *Bot. Gaz.* 23: 246 (1897). Isotype: Costa Rica, *Pittier 9894* (BR!).

Scandent shrub 3-8 m, vine with or without tendrils, becoming large canopy liana, glabrous (Belize, Guatemala) to minutely puberulent-strigillose throughout except the laminae always c. glabrous and the ovary and styles tomentose. Stems terete, glabrescent with age. Stipules (0.3-)1-3.7 mm, (triangular) narrowly triangular; petioles 2-glandular at the apex/junction with lamina, the nectaries sessile, 1.4-2 mm wide, often obscured by the laminar base; laminae (6-)10-20(-32) × (2.5-)4.5-8(-14) cm, entire, not variegated, narrowly obovate to oblong-elliptic, unlobed, abruptly acuminate (to obtuse or rounded and rarely slightly retuse), glabrous adaxially, c. glabrous abaxially or minutely puberulent on the main vein; laminar nectaries absent. Peduncle 1 per node, 0.3-1.5(-3) cm, (1)2(3)-flowered, the pedicels (0.5-)1-2(-2.5) cm, sometimes the tendril expressed in the inflorescence; bracts 1.2-2 × 0.2-0.4 mm, narrowly oblong-triangular. Flowers whitish, the corona yellowish with reddish speckles; stipe 5-14 mm; sepals 25-42 mm, with no projection; petals 25-38 mm; coronal filaments in 4-5 series, the outermost 13-23 mm, strongly subapically dilated and laterally compressed, the next c. 2-3 series 3-13 mm, the innermost 4-10 mm, red; operculum membranous, conical to tubular around the base of androgynophore, sometimes apically infolded, entire to slightly apically lacerate, red; androgynophore 26-40 mm; ovary tomentose. Fruit 6-8(-9) × 3-4 cm, ellipsoid to narrowly ovoid, apically blunt, glabrous, green to yellowish, estipitate; arils translucent; seeds 7.4-9 × 6.0-7.5 mm, reticulate with c.

40-50 hoyuelos. *Selva alta perennifolia, bosque pluvial o muy húmedo de la zona tropical o premontaño, especialmente on ridgetops*. B (Meerman BW925, MO); G (Standley 73059, F); N (Foster 1689, MICH), CR (Wilbur 37157, DUKE); P (Garwood 783, F). 0-500 (-1250) m. (Belize to Panama, NW. Colombia.)

*Passiflora pittieri* is at present definitely known as far north as Belize. It is easily overlooked and undoubtedly grows in E. Honduras as well. It probably occurs in sporadically in Mexico on the Gulf slopes from Veracruz and E. Oaxaca to Tabasco and N. Chiapas (its main herbivore *Heliconius sapho* occurs there), but there are no specimens. The specimen from Caribbean Guatemala cited above is a juvenile and is probably this species. The flowers in Belize have a shorter, more bowl-shaped corona, while it is wide-spreading in Costa Rica and Panama. The fruit and seeds are very poorly known.

The growth form and life history of this species is also poorly understood. Individuals may persist for years in a juvenile shrub stage; apparently most eventually become lianas. If the liana is cut, regrowth occurs as a shrub or shrubby vine with arching branches which may flower given enough light. The species is shade tolerant but requires increased light for reproduction.

**2. *Passiflora tica*** Gómez Laur. et L.D. Gómez, *Phytologia* 49: 56 (1981).

Holotype: Costa Rica, *Gómez-Laurito* 6627 (CR!).

*Passiflora arborea* sensu D'Arcy (1987), Gentry (1976) non Spreng.

Arching arbolito to tree, 3.5-10(-15) m, 5-15(-20) cm DAP, glabrous throughout except the ovary tomentose (rarely also a few trichomes at the base of the pedicels or on the prophylls of the vegetative bud). Stems terete. Stipules 1-3(-4) × 0.3-1 mm, narrowly triangular (narrowly ovate); petioles 2-glandular just distal to the junction of the lamina (i.e., on the base of the midvein), the nectaries sessile, 1-2 mm wide, obscured by the laminar base; laminas 12-48 × 7-27 cm (to 66 × 30 cm pre-reproductive), entire, not variegated, obovate to oblong-elliptic, unlobed, (abruptly acuminate) acute to obtuse (rounded or slightly retuse); laminar nectaries absent. Tendrils absent. Peduncle 1 per node, (1.5-)3-9(-12) cm, 2-3(4)-flowered, the pedicels (1.5-)2.5-6.5(-9.5) cm; bracts 1-3 × 0.3-0.7 mm, narrowly oblong-triangular. Flowers white, the corona yellow; stipe 9-19 mm (17-27 mm in fruit); sepals 25-35 mm, with no projection; petals 25-35 mm; coronal filaments in

2(3) series, the outermost 15-20 mm, strongly dilated distal to the middle, laterally compressed, attenuate apically, bright yellow, basally whitish, the next series 1.5-2 mm, the third series, if present, less than 1 mm; operculum membranous, apically shallowly lacerate; androgynophore 20-24 mm; ovary tomentose. Fruit (2.5-)3-4.5 × 2.5-4 cm, widely ellipsoid to c. globose, (light yellow green) yellow or cream, often slightly rufo-puberulent, estipitate; arils color unknown; seeds 3.5-4.6 × 2.9-3.3 mm, reticulate with 10-25 hoyuelos. *Bosque pluviales y de nubes premontaña, especialmente in rocky ground along streams or near waterfalls*. CR (Herrera & Mora 473, CR); P (McPherson 11667, PMA). 600-1200(-1450) m. (Mesoamerica to NW. Colombia.)

This is the only *Passiflora* in Mesoamerica that is a tree. Tendrils are absent at all stages. Typically it is a small slender tree that grows arching out over streams on steep slopes in primary forest. The leaves, glaucous beneath, often attain a length of c. 0.7 m at lower nodes, but are smaller at reproductive nodes. Mature fruits are virtually unknown. Many of the Panamanian collections have notably larger prophylls of the vegetative buds, and a few trichomes at the base of the pedicels; otherwise there seems to be little difference from the Costa Rican material.

**3. *Passiflora arbelaezii*** L. Uribe, *Caldasia* 7: 335 (1957). Holotype: Colombia, Pérez Arbeláez 10335 (COL).

*Passiflora tryphostemmatoides* sensu Woodson et Schery (1958) non Harms.

Vine (4-)8-15 m, or slender canopy liana, glabrous throughout. Stems terete. Stipules 0.8-1.7 mm, narrowly triangular to setaceous, deciduous; petioles (2-)4(-6)-glandular at the apex/junction with lamina, the nectaries c. sessile, 0.2-0.8 mm wide; laminas 2.2-6(-7) × 1.8-5(-6.2) cm, entire, not variegated, (ovate) very widely ovate to ovate-elliptic (or c. circular), rounded to slightly retuse (rarely c. acute or obtuse); one laminar nectary borne at the apex of the midvein (rarely reduced). Tendrils 3-5-parted, distally adhesive in juveniles and sometimes also in adults. Peduncle 1 per node, 1.1-5(-8) cm, 2-flowered, the pedicels 1.3-2.5(-3) cm, sometimes the tendril expressed in the inflorescence (or the peduncle coiling); bracts 0.6-1.3 × 0.1-0.3 mm, narrowly triangular to setaceous. Flowers light green and whitish or light yellow-green, the corona white to yellow; stipe 4-9 mm (to 11 mm in fruit); sepals 15-25 mm, with no projection; petals 14-21

mm; coronal filaments in 2-3 series, the outermost 10-13 mm, basally light green to cream or often yellow, distally pale yellow or often white, the next 1-2 series 1.5-4(-5) mm; operculum membranous, distally plicate; androgynophore 6-8.5 mm; ovary glabrous. Fruit 3-4.5 × 3-3.5 cm, c. globose to widely ellipsoid, yellowish to red-orange, the stipe 3-8 mm; seeds 4.3-6.7 × 3.3-5.8 mm, reticulate with 25-45 hoyuelos, or rugose to irregularly transversely sulcate with 6-9 sulci. *Swamp forests, bosque pluviales tropical or bosque pluviales premontanos*. N (Moreno 13271, MO); CR (Hammel 10248, DUKE); P (Knapp & Mallet 3814, MO). 0-800(-1000) m. (Mesoamerica to W. Colombia.)

This is the only *Passiflora* in Mesoamerica with branched sterile tendrils. It is also one of the very few that, as a juvenile, may climb by means of adhesive discs at the ends of the tendrils. It is mainly a lowland species, but occurs to the summit of Cerro Jefe in Panamá. Within our area there is a notable variation in seed size.

**4. *Passiflora microstipula*** L.E. Gilbert et J.M. MacDougal, *Lundellia* 3: 1 (2000). Holotype: Cultivated, seeds from Veracruz, Mexico, *Gilbert 9271* (MEXU!). Illustr.: Gilbert & MacDougal, *Lundellia* 3: 3, t. 1. (2000).

Vine to canopy liana, glabrous or nearly so throughout except the ovary, operculum, and sometimes styles puberulent, and basal portions of axillary branches and associated leaves usually sparsely puberulent with straight c. glandular trichomes. Stems terete. Stipules 0.2-0.4 mm, triangular to narrowly triangular, deciduous; petioles 4-8(-10)-glandular usually in the distal half, the nectaries 0.5-1 × 0.9-1.5 mm; laminas 9-14 × 5.5-8 cm, entire, variegated along the midvein only in juveniles, ovate to ovate-elliptic, unlobed, abruptly acuminate to acute (to obtuse); laminar nectaries (absent? to) submarginal, borne 1-5 mm from margin. Peduncle 1 per node, 0.5-5(-7) cm, 2-4(-6)-flowered, the pedicels c. 1.2-2.5 cm, the tendril expressed in the inflorescence; bracts 1-2(-3) × 0.2-0.5 mm, narrowly oblong-triangular to narrowly lanceolate. Flowers white, the corona yellow distally, banded purplish to reddish near the middle; stipe 16-26 mm; sepals 17-23 mm, with no projection; petals 18-23 mm; coronal filaments in 2-4 series, the outermost 9-13 mm, laterally compressed, light green basally, banded purplish-red or dark red near the middle, yellow distally, the next 1-3 series 1.5-6 mm; operculum membranous, plicate, puberulent apically fimbriate and setose; androgynophore 10-12 mm; ovary puberulent. Fruit c. (4-)6-8 × 4-5.5



cm, ovoid and apically conical to c. globose or oblate, light yellowish-green to greenish-yellow, the stipe 15-18 mm; seeds 7.5-11 × 7-9.5 mm, obscurely reticulate with 20-40 hoyuelos centrally, surrounded by large striate wings with erose margins. *Bosques muy húmedo tropical, bosque pluviales premontaños. 20-350 m. (Mexico [Veracruz, Oaxaca].)*

Known from lowland forest and Caribbean slopes just north of our area, this species may occur in Tabasco or Chiapas. The seedlings are lightly puberulent and variegated, with narrow petiolar nectaries. As adults the plants lose the variegation, become glabrous or nearly so (except as noted above), and develop whitish globose petiolar nectaries. Abaxially, the leaves have a glaucous waxy-papillose epidermis. There is notable variation in fruit shape. This and the succeeding three species are rare vines or lianas that form a cohesive and well-marked group that has been given the rank of supersection. The stipules of each are minute and deciduous, the minute laminar nectaries are submarginal when present, and they possess the primitive inflorescence type of a pedunculate dichasial cyme with the central pedicel modified to be a tendril. [**Schk. key - description revised 8-94**]

**5. *Passiflora eueidipabulum*** S. Knapp et Mallet, *Ann. Missouri Bot. Gard.* 71: 1070 (1984 [1985]). Holotype: Panama, *Knapp & Schmalzel 5256* (MO!). Illustr.: Knapp & Mallet, *Ann. Missouri Bot. Gard.* 71: 1071-1072, t. 2, 3b (1984 [1985]).

Large vine to canopy liana, sparsely puberulent at the shoot apex with straight c. glandular trichomes, older growth (except flowers) glabrescent. Stems terete. Stipules 0.2-0.3 mm, narrowly c. triangular, deciduous; petioles 4-6-glandular near the middle to the apex, the nectaries 0.5-0.8 × 0.9-1.3 mm; laminas 9-13(-18) × 6-9(-15) cm, peltate 0.9-2 cm from the margin, entire, not variegated, ovate to widely ovate, unlobed, acute to obtuse (or slightly rounded); laminar nectaries submarginal, borne 0.5-8 mm from margin. Peduncle 1 per node, 0.3-3 cm, 2(-3)-flowered, the pedicels 2-3(-4?) cm, the tendril expressed in the inflorescence, sometimes abscising; bracts 1-2.5(-3.5) × 0.15-0.2(-0.5) mm, narrowly triangular to linear-triangular (narrowly lanceolate). Flowers white with a dark reddish center, the corona light yellow or cream distally, broadly banded reddish basally; stipe 9-15 mm; sepals 22-25 mm, with no projection, puberulent; petals 22-25 mm; coronal filaments in c. 4 series, the outermost 13-15 mm, light yellow-green basally, broadly banded purplish-

red or dark red below or near the middle, light yellow to cream distally, the next c. 3 series succeedingly shorter, 2-8 mm; operculum membranous, plicate; androgynophore 11-14 mm; ovary puberulent to pubescent. Fruit 8.5-10 × c. 5 cm, ovoid to ovoid-ellipsoid, light (greenish?) yellow, the stipe 16-24 mm; arils color unknown; seeds 10-12 × 8-11 mm, obscurely reticulate to rugose in center, surrounded by large striate wings with erose margins. *Bosque pluviales tropicales, bosque pluviales premontaños, o bosque bajos de nubes on ridgetops*. CR (Gentry 48460, MO); P (Antonio 1792, PMA). 200-1000 m. (Endemic.)

The unlobed peltate leaf with 4-6-glandular petiole is diagnostic. Like others in this group, the seeds of *Passiflora eueidipabulum* are remarkable for their four broad wings, slightly more developed than in *P. microstipula*. The epidermis is unique, for the cylindrical trichomes are apparently distally glandular, and the smallest veins of the underside of the leaf form a distinctively raised reticulum that is papillose or with waxy excrescences. The leaves of some specimens, furthermore, have large sessile-capitate glandular trichomes within the reticula. In Costa Rica this has been seen only on the Osa Peninsula.

**6. *Passiflora pedicellaris*** J.M. MacDougal, *Novon* 13: 464, t. 3-5 (2003).

Holotype: Guatemala, *Lundell & Contreras 21209* (LL!). Illustr.: MacDougal, *Novon* 13: 465-466, t. 3-5 (2003). N.v.: granadia, G.

Vine, size unknown, glabrous except minutely puberulent with straight c. glandular trichomes on the prophylls of the vegetative bud, the hypanthium and sepals, and the ovary. Stems terete. Stipules 0.6-1.2 × 0.1-0.2 mm, linear-triangular, late deciduous; petioles eglandular or 1(?)glandular near or slightly distal to the middle, the nectaries 0.8-2 × 0.2-0.4 mm; laminae 9.5-16 × 5.5-10 cm, not peltate, or c. peltate 0.2-0.5 cm from the margin, entire, not variegated, ovate to narrowly ovate, unlobed, acute; laminar nectaries absent. Peduncle 1 per node, 0.15-0.5(-1.8) cm, 1(2)-flowered, the pedicels 0.5-1.5 cm, borne from the base of the tendril; bracts 1.1-1.9 × 0.3 mm, linear-triangular. Flowers white, the corona basally yellow-green, distally bright yellow; stipe 28-36 mm (to 40 mm in fruit); sepals 17-19 mm, with no projection; petals 17-18 mm; coronal filaments in ca. 3 series, the outer 11-13 mm, the inner ca. 2 series 2-5 mm, light green or yellow-green marked with purplish red; operculum membranous, plicate; androgynophore 7-8.5 mm; ovary sparsely to lightly

puberulent. Mature fruit unknown, nearly mature fruit c.  $13 \times 5.5$ -6 cm, ellipsoid, apically conical, color unknown, the stipe 20-25 mm; arils unknown; immature seeds  $6 \times 5$  mm, finely reticulate in the center, with short marginal wings. *Primary moist to wet tropical forests.* G (Lundell & Contreras 21209, MO). c. 300-600 m. (Endemic.)

This species is known only from the type collection in tall moist forest Baja Verapaz, Guatemala. A single unbranched pedicel is borne off a short to obsolete peduncle at or near the base of the tendril; occasionally a second pedicel is borne more distally. This species differs from its closest relatives by reduction of number of flowers per node and by reduction of the petiolar nectaries. The floral stipe is unusually long, matched in this group only by *Passiflora lancetillensis*.

**7. *Passiflora lancetillensis*** J.M. MacDougal et Meerman, *Novon* 13: 460 (2003). Holotype: Belize, *Meerman s.n.* (BRH!). Illustr.: MacDougal & Meerman, *Novon* 13: 461-462, t. 1-3 (2003).

Large vine to low canopy liana, 9-20 or more m, puberulent throughout except adaxial surface of lamina glabrous, and stem glabrescent. Stems terete. Stipules minute, 1 mm or less, deciduous; petioles 8-11-glandular, the nectaries 1.5-2.5 mm in diam.; laminae (8-)10-16(-22)  $\times$  7-15(-19) cm, entire, not variegated, widely ovate to very widely ovate, unlobed, not peltate, abruptly acuminate to obtuse; often with laminar nectaries submarginal, borne 0.5-5 mm from margin. Peduncle 1 per node, 0.1-2(-3) cm, (1)2-4(-6)-flowered, the pedicels 0.3-1.3 cm, often 1- or 2-branched, borne near the base of the tendril, the tendril sometimes aborting; bracts setaceous, 2 mm or less. Flowers white, the corona whitish to cream or very pale orange yellow; stipe 25-42 mm; sepals 18-23 mm, with no projection; petals 19-22 mm; coronal filaments in 3-4 series, the outer 15-20 mm, not banded, the inner 2-3 series 3.5-6 mm, white; operculum membranous, plicate; androgynophore (8-)9-9.5 mm; ovary densely pubescent. Fruit c.  $6.5$ -8  $\times$  4-4.8 cm, widely ellipsoid to subglobose, apically blunt, light green to yellowish green, the stipe 25-30 mm; seeds  $9.5$ -11.5  $\times$  7.0-8.0 mm, finely reticulate in the center, the pits sometimes in rows, with erose marginal wings. *Tropical evergreen or seasonal broadleaf lowland hill forests.* B (Holst & Davidse 5459, BRH); H (Standley 56831, F). 25-750 m. (Endemic.)

Diagnostic are the widely ovate leaves that are puberulent beneath and with 8-11 petiolar nectaries (or 6-11 in juveniles). The peduncles in this species bear both a tendril and flowers, but the peduncles often are reduced to nearly nothing, so that the pedicels may appear to arise from the leaf axils. Unlike its close relatives, the coronal filaments are slender-filiform, much paler and unmarked, and often tortuous.

**8. *Passiflora obovata*** Killip, *Publ. Carnegie Inst. Wash.* 461: 308 (1936).

Holotype: Belize, *Schipp* 713 (F!). Illustr.: Killip, *Publ. Carnegie Inst. Wash.* 461: t. 1 (1936). N.v.: caranil-chó, G.

Large canopy liana to 45 m, glabrous throughout. Stems to 15 cm diam., terete and often conspicuously waxy when young, anomalous secondary growth sometimes resulting in 2-lobed stems below, up to 21 × 14 cm in cross section. Stipules 0.4-0.8 mm, narrowly triangular to triangular, deciduous; petioles 2-glandular slightly to well above the middle or to within 2 mm of apex, the nectaries sessile to slightly raised, 0.8-1.5 mm diam., elliptic (round); laminas (6-)8-12.5 × (3-)4-7 cm, unlobed, entire, not variegated, (narrowly elliptic) elliptic, or slightly ovate to obovate, acuminate to obtuse, the very apex sometimes rounded; laminar nectaries absent (or very rarely 2 borne c. 2.5-4 mm from the margin), minute laminar glands also borne in obscure marginal indentations; juvenile leaves ovate, peltate to 2.5 mm. Tendrils distally adhesive in juveniles, sometimes also in adults. Peduncles (1)2 per node, (0.9-)1.3-3(-3.5) cm, uniflorous; bracts 0.6-1.5 × c. 0.5-0.7 mm, widely triangular to deltate. Flowers white to cream, usually with a broad dull purplish pink band on the proximal half of the outer corona; stipe 9-20(-28) mm; sepals c. 14-18 mm, with no projection, without basal submarginal nectaries or the glands 0.3 mm or less in diam.; petals c. 15-20 mm; coronal filaments in (2-)3 series, the outermost 15-27 mm, the next 2.5-5 mm, the innermost, if present, 1-3 mm; operculum membranous, plicate; androgynophore 9-11 mm; ovary glabrous. Fruit 5-7 × 4-6 cm, widely ellipsoid, yellow-green?, c. estipitate or the stipe to 3 mm; aril color unknown; seeds 5.9-6.5 × 5.8-7.2 mm, coarsely and irregularly deeply rugose, the c. 5-7 ridges radial and partly transverse. *Premontane to lower montane wet primary forests.* B (*Holst* 4194, MO); G (*Kunkel* 495, BR); H (*D. Mejía* 460, MO); CR (*Knapp & Mallet* 871, BH). 850-1400 m. (Mexico [Oaxaca], Mesoamerica.)

*Passiflora obovata* is very rarely collected due to its position in the canopy, although it is common in the wet limestone hills of the southern Maya Mountains of Belize. Laminae nectaries are absent or very reduced; only one leaf was seen with putative submarginal nectaries. The minute strictly marginal glands seen in this and the next species might be hydathodes. The one collection known from Mexico, (*Uitley & Uitley 6968*), has conspicuous sepalar nectary glands similar to those of *P. macdougaliana*, but the species appears to lack these in Mesoamerica. The Costa Rican material has narrower seeds and smaller leaves that are less sharply acuminate than the more northern and type material. Juveniles of this species resemble species in the *P. arbelaezii* group, and are unusual in that they creep like aroids up the smooth trunks of large trees in the primary forest using adhesive tendrils.

**9. *Passiflora macdougaliana*** S. Knapp et Mallet, *Ann. Missouri Bot. Gard.* 71: 1068 (1984 [1985]). Holotype: Panama, *Knapp et al. 4587* (MO!). Knapp & Mallet, *Ann. Missouri Bot. Gard.* 71: 1069, 1072, t. 1, 3a (1984 [1985]).

Large canopy liana, glabrous throughout. Stems terete, waxy when small. Stipules 0.4-0.8 mm, triangular; petioles 2-glandular slightly above the middle, the nectaries sessile to slightly raised, 1.1-2.5 mm diam., elliptic; laminae 8-11 × 5.5-7.5 cm, unlobed, entire, not variegated, ovate or elliptic to very widely ovate, acute to obtuse, the very apex rounded or minutely retuse; laminae nectaries absent or 2 borne c. 1 cm from the margin, a few laminae glands also occasionally present as obscure marginal indentations. Tendrils sometimes distally adhesive. Peduncle 1 per node, 2-2.5 cm, uniflorous; bracts 0.8-1.2 × c. 0.5-0.7 mm, widely triangular to deltate. Flowers white to cream throughout; stipe 17-22 mm; sepals 22-26 mm, with no projection, the outer sepals with conspicuous 1 mm diam. submarginal nectaries at the base; petals 25-30 mm; coronal filaments in c. 8-10 series, the outermost c. 20-26 mm, grading to less than 1 mm at the innermost; operculum membranous, plicate; androgynophore 10-11 mm; ovary glabrous. Fruit and seeds unknown. *Lowland to premontane wet primary forests, low cloud forests on ridges.* P (*Knapp & Schmalzel 5278*, MO). 0-500 m. (Endemic.)

This large and rare species is presently known only from Panamá, along the Río Guanche and from Santa Rita Ridge. It is closely related to the previous species, although the corona is rather different.

**10. *Passiflora suberosa* L., *Sp. Pl.* 958 (1753).** Lectotype (designated by Wijnands, 1983.): Cultivated in *Hortus Uppsalienis*, from the West Indies, *Herb. Linn.* 1070.21 (LINN),

**10a. *Passiflora suberosa* subsp. *litoralis* (Kunth) Port.-Utl., ined. *P. litoralis* Kunth in Humb., Bonpl., et Kunth, *Nov. Gen. Sp.* 2: 138 (1817).** Holotype: Peru, *Humboldt & Bonpland s.n.* (P!). N.v.: sel cikin, granadita de ratón, Ch; chilicayotillo, moquillo, G.

**[\$THE FOLLOWING IS mostly UNEDITED SUBEROSA S.LAT. FROM MESO95, and needs to have *P. pallida* split out from it, following Porter-Utley 2003\$]:** Vine 0.5-3(-4) m, pubescent to c. glabrous, always at least minutely puberulent at the shoot tip. Stems c. terete, pubescent to glabrous.. Stipules (2.5-)4-7.2 × 0.35-0.7 mm, shape linear to linear-lanceolate; petioles 2-glandular on the distal 1/4 of the petiole (very rarely near the middle), often near the apex, the nectaries 0.5-1.3 × 0.5-1.1(-1.4) mm; laminas 2-13 × 1-10(-17) cm, entire, not variegated, lanceolate to widely ovate (obovate or elliptic), unlobed to 3-lobed, the lobing often variable on one stem, the lateral lobes obtuse to absent, the central lobe acuminate to acute (obtuse or rounded); laminar nectaries absent (rarely 1(-5) borne 1-5 mm from margin at each lobe sinus). Inflorescence rarely present as an axillary (very rarely terminal) condensed shoot with reduced to no leaves. Peduncles 1-2 per node, 0.5-2(-4) cm, uniflorous; bracts absent, or rarely 1-2, 0.8-1.5(-2.5) × 0.1-0.15 mm, linear-triangular, setaceous. Flowers light yellow-green, the corona greenish-yellow to light yellow, basally sometimes dull purplish or purplish-red; stipe 2.5-5 mm; sepals 5-8.5 mm, with no projection; petals absent; coronal filaments in (1)2 series, the outer (1.5-)2-4.5 mm, the inner (almost always present) 1-2 mm; operculum membranous, plicate; androgynophore [(1-)2-]4.5 mm; ovary glabrous. Fruit 0.6-1.5 cm diam., c. globose, purplish-black, estipitate; seeds 2.8-3.5 × 1.8-2.2 mm, reticulate with 10-17 hoyuelos. *Edges and trailsides of tropical to temperate subdeciduous forest, often on limestone, open forest of Pinus and Quercus.* Ch (*Breedlove 51972*, CAS); [ \$? ]B (*Fosberg & Sachet 53819*,

MICH); G (*Steyermark 32401*, F); H (*Molina 20635*, EAP); N (*Moreno 19449*, MO); CR (*Smiley 2*, IRVC); P (*L. Edwards & Lawrence 9*, MO). [0]-2100(-2500) m. (Mexico, Mesoamerica to S. America.) [**Sexsiccatae and range partially edited Feb03**]

For two centuries after Linnaeus, the weedy and variable plants in the *Passiflora suberosa* complex were treated as one species. The recent work by Porter-Utley (2003) revealed that there are three very distinct taxa in the complex: a West Indian large-flowered taxon (*P. suberosa* subsp. *suberosa*), a strictly continental taxon that ranges inland from Sonora, Mexico across our area to Argentina and Brazil (*P. suberosa* subsp. *litoralis*), and a circum-Caribbean very small flowered taxon that reaches the Yucatán and eastern coasts of our area (*P. pallida*). The first two could well be considered separate species, but data suggest strong gene flow between them, hence the recognition at subspecific level. Vegetatively all three sometimes can be impossible to separate. This inland continental subspecies (ironically named *litoralis*) is most common in the north of our area, in mountainous seasonally dry or temperate areas. Flowers with coronal filaments in only one row is known only from part of Guatemala.

**[\$augment discussion -see Porter-Utley thesis. FLAS 2003].**

**11. *Passiflora pallida* L., *Sp. Pl.* 955 (1753).** Lectotype (designated by Porter-Utley, in press): an illustration, t. 89 in Plumier, *Descr. Pl. Amer.* (1693). N.v.: cansel ak', zac cansel ak', sac cance ak', sakanke-ak', coceh, Y.

*Passiflora hirsuta* L., *P. minima* L., *P. obovata* sensu Duran García (1983), Sousa & Cabrera (1983) non Killip.

**[\$THE FOLLOWING IS mostly UNEDITED SUBEROSA S.LAT. FROM MESO95, and needs to have *P. suberosa litoralis* split out from it, following Porter-Utley 2003\$]:** Vine 0.5-3(-4) m, pubescent to c. glabrous, always at least minutely puberulent at the shoot tip. Stems c. terete, pubescent to glabrous.. Stipules (2.5-)4-7.2 × 0.35-0.7 mm, shape linear to linear-lanceolate; petioles 2-glandular on the distal 1/4 of the petiole (very rarely near the middle), often near the apex, the nectaries 0.5-1.3 × 0.5-1.1(-1.4) mm; laminas 2-13 × 1-10(-17) cm, entire, not variegated, lanceolate to widely ovate (obovate or elliptic), unlobed to 3-lobed, the lobing often variable on one stem, the lateral lobes obtuse to absent, the central lobe acuminate to acute (obtuse or rounded); laminar

nectaries absent (rarely 1(-5) borne 1-5 mm from margin at each lobe sinus). Inflorescence rarely present as an axillary condensed shoot with reduced to no leaves. Peduncles 1-2 per node, 0.5-2(-4) cm, uniflorous; bracts absent, or rarely 1-2, 0.8-1.5(-2.5) × 0.1-0.15 mm, linear-triangular, setaceous. Flowers light yellow-green, the corona greenish-yellow to light yellow or cream, basally dull purplish or purplish-red; stipe 2.5-5 mm; sepals 5-8.5 mm, with no projection; petals absent; coronal filaments in 2 series, the outer 1.5-4.0 mm, the inner 1-2 mm; operculum membranous, plicate; androgynophore (1-)2-4.5 mm; ovary glabrous. Fruit 0.6-1.5 cm diam., c. globose, purplish-black, estipitate; seeds 2.8-3.5 × 1.8-2.2 mm, reticulate with 10-17 hoyuelos. *Edges and trailsides of tropical to temperate subdeciduous forests, often on limestone, coastal scrub.* Ch ??; Y (Lundell & Lundell 8030, LL); B yes, ... (Fosberg & Sachet 53819, MICH)?; G ??; H ??; ;] N ??; CR ??; P ?? 0-1000 m. (United States [S. Florida, S. Texas], Mexico, Mesoamerica, Caribbean basin, Antilles, West Indies, Hawaii) [**Sexiccatae and range partially edited Feb03**]

This small species is common in maritime scrub in the N. and W. Caribbean (including Belize and Yucatán) and usually has unlobed leaves in our area.

**12. *Passiflora obtusifolia*** Sessé et Moc., *Pl. Nov. Hisp.* 156 (1890). Lectotype (designated by McVaugh, 2000: Sessé & Mociño, Ill. Hunt Institute 6331.830 (1787-1803). N.v.: ala murcielago, bejuco bensejo, ES.

[Discussion and especially measurements *need to updated in light of Porter-Utley 2003* when it is available\$]

Vine m, minutely puberulent throughout at the shoot tip, except. . glabrescent below / pubescence if general .  
 Stems c. angular/ c. terete, vest. . Stipules mm, shape . ; petioles eglandular; laminae . cm, entire, [ad/ab vest.] *not* variegated , shape if unlobed, optional if lobed, unlobed/2-3-lobed, [the lateral lobes-Shape (apex) , the central lobe (apex) .  
 . ], apex shape if unlobed ; laminar nectaries. .  
 . Peduncles (1)2 per node, cm, uniflorous; bracts . mm, linear-triangular. Flowers pale green whiteish/ (color).. , the corona (color) unmarked/ with bands; stipe mm (to mm in fruit); sepals mm, with no projection; petals absent; coronal



filaments in 2 series, the outer - (- ) mm, [form] (color) , , the inner mm; operculum membranous, plicate; androgynophore - mm; ovary glabrous/pubescent/puberulent. Fruit × cm, widely ellipsoid to /c. globose/ to widely obovoid, purplish/bluish-black, estipitate; arils ; seeds × mm, reticulate with xx hoyuelos. *Insert Habitat, collections, ELEV., (Range.).*

**[see xeroxes of specimens] [check (?where?) for specimens include. under coriacea]  
ES (Villacorta et al. 879, LAGU); CR (MacDougal 1486 or 1468, MO; or better to cite InBio specimen)**

**13. *Passiflora eglandulosa*** J.M. MacDougal, *Ann. Missouri Bot. Gard.* 75: 1658, (1988 [1989]). Holotype: Guatemala, *Williams et al.* 25997 (F!). Illustr.: MacDougal, *Ann. Missouri Bot. Gard.* 75: 1660, t. 1 (1988 [1989]). N.v.: ala de murciélago, G, ES.

*Passiflora trinifolia* sensu Standley & Williams (1961), in part, non Mast.

Vine 2-4 m, minutely puberulent throughout with trichomes 0.05-0.10 mm and pubescent with trichomes (0.2-)0.4-0.6(-0.8) mm distributed as noted below. Stems c. terete, glabrescent below, sparsely pubescent above. Stipules (3.5-)5-14(-20) × (2.5-)3-9 mm, ovate, acute; petioles eglandular, adaxially pubescent (at least distally), abaxially glabrescent; laminae 2.8-10(-12) × 4-15(-17) cm, entire, not variegated, adaxially sparsely pubescent on the primary veins, 3-lobed, the lobes acuminate to caudate; laminar nectaries absent. Peduncles (1)2 per node, (0.5-)0.8-1.9(-2.3) cm, uniflorous; ebracteate. Flowers pale to light yellow-green, the corona light yellow apically; stipe (2-)3-5(-8) mm; sepals (6.5-)7.5-9 mm, often flushed abaxially with very deep red to purplish-red, the outermost with a 0.5-1.2 mm blunt projection; petals absent; corona filaments in 2 series, the outer 3-4 mm, the inner 0.7-1.5 mm; operculum membranous, plicate; androgynophore (2.5-)3-4 mm; ovary glabrous. Fruit 1-1.6 × 0.9-1.5 cm, widely ellipsoid to c. globose or slightly obovoid, bluish-black; arils white or grayish; seeds 4.6-5 × (2.9-)3.1-3.5 mm, reticulate with 15-24 hoyuelos. *Shady ravines and edges of wet montane or cloud forests. G (MacDougal 316, DUKE); H (Clewett & Hazlett 3858, TEFH); ES (Molina & Montalvo 21514, NY). 1400-2500 m. (Endemic.)*

**14. *Passiflora tacanensis*** Port.-Utl., *Brittonia* 59: 25 (2007). Holotype: Mexico, Chiapas, *Martínez S. et al. 20782* (MEXU!). Illustr.: Port.-Utl., *Brittonia* 59: 26, t. 2 (2007).

**[\$ need data or specimen from Porter-Utley; I forwarded the specimen to her immediately in 2001]** Vine, size unknown?, [vestiture]. Stems c. terete to obtusely c. angular. Stipules 6-8 × 3-3.7 mm, c. ovate, pointed; petioles 2-glandular near the middle, the nectaries xxx-xxx; laminas xxx-xxx cm, subpeltate xxx mm from the margin, entire, not variegated, transversely elliptic, 2-lobed or c. 3-lobed with very short center lobe, the lateral lobes acute, the central lobe c. truncate to obtuse to obsolete; laminar nectaries absent in the one collection known. Condensed inflorescence unknown. Peduncles xxx per node, 1.1-1.3 cm, uniflorous; bracts absent. Flowers unknown, floral stipe 6-8 mm in fruit, (sepals yellowish green to greenish yellow or cream in related species; petals absent in related species;) androgynophore c. 4 mm. Fruit c. 1.5 cm. diam., ?globose to widely ellipsoid?, purplish-black, estipitate; seeds xxx × 2 xxx mm, reticulate with xxx-xxx hoyuelos. *Wet lower montane forests*. CH (*Martínez 20782*, MEXU). 1700-2700 m. (Endemic.)

Known only from one fruiting collection at the border of Mexico and Guatemala on Volcán Tacaná, this species has notably wide stipules. Laminar nectaries are absent, as in *Passiflora eglandulosa*, but unlike that species, the leaves are essentially bilobed, with petiolar nectaries, and the larger fruits have smaller seeds. The exact elevation is unknown, since the label gives the range of 1700-2700 m.

**15. *Passiflora trinifolia*** Mast., *Bot. Jahrb. Syst.* 8: 217 (1887). Holotype: Guatemala, *Lehmann 1314* (K!).

Vine 0.15-1 m, minutely puberulent throughout at the shoot tip, sparsely puberulent to c. glabrescent below. Stems c. terete to obtusely c. angular. Stipules (3.2-)4.5-8 × (2.5-)3.5-8 mm, c. ovate to very widely ovate, acute or abruptly acute; petioles 2-glandular (near) distal to the middle, the nectaries 0.3-1.1 × 0.7-1.5 mm, occasionally the lowermost fertile nodes bearing leaves without petiolar nectaries; laminas 2.5-3.8 × 3-6 cm, entire, not variegated, oblate to depressed ovate, wider than long, 3-lobed, the lateral lobes acute, the central lobe obtuse to acute; 1-2 laminar nectaries borne 1-4 mm from margin at each lobe sinus. Inflorescence sometimes present as a condensed terminal shoot with reduced to aborted laminas (petioles and their nectaries present). Peduncles (1)2 per node, 0.5-1.1 cm,

uniflorous; bracts absent mm. Flowers light yellow-green, the corona yellowish-green proximally, sometimes slightly purple-spotted, cream (to light yellow) apically; stipe 1.6-2.7 mm (to 3.7 mm in fruit); sepals 9-13 mm, with no projection; petals absent; coronal filaments in 2 series, the outer 4-5 mm, the inner 2-2.5 mm; operculum membranous, plicate; androgynophore c. 3.2-3.5 mm; ovary glabrous. Fruit c. 1.3-1.5 × 1-1.2 cm, c. ovoid to widely ellipsoid, purplish-black, estipitate; seeds c. 3.7-3.8 × 2.3-2.5 mm, reticulate with 10-16 hoyuelos. *Open Pinus with Quercus forest. G (Smith 1207, US). 1500-1600 m.* (Endemic.)

Known only from one highly seasonally dry area of Baja Verapaz, Guatemala, this diminutive species has notably thick leaves.

**16. *Passiflora clypeophylla* Mast.** in J.D. Smith, *Bot. Gaz.* 16: 6 (1891). Holotype: Guatemala, *Donnell Smith 1625 (US!)*

Vine of unknown size (small to medium?), minutely puberulent at the shoot tip, otherwise glabrous or nearly so. Stems (obtusely c. angular?) c. terete. Stipules (2.5-)5-6 × 0.8-1.1 mm, linear-lanceolate or very narrowly oblong, acuminate; petioles 2-glandular near or just proximal to the middle; laminas 5-8 × 7-12 cm, peltate 1-1.4 cm from the margin, entire, not variegated, widely depressed obovate (very widely ovate) c. 3-lobed (to c. unlobed), the lateral lobes obtuse to rounded (slightly retuse), the central lobe obtuse to rounded; 1 laminar nectary borne 6-11 mm from margin at each lobe sinus (midway between central and lateral veins). Peduncles 2 per node, 1.1-2.7 cm, uniflorous; bracts absent. Flowers yellow-green, the corona proximally purplish, apically yellowish; stipe 9-13 mm; sepals c. 7-8 mm, with no projection; petals absent; coronal filaments in 2 series, the outer c. 3.5-4 mm, the inner c. 1.8-2 mm; operculum membranous, plicate, cleft; androgynophore 3-4 mm; ovary glabrous. Fruit and seed unknown. *Secundaria y orillas. c. 700-800 m.* (Endemic.)

*Passiflora clypeophylla* is known only from the type collection from Alta Verapaz, Guatemala. The leaf resembles a shield, and the laminar nectaries are notably reduced.

**17. *Passiflora sexocellata*** Schltld., *Linnaea* 27: 521 (1854 [1856]). Type: not designated; based on a cultivated plant. N.v.: ala de chinaca, Ch; ala de murciélago, G, H; media luna, B, H.

*Passiflora coriacea* sens. auct. non A.L. Juss.

**[\$THE FOLLOWING IS mostly UNEDITED CORIACEA S.LAT. FROM MESO95, and needs to have the Costa Rican/Panamanian *P. megacoriacea* pulled out. Discussion and especially measurements need to updated in light of Porter-Utley 2003 when it is available\$]:**

Vine 2-6 m, puberulent to pubescent at the shoot tip, except the laminae puberulent to c. glabrescent, lightly pubescent to c. glabrescent below. Stems c. terete to obtusely c. angular. Stipules 3.3-6.6 × 0.4-0.8(-1.2) mm, linear to linear-lanceolate; petioles 2-glandular between 1/3 and 1/2 the distance to the apex (rarely slightly distal to the middle), the nectaries 0.3-1.3 × 1.2-1.8 mm; laminae 1.6-6(-10) × 9-18(-28) cm, peltate (2-)4-11(-13) mm from the margin, entire, sometimes variegated, the variegation along the primary (especially lateral) veins or occasionally scattered, depressed obovate to narrowly transversely elliptic, 2-lobed (c. 3-lobed), the lateral lobes acuminate to acute, the short central lobe if present obtuse to obsolete or retuse; laminar nectaries borne 1-6 mm from margin, both proximal to the lateral veins and between the lateral and central veins.

Inflorescence often present as a condensed terminal shoot with aborted laminae (petioles and their nectaries present). Peduncles 2 per node, 0.3-2(-3.2) cm, uniflorous; bracts absent.

Flowers light yellowish-green to pale green, the corona greenish yellow, basally dark purplish red or purplish-brown, apically light yellow; stipe (1.5-)4-16 mm; sepals 10-[18] mm, with no projection; petals absent; coronal filaments in 2 series, the outer 6-[11] mm, the inner 2-4 mm; operculum membranous, plicate; androgynophore 4.5-[x] mm; ovary glabrous. Fruit 1.5-2 cm. diam., globose to widely ellipsoid, purplish-black, estipitate; seeds 4-4.5 × 2.2-2.5 mm, reticulate with 12-17 hoyuelos.  $2n=12$ . *Secundaria de bosques húmedos, orillas de ríos de bosques húmedos*. T (*Rovirosa* 212, K); Ch (*Breedlove* 47251, CAS); Y (*Steere* 1888, US); B (*Gentle* 3931, MICH); G (*Molina & Molina* 27104, F); H (*Schipp* 803, BM); ES (*Standley* 20188, US); N (*F. Ortiz* 2166, MO); CR??. 0-700(-1100) m. (E. Mexico, Mesoameria.) \$END of CORIACEA S.LAT. that still needs editing Feb03\$

This is the common “*Passiflora coriacea*” of authors and horticulture. Studies by Porter-Utley (2003) showed that the true *P. coriacea* A.L. Juss., described from Colombia,

is restricted to NW. and W. South America, and has a whitish or cream, spreading corona with reddish or purplish banding. A recently recognized species from Panama and Costa Rica, treated next, has large flowers with no purple, and the species common in northern Mesoamerica, with the center of the flower dark, carries the old name, *P. sexocellata*. This species is fairly uniform, and does not appear to grow south of Nicaragua.

**18. *Passiflora megacoriacea*** Port.-Utl., sp. nov. ined. Holotype: [CR or PAN].

**\$THE FOLLOWING IS mostly UNEDITED CORIACEA S.LAT. FROM MESO95, and needs to have the northern Mesoamerican *P. sexocellata* pulled out. Discussion and especially measurements need to updated in light of Porter-Utley 2003 when it is available\$** Vine 2-6 m, puberulent to pubescent at the shoot tip, except the laminae puberulent to c. glabrescent, lightly pubescent to c. glabrescent below. Stems c. terete to obtusely c. angular. Stipules 3.3-6.6 × 0.4-0.8(-1.2) mm, linear to linear-lanceolate; petioles 2-glandular [between 1/3 and?] c. 1/2 the distance to the apex, sometimes slightly distal to the middle, especially in Panama, the nectaries 0.3-1.3 × 1.2-1.8 mm; laminae 1.6-6(-10) × 9-18(-28) cm, peltate (2-)4-11(-13) mm from the margin, entire, sometimes variegated, the variegation along the primary (especially lateral) veins or occasionally scattered, depressed obovate to narrowly transversely elliptic, 2-3 lobed, the lateral lobes acute to acuminate, the central lobe obtuse to acute or abruptly acuminate, sometimes obsolete; laminar nectaries borne 1-6 mm from margin, both proximal to the lateral veins and between the lateral and central veins. Inflorescence often present as a condensed terminal shoot with aborted laminae (petioles and their nectaries present). Peduncles 2 per node, 0.3-2(-3.2) cm, uniflorous; bracts absent (or very rarely with 1 bract, 0.5-1 mm, Costa Rica). Flowers to pale green to pale greenish yellow, the corona yellow, basally light green; stipe (1.5-)4-16 mm; sepals 10-18(-22) mm, with no projection; petals absent; coronal filaments in 2 series, the outer 6-11(-14) mm, the inner (sometimes reduced in number) 2-4 mm; operculum membranous, plicate; androgynophore [4.5]-10 mm; ovary glabrous. Fruit 2-3 cm. diam., globose to widely ellipsoid, purplish-black, estipitate; seeds 4-4.5 × 2.2-2.5 mm, reticulate with 12-17 hoyuelos. *Secundaria de bosques húmedos, coastal forests.*; CR [check] (*Grayum et al. 5136*, MO); P (*Duke 13270*, MO). 0-700(-1100) m. (Endemic.)

**\$END of CORIACEA S.LAT.\$**

A species of lowland and coastal Costa Rica and Panama; this has large pale flowers with a yellow corona with green but no red or purple. At its extreme in Panama, it has a leaf that is conspicuously 3-lobed, the lobes acute to acuminate, and a flower with the inner corona sometimes reduced to 10 or only 5 filaments. The stem is often purplish red.

**[NOTE, Feb03: Key still needs to be adjusted to reflect these two species.**

**Discussions and especially measurements need to updated in light of Porter-Utley 2003 when it is available]**

**19. *Passiflora xiikzodz*** J.M. MacDougal, *Novon* 2: 361 (1992). Holotype: Mexico, Campeche, *Lundell 1210* (MICH!). Illustr.: MacDougal, *Novon* 2: 359-360, t. 2, 4 (1992). N.v.: xiik' soots', xi'ik' zodz', zodz' ak', yerba del cuate, Y; bat wing, B.

**[Measurements need to updated in light of Porter-Utley 2003 when it is available]:** Vine 1-3(-6) m, minutely puberulent at the shoot tip, the leaves glabrescent to glabrous. Stems c. terete to obtusely c. angular, minutely puberulent. Stipules (2.8-)3.5-6.5 × 0.4-0.7 mm, linear to linear-lanceolate; petioles 2-glandular on distal 1/4 or at the apex, 0-5(-10) mm from the apex, the nectaries 0.7-1 × 1.3-2 mm; laminas (1.2-)1.5-7.5 × (3.5-)5-19 cm, entire, commonly variegated, depressed obovate to shallowly obtriangular to narrowly transversely elliptic, 2(-3)-lobed or c. truncate, the lateral lobes (acuminate) acute, often rounded at very apex, the central lobe retuse to obsolete (obtuse); laminar nectaries borne 1-12 mm from margin, both proximal to the lateral veins and between the lateral and central veins. Inflorescence often present as a condensed terminal shoot with aborted laminas (petioles and their nectaries present). Peduncles (1)2 per node, 0.1-1.0 cm, uniflorous; bracts absent. Flowers light yellowish-green, the corona dark violet or very dark purple, apically yellowish; stipe 12-30 mm; sepals 9-12 mm, with no projection; petals absent; coronal filaments in c. 5-7 series, the outermost 8-12 mm, very slender-filiform, the inner c. 4-6 series 0.5-5 mm, the 3 innermost greatly apically dilated-capitate; operculum cleft to base into numerous segments; androgynophore 2.6-4.5 mm; ovary glabrous. Fruit c. 2.0-3.2 × 1.5-2.2 cm, ovoid, purplish-black, estipitate; seeds (4.3-)4.5-5.5 × 1.9-2.3 mm, reticulate with 13-22 hoyuelos. *Edges in tropical subdeciduous to humid forests, especially on limestone outcrops, small cliffs, cenotes, and on Mayan ruins.* Y (Martínez S. & Téllez

2910, MEXU); B (*Proctor 29617*, BM); G (*Contreras 8478*, LL). 100-300 m.  $2n=12$ .  
(Endemic.)

This and the following very closely related species are remarkable for the structure of their dark-colored coronas. Unlike relatives in the apetalous group of passifloras, the number of coronal rows is proliferated and the floral nectary appears to be absent. The center of the flower, where the column emerges, is convex, brown or dark purplish brown, and conspicuously lustrous. These unusual modifications of the flower must relate to the pollination system, which is as yet unknown. The stipe of the flower is unusually long in these species, and seedlings and juveniles have intensely variegated leaves. Like most passifloras, and unlike the following sister species, *Passiflora itzensis*, the free portions of the staminal filaments in *P. xiikzodz* spread c. perpendicular to the androgynophore at anthesis and the anthers dehisce towards the corona. The styles, including the stigmas, are 3.5-5.5 mm long.

**20. *Passiflora itzensis*** (J.M. MacDougal) Port.-Utl., comb. nov. ined., *P. xiikzodz* subsp. *itzensis* J.M. MacDougal, *Novon* 2: 363 (1992). Holotype: Mexico, Yucatán, *Lundell & Lundell 7470* (LL!). Illustr.: MacDougal, *Novon* 2: 359-360, t. 3- 4 (1992). N.v.: xiik' soots', xi'ik' zodz', zodz' ak', Y

**[\$Measurements need to be updated in light of Porter-Utley 2003 when it is available\$]:** Vine 1-3(-4?) m, minutely puberulent at the shoot tip, the leaves glabrescent to glabrous. Stems c. terete to obtusely c. angular, minutely puberulent. Stipules (2.8-)3.5-6.5 × 0.4-0.7 mm, linear to linear-lanceolate; petioles 2-glandular on distal 1/4 or at the apex, 0-5(-10) mm from the apex, the nectaries 0.7-1 × 1.3-2 mm; laminae (1.2-)1.5-7.5 × (3.5-)5-19 cm, entire, commonly variegated, depressed obovate to shallowly obtriangular to narrowly transversely elliptic, 2(-3)-lobed or c. truncate, the lateral lobes (acuminate) acute, often rounded at very apex, the central lobe retuse to obsolete (obtuse); laminar nectaries borne 1-12 mm from margin, both proximal to the lateral veins and between the lateral and central veins. Inflorescence often present as a condensed terminal shoot with aborted laminae (petioles and their nectaries present). Peduncles (1)2 per node, 0.1-1.0 cm, uniflorous; bracts absent. Flowers light yellowish-green, the corona dark violet or very dark purple, apically yellowish; stipe 12-30 mm; sepals 7-10 mm, with no projection; petals

absent (very rarely 1-3, to  $8 \times 2$  mm); coronal filaments in c. 5-7 series, the outermost 8-10 mm, very slender-filiform, the inner c. 4-6 series 0.5-5 mm, the 3 innermost greatly apically dilated-capitate; operculum cleft to base into numerous segments; androgynophore absent or to c. 1 mm; ovary glabrous. Mature fruit unknown, c. ovoid, estipitate; seeds unknown.

*Edges in tropical subdeciduous to humid forests, especially on limestone outcrops, small cliffs, cenotes, and on Mayan ruins. Y (MacDougal 4633, MO). 100-300 m.  $2n=12$ .*

(Endemic.)

Very similar to the more common and widespread *Passiflora xiikzodz*, above, this species is extremely similar, differing mainly by the slightly smaller flower with reduced or obsolete androgynophore and styles, and stamens that present pollen upward and away from the corona. The styles including stigmas are only 1.5-2.0 mm long. *Passiflora itzensis* probably occurs in Belize since it has been found very near the border.

**21. *Passiflora auriculata*** Kunth in Humb., Bonpl. et Kunth, *Nov. Gen. Sp.* 2: 131 (1817). Isotype: Venezuela, *Humboldt & Bonpland s.n.* (photo! exB-W).

Vine 3-6 m or more, minutely and densely puberulent at the shoot tip and below, the adaxial surface of the leaves sparsely puberulent, and the stem sometimes glabrescent with age. Stems c. terete, striate. Stipules  $0.5-1 \times 0.2-0.4$  mm, narrowly triangular; petioles 2-glandular in the basal half, the nectaries  $1-2 \times 1.7-3.5$  mm, often yellow; laminae  $(3-6)-14.5 \times (1.7-3)-12.5$  cm, entire, not variegated, broadly lanceolate to widely ovate, unlobed to 3-lobed, the lateral lobes, if present, shallowly triangular, abruptly acuminate to obtuse or obsolete, the central lobe triangular, long acuminate to acute; laminar nectaries borne between main veins and often also outside of lateral veins, often yellow. Peduncles 2 per node,  $0.6-1.5(-2)$  cm, uniflorous; bracts  $0.6-1.3 \times 0.5-1$  mm, ovate-triangular to c. deltate, borne at base of peduncle. Flowers pale greenish yellow, the corona proximally dull purplish, reddish, or purplish-brown, distally pale yellow, light greenish-yellow, to greenish white; stipe 1-1.5 mm (to 3 mm in fruit); sepals (9-)11-15 mm, light yellow-green to greenish-yellow, sometimes flushed red abaxially, with no projection; petals 5-11 mm, white; coronal filaments in 2 series, the outer 9-17 mm, attenuate to the apex, tortuous distally, the inner 2-3 mm; operculum membranous, plicate; androgynophore (3-)4 mm; ovary pubescent. Fruit 1-1.7 cm diam., globose, purplish-black, estipitate; seeds 3-4.3(-4.5)



× 2-3.2 mm, transversely sulcate to irregularly transversely rugose with 5-7(8) sulci.

*Thickets, secundaria, y edges of bosques húmedos o pluviales tropicales o premontaños.* N (Molina 1790, F); CR (Tonduz 13002, CR); P (McPherson 12104, MO). 0-800(-1250) m. (Mesoamerica to N. S. America and the Amazon basin.)

This common trailside species is easily recognized vegetatively by the combination of petiolar nectaries with conspicuous nonmarginal laminar nectaries. Both the bracts and petals are easily overlooked, the bracts being crowded at the base of the peduncle, and the petals being no more than 1.5 mm wide. This species has the unusual behavior of simultaneous (“big bang”) flowering of many buds on one day on various branches of a plant.

**22. *Passiflora holosericea* L., *Sp. Pl.* 958 (1753).** Lectotype: not designated, “Habitat in Vera Cruce.”

*Passiflora sericea* L., sphaema, in Dwyer & Spellman, *Rhodora* **XX:XX** (19XX). [See Standley & Record 1936: 272]

Vine 3-12 m, pubescent throughout. Stems c. terete, becoming corky-winged with age. Stipules 2.5-5 × 0.3-0.4 mm, linear triangular; petioles 2-glandular in the basal half (or near the middle), the nectaries 0.2-1 × 1.5-2.3 mm; laminas 4.5-16.5 × 3-14 cm, entire except 2-cuspidate or 2-denticulate near the base, not variegated, (lanceolate) ovate to widely ovate or ovate-oblong, 3-lobed (rarely nearly unlobed), the lateral lobes obtuse to rounded or truncate, or obsolete, the central lobe (c. acute) rounded; laminar nectaries submarginal, 1-4 borne 1-8 mm from margin. Peduncles 2 per node, (0.2-)0.6-2.5(-4.7) cm, (1-)3(-4)-flowered; pedicels (0.2-)0.5-1.5 cm; bracts 1-5(-8.5) × 0.5-1(-2.3) mm, triangular to linear-lanceolate (narrowly oblanceolate). Flowers white, the corona bright to dark yellow with a dark red or reddish purple band on lower half; stipe 1.5-3 mm; sepals 13-18 mm, projection absent; petals 13-15 mm; coronal filaments in 2 series, the outer 8-14 mm, the inner 2.5-6 mm; operculum membranous, plicate; androgynophore 5.5-7 mm; ovary densely pubescent. Fruit 1.8-3 × 1.7-2.5 cm, widely ellipsoid to c. globose, purplish-black, estipitate; seeds 3.7-4.7 × 2.5-3.3 mm, reticulate with 15-25 hoyuelos. *Matorrales, secundaria, y selvas bajas de zonas tropicales caducifolias, bosques seco, y de zonas costeras,* Ch (Matuda 5830, MEXU); G (Deam 6358, US); H (Molina 3016, F); ES

(*Calderón 2362*, F); N (*Moreno 3132*, MO); CR (*Chacón 1411*, CR); P (*Liesner 336*, MEXU). 0-1000(-1850) m. (Coastal Mexico, Mesoamerica to N. Colombia and Venezuela; Cuba.)

**23. *Passiflora gracilis*** J. Jacq. ex Link, *Enum. Hort. Berol. Alt.* 2: 182 (1822).

Lectotype (designated by Holm-Nielsen et al., 1987): Cultivated in Vienna from seeds from Brazil, *Pohl 1228* (W!).

*Passiflora pediculata* Mast.

Small climber 1-2 m, glabrous and glaucous throughout. Stems terete. Stipules 1.5-4 × 0.2-0.5 mm, setaceous to linear-triangular; petioles 2-glandular on the basal 1/4, the nectaries 0.6-1 × 0.6-1 mm, discoid-stipitate; laminas 2.5-8.5(-10) × 3.4-11(-13.5) cm, entire (or obscurely crenate near laminar nectaries), not variegated, depressed ovate, 3-lobed, the lobes rounded; laminar nectaries borne 0.2-6 mm from margin, both distal and proximal to lateral lobes, and also present as 2 marginal teeth at the base of the lamina. Peduncle 1 per node, 1.5-3.5(-4.9) cm, uniflorous; bracts 1-2(-3), 1-5 mm, setaceous to linear-triangular. Flowers pale greenish white, the corona whitish with 3-5 purple bands and cream or light yellow tips; stipe less than 1 mm; sepals 10-14 mm, distally cucullate-carinate; petals absent; coronal filaments in 2 series, the outer 6-9 mm, the inner 1.5-2.5 mm; operculum membranous, plicate; androgynophore 6-8.6 mm; ovary glabrous, slightly zygomorphic. Fruit 3-4 × 2-2.5 cm, ellipsoid, red to orange-red (at least apically), apically irregularly dehiscent, estipitate; arils orange-red; seeds 3.6-4 × 2.7-3 mm, coarsely reticulate with 1 central hoyuelo (often hexagonal) surrounded by 6 or 7 others. *Mesic or cloud forests thickets, edges of disturbed or cultivated areas.* Ch (*Reyes G. 1402*, MEXU); G (*Steyermark 52177*, F); H (*Zúniga 288*, TEFH); N (*Molina 22925*, F); CR (*Tonduz 7250*, CR). 1000-1500 m. (Mesoamerica to Venezuela and Ecuador, Brasil.)

Definitely native in South America, *Passiflora gracilis* is represented in Mesoamerica by several scattered records of uncultivated material. In Guatemala and Costa Rica these are from near population centers and probably represent naturalized escapes from cultivation. The material from Chiapas, Honduras, and Nicaragua is more possibly native.

**24. *Passiflora quetzal*** J.M. MacDougal, *Novon* 13: 452, t. 3 (2004). Holotype: Guatemala, *Williams et al.* 25994 (EAP!). Illustr.: MacDougal, *Novon* 13: 453, t. 3 (2004).

Vine, size unknown, glabrous throughout. Stems terete, glaucous. Stipules 10-19 × 10-20 mm, auriculate, clasping, widely obtuse, usually abruptly acute and apiculate-mucronulate, the margin entire to c. crenulate, 8-15-glandular; petioles (1)2-glandular near or proximal to the middle, the nectaries 0.6-0.8 × 0.4-0.9 mm; laminae 7-11.5 × 7.5-11.5 cm, c. peltate 2-3(-3.5) mm from the margin, entire, or c. glandular-denticulate basally, not variegated, very widely obovate to widely elliptic or c. circular, shallowly to obscurely 3-lobed, the lateral lobes broadly obtuse to rounded or c. obsolete, the central lobe obtuse or c. rounded, to truncate; laminar nectaries marginal, 4 or 5 glands borne basally, (0)1-8 glands borne just proximal to the lateral veins, and (0)2-8 glands borne marginally distal to the lateral veins. Peduncles (1)2 per node, 3.6-5.8 cm, uniflorous; bracts 2, 0.9-1.3 × 1-1.3 cm, ovate to widely ovate-oblong, free to the base, entire, 6-12-glandular marginally, obtuse to rounded, apiculate or abruptly long-acuminate, light green. Flowers white to greenish-white, the corona color unknown; stipe 2.5-4 mm (to 5 mm in fruit); sepals c. 18-20 mm, with no projection; petals c. 12 mm; coronal filaments in c. 2-3 series, the outermost 16-20 mm, the inner c. 7-10 mm; operculum membranous, plicate; androgynophore 8.5-9 mm; ovary glabrous. Fruit 6 × 3.5 cm, ellipsoid, stipe absent or less than 4 mm; seeds 5.3-6.0 × 3.5-3.9, reticulate with c. 50-60 hoyuelos.. *Bosques muy húmedos o pluviales de montañas*. Ch (*Martínez et al.* 19678, MEXU); G (*Williams et al.* 25994, ENCB). (1800?-)2200-2400 m. (Endemic.)

This rare species is known only from three collections on west-facing volcanic cones of the Sierra Madre near the border of Mexico and Guatemala, from Volcán Tacaná and San Marcos, Guatemala. The leaf is very similar to certain forms of *Passiflora membranacea* from Chiapas, barely peltate, with a pair of petiolar nectaries, and with marginal laminar nectaries not just at the base of the lamina, but also marginally between the primary veins. The flowers are similar to those of *P. guatemalensis* and forms of *P. hahnii*, but the bracts are smaller.

**25. *Passiflora membranacea*** Benth., *Pl. Hartw.* 83 (1841). Holotype: Guatemala, *Hartweg* (K). N.v.: karanáto zak', Ch; granadilla, granadilla amarilla, floracita de lazo, G.

Vine 5-25 m or canopy liana, glabrous throughout (or rarely the laminae lightly pubescent abaxially in Ch) [Check KEY\$]. Stems terete, glaucous. Stipules (5-)7-15(-22) × 13-30(-39) mm, auriculate, clasping, rounded to widely obtuse, usually abruptly acute and apiculate-mucronulate, the margin entire to c. crenate, 5-11-glandular; petioles eglandular (or rarely 1-2-glandular near or distal to the middle, the nectaries 0.3-1 × 0.4-0.7 mm); laminae 5-9 × 6-9 cm, c. peltate to peltate 1-3.5 mm from the margin (to 5 mm in H), entire, or glandular-denticulate basally, sometimes variegated along the primary veins (mainly G and H), widely elliptic to c. circular, or to widely depressed ovate or c. obovate in ES, CR, and P, shallowly 3-lobed to c. unlobed, often purplish-red abaxially, the lateral lobes rounded to obtuse or obsolete, the central lobe (acute, mainly H) obtuse to rounded (retuse); laminar nectaries marginal, 2-6 glands borne basally, 0-22 glands borne just proximal to the lateral veins, and (0)2-13 glands borne marginally distal to the lateral veins. Peduncles 1-2 per node, (6.3-)8-14(-17.5) cm, uniflorous; bracts 2, 2.7-5.0 × 2.5-5(-6.3) cm, (very rarely a 3rd much smaller bract borne proximally, 0.6-1 × 0.6-2 cm or smaller), free to the base, oblong-elliptic to very widely ovate, entire, obtuse at apex, eglandular or often 2-10-glandular marginally in the northern part of range, pink to bright purplish-red. Flowers whitish or cream to light green, the corona cream to pale greenish-yellow and sometimes purplish in basal half; stipe 3-14 mm; sepals (35-)40-63 mm, with no projection; petals (20-)35-55 mm, cream to white; coronal filaments in 1-2 series, the outermost 6-25 mm, free or variably connate, the inner series 1-6 mm; operculum membranous, plicate; androgynophore (27-)30-40 mm; ovary glabrous. Fruit 6-10.5 × c. 4 cm, ellipsoid (obovoid-ellipsoid), sometimes shallowly 3- or 6-sulcate, yellowish-green to yellow, the stipe c. 3-20 mm; arils yellow; seeds (5.3-)5.5-6.3 × 3.3-4.4, reticulate with 35-60 hoyuelos. *Lower montane rain forest to montane rain forest, bosque de nubes, to wet forests of Quercus, Pinus, or Abies.* Ch (*Breedlove 15235*, DS); G (*Diggs et al. 4048*, WIS); H (*Hazlett 818*, MO); ES (*J. Tucker 1187*, UC); CR (*Davidse et al. 25814*, MO); P (*Hammel et al. 7062*, MO). (1200-)1500-3350 m. (Mexico [Guerrero], Mesoamerica.)

Petiolar nectaries are rarely seen in this species, with a few records of inconspicuous glands from Chiapas and Guatemala, and extremely rarely in Costa Rica. Third bracts are a rare aberration, but have been recorded from Chiapas, Guatemala, and Costa Rica. The collections from Honduras are notable in having long (15-17.5 cm)

peduncles and leaves peltate 3.5-5 mm with an acute apex. The corona is reduced and occasionally partially connate in Costa Rica and Panama. Light pubescence under the leaf in a few specimens from Chiapas is very notable in this otherwise completely glabrous group of species. This species is most common above 1900 m, with only one collection seen below 1500 m.

**26. *Passiflora guatemalensis* S. Watson, *Proc. Amer. Acad. Arts* 22: 473 (1887).**

Lectotype (designated by Killip, 1938): Guatemala, *Watson 81* (GH!). N.v.: granadilla chos, Ch; karanoto zak', Ch; snake seed, B; granada, granadilla, H.

*Passiflora hahnii* sensu Killip et auct. non (E. Fourn.) Mast.

Vine 4-10 m or low canopy liana, glabrous throughout. Stems terete, glaucous. Stipules 6-14(-25) × 12-25(-45) mm, auriculate, clasping, sometimes late-deciduous, dentate-fimbriate, the teeth apically filiform with the arista 1-7 mm, rarely with a few marginal glands between (or in place of) the teeth; petioles eglandular; laminas (5-)5.5-11.0 × 4.5-10.2 cm, peltate (3-)5-15(-20) mm from the margin, entire, not variegated, widely ovate to very widely ovate, shallowly 3-lobed to unlobed, the younger leaves sometimes purplish-red abaxially, the lateral lobes absent to obtuse (or short-acute and mucronulate), the central lobe conspicuously longest, acute to long-acuminate; laminar nectaries absent (rarely 2, Chiapas, borne marginally at laminar base). Tendrils rarely distally swollen, c. adhesive. Peduncles 1-2 per node, (0.6-)0.9-2.5(-3.3) cm, uniflorous; bracts (2)3, free to the base, pale green (rarely tinged pink at the margin or apex), deciduous, the 2 apical bracts 1.7-3 × 1.3-2.6 cm, widely ovate to widely ovate-oblong, proximally (3-)6-8(-10)-filiform-dentate (rarely entire, or with 1-4 teeth transformed to marginal glands), (c. rounded) widely obtuse to widely acute, the very apex acuminate-aristate, the 3rd bract (if present) much smaller, borne 4 mm or more from the apex, 0.3-0.7 × 0.06-0.7 cm, lanceolate-attenuate to widely ovate and filiform-dentate. Flowers white, the corona yellow; stipe 2-5 mm; sepals 13-20 mm, with no projection; petals 12-20 mm; coronal filaments in 2-3 series, the outermost (2-)3-8(-10) mm, usually apically dilated-capitate, yellowish-green, yellow (reddish) basally, yellow to bright yellow or orange-yellow distally, the next 1-2 series 2-5 mm; operculum membranous, plicate; androgynophore 3.5-5(-6) mm; ovary glabrous. Fruit 3.5-5.5 × (3-)3.5-4.5 cm, globose to widely ellipsoid, light green to yellow, estipitate, or the

stipe 1 mm or less; arils yellow; seeds (4.6-)5-6.5 × (3.1-)3.3-4.2(-4.5) mm, reticulate with (38-)43-63 hoyuelos. *Secundaria, edges, and ridges of selvas medios y baja subperennifolia o subcaducifolia, bosques húmedos o pluviales tropicales, to lower montane rainforests (rarely montane rainforests)*. T (Cowan 2899, CAS); Ch (Calzada et al. 2776, XAL); B (Gentle 2357, LL); G (Lundell 2015, MICH); H (Nelson & Cruz 8921, TEFH); N (Moreno 7654, MO); CR (Croat 36314, MO); P (Knapp & Mallet 9437, MO). 30-1000(-1700) m. (Mexico [Veracruz], Mesoamerica to Colombia and Venezuela.)

The margin of the stipules also has been called serrate-ciliate or setiferous; it is diagnostic even in juveniles. The leaf resembles that of *Cissampelos* or *Disciphania*. As a rule, there are no laminar nectaries; only in a few collections from Chiapas were basal glands sometimes seen. The presence of two foliose bracts is a characteristic of this group of passifloras, but some species at least occasionally express a third much smaller bract proximally. In *Passiflora guatemalensis* the third bract is the rule in the collections from Costa Rica northward, although it is often early deciduous. This species nearly always grows below 1000 m, but is recorded up to 1500 m in Honduras and at 1700 m on the Gulf slope of Chiapas, in both these areas still growing lower than the next species.

**27. *Passiflora hahnii*** (E. Fourn.) Mast., *Trans. Linn. Soc. London* 27: 638 (1871). *Disemma hahnii* E. Fourn., *Rev. Hort.* 40: 430, t. opp. (1869). Neotype (designated by MacDougal, 2004): Fourn., *Rev. Hort.* 40: 430, t. opp. (1869). Illustr.: Fourn., *Rev. Hort.* 40: 430, t. opp. (1869).

*Passiflora cookii* Killip.

Vine 4-15 m or low canopy liana, glabrous throughout. Stems terete, glaucous. Stipules (6-)9-27 × (11-)15-42 mm, auriculate, clasping, rounded to obtuse, often abruptly acute and apiculate-mucronulate, the margin (denticulate) entire (crenate), (1-)3-6(-8)-glandular, or rarely eglandular; petioles eglandular; laminas 5.5-11(-14.5) × 4.8-11.5(-13) cm, peltate (5-)6-16(-22) mm from the margin, entire, or glandular-denticulate basally, not variegated, or in Chiapas occasionally slightly variegated along the primary veins, widely elliptic to very widely ovate (or widely depressed ovate to nearly circular, especially in Panama), shallowly to obscurely 3-lobed, sometimes purplish-red abaxially, the lateral lobes obtuse to obsolete, the central lobe obtuse or acute and often rounded at the very apex;

(2-)4-10 laminar nectaries borne marginally at the base of the lamina, the glands rarely obsolescent. Peduncles 1(2) per node, 2.5-7.0 cm, uniflorous; bracts 2, 1.9-6.2 × 1.5-6.4 cm, free to the base, widely ovate-oblong to very widely ovate, entire, 1-3(-8)-glandular marginally, or often eglandular (mostly Ch), obtuse and apiculate to rounded, pale to light green, or sometimes also flushed red or reddish-purple. Flowers white, the corona yellow; stipe 3.5-7 mm; sepals 17-28 mm, with no projection; petals 16-28 mm; coronal filaments in 1-5 series, the outermost 6-10(-15) mm, light to bright yellow, distally dilated, the intermediate capitate (if present), grading to 1.8-3 mm at the innermost (greenish with yellowish apex if present); operculum membranous, plicate; androgynophore 6-8 mm; ovary glabrous. Fruit c. 4-5.5 × 4-4.5 cm, globose to widely ellipsoid, yellowish green to purplish, the stipe c. 1-4 mm; arils unknown; seeds c. 6-6.5 × 3.8-4.3 mm, reticulate with c. 42-60 hoyuelos. *Premontane wet to montane rain forests, bosques mesófilos de montañas.* Ch (Croat & Hannon 65146, MO); G (Cook & Griggs 593, US); H (Molina 8212, EAP); CR (Davidse et al. 25663, MO); P (Mori & Kallunki 5899, MO). (550-)1150-2100 m. (Mexico [Veracruz], Mesoamerica, Colombia.)

In our area, this species is found below 1150 m only in part of Chiapas and Guatemala. The base of the lamina is glandular and typically rounded or with a rounded flap, but in the race (species?) represented by the type of *P. cookii* (Veracruz, Mexico to Honduras) it is truncate, with the glands reduced or absent. I have circumscribed *Passiflora hahnii* broadly in that there is great variation in coronal rows and length, and bract size. I could not consistently correlate variations that might indicate genetic coherence. It is likely that there is more than one species here, and the complex deserves further study. *Passiflora hahnii* shows the most variation in Veracruz, Mexico, where the plants may differ slightly from the description given here. There the peduncles range from 1.5-10 cm with large variation in bract size, and near San Andres Tuxtla, a third (proximal) bract is often present and the corona is 2-seriate and only 3-4 mm. Other (typical) collections from Veracruz have a longer, 3-4-seriate corona. The corona is especially variable in this species, with examples seen of 1-seriate in Chiapas, 2-3-seriate in Guatemala (type of *P. cookii*), 4-5-seriate in Costa Rica, and 3-4-seriate in Panama. In any flower, there is often one more series at the base of the petals than at the base of the sepals. Like the last and next species, the leaf resembles that of *Cissampelos*.

**28. *Passiflora cissampeloides*** J.M. MacDougal, *Novon* 14: 445 (2004). Holotype: Honduras, *Hawkins 634* (EAP). Illustr.: MacDougal, *Novon* 14: 446, t. 1 (2004).

Vine to c. 10 m, glabrous throughout. Stems terete, glaucous. Stipules 4-8 × 11-16 mm, auriculate, slightly clasping, the apex truncate and apiculate, the margin entire to obscurely crenulate and c. 3-6-glandular; petioles eglandular; laminas 5-7 × 5-7 cm, peltate 8-10 mm from the margin, entire, not variegated, very widely ovate, obscurely 3-lobed, the lateral lobes obsolete, the central lobe acute or bluntly acute; laminar nectaries absent or to 2 borne marginally at the base of the lamina. Peduncle 1 per node, (1.4-)2-3.2 cm, uniflorous; bracts 2, c. 0.9 × 0.6 cm (one bract seen), free to the base, ovate-triangular, entire or with a very few non-glandular setae proximally, acute, greenish. Flowers whitish to cream, the corona yellowish; stipe 3-4 mm; sepals c. 13 mm, with no projection; petals c. 11 mm; coronal filaments in c. 3-4 series, the outermost 5-6 mm, the inner c. 3 series c. 2-3 mm; operculum membranous, plicate; androgynophore c. 6.5-8 mm; ovary glabrous. Fruit 8 × 3.5(-4?) cm, ellipsoid, color unknown, the stipe 15-20 mm; arils unknown; seeds 4.5-4.9 × 2.7-2.8 mm, reticulate with c. 60 hoyuelos. *Bosques mesófilo de montañas, bosques de nubes con Pinus, Liquidambar, Podocarpus, Quercus, or dense hardwood mixed forests. H (Hawkins 198, EAP). 1450-1850 m. (Endemic.)*

Known only from two collections from Honduras, this poorly known rare species has a peltate leaf similar to *Passiflora guatemalensis* or some lowland forms of *P. hahnii*, and a stipitate fruit like *P. membranacea*. The seeds are markedly than those of related species.

**29. *Passiflora lobata*** (Killip) Hutch. ex J.M. MacDougal, *Phytologia* 60: 446 (1986). *Tetrastylis lobata* Killip, *J. Wash. Acad. Sci.* 16: 368 (1926). Holotype: Costa Rica, *Standley & Valerio 51917* (US!).

*Passiflora pediculata* sensu Woodson & Schery (1958) in part non Mast.

Vine 3-10 m, sparsely to lightly pubescent throughout with uncinat trichomes, except the stem and one surface of the leaf often glabrous or glabrescent. Stems c. terete to 3-carinate. Stipules 4-12(-18) × (1.5-)3-6(-11) mm, entire, caudate; petioles 2-4-glandular at a variable position, the nectaries 1.5-3 × 0.6-1.5 mm; laminas 4-14(-17) × 4-15(-17) cm,



entire or rarely with 1-4 small teeth near the base, not variegated, 3-lobed, the lobes ovate-lanceolate to deltate, acute to acuminate or caudate; 1-5(-7) laminar nectaries borne 3-13(-16) mm from margin at each lobe sinus and sometimes also submarginally proximal to the lateral veins. Peduncles 2 per node, (1.3-)1.7-4(-5.3) cm, uniflorous; bracts (1-)2-4 × 0.2-0.4 mm, linear-oblongate to setaceous. Flowers white except the corona and operculum; stipe absent; sepals 22-35 mm, the projection 1-3 mm; petals 12-23 mm; coronal filaments in 1 series, 10-20(-26) mm, white or white with 1-2 pink or purplish-red bands; operculum eccentric, membranous, plicate, purplish-red (rarely light yellow-green or greenish-white); androgynophore 9-13 mm, curved; androecium strongly zygomorphic with the anthers borne on the lower side of the androgynophore; ovary 4-carpellate, glabrous or rarely puberulent. Fruit (11-)13-18.5 × 3.5-6 cm, obovoid or ellipsoid, exocarp red to dark purplish-red, mesocarp white, dehiscent, the stipe 3.5-9 cm; arils orange-red to reddish-orange; seeds 7-9 × 4.5-6.5 mm, reticulate with 13-20(-25) hoyuelos.  $2n=14$ . *Moist to wet lowland, premontane, or lower montane forests*. N (Stevens 640, MO); CR (Skutch 3798, K); P (Gentry 2808, MO). 0-1400(-2050) m. (Mesoamerica to Chocó and Antioquia, Colombia.)

Forms of *Passiflora lobata* from Panamanian cloud forests resemble the next species but the leaves have laminar nectaries and shallow or obscure lateral lobes. This and the next species have very similar flowers and fruits, and are our only 4-carpellate passifloras. The flowers of both are markedly zygomorphic, with a curved androgynophore. This species is typically lowland to premontane and is very rarely recorded above 1500 m.

**30. *Passiflora dioscoreifolia*** Killip, *J. Wash. Acad. Sci.* 14: 108 (1924). Holotype: Costa Rica, *Stork 436* (US!).

Vine 3-7(-10) m, finely pubescent with uncinata trichomes on the petioles, adaxial leaf surfaces, peduncles, and sepals. Stems c. terete. Stipules 7-14(-17) × (2.5-)4-6(-8) mm, entire, caudate; petioles 2-glandular near or at the apex, the nectaries 1.6-2.5 × 1.6-2.5 mm; laminas 7-13(-18.2) × 3.5-7(-8) cm, entire, not variegated, ovate to narrowly ovate, abruptly acuminate to caudate, unlobed; laminar nectaries absent. Peduncles 1 or 2 per node, (2-)2.5-5 cm, uniflorous; bracts (1.3-)2-4 × 0.2-0.4 mm, linear-triangular. Flowers white except the corona and operculum; stipe absent; sepals 20-33 mm, the projection up to 1.5 mm; petals

14-19 mm; coronal filaments in 1 series, 16-28 mm, white or white with a red or purplish-red band; operculum eccentric, membranous, plicate, purplish-red; androgynophore 8.5-11 mm, curved; androecium strongly zygomorphic with anthers borne on the lower side of the androgynophore; ovary 4-carpellate, glabrous. Fruit 13-21 × 3.5-5 cm, obovoid, exocarp red to purplish-red, mesocarp white, dehiscent, the stipe 4.5-8.5 cm; arils orange-red to reddish-orange; seeds 8.7-9.1 × 5.9-6.5 mm, reticulate with 15-21 hoyuelos. *Low vegetation in lower montane rain and cloud forests.* CR (Dryer 819, F). (1100-)1250-1600 m. (Endemic.)

**31. *Passiflora adenopoda* DC., *Prodr.* 3: 330 (1828).** Lectotype (designated by MacDougal 1994): Mexico: Sessé & Mociño, Ill. Hunt. Institute. 6331.1000. N.v.: granadilla, G; granadilla de monte, G, N, CR; pococa, CR.

Vine 4-15 m, finely pubescent throughout with uncinata trichomes. Stems terete. Stipules 8-18(-25) × 6-15(-18) mm, 3-6-toothed, caudate; petioles 2-glandular on the distal 3/4, the nectaries 3-9 × 1.5-3.5 mm, often stipitate; laminas 7.5-19 × 9-24 cm, denticulate to minutely apiculate or subentire, not variegated, 5(-7)-lobed, the lobes triangular-ovate to lanceolate, acuminate to acute; 2-4 laminar nectaries borne 1-3 mm from the margin at each lobe sinus. Peduncles (1)2 per node, (2-)3-4(-4.8) cm, uniflorous; bracts 9-18 × (5-)8-15 mm, laciniate, deeply 3-7-cleft, the segments incised. Flowers white, the corona white with 4-7 purplish-red to violet bands; stipe 1.5-3.5 mm; sepals 19-35 mm, the projection 2-11 mm; petals 9-15 mm; coronal filaments in 1 series, 10-20 mm; operculum membranous, plicate; androgynophore 9-11 mm; ovary pubescent. Fruit 4.5-7 × 3.5-5.4 cm, widely ellipsoid or obovoid, purplish, the stipe 1.5-7 mm; arils orange; seeds (4.4-)4.8-6 × (2.9-)3.3-3.9 mm, foveate with (25-)31-47 hoyuelos. *Moist to wet premontane to lower montane tropical and mixed forests.* Ch (*Breedlove 47460*, CAS); B (*Gentle 2428*, MICH); G (*Ortiz 1534*, BM); ES (*Linares 2497*, MO); H (*Nelson & Clewell 730*, EAP); N (*Molina 20400*, F); CR (*Haber 1061*, CR); P (*Croat 48810*, HUA). 300-1800 m. (NE. Mexico, Mesoamerica to Venezuela and Peru.)

**32. *Passiflora pendens* J.M. MacDougal, *Syst. Bot. Monogr.* 41: 98 (1994).** Holotype: Mexico, Chiapas, *Breedlove 26065* (DS!). Illustr.: MacDougal, *Syst. Bot. Monogr.* 41: 99, t. 33-3101 (1994).

Vine 5-7 m, finely and sparsely pubescent throughout with uncinata trichomes. Stems terete. Stipules 6-7.5 × 3.5 mm, entire or rarely 1-2-toothed, caudate; petioles 2-glandular on the distal 1/10, the nectaries 2-3 × 1-1.5 mm; laminas 7-9 × 9.5-11.5 cm, denticulate, not variegated, 3(-5)-lobed, the lobes triangular to triangular-ovate, acuminate to caudate (acute); 2-4 laminar nectaries borne 1.5-4 mm from margin at sinuses. Peduncles 1 per node, c. 5.5-8 cm, uniflorous. Bracts 1.9-3.1 × 0.9-1.2 mm, obovate or obtrullate, 3-cleft. Flowers white, the corona white with 6-7 purplish to violet bands; stipe absent; sepals 27-35 mm, with no projection; petals c. 25 mm; coronal filaments in 1 series, c. 25 mm; operculum membranous, plicate; androgynophore 12-13 mm; ovary pubescent. Fruit 5-7 × 4-5 cm, widely ellipsoid, yellowish to light purplish?, the stipe less than 1 cm; arils orange-yellow; seeds 4.7-4.9 × 2.7-2.8 mm, foveate with 27-35 hoyuelos. *Bosques pluviales de montañas*. Ch (MacDougal & Miley 571GR, DUKE). 1700-1950 m. (Endemic.)

This very rare large-flowered species is known only from the vicinity of the type locality in the Municipio de Rayón, Chiapas. The juveniles are deeply lobed.

**33. *Passiflora morifolia*** Mast. in Mart., *Fl. Bras.* 13(1): 555 (1872). Holotype: Argentina, Tweedie 1174 (K!). N.v.: granadilla, G.

*Passiflora heydei* Killip, *P. warmingii* Mast.

Caespitose vine 2-5 m, finely pubescent throughout with uncinata trichomes. Stems c. terete, striate. Stipules 4-7 × (1.5-)4-6 mm, entire or 1-3-toothed, caudate; petioles 2-glandular on the distal 4/5, the nectaries 1-2 × 1-2 mm, urceolate; laminas 5-10 × 5-9 cm, dentate to serrate, not variegated, 3-lobed, the lobes broadly lanceolate to ovate-elliptic, sometimes narrowly obovate, acute to rounded; laminar nectaries absent. Peduncles (1)2 per node, 1.4-2.6 cm, uniflorous; bracts 1.3-6 mm, linear-lanceolate to capillary. Flowers white with dark purple on the base of the androgynophore, the corona white with 1-2 purplish bands; stipe 0.5-1 mm; sepals 14-18 mm, the projection obscure or up to 1.5 mm; petals 7-10 mm; coronal filaments in 1 series, 7-10 mm; operculum membranous, plicate; androgynophore 7-9 mm; ovary pubescent. Fruit 2.5-3 cm in diam., c. globose, purple to bluish-black, the stipe 1.5-3 mm; arils reddish-orange; seeds 4.5-4.7 × 3.4-3.5 mm, reticulate with 9-12 hoyuelos. *Thickets in disturbed seasonally dry semi-deciduous forests*.

G (*Smith 3772*, US). 1200-1360 m. (Mexico [Jalapa], Mesoamerica and N. and W. South America to S. Brasil.)

This primarily South American species is represented in Mesoamerica by disjunct populations near Jalapa, Guatemala, where it appears to be native. The stems die back each year to near the base.

**34. *Passiflora pterocarpa*** J.M. MacDougal, *Syst. Bot. Monogr.* 41: 64 (1994).

Holotype: Guatemala, *MacDougal & Miley 629* (DUKE!). Illustr.: MacDougal, *Syst. Bot. Monogr.* 41: 65, 67, t. 22-23 (1994)

*Passiflora dolichocarpa* sensu Standley & Williams (1961) in part non Killip.

Vine 4-7 m, hispidulous throughout with uncinatate trichomes and rarer straight trichomes. Stem c. terete, striate, to c. 3-angular below. Stipules 8-12(-15) × 3-8 mm, entire or 1-toothed, caudate to aristate; petioles 2-glandular on the distal 4/5, the nectaries 2-2.5 × 1.5-2 mm; laminae 6-9.5 × 7-11 cm, serrate to dentate, not variegated, 3-lobed, the lobes deltate, acute; laminar nectaries absent or rarely 1-2 borne 0.2-2.5 mm from margin at each lobe sinus. Peduncles (1)2 per node, 2-5 cm, uniflorous; bracts 8-10 × 6-7.5 mm, widely ovate, 3-cleft. Flowers white, the corona white with 6-7 violet bands; stipe 1.5-2.5 mm; sepals 20-25 mm, the projection 1-4 mm; petals ca. 11 mm; coronal filaments in 1 series, c. 20 mm; operculum membranous, plicate; androgynophore 9-10 mm; ovary glabrous. Fruit 5-8 × 4.5-5.5 cm, obovoid, strongly and acutely 6-carinate, purplish at least apically, dehiscent, the stipe 7-9 mm; arils reddish-orange; seeds 8 × 5 mm, reticulate with 20-24 hoyuelos.  $2n=12$ . *Montane Pinus-Quercus forests*. G (*Steyrmark 32884*, F). c. 2000 m. (Endemic.)

Known only from the vicinity of the type locality in Jalapa, Guatemala, this rare species has a fruit resembling that of *Averrhoa*. It is easily distinguished vegetatively from *Passiflora dolichocarpa* by the distal position of the petiolar nectaries.

**35. *Passiflora dolichocarpa*** Killip, *J. Wash. Acad. Sci.* 20: 374 (1930). Holotype: Guatemala, *García 584* (US!).

Vine 2.5-5 m, hispidulous throughout with uncinatate trichomes. Stems c. terete, striate. Stipules 9-10 × 3-5 mm, 2-3-toothed, caudate; petioles 2-glandular near the middle

or in the basal half, the nectaries 1.5-2 × 1.4-2.3 mm; laminas 5-13.5 × 4.5-12.5 cm, dentate to denticulate, not variegated, 3-lobed, the lateral lobes obsolete to shallowly triangular, acute to obtuse, the central lobe narrowly triangular to ovate-triangular, acuminate to caudate; 1-5 laminar nectaries borne at or within 2 mm of the margin at each lobe sinus, or rarely absent. Peduncles 1(2) per node, (2.5-)3-4(-6) cm, uniflorous; bracts 4-7 × 3-5(-7) mm, widely ovate to depressed trullate, 3(-5)-cleft or 3-toothed. Flowers whitish, the corona white becoming cream distally, with 3-5 purplish bands; stipe 2-4 mm; sepals 10-14 mm, with no projection; petals 5-8 mm; coronal filaments in 1 series, 6-9 mm; operculum membranous, plicate; androgynophore 4.5-5 mm; ovary glabrous. Fruit 8.3-10 × 3-4 cm, ellipsoid to slightly obovoid, purple to bluish-black, the stipe 2-3 cm; arils orange?; seeds 5.2-5.4 × 4-4.3 mm, reticulate with 25-37 hoyuelos. *Wet montane mixed or Quercus-Pinus forests of the vertiente Pacífico of the Cordillera Madre*. Ch (Matuda 1892, MEXU); G (Steyermark 46634, F). 2000-2500 m. (Endemic.)

**36. *Passiflora pilosa*** Ruíz et Pav. ex DC. *Prodr.* 3: 330 (1828). Holotype: México, Guerrero, *Herb. Pavón. s.n.* (BM-herb. Lambert!).

**36a. *Passiflora pilosa*** subsp. ***dimidiata*** J.M. MacDougal, *Syst. Bot. Monogr.* 41: 88 (1994). Holotype: México, *Anderson & Anderson 4869* (MICH!). Illustr.: MacDougal, *Syst. Bot. Monogr.* 41: 89, t. 31 (1994). N.v.: granadilla castilla, granadilla de monte, G.

*Passiflora morifolia* sensu Standley & Williams (1961) in part non Mast., *P. sicyoides* sensu Standley & Williams (1961) in part non Schltld. & Cham.

Vine 0.7-2 m, hirsute to hispid throughout with straight to slightly curved trichomes. Stems terete, striate. Stipules 7-16 × 2-6 mm, entire, caudate; petioles 2-glandular between 4/10 and 3/4 the distance to their apices, the nectaries 1-2 × 1.5-2 mm; laminas 3-8 × 4-10 cm, slightly denticulate to serrate, not variegated, 3-5-lobed, the lobes narrowly ovate, acute to rounded; laminar nectaries absent. Peduncles (1)2 per node, (0.7-)1-2.1 cm, uniflorous; bracts 4-7.5(-8.5) × 0.3-1.2 mm, linear-lanceolate to linear-ob lanceolate. Flowers white, the corona white to cream, with 4-5 purplish bands; stipe 0.5-1.5 mm; sepals 9-16(-20) mm, with no projection; petals 9-13 mm; coronal filaments in 1 series, 9-11 mm; operculum membranous, plicate; androgynophore 7.5-8 mm; ovary

glabrous. Fruit 3-3.8 × 2.3-2.7 cm, ovoid to widely ovoid, pale green, or whitish distally, the stipe 1.5-3 mm. Seeds 4.5-5.2 × 2.8-3 mm, reticulate with 45-68 hoyuelos. *Grassy open Quercus or Quercus-Pinus forests*. Ch (*Webster et al. 17761*, CAS); G (*Steyermark 50444*, US). 1300-2000 m. (S. Mexico, Mesoamerica.)

The typical subspecies occurs in S. C. México.

**37. *Passiflora cobanensis*** Killip, *J. Wash. Acad. Sci.* 14: 111 (1924). Holotype: Guatemala, *Johnson 411* (US!). N.v.: granadilla, G, B.

*Passiflora brevipes* Killip.

Vine 3-6 m, puberulent to densely pubescent throughout. Stems unevenly 3-5-angular. Stipules (3.5-)5-11 × (1-)1.5-5 mm, narrowly ovate to obovate or lanceolate to oblanceolate, or elliptic, acuminate to caudate; petioles eglandular; laminas (4.5-)6-14(-19) × 3-7(-8) cm, entire, not variegated, ovate, acute to long acuminate, unlobed, strongly 3-nerved in proximal half; laminar nectaries absent. Inflorescence occasionally a condensed axillary shoot 0.2-3.5 cm with reduced or no leaves. Peduncles 2 per node, (0.2-)0.6-1.6 cm, uniflorous; ebracteate. Flowers pale green to light greenish-yellow, the corona purplish or reddish with light yellow apices; stipe 1-5 mm (to 2.5-8.5 mm in fruit); sepals 9-13 mm, with no projection; petals 4.5-7 mm; coronal filaments in 2 series, the outer 3-5 mm, the inner 1.2-2 mm; operculum membranous, plicate; androgynophore 4-5 mm; ovary densely puberulent. Fruit 2.1-5 × 1.4-2 cm, obovoid or ellipsoid, basally stipitate or attenuate, apically conical or with a short beak, acutely 6-carinate, dark red? or reddish brown, dehiscent?; arils unknown; seeds 3.7-4.5 × 1.9-2.3 mm, transversely grooved with 6-7(8) sulci. *Atlantic lowland wet forests to lower montane rainforests, especially limestone outcrops or on ridges*. Ch (*Breedlove 49881*, MO); B (*Schipp 1304*, F); G (*Steyermark 45674*, F). 120-1000(-1700) m. (Endemic.)

The variant described from lowland Belize as *Passiflora brevipes* has relatively broader, thicker leaves, a more triangular stem with shorter trichomes, and a shorter floral stipe. It may deserve subspecies status. This species is unusual in having unlobed leaves.

**38. *Passiflora pusilla*** J.M. MacDougal, *Ann. Missouri Bot. Gard.* 75: 392 (1988). Holotype: Nicaragua, *Stevens 22968* (MO!).

Decumbent or climbing herb, 0.12-0.9 m, more or less pubescent throughout (rarely the adaxial surface of the leaf glabrous or nearly so). Stems c. 3-angular. Stipules (1.5-)2-5 × 0.4-0.5 mm, linear-triangular; petioles eglandular; laminae 1-2.5(-3.8) × 2-5(-7) cm, entire, sometimes with a trace of variegation, shallowly 3-lobed, the lobes obtuse to c. rounded; laminar nectaries absent. Peduncle 1 per node, 0.4-1.5(-2.1) cm, uniflorous; ebracteate. Flowers c. light yellowish-green, the corona yellow apically, greenish and sometimes banded purplish basally; stipe 1-2.5 mm; sepals 7-10 mm, with no projection; petals 2.7-c. 5 mm; coronal filaments in 2 series, the outer 5-7 mm, the inner 0.2-1.5 mm; operculum membranous, plicate; androgynophore (3.8-)4.2-6 mm; ovary puberulent. Fruit 3.5-4 × 0.5-0.7 cm, narrowly fusiform, attenuate at both ends, distally caudate, 6-angular, greenish, dehiscent; seeds 3.1-3.3 × 1.7-1.8 mm, transversely sulcate with c. 6 sulci, the ridges appearing as 2 longitudinal rows of 5 teeth per face. *Edges of tropical deciduous forests and sonsocuites, gallery forests*. N (Stevens 22898, MO); CR (Rodríguez C. 464, CR). 50-200(-800) m. (Mexico [Oaxaca], Mesoamerica.)

This diminutive species is little known, and occurs mainly on the Pacific slope near the Nicaraguan-Costa Rican border. There the leaf is pubescent. A single specimen (*King 1983*, TEX) of what appears to be this species has been collected in Pacific tropical deciduous forest in Oaxaca, Mexico, c. 35 km from the border of Chiapas. The leaves of the Mexican collection are adaxially glabrous.

**39. *Passiflora capsularis* L., *Sp. Pl.* 957 (1753).** Type: not designated, “Habitat in Gallia aequinoctiali,” apparently French Guiana.

Vine 1-4(-7) m, pubescent throughout, or the adaxial surface of the lamina nearly glabrous with the primary veins puberulent, and sometimes the stem glabrescent with age. Stems c. 3(-4)-angular. Stipules 3-6(-7.5) × 0.4-0.7 mm, linear to linear-triangular; petioles eglandular; laminae 2-7(-10) × 3-10(-13) cm, entire, sometimes variegated, very widely obovate to c. square, 2-lobed, (rarely c. 3-lobed), the lobes acuminate to acute (rarely slightly rounded), (the central lobe, if present, reduced and obtuse or rounded, cusp-like); the lobe angle (45-)55-80°; laminar nectaries absent. Peduncles 1(2) per node, 0.6-2(-2.5) cm, uniflorous; ebracteate. Flowers white, the corona pure white or cream; stipe 1.5-5 mm; sepals 13-23 mm, with no projection, white, sometimes flushed reddish abaxially; petals 9-16 mm; coronal filaments in 1(2) series, the outer 9-16 mm, the inner (if present) 0.3-2 mm; operculum membranous, plicate; androgynophore 7-

9(-10) mm; ovary puberulent (pubescent). Fruit 3-7.5 × 1.2-2.5 cm, obovate to fusiform-ellipsoid, narrowed or conical at both ends, or somewhat rounded and apiculate distally, 6-ridged to sharply 6-carinate, red, dark red, or dark purplish red, sometimes white or cream between the ridges or apically, dehiscent, the stipe c. 2-15 mm; seeds 3-4.1 × 1.5-2 mm, transversely sulcate with (6-)7-9 sulci. *Roadsides, thickets, and secundaria in bosques mixtos, bosques húmedos premontaños, o bosques pluviales de montañas bajas.* G (*MacDougal 624, DUKE*); H (*Molina 12920, EAP*); N (*Ortiz 2155, MO*); CR (*Burger & Baker 9673, CR*); P (*Knapp & Vodicka 5500, MO*). (450-)750-1650. (Mesoamerica to Brasil.)

The application of the name *Passiflora capsularis* is controversial; in this treatment it is used in a sense compatible with Killip (1938), and is applied to our species of middle to upper elevations that bears c. erect unmarked white flowers. The upper surface of the leaf is nearly glabrous in plants from the wettest upper elevations in Costa Rica and Panama; at the middle elevations, and in the northern part of the range, the leaf is pubescent to hirsutellous.

**40. *Passiflora quinquangularis* S. Calderón ex J.M. MacDougal, *Novon* 14: 454 (2004).** Holotype: El Salvador, *Calderón 851* (US!). Illustr.: MacDougal, *Novon* 14: 454, t. 4 (2004), N.v.: calzoncillo, bejuco calzoncillo, calzón de mujer blanco, bejuco calzón de hembra, bejuco de calzón de mujer, ala de murciélago, ES.

*Passiflora capsularis* sensu Killip (1938) in part, Standley & Williams (1961) in part, Vanderplank (1991) in part, non L.

Vine 2-4 m, pubescent throughout (sometimes the stems glabrescent with age). Stems 5-angular. Stipules 4-7 × 0.4-0.9 mm, linear-triangular, falcate; petioles eglandular; laminas 4-10(-14) × 4-9(-11) cm, entire, not variegated, widely oblong-obovate (widely oblong), 2(-3)-lobed, the lateral lobes acute to rounded, the lobe angles (30-)35-45(-60)°, the central lobe (obtuse) rounded to obsolete; laminar nectaries absent. Older plants sometimes flowering on nearly leafless condensed lateral branches. Peduncles 1 (very rarely 2) per node, (1.5-)3-5.5(-9.3) cm, uniflorous; ebracteate. Flowers greenish-white to cream with a light purplish center, the corona white in distal half, light reddish-purple proximally, purplish-red basally; stipe 3-5 mm (to 7 mm in fruit); sepals 15-25(-29) mm, with no projection, pale greenish-yellow, abaxially light yellow-green and often flushed with red; petals 10-15 mm, white or pale greenish-yellow; coronal filaments in 2 series, the outer 11-18 mm, the inner 3-4.5 mm; operculum membranous, plicate;



androgynophore (7-)8-10 mm; ovary densely puberulent. Fruit 3-4.5(-6) × 1.5-2(-3) cm, broadly fusiform to ellipsoid, conical at both ends or apically with a beak, acutely 6-carinate, yellowish-green, dehiscent, the stipe c. 3 mm; seeds 3.4-4.0 × 1.7-2.4 mm, transversely sulcate with 6-7(-8) sulci. *Thickets, brushy hillsides in mixed forests or selvas bajas caducifolias. G (MacDougal & Miley 626, DUKE); ES (Standley 19733, US), CR (Estrada s.n. in 2001, CR!). 580-1400(-1600) m. (Mexico [Oaxaca], Mesoamerica.)*

This species is notable for its long and very slender peduncles (less than 0.5 in diameter), upon which the acuminate buds and the flowers are pendent; due to curvature of the floral stipe, however, the open flowers face horizontally. The illustration of *Passiflora capsularis* in Standley & Williams (1961) is actually this species (except for the fruit).

**[\$check my corrected copy of PROTOLOGUE\$]**

**41. *Passiflora citrina*** J.M. MacDougal, *Ann. Missouri Bot. Gard.* 76: 354 (1989).

Holotype: Honduras, *Molina R. & Molina 26057* (F!). Illustr.: MacDougal, *Ann. Missouri Bot. Gard.* 76: 355, t. 1 (1989). N.v.: moco, G; calzoncillo, H.

Vine 2-4 m, pubescent throughout. Stems c. 5-angular. Stipules 4-7(-11) × 0.5-0.9 mm, linear-triangular, falcate; petioles eglandular; laminas (2-)3-7(-10) × (1.5-)3-8(-9.5) cm, entire, juveniles variegated, the variegation sometimes retained at reproduction, widely obovate (obtriangular to widely oblong), 2(-3)-lobed, the lateral lobes acuminate to rounded, the central lobe(acute) obtuse to obsolete; laminar nectaries absent. Peduncles (1)2 per node, (0.4-)0.7-3.2(-4.3) cm, uniflorous; ebracteate, (very rarely with one bract near the apex, 2-4 × 0.2-0.4 mm, linear to linear-triangular). Flowers light to bright yellow, c. tubular basally, the corona light yellowish or whitish with yellow apex; stipe 1.5-4 mm; sepals 20-30(-34) mm, basally connate 2-6 mm, with no projection; petals 19-28 mm, basally adnate at the margins to sepals; coronal filaments in 1(2) series, the main series basally connate and adnate 9-15 mm to the perianth, the free portions 3-6 mm, inner series, if present, 10 or less, 0.8-2 mm long; operculum membranous, only slightly plicate near the erose apex; androgynophore 21-28 mm; ovary pubescent. Fruit (2.5-)3-4.3 × 1.2-2.3 cm, fusiform-ellipsoid or slightly obovoid, basally conical or slightly attenuate, apically conical, acutely 6-carinate, reddish or yellowish green sometimes flushed red, dehiscent, the stipe 1-8 mm; arils white; seeds 3.5-4 × 2.2-2.4 mm, transversely sulcate with 6-7(8) sulci. *Matorrales and edges in bosquea húmeda de Pinus, Pinus-*

Liquidambar, *o mixto mesófilos*. G (*Molina & Molina 26821*, F); H (*MacDougal et al. 3469*, TEFH). (600-)1000-1500 m. (Endemic.)

The lemon yellow flower, partly fused and somewhat tubular at the base, has a distinctively long androgynophore and sets this species apart from its relatives in Mesoamerica. Floral bracts are fundamentally absent in this species, but in *Molina 6510* the peduncles occasionally bear a single bract at the apex.

**42. *Passiflora costaricensis*** Killip, *J. Wash. Acad. Sci.* 12: 257 (1922). Holotype: Costa Rica, *Tonduz 9327* (US!).

Vine (2-)4-12 m, sparsely to evenly hirsute throughout. Stems sharply 3-angular and 3-carinate. Stipules (3-)5.5-12 × (0.4-)0.6-1.5(-2) mm, linear-triangular, falcate; petioles eglandular; laminae (8-)10-14(-16.5) × 6.5-13.5(-15) cm, entire, not variegated, truncate-elliptic to truncate-obovate, adaxially coarsely hirsute with most trichomes 1 mm or longer, 2-lobed, the lobes acuminate to acute, the lobe angle (25-)28-42(-46)°; laminar nectaries absent. Larger plants sometimes cauliflorous, the inflorescence a condensed leafless axillary shoot 0.3-5(-10) cm. Peduncles (1)2 per node, (0.2-)0.5-1.4(-1.8) cm, uniflorous; ebracteate. Flowers greenish-white, cream, or pale greenish-yellow (the sepals and petals rarely also centrally flushed purplish), the corona whitish and unbanded, or purplish near the base; stipe (3-)5-8(-12) mm; sepals 14-22(-25) mm, with no projection; petals 10.5-16(-18) mm; coronal filaments in 1-2 series, the outer 10-15 mm, the inner (if present) 1-3.5(-5) mm; operculum membranous, plicate, usually setose at the apex; androgynophore 7-9(-10) mm; ovary puberulent. Fruit 6-11 × 1.5-2.5 cm, fusiform to slightly narrowly obovoid and apically conical, obtusely 6-ridged, dark red to purplish-red and often pink to white between the ridges, sometimes mostly white with pink lines, dehiscent; seeds 3.1-3.6(-4.1) × 1.7-1.9(-2.1) mm, transversely sulcate with 7-9 sulci. *Edges of primary forests, secondary growth in lowland to premontane tropical wet forests*. Ch (*Breedlove 45938*, CAS); G (*Steyermark 49407*, F); B (*Holland & Kid 95*, MO); H (*MacDougal et al. 3208*, TEFH); N (*Standley 19314*, F); CR (*Chacón 863*, CR); P (*Kennedy & Foster 2202*, MO). 0-900(-1800) m. (Mexico [Veracruz], Mesoamerica to W. Ecuador.)

Juveniles apparently are not variegated. In the northern part of its range, *Passiflora costaricensis* has larger, paler flowers with one row of coronal filaments, a blunter, more long-

obovoid fruit, relatively broader seeds, and leaves that are relatively wider, with larger lobe angles, and longer trichomes.

**43. *Passiflora rovirosae*** Killip, *J. Wash. Acad. Sci.* 12: 259 (1922). Holotype: México, Tabasco, *Rovirosa 813* (photo F! ex PH). N.v.: Jujito blanco, T; granada, Ch.

Vine 4-15(-20?) m, puberulent to pubescent throughout. Stems 5-angular. Stipules 4-9 × 0.5-1 mm, linear-triangular, falcate; petioles eglandular; laminae 7.5-12 × 5-9.5 cm, entire, not or only obscurely variegated at reproduction, adaxially minutely puberulent or sparsely pilosulous with trichomes less than 1 mm, truncate-ovate (to truncate-elliptic), 2-lobed or truncate at the apex, the lobes acute, the lobe angles 22-30(-42)°; laminar nectaries absent. Plants usually cauliflorous, the inflorescence a condensed leafless axillary shoot 0.5-7 cm. Peduncles (1)2 per node, 0.5-1.6(-2.3) cm, uniflorous; ebracteate, (very rarely with 1 bract, 0.5-1 mm, narrowly triangular). Flowers cream, or pale yellow to pale greenish yellow, the corona white and spotted red or purplish-red in the basal half, light yellow in the distal half; stipe 6-15(-22) mm; sepals 20-28 mm, with no projection; petals 18-26 mm; coronal filaments in 2 series, the outer 13-16 mm, the inner 2.5-3.5 mm; operculum membranous, plicate; androgynophore 8-9 mm; ovary puberulent. Fruit 6-10.5 × 1.5-2.5 cm, fusiform, obtusely 6-ridged, dark red to purplish-red, dehiscent; seeds 3.8-4.3 × 2.2-2.5 mm, transversely sulcate with 7-9 sulci. *Edges of primary lowland tropical wet forests.* T (*Matuda 3283*, MEXU); Ch (*Breedlove 33970*, CAS); B (*Gentle 810*, WIS); G (*Bartlett 12691*, CAS). 0-350 m. (Mexico [Veracruz], Mesoamerica.)

Floral bracts are fundamentally absent in this species, but a sporadic occurrence of one per peduncle is seen in some sheets of *Matuda 3283*. Juveniles are conspicuously variegated along the veins of the lateral laminar lobes.

**[\$needs entering in key\$]**

**44. *Passiflora escobariana*** J.M. MacDougal, *Novon* 2: 365 (1992). Holotype: Colombia, *MacDougal et al. 3823* (HUA!).

Vine 5-10 m, minutely puberulent throughout, especially at the shoot tip. Stems c. 4-5-angular. Stipules 5-7 × 0.5-0.7 mm, linear-triangular to falcate; petioles eglandular; laminae 7-25 × 6-12 cm, entire, adaxially sparsely but evenly pubescent with trichomes 0.2-0.8 mm, abaxially lightly pubescent, not variegated, 2(3)-lobed, the lateral lobes acute to acuminate, the central

lobe obtuse; the lobe angle 33-50°; laminar nectaries absent. Peduncles (1)2 per node, 0.5-2.6 cm, uniflorous; bracts absent. Flowers cream to whitish, sometimes tinged all pink with age, with a reddish center, the corona white to cream, marked reddish purple in basal half, cream distally; stipe 2.5-5 mm (to 10 mm in fruit); sepals c. 20 mm, with no projection; petals c. 17 mm; coronal filaments in 1(2) series, the outer 10-12 mm, the inner usually absent, or a few capillary filaments 2-3 mm; operculum membranous, plicate; androgynophore c. 7 mm; ovary minutely densely puberulent. Fruit c. 7 × 2.5 cm, fusiform, 6-ridged, red on ridges, cream between ridges, dehiscent; seeds unknown. *Edges of primary lowlands and premontane tropical wet forests. P (Herrera 720, MO). 100-1000 m. (Mesoamerica to NW Colombia).*

Known from only two collections.

**45. *Passiflora sexflora*** Juss., *Ann. Mus. Natl. Hist. Nat.* 6: 110 (1805). Holotype: Dominican Republic, *Poiteau s.n.* (P). N.v.: ala de murciélago, Ch, G; granadilla chos, shel chikin, shelchikinchin'ak, muk'ul k'uxk'ux chuxubel, Ch; caranil-chóo, granadilla, G,.

*Passiflora isotriloba* Cufod.

Vine 2.5-8 m, densely pubescent throughout. Stems c. terete to c. oblong, c. striate. Stipules 4-9(-11) × 0.4-0.8(-1) mm, linear-lanceolate, c. falcate; petioles eglandular; laminae (2.5-)3-12 × (3-)4-12(-17) cm, entire, not variegated, shape very widely obovate to depressed obovate (widely depressed obovate), shallowly 2-3-lobed, the lateral lobes acute (rounded), the central lobe obtuse (c. rounded or rarely obsolete); laminar nectaries absent. Peduncles (1)2 per node, [\$\$\$FIX KEY] 0.15-1.0(-1.5) cm to the first branch, (peduncle 1.5-3 cm if unbranched), (1)2-5-flowered, pedicels 0.6-2.5(-4.0) cm; bracts (1.2-)1.5-7(-9) × (0.2-)0.4-2.5(-3.5) mm, (lanceolate) fusiform to obovate, usually 3-cleft or 3-toothed (entire to 5-cleft). Flowers pale yellow-green, cream, or whitish, rarely with purplish flush basally on segments of perianth, the corona whitish to cream, proximally with a broad band of dull violet to deep purplish; stipe 0.5-2.2 mm; sepals 7-16 mm, with no projection; petals 6-11 mm; coronal filaments in 2 series, the outer 3.5-7 mm, filiform, the inner 2-3.5 mm; operculum membranous, plicate; androgynophore (4-)4.5-7 mm; ovary (glabrous) densely pubescent. Fruit 0.7-2 × 0.7-1.4 cm, ovoid-ellipsoid to globose, purplish-black, estipitate; seeds 2.3-3.4 × 1.6-2.5 mm, transversely sulcate with 6-7(8) sulci. *Edges and trailsides of moist forests of Pinus and Quercus, premontane to lower montane moist or wet forests, bosques mesófilo de montañas, cloud forests. Ch (Breedlove 41964,*

CHAPA); G (*Steyermark 35464*,F); B (*Short et al. 236*, MO); H (*Molina & Molina 24401*, EAP); N (*Molina 22905*, EAP); CR (*MacDougal 790*, DUKE); P (*Schmalzel & Todzia 2032*, MO). (450-)800-2200(-2700) m. (United States [Florida], Mexico, Mesoamerica to Ecuador, Antilles.)

This is a widespread species and shows significant variation in the size of the flower and number of flowers per peduncle. Flowers are larger and whiter in Costa Rica and Panama, and one such form from Costa Rica with unbranched peduncles was named *Passiflora isotriloba*. The type, with small flowers, is from the West Indies. The lowermost peduncles on any stem are often uniflorous, but some specimens (especially from Nicaragua) seem to retain this condition at higher nodes. A consistent and well-marked variant from Baja Verapaz, Guatemala, has deeply bilobed widely-angled leaves with acuminate lobes. The ovary is densely pubescent in all specimens examined except glabrous or sparingly pilose in a few from high elevations above 2500 m in Costa Rica and Chiriquí, Panamá. The length of the peduncle to the first branch extremely rarely exceeds 1.0 cm, and thus serves, along with bract width, to help distinguish this larger-flowered species from the next.

**46. *Passiflora rugosissima*** Killip, *Publ. Field Mus. Nat. Hist., Bot. Ser.* 19: 227 (1938).  
Holotype: Mexico, Chiapas, *Matuda 477* (US!).

Medium vine, densely pubescent throughout. Stems obtusely c. angular or flattened (c. terete?), c. striate. Stipules 7-10(-12) × 0.5-0.9(-1.2) mm, linear-lanceolate, c. falcate; petioles eglandular; laminae 3-7 × 5-13.5 cm, entire, not variegated, widely depressed obovate to depressed obovate, 2-3-lobed, the lateral lobes acute (or the very apex abruptly obtuse), the central lobe obtuse (obsolete); laminar nectaries absent. Peduncles 2 per node, (1.0-)1.4-3.0(-3.8) cm to the first branch, 5-8(-10?)-flowered, pedicels 0.5-1.7 cm; bracts (4.5-)6.5-10(-12) × (1.0-)3-8(-12) mm, widely fusiform to very widely ovate in outline, (entire) 3-7-cleft, -lacerate, or -deeply toothed. Flowers pale yellow-green (c. whitish), the corona cream (whitish); stipe 0.8-2 mm; sepals 7-10 mm, with no projection; petals 6-8.5 mm; coronal filaments in 2 series, the outer 2.5-3.5 mm, filiform, the inner 1.5-2.5 mm; operculum membranous, plicate; androgynophore 3.8-5 mm; ovary densely pubescent. Fruit c. 10-15 × 9-12 mm, ovoid to c. globose, purplish-black, estipitate; arils unknown; seeds 2.9-3.2 × 1.9-2.2 mm, transversely sulcate with 7-8 sulci. *Montane wet to rain forests, cloud forests, bosque mesófilo de montañas*

or its transition to wet Pinus-Quercus forests. Ch (*Breedlove & Bartholomew 55786*, CAS).  
1700-2600 m. (E. Mexico, Mesoamerica.)

Despite the apparent overlap in the key of peduncle length and bract width with *Passiflora sexflora*, this species is very distinctive and has much larger bracts than that species. It also has thicker leaves usually with a wider lobe angle. The inflorescence has 2-4 orders of branching, with the bracts becoming successively smaller; the smallest bracts cited here are from higher order branches. The bracts are smaller and less lacerate/ cleft in the north of its range.

The phyllotaxy is 1/2 (distichous) in some specimens, but it is unknown if this is a characteristic of the species. The living stem shape is not clear-it is obviously flattened in some collections but more rounded in others.

**47. *Passiflora porphyretica*** Mast. in Donn. Sm, *Bot. Gaz.* 20: 538 (1895). Type: Guatemala, *Heyde & Lux 6334* (US!).

**47a. *Passiflora porphyretica* var. *porphyretica*..**

Vine 2-5 m, densely pubescent to pilose throughout, except bracts and stipules c. glabrous on abaxial surface. Stems c. terete, c. striate. Stipules 7-12.5 × 4-9.5 mm, widely ovate; petioles eglandular; laminas 1.5-10 × 2-11 cm, entire, not variegated, widely depressed obovate, shallowly 3-lobed, the lateral lobes acute (c. rounded), the central lobe obtuse (c. rounded); laminar nectaries absent. Inflorescence often present as determinate axillary shoots with reduced to no flowers. Peduncles (1)2 per node, 1-2.5 cm, uniflorous; bracts 10-14 × 4.5-7(-10) mm, ovate to very widely ovate, entire (slightly distally toothed). Flowers pale yellow-green to whitish with a purplish center, perianth sometimes flushed with purplish, the corona whitish, basally violet or purplish; stipe c. 1.5 mm; sepals 12-19.5 mm, with no projection; petals 8-13 mm; coronal filaments in 2 series, the outer (7-)10-13 mm, filiform, the inner 2-2.5 mm; operculum membranous, plicate; androgynophore 4.8-8 mm; ovary densely pubescent. Fruit c. 1-1.5 × 0.9-1.3 cm, ovoid to c. globose, purplish-black, estipitate; seeds c. 2.4-3.2 × 1.4-2 mm, transversely sulcate with 6-7 sulci. *Secundaria y orillas de bosques subcaducifolias, tropical deciduous forests, forests of Pinus and Quercus*. Ch (*Breedlove 19849*, MO). (300-)400-900 m. (S.C. Mexico, Mesoamerica.)

Mature fruit and seed are unknown from our area; the description is from S. Mexican specimens. It should be noted again that the stipule measurements above are from fertile nodes; the stipules at prereproductive nodes may be much narrower. In this questionably distinct variety, the stipules in the inflorescences are very large and closely resemble the bracts.

**48. *Passiflora malletii*** J.M. MacDougal, *Ann. Missouri Bot. Gard.*, 76: 1172 (1989).

Holotype: Panama, *McPherson 12612A* (MO!).

Vine 3-5 m, densely pubescent throughout. Stems slightly flattened (c. angulate), c. striate. Stipules (3-)5-8(-10) × (0.3-)0.6-1 mm, linear to linear-lanceolate; petioles eglandular; laminae (1.5-)4-10(-13) × (0.8-)1.5-6(-8.5) cm, entire, not variegated, ovate (ovate-oblong), unlobed (and/or asymmetrically 2-3-lobed, sometimes mixed on one branch), the leaves of determinate axillary branches usually unlobed, (the lateral lobes if present acute to acuminate), the central lobe acuminate (acute); laminar nectaries absent. Inflorescence often present of determinate short axillary shoots with reduced or no leaves. Peduncles (1)2 per node, 0.6-1.4 cm, uniflorous; bracts (3.5-)4-8 × (0.3-)0.7-3(-4) mm, oblanceolate (linear to obtrullate), entire to 3-cleft. Flowers pale to light yellow-green, slightly flushed purplish, the corona pale greenish yellow to pale yellow; stipe 0.8 mm or less; sepals 8-11 mm, with no projection; petals 1-5 mm (or appearing obsolete); coronal filaments in 2 series, the outer 4-5 mm, filiform, the inner 3.5-4.5 mm; operculum membranous, plicate, sparsely setose; androgynophore 2.5-3.5 mm; ovary densely pilose. Fruit 1.1-1.5 cm diam., c. globose, purplish-black, estipitate; arils unknown; seeds 2.8-3.5(-3.6) × 1.9-2.2 mm, transversely sulcate with 5-6 sulci. *Orillas de bosques muy húmedos premontaños*. P (*Antonio 1278*, MO). 300-750 m. (Endemic.)

This rare species is unusual in that it has a nearly unlobed leaf in an otherwise bilobed species group.

**49. *Passiflora biflora*** Lam., *Encycl.* 3: 36 (1789). Holotype: Cultivated, from

“L’Amérique méridionale,” *Herb. Lamarck s.n.* (P). [Scheck Fl Ecuador or Killip\$]. N.v.: karanáto c’o, granadilla de ratón, Ch; granadillo, melón de ratón, B; ala murciélago, calzoncillo, ES; pato de venado, media luna, H; ñorbo, P.

*Passiflora brighamii* S. Watson, *P. transversa* Mast.

Vine 2.5-8 m, minutely (sparsely) puberulent throughout at the shoot tip (rarely laminas c. glabrous), sparsely puberulent to c. glabrescent below. Stems 5-8-carinate-angular or ca. terete and conspicuously grooved-striate. Prophylls 2. Stipules  $1.2-3.5 \times 0.25-0.5$  mm, linear-triangular, (c.) falcate; petioles eglandular; laminas  $1.5-5(-8) \times 4-10.5$  cm, entire, abaxially c. puberulent (rarely c. glabrous), sometimes slightly variegated with a few discontinuous patches of white between the veins, very widely obovate to depressed obovate, 2-(3-)lobed or c. truncate, the lateral lobes acute to rounded, the central lobe obsolete (obtuse to truncate); the lobe angle  $(45-)\text{50-110}(-130)^\circ$ , the ratio of laminar width to length  $(1.1-)\text{1.2-4.5}$ ; laminar nectaries borne between the main veins, occasionally with 2 conspicuously enlarged nectaries at the junction of main veins. Peduncles (1)2 per node,  $0.1-1.5(-2.8)$  cm, uniflorous; bracts  $1-2(-2.5) \times 0.06-0.2$  mm, linear-triangular, setaceous, early necrescent. Flowers white (sometimes flushed with purplish), the corona basally yellowish-green (sometimes flushed purplish-red or purplish-brown adaxially and proximally), distally light to bright yellow or yellow-orange; stipe (3-)6-12 mm (to 6-20 mm in fruit); sepals 13-17 mm, with no projection; petals (7-)10-14 mm; coronal filaments in 2 series, the outer 6-8 mm, subapically dilated, laterally compressed, the inner 2-3 mm; operculum membranous, plicate; androgynophore (7-)8-9 mm; ovary glabrous to pubescent. Fruit  $2.2-3.5 \times 1.5-2$  cm, widely ellipsoid to c. globose or widely obovoid, purplish-black, estipitate; arils orange; seeds  $(2.6-)\text{3-3.5} \times (1.8-)\text{2-2.3}$  mm, transversely sulcate with (6)7-9 sulci.  $2n=12$ . *Secundaria y matorrales of lowland to lower montane mesic, moist, or wet forests; also coastal scrub and manglar.* Ch (*Breedlove & Almeda 48470*, CAS); Y (*Lundell 1351*, MICH); B (*Gentle 3*, MICH); G (*G. Jones et al. 3195*, F); H (*MacDougal et al. 3246*, TEFH); ES (*Standley 21953*, MO); N (*Robleto 1718*, MO); CR (*Gómez Laurito 10323*, CR); P (*Croat 9835*, F). 0-1450 m.  $2n=12$ . (Mexico, Mesoamerica to Venezuela and Ecuador; Bahamas.)

This is the most common bilobed passionflower in Mesoamerica. The most widespread variant has a notably long floral stipe and a white flower with androgynophore and styles pale greenish; the leaf blades usually lack enlarged basal nectaries. A coastal race has flowers flushed with purplish, with androgynophore and styles purplish-red, and usually a short stipe; this race often has laminar nectaries that are deeply impressed abaxially, forming markedly elevated cones adaxially, and the basal pair are often enlarged. *Passiflora biflora* always has two collateral prophylls at the axillary vegetative bud, an excellent diagnostic character seen even in juveniles.



**50. *Passiflora nubicola*** J.M. MacDougal, *Ann. Missouri Bot. Gard.* 76: 608 (1989).

Holotype: Cultivated, stems from Costa Rica, *MacDougal 220GR* (DUKE!). Illustr.:

MacDougal, *Ann. Missouri Bot. Gard.* 76: 609, t. 1 (1989).

Vine 1.5-3.5 m, minutely puberulent at the shoot tip, the laminae puberulent marginally and abaxially on the primary and secondary veins, glabrescent on mature structures. Stems ca. 5-6-angulate with scabrous carinae. Prophylls 1. Stipules 1-2(-2.5) × 0.15-0.25 mm, falcate, linear-triangular, necrescent; petioles eglandular; laminae 2.2-4(-4.6) × 4-7(-9.2) cm, entire, often slightly variegated with a few discontinuous patches of white between the veins, depressed obovate, shallowly (2-)3-lobed, the lateral lobes obtuse to truncate (rounded), the central lobe (obsolete to) obtuse or truncate and sometimes emarginate, the lobe angle 70-90(-100)°, the ratio of laminar width to length 1.5-2.1; laminar nectaries borne between the main veins. Peduncles 2 per node, 1-2 cm, uniflorous; bracts 0.7-1.4 × 0.05-0.25 mm, linear-triangular. Flowers whitish, the corona green and yellow; stipe (3-)4-6 mm (5-9 mm in fruit); sepals 7.5-11 mm, with no projection; petals 5-7.5 mm; coronal filaments in 1-2 series, the outer 2-3 mm, light yellowish green, bright yellow at the apex, the inner (if present) 1.8-2.2 mm; operculum membranous, plicate; androgynophore 4.7-5.9 mm; ovary glabrous. Fruit 1.8-2.5 × 1.8-2.1 cm, widely ellipsoid to very widely obovoid, purplish-black; seeds 4.1-4.3(-4.5) × 2.6-2.9 mm, transversely sulcate with (8)9-10 sulci.  $2n=12$ . *Edges of primary premontane to montane wet forests or cloud forests.* CR (*Chacón et al. 1530*, CR). 1500 m. (Endemic.)

**51. *Passiflora subfertilis*** J.M. MacDougal, *Novon* 14: 457 (2003). Holotype: Guatemala, *Steyermark 33503*, (F!). Illustr.: MacDougal, *Novon* 14: 457-458, t. 5-6 (2003). N.v.: murciélago de montaña, G.

Vine 2-4 m, minutely puberulent throughout at the shoot tip, or the laminae sparsely so, sparsely puberulent to glabrescent below. Stem c. terete to c. angular, striate. Prophylls of vegetative bud 1. Stipules 1.6-2.1 × 0.2-0.3 mm, linear-triangular, falcate, stramineous-necrescent; petioles eglandular; laminae 2.8-6 × 5-9.5 cm, entire, not variegated, obovate to very widely obovate, shallowly 2-lobed (c. 3-lobed), the lateral lobes acuminate to acute, the central lobe obsolete (obtuse), the lobe angle 50-72°, the ratio of laminar width to length 1.1-2.3; laminar nectaries borne between the main veins. Peduncles (1)2 per node, 0.8-1 cm, uniflorous; bracts 0.8-2 × 0.1-0.2, linear-triangular, early necrescent. Flowers white, the corona basally

yellowish-green, distally light yellow; stipe c. 5-7 mm (to 9 mm in fruit); sepals 13-15 mm, with no projection; petals 10-12 mm; coronal filaments in 2 series, the outer 5-6 mm, slightly laterally compressed, the inner c. 2.5 mm; operculum membranous, plicate; androgynophore 9 mm; ovary glabrous. Mature fruit unknown, purplish?; immature fruit c. 2-2.5 × 1.5-1.8 cm, widely ellipsoid to widely obovoid, estipitate; arils unknown; seeds apparently transversely sulcate. *Secundaria de bosques húmedos premontaños. G (MacDougal & Miley 597, UVAL). 1300-1400 m. (Endemic.)*

This rare species is known only from three collections at the same locality in Quezaltenango, Guatemala. It is similar to *Passiflora biflora* (especially the flower), but may be distinguished by having only one prophyll at the vegetative bud, and glossy leaves with pointed lateral lobes. From *P. helleri* it differs by proportionately shorter leaves and the 2-seriate pale corona.

**52. *Passiflora talamancensis*** Killip, *J. Wash. Acad. Sci.* 12: 260 (1922). Holotype: Costa Rica, *Tonduz 9329 (US!)*.

Vine 3-12 m, minutely puberulent throughout except laminas adaxially glabrous, and stems glabrescent with age. Stems c. angular to c. terete, striate. Stipules 2.2-5 × 0.3-0.8 mm, falcate, linear-triangular; petioles eglandular; laminas (5.5-)8-14(-17) × (2.3-)5-10(-11.2) cm, entire, not variegated, obovate-elliptic, obovate-oblong, or truncate-elliptic, shallowly (2-)3-lobed, the lateral lobes obtuse to acute, the central lobe obtuse to abruptly acute (truncate or obsolete); the lobe angle 18-32°, the ratio of laminar width to length (0.46-)0.5-0.7(-0.75); laminar nectaries borne between the main veins. Peduncles 2 per node, (1.5-)2.5-5.1 cm, uniflorous; bracts 1.8-3.5 × 0.15-0.4 mm, linear-triangular. Flowers white, the corona distally yellow; stipe 4-7 mm (to 8 mm in fruit); sepals 12-16 mm, with no projection; petals 10-15 mm, white, or rarely slightly tinged with reddish-purple at basal margins; coronal filaments in 2 series, the outer (3.5-)4-6 mm, slightly laterally compressed, yellow-green basally, yellow distally, often with dark purplish mark adaxially on basal half, the inner 2.2-3 mm, dark purple distally; operculum membranous, plicate; androgynophore (6-)6.5-8.5 mm; ovary pubescent. Fruit 1.5-2 cm diam., globose, purplish-black, estipitate; seeds (2.5-)2.7-3.2 × 1.9-2.4 mm, transversely sulcate with 7-9 sulci. *Orillas de ríos y secundaria de bosques muy húmedos*

*tropicales o premontaños*, N (*Rueda 6299*, MO); CR (*Mallet 22*, CR); P (*Liesner 190A*, MO). 0-200(-400) m. (Endemic.)

Recognized by its glossy unvariegated elongate leaves, this species occurs in E. Costa Rica and adjacent Panama, with one record from the Río San Juan Valley in Nicaragua. Both *Passiflora lancearia* and *P. helleri* may have somewhat similar leaves, but those differ in either floral corona or size of stipules and seeds.

**53. *Passiflora panamensis*** Killip, *J. Wash. Acad. Sci.* 12: 258 (1922). Holotype: Panama, *Pittier 5556* (US!).

Vine 2.5-6 m, sparsely and minutely puberulent throughout, the older stems and laminae c. glabrescent. Stems obtusely c. angular to c. terete. Stipules 2.5-5 × (0.2-)0.3-0.4 mm, linear-lanceolate; petioles eglandular; laminae 3.8-10(-13.7) × 3.4-9(-11.7) cm, entire, slightly variegated along the primary veins or not variegated, widely obovate to depressed obovate or truncate c. circular, 3-lobed, the lobes similar, acute to rounded, the central lobe (c. equal) slightly longer; the lobe angle 45-60°, the ratio of laminar width to length 0.75-1.0; laminar nectaries borne between the main veins and also proximal to the lateral veins. Peduncles 2 per node, 1.7-3.2(-4.2) cm, uniflorous; bracts 1.7-3.5 × 0.1-0.2 mm, linear-triangular. Flowers cream to whitish with reddish-purple flush, the corona yellow; stipe 3.5-6 mm; sepals 14-17 mm, with no projection, cream, often with reddish-purple margins; petals 12-14 mm, whitish with reddish-purple margins or all light reddish-purple; coronal filaments in 2 series, the outer 4-6 mm, slightly laterally compressed, yellowish-green proximally, yellow distally, (rarely with slight adaxial flush of reddish-purple near the middle), the inner 2.5-3.5 mm; operculum membranous, plicate; limen puberulent; androgynophore 6-7.5 mm; ovary pubescent. Fruit (1-)1.3-1.8 cm diam., c. globose, purplish-black, estipitate; seeds 2.8-3.2 × 1.6-1.9 mm, transversely sulcate with 7-9 sulci. *Edges in bosques húmedos tropicales to bosques muy húmedos premontaños*, CR (\$need voucher info from InBio\$); P (*Foster & Augspurger 2837*, MO). 0-100(-300) m. (Mesoamerica to NW. Colombia.)

Most of the leaves on any stem of this species have nectaries proximal to the lateral veins as well as between the primary veins. Laminar variegation is very conspicuous in juveniles, but generally disappears at reproductive nodes.

**54. *Passiflora yucatanensis*** Killip, *Publ. Field Mus. Nat. Hist., Bot. Ser.* 8: 26 (1930).

Holotype: Mexico, Yucatán, *Gaumer 101* (GH!).

*Passiflora andersonii* sensu Millsp. 1895 non DC.

Vine 3-12 m, minutely puberulent throughout, except adaxial surface of lamina sparsely puberulent to glabrous. Stems c. terete, carinate-striate, drying c. angular. Prophylls 2. Stipules 2.5-4.2 × (0.35-)0.4-0.8 mm, narrowly lanceolate-triangular, falcate; petioles eglandular; laminae 2.3-5.6 × 4.8-8.0 cm, entire, not variegated, depressed obovate (transversely oblong), shallowly (2)3-lobed less than 1/3 the distance to the base, or c. truncate, the lateral lobes obtuse to rounded, the central lobe widely obtuse to obsolete (slightly retuse); the lobe angle c. (65-)70-83°, the ratio of laminar width to length 1.5-2.2; laminar nectaries borne between the main veins. Peduncles 2 per node, 1.4-3.7 cm, uniflorous; bracts (1.2-)1.8-2.8 × (0.15-)0.2-0.3 mm, linear-triangular. Flowers white, the corona basally red or purplish red, distally bright yellow; stipe 6-12 mm; sepals 15-25 mm, with no projection; petals 13-20 mm; coronal filaments in 2 series, the outer 7-10 mm, the inner 2.5-4.5 mm; operculum membranous, plicate; androgynophore 11-16 mm; ovary pubescent [check notes]. Fruit and seeds unknown. *Secundaria, maritime scrub, and selvas medianas*. Y (*Cabrera & Téllez 11066*, MO). 2-20 m. (Endemic.)

This rare species is most similar to, but is easily distinguished from *Passiflora biflora* by the much longer androgynophore. It appears to be restricted to the Isla de Cozumel. It is sometimes vegetatively indistinguishable from *P. biflora* (both also have 2 prophylls), which apparently does not occur in that area.

**55. *Passiflora sandrae*** J.M. MacDougal, *Novon* 16: 85 (2006). Holotype: Panama, *Knapp & Mallet 1156* (MO!). Illustr.: MacDougal, *Novon* 16: 86-87, t. 1-2 (2006).

*Passiflora biflora* sensu Croat (1978) and Woodson & Schery (1958), in part, non Lam.

Small to medium vine, minutely puberulent to puberulent throughout, except the laminae adaxially glabrous, and the stem sometimes c. glabrescent below. Stems c. 5-7-angular and grooved-striate. Prophylls 1. Stipules 1.5-3.5 × 0.15-0.35 mm, linear-narrowly triangular, c. falcate, dark; petioles eglandular; laminae (2.3-)3.5-6.5 × 4.3-9.5 cm, entire, variegated along the lateral veins and sometimes on the center vein (rarely not variegated), abaxially sometimes flushed reddish purple, obovate to very widely obovate (shallowly obdeltate or obtriangular), 2-lobed (rarely c. 3-lobed) 1/4 to 1/2 the distance to the base (or rarely slightly deeper than 1/2),

the lateral lobes (acuminate) acute to obtuse (rounded), the central lobe obsolete (rarely present as an obtuse cusp); the lobe angle (28-)40-55(-67)°, the ratio of laminar width to (central lobe) length (0.90-)1.1-2.0(-3.2); laminar nectaries borne between the main veins, usually edged with dark purple, with 2-4 conspicuously enlarged nectaries at junction of main veins. Peduncles (1)2 per node, 0.8-2(-2.8) cm, uniflorous; bracts 0.8-2.9 × 0.08-0.25 mm, setaceous. Flowers greenish-white to white, the corona basally yellowish green, distally pale green, greenish-yellow, or often light yellow; stipe 2-5.5 mm (to 6.5 mm in fruit); sepals (12-)14-19 mm, with no projection; petals (8-)10-14 mm; coronal filaments in 2 series, the outer (6-)7-10 mm, slightly dilated distal to the middle, laterally compressed, the inner 1.5-3.5 mm; operculum membranous, plicate; androgynophore 5.5-8 mm; ovary glabrous. Fruit 2.2-3 × 1.5-1.8 cm, ellipsoid to obovoid, sometimes slightly 3-sulcate, estipitate; arils unknown; nearly mature seeds 3.8-4.1 × 2.3-2.5 mm, transversely sulcate with (8)9-11(12) sulci. *Secundaria y orillas de bosques húmedos y muy húmedos tropicales o premontaños*. P (Mallet 27, DUKE). 20-700(-1000) m. (Endemic.)

This may be distinguished from *Passiflora biflora* even in a vegetative state by the presence of one rather than two prophylls at the axillary vegetative bud. The leaves are nearly always conspicuously variegated along the lateral veins, and plants from elevations lower than 600 m have notably dark-edged laminar nectaries. This species occurs from Coclé to southern Darien, including on Barro Colorado Island.

**56. *Passiflora helleri* Peyr., *Linnaea* 30: 54 (1859).** Isotype: Mexico, Veracruz, *Heller 160* (P!).

*Passiflora trisetosa* sensu Killip 1936 non DC.

Vine (4-)6-12 m, minutely puberulent throughout at the shoot tip, except laminas and flowers, the stem glabrescent with age. Stems c. terete, striate-grooved, to 5 cm diam. at base. Stipules 3-5(-7) × 0.4-0.8 mm, linear to linear-oblong, falcate, apically necrescent; petioles eglandular; laminas (3.7-)5-9.5(-12.5) × (2.3-)3-6(-8.2) cm, entire, adaxially glabrous, abaxially minutely sparsely appressed puberulent to glabrescent, not variegated, obovate to very widely obovate, or truncate-elliptic to widely elliptic, shallowly 3-lobed, the lateral lobes obtuse (acute), the central lobe acute to obtuse, nearly always longest; the lobe angle 24-40(-50)°, the ratio of laminar width to length 0.55-0.85(-1.0); laminar nectaries borne between the main veins, rarely

1-2 also proximal to the lateral veins at base. Peduncles 2 per node, (1.7-)2.2-3.5(-4.8)cm, (rarely to 6 cm in fruit), uniflorous; bracts 2.5-6.1 × (0.25-)0.3-0.8(-1.2) mm, linear, lanceolate, or slightly oblanceolate, acuminate. Flowers whitish, abaxially nearly glabrous to minutely sparsely puberulent, the corona greenish or yellow, flushed with purplish or brown; stipe 3.5-6(-9.5) mm; sepals 15-22 mm, with no projection; petals 12-16 mm; coronal filaments in 1 series, 4.5-7(-8) mm, dilated distal to the middle, then tapering, laterally compressed, abaxially (and distally) often light green to yellowish, adaxially and basally dark reddish-purple, purplish, or brownish; operculum membranous, plicate; androgynophore (7-)8-9 mm; ovary puberulent, the pubescence often in 3 or 6 longitudinal lines. Fruit 1.5-2.3 × 1.5-2.3 cm, globose or widely ellipsoid, purplish black, estipitate; seeds 3.0-3.5 × 2.3-2.9 mm, transversely sulcate with 7-8 sulci. *Orillas y secundaria de bosques muy húmedos o pluviales premontaños o de montañas bajas*. Ch (Quintero 3493, ENCB); B (Cafferty et al. 167, MO); G (Steyermark 35234, F); ES (S. Winkler Fa-180, EAP); H (Davidse & Zúniga 34669, MO); N (Williams et al. 24713, EAP); CR (Weston & Weston 4761, UC). (250-)600-1500(-1850) m. (Mexico [Puebla], Mesoamerica.)

Only in a few collections are the leaves of this species the same width as length, and these probably represent young vines flowering for the first time; usually the laminae are longer than wide. Glabrous (or nearly so) in the northern part of the range, the flower buds are minutely puberulent in the south. Floral stipes longer than 6 mm have been observed only from Nicaragua. In Honduras and southward this species has been recorded only above 700 m, while in Veracruz, Mexico, it may occur as low as 100 m.

**57. *Passiflora punctata* L., *Sp. Pl.* 957 (1753).** Type: not designated, “Habitat in Peru.”

Small to medium vine, minutely puberulent throughout at the shoot tip, sparsely puberulent to glabrescent below, the laminae remaining slightly puberulent abaxially. Stems c. angular, striate. Stipules 2-4 × 0.3-0.5 mm, linear-lanceolate, c. falcate; petioles eglandular; laminae 2-5 × 8-16 cm, entire, rarely slightly variegated, very depressed obovate-transversely oblong, c. truncate to obscurely 2(-3)-lobed, the lateral lobes c. acute to rounded, the central lobe (c. truncate) obsolete; the lobe angle 95-125(-135)°, the ratio of laminar width to length 2.5-4.3; laminar nectaries borne both between and proximal to the lateral veins, often scattered over the lamina. Peduncles 1 per node, 4-7 cm, uniflorous; bracts c. 1-3 × 0.2-0.4 mm, linear-triangular. Flowers cream or whitish, sometimes slightly flushed with purplish, the corona proximally

purplish, distally cream or light yellow; stipe c. 4 mm; sepals 15-20 mm, with no projection; petals 10-12 mm; coronal filaments in 2 series, the outer c. 7-9 mm, dilated proximal to the middle, laterally compressed, the inner 3-5 mm; operculum membranous, plicate; androgynophore c. 8 mm; ovary puberulent. Fruit c. 2.5-3 × 1.5-1.8 cm, widely ellipsoid to c. globose, purplish-black, estipitate; arils unknown; seeds c. 3-4 × 2-2.4 mm, transversely sulcate with (5)6(7) sulci. *Secundaria de bosques húmedos tropicales*. P (Hayes 596, NY). 0-100 m. (Mesoamerica to Peru.)

*Passiflora punctata* is extremely rare in Panama, and is known only from two or three eighteenth century collections from the Canal Zone. References since then to the species in Panama generally refer instead to *Passiflora misera*. Diagnostic is the transversely elongate leaf with some laminar nectaries proximal to the lateral veins. The outer coronal filaments are thickest subapically, being similar to those of *P. biflora* but of a different color. The specimens from our area are not fruiting, so the description is adapted from literature and South American specimens.

**58. *Passiflora misera*** Kunth in Humb., Bonpl. et Kunth, *Nov. Gen. Sp.* 2: 136 (1817).  
Isotype: Colombia, *Humboldt & Bonpland* s.n. (photo DUKE! ex B-W).

*Passiflora punctata* sensu Croat (1978), Woodson & Schery (1958) non L.

Small vine, minutely puberulent throughout at the shoot tip, sparsely puberulent to glabrescent below. Stems angular and striate-carinate, glabrous below, the carinae often slightly scabrous. Stipules 1.8-2.7 × 0.2-0.4 mm, narrowly triangular, falcate; petioles eglandular; laminae 0.5-2(-3) × (3.5-)4-15 cm, entire, sometimes slightly variegated along the lateral veins, (very depressed obovate) narrowly transversely oblong to transversely linear, 2(-3)-lobed, the lateral lobes acuminate and usually rounded at the very apex to the lobes rounded, the central lobe very short and truncate or usually absent; the lobe angle (125-)130-180(-195)°; laminar nectaries borne between the main veins. Peduncles 1 per node, (3.3-)4.5-8(-10.5) cm, uniflorous; bracts (1.4-)1.8-3(-4.5) × 0.2-0.3 mm, linear-triangular and entire to narrowly oblanceolate and shallowly 3-toothed or 3-cleft distally. Flowers white (greenish white) with a light purple center, the corona white and unmarked, or pale purple, or with a purple band; stipe 1.5-4 mm; sepals 16-18 mm, with no projection; petals 12-14 mm; coronal filaments in 2 series, the outer (10-)12-14 mm, filiform, the inner 3-4.5 mm; operculum membranous, plicate; androgynophore 7.3-8 mm;

ovary glabrous. Fruit 1-2 cm long, widely ellipsoid to globose, purplish black, estipitate, or the stipe 1 mm or less; arils unknown; seeds 2.8-3.4(-3.6) × 1.7-2.1 mm, transversely sulcate with (9)10-12 sulci. *Swamp forests, marshes, and hummocks; grassy or brushy margins of waterways.* CR (*Stevens et al. 25135*, MO); P (*Woodworth & Vestal 456*, F). 0-60 m. (Mesoamerica to N. & E. S. America, to S. Brasil, N. Argentina, to Peru.)

*Passiflora misera* is common around the Panama canal, but has been collected only sporadically elsewhere, and then mostly near the coast. This species probably occurs in SE. Nicaragua since the Costa Rican specimen cited was collected only 6 km from the Nicaraguan border. In our area this species has characteristically elongate solitary peduncles. Both coronal rows may be whitish and unmarked or the outer corona may be flushed pale purple proximally and the inner corona may be purplish; the operculum is purplish. The outer corona is reflexed or at least spread flat at anthesis and the slender filaments are widest at the base. The inner coronal filaments are ligulate or flattened, not capillary, and are apically broadly dilated or capitate. There is no basis for the merging of this species with *P. punctata*; the outer corona and distribution of laminar nectaries are very different.

**[\$make sure Knapp & Mallet field notes are in this\$]**

**59. *Passiflora* aff. *candollei*/ aff. *micropetala*, sp. nov.** ined. Holotype: not designated.

Small to medium vine, minutely puberulent to puberulent throughout, except the laminas adaxially sparsely puberulent. Stems (c. angular) c. terete, striate. Stipules (2-)3.5-6.5 × 0.2-0.8 mm, linear-lanceolate to narrowly triangular, c. falcate, purplish; petioles eglandular; laminas 5.5-10 × 6.5-10 cm, entire, often slightly variegated along the primary veins, often flushed purplish or reddish abaxially, depressed obovate to widely oblong-elliptic, very shallowly 2-3-lobed (or c. truncate), the lateral lobes obtuse to rounded, the central lobe obtuse (c. truncate to c. retuse); the lobe angle c. 40-57°, the ratio of laminar width to length 0.80-1.3; laminar nectaries borne between the main veins, edged with dark purple, with 2(-4) conspicuously enlarged nectaries at junction of main veins. Peduncles 1(2) per node, 0.7-1(-1.5) cm, uniflorous; bracts 1.2-3.2 × 0.1-0.2 mm, linear-triangular. Flowers whitish, often flushed with purplish, the corona (basally greenish) distally cream; stipe 3-5 mm; sepals 28-33 mm, with no projection; petals 15-25 mm; coronal filaments in 2 series, the outer 24-30 mm, c. filiform, attenuate, the inner 3.5-5 mm; operculum membranous, plicate; androgynophore 5.5-6 mm; ovary glabrous. Fruit and seeds



unknown from our area. *Secundaria e orillas de bosques muy húmedos premontaños*. P (McDade 452, DUKE). 300-1000 m. (Mesoamerica to Peru.)

This taxon is very similar to the taxon called *Passiflora micropetala* Mast. by Holm-Nielsen et al. (1988) except that the coronal filaments are longer and more slender.

**60. *Passiflora lancearia* Mast., *J. Bot.* 23: 114 (1885).** Holotype: Costa Rica, *Lehmann 1255* (G!).

Vine 3-10 m, minutely lightly puberulent throughout at the shoot tip, except adaxial surface of lamina, sparsely puberulent to c. glabrescent below. Stems terete, striate, sparsely puberulent to glabrescent. Stipules 0.3-1.5(-3) × 0.07-0.3 mm, narrowly triangular, often necrescent; petioles eglandular; laminae 5.5-11(-13) × 2.2-5.5(-6) cm, entire, not variegated, elliptic-ovate, oblong-elliptic, or broadly c. lanceolate, unlobed to (shallowly) obscurely 3-lobed, the lateral lobes obsolete (c. acute to rounded-obtuse), the central lobe (acuminate) c. acute to rounded; the lobe angle (12-)14-25(-28)°, the ratio of laminar width to length 0.29-0.60(-0.65); laminar nectaries borne between the main veins, sometimes a few also proximal to the lateral veins at base. Peduncles (1)2 per node, (0.3-)0.7-2.4 cm, uniflorous; bracts 1.3-3.3(-4) × 0.25-0.4 mm, linear-lanceolate. Flowers white or whitish, the corona pale yellow to yellow apically, light green or light green marked with purplish basally; stipe 6-14 mm (14-22 mm in fruit); sepals 15-24 mm, with no projection; petals 10-15 mm, white, occasionally marginally marked purplish near the base; coronal filaments in 2(-3) series, the outer 5-11 mm, c. clavate to dilated-filiform, the inner 1(-2) series 2.5-4 mm; operculum membranous, plicate; androgynophore 6-10 mm; ovary glabrous to puberulent, white, red or purple. Fruit (3.5-)4-6 × (3-)3.5-5 cm, widely ellipsoid to c. globose or widely obovoid, cream or white turning purplish-black, estipitate; arils pale purplish; seeds (4.8-)5-6.7 × (4-)4.5-6.6 mm, transversely sulcate with (6-)8-10(-12) sulci. *Bosques muy húmedos premontaños a bosques pluviales de montañas, o de nubes*. Ch (MacDougal & Miley 572, DUKE); G (*Steyermark 43596*, F); CR (*Herrera 1925*, CR); P (*Hammel et al. 11373*, DUKE). (10-)600-1900(-c. 2900) m. (Mesoamerica.)

Usually a species of hills and mountains, *Passiflora lancearia* occurs sporadically much lower in very wet forest. The species has diagnostically large seeds, an unusually thick-walled fruit, and, except in the Chiapan material, unusually small stipules which rarely reach 1.5 mm long. The collections cited from Chiapas and Guatemala are sterile, but have two prophylls of the

vegetative bud, a unusual characteristic of this species. The pubescence of the inside of the flower was overstated by Killip (1938); the flowers of the holotype are moldy. It is true that the adaxial edge of the limen is papillose-puberulent. Seedlings are commonly seen in the field, their small glossy 3-lobed leaves sometimes wider than long. There are a number of color variations of parts of the flower, of unknown significance. Holm-Nielsen et al. (1988) reported this species from Ecuador, but that is a different species (Jørgensen & MacDougal, 1997).

**61. *Passiflora bicornis*** Houst. ex Mill., *Gard. Dict.* ed. 8, *Passiflora* no. 13 (1768).

Holotype: Colombia, *Houstoun s.n.* (BM!) N.v.: ala de cucaracha, H; corone de Cristo, hoja de riñon, N.

*Passiflora divaricata* Griseb., *P. pulchella* Kunth, *P. pulchella* var. *bifidata* Mast.

Vine 2-5 m, essentially glabrous throughout, except stem and especially adaxial surface of petioles minutely puberulent at the shoot tip, sparsely puberulent below. Stems obtusely c. angular, striate, glabrescent. Stipules 2.5-10 × (0.3-)0.5-1.1 mm, narrowly triangular, falcate; petioles eglandular; laminas 2-8 × 2.5-10 cm, entire, usually not variegated (rarely a few mottled patches of white), depressed obovate to shallowly obtriangular, shallowly to moderately 2-lobed (or sometimes a nearly obsolete central cusp is also present), the lobes ovate to oblong, (obtuse) rounded or often truncate; the lobe angle (45-)50-75(-95)°; laminar nectaries borne between the main veins, often yellowish. Peduncles 1(2) per node, (2.2-)4-7(-9) cm, uniflorous; bracts (7-)9-22 × (3.5-)5-19 mm, elliptic to obovate (to widely ovate), acuminate to rounded and apiculate, sometimes few-toothed apically, verde-amarillento oscuro, brown, to reddish- or purplish-brown, brillante, sometimes sticky or greasy. Inflorescence sometimes present as a terminal rametilla with reduced or no leaves. Flowers pale blue to strong purplish-blue or violet, the corona yellow with purple or purplish red at base; stipe c. 2 mm; sepals 17-28 mm, with no projection; petals 8-15 mm; coronal filaments in c. (3)4-5 series, the outer (5-)6-11 mm, often apically dilated, lobulate, or furcated, yellow at least distally, often banded or solid purplish-red to purple or brownish proximally, the inner c. (2)3-4 series 2.5-7 mm; operculum membranous, plicate; androgynophore 7-10(-12) mm; ovary glabrous. Fruit 1.2-2.2 cm long, widely ellipsoid to globose, purplish-black, estipitate; seeds 3-3.9 × 1.7-2.4 mm, transversely sulcate with 6-8 sulci. *Playas and thickets of coastal dunes, tropical dry forests to subtropical subdeciduous forests shrubs in savannas, and, at higher elevations, rocky thickets and old lava flows.* Ch (*Matuda*

16941, F); Y (*Gaumer 796*, F); G (*L. Ortíz et al. 81.57A*, MEXU); H (*P. Ramírez B. & Barkley 40521*, TEFH); ES (*Standley & Padilla 2822*, EAP); N (*Stevens 4189*, MO); CR (*Jiménez M. 2172*, CR); P (*Woodson et al. 1421*, MO). 0-800(-1300) m. (Isthmus of Tehuantepec, Mesoamerica to N. Colombia and N. Venezuela.)

The coexistence of wide bracts with bilobed leaves that bear nonmarginal extrafloral nectaries is diagnostic. This species is unusual in that the bracts of open flowers and of the leafless inflorescences are often enviscados en aceite graso. The bluish to violet flowers are very similar to those of the next species, but the outer coronal filaments are usually conspicuously apically dilated.

**62. *Passiflora standleyi*** Killip, *J. Wash. Acad. Sci.* 14: 110 (1924). Holotype: El Salvador, *Standley 22821* (US!). N.v.: calzoncillo, G, ES.

*Passiflora macrostemma* Killip.

Vine 3-7 m, densely puberulent throughout at the shoot tip, sparser below, except laminae adaxially glabrous (or a few isolated trichomes at the base of the primary veins), abaxially glabrous or nearly so, with the primary veins (especially basally) sparsely puberulent. Stems c. terete, striate, rarely glabrescent with age. Stipules 2.5-6 × 0.2-0.5 mm, narrowly triangular, falcate, attenuate; petioles eglandular; laminae (2.5-)3-8(-13) × (2-)2.5-6.5(-9.2) cm, entire, not variegated, widely obovate to elliptic (semi-circular), shallowly to deeply 2-lobed, the lobes narrowly oblong (narrowly elliptic to linear), (acute) rounded (truncate); the lobe angle (25-)30-50(-60)°; laminar nectaries borne between the main veins. Peduncles 2 per node, (2-)2.5-4(4.8) cm, uniflorous; bracts 2.6-6 × 0.2-0.4 mm, linear-lanceolate. Flowers pale to strong purplish-blue or violet, the sepals and petals also often white distally, the corona yellow to orange-yellow; stipe 2-3 mm; sepals 17-23 mm, with no projection; petals 13-18 mm; coronal filaments in (2?)3-4 series, the outer 6-11 mm, filiform to capilliform, greenish basally, sometimes purplish centrally, yellow to orange-yellow distally, not notably apically dilated or furcate, usually with minute purplish spots, the inner (1?)2-3 series (sometimes crowded and appearing as 1 series) 3.5-7 mm; operculum membranous, plicate; androgynophore 7.5-10(-11) mm; ovary glabrous. Fruit 1.2-1.7 cm diam., c. globose, purplish-black, estipitate; seeds 2.5-3(-3.5) × 1.8-2.2 mm, transversely sulcate with 5-7 sulci. *Rocky hills, cliffs, bluffs, or steep slopes in tropical deciduous, humid subdeciduous, to open pine forests.* Ch (*Davidse et al. 29971*, MO); G

(*Steyermark 31519*, F); H (*Molina 10755*, EAP); ES (*Montalvo 4763*, MO); N (*Stevens 10769*, MO); CR (*G. Herrera et al. 275*, CR). (400-)1100-2100 m. (Endemic.)

In this species the leaf is especially variable in the depth of lobing, but the lobes are nearly always evenly rounded and are usually of nearly equal width along their length. The leaf is never variegated, and the species may be separated vegetatively from species with similar deeply bilobed leaves by the minutely curly-pubescent distal half of the adaxial surface of the petioles and the distal, rather than lateral, position of the toothed prophyll of the axillary vegetative bud. The relatively large pale bluish to violet flowers with capillary coronal filaments and narrow bracts are diagnostic.

**63. *Passiflora allantophylla*** Mast., *Bot. Gaz.* 16: 7 (1891). Holotype: Guatemala, *von Türckheim 1425* (K!). N.v.: calzoncillo, H.

Vine 1.5-4 m, generally nearly glabrous, the shoot tip minutely appressed puberulent, becoming sparsely puberulent to nearly glabrous below. Stem 5-angular and striate-carinate, complanate, sometimes slightly scabrous. Stipules 1-2(-3) × 0.1-0.25 mm, linear-triangular, stramineous or early necrescent; petioles eglandular, (nearly glabrous or) adaxially puberulent; laminae (0.3-)1-4.2 × (0.5-)1.5-6.5(-8.5) cm, entire, adaxially glabrous (or nearly so), sometimes variegated along the two lateral veins, abaxially nearly glabrous to sparsely puberulent with trichomes on the primary and secondary veins, usually flushed purplish, depressed obovate (to shallowly obtriangular), shallowly 2(3)-lobed, the lateral lobes rounded (to truncate), the central lobe absent to obtuse or truncate, the angle between the lateral lobes (60-)65-80(-93)°, the ratio of lamina width to length 1.3-2.0; laminar nectaries borne between the main veins. Peduncles 2 per node, (0.3-)0.5-1(-1.4) cm (0.3-0.9 cm to first branch when 2-3-flowered), 1(-3)-flowered; bracts (0.7-)1-2(-2.7) × 0.1-0.3 mm, linear-triangular, early necrescent. Flowers light yellow-green, the corona yellow with reddish-purple base; stipe 0.5-3.5 mm (to 5 mm in fruit); sepals 5-7 mm, with no projection; petals 2.5-4 mm; coronal filaments in 1(2) series, the outer 1.5-2.8 mm, the inner (if present) 0.3-0.8 mm; operculum membranous, plicate; androgynophore 3.3-4 mm; ovary glabrous. Fruit (7-)10-13 mm diam., c. globose to widely ellipsoid, purplish-black, estipitate; seeds 2.8-3.3 × 2-2.4 mm, transversely sulcate with (8)9(10) sulci.  $2n=12$ . *Matorrales en bosques de Pinus, Quercus, o bosques húmedos o nebuloso mixto*. G (*Molina & Molina*

12367, F); ES (*Davidse 37260*, MO); H (*Lagos-Witte et al. 33*, TEFH). 1400-1850(-2000) m. (Endemic.)

The peduncles of this delicate species are usually uniflorous, but some collections, including the type, have branched peduncles. The stem is noticeably flattened. A specimen from La Paz, Honduras, *Liesner 26431* (MO), is referred to this species tentatively-it has much larger seeds ( $4.5 \times 3.3$  mm), leaf lateral lobes obtuse, and may be closer to *Passiflora ornithoura* var. *chiapasensis* or represent a new variety or species.

**64. *Passiflora ornithoura* Mast., *Bot. Gaz.* 16: 8 (1891).** Holotype: Guatemala, *Donnell Smith 2136* (K!).

Small to medium? vine, minutely puberulent at the shoot tip (except laminas), becoming sparsely puberulent to glabrescent below. Stems c. angular, striate. Stipules (1.6-)2-4(-6)  $\times$  0.2-0.4(-0.6) mm, linear-triangular or narrowly triangular, c. falcate, usually apically necrescent; petioles eglandular; laminas (2-)3.5-12(-15) cm long in outline, (2-)3-8(-9) cm wide, entire, the central vein always shortest, c. glabrous or often very sparsely puberulent basally or on the basal primary veins. Peduncles 2 per node, uniflorous; bracts (1-)1.5-4  $\times$  0.15-0.5(-0.7) mm, linear-triangular to narrowly lanceolate, distally necrescent. Flowers light greenish to light greenish-yellow, sometimes flushed purple, the corona reddish or orange basally, orange to yellow apically; sepals with no projection; operculum membranous, plicate; androgynophore 3.4-4.5(-5.0) mm; ovary glabrous. Fruit globose, purplish-black, estipitate; arils unknown; seeds transversely sulcate with (6)7-9 sulci.

**64a. *Passiflora ornithoura* var. *ornithoura*.** N.v.: calzoncillo, ES, G; calzón, G; pantalón, G; scav, G; ubre de vaca, bejuco vencejo, ES.

Vine 1-3 m. Stems very sparsely puberulent to c. glabrous below. Laminas 0.4-2.5(-3) cm along the central vein, usually variegated along the lateral veins, (obovate) very widely obovate, or obdeltate to shallowly obtriangular, 2-lobed  $2/3$  or more the distance to the base (rarely lobed c.  $1/2$ ), the lateral lobes narrowly lanceolate or narrowly elliptic to linear (elliptic), acute to rounded, the central lobe obsolete; the lobe angle (35-)41-75(-80)°, the ratio of laminar width to (central lobe) length (2.4-)3-10(-15); laminar nectaries borne between the main veins, and on the sinus side of the veins of the lateral lobes. Peduncles (1.1-)1.4-2.8(-3.4) cm. Flowers often

flushed with purple; stipe 1.4-3(-3.5) mm; sepals 6-8.5 mm; petals 4-5 mm; coronal filaments in 2 series, the outer (1.5-)2-2.5 mm, clavate, the inner (sometimes reduced) 1-1.6 mm. Fruit 0.6-1.2 cm diam.; seeds 2.7-3.2(-3.4) × (1.5-)1.7-2.1 mm.  $2n=12$ . *Matorrales en bosques húmedos, a veces con Pinus, o grassy scrubby slopes*. G (MacDougal & Miley 619, DUKE); ES (Calderón 2317, US); N? (Standley 10970, F). 1200-1800(-2200) m. (Endemic.)

The inner filamentous corona in this variety with deeply lobed leaves is occasionally much reduced. Although it is possible that in some populations the inner corona might be lost, all the specimens that I have seen (including the type) have two series, the inner sometimes reduced to 7 or 5 filaments. The one specimen seen from Nicaragua is tentatively placed here: the leaves are of deviant shape and the specimen is sterile.

**64b. *Passiflora ornithoura* var. *chiapasensis*** J.M. MacDougal, *Novon* 14: 448 (2004). Holotype: Mexico, *Matuda 3971* (MEXU!). Illustr.: MacDougal, *Novon* 14: 449, t. 2 (2004)

Small or medium? vine. Stems puberulent or sparsely puberulent (glabrescent) below. Laminas (1.5-)2.5-5(-8) cm along the central vein, sometimes variegated along the lateral veins, truncate-obovate to very widely obovate, or shallowly obdeltate, 2-lobed c. 1/3 the distance to the base or less (rarely lobed c. 1/2), or shallowly c. 3-lobed, the lateral lobes broadly lanceolate to shallowly triangular, acute to obtuse (rounded), the central lobe (obsolete or truncate) obtuse; the lobe angle (21-)26-46(-62)°, the ratio of laminar width to (central lobe) length (0.64-)0.75-1.5(-2.6); laminar nectaries borne between the main veins, often reduced, rarely absent on some leaves of a branch. Peduncles 0.9-2.5 cm. Flowers with stipe 2.5-5 mm; sepals 9-11.5 mm; petals 4-6 mm; coronal filaments in 1 series (rarely with a trace of vestigial second, G), 1.8-3 mm, clavate. Fruit 0.9-1.5 cm diam.; seeds 3.1-3.6 × 2.1-2.6 mm. *Matorrales and secundaria de bosques húmedos, mesófilos, o pluviales de montañas, bosques mixto con Pinus, Quercus, Podocarpus, y Saurauia*. Ch (*Breedlove & Almeda 47707*, CAS); G (*J. Johnston 1107*, EAP); H (*D. Mejía 286*, MO). 1800-2500 m. (Endemic.)

The flowers and seeds of this variety are larger than in the typical variety, and the inner corona is absent or vestigial. The leaves are usually less deeply lobed, and laminar nectaries are often reduced in number. This variety inhabits cool, wet, mountains. It may be specifically distinct, but without living material, it was named as a variety. Some material from Chimaltenango, Guatemala, I have referred here, but unlike the rest of the material, can have a

vestigial second inner coronal row. *Standley 63979*, in fruit, is vegetatively most similar to the material from Chimaltenango but gives the unlikely locality of "on salt flat..near sea level...Escuintla." That has unusually large seeds, up to  $4.4 \times 3.2$  mm, but clearly is related.

**[\$\*NEW- INSERT IN KEY! \*]**

**65. *Passiflora boenderi*** J.M. MacDougal, *Novon* 13: 454, t. 1-2 (2003). Holotype: Costa Rica, *Boender 361* (CR). Illustr: MacDougal, *Novon* 14: 455-456, t. 1-2 (2004).

Vine 1.5-5 m, minutely puberulent throughout at the shoot tip, becoming sparsely so puberulent below, the laminae glabrescent adaxially. Stem c. terete, striate. Stipules 1.7-3.5 mm, linear-triangular, c. falcate; petioles eglandular; laminae  $2.4-7(-9) \times 4-8(-9.5)$  cm (to 17 cm long in outline), entire, variegated along the two lateral veins and sometimes along the central vein, abaxially glabrescent and deep purplish-red to dark reddish-purple, truncate-elliptic to obovate or widely obovate, 2-lobed  $0.4-0.5(-0.6)$  their length, the lobes triangular to lanceolate, acute to acuminate and rounded at very tip, the central lobe obsolete, the angle between the lateral lobes  $(14-23-50(-62))^{\circ}$ , the ratio of laminar width to length  $1.7-2.3(-2.5)$ ; laminar nectaries borne between the main veins, conspicuously yellow. Peduncles (1)2 per node, 1.0-3.0 cm, uniflorous; bracts  $1.0-2.8 \times 0.1-0.15$  mm, linear-triangular. Flowers light yellow-green, the corona yellowish with purple or purplish red near base and sometimes also apex; stipe  $(3.5-4-7.0)$  mm (to 9 mm in fruit); sepals 7-11(-14) mm, with no projection; petals  $(2.7-3-6.0)$  mm, greenish white; coronal filaments in 2 series, the outer 3.5-5.5 mm, the inner 1.0-1.8 mm; operculum membranous, plicate; androgynophore 2.9-4.0 mm; ovary minutely puberulent (glabrous). Fruit 10-21 mm diam., widely ellipsoid to c. globose, purplish-black, estipitate; seeds  $3.5-4.2 \times (2.4-2.7-3.0)$  mm, transversely sulcate with (7)8-10 sulci. *Very wet to pluvial premontane forests*. CR (*Endres 70*, US). 740-800 m. (Endemic.)

This species is known only from two sites in the Caribbean drainage of central Costa Rica, and is remarkable for its strikingly beautiful leaves. The golden yellow laminar nectaries that dot the purplish leaf are one of the most conspicuous cases of butterfly egg-mimcry known.

**66. *Passiflora apetala*** Killip, *J. Wash. Acad. Sci.* 12: 255 (1922). Holotype: Costa Rica, *Pittier 13043* (US!). N.v: calzoncillo, CR.

Vine 1-5(-8) m, minutely puberulent at the shoot tip, except the laminas, glabrescent below. Stems c. angular, striate, glabrescent below. Stipules (1.5-)2-4(-6) × (0.2-)0.3-0.6(-0.7) mm, linear-lanceolate or narrowly triangular, c. falcate, basally purplish, distally stramineous to necrescent; petioles eglandular; laminas 1.5-6(-8.5) cm long, (2-10(-16) cm long in outline), 2-8(-12) cm wide, entire, adaxially glabrous, usually variegated along the lateral veins, abaxially glabrous to nearly so with a few trichomes basally on the primary veins, often flushed purplish, very widely obovate to shallowly obdeltate, shallowly to deeply 2-lobed, the lateral lobes acute to abruptly rounded, the central lobe obsolete; the lobe angle (36-)42-60(-76)°, the ratio of laminar width to (central lobe) length (1.1-)1.3-2.6(-3.0); laminar nectaries borne between the main veins. Peduncles 2 per node, 0.8-2.3(-3.3) cm, uniflorous; bracts (0.8-)1-2(-2.5) × 0.12-0.25(-0.3) mm, linear-triangular, early necrescent. Flowers pale green or greenish-yellow, the corona whitish to light yellow, often dull purplish basally; stipe (1.5-)2-3.5 (to 5 mm in fruit); sepals 7.5-12 mm, with no projection; petals absent (or to 2.5 mm); coronal filaments in 1(2) series, the outer (2-)3-5 mm, filiform (clavate), the inner (if present) 0.6-2 mm; operculum membranous, plicate, occasionally sparsely puberulent basally; androgynophore 3.8-4.9 mm; ovary glabrous. Fruit 0.7-1.2(-1.5) cm in diam., globose (very widely obovoid), purplish-black, estipitate; seeds (2.8-)2.9-3.3(-3.5) × (1.8-)1.9-2.2 mm, transversely sulcate with 6-8 sulci. *Orillas, matorrales, senderos, y secundaria de bosques húmedos o pluviales de montañas o montañas bajos, o bosques de nubes. CR (Tonduz 17462, CR); P (Hammel et al. 7015, MO). 1280-2200(-3270) m. (Endemic.)*

This bilobed montane species is fairly uniform, usually variegated, and with reduced to absent inner corona and petals. If tiny petals are present, they are less than 1.5 mm wide. The outer coronal filaments are long-slender cylindrical and nearly straight.

**67. *Passiflora gilbertiana*** J.M. MacDougal, *Ann. Missouri Bot. Gard.* 76: 610 (1989).  
Holotype: Costa Rica, *Gilbert 8* (LL!).

Vine 2-4 m, more or less minutely puberulent throughout (except laminas), the shoot tip densely puberulent, becoming moderately (to sparsely) puberulent below. Stem c. terete, striate. Stipules (1.7-)2.5-4.5(-6) mm, linear-triangular, falcate, basally purplish, distally stramineous and necrescent; petioles eglandular, adaxially puberulent, abaxially glabrous or sparsely puberulent; laminas (4-)6-14(-17.5) × (1.5-)2.5-7(-8.7) cm, entire, adaxially glabrous or nearly so



with a few trichomes proximally on the primary veins, variegated along the two lateral veins and sometimes along the basal part of the central vein, abaxially sparsely puberulent to glabrescent with trichomes on the primary and secondary veins, deep purplish-red to dark reddish-purple, elliptic to narrowly obovate or oblong-obovate, shallowly to moderately 2-3-lobed less than half way to the base, the lobes acuminate to acute, often rounded at the very apex, or the central lobe obtuse to obsolete, the angle between the lateral lobes 13-40°, the ratio of laminar width to length 0.35-0.60; laminar nectaries borne between the main veins. Peduncles 2 per node, 2.3-4.4 cm, uniflorous; bracts (0.8-)1.7-4(-5.7) × (0.1-)0.2-0.4 mm, linear-triangular. Flowers pale yellow-green, the corona vivid yellow; stipe 4-6(-8) mm; sepals 11-16(-18) mm, with no projection; petals 2-4.5 mm; coronal filaments in 1 or 2 series, the outer 5-7 mm, the inner (if present) 0.6-1.2 mm; operculum membranous, plicate; androgynophore (6.2-)7.5-9 mm; ovary glabrous to densely puberulent. Fruit 12-14 mm diam., c. globose to widely ellipsoid, purplish-black, estipitate; seeds (2.9-)3.1-3.3 × 1.9-2.1 mm, transversely sulcate with (6)7-8 sulci. *Lower montane to montane moist forests, Alnus forests*. CR (Taylor & Skotak 4771, DUKE). 1500-2300 m. (Endemic.)

The two or three known metapopulations of this rare species are locally distinctive in depth of leaf lobing, leaf angle, expression of inner corona, and vestiture of the ovary.

**68. *Passiflora jorullensis*** Kunth in Humb., Bonpl. et Kunth, *Nov. Gen. Sp.* 2: 133 (1817). Type: Mexico, Michoacán, *Humboldt & Bonpland* (photo MO! ex B) [\$or ex P?\$.]

**68a. *Passiflora jorullensis* var. *salvadorensis*** (Donn. Sm.) J.M. MacDougal, *Novon* 14: 447 (2004). *P. salvadorensis* Donn. Sm., *Bot. Gaz.* 42: 297 (1906). Holotype: El Salvador, *Velasco/Donnell Smith 8887* (US!). N.v.: calzoncillos, calzón de mujer, bejuco calzón de mujer, ES.

Vine 2-8 m, minutely sparsely puberulent at the shoot tip, except the laminas, c. glabrescent below. Stems c. angular to c. terete, striate, glabrescent below or the nodes sparsely puberulent. Stipules 1.5-3 × 0.2-0.3(-0.4) mm, linear-lanceolate to narrowly triangular, c. falcate, basally purplish, distally necrescent; petioles eglandular; laminas 1.7-4(-6) cm long, (3.5-14 cm long in outline), 3-13 cm wide, entire, adaxially glabrous, rarely variegated at reproductive nodes, abaxially glabrous (or nearly so with a few trichomes basally on the primary veins, very

widely obovate or widely depressed obovate (widely elliptic, c. square, or transversely widely oblong), 2-lobed to the middle or slightly deeper (rarely only lobed 1/3-1/2), the lateral lobes (c. acute) obtuse to rounded, the central lobe obsolete; the lobe angle (35-)42-59(-70)°, the ratio of laminar width to (central lobe) length (1.5-)1.6-2.7(-3.3); laminar nectaries borne between the main veins. Inflorescence sometimes present as leafless axillary short shoot, this sometimes reduced to 1 flower giving the appearance of 3 peduncles per node. Peduncles 2 per node, 2.2-3.5(-4.5) cm, uniflorous; bracts (1.5-)2-3.5(-6) × 0.2-0.4 mm, linear-triangular, occasionally 1-3-toothed, early necrescent. Flowers light green or yellowish-green, the corona bright reddish-orange (to light purplish-red); stipe 3.9-6(-7) mm (to 9 mm in fruit); sepals (15-)17-20 mm, with no projection; petals 5-8 mm, light green to cream; coronal filaments in 1 series, 8-13 mm, filiform; operculum membranous, plicate, basally sparsely puberulent; androgynophore 9-10.5 mm; ovary lightly to sparsely puberulent (glabrous). Fruit 0.9-1.6 cm diam., c. globose, purplish-black, estipitate; arils unknown; seeds 2.8-3.3 × 1.9-2.2 mm, transversely sulcate with 7-8 sulci. *Bosques tropicales subcaducifolias o caducifolias (o bosques húmedos de montañas bajos)*. Ch (*Breedlove 19848*, DS); ES (*Calderón 810*, US). (150-)500-1000(-1600) m. (Isthmus of Tehuantepec, Mesoamerica.)

One of the only Mesoamerican passionflowers to have flowers that remain open more than one day, this species has a corona that is initially fiery reddish-orange; the second day the corona turns purplish. There is never more than one row of coronal filaments. Calderón (s.d.) presents extensive and detailed observations from living material. In El Salvador the ovary is glabrous or nearly so;. The typical variety, more pubescent and with a shallowly lobed leaf, inhabits SC. and SW. Mexico in more mesic forests. *Passiflora jorullensis* var. *salvadorensis* and the next species have leaves that closely resemble the *Bauhinia* spp. with which they often grow.

**69. *Passiflora mexicana*** Juss., *Ann. Mus. Natl. Hist. Nat.* 6: 108 (1805). Holotype: Mexico, Guerrero, *Humboldt & Bonpland s.n.* (P).

Vine 2-8 m, glabrous throughout. Stems c. angular to c. terete, striate. Stipules (1-)1.5-2 × 0.2-0.5(-0.8) mm, linear-triangular to triangular, c. falcate, basally purplish, distally necrescent; petioles eglandular; laminas c. (0.5-)0.7-1.8 cm long ((1-)1.5-6 cm long in outline), (1.3-)2-5 cm wide, entire, occasionally variegated, (widely obovate) c. square or transversely

widely oblong to depressed obovate, 2-lobed to slightly more or less 1/2 the distance to the base, the lateral lobes rounded to truncate, the central lobe obsolete; the lobe angle c. 40-60(-65)°, the ratio of laminar width to (central lobe) length (2.3-)2.5-3.2; laminar nectaries borne between the main veins. Inflorescence sometimes present as leafless axillary short shoot, this sometimes reduced to 1 flower giving the appearance of 3 peduncles per node. Peduncles 2 per node, 0.9-2.5(-3.5?) cm, uniflorous; bracts (1.3-)2-3.3(-4) × 0.2-0.6(-0.8) mm, linear-triangular or narrowly lanceolate, often 3-toothed. Flowers light green or yellowish-green, the corona color unknown (cream to reddish-purple?); stipe 3-5 mm (to 6 mm in fruit); sepals c. 15 mm, with no projection; petals c. 6-9 mm; coronal filaments in 2 series, the outer ca. 4.5-8 mm, filiform, the inner 1.7-2 mm; operculum membranous, plicate; androgynophore 6.5-7.5(-8) mm; ovary glabrous. Fruit 0.7-1.6 × 0.7-1.2 cm, c. globose to ellipsoid, purplish-black, estipitate; seeds 2.9-3.7 × 1.8-2.1 mm, transversely sulcate with 7-8 sulci. *Bosques tropicales caducifolias*. Ch (*Purpus 10211*, UC). c. 500-900 m. (United States [Arizona], Mexico, Mesoamerica.)

This species reaches its easternmost extension in W. Chiapas, where it is known from only two collections. There are always two rows of coronal filaments. The coronal color is unknown and relatively short in our area. In the main part of the range of this species complex, various coronal colors occur that range from white or cream to red or purplish, or dark red changing to light purple. Some of the variants have distinct pollinators and deserve specific status.

**70. *Passiflora filipes* Benth., *Pl. Hartw.* 118 (1843). Holotype: Ecuador, *Hartweg 661* (K). N.v.: calzón de mujer, ES; pasiflorita, N.**

Vine 1.5-4 m, glabrous throughout. Stems terete, glaucous. Stipules 1.5-4 × 0.4-1.2(-1.5) mm, lanceolate, attenuate, falcate; petioles eglandular; laminas 1-6(-8.5) × 1.5-8(-10.5) cm, often c. peltate (0.2-)0.5-1.5 mm from the margin, entire, sometimes variegated with white blotches, transversely oblong to depressed obovate, shallowly 3-lobed, the lateral lobes (c. acute) rounded (truncate), the central lobe (obtuse) truncate (retuse), the lobe angle (65-)75-93(-100)°; laminar nectaries absent. Peduncles 2 per node, (1.5-)3-5(-6) cm, uniflorous; ebracteate. Flowers pale yellow-green, the corona white (or pale greenish-yellow to cream), unmarked; stipe 2-5 mm (to 8 mm in fruit); sepals (6-)7-9.8 mm, with no projection; petals 3-4.5(-5) mm; coronal filaments in 2 series, the outer 2.8-5 mm, the inner 1.5-2.3 mm; operculum membranous, plicate;

androgynophore 3.3-4 mm; ovary glabrous. Fruit 0.5-0.8(-1.1) cm diam., oblate to c. globose, sometimes 3-sulcate, purplish-black, estipitate or the stipe less than 1 mm; seeds 3.2-4 × 2.7-3.5 mm, transversely sulcate (rarely irregularly so) with 3-4(-5) sulci. *Rocky outcrops, thickets, edges, y secundaria de bosques tropicales caducifolias o bosques tropicales to premontaños húmedos*. Ch (*Matuda 2132*, LL); G (*Steyermark 51018*, F); H (*Molina 3433*, EAP); ES (*Standley & Padilla 2586*, EAP); N (*Sandino 309*, MO); CR (*Callaway 450*, CR). 100-1100 m. (United States [Texas], Mexico, Mesoamerica, N. Venezuela and SW. Ecuador).

The pale flowers of this slender-stemmed species are among the smallest in the genus, and are borne on long, slender, but rather stiff peduncles that characteristically are held at a 90° angle to the stem.

**71. *Passiflora pavonis* Mast., *J. Bot.* 21: 35 (1883).** Isotype: Mexico, *Sessé & Mociño 3303* (MA!). N.v.: ala de murciélago, G.

Vine 2-5 m, pubescent throughout except adaxial surface of lamina sparsely pubescent to nearly glabrous with pubescence on the main veins. Stems terete, striate. Stipules 2.7-5.5 × 0.3-0.5(-0.7) mm, linear-triangular to narrowly triangular, c. falcate; petioles eglandular; laminae 1-4.5(-5.5) × 1.5-5.5(-7) cm, entire, apparently not variegated as an adult, (shallowly obtriangular) very widely obovate to depressed obovate, shallowly (2)3-lobed, the lateral lobes (acute) rounded (truncate), the central lobe (obtuse) truncate (retuse to obsolete); the lobe angle (45-)55-70(-80)°; laminar nectaries absent. Peduncles (1)2 per node, 0.7-1.5(-2) cm, uniflorous; ebracteate. Flowers pale greenish yellow to cream or whitish, the corona whitish or cream, usually purplish or dull violet at the base; stipe 2-5 mm; sepals 8-13 mm, with no projection; petals 5-8 mm; coronal filaments in 2 series, the outer 3-5(-6) mm, the inner 1.5-3 mm; operculum membranous, plicate; androgynophore 4.8-5.5 mm; ovary glabrous (or with a few trichomes). Fruit 0.7-1.6 × 0.6-1 cm, ellipsoid to c. globose, purplish-black, estipitate; seeds 3.8-4.4 × 2.5-3.2 mm, transversely sulcate with 6-7 sulci (rarely irregularly rugose). *Bosques húmedos de montañas o de nubes, usualmente con Quercus y Pinus, o con Drimys, Liquidambar, o Abies*. Ch (*Ton 2306*, DS); G (*Steyermark 49979*, F). (1350-)1900-2800 m. (Central Mexico, Mesoamerica.)

The Mesoamerican element of this montane species differs from the Central Mexican element in several ways: the leaves are abaxially more or less evenly pubescent, tend to have

smaller lobe angles and more narrowly rounded or even cuneate laminar bases; the peduncles and flowers are smaller; the ovary is glabrous or has only a few trichomes; and the seeds are larger. Both have leaves that are conspicuously 3-mucronulate, the mucros nearly always longer than 1 mm.

**72. *Passiflora sanctae-mariae*** J.M. MacDougal, *Novon* 5: 48 (1995). Holotype: Cultivated, from Guatemala, *MacDougal & Miley 602GR* (DUKE!). N.v.: murciélago, G.

Vine 2-5 m, minutely puberulent throughout at the shoot tip, except adaxial surface of lamina glabrous (or a few trichomes at base of primary veins), older growth sparsely puberulent to glabrescent. Stems c. terete. Stipules (1.1-)2-3 × 0.3-0.7(-1) mm, linear-lanceolate to broadly lanceolate, attenuate, falcate; petioles eglandular; laminae (2.5-)4-7.5 × (4.7-)6-11.2 cm, entire, not variegated, depressed obovate or semi-circular to transversely truncate-elliptic, shallowly 2(3)-lobed or truncate, the lateral lobes acute (rarely obtuse or rounded at the very apex), the central lobe obtuse to obsolete; the lobe angle (62-)67-90(-112)°; laminar nectaries absent. Peduncles 2 per node, 1.1-2.6 cm, uniflorous; ebracteate. Flowers pale yellowish-green to whitish, the corona cream or whitish, basally greenish and often with a small purplish mark; stipe 3-6 mm (to 8 mm in fruit); sepals 7.5-10.5 mm, with no projection; petals 5-8 mm; coronal filaments in 2 series, the outer 2-3 mm, the inner 1.5 mm; operculum membranous, plicate; androgynophore 3-4.1 mm; ovary glabrous. Fruit 1.1-1.4 × 0.9-1.1 cm, widely ovoid-ellipsoid, purplish-black, estipitate; seeds c. 3-3.3 × 2-2.3 mm, transversely sulcate with 10-13 sulci. *Secundaria y edges de bosques húmedos o pluviales premontaños o de montañas bajas*. Ch (*Breedlove 51184*, CAS); G (*Steyermark 37098*, F). 1300-1500 m. (Endemic.)

As is the case in many of the bilobed passifloras, the leaves of the juvenile plants of this rare species are often variegated, but this condition is not retained at reproduction.

**73. *Passiflora vitifolia*** Kunth in Humb., *Bonpl. et Kunth, Nov. Gen. Sp.* 2: 138 (1817). Lectotype (designated by Killip, 1938): Colombia, *Humboldt & Bonpland s.n.* (B-W-1531, destroyed). N.v.: granadilla, guillito, huillita, N; espococa, CR; granadilla de monte, P; guate, guate-guate, P.

Vine 5-20(-30) m, densely pubescent throughout except adaxial surface of lamina. Stems c. terete, anomalous secondary growth resulting in 3-5-sulcate stems below. Stipules 3-6.5 × 0.3-

0.8 mm, linear-triangular, glandular-dentate near base; petioles 2-4(-6)-glandular with 1 pair near or at the base, sometimes a second pair below (or above) the middle, rarely a third pair distally, the nectaries sessile or to 1 mm × 0.8-2 mm; laminas to 15(-17) × 15(-18) cm, irregularly serrate to doubly glandular-serrate, not variegated, the adaxial surface sparsely pubescent except the veins densely pubescent, 3-lobed, the lobes lanceolate to broadly lanceolate or narrowly elliptic, acuminate (to acute); laminar nectaries marginal, 2-3 borne in each lobe sinus, and at the base of major tooth sinuses. Plants sometimes cauliflorous on condensed leafless axillary shoots, or usually the flowering lateral shoots elongate with reduced or no leaves. Peduncle 1 per node, (1.7-)2.5-8(-13.3) cm, uniflorous; bracts (1.1-)1.5-3.3 × (0.15-)0.3-0.8(-1.3) cm, free to the base, narrowly triangular to broadly lanceolate or narrowly oblong-elliptic, glandular-serrate or few-pectinate and glandular near the base, acuminate, green or dull yellow to light reddish-orange. Flowers vivid red or orange-red, the corona red (yellow) or white, or usually both; stipe 5-9(-12) mm; sepals 50-75(-85) mm, the projection 4-12(-17) mm; petals 50-70(-80) mm; coronal filaments in (2)3 series, the outermost 12-28 mm, the next (nearly always present) 8-15 mm, the innermost 13-20 mm and connate most of its length, filamentous distally; operculum membranous, short-filamentous distally; androgynophore (35-)38-50 mm; ovary pubescent. Fruit (5-)7-10 × (3.5-)4.5-5 cm, ovoid (to widely elliptic), olive green (sometimes flushed reddish brown), spotted and striped white or pale green to yellow distally, estipitate; seeds 5.7-7.1 × 3.8-4.4 mm, reticulate with c. 90-150 hoyuelos. *Light gaps, riverbanks, y secundaria de selvas alta sperennifolias, bosques húmedos tropicales to pluviales premontaños.* H (*Molina 10437*, EAP); N (*Sandino 2233*, MO); CR (*Tonduz 6585*, CR); P (*Fendler 118*, MO). 0-700(-1100) m. (Mesoamerica to Venezuela and Peru; sometimes cultivated elsewhere.)

Although this common lowland or premontane species is often a canopy vine, the bright red flowers are usually borne within 1-2 m of the ground. The biology of this species in Mesoamerica has been studied by Skutch (1952), Janzen (1968), and Snow (1982). The Honduran specimen cited is from a cultivated plant.

**74. *Passiflora coccinea*** Aublet, *Hist.Pl. Guiane* 2: 828 (1775). Type (unknown or not designated): French Guiana.

Vine 4-8 m, densely pubescent throughout. Stems c. terete to c. angular, anomalous secondary growth resulting in deeply 3(-5)-lobed stems below. Stipules 3-6 × 0.4-1 mm, linear-

triangular, glandular-dentate near base; petioles 2-glandular at very base, the nectaries 0.8-1.2 mm diam., discoid, sessile; laminas 5.5-14 × 3-7.5 cm, unlobed, doubly glandular-serrate, not variegated, oblong-elliptic to ovate-oblong, acute to rounded; laminar nectaries marginal, borne at the base of major tooth sinuses. Peduncle 1 per node, 2.9-6(-8) cm, uniflorous; bracts 3.3-6 × 1-2(-3) cm, free to the base, oblong-elliptic to ovate-oblong, glandular-crenate or -serrulate, obtuse to rounded, orange to reddish. Flowers vivid red or orange-red, the corona dark purplish, pink, and white; stipe c. 2-4 mm; sepals 42-50 mm, sometimes basally with 2-4 marginal glands, the projection 1.5-5 mm; petals 42-50 mm; coronal filaments in 2-3(-4) series, the outermost 15-20 mm, violet to purplish-black, white to pink at the base, (often with an additional inner 1-2 series, 6-12 mm, white), the innermost series 9-14 mm, connate in the basal 1/2 to 2/3, white; operculum membranous, short-filamentous distally; androgynophore 26-35 mm; ovary pubescent. Fruit c. 4.5-5 × 3.5-5 cm, widely ovoid to c. globose, greenish, spotted and striped yellowish distally, estipitate; seeds 4.6-6 × 2.8-4 mm, reticulate with c. 90-140 hoyuelos. *Cultivated; persistent or rarely escaped but not naturalized.* H (Valle 199, TEFH); ES (Villacorta JF-00320, LAGU). (Mesoamerica, N. S. America and Amazon Basin.)

Grown in our area ornamentally for its scarlet flowers, it does not seem to have become established in the wild. In addition to the specimens cited, I have seen photographs of it from gardens in Costa Rican. Our form is the variant of the species complex commonly seen in cultivation in the Northern hemisphere, with dark purplish outer corona. The basal petiolar glands are often obscured on mature leaves by the dense indument.

**75. *Passiflora tripartita*** (Juss.) Poir., *Encycl., Suppl.* 2: 843 (1811). *Tacsonia tripartita* Juss., *Ann. Mus. Natl. Hist. Nat.* 6: 395 (1805). Lectotype [Scheck] (designated by Killip, 1938): Ecuador, *Bonpland 3199* (P).

**75a. *Passiflora tripartita* var. *mollissima*** (Kunth) Holm-Niels. et P. Jørg., *Fl. Ecuador* 31: 80 (1988). *Tacsonia mollissima* Kunth in Humb., *Bonpl. et Kunth, Nov. Gen. Sp.* 2: 144 (1817). Holotype: Colombia, *Humboldt & Bonpland 1767* (P). N.v.: curuba, P.

*Passiflora mollissima* (Kunth) L.H. Bailey

Vine 5-20 m, densely short-pubescent throughout except flowers. Stems terete. Stipules 10-16 × 6-12 [Scheck in herb.] mm, reniform, aristate, persistent, the margin glandular-dentate to

-serrate; petioles 6-12-glandular the length of the petiole, the nectaries  $0.8-2 \times 0.5-1$  mm; laminas  $6-12(-17) \times 6-17(-25)$  cm, glandular-serrate, not variegated, pubescent on both sides, 3-lobed, the lobes ovate to ovate-oblong, acute; laminar nectaries obsolete on marginal teeth, rarely slightly enlarged at lobe sinuses. Peduncle 1 per node, (2-)4-5 cm, uniflorous; bracts  $2.5-4 \times 1-2$  cm, connate at the base (1/3-)1/2-3/4 their length, ovate, acuminate. Flowers pink to rosado; stipe 6-10 mm, floral tube long-cylindric,  $7-10 \times 1-1.5$  cm, the swollen hypanthium/ nectar chamber slightly wider than the tube, tube abaxially light greenish (or flushed red distally), glabrous or with a few trichomes at the base, tube /sepal length ratio 2.4-3.2; sepals 26-35(-50) mm, the projection 2-4 mm, glabrous or the midrib and projection often pubescent, abaxially greenish or with pink edges, adaxially pale pink to rosado; petals 28-35(-50) mm, pale pink to rosado; corona 1 series of blunt teeth 2 mm or less, white and/ or pink or purplish; operculum membranous, near base of hypanthium; androgynophore 8.5-10 cm; ovary pubescent. Fruit  $8-12 \times 3-5$  cm, oblong-ellipsoid, pale yellow (light yellow), c. estipitate; arils orange; seeds  $4.5-6.5 \times 3.9-5$  mm, reticulate with 28-50 hoyuelos. *Cultivated at high elevations, occasionally naturalized at edges of cool montane humid forests.* CR (Chacón et al. 1838, CR); P (Sytsma & Stevens 2131, MO). (2100-)2400-3000 m. (C. México, Mesoamerica to Venezuela to Bolivia, cultivated and rarely naturalized in the Old World.) [\$verify exsiccatae\$]

This Andean species is widely cultivated in W. S. America and worldwide in tropical cool or mild temperate areas for its flavorful fruit. It is presently rarely encountered in Mesoamerica, where it was introduced in this century, and is not yet grown for commercially marketable fruits. The perianth on the pendent flowers is campanulate when fully open. Although this species is self-compatible and has weedy potential, it is not the one that has become a noxious weed in Hawaii, New Zealand, and elsewhere, that being the following species, *Passiflora tarminiana*, that was for many years confused with this species as *P. mollissima*.

**[\$needs to be added in KEY\$]**

**76. *Passiflora tarminiana*** Coppens et Barney, *Novon* 11: 9 (2001). Holotype: Colombia, cultivated, *Coppens IPGRI-AM 72* (COL!). Illustr.: Coppens & Barney, *Novon* 11: 11, 13, t. 1, 3 (2001). N.v.: granadilla, Ch, G.

*Passiflora mollissima* auct. non (Kunth) L.H.Bailey.



Vine 5-15 m, densely short-pubescent throughout except leaves lightly pubescent abaxially, glabrescent adaxially, and flowers c. glabrous. Stems terete. Stipules 4-7 × 2-3 mm, subreniform, conspicuously acicular-aristate, deciduous, the margin glandular-denticulate to serrulate; petioles 2-8-glandular the length of the petiole, the nectaries 0.8-2 × 0.5-0.8 mm; laminae 5.5-11(-16) × 7-16(-29) cm, glandular-serrate, not variegated, pubescent abaxially, glabrescent adaxially, 3-lobed, the lobes ovate to ovate-oblong, acute to acuminate; laminar nectaries obsolete on marginal teeth, rarely slightly enlarged at lobe sinuses. Peduncle 1 per node, 2.5-9 cm, uniflorous; bracts 3-5 × 2-2.5 cm, connate at the base (1/3-1/2-3/4 their length, ovate, acuminate. Flowers light to bright pink; stipe ca. 10 mm, floral tube long-cylindric, 6-8 × 0.7-1 cm, the swollen hypanthium/ nectar chamber c. globose, 1.4-2 cm wide, tube abaxially light greenish, c. glabrous, tube /sepal length ratio 1.3-1.6; sepals 45-60 mm, the projection 3-4 mm, abaxially light greenish with pink edges, adaxially pale to bright pink; petals 40-55 mm, light to bright pink; corona 1 series of blunt teeth 2 mm or less, white and/or pink to purplish; operculum membranous, near base of hypanthium; androgynophore 7-10 cm; ovary pubescent. Fruit 9-14 × 3.5-4.5 cm, oblong-ellipsoid, yellow to orange-yellow, c. estipitate; arils orange; seeds 4.5-6.5 × 3.9-5 mm, reticulate with 28-50 hoyuelos. *Cultivated at high elevations, occasionally naturalized at edges of cool montane humid forests or bosques mesófilos de montañas.* Ch (Martínez S. 19630, MO); G (Williams et al. 25514, EAP); P (Montenegro 1630, MO). 2100-2900 m. (C. México, Mesoamerica to Venezuela to Bolivia, cultivated and naturalized in Hawaii and the Old World.)

Long confused with *Passiflora tripartita* var. *mollissima* (as *P. mollissima*), this species is easy to distinguish from that by its small acicular stipules, glabrescent upper leaf surface, and showier flowers with sepals always *more* than half as long as the floral tube. Additionally, the perianth on the pendent flowers is spread horizontally or is reflexed when fully open. Though the fruit is edible and nutritious, this species is self compatible and very weedy, and should not be grown where it could escape to wild forest. *Passiflora tarminiana* is a noxious weed in some countries, notably Hawaii, where it has smothered areas of native forest.

**77. *Passiflora ciliata*** Aiton, *Hort. Kew.* 3: 310 (1789). Lectotype (designated by Killip, 1938): Cultivated at Kew, seeds from Jamaica, *ex Hort. Kew* (BM). N.v.: poch', pochka'ak, xpochkac, cujillo, Y; granadilla de lagartija, ES.

*Passiflora foetida* L. var. *ciliata* (Aiton) Mast., *P. foetida* var. *hibiscifolia* (Lam.) Killip., *P. foetida* var. *nicaraguensis* (Killip ex Standl.) Killip, *P. foetida* var. *subintegra* Killip., *P. hastata* Bertol. var. *nicaraguensis* Killip ex Standl., *P. hibiscifolia* Lam., *P. liebmannii* Mast.

Vine 2-5(-8) m, glabrous throughout except often a few gland-tipped cilia on laminar margin and petiole, and sometimes long to short or c. sessile glandular trichomes on the undersurface of lamina. Stems terete, glabrous, often red. Stipules cleft to c. base into numerous gland-tipped cilia or segments, the longest segment 3-10 mm; petioles usually with gland-tipped cilia or trichome-like transformed nectaries; laminas (2-)4-11(-14.5) × (2-)4.5-10(-14.5) cm, with or without foetid odor, entire or crenate-serrulate, not variegated, 3(-5)-lobed, often c. hastate (or rarely nearly unlobed in Belize), the lobes acute to rounded; laminar nectaries absent, except often gland-tipped trichomes present. Peduncles 1-2 per node, 2-6 cm (to 8 cm in fruit), uniflorous; bracts 15-40 × (10-)15-30 mm (to 60 × 40 in fruit), free to base, c. ovoid in outline, deeply twice-pinnatifid, the segments, cilia, or teeth glandular-tipped, usually strongly odorous. Flowers pale purple, light reddish purple, or pink to nearly whitish flushed with purple, the corona pink to purple apically, purplish basally, usually with a broad white band near the middle; stipe 1-4 mm; sepals 17-21 mm, the projection 3.5-5.5 mm; petals 15-23 mm; coronal filaments in 5(6) series, the 2 outermost c. equal, 14-20 mm, the next 3(4) series 0.8-3 mm; operculum membranous, c. denticulate apically; androgynophore (6-)7-8 mm; ovary glabrous. Fruit 1.7-2.7 × 2-3.2 cm, (widely ellipsoid to) globose or oblongoid, sometimes slightly 3-sulcate, bright red, lustrous, c. estipitate; seeds c. 4.5-5.3 × 2.8-3.7, apically c. 3-dentate, reticulate with c. 12-25 hoyuelos. *Coastal dunes and swales, sunny sandy soils, hot waste grounds.* T (*J. Calzada 4854*, XAL); Ch (*Breedlove 25574*, CAS); Y (*Téllez & Cabrera 2044*, MEXU); B (*Gentle 379*, MICH); G (*Contreras 9774*, LL); H (*Nelson 4823*, TEFH); ES (*Sermeño s.n. (JBL 1201)*, LAGU); N (*C. Baker 74*, CAS); CR (*Zamora & Chacón 1399*, CR). 0-200(-750) m. (SE. Mexico, Mesoamerica, Venezuela, West Indies, spottily introduced in Old World.)

The variable *Passiflora ciliata* is a typical part of the vegetation of the upper maritime beach in many areas, but has not been seen from Panama. Glabrous stems and bright red fruit are diagnostic. I have used the simple character of lack of pubescence to separate this from the next species, *P. foetida*, but the taxonomy of this group is in disarray, and red-fruited variants of that pubescent species probably belong here. Probably more than two species are involved. The var.

*subintegra* from Belize, with c. unlobed narrow leaves with no marginal cilia, may also deserve recognition at the species level.

**78. *Passiflora foetida* L., *Sp. Pl.* 959 (1753).** Lectotype (designated by Killip, 1938): “Habitat in Dominica, Martinicana, Curassao,” *Herb. Linn 1070.24* (LINN!). N.v.: pooch, poch'il, pochk' ak', poch ak' il, huhu, bejuco de jujo, tu'-bok, Y; granadilla, G, ES, H; granadilla de culebra, Y, G; granadilla de ratón, ES; sandía de ratón, huevo de gato, muyunchan, G; sandía de monte, bombón, H; catapán, N; bombillo, ñorbo, CR..

*Passiflora foetida* L. var. *gossypiifolia* (Desv. ex Ham.) Mast., *P. foetida* var. *hastata* (Bertol.) Mast., *P. foetida* var. *hirsutissima* Killip, *P. foetida* var. *hispidata* (DC. ex Triana et Planch.) Killip, *P. foetida* var. *isthmia* Killip, *P. foetida* var. *maxonii* Killip, *P. foetida* var. *mayarum* Killip, *P. foetida* var. *salvadorensis* Killip, *P. foetida* var. *subpalmata* Killip, *P. hastata* Bertol., *P. gossypiifolia* Desv. ex Ham., *P. hispidata* DC. ex Triana et Planch.

Vine 0.7-3(-5) m, perennial or annual, variously pubescent, often with glandular trichomes on the undersurface of lamina. Stems terete, puberulent to pilose. Stipules cleft to c. base into numerous gland-tipped cilia or segments, the longest segment 3-8 mm; petioles usually with gland-tipped cilia or trichome-like transformed nectaries; laminas (2-)4-12(-14.5) × (2-)4-10(-14.5) cm, often with foetid odor, c. entire to crenate or irregularly serrulate, not variegated, 3(-5)-lobed, sometimes hastate, the lobes acute to rounded; laminar nectaries absent, except sometimes gland-tipped trichomes present. Peduncles 1(-2) per node, 2-8 cm, uniflorous; bracts 12-30 × 8-20 mm (to 45 × 35 mm in fruit), free to base, c. ovate in outline, deeply 2-3-pinnatifid, the segments, cilia, or teeth glandular-tipped, strongly odorous. Flowers whitish (to pale purplish or light reddish purple), the corona white, purple, violet, or pink apically, purplish basally, with a broad white band near the middle; stipe 3-5 mm; sepals 15-21 mm, the projection 3-5 mm; petals 15-23 mm; coronal filaments in 5(6) series, the 2 outermost c. equal, 12-20 mm, the next 3(4) series 0.8-3 mm; operculum membranous, c. denticulate apically; androgynophore 5-8 mm; ovary glabrous or pubescent. Fruit (1.5-)2-3 × (1.5-)2-3 cm, widely ellipsoid to globose (oblongoid), sometimes slightly 3-sulcate, at maturity yellow, light orange, light green to yellowish green, or red, c. estipitate; seeds c. 4-5 × 2.5-3 mm, apically c. 3-dentate, reticulate with c. 15-25 hoyuelos. *Sunny areas, secundaria, and waste grounds.* T (*Fryxell 736*, F); Ch (*Breedlove 39696*, CAS); Y (*Lundell 1034*, UC); B (*Schipp 1154*, UC); G (*Contreras 712*, LL);

H (*J.R. Martinez 345*, TEFH); ES (*Standley 21901*, US); N (*Pipoly 1726*, CAS); CR (*A. Weston et al. 4023*, UC); P (*Knapp & Schmalzel 3589*, MO). 0-1000(-1800) m. (S. United States, Mexico, Mesoamerica to Brasil and Argentina, Antilles, Old World.)

*Passiflora foetida* is a multiracial species complex, with apparent hybrids between races and species and with *P. ciliata*. It is here recognized in a very broad sense, but there are numerous regional variants of unclear rank. The red-fruited races, in particular, i.e., “varieties” *maxonii*, *mayarum*, *salvadorensis*, and *subpalmata*, may be closer to *P. ciliata*.

**79. *Passiflora sublanceolata*** (Killip) MacDougal, *Novon* 14: 459 (2004). *P. palmeri* Rose var. *sublanceolata* Killip, *Publ. Carnegie Inst. Wash.* 461: 322 (1936). Holotype: Guatemala, *Bartlett 12788* (US!). N.v.: poch kaaki, escarlata brillante, cujo, Y.

Vine 1.5-3 m, densely pubescent to hirsute throughout, the stem usually pilose but rarely sparsely pilosulous (very rarely nearly glabrous). Stems c. terete. Stipules 4-12(-17) mm, deeply cleft into pinnatisect gland-tipped segments; petioles [\$\$\$]; laminas (3-)4.5-8.5 × (2-)2.5-5.5 cm, c. entire to (irregularly) serrate or serrulate, glandular-ciliate, not variegated, c. ovate, shallowly to obscurely 3-lobed, the lateral lobes obtuse to obsolete, the central lobe acute; laminar nectaries absent (except as marginal glandular cilia). Peduncle 1 per node, 4-8 cm, uniflorous; bracts 1.5-3 (to 5 in fruit) × 0.7-2.5 cm, free to the base, c. ovate to oblong, deeply 2-pinnatifid into narrowly triangular to filiform gland-tipped segments. Flowers vivid pink or purplish-pink to rosado intenso, the corona white or white with pink or reddish purple bands; stipe less than 2 mm; sepals 30-38 mm, the projection 3-6 mm; petals 30-38 mm; coronal filaments in c. 5 series, the outer 3-10 mm, the next c. 4 series 1-5 mm; operculum membranous, denticulate apically; androgynophore 17-21 mm; ovary densely pilose (rarely c. glabrous proximally, few-pilose apically). Fruit c. 3-4 × 2-2.8 cm, ovoid to widely ellipsoid, sometimes apically conical, red, pilose, c. estipitate or stipe to 2 mm; seeds 4.8-5.1 × 3.0-3.2, apically c 3-dentate, reticulate with 16-23 hoyuelos. *Sunny areas in secundaria de selvas altas subperenifolias, o selvas medianas, tinal at edge of bajos.* T (*Menendez 275*, MEXU); Y (*Webster & Lynch 17713*, MEXU); B (\$record specimen: Meerman?\$). 20-100 m. (Endemic.)

This conspicuous and gaudy passionflower, usually pilose, occasionally has a dense short felt-like vestiture much like *Passiflora urbaniana*. One sheet of the two seen of *Cabrera 1004*

(CAS) has glabrous stems and peduncles and a partly glabrous ovary; this variation in the population may be introgression from *P. ciliata*.

**80. *Passiflora urbaniana*** Killip, *J. Wash. Acad. Sci.* 17: 426 (1927). Holotype: Cultivated in Cuba, seeds from Belize, *Baker 2588* (US!).

Vine 2-4 m, very densely short-pubescent throughout. Stems c. terete, striate. Stipules 1-5 mm, pinnatifid or deeply cleft into gland-tipped segments; petioles [\$\$\$]; laminas 3-7(-9) × (2-)2.5-4(-7) cm, entire or irregularly serrulate, not variegated, narrowly ovate to lanceolate, unlobed to obscurely 3-lobed (rarely shallowly 3-lobed and subhastate, especially on lower part of vine), the lateral lobes rounded to obsolete, the central lobe acute to rounded; laminar nectaries absent. Peduncle 1 per node, 2.7-8 cm, uniflorous; bracts 2-3.5 × c. 1.2-2.5 cm, free to the base, c. ovate to oblong, deeply 2-pinnatifid into narrowly triangular to filiform gland-tipped segments. Flowers pink, light purple, or purplish blue, the corona dark purplish at the base, white in the middle, purplish or violet apically; stipe 1.5-2 mm; sepals 15-27 mm, the projection 1.5-2.5 mm; petals 15-25 mm; coronal filaments in c. 5-6 series, the 2 outermost c. equal, 12-15 mm, the inner c. 3-4 series 1-2 mm; operculum membranous, denticulate apically; androgynophore 6-8 mm; ovary densely pubescent. Fruit 2.5-4 × 2.5-3.5 cm, globose to ovoid, red, c. estipitate; arils unknown; seeds 4-5.1 × 3-3.5 mm, reticulate with 18-25 hoyuelos. *Savannahs or scrub in savannahs, pine ridges.* B (*Davidse & Brant 32870*, MO). 30-100 m. (Endemic.)

One of the most common passionflowers in lowland Belize, it is abundant on wet, pine-taciste palm savanna on sandy soil.

**81. *Passiflora serratifolia*** L., *Sp. Pl.* 955 (1753). Type: not designated, "Habitat in Surinami." N.v.: jujito amarillo, T; amapola, T; caranilicho, G; granadilla, Ch, G, H; broken ridge granadillo, B; granadilla de monte, H.

Vine 3-7 m, pubescent throughout except adaxial surface of laminas and bracts, and flower. Stems c. terete, striate. Stipules 5-9.5 × 0.6-1(-1.2) mm, narrowly oblanceolate to linear, acuminate, glandular-serrulate; petioles (4-)6-9-glandular on the distal 2/3, the nectaries 0.4-1.2(-2) × 0.4-0.6 mm; laminas 5-15(-18.5) × 2-7.5(-9.5) cm, (glandular-)serrulate (c. entire), not variegated, ovate to ovate-oblong, or elliptic, unlobed, acute to caudate, the adaxial surface nearly glabrous except for main veins; laminar nectaries marginal, obsolete, or several teeth

enlarged at laminar base. Peduncle 1 per node, 3.5-11 cm, uniflorous; bracts (1.7-)2.2-3.8 × 0.6-1.5 cm, free to the base, elliptic-lanceolate, entire (to glandular-denticulate), acuminate, adaxially glabrous or with a narrow band of marginal tomentum. Flowers whitish to light purple or violet, the corona purplish and white; stipe 6-12 mm (to 19 mm in fruit); sepals 25-36 mm, nearly glabrous except pubescent distally on central vein, the projection 2.5-12(-15) mm; petals 25-36 mm; coronal filaments in 4-8 series, the 2 outermost c. equal, (20-)23-45 mm, basally reddish-purple (banded white), becoming violet centrally and paler (to white) apically, the next 1-5 series tuberculate or to 3.5(-5) mm, the innermost 5-10 mm and sometimes partially connate and operculoid; operculum membranous, subapically denticulate to short-fimbriate; androgynophore 12-15 mm; ovary glabrous (or pubescent). Fruit 6-9 × 4-5.5 cm, ellipsoid to ovoid or obpyriform, light yellow, estipitate; seeds 6.5-9 × 3.9-6 mm, reticulate with 20-36 hoyuelos. *Secundaria, acahuales, and edges of selvas medianas subperenifolias ó de altas perennifolias*. T (*Matuda 3583*, MEXU); Ch (*Calzada et al. 2953*, XAL); Y (*Téllez & Cabrera 1623*, MEXU); B (*Sutton et al. 150*, BM); G (*Contreras 5440*, MO); H (*Nelson et al. 3556*, TEFH); N (*Stevens 7518*, MO); CR (*Tonduz 9190*, BR). 0-300(-1280) m. (Mexico [Tamaulipas], Mesoamerica.)

The seeds of this species are distinctively obtriangular. Although the styles are usually pubescent basally, the ovary is nearly always glabrous. *Proctor 36014* from Belize has a pubescent ovary, but is otherwise little different. Rarely, 3-lobed leaves may appear on sprouts or new growth near the basal part of the plant (Belize).

**82. *Passiflora prolata* Mast., *Bot. Jahrb. Syst.* 8: 219 (1887).** Type: Guatemala, *Lehmann 1630* (G-BOIS). N.v.: granadilla, G; granadilla de monte, Ch.

Vine 4 m or more, glabrous throughout except (leaves pubescent abaxially, H) slightly pubescent at the nodes, sides of adaxial primary laminar veins, bracts, and sometimes petioles. Stems c. terete, striate. Stipules 7-11 × 0.6-2.2 mm, linear-narrowly oblanceolate, acuminate, tardily deciduous, distally glandular-denticulate; petioles (1)2(-4)-glandular in the distal (1/2) 1/4, or near the apex, the nectaries 0.6-1.2 × 0.3-1.2 mm; laminas 9-15 × 7-14 cm, glandular-serrulate, (or becoming -denticulate to c. entire distally), 3-lobed, the lobes lanceolate to elliptic, acuminate to long-acuminate; laminar nectaries marginal, 4-8 borne in each lobe sinus, and usually also as several enlarged teeth at laminar base. Peduncle 1 per node, 2-4 cm, uniflorous; bracts 5-7 × 2.5-4 cm, free to the base, ovate-elliptic, entire (or c. entire basally), few-glandular

at margin basally, acute to acuminate, glabrous (pubescent) and with a narrow band of tomentum along adaxial margin. Flowers pale, the corona purplish, banded white basally; stipe c. 8-12 mm; sepals c. 25 mm, the projection c. 8 mm or longer; petals c. 20-25? mm; coronal filaments in c. 4-7 series, the 2 outermost c. equal, c. 25 mm or longer, the next c. 1-4 series tuberculate (or to 3 mm), the innermost c. 5-7 mm; operculum membranous at the base, filamentous in the distal 1/2; androgynophore 9-12 mm; ovary glabrous. Mature fruit unknown, immature fruit 5-6 × 4-4.5 cm, arils unknown, immature seeds 7.0-8.0 × 4.3-5.0 mm, obovate, reticulate with c. 20-30 hoyeulos. *Edges and secundaria de bosques húmedos o pluviales premontaños o montañas bajos, y de bosques nublados*. Ch (*Matuda 16479*, F); G (*Steyermark 33712*, F); H (*D'Arcy 18113*, EAP). 700-2000 m. (Endemic.)

This is a rare and poorly known species, known from two flowering collections, one being the type. The protologue describes petiolar nectaries near the middle of the petiole, but in the material seen they are distal to the middle, borne 1-10 mm from the apex. The petiolar nectaries are occasionally absent (or displaced to the base of the lamina?), but this has not been observed at fertile nodes. The only collection from Honduras, from Parque Nacional Celaque, differs from the rest notably by the leaf being less deeply lobed and pubescent abaxially.

**83. *Passiflora mayarum*** J.M. MacDougal, *Ann. Missouri Bot. Gard.* 76: 615 (1989).

Holotype: Mexico, Quintana Roo, *Chater et al.* 89 (MO!). N.v.: granadillo, wild passionfruit, B; granadilla, G.

Vine, 2-5 m, puberulent throughout except tendrils, adaxial surface of lamina, flowers, and sometimes adaxial surface of bracts. Stems c. terete to c. angular, striate. Stipules (10-)13-18(-22) × 0.4-1 mm, linear-narrowly oblanceolate (to linear-narrowly lanceolate), aristate, tardily deciduous, glandular-denticulate; petioles 2(-4)-glandular, the position variable but rarely near the apex, the nectaries sessile to 1 × (0.7-)1-2.2 mm; laminas 10-13 × 9-14 cm, glandular-serrate (to -serrulate), not variegated, glabrous adaxially except the primary veins puberulent, 3-lobed, the lobes lanceolate to narrowly ovate-oblong, acuminate to caudate; laminar nectaries marginal, 2-5 borne in each lobe sinus. Peduncle 1 per node, 1.5-4(-5) cm, uniflorous; bracts 4.8-6.6 × 2-3.4 cm, free to the base, ovate-elliptic, entire or the basal 1/2 obscurely glandular-denticulate, few-glandular at margin basally, acuminate, adaxial surface puberulent or glabrous with puberulent main veins and a narrow band of tomentum along margin. Flowers white to pale pink,

the corona purplish to violet, white at apex, banded white basally; stipe 10-14 mm (to 20 mm in fruit); sepals 25-37 mm, puberulent or sparsely so, the projection (8-)10-19 mm; petals 25-37 mm; coronal filaments in 6-8 series, the 2 outermost similar, the outer 26-38 mm, the next c. 3-6 mm shorter, the next (3-)4-5 series tuberculate or obscure to 5(-7) mm, the innermost 6-10 mm; operculum membranous at the base, fimbriate to filamentous in the distal 1/4-1/2; androgynophore 11-15 mm; ovary glabrous (sparsely puberulent). Fruit 7.5-9 × 4.5-5 cm, ellipsoid, greenish yellow to yellow, estipitate; arils color unknown; seeds 7.2-8 × 4-4.5 mm, reticulate with 35-46 hoyuelos. *Edges, escobales, y secundaria de selvas bajas, medianas, o altas subperennifolias*. Y (Cabrerá 1246, MEXU); B (Gentry 7733, MO); G (Bartlett 12840, MICH). 20-250(-550) m. (Endemic.)

This is closely related to the preceding species but is easily distinguished by its pubescence and habitat in the lowlands of the Caribbean drainage. The ovary is glabrous in all collections examined except one.

**84. *Passiflora brevifila*** Killip, *Contr. U.S. Natl. Herb.* 35: 16 (1960). Holotype: Costa Rica, *Sketch 3591* (US!). Illustr.: Killip, *Contr. U.S. Natl. Herb.* 35: t. 9 (1960). N.v.: granadilla de farol, canfura, CR.

Vine 6-15 m or more, glabrous throughout except bracts. Stems c. terete. Stipules 4-6(-8.5) × 0.6-1.1(-2) mm, oblanceolate, acuminate (CR), or glandular-blunt (P), not glandular (CR), or glandular (P); petioles (1)2-4(-6)-glandular above the middle to the apex, the nectaries 0.3-1 × 0.4-0.8 mm; laminas (6-)8-15(-18) × 3-6(-8) cm, entire, not variegated, ovate-elliptic to elliptic, (rarely narrowly ovate or obovate-elliptic), unlobed, sometimes c. 3-nerved proximally, acuminate (or caudate); laminar nectaries absent. Peduncle 1 per node, (1-)1.3-2.6(-3) cm, uniflorous; bracts (4-)4.5-6(-7) × 2-3.5 cm, connate 0.3-0.9 cm at the base, ovate, acute to acuminate, entire, glabrous except for a narrow band of tomentum along adaxial margin. Flowers white, the corona white or white with purple spots, the inner corona sometimes purplish; stipe 4-10 mm; sepals 20-27 mm, the projection 0.8-2.5 mm; petals 20-29 mm; coronal filaments in 2-3(4) series, the outermost 9-15 mm, the next 1-2 series 2-3.5 mm, sometimes with an innermost of 1 mm or less; operculum membranous, verrucose distally; androgynophore 6-9 mm; ovary glabrous. Fruit 5.5-8 × 4.5-6.5 cm, oblate-globose to widely ellipsoid, light greenish yellow to light yellow, estipitate; arils unknown; seeds 7-9 × 5-6.8 mm, reticulate with 27-60 hoyuelos, the



margins dentate. *Edges, secondary growth in clearings, and low canopy of lower montane humid to wet forests.* CR (*Dryer 681, CR*); P (*Knapp 1535, MO*). (800-)1100-2000 m. (Endemic.)

The petioles of this rare species are notably short, being only 0.6-1.5(-2) cm. The two collections known from Panama are fruiting only, and although they differ from the fairly uniform Costa Rican material in having wider, glandular stipules, more variable petiolar nectaries, and larger seeds, they best referred to this species.

**xx. *Passiflora incarnata* L., *Sp. Pl.* 959 (1753).** Type cons.: Herb. Linn. 1070.25 (LINN).

? Is there a need to add this species, also to the Key?. As of 1993, this species was cultivated for pharmaceuticals and or bulk medicinal European herb market, cult. in Guatemala, and to a lesser extent, in Belize by a single company out of Florida. Their fincas, however, were large, and surely it will escape locally. There are no known specimens. Maybe add it to discussion of *P. edulis* or wherever it would key out.

**85. *Passiflora edulis* Sims, *Bot. Mag.* 45: t. 1989 (1818).** Type: Cultivated in England, not designated.

Vine 2-9 m. Stems c. terete to obtusely c. angular. Stipules (4-)6-15 × (0.5-)0.8-1.5(-3.5) mm, linear to lanceolate (or narrowly obtrullate), acuminate, entire or glandular-serrate; petioles 2-glandular at or near the apex, the nectaries nearly sessile to 0.8 × 1.5-2 mm; laminas (5-)8-14(-16) × (5.5-) 10-18(-25) cm, glandular-serrate, acute (to abruptly acuminate), not variegated; laminar nectaries marginal, 2-4 borne in each lobe sinus. Peduncle 1 per node, (2-)3-5(-7.5) cm, uniflorous; bracts 1.2-2.8 × 0.8-2 cm, free to the base, widely ovate, glandular-serrate to short-pectinate, acute (sometimes with short acumen). Flowers white, the corona white, purplish in basal half; stipe 6-10 mm; sepals 25-35 mm, the projection 3.5-6 mm; petals 25-35 mm; coronal filaments in 5-10 series, the 2 outermost c. equal, 19-32 mm, the next 1-2 series 1-3(-9) mm, the innermost 2-7 series tuberculate and obscure or to 1 mm; operculum membranous, the apex entire or denticulate; androgynophore c. 8-15 mm, puberulent distally; ovary densely puberulent; styles puberulent. Stipe of fruit 2-5 mm; arils orange; seeds 4.9-6.1 × 3.4-4 mm, reticulate with 25-60 hoyuelos. (Brasil to N. Argentina; widely cultivated in the tropics and subtropics.)

*Passiflora edulis* is a native of Brasil and shows considerable variation and local adaptation there. From relatively few original introductions, the species is now cultivated worldwide and forms the basis of an economically important fruit and juice industry. There are two distinct kinds cultivated, a purple-fruited upland type, and a yellow-fruited lowland type. The yellow-fruited kind is larger in nearly all respects, and represents the upper extremes in the description above. The two kinds have been recognized as distinct at levels from *formae* to *species*, and both have been introduced to Mesoamerica. Given the differences in morphology, ecological requirements, diurnal and annual phenology, and the existence of partial cross-incompatibility, the two kinds surely deserve recognition at subspecies or species rank. However, the two are now universally known by the *formae* names proposed by Degener. In the interest of nomenclatural stability, those ranks are used here. Details on this species complex may be found in Hansen (2003).

Hybrids between the two types have been developed and were introduced commercially in Costa Rica by 1990. These hybrids have reddish to purplish brown or streaked fruits and are intermediate in many characters.

**85a. *Passiflora edulis* forma *edulis*.** N.v.: granadilla morada, H, CR; granadilla, granadina, CR, G; maracuyá, H; pasionaria, G; kok' karanis, G.

Plants glabrous or essentially so. Laminae 3-lobed, the lobes lanceolate-ovate to elliptic-ovate, or occasionally laminae at the base of shoots unlobed and elliptic to ovate; bracts with 2-4(-6) conspicuously enlarged basal marginal glands, the nectaries usually c. sessile. Sepals without marginal glands; main coronal filaments light purplish-red to dark purple in the basal half, but usually white at the very base. Fruit 4-5.5 × 4-5 cm, widely ellipsoid (or c. globose), greenish brown to purple or purplish black, becoming wrinkled. *Cultivated; escaped and naturalized in premontane to montane humid thickets and secondary areas.*  $2n=18$ . G (Ruano 1278, F); H (Molina 7709, EAP); CR (Tonduz 17459, CR); P (Knapp & Mallet 5172, MO). 1300-2200 m. (Mesoamerica.)

The granadilla morada has been cultivated sporadically in highland gardens of Mesoamerica since the beginning of the 20th century, with one early specimen from Guatemala cited by Hemsley (1880). It is now commonly cultivated for local consumption and sale, and has become naturalized in several areas because it is self-compatible.

**85b. *Passiflora edulis* forma *flavicarpa*** O. Deg., *Fl. Hawaii*. Fam. 250 (1932). Isotype: Cultivated in Hawaii, *Degener 4170* (MO!). N.v.: maracuyá, H, N, CR, P; calala, N.

*Passiflora edulis* Sims var. *verrucifera* (Lindl.) Mast. *P.verrucifera* Lindl.

Plants essentially glabrous, but minutely puberulent or sparsely so at the nodes, bracts, and often also the peduncles or other organs. Laminas 3-lobed, the lobes lanceolate-ovate to elliptic-ovate, or laminas unlobed and elliptic to widely ovate; bracts without conspicuous basal marginal glands (or rarely 1-2 basal teeth with a narrow nectary at the apex). Outermost sepals with 1-2(-4) conspicuous marginal glands (4-10 glands per bud); main coronal filaments dark purple in the basal half, the coloring extending to the very base. Fruit 6-9(-13) × 5-7.5(-9) cm, widely ellipsoid, greenish-yellow to yellow, remaining smooth. *Cultivated; occasionally escaped and rarely naturalized in tropical thickets and secondary areas. 2n=18. H (Molina 10170, EAP); N (J. Miller & Sandino 1210, MO); CR (Chavarría 630, MO); P (Tyson 5797, MO). 0-1200(-1500) m. (Mesoamerica.)*

Introduced to Mesoamerica starting in the 1960s, the maracuyá became a major commercial juice crop in Costa Rica in the mid-1980s, and is now to be expected throughout our area at lower elevations. As of this writing, strongly self-compatible strains have not yet been developed, and thus although the maracuyá can be found as an escape, it is as yet rarely naturalized.

**86. *Passiflora caerulea* L., *Sp. Pl.* 959 (1753).** Lectotype (designated by Killip, 1938): *Herb. Linn. 1070.26* (LINN!). N.v.: flor de pasión, CR; pasionaria, CR, G.

Vine 3-10 m, glabrous throughout. Stems c. terete or obscurely 5-7-angular or ridged. Stipules 12-20(-25) × 4-10 mm, auricular, aristate, the margin glandular-dentate to -denticulate; petioles 2(-6)-glandular near middle to apex, the nectaries 0.6-1.5(-2.5) × 0.4-0.8 mm; laminas 5-10 × 8-14 cm, entire, not variegated, 5(-7)-lobed, the lobes narrowly oblong to narrowly elliptic, rounded (or c. acute); laminar nectaries marginal, 2-4 in each lobe sinus. Peduncle 1 per node, (1.6-)2.5-7.5 cm, uniflorous; bracts 1.8-2.5(-3.3) × 1.5-2.2(-2.5) cm, free to the base, widely ovate (to widely obovate), obtuse to rounded, entire, pale green. Flowers whitish to pale pink, with purple center, the corona white, dark purple near the base, light violet to blue at the apex, rarely all white; stipe 5-9 mm; sepals (20-)25-37 mm, the projection 3-10 mm; petals (20-)25-32

mm; coronal filaments in 3-4 series, the 2 outermost c. equal, (8-)13-22 mm, the 1-2 inner series 1-3 mm; operculum filamentous distally, membranous in basal 1/3-1/2; androgynophore 12-16 mm; ovary glabrous. Fruit 4.7-6.5 × 3-4 cm, c. ovoid or ellipsoid to widely ellipsoid, orange-yellow to light orange, the stipe c. 7 mm; arils translucent pale yellow to red; seeds 3.5-4.2 × 2.3-3 mm, reticulate with 18-30(-50) hoyuelos. *Cultivated ornamental, sometimes long-persistent around old homes, rarely escaped.* Ch (*Breedlove 16108*, DS); G (*Aguilar 125*, F); H (*Molina 1975: 79*). (Mesoamerica, S. S. America; widely cultivated.)

*Passiflora caerulea* has been cultivated for its foliage and flowers for centuries. It tolerates light frost, and is one of the few species of flor de pasión well-suited to temperate gardens at upper elevations. Vegetative reproduction via underground runners is common. This species has served as one of the parents for numerous horticultural hybrids, including the following.

**87. *Passiflora* × *belotii*** Pépin, *Rev. Hort.* 3: 248 (1849). Type: Cultivated. (= *P. alata* Curtis × *P. caerulea* L.) [**\$ need citation\$**]

*Passiflora* × *alato-caerulea*, *P.* × *pfordtii* hort. ex O. Krauss.

Vine 2-8 m, glabrous throughout. Stems (4-)5-angular or -ridged, becoming c. terete. Stipules (7-)11-19 × (3-)4-11 mm, obliquely obovate-falcate to auricular, caudate to aristate, the margin entire or glandular-denticulate; petioles 2(-4)-glandular near or above the middle, the nectaries c. 0.8-1.2 × 0.6-1 mm; laminae 6-16 × 9-22 cm, entire (or obscurely few-denticulate at base), not variegated, 3-lobed, the lobes ovate, ovate-oblong, or elliptic, c. acute to c. obtuse, usually rounded at the very apex; laminar nectaries marginal, 2-4 in each lobe sinus, or absent. Peduncle 1 per node, 2-6.5 cm, uniflorous; bracts 1.5-2.9 × 1.3-2.6 cm, free to the base, widely to very widely ovate, widely obtuse to rounded, entire. Flowers pale purplish, the corona light purplish, banded near the middle; stipe 5-8 mm; sepals 30-40 mm, white or tinged pale purple, the projection 2.9-5 mm; petals 30-49 mm, light purplish to pink; coronal filaments in 4(5) series, the 2 outermost c. equal, 20-28 mm, dark purple at the base, banded purple and paler purple or whitish near the middle, the banding obscure apically, the inner 2(3) series 2-4.5 mm; operculum membranous, apically short-filamentous or dentate; androgynophore 15-20 mm; ovary glabrous. Fruit usually not formed. *Cultivated; not escaped or naturalized.* G (*Dwyer 15262*, MO); CR (*Pittier 481*, BR). (Mesoamerica.)

This male-sterile hybrid is the most widely cultivated hybrid ornamental flor de pasión, and is propagated by cuttings. There are nearly always only two petiolar nectaries. [Mention ref. in Fl. Costa Rica to *Passiflora* × *allardii* - it may best be cited under this hybrid\$]

**88. *Passiflora menispermifolia*** Kunth in Humb., Bonpl. et Kunth, *Nov. Gen. Sp.* 2: 137 (1817). Isoype: Peru, *Humboldt & Bonpland s.n.* (photo F! ex B).

Vine 4-10 m, hirsute throughout except flower (very rarely glabrous throughout). Stems terete, striate. Stipules 15-25(-33) × 4-9(-12) mm, auricular, aristate, glandular-dentate or -denticulate; petioles (4-)6-11-glandular, the nectaries 0.6-1.8 × 0.4-0.8 mm; laminae 7-14(-17) × 6-13(-18) cm, glandular-denticulate to -serrate near base, c. entire to glandular-denticulate distally, not variegated, 3-lobed (or obscurely so and thus nearly unlobed), the lateral lobes ovate-deltate to shallowly triangular, acute to obtuse (or obscure), the central lobe ovate-triangular, acute to acuminate; laminar nectaries marginal, or often also submarginal, 2-4 borne 1-4 mm from the margin in the lobe sinuses. Peduncle 1 per node, (1.5-)2.5-5(-7.5) cm, uniflorous; bracts (9-)12-22 × 2.3-5 mm, free to the base, lanceolate, glandular-serrate (to c. entire), acuminate to caudate. Flowers light violet to purplish and white, with purplish-red center, the corona purplish-red at the base, violet apically, white-banded; stipe 6-10(-13) mm; sepals (23-)30-35 mm, only the main vein hirsute, the projection 1.5-5 mm; petals 21-32 mm; coronal filaments in c. 7-9 series, the 2 outermost c. equal, 19-28 mm, the inner c. 5-7 series 1.5-4.5 mm dark purplish-red; operculum membranous at the base, filamentous in distal 1/2; androgynophore 15-17 mm; ovary glabrous. Mature fruit poorly known, c. 6-7 × 4-4.5 cm, obovoid, light green to yellow-green, the stipe 5-15 mm; seeds c. 5.9-6.2 × 2.9-3.2 mm, reticulate with 15-30 hoyuelos. *Thickets and edges in bosques húmedos and riparian forests.* N (*Ortiz 861*, MO); CR (*Gilbert 78100*, TEX); P (*H. Hernández et al. 753*, MO). 0-900(-1250) m. (Mesoamerica to W. Brasil.)

This widespread but uncommon species is fairly uniform across its range, but the number of inner coronal series is higher and the bracts are wider in material from near the type locality. A glabrous individual of this notably hirsute species was collected by Gilbert on the Osa Peninsula in Costa Rica.

**89. *Passiflora chocoensis*** G. Gerlach et Ulmer, *Caldasia* 22: 231 (2000). Holotype: Colombia, *Jardín Botánico de Munich 94/1605* (COL).

Vine m, [vest]. Stems c. terete, [striate]. Stipules  $\times$  mm, auricular to obliquely ovate, c. [acute, apiculate to cuspidate, entire (or obscurely glandular-denticulate)]; petioles 8-12-glandular [at a variable position], the nectaries [ ]mm; laminae xxx cm, [shape], [entire, or few-denticulate at the base,] not variegated, [acute]; laminar nectaries [absent or marginal to submarginal,] [sometimes borne at laminar base, or xxx borne at or to xxx mm from margin]. Peduncle 1 per node, xxx cm, uniflorous; bracts xxx cm, free to the base, ovate (narrowly ovate), entire [(or obscurely glandular-serrulate)], acuminate. Flowers color], the corona banded purplish [or purplish-red and white, or flowers c. all reddish purple to c. all white]; stipe xxx mm (to xxx mm in fruit); sepals xxx mm, the projection xxx mm; petals xxx mm; coronal filaments in c. xxx series, [the 2 outermost c. equal, or the outermost somewhat longer], xxx mm, the next xx-xx series xxx mm; operculum membranous at the base, [slightly plicate apically, filamentous in the distal 1/2-1/4]; androgynophore xxx mm; ovary glabrous. Fruit xxx cm, [ellipsoid to obovoid, light green to yellow-green, the stipe xxx mm]; seeds xxx mm, reticulate with xxx hoyuelos. *Edges, gaps, thickets, and secundaria de bosques húmedos tropicales, bosques pluviales tropicales, y de pluviales premontaños o bajos de montañas.* (Mesoamerica to W Colombia).

**[[Large-bracted white-flowered variant common in Panama and the Chocó; this has 8-12 long slender petiolar nectaries on unlobed to obscurely lobed leaves that dry pale, and sepals with reduced projections.]]**

**[\$Passiflora oerstedii treatment is from s. lat. of 1995, and still needs to have all metrics and states of choconiana, dispar, and chocoensis removed-10Mar03\$]**

**90. Passiflora oerstedii** Mast. in Mart., *Fl. Bras.* 13(1): 562 (1872). Holotype: Costa Rica, *Oersted 4114* (C!). N.v.: granadilla choz, Ch.

Vine 3-6(-9) m, glabrous throughout or glabrous except pubescent on abaxial surfaces of laminae and sometimes stipules, or very rarely the petioles and stems also pilosulous. Stems c. terete, striate. Stipules (7-)11-35(-44)  $\times$  (3.5-)5-16(-20) mm, auricular to obliquely ovate, c. acute, apiculate to cuspidate, entire (or obscurely glandular-denticulate); petioles (2)4-8-glandular at a variable position, the nectaries 0.7-2(-2.5)  $\times$  0.3-0.9 mm; unlobed laminae 7-15(-19)  $\times$  3.5-8(-11.5) cm, broadly lanceolate to ovate (widely ovate); 3-lobed laminae 5.5-11(-18)  $\times$  7-15(-18) cm, the lobes lanceolate to narrowly oblong-lanceolate; laminae entire, or few-denticulate at the base, not variegated, acuminate (acute); laminar nectaries absent or marginal to

submarginal, sometimes borne at laminar base, or 2-7 borne at or to 1.5 mm from margin in lobe sinus (or equivalent position on unlobed leaf). Peduncle 1 per node, (1.5-)3-6(-8) cm, uniflorous; bracts (0.4-)0.8-2.5(-3.6) × (0.15-)0.5-1.6(-2.1) cm, free to the base, ovate (narrowly ovate), entire (or obscurely glandular-serrulate), acuminate. Flowers purplish to rosado-lila (or the sepals yellow-green), the corona banded purplish or purplish-red and white, or flowers c. all reddish purple; stipe 4-10 mm (to 15 mm in fruit); sepals (22-)25-37 mm, the projection 12-13[really?] mm; petals (21-)24-33 mm; coronal filaments in (6)7-9 series, the 2 outermost c. equal, or the outermost somewhat longer, (15-)20-35 mm, the next (4)5-7 series 1.5-4 mm; operculum membranous at the base, slightly plicate apically, filamentous in the distal 1/2-1/4; androgynophore 11-16 mm; ovary glabrous. Fruit 6-9 × 3-4.5 cm, ellipsoid to obovoid, light green to yellow-green, the stipe 10-24 mm; seeds (5-)6-8.0 × 2.6-3.2 mm, reticulate with (11-)22-36 hoyuelos. *Edges, gaps, thickets, and secundaria de bosques húmedos tropicales, bosques pluviales tropicales, y de pluviales premontaños o bajos de montañas.* [revise specimens cited for newest species concept-Mar03] Ch (*Breedlove & Dressler 29608*, DS); B (*Schipp 1215*, UC); G (*Watson 212*, GH); H (*Williams & Molina 14551*, EAP); N (*Stevens 9629*, MO); CR (*Chacón et al. 2248*, CR); P (*Knapp et al. 3668*, MO). 0-1250 (1550) m. (Mexico [Veracruz], Mesoamerica to N. Paraguay.)

This widespread species shows some regional differentiation, and is here defined in a wide sense. In our area the stem is glabrous (or rarely pilosulous in Panama)\$\$\$chocoensis??] and the leaves are sometimes pubescent beneath and may be 3-lobed, unlobed, or both on the same plant. The type has 4-6-glandular petioles and lanceolate laminas which are completely glabrous.

**\$91. *Passiflora choconiana*** S. Watson, *Proc. Amer. Acad. Arts* 22: 474 (1887).

Holotype: Guatemala, *Watson 212* (GH).

*Passiflora oerstedii* Mast. var. *choconiana* (S. Watson) Killip.

Vine m, [vest]. Stems c. terete, [striate]. Stipules × mm, auricular to obliquely ovate, c. [acute, apiculate to cuspidate, entire (or obscurely glandular-denticulate)]; petioles xx-glandular [at a variable position], the nectaries [ ]mm; laminas xxx cm, [shape], [entire, or few-denticulate at the base,] not variegated, [acute]; laminar nectaries [absent or marginal to submarginal,] [sometimes borne at laminar base, or xxx borne at or to xxx mm from margin in lobe sinus.

Peduncle 1 per node, xxx cm, uniflorous; bracts xxx cm, free to the base, ovate (narrowly ovate), entire [(or obscurely glandular-serrulate)], acuminate, often deciduous. Flowers reddish purple, the corona banded purplish [or purplish-red and white, or flowers c. all reddish purple]; stipe xxx mm (to xxx mm in fruit); sepals xxx mm, the projection xxx mm; petals xxx mm; coronal filaments in c. xxx series, [the 2 outermost c. equal, or the outermost somewhat longer], xxx mm, the next xx-xx series xxx mm; operculum membranous at the base, [slightly plicate apically, filamentous in the distal 1/2-1/4]; androgynophore xxx mm; ovary glabrous. Fruit xxxx cm, [ellipsoid to obovoid, light green to yellow-green, the stipe xxx mm]; seeds xxx mm, reticulate with xxx hoyuelos. *Edges, gaps, thickets, and secundaria de bosques húmedos tropicales, bosques pluviales tropicales, y de pluviales premontaños o bajos de montañas.* (Mesoamerica.)

This small-flowered species is common around the Gulf of Honduras. The leaves are always 3-lobed and usually glabrous. The diagnostically small bracts may be several cm below the apex of the peduncle.

**92. *Passiflora dispar*** Killip, *J. Wash. Acad. Sci.* 12: 330 (1922). Holotype, Venezuela, *Pittier 8854* (US).

Vine 3-6, glabrous except pubescent on abaxial surfaces of laminae and stipules, and vegetative bud. Stems terete. Stipules 9-20 × 3.5-6 mm, auricular to obliquely ovate, acuminate to acute, apiculate to aristate, c. entire or obscurely glandular-denticulate or -serrulate; petioles (5)6-glandular scattered along the petiole, the nectaries 2-3 mm; laminae unlobed, asymmetrically 2-lobed, or 3-lobed, often on the same branch, unlobed laminae 6-11 × 3-7 cm, narrowly ovate, acute or with very apex rounded (acuminate); 3-lobed laminae 6-13 × 7.5-17 cm, the lobes lanceolate to narrowly ovate, acute with the very apex rounded, the central lobe slightly narrowed at base; laminae c. entire to obscurely or minutely serrulate or glandular-denticulate, especially at base, not variegated; laminar nectaries 2-4 borne at margin in lobe sinus (or equivalent position on unlobed leaf). Peduncle 1 per node, 3-4.5 cm, uniflorous; bracts 0.7-1.1 × 0.4-0.5 cm, free to the base, ovate, minutely (glandular-?) serrulate or denticulate. acute. Flowers white, the corona white; stipe 6-7 mm (to 9 mm in fruit); sepals ca. 20-25 mm, the projection 2-3 mm; petals ca. 22 mm; coronal filaments in c. \$X series, the [\$2?] outermost [\$c. equal, or the outermost somewhat longer], 20-22 mm, the next xx-xx series xxx mm; operculum membranous at the base, filamentous in the distal [\$1/2]; androgynophore 10 mm; ovary glabrous. Fruit c. 9-



11 × 4-4.5 cm, narrowly obovoid to ellipsoid, acute-conical at apex, greenish yellow or light yellowish apically, the stipe 1.5 cm; seeds ca. 6.0-6.1 × 3.0 mm, reticulate with 15-19 hoyuelos. *Edges, gaps, thickets, and secundaria de bosques húmedos tropicales, bosques pluviales tropicales, y de pluviales premontaños o bajos de montañas.* (Mesoamerica.)

**[\$ small-bracted white-flowered variant inhabits middle elevations in [eastern] Costa Rica and usually has a mix of lobed and unlobed abaxially pubescent leaves on a stem.]**

**[\$ still needs the Panamanian measurements taken out]**

**93. *Passiflora subpeltata*** Ortega, *Nov. Pl. Descr. Dec.* 6: 78 (1798). Holotype: Cultivated in Madrid, seed from C. México (MA). N.v.: karanáto zak', granadilla de monte, Ch. Vine 2.5-8 m, glabrous and glaucous throughout. Stems terete, striate. Stipules 18-40 × 10-25 mm, obliquely ovate, acute to obtuse, apiculate, entire [or basally glandular-crenate]; petioles 2-4(-6)-glandular at a variable position, the nectaries (0.7-)1-1.7 × 0.3-0.5 mm; laminae 4.5-10(-12) × 6-12(-15.5) cm, entire, sometimes glandular-serrulate at the base and in the lobe sinuses, not variegated, 3-lobed, the lobes ovate-deltate to ovate-oblong, acute to rounded; laminar nectaries absent or marginal, 0-4 borne in each lobe sinus and sometimes at the base of the lamina. Peduncle 1 per node, (1.8-)2.5-5(-6) cm, uniflorous; bracts 1.0-2.2 × 0.7-1.5(-1.8) cm, free to the base, ovate (elliptic-ovate), acute to obtuse (rounded), entire except the base usually few-glandular-serrate (or glandular-serrate to apex). Flowers white, the corona white or white with greenish base, rarely with purplish banding (G); stipe 5-10 mm; sepals 19-31 mm, the projection 6-13 mm; petals 16-30 mm; coronal filaments in (4)5 series, the outermost 12-27 mm, the next 3-4 series 1.5-7 mm; operculum membranous, fimbriate or short-filamentous in distal 1/3-1/4; androgynophore 10-12 mm; ovary glabrous. Fruit 4-6 × 3-4 cm, ellipsoid (c. globose), yellow-green to greenish-yellow, the stipe 6-15 mm; seeds 4.5-5.3 × 2.8-3.2 mm, reticulate with 18-35 hoyuelos. *Edges and secundaria, usually in seasonally dry forests, occasionally in more humid areas.* Ch (*Breedlove & Almeda 58352*, CAS); G (*Molina & Molina 26343*, F). 1100-2000 m. (C. México, Mesoamerica)

The collections from Chiapas and Guatemala are similar to the type, with the outermost coronal row noticeably longest and almost always with pure white flowers. I have seen only one

specimen with purplish banding, Hansen \$XXX from Quezaltenango, Guatemala. This is a highland species: the habitat (including Mexico) is 1100-3100 m.

**94. *Passiflora* aff. *subpeltata* Ort.**

Vine xxx m, glabrous and glaucous throughout. Stems terete, striate. Stipules xx × xx mm, obliquely ovate, [acute to obtuse, apiculate, entire or basally glandular-crenate]; petioles [2-4(-6)]-glandular at a variable position, the nectaries xxx mm; laminae xxx × xxx cm, entire, [sometimes glandular-serrulate at the base and in the lobe sinuses,] not variegated, 3-lobed, the lobes [ovate-deltate to ovate-oblong, acute to rounded]; laminar nectaries [absent or marginal, 0-x borne in each lobe sinus] [and sometimes at the base of the lamina.] Peduncle 1 per node, xxx cm, uniflorous; bracts xxx cm, free to the base, [ovate (elliptic-ovate)], [acute to obtuse (rounded)], [entire except the base usually few-glandular-serrate (or glandular-serrate to apex).] Flowers white, the corona white or white with greenish base, corona with basal purple bands (Panama); stipe xxx mm; sepals xxx mm, the projection xxx mm; petals xxx mm; coronal filaments in xx series, the 2 outermost c. equal, xxx mm, the next [3-4] series xxx mm; operculum membranous, [fimbriate or short-filamentous in distal 1/3-1/4]; androgynophore xxx mm; ovary glabrous. Fruit xxx cm, [ellipsoid (c. globose), yellow-green to greenish-yellow,] the stipe xxx mm; seeds xxx × xxx mm, tridentate at apex, reticulate with xxx hoyuelos. *Edges and secundaria in low or moist disturbed or open areas.* P (Tyson et al. 3184, SCZ). 0-850 m. (Mesoamerica to N Venezuela.)

Besides habitat, among the differences from the related *Passiflora subpeltata* are the corona always banded purple near the base; usually two prominent outer coronal rows that are c. equal in length; stipules more glandular; larger bracts; and seeds that are conspicuously tridentate at the chalazal end.

**95. *Passiflora ambigua* Hemsl., *Bot. Mag.* 128: t. 7822 (1902).** Holotype: Cultivated at Kew in 1901, from Nicaragua, *Sturridge s.n.* (K). N.v.: granadilla, granadillo, B, G, H; granadilla de monte, H, CR; granada, CR; jujo, jujito, T, Ch.

Vine 8-12 m or more, essentially glabrous except minutely puberulent on flowering axillary branches and associated petioles and peduncles, and always puberulent on bracts, floral stipe, sepals, and ovary. Stems terete, exfoliating thin dark waxy sheets after drying. Stipules 7-

15 × 0.4-0.8 mm, linear, acuminate, deciduous; petioles 2-glandular at or below the middle, the nectaries c. 0.5-0.8(-1) × 1.2-2(-2.3) mm; laminae 9.5-18(-21) × 5-8(-9.5) cm, c. entire, not variegated, ovate-oblong or lanceolate-elliptic to elliptic-ovate (lanceolate), unlobed, acuminate; laminar nectaries present as obscure marginal indentations. Plants often flowering on condensed axillary shoots with reduced or no leaves. Peduncle 1 per node, (1.5-)3-8(-10.5) cm, uniflorous; bracts (3-)4-6(-8) × (2-)2.8-3.8(-5.5) cm, free to the base, obovate, entire basally, distally marginally glandular-crenate (very rarely eglandular?), cucullate, obtuse to rounded. Flowers whitish abaxially, (whitish to) light purple to dark purplish-red adaxially, the corona reddish to violet, with white; stipe 6-14 mm; sepals 43-55 mm, the projection 4-10 mm; petals 45-50 mm; coronal filaments in 3-8 series, the outermost 5-15(-21) mm, reddish or purplish and white, the next 38-55 mm, purple to dark violet distally, banded white and reddish purple basally, the inner 1-6 series 0.5-2(-3.5) mm; operculum membranous, denticulate to short-filamentous at very apex; androgynophore 14-18 mm; ovary pubescent. Fruit 9-14 × 6.5-12(-14) cm, very widely ovoid, yellow to orange, estipitate; seeds 7.8-10 × 5.1-6.5 mm, reticulate with 18-29 hoyuelos. *Selvas altas perennifolias, bosques húmedos tropicales, bosques pluviales de montañas bajas, y secundaria*. Ch (*Breedlove 38685*, DS); B (*Whitefoord 1793*, MO); G (Killip, 1938:364); H (*Molina 10462*, EAP); N (*Grijalva 3810*, MO); CR (*Chacón 58*, CR); P (*Knapp & Schmalzel 3569*, MO). 0-900(-1500) m. (Mexico [Veracruz], Mesoamerica to Ecuador and Venezuela.)

Both the protologue and Killip's monograph describe the bracts to be glandless, but all specimens that I have examined have at least a few glands toward the apex. The bracts are usually minutely puberulent on both surfaces; one collection from Belize was seen in which the abaxial surface was glabrescent. The inside of the perianth is generally more red in the north of the range, becoming whitish in Panama and further south. The fruit has a remarkably thick mesocarp which ranges from 1.5-4 cm. Stems of herbarium specimens nearly always show a diagnostic flaking or sloughing of patches of gray or black waxy film.

**96. *Passiflora laurifolia* L., *Sp. Pl.* 956 (1753).** Lectotype (designated by Cusset, 1967): Merian, *Metamorph. Insect. Surinam.*, t. 21 (1705).

Vine 5-18 m, glabrous throughout except puberulent on sepals, both surfaces of bracts, and ovary, and sometimes peduncle. Stems c. terete. Stipules 4-10 × 0.3-1.4 mm, linear to narrowly oblanceolate, deciduous, the margin usually glandular distally; petioles 2-glandular at

or within 2 mm of the apex, the nectaries 0.7-1.1 × 1-1.7 mm; laminas 6-14 × 3.5-8 cm, entire, not variegated, oblong-elliptic or elliptic to ovate-oblong, unlobed, rounded to obtuse, the very apex acute; laminar nectaries absent or obsolete and marginal. Peduncle 1 per node, 2-5 cm, uniflorous; bracts 3.5-6 × 1.7-3 cm, free to the base, elliptic to obovate or widely obovate, margin glandular distally, (c. entire or) dentate-crenate, obtuse to rounded. Flowers cream with red blotches, or pink to reddish or reddish-purple, the corona banded white, blue, and purple or red; stipe 3-7 mm; sepals 20-25 mm, the projection 1.8-4 mm; petals slightly shorter than sepals; coronal filaments in c. 6 series, the outermost 14-25 mm, the next 27-42 mm, the succeeding series 0.5-1.5 mm; operculum membranous; androgynophore 8-10 mm; ovary puberulent. Fruit 5-10 × 4-7 cm, ellipsoid to ovoid, yellow to yellow-orange, estipitate; seeds c. 5.8-8 × 4-5.5 mm, reticulate with c. 35-70 hoyuelos surrounded by a striate denticulate margin. *Cultivated*. H (Armour, 1950: 8; Molina, 1975: 79). [Cult. also in B? check Standley & Record 1936]. (Mesoamerica, N. S. America to E. Peru and Brasil, Antilles; introduced in the Old World.)

Indigenous to S. W. I. and S. America, this species is extensively cultivated in the W. I. for its edible fruits, and is sporadically cultivated in our area. No specimens have been seen from our area.

**97. *Passiflora nitida*** Kunth in Humb., Bonpl. et Kunth, *Nov. Gen. Sp.* 2: 130 (1817).

Isotypes: Venezuela, *Humboldt & Bonpland s.n.* (B, destr., B-W, P).

Vine 8-15 m, glabrous throughout except ovary and styles usually minutely puberulent, and sometimes also sepals. Stems terete. Stipules 5.5-11 × 0.4-1 mm, linear to narrowly oblanceolate, deciduous, the margins distally glandular; petioles 2-glandular at or above the middle, the nectaries 0.8-1.5 × 1.4-2.5 mm; laminas (9.5-)12-19(-23) × (5-)6-10(-11.5) cm, glandular-denticulate to -serrulate, not variegated, oblong-elliptic to ovate-oblong (or obovate-oblong), unlobed, abruptly acute to acuminate; laminar nectaries marginal, on the teeth. Peduncle 1 per node, (1.7-)2-4(-5) cm, uniflorous; bracts (3-)3.5-5.5 × (1.5-)2.2-4(-4.5) cm, free to the base (very rarely 2 of the bracts connate 2-10 mm), ovate to elliptic, glandular-crenate or -serrate, obtuse to rounded or truncate, sometimes spotted with reddish purple or reddish at base. Flowers pale pink to rose, the corona purple with pink or white; stipe 3-6 mm; sepals 40-52 mm, pink or whitish flushed pink, sometimes minutely papillate-puberulent, the projection 1.5-6 mm; petals 40-50 mm, pink or white flushed pink, to light rose or purplish-red; coronal filaments in 6-

7 series, the 2 outermost c. equal or the outermost slightly shorter, pink or white, banded with purplish-red to dark purple, the outermost 28-45 mm, the next 35-48 mm, the succeeding 3-4 series 0.5-4.5 mm, the innermost 9-13 mm; operculum membranous, short-fimbriate at the apex; androgynophore 16-19 mm; ovary puberulent or glabrous. Fruit 6-11 × 5-8 cm, ellipsoid to widely ellipsoid (or obovoid), (yellow-)orange to red or dark purplish-red, with paler spots, estipitate; seeds 6.8-8.9 × 5.2-6.8 mm, reticulate with 30-70 obscure hoyuelos, surrounded by a narrow striate margin. *Selvas altas perennifolias, bosques húmedos-pluviales tropicales, bosques húmedos-pluviales premontaños, y secundaria*. CR (Hammel 11602, DUKE); P (Mori et al. 4171, WIS). 0-550(-1200) m. (Mesoamerica to Surinam, E. Peru and Brasil.)

*Passiflora nitida* is easily recognized vegetatively by the denticulate-serrulate margin of the leaf. The petiolar nectaries are often well above the middle of the petiole, but in our area are not borne at the apex except in juvenile plants. Bracts free to the base are characteristic of the species, but a couple collections from Panama have sporadic partial fusion of two of the bracts. This species probably also occurs in S. E. Nicaragua, and was been seen in cultivation in Guatemala in 1999.

**98. *Passiflora alata*** Curtis, *Bot. Mag.* 2: t. 66 (1788). Type: Cultivated in England, not designated. N.v.: pasionaria, Ch; amapola, Ch.

*Passiflora alata* Dryand.

Vine 3-15 m, glabrous throughout. Stems 4-angular, 4-carinate to 4-winged. Stipules 4.5-8(-12) × 1.8-4(-5) mm, broadly lanceolate-oblong to narrowly ovate, acuminate, entire; petioles 2-4-glandular near or above middle, the nectaries c. 1.5-2.5 × 1-2 mm; laminas 8.5-14(-17.5) × 6.5-9(-11) cm, entire, not variegated, ovate or ovate-elliptic to widely ovate or widely ovate-elliptic, unlobed, abruptly acuminate, 5-7(-8) secondary veins per side; laminar nectaries absent. Peduncle 1 per node, 0.7-3 cm, uniflorous; bracts 0.4-1.5 × 0.3-1.1 cm, free to the base, ovate, glandular-serrate, acuminate. Flowers dark to bright red, the purplish corona banded with white; stipe 1-5 mm; sepals 30-35 mm, the projection 3-6 mm; petals 30-40 mm; coronal filaments in (4)5-6 series, the 2 outermost c. equal, 35-40 mm, banded white and reddish basally, grading to violet bands distally, the next (2)3-4 series 0.5-3 mm; operculum membranous, subapically denticulate; androgynophore 18-23 mm; ovary glabrous. Fruit 8-11 × 5-8 cm, obovoid, ellipsoid, or pyriform, greenish-yellow to light yellow, estipitate; seeds c. 7.2-8.8 × 4.7-6 mm, reticulate

with c. 17-28 hoyuelos, surrounded by a striate flattened margin. *Cultivated; not escaped or naturalized.* Ch (*Calzada et al.* 3680, XAL); CR (Herklots, 1976: 153). (Mesoamerica, S. America, West Indies; widely cultivated.)

This species, originally from Brasil to E. Peru, is cultivated for its flowers. Known from only one specimen from Mesoamerica, it is popularly cultivated in Veracruz and Oaxaca, Mexico, and may thus be expected in other gardens in our area. As with the previous species, outside of our area there is significant natural variation, and in cultivation forms have been hybridized with each other and with *Passiflora quadrangularis*. Curtis's protologue depicts a plant with very small bracts and stipules which corresponds well with our cultivated material. For more information on the delineation of this and the following species, see du Petit-Thouars (1805), Masters (1872, 1877), and especially Sowerby (1794).

**99. *Passiflora quadrangularis* L., *Syst. Nat.* ed. 10, 2: 1248 (1759). Lectotype** (designated by Cervi, 1997): Jamaica, *Browne s.n., Herb. Linn.* 373.15 (S). N.v.: granadilla, H, N, CR, P; granadilla grande (o gigante), H, CR; granadilla real, G, CR; granadilla blanca, N; kuguáta, P; gusep dummat, P.

*Passiflora macrocarpa* Linden ex Mast. ?

Vine 4-15 m, glabrous throughout. Stems 4-angular, 4-winged (3-angular in juveniles). Stipules 19-46 × (3-)5-28 mm, broadly lanceolate to elliptic (to obovate), acuminate to acute (obtuse), entire; petioles (2-)4-6(-8)-glandular mostly in upper half, the nectaries 1-2(-3) × 1-2 mm; laminas (10-)12-20(-25) × (8-)10-16(-20) cm, entire, not variegated, ovate to widely ovate-oblong or elliptic-oblong, unlobed, abruptly acute to acuminate, (7-)8-12 secondary veins per side; laminar nectaries absent. Peduncle 1 per node, 1.1-4.5(-5.3) cm, uniflorous; bracts (2.5-)3-5.5 × (1.5-)2.2-3.5(-4) cm, free to the base, ovate, entire to glandular-serrulate, acuminate to acute (or obtuse). Flowers purple to rosado, the purplish corona banded with white; stipe 6-12(-15) mm; sepals 30-47 mm, (whitish or) pale pink to purplish, the projection absent; petals 32-47 mm, pink to purplish-red or purple; coronal filaments in 5-6(7) series, the 2 outermost c. equal, (33-)40-70 mm, banded white and purplish-red basally, purple to violet distally, the next 2-3(4) series 0.8-4 mm, the innermost 4-10 mm, slightly and irregularly connate or usually connate and operculoid, but cleft to the base in petal areas; operculum membranous, subapically denticulate; androgynophore 15-22 mm; ovary glabrous. Fruit 12-20(-30) × 5-11(-15) cm, c. oblong to

oblong-ovoid, terete or 3-grooved, pale green to light greenish-yellow, rarely also tinged pink, estipitate; seeds  $7.1-10.3 \times 6.2-8.3$  mm, reticulate with c. 17-35 hoyuelos, surrounded by a striate flattened margin. *Cultivated, or wild in treefalls, secondary vegetation, or edges of lowland to premontane moist to wet forests.* Ch, Killip 1938: 336; G, Standley & Williams 1961: 141; H (*Nelson & Cruz 8677*, TEFH); ES (*Calderón 52*, NY); N (*Robleto 448*, MO); CR (*Gómez-Laurito 6707*, CR); P (*Antonio 2326*, LL). 0-500(-1000) m. (Mexico, Mesoamerica to Peru and Brasil, West Indies; widely cultivated in the Old World tropics.)

Often cultivated or introduced and semi-feral, this species is native in the southern part of Mesoamerica and in S. America. Large-fruited forms have been selected under cultivation, and these melon-like fruits are the largest in the family. Fruits are grown for local consumption, and both arils and boiled mesocarp are eaten. There exist in S. America variants that deserve formal taxonomic recognition, but are presently confused due to the long history of cultivation and hybridization; perhaps one of these is *Passiflora macrocarpa*. With the exception of some of the cultivated material, the wild taxon in Mesoamerica is well-defined. Our native material has 4-6 petiolar nectaries, bracts entire or serrulate only basally, exappendiculate colored sepals only slightly shorter than the petals, and filaments of the innermost coronal row (excluding the operculum) connate in the sepal sectors into an operculoid structure. In mature plants the stipules are rarely less than 5-7 mm wide, but may be as narrow as 3 mm at the base of axillary flowering shoots. The larger extreme of the stipule size in the description is from cultivated, domesticated variants. The flower of this species in Costa Rica was studied by Janzen (1968).

Mesoamerican material of *P. quadrangularis* has been extensively misidentified in the ecological literature as *P. alata*.

**100. *Passiflora ligularis*** Juss., *Ann. Mus. Natl. Hist. Nat.* 6: 113 (1805). Lectotype (designated by Killip, 1938): Peru, *Dombey 739* (P). N.v.: karanáto, granadilla, Ch, G, H, ES; granada china, Ch; granadilla común, G, CR; peñul, CH; q'ani karanis, G.

Vine 4-20 m, glabrous throughout except bracts. Stems terete. Stipules  $25-35(-40) \times 9-15(-19)$  mm, narrowly ovate to ovate-oblong, acuminate, glandular-serrulate to c. entire; petioles 4-6-glandular, with at least 1 pair near the apex, the nectaries  $(3-)5-10(-13) \times 0.4-1$  mm, filiform or ligulate; laminae  $8-18(-24.5) \times 9-16(-22)$  cm, entire, not variegated, widely ovate, cordiform, unlobed, acuminate; laminar nectaries absent. Peduncles 1-2 per node,  $2.5-5.5(-7.4)$  cm,

uniflorous; bracts (2.2-)3-5(-5.5) × (1.2-)2-2.6(-3) cm, connate (4-)6-9 mm at the base, ovate, c. entire or denticulate, glandular-denticulate or -serrulate basally, acute to acuminate, glabrous except for a narrow band of tomentum along the adaxial margin. Flowers pale green to whitish, the purplish corona banded with white; stipe c. 6-8 mm; sepals 35-55 mm, the projection 1-2(-4) mm; petals 35-46 mm, pale green to white, often tinged purple or pink; coronal filaments in (6-)7-8 series, the 2 outermost c. equal, or the outer a few mm longer?, (28-)34-43 mm, banded white and reddish-purple basally, dark blue to violet distally, the innermost (4-)5-6 series 0.5-2 mm; operculum membranous, apically denticulate; androgynophore 15-19 mm; ovary glabrous. Fruit 8-10 × 4.5-6 cm, widely ellipsoid, green then purple when immature, becoming (purplish to) orange-yellow to orange, with whitish spots, often flushed with deep red, the stipe 1.4-2.2 cm; arils translucent whitish; seeds 6.1-6.9 × 3.5-4.2 mm, reticulate with 15-24(-32) hoyuelos. *Bosques húmedos subtropicales, bosque mesófilos de montañas, bosques nebulosos o de Pinus y Quercus; often cultivated. n=9. Ch (E. Martínez et al. 13216, MO); G (Proctor 25197, MO); H (Molina 5328, EAP); ES (Carlson 500, F); CR (Tonduz 2898, CR); P (Woodson & Schery 238, MO). (900-)1250-2500 m. (C. Mexico, Mesoamerica to Venezuela and W. Bolivia; widely cultivated in tropical cool areas.) [Cult. in B??: check Williams 1981 Ceiba 24.]*

*Passiflora ligularis*, with its sweet fruit of mild (some say superior) flavor, was traditionally the primary cultivated passionfruit of Mesoamerica. Grown in the highlands, the stipitate fruits are common in markets even at the coast. The long slender petiolar nectaries are diagnostic; this species also has unusually large (3-14 mm wide) and conspicuous prophylls of the vegetative bud. The lower extreme for bract size given above is from the northern part of the range of the species. Large-fruited forms developed in Colombia were introduced to Mesoamerica in 1989.

**[Check KEY regarding change in relative coronal size/order-was erroneously thought to have shorter outermost when key was written]**

**101. *Passiflora veraguasensis*** J.M. MacDougal, *Novon* 14: 459 7 (2004). Holotype: Panama, *Croat* 25908 (MO!). Illustr.: MacDougal, *Novon* 14: 460, t. 7 (2004).

*Passiflora tiliifolia* Gentry 1976, D'Arcy 1988 non L.

Large vine, glabrous throughout except bracts, sepals, and styles. Stems terete. Stipules 11-17 × 3.5-6 mm, oblong-lanceolate to oblong-oblongeolate, acuminate to acute, deciduous,



glandular-serrulate; petioles 0-3(4)-glandular near or just below the apex, the nectaries 0.8-1.2 × 0.8-1.7 mm; laminas 8.5-13 × 6.5-11 cm, entire to obscurely glandular-denticulate, especially near the base, not variegated, (ovate) widely ovate, unlobed, abruptly acuminate; laminar nectaries marginal, obsolescent except at the laminar base. Peduncle 1 per node, 2.1-4.5 cm, uniflorous; bracts 4.7-5.6 × 2.8-3.2 cm, connate c. 1-1.6 cm at the base, ovate, acute to abruptly acuminate, glabrous except for a narrow band of tomentum along the adaxial margin, the margin glandular-serrulate to c. entire. Flowers greenish-white, the corona c. purple; stipe 10-13 mm; sepals c. 25-28 mm, the margins and apex sparsely pubescent, the projection 1.5-2 mm; petals c. equal to sepals; coronal filaments in c. 10-11 series, the outermost 17-20 mm, the next 11-13 mm, the inner c. 8-9 series 0.7-3 mm; operculum membranous basally, filamentous in distal 2/3; androgynophore c. 8.5-9 mm; ovary glabrous. Fruit c. 6 × 5 cm, c. widely ellipsoid, color unknown, estipitate; arils unknown; seeds 10-10.5 × 6-7 mm, reticulate with 18-25 hoyuelos, the flattened margins striate-dentate. *Secundaria and edges of bosques muy húmedos to pluviales premontaños*. P (Croat & Folsom 33857, MO). 750-1000 m. (Endemic.)

This species is sister to the more northerly and generally larger *Passiflora nelsonii*. Differences include the smaller bracts and reduced petiolar nectaries. Extreme reduction or absence of petiolar nectaries is notable on one collection of this taxon. It apparently is restricted to W. Panama near the continental divide.

**102. *Passiflora nelsonii*** Mast. et Rose, *Contr. U.S. Natl. Herb.* 5: 142 (1897). Lectotype (designated by Killip, 1938): Mexico, Chiapas, *Nelson 3325* (US!). N.v.: kaqi karanis, G.

Canopy vine, glabrous throughout except bracts, sepals, and styles. Stems terete. Stipules 12-22 × 3-7.5 mm, elliptic or oblanceolate, caudate to acuminate, deciduous, the margins c. entire to serrulate, often glandular; petioles (2-)4(-6)-glandular above the middle, with one pair at or just below the apex, the nectaries (1-)1.5-2 × 1.8-3(-4) mm, ellipsoid; laminas 8-18(-25) × 6-13(-17) cm, entire (or expanding leaves obscurely glandular-serrulate), not variegated, (ovate to) oblong-ovate to widely ovate-elliptic, unlobed, abruptly acuminate; laminar nectaries marginal, obsolescent. Peduncle 1 per node, 2-3.8 cm, uniflorous; bracts 4.5-7.5 × 2.8-5 cm, connate c. 0.7-1.2 cm at the base, ovate, acute to acuminate, glabrous except for a narrow band of tomentum along the adaxial margin, the margin entire, rarely glandular near the base. Flower color unknown; stipe c. 8 mm; sepals 27-33 mm, sometimes pubescent near the margin, the projection

3-4 mm; petals 27-33 mm; coronal filaments in c. 8-10 series, the outermost 18-22 mm, the next 1-7 mm, the inner c. 6-8 series less than 1 mm or tuberculate; operculum filamentous, connate at the very base; androgynophore c. 9-11 mm; ovary glabrous. Fruit c. 7-8 cm, widely ellipsoid to c. globose, color unknown, c. estipitate?; arils unknown; seeds 8.7-10.2 × 6.5-7.2 mm, reticulate with 27-45 hoyuelos, the flattened margins striate-dentate. *Premontane to montane humid to wet mixed foresta, sometimes with Liquidambar*. Ch (*Breedlove 41917*, DS); G (*Türckheim II2234*, BR); CR (*Todzia 2025*, TEX); P (*Mendoza 312*, MO). 450-1600 m. (Mexico [Veracruz], Mesoamerica.)

The fruit of this rare species has been collected locally for food and sale in Alta Verapáz, Guatemala. The distinctive petiolar nectaries are broader than long, and nearly always number four or five. The single known Panamanian collection has two to four petiolar glands; it is in bud only and might be referable to the previous species. The relative length of the second coronal row compared to the outermost row varies from very short in Chiapas to about half the length in Costa Rica. [**\$add more analysis from recent CR bloom with Boender**]

**103. *Passiflora seemannii*** Griseb., *Bonplandia* 6: 7 (1858). Holotype: Panama, *Fendler 120*, (GOET!). N.v.: calala, N, CR; guate-guate, guacateguate, quatequeuate, P; cusebeoco, P; gusep, P.

Vine 4-8 m or more, glabrous throughout except bracts. Stems terete. Stipules (6-)9-18 × (0.5-)0.8-1.5 mm, linear to linear-lanceolate or linear-ob lanceolate, acuminate, c. entire or glandular-serrulate; petioles 2(-4)-glandular with 1 pair at the apex and rarely 1-2 glands above or below the middle, the nectaries 1.5-3 × 1.1-1.8 mm; laminas (5-)7-12(-15) × (5-)7-12.5(-15) cm, obscurely glandular-serrulate to c. entire, not variegated, widely ovate to very widely ovate, cordiform, or rarely c. orbicular, unlobed, rounded to acute or abruptly acuminate, (or very rarely 3-lobed with the lobes oblong-lanceolate, acuminate); laminar nectaries obsolete, (or in 3-lobed form, marginal, 2-4 enlarged teeth per sinus). Peduncle 1 per node, (5-)7-10(-11) cm, uniflorous; bracts 3-5(-6) × 1.8-3 cm, connate (1.2-)1.7-2.5(-3.3) cm at the base, ovate to elliptic-ovate, entire, acute to obtuse, glabrous except for a narrow band of tomentum along the adaxial margin, pale greenish-yellow to whitish flushed pale purple or pink. Flowers (whitish to) light purple with pale center, the corona banded white and violet to blue, basally often more reddish-purple; stipe 5-13 mm; sepals 25-40 mm, whitish or tinged purple, the projection 0.5-2(-3.3) mm; petals

c. 25-35 mm, light violet, purple, or rarely pinkish; corona multiseriate, the outermost 10-17 mm, the next 20-36 mm, followed by 15-25 obscure series of papillae less than 0.5 mm, grading to an innermost series c. 1 mm; operculum membranous, denticulate to short-filamentous apically; androgynophore 16-20 mm; ovary glabrous. Fruit 6-8 × 4-5.5 cm, ellipsoid to widely ellipsoid, greenish-yellow to yellow, the stipe 1-1.5 cm; seeds 3.6-4 × 2.7-3 mm, reticulate with 15-24 hoyuelos. *Bosques húmedos subtropicales, de galerías, altas perennifolias, o pluviales premontaños, edges and thickets.* Ch (Calzada et al. 4054, XAL); B (Meerman s.n. in 1992, MO); G (Bernoulli & Cario 2826, GOET); H (Molina 20797, EAP); N (Stevens 5104, MO); CR (Davidse & Pohl 1359, F); P (Duke 8962, MO). 0-900 m. (Mesoamerica to Colombia and Venezuela, Peru.)

The deeply cordate leaves of this species are nearly always 2-glandular and unlobed at reproductive nodes. Juveniles have a 3-lobed stage, but this condition is rarely retained at flowering. The bracts tend to be more colored in the southern part of the range. The fruit is sometimes used for refrescos or eaten with milk and sugar.

**104. *Passiflora serratodigitata* L., *Sp. Pl.* 960 (1753).** Lectotype: not designated, "Habitat in Martinica." N.v.: yar gusep, P.

Vine 5-9 m, glabrous throughout except bracts and sometimes peduncle. Stems terete. Stipules 7-14 × 0.6-2.5 mm, (linear-triangular to) narrowly oblanceolate, acuminate, c. deciduous, glandular-serrulate; petioles 4-glandular, with 2 at or near the apex and 2 near (or below) the middle, the nectaries 1-2.8 × 0.8-1.3 mm; laminas 8-16 × 11-24 cm, glandular-serrulate, not variegated, 5-7-lobed, the lobes narrowly elliptic to oblanceolate, acuminate; laminar nectaries marginal, 2-4 borne in each lobe sinus. Peduncles 1(2) per node, (3-)4-8 cm, uniflorous; bracts 3-5.5 × 1.5-2.5(-3) cm, connate 1.2-2.5 cm at the base, ovate, entire, acuminate to acute, glabrous except for a narrow band of tomentum along the adaxial margin. Flowers (whitish to) light purplish with pale center, the corona bluish violet to violet, basally banded white and darker purple; stipe 6-10 mm; sepals 26-40 mm, pale greenish to cream or white, tinged blue-violet, the projection 1.3-3 mm; petals 22-30 mm, pale violet or azul-rosado; corona multiseriate, the outermost c. 12-18 mm, the next 20-35 mm, followed by dozens of obscure series of papillae less than 0.5 mm, grading to an innermost series c. 1-2 mm; operculum membranous at the base, apically filamentous; androgynophore 16-20 mm; ovary glabrous. Fruit

5.5-9 × 4.5-6 cm, widely ovoid to c. globose, greenish-yellow to yellow, the stipe 1.2-1.8 cm; arils unknown; seeds (5.5-)6.5(-7) × 4.3-4.8 mm, reticulate with 12-22 hoyuelos. *Edges and secondary growth in tropical humid forests.* P (*de Nevers 5798*, MO). 0-800 m. (Mesoamerica and S. America at lower elevations, West Indies.)

Closely related to the preceding species, this passiflora is known from Mesoamerica only from limited recent collections from S. Panamá. That material is glabrous except for the margins of the bracts. In S. America the bracts are often adaxially puberulent, as are the peduncles, and sometimes also the petioles or laminar veins. Additionally, the S. American material may have 6-glandular petioles, relatively shorter peduncles, bract margins which may be glandular, a shorter fruit stipe, and relatively narrower seeds with up to 35 hoyuelos per face.

**105. *Passiflora pedata* L., *Sp. Pl.* 960 (1753).** Lectotype: not designated, “Habitat in Dominica.” N.v. tontozimin, tototzimin, xton-kehi, xtu-kaanil, Y.

Large vine, puberulent to pubescent throughout. Stems c. angular, striate. Stipules 8-17 × (1.5-)3-8 mm, (lanceolate to) elliptic to ovate, deeply divided to glandular-fimbriate (or merely glandular-serrate in narrow stipules), aristate; petioles 2-glandular near the middle, the nectaries 0.6-1.3 × 0.4-0.7 mm; laminas (4.5-)8-13.5 × (5-)9-18 cm, glandular-serrulate or -denticulate, not variegated, 5-7-pedately compound, the lobes oblanceolate, acuminate; laminar nectaries marginal, the glandular teeth enlarged at the base of leaflets. Peduncle 1 per node, (2-)3-5 cm, uniflorous; bracts 3.5-5.5 × 2-3.5 cm, free to the base, ovate, glandular-fimbriate, always? 2(-4)-glandular near the base, obtuse to rounded, apiculate, light green or greenish yellow to whitish. Flowers light blue to violet, the corona light blue to blue distally, banded dark violet and white near base; stipe 3-4.5 mm; sepals 28-38 mm, the projection 2.5-8 mm; petals 28-38 mm; coronal filaments in c. 7-9 series, the outermost 15-35 mm, the next 25-38 mm, the inner 5-7 series 0.5-1.5 mm; operculum membranous, apically denticulate; androgynophore c. 10-11 mm; ovary tomentose. Fruit 4-4.5 cm, globose, green to yellow, the stipe c. 1.5-2 mm; arils unknown; seeds 3.7-4.2 × 2.7-3.0 mm, reticulate with 20-32 hoyuelos. *Selvas medianas subperennifolias, bosques tropicales caducifolias, y secundaria.* Y (*Gutiérrez 342*, MEXU); N (*Stevens 18491*, MO); CR (*Janzen 11864*, MO). 0-350 m. (Mesoamerica, N. S. America, West Indies, Antilles.)

Petioles which are 4-glandular occur in some S. American material, but have not been seen in Mesoamerica. This species is the only passiflora in our area that has compound leaves.

**106. *Passiflora platyloba*** Killip, *J. Wash. Acad. Sci.* 12: 260 (1922). Holotype: Costa Rica, *Pittier 3653* (US!).

*Passiflora platyfolia* Killip sphalm. in *Fl. Salv.* 1: 63 (1926). [Schk. correct cit. in TL2].

Vine 4-6(-11) m. Stems terete, striate. Stipules 6-15 × 0.8-2.5(-3.0) mm, narrowly elliptic to linear-lanceolate, acuminate, deciduous, glandular-denticulate, yellow; petioles 2(-4)-glandular with at least 1 pair on the lower half, the nectaries sessile to 0.8 × 1.2-2.7 mm; laminae 9.5-13(-17) × 10-15(-23) cm, (glandular-)serrulate, not variegated, 3-lobed (occasionally with unlobed leaves at sterile nodes), the lateral lobes ovate oblong, acuminate or abruptly so, the central lobe obovate to very widely ovate, (acuminate to) abruptly acuminate; laminar nectaries marginal, 2 borne in each lobe sinus. Peduncle 1 per node, uniflorous; bracts connate at the base, ovate, pale greenish yellow or pale green. Flowers whitish to pale green, spotted with red or purplish-red, the corona whitish, banded red or purplish-red basally, banded violet distally; stipe 5-10 mm; coronal filaments with the outermost series notably shorter than the next series; operculum membranous, denticulate or short-filamentous in the upper 1/4; androgynophore 10-14 mm. Fruit c. globose, estipitate. (Mesoamerica.)

I have here submerged *Passiflora williamsii* as a variety, although it is perhaps specifically distinct. That taxon has been little collected and is very poorly known; there is little fertile material available for study, and a few specimens exist that are somewhat vegetatively intermediate between it and strict *P. platyloba*. The leaves of both have two conspicuous marginal nectaries in each sinus between the lobes.

**106a. *Passiflora platyloba* var. *platyloba*.** N.v.: estococa, espococa, CR; calala, N; granadilla, G, H; granadillo de monte, Ch.

Essentially glabrous throughout except laminae, sepals, bracts, styles, and rarely peduncles. Laminae glabrous except puberulent on the main veins adaxially (rarely also slightly puberulent on the main veins abaxially). Peduncle (4-)5-8(-9.5) cm, glabrous or rarely puberulent; bracts (4.5-)5-8.5 × 2.9-6 cm, connate 1-2.5 cm at the base, or c. 1/3 their length or less, acute to obtuse, often apiculate, c. entire to obscurely glandular-serrulate, adaxially minutely puberulent and with a narrow band of tomentum near the margin, abaxially glabrous or rarely slightly puberulent (especially near the base). Sepals 25-35 mm, minutely puberulent, the

projection 6-12 mm; petals 15-28 mm; coronal filaments in (6-)7-9 series, the outermost 3-12 mm, the next (20-)25-30 mm, the inner (4)5-7 series tuberculate or to 1 mm; ovary glabrous. Fruit 3.5-5.5 cm in diam., pale greenish-yellow; seeds 4-5 × 3.3-3.8 mm, reticulate with (25-)30-45 hoyuelos. *Thickets, edges, and secundaria de bosques de galerías, bosques seco tropicales, húmedos tropicales, de húmedos premontaños, o bosques seco de Pinus y Quercus.* Ch (*Matuda 16568*, EAP); G (*Standley 75457*, F); H (*Molina 95*, EAP); ES (*Montalvo 4356*, ENCB); N (*Stevens 22282*, MO); CR (*Chacón 1120*, CR). 20-1000(-1500) m. (Endemic.)

Except in Honduras and adjacent Guatemala, this is a taxon of the Pacific watershed. Only in the northern part of its range does it range to elevations above 900 m.

**106b. *Passiflora platyloba* var. *pubescens*** (Griseb.) J.M. MacDougal, *Novon* 14: 451 (2004). *P. serrulata* Jacq. var. *pubescens* Griseb., *Bonplandia* 6: 7 (1858). Lectotype (designated by MacDougal, 2004): Panama, *Duchassaing s.n.* (GOET!).

*Passiflora platyloba* Killip var. *williamsii* (Killip) A.H. Gentry, *P. williamsii* Killip, Puberulent throughout except laminas, bracts, and rarely stems and abaxial surface of laminas. Laminas glabrous except puberulent on the main veins adaxially, puberulent abaxially (or rarely only the veins puberulent). Peduncle 1.5-4 cm; bracts 3-4 × c. 1.5-2.2 cm, connate 2 cm or more at the base, or c. 2/3 or more their length, but by anthesis torn apart closer to the base (sometimes irregularly and into only 2 segments), abruptly acute to acuminate, c. entire, adaxially glabrous or sparsely puberulent and with a narrow band of tomentum near the margins of the free portions, abaxially densely puberulent. Sepals 27-38 mm, the projection 3-6 mm; petals 25-35 mm; coronal filaments in c. 8-9 series, the outermost 6-22 mm, the next 25-35 mm, the inner c. 6-7 series tuberculate or to 1 mm; ovary densely puberulent to pubescent. Mature fruit unknown, c. 4 cm in diam.; arils unknown; mature seeds unknown, but nearly mature seeds not clearly distinguishable from the typical variety. *Thickets, edges, and secundaria de bosques de galerías, bosques seco tropicales, húmedos tropicales, húmedos premontaños o de nubes.* N (*Long 127* EAP); P (*Tyson 6892*, MO). 50-850 m. (Mesoamerica to Chocó, Colombia.)

The stem is densely puberulent in every collection examined except *Tyson 2250*, in which it is glabrous. Very few flowers have been collected of this variety, making comparison with typical *Passiflora platyloba* difficult. The sepals of var. *pubescens* appear to be relatively broader and with shorter horns. The morphology of the connate bracts is unclear, but they are

smaller and appear to be connate (not just valvate) in bud the greater part of their length. In Colombia this variety sometimes has two peduncles per node and unlobed leaves somewhat like *P. maliformis*.

### Bibliography

[version 12 Mar 03]

- ARMOUR, R. P. 1950. Check list of plants growing at Lancetilla Experiment Station. La Lima, Honduras: Research Department, Tela Railroad Company.
- CALDERÓN, S. s.d. [1915-1936]. Passifloras dilobatas de El Salvador. Datos para la botánica médica de El Salvador. Escuela de Medicina, Química, y Farmacia. San Salvador.
- CABRERA, E., M. SOUSA, & R. DURÁN GARCIA. 1983. Listado florístico preliminar (ampliación). Passifloraceae. P. 59 in Sian Ka'an, ed.?, Centro de Investigaciones de Quintana Roo, A.C., Puerto Morelos, Q.R., Mexico.
- CERVI, A. C. 1997. [Passiflora... ..] Fontqueria 45.
- CUSSET, G. 1967. Passifloraceae. In Fl. Cambodge, Laos, Vietnam 5, ed. A. Aubréville.
- D'ARCY, W. 1987. Flora of Panama: checklist and index. Monogr. Syst. Bot. Missouri Bot. Gard. 17, 18.
- FEUILLET, C. & G. CREMERS. 1984. Studies on the flora of the Guianas. 6. Passifloraceae nouvelles ou méconnues de Guyane française. Proc. Kon. Ned. Akad. Wet., Ser. C, 87: 377-386.
- GENTRY, A. 1976. Additional Panamanian Passifloraceae. Ann. Missouri Bot. Gard. 63: 341-345.
- HANSEN, H. K. 2003. [thesis title?]. Ph.D. dissertation, Univ. Texas Austin.
- HEMSLEY, W. B. 1880. Passifloraceae. Pp. 475-481 in Biol. centr. amer., bot. 1(6).
- HERKLOTS, G. 1976. Passifloraceae. Pp. 145-158 in Flowering tropical climbers. Dawson & Sons, Kent, England.
- HOLM-NIELSEN, L. B., P. M. JØRGENSEN, & J. E. LAWESSON. 1988. 126. Passifloraceae. In G. Harling & L. Andersson (eds.), Flora of Ecuador 31: 1-130. Dept. Syst. Bot., Univ. Göteborg, and Sect. Bot., Riksmuseum, Stockholm, in cooperation with Pontificia Univ. Católica del Ecuador, Quito.

- JØRGENSEN, P. M. & J. M. MACDOUGAL. 1997. Three new species of *Passiflora* (Passifloraceae) from Ecuador and notes on *Passiflora viridescens*. *Novon* 7: 379-386.
- KILLIP, E. P. 1931. Passifloraceae. *In* Flora of the Lancetilla Valley, ed. P. C. Standley. Publ. Field Mus. Nat. Hist., Botany [get correct citation] 10: c. 293. [this should be Fl. Lancetilla]
- 1936. Botany of the Maya area. Publ. Carnegie Inst. Wash. 461: 299-328.
- 1938. The American species of Passifloraceae. *Publ. Field Mus. Nat. Hist., Bot. Ser.* 19: 1-613.
- 19\$XX ..[fl. Costa Rica in Standley]
- LONGINO, J. 19\$XX. [P. pittieri ecology paper]
- MACDOUGAL, J. 1994. Revision of *Passiflora* subgenus *Decaloba* section *Pseudodysosmia*. *Syst. Bot. Monogr.* 41: 1-146.
- MASTERS, M. T. 1871. Contributions to the natural history of the Passifloraceae. *Trans. Linn. Soc. London* 27: 593-645.
- 1872. Passifloraceae. *In*: A.W. Eichler (editor), *Flora brasiliensis* 13(1): 529-628. Munich.
- 1877. A classified synonymic list of all the species of Passifloreae cultivated in European gardens, with references to the works in which they are figured. *J. Roy. Hort. Soc., n.s.* 4: 125-149.
- MILLSPAUGH, C. F. 1895. Contribution to the Flora of Yucatan. *Field Columbian Mus. (Publ. 4), Bot. Ser.* 1: 34.
- MOLINA R., A. 1975. Passifloraceae. P. 79 *In* Enumeración de las plantas de Honduras. Ceiba 19(1).
- PETIT-THOUARS, M. A. du. 1805. Comparaison spécifique du *Passiflora mauritiana* avec les *Passiflora alata* et *quadrangularis*. *Ann. Mus. Natl. Hist. Nat.* 6: 457-462, pl. 65.
- PORTER-UTLEY, K. 2003. [\$draft title follows: Revision of *Passiflora* section *Cieca*.] Ph.D. dissertation, University of Florida, Gainesville, Florida.
- SKUTCH, A. F. 1952. Scarlet passionflower. *Nat. Mag.* 45:523-525, 550.
- SNOW, A. A. 1982. Pollination intensity and potential seed set in *Passiflora vitifolia*. *Oecologia (Berl.)* 55: 231-237.
- SOUSA, M. S. & E. F. CABRERA C. 1983. Passifloraceae. P. 54 *in* Listados florísticos de México. II. Flora de Quintana Roo. UNAM, Mexico.



SOWERBY, J. 1794. Account of the difference of structure in the flowers of six species of  
*Passiflora*. Trans. Linn. Soc. London 2: 19-28.

STANDLEY, P. C., & S. J. RECORD. 1936. Forests and Flora of British Honduras. Publ. Field  
Mus. Nat. Hist., Bot. Ser. 12: 271-272.

version 13Mar03

INDEX

(numbers are species numbers, not pages; main entry underlined>

(synonyms, basionyms, and misapplied names are italicized)

Dilkea Mast.

acuminata Mast. 1

*Disemma hahnii* Fourn. 27

Passiflora L.

adenopoda DC. 31

aff. *candollei* Triana et Planchon 59

aff. *micropetala* Mast. 59

aff. *subpeltata* 94

*alata* Curtis 87, 98, 99

*alata* Aiton 98

*Xalato-caerulea* 87

*allantophylla* Mast. 63

*Xallardii* [author]? [87]?

*ambigua* Hemsley 95

*andersonii* auct., non DC. 54

*apetala* Killip 66

*arbelaezii* Uribe 8

*arborea* auct., non Spreng. 2

*auriculata* Kunth 21

*Xbelotii* Pépin 87

*bicornis* Houston ex Miller 61

- biflora* Lam. 49, 51, 54, 55, 57  
*biflora auct., non Lam.* 55  
*boenderi* J.M. MacDougal 65  
*brevifila* Killip 84  
*brevipes* Killip 37  
*brighamii* S. Watson 49  
*caerulea* L. 86, 87  
*aff. candollei* Triana et Planchon 59  
*capsularis* L. 39  
*capsularis auct., non L.* 40  
*choconiana* S. Watson 91  
*chocoensis* Gerlach et Ulmer [Schk] 89  
*ciliata* Aiton 77, 78, 79  
*cissampeloides* J.M. MacDougal 28  
*citrina* J.M. MacDougal 41  
*clypeophylla* Mast. 16  
*cobanensis* Killip 37  
*coccinea* Aublet 74  
*cookii* Killip 27  
*coriacea* A. L. Juss. 17  
*coriacea auct., non A. L. Juss.* 17  
*costaricensis* Killip 42  
*dioscoreifolia* Killip 30  
*dispar* Killip 92  
*dolichocarpa* Killip 35  
*dolichocarpa auct., non Killip* 34  
*edulis* Sims 85  
     *f. edulis* 85a  
     *f. flavicarpa* Degener 85b  
     *var. verrucifera (Lindley) Mast.* 85b  
*eglandulosa* J.M. MacDougal 13, 14

- escobariana J.M. MacDougal 44  
 eueidipabulum S. Knapp et Mallet 5  
 filipes Benth. 70  
 foetida L. 77, 78  
     *var. gossypiifolia* (Ham..) Mast. 78  
     *var. hastata* (Bertol.) Mast. 78  
     *var. hibiscifolia* (Lam.) Killip 77  
     *var. hirsutissima* Killip 78  
     *var. hispida* (DC. ex Tr. et Planch.) Killip ex Gleason 78  
     *var. isthmia* Killip 78  
     *var. maxonii* Killip 78  
     *var. mayarum* Killip 78  
     *var. nicaraguensis* (Killip ex Standley) Killip 77  
     *var. salvadorensis* Killip 78  
     *var. subintegra* Killip 77  
     *var. subpalmata* Killip 78  
 gilbertiana J.M. MacDougal 67  
 gracilis J. F. Jacq. ex Link 23  
 guatemalensis S. Watson 24, 26, 28  
 hahnii (Fourn.) Mast. 24, 27, 28  
*hahnii auct., non (Fourn.) Mast.* 26  
 helleri Peyr. 51, 52, 56  
*heydei* Killip 33  
*hibiscifolia* Lam. 77  
*hirsuta* L. 11  
 holosericea L. 22  
 incarnata L. 85[Schk]  
*isotriloba* Cuf. 45  
 itzensis (J.M. MacDougal) Port.-Utl. 20  
 jorullensis Kunth 68  
     *var. salvadorensis* (Donn. Sm.) J.M. MacDougal 68a

- lancearia* Mast. 52, 60  
*lancetillensis* J.M. MacDougal et Meerman 6, 7  
*laurifolia* L. 96  
*liebmannii* Mast. 77  
*ligularis* A. L. Juss. 100  
*lobata* (Killip) J.M. MacDougal 29  
*macdougaliana* S. Knapp et Mallet 8, 9  
*macrocarpa* Mast. 99  
*macrostemma* Killip 62  
*malletii* J.M. MacDougal 48  
*mayarum* J.M. MacDougal 83  
“megacoriacea” Port.-Utl. 18  
*membranacea* Benth. 24, 25, 28  
*menispermifolia* Kunth 88  
*mexicana* A. L. Juss. 69  
*micropetala* Mast. 59  
*aff. micropetala* Mast. 59  
*microstipula* L. Gilbert et J.M. MacDougal 4, 5, 7  
*minima* L. 11  
*misera* Kunth 57, 58  
*mollissima* (Kunth) Bailey 75a, 76  
*mollissima auct., non (Kunth) Bailey* 76  
*morifolia* Mast. 33  
*morifolia auct., non Mast.* 36a  
*nelsonii* Mast. et Rose 101, 102  
*nitida* Kunth 97  
*nubicola* J.M. MacDougal 50  
*obovata* Killip 8  
*obovata auct., non Killip* 11  
*obtusifolia* Sessé et Mociño 12  
*oerstedii* Mast. 90

- var. choconiana* (S. Watson) Killip 91
- ornithoura Mast. 64
  - var. chiapasensis* J.M. MacDougal 63, 64b
  - var. ornithoura* 64a
- pallida L. 10a, 11
- palmeri var. sublaceolata* Killip 79
- panamensis Killip 53
- pavonis Mast. 71
- pedata L. 105
- pedicellaris J.M. MacDougal 6
- pediculata* Mast. 23
- pediculata auct., non Mast.* 29
- pendens J.M. MacDougal 32
- Xpfordtii* Hort. ex O. Krauss 87
- pilosa Ruíz Lopez et Pavón ex DC. 36
  - subsp. *dimidiata* J.M. MacDougal 36a
- pittieri Mast. 1
- platyloba Killip 106
  - var. platyloba* 106a
  - var. pubescens* (Griseb.) J.M. MacDougal 106b
  - var. williamsii* (Killip) A. Gentry 106b
- porphyretica Mast. 47
  - var. porphyretica* 47a
- prolata Mast. 82
- pterocarpa J.M. MacDougal 34
- pulchella* Kunth 61
  - var. bifidata* Mast. 61
- punctata L. 57, 58
- punctata auct., non L.* 58
- pusilla J.M. MacDougal 38
- quadrangularis L. 98, 99

- quetzal J.M. MacDougal 24  
 quinquangularis S. Calderón ex J.M. MacDougal 40  
 rovirosae Killip 43  
 rugosissima Killip 46  
 sanctae-mariae J.M. MacDougal 72  
*salvadorensis* Donn. Sm. 68a  
 sandrae J.M. MacDougal 55  
 seemannii Griseb. 103  
*sericea* L. 22  
 serratifolia L. 81  
 serratodigitata L. 104  
*serrulata* var. *pubescens* Griseb. 106b  
 sexflora A. L. Juss. 45, 46  
 sexocellata Schldl. 17  
*sicyoides auct., non Schldl. et Cham.* 36a  
 standleyi Killip 62  
 suberosa L. 10  
     subsp. *litoralis* (Kunth) Port.-Utl. 10a  
     subsp. *suberosa* 10a  
 subfertilis J.M. MacDougal 51  
 sublanceolata (Killip) J.M. MacDougal 79  
 subpeltata Ort. 93, 94  
 aff. *subpeltata* 94  
 tacanensis Port.-Utl. 14  
 talamancensis Killip 52  
 tarminiana Coppens et Barney 76  
 tica Gómez Laurito et L. D. Gómez 2  
*tiliifolia auct., non L.* 101  
*transversa* Mast. 49  
 trinifolia Mast. 15  
*trinifolia auct., non Mast.* 13

*tripartita* (A. L. Juss.) Poir. 75

var. *mollissima* (Kunth) Holm-Nielsen et Jørgensen 75a, 76

*trisetosa* auct., non DC. 56

*tryphostemmatoides* auct., non Harms 3

*urbaniana* Killip 79, 80

*veraguasensis* J.M. MacDougal 101

*verrucifera* Lindley 85b

*vitifolia* Kunth 73

*warmingii* Mast. 33

*williamsii* Killip 106, 106b

*xiikzodz* J.M. MacDougal 19, 20

subsp. *itzensis* J.M. MacDougal 20

*yucatanensis* Killip 54

*Tacsonia mollissima* Kunth 75a

*Tetrastylis lobata* Killip 29