

SUMMARY

In order to place the new taxa of *Ficus* found in Amazonian Brazil and the Guianas (see Vázquez Avila, Berg & Kooy, *Acta Amazonica*, following article in this volume) in a taxonomic and phytogeographic framework, a key to the taxa provisionally recognized for Amazonia and the Guianas is presented and followed by a concise treatment of these taxa.

KEY TO THE FICUS SPECIES OF AMAZONIAN BRAZIL AND THE GUIANAS

1. Trees terrestrial, without aerial roots; figs solitary in the leaf axils (except of *F. obtusiuscula*); stamens 2, stigmas 2 (subg. *Pharmacosycea*).....2
1. Trees or shrubs, often hemi-epiphytic with aerial roots; figs usually in pairs in the leaf axils or more together on short spurs and then also borne below the leaves; stamen 1; stigma 1 (subg. *Urostigma*).....8
2. Figs solitary in the leaf axils; receptacle when dry at least 1 cm in diameter.....3
2. Figs in pairs or several together in the leaf axils or just below the leaves; receptacle when dry at most 1 cm in diameter.....3. *F. obtusiuscula*
3. Lamina scabrous above.....1b. *F. insipida* ssp. *scabra*
3. Lamina smooth above.....4
4. Epidermis of the petiole flaking off.....5
4. Epidermis of the petiole persisting.....6
5. Lateral veins 2x (10-)15-25(-30); lamina glabrous and smooth beneath; petiole 0.3-1 cm long.....5. *F. pulchella*
5. Lateral veins 2x 8-15; lamina scabrous to scabridulous beneath; petiole 1-6 cm long4. *F. maxima*
6. Stipules (4-)5-12.5 cm long.....1a. *F. insipida* ssp. *insipida*
6. Stipules 1-4 (-4.5) cm long.....7

(*) Studies on the flora of the Guianas 18.

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7. Lateral veins 2x ca. 20-50.....	6. <i>F. piresiana</i>
7. Lateral veins 2x 12-18.....	2. <i>F. adhatodifolia</i>
8. Figs borne on short spurs below the leaves, often more than 2 together.....	9
8. Figs (almost) confined to the leaf axils, usually in pairs.....	17
9. Lamina beneath with dense, brown indument (sometimes only on the midrib).....	12. <i>F. albert-smithii</i>
9. Lamina beneath glabrous or with sparse, minute, brown hairs or whitish-pubescent on the midrib.....	10
10. Stipules 2-8 cm long; lamina 20-32 cm long.....	14. <i>F. caballina</i>
10. Stipules up to 1.5(-2) cm long; lamina usually less than 20 cm long.....	11
11. Lateral veins 2x 18-25.....	13. <i>F. sphenophylla</i>
11. Lateral veins 2x 6-16.....	12
12. Lamina beneath with whitish hairs on the sides of the midrib; plant often lianescent.....	15. <i>F. schippii</i>
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19. Lamina scabrous or scabridulous above.....	20
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23. Lamina chartaceous; leafy twigs when dry angulate; internodes up to 4 cm long, basal lateral veins 1 pair; ostiole flat.....	50. <i>F. ursina</i>
23. Lamina subcoriaceous (to chartaceous); leafy twigs when dry (sub)terete; internodes up to 1 cm long; basal lateral veins 2 pairs; ostiole usually surrounded by 3-lobed rim.....	48. <i>F. matiziana</i>
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25. Lateral veins 2x 4-8(-10).....	49. <i>F. malacocarpa</i>
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68. Receptacle when dry 0.8-1.2 cm in diameter.....	28. <i>F. padifolia</i>
69. Penduncle 0.1-0.2 cm long; lamina lanceolate; petiole up to 1(-1.3) cm long.....	30. <i>F. schumacheri</i>
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72. Epidermis of the petiole flaking off when dry; leafy twigs with long hairs, still present at least in the terminal bud.....	16. <i>F. killipii</i>
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74. Apex of the lamina obtuse to rounded; basal bracts 3-4 mm long; receptacle when dry 0.8-1.1 cm in diameter.....	24. <i>F. glabra</i>
74. Apex of the lamina acuminate or, if obtuse, then the basal bracts less than 3 mm long and/or the receptacle less than 0.8 cm in diameter.....	75
75. Lamina when dry greenish; receptacle maculate.....	29. <i>F. pallida</i>
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76. Base of the lamina acute to obtuse; petiole when dry (usually) black; stipules minutely puberulous.....	10. <i>F. greiffiana</i>
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FICUS L., Gen. Pl. ed. 5. 482. 1754.

Pharmacosycea Miq., **Urostigma** Gasp.

Trees or shrubs; monoecious, terrestrial, or hemi-epiphytic and then usually with aerial roots and strangling. Leaves in spirals; lamina entire, pinnately veined, 1 or 2 (waxy) glandular spots at the base of the midrib beneath; stipules fully amplexicaulous, free. Inflorescences (figs, syconia) solitary or in pairs in the leaf axils or, often

several together, on short spurs below the leaves or also in the leaf axils, bisexual, pedunculate or sessile, receptacle urceolate, subtended by 2 or 3 basal bracts; the apical opening (ostiole) closed by $\pm$ interlocking ostiolar bracts; staminate flowers few to many, disperse (among the pistillate flowers), pedicellate or subsessile; tepals 2-4(-6), free or connate; stamens 2 or 1; pistillate flowers $\pm$ pronouncedly differentiated into seed flowers (destined to produce seeds) and gall flowers (destined to hatch the larvae of the pollinators), seed flowers often sessile or subsessile and with relatively long styles, gall flowers usually pedicellate and with relatively short styles; tepals 2-4, free or connate, ovary free, stigmas 2 or 1. Fruiting perianth not enlarged, $\pm$ membranous; fruits free, achenes or $\pm$ drupaceous, seeds small, with endosperm, cotyledons flat and equal.

Two subgenera are represented in the Neotropics: **Pharmacosycea** (with ca. 20 species) and **Urostigma** (with ca. 100 species).

Subg. **Pharmacosycea** (Miq.) Miq. sect. **Pharmacosycea**

Trees terrestrial, often with buttresses. Lamina usually drying greenish, glandular spots 2, lateral at the base of the midrib beneath. Figs mostly solitary in the leaf axils (in *F. obtusiuscula* up to 3 together and often also borne below the leaves), pedunculate, basal bracts 3; receptacle at maturity greenish; stamens 2; stigmas 2.

1. **Ficus insipida** Willd., Sp. Pl. 4(2): 1143. 1806

Fig. 1.

Lamina oblong to elliptic, 9-25 x 3-11 cm, (sub)coriaceous, apex acuminate (to rounded), base rounded to subacute, upper surface glabrous and smooth or scabrous, lower surface glabrous or hirtellous; lateral veins 2x (10-)18-25; petiole 2.5-6.5 cm long, epidermis persisting; stipules (4-)5-12.5 cm long, glabrous or puberulous. Figs solitary in the leaf axils; peduncle (0.4-)0.8-1.8 cm long; basal bracts 2.5 mm long; receptacle globose, when dry 1.5-3 cm in diameter, minutely puberulous; ostiole 2-3 mm in diameter, flat or prominent.

Two subspecies can be recognized.

a. ssp. **insipida**

Leaf surface glabrous and smooth.

Distribution: Brazil: Acre (**Krukoff 5692**), Amazonas (**Krukoff 8563**), Pará (**Black 47-893**); extending to Amazonian Peru and Bolivia, Mexico, and the West Indies.

b. ssp. **scabra** C.C. Berg, Acta Amazonica, following article in this volume.

Leaf surface scabrous above, hirtellous beneath.

Distribution: Brazil: Pará (**N.T. Silva 2126**); also in the Guianas and northeastern Venezuela.

2. **Ficus adhatodifolia** Schott in Spreng., Syst. Veg. 4(Curr. Post., App.): 409. 1827.

Lamina oblong to elliptic, 9-27 x 5.5-12.5(-14.5) cm, coriaceous to chartaceous,

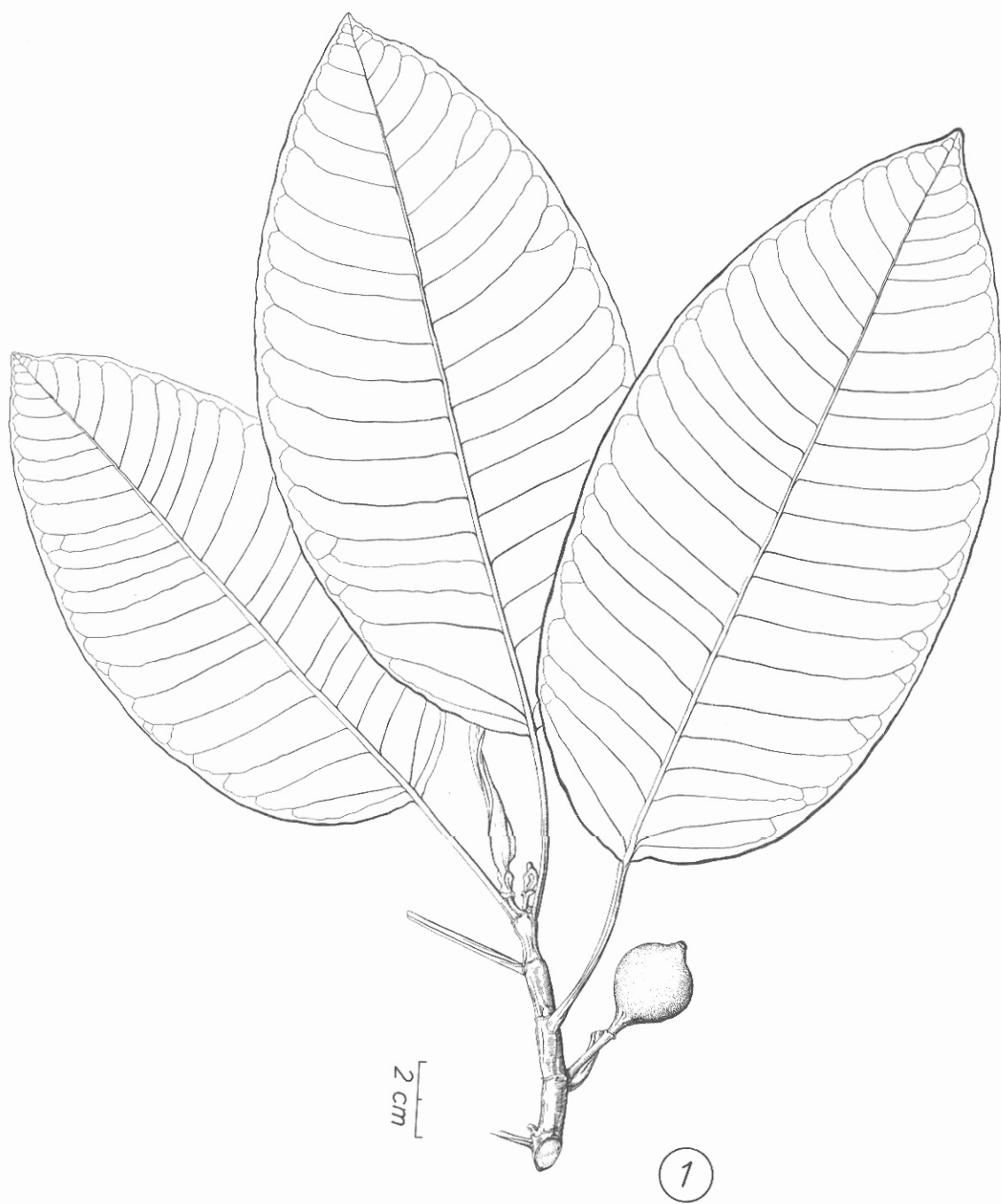


Fig. 1. *Ficus insipida*: 1, leafy twig with fig (de Bruijn 1160-A).

apex acuminate to obtuse, base acute to rounded, both surfaces glabrous and smooth, sometimes lower surface hirtellous to hispidulous and $\pm$ scabrous; lateral veins 2x 12-18; petiole (1.5-)2.5-6.5 cm long; stipules 1-4.5 cm long, glabrous or sparsely puberulous, caducous. Figs solitary in the leaf axils; peduncle 0.8-1 cm long, basal bracts ca. 2 mm long; receptacle globose, when dry 1.2-2 cm in diameter, puberulous (to hirtellous); ostiole 2-2.5 mm in diameter, $\pm$ prominent to flat.

Distribution: Brazil: Mato Grosso (Maguire et al. 56247), extending to Santa Catarina; also in Paraguay.

3. *Ficus obtusiuscula* (Miq.) Miq., Ann. Mus. Bot. Lugd. -Bat. 3: 300. 1867.

F. mina Standl., Publ. Field Mus. Bot. 17: 173. 1937. — *Pharmacosycea obtusiuscula* Miq., London Jour. Bot. 7: 69. 1848.

Lamina oblong (to elliptic or to lanceolate), (4-)8-17 x (1.5-)2.5-7 cm, (sub)coriaceous, apex acute to subacuminate, base acute, both surfaces glabrous, sometimes the lower surface puberulous to hispidulous on the main veins; lateral veins 2x 14-20; petiole 1-4 cm long; stipules 1-4(-5.5) cm long, glabrous (or puberulous), caducous. Figs up to 3 in the leaf axils or also below the leaves; peduncle 0.1-0.4 cm long; basal bracts ca. 1 mm long; receptacle globose, when dry 0.4-0.8 cm in diameter, glabrous; ostiole ca. 1 mm in diameter, flat or prominent.

Distribution: Brazil: Maranhão (Jobert 1148), Mato Grosso (Krukoff 1640), Pará (Kuhlmann 1976), Rondônia (Anderson 12283), extending to Bahia and Paraná; also in Argentina and Paraguay.

4. *Ficus maxima* P. Miller, Gard. Dict. ed.8. 1768.

F. ulei Rosseb., Repert. Spec. Nov. Regni Veg. 42: 60. 1937. — *F. parkeri* Miq., Ann. Mus. Bot. Lugd. -Bat. 3: 300. 1867. — *Pharmacosycea grandaeva* Miq., London Jour. Bot. 7: 70. 1848. — *P. guyanensis* Miq., London Jour. Bot. 7: 67. 1848.

Lamina oblong to elliptic, 8-17(-37) x 3.5-10.5(-15) cm, apex acuminate to acute, base (sub)acute, upper surface glabrous and smooth, lower surface usually $\pm$ scabrous, puberulous to hispidulous; lateral veins 2x 8-15; petiole 1-6 cm long, epidermis flaking off when dry; stipules 1.5-3.5 cm long, glabrous or puberulous caducous. Figs solitary in the leaf axils; peduncle 0.4-2.2 cm long; basal bracts ca. 1.5 mm long; receptacle globose, when dry 0.8-1.5 cm in diameter, often scabrous; ostiole ca. 1.5 mm in diameter, flat.

Distribution: Brazil: Acre (Prance et al. 12498), Amapá (Pires et al. 52094), Amazonas (Krukoff 8477), Mato Grosso (Maguire 56247), Pará (Prance et al. 1631); extending to Bolivia, Paraguay, Peru, the Guianas, Venezuela, Colombia to Mexico, and the West Indies.

5. *Ficus pulchella* Schott in Spreng., Syst. Veg. 4 (Curr. Post., App.): 410. 1827.

Lamina elliptic to oblong to (sub)obovate, 5.5-10.5 x 2.5-6 cm; apex obtuse to

rounded or to acuminate, base obtuse to subacute, both surfaces glabrous; lateral veins 2x (10-)15-25(-30); petiole 0.3-1 cm long, epidermis flaking off when dry; stipules 1-2 cm long, glabrous, caducous. Figs solitary in the leaf axils; peduncle 0.5-0.7 cm long; basal bracts ca. 1.5 mm long, caducous; receptacle globose, when dry 1.5-2.5 cm in diameter, glabrous; ostiole ca. 1 mm in diameter, slightly prominent.

Distribution: Brazil: Maranhão (Fröes 11923), Pará (M.G. Silva et al. 5445), to Santa Catarina.

6. *Ficus piresiana* Vázquez Avila & Berg, Acta Amazônica, following article in this volume.

Lamina oblong to elliptic to (sub)obovate, 6.5-14.5 x 2.5-6 cm, coriaceous, apex rounded to obtuse to acuminate, base obtuse to rounded or to subacute, both surfaces glabrous; lateral veins 2x ca. 20-50; petiole 0.8-3(-3.5) cm long, epidermis persisting; stipules 1-2.5 cm long, minutely puberulous, caducous. Figs solitary in the leaf axils; peduncle 0.8-1.2 cm long; basal bracts 1.5-2 mm long, persistent; receptacle globose, when dry 2-3 cm in diameter, puberulous; ostiole flat to prominent.

Distribution: Brazil: Amapá (Pires 7789), Pará (Pires 4335); also in French Guiana.

Subg. *Urostigma* (Gasp.) Miq. sect. *Americanae* Miq.

Trees or shrubs, often hemi-epiphytic and often strangling, usually with aerial roots. Lamina mostly drying brownish, glandular spot 1, median at the base of the midrib beneath. Figs (usually) in pairs in the leaf axils or (often more together) on short spurs also below the leaves; basal bracts 2, sometimes 3; receptacle at maturity often yellow, orange, red, pink, brownish, or purplish; stamen 1; stigma 1.

Taxa 7-16: *Ficus americana* complex and allied species

(*Ficus americana* Aubl. Pl. Gui. 2: 952. 1775.)

An extremely complex group of taxa, in which three major entities can be recognized (Berg & Simonis, 1981). The first entity, the *F. americana* subgroup, is found in the West Indies and Central America, and extends southwards to Ecuador in the lowlands of the northern Andean region. In this subgroup the figs are borne in the leaf axils. The second entity, the *F. maitin* subgroup, is found at high altitudes in the northern Andean region and in the coastal mountain range of Venezuela. It also has the figs confined to the leaf axils. The third entity, the *F. guianensis* subgroup, is common in the lowlands of northern South America, east of the Andes. In this subgroup the figs are mostly borne on spurs below the leaves or also in the leaf axils. Within the *F. guianensis* subgroup several minor (morphological) entities ("forms") (*) can be recognized. Four of them occur in Amazonian Brazil: *F. guianensis*, *F. subapiculata*, *F. mathewsii*,

and *F. greiffiana*. A fifth Brazilian "form" (*F. clusiifolia* Schott), recognizable by relatively large and $\pm$ unequal basal bracts is the common form of East Brazil and may extend to Amazonian Brazil. *F. greiffiana* is a "form" with the figs (almost) confined to the leaf axils; it is found in Amazonian Brazil.

F. guianensis subgroup

7. *F. guianensis* Desv. in Ham., Prod. Fl. Ind. Occ. 62. 1825. (Provisionally recognized as a species).

F. erratica Standl., Bull. Torrey Bot. Club 75: 295. 1948. — *F. martinii* Miq., Ann. Mus. Bot. Lugd. -Bat. 3: 219. 1867. — *F. mensalis* Standl., Bull. Torrey Bot. Club 75: 297. 1948. — *F. parkeriana* (Miq.) Sandw., Kew Bull. (1932). 227. 1932. — *F. sprucei* Standl., Publ. Field Mus. Bot. 17: 176. 1937. — *Pharmacosycea parkeriana* Miq., London Jour. Bot. 7: 71. 1848.

Lamina elliptic to oblong to (sub)obovate (to lanceolate), 6-15(-20) x 2.5-6.5 (-8) cm, coriaceous, apex rounded to obtuse to acuminate, base obtuse to rounded (to acute, truncate or subcordate), both surfaces glabrous and about the same color when dry; lateral veins 2x 8-12(-14), distinct above; petiole 0.5-3 cm long; stipules 0.3-1 (-1.5) cm long, puberulous, caducous. Figs borne also below the leaves; peduncle 0.2-0.8 cm long; basal bracts 1.5-2.5 mm long; receptacle globose; when dry (0.3-)0.5-0.8 (-1.2) cm in diameter, (sub)glabrous, at maturity pink or red; ostiole 2-3 mm in diameter, flat or slightly prominent.

Distribution: Brazil: Acre (Prance et al. 12276), Amapá (Pires et al. 50891), Amazonas (Prance 23542), Mato Grosso (Prance et al. 19276), Pará (Berg et al. 468), Rondônia (Santos et al. 278), Maranhão (Frões in Krukoff 11569), to Goiás (and Bahia?); also in Venezuela, the Guianas, Trinidad, and Grenada.

8. *Ficus subapiculata* (Miq.) Miq., Ann. Mus. Bot. Lugd. -Bat. 3: 298. 1867. (Provisionally recognized as a species).

Urostigma subapiculatum Miq. in Mart., Fl. Bras. 4(1): 101. 1853.

Similar to *F. guianensis* but the figs (sub)apiculate.

Distribution: Brazil: Amazonas (Santos 99), Pará (Prance et al. 24959).

9. *Ficus mathewsii* (Miq.) Miq., Ann. Mus. Bot. Lugd. -Bat. 3: 298. 1867. (Provisionally recognized as a species).

(*) morphological entities with uncertain taxonomic status, provisionally treated as species, but in most cases possibly only subspecies or varieties.

F. gleasonii Standl., Publ. Field Mus. Bot. 17: 170. 1937. — **Urostigma mathewsii** Miq., London Jour. Bot. 6: 549. 1843.

Lamina subobovate to oblong to lanceolate or oblanceolate, 2-10(-16) x 1-3(-6.5) cm, coriaceous, apex rounded to obtuse to short-acuminate or long-acuminate to subacute, base acute to obtuse, both surfaces glabrous; lateral veins 2x (6-)8-12(-16), above obscure or $\pm$ distinct in dry leaves; petiole 0.5-1 cm long, often blackish when dry; stipules 0.3-1(-1.8) cm long, minutely puberulous, caducous. Figs also borne below the leaves; peduncle (0-)0.1-0.2(-0.3) cm long; basal bracts ca. 1 mm long; receptacle globose, when dry 0.3-0.4 cm in diameter, glabrous, at maturity red, yellow, or brownish; ostiole ca. 1.5 mm in diameter, plane or slightly prominent.

Distribution: Brazil: Acre (**Prance et al. 12605**), Amazonas (**Prance et al. 14289**), Mato Grosso (**Berg et al. P.18676**), Pará (**Cid et al. 1857**), Rondônia (**Prance et al. 5902**), Roraima (**Prance et al. 4058**); extending to Amazonian Bolivia, Peru, Colombia, and Venezuela, also in Guyana and in the Llanos region of Colombia and Venezuela.

In the material from the Upper Amazon Basin (including the type of **F. mathewsii**) the leaves usually have a rounded to obtuse or short-acuminate apex and the lateral veins are obscure above in dried leaves. In the northern part of the range of this form the leaves are usually small (up to 10 cm long), but in the southern part they are usually larger (up to 16 cm long). In material from Guyana (including the type of **F. gleasonii**) and from adjacent parts of Brazil the leaves usually have a long-acuminate to subacute apex and the lateral veins are $\pm$ distinct above in dried leaves.

10. **Ficus greiffiana** Dugand, *Caldasia* 1(4): 49. 1942. (Provisionally recognized as a species).

Lamina elliptic to oblong, 4.5-12 x 2-5.5(-6) cm, coriaceous, apex acuminate (acumen often sharp), base acute (to obtuse), both surfaces glabrous (or minutely puberulous at the base of the midrib), when dry upper surface often blackish, lower surface brown; lateral veins 2x 8-12; petiole 0.5-1.5(-2) cm long, when dry usually blackish, stipules 0.5-1 cm long, minutely puberulous, caducous. Figs confined to the leaf axils or almost so; peduncle 0.3-0.5 cm long; basal bracts ca. 2 mm long; receptacle globose, when dry 0.5-0.7 cm in diameter, glabrous, at maturity red to pink; ostiole ca. 2 mm in diameter, flat or slightly prominent.

Distribution: Brazil: Amapá (**Pires et al. 51489**), Amazonas (**Prance 15799**); also in French Guiana and Amazonian Colombia.

11. **Ficus leiophylla** C.C. Berg, *Acta Amazonica*, following article in this volume.

Lamina lanceolate, 2.7-10(-16) x 0.7-2.5 cm, coriaceous, apex subacute to faintly acuminate, base acute to obtuse, both surfaces glabrous; lateral veins 2x 8-16, above obscure; petiole 0.3-1.5(-2.5) cm long; stipules (0.3-)0.7-1.7(-2) cm long, minutely puberulous, caducous. Figs also borne below the leaves; peduncle 0.2-0.3 cm long; basal bracts 1.5(-2) mm long; receptacle globose, when dry 0.3-0.4(-0.5) cm in diameter,

puberulous with minute, brown hairs; ostiole ca. 1.5 mm in diameter, slightly prominent.

Distribution: Brazil: Pará (Berg s.n.); also in French Guiana.

12. **Ficus albert-smithii** Standl., Lloydia 2: 174. 1939.

F. frondosa Standl., Publ. Field Mus. Bot. 17: 169. 1937, non S. Moore, 1923.

Lamina elliptic to oblong, 12-30 x 6.5-14 cm, coriaceous, apex subacuminate to rounded, base rounded to subacute, upper surface glabrous, lower surface with usually dense, brown indument over the entire surface, sometimes sparse or almost confined to the main veins; lateral veins 2x (10-)14-16; petiole 2.5-6.5(-10) cm long; stipules 1.1-5 cm long, with $\pm$ dense, brown indument, caducous. Figs also borne on spurs below the leaves; peduncle 0-0.3 cm long; basal bracts 3.5-6.5 mm long; receptacle globose when dry 0.5-1 cm in diameter, with brown indument, at maturity pink or red; ostiole 2.5-3 mm in diameter, flat.

Distribution: Brazil: Amazonas (Prance et al. 17966), Pará (Prance et al. 24973); also in the Guianas, Venezuela, and Amazonian Colombia and Peru.

The form with sparse indument on the lamina beneath is difficult to distinguish from a form of **F. guianensis** with large leaves and large figs.

13. **Ficus sphenophylla** Standl., Publ. Field Mus. Bot. 17: 176. 1937.

Lamina oblong to subobovate to lanceolate or oblanceolate, 9-20 x 3-8.5 cm, coriaceous, apex acuminate to obtuse (to rounded), base acute to obtuse (to rounded), both surfaces glabrous; lateral veins 2x ca. 20-30; petiole 0.8-4 cm long; stipules 0.3-0.7 cm long, glabrous, caducous. Figs also borne below the leaves; peduncle 0.1-0.4 cm long; basal bracts 1-1.5 mm long; receptacle (sub)globose, when dry 0.4-0.6 cm in diameter, glabrous, at maturity orange (to yellow); ostiole 2-2.5 mm in diameter, flat or slightly prominent.

Distribution: Brazil: Acre (Ule 9306), Amazonas (Krukoff 5384); also in Amazonian Bolivia, Peru, and Colombia.

14. **Ficus caballina** Standl., Publ. Field Mus. Bot. 15: 81. 1936.

Fig. 2.

F. ramiflora Standl., Publ. Field Mus. Bot. 17: 175. 1937.

Lamina oblanceolate, 23-32 x 7-11 cm, coriaceous, apex acuminate, base acute, both surfaces glabrous, lateral veins 2x 12-18; petiole 1.5-2 cm long; stipules 2-8 cm long, glabrous, often subpersistent. Figs also borne below the leaves; peduncle 0.2-0.6 cm long; basal bracts ca. 4 mm long; receptacle globose, when dry 0.6-1 cm in diameter, glabrous, at maturity orange to yellow (or dull-red?); ostiole ca. 3 mm in diameter, (almost) flat.

Distribution: Brazil: Acre (Prance et al. 7511), Amapá (Egler 47655), Amazonas (Krukoff 6446); also in the Guianas and Amazonian Venezuela, Colombia, Ecuador and Peru.

This species has been confused with **F. longifolia** Schott, which is a species of the coastal regions of E. Brazil, and very similar to **F. caballina** vegetatively, but

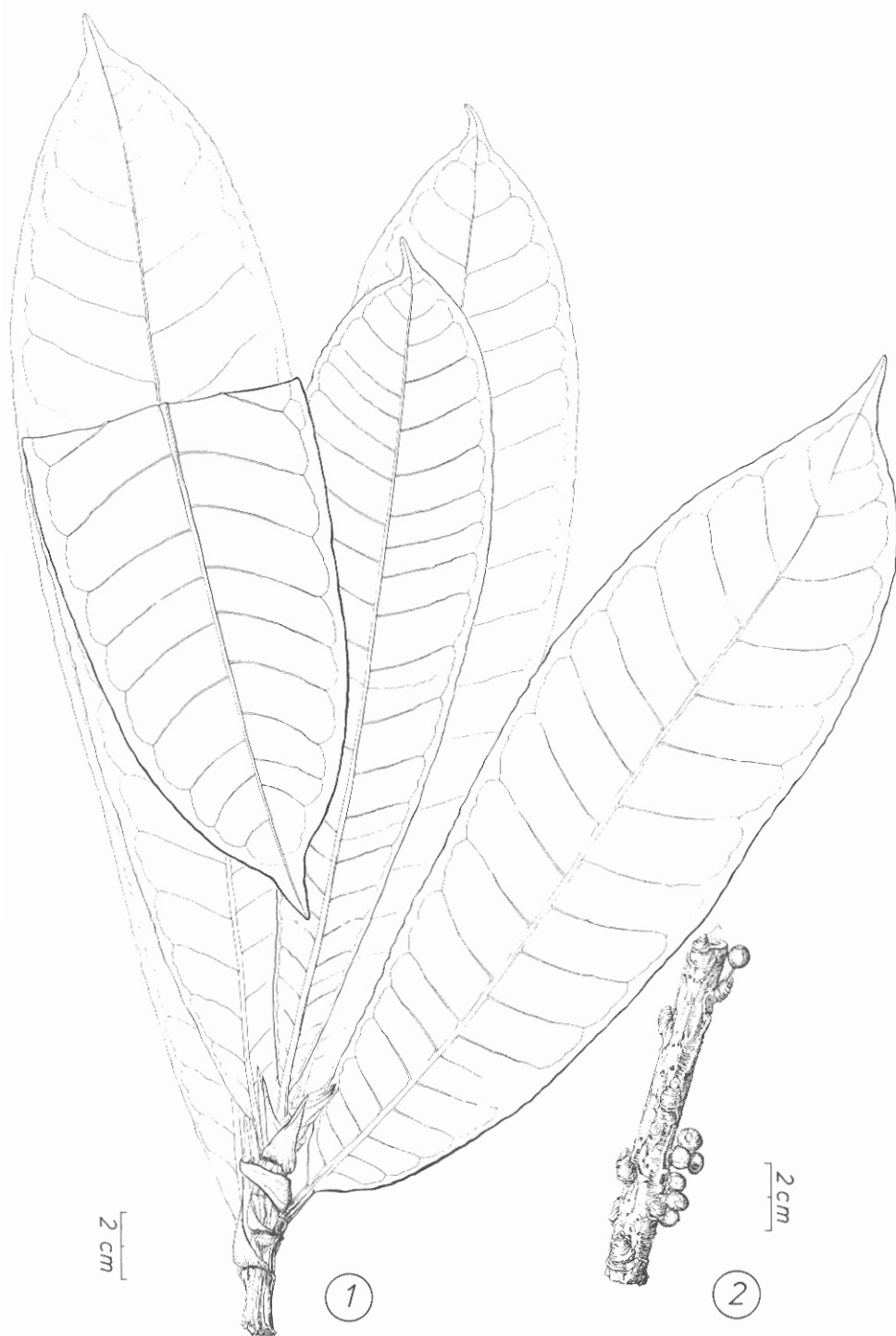


Fig. 2. *Ficus caballina*: 1, leafy twig (Steyermak 88513); 2, branch with figs (L. Williams 15260).

quite distinct in having larger, sessile figs, found in the leaf axils.

15. **Ficus shippii** Standl., Publ. Field Mus. Bot. 8: 7. 1930.

Often a liana. Lamina elliptic to oblong, 4-15 x 2-8 cm, coriaceous, apex acuminate, base rounded to subcordate, upper surface glabrous, lower surface with patent hairs on the sides of the midrib, at least at the lower part; lateral veins 2x 8-12; petiole 1-3 cm long, epidermis persistent; stipules 1-1.5(-2.5) cm long, minutely puberulous or glabrous, caducous. Figs often more than 2 together and often also borne below the leaves; peduncle 0-0.1 cm long; basal bracts ca. 1.5 mm long; receptacle (sub)globose, when dry 0.3-0.9 cm in diameter, glabrous; ostiole ca. 2 mm in diameter, slightly prominent.

Distribution: Brazil: Amazonas (**Krukoff 4902**); extending to Bolivia, Peru, Ecuador, Colombia, Venezuela, and Central America.

16. **Ficus killipii** Standl., Publ. Field Mus. Bot. 13(2.2): 304. 1937.

Leafy twigs white-puberulous or partly villous (the long hairs soon disappearing, often only present in inside the terminal bud), periderm flaking off in small flakes. Lamina oblong to elliptic (3-)5-15 x 2-6.5 cm, coriaceous, apex acuminate to obtuse to rounded, base cordate to rounded (to obtuse), both surfaces glabrous; lateral veins 2x 8-14; petiole 0.5-3 cm long, puberulous or also subvillous, when dry epidermis flaking off in small flakes; stipules 0.8-2 cm long, puberulous or also villous, caducous. Figs in the leaf axils, sessile; basal bracts ca. 2 mm long; receptacle globose, when dry 0.5-0.6 cm in diameter, glabrous; ostiole 2-2.5 mm in diameter, plane (or slightly prominent).

Distribution: Brazil: Amazonas (**Kuhlmann 1226**), and in Mato Grosso do Sul, pantanal area; also in Amazonian Peru and Bolivia.

17. **Ficus paraensis** (Miq.) Miq., Ann. Mus. Bot. Lugd.-Bat. 3: 298. 1867 Fig. 3.

F. arukensis Standl., Bull. Torrey Bot. Club 75: 295. 1948. — **F. thelephora** Benoist, Arch. Bot. Caen 3 (Bull.): 171. 1929. — **F. uberrima** Standl., Publ. Field Mus. Bot. 17: 177. 1937. — **Urostigma paraense** Miq., London Jour. Bot. 6: 534. 1847.

Lamina oblong to elliptic to (ob)lanceolate to (sub)obovate, (4-)10-20 x (2.5-)5-8 cm, (sub)coriaceous, apex acuminate to subcaudate, base rounded to acute (or to subcordate), both surfaces glabrous; lateral veins 2x 10-20; petiole 1-4.5(-7) cm long; stipules 1.5-2.5 cm long, glabrous, caducous. Figs in the leaf axils sessile (or peduncle up to 0.2 cm long); basal bracts ca. 3 mm long; receptacle globose to ellipsoid, when dry (0.8-)1-1.5 cm in diameter, glabrous, at maturity greenish to yellowish, with purplish longitudinal stripes; ostiole 3-4 mm in diameter, prominent.

Distribution: Brazil: Acre: (**Prance et al. 7774**), Amapá (**Pires et al. 51562**), Amazonas (**Krukoff 6463**), Mato Grosso (**Berg et al. P.18393**), Pará (**Berg et al. 486**),

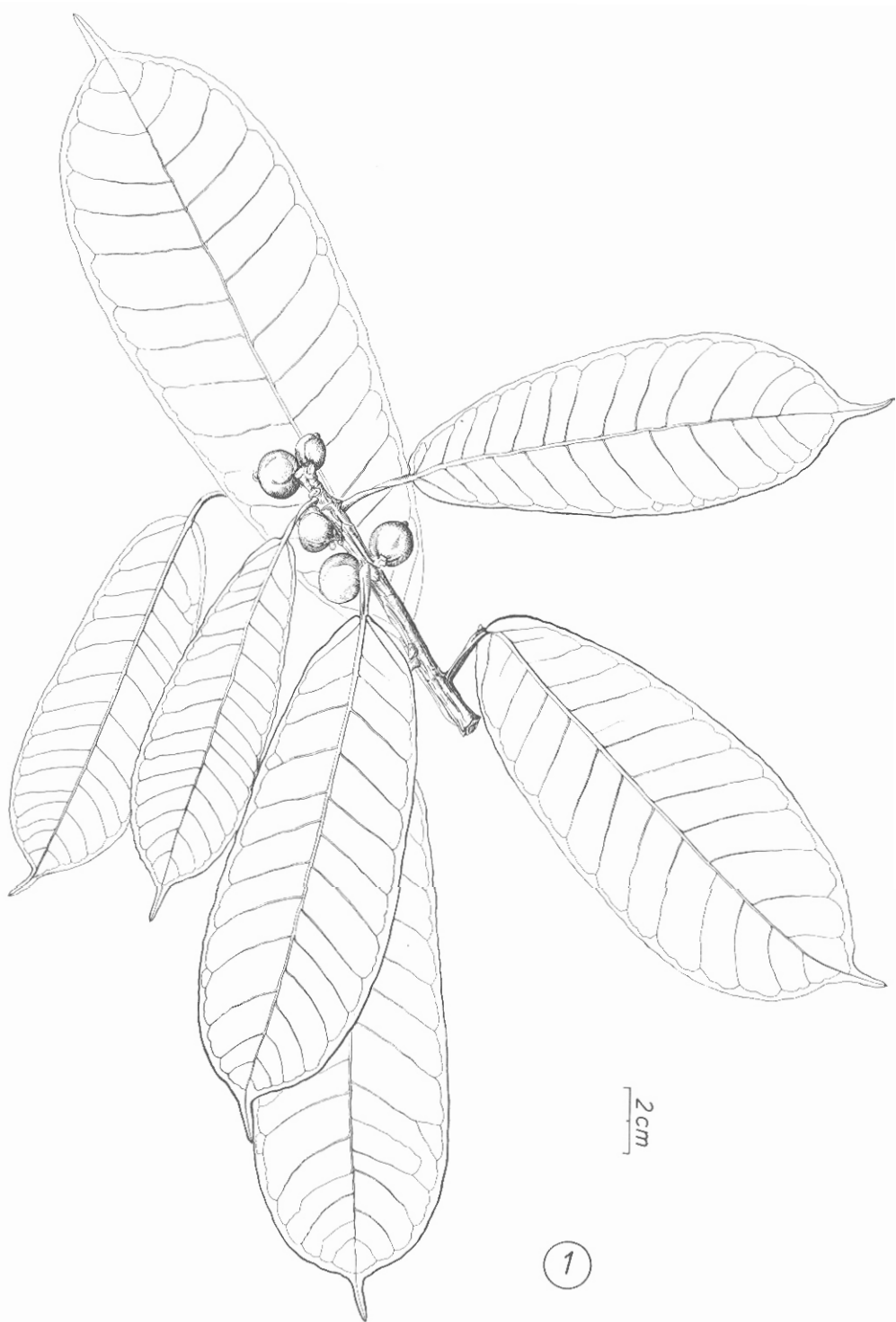


Fig. 3. **Ficus paraensis**: 1, leafy twig with figs (Morillo 2659).

Rondônia (Prance et al. 8983), Roraima (Prance et al. 9776); also in other parts of Amazonia, and extending to the Guianas and to Central America.

Taxa 18 - 26: *Ficus citrifolia* complex and allied species

(*Ficus citrifolia* P. Miller, Gard. Dict. ed. 8. 1768.)

This complex of taxa (see Berg & Simonis, 1981), occurring throughout the Neotropics, is represented in Amazonian Brazil by seven entities which can just be told apart. These taxa probably merit specific status, with the exception of the "forms" *F. eximia* and *F. amazonica*.

18. *Ficus eximia* Schott in Spreng., Syst. Veg. 4(Curr. Post., App.): 410. 1827. (Provisionally recognized as a species).

Urostigma eximium (Schott) Miq., London Jour. Bot. 6: 527. 1847.

Lamina oblong to elliptic, (8-)10-26 x 5-11 cm, (sub)coriaceous, apex acuminate, base (sub)cordate to rounded, both surfaces glabrous; lateral veins 2x (7-)8-12; petiole (2-)4-10 cm long; stipules 0.8-1.5 cm long, glabrous, caducous. Figs in the leaf axils; peduncle 0.4-0.6 cm long; basal bracts ca. 2 mm long; receptacle globose, when dry 1-1.2 cm in diameter, glabrous, at maturity greenish; ostiole 2-3 mm in diameter, flat.

Distribution: Brazil: Acre (Prance et al. 13789), Amazonas (Prance et al. 10346), Pará (Cid et al. 1385), Rondônia (Goulding 1171), Roraima (Prance et al. 10039), also in eastern Brazil; extending to Bolivia, Peru and Central America.

19. *Ficus amazonica* (Miq.) Miq., Ann. Mus. Bot. Lugd. -Bat. 3: 298. 1967. (Provisionally recognized as a species).

F. angustifolia (Miq.) Miq., Ann. Mus. Bot. Lugd. -Bat. 3: 298. 1867, non Blume, 1826, non Roxb. 1820. — *F. surinamensis* Miq., Ann. Mus. Bot. Lugd. -Bat. 3: 299. 1867. — *Urostigma amazonicum* Miq., London Jour. Bot. 6: 539. 1847. — *U. angustifolium* Miq., London Jour. Bot. 6: 539. 1847.

Lamina oblong to elliptic (or to lanceolate), (1.5-)3.5-10(-18) x (1-)1.5-5 (-6) cm (sub)coriaceous, apex acuminate, base rounded to subcordate (to subacute) both surfaces glabrous; lateral veins 2x 8-10(-12); petiole 0.5-2.5(-5) cm long; stipules 0.5-1 (-2.5) cm long, glabrous, caducous. Figs in the leaf axils; peduncle 0.2-0.5 cm long; basal bracts ca. 1.5 mm long; receptacle globose, when dry 0.4-1 cm in diameter, glabrous, at maturity greenish; ostiole 2-3 mm in diameter, flat.

Distribution: Brazil: Amapá (Pires et al. 48845), Amazonas (Prance et al. 23597), Pará (M.G. Silva et al. 3797); extending through the Guianas to northern Venezuela, and Trinidad.

20. *Ficus krukovii* Standl., Publ. Field Mus. Bot. 17: 171. 1937.

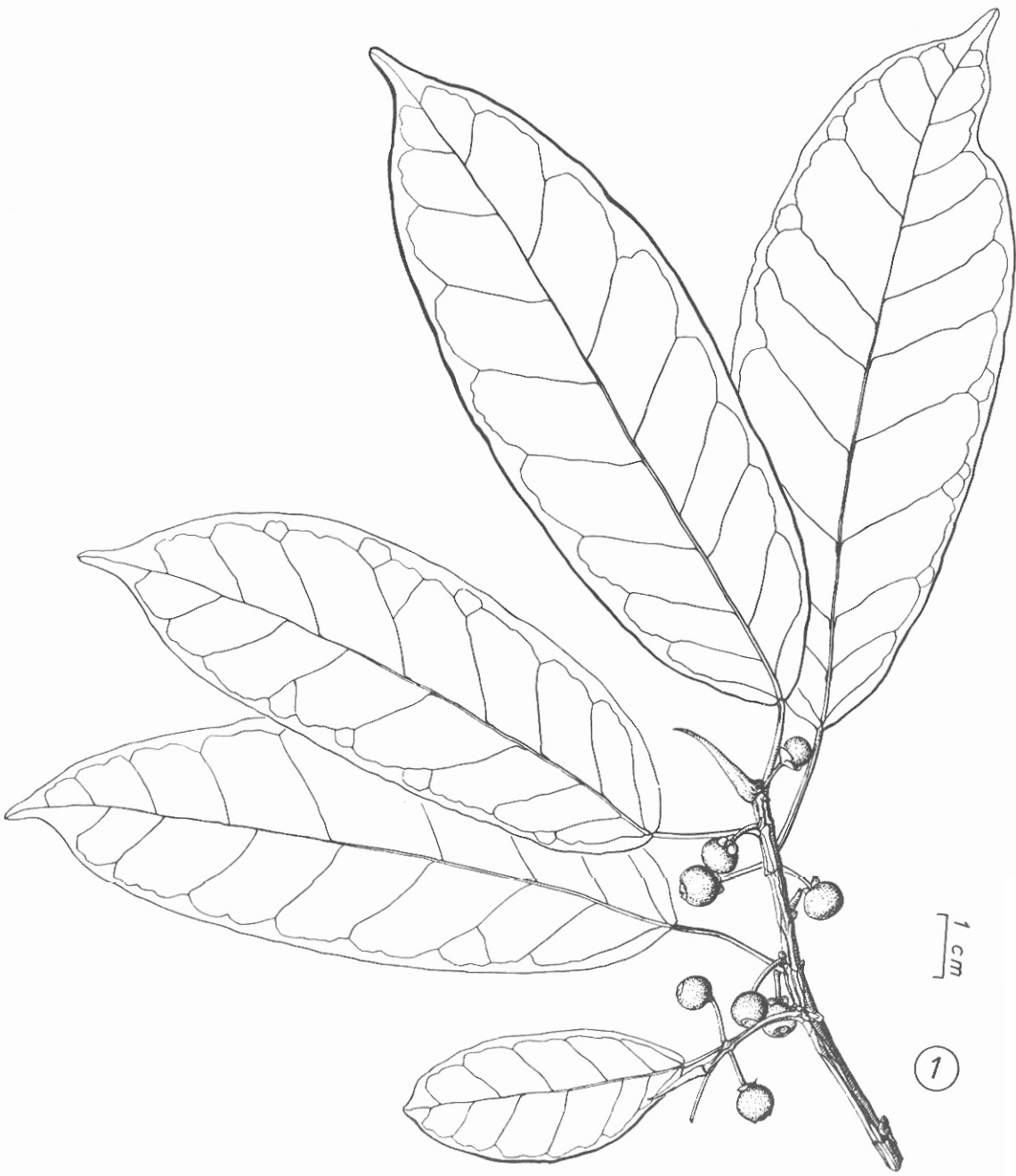


Fig. 4. *Ficus amazonica*: 1, leafy twig with figs (Steyermark 55841).

Lamina oblong (to subovate), 5-19 x 2-6 cm, (sub)coriaceous, apex acuminate, base emarginate, both surfaces glabrous; lateral veins 2x (8-)10-12; petiole 0.8-3 cm long; stipules 0.5-1.5 cm long, glabrous, caducous. Figs in the leaf axils; peduncle 0.2-0.3 cm long; basal bracts 2-3 mm long; receptacle globose, when dry 0.8-1 cm in diameter, glabrous, at maturity greenish; ostiole ca. 2 mm in diameter, flat.

Distribution: Brazil: Acre (Maas et al. P.12830), Amazonas (Krukoff 9002), Pará (N.T. Silva 1016); extending to French Guiana, Suriname, Peru, and Bolivia.

21. **Ficus castellviana** Dugand, *Caldasia* 1(4): 33. 1942.

Lamina oblong, 11-20 x 4.5-10 cm, coriaceous, apex acuminate to subacute, base subcordate to rounded, upper surface with brown indument on the midrib (glabrescent), lower surface with brown indumentum (glabrescent); lateral veins 2x 10-15; petiole 2-5 cm long; stipules 0.5-1.5 cm long, white puberulous and with brown indument, caducous. Figs in the leaf axils; peduncle 0.2-0.3 cm long; basal bracts 2.5-3 mm long; receptacle globose, when dry 1-1.5 cm in diameter, with brown indument; ostiole 1.5-2 mm in diameter, flat.

Distribution: Brazil: Rondônia (Vieira et al. 385), probably in eastern Brazil; also in Colombia, Peru, and Bolivia.

22. **Ficus paludica** Standl., *Bull. Torrey Bot. Club* 75: 298. 1948.

F. leucosticta (Miq.) Miq., *Ann. Mus. Bot. Lugd.-Bat.* 3: 297. 1867. non Sprengel, 1826. — *F. manicariarum* Standl., *Bull. Torrey Bot. Club* 75: 297: 1948. — *Urostigma leucostictum* Miq., *London Jour. Bot.* 6: 535. 1847.

Lamina elliptic to oblong to subovate, 10-24 x 6-13.5 cm, (sub)coriaceous, apex subacute to subacuminate, base truncate to subacute or to subcordate, both surfaces glabrous; lateral veins 2x 8-12; petiole (2-)4-12 cm long, when dry often blackish; stipules 1-2.5 cm long, appressed-puberulous, caducous. Figs in the leaf axils; peduncle 0-0.2 cm long; basal bracts 3-4 mm long; receptacle ($\pm$ depressed-)globose to broadly turbinate, 0.8-1.2 cm in diameter (usually broader than high), minutely puberulous, at maturity probably greenish; ostiole ca. 2 mm in diameter, flat.

Distribution: Suriname and Guyana; extending to northeastern Venezuela (Delta Amacuro).

23. **Ficus aripuanensis** C.C. Berg & F. Kooy, *Acta Amazonica*, following article in this volume.

Lamina oblong (to elliptic to lanceolate), 6.5-12.5 x 2-4.2 cm, coriaceous, apex acuminate, base acute to obtuse, both surfaces glabrous; lateral veins 2x 5-10; petiole 1-2.2 cm long; stipules 0.3-1 cm long, white-puberulous, caducous. Figs in the leaf axils; peduncle 0.3-0.7 cm long; basal bracts ca. 2 mm long; receptacle globose, when dry 0.7-1 cm in diameter, glabrous, at maturity probably greenish; ostiole 1.5-2.5 mm in diameter, flat.

Distribution: Brazil: Mato Grosso (Berg et al. P.18477), Pará (Anderson 10871).

24. **Ficus glabra** Vell., Fl. Flum. 11, t. 50. 1831.

Urostigma glabrum (Vell.) Miq., London Jour. Bot. 6: 536. 1847.

Lamina oblong to elliptic to (sub)ovate, 12-21 x 6-12.5 cm, coriaceous, apex obtuse to rounded (to shortly acuminate) base rounded to truncate to subcordate, both surfaces glabrous; lateral veins 2x 8-9; petiole 2-5 cm long; stipules 1.5-2 cm long, glabrous, caducous. Figs in the leaf axils; peduncle 0.3-0.5 cm long; basal bracts 3-4 mm long; receptacle globose to turbinate, when dry 0.8-1.1 cm in diameter, glabrous, at maturity probably greenish; ostiole ca. 2 mm in diameter, prominent.

Distribution: Brazil: Maranhão (Ribeiro et al. 1313); Pará (M. Silva 1567), extending to Paraná.

The material from Amazonian Brazil differs slightly from that from eastern Brazil in having smaller basal bracts and a less prominent ostiole.

25. **Ficus donnell-smithii** Standl., Contr. U.S. Natl. Herb. 20: 21. 1917.

Lamina oblong to lanceolate (to(sub)ovate), 6.5-14 x 2.5-4 cm, subcoriaceous to coriaceous, apex acuminate to subacute, base truncate to obtuse (or to subcordate), both surfaces hirtellous to puberulous; lateral veins 2x 8-10(-12); petiole 1-2(-2.5) cm long; stipules 0.5-1.2 cm long, puberulous, caducous. Figs in the leaf axils; peduncle 0.2-0.4 cm long; basal bracts ca. 2 mm long; receptacle globose, when dry 0.7-0.9 cm in diameter, minutely puberulous, at maturity greenish (to purplish); ostiole ca. 2 mm in diameter, flat.

Distribution: Acre (Kuhlmann 792), Amapá (Pires et al. 50977), Pará, (Fróes 30875), also in Goiás; extending to Amazonian Colombia, Peru and Bolivia, to French Guiana and to Central America.

26. **Ficus cremersii** C.C. Berg, Acta Amazonica, following article in this volume.

Lamina oblong, 7.5-16 x 3.5-5.5 cm, (sub)coriaceous, apex acuminate, base cordate to truncate, upper surface sparsely puberulous (at least on the midrib), lower surface hirtellous to puberulous (at least on the midrib); lateral veins 2x 8-12; petiole 2-4 cm long; stipules ca. 1 cm long, puberulous, caducous. Figs in the leaf axils; peduncle 0.4-0.6 cm long; basal bracts ca. 2 mm long; receptacle globose to broadly turbinate, when dry 0.8-1.2 cm in diameter, puberulous; ostiole ca. 3 mm in diameter, surrounded by a low, circular rim.

Distribution: French Guiana; or probably also in Brazil: Mato Grosso (Krukoff 5402).

Krukoff 5402 shows strong similarities to the collections from French Guiana and may represent a form of the species, deviating in the leaf base which can be subacute, the greater number of lateral veins (2x 10-14) and possibly in the maculate figs.

Taxa 27 - 32: **Ficus pertusa** complex and allied species

This complex of taxa is also widespread in the Neotropics. In Amazonian Brazil it is represented by four "forms" (*F. pertusa*, *F. padifolia*, *F. pallida*, and *F. schumacherii*) which can readily be told apart in this area, but grade into each other in other areas.

27. *Ficus pertusa* L.f., Suppl. 442. 1781. (Provisionally circumscribed).

F. daphnifolia Miq., Ann. Mus. Bot. Lugd. -Bat. 3: 300. 1867. — *F. erythrosticta* (Miq.) Miq., Ann. Mus. Bot. Lugd. -Bat. 3: 298. 1867. — *F. kanukensis* Standl., Lloydia 2: 174. 1939. — *F. rolanderi* (Liebm.) Miq., Ann. Mus. Bot. Lugd. -Bat. 3: 298. 1867. — *F. subtriplinervia* Mart., Flora 24(2): 67. 1841. — *F. tapajozensis* Standl., Tropical Woods 33: 11. 1933. — *Pharmacosycea laurifolia* Miq., London Jour. Bot. 7: 71. 1848. — *Urostigma erythrostictum* Miq., London Jour. Bot. 6: 540. 1847. — *U. pertusum* (L.f.) Miq., London Jour. Bot. 6: 548. 1847. — *U. rolanderi* Liebm., Danske Vidensk. Selsk. Skr., Ser. 5, 2: 329. 1851. — *U. subtriplinervium* (Mart.) Miq., London Jour. Bot. 6: 542. 1847.

Lamina elliptic to oblong (to subobovate), 4.5-12.5 x 2.5-6.5 cm, (sub)coriaceous, apex acuminate to subacute, base rounded to acute (or to truncate), both surfaces glabrous; lateral veins 2x 10-12; petiole 1-2.5 cm long; stipules 0.5-1.5 cm long, glabrous, caducous. Figs in the leaf axils; peduncle 0.3-0.4(-0.8) cm long; basal bracts ca. 2.5 mm long; receptacle globose, when dry 0.4-0.8 cm in diameter, glabrous, at maturity greenish, often maculate; ostiole sunken in the crateriform (and sometimes protruding) apex of the receptacle.

Distribution: Brazil: Acre (*Krukoff 5655*), Amapá (*Egler et al. 46026A*), Amazonas (*Krukoff 5027*), Maranhão (*Prance et al. 58584*), Mato Grosso (*Krukoff 1676*), Pará (*M. Silva et al. 2491*), Rondônia (*Prance et al. 6807*), also in Central Brazil, to Minas Gerais; extending to the Guianas, Paraguay, Bolivia, Peru, Trinidad, Mexico, and Jamaica.

28. *Ficus padifolia* H.B.K., Nov. Gen. et Spec. 2: 47. 1817. (Provisionally recognized as a species).

Urostigma padifolium (H.B.K.) Liebm., Danske Vidensk. Selsk. Skr., Ser. 5, 2: 324: 1851.

Similar to *F. pertusa*, but the lamina usually larger (up to 14 x 6 cm), the base sometimes subcordate to emarginate, sometimes (in small leaves) the lateral veins down to 2x 6, the petiole longer (up to 4.5 cm), the peduncle longer (up to 1.3 cm), and the receptacle larger (when dry 0.8-1.4 cm).

Distribution: Brazil: Mato Grosso (*Berg et al. P.18477*), extending to Bahia and Santa Catarina; through Venezuela and Colombia to Mexico, also in Guyana.

F. padifolia approaches *F. broadwayi* in its features; the two taxa are almost allopatric. Some collections from Guyana are distinct in having a subcordate to emarginate leaf base.

29. *Ficus pallida* Vahl, Enum. 2: 194. 1805. (Provisionally circumscribed).

F. prinoides Willd., Sp. Pl. 4(2): 1149. 1806. — *Urostigma prinoides* (Willd.) Miq., London Jour. Bot. 6: 540. 1847.

Lamina oblong to lanceolate, sometimes elliptic or subobovate, 3-10 x 1-4 cm, (sub)coriaceous, apex acute to subacuminate, obtuse or rounded, base acute to rounded, both surfaces glabrous; lateral veins 2x 6-10; petiole 0.5-2 cm long; stipules 0.5-1 cm long, usually glabrous, caducous. Figs in the leaf axils; peduncle 0.2-0.6 cm long; basal bracts ca. 1 mm long; receptacle globose, when dry 0.4-0.6 cm in diameter, usually glabrous, at maturity greenish with dark spots; ostiole 1.5-2 mm in diameter, flat or slightly impressed.

Distribution: Brazil: Acre (Prance et al. 7358), Amazonas (M. Silva 1966), Rondônia (Prance et al. 6724), also in Central Brazil; extending to Bolivia, northern Venezuela and northern Colombia, probably also in Mexico.

F. pallida is more variable in the shape of the leaves, the length of the petiole and the dimensions of the receptacle than the next *F. schumacheri*. Some collections made in the Upper Amazon Basin very nearly approach the features of *F. schumacheri*.

30. *Ficus schumacheri* (Liebm.) Griseb., Fl. Brit. W. Ind. 151. 1859. (Provisionally recognized as a species). Fig. 5.

Urostigma schumacheri Liebm., Danske Vidensk. Selsk. Skr., Ser. 5, 2: 328. 1851.

Lamina lanceolate, 2.5-9 x 0.7-2 cm, (sub)coriaceous, apex subobtuse to subacute, base rounded to emarginate or to acute, both surfaces glabrous or puberulous at the base of the midrib; lateral veins 2x (8-)10-13; petiole 0.3-1(-1.3) cm long; stipules 0.3-0.8 cm long, glabrous or puberulous, caducous. Figs in the leaf axils; peduncle 0.1-0.2 cm long; basal bracts ca. 1.5 mm long; receptacle globose, when dry 0.3-0.4 cm in diameter, (sub)glabrous, at maturity greenish with darker, purple, red or brown spots; ostiole 1.5-2 mm in diameter, flat or slightly impressed.

Distribution: Brazil: Amazonas (Kuhlmann 166), Pará (N.T. Silva 1311); extending through the Guianas to Trinidad and northern Venezuela.

31. *Ficus lauretana* Vázquez Avila, Acta Amazonica, following article in this volume.

Lamina oblong to elliptic or to lanceolate, 5-9 x (1-)1.5-3.5 cm, (sub)coriaceous, apex acuminate (to acute or to obtuse), base acute to obtuse, upper surface minutely puberulous on the midrib, lower surface minutely puberulous on the midrib (and the lateral veins); lateral veins 2x 9-12; petiole 0.3-0.8(-1.3) cm long; stipules 0.3-0.5 cm long, minutely puberulous, caducous. Figs in the leaf axils (or just below the leaves); peduncle 0.1-0.4 cm long; basal bracts 1-1.5 mm long; receptacle (sub)globose, when dry 0.4-0.6 cm in diameter, glabrous, at maturity brown to orange-red (without spots); ostiole ca. 1 mm in diameter, sunken in the crateriform apex of the receptacle.

• Distribution: Brazil: Amazonas (Krukoff 8740); extending to Amazonian Peru and Colombia.

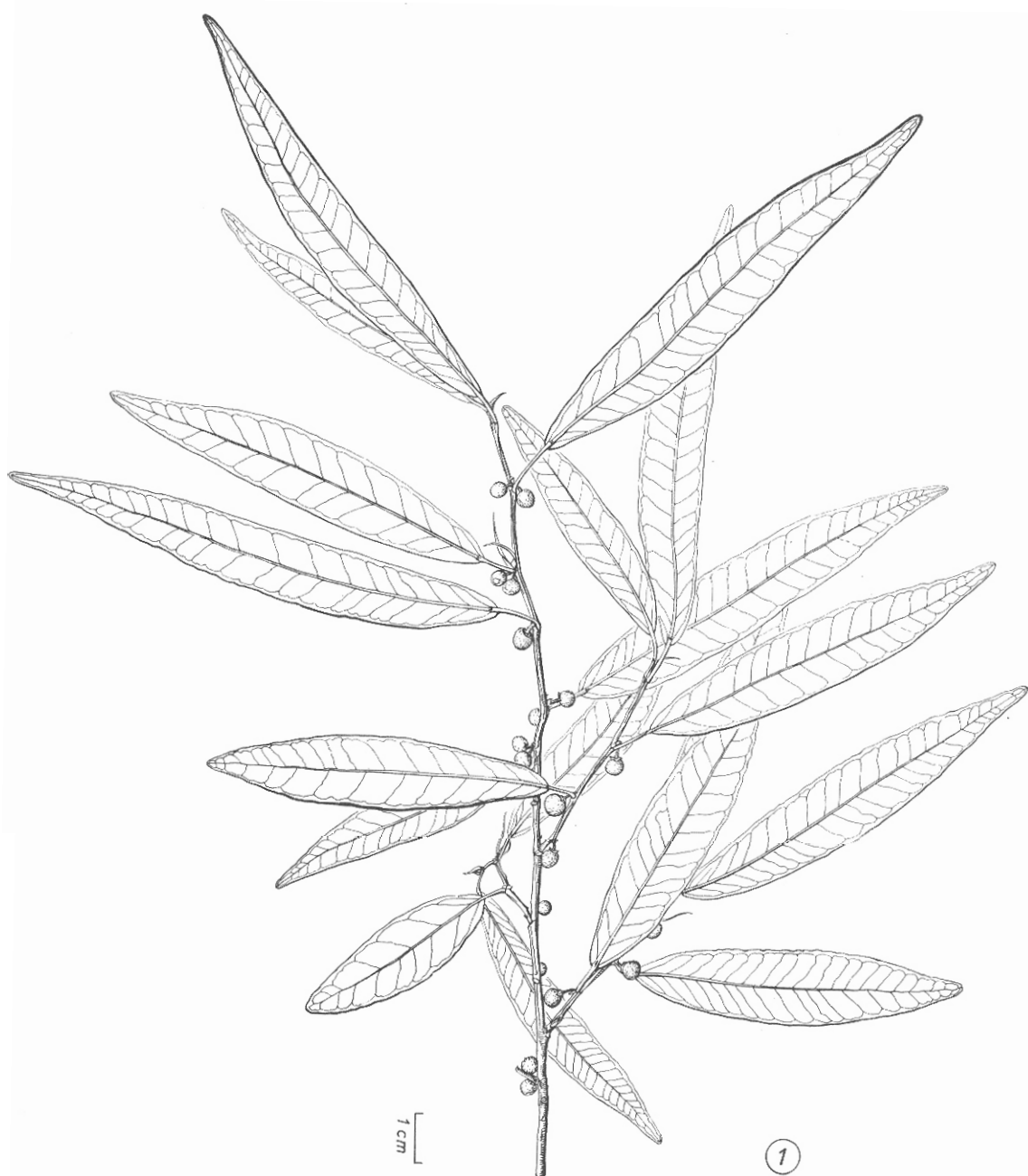


Fig. 5. *Ficus schumacheri*: 1, leafy twig with figs (Breteler 3828).

32. *Ficus broadwayi* Urban, Repert. Spec. Nov. Regni Veg. 15: 110. 1917. Fig. 6.

F. savannarum Standl., Bull. Torrey Bot. Club 75: 298. 1948.

Lamina elliptic to oblong, (5-)10-20 x 3.5-9 cm, coriaceous, apex acuminate (to subacute), base rounded to cordate, both surfaces glabrous; lateral veins 6-8(-10); petiole 2-3.5(-7) cm long; stipules 1-1.8 cm long, glabrous or appressed-puberulous, caducous. Figs in the leaf axils; peduncle 0.5-1.2 cm long; basal bracts ca. 2.5 mm long; receptacle globose, when dry 1.2-2 cm in diameter, glabrous, at maturity greenish; ostiole sunken in the crateriform apex of the receptacle.

Distribution: Brazil: Roraima (**Rosa & Nascimento 3263**), also in Bahia; extending through the Guianas to Trinidad and northeastern Colombia.

Taxa 33 - 38: *Ficus obtusifolia* complex and allied species

This group of taxa is represented in Amazonian Brazil by five readily distinguishable taxa.

33. *Ficus obtusifolia* H.B.K., Nov. Gen. et Spec. 2: 49. 1817.

F. gardneriana (Miq.) Miq., Ann. Mus. Bot. Lugd.-Bat. 3: 97. 1867. — **Urostigma gardnerianum** Miq., London Jour. Bot. 6: 527. 1847.

Lamina subobovate to obovate to oblong, 11-21 x 4-10 cm, coriaceous, apex rounded, base acute to obtuse, upper surface glabrous, lower surface minutely puberulous with patent, white hairs and appressed, brown hairs; lateral veins 2x 5-9(-10); petiole (1-)2-4 cm long; stipules 0.5-2.5 cm long, glabrous or minutely puberulous, caducous. Figs in the leaf axils; peduncle 0-0.4 cm long; basal bracts 4-8 mm long; receptacle ovoid to subglobose, when dry 1.2-1.8 cm in diameter, minutely puberulous to glabrous, at maturity greenish; ostiole 2.5-4 mm long, $\pm$ prominent.

Distribution: Brazil: Amazonas (**Prance et al. 14064**), Mato Grosso (**Prance et al. 26168**), extending to Minas Gerais; through Venezuela and Colombia to Mexico.

In Minas Gerais this species may be confused with sterile material of two other species: *F. enormis* (Miq.) Miq., from which it differs in the venation at the base of the lamina and an undescribed species, which differs from *F. obtusifolia* in the subhirsute lower surface of the lamina.

34. *Ficus catappifolia* Kunth & Bouché, Index Sem. Hort. Berol. (1846). 14. 1847.

Fig. 7.

Urostigma catappifolium (Kunth & Bouché) Miq., London Jour. Bot. 6: 533. 1847.

Periderm of the leafy twig flaking off when dry. Lamina subobovate to oblong, 13-38 x 4-15 cm, coriaceous, apex rounded (to obtuse), base cordate (to rounded), both surfaces glabrous; lateral veins 2x 10-13; petiole 1-1.5(-2.5) cm long; stipules 1-2 cm long, minutely puberulous to nearly glabrous, caducous. Figs in the leaf axils; peduncle 0-0.3 cm long; basal bracts 5-7 mm long; receptacle ellipsoid to oblongoid, when

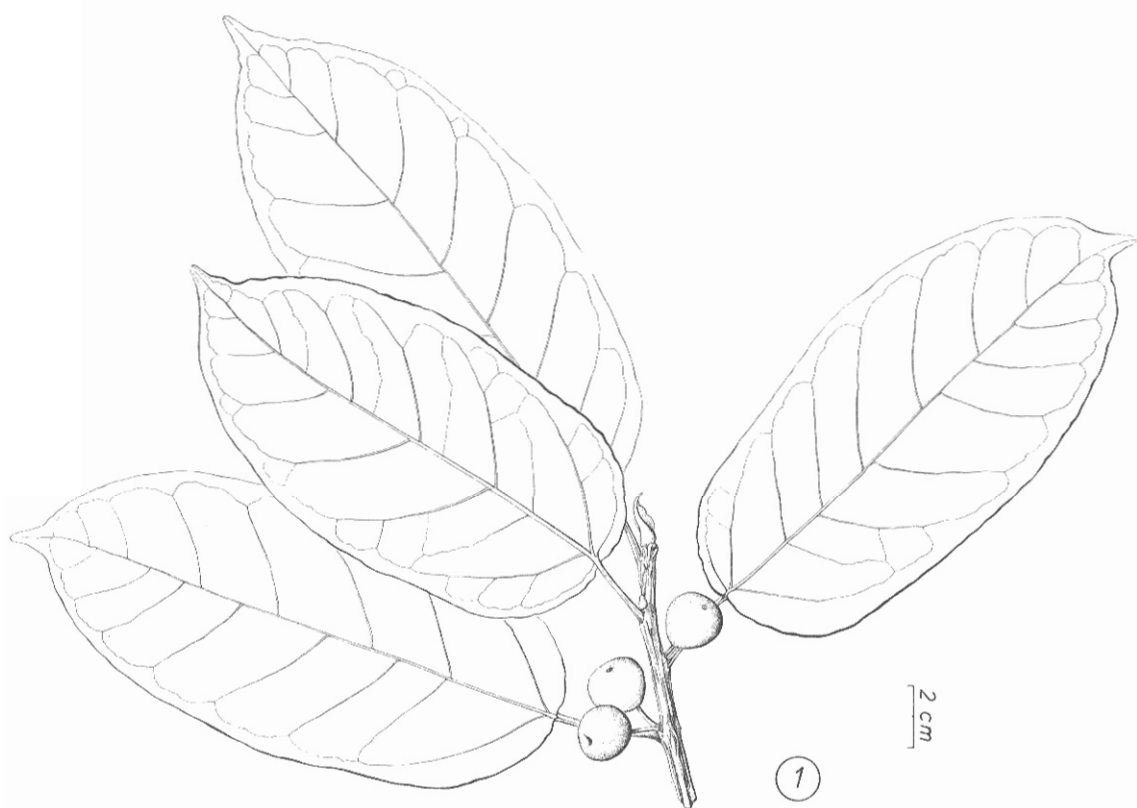


Fig. 6. *Ficus broadwayi*: 1, leafy twig with figs (Steyermark 61496).

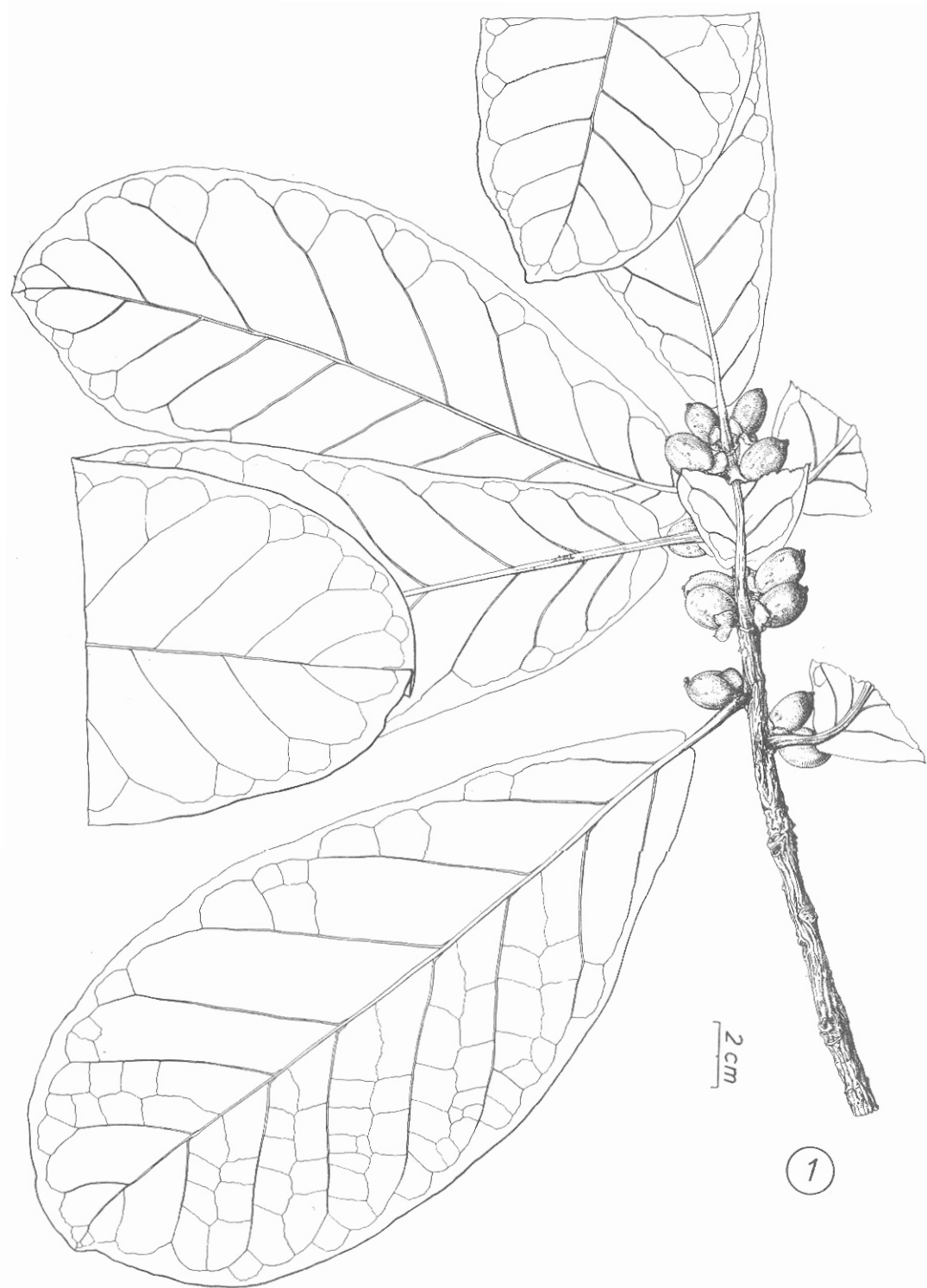


Fig. 7. *Ficus catappifolia*: 1, leafy twig with figs (Mennega et al. 888).

dry 1.1-1.8 cm in diameter, minutely puberulous, at maturity purplish; ostiole 1.5-2 mm in diameter, prominent.

Distribution: Brazil: Amapá (Austin et al. 7023); Maranhão (Ducke (HAMP) 456), Pará (Fröes 30401), possibly also in Rio de Janeiro; extending through the Guianas to northeastern Venezuela.

35. *Ficus nymphaeifolia* P. Miller, Gard. Dict. ed. 8. 1768.

F. anguina Benoist, Bull. Mus. Hist. Nat. Paris 30: 104. 1929. — *F. cyclophylla* (Miq.) Miq., Ann. Mus. Bot. Lugd. -Bat. 3: 297. 1867. — *Urostigma cyclophyllum* Miq. in Mart., Fl. Bras. 4(1): 91. 1853. — *U. nymphaeifolium* (P. Miller) Miq., London Jour. Bot. 6: 527. 1847.

Lamina elliptic to ovate (to oblong or to suborbicular or to (sub)obovate), (5-) 9-25(-32) x (2.5-) 7.5-17.5(-24) cm, coriaceous, apex rounded (to obtuse or to short-acuminate), base cordate (to rounded), both surfaces on the midrib minutely puberulous, partly with appressed, brown hairs; lateral veins 2x 8-13; petiole (2.5-) 5-12(-20) cm; stipules 1-2.5 cm long, glabrous or minutely puberulous, caducous. Figs in the leaf axils, (sub)sessile; basal bracts 5-8 mm long; receptacle (depressed-) globose, when dry (1-) 1.5-2.5 cm in diameter, puberulous, at maturity greenish; ostiole 4-8 mm in diameter, ⁺ prominent.

Distribution: Brazil: Amapá (Irwin et al. 48182), Mato Grosso (Berg et al. P.18443), Pará (M.R. Santos 494), Rondônia (Prance 8731), Roraima (Maguire et al. 40233), also in Bahia and Goiás; extending to the Guianas, Bolivia, Colombia, Venezuela, Central America, and the Lesser Antilles.

36. *Ficus gameleira* Standl., Publ. Field Mus. Bot. 17: 169. 1937.

Lamina oblong to elliptic or (sub)obovate, 14-32 x 8-21 cm, coriaceous, apex rounded, base subcordate to rounded, upper surface glabrous, lower surface (sub)hirsute on the midrib, sparsely hirtellous to puberulous on the lateral veins; lateral veins 2x (9-) 10-15, tertiary venation partly scalariform, slightly prominent, smaller veins plane beneath; petiole 3-8 cm long; stipules ca. 1 cm long, white subsericeous, caducous. Figs in the leaf axils; peduncle 0.8-1.2 cm long; basal bracts ca. 10 mm long; receptacle subglobose to ellipsoid, when dry 1.8-2.5 cm in diameter, tuberculate, puberulous, at maturity probably greenish; ostiole ca. 3 mm in diameter, prominent, outer ostiolar bracts densely puberulous.

Distribution: Brazil: Pará (Pires 4405), Maranhão (Fröes in Krukoff 1938).

37. *Ficus schultesii* Dugand, Caldasia 2: 78: 1943.

Lamina oblong to elliptic to (sub)obovate, 16-22 x 7.5-15 cm, coriaceous, apex rounded to emarginate, base obtuse, upper surface sparsely puberulous to hirtellous, lower surface rather densely hirtellous, also on the smaller veins; lateral veins 2x 10-16, tertiary venation reticulate, prominent, also smaller veins prominent beneath;

petiole 3-7 cm long; stipules 1.5-2 cm long, white- to yellow-(sub)sericeous. Figs solitary in the leaf axils; peduncle 0.5-1.3 cm long; basal bracts 1.0-1.2 mm long; receptacle ovoid (to subglobose), when dry 2.5-3 x ca. 2.5 cm, minutely puberulous, at maturity probably greenish; ostiole ca. 5 mm in diameter, prominent, outer ostiolar bracts white sericeous.

Distribution: Brazil: Acre (**Cid et al. 2755**); also in Amazonian Peru and Colombia.

38. ***Ficus tepuiensis*** Berg & Simonis, *Ernstia* 6: 8. 1981.

Lamina obovate (or elliptic to oblong), 13-21.5 x 7-10 cm, (thickly) coriaceous, apex acuminate to rounded, base acute, upper surface glabrous, lower surface with minute, appressed, brown hairs; lateral veins 2x 8-11; petiole 0.5-1.5 cm long; stipules 1-3 cm long, minutely puberulous, caducous. Figs in the leaf axils, sessile; basal bracts ca. 4 mm long; receptacle (sub)globose, when dry ca. 1.5 cm in diameter, puberulous, at maturity brownish-red; ostiole ca. 3 mm in diameter, plane.

Distribution: Only known from eastern Venezuela, probably occurring in Guyana.

Taxa 39 - 43: *Ficus trigonata* complex and allied species

Like other Neotropical complexes of taxa in *Ficus*, the *F. trigonata* complex occurs throughout the Neotropics. There are two major morphological entities ("forms"), *F. gomelleira* and *F. trigonata*, both present in Amazonian Brazil.

39. ***Ficus trigonata*** L., *Fl. Surinam.* 17. 1775. (Provisionally circumscribed).

F. crocata (Miq.) Miq., *Ann. Mus. Bot. Lugd.-Bat.* 3: 297. 1867. — ***Urostigma crocatum*** Miq., *London Jour. Bot.* 6: 531. 1847.

Leafy twigs puberulous or sparsely hirtellous. Lamina elliptic to oblong (to obovate), 6-28 x 4-12 cm, (sub)coriaceous, apex rounded shortly acuminate, base rounded to subcordate (or obtuse to subacute), upper surface glabrous or sparsely puberulous, lower surface glabrous to sparsely puberulous; smaller veins (reticulum) plane beneath, lateral veins 2x 8-10(-15); petiole 1-8 cm long; stipules 0.5-3 cm long puberulous to subsericeous, caducous. Figs in the leaf axils; peduncle (0-?)0.2-1 cm long; basal bracts ca. 4.5 mm long; receptacle globose, when dry (1-)1.5-2 cm in diameter, glabrous or minutely puberulous, at maturity greenish; ostiole ca. 4.5 mm in diameter, surrounded by a triangular (to circular) rim.

Distribution: Brazil: Amazonas (**Oliveira 2854**), Mato Grosso (**Prance et al. 26106**), Pará (**Cid et al. 1382**), Roraima (**Black 51-13759**), possibly also in Central and East Brazil; extending through Venezuela and Colombia to Mexico and the Greater Antilles.

40. ***Ficus gomelleira*** Kunth & Bouché. *Index Sem. Hort. Berol.* (1846). 18. 1847. (Provisionally recognized as a species).

F. acarouaniensis Benoist, Arch. Bot. Caen 3(Bull.): 170. 1929. — **F. doliaria** (Miq.) Miq., Ann. Mus. Lugd. -Bat. 3: 297. 1867. — **Urostigma doliarium** Miq., London Jour. Bot. 6: 527. 1847. — **U. tomentellum** Miq., London Jour. Bot. 6: 531. 1847.

Leafy twigs usually brown-hirsute to hirtellous. Lamina elliptic to oblong (to obovate), (4.5-)9-26(-33) x (2.5-)5-13(-17.5) cm, apex rounded to subacute to acuminate, base rounded to (sub)cordate, upper surface puberulous or on the main veins to hirtellous, lower surface hirsute to hirtellous on the main veins, hirtellous to puberulous on the smaller veins; smaller veins (reticulum) prominent beneath, lateral veins 2x (7-) 11-16; petiole (1-)1.5-5.5 cm long; stipules 0.5-2(-3.5) cm long, (sub)hirsute to subsericeous, caducous. Figs in the leaf axils, (sessile or) peduncle (0.2-)0.5-1.5 cm long; basal bracts 2 or 3, (2-)3-4 mm long; receptacle globose, when dry (1-)1.5-2(-2.5) cm in diameter, puberulous to hirtellous (or glabrous), at maturity greenish; ostiole 2-2.5 mm in diameter, surrounded by a triangular to circular rim.

Distribution: Brazil: Amapá (**Frões et al. 27642**), Amazonas (**Cid et al. 310**), Maranhão (**Eiten et al. 10379**), Mato Grosso (**Berg et al. P.18685**), Pará (**Cid et al. 2480**), extending to Paraná; also in Venezuela, the Guianas and Trinidad.

There are specimens with features intermediate between **F. gomelleira** and **F. trigonata**. In these specimens the lower surface of the lamina is sparsely hirtellous on the main veins and otherwise sparsely and minutely puberulous, the reticulum can be almost plane beneath, and/or the receptacle almost glabrous.

41. Ficus pakkensis Standl., Bull. Torrey Bot. Club 75: 297. 1948.

Leafy twigs white-puberulous. Lamina oblong, (5-)10-21 x (2-)4.5-10.5 cm, (sub)-coriaceous, apex rounded to short-acuminate, base cordate to emarginate, upper surface smooth to scabridulous, puberulous on the main veins, on the veins lower surface $\pm$ densely puberulous with hairs of equal length; smaller veins (reticulum) $\pm$ prominent beneath, lateral veins 2x (6-)8-10; petiole (0.5-)1-6 cm long; stipules (0.5-)1-3 cm long, $\pm$ densely puberulous, caducous. Figs in the leaf axils; peduncle (0.3-)0.5-1.2 cm long; basal bracts 1.5-2 mm long, almost completely fused; receptacle ellipsoid to subovoid to subglobose, when dry 1-2 x 1-1.3 cm, densely puberulous, at maturity probably greenish; ostiole 2-3 mm in diameter, slightly prominent.

Distribution: Brazil: Maranhão (**Frões in Krukoff 11606**), Pará (**Black 48-3484**); extending to the Guianas.

42. Ficus roraimensis C.C. Berg, Acta Amazonica, following article in this volume.

Lamina subobovate to oblong, 9-13 x 4.5-6.5 cm, subcoriaceous, apex rounded (to emarginate), base obtuse to subacute, upper surface sparsely and minutely puberulous on the veins, lower surface on the veins minutely white-patent-puberulous, on the main veins also minute brown appressed hairs and sparse longer yellowish hairs; lateral veins 2x 8-12; petiole 0.8-2 cm long; stipules 0.3-0.7 cm long, hirsute to hirtellous to subseri-

ceous, caducous. Figs in the leaf axils (or also just below the leaves); peduncle 0.2-0.3 cm long; basal bracts 1.5-2 mm long; receptacle globose, when dry 0.6-1 cm in diameter, puberulous, at maturity probably greenish; ostiole ca. 2 mm in diameter, slightly impressed.

Distribution: Brazil: Roraima (Black et al. 51-12915).

Distinct from *F. gomelleira* in the indument of the lamina, the shape of the base of the lamina, etc.

43. *Ficus hebetifolia* Dugand, *Caldasia* 1(4): 50. 1942.

Fig. 8.

Leafy twigs puberulous, intermixed with distinctly longer, brownish hairs. Lamina oblong to subobovate, 9-23 x 4.5-10.5 cm, (sub)coriaceous, apex rounded to obtuse, base cordate to emarginate, both surfaces puberulous on the veins, (almost) smooth; smaller veins (reticulum) prominent beneath, lateral veins 2x 7-8(-10), tertiary venation reticulate; petiole (1.5-)2-7 cm long; stipules 0.3-0.8 cm long, (sub)hirsute to subsericeous and partly puberulous, caducous. Figs in the leaf axils; peduncle ca. 0.3 cm long; basal bracts 1.5-2 mm long; receptacle globose, when dry 1-1.3 cm in diameter, minutely puberulous to almost glabrous, at maturity probably greenish; ostiole 2-2.5 mm in diameter, surrounded by an entire (to slightly 3-lobed), circular rim.

Distribution: Brazil: Acre (Prance et al. 2830), Pará (N.T. Silva 922), also in French Guiana and Colombia.

44. *Ficus maroniensis* Benoist, *Bull. Mus. Hist. Nat. Paris, Sér. 2*, 1: 164. 1929.

F. lanjouwii DeWolf, *Jour. Arnold Arb.* 50: 478. 1969.

Lamina oblong to subobovate, 6-16 x 2-5.5 cm, coriaceous, apex acuminate, base obtuse to acute, upper surface glabrous, lower surface brown- to yellowish-subsericeous to -subhirsute on the midrib; lateral veins 2x 10-16; petiole 0.5-1.5 cm long; stipules 0.5-1 cm long, brown- to yellowish-subsericeous to -hirsute, caducous. Figs in the leaf axils; peduncle 0-0.2 cm long; basal bracts ca. 1 mm long; receptacle (sub)globose, when dry 0.5-1 cm in diameter and ⁺ strongly wrinkled, (sub)glabrous, at maturity probably greenish; ostiole ca. 1 mm in diameter, flat.

Distribution: French Guiana and Suriname.

45. *Ficus panurensis* Standl., *Publ. Field Mus. Bot.* 17: 174. 1937.

F. arctocarpa Standl., *Bull. Torrey Bot. Club* 75: 294. 1948. — *F. maguirei* Standl., *Bull. Torrey Bot. Club* 75: 296. 1948.

Lamina oblong to subobovate, (5-)10-21 x (2-)4-8 cm, coriaceous, apex acuminate, base obtuse to rounded, upper surface glabrous, lower surface tomentose or on the midrib (and lateral veins) villous to pubescent and then otherwise puberulous or glabrous; lateral veins 2x (5-)8-14, tertiary venation reticulate to scalariform, prominent beneath; petiole 0.7-2.5 cm long; stipules 1-1.8 cm long, striate, appressed-puberulous to pubescent or villous, caducous or subpersistent. Figs in the leaf axils, sessile; basal bracts 2-3 mm long; receptacle (sub)globose, when dry 0.7-1 cm in diameter, brown- to

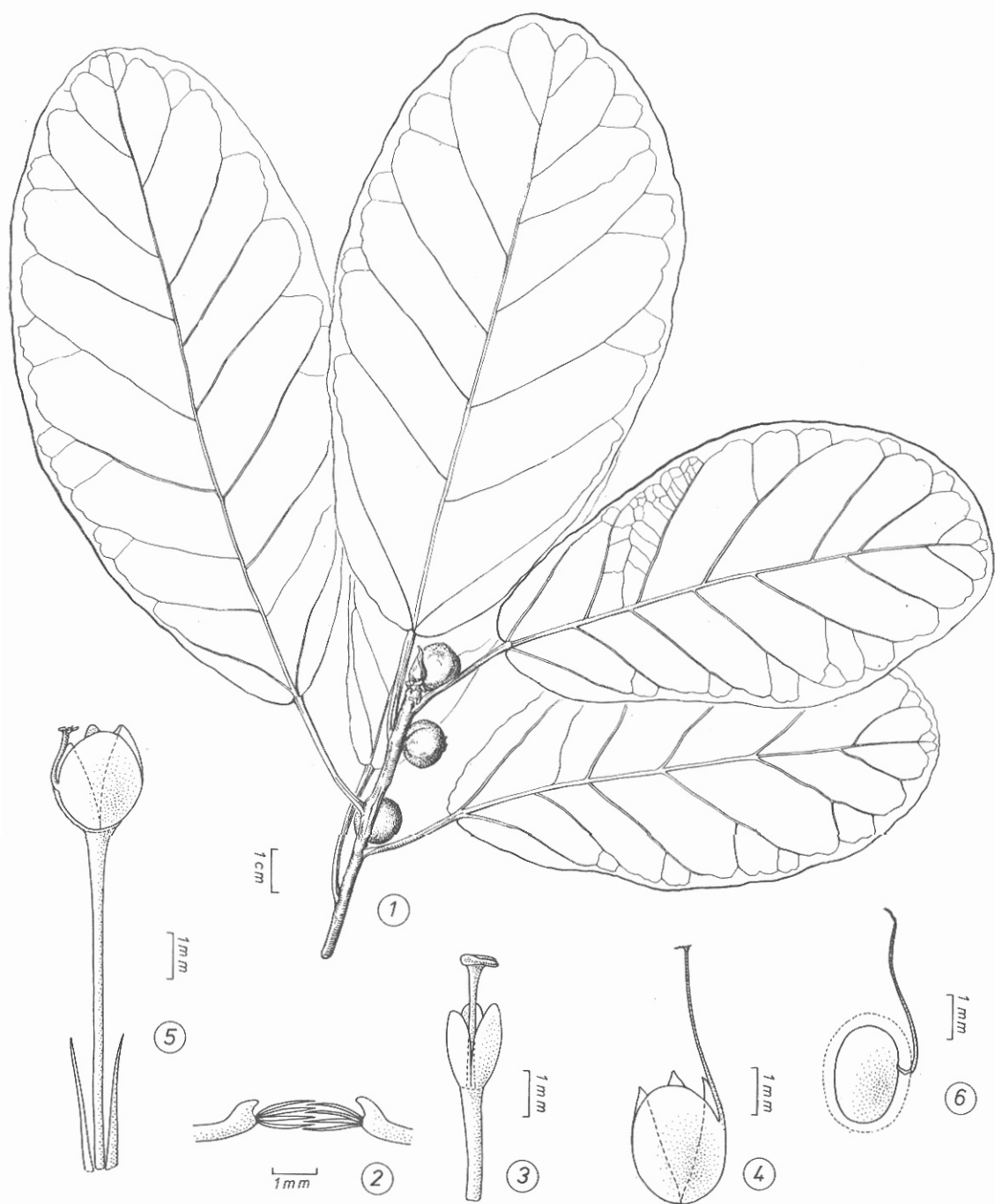


Fig 8. *Ficus hebetifolia*: 1, leafy twig with figs; 2, longitudinal section of the ostiole; 3, staminate flower; 4, seed flower; 5, gall flower with interfloral bract (Prance et al. 2830).

whitish-villous or nearly glabrous; ostiole ca. 2 mm in diameter, surrounded by a 3-lobed rim.

Distribution: Brazil: Amazonas (**Spruce 2768**); also in the Guianas and Venezuela.

46. *Ficus trigona* L.f., Suppl. 441. 1781.

Fig. 9.

F. euomphalum (Miq.) Miq., Ann. Mus. Bot. Lugd. -Bat. 3: 299. 1867. — *F. fagifolia* (Miq.) Miq., Ann. Mus. Bot. Lugd. -Bat. 3: 299. 1867. — *F. fanshawei* Standl., Bull. Torrey Bot. Club 75: 295. 1948. — *F. regularis* Standl., Publ. Field Mus. Bot. 17: 175. 1937. — *F. vulpina* Benoist, Bull. Mus. Hist. Nat. Paris, Sér. 2, 1: 164. 1929. — *Urostigma euomphalum* Miq. in Mart. Fl. Bras. 4 (1):103. 1853. — *U. fagifolium* Miq., London Jour. Bot. 6: 544. 1847. — *U. trigonum* (L.f.) Miq., London Jour. Bot. 6: 548. 1847.

Lamina elliptic to oblong to (sub)obovate, (2.5-)8-22 x (1-)5-9 cm, (sub)coriaceous, apex acuminate (to acute), base rounded to acute or to (sub)cordate, upper surface sparsely (on the midrib more densely) hirtellous to hirsute (or glabrous), lower surface $\pm$ densely hirsute to pubescent (or subglabrous); lateral veins 2x (5-)10-20, tertiary venation for the greater part scalariform, plane beneath; petiole 0.4-4(-6) cm long; stipules 0.3-1(-3) cm long, brown-hirsute to -subsericeous (to -puberulous), caducous (or subpersistent). Figs in the leaf axils; peduncle 0-0.5 cm long; basal bracts ca. 2-4 mm long; receptacle (sub)globose, when dry (0.5-)0.8-1(-1.2) cm in diameter, hirtellous to hirsute (or glabrous), at maturity greenish (to purplish-brown); ostiole ca. 2-3 mm in diameter, surrounded by a 3-lobed rim.

Distribution: Brazil: Acre (**Prance et al. 12083**), Amapá (**Egler et al. 46390**), Amazonas (**Prance et al. 14573**), Mato Grosso (**Berg et al. P.18400**), Pará (**Pires et al. 13082**), Rondônia (**Prance et al. 5585**), Roraima (**Pires et al. 14528**), extending to Bahia and Minas Gerais; also in Amazonian Bolivia, Peru, Colombia, Venezuela, and the Guianas; usually in riverside vegetation.

In northwestern Pará and Roraima a form exists with small (2.5-6 x 1-2.3 cm), subglabrous leaves and small figs (ca. 0.5 cm in diameter). This form resembles *F. blepharophylla*, but lacks the ciliate leaf margin.

47. *Ficus blepharophylla* Vázquez Avila, Acta Amazonica, following article in this volume.

Leaf twigs 2-3 mm thick, brown- to whitish-tomentose. Lamina oblong to elliptic to (sub)obovate, 1.5-5 x 1.2-2.5 cm, coriaceous, apex short-acuminate to rounded, base (sub)cordate to obtuse, margin ciliate, upper surface glabrous, lower surface tomentose to hirtellous at least on part of the main veins; lateral veins 2x 4-7; petiole 0.2-0.5 cm long; stipules 0.4-1 cm long, brown-subsericeous to -subtomentose, caducous. Figs in the leaf axils, sessile; basal bracts ca. 1.5 mm long; receptacle globose, when dry 0.5-0.6 cm in diameter, densely white-puberulous; ostiole ca. 1.5 mm in diameter, surrounded with a subentire rim.



Fig. 9. *Ficus trigona*: 1, leafy twig with figs (Maguire et al. 53813).

Distribution: Brazil: Roraima (Ule 7987).

48. **Ficus matiziana** Dugand, *Caldasia* 4: 116. 1946.

Fig. 10.

Lamina oblong to subobovate (to obovate), 7-18 x 3-8 cm, subcoriaceous, apex acuminate to rounded, base obtuse to subcordate, upper surface scabrous to smooth, hirtellous on the midrib, lower surface hirsute to hirtellous on the veins; lateral veins 2x 8-15; petiole 0.8-2(-2.5) cm long; stipules 0.3-1 cm long, brown-hirsute (to strigose), caducous. Figs in the leaf axils; peduncle 0-0.5 cm long; basal bracts ca. 1.5 mm long; receptacle globose, when dry 0.8-1.2 cm in diameter, hirtellous; ostiole ca. 1.5 mm in diameter, surrounded by an entire to $\pm$ distinctly 3-lobed rim.

Distribution: Brazil: Mato Grosso (Rosa et al. 2036), Pará (Cid et al. 2258), Roraima (Prance et al. 4172); extending to Colombia, Venezuela, and the Guianas.

49. **Ficus malacocarpa** Standl., *Publ. Field Mus. Bot.* 17: 178. 1937.

Lamina oblong to elliptic to (sub)obovate, (2.5-)5-16 x (1.5-)2.5-11 cm, chartaceous to subcoriaceous, apex rounded to (short-)acuminate, base rounded to cordate, upper surface scabrous to smooth, puberulous to hirtellous on the main veins, lower surface hirtellous to puberulous on the veins; lateral veins (4-)6-8(-10); petiole 0.3-2(-5) cm long; stipules 0.5-1.5(-2) cm long, brown-hirsute to -hirtellous, caducous. Figs in the leaf axils; peduncle 0-0.5 cm long; basal bracts ca. 1.5 mm long; receptacle globose, when dry 0.8-1.2 cm in diameter, hirtellous; ostiole ca. 2 mm in diameter, plane, surrounded by a low entire rim or rimless.

Distribution: Brazil: Amapá (Pires et al. 48879), Amazonas (Spruce 2398), Maranhão (Daly et al. D.634), Pará (Pires & Silva 4628); extending through the Guianas to northern Venezuela and to Amazonian Colombia.

50. **Ficus ursina** Standl., *Publ. Field Mus. Bot.* 17: 178. 1937.

Lamina subobovate to oblong, 12-18 x 5-7 cm, chartaceous, apex acuminate, base subcordate to rounded, upper surface scabrous, hispidulous to hirtellous, lower surface brown-hirsute; lateral veins 2x 10-15; petiole 1-3 cm long; stipules 0.3-0.6 cm long, brown- to yellowish-(sub)hirsute, caducous. Figs in the leaf axils, (sub)sessile; basal bracts ca. 3 mm long; receptacle globose, when dry 1-1.2 mm in diameter, pale brown-pubescent to -hirtellous; ostiole 2-2.5 mm in diameter, flat.

Distribution: Brazil: Acre (Krukoff 5686).

51. **Ficus dendrocida** H.B.K., *Nov. Gen. et Spec.* 2: 46. 1817.

Lamina obovate to elliptic, 4-8.5 x 2-5.5 cm, chartaceous to subcoriaceous, apex rounded to acute or to acuminate, base obtuse to rounded, upper surface scabrous, hispidulous, lower surface scabrous hispidulous to hirtellous (to subhirsute); lateral veins 2x 5-8; petiole 0.5-1.2 cm long; stipules 0.5-1 cm long, strigose, caducous. Figs in the leaf axils, (sub)sessile; basal bracts ca. 1.5 mm long; receptacle globose, when dry

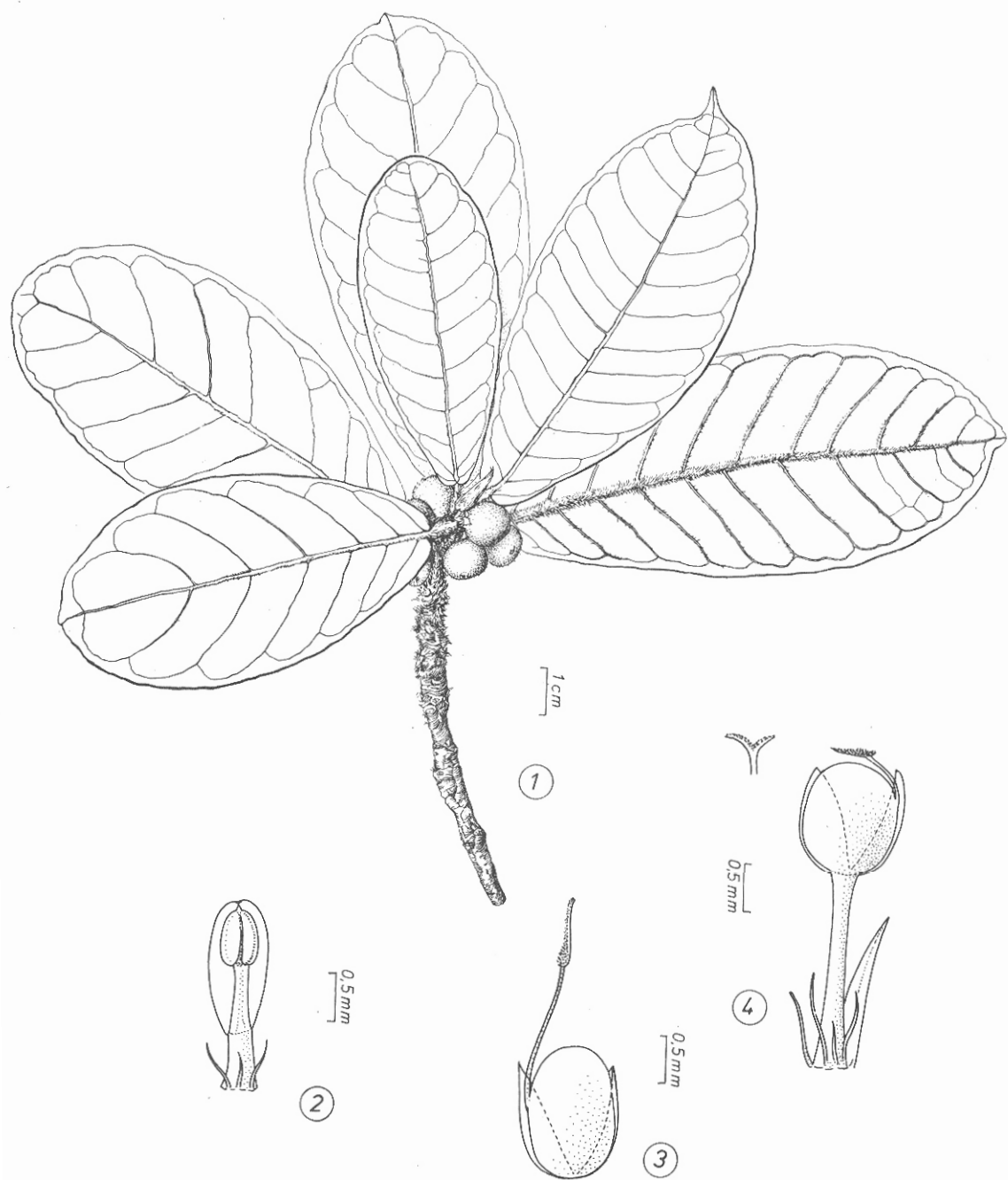


Fig. 10. *Ficus matiziana*: 1, leafy twig with figs (PLK & Urbano 12355); 2, staminate flower; 3, seed flower; 4, gall flower with interfloral bract (Prance et al. 4172).

0.5-0.7 cm in diameter, glabrous, at maturity red; ostiole ca. 2.5 mm in diameter, flat.

Distribution: Brazil: Pará (**Pires 1829**); also in Venezuela, Colombia, and Panama.

RESUMO

Com o intuito de organizar as novas taxa de **Ficus** coletadas no Brasil e nas Guianas (veja Vázquez Avila, Berg & Kooy, *Acta Amazonica*, este suplemento) dentro de um contexto taxonômico e fitogeográfico, apresentamos uma chave para aquelas taxa provisoriamente reconhecidas para Amazônia e as Guianas, seguida por um tratamento conciso destas taxa.

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