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Chapter 2

A revision of *Ficus* subsection *Urostigma* (Moraceae)

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Abstract

The present taxonomic revision of *Ficus* subsection *Urostigma* recognizes 27 species, of which three are new: *F. chiangraiensis*, *F. middletonii*, *F. pseudoconcinna*. Two new varieties are distinguished within *F. virens*, var. *dispersa* and var. *matthewii*. *Ficus lecardii* and *F. salicifolia*, formerly subspecies of *F. cordata*, are again reinstated to the species level. Typical characters for the subsection are monoecy, monostaminate flowers, red(brown) colored ovaries and cystoliths on only the abaxial leaf surface. *Ficus amplissima* and *F. rumphii* (section *Leucogyne*) were formerly part of subsection *Urostigma*, and they have been added here to the key and descriptions because of their morphological resemblance with the species in subsection *Urostigma*. Molecular–based phylogenetic analyses showed that at least *F. rumphii* is unrelated to subsection *Urostigma*. The two species only differ from subsect. *Urostigma* in their whitish ovaries and cystoliths at both sides of the leaf blade and they are pollinated by a different group of wasps, species of *Eupristina* subg. *Parapristina*.

Keywords–Monoecy, morphology, section *Leucogyne*.

Introduction

Presently, *Ficus* L. subsect. *Urostigma* (Gasp.) Berg contains 27 species, of which seven species are from continental Africa, Madagascar, and the Arabian Peninsula; and 20 species from Asia, Australia, and the Pacific. Typical are the tree habit, intermittent growth, often deciduous, leaves spirally arranged, often articulate or subarticulate, cystoliths only abaxially, figs axillary, more commonly just below the leaves, and/or ramiﬂorous on up to ca. 1 cm long spurs, staminate flowers near the ostiole or scattered among the pistillate ones, tepals red(dish), ovary red brown (or white).

This taxon started in a less elaborate circumscription as *Ficus* subgenus *Urostigma*, which was first described by Miquel in 1867. Miquel abandoned the idea of breaking up the genus *Ficus* into genera and he divided *Ficus* into six subgenera. *Urostigma* is one of the subgenera, then comprising ca. 270 species. *Urostigma* contains monoecious species with unistaminate or bistaminate flowers. However, Miquel subdivided subgen. *Urostigma* according to distribution, recognizing six series for Asia and Australia, three series for Africa, and five series for America. The species presently included in subsect. *Urostigma* were mainly placed in the series *Infectoriae* Miq. and *Religiosae* Miq. of Asia and Australia. The African representatives of the subsection were classified in the series *Grandiores* Miq., *Oblongifoliae* Miq., and *Ellipticifoliae* Miq. In 1887 King divided *Ficus* into seven sections of which sect. *Urostigma* was equivalent to Miquel’s subgenus. King divided his section *Urostigma* into series and subspecies based on leaf characters.

The species of the present treatment occur in different subseries of King.

In 1960, Corner reused the rank “subgenus.” He recognized three subgenera, one of them subg. *Urostigma* with seven sections, among which sect. *Urostigma* (with 15 species in Asia and six species in Africa) and sect. *Leucogyne* with two species in Asia (*F. amplissima* J. E. Sm. and *F. rumphii* Blume). These two groups contain the species treated here. The main difference between the two sections are the color of the ovary, the position of the staminate flowers and the position of the cystoliths: whitish ovaries, staminate flowers dispersed and cystoliths at both sides of the leaf blade in *Leucogyne*, and red(brown) ovaries, staminate flowers around the ostiole (not 100%) and cystoliths only abaxially in *Urostigma*.

Berg (1989) recognized two main groups in *Ficus* according to morphological and functional traits, in particular in connection to the unique pollination system by fig wasps. The first group comprises the subgenera *Pharmacosycea* and *Urostigma*, and the other contains the subgenera *Ficus*, *Sycidium*, and *Sycomorus*. Fourteen years later, Berg (2003) divided *Ficus* into six subgenera (*Pharmacosycea*, *Urostigma*, *Ficus*, *Synoecia*, *Sycidium*, and *Sycomorus*) based on major differentiating characters like monoecy–dioecy, adventitious roots, stipules, position of figs, bracts, stigmas, and waxy glands. This new classification did not completely correlate any longer with the pollination
system; exceptions occurred. One exception was Berg's (2004) newly established subsection Urostigma. Berg (2004) united Corner's sections Leucogyne, Urostigma, and Conosycea, into sect. Urostigma, which he subdivided into subsect. Urostigma (containing Corner's sect. Leucogyne and Urostigma) and subsect. Conosycea (containing Corner's sect. Conosycea). Typical for subsect. Urostigma is the presence of intermittent growth. Berg did not recognize the series used by Corner. Berg also included African species in the otherwise Asian/Pacific subsect. The two species in former section Leucogyne are pollinated by different wasps than the rest of subsect. species) and red(brown) in subsect. Urostigma (see paragraph on pollination below). Berg and Corner (2005) remarked that the differences between Corner's sect. Leucogyne and Urostigma are not good enough to justify recognition on a sectional or subsectional taxonomic level, and thus subsection Urostigma containing both taxa was maintained.

Recently, results of molecular phylogenetic studies by Rønsted et al. (2005, 2008) show that F. rumphii is not part of subsect. Urostigma, but that it is embedded in the not closely related subsect. Conosycea. Unfortunately, Rønsted et al. (2005, 2008) did not sample F. amplissima, the other species in former sect. Leucogyne, which is thus phylogenetically still incompletely known.

Transferring both species to subsection Conosycea complicates the morphological distinctiveness of the subsect. as the two species share major characters with subsect. Urostigma: (1) Both species show an intermittent growth like in subsect. Urostigma. (2) Staminate flowers of F. amplissima and F. rumphii are completely dispersed throughout the fig, which is also present in F. densifolia Miq., F. hookeriana Corner, F. orthoneura H. Lév. & Vaniot and F. prolixa G. Forst. of subsect. Urostigma, while F. arnottiana (Miq.) Miq. and F. virens Aiton var. dispersa Chantaras. show a transition with abundant staminate flowers around the ostiole and a few dispersed ones. (3) Leaf articulation is absent in subsect. Conosycea, section Leucogyne and in the African and Malagasy species of subsect. Urostigma, but mostly present in the Asian species of subsect. Urostigma (F. orthoneura and F. hookeriana excepted). (4) Color of the ovary is normally a good character to separate the two subsections, as ovaries in subsect. Conosycea are white (including the two Leucogyne species) and red(brown) in subsect. Urostigma. However, the ovary of F. arnottiana is white (or yellowish) and some samples of F. religiosa L. and F. densifolia also show partly white ovaries. In the first two characters, section Leucogyne corresponds with subsect. Urostigma, in the last one it resembles subsect. Conosycea. We will treat the taxa conforming to the phylogenetic analyses by Rønsted et al. (2005, 2008), with subsect. Urostigma as a monophyletic group by treating F. amplissima and F. rumphii separately.

The aim of this paper is to revise the complete Ficus subsect. Urostigma. The two species in Corner's section Leucogyne are added to the key, so that all species with intermittent growth can be keyed out, which will prevent confusion in the future. We will not formally reclassify section Leucogyne yet, because the phylogenetic status of F. amplissima is unknown. In comparison with Berg and Corner (2005), this paper treats all species together, not only the Malesian ones. Descriptions and nomenclature are more complete and based on more specimens, and the latest species delimitations are presented.

**Results**

**Habit**—All species are essentially hemi–epiphytic, but without abundant aerial roots. Some species are often terrestrial. Most of the species remain medium–sized trees, rarely taller than 25 m, but some Asian species, like F. caulocarpa (Miq.) Miq., F. superba (Miq.) Miq., and F. virens Aiton often become 30–35 m tall (Berg and Corner 2005). The African species F. verruculosa Warb. is a shrub or a treelike, and the Malagasy species F. madagascariensis C. C. Berg is sometimes a shrub (Berg and Wiebes 1992). The trees show intermittent growth, for which morphological indications are different colors of parts of twigs of current or recent growth and of the previous season's growth. The transition is marked by a section with short internodes, which in some species bear persistent coriaceous stipules, forming terminal buds.

**Indumentum**—The indumentum consists of unicellular hairs of whitish, yellowish or brown colors which usually occur on leafy twigs, petioles, stipules, peduncles, and sometimes on the upper ostiolar bracts. Many species have translucent hairs on the inner surface of the fig (receptacle) among the flowers; these are called “internal hairs.”

**Leaves**—The leaves are always spirally arranged. The lamina varies from broadest below the middle to broadest above the middle. The lamina is always symmetrical and ranges from small (up to 10 cm long) to medium–sized (10–20 cm long), but those of F. hookeriana Corner can be up to 25 cm long. The lamina is subcoriaceous to coriaceous and lacks a hypodermis except for F. hookeriana Corner and F. orthoneura H. Lév. & Vaniot, which have a well–developed hypodermis on both sides. The lamina is mostly glabrous on both sides, but the young leaves of F. cupulata Haines are sometimes puberulous. The margin is always entire. The venation is basically pinnate and brochidodromous. The basal lateral veins are distinct by the narrower angle of departure from the midrib. Some species, e.g. F. rumphii, F. ingens (Miq.) Miq., and F. cupulata, have branched basal veins. The tertiary venation varies from clearly scalariform to reticulate and/or partly parallel to the lateral veins. The leaves are articulate in most species, therefore the lamina is often detached from the petiole in dry material; the African and Malagasy species are not articulate.

**Stipules**—Stipules are often conspicuous as part of the terminal bud cover. They show differences in length on the same plant, usually quite long (more than 2 cm long), thin and caducous on the open shoots and shorter, usually not longer than 2 cm long, thicker and more persistent on the closed shoots. In many species the stipules form ovoid terminal buds at the shoot
Figs—They are often borne below the leaves, sometimes only in the leaf axils, and in some species on spurs on the older wood. They occur solitary or in pairs, up to eight together on the spurs. They are sessile or pedunculate. The number of basal bracts is usually three, in *F. rumphii* sometimes two. These bracts are persistent or caducous. The receptacle is subglobose to subpyriform and varies in size from 0.3–0.4 cm diam. when dry in *F. concinna* (Miq.) Miq. to 1.9–2.2 cm diam. when dry in *F. hookeriana*. They are mostly glabrous and in some species wrinkled when dry; in *F. rumphii*, *F. virens* var. *matthewii* Chantar. they are maculate. The ostiole is circular and the upper two or three visible bracts are imbricate, usually glabrous but in some species hairy, e.g., in *F. cupulata*, *F. virens* var. *virens* and var. *matthewii*. The change of color during maturation of the syconium is from whitish to pinkish to purplish to blackish.

Flowers—The number of tepals varies from one to five. They are free or connate, mostly glabrous, and red to brown.

Staminate Flowers—They occur near the ostiole (Fig. 2-1A, D, E) or are dispersed regularly among the pistillate flowers (Fig. 2-1C, G), but in *F. arnottiana* and *F. virens* var. *dispersa* they are abundant around the ostiole and a few dispersed (Fig. 2-1B, F). The staminate flowers are mostly sessile, rarely shortly pedicellate, but in *F. rumphii* and *F. amplissima* (section *Leucogyne*) they are distinctly pedicellate. There is only one stamen with a 2-thecate anther.

Pistillate Flowers—They are sessile or pedicellate. The ovary is white or red brown. The styles differ in length; usually short- and long-styled flowers can be distinguished. Long-styled flowers are mostly sessile; short-styled ones are generally pedicellate and their ovaries tend to be longer than those of the long-styled flowers. However, the short-styled flowers of *F. religiosa* and *F. hookeriana* are mostly sessile and their ovaries are stipitate (Fig. 2-2A, B). There is only one stigma, which entangles with those of adjacent flowers, thus forming a syn-stigmatic layer (Berg 2004; Berg and Corner 2005). According to Kjellberg et al. (2001), usually 6–10% of the total number of flowers is staminate, and the anther/ovule ratio usually is 0.04–0.10, which is more or less related to the size of the receptacle. Exceptions are *F. densifolia*, *F. virens* var. *dispersa*, and *F. prolixa* for which the anther/ovule ratios are 0.27, 0.57, and 0.51, respectively, with a diameter of the receptacle when dry of (0.5–)0.7–1 cm, 0.6–0.8 cm, and 0.5–0.9 cm, respectively. In these three cases, the presence of at least some dispersed staminate flowers and a larger than usual anther/ovule ratio seems to be associated with passive pollen transport.

Pollination—The obligate pollination of figs by fig wasps is unique and a nice introduction is given by Weiblen (2004). The pollinators of subsection *Urostigma* belong to the Agaonidae (Hymenoptera: Chalcidoidea).
The majority of species is pollinated by species of *Platycarpa*. However, *F. amplissima* and *F. rumphii* (section *Leucogyne*) are pollinated by species of *Eupristina* subgen. *Paraprístina* (Berg and Wiebes 1992; Berg and Corner 2005; Cruaud et al. 2009).

**Taxonomic treatment**


**Key to the species, subspecies and varieties of Ficus subsect. Urostigma**

(incl. *F. rumphii* and *F. amplissima* because of morphological similarity)

1. Leaves articulate (Asia, Australia, Pacific) ........................................ 2
2. Ovary white, white with a red mark at the base or yellowish. Figs sessile or up to 8 mm pedunculate ...................................................... 2. *F. arnottiana*
3. Staminate flowers near ostiole .......................................................... 4
4. Fig lacking internal hairs or a few minute ones present ............... 5
5. Basal bracts caducous ................................................................. 6
6. Figs (3–)4–6 mm diam. when dry .................................................. 6
7. Figs solitary or in pairs in leaf axils; Australia ........................................ 7
8. Figs 0.5–1.6 (–2.7) cm long, densely white woolly–tomentose; basal bracts 2–5 mm long, puberulous .................................................. 8
9. Basal bracts ± chaffy or absent ..................................................... 10
10. *F. henneana*

**Distribution**—The subsection is distributed from West Africa and Madagascar through the Asian mainland to Japan and through (southern) Malesia to Australia and the Pacific. The distribution of some species is limited: *F. henneana* Miq. is confined to Australia, *F. cupulata* occurs only in India, and *F. madagascariensis* is endemic to Madagascar. The most widespread species is *F. virens*, ranging from Sri Lanka to N Australia and the Pacific.

**Ecology**—The subsection occurs mainly in tropical areas, but *F. subpisocarpa* extends to the subtropics. Most species are associated with relatively dry types of vegetation and/or seasonal conditions, often monsoon forest, savannah, or littoral vegetation, often on or near rocks, at low altitudes. In Africa, the species are mainly found in regions with savannah woodland, but *F. verruculosa* is often present in swamps. Species can be deciduous in the monsoon climate and may be evergreen in the rainforest climate. *Ficus rumphii* is common in villages, orchards, and town-gardens (Berg and Corner 2005). *Ficus religiosa* has been planted for a long time in Buddhist temple gardens. It often successfully establishes itself and migrates to natural vegetation, sometimes being invasive just like *F. rumphii*.
9. Leafy twigs whitish puberulous, lateral veins 9–11 pairs, the basal pair up to 1/5–1/3 the length of the lamina; internal hairs minute.  

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<th><em>F. subpisocarpa</em> subsp. <em>pubipoda</em></th>
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9. Leafy twigs (sub)glabrous, lateral veins (5–)7–10 pairs, the basal pair up to 1/10–1/6 the length of the lamina; internal hairs absent.  

| 23.1. | *F. subpisocarpa* subsp. *subpisocarpa* |

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5. Basal bracts persistent.  

| 10. | F. religiosa |

10. Apex of the lamina acute to acuminate, sometimes obtuse.  

| 11. | F. alongensis |

11. Figs sessile; basal bracts 2–4.5 mm long.  

| 12. | F. cupulata |

12. Lateral veins 8–14 pairs, unbranched, basal pairs (1/7–)1/4–1/3 the length of the lamina; figs solitary or in pairs up to 8 together on spurs.  

| 25. | *F. tsjakela* |

12. Lateral veins 4–9 pairs, usually branched, basal pair 1/5–1/3 the length of the lamina; figs solitary or in pairs.  

| 13. | F. saxophila |

13. Receptacle 0.5–0.6 cm diam. Basal bracts 1.5–2 mm long.  

| 22.2. | *F. saxophila* var. *cardiophylla* |

13. Receptacle 0.6–0.9 cm diam. Basal bracts (2.5–)3–4.5 mm long.  

| 22.1. | *F. saxophila* var. *saxophila* |

11. Figs on up to 2 mm long peduncles, sometimes subsessile; basal bracts 1–2 mm long.  

| 14. | F. virens |

14. Basal lateral veins 1/10–1/6 the length of the lamina, unbranched.  

| 19. | *F. pseudocconcinna* |

14. Basal lateral veins 1/5–1/3(–1/2) the length of the lamina, branched.  

| 15. | F. prasinicarpa |

15. Figs axillary, just below the leaves or on the spurs on the older wood, solitary, in pairs or up to 4 together.  

| 17. | *F. cupulata* |

15. Figs axillary or just below the leaves, solitary or in pairs.  

| 1. | *F. geniculata var. genuiculata* |

19. Figs 1–8 together on spurs, basal bracts 1.5–2 mm long, glabrous or puberulous.  

| 20. | F. religiosa |

20. Receptacle 0.3–0.6(–0.7) cm diam. when dry, glabrous.  

| 3.1. | *F. caulocarpa* var. *caulocarpa* |

20. Receptacle 0.4–0.5 cm diam. when dry, white villous.  

| 3.2. | *F. caulocarpa* var. *dasycaulocarpa* |

18. Epidermis of petiole persistent.  

| 21. | F. alongensis |

21. Basal lateral veins usually branched, the other lateral veins branched and often furcate away from the margin.  

| 22. | *F. virens* |

22. Stipules white puberulous to tomentose; basal bracts 1–1.5 mm long, puberulous to tomentose or villose; upper ostiolar bracts glabrous (sometimes minutely puberulous), margin ciliate.  

| 15. | *F. middletonii* |

22. Stipules glabrous or puberulous; basal bracts 1.5–3 mm long, minutely puberulous; upper ostiolar bracts puberulous, margin not ciliate.  

| 27.1. | *F. virens* var. *virens* |

21. Basal lateral veins usually unbranched, or if branched then the other lateral veins unbranched.  

| 23. | *F. virens* |

23. Stipules glabrous or puberulous; receptacle glabrous or puberulous.  

| 24. | F. virens |

24. Receptacle 1.2–1.5 cm diam. when dry, ostirole 3.5–4 mm diam., upper ostiolar bracts puberulous.  

| 27.4. | *F. virens* var. *matthewsi* |

24. Receptacle 0.4–0.9(–1.2) cm diam. when dry, ostirole (1–)2–3 mm diam., upper ostiolar bracts glabrous.  

| 25. | *F. virens* |

25. Lamina mostly obovate or elliptic; basal lateral veins up to 1/6–1/4 the length of the lamina.  

| 27.3. | *F. virens* var. *glabella* |

25. Lamina mostly (broadly) ovate to lanceolate; basal lateral veins up to (1/10–)1/9–1/3 the length of the lamina.  

| 26. | *F. geniculata var. genuiculata* |


| 9.1. | *F. geniculata var. genuiculata* |


| 27.2. | *F. virens* var. *dispersa* |

23. Stipules white tomentose or villose, receptacle white tomentose or villose.  

| 27. | *F. virens* |

27. Receptacle 0.4–1.2 cm diam. when dry, ostirole 1–2 mm diam., basal bracts 2–2.5 mm long.  

| 9.2. | *F. geniculata var. insignis* |
A Revision of Ficus Subsection Urostigma (Moraceae)

This species is distributed in China (Prov. Shaanxi, Guangxi, Guangdong, Macau), Thailand, Cambodia, and Vietnam.

Distribution and Habitat—This species is distributed in China (Prov. Shaanxi, Guangxi, Guangdong, Macau), Thailand, Cambodia, and Vietnam. It is found in wet primary forest at low altitudes but in China also at altitudes between 1,100 and 1,600 m.


27. Receptacle (1.1–)1.2–1.5 cm diam. when dry, ostiole 3.5–4 mm diam., basal bracts 3–4 mm long. — 27A. F. virens var. matthewii

3. Stamine flowers dispersed but also near ostiole. — 28

28. Terminal bud ovoid, epidermis of bud scales flaking off. — 27.2. F. virens var. dispersa

28. Terminal bud (narrowly) ovate to lanceolate, epidermis of bud scales persistent. — 18. F. prolifica

1. Leaves not articulate (Africa, Madagascar, Mauritius, Réunion, Asia). — 29

29. Ovary red brown (or white with a red dot). — 30

30. Stamine flowers dispersed; Madagascar, Mauritius, Réunion and Asia. — 31

31. Figs subsessile or pedunculate up to 4 mm; basal bracts 1.5–2 mm long. — 32

32. Receptacle 1.2–2.2 cm diam. when dry, ostiole 4–5 mm diam., basal bracts united into a cup; Asia. — 16. F. orthoneura

32. Figs sessile; basal bracts 3–11 mm long. — 33

33. Internal hairs absent. — 36

36. Lamina mostly (2.5–)3–5 times longer than wide. — 34

34. Lamina mostly 1.25–2.5 times longer than wide. — 35

35. Lateral veins usually branched, tertiary venation reticulate. — 12. F. ingens

35. Lateral veins usually unbranched, tertiary venation reticulate and partly parallel to primary lateral veins. — 13. F. lecardii

36. Figs pedunculate, (peduncle 2–5 mm long), axillary, just below the leaves or on the spurs on the older branches, solitary or in pairs or up to 4 together on the spurs. — 26. F. verruculosa

36. Figs sessile, sometimes subsessile, axillary or just below the leaves, solitary or in pairs. — 37

37. Lamina ovate to oblong to lanceolate, mostly 2.5–3 times longer than wide, lateral veins 7–12 pairs. — 14. F. madagascariensis

37. Lamina mostly cordiform, some ovate or elliptic, mostly 1.5–2(–2.25) times longer than wide, lateral veins 5–7 pairs. — 6. F. cordata

29. Ovary white (or pale yellow) (sect. Leucogyne). — 38

38. Lamina elliptic to ovate, base attenuate to cuneate to obtuse to rounded, apex acute to acuminate; lateral veins 8–10 pairs. Basal bracts 3. — 28. F. amplistina

38. Lamina ovate, base subcordate, subattenuate, broad cuneate or truncate, apex acute, acuminate or cuspidate, lateral veins 5–8 pairs. Basal bracts (2 or) 3. — 29. F. rumphii


Shrub or tree up to 12(–30) m tall. Branches brown or dark brown. Leafy twigs 2–3.5 mm thick, puberulous, periderm persistent. Leaves articulate; lamina ovate to oblong to elliptic, 3.8–12 by 2.8–5.3 cm, coriaceous, apex shortly acuminate, the acumen blunt, base subattenuate or obtuse, both surfaces glabrous; lateral veins 6–9 pairs, usually falcate away from the margin, the basal pair up to 1/5–1/3 the length of the lamina, usually branched, tertiary venation largely parallel to the lateral veins, partly reticulate; petiole 1–3.1 cm long, glabrous, epidermis persistent; stipules 0.5–0.8 cm long, glabrous, caducous or sometimes persistent at the shoot apex and forming a terminal bud. Figs axillary or just below the leaves, solitary or in pairs, subsessile or peduncle up to 1.5 mm long; basal bracts ca. 1.5 mm long, glabrous, mostly persistent; receptacle subglobose or depressed globose, 0.4–0.5 cm diam. when dry, glabrous or minutely puberulous, colors at maturity unknown, apex convex; ostiole ca. 2 mm diam., upper ostiolar bracts glabrous; internal hairs absent or minute and sparse. Stamine flowers near the ostiole, sessile or with a short pedicel; tepals 2–3, ovate or oval, free or connate at base to 3/4 the length of tepals, reddish brown. Pistillate flowers sessile or pedicellate; tepals 3, ovate to lanceolate to oblong; free, sometimes connate at the base, reddish brown; ovary red brown.

Note—Berg (2007a) and Berg et al. (2011) described the figs as devoid of internal hairs. However, many figs show sparse, minute internal hairs.


Tree up to 15 m tall. Branches drying pale to dark brown, periderm persistent or flaking off. Leafy twigs (1–)3–6 mm thick, slightly angular to subterete, glabrous or minutely puberulous. Leaves articulate; lamina cordiform to (broadly) ovate, (1.5–)3.3–13.5(–21) cm, (sub) coriaceous, apex obtuse to acute to acuminate to caudate, the acumen sharp or blunt. Tepals 3, connate, dark red. Pistillate flowers sessile or pedicellate; tepals 3, connate, dark red. Staminate flowers abundant around the ostiole and a few dispersed or if few then only near the ostiole, sessile or pedicellate; tepals 3, connate, dark red. Pistillate flowers sessile or pedicellate; tepals 3, connate, dark red; ovary white or yellowish white with red mark at base.

Distribution and Habitat—This species is distributed in India, Nepal, and Sri Lanka; in deciduous forest, at altitudes up to 1,400 m.


Notes—King (1887) described the staminate flowers as few and near the mouth of the receptacle. Corner (1981) reported staminate flowers around the ostiole and sparsely scattered in the interior of the fig. However, we found both characters, thus the staminate flowers of F. arnottiana are present around the ostiole with a few dispersed (Fig. 2-1B, F) or only near the ostiole if there are few staminate flowers (Fig. 2-1E).

Berg (2007b) and Berg et al. (2011) reported the species to be present in Thailand also, but the Thai specimens have distinctly different flowers and they are here described as the new species F. middletonii (see there).


Ficus weinlandii K. Schum., Fl. Schutzeb. Südsee Nachtr.: 248, 1905.—
LECTOTYPE (designated by Berg and Corner, 2005): PAPUA NEW GUINEA.
Weinland 180 (lectotype: B; isolecotype: K).

Tree up to 30(–35) m tall. Branches drying brown or gray brown. Leafy
twigs 3–6(–8) mm thick, glabrous or puberulous. Leaves articulate; lamina
ovate, oblong, elliptic, or obovate, 5.5–19(–26.5) by 2–7.5(–9.8) cm, (sub)
coriaceous, apex acute or (sub)acuminate, the acumen sharp or blunt, base
cuneate, obtuse, rounded, or truncate (or cordate), both surfaces glabrous;
lateral veins 9–16 pairs, the basal pair up to 1/10–1/5(–1/3) the length of the
lamina, unbranched, tertiary venation reticulate; petiole 1.3–6.5(–8) cm long,
glabrous or minutely puberulous at base, epidermis flaking off; stipules 0.3–
1.1 cm long, glabrous or puberulous, persistent at the shoot apex or sometimes
caducous, usually forming an ovoid terminal bud. Figs axillary, just below the
leaves or on up to 0.5 cm long spurs on the older wood, solitary, in pairs, or
up to 8 together on spurs, peduncle 0.1–0.5 cm long, glabrous or puberulous
(or white villous), basal bracts 1.5–2 mm long, covering only the base of the
receptacle, glabrous or puberulous, apex usually lobed, persistent; receptacle
subglobose, 0.3–0.6(–0.7) cm diam. when dry, glabrous (or white villous),
white to pink to purple to blackish at maturity, apex convex or flat, sometimes
concave; ostiole 1–2 mm diam., the upper ostiolar bracts glabrous; internal
hairs present. Staminate flowers near ostiole, sessile; tepals 2–3, broadly
elliptic–ovate or lanceolate, free or connate, reddish brown. Pistillate flowers
sessile or pedicellate; tepals (2–)3–4, lanceolate, spathulate, or ovate, free or
sometimes connate, reddish brown; ovary dark red.

3.1 Ficus caulocarpa (Miq.) Miq. var. caulocarpa: Corner, Gard. Bull.

Peduncle 0.1–0.5 cm long, glabrous to puberulous, receptacle subglobose,
0.3–0.6(–0.7) cm diam. when dry, glabrous.

Distribution and Habitat—This variety is distributed in India, Sri Lanka,
Myanmar, Thailand, Malaysia (Peninsula and Borneo), Indonesia (Borneo,
Sulawesi, Lesser Sunda Islands, Moluccas), Timor Este, Taiwan, Japan
(Ryukyu Isl.), Philippines, and Papua New Guinea; in evergreen forest, in
coastal vegetation, on limestone outcrops or in lowland forest, in swamps and
river plains, at low altitudes, but in rain forest up to 1,500 m.

Representative Specimens Examined—INDIA. Kerala: Shornur, 24 Feb
1990, Dept. of Zoology 1 (L). INDONESIA. Kalimantan Barat: Ketapang,
Gunung Palung National Park, Cabang Panti Research Site, 110° 06´ E, 1° 13´
Maluku: Morotai, 3 Jun 1949, Politon 15 (L, SING), 17 (L). Nusa Tenggara
Barat: Lombok, Rindjani–Vulkangebirge, Sembaluntal, N slope of Pussuk Mt.,


**Note**—Based on the width of the leaf laminas two forms can be distinguished. Broad leaves (5–9.8 cm wide) are found in India, Sri Lanka, Myanmar, the northern part of Thailand, Philippines, Taiwan, and Japan; this form may be confused with *F. subpisocarpa*, but the basal bracts of the figs are persistent and the epidermis of the petiole is flaking off (caducous bracts and non-flaking epidermis in *F. subpisocarpa*). The narrow leaves (2–5.5 cm wide) are present in Philippines, southern part of Thailand, Malaysia, Singapore, Indonesia, Timor Este, and Papua New Guinea.


Peduncle 0.3–0.5 cm long, white villous, receptacle subglobose, 0.4–0.5 cm diam. when dry, white villous.

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Petiolus glaber epidermis non desquamarans vel basi minute albe epidermis desquamarans; stipulae gemmas ovoideas dense lanate tomentosas formantes. Fici axillares admodum infra folia vel 1–7(vel 8) in calcaribus curvatis ad 3mm longis in ligne vietiore (sub)sessiles, bracteae basales 4–6 mm longae albe strigosae persistentes receptaculo ad medio tegentes.

Tree, up to 18 m tall. Branches drying brown or gray brown. Leafy twigs 0.9–1 cm thick, glabrous, periderm flakes off. Leaves articulate; lamina broadly ovate to oblong, 16.3–22.5 by 9–15 cm, coriaceous, apex (sub)acute or obtuse, base rounded or subattenuate, both surfaces glabrous; lateral veins 8–10 pairs, usually furcate away from the margin, the basal pairs up to 1/4–1/3 the length of the lamina, mostly branched and departing from the midrib at different distances from the base, tertiary venation reticulate; petiole 6.5–8.8 cm long, glabrous and epidermis persistent or minutely white hairy at the base and epidermis flakes off; stipules 0.9–1 cm long, densely woolly-tomentose, persistent and forming an ovoid terminal bud. Figs axillary, just below the leaves or on up to 3 mm long curved spurs on the older wood, solitary, in pairs, or up to 7(–8) together on the spurs, (sub)sessile; basal bracts 4–6 mm long, covering up to the middle of receptacle, white strigose, apex usually lobed, persistent; receptacle subglobose, 0.6–0.8 cm diam. when dry, outside surface wrinkled, glabrous, color at maturity unknown, apex convex; ostiole 2–3 mm diam., upper ostiolar bracts white hairy, internal hairs present. Staminate flowers near ostiole, sessile or sometimes with a short pedicel; tepals 3, connate, reddish brown. Pistillate flowers sessile or pedicellate; tepals 3, ovate to lanceolate, free or sometimes connate at base, reddish brown; ovary red-brown. Figure 2–3.

**Distribution and Habitat**—This species is endemic in the Philippines. This variety is endemic in the Philippines.

**Representative Specimens Examined**—PHILIPPINES: Mindoro, Paluan, Apr 1921, Ramos BS 39732 (K).


Tree up to 10(–30) m tall. Branches drying pale to dark brown. Leafy twigs 1–2.5 mm thick, glabrous, periderm persistent or flakes off. Leaves articulate; lamina ovate, elliptic, oblong, lanceolate, obovate, or oblong-lanceolate, 4–13.5 by 1–5.2 cm. (sub)coriaceous, apex acute to acuminate, the acumen sharp or blunt, base cuneate, obtuse, or rounded, both surfaces glabrous; lateral veins 8–14 pairs, the basal pair up to (1/10–)1/9–1/6 the length of the lamina, unbranched, tertiary venation reticulate to partly parallel to lateral veins;
petiole 0.8–3.5(–5) cm long, glabrous, epidermis persistent, sulcate above; stipules 0.3–0.6 cm long, puberulous, usually ciliate, caducous. Figs axillary, just below the leaves, or on minute spurs on the older wood, solitary, or in pairs, or up to 4 on spurs; peduncle 1–5(–6) mm long, glabrous or puberulous; basal bracts ca. 0.5–1.5 mm long, glabrous or puberulous in the middle, caducous; receptacle subglobose, (0.3–)0.4–0.6 cm diam. when dry, glabrous, pink to purple or black at maturity, apex convex; ostiole 1–1.5 mm diam., upper ostiolar bracts glabrous; internal hairs absent or sometimes present, minute and sparse. Staminode flowers near ostiole, sessile or with a short pedicel; tepals 2–3, ovate, usually connate, red brown. Pistillate flowers sessile or pedicellate; tepals 2–3(–4), ovate or lanceolate, free, red brown; ovary dark red. Figure 2-5F.

**Distribution and Habitat**—This species is distributed in India, Bhutan, China (Prov. Yunnan, Guizhou, Guangxi, Guangdong), Myanmar, Thailand, Vietnam, Malaysia (Borneo), Indonesia (Sumatra), and the Philippines; in primary evergreen forest, mixed evergreen–deciduous scrub, on rocky seashores, on limestone hills, from low altitude up to 1,900 m.


**Note**—Corner (1965) published a new variety, *Ficus concinna* (Miq.) Miq. var. *dasycarpa* Corner, from India with as typical character a white villose peduncle. Chaudhary et al. (2012) report this variety to be endemic. Probably the variety is rare, because we could not find any matching Indian material. Therefore, we cannot decide anything about the status of this variety.

below the leaves or on short spurs on the older wood, (sub)sessile, solitary or in pairs; basal bracts 2–3 mm long, sometimes the apex lobed, glabrous or white puberulous, persistent; receptacle subglobose, 0.5–0.9 cm diam., when dry, glabrous or puberulous, turning from green to whitish to orange to dark purple or dark red at maturity, apex convex; ostiole 1.5–2.5 mm diam., upper ostiolar bracts glabrous or minutely puberulous; internal hairs absent. Staminate flowers near ostiole, sessile; tepals 3–4(–5), spatulate, ovate, or lanceolate, free, reddish brown. Pistillate flowers sessile or pedicellate; tepals 3–4(–5), ovate, lanceolate, or oblong, free, reddish brown; ovary red brown

**Distribution and Habitat**—This species is distributed in Congo, Angola, Namibia, Botswana, and South Africa; in semi-desert, in rocky places, at altitudes up to 1,500 m.


**Notes**—Berg and Wiebes (1992) only mentioned the distribution to be W Angola, NW Botswana, Namibia, and SW South Africa. Here we add Congo. Formerly, three subspecies were distinguished (Berg and Wiebes 1992). All are recognized here as species (F. cordata, F. icardii, and F. salicifolia), because the differences between the species are constant. The two easiest characters to separate the three species are the absence of internal hairs in the figs of *F. cordata* (present in the other two species) and the narrow (2.5–5 times longer than wide) leaves of *F. salicifolia* (1.25–2.5 longer than wide in the other two species).


Shrub or small tree, 2–6 m tall. Branches drying gray brown to dark brown. Leafy twigs 6–8 mm thick, puberulous to tomentose, gray brown to dark brown, periderm persistent. Leaves articulate; lamina (broadly) ovate, 8.2–12 by 7–9 cm, apex subacuminate to obtuse, the acumen blunt, base cordate, both surfaces glabrous or sometimes puberulous; lateral veins 6–7 pairs, usually furcate away from the margin, basal pair up to 1/4–1/3 the length of the lamina, branched, tertiary venation reticulate; petiole 2.2–4 cm long, velutinous, epidermis persistent; stipules 0.4–0.8 cm long, white tomentose or villose, persistent at the shoot apex and forming an ovoid terminal bud. Figs axillary, just below the leaves or on up to 2–4 mm long spurs on the older wood, solitary or in pairs, sessile; basal bracts 5–6 mm long, covering up to the middle of the receptacle; tomentose or villose, apex usually lobed, persistent; receptacle subglobose, 0.8–1.1 cm diam. when dry, white puberulous or tomentose, apex convex; ostiole 3.5–4 mm diam., upper ostiolar bracts tomentose or villose; internal hairs present. Staminate flowers near the ostiole, sessile; tepals 3–4, usually conunate, reddish brown. Pistillate flowers sessile or pedicellate; tepals 3–4, ovate or lanceolate, free, reddish brown; ovary red brown.

**Distribution and Habitat**—This species is distributed in Central India; in xerophytic vegetation, resembling tropical dry deciduous forest.

**Representative Specimens Examined**—INDIA. Madhya Pradesh: Pachmarhi, Jun 1910, Haines 4 (K), Oct 1911, Haines 3556 (K).

**Notes**—This is an endemic and rare species only known from three specimens; two were collected by Haines in 1910–1911, and the last one was recently collected by Khanna and Kumar in 2000 (Khanna and Kumar, 2002). Thus seemingly, the species is not extinct. See also note under *F. chiangraiensis*.


Tree up to 6 m tall. Branches drying (dark) brown, periderm persistent. Leafy twigs (1.5–)2–5 mm thick, glabrous or minutely puberulous, periderm persistent. Leaves not articulate; lamina (broadly) ovate to elliptic, (3.5–)6–12.5 by (3.8–)8.8 cm, coriaceous, apex acute to (sub)acuminate, the acumen sharp or blunt, base rounded to truncate to cuneate to (sub)attenuate to subcordate, both surfaces glabrous; lateral veins 8–13 pairs, usually furcate away from the margin, the basal pair up to 1/6–1/3 the length of the lamina, usually branched, tertiary venation reticulate or partly parallel to lateral veins; petiole 1–4.7 cm long, glabrous, epidermis persistent; stipules (6.5–)9.9–1.9 cm long, glabrous, persistent. Figs axillary or below the leaves, solitary or in pairs, sessile; basal bract broadly ovate, 3–6 mm long, usually lobed at apex, glabrous, persistent; receptacle ovate or subglobose, (0.5–)0.7–1 cm diam. when dry, glabrous, apex convex; ostiole 2.5–3 mm diam.; upper ostiolar bracts glabrous; internal hairs absent. Staminate flowers dispersed, sessile or pedicellate, tepals 2–3, broadly ovate or spatulate, sometimes attune at base or up to 2/3 the length of the tepals, reddish brown. Pistillate flowers sessile or pedicellate; tepals 2–3, ovate or lanceolate, sometimes conuate at base or up to 3/4 the length of the tepals, reddish brown to dark red, ovary red brown or sometimes white with a red dot.
Distribution and Habitat—This species is distributed in Madagascar, Réunion, and Mauritius; at altitudes up to 1,200 m.


Note—We have only seen one specimen from Madagascar (seemingly collected in 1905). If the label information is correct, then this species is very rare on Madagascar and perhaps already extinct.


Tree up to 30(–40) m tall. Branches drying brown. Leafy twigs (1.5–)2–6 mm thick, glabrous, puberulous or densely whitish tomentose, periderm persistent or sometimes flaking off. Leaves articulate, lamina (broadly) ovate to elliptic or oblong, (5–)10–15.7(–20) by (2.8–)6–11 cm, coriaceous, apex acute to subacuminate, the acumen blunt or sharp, base cuneate to obtuse or rounded to subattenuate to (sub)cordate, both surfaces glabrous; lateral veins 8–14 pairs, the basal pair up to (1/10–)1/8–1/4(–1/3) the length of the lamina, sometimes branched, tertiary venation reticulate to partly parallel to the lateral veins; petiole (2.5–)3.5–8.5(–15) cm long, glabrous or whitish puberulous, epidermis persistent, sometimes flaking off at the apex or the base; stipules 0.5–0.9 cm long, glabrous or densely whitish puberulous to tomentose, persistent at the shoot apex and forming a terminal bud, epidermis of bud scales persistent. Figs axillary or below the leaves or on up to 0.5–1 cm long spurs on the older wood, solitary or in pairs or up to 4 on spurs, sessile or peduncle up to 2(–10) mm long, puberulous or tomentose; basal bracts 2–2.5 mm long, covering only the base of the receptacle, minutely puberulous, persistent; receptacle subglobose, 0.4–0.7(–1.2) cm diam. when dry, glabrous or puberulous or densely white tomentose to villose, white to pink to purple to black at maturity, apex convex or flat; ostiole 1–2 mm diam., upper ostiolar puberulous or densely white tomentose to villose.

Leafy twigs glabrous or puberulous. Lamina mostly (broadly) ovate, the basal lateral veins up to (1/10–)1/9–1/3 the length of the lamina; petiole glabrous, epidermis usually flaking off at the apex or the base; stipules glabrous or puberulous; basal bracts glabrous; receptacle glabrous. Figure 2-5E.

Distribution and Habitat—This variety is distributed in India, Bangladesh, China (Prov. Sichuan), Myanmar, Thailand, Laos, and Vietnam; in primary evergreen forest or partly open areas in mixed deciduous forest, on granite, sandstone or limestone bedrock, at altitudes up to 1,450 m.

Representative Specimens Examined—BANGLADESH. Chittagong: Kodala hill, 30 miles from Chittagong, Sep 1885, King 136 (K). CHINA. Sichuan: Kentschang, Tetschang, between Cungmuying–Loyao, 2 Apr 1914, Handel–Mazzetti 1094 (E). INDIA. Assam: Goalpara, Khasia hill, Jan 1886, Bernardi 14565 (K); Without locality, 11 Nov 1970, Cadet 2837 (P); Petite Plaine, Palmistes, 4 Mar 1971, Friedmann 1092 (K, P, U).


Ficus geniculata Kurz var. **abnormalis** Kurz, Forest Fl. Burma 2: 447, 1877.—LECTOTYPE (designated here): VIETNAM. Bago (Pegu), Kurz 3134b (lectotype: L).

Leafy twigs densely whitish puberulous or tomentose. Lamina ovate or elliptic to oblong; the basal lateral veins up to 1/6–1/3 the length of the lamina; petiole glabrous or whitish puberulous, epidermis persistent; stipules usually densely whitish puberulous to tomentose; basal bracts glabrous or minutely puberulous; receptacle densely white tomentose to villose.


Leafy twigs densely whitish puberulous or tomentose. Lamina ovate or elliptic to oblong; the basal lateral veins up to 1/6–1/3 the length of the lamina; petiole glabrous or whitish puberulous, epidermis persistent; stipules usually densely whitish puberulous to tomentose; basal bracts glabrous or minutely puberulous; receptacle densely white tomentose to villose.
**Distribution and Habitat**—This variety is distributed in India, Myanmar, Thailand, Cambodia, Vietnam, and Australia; in primary evergreen forest or partly open area in mixed deciduous forest, on granite, sandstone or limestone bedrock.


**Notes**—Corner (1975) identified some of the Australian figs as *Ficus viridescens* Aiton var. *dascypha*. These specimens show as dominant characters white tomentose to villose stipules and receptacles. However, all other characters are more in line with *Ficus geniculata* Kurz var. *insignis* (Kurz) C. C. Berg, thus we identified the specimens as *Ficus geniculata* var. *insignis*. The subspecies has once been photographed in Thailand, no herbarium collections have been made so far.


Tree up to 20–45 m tall. Branches drying (dark) brown. Leafy twigs 2–5 mm thick, glabrous or puberulous, periderm persistent or sometimes slightly flaking off. Leaves articulate; lamina ovate to elliptic to oblong, 3.2–13.5 by (1.2–)2–7.5 cm, (sub)coriaceous, apex acute to subacuminate, the acumen blunt, base cuneate to obtuse to rounded to (sub)cordate, both surfaces glabrous; lateral veins 8–12 pairs, often furcate away from the margin, the basal pair up to 1/10–1/5 the length of the lamina, unbranched, tertiary venation reticulate to partly parallel to the lateral veins; petiole 1.2–5.5 cm long, glabrous or puberulous, epidermis persistent; stipules 0.3–0.8 cm long, glabrous or puberulous, caducous or sometimes persistent at the shoot apex and forming a terminal bud. Figs axillary, solitary or in pairs; peduncle 0.4–0.8 cm long, glabrous or minutely puberulous; basal bracts ca. 1.5 mm long, caducous; receptacle subglobose, 1–2.1 cm diam. when dry, sometimes with a stipe up to 2 mm long, glabrous, surface usually wrinkled when dry, yellow to reddish purple or red at maturity, apex convex; ostiole 4–5 mm diam., upper ostiolar bracts glabrous; internal hairs absent. Stamine flowers near the ostiole, sessile or on a short pedicel; tepals 3(–4), oblong or ovate, free, reddish brown. Pistillate flowers sessile or pedicellate; tepals (2–)3(–4), ovate, oblong, or lanceolate, free, reddish brown; ovary dark red.

**Distribution and Habitat**—This species is distributed in northeast and east Australia; in rain forest, monsoon forest, limestone outcrops, deciduous vine thickets, or coastal dunes, at altitudes up to 1,000 m.


Tree, up to 28 m tall. Branches drying brown, glabrous, periderm persistent. Leafy twigs 4–9 mm thick, glabrous or sometimes brownish villose, periderm persistent or sometimes flaking off. Leaves not articulate; lamina obovate or elliptic–oblong, 10–25.5 by 5–17 cm, coriaceous, apex acute to subacuminate, the acumen blunt or sometimes lobed, base (sub)cuneate, subattenuate, or rounded, both surfaces glabrous; lateral veins 8–11 pairs, usually furcate away from the margin, the basal pair up to 1/5–1/3 the length of the lamina, sometimes branched, tertiary venation reticulate; petiole 2.1–8.1 cm long, glabrous, epidermis persistent; stipules 0.4–0.8 cm long, glabrous, persistent at the shoot apex and usually forming an ovoid terminal bud. Figs axillary or below the leaves, solitary or in pairs, sessile; basal bracts 4.5–11 mm long, united into a cup, glabrous, persistent; receptacle subglobose, 1.2–2.2 cm diam. when dry, wrinkled, glabrous, maculate, apex flat; ostiole 4–5 mm diam., upper ostiolar bracts glabrous; internal hairs absent. Stamine flowers
dispersed, sessile; tepals 4, elliptic, free, (dark) red brown. Pistillate flowers sessile; tepals 3–5, lanceolate, (dark) red brown; ovary sessile or stipitate, dark red to brown.

**Distribution and Habitat**—This species is distributed in North India, Nepal, China (Prov. Guizhou), and Vietnam; usually in forest on limestone, altitude between 500 and 2,000 m.


**Note**—This is one of the Asian species without an articulated petiole and the only species in this subsection with large basal bracts (4.5–11 mm long) that are united into a cup. The large, united bracts makes it distinct from *F. orthoneura*.


TYPE: SOUTH AFRICA. Cape prov., Queenstown Distr., Zwart Valley, Galpin 8173 (holotype: K).

Tree up to 15–20 m tall. Branches drying yellow brown to brown. Leafy twigs 2.5–6 mm thick, white or brown pubescent to tomentose to velutinous, periderm persistent or sometimes flaking off. Leaves not articulate; lamina ovate to lanceolate or elliptic to oblunget, (2.5–)5.5–13 (–20) by (2–)3.3–8–(11) cm, coriaceous, apex acute to acuminate, the acumen sharp or blunt, base obtuse, rounded, (sub)cordate, or truncate, both surfaces glabrous, lateral veins 7–11 pairs, usually furcate from the margin, basal pair up to 1/6–1/3 the length of the lamina, branched, tertiary venation reticulate; petiole (0.5–)1–4.2 cm long, glabrous, puberulous, or velutinous, epidermis persistent or sometimes flaking off; stipules 0.4–1.2 cm long, glabrous, puberulous or tomentose to velutinous, usually caducous. Figs axillary or just below the leaves, solitary or in pairs, sessile or with a peduncle up to 5 mm long, puberulous; basal bracts 1.5–2 mm long, puberulous, persistent, the apex lobed; receptacle subglabrous, 0.5–1.2 cm diam. when dry, glabrous, minutely puberulous, tomentose, or white to brown velutinous, whitish to pink to yellow or pale red to purple at maturity, apex flat or convex; dry, glabrous, persistent or sometimes flaking off; ostioles 2–3 mm diam., upper ostiolar bracts glabrous or minutely puberulous; internal hairs present. Staminate flowers near the ostiole, sessile or shortly pedicellate; tepals 2–3–4(–5), free or connate, reddish brown. Pistillate flowers usually sessile; tepals 3–4, ovate or broad lanceolate, free, reddish brown; ovary red brown.

Distribution and Habitat—This species is distributed in Senegal, Mali, Ivory Coast, Ghana, Benin, Niger, Nigeria, Cameroon, Gabon, Chad, Central African Republic, Congo, Sudan, Uganda, Rwanda, Burundi, Zambia, South Africa, Zimbabwe, Swaziland, Eritrea, Ethiopia, Kenya, Tanzania, Malawi, Mozambique, Djibouti, Somalia, Saudi Arabia, and Yemen; in grassland with scattered small trees or woodland remnants of evergreen forest, in very open places or in lowland (riverine) forest, at altitudes up to 1,700 m.


This species is distributed in Senegal, Mali, Ivory Coast, Ghana, Benin, Niger, Nigeria, Cameroon, Gabon, Chad, Central African Republic, Congo, Sudan, Uganda, Rwanda, Burundi, Zambia, South Africa, Zimbabwe, Swaziland, Eritrea, Ethiopia, Kenya, Tanzania, Malawi, Mozambique, Djibouti, Somalia, Saudi Arabia, and Yemen; in grassland with scattered small trees or woodland remnants of evergreen forest, in very open places or in lowland (riverine) forest, at altitudes up to 1,700 m.


Shrub or tree up to 8 m tall. Branches drying grey to brown. Leafy twigs 1.5–3 mm thick, brown, glabrous or puberulous, periderm persistent. Leaves not articulate; lamina (broadly) ovate, subovate, or oblong, 2–9(–12) by 1.5–6(–8) cm, apex subacute to acuminate, base cuneate to rounded to obtuse or subcordate, both surfaces glabrous; lateral veins 7–11 pairs, unbranched, the basal pair up to 1/5–1/4 the length of the lamina, tertiary venation reticulate and partly parallel to lateral veins; petiole 1–4.5 cm long, glabrous or minutely puberulous at the base, epidermis persistent; stipules 0.5–1 cm long, glabrous or puberulous, caducous. Figs axillary or just below the leaves, solitary or in pairs, subsessile or with a peduncle up to 3 mm long, glabrous or white puberulous; basal bracts 1.5–2 mm long, puberulous, persistent; receptacle subglobose, 0.6–0.8 cm diam. when dry, glabrous or puberulous, apex convex; ostiole 1.5–2 mm diam., upper ostiolar bracts glabrous; internal hairs present, minute and sparse. Staminate flowers near ostiole, sessile; tepals 3(–4), spatulate or ovate, usually free or sometimes connate at base, reddish brown. Pistillate flowers sessile or pedicellate; tepals 3(–4), ovate, lanceolate, or oblong, free, reddish brown; ovary red brown.

**Distribution and Habitat**—This species is distributed in Senegal, Guinea–Bissau, Mali, Ivory Coast, Burkina Faso, Nigeria, and Cameroon; in savannas, often near rocks, at altitudes up to 1,500 m.

A REVISION OF FICUS SUBSECTION UROSTIGMA (MORACEAE)

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Shrub or (large tree. Branches drying brown. Leafy twigs 1–3 mm thick, glabrous or minutely puberulous, periderm persistent or sometimes flaking off. Leaves not articulated; lamina ovate, 5–10(–5) by 2.5–6.5(–11) cm, (sub)coriaceous, apex acute to acuminate, the acumen blunt, base subcordate or obtuse to rounded, both surfaces glabrous; lateral veins 7–9 pairs, branched and often furlace away from the margin, the basal pair up to 1/5–1/3 the length of the lamina, usually branched, tertiary venation reticulate; petiole 1.5–5(–9.5) cm long, glabrous or puberulous, epidermis persistent; stipules 0.6–1 cm long, white puberulous to tomentose, persistent at the shoot apex and forming a terminal bud. Figs axillary, just below the leaves, or on up to 4 mm long spurs on the older wood, in pairs or solitary, subsessile or with a peduncle up to 1.5 mm long, puberulous to tomentose; basal bracts to 1.5 mm long, covering only the base of the receptacle, puberulous to tomentose or villose, margin usually ciliate, persistent; receptacle subglobose, 0.5–0.8 cm diam. when dry, glabrous or minutely puberulous, cream to orange at maturity, apex convex; ostiole ca. 2 mm diam., the upper ostiolar bracts glabrous, sometimes minutely puberulous, margin ciliate, internal hairs present. Staminodes near the ostiole, sessile or pedicellate; tepals 3–4, ovate or lanceolate, free or sometimes connate at base, reddish brown. Pistillate flowers sessile or pedicellate; tepals 3–4, ovate or lanceolate, free, reddish brown; ovary red brown. Figure 2–6.

Distribution and Habitat—This species is distributed in South India and Thailand; in scrub forest on limestone rocks, at altitudes up to 1,050 m. Figure 2–4.

Note—This species was always referred to *F. arnottiana*. However, we found many characters that are distinctively different, such as the position of the staminate flowers (only near ostiole), tepals mostly free, ovary of pistillate flowers red brown, and internal hairs present in the figs.


**Distribution and Habitat**—This species is distributed in China (Prov. Yunnan), Myanmar, Thailand, and Vietnam; on limestone, at altitudes between 200 and 1,700 m.


Notes—Berg and Corner (2005) mentioned that this species closely resembles F. saxophila (F. saxophila subsp. saxophila here), from which it differs in the presence of short peduncles and absence of indumentum on the basal and ostiolar bracts. However, the basal bracts of this species are only 1–2 mm long, while those of F. saxophila are much longer (2.5–4.5 mm).

The caudate leaf apex is rare and only known from two samples, Ridsdale SMHI 434 from Malapakan Isl. (Philippines) and Schram BW 14995 from Job Isl. (New Guinea).


Tree 15–20(–25) m tall. Branches drying dark brown. Leafy twigs 2–4 mm thick, glabrous or puberulous, drying brown, periderm persistent or sometimes flaking off. Leaves articulate; lamina ovate to elliptic to oblong, 5.5–13.5(–15.1) by 2.5–7.4 cm, (sub)coriaceous, apex acute to subacute, the acumen sharp or blunt, base cuneate, obtuse, rounded, truncate, or (sub)cordate, both surfaces glabrous; lateral veins 7–11 pairs, the basal pair up to 1/5–1/3 the length of the lamina, mostly branched, usually departing from the midrib at different distances from the base, the tertiary venation reticulate, partly parallel to the lateral veins; petiole 0.9–2.5(–3.7) cm long, glabrous or puberulous, epidermis persistent or sometimes flaking off at base; stipules 0.4–1.2 cm long, glabrous or puberulous, usually persistent at the shoot apex and forming a (narrowly) ovate to lanceolate bud, epidermis of bud scales persistent. Figs axillary or just below the leaves, solitary or in pairs, (sub) sessile or pedunculate up to 3 mm long, glabrous; basal bracts broadly ovate, 2.5–4 mm long, glabrous or puberulous, persistent; receptacle subglobose or subpyriform, 0.6–0.9 cm diam. when dry, reddish or purple to black at maturity, glabrous, apex convex or flat or concave; ostiole 2–3 mm diam., upper ostiolar bracts glabrous; internal hairs absent. Staminate flowers dispersed, sessile or shortly pedicellate; tepals 2–3, elliptic, free or connate, reddish brown. Pistillate flowers sessile or pedicellate; tepals (1–)2–3, elliptic, broadly ovate, free or connate, reddish brown; ovary red brown.

Distribution and Habitat—This species is distributed in Guam, Northern Mariana Isl., New Caledonia, Vanuatu, Nauru, Fiji, Niue, Cook Isl., and French Polynesia; in scrub forest, on rough limestone hill or on limestone cliffs, at low altitudes (up to 480 m).


Laminae foliorum acuminatae acumen acutum, venae basales laterales ad 0.1–0.67 lamiae longitudino eramosae. Fige axillaries admodum infra folia subessiles vel pedunculo ad 0.2 cm longo, bracteae basales persistentes, receptaculum subglobose 0.3–0.6 cm diam. i. s., sine pilis interioribus.

Tree, up to 20 m tall. Branches drying pale to dark brown. Leafy twigs 1–2 mm thick, glabrous. Leaves articulate; lamina oblong to elliptic to lanceolate, 5–11 by 1–4 cm, (sub)coriaceous, apex acuminate, the acumen sharp, base cuneate to rounded, both surfaces glabrous; lateral veins 8–10 pairs, the basal pair up to 1/10–1/6 the length of the lamina, mostly branched, the tertiary venation reticulate to partly parallel to the lateral veins; petiole 2–3 cm long, ca. 1 mm thick, glabrous, epidermis persistent; stipules 0.2–0.5 cm long, glabrous, persistent at the shoot apex and forming a terminal bud or sometimes caducous. Figs axillary or just below the leaves, in pairs or solitary, subessibles or with a peduncle up to 0.2 cm long; basal bracts 1.5–2 mm long, glabrous, persistent; receptacle subglobose, 0.3–0.6 cm diam. when dry, glabrous, turning from white to pink to purple at black at maturity, apex convex; ostiole 1–1.5 mm diam., slightly prominent to flat, the upper ostiolar bracts glabrous; internal hairs absent.
Staminate flowers near the ostiole, sessile; tepals 2–3, connate, reddish brown. Pistillate flowers sessile or pedicellate; tepals 2–3, ovate orspathulate, free, reddish brown; ovary red brown. Figure 2-7.

**Distribution and Habitat**—This species is distributed in Indonesia (endemic on Sulawesi); on limestone cliffs or rocks (and river banks). Figure 2-4.


**Note**—This species differs from *F. concinna* by the distinctly persistent basal bracts.


*Ficus caudata* Stokes, Bot. Mat. Med. 4: 358. 1812.—**TYPE:** Specimen gathered in Fothergill’s garden, Obs. 8388 (not found, LIV?, NMW).


*Ficus pependul Griff., Notul. 4: 393. 1854.—**TYPE:** INDIA. Assam, Tezpoor (not seen).


Tree up to 25(–35) m tall. Branches drying (dark) brown or yellow-brown. Leafy twigs 2–7 mm thick, glabrous or white puberulous. Leaves articulate; lamina ovate to cordiform, (5–)10–21(–27) by (2.5–)7–13.5(–17) cm, coriaceous, apex caudate, the acumen sharp, base cordate to cuneate to truncate to subattenuate, both surfaces glabrous; lateral veins 7–11 pairs, the basal pair up to (1/8–)1/7–1/5(–1/4) the length of the lamina, usually branched, tertiary venation reticulate to subscalariform; petiole (2.5–)4–10(–12) cm long, glabrous; stipules 0.5–1 cm long, glabrous or ciliate, caducous or sometimes persistent at the shoot apex and forming a terminal bud. Figs axillary or below the leaves, solitary or in pairs, sessile; basal bracts 3, 3–5 mm long, puberulous or ciliate, apex usually lobed, persistent; receptacle subglobose, 0.5–0.8 cm diam. when dry, glabrous, turning from pink to purple to black at maturity, apex convex to flat; ostiole 2–2.5 mm diam.; upper ostiolar bracts glabrous and ciliate; internal hairs absent. Staminate flowers near the ostiole, sessile; tepals 3–4, ovate or oblong, free, reddish brown. Pistillate flowers sessile; tepals (2–)3–4, lanceolate or oblong, free, reddish brown; ovary sessile or stipitate, red brown, dark at apex to pale at base.

**Distribution and Habitat**—This species is distributed in Pakistan, India, Nepal, Sri Lanka, Bhutan, Myanmar, Thailand (Northern), Laos, and Vietnam. Cultivated worldwide in tropical areas.

**Uses**—Ornamental plants that are cultivated worldwide. They are sacred trees in Hinduism and Buddhism. In Sri Lanka people use the bark for dyeing, it contains tannin and fibers; leaves for silkworm (Corner 1981).


**Note**—Berg and Corner (2005) mention that *F. religiosa* occurs in the northern part of Thailand. However, the specimens from Thailand were mainly collected on temple grounds (thus cultivated plants). Even when found outside the temples, then it remains unsure whether they occur naturally, are escaped, or are cultivated.
Distribution and Habitat—This species is distributed in Algeria, Niger, Libya, Congo, South Africa, Botswana, Egypt, Sudan, Zimbabwe, Uganda, Eritrea, Ethiopia, Kenya, Tanzania, Djibouti, Somalia, Saudi Arabia, Yemen, United Arab Emirates, and Oman; in woodland, often in rocky places, at altitudes up to 2,700 m.


Notes—This is the only species of the subsection that shows basal bracts persistent or sometimes caducous. Berg and Wiebes (1992) treated F. salicifolia as a subspecies of F. cordata. Here we reinstate its species status,
because of constant differences with *F. cordata* and *F. lecardii*. For more differences see the second note under *F. cordata*.

The figs are usually solitary or in pairs when axillary or they are in groups of up to 4 on a spur. However, two samples from Ethiopia; De Wilde 4718 and Jansen 4813 show up to 4 axillary figs and up to 6 on a spur.


Tree up to 35 m tall. Branches drying dark brown. Leafy twigs (1.5–)2–4.5 mm thick, glabrous or puberulous, periderm persistent. Leaves articulate; lamina ovate to elliptic, 3.5–22.5(–24) by 2–11.3(–15) cm, (sub)coriaceous, apex acuminate, the acumen sharp, base cordate to rounded, both surfaces glabrous; lateral veins 4–9 pairs, usually furlate away from the margin, the basal pair up to 1.5–1.7 times the length of the lamina, usually branched, tertiary venation reticulate to subscalariform; petiole 2–7 cm long, glabrous or puberulous; stipules 0.3–1 cm long, glabrous, puberulous or tomentose, persistent at the base; lamina articulated; lamina 10–25 cm long, puberulous; receptacle 0.6–0.9 cm diam. when dry, usually minutely puberulous. Figure 2-5H.

Distribution and Habitat—This subspecies is distributed in Vietnam, Thailand, Indonesia (Java, Lesser Sunda Islands, Sulawesi, Papua), Philippines, and Australia (Christmas Island, Indian Ocean); in coastal vegetation, often in rocky places, sometimes in forest, at low altitudes.


Leafy twigs 1.5–2 mm thick. Lamina cordiform, 3.5–10.6(–11.3) by 2–4.5 cm, petiole 1.5–2.8 cm long; stipules 0.5–0.6 cm diam. when dry, usually minutely puberulous. Figure 2-5H.

Distribution and Habitat—This subspecies is distributed in China (Prov. Guangxi), Thailand, and Vietnam; on limestone hills, at altitudes up to 350 m.
Shrub or tree up to 10(–15) m tall. Branches drying dark brown or gray brown. Leafy twigs (1.5–)2.5–8 mm thick, (sub)glabrous or white puberulous, periderm flaking off. Leaves articulate; lamina ovate to elliptic to oblong, 4–16(–24) by 2.9(–13) cm, (sub)coriaceous, apex acute to subacuminate, the acumen blunt, base rounded to obtuse to cuneate to subattenuate, rarely cordate, both surfaces glabrous; lateral veins (5–)7–11 pairs, the basal pair up to 1/10–1/4(–1/3) the length of the lamina, unbranched, tertiary venation reticulate to partly parallel to the lateral veins; petiole (1.5–)2.3–4.5(–7) cm long, glabrous or sometimes puberulous at the base, epidermis persistent or flaking off at the base of the glabrous petiole; stipules 0.3–1.1 cm long, puberulous, persistent at the shoot apex, usually forming an ovoid terminal bud. Figs usually on up to 0.5 cm long spurs on the older wood, sometimes also axillary or just below the leaves, 1–4 together but solitary or in pairs in the leaf axils; peduncle 0.1–0.8(–1.1) cm long, glabrous or minutely puberulous; basal bracts 1–2.5 mm long, glabrous, caducous; receptacle subglobose or subpyriform, 0.7–1.2(–1.4) cm diam. when dry, glabrous, surface wrinkled when dry, turning from whitish to pink to purple or black at maturity, apex flat to convex; ovary red or brown; ostiole 1.5–2.5 mm diam.; internal hair absent.

Note—See note under F. cauloarpa for differences. For differences with F. superba see note under latter.


Shrub or tree up to 7 m tall; leafy twigs (sub)glabrous. Lamina: lateral veins (5–)7–10 pairs, the basal pair up to 1/10–1/4 the length of the lamina; petiole glabrous or puberulous, epidermis persistent or sometimes flaking off at base; stipules 0.3–0.7(–1.1) cm long, (minutely) puberulous. Figs on spurs or axillary, up to 4 together; peduncle 0.1–0.7(–0.9) cm long, glabrous or whitish puberulous; basal bracts 1–2 mm long, glabrous; receptacle 0.7–1 cm diam. when dry; ostiole 1.5–2.5 mm diam.; internal hairs absent.

Distribution and Habitat—This subspecies is distributed in Myanmar, Thailand, Cambodia, Vietnam, Peninsular Malaysia, and Singapore; in evergreen or deciduous forest, at altitudes up to 1,400 m.


Cultivated—AUSTRALIA. New South Wales: Grafton, 11 Nov 1934, White 11158 (L).

Note—Only one specimen collected by de Vriese in the Moluccas (Seram). This is a strange gap in the distribution. However, the data on the labels of De Vriese are unreliable, but always collected in Indonesia, which means that there is always a disjunct distribution. On the other hand, the collected material may also be a cultivated specimen.


Tree up to 15 m tall; leafy twigs whitish puberulous. Lamina: lateral veins 9–11 pairs, the basal pair up to 1/5–1/3 the length of the lamina; petiole puberulous at base and this part usually flaking off; stipules 0.6–1.1(–1.5) cm long, densely puberulous. Figs mainly on spurs, up to 3 together; peduncle 0.3–0.8(–1.1) cm long, whitish puberulous; basal bracts 1.5–2.5 mm long, glabrous or minutely puberulous; receptacle 0.8–1.2(–1.4) cm diam. when dry; ostiole 2–3 mm diam.; internal hairs present, minutely and sparse. Figure 2-5A.

Distribution and Habitat—This subspecies is distributed in Myanmar, Thailand, Cambodia, Vietnam, Peninsular Malaysia, and Singapore; in evergreen or deciduous forest, at altitudes up to 1,400 m.


**Ficus tenuiips** S. Moore, J. Bot. 63, suppl.: 107. 1925.—TYPE: TIMOR.

Kailakuk, S. Moore 3771 (holotype: BM).


**Urostigma accedens** Miq., Fl. Ind. Bat. 1, 2: 347. 1859.—TYPE: INDONESIA. Timor (not found yet).

Tree up to 30 m tall. Branches drying brown to blackish. Leafy twigs (3–)4.5–12 mm thick, subglabrous or white puberulous. Leaves articulate; lamina ovate to oblong to elliptic to obovate, (6–)9–25–(27.8) by (3–)5.1–13.6 cm, subcoriaceous, apex (sub)acuminate, the acumen blunt, base rounded to cuneate or subcordate, both surfaces glabrous; lateral veins (6–)7–9–11 pairs, usually furcate away from the margin, the basal pair up to 1/7–1/3 the length of the lamina, sometimes branched, tertiary venation reticulate to partly parallel to the lateral veins; petiole 4–14.5–(20) cm long, glabrous or sometimes puberulous at the base, epidermis persistent; stipules 0.5–1.6–(2.7) cm long, densely white woolly–tomentose, persistent and forming an ovoid terminal bud or sometimes all of them caducous. Figs on up to 0.6–1.2 cm long curved spurs on the older wood, up to 5 together; peduncle 0.6–1.6 cm long, densely puberulous; basal bracts 2–5 mm long, puberulous, caducous; receptacle subpyriform or subglobose, (0.8–)1.1–1.5 cm diam. when dry, glabrous or usually white tomentose, and the surface wrinkled, white to pink to purple to black at maturity, apex convex; ostiole 2–3 mm diam., upper ostiolar bract glabrous; internal hairs absent. Staminate flowers near the ostiole, sessile or pedicellate; tepals 2–3, connate, reddish brown. Pistillate flowers sessile or pedicellate; tepals 2–3, ovate or lanceolate, sometimes connate, reddish brown; ovary dark red. Figure 2–SB.

**Distribution and Habitat**—This species is distributed in Thailand, Cambodia, Malaya Peninsula, Singapore, Indonesia (Sumatra, Java, Lesser Sunda Islands), Timor Este; in coastal forest and monsoon forest, often in rocky places, at low altitudes.


**Notes**—This species is usually confused with *F. subpisocarpa*, but can easily be distinguished by the densely, white woolly–tomentose stipules and the up to 5 figs on long curved spurs (stipules puberulous, up to 4 figs on short spurs in *F. subpisocarpa*). Specimen Verheijen 4185 from Sumba, Indonesia, shows a densely brown instead of white tomentum on the receptacle.


Tree up to 25 m tall. Branches drying dark brown. Leafy twigs (1.5–)3–5 mm thick, glabrous, brown, periderm persistent. Leaves articulate; lamina ovate to oblanceolate 8.5–18.2 by 3.7–7.6 cm, coriaceous, apex caudate or acuminate, the acumen blunt, base cuneate, obtuse, or rounded, both surfaces glabrous and upper surface usually shining; lateral veins 8–14 pairs, the basal pair up to (1/7–)1/4–1/3 the length of the lamina, unbranched, tertiary venation reticulate; petiole 1.9–4.5 cm long, glabrous, epidermis persistent; stipules 0.5–1.5 cm long, glabrous, persistent at the shoot apex and forming a terminal bud. Figs just below the leaves or on 1–3 mm long spurs on the older wood, solitary, in pairs or up to 8 together on the spurs, sessile; basal bracts 2–2.5 cm long, glabrous, apex usually lobed, persistent; receptacle subglobose or depressed–globose, 4–7 mm diam. when dry; glabrous, apex convex or flat; ostiole 1.5–2 mm diam., upper ostiolar bracts glabrous; internal hairs absent. Staminate flowers near the ostiole, sessile; tepals 2–3, ovate or broadly lanceolate, free, red brown. Pistillate flowers sessile or pedicellate; tepals 3–4, ovate or broadly lanceolate, free, red brown; ovary red brown.

Distribution and Habitat—This species is distributed in India, Sri Lanka; in open grassland and areas with rocky woodland, along streams or in swamps as a low bush, altitudes up to 1,200 m.


Shrub or small tree up to 5 m tall. Branches drying brown to dark brown. Leafy twigs 1.5–3.5(–5) mm thick, glabrous, puberulous or tomentose, periderm persistent. Leaves not articulate; lamina ovate, elliptic, oblong or lanceolate, 3.5–13.5(–20) by 1.4–5.3(–8.5) cm, coriaceous, apex (sub)acute to obtuse to rounded, base obtuse to rounded to subcordate; both surfaces glabrous, the upper surface usually shining; lateral veins 8–13(–16) pairs, the basal pair up to (1/10–)1/6–1/3 the length of the lamina, unbranched, tertiary venation reticulate, partly parallel to lateral veins; petiole 0.4–2(–3) cm long, glabrous or minutely puberulous, epidermis persistent; stipules 0.3–1.5 cm long, glabrous or puberulous, persistent at the shoot apex and forming a terminal bud or caducous. Figs axillary, just below the leaves or on short spurs on the older wood, solitary or in pairs or up to 4 together on the spurs; peduncle 0.2–0.5 cm long, glabrous or puberulous; basal bracts 1–1.5 mm long, glabrous or puberulous, persistent; receptacle subglobose, 0.5–1 cm diam. when dry, glabrous or minutely puberulous, surface wrinkled when dry, dark purple to dark red at maturity, apex flat or convex; ostiole ca. 2 mm diam., upper ostiolar bracts ciliate; internal hairs absent. Staminate flowers near the ostiole, sessile; tepals 2–3, ovate or spatulate, free, reddish brown. Pistillate flowers sessile or pedicellate; tepals 2–3(–4), ovate or lanceolate, sometimes connate at the base, reddish brown; ovary red brown.

Distribution and Habitat—This species is distributed in Guinea, Benin, Nigeria, Cameroon, Chad, Congo, Angola, Namibia, South Africa, Botswana, Zambia, Zimbabwe, Uganda, Rwanda, Burundi, Kenya, Tanzania, Malawi, and Mozambique; in open grassland and areas with rocky woodland, along streams or in swamps as a low bush, altitudes up to 1,200 m.


Ficus pilasbi Sm. in Rees, Cycl. 14: n. 3. 1810.—TYPE: NEPAL. Narian Hetty, Dec 1802, Buchanan s.n. (holotype: K, photograph).
Ficus infrafoliacea Sm. in Rees, Cycl. 14: n. 31. 1810.—TYPE: NEPAL, Buchanan s.n. (holotype: K, photograph).


Ficus infectoria J. D. Hooker s.n. 1921.—TYPE: INDIA. India orientali legio, Heyne 1814 (isotype: L).

Ficus nesophila Ficus infectoria

Ficus infectoria Ficus caulobotrya

Urostigma infectorium Miq. 1848.–TYPE: Herb. F. (Buchanan) Ficus lacor (not found yet).

Ficus scandens 1788.—TYPE: ad Matsiae pagos; information based on Berg and Corner 2005 Ficus terminalis TYPE: INDIA. Bengal, J. D. Hooker s.n. (holotype: K).

Ficus fraseri var. Urostigma fraseri Cunningham s.n. 1921.—TYPE: AUSTRALIA. Queensland, Brisbane River, 1829, Fraser 73.—TYPE: AUSTRALIA. Queensland, Bremer River, 1829, Fraser 704 (holotype: K).


Tree up to 35 m tall. Leafy twigs 1–5 mm thick, glabrous or puberulous, periderm persistent or sometimes flaking off. Leaves articulate; lamina ovate to elliptic to lanceolate to obovate, 5.2–18.5 (−20) by 2.5–8.5 (−9.5) cm, (sub) coriaceous, apex (sub)acuminate, acute, or obtuse, base cuneate, cordate, obtuse, or subattenuate, both surfaces glabrous; lateral veins 8–12 (−15) pairs, sometimes furcate away from the margin, the basal pair up to 1/10–1/5 (−1/2) the length of the lamina, unbranched or sometimes branched, tertiary venation reticulate to subscalariform; petiole 1.6–6.1 cm long, glabrous, epidermis persistent; stipules 0.25–1.5 cm long, glabrous, puberulous or white tomentose or villose, caducous or sometimes persistent at the shoot apex and forming an ovoid terminal bud. Figs axillary, just below the leaves, or on up to 0.5 cm long spurs on the older wood, solitary, in pairs, or up to 4 together on the spurs, sessile or with a peduncle up to 2.5 (−10) mm long, glabrous or minutely puberulous; basal bracts 1.5–4 mm long, covering only the base of the receptacle, glabrous or (minutely) puberulous, persistent; receptacle subglobose (or depressed–globose), 0.4–1.5 cm diam. when dry, surface usually wrinkled, glabrous or minutely puberulous at the apex to white tomentose or villose, turning from white to pink, purple, or black at maturity, apex convex to flat; ostiole (1–)2–4 mm diam., the upper ostiolar bracts glabrous or puberulous; internal hairs present. Staminate flowers near the ostiole or dispersed, sessile or with a short pedicel; tepals 3–4 (−5), ovate

**FIGURE 2-9. Ficus virens Aiton var. matthewii** Chantaras. (Moraceae).–a. Twig with figs; b. Fig; c. Basal bracts; d. Ostiole; e. Fig in longitudinal section; f. Stamen; g. Staminate flower with free tepals; h. Ovary; i, j. Pistillate flowers. [K. M. Matthew RHT 50937 (L)]. Drawing: Anita Walsmit Sachs, 2011.
or lanceolate, or sometimes connate, reddish brown. Pistillate flowers sessile or pedicellate; tepals 3–4–(5), lanceolate, free or sometimes connate, reddish brown; ovary red brown.

**Note**—Aiton (1789) thought that the type of *F. virens* was introduced from the West Indies in Kew about 1762 by James Gordon, but Corner (1959) believes that Aiton was erroneous. Up to now, the origin of the type is still unclear.

### 27.1 *Ficus virens* Aiton var. *virens*


Lamina usually broadest below the middle; base (sub)cordate, cuneate, obtuse, or subattenuate; lateral veins usually furcate away from the margin, basal lateral veins up to 1/8–1/4(–1/2) the length of the lamina, usually branched; stipules 0.25–1.1 cm long, glabrous or puberulous. Figs axillary, just below the leaves, on short spurs, solitary or in pairs; basal bracts 1.5–3 mm long, minutely puberulous, margin ciliate, apex usually lobed; receptacle 0.4–0.9(–1.2) cm diam. when dry, glabrous or puberulous; ostiole (1–)2–3 mm diam., upper ostiolar bracts puberulous. Stamine flowers near the ostiole, tepals free.

### Distribution and Habitat

This variety is distributed in North India, Nepal, Sri Lanka, Bhutan, China (Prov. Yunnan, Hainan, Hong Kong), Myanmar, Thailand, Peninsular Malaysia, Indonesia (Sumatra, Java, Sulawesi, Lesser Sunda Islands, Moluccas), Laos, Vietnam, Micronesia, Timor Este, Papua New Guinea, and Australia; in open secondary shrubbery on calcareous soil, in evergreen forest or deciduous forest.

### Representative Specimens Examined—AUSTRALIA.


### Note

We found this variety to be the most variable taxon in all morphological characters, e.g. (1) leaf size: smallest (*Schmutz SPF 4030*, Flores, 4.1–7.5 by 1.3–3 cm, largest (*Delacay s.n.*, Yunnan)13–21 by 5.6–9.5 cm; (2) Peduncle; sessile to up to 1 cm long in Shetty 1304 (India); (3) Diameter of receptacle; smallest (*Corner SFN 37819*, Lankawi) 0.4–0.5 cm diam., largest (*Wight KD 2635*, India) 1.1–1.2 cm diam.; and (4) Most receptacles are glabrous, but *Wiriadinata 2037* (Java) is pubescent.
Stipulae gemmas ovoideas terminales formantes, epidermis desquamantes. Flores masculi aut numerosi tum prope ostiolum pauci dispersi aut interdum pauci et tantum prope ostiolum.

Lamina ovate to lanceolate, base cuneate to round to subcordate; basal pair of veins up to 1/6–1/4(–1/3) the length of the lamina, sometimes branched; petiole 1–3(–5.5) cm long, epidermis persistent; stipules 0.3–0.9 cm long, glabrous or puberulous, forming an ovoid terminal bud, epidermis of bud scales flaking off. Figs axillary, just below the leaves, or on short spurs, solitary or in pairs; basal bracts 2–3 mm long, glabrous or minutely puberulous, apex usually lobed; receptacle 0.5–0.9 cm diam. when dry; ostiole 2–2.5 mm diam., upper ostiolar bracts glabrous. Staminate flowers abundant around the ostiole and a few dispersed or a few near the ostiole only; tepals usually connate. Figure 2-8.

**Distribution and Habitat**—This variety is distributed in Malaysia (Sabah), Indonesia (Borneo, Moluccas, Papua), Timor Este, Papua New Guinea, East Australia, Solomon Isl., New Caledonia, Vanuatu, and Micronesia; in rain forest, swamp forest, at low altitudes or up to 1,600 m in New Guinea.


**Note**—Typical for this variety is the presence of a few staminate flowers dispersed throughout the fig instead of only numerous staminate flowers around the ostiole. In this respect it resembles *F. prolixa*, but most characters are consistent with *F. virens*.

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Lamina mostly obovate or elliptic; base cuneate or subattenuate; basal lateral veins up to 1/6–1/4 the length of the lamina, unbranched; petiole 1.6–2.5 cm long, epidermis usually persistent; stipules 0.2–0.7 cm long, glabrous or puberulous, usually forming an ovoid terminal bud, epidermis of bud scales usually flaking off. Figs axillary, just below the leaves, or on 3–4 mm long spurs, solitary, in pairs, or up to 3 together on spurs; basal bracts 1.5–2 mm long, glabrous; receptacle 0.6–0.8 cm diam. when dry, glabrous or puberulous; ostiole (1–)2–3 mm diam., upper ostiolar bracts glabrous. Stamine flowers near the ostiole; tepals connate. Figure 2-5G.

**Distribution and Habitat**—This variety is distributed in Thailand, Vietnam, Malaysia, throughout Indonesia, Philippines, Timor Este, Papua New Guinea and Australia; in evergreen forest, deciduous forest, or secondary forest, at altitudes up to 800 m.


**Note**—This variety shows a distinctive larger receptacle, (1.1–)1.2–1.5 cm diam., than the other varieties.

### Taxonomic treatment of *Ficus* sect. *Leucogyne*


Growth intermittent. Leaves not articulate, with cystoliths at both sides of the lamina. Figs with (2)3 basal bracts; staminate flowers dispersed, usually pedicellate; pistille flowers with white ovaries.

**Note**—*Leucogyne*, containing two Indian species (*F. amplissima* and *F. rumphii*), was often placed in subsection *Urostigma* (e.g., Berg and Corner 2005). Berg (1989) already indicated the weak morphological difference between *Leucogyne* and *Urostigma*. However, molecular studies (Runston 2005, 2008) show that *F. rumphii* is embedded within section *Conosycea*. The two species differ from subsection *Urostigma* (see description), with which they mainly share the intermittent growth. They are pollinated by a special group of fig wasps, formerly the genus Maniella (see Wiebes 1979; Berg 1989), now called *Eupristina* subgenus *Parapristina* (Berg and Corner 2005: 603, *Leucogyne* erroneously called ‘*Leucocybe’*). Species of this group also pollinate some species in subsection *Conosycea*, another argument to place the species in this subsection, because subsection *Urostigma* is pollinated by figs from the genus *Platycepa*. We refrain from placing the two species already in subsection *Conosycea*, because we first like to see *F. amplissima* sampled for phylogenetic analyses and a proper revision of *Conosycea*.


**Note**—Corner (1965) mentions that the Australian *Urostigma* canaliculatum Miq. is a synonym of *Ficus viries* Aiton var. *glabella*. However, so far no Australian specimens were found, thus we follow Corner with caution as the type specimen is not (re)found yet.

**TYPE:** INDIA. Luddaloor, Wight s.n. in Herb. Rupel (holotype: K).


Tree up to 20 m tall. Branches drying grey–brown to brown, periderm flaking off or sometimes persistent. Leafy twigs 2.5–4 mm thick, glabrous, periderm flaking off. Leaves not articulate; lamina elliptic to ovate, 5.5–13.5(–17) by 3.2–7.5(–8.5) cm, coriaceous, apex acute to acuminate, the acumen blunt, base attenuate to cuneate to obtuse to rounded, both surfaces glabrous; lateral veins 8–10 pairs, the basal pair up to 1/4–1/2 the length of the lamina, sometimes branched, tertiary venation reticulate to partly parallel to the lateral veins; petiole 3.5–7 cm long, glabrous, epidermis persistent; stipules 1.3–1.5 cm long, glabrous or minutely puberulous, usually caducous, sometimes persistent at the shoot apex and forming a terminal bud. Figs axillary or just below the leaves, solitary or in pairs, sessile; basal bracts 3, 1–1.5 mm long, glabrous, persistent; receptacle obovate or subpyriform, 0.8–1 cm diam. when dry, glabrous, purple at maturity, apex flat; ostiole 1–1.5 mm diam., upper ostiolar bract glabrous; internal hairs absent. Staminate flowers dispersed, usually pedicellate; tepals 2–3, ovate or spatulate, free, red brown. Pistillate flowers sessile or pedicellate; tepals 2–3, ovate, free, red brown; ovary white.

**Distribution and Habitat**—This species is distributed in South India and Sri Lanka; in evergreen forest, in rocky places, at altitudes up to 1,000 m.


**Note**—Ramamoorthy and Gandhi (1976) described 4 basal bracts. We only found 3, however, bracts may be deeply lobed and erroneously appear to be an extra bract.


**Distribution and Habitat**—This species is distributed in India, Nepal, Bhutan, Bangladesh, Myanmar, Thailand, Laos, Cambodia, Vietnam, and Indonesia (Java, Moluccas, Lesser Sunda Islands); in coastal and inland forest, often in rocky places (limestone), at altitudes up to 380 m.


Note—This species is often confused with F. religiosa, but differs in the acute, acuminate or cuspitate leaf apex, lateral veins 5–8 pairs, the basal pair up to 1/3–2/3 the length of the lamina, basal bracts of the fig 1–2 mm long (versus apex caudate, lateral veins 7–11 pairs, the basal pair up to (1/8–)1/7–1/5(–1/4) the length of the lamina, basal bracts 3–5 mm long in F. religiosa).

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