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NEW TAXA OF FICUS (MORACEAE) 2

E. J. H. CORNER
Botany School, University of Cambridge, U.K.

SUMMARY

New taxa. — *Ficus virens* var. *dasycarpa var. nov.* (subgen. *Urostigma*, Western Australia); *F. microtophora sp. nov.* and *F. otophoroides sp. nov.* (subgen. *Pharmacosycea*, New Caledonia); *F. podocarpifolia sp. nov.* (subgen. *Ficus* sect. *Sycidium*, Western Australia); *F. nana sp. nov.* (subgen. *Ficus* sect. *Sycocarpus*, New Britain).

Notes are given on some other New Caledonian species of subgen. *Pharmacosycea*. The position of *F. lepicarpa* (west Malesia) is discussed.

The following new taxa have been numbered in accordance with my check-list of *Ficus* (Corner 1965).

10d. Ficus virens Ait. var. **dasycarpa** *var. nov.* (subgen. *Urostigma*)

Ut *F. virens* var. *virens* sed syconiis pilis albis usque ad 0.5 mm longis dense villosis; pedunculo 0.5—2 mm longo, subvilloso; bracteis basalibus 3, glabris vel carina puberula; ramulis stipulisque glabris vel minute et sparsim puberulis. Australia occidentalis.

WESTERN AUSTRALIA. *J. Thompson s.n.* Sept. Oct. 1964, Hamersley Range, Dale Gorge (*type*, UWA, 2 sheets); *A. S. George 1053*, 25 Aug. 1960, Dale Gorge.
ARNHEM LAND. *D. Thomson 112* (BRI), without precise locality).

I make this variety, trifling though it may seem, because it raises yet again the distinction between *F. lacor* Buch. Ham. of India and the very wide-spread *F. virens* (India and China to the Solomon Islands and northern Australia); they have been much confused. *F. lacor* has villous twigs, stipules, and figs, whereas *F. virens* (of which I have seen several hundred specimens as well as many living trees) is glabrous or has finely puberulous stipules. Thus *F. lacor* connects with the African *F. ingens* Miq., which seems to me identical, but I have not investigated in detail the African species of *Ficus*. If the complex is united, the earliest name is *F. virens*.

If var. *dasycarpa* occurred in India, then it would be a variety of *F. lacor* with glabrous twigs. It is tempting to suppose that *F. ingens*, *F. lacor*, and this var. *dasycarpa* are the remains of the ancestor of sect. *Urostigma* on Gondwanaland, but none of them occurs in Madagascar or Ceylon, which has *F. virens*. Hence I regard *F. virens* var. *dasycarpa* as the recurrence of an ancestral gene in Australia, comparable with *F. caulocarpa* var. *dasycarpa* in the Philippines and *F. concinna* var. *dasycarpa* in central India. Hairiness is a variable feature in *Ficus*, where the glabrous state is the derivative, and we do not know how the gene or genes for hairiness are lost or suppressed. The hairs on the outside of the figs of *F. lacor* and *F. virens* var. *dasycarpa* are partly smooth, narrow, aseptate hairs with slightly

thickened walls, or tending to the inflated and thin-walled hairs which make the chaffy internal bristles.

Of the three collections of *F. virens* var. *dasycarpa* the type has stiffly coriaceous leaves, as may occur in *F. virens*. The others have the more usual thinly coriaceous leaves.

subgen. **Pharmacosycea**

The indefatigable botanists of O.R.S.T.O.M., New Caledonia, continue to send me numerous collections of *Ficus* from which I describe here two new species with the remarkable auricled leaf-base as in *F. otophora*, and I add some critical notes on other species. When I summarised recently the knowledge of this subgenus in New Caledonia (Corner 1970a), I did not suppose that more species would be discovered. Yet here are two astonishing additions with that curious feature of the lamina which suggests the relic of the pinnate leaf of ancestral *Ficus*. I find that in leaf-form, texture and venation, in the presence of internal bristles, and in the sessile or shortly pedicellate male flowers, the two new species are related with *F. auriculigera* Bur. rather than with *F. otophora* Corner & Guillaumin. In *F. microtophora* the lower part of the lamina is dentate. This feature occurs also in various other species of the subgenus, often in their large sapling leaves, e.g. *F. callosa*, *F. asperula*, *F. pancheriana*, *F. webbiana* and, as I now add, *F. auriculigera*. The toothed leaf-base suggests that the free auricle is the detached leaf-base but, as this implies an intercalary suppression of the lamina in the way that pinnae develop, it is possible that the toothed leaf-base represents the reduced basal pinnae confluent with the lamina. Young developing leaves have not been available for study; it would be interesting to know how, in the acropetal succession of main veins along the midrib, these auricular pinnae fit.

F. microtophora and *F. otophoroides* are certainly close. They differ mainly in size and, in such cases, the question arises whether the smaller *F. microtophora* is not merely an older and more ramified state of the larger *F. otophoroides*. Fortunately, field-notes make this clear. The first is a branching shrub 1.5 m high; the second is always an unbranched pachycaul treelet 2—3 m high. Actually, *F. microtophora* recalls sapling *F. webbiana*, though this has a narrowly oblong and shortly acuminate leaf (Corner 1970a, fig. 22). It looks, nevertheless, that *F. webbiana* may be the end of a long line of leptocaul evolution that leads through *F. auriculigera* from the ancestor of *F. microtophora* and *F. otophoroides* which had, presumably, an acuminate leaf. In contrast, the line of *F. otophora* may be connected with *F. habrophylla*.

KEY TO THE SPECIES WITH BASAL AURICULAR PINNAE

1a. Lamina subacuminate, drying brown; lateral veins curved, ascending, without axillary glands. Fig shortly pedunculate, rather long pedicellate; body 13×20 mm (dried), depressed globose; internal bristles none. Male flowers clearly pedicellate. Cuticle of lamina not striate on the underside. Cystoliths amphigenous or hypogenous . . . . . **F. otophora**

b. Lamina rounded-obtuse at the apex, drying greenish ochraceous; lateral veins straight. Fig not depressed globose; internal bristles conspicuous to few and minute. Male flowers sessile or very shortly pedicellate, shorter than the pedicellate gall-flowers. Cuticle striate on the underside of the lamina. Cystoliths hypogenous. 2

2a. Primary stem 10 mm thick. Lamina 33—67×7—23 cm, entire; lateral veins 17—24 pairs, without axillary glands; auricular pinnae 10—20 mm wide, entire or toothed. Fig 25—35 mm wide (dried), pyriform; peduncle 0—4 mm long . **F. otophoroides**

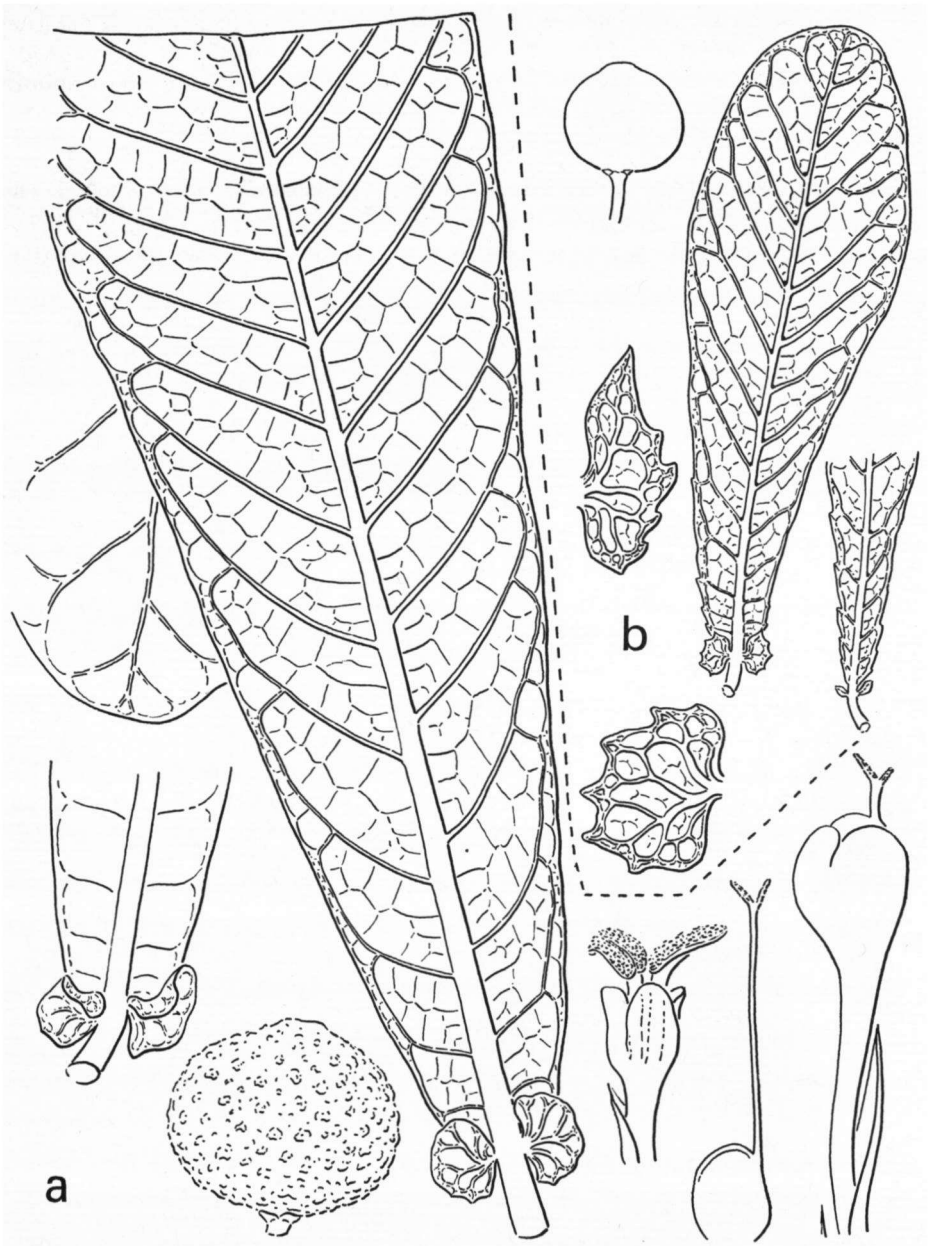

Fig. 1. a. *Ficus otophoroides* with large leaf (X 0.5), fig (X 1), and flowers (X 10), *Schmid 3451*. — b. *F microtophora* with leaves (X 0.5), auricles (X 2), and fig (X 1), *McKee 22512*.

b. Primary stem 3—4 mm thick. Lamina 16—20 × 4—6 cm, dentate towards the base; lateral veins 12—15 pairs, with axillary glands; auricular pinnae up to —10 mm wide, dentate. Fig with peduncle 6—8 mm long. . . . . **F. microtophora**

124A. F. otophoroides *sp. nov.* — Fig. 1a.

Frutex 1.5—3 mm altus, pachycaulis, haud ramosus, plus minus glaber. Lamina 33—67 × 7—23 cm, elongato-obovata obtusa coriacea, ad basim auriculis liberis ut in *F. otophora* integris vel denticulatis; costis lateralibus utrinsecus 17—24. Syconium 25—35 mm latum (siccum); pedunculo 0—4 mm longo; pedicello 0—5 mm longo; setis internis sparsis vel numerosis. Flores masculi dispersi, sessiles vel breviter pedicellati; stamina 2. Cystolitha hypogena. — Typus: *M. Schmid 3451*, New Caledonia (CGE).

Shrub —3 m high, pachycaul, unbranched; leaves spirally arranged; adult parts glabrous. Twig *c.* 10 mm thick. Stipules? caducous. *Lamina* 33—67 × 7—23 cm, elongate-obovate or lanceolate-obovate, apex broadly rounded with dichotomous tip to the midrib, obtuse, entire but sinuous, base narrowed cordate-subauriculate with two small free auriculiform pinnae, coriaceous, smooth, drying light ochraceous greenish above and below; pinnae as in *F. otophora*, with 2—3 slight teeth on the basiscopic side, or with 4—6 teeth spaced along the outer edge; lateral veins 17—24 pairs, strongly raised below, scarcely raised above, oblique but fairly straight, without axillary glands; intercostals 6—9, often zig-zag; basal veins 2 or 3 pairs, short; petiole 10—25 × 6—7 mm, short, stout. *Figs* axillary, subsessile or shortly stalked, large, glabrous; peduncle 0—4 mm long, stout; basal bracts 3, 2—3.5 × 5 mm, rounded or subacute; pedicel 0—5 mm; body 25—35 mm wide (dried), subpyriform, closely and coarsely lenticellate, without lateral bracts, apex with a rosette 6—7 mm wide composed of small apical bracts; fig-wall rather thin, 1.5—2 mm (dried), up to 5 mm thick in specimens soaked in water, with very sparse sclerotic cells; internal bristles few, minute (*Schmid 3451*) to rather abundant and up to 0.6 mm long (*McKee 25375*), pale brown. *Flower*-pedicels glabrous or sparsely bristly near the base. Male flowers disperse, frequent, sessile to shortly pedicellate, shorter than the pedicellate gall-flowers; perianth more or less wholly gamophyllous with 2 or 3 short, obtuse or acute, lobes; stamens 2. Gall- and female flowers sessile or pedicellate; perianth as in the male; stigma bifid. *Seed* slightly keeled. *Cystoliths* hypogenous. *Cuticle* on the lower side of the lamina distinctly plicate-striate. *Stomata* superficial.

New Caledonia. *M. Schmid 3451*, 27 Oct. 1970, rte Farino-Col d'Amieu, 400 m; *H. S. McKee 25375*, 27 April 1972, Ponérihuen, Mt. Aoupinié, 900—1000 m; *H. S. McKee 26815*, same locality, 20 June 1973.

The three collections are almost identical. I sent two dried insects, extracted from *McKee 25375*, to Professor J. T. Wiebes who reported 'One is a female *Blastophaga*, badly preserved; the other is a female of *Grasseiana*, related to the species from *Ficus dzumacensis* and *F. callosa*. So, I would have been able to identify the fig on the wasp (parasite, in this instance) as a species of *Pharmacosycea*'.

124B. F. microtophora *sp. nov.* — Fig. 1b.

Frutex usque ad 1.5 m altus, ramosus, mox glaber; caule primario 3—4 mm crasso. Lamina 16—20 × 4—6 cm, anguste obovata, obtusa coriacea, basim versus dentata; pinnis auriculiformibus 3—10 mm latis, 4—7 dentatis; costis lateralibus utrinsecus 12—15. Syconium 12—16 mm latum (immaturum siccum); pedunculo 6—8 mm longo; pedicello nullo; setis internis sparsis minutis. Flores masculi dispersi sessiles; stamina 2. Cystolitha hypogena. — Typus: *H. S. McKee 22512*, New Caledonia (CGE).

Shrub up to 1.5 m high, branched; leaves spirally arranged. Young twigs and stipules minutely appressed white puberulous, soon glabrous. Twigs 3—4 mm thick. Stipules

10 mm long, caducous. *Lamina* 16—20×4—6 cm, narrowly obovate, narrowed to the obtuse apex with minutely dichotomous midrib, base cuneate, entire except for 3 or 4 subacute teeth on either side towards the base, coriaceous, smooth, drying greenish above, ochraceous beneath; pinnae 2, 3—10mm wide, auriculiform, plane, with 4—7 short teeth, 3 main veins, sessile; lateral veins 12—15 pairs, slightly raised below, not above, with a conspicuous gland in the axils; intercostals 2 or 3, vague, zig-zag; basal veins 1 pair, short; petiole 8—12×2—3 mm. *Figs* axillary, glabrous; peduncle 6—8 mm long; basal bracts 3, 1×2—2.5 mm, small (? caducous), seated on short projections of the dried peduncle; pedicel 0; body 12—16 mm wide (dried, immature), subglobose, without lateral bracts, orifice sunken; fig-wall with very few sclerotic cells; internal bristles very few, minute. *Flower*-pedicels glabrous, rarely with a single bristle. Perianth of all flowers extensively gamophyllous with 3 or 4 obtuse lobes. Male flowers disperse, sessile, frequent; stamens 2. Gall- and female flowers sessile or pedicellate; stigma bifid. *Cystoliths* hypogenous. *Cuticle* on the lower side of the lamina finely plicate-striate. *Stomata* superficial.

New Caledonia. *H. S. McKee 22512*, 22 Sept. 1970, reserve Col d'Amieu, Hte Boghen—Col Toma, 400 m, in the forest, rare.

125. F. auriculigera Bur.

(1) Collections: *H. S. McKee 26653*, 29 April 1973, Houailou-Ho, in forest-remains on serpentine terrain; *M. Schmid 2979*, 10 Sept. 1969, Monio, burnt scrub.

Both collections agree generally with *F. auriculigera* but have persistent stipules (12—20×4—6 mm). This feature is often specific in *Ficus*; yet it may be only a feature of newly extended shoots which the thinly coriaceous leaves of both collections suggest. The petiole is short (5—12 mm long). The flower-pedicels are bristly in *McKee 26653* (as in *F. asperula*) but in *Schmid 2979* they are bristly only at the base, if at all. In both the male flowers are pedicellate (as in *F. asperula*). The figs have a short peduncle (2—4 mm long) but no pedicel.

(2) Collections: *M. Schmid 4379*, 20 July 1972, south-east of Koniambo, 850 m, in low and open scrub on peridotite slope; *A. Nothis 196*, 21 June 1966, summit of Mt. Kaala.

In these two collections the leaf is unusually small (lamina up to 7×2.5 cm), stiffly coriaceous, and with recurved edges (as in *F. asperula*), but the small figs are those of *F. auriculigera* with sparse internal bristles and glabrous flower-pedicels. The collections seem to represent depauperate specimens of *F. auriculigera* growing in exposed situations, comparable with the collection *McKee 4004* which represents *F. asperula* var. *nuda* Bur. (Corner 1970).

127. F. asperula Bur.

Collection: *T. Jaffre 343*, 1 Dec. 1969, Col de Plum.

This recalls *F. auriculigera* in leaf but it has the long pedicels to the fig and the setose flower-pedicels of *F. asperula*. Typically these species are distinct but it seems that each varies into the other in respect of one or another feature.

130. F. heteroselis Bur.

Collection: *H. S. McKee 21820*, 23 April 1970, Mé-Maoya, Contrefort-Ouest, 1350 m, in *Araucaria-Nothofagus* forest.

Shrub 2 m high. *Lamina* 32 × 10 cm, elliptic, subacute, base narrowly and shortly cordate-auricled, rather thinly coriaceous, smooth, drying brown; lateral veins *c.* 16 pairs, strongly raised below, without axillary glands; intercostals 3—6; basal veins 4 pairs, short; petiole *c.* 18 × 5 mm, short, thinly hairy. *Figs* thinly appressedly puberulous, glabrescent; peduncle 2 mm long, thick; basal bracts 3, 3 mm long; pedicel 0; body 20 mm wide (dried), globose, the orifice 3 mm wide, closed by the apical bracts; fig-wall scarcely sclerotic; internal bristles sparse, minute. *Flower*-pedicels glabrous. Male flowers disperse, pedicellate. *Cystoliths* hypogenous. *Cuticle* of lamina not striate.

This collection seems to fit *F. heteroselis*, which I know only from the original description and a photograph of the type (Corner 1970a). Unfortunately this collection (*McKee 21820*) consists merely of a leaf and a fig. The leaf resembles that of strongly veined *F. habrophylla* (Corner 1970a, fig. 17, left-hand leaf). With short petiole and sparse internal bristles, however, the collection may be the form of *F. auriculigera* with persistent stipules, cf. *Schmid 2979*. We need more information about the saplings of most fig-species of New Caledonia.

134. F. otophora Corner & Guillaumin

Collection: *M. Schmid 2607*, 16 July 1968, Col d'Amieu, 500 m.

Though fragmentary with one detached leaf and a piece of the stem with young figs, this collection proves that *F. otophora* becomes cauliflorous. The young figs, though barely 6 mm wide, have the typical depressed-globose shape. According to M. Schmid *in litt.*, *F. otophora* is a well-branched small tree 5—6 m high in forest on sandstone-schist.

136. F. leiocarpa (Bur.) Warb.

Collection: *H. S. McKee 23537*, 1 April 1971, Ile des Pins, plateau, *c.* 100 m.

This is typical though the lamina is widely ovate-cordate (up to 19 × 10.7 cm).

137. F. webbiana Miq.

Collection: *H. S. McKee 21895*, 12 May 1970, Pouebo, crest between Mandzelia and Salandane, 600 m.

This appears to be a sapling with narrowly oblong, shortly acuminate lamina (16—23 × 3.5—4.8 cm), conspicuous glands in the axils of the lateral veins, and unusually large figs (body 25 × 18 mm when dried, but immature; peduncle 5—6 mm long; basal bracts 1—1.5 mm long, persistent; pedicel 0; internal bristles few, minute). I have often observed such large precocious figs on saplings of other Malesian species of *Ficus*.

143A. F. lifouensis Corner (1970a, 427, figure 28)

Collection: *H. S. McKee 27306*, 2 Sept. 1973, Loyalty Islands, Lifou, Cap des Pins.

Though sterile, this is undoubtedly *F. lifouensis* in confirmation of this species based on Däniker's collections.

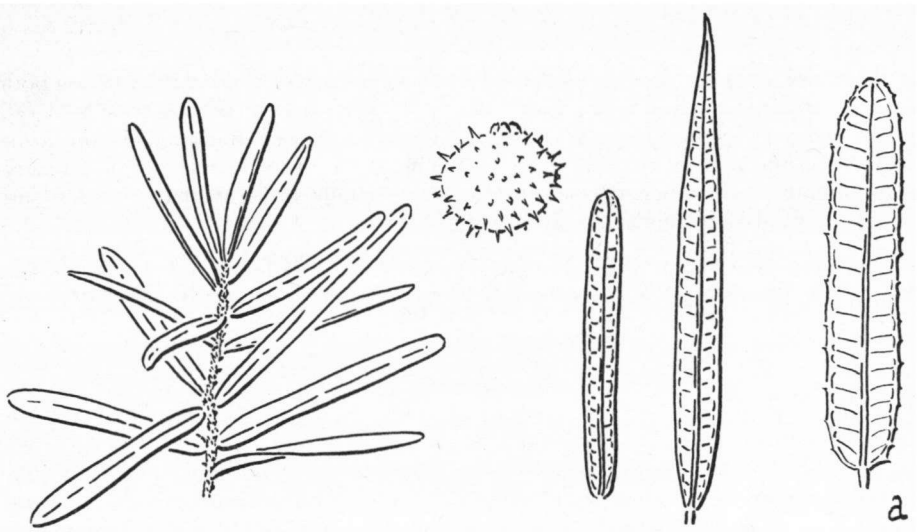

Fig. 2. *Ficus podocarpifolia*, from *Wilson 11347*; a: from the 'Mt. Wells' specimen. Leaves and twig X 0.6; fig. X 1.8.

subgen. **Ficus**

335A. F. podocarpifolia *sp. nov.* (sect. *Sycidium* ser. *Scabrae*) — **Fig. 2.**

Species australiensis occidentalis ex affinitate *F. scobinae* Benth. differt foliis parvis lineari-oblongis coriaceis hispido-aculeatis, marginibus recurvatis, subsessilibus, dense spiraliter v. oppositis, etiam subverticillatis, instructis; lamina 2—6.5 × 0.3—0.8 cm; costis lateralibus utrinsecus 16—28; petiolo 0—2 mm longo; syconiis 7—8 mm latis (siccis), solitariis, sparsim hispidis. — Typus: *P. C. Wilson 11347*, Bonaparte Archipelago, ins. Bongaree (UWA).

Small shrub 0.5—2 m high, with small, linear, scabrid-aculeate, oblong, subsessile leaves set rather densely and extensively along the twigs, arranged spirally, opposite or subverticillate. Twigs 1—1.5 mm thick, green then warm brown, rather thinly villous with white spreading hairs up to 0.5 mm long and hispid with stouter scattered hairs up to 1 mm long. Stipules 2—3 (—5) mm long, linear-lanceolate, brown, subpersistent. *Lamina* 2—6.5 × 0.3—0.8 mm (to 7.5 × 0.8—1.2 cm in the specimen from Mt. Wells), linear-oblong, tapered or rounded abruptly to a subacuminate apex, varying obtuse, entire but setose-aculeate along the incurved edge, base cuneate to rounded, upperside setose-aculeate with pustular hairs up to 1 mm long, villous and scabrid beneath, coriaceous, drying grey-green; lateral veins 16—28 (—34) pairs, at right angles from the midrib, raised beneath; intercostals 0 or 1—3 (Mt. Wells specimen); reticulations raised beneath, the areolae not foveolate; basal veins 1—3, inconspicuous; petiole 0—2 mm long, 2—4 mm (Mt. Wells specimen). *Figs* solitary, axillary; peduncle 0 or 1—2 mm long (Mt. Wells specimen); basal bracts 3, minute; body 7—8 mm wide, rather sparsely and stiffly hispidulous with white hairs up to 0.5 mm long, orifice 2—3 mm wide with slightly projecting obtuse apical bracts, no lateral bracts; internal bristles short, white, numerous; fig-wall thin, without sclerotic cells. *Tepals* (3 or) 4 or 5, spathulate, glabrous, free, white, exceeding the ovary. Male flowers in one circle round the orifice, shortly pedicellate; stamen 1, anther not mucronate. Gall- and female flowers sessile to shortly pedicellate; style simple,

glabrous. *Seed* lenticular, subcompressed, distinctly keeled, subreticulate or asperulate on the sides.

Leaf-structure: cuticle smooth; epidermal cells polygonal, many along the veins on both sides of the lamina with a large sphaerocrystal; hypodermis on the upperside 0—1 cell thick; stomata superficial; cystoliths hypogenous, spicate, with transitions to the hairs, some along the veins sparsely papillate, on the upperside of the lamina as reduced hairs; hairs smooth, more or less thick-walled, aseptate, straight or some of the smaller hairs undulate; gland-hairs capitate, 2—4-celled.

WESTERN AUSTRALIA. Bonaparte Archipelago: P. G. Wilson 11096, 28 July 1973, South East Osborne Isl.; *P. G. Wilson 11347*, 4 July 1973, Boongaree Isl., Prince Frederick Harbour, in sandstone crevice (type). *Locality uncertain*: specimen in the Adelaide Herbarium labelled 'Mt. Wells', 'possibly on the Horn expedition route', collector 'possibly Tate', with seed-figs.

These collections appear, at first sight, very different from other Australian species of *Ficus* and, if sterile, would hardly seem to belong to the genus; they have, however, the microscopic structure with cystoliths and gland-hairs. They key out to *F. scobina* which has a narrowly elliptic and shortly petiolate leaf, yet neither so scabrid nor so small, and the figs are different. Nevertheless, the question arises whether this new species is not a juvenile form of *F. scobina*; such forms with linear and many-veined leaves may occur in *F. ampelas*, *F. cumingii*, and *F. opposita*. In the course of evolution many species of *Ficus* in different alliances tend to this ultimate simplification of the leaf. In ser. *Scabrae* the form is stabilised in *F. bambusaefolia* (Fiji), *F. fallax* (Celebes), and *F. samoensis* (Samoa), all of which differ in structural details and distribution from *F. podocarpifolia*. Possibly, therefore, it is a local endemic derived from the parentage of *F. scobina* which occurs, so far as I have seen collections, from Arnhem Land to Darwin, Katherine, and the district of east Kimberley in Western Australia. If it were simply a juvenile state of *F. scobina*, I would expect it to have been collected over this wider range.

450A. F. nana *sp. nov.* (sect. *Sycocarpus* subser. *Axillares*) — **Fig. 3.**

Frutex usque ad 1 m altus, foliis spiraliter dispositis. Caulis petiolique pilis brunneis strigosi. Stipulae amplae persistentes glabrae. Lamina usque ad 44 × 15 cm, obovata acuminata subcordata scabrida; costis lateralibus utrinsecus 10—12; petiolo ? 2—3 cm longo. Syconia axillaria pedunculata glabra, bracteis lateralibus praedita; setulis internis nullis. Flos feminea perianthio brevissimo; stylo sparsim setuloso. Aff. *F. saurauioidis*. — Typus: *NGF 41228*, Nova Britannia (CGE).

Shrub or treelet up to 1 m high; leaves spirally arranged. Twigs and petioles densely strigose with wiry brown spreading hairs 2—4 mm long, shorter along the underside of the midrib and the main veins; upperside of the lamina with similar but sparse hairs, nearly smooth along the midrib. Twig 7 mm thick. Stipules 5—6.5 × 1.3—1.8 cm, oblong, shortly subacuminate, large, persistent, glabrous. *Lamina* up to 44 × 15 cm, obovate, subpanduriform, the acuminate tip up to 15 mm long, base rounded subcordate, ciliate-denticulate, scabrid on both surfaces, thinly subcoriaceous, drying dark brown; lateral veins 10—12 pairs, raised below, thinly strigose as the 6—9 intercostals; areolae smooth; basal veins 3 pairs, the largest scarcely elongate; petiole ? 2—3 cm long. *Figs* axillary, paired (? only among the older leaves), glabrous; peduncle 5—8 mm long; basal bracts 3, 6—8 × 6—7 mm, glabrous; pedicel 0; body *c.* 16 mm wide (dried), subglobose, with several large glabrous lateral bracts 5—7 mm long and wide, not concealing the body, the apex closed by a rosette of smaller bracts; internal bristles none; fig-wall with very few sclerotic cells. Female *flowers* pedicellate; perianth as a short collar; ovary red-brown; style with a

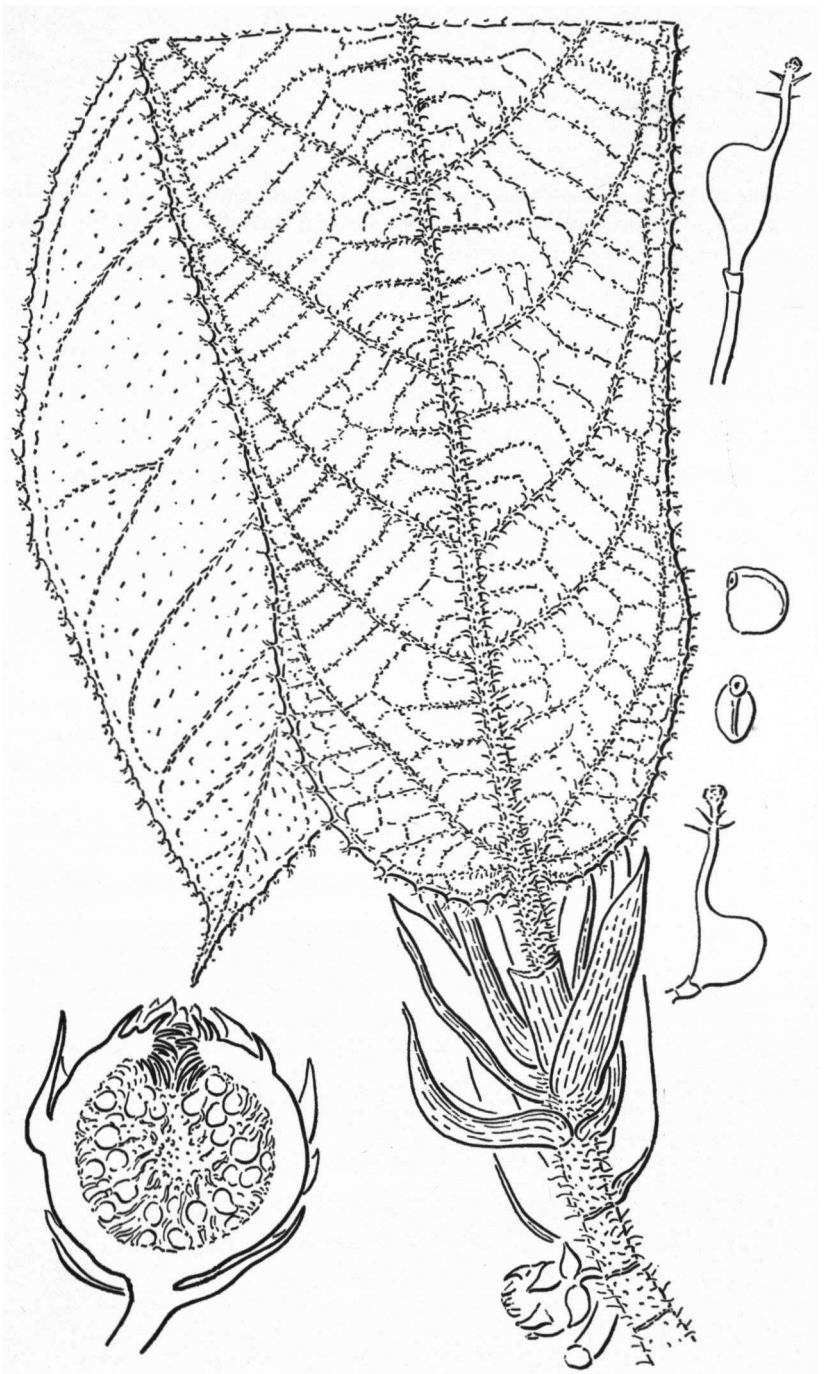

Fig. 3. *Ficus nana*. Twig X 0.5; fig X 2; female flowers and seeds X 10. *(NGF 41228)*.

few bristles near the stigma. *Seed* 0.8 × 0.7 × 0.5 mm, white, almost smooth, slightly keeled, with slightly prominent hilum. *Cystoliths* hypogenous. *Hairs* with thick brown walls papillate towards the base.

NEW BRITAIN. *NGF 41228*, Eastern District, Gasmata subdistrict, 2 miles east of Fullerborn Harbour, low altitude, on stream-bank in high forest.

This pachycaul treelet is close to *F. saurauioides* (New Guinea), *F. decipiens* (Celebes), *F. latimarginata* (Celebes), and *F. calcarata* (Moluccas). It differs from them in the oblong and glabrous stipules (ovate and stiffly hairy in the others) and in the glabrous pedunculate fig with lateral bracts. The fig-body in the other species is hairy but the characters of the peduncle and lateral bracts are variously apportioned. *F. calcarata* has a sessile fig with a few lateral bracts. *F. saurauioides*, nearest to *F. nana*, has a short but hairy peduncle, glabrous basal bracts, and no lateral bracts. *F. decipiens* and *F. latimarginata* have neither peduncle nor lateral bracts. The alliance is distinguished by the dark brown and microscopically papillate hairs (as occur in all the brown hairy species of sect. *Sycocarpus* and most of sect. *Sycidium*), the large persistent stipules, the large lamina with ciliato-dentate margin, the axillary figs without internal bristles (or these are few and minute), the short collar-like female perianth, the setose female style, and the almost smooth seed with fairly prominent hilum. Smallest in stature is the unbranched *F. saurauioides* (½ m high). *F. nana*, apparently unbranched, is 1 m high. *F. decipiens* and *F. latimarginata* are sparingly branched shrubs 3—4 m high. *F. calcarata*, in contrast, is a more profusely branched, small tree up to 10 m high, with primary twigs 5—7 mm thick.

With *F. lepicarpa*, to which I will refer, these species make up subser. *Axillares*. The marks of the alliance extend, however, to the extraordinary *F. praestans* (New Britain) which, as a small spreading tree up to 13 m high in forest undergrowth, is distinguished by the larger and densely multibracteate figs borne on stout cauliflorous twigs without internodes; it is the most pachycaul with twigs 7—12 mm thick. From the general theory of tree-evolution, the shorter species of subser. *Axillares* appear as neotenic forest undergrowth, representing odd endemic relics of this pachycaul line of evolution. Their distribution may suggest a vicarious origin from an ancestor that ranged from Celebes to New Britain, but there is no evidence for it. Since the most primitive *F. praestans* is as limited in its occurrence, I think that the species are variously descended from ancestors immigrant into the respective territories, and that these ancestors came from the progenitors of subsect. *Sycocarpus* on the Melanesian Foreland (Corner 1967).

There are three other examples of pachycaul treelets in sect. *Sycocarpus*. *F. theophrastoides* (Solomon Islands) belongs in subsect. *Auriculisperma* and is not closely related with subser. *Axillares*, but *F. cryptosyce* (New Guinea) and *F. multistipularis* (Philippines) may be derivatives with small basal bracts and leaf-margin which is not ciliate-dentate, for which reasons I referred them to subser. *Congestae* in the vicinity of the Philippine *F. benguetensis* and *F. carpenteriana* (Corner 1970b). If they should be referred to subser. *Axillares*, the type of which is *F. decipiens*, then their descent from the ancestors of *F. praestans* or *F. nana* is too distant to regard them as mere vicariants.

The affinity of *F. lepicarpa* needs investigation at the uncertain eastern end of its distribution in the Moluccas and the Sulu Archipelago. From Burma and Thailand to Celebes it is a common, small, bushy, leptocaul tree, up to 12 m high, typical of the rocky banks of rivers and streams to an altitude of 1700 m. One would expect its closest allies to be in western Malesia, but I do not find them. Because of the axillary figs (never cauliflorous) with lateral bracts and large basal bracts, and of the subpersistent stipules, I placed the species in subser. *Axillares* where it is aberrant in being practically glabrous and in having an entire

leaf-margin. Typical *F. lepicarpa*, with wide distribution, has sessile figs but they are pedunculate in var. *pedunculata* of Thailand, Johore, and Borneo, and these points suggest that the origin of the species may have been on the Sunda-shelf. I have seen no collections from the Philippines except the Sulu Archipelago which, geologically, may be part of Borneo. From Tawi Tawi, in this archipelago, there are six collections which I have named as follows:

a. *F. lepicarpa* var. *lepicarpa*: *BS 44033*.
   F. lepicarpa var. *suluensis*: *BS 44016*, *PNH 7471* and *7501*.
b. *F. carpenteriana*: *BS 44154*.
c. a mixture of the leaves of *F. lepicarpa* and the figs of *F. fistulosa*: *BS 44353*.

Var. *suluensis* has a brown hispidulous fig with short brown hispidulous peduncle, and small basal bracts, but no lateral bracts; the brown hairs are slightly papillate. Such short basal bracts are characteristic, also, of *F. lepicarpa* var *brevibracteata* (Sarawak, Sabah, Amboina), which has a sessile fig with few or no lateral bracts. Var. *suluensis* brings in *F. benguetensis* (pedunculate figs, axillary and cauliflorous, without lateral bracts, and with white to pale brown papillate hairs) and *F. carpenteriana* (figs sessile or pedunculate, axillary and cauliflorous, without lateral bracts, and with dark brown papillate hairs). Neither of these has been found south of the Sulu Archipelago and *F. benguetensis* extends north to Formosa and Ryu Kyu. They surely relate with the ancestry of *F. lepicarpa* and, possibly, connect with that of subser. *Axillares* at the western end of the Melanesian Foreland. Again there is no evidence of a wide-spread progenitor (Burma and Ryu Kyu to the Moluccas) which turned vicariously into *F. lepicarpa*, *F. benguetensis*, and its sympatriot *F. carpenteriana*. In fact it seems that, as with *F. nervosa* in subgen. *Pharmacosycea* (Corner 1967, 1970a), the further a species spreads from its base, the more simplified becomes its character.

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