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N.S.W. RAINFOREST TREES

PART IV
Family Rutaceae

AUTHOR:
A.G. Floyd

FORESTRY COMMISSION OF N.S.W.
RESEARCH NOTE No. 30
Second Edition, Sydney 1979

O.D.C. 176.1

FORESTRY COMMISSION OF N.S.W.

RESEARCH NOTE No. 30
PUBLISHED 1976
SECOND EDITION 1979

N.S.W. RAINFOREST TREES
PART IV
FAMILY RUTACEAE

AUTHOR

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FORESTRY COMMISSION OF NEW SOUTH WALES
SYDNEY, AUSTRALIA 1979

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INTRODUCTION

This is a revision of the fourth in a series of research notes of the Forestry Commission of N.S.W. describing the rainforest trees of the state.

Previous publications are—

Research Note No. 3 (1960)—N.S.W. Rainforest Trees. Part I, Family *Lauraceae*. A. G. Floyd and H. C. Hayes. Second Edition (1979). A. G. Floyd.

Research Note No. 7 (1961)—N.S.W. Rainforest Trees. Part II, Families *Capparidaceae*, *Escalloniaceae*, *Pittosporaceae*, *Cunoniaceae*, *Davidsoniaceae*. A. G. Floyd and H. C. Hayes.

Research Note No. 28 (1973)—N.S.W. Rainforest Trees. Part III, Family *Myrtaceae*. A. G. Floyd.

Research Note No. 30 (1976)—N.S.W. Rainforest Trees. Part IV, Family *Rutaceae*. A. G. Floyd.

Research Note No. 32 (1977)—N.S.W. Rainforest Trees. Part V, Families *Sapindaceae*, *Akaniaceae*. A. G. Floyd.

Research Note No. 34 (1977)—N.S.W. Rainforest Trees. Part VI, Families *Podocarpaceae*, *Araucariaceae*, *Cupressaceae*, *Fagaceae*, *Ulmaceae*, *Moraceae*, *Urticaceae*. A. G. Floyd.

Research Note No. 35 (1978)—N.S.W. Rainforest Trees. Part VII, Families *Proteaceae*, *Santalaceae*, *Nyctaginaceae*, *Gyrostemonaceae*, *Annonaceae*, *Eupomatiaceae*, *Monimiaceae*. A. G. Floyd.

The family *Rutaceae* was chosen because of its economic and ecological importance in N.S.W. rainforests. This revision includes four species not included in the First Edition, namely *Acronychia pauciflora*, *Bosistoa selwynii*, *Bosistoa transversa* and *Geijera salicifolia*. There are also two nomenclatural changes: *Bosistoa euodiiformis* to *Acradenia euodiiformis* and *Bosistoa sp.* to *Bosistoa floydii*.

Diagnostic features of each species are shown in italics. The locations in N.S.W. for each species are shown in latitudinal order of the major river systems; and where on State Forests (S.F.), Flora Reserves (F.R.), National Parks (N.P.) and Nature Reserves (N.R.), their location from the nearest large town is listed in the appendix.

FAMILY *RUTACEAE*

CHARACTERISTICS OF THE FAMILY IN N.S.W.

Ranging from tall dominant trees (*Flindersia, Geijera, Halfordia, Melicope octandra*) to understorey large shrubs or small trees (*Acronychia, Bosistoa, Euodia*, etc.). There are thirty-six species in fifteen genera.

Outer Bark—White to dark brown, smooth, scaly, corky or fissured.

Inner Bark—Cream, yellow, brown or pink to red. Some with characteristic odours such as dough (*Melicope octandra, Euodia*) or turpentine (*Acronychia spp*). A tingling of the tongue is produced by *Pentaceras, Flindersia schottiana* and *Melicope erythrococca.*

Leaves—Opposite in most species except (*Flindersia australis, Geijera, Halfordia, Microcitrus, Micromelum, Pentaceras* and *Zanthoxylum*). They may be truly simple (*Halfordia* and *Geijera*), a single leaflet jointed to the leaf stalk (*Acronychia* in part, *Bauerella, Medicosma* and *Microcitrus*) or pinnate with mainly opposite leaflets. The margins are entire except *Micromelum* and *Zanthoxylum* which may be toothed. Characteristic pale oil dots may be seen when the leaves are held to the light, producing an aromatic smell on crushing. Leaf stipules are absent.

Flowers—Usually in dense panicles or few-flowered cymes, white to cream in most species (yellow-*Flindersia xanthoxyla*, pink-*Euodia elleryana*, red and yellow-*Zanthoxylum brachyacanthum*). Petals and sepals four (*Acronychia, Bauerella, Bouchardatia, Euodia, Melicope, Medicosma, Zanthoxylum*) or five (*Acradenia, Bosistoa, Flindersia, Geijera, Halfordia, Microcitrus, Micromelum, Pentaceras*).

Fruit—A succulent indehiscent berry or drupe in *Acronychia* (four cells), *Halfordia* and *Micromelum* (three to five cells) and *Microcitrus* (six to eight cells). *Flindersia* has a five-valved capsule, *Pentaceras* has one to three winged samarae, whilst the remaining genera are woody two-valved cocci. The succulent fruits range in colour from white to cream (*Acronychia oblongifolia, pubescens, suberosa* and *wilcoxiana*), yellow (*Acronychia imperforata* and *Microcitrus*), yellow-brown (*Bauerella*, hardly fleshy), mauve (*Acronychia laevis*) to blue-black (*Halfordia*). The dry capsules, cocci and samarae are yellow-brown to grey in all species except *Melicope erythrococca* which is red.

Habitat—Common in all types of rainforest and as large trees in climax forests (e.g., *Flindersia australis, Halfordia kendack*) or as fast-growing pioneer species (*Acradenia, Acronychia, Bosistoa* and *Euodia* spp).

Distribution—Of the fifteen genera present as trees in N.S.W. rainforests five are restricted to the N.S.W. and Queensland east coast (*Bosistoa*-four spp, *Bauerella, Bouchardatia, Medicosma* and *Pentaceras*-one species each). *Acradenia* is restricted to northern N.S.W. and Tasmania, in common with two other genera of the temperate rainforest, *Anopterus* and *Nothofagus* (the latter is also in Victoria, New Zealand, New Guinea and South America). *Geijera* is also in

New Guinea and New Caledonia whilst *Melicope* is also in the Philippines, Malaysia, and New Zealand. The remaining genera occur throughout tropical Asia.

Timber—Most species have a cream to yellow hard tough timber which is resistant to insect attack and fungal attack. *Flindersia australis* and *Halfordia kendack* are particularly useful timbers in these regards. A few have white, soft, non-durable timbers, such as *Euodia* spp, *Acronychia wilcoxiana* and *Melicope octandra*. In *Geijera latifolia* the timber is dark brown, whilst in *Zanthoxylum brachyacanthum* it is deep yellow.

KEY TO THE RAIN FOREST TREE SPECIES OF THE RUTACEAE IN N.S.W.

A. USING LEAVES AND BRANCHLETS ONLY

1. Spiny or thorny on the stem or rachis 2

2. Spines in the axils of the simple leaves .. *Microcitrus australasica* (F. Muell.) Swingle

2. Thorns on the stem, leaves pinnate ..... *Zanthoxylum brachyacanthum* F. Muell.

1. Spines or thorns absent 3

3. Rachis winged on mature foliage .. *Flindersia collina* F. M. Bail.

3. Rachis not winged on mature foliage 4

4. Leaves alternate 5

5. Leaves simple 6

6. Leaf stalk up to 6 mm long, blade tapering gradually into the stalk ..... *Halfordia kendack* Guill.

6. Leaf stalk 10–25 mm long, blade tapering quickly into the stalk..... 7

7. Main lateral veins five to eight, margin of leaf stalk erect or slightly recurved ..... *Geijera paniculata* (F. Muell.) Druce

7. Main lateral veins 10–24, margin of leaf stalk incurved and wing-like above 8

8. Leaf blade broad (1.6–3.3 times as long as wide) *Geijera latifolia* Lindl.

8. Leaf blade narrow (3.3–8.0 times as long as wide) *Geijera salicifolia* Schott.

5. Leaves pinnate 9

9. Leaflets alternate ..... *Micromelum minutum* (Forst. f.) Wight et Arn.

9. Leaflets in pairs 10

10. Leaflet blades assymetrical at the base, shorter and not tapering on the side nearest the terminal leaflet *Pentaceras australis* (F. Muell.) Hook. f. ex Benth.

10. Leaflet blades symmetrical at the base equally tapering on both sides .... *Flindersia australis* R. Br.

4. Leaves opposite 11

11. Leaves simple, jointed at the base of the blade 12

11. Leaves compound, mostly with three leaflets 20

11. Leaves compound, more than three leaflets 36

12. Leaves large, mostly over 15 cm long ..... *Acronychia wilcoxiana* (F. Muell.) Hartley

12. Leaves medium, mostly under 10 cm long 13

13. Leaf stalk 2.5–4 cm long ..... *Bauerella simplicifolia* (Endl.) Hartley
13. Leaf stalk under 2.5 cm long 14

14. Leaves heart-shaped at the base .. *Bosistoa selwynii* Hartley
14. Leaves wedge-shaped at the base 15

15. Oil dots in leaves barely visible with a hand lens before a strong light—Beach species .... *Acronychia imperforata* F. Muell.
15. Oil dots visible with the naked eye 16

16. Leaves dull above—rare ..... *Medicosma cunninghamii* (Hook.) Hook. f.
16. Leaves shiny above 17

17. Oil dots few, five to ten diameters apart *Acronychia pauciflora* C. T. White
17. Oil dots numerous, one to three diameters apart 18

18. Major lateral veins ten to twelve, leaves mostly elliptical .... *Acronychia baeuerlenii* Hartley
18. Major lateral veins five to eleven, leaves mostly oblong or broadest towards the tip 19

19. Leaves mostly oblong ..... *Acronychia oblongifolia* (A. Cunn. ex Hook.) Endl. ex Heynh.
19. Leaves tapering gradually from the centre or from towards the tip .... *Acronychia laevis* J. R. & G. Forst.

20. Undersurface of leaflets hairy 21
21. Main leaf stalk of one of each pair of compound leaves occasionally much longer than the other ..... *Bouchardatia neurococca* (F. Muell.) Baill.

21. Main leaf stalks of each pair of leaves equal 22
22. Leaflet stalk of terminal leaflet longer than that of the laterals, 10–20 mm long .. *Flindersia xanthoxyla* (A. Cunn. ex Hook.) Domin.
22. Leaflet stalk of terminal leaflet less than 10 mm long 23

23. Main leaf stalk as long as each leaflet ..... *Euodia micrococca* F. Muell.
23. Main leaf stalk only half as long as each leaflet *Acronychia pubescens* (F. M. Bail.) C. T. White
20. Undersurface of leaflets smooth 24

24. Terminal leaflet stalk about twice as long as the laterals 25

24. Terminal leaflet stalk equal in length to the laterals 32
25. Top pair of leaflets not stalked 26

26. Branchlets flattened at the nodes .....
Acradenia euodiiformis (F. Muell.) Hartley
26. Branchlets not flattened at the nodes .....
Flindersia australis R. Br.

25. Top pair of leaflets shortly stalked 27

27. Main stalk of newly expanded leaves smooth .. 28
28. Stalklet of terminal leaflet not swollen below the blade ..... *Melicope erythrococca* (F. Muell.) Benth.
28. Stalklet of terminal leaflet swollen below the blade ..... *Bosistoa transversa* Bail. & White
27. Main stalk of newly expanded leaves scurfy or hairy..... 29

29. Leaflets often more than three..... 30

30. Net veins visible ..... *Flindersia bennettiana* F. Muell. ex Benth.
30. Net veins not visible .... *Flindersia xanthoxyla* (A. Cunn. ex Hook.) Domin.

29. Leaflets always in threes 31
31. Leaflets thick ..... *Euodia littoralis* Endl.
31. Leaflets thin ..... *Euodia vitiflora* F. Muell.

32. Stalk of terminal pair of leaflets under 3 mm long 33
32. Stalk of terminal pair of leaflets over 3 mm long 35

33. Leaflets over 15 cm long, branchlets dotted with rusty brown lenticels ..... *Melicope octandra* (F. Muell.) Druce
33. Leaflets mostly under 15 cm long, branchlets not dotted 34

34. Net veins not clearly visible on either side ..
Acradenia euodiiformis (F. Muell.) Hartley
34. Net veins clearly visible .... *Acronychia suberosa* C. T. White

35. Leaflets broad lanceolate, gradually tapering at the base ..... *Euodia* sp.
35. Leaflets egg-shaped to oblong, quickly tapering at the base ..... *Euodia elleryana* F. Muell.

36. Leaflets toothed .. *Bosistoa pentacocca* (F. Muell.) Baill.
36. Leaflets not toothed 37

37. Leaflets usually five, more rarely seven .....
Bosistoa floydii Hartley
37. Leaflets commonly more than five 38

38. Leaflets assymetric at the base 39

39. Leaflets curved, greyish beneath ..... *Flindersia schottiana* F. Muell.
39. Leaflets straight, paler green beneath ..... *Flindersia xanthoxyla* (A. Cunn. Hook.) Domin.

38. Leaflets symmetric at the base 40

40. Top pair of leaflets not stalked ..... *Flindersia australis* R. Br.
40. Top pair of leaflets on stalks 3 mm long ..... *Flindersia bennettiana* F. Muell. ex Benth.

B. USING BARK ONLY

1. Stem with conical prickles (except base of old tree) ..... *Zanthoxylum brachyacanthum* F. Muell.
1. Stem without conical prickles 2

2. Bark corky 3

3. Blaze yellow ..... *Bauerella simplicifolia* (Endl.) Hartley
3. Blaze pink or pinkish-brown 4

4. Blaze pink with vertical cream stripes and a distinct but not doughy odour ..... *Acradenia euodiiformis* (F. Muell.) Hartley
4. Blaze pale pinkish-brown with a doughy odour ..... *Euodia micrococca* F. Muell.

3. Blaze brown 5

5. Blaze turning pale pink after 20 minutes, fragrant .... *Halfordia kendack* Guill.
5. Blaze not turning pale pink, doughy odour 6

6. Blaze flecked and mottled ..... *Euodia* sp.
6. Blaze with vertical lines 7

7. Thin powdery white layer between dead and live bark ..... *Melicope octandra* (F. Muell.) Druce
7. Not as above ..... *Euodia elleryana* F. Muell. and *Euodia littoralis* Endl.

2. Bark not corky 8

8. Bark scaly 9

9. Blaze pink or red 10

10. Outer bark mottled grey, green and brown ..... *Flindersia collina* F. M. Bail.

10. Outer bark not mottled 11

11. Underbark brown ..... *Flindersia australis* R. Br.

11. Underbark creamy-fawn ..... *Acronychia pauciflora* C. T. White

9. Blaze yellow-brown to brown 12

12. Blaze turning dirty green after five minutes 13

13. Bark bitter ..... *Geijera latifolia* Lindl.

13. Bark without taste ..... *Geijera salicifolia* Schott.

8. Bark smooth (or wrinkled on mature trees only) 14

14. Blaze cream or white..... 15

15. Outer bark red-brown ..... *Bosistoa pentacocca* (F. Muell.) Baill.

15. Outer bark brown or grey 16

16. Blaze darkening to speckled pink and brown after a few minutes exposure..... *Bouchardatia neurococca* (F. Muell.) Baill.

16. Blaze not changing colour upon exposure 17

17. Bark slightly bitter and tingly to the tongue.... *Pentaceras australis* (F. Muell.) Hook. f. ex Benth.

17. Bark not bitter nor tingly to the tongue ..... *Medicosma cunninghamii* (Hook.) Hook. f.

14. Blaze eventually yellow to brown 18

18. Bark tingly to the tongue 19

19. Sapwood surface turning dirty greenish-brown .. *Geijera paniculata* (F. Muell.) Druce

19. Sapwood surface unchanging white 20

20. Underbark mid-brown .... *Bosistoa selwynii* Hartley

20. Underbark purplish-fawn .. *Bosistoa floydii* Hartley

14. Blaze green *Microcitrus australasica* (F. Muell.) Swingle

14. Blaze pink to red 21

21. Boundary of sapwood and bark white 22

22. Blaze uniform red-brown throughout..... *Acronychia laevis* J. R. & G. Forst.

22. Blaze with darker speckles or flecks 23

23. Underbark cream, turpentine taste and smell .. *Acronychia pauciflora* C. T. White

23. Underbark grey, no turpentine taste or smell .. *Flindersia bennettiana* F. Muell. ex Benth.

21. Boundary of sapwood and bark yellow to yellow-brown ..... *Acronychia imperforata* F. Muell.
Acronychia oblongifolia (A. Cunn. ex Hook.) Endl. ex Heynh.
Acronychia pubescens (F. M. Bail.) C. T. White
Acronychia suberosa C. T. White
Acronychia wilcoxiana (F. Muell.) Hartley

NOTE: Owing to the rarity in N.S.W. of *Acronychia baeuerlenii* Hartley, *Bosistoa transversa* Bail. et White and *Micromelum minutum* (Forst. f.) Wight et Arn. adequate details of bark and blaze are not available to enable their inclusion.

ACRADENIA EUODIIFORMIS (F. Muell.) Hartley.

Synonum—Bosistoa euodiiformis F. Muell.

Reference—J. Arn. Arb. 58 (2): 176–8 (1977).

Derivation—Acradenia from

euodiiformis from the allied genus Euodia and Latin "formia" shape referring to the typical Euodia-like leaves of three leaflets.

Common Name—Bonewood, Small-leaved Bosistoa.

Standard Trade Name—Yellow Satinheart.

A small tree attaining a height of 15 m and a stem diameter of 25 cm.

Trunk—Often irregular or fluted.

Outer Bark—*Cream, thin, usually smoothly corky* with vertical lines of pustules, later becoming scaly. Outer surface of live bark mottled red and cream.

Inner Bark—Blaze on a tree 25 cm diameter, *pink with cream vertical stripes* extending through the outer half. Inner half paler cream towards the sapwood. Slight fading on exposure. Bitter to taste with a faint but distinct odour. 10 mm thick.

Branchlets—Green, somewhat thick and flattened at the nodes. Leaf scars prominent. Young shoots finely downy.

Leaves—*Opposite*, usually with *three leaflets* or occasionally two-five, attached to the tip of the leaf stalk, margins entire, elliptic to oblong-lanceolate, 8–15 cm long, terminating in a short blunt point at the tip and tapering gradually at the base, often obliquely. *Smooth glossy green above, paler beneath* with numerous oil dots. Leaf stalk flat on upper surface, 2–8 cm long. *Leaflet stalks very short*, 3 mm long on the central leaflet.

Venation—Midrib and lateral veins slightly raised and *scarcely visible on the upper surface* but more prominent beneath.

Flowers—White, in terminal panicles 8–13 cm long. Petals five, shortly hairy, lanceolate 5–6 mm long. Stamens ten. Flowering period October to December.

Fruit—*Usually two* or occasionally three-five hard carpels (cocci) 6–10 mm long. Outer surface *yellowish-brown, hairy, ribbed and wrinkled.* Splitting open at the top and along one side laterally. Fruit ripe January.

Habitat—A common under-storey tree in the coastal rainforest, particularly along water courses, on the poorer sedimentary soils with coachwood, crabapple and red carabeen but also on the richer red basaltic soils with booyong. Found up to 1 000 m in the McPherson Range often immediately below the antarctic beech zone.

Distribution—Extends from Allyn River near Dungog to the McPherson Range, Queensland.

Recorded in N.S.W. from Upper Allyn and Williams Rivers, Booral, Upper Myall River, Bulga, Ellenborough Falls, Boorganna N.R., Comboyne, Port Macquarie, Doyles River S.F., Yarrowitch, Bellangry S.F., Mt Boss S.F., Upper Taylors Arm on Oakes S.F., New England N.P., Dorrigo N.P., Orara West S.F., Bruxner Park, Wild Cattle Creek S.F., Cloud's Creek S.F., Gibraltar Range N.P., Washpool S.F., Ewingar S.F., Wiangaree S.F., Whian Whian S.F., Tintenbar, Bangalow, Mt Warning N.P. and Upper Crystal Creek.

Timber and Uses—Wood yellow, hard and close grained. Suitable for turnery, tool handles and fishing rods.

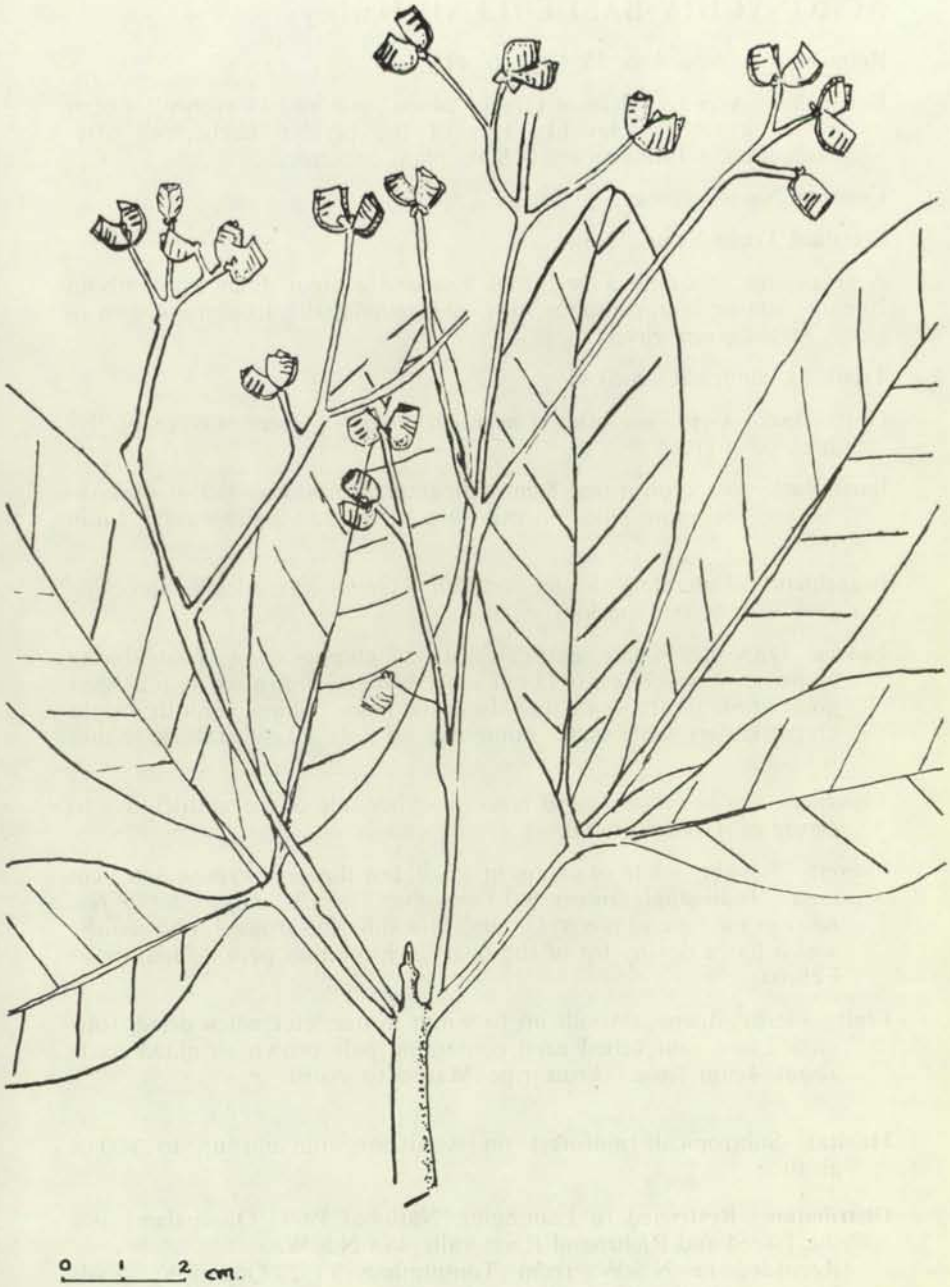


Plate No. 1
Acradenia euodiiformis (F. Muell.) Hartley

ACRONYCHIA BAEUERLENII Hartley.

Reference—J. Arn. Arb. 55, 1974, p. 491.

Derivation—Acronychia from Greek "acros" end and "onychos" a claw referring to the claw-like tips of the petals; baeuerlenii after Baeuerlen, a 19th century N.S.W. plant collector.

Common Name—None.

Standard Trade Name—None.

A small tree attaining a height of 9 m and a stem diameter of about 20 cm. Similar in appearance to *A. oblongifolia* with its dense crown of glossy bright green leaves.

Trunk—Cylindrical, crooked.

Outer Bark—Grey, smooth. *Underbark cream.* Outer surface of live bark olive-green.

Inner Bark—Blaze on a tree 8 cm diameter dark pinkish-red or pinkish-brown, becoming paler on exposure. No taste. Fragrant. 2 mm thick.

Branchlets—Moderately slender, smooth. Green where leafy, becoming grey with lighter speckles.

Leaves—Opposite, *simple*, entire, elliptic to elliptic-oblong (not oblong as in *A. oblongifolia*), 6–11 cm long, *blunt or drawn out into a blunt point at the tip*, tapering quickly at the base. Shiny, smooth, bright green, papery with small, numerous oil dots. Leaf stalk 8–18 mm long.

Venation—*Ten to twelve lateral veins* on either side of the midrib (five to eleven in *A. oblongifolia*).

Flowers—Possibly white or cream in small, few-flowered cymes, 3–6.5 cm long. Individual *flowers* 9–13 *mm long, smooth except for a few hairs at the base of the style;* and thus differing from *A. oblongifolia* which has a downy tip of the ovary. Flowering period October to February.

Fruit—Fleshy, drupe, smooth up to 9 mm in diameter when dried, four angled and four celled each containing pale brown wrinkled seeds about 4 mm long. Fruit ripe March to April.

Habitat—Subtropical rainforest on basalt or alluvium up to 800 m altitude.

Distribution—Restricted to Lamington National Park, Queensland and the Tweed and Richmond River valleys in N.S.W.
Recorded in N.S.W. from Toonumbar S.F., Quandong Falls Lismore, Wollongbar, Alstonville, Tintenbar, Hayters Hill, Byron Bay, Burringbar and Mt Warning N.P.

Timber and Uses—Possibly creamy-white, close-grained, fairly hard and tough as for *A. oblongifolia.*

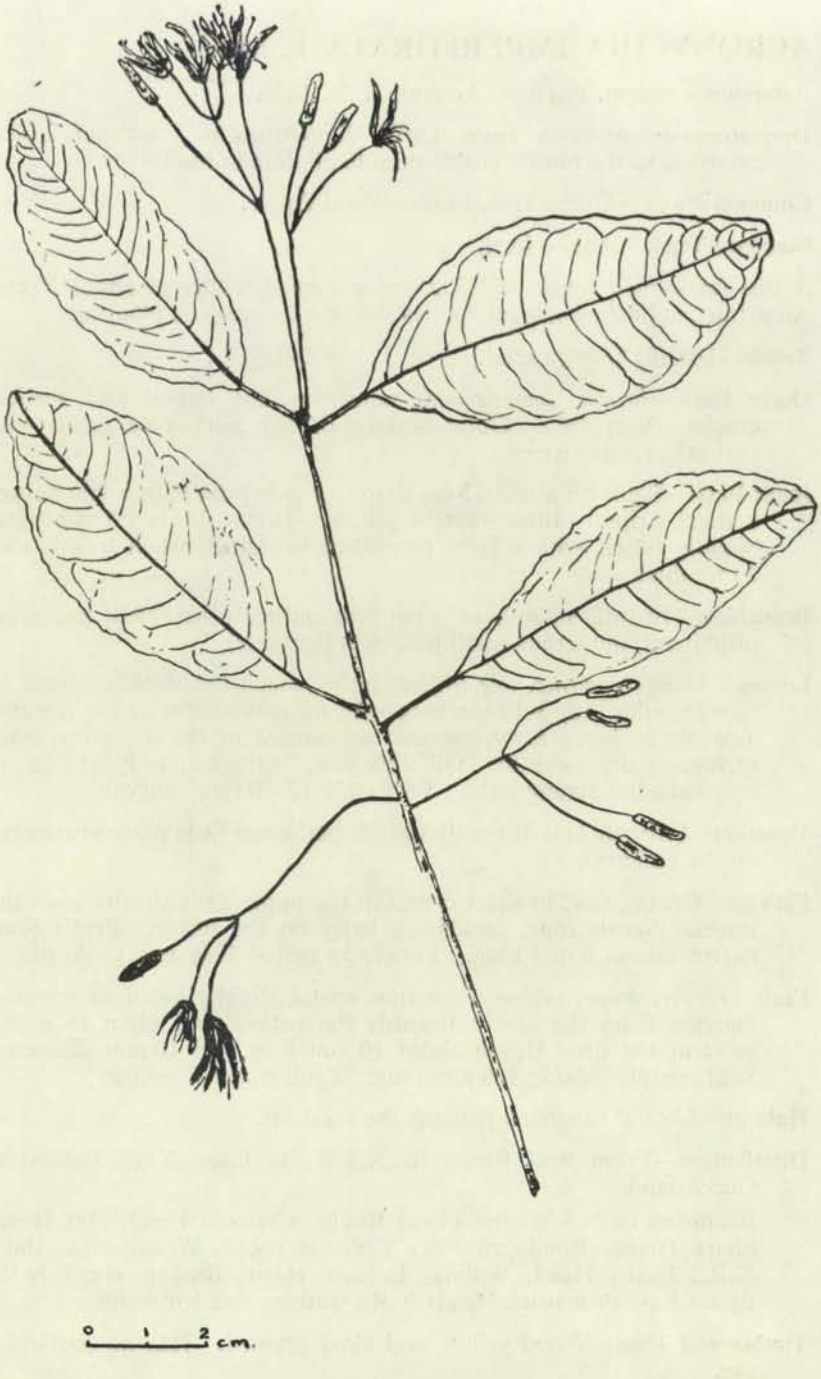


Plate No. 2
Acronychia bauerlenii Hartley

ACRONYCHIA IMPERFORATA F. Muell.

Reference—Fragm. Phytogr. Austral. 1. 26, 1858.

Derivation—Imperforata from Latin "imperforatus", without holes, referring to the hardly visible minute oil dots in the leaves.

Common Name—Green Tree, Fraser Island Apple.

Standard Trade Name—None.

A tree attaining a height of 15 m and a stem diameter of about 30 cm. An attractive bushy compact species suitable for sea-side planting.

Trunk—Usually short, round.

Outer Bark—*Brown, smooth* with numerous fine lateral and vertical cracks. Very thin. Outer surface of live bark pale green with vertical orange stripes.

Inner Bark—Blaze on a tree 15 cm diameter pale pink with a few darker vertical stripes. Inner margin yellow. Fades slowly on exposure. Slightly bitter, with a faint turpentine-like smell when freshly cut. 3 mm thick.

Branchlets—Brown, smooth or often longitudinally wrinkled, leaf scars prominent, numerous small pale dots (lenticels).

Leaves—*Mostly opposite, one leaflet*, entire, *somewhat thick*, obovate to broadly elliptical, 3–12 cm long with an *articulation at the junction with the petiole. Blunt, rounded or notched at the tip*, green both surfaces paler beneath. Oil dots few, indistinct, only visible by lens against a strong light. Leaf stalk 12–20 mm, smooth.

Venation—Strongly and distinctly veined, perhaps a little more prominent on the underside.

Flowers—Cream, few, in short cymes in the upper axils shorter than the leaves. Sepals four, deciduous, hairy on the inside. Petals four, narrow about 6 mm long. Flowering period February to April.

Fruit—*Fleshy, drupe, yellow* when ripe, *round*, slightly lobed or angular, *tapering* from the centre towards the petiole and often *to a fine point* at the tip. Up to about 10 mm long and 10 mm diameter. Seeds reddish-black, 4–6 mm long. Fruit ripe November.

Habitat—*Littoral rainforest* fringing the seashore.

Distribution—From Seal Rocks in N.S.W. to Cape York Peninsula, Queensland.

Recorded in N.S.W. from Seal Rocks, Crescent Head, Hat Head, Shark Island, Bundagen F.R., Coffs Harbour, Woolgoolga, Iluka N.R., Evans Head, Ballina, Lennox Head, Broken Head N.R., Byron Bay, Brunswick Heads N.R., Cudgen and Kingscliff.

Timber and Uses—Wood yellow and close grained. Has no particular use.

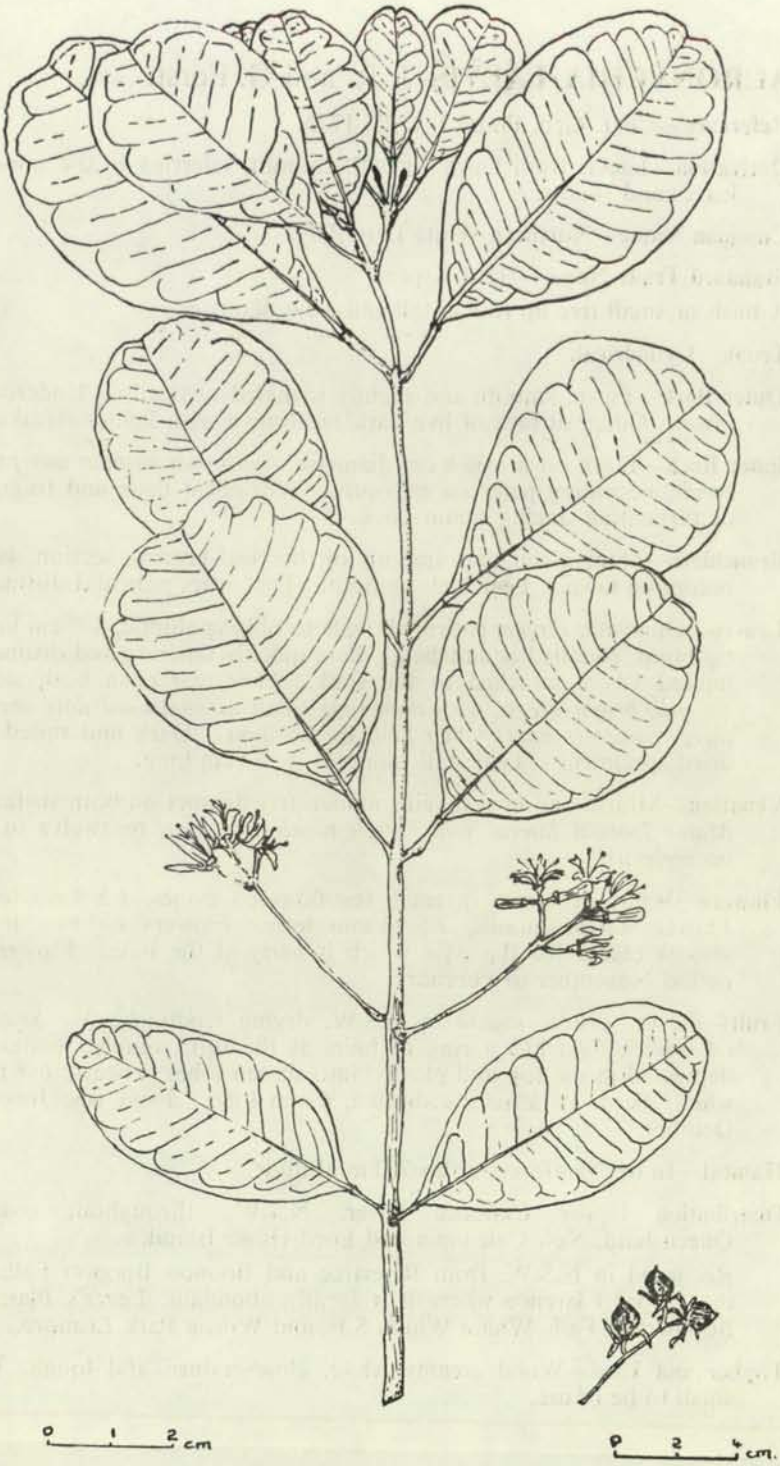


Plate No. 3
Acronychia imperforata F. Muell.

ACRONYCHIA LAEVIS J. R. and G. Forst.

Reference—Char. Gen. Pl. ed 1. t. 27. 1775.

Derivation—Laevis from Latin "laevis" smooth, referring to the smooth leaves and shoots.

Common Name—Northern White Lilly Pilly.

Standard Trade Name—Hard Aspen.

A bush or small tree up to 4 m tall and 8 cm diameter.

Trunk—Cylindrical.

Outer Bark—Fawn, smooth and slightly wrinkled vertically. Underbark fawn. Outer surface of live bark red-brown with lighter streaks.

Inner Bark—Blaze on a tree 8 cm diametre, *red-brown without any paler bands*, becoming paler on exposure. Astringent taste and fragrant or turpentine smell. 6 mm thick.

Branchlets—Thin, green and smooth on the leaf-bearing section, later becoming fawn. Leaf buds smooth. Leaf scars pale and distinct.

Leaves—Opposite, *simple*, entire, obovate to oblong-elliptic, 4–7 cm long, tip blunt, rounded or notched. Base quickly tapering and distinctly jointed where attached to the stalk. *Very glossy* on both sides, *smooth, bright green*, with *numerous* small aromatic *oil dots one to three diameters apart* when held to the light. Dark and raised on dried specimens. Leaf stalk smooth, .5–1.2 cm long.

Venation—Midrib and lateral veins moderately distinct on both surfaces. *Major looping lateral veins seven to eleven.* (ten to twelve in *A. baeuerlenii*).

Flowers—White or cream in small few-flowered cymes, 1.5–7 cm long. Flower stalks smooth, 3.5–13 mm long. Flowers 6–7 mm long, *smooth* except for the style which is hairy at the base. Flowering period November to February.

Fruit—Fleshy, drupe, *mauve* in N.S.W. drying *reddish-black*. *Smooth* (*A. oblongifolia* has a ring of hairs at the tip), rounded flattened, depressed at the top and pleated into six-ten lobes beneath, 6–8 mm wide. Seeds dark reddish-brown, 4 mm long. Fruit ripe June to October.

Habitat—In dry rainforest up to 700 m altitude.

Distribution—Upper Clarence River, N.S.W., throughout coastal Queensland, New Caledonia and Lord Howe Island.

Recorded in N.S.W. from Rivertree and Boonoo Boonoo Falls in the Upper Clarence where it it locally abundant, Lever's Plateau, Boomerang Falls Whian Whian S.F. and Wilson Park Lismore.

Timber and Uses—Wood creamy white, close-grained and tough. Too small to be of use.

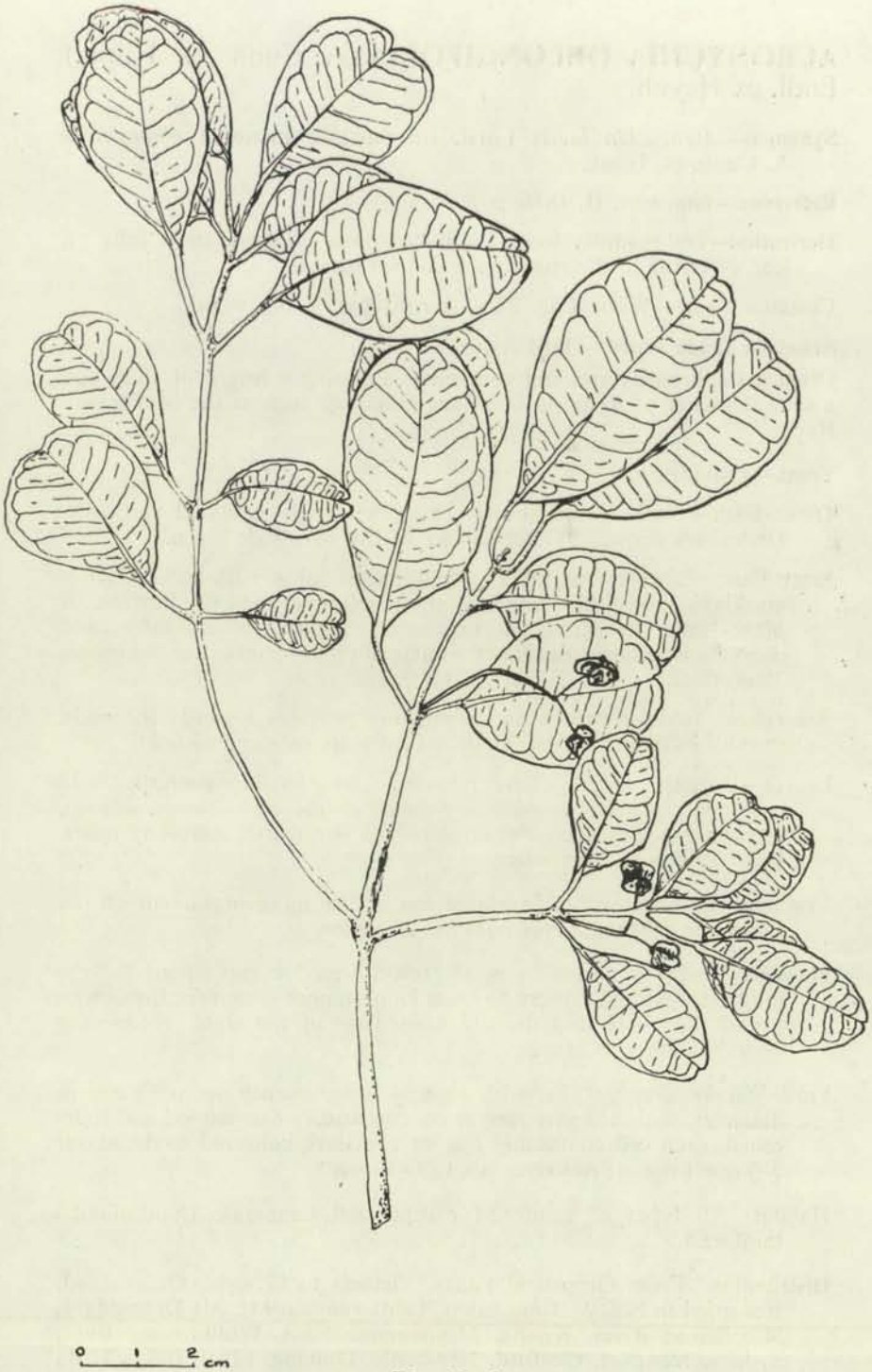


Plate No. 4
Acronychia laevis J. R. and G. Forst.

ACRONYCHIA OBLONGIFOLIA (A. Cunn. ex Hook.) Endl. ex Heynh.

Synonym—*Acronychia laevis* Forst. (in part), *Cyminosma oblongifolia* A. Cunn. ex. Hook.

Reference—Nomencl. II, 1846, p. 8.

Derivation—Oblongifolia from Latin "oblonga" oblong and "folia" a leaf, referring to the rectangular-shaped leaves.

Common Name—White Lilly Pilly, Acronychia, Yellowwood.

Standard Trade Name—Hard Aspen.

Often a small bushy tree but sometimes attaining a height of 18 m and a stem diameter of 30 cm in luxuriant rainforest such as the McPherson Range.

Trunk—Cylindrical.

Outer Bark—*Dark brown, smooth* and often finely wrinkled vertically. Underbark brown. Outer surface of live bark pale green.

Inner Bark—Blaze on a tree 15 cm diameter, pink with paler vertical markings and flecks, inner margin yellowish-brown. Surface of blaze fades slightly on exposure. Slightly bitter taste and characteristic turpentine smell similar to other members of the genus. 3 mm thick.

Branchlets—Reddish-brown and sometimes purplish towards the ends, smooth including the leaf buds. Leaf scars pale and distinct.

Leaves—Opposite, *simple*, entire, obovate-oblong to oblong-elliptic, 4–12 cm long, *rounded or bluntly pointed at the tip. Shiny, smooth, bright green* with *numerous oil dots only one to two diameters apart.* Leaf stalk 6–13 mm long.

Venation—Distinct on both surfaces but a little more prominent on the underside. *Main lateral veins five to eleven.*

Flowers—White or cream in small, few-flowered cymes about 4–8 cm long. Individual flowers 5–7 mm long, smooth except for the downy tip of the ovary and densely hairy base of the style. Flowering period January to March.

Fruit—*Fleshy, drupe*, white, with an acid taste, *smooth* up to 13 mm in diameter, with a *downy ring at the tip, usually four-angled* and four-celled, each cell containing one or two dark coloured seeds, about 3–5 mm long. Fruit ripe July to October.

Habitat—All types of rainforest except cool temperate (Nothofagus) rainforest.

Distribution—From Gippsland Lakes, Victoria to Gympie, Queensland. Recorded in N.S.W. from Eden, Tantawangalo Mt, Mt Dromedary, Shoalhaven River, Kiama, Minnamurra Falls, Wollongong, Bulli, Sydney, Newport, Gosford, Newcastle, Dungog, Myall Lakes N.P.,

Upper Williams River, Craven Plateau, Wingham, Comboyne, Doyles River S.F., Wauchope, Port Macquarie, Kempsey, Oakes S.F., Nambucca Heads, Dorrigo N.P., Pine Creek S.F., Coramba, Bagawa S.F., Wild Cattle Creek S.F., Moonpar S.F., Hyland S.F., Cloud's Creek S.F., Iluka N.R., Gibraltar Range, S.F. Ballina, Eltham, Toonumbar S.F., Moore Park, Unumgar S.F., Beaury S.F., Acacia Plateau, Wiangaree S.F., Whian Whian S.F., Mt Warning N.P., Murwillumbah and Stott's Island N.R.

Timber and Uses—Wood creamy-white, close-grained, fairly hard and tough. Suitable for turnery, carving and small tool handles.

0 1 2 cm.

E.S.

Plate No. 5
Acronychia oblongifolia (A. Cunn. ex Hook.) Endl. ex Heynh.

ACRONYCHIA PAUCIFLORA C. T. White.

Reference—Proc. Roy. Soc. Queensl. 57: 21 (1947).

Derivation—Pauciflora from Latin "paucus" few and "flora" flower, referring to there being only one to three flowers in each inflorescence.

Common Name—Few-flowered Acronychia.

Standard Trade Name—None.

A small tree up to 10 m tall and 10 cm diameter.

Trunk—Not buttressed or flanged.

Outer Bark—*Creamy-fawn, wrinkled to finely scaly.* Underbark cream. Outer surface of live bark mottled green and pinkish-brown.

Inner Bark—Blaze on a tree 10 cm diameter pink-brown with vertical darker flecks. Turning paler on exposure. Turpentine taste and smell. 8 mm thick.

Branchlets—Moderately slender, grey-brown turning grey with age, *sparse fawn down on the expanding shoots and buds*, otherwise smooth.

Leaves—Opposite, appearing simple but actually consisting of a *single leaflet*, not toothed, *elliptic* or occasionally broadest towards the tip, 5–10 cm long, rounded or bluntly pointed at the tip, wedge-shaped at the base. Glossy above but less so below, moderately thick usually smooth, dark green above and paler beneath. *Oil dots* indistinct transparent green, fewer than in *A. oblongifolia* and *A. laevis*, only one or two in each reticulation and *five to ten diameters apart*. Leaf stalk commonly about 1 cm long (.4–1.8 cm), at first sparsely covered by short dark hairs but later becoming smooth, *cream with transverse cracks*.

Venation—Midrib, lateral and net veins visible on both sides. *Major lateral veins* extending close to margin *seven to nine*, straight with forked connecting loops at the ends. All veins raised on both sides.

Flowers—Greenish-white *one to three* in a reduced cyme, .8–1.2 *cm long*. *Flower stalks thick and downy*, 1–2 *mm long*, with flowers 5–6 mm long. Sepals and petals four, triangular, small under 1 mm long. Stamens eight. Ovary round smooth except for a few hairs at the base of the style. Flowering period February to May.

Fruit—*Fleshy, drupe*, white, rounded with a sunken top, divided for half its length into four lobes, smooth except for a few hairs at the tip, 7–9 mm wide. Seeds reddish black, 4 mm long. Fruit ripe September to November.

Habitat—Locally common in dry rainforest on dry steep stony basaltic slopes in association with hoop pine.

Distribution—From Lismore, N.S.W. to Rockhampton, Queensland and west into brigalow scrub in that state. Recorded in N.S.W. from Wilson and Rotary Parks Lismore and North Pumpenbil Creek.

Timber and Uses—Too small to be of use.

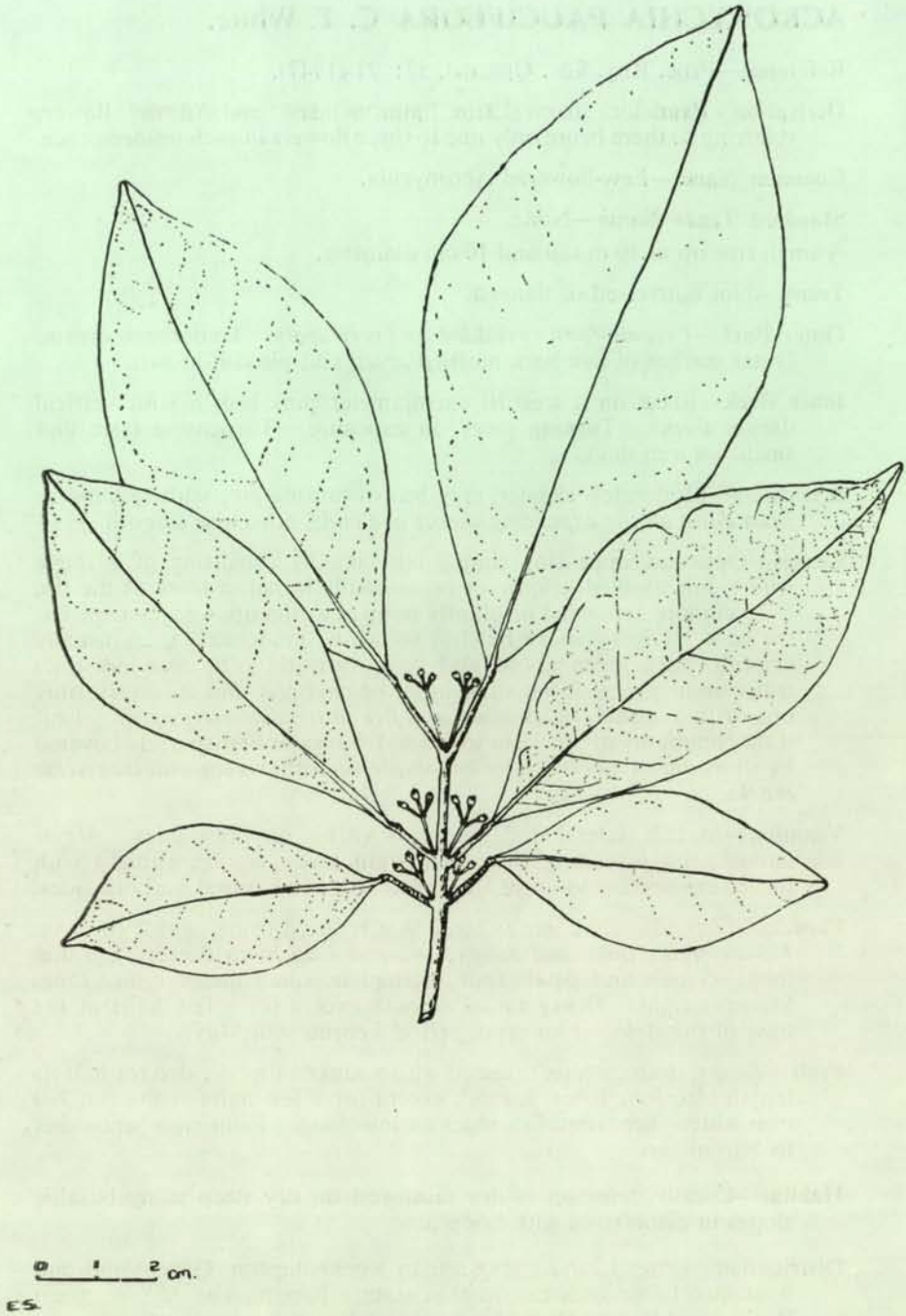


Plate No. 6
Acronychia pauciflora C. T. White

ACRONYCHIA PUBESCENS (F. M. Bailey) C. T. White.

Synonym—*Acronychia melicopoides* F. Muell. var *lasiantha* F. Muell., *Melicope pubescens* F. M. Bailey.

Reference: Proc. Roy. Soc. Qld. 50: 68. 1939.

Derivation—Pubescens from Latin "pubescens" downy referring to the leaves.

Common Name—Hairy Acronychia.

Standard Trade Name—None.

A small tree attaining a height of about 15 m and a stem diameter of about 18 cm.

Trunk—Usually cylindrical, sometimes slighted flanged at the base.

Outer Bark—Brown or greyish-brown, smooth, surface of the live bark mottled green and brown.

Inner Bark—*Blaze* on a tree 15 cm diameter, *reddish or slightly purplish brown*, sometimes with darker concentric rings with paler vertical lines on the outer half. *Inner margin yellow*, darkening after a few minutes exposure, blaze surface fading to a faint purplish shade. Turpentine-like taste and smell. 3 mm thick.

Branchlets—Grey to grey-brown *young shoots densely golden pubescent.* Leaf scars visible.

Leaves—Opposite, three, but sometimes one or two leaflets on lateral shoots, *leaflets sessile*, mostly lanceolate, 8–20 cm long, usually drawn out into a blunt point at the tip, but sometimes sharply pointed. Upper surface glabrous or with scattered hairs along the midrib, *usually hairy on the underside*, particularly the midrib. Oil dots not visible. Leaf stalk hairy, .8–8 cm long.

Venation—Distinct both surfaces. Midrib usually sunken upper surface. Lateral nerves and net veins often slightly raised. Venation conspicuously raised beneath.

Flowers—Greenish-fawn, in lateral and axillary cymes, about 25 mm or under long. Individual flowers up to about 8 mm long, *covered with a pale dense pubescence.* Flowering period April to June.

Fruit—*Fleshy, drupe, yellow, downy, ridged, about* 2.5 *cm diameter* with an acid turpentine-like flavour. Seeds red-brown. Fruit ripe January to March and June to September.

Habitat—On the borders of riverine and littoral rainforest, but appears to be most common in the warm temperate rainforests in the mountains.

Distribution—From Pine Creek S.F., New South Wales to Blackall Range, Queensland. Recorded in N.S.W. from Pine Creek S.F., Dorrigo N.P., Orara West S.F., Woolgoolga, Wild Cattle Creek S.F., Moonpar S.F., Cloud's Creek S.F., Hyland S.F., Poverty Point, Gibraltar Range S.F., Washpool S.F., Richmond Range S.F.,

Ewingar S.F., Tintenbar, Alstonville, Toonumbar S.F., Beaury S.F., Acacia Plateau, Nothofagus Mtn. F.R., Mt Lindesay F.R., Lever's Plateau, Wiangaree S.F., Whian Whian S.F., Mt Warning N.P. and Mooball S.F.

Timber and Uses—Wood pale yellow or almost white, close-grained and medium hard and of no particular use.

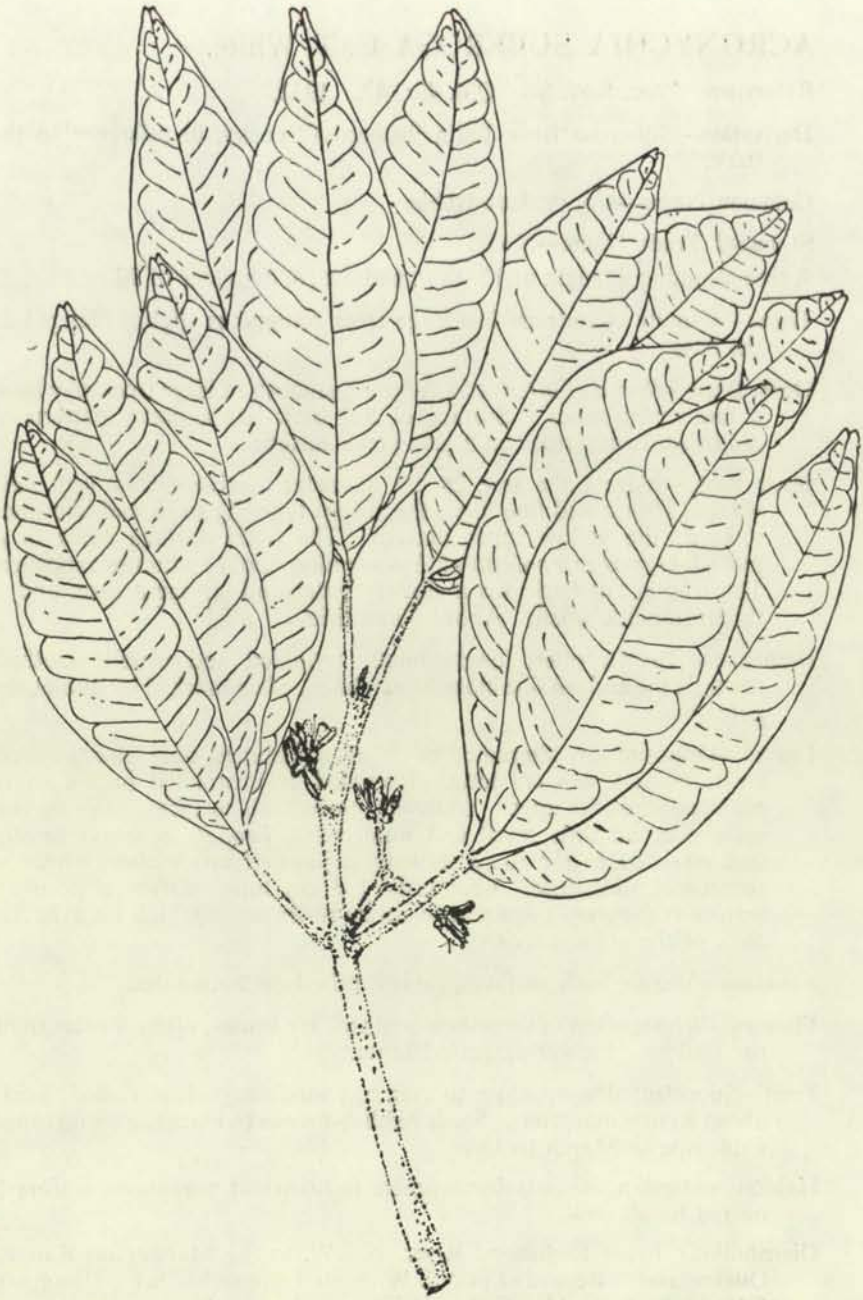


Plate No. 7
Acronychia pubescens (F. M. Bailey) C. T. White

ACRONYCHIA SUBEROSA C. T. White.

Reference—Proc. Roy. Soc. Qld. 43: 47. 1932.

Derivation—Suberosa from Latin "suberosa" corky, in reference to the bark.

Common Name—Corky Acronychia.

Standard Trade Name—None.

A tree attaining a height of 15–18 m and a stem diameter of 30 cm.

Trunk—Usually cylindrical but large trees sometimes slightly flanged at the base.

Outer Bark—*Brown or often reddish-brown*, smooth or large trees may have a few corky scales. Surface of live bark has a pretty pattern of reddish-brown stripes on a pale green surface.

Inner Bark—Blaze on a tree 28 cm diameter, *pinkish-brown with pale vertical stripes* and fine lines, the stripes tapering to thread-like lines towards the yellow inner margin. The blaze surface *fades to a pinkish-grey or to a pale purplish* shade after about 8 minutes exposure. The freshly cut bark has a slightly bitter and stringent taste and a turpentine-like smell. About 6 mm thick.

Branchlets—Brown often longitudinally wrinkled and usually clothed towards the ends in fine close brown hairs, often marked by numerous pale dots.

Leaves—Opposite or alternate, *three or* sometimes only *two leaflets*, entire elliptic, 4–8 cm long. Rounded or protracted into a short blunt point at the apex. *Glabrous*, green both surfaces, paler on the underside, oil dots small and numerous. *Leaflets generally sessile* and attached to the main stalk by a joint or articulation which is sometimes indistinct. Leaf stalk 1–3 cm long. Often a peculiar feature is the *cracks and narrow raised corky bands* which *encircle the stalk* of the older leaves.

Venation—Visible both surfaces, midrib raised on both sides.

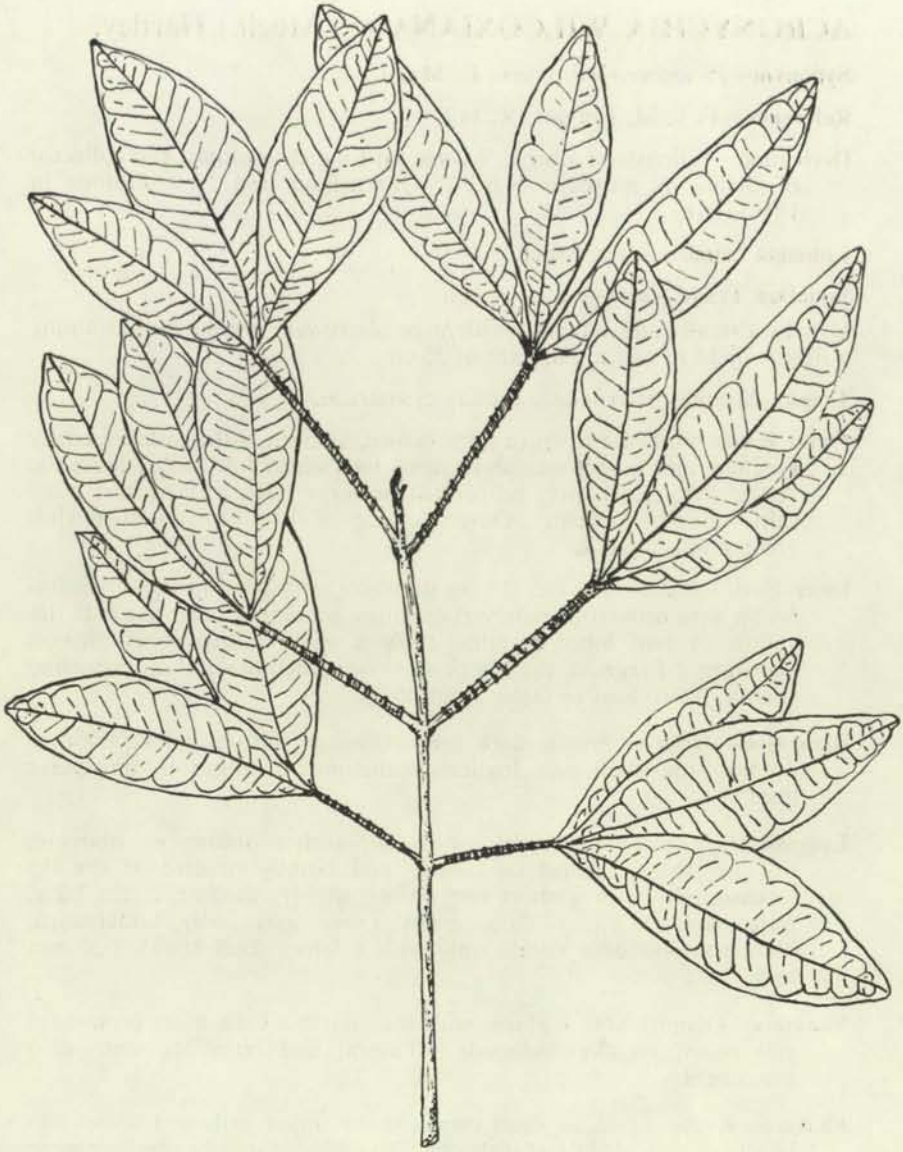
Flowers—White, often in three-flowered axillary cymes, often shorter than the leaflets. Flowering period January.

Fruit—Succulent drupe, white to cream, round, angled or ribbed, acid, about 13 mm diameter. Seeds reddish-brown to blackish, 4 mm long. Fruit ripe to March to June.

Habitat—Attaining its best development in luxuriant mountain rainforest on red basalt soils.

Distribution—From Richmond River, N.S.W. to the McPherson Range, Queensland. Recorded in N.S.W. from Toonumbar S.F., Unumgar S.F., Nothofagus Mtn F.R., Mt Glennie, Lever's Plateau, Wiangaree S.F., Whian Whian S.F., Limpinwood N.R. and Upper Crystal Creek.

Timber and Uses—Creamy-white, close grained and firm but has no known uses. A comparatively rare tree.



0 1 2 cm.

E.S.

Plate No. 8
Acronychia suberosa C. T. White

ACRONYCHIA WILCOXIANA (F. Muell.) Hartley.

Synonym—*Pleiococca wilcoxiana* F. Muell.

Reference—F. v. M. Fragm. IX, 117.

Derivation—Wilcoxiana after J. Wilcox, an English zoologist and collector of plants in northern N.S.W., Queensland and New Guinea in 1856–1881.

Common Name—Silver Aspen.

Standard Trade Name—Silver Aspen.

Usually a small handsome tree with *large glossy dark green leaves* attaining a height of 15 m and a diameter of 25 cm.

Trunk—Straight or crooked, usually cylindrical.

Outer Bark—Pinkish-brown to dark brown, smooth with scattered corky pustules and sometimes short very fine white horizontal lenticels. A few flaky scales may be present on large trees. Dead bark very thin, underbark fawn. Outer surface of live bark mottled dull green and orange.

Inner Bark—*Blaze* on a tree 15 cm diameter, *dull pink to dark reddish-brown* with numerous pale vertical lines, becoming paler towards the yellow or buff inner margin. Only a slight fading in colour on exposure. Fragrant, slightly peppery or sometimes with a turpentine smell. Astringent to taste, 5 mm thick.

Branchlets—*Grey or brown*, dark green towards the tip, *thick*, smooth, dotted with small pale lenticels sometimes arranged in transverse lines.

Leaves—*Opposite, a single jointed leaflet*, entire, oblong or obovate, 6–23 *cm long*, notched or shortly and bluntly pointed at the tip (occasionally with a short fine point), slightly cordate at the base. *Both surfaces glossy* dark green above and paler underneath. Numerous oil dots visible only with a lens. Leaf stalks 3-30 mm long.

Venation—Distinct both surfaces with the midrib a little more prominent and raised on the underside. Lateral and reticulate veins also prominent.

Flowers—White, small, in short cymes in the upper axils and sometimes hardly exceeding the leaf stalks or often reduced to a slender racemose panicle. Flower stalks 6 mm long, enlarging towards the top. Flowering period January to March.

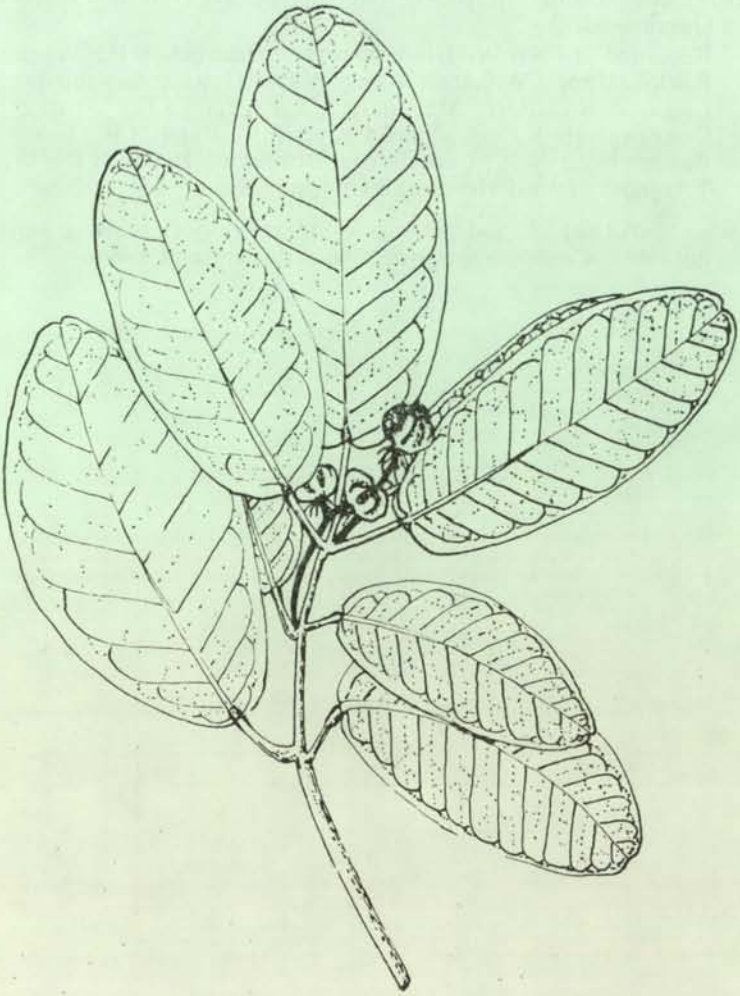
Fruit—Drupe with juicy *acid flesh, white, globular*, consisting of *commonly five or up to nine carpels, joined at their inner edges into a furrow, spurred below*, 10–20 mm diameter. Seeds black, oval beaked, 4 mm long, one fertile or aborted in each carpel. Fruit ripe April to May.

Habitat—Commonly in littoral rainforest on sand but also in warm temperate rainforest on soils of only moderate fertility.

Distribution—From the Hawkesbury River, N.S.W. to Fraser Island, Queensland.

Recorded in N.S.W. from Narara, Ourimbah S.F., Wyong, Seal Rocks, Upper William's River, Cape Hawke, Comboyne, Black Creek F.R., Port Macquarie, Bellangry S.F., Shark Island, Conglomerate S.F., Kangaroo River S.F., Iluka N.R., Evans Head, Broken Head N.R., Cape Byron, Brunswick Heads N.R., Myocum, Terranora, Tweed Heads and Cudgen Lake.

Timber and Uses—Wood whitish, moderately soft, close-grained, not durable. Could be used for inlays, turnery and carving.



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E.S.

Plate No. 9
Acronychia wilcoxiana (F. Muell.) Hartley

BAUERELLA SIMPLICIFOLIA (Endl.) Hartley.

Synonym—*Bauerella australiana* Borzi., *A. baueri* Schott, *Acronychia simplicifolia* (Endl.) Green & McGillivray.

Reference—Journ. Arn. Arb. 56, 1, 1975. 168.

Derivation—Bauerella after F. Bauer, a botanical artist and assistant to botanist Robert Brown when in Australia in 1800–1805; simplicifolia from Latin "simplex" undivided and "folia" a leaf referring to the simple leaf.

Common Name—Yellow Acronychia, Yellowwood.

Standard Trade Name—Yellow Aspen.

A medium sized tree attaining a height of 18 m and a stem diameter of 33 cm.

Trunk—Cylindrical.

Outer Bark—*Grey, corky and scaly, fissured.* Underbark brown, *outer surface of live bark orange-yellow.*

Inner Bark—*Blaze* on a tree 33 cm diameter *deep yellow* and *patterned with* semi-circular and perpendicular *reddish lines* giving a pretty marble-like effect to the outer half, inner half becoming pure yellow towards the sapwood. Blaze gradually *fades to a dull green* on exposure. Fresh bark has a pronounced smell. 13 mm thick.

Branchlets—Light grey, smooth, often marked by small raised dots.

Leaves—*Opposite, simple,* entire, elliptical, 5–13 cm long, blunt and tapering to a blunt point, shining upper surface, under side paler. *Petioles up to* 4 *cm long.*

Venation—Visible both surfaces, midrib raised on the undersurface.

Flowers—Cream, small, finely hairy, single or few in narrow inflorescences up to 4 cm long in the forks of the leaves. Calyx four-lobed, petals four, 6 mm long, stamens eight. Flowering period May to September.

Fruit—*Hard and only slightly fleshy drupe, yellow-brown,* globular or egg-shaped, *faintly four-angled* up to 16 mm long, four-celled with a single seed, 5 mm long. Fruit ripe May to November.

Habitat—Sub-tropical, monsoon and littoral rainforests.

Distribution—Illawarra, N.S.W. to Atherton, Queensland.
Recorded in N.S.W. from Shoalhaven River, Singleton, Kelaher's Brush Liverpool Range, Myall Lakes N.P., Seal Rocks, Cape Hawke, Saltwater Inlet, Boorganna N.R., Port Macquarie, Bellangry S.F., Carrai S.F., Shark Island, Oakes S.F., Dorrigo N.P., Moonpar S.F., Orara West S.F., Wild Cattle Creek S.F., Cloud's Creek S.F., Susan

Island, Iluka N.R., Gibraltar Range N.P., Ewingar S.F., Mt Pikapene S.F., Beaury S.F., Tooloom, Acacia Plateau, Lever's Plateau, Wiangaree S.F., Whian Whian S.F., Victoria Park N.R., Broken Head N.R., Brunswick Heads N.R., Mt Warning N.P., Limpinwood N.R., Murwillumbah and Stott's Island.

Timber and Uses—Wood yellow, close-grained, tough, moderately heavy. Excellent for mallet and chisel handles.

0 2 4 cm

Plate No. 10
Bauerella simplicifolia (Endl.) Hartley

BOSISTOA FLOYDII Hartley.

Reference—J. Arn. Arb. 58 (4): 428–30 (1977).

Derivation—Bosistoa after J. Bosisto, a Melbourne pharmacist; floydii after A. G. Floyd.

Common Name—Suggest Five-leaved Bonewood.

Standard Trade Name—None.

A tree attaining a height of 20 m and a stem diameter of 75 cm. Could be a useful ornamental tree because of its spreading, dense, dark-green crown.

Trunk—Somewhat fluted and buttressed on large trees with some basal coppice shoots often present.

Outer Bark—Grey, very thin, smooth or wrinkled to almost finely scaly. Underbark purplish-fawn. Outer surface of live bark orange-fawn, with vertical green stripes.

Inner Bark—On a tree 75 cm diameter creamy orange-brown with darker pinkish flecks. Sapwood margin paler. No taste but a slight fragrant smell. No change in colour on exposure. 6 mm thick.

Branchlets—Moderately thick, green on the leafy section but creamy fawn where older, smooth. Leaf scars prominent and buds squat, brown and downy.

Leaves—Opposite, pinnate, *usually five leaflets but occasionally seven* due to four rather than two leaflets at the base, not toothed but with a wavy margin, lanceolate, 10–15 cm long, gradually tapering to a point at the tip but more abruptly and assymetrically at the base. Somewhat shiny on both sides, without hairs, dark green with conspicuous numerous oil dots when held up to the light. Leaf stalk 2–5 cm to the first pair of leaflets, smooth, fawn, flattened or grooved on top. Leaflet stalks 5–10 mm long on the lateral pairs but up to 25 mm for the terminal leaflet.

Venation—Midrib, lateral and net veins visible above but more conspicuous and raised below. Main lateral veins about twenty on each side of the midrib, curving but not joining near the margin with as many shorter veins between.

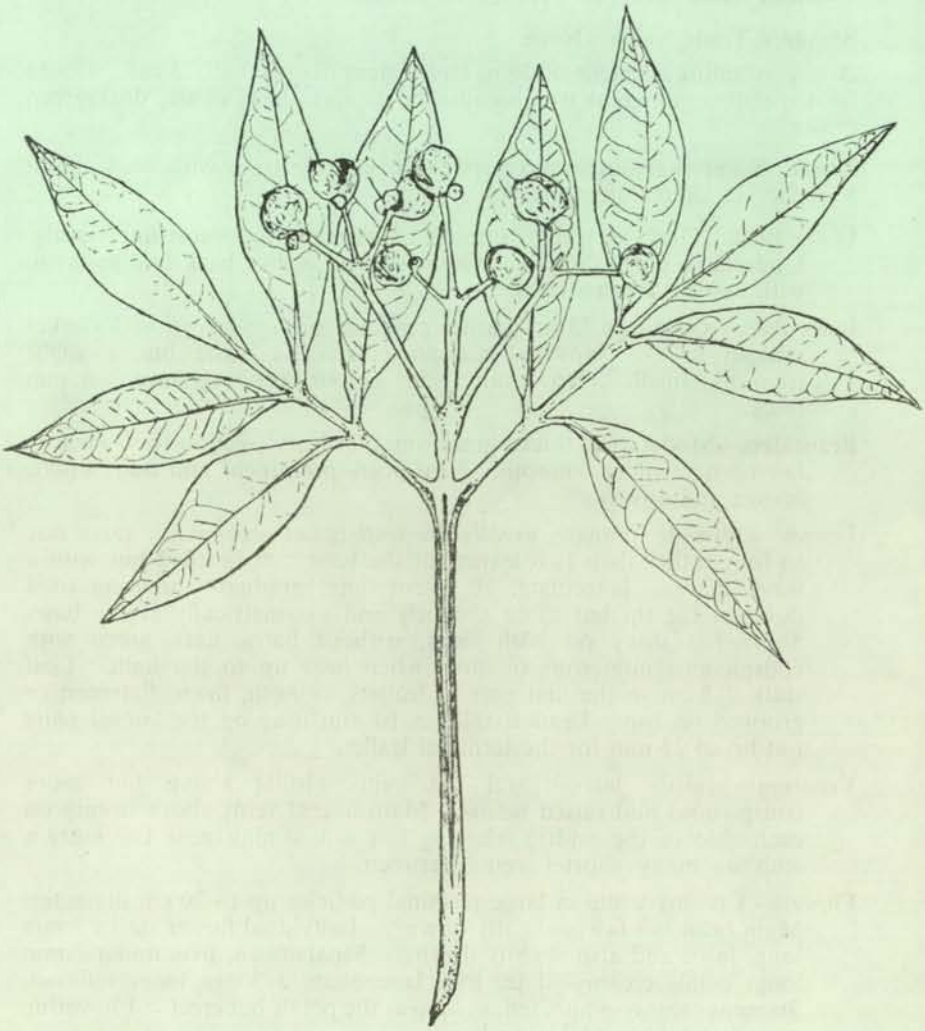
Flowers—Creamy-white in large terminal panicles up to 20 cm diameter. Main branches fawn, slightly downy. Individual flower stalks 3 mm long, fawn and also slightly downy. Sepals fawn, five, under 1 mm long, petals creamy-white, five, lanceolate, 3–5 mm long, reflexed, Stamens creamy-white, ten, as long as the petals but erect. Flowering period October and November.

Fruit—*Usually one* but occasionally two hard carpels (cocci), 10 mm long, yellow-brown, *warty* rather than wrinkled, scurfy, *globose-flattened.* Splitting open from the top and down one side. Seeds *oval*, one in each coccus, 6 mm long, grey-black, enclosed in a yellowish horny membrane. Fruit ripe February.

Habitat—Subtropical rainforest on rich alluvial or basaltic soils.

Distribution—Restricted to a few areas only where locally abundant from the Nambucca to Richmond Rivers in N.S.W.
Recorded in N.S.W. from Oakes S.F., Taylor's Arm, Dorrigo N.P. Mirum and Wayper Creeks Upper Orara and Cherry Tree S.F.

Timber and Uses—Yellow, hard and close-grained. Not used because of its restricted occurrence.



0 2 4 cm.

E.S.

Plate No. 11
Bosistoa floydii Hartley

BOSISTOA PENTACOCCA (F. Muell.) Baill.

Synonym—*Bosistoa sapindiformis* F. Muell., *Euodia pentacocca* F. Muell.

Reference—F. v. M. Fragm. III, 41.

Derivation—Pentacocca from Greek "penta" five and "coccos" a berry, referring to the five carpels in the young fruit.

Common Name—Native Almond, Large-leaved Bosistoa, Union Nut.

Standard Trade Name—None.

A small tree, with a rather dense crown of long, green leaves, occasionally reaching a height of 12–15 m and a diameter of 20–25 cm.

Outer Bark—*Red-brown, transversely patterned with crowded pustules.* Underbark yellow-brown, showing the pattern of the pustules.

Inner Bark—*Creamy* and brittle.

Branchlets—*Red-brown, roughened,* with prominent grey leaf scars.

Leaves—Opposite, pinnate consisting of *three to thirteen leaflets, toothed or entire,* lanceolate to oblong-lanceolate, 10–25 cm long, drawn out to a *sharp point at the apex,* slightly oblique at the base. Upper surface dark green, paler beneath, *young leaves bright red.* Oil dots visible but minute. *Petioles of main leaf stalk swollen* at the base and covered with a *red-brown corky process. Leaflet stalks* 2–13 mm long and articulated or *jointed.*

Venation—Prominent on both surfaces, but the midrib and lateral veins more prominent and raised on the undersurface.

Flowers—White, in terminal panicles shorter than the leaves. Calyx small with five short, unequal teeth. Petals five, smooth with sunken glands on the lower surface, stamens ten, carpels five, hairy, on a raised disc. Flowering period February-March.

Fruit—An oblique carpel (coccus) splitting open at the apex and sides, 25 mm long, surface *strongly wrinkled, yellowish-brown, hairy.* Seed one in each fruit, globose or somewhat flattened, 16 *mm diameter* with a brown seed coat. Fruit ripe October to November.

Habitat—A tree of the water courses in coastal rainforests.

Distribution—Patchy distribution from the Clarence River, N.S.W. to Mackay, Queensland. Fairly common in the Richmond River area. Recorded in N.S.W. from Clarence River, Toonumbar S.F., Wiangaree S.F., Red Scrub F.R., Wilson's Creek, Booyong, Ballina, Tintenbar, Mebbin S.F., Mt Warning N.P., Limpinwood N.R. and Upper Crystal Creek.

Timber and Uses—Yellow, rarely utilized, but is reputed to be beautifully marked, close-grained, tough and suitable for hard turnery, chisel handles and cabinet work.

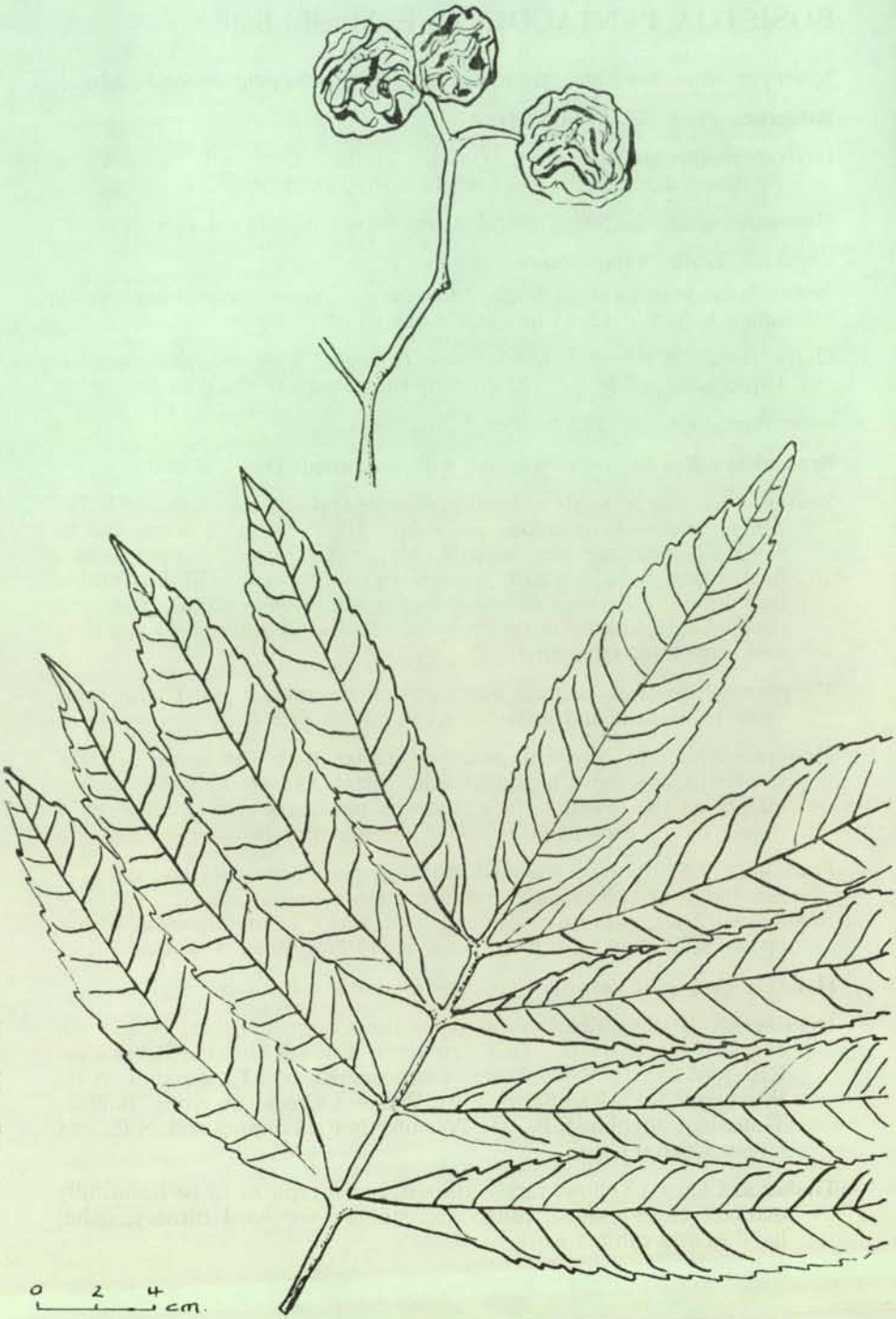


Plate No. 12
Bosistoa pentacocca (F. Muell.) Baill.

BOSISTOA SELWYNII Hartley.

Reference—J. Arn. Arb. 58 (4): 428 (1977).

Derivation—Selwynii in honour of Selwyn L. Everist, former director of the Queensland Herbarium and authority on Australian poisonous plants.

Common Name—Suggest Heart-leaved Bonewood.

Standard Trade Name—None.

A crooked tree up to 22 m tall and 50 cm diameter with a dark green crown.

Trunk—Cylindrical not fluted or buttressed at the base.

Outer Bark—Dark grey-brown, smooth to slightly roughened with horizontal raised lines. Underbark and outer surface of the live bark mid-brown.

Inner Bark—On a tree 50 cm diameter creamy-yellow with faint darker concentric rings. No change in colour on exposure. No distinctive taste or smell. 5 mm thick.

Branchlets—Slender, brown and smooth. A *raised ring* due to the fallen inner bud scales is present about one third above the leaf pair in addition to the outer bud scales scars at the leaf junction. Leaf buds downy.

Leaves—Opposite, apparently *simple*, not toothed, egg-shaped to elliptical, 5–13 cm long, pointed or occasionally rounded at the tip, usually *heart-shaped at the base*. Rather thick, dull or scarcely shiny on both sides, smooth above but occasionally slightly downy below, very dark green above, paler below with numerous translucent oil dots visible to the naked eye. *Leaf stalk very thick and short* up to 8 mm long, smooth.

Venation—Midrib and nine to twelve lateral veins visible above but more conspicuous below where the coarse net veins are also visible, sunken above but raised below.

Flowers—White, in panicles at the ends of the branchlets or in the leaf axils 6–10 cm long. Flower stalks 4–5 mm long. Sepals five, downy, triangular, 0.8–1.6 mm long. Petals five, downy beneath but less so above, broad-elliptic, 4 mm long. Stamens ten. Ovary globular, woolly, with a stout style 1.5–3 mm long. Flowering period March-April.

Fruit—Usually one, but occasionally two hard carpels (cocci), grey-brown, truncated egg-shaped with about five concentric ribs, about 1 cm broad, *velvety*. Seeds one in each carpel, kidney-shaped, 1 cm long. Fruit ripe October.

Habitat—Lowland subtropical rainforest to 300 m altitude of the white booyong association on deep moist basaltic soil. Prefers alluvial flats in N.S.W., particularly along creek banks.

Distribution—Richmond River N.S.W. to Maryborough Queensland. Recorded in N.S.W. from Whian Whian S.F., North Pumpenbil Creek and Oxley River adjoining Limpinwood N.R.

Timber and Uses—Not used because of its generally small size and scattered occurrence.

Plate No. 13
Bosistoa selwynii Hartley

BOSISTOA TRANSVERSA Bail. and White.

Reference—Queensl. Dept. Agr. Bot. Bull. 19: 7. t. 2 (1917).

Derivation—Transversa from Latin "transversus", lying across, referring to the transversely ribbed carpels of the fruit.

Common Name—Yellow Satinheart.

Standard Trade Name—Yellow Satinheart.

A small to medium tree up to 15 m tall and 20 cm diameter.

Trunk—Cylindrical.

Outer Bark—Not recorded.

Inner Bark—Not recorded.

Branchlets—Slender, brown to grey-brown, smooth. A *raised ring* due to the fallen inner bud scales is present about *one third above the leaf pair* in addition to the outer bud scales scars at the leaf junction. Buds slightly furry.

Leaves—Opposite, usually consisting of *three leaflets* but sometimes reduced to one or two, not toothed, elliptic oblong to broadly elliptic, 4–12.5 cm long, tapering to a fine or blunt point at the tip, quickly tapering or rounded at the base and *usually assymetrical on the lateral leaflets*. Leaflets dull, smooth, equally green on both surfaces with numerous small translucent oil dots scarcely visible to the naked eye. Lateral leaflet stalks swollen up to 5 mm long, *terminal leaflet stalk much longer* at 8–25 mm and swollen where the blade is attached.

Venation—Midrib and lateral nine to twelve veins visible above but more conspicuous below where the net veins are also visible. Sunken above but raised below.

Flowers—White in panicles 7–16 cm long, terminal or in the upper leaf axils. Flower stalks 6–10 mm long, finely downy. Flowers about 3.5 mm long. Sepals five, joined at the base, triangular, downy .7–1 mm long. Petals five, broadly elliptic, more downy below, 3 mm long. Stamens ten, about 1 mm long. Ovary woolly, globular, about .7 mm diameter crowned by a style 1.2 mm high. Flowering period January to March.

Fruit—One or two woody carpels, yellowish-brown, obliquely egg-shaped, 1–1.3 cm wide, densely downy and transversely ribbed or wrinkled. Opening at the top and down one side to release a single kidney-shaped seed about 10 mm long. Fruit ripe May to July.

Habitat—Lowland subtroptical rainforest up to 150 m altitude.

Distribution—Mullumbimby, N.S.W. to Maryborough, Queensland. Recorded in N.S.W. only from Tongoggin Mtn, Mullumbimby (1895) and from Tweed River (1875).

Timber and Uses—Too small to be of use.

0 1 2 cm.

F.S.

Plate No. 14
Bosistoa transversa Bail. and White

BOUCHARDATIA NEUROCOCCA (F. Muell.) Baill.

Synonym—*Melicope neurococca* Benth., *Evodia neurococca* F. Muell.

Reference—B. Fl. Aust., 1, 360.

Derivation—Bouchardatia derivation not known; neurococca from Greek "neuron" a nerve, and "coccos" a berry referring to the ribbed carpels or cocci.

Common Name—Union Nut.

Standard Trade Name—

Usually a small tree or shrub up to 12 m tall and 15 cm diameter.

Trunk—Not buttressed but fluted and crooked.

Outer Bark—Grey-brown, smooth with horizontally elongated pale or brown lenticels. Underbark fawn, outer surface of live bark lime-green.

Inner Bark—On a tree 8 cm diameter white, quickly oxidizing to speckled pink and brown. No taste or smell. 2 mm thick.

Branchlets—Round with *dense short yellow-brown to grey hairs.*

Leaves—Opposite, pinnate, *three to five leaflets*, margins entire, lanceolate-elliptical, 8–12 *cm long*, drawn out into a blunt point at the apex, oblique at the base. *Shiny dark green above, soft yellow-brown hairs below*, oil dots visible. Foveolae in most axils along the midrib and lateral nerves. Petiole 2–5 cm long. Leaflet stalks very *short on lateral leaflets, up to 2 cm on terminal.* Articulated or jointed.

Venation—Visible on both surfaces, midrib and lateral nerves raised and more prominent on underside.

Flowers—White in dense terminal panicles, no smell. Sepals four, small, round, fringed, 1 mm diameter. Petals four, glabrous, not overlapping in bud, 3 mm. Stamens eight, glabrous, broad in the basal half. Flowering period January to May.

Fruit—*Two large cocci transversely ridged* opening at top, grey to black, 6–10 *mm long*, two smaller undeveloped cocci. Seeds oval, one in each coccus, 5 mm long, brown, enclosed in a yellowish horny membrane. Fruits ripe March to August.

Habitat—Subtropical rainforests.

Distribution—Richmond River, N.S.W. to Eumundi, Queensland. Recorded in N.S.W. from Bungabees S.F., Tintenbar, Alstonville, Victoria Park N.R., Wilson Park Lismore, Mt Warning N.P., Murwillumbah and Terranora.

Timber and Uses—Light yellow in colour, very hard and close-grained.

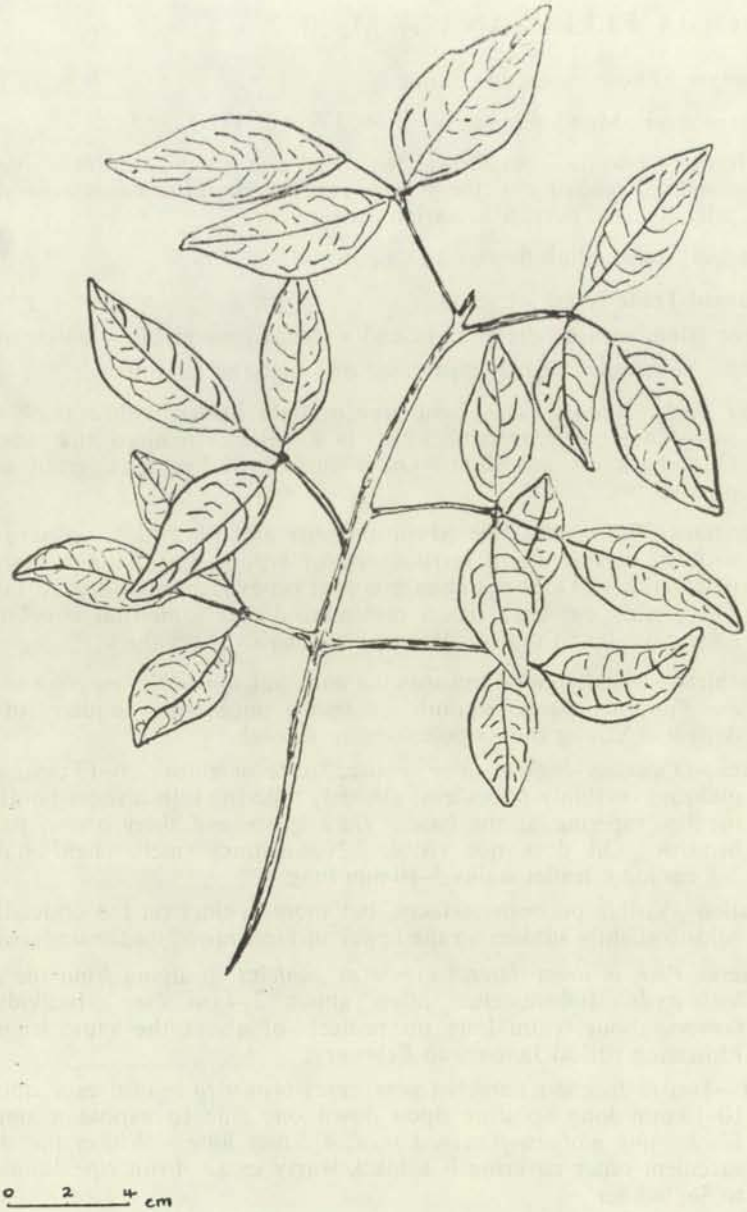


Plate No. 15
Bouchardatia neurococca (F. Muell.) Baill.

EUODIA ELLERYANA F. Muell.

Synonym—Evodia accedens Blume.

Reference—F. Muell. Fragm. V. 4, 56, 179 and VII 22.

Derivation—Euodia from Greek "eu" well and Latin "odoratus" sweet smelling, referring to the strong sweet smell of the leaves; elleryana after R.L.J. Ellery, a Victorian astronomer.

Common Name—Pink-flowered Doughwood.

Standard Trade Name—Evodia.

A tree attaining a height of 25 m and a stem diameter of 60 cm or over.

Trunk—Sometimes slightly buttressed or flanged in large trees.

Outer Bark—*Almost white*, light grey or light brown with a *thick soft corky* layer of *dead bark* which is sometimes fissured and ridged. Underbark creamy-white. Outer surface of live bark green with pink stripes.

Inner Bark—Blaze on a tree 50 cm diameter and 14 m high, *pale-brown*, with numerous *short vertical reddish-brown lines*. Inner margin pale yellow. Does not change colour on exposure. Bitter to taste. The freshly cut bark has a pronounced and somewhat *dough-like odour*, similar to that of *Melicope octandra*. 2 cm thick.

Branchlets—Usually green towards the ends but *sometimes purplish along the flowering parts*, smooth or thinly pubescent, angular, often flattish. Young shoots pubescent or smooth.

Leaves—Opposite, *leaflets three*, *entire*, ovate or elliptic, 6–13 cm *long*, glabrous or thinly pubescent, abruptly tapering into a short point at the tip, tapering at the base. *Dark green and shiny above*, paler beneath. Oil dots not visible. No distinct smell. Leaf stalks 3–8 cm long, leaflet stalks 3–10 mm long.

Venation—Visible on both surfaces, but more distinct on the underside. Midrib slightly sunken on the upper surface, raised on the underside.

Flowers—*Pink in dense lateral cymes or panicles* springing *from the old leaf axils*. Inflorescence often about 3–4 *cm long*. Individual flowers about 6 mm long on pedicels of about the same length. Flowering period January to February.

Fruit—*Two to four dry carpels* (*cocci*), *grey-brown to brown*, each about 10–13 mm long splitting open down one side to expose a *single black shiny globular-flattened seed*, 4–5 mm long. Within the thin succulent outer covering is a black warty seed. Fruit ripe January to September.

Habitat—Riverine rainforest.

Distribution—Clarence River, N.S.W. to North Queensland and Papua New Guinea. Recorded in N.S.W. from Angourie, Ballina, Wardell, Pimlico, Alstonville, Byron Bay, Brunswick Heads N.R., Billinudgel, Murwillumbah and Tweed Heads.

Timber and Uses—Wood white, light, soft and free working. Should be suitable for inlays, models, toys, soft carving and turnery.

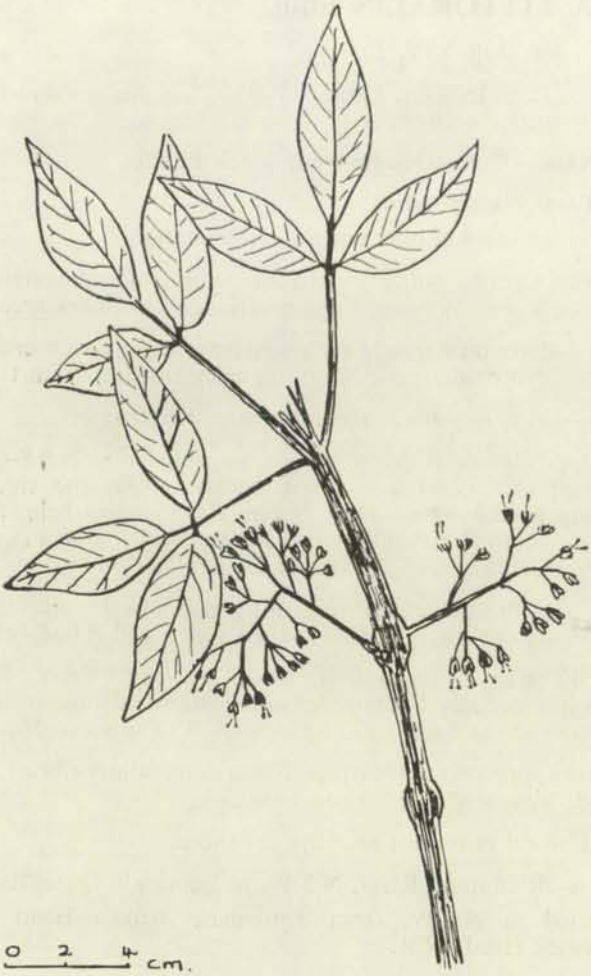


Plate No. 16
Euodia elleryana F. Muell.

EUODIA LITTORALIS Endl.

Reference—Bot. Bull. XIV. 7.

Derivation—Littoralis from Latin "littoralis" of the sea shore, referring to its maritime occurrence.

Common Name—Coast Doughwood, Beach Euodia.

Standard Trade Name—None.

A small tree up to 14 m high and 18 cm diameter.

Outer Bark—Cream, soft, smooth or with shallow vertical fissures. Underbark creamy-fawn. Outer surface of live bark green.

Inner Bark—Blaze on a tree 15 cm diameter pale pink with cream vertical stripes. No oxidation. No taste, spicy smell. 4 mm thick.

Branchlets—*Grey, very thick*, smooth, with *white lenticels.*

Leaves—Opposite, *leaflets three*, entire, glabrous, *elliptical*, 9–20 *cm long*, rather thick. Pointed but not drawn out at the tip, gradually tapering at the base. Dark green above, paler below. Oil dots small, numerous. Petiole long, 3–8 cm, *leaflet stalks almost absent on lateral leaflets but* 7–15 *mm on the terminal leaflets.*

Venation—Midrib and lateral veins distinct on both surfaces but more conspicuous below. Midrib sunken above and raised below.

Flowers—*White in dense panicles*, 10–20 *cm long*. Sepals four, under 1 mm, petals four, 1–2 mm, valvate. Stamens four, stalks flattened and hairy at the base. Flowering period October to November.

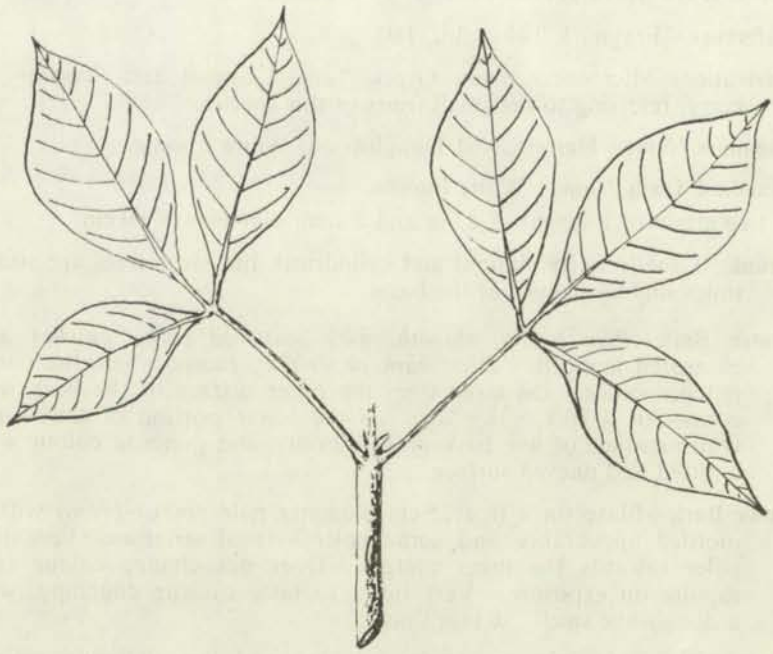
Fruit—Brown, one-two thin carpels, 5 mm long, faintly ribbed, containing a single hard seed. Fruit ripe February.

Habitat—Littoral rainforest near the sea shore.

Distribution—Richmond River, N.S.W. to Eumundi, Queensland.

Recorded in N.S.W. from Tintenbar, Broken Head N.R. and Brunswick Heads N.R.

Timber and Uses—Wood white, light, soft. Suitable for turnery, carving and cases.



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E.S.

Plate No. 17
Euodia littoralis Endl.

EUODIA MICROCOCCA F. Muell.

Reference—Fragm. 1, 144 and ii, 180.

Derivation—Micrococca from Greek "micro" small and "coccos" a berry, referring to the small fruits of this species.

Common Name—Hairy-leaved Doughwood, White Euodia.

Standard Trade Name—White Euodia.

A tree attaining a height of 27 m and a stem diameter of 60 cm.

Trunk—Usually fairly straight and cylindrical, but large trees are sometimes slightly flanged at the base.

Outer Bark—*Pale brown, smooth, with scattered corky patches* and elongated lenticels. *Dead bark paper-thin*, except where the corky patches occur. On large trees the outer surface of the bark may consist of a soft corky layer on the lower portion of the trunk. Outer surface of live bark pinkish-brown and green in colour with a pitted and uneven surface.

Inner Bark—Blaze on a tree 25 cm diameter pale *pinkish-brown* with a mottled appearance and some paler vertical striations, becoming paler towards the inner margin. Does not change colour very rapidly on exposure. Very bitter to taste causing coughing, with a dough-like smell. 6 mm thick.

Branchlets—*Reddish-brown*, finely wrinkled and longitudinally ridged, becoming green and hairy towards the ends, young shoots usually densely hairy. Leaf scars distinct.

Leaves—Opposite, consisting of *three leaflets* attached to the apex of the leaf stalk, margins entire, obovate, obovate-oblong, or elliptic, 5–13 *cm long*, rounded or protracted into a blunt point at the tip. Upper surface with scattered hairs or almost glabrous. Green both surfaces, paler *beneath* and *more or less pubescent*. Oil dots small and numerous. Leaf stalk hairy, 2 to over 10 cm long, the *two outside leaflets sessile or occasionally on stalklets up to 6 mm, the central one slightly longer*.

Venation—Midrib and lateral veins usually distinct and net veins faintly visible on the upper surface, but raised and more distinct on the underside.

Flowers—White in short dense axillary panicles. Sepals four, orbicular, under 1 mm. Petals four, slightly imbricate, 3 mm. Stamens slightly flattened and fringed. Flowering period January to February.

Fruit—Four or fewer thin carpels, dark grey, 6–10 mm long containing a single glossy black ovoid seed, 3–4 mm diameter, which is liberated by the carpel splitting open. Fruit ripe March to June.

Habitat—Found in most types of rainforest.

Distribution—Fairly common from Illawarra, N.S.W. to Maryborough, Queensland. Recorded in N.S.W. from Minnamurra, Bulli, Wyong,

Singleton, Upper Allyn River, Boorganna N.R., Port Macquarie, Bellangry S.F., Carrai S.F., Comara, Way Way S.F., Oakes S.F., New England N.P., Bellinger River S.F., Dorrigo N.P., Never Never S.F., Tucker's Nob, Moonpar S.F., Kangaroo River S.F., Orara West S.F., Wild Cattle Creek S.F., Cloud's Creek S.F., Hyland S.F., Gibraltar Range S.F., Washpool S.F., Ewingar S.F., Mt Pikapene S.F., Toonumbar S.F., Beaury S.F., Tooloom, Acacia Plateau, Wiangaree S.F., Whian Whian S.F., Eltham, Victoria Park N.R., Tintenbar, Mt Warning N.P., Limpinwood N.R. and Mooball S.F.

Timber and Uses—Wood whitish, close-grained, tough, moderately soft and not durable in the weather. Sometimes used for cases.

Plate No. 18
Euodia micrococca F. Muell.

EUODIA VITIFLORA F. Muell.

Reference—Fragm. Phytogr., Austral. VII, 144.

Derivation—Vitiflora from Latin "vitis" grape and "flora" flower in reference to the small flowers like that of a grape vine.

Common Name—Northern Euodia, Fish Poison-wood, Leatherjacket, Leatherwood.

Standard Trade Name—Northern Evodia.
A shrub, rarely reaching tree size with attractive smooth trifoliate leaves.

Trunk—Cylindrical, not buttressed.

Outer Bark—Becoming corky on older trees.

Inner Bark—Not recorded.

Branchlets—Thick, green, somewhat flattened or grooved, *downy*, leaf scars conspicuous, lenticels absent.

Leaves—Opposite with three leaflets, not toothed, ovate-lanceolate, 12–15 cm long, tapering to a point at the tip and into the stalklet at the base, somewhat shiny on both sides and sparsely downy, bright green, *thin* with numerous small oil dots. *Leaf stalks long* 10–12 *cm*, *finely downy*, channelled on the top side. Leaflet stalks channelled, 2–6 mm long for the lateral leaflets and 12 mm for the central leaflet.

Venation—Midrib and lateral veins equally conspicious on both sides. Major lateral veins curving to form an intramarginal vein, eight to ten on each side of the midrib which is sunken above and raised beneath.

Flowers—Creamy-green, in a *terminal panicle*, very slightly downy. Flowering branches up to 5 cm long with small umbels of *minute flowers* on short stalks only 2 mm long. Calyx lobes triangular, petals less than 2 mm long, slightly silky. Stamens shorter than the petals and also slightly silky. Ovary densely hairy. Flowering period not known.

Fruit—Not seen.

Habitat—In coastal subtropical or littoral rainforest.

Distribution—Brunswick Heads, N.S.W. to Rockingham Bay, Queensland. Recorded in N.S.W. from Brunswick Heads, north of Nature Reserve.

Timber and Uses—Too small to be of value.

F.S.

Plate No. 19
Euodia vitiflora F. Muell.

EUODIA SP.

Synonym—

Reference—

Derivation—

Common Name—Small-leaved Doughwood, Smooth-leaved Doughwood, Corky-barked Euodia.

Standard Trade Name—None.
A tree attaining a height of 20 m and a stem diameter of 30 cm but generally much smaller and often flowering as a shrub a few metres high.

Trunk—Often straight and cylindrical.

Outer Bark—*Light brown or fawn, rough, with longitudinal soft corky ridges.* Underbark pinkish-cream. Outer surface of live bark pale brown or orange with vertical green stripes with a pitted surface.

Inner Bark—Blaze on a tree 30 cm diameter, light brown faintly flecked or mottled. Inner margin white. No change of colour on exposure. Bitter to taste with a faint dough-like odour. 25 *mm thick of which over half is dead bark.*

Branchlets—Brown, greenish towards the ends. Often marked by scattered raised brown dots (lenticels). Smooth. Leaf scars generally present.

Leaves—Opposite, *three* or occasionally *two* leaflets attached to the tip of the leaf stalk, margin entire, elliptic or elliptic-lanceolate, 4–8 *cm long*, drawn out into a fairly long blunt point at the tip, *smooth*, dark green above. Oil dots small and numerous. Petiole 1–8 cm long, *stalklets either absent or up to* 6 *mm long.*

Venation—Midrib and lateral nerves usually visible, net veins often indistinct.

Flowers—White, in dense panicles 8 cm or over in length. Flowering period January and February.

Fruit—Four or fewer dry carpels (cocci) splitting open, black or dark grey, each carpel containing a shiny black seed. Fruit ripe March to May and November.

Habitat—More commonly found in the poorer Coachwood type rainforest.

Distribution—Illawarra, N.S.W. to Maryborough, Queensland.
Recorded in N.S.W. from—Bellangry S.F., Roses Creek S.F., Dorrigo N.P., Moonpar S.F., Wild Cattle Creek S.F., Cloud's Creek S.F., Gibraltar Range N.P., Tooloom, Acacia Plateau and Whian Whian S.F.

Timber and Uses—Wood white, close-grained and medium soft, and not durable in the weather. Suitable for cases.

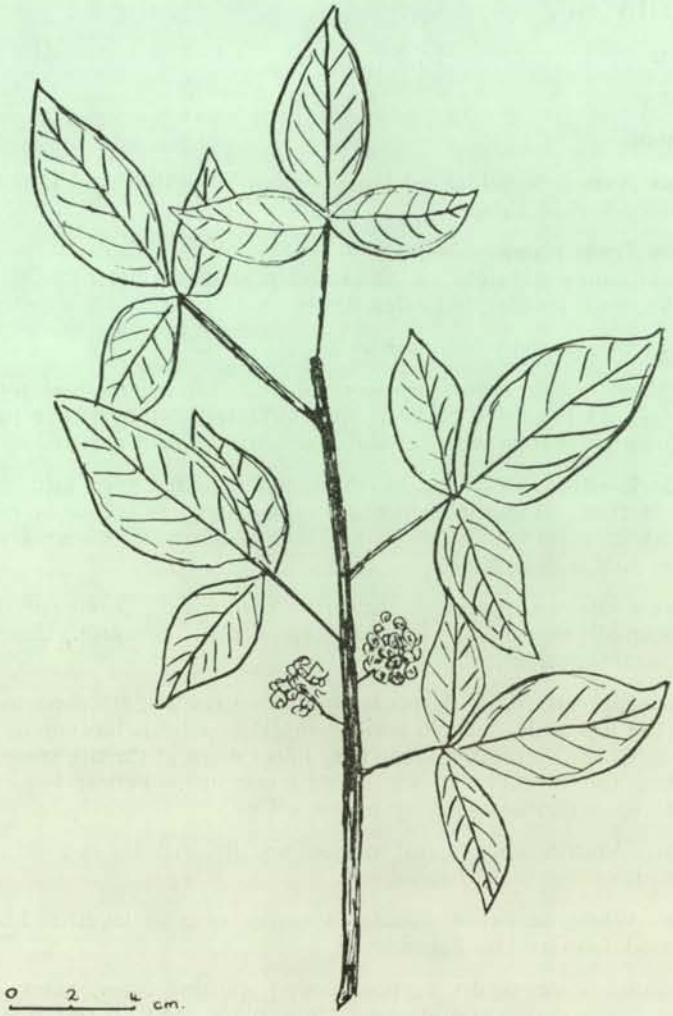


Plate No. 20
Euodia sp.

FLINDERSIA AUSTRALIS R. Br.

Reference—Flinders' Voyage to Terra australis, vol. 88, 1814, p. 595, Appendix.

Derivation—Flindersia after Captain Matthew Flinders, leader of the expedition which first collected this plant; australis from Latin "australis", southern, referring to its being the first species described from "terra australis".

Common Name—Teak, Crows Ash.

Standard Trade Name—Crows Ash.
A large tree attaining 40 m in height and a stem diameter of 180 cm.

Trunk—*Often irregular and flanged*, large trees usually *moderately buttressed.*

Outer Bark—*Brown, scaly, shed in irregular hard flakes, leaving indentations* which gives the trunk a rough and spotted appearance. The surface is also marked by reddish-brown lenticels which often join together to form short vertical rows. Outer surface of live bark green.

Inner Bark—Blaze on a tree 120 cm diameter *pinkish-red*, inner margin white, somewhat tough in texture, does not change colour on exposure. No distinctive taste but has a pumpkin-like smell. 3 cm thick.

Branchlets—Green later turning grey-brown, glabrous, *somewhat thick* and obtuse, often showing leaf scars.

Leaves—*Usually alternate, but sometimes opposite*, crowded towards the ends of the branchlets, *pinnate*, consisting of *three-thirteen* leaflets (usually five). Leaflets opposite in pairs with an odd terminal leaflet, elliptic to narrow ovate, 5–13 cm long, bluntly pointed at the apex, *often oblique at the base. Leaflets glossy*, green both surfaces, paler beneath. Oil dots numerous, small and transparent. Length of leaf rachis to first pair of leaves 3–10 cm, red at base on new leaves. *Leaflet stalks from indistinct to* 3 *mm long, terminal leaflet stalk much longer up to* 3 *cm.* Top pair of leaflets not stalked.

Venation—Venation of midrib and lateral nerves usually visible on both surfaces. Somewhat more conspicuous above.

Flowers—White, in much branched panicles at the ends of the branchlets. Individual flowers about 11 mm diameter. Flowering period October to February.

Fruit—A *woody capsule* covered *with stout blunt prickles* splitting into usually *five boat shaped valves*, which *generally remain united at the base.* Each valve contains a central fleshy placenta against each side or which are two or three flat winged seeds about 4 cm long, including the *wings* which are *confined to the apical end.* Fruit ripe April to September.

Habitat—Dry rainforest and rainforest on red volcanic soils where the species reaches its best development.

Distribution—From Nymboida River, N.S.W. to Mackay, Queensland. Recorded in N.S.W. from Wild Cattle Creek S.F., Kangaroo River S.F., Cloud's Creek S.F., Boundary Creek S.F., Mt Pikapene S.F., Richmond Range S.F., Lismore, Toonumbar S.F., Unumgar S.F., Tooloom, Beaury S.F., Acacia Plateau, Roseberry S.F., Levers Plateau, Wiangaree S.F., Whian Whian S.F., Lismore, Broken Head N.R., Brunswick Heads N.R., Mt Warning N.P., Limpinwood N.R., Murwillumbah, Mooball S.F. and Stott's Island N.R.

Timber and Uses—Wood yellow-brown, greasy, hard interlocked grain and strong. One of the most durable and valuable of Australian timbers sought after for dance floors. Suitable for ship-building, sleepers, decking, carriage and coach building, used for fencing in rainforest areas where Eucalyptus posts are scarce. 850–950 kg per cubic metre.

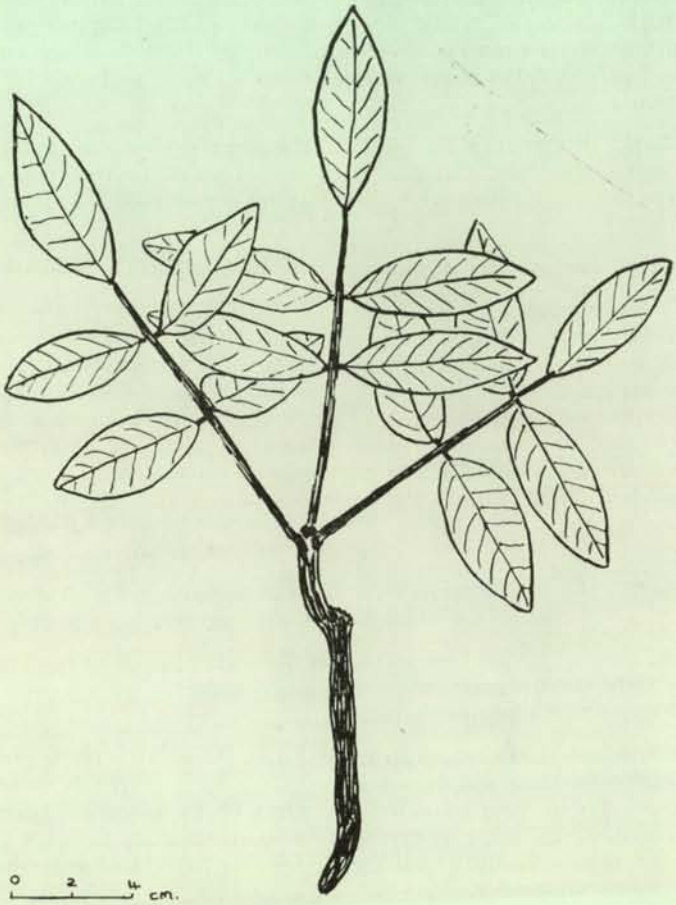


Plate No. 21
Flindersia australis R. Br.

FLINDERSIA BENNETTIANA F. Muell. ex Benth.

Synonym—*Flindersia leichhardtii* C. DC.

Reference—*Flindersia leichhardtii* C. DC.

Reference—Bentham's Flora Australiensis, Vol. i., p. 389, 1863.

Derivation—Bennettiana, after Dr George Bennett an early naturalist, author and supporter of the Sydney Botanic Gardens.

Common Name—Bennett's Ash.

Standard Trade Name—

A tree attaining a height of 40 m and a stem diameter of 90 cm.

Trunk—Not prominently buttressed, often tall straight and cylindrical. Lacks the protuberances characteristic of *F. schottiana.*

Outer Bark—*Grey, fairly smooth*, or often wrinkled by small hard pustules and scales. Outer surface of live bark with pink, green and white vertical stripes.

Inner Bark—Blaze on a tree 50 cm diameter—*pinkish-red, outer half speckled with reddish-brown dots*, inner half traversed by numerous fine pink and red vertical lines. Inner margin white and somewhat tough and fibrous in texture. No oxidation on exposure, astringent taste but no smell. 13 mm thick.

Branchlets—*Brown, wrinkled, young shoots and branches* of the inflorescence green and *finely downy*. Marked by numerous small raised dots (lenticels) and scars of the fallen leaves.

Leaves—*Opposite*, pinnate, consisting of 3–10 *leaflets* arranged in pairs along the leaf rachis, ovate or elliptical, 8–15 *cm long, blunt, or very shortly and bluntly pointed.* Upper surface glossy, dark green and *under side dull and paler*. Oil dots not visible. Leaf rachis 3–10 cm long, usually slightly flattened on the upper surface with two sharp edges. *Lateral leaflet stalks* 1–4 *mm long, the terminal stalk much longer* (15–30 *mm*).

Venation—Midrib, lateral nerves and net veins pale green and slightly raised on the upper surface, midrib more prominent beneath and lateral nerves and net veins darker in colour than the leaf surface.

Flowers—Cream with a strong or dough-like smell, in terminal panicles or sometimes in the forks of the upper leaves. Shorter or longer than the leaves. Flowers cup-shaped. Sepals five, oval, 2 mm diameter. Petals five, oval, about 4 mm diameter. Flowering period May to August.

Fruit—*Woody capsule*, brown, 5–8 cm long, densely covered with short blunt prickles and opening into *five separate boat-shaped valves.* Each valve containing two or three flat *seeds* about 4 cm long *with wings on both ends.* Fruit ripe November to February.

Habitat—Occurs in riverine, littoral and subtropical rainforest on basic volcanic soils, but occasionally found in warm temperate rainforest on the poorer soils from rhyolite with basaltic enrichment as on Whian Whian S.F.

Distribution—From Clarence River, N.S.W. to Fraser Island, Queensland. Recorded in N.S.W. from Copmanhurst, Iluka N.R., Woodburn, Mt Pikapene S.F., Ballina, Alstonville, Richmond Range S.F., Toonumbar S.F., Yabbra S.F., Nimbin, Dorroughby, Dunoon, Whian Whian S.F., Minyon Falls F.R., Broken Head N.R., Byron Bay, Brunswick Heads N.R., Wollumbin S.F., Crystal Creek, Lower Tweed River and Cudgen Lake.

Timber and Uses—Light grey in colour, hard, very strong and somewhat rigid, straight grained and easily worked. Suitable for cabinet and joinery work, interior fittings, carriage work. Should be very suitable for oars. Weight about 800–850 kg per cubic metre.

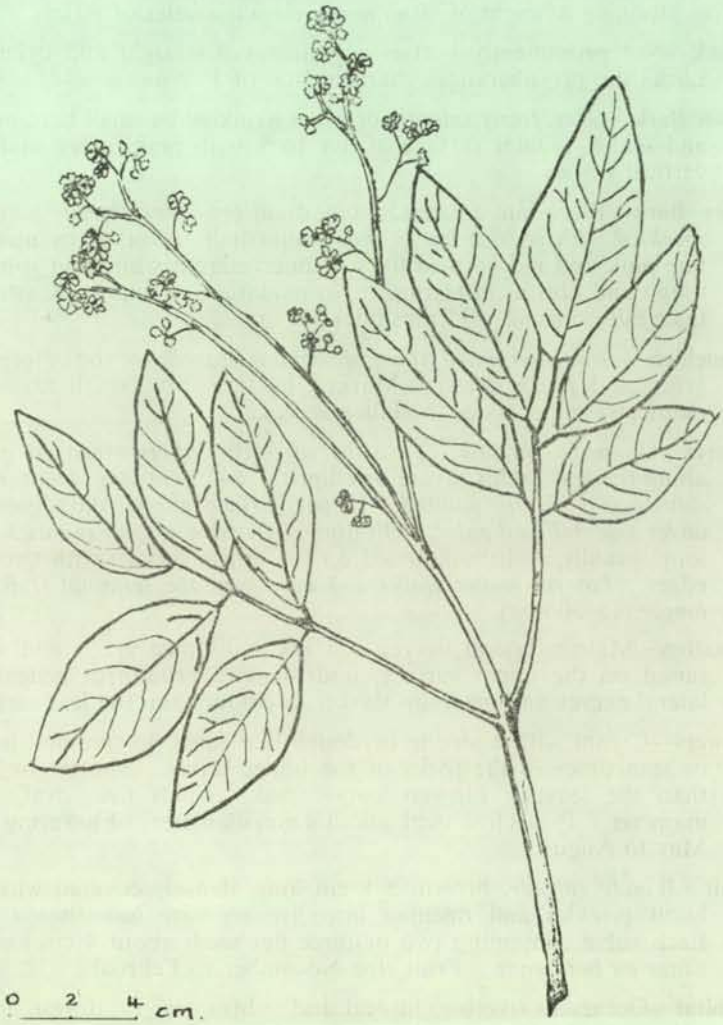


Plate No. 22
Flindersia bennettiana F. Muell. ex Benth

FLINDERSIA COLLINA F.M.B.

Synonym—*Flindersia strzeleckiana* F. Muell. var. latifolia F.M.B.

Reference—Queensland Agricultural Journal, Vol. iii, p. 354, 1898.

Derivation—Collina from Latin "collis", a hill, referring to the tree often growing on dry hillsides.

Common Name—Broad-leaved Leopard Tree, Leopard Wood, Leopard Ash.

Standard Trade Name—Leopard Ash.

A small to medium sized tree attaining a height of 25 m and a diameter of 60 cm. Occurs as an occasional tree in the drier types of rainforest. Crown dense and dark green.

Outer Bark—*Conspicuously mottled grey, green and brown* and patterned with fine pustules. The bark sheds in rounded patches, leaving a pattern of *irregular depressions. Under bark red.* Outer surface of live bark green.

Inner Bark—Blaze on a tree 70 cm diameter *red* with white innermost layer adjoining the sapwood. 10 mm thick.

Branchlets—Grey, young shoots downy, leaf scars distinct.

Leaves—Opposite, occasionally alternate in coppice or young shoots, pinnate, *three-seven leaflets* to each leaf, *sessile on the rachis*, elliptic to obovate, 2–8 cm long, *tip blunt, rounded and often notched or retuse*. Smooth and green on both surfaces, paler beneath. Small oil dots visible with the aid of a lens. *Leaf rachis winged*, often broadly so in coppice, 25–40 mm long, finely hairy.

Venation—Venation distinct, mid-rib raised on both surfaces.

Flowers—White, in large panicles at the ends of the branchlets. Individual flowers 6 mm diameter when expanded fully. Stalklets from 1.5 mm to 3 mm long. Calyx five-lobed, about 3 mm diameter. Petals five, white, oval, about 4 mm long. Stamens five, slender alternating with five staminodia and shorter than the petals. Flowering period September and October.

Fruit—*Woody capsule*, brown, narrowly elliptical 4–5 cm long, *separating into five boat shaped valves with tubercules* on the back. Seeds contained in the inner hollow of the valves on each side of a flat partition-like placenta. Each *seed* exceeds 25 mm in length including its membranous borders or *wings at both ends*. Fruit ripe February.

Habitat—Dry rainforest.

Distribution—From Upper Richmond River, N.S.W. to Bundaberg, Queensland.
Recorded in N.S.W. from Toonumbar S.F., Unumgar S.F., Koreelah S.F. and Roseberry S.F.

Timber and Uses—The wood is suitable for flooring, scantlings, pick handles. Sapwood is subject to attack by borers.

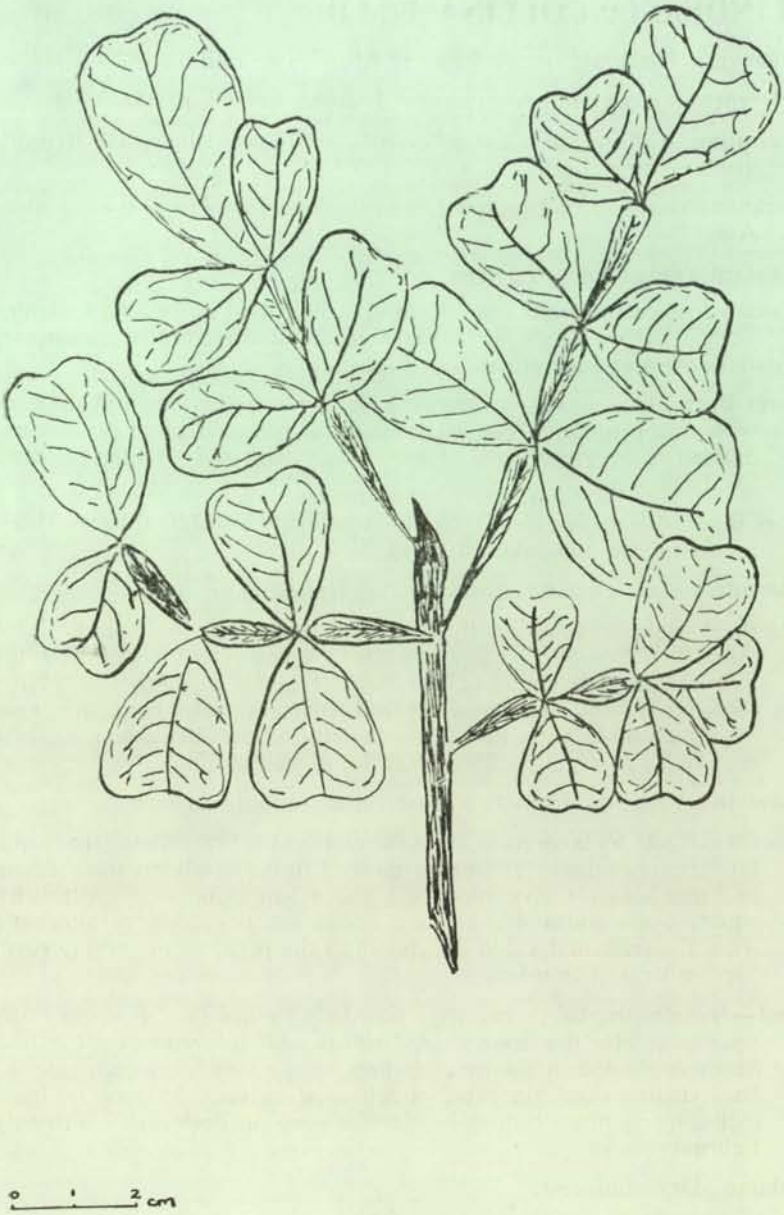


Plate No. 23
Flindersia collina F.M.B.

FLINDERSIA SCHOTTIANA F. Muell.

Synonym—*Flindersia schottiana* F. Muell. var. *pubescens* F. Muell., *F. pubescens* F.M.B.

Reference—Fragmenta Phytographiae Australiae, Vol. iii, 1862–3, p. 25.

Derivation—Schottiana after Heinrich Schott, a botanist at the Austrian Botanic Gardens who described many Australian plants.

Common Name—Cudgerie, Bumpy Ash, Wyageri.

Standard Trade Name—Southern Silver Ash.

A tree attaining a height of 45 m and a stem diameter of 100 cm.

Trunk—*Usually tall, straight and cylindrical, but often with burl-like protuberances along the stem,* hence the name Bumpy Ash; usually not buttressed.

Outer Bark—*Grey, fairly smooth, often ringed by horizontal rows of small warts.* Underbark pinkish-brown. Outer surface of live bark green.

Inner Bark—*Blaze* on a tree 50 cm diameter *yellow-brown,* with a pale green outer margin, *outer half marked by reddish-brown dots and vertical lines,* inner half becoming gradually paler towards the inner margin which is white, inner surface of bark tough and stringy. No change in colour on exposure. Gritty, peppery taste causing *tingling to the tongue and excess saliva.* Distinct smell. 6 mm thick.

Branchlets—Green at first *turning cream with raised lenticels, somewhat thick and bearing the scars of fallen leaves; young shoots and leaves* downy.

Leaves—Opposite, *pinnate, consisting of seven to nineteen leaflets* arranged in pairs along the leaf rachis, *almost sessile, lance-shaped,* 7–15 cm *long* on older trees, but usually much larger on young growth, protracted to a point at the tip, *unequal-sided at the base and slightly curved,* upper surface dark green and shining, *underside greyish and finely downy,* numerous oil dots visible. Petiole swollen at the base and usually yellow.

Venation—Midrib and lateral veins visible on the upper surface, raised and distinct beneath, net-veins indistinct both surfaces.

Flowers—White, with a honey-like fragrance, in large terminal panicles, shorter, or as long as, the leaves; individual flowers finely downy, about 8 mm diameter. Flowering period November and December but also irregular.

Fruit—*Woody capsule,* brown *with numerous short, stout prickles, separating into five narrow canoe-shaped lobes* about 10 cm long. Three flat *seeds* on each side of a woody partition in each lobe, 5–6 cm long, *winged at each end.* Fruit ripe February.

Habitat—Riverine and subtropical rainforest.

Distribution—From Hastings River, N.S.W. to Iron Range, North Queensland and then north to Papua New Guinea and West Irian.

Recorded in N.S.W. from Bellangry S.F., Shark Island Lower Macleay, Way Way S.F., Taylor's Arm, Bellinger River, Moonee, Kangaroo River S.F., Cloud's Creek S.F., Iluka N.R., Mt. Pikapene S.F., Toonumbar S.F., Tooloom, Koreelah S.F., Roseberry S.F., Wiangaree S.F., Whian Whian S.F., Wilson's Creek, Lismore, Broken Head N.R., Byron Bay, Brunswick Heads N.R., Mt Warning N.P., Murwillumbah, Mooball, Stott's Island N.R. and Cudgen Lake.

Timber and Uses—The moderately hard light-yellowish timber is fairly durable; very suitable for oars, cabinet-work, flooring, lining and indoor fittings of all kinds. 600–850 kg per cubic metre.

Plate No. 24
Flindersia schottiana F. Muell.

FLINDERSIA XANTHOXYLA (A. Cunn. ex Hook.) Domin.

Synonym—*Oxleya xanthoxyla* A. Cunn. ex Hook., *Flindersia oxleyana* F. Muell.

Reference—Bibliotheca botanica, Heft 89, 1927, p. 297 (851).

Derivation—Xanthoxyla from Greek "xanthos", yellow; and "xylon" wood because of its yellow wood.

Common Name—Yellow-wood, Long Jack.

Standard Trade Name—Yellow-wood.

A tree attaining a height of 45 m and a stem diameter of 90 cm. Often planted for ornamental and shade purposes.

Trunk—Usually cylindrical, straight and long.

Outer Bark—*Grey and greyish-brown, often with shallow vertical cracks, scaly, shedding in oblong pieces.* Outer surface of live bark pitted and patterned with brown and green vertical stripes.

Inner bark—Blaze on a tree 28 cm diameter *yellowish-brown sometimes with broad vertical stripes,* and showing greenish tints towards the outer margin, paler at the inner margin. No rapid change in colour and no distinct taste, but has a pumpkin-like smell. 6 mm thick.

Branchlets—Grey or greyish-brown, becoming hairy towards the ends, leaf scars distinct. *Young shoots, branchlets and sometimes leaf stalks and under side of leaves densely downy.*

Leaves—*Pinnate*, opposite, often crowded towards the ends of the branchlets, *leaflets four to eleven*, in pairs, elliptical or lance shaped, 5–10 *cm long*, mostly *bluntly pointed at the tip, unequal sided at the base, straight*. Bright green above, *lighter green below*. Oil dots obscure. *Stalklets* 2–6 *mm long, except that of the terminal odd leaflet where it may exceed* 25 *mm*.

Venation—Midrib and lateral veins usually distinct on both surfaces. Net veins sometimes faintly visible on both surfaces.

Flowers—*Yellow*, in loose many-flowered panicles in the forks of the leaves or at the ends of the branchlets, usually shorter than the leaves. Flowering period January.

Fruit—*A woody capsule, brown*, 7–10 *cm long, covered with short blunt prickles and separating into five boat-shaped valves* each containing a woody partition with two or three long flat *seeds* on each side. *Winged at both ends.* Fruit ripe June to September but may extend to November.

Habitat—Chiefly monsoon rainforest, although it is found in both riverine and littoral rainforest.

Distribution—From the Richmond River, N.S.W. to Gympie, Queensland. Recorded in N.S.W. from Sandiland Ranges, Mt Pikapene S.F., Cherry Tree S.F., Richmond Range S.F., Wollongbar, Koreelah S.F., Moore Park, Roseberry S.F., Whian Whian S.F., Dunoon,

Wollongbar, Victoria Park N.R., Crystal Creek, Murwillumbah, Mooball and Stott's Island N.R.

Timber and Uses—Wood pale yellow, close-grained, strong and flexible. Used for coach building, cabinet making, joinery, flooring, lining and tool handles. 575–900 kg per cubic metre.

Plate No. 25
Flindersia xanthoxyla (A. Cunn. ex Hook.) Domin.

GEIJERA LATIFOLIA Lindl.

Synonym—*Geijera salicifolia* Schott. var. latifolia (Lindl.) Domin.

Reference—Fragm. Rut. Tablet 4, 1834 and Fl. Aust. VI, 1863.

Derivation—Geijera after J. D. Geijer; latifolia from Latin "lata" broad and "folia" a leaf alluding to the broader leaves than in other Australian species.

Common Name—Scrub Wilga, Greenheart, Green Satinheart.

Standard Trade Name—Green Satinheart.

A medium sized tree attaining a height of 24–27 m and a diameter of 76 cm.

Trunk—Cylindrical, not flanged.

Outer Bark—Dark red-brown or grey on the surface, scaly, patterned with longitudinal pustules; under bark dark brown. Outer surface of live bark mottled black and brown.

Inner Bark—Blaze on a tree 60 cm diameter *pale brown*, with a pale layer next to the sapwood. The whole *blaze changes on exposure*, first to brown and later *to a dirty bottle green*, eventually turning black. Bark with a lingering bitter taste and fragrant when cut. 16 mm thick.

Branchlets—Bark grey to brown, finely wrinkled.

Leaves—Alternate, simple, entire margins, oblong, ovate, elliptic or broadly lanceolate, 7–13 cm long, abruptly narrowed at the base and the tip which is usually rather blunt, glossy, smooth, green both surfaces, slightly paler on the under side. When held to the light numerous clear oil glands are *only visible with a hand lens*. Leaf stalk long, averaging 16 mm, brown, channelled on the upper surface, the *margin incurved and wing-like* (erect or recurved in *G. paniculata*).

Venation—Lateral and net veins distinct midrib distinctly raised on both surfaces and extending as such for over half of the leaf. *Main lateral veins numerous* (*ten-eighteen pairs*) extending close to the edge of the leaf.

Flowers—White, in panicles at the ends of the branchlets, generally shorter than the leaves. Individual flowers stalkless or nearly so, almost 6 mm in diameter when expanded. Calyx broadly cup-shaped, about 2–3 mm diameter with five broad rounded lobes. Petals five, white, triangular, 2–3 mm long. Stamens five, narrow, bristle-like, 2 mm long. Flowering period September to November.

Fruit—Usually one or two dry carpels or cocci, brown, globular or egg-shaped, *not beaked*, about 6 mm diameter, containing a single black shining seed about 5 mm diameter. Fruit ripe January ro April.

Habitat—In warm temperate, sub-tropical and dry rainforests from the coast to the mountains and in dry sheltered valleys of the tablelands.

Distribution—From Illawarra, N.S.W. to Barron River, Queensland. Recorded in N.S.W. from Minnamurra, Albion Park, Scone, Dungog, Gloucester, Cape Hawke, Comboyne, Bellangry S.F., Carrai S.F., Nulla Nulla Creek, Pee Dee, Macksville, Woolgoolga Creek, Kangaroo River S.F., Wild Cattle Creek S.F., Dundurrabin, Cloud's Creek S.F., Wilson's Creek, Toonumbar S.F., Unumgar S.F., Beaury S.F., Acacia Plateau, Lever's Plateau, Roseberry S.F. and Tweed River.

Timber and Uses—Wood light brown, tough, firm, nicely marked. Polishes fairly well but tends to split. Used for fishing rods, interior and cabinet work.

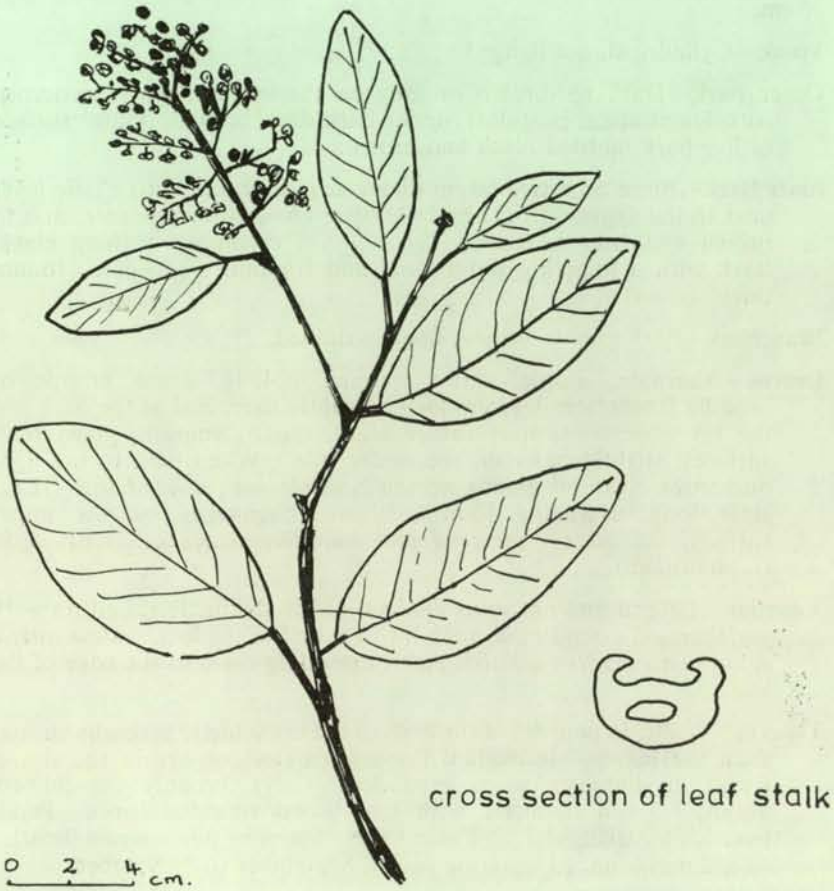


Plate No. 26
Geijera latifolia Lindl.

GEIJERA PANICULATA (F. Muell.) Druce.

Synonym—*Geijera muelleri* Benth., *Coatesia paniculata* F. Muell.

Reference—F. Muell. Fragm. III. 26.

Derivation—Paniculata from Latin "paniculatus" tufted, in reference to the dense inflorescence.

Common Name—Axe-breaker, Capivi.

Standard Trade Name—Scrub Wilga.

A medium size tree with a dense head of deep to yellow-green glossy foliage reminiscent of *Ficus obliqua.*

Outer Bark—Light creamy-grey, smooth with occasional craters. Underbark creamy-white. Outer surface of live bark mottled green and creamy-brown.

Inner Bark—On a tree 15 cm diameter creamy-yellow, turning yellow-brown with darker vertical lines after two-five minutes exposure. Sapwood surface turning dirty greenish-brown. Slightly bitter with a delayed peppery taste and tingling of the tongue. Sappy smell. 10 mm thick.

Branchlets—Moderately thick, bright green turning grey to brown, finely wrinkled. Leaf buds short and squat, not finely pointed as in *G. latifolia.*

Leaves—Alternate, simple, not toothed, oval, 5–10 cm long, bluntly pointed at the tip and *gradually tapering into the leaf stalk.* Glossy, smooth dark green, with *prominent oil dots visible to the naked eye* on dried specimens and a strong fragrance when crushed. Leaf stalk averaging 11 mm long (16 mm in *G. latifolia*), channelled on the upper surface with an *erect or recurved margin.*

Venation—*Midrib slightly raised for only about half its length* on the top surface then flush. Main lateral veins few, *five to eight pairs* which fork well inside the leaf margin. Net veins indistinct.

Flowers—White, in panicles. *Petals overlapping in bud* (only touching in *G. latifolia*), 3 mm long, obtuse. Flowering period September to October.

Fruit—Usually two dry carpels or cocci, brown, 4–6 mm long, *shortly beaked,* very spreading but cohering at the base. Each containing a single glossy black seed. Fruit ripe January to February.

Habitat—Monsoon rainforest and vine scrub, but very rare in N.S.W.

Distribution—Occasional trees originally found in the "Big Scrub" at Lismore, N.S.W. Also in Queensland from Brisbane River to Cumberland Islands.
Recorded in N.S.W. from Rivertree and Lismore.

Timber and Uses—Heartwood a beautiful dark colour, very hard. Would make attractive veneer.

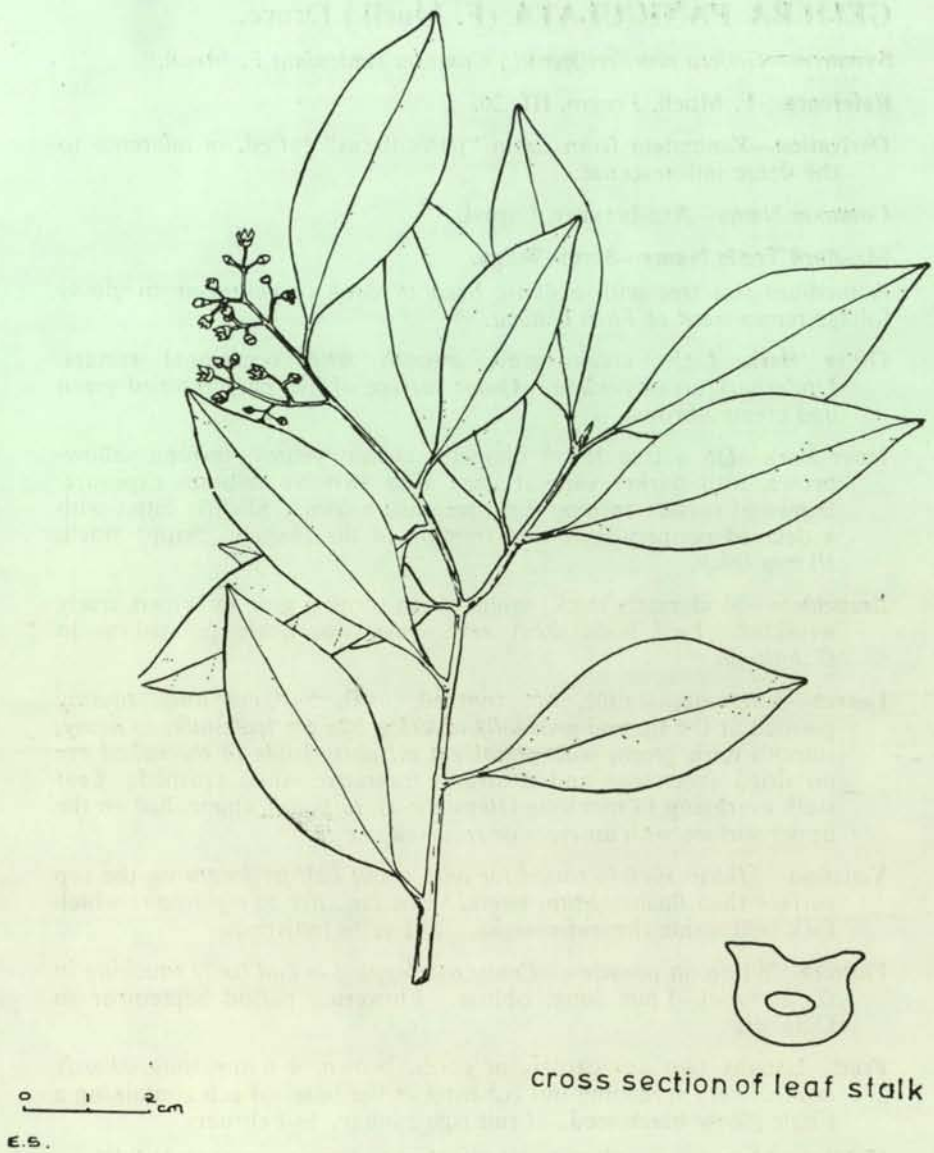


Plate No. 27
Geijera paniculata (F. Muell.) Druce

GEIJERA SALICIFOLIA Schott.

Reference—Fragm. Rut. t. 4.

Derivation—Salicifolia from Latin "salix" the willow and "folium" a leaf referring to the willow-like leaves.

Common Name—Narrow-leaved Scrub Wilga.

Standard Trade Name—Green Satinheart.

An emergent erect tree with a bushy dense crown up to 30 m tall and 50 cm diameter. The narrow leaves give the tree the appearance of a eucalypt from a distance.

Trunk—Cylindrical, not buttressed or flanged.

Outer Bark—Dark grey-brown, scaly, shedding in small hard square or oblong pieces. Underbark dark brown. Outer surface of live bark mottled yellow and brown, very uneven.

Inner Bark—Blaze on a tree 50 cm diameter uniform creamy-brown, fibrous. Turning dirty blackish-green after two minutes exposure particularly on the sapwood boundary. No taste but with a fragrant spicy smell. 20 mm thick.

Branchlets—Moderately thick, greenish-brown turning grey-brown, smooth, dull with narrow long-pointed smooth buds.

Leaves—Alternate, simple, not toothed, lance-shaped, 6-9 cm long and 1.5–3.0 cm wide, *gradually tapering at the base* and to a long fine point at the tip. Dull on both sides, smooth, light green. *Oil dots* numerous, about three to five diameters apart but *small* and *indistinct without the use of a hand lens.* Leaf stalk *short*, averaging 10 mm long, smooth, grooved above with an *incurved and wing like margin.*

Venation—*Midrib raised for most of its length* on the top surface. Main lateral veins visible on both sides, 15–24 (10–18 in *G. latifolia* and 5–8 in *G. paniculata*), extending almost to the leaf margin before looping and joining. Net veins obscure.

Flowers—White, in panicles shorter than the leaves. Flowers more or less without stalks, 6 mm diameter. Sepals five partly joined into a cup, 2–3 mm diameter. Petals five, triangular 2–3 mm long. Stamens five, bristle-like, 2 mm long. Ovary five-lobed, with a stalkless, gland-like obscurely five-lobed stigma. Flowering period September to October.

Fruit—Usually one or two dry carpels (occasionally four), brown, globular or egg-shaped, not beaked, about 5–6 mm diameter, containing a single black shining seed, 5 mm diameter. Fruit ripe January to April.

Habitat—In dry rainforest on steep dry stony slopes and sides of gorges. On skeletal soils derived from slates.

Distribution—Hunter Valley, N.S.W. to Rockhampton, Queensland. Although greatly restricted in distribution in comparison with the closely related *G. latifolia,* it is common in a narrow band from the

western edge of Cunningham's Gap, Warwick and Dalby in Queensland and down through the New England gorges in N.S.W. It meets the wet rainforest species at Rockhampton in the north and the Hunter Valley in the south. Although both Bentham and Francis regarded *G. latifolia* and *G. salicifolia* as broad and narrow-leaved races respectively of the same species connected by intermediate forms, Williams (pers. comm.) found them to be consistently distinct both in the field and as dried specimens. Recorded in N.S.W. from Jerry's Plains Hunter Valley, Milbrodale, Tia Falls, Baker's Creek Gorge, and Chandler River Gorge.

Timber and Uses—Light yellow, hard, close-grained, somewhat greasy. Used for engraving, fishing rods and interior joinery.

Plate No. 28
Geijera salicifolia Schott.

HALFORDIA KENDACK Guillaumin.

Synonym—*Halfordia drupifera* F. Muell.

Reference—Lecompte, Notulae Systematicae Vol. 2, 1911, p. 98.

Derivation—Halfordia after Dr G. B. Halford, Professor of Medicine at Melbourne University; kendack may be the native name for the tree in New Caledonia.

Common Name—Saffron-heart, Southern Ghittoe.

Standard Trade Name—Saffron-heart.

A tree attaining a height of 27 m and a stem diameter of 75 cm.

Trunk—*Often flanged at the base* in larger trees.

Outer Bark—*Grey, surface covered by short rows of light coloured corky pustules, fairly smooth in younger trees* but in older trees the surface is often wrinkled and rough.

Inner Bark—*Blaze* on a tree 50 cm diameter *light brown*, paler towards the sapwood, *outer half marked by pale vertical bands* and fine lines, inner half traversed by fine vertical and horizontal white wavy lines. Blaze *becomes pale pinkish* in colour after *about* 20 *minutes exposure*. Slightly bitter, fragrant, 20 mm thick.

Branchlets—Green and smooth, 13 mm thick.

Leaves—*Alternate, simple*, entire margins, lanceolate to broad oblanceolate 5–13 cm long, tip blunt or protracted into a distinct blunt point, *very gradually tapered into the somewhat short leaf stalk, glabrous*. Oil dots visible. Leaf stalk 3 mm long or less.

Venation—Midrib raised slightly on the upper surface but more prominent beneath, lateral nerves and some net veins visible.

Flowers—Creamy-green in paniculate cymes at the ends of the branches, shorter than the leaves. Individual flowers about 11 mm diameter. Flowering period December to February.

Fruit—A *drupe, purple or bluish-black, oval, about* 12 *mm long*, the outer succulent pulp surrounding a hard seed. Fruit eaten by birds. Fruit ripe May to October and as late as February.

Habitat—Commonly on sand in littoral rainforest but also in sub-tropical rainforest at high elevations on the McPherson and Tweed Ranges.

Distribution—From Clarence River, N.S.W. to Fraser Island, Queensland. Recorded in N.S.W. from Iluka N.R., Mt Glennie, Roseberry S.F., Wiangaree S.F., Whian Whian S.F., Broken Head N.R., Brunswick Heads N.R., Limpinwood N.R., Cudgen Lake and Tweed Heads.

Timber and Uses—Pale or yellowish in colour, fine-grained, oily, durable, hard, heavy, tough and flexible. Used for fishing rods. 1 100 kg per cubic metre.

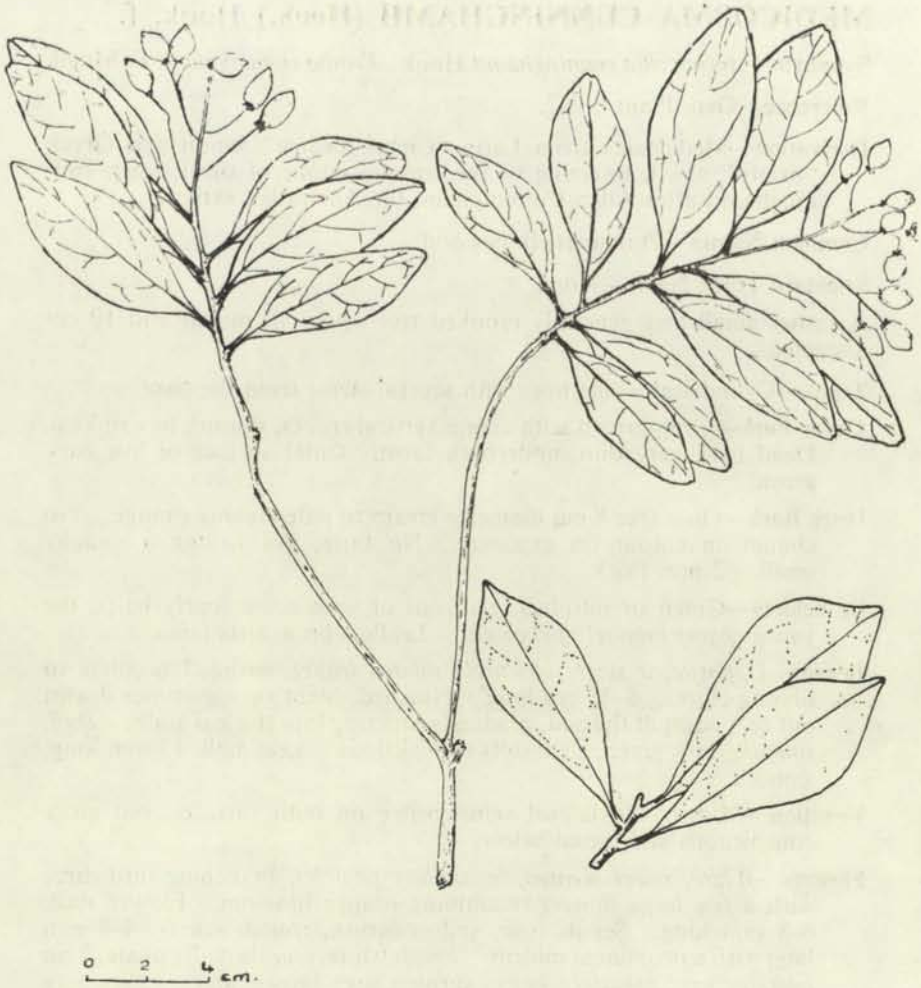


Plate No. 29
Halfordia kendack Guillaumin

MEDICOSMA CUNNINGHAMII (Hook.) Hook. f.

Synonym—*Acronychia cunninghamii* Hook., *Evodia cunninghamii* F. Muell.

Reference—Gen. Plant i, 297.

Derivation—Medicosma from Latin "Citrus medica" lemon and Greek "osmos" smell, referring to the lemony odour of the leaves; cunninghamii after Allan Cunningham, the Australian explorer.

Common Names—Pinkheart, Bonewood.

Standard Trade Name—None.

A rather small and generally crooked tree up to 10 m tall and 10 cm diameter.

Trunk—Cylindrical, sometimes with several stems from the base.

Outer Bark—Grey-brown with cream vertical cracks, smooth to wrinkled. Dead bark very thin, underbark fawn. Outer surface of live bark green.

Inner Bark—On a tree 8 cm diameter cream to pale creamy-orange. No change in colour on exposure. No taste, but having a doughy smell. 2 mm thick.

Branchlets—Green or purplish, glabrous or with some scurfy hairs, the *young shoots minutely pubescent*. Leafless branchlets fawn.

Leaves—*Opposite, a single obscurely jointed leaflet*, entire, lanceolate to oblong-elliptic, 8–15 cm long. Notched, blunt or sometimes drawn out to a point at the end, gradually tapering into the leaf stalk. *Dull, smooth*, dark green. Oil dots conspicuous. Leaf stalk 13 mm long, smooth.

Venation—Midrib and lateral veins visible on both surfaces, but more conspicuous and raised below.

Flowers—*White, sweet scented, in axillary panicles*, branching into three with a *few large flowers* resembling orange blossom. Flower stalk 6–8 mm long. Sepals four, yellow-brown, round, scurfy, 4–6 mm long with a prominent midrib. *Petals* white, *four*, broadly ovate, 2 *cm long, papery, minutely hairy*, turning grey-brown and *persisting to surround and enclose the fruit*. Stamens four, joined into a white flask around and level with the stigma. Flowering period November to March.

Fruit—*Four cocci, brown, quite separate from each other*, splitting open when dry, *hairy, hardly tough*, 6 mm long, *seeds black*. Fruit ripe January to May.

Habitat—In littoral rainforest on sand or in lowland subtropical rainforest on alluvium.

Distribution—Richmond River, N.S.W. to Maryborough, Queensland. *Now rare in N.S.W.*, being recorded from Crabbe's Creek, Burringbar Creek and Terranora in the Tweed Valley. Last seen on the Richmond River in 1876.

Timber and Uses—Wood light yellow, fairly hard, close-grained. Suitable for cabinets.

Plate No. 30
Medicosma cunninghamii (Hook.) Hook. f.

MELICOPE ERYTHROCOCCA (F. Muell.) Benth.

Synonym—*Evodia erythrococca* F. Muell.

Reference—Fragm. i, 28.

Derivation—Melicope from Greek "mel" nectar and "kope" notched, referring to the notched glands of the flowers; erythrococca from Greek "erythros" red and "coccos" a berry referring to the red carpels.

Common Name—Tingletongue, Clubwood.

Standard Trade Name—Tingletongue.

A small to medium sized tree of the drier types of rainforests, attaining a height of 25 m and a stem diameter of 60 cm. Trunk fairly smooth, and with a grey or whitish appearance.

Outer Bark—*Grey or white, fairly smooth with a thin brown paper layer.* Outer surface of live bark mottled green, red and yellow.

Inner Bark—*Blaze* on a tree 50 cm diameter *pale brown with alternating layers of brown and white.* Sapwood white. When tasted the *bark leaves a tingling sensation on the tongue and lips and causes the saliva to flow freely.* 10 mm thick.

Branchlets—Dark grey, smooth, marked with small brown lenticels.

Leaves—Opposite, pinnate, *three leaflets*, margins entire, lance shaped, 4-6 cm long, bluntly pointed or rounded at the tip. *Lateral leaflets oblique at the base.* Green both surfaces, smooth. Scattered oil dots visible on leaflets with the aid of a lens only. Main leaf stalk 2-2.5 cm long, *lateral leaflet stalks very short, terminal* 10-15 mm.

Venation—Distinct with the midrib raised on both surfaces.

Flowers—Panicles terminal or in the upper axils, loose, scarcely longer than the leaves. Sepals four, small, triangular, slightly ciliate. Petals four, 3 mm long, slightly overlapping, but touching at the tips, minutely pubescent outside. Filaments dilated and ciliate to above the middle. Flowering period September to October.

Fruit—*Cocci four or very rarely five, reddish, transversely wrinkled,* horny, very spreading, ovate, about 4-6 mm long. Seeds shiny egg-shaped, 3 mm long. Fruit ripe February to April.

Habitat—*In the drier monsoon rainforests* in the headwaters of the major rivers.

Distribution—Clarence and Richmond Rivers, N.S.W. to Cairns, N. Queensland.

Not a common tree in N.S.W.

Recorded in N.S.W. from Kangaroo River S.F., Cherry Tree S.F., Richmond Range S.F., Toonumbar S.F., Unumgar S.F., Terrace Creek and Roseberry S.F.

Timber and Uses—Wood close-grained and tough, and found to be excellent for golf clubs.

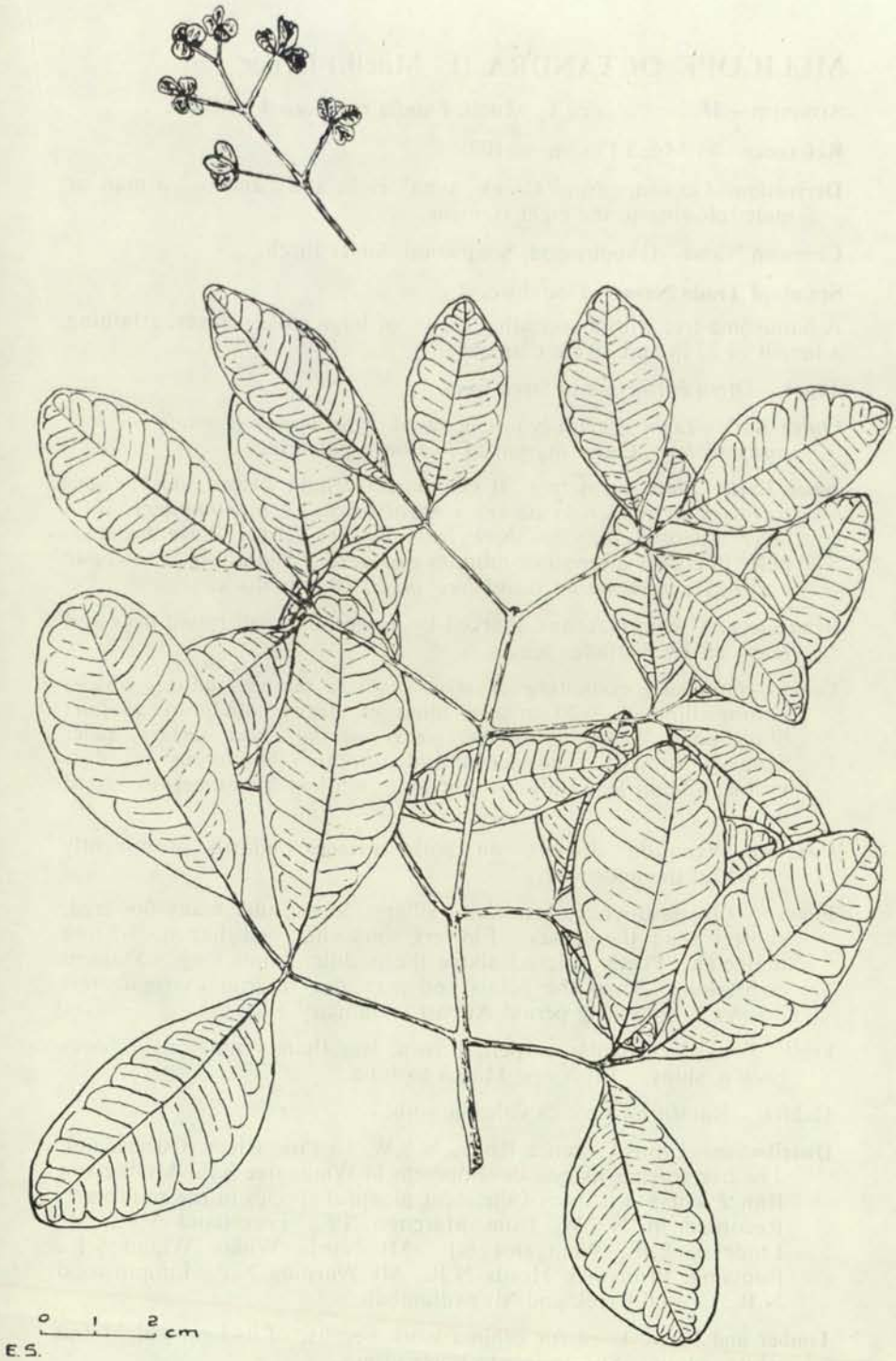


Plate No. 31
Melicope erythrococca (F. Muell.) Benth.

MELICOPE OCTANDRA (F. Muell.) Druce.

Synonym—*M. australasica* F. Muell, *Euodia octandra* F. Muell.

Reference—F. Muell Fragm. ii, 102.

Derivation—Octandra from Greek "octa" eight and "andros" a man or male referring to the eight stamens.

Common Name—Doughwood, Soapwood, Silver Birch.

Standard Trade Name—Doughwood.

A handsome tree with a spreading crown of large glossy leaves, attaining a height of 27 m and 76 cm diameter.

Trunk—*Often buttressed* in large trees.

Outer Bark—*Light greyish-brown, fissured, with numerous small and soft corky scales.* Outer margin of live bark pale green.

Inner Bark—*Blaze* on a tree 50 cm diameter light brown, *flecked and traversed by numerous darker vertical lines. A thin powdery white layer separates the dead bark from the live bark.* Blaze becomes paler in colour after some minutes exposure. Slightly bitter to taste and has a *pronounced dough-like smell.* 8 mm thick.

Branchlets—Green, glabrous, marked by numerous small raised dots and scars left by the fallen leaves.

Leaves—Opposite, consisting of *three leaflets*, margins entire, *sessile*, oblong-elliptical, 8-20 *cm long*, blunt or drawn out into a short blunt point. *Dark green and glossy on the upper surface*, paler beneath, somewhat coriacous and smooth. Numerous oil dots visible. Main leaf stalk 1-8 cm long, marked by numerous raised dots.

Venation—Venation distinct on both surfaces, midrib prominently raised on the underside.

Flowers—Greenish-white, panicles axillary, loose and many-flowered, shorter than the leaves. Flowers somewhat bell-shaped, 3-5 mm diameter. Petals reflexed above the middle, 8 mm long. *Stamens* eight, longer than the petals and *persisting in fruit as rigid erect bristles.* Flowering period August to January.

Fruit—Four dry angular carpels, brown, less than 4 mm long. Seeds brown, shiny. Fruit ripe March to June.

Habitat—Rainforest on rich volcanic soils.

Distribution—From Clarence River, N.S.W. to Pine River, Queensland. The tree reaches its best development in Wiangaree S.F., McPherson Range where it is one of the most plentiful species in the rainforest. Recorded in N.S.W. from Marengo S.F., Forestland S.F., Mt Lindesay F.R., Wiangaree S.F., Mt Nardi, Whian Whian S.F., Booyong, Brunswick Heads N.R., Mt Warning N.P., Limpinwood N.R., Crystal Creek and Murwillumbah.

Timber and Uses—Used for cabinet work because of its light weight and white colour. Susceptible to borer attack.

Plate No. 32
Melicope octandra (F. Muell.) Druce

MICROCITRUS AUSTRALASICA (F. Muell.) Swingle.

Synonym—*Citrus australasica* F. Muell.

Reference—F. v. M. Fragm. 1. 26.

Derivation—Microcitrus from Greek "micros", small and Latin "citrus", a lemon, referring to the small lemon-like fruits; australasica from Latin "australasicus", Australasian.

Common Name—Finger Lime.

Standard Trade Name—None.

A shrub or small tree often densely foliaged and attractive when in flower.

Trunk—Short, cylindrical, *slightly fluted or angular.*

Outer Bark—*Dark greenish-grey, smooth.* Outer surface of live bark prettily coloured in alternating brown and bright green stripes.

Inner Bark—*Blaze* on a tree 8 cm diameter, *pale green with pale brown vertical stripes.* Outer margin dark green. No change in colour and no distinct taste or smell. About 2 mm thick.

Branchlets—*Green, smooth, flattened and angular, armed with rigid spines up to about* 13 *mm long in the axils of the leaves.*

Leaves—*Alternate, simple*, entire, or sometimes irregularly toothed in the upper half, obovate, oval or lanceolate, 2-4 cm long, rounded or bluntly pointed, and notched at the tip. Glossy above, green both surfaces, paler beneath. Oil dots small and scattered. *Lemon smell when crushed.* Leaf stalk 2-5 mm long.

Venation—Visible, or net veins sometimes indistinct, generally raised a little and more distinct on the underside.

Flowers—*White, axillary, solitary* or rarely in clusters. Flowering period August to November.

Fruit—*Berry, yellow, oblong or almost cylindrical with a lemon-like flavour.* 2-20 cm *long.* Seeds two or three in each cell. Fruit ripe May to June.

Habitat—Riverine, monsoon and littoral rainforest.

Distribution—From the Richmond River, N.S.W. to Southern Queensland. Recorded in N.S.W. from Ballina, Mt Pikapene S.F., Wiangaree S.F., Whian Whian S.F., Booyong, Victoria Park N.R., Boat Harbour, Lismore, Mebbin S.F., Mt Warning N.P., Limpinwood N.R., Crystal Creek, Murwillumbah and Burringbar.

Timber and Uses—Wood yellow, close-grained and tough. Suitable for small turnery.

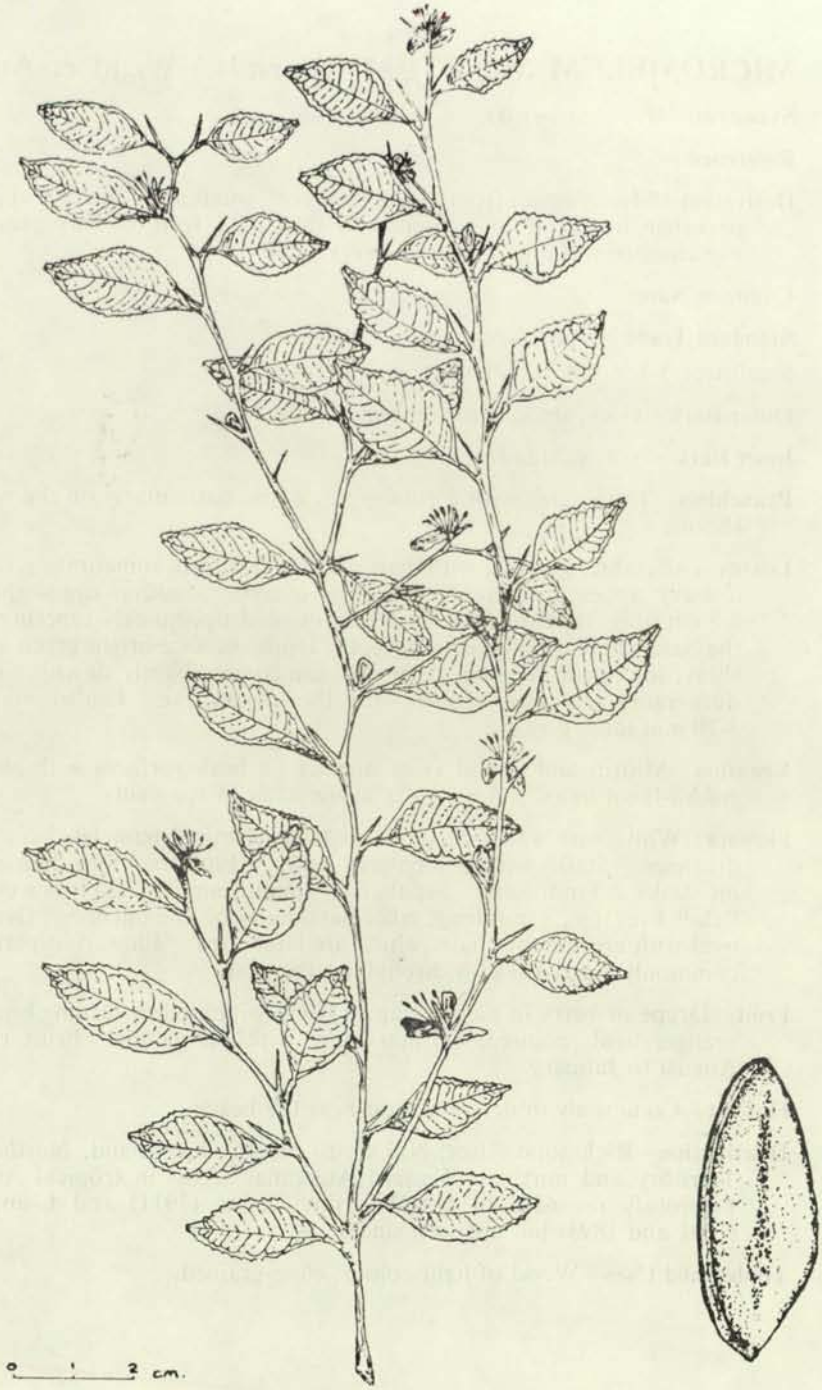


Plate No. 33
Microcitrus australasica (F. Muell.) Swingle

MICROMELUM MINUTUM (Forst. f.) Wight et Arn.

Synonym—*M. pubescens* Bl.

Reference—

Derivation—Micromelum from Greek "micros" small and "melon" apple or other tree fruit in reference to the small fruit of this genus; minutum from Latin "minutus" very small.

Common Name—

Standard Trade Name—None.

Small tree 5-7 m tall in N.S.W.

Outer Bark—Grey, smooth to somewhat scaly.

Inner Bark—Not recorded.

Branchlets—Thick, grey with a *golden-grey down*, particularly on the new shoots.

Leaves—Alternate, pinnate, with *numerous shallow teeth* sometimes giving a wavy appearance, *seven to eleven alternate leaflets*, egg-shaped, 4-8 cm long, tapering to a long but rounded tip, quickly tapering at the base where usually *assymetrical*. Upper surface bright green and shiny, lower surface dull, paler and sometimes slightly downy. Oil dots numerous and visible with the naked eye. Leaflet stalks 3-10 mm long, downy.

Venation—Midrib and lateral veins distinct on both surfaces with *short golden*-fawn hairs. *Hairy tufts in the axils* of the veins.

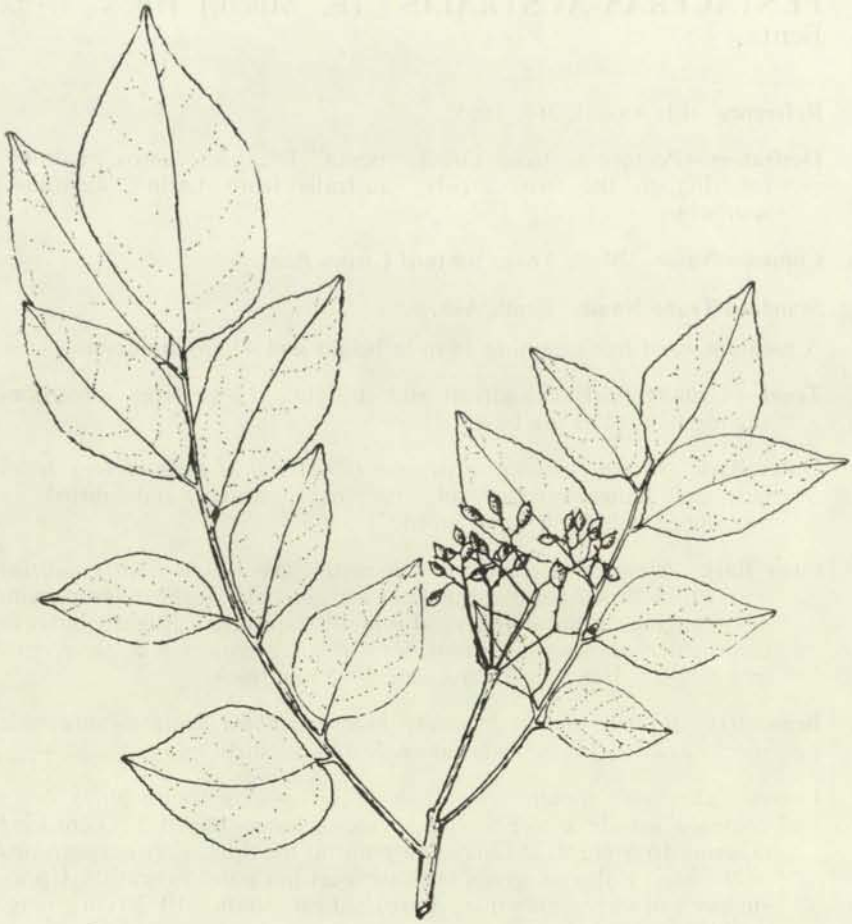
Flowers—White with sweet perfume, in large terminal panicles 5 cm in diameter. Stalks with golden-grey down. Flowers 6 mm diameter on stalks 2-3 mm long. Sepals five, small, hairy, joined into a cup. Petals five, free, 3 mm long, lanceolate, hairy on the outside. Ovary oval with erect cream hairs which are later shed. Flowering period commonly April but also throughout the year.

Fruit—Drupe or berry in panicles up to 10 cm wide, yellow turning bright orange, oval, pointed, 6-7 mm long, with oil glands. Fruit ripe August to January.

Habitat—Commonly in dry rainforest near the beach.

Distribution—Richmond River, N.S.W. to North Queensland, Northern Territory and northern Western Australia. Also in tropical Asia. Previously recorded in N.S.W. from Casino (1911) and Lismore (1891 and 1893) but not seen since.

Timber and Uses—Wood of light colour, close-grained.



0 2 4 cm.

Plate No. 34
Micromelum minutum (Forst. f.) Wight et Arn.

PENTACERAS AUSTRALIS (F. Muell.) Hook. f. ex Benth.

Reference—Fl. Aust. i, 365, 1863.

Derivation—Pentaceras from Greek "penta" five and "ceros" a horn, referring to the five carpels; australis from Latin "australis" southern.

Common Name—Black Teak, Bastard Crows Ash.

Standard Trade Name—Penta Ash.

A medium sized tree attaining 18 m in height and 45 cm diameter.

Trunk—Usually fairly cylindrical and straight. Large trees sometimes slightly flanged at the base.

Outer Bark—*Brown, smooth, often with short vertical rows of very small pustules.* Outer surface of live bark rough and pitted, a mixture of pale brown and green.

Inner Bark—*Blaze* on a tree 25 cm diameter *pale yellow faintly mottled* with a thin darker band at the outer margin, paler at the inner margin, not changing colour after several minutes exposure. Slightly bitter to taste and *causes a slight numbing or tingling sensation of the tongue and mouth.* Has a distinctive smell. 5 mm thick.

Branchlets—*Brown, somewhat thick, finely wrinkled* with minute pale specks and markings, leaf scars pale and distinct.

Leaves—*Alternate, pinnate, consisting of seven to fifteen leaflets* on a common petiole, entire margin, ovate or lance-shaped 5–13 cm long tapering to a blunt or fairly fine point at the tip. *Very unequalsided at the base*, glabrous, green both surfaces but paler beneath. Upper surface densely glandular-dotted. Leaf stalk 10–30 cm long, stalklets 4–6 mm long.

Venation—Midrib distinct on both surfaces, more prominent beneath. Lateral veins often visible but sometimes indistinct.

Flowers—*White, honey-scented*, in large much-branched panicles at the ends of the branches. Individual flowers about 6 mm diameter, sepals five-lobed, cup-shaped, about 2 mm diameter, petals five. Flowering period August to November.

Fruit—*Dry carpels* up to five but *mostly reduced to one, light brown, surrounded by a broad wing, flat irregularly egg-shaped up to* 4 *cm long.* Fruit ripe November to January.

Habitat—Monsoon, littoral and riverine rainforest.

Distribution—From the Richmond River, N.S.W. to Gympie, Queensland. However, it was allegedly collected at Stroud and Manning River in 1892, but not seen since.

Recorded in N.S.W. from Woodburn, Toonumbar S.F., Unumgar S.F., Terrace Creek, Lever's Plateau, Wiangaree S.F., Whian Whian S.F., Victoria Park N.R., Lennox Head, Broken Head N.R., Byron Bay, Brunswick Heads N.R., Mt Warning N.P., Limpinwood N.R., Crystal Creek and Murwillumbah.

Timber and Uses—*Wood yellow, close-grained, hard and durable*, resembling closely the wood of *Flindersia australis*; and could be used for the same purposes. Weight 900 kg per cubic metre.

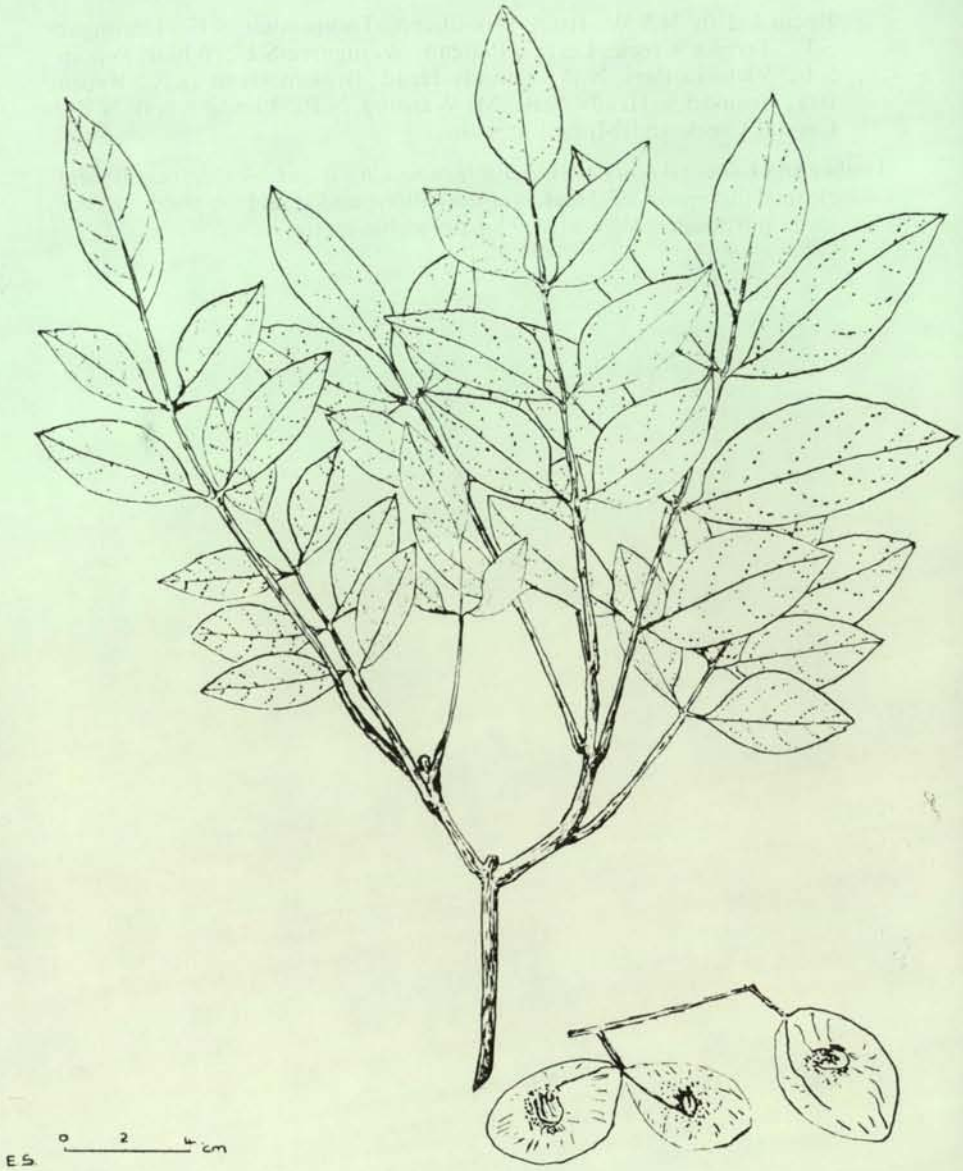


Plate No. 35
Pentaceras australis (F. Muell.) Hook. f. ex Benth.

ZANTHOXYLUM BRACHYACANTHUM F. Muell.

Synonym—*Fagara brachyacantha* Engl.

Reference—Pl. Vic. 1. 108.

Derivation—Zanthoxylum from Greek "Zanthos" yellow and "xylon" wood referring to the yellow wood; brachyacanthum from Greek "brachys" short, "akantha" a thorn referring to the short prickles on the branches and trunk.

Common Name—Thorny Yellow-wood, Satinwood, Scrub Mulga.

Standard Trade Name—Thorny Yellowwood.

A handsome tree with dark green glossy leaves, attaining a height of about 15 m and a stem diameter of about 35 cm.

Trunk—Not usually fluted or flanged at the base.

Outer Bark—*Grey, often finely wrinkled and marked by numerous pale corky dots* (lenticels) *and usually armed with stout conical prickles which disappear with age* so that the bark of large trees is often quite smooth. Dead bark thin. Underbark bright orange-yellow. Outer surface of live bark green and yellow to orange-brown on large trees.

Inner Bark—Blaze on a tree 30 cm diameter *yellowish-brown for the outer half, becoming a more cleaner yellow towards the sapwood.* No change in colour on exposure. Very bitter taste. No smell. 10 mm thick.

Branchlets—Grey, smooth, becoming green of *often bluish-green or purplish towards the ends, with numerous conical prickles* and marked by small pale dots. Leaf scars prominent.

Leaves—*Alternate, pinnate, consisting of five-thirteen leaflets. Often toothed with large oil glands in the indentations. Leaflets alternate,* ovate-elliptical or oblong-elliptical, 4–9 cm long, drawn out to a blunt notched tip, base sometimes oblique. *Shining on both surfaces* but paler on the underside. Oil dots small and very numerous in some specimens. Main leaf stalk 6–15 cm long, often angular. Leaflet stalks 3 mm long showing a distinct joint at their junction with the petiole.

Venation—Midrib, lateral and net veins visible on both surfaces. Net veins not very numerous, lateral veins looping to form a fine intra-marginal vein. Midrib sunken on the upper surface, raised on the underside.

Flowers—*Red and yellow,* unisexual, in short terminal panicles, 5–8 cm long. Petals red beneath and yellow inside, 3–4 mm long, stamens red. Flowering period November.

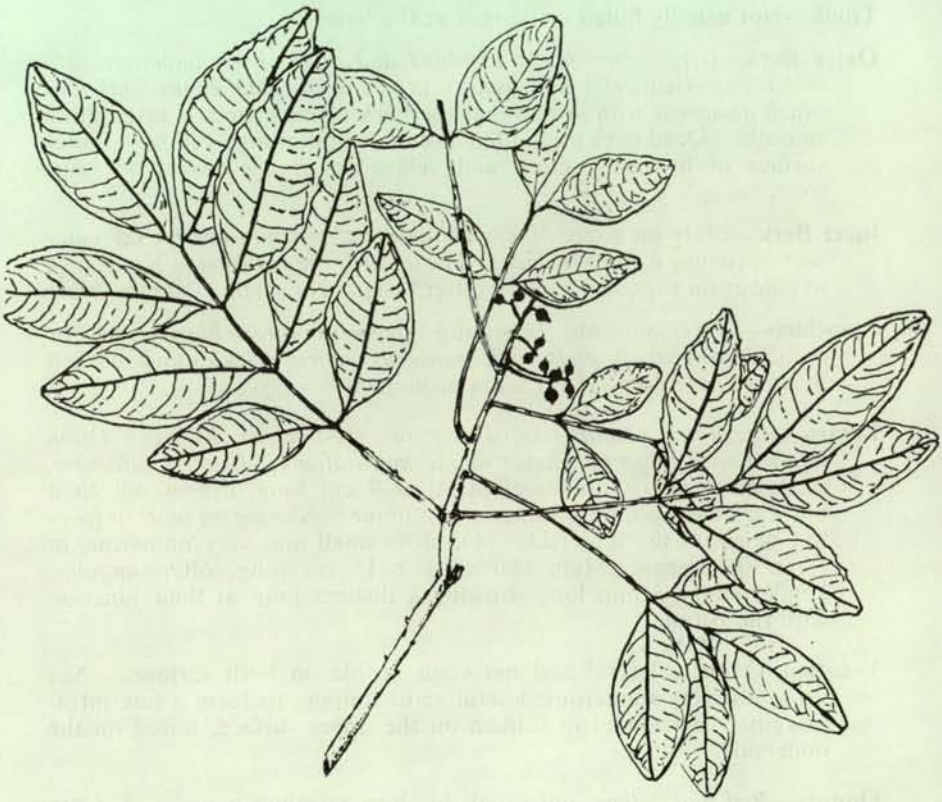
Fruit—*A coccus finely wrinkled, dark brown,* up to about 10 mm long, opening to about half its length in two valves, containing one black glossy egg-shaped seed up to 6 mm long. Fruit ripe February to May.

Habitat—Monsoon rainforest, riverine rainforest and rainforest on volcanic soil where it attains its best development such as on the McPherson Range.

Distribution—From the Clarence River, N.S.W. to Eungella Range, Queensland.

Recorded in N.S.W. from Sandiland Ranges, Mt Pikapene S.F., Cherry Tree S.F., Richmond Range S.F., Toonumbar S.F., Unumgar S.F., Beaury S.F., Tooloom, Koreelah S.F., Nothofagus F.R., Mt Lindesay F.R., Mt Glennie, Lever's Plateau, Wiangaree S.F., Whian Whian S.F., Tintenbar, Broken Head N.R., Mt Warning N.P., Limpinwood N.R. and Couchy Creek.

Timber and Uses—*Wood deep yellow*, close grained and firm, with a silky sheen. Should be suitable for turnery, inlays, and other ornamental work.



0 2 4 cm.

E.S.

Plate No. 36
Zanthoxylum brachyacanthum F. Muell.

APPENDIX

LIST OF LOCATIONS OF STATE FORESTS, FLORA RESERVES (INCLUDING FOREST PRESERVES), NATIONAL PARKS AND NATURE RESERVES

Forest	Location
Bagawa S.F.	23 km NW. of Coffs Harbour.
Banda Banda F.R.	40 km WSW. of Kempsey.
Barcoongere S.F.	35 km SE. of Grafton.
Barrington Tops N.P.	35 km NW. of Dungog.
Beaury S.F.	20 km SW. of Urbenville.
Bellangry S.F.	27 km NW. of Wauchope.
Bellinger River S.F.	13 km SSW. of Dorrigo.
Bielsdown S.F.	4 km N. of Dorrigo.
Big Fella Gum Tree F.R.	8 km SSW. of Kendall.
Black Ck F.R.	15 km SW. of Wauchope.
Boambee S.F.	6 km SW. of Coffs Harbour.
Bodalla S.F.	8 km N.W. of Narooma.
Boonoo Boonoo S.F.	15 km NNW. of Tenterfield.
Boorganna N.R.	32 km N. of Taree.
Boundary Ck S.F.	40 km NNW. of Dorrigo.
Boyne S.F.	8 km N. of Bateman's Bay.
Bril Bril S.F.	24 km N.W. of Wauchope.
Broken Bago S.F.	3 km SW. of Wauchope.
Broken Head N.R.	8 km S. of Byron Bay.
Brunswick Heads N.R.	1 km N. of Brunswick Heads.
Bruxner Pk F.R.	6 km N.W. of Coffs Harbour.
Buckra Bendinni S.F.	27 km WNW. of Macksville.
Bulga S.F.	37 km NW. of Taree.
Bundagen F.R.	11 km S of Coffs Harbour.
Bungabee S.F.	18 km NW. of Lismore.
Cangi S.F.	48 km W. of Grafton.
Carrai S.F.	52 km W. of Kempsey.
Chapman's Plain F.R.	20 km NNW. of Dorrigo.
Cherry Tree S.F.	30 km SW of Casino.
Chichester S.F.	53 km WNW of Bulahdelah.
Cloud's Ck S.F.	24 km NNW. of Dorrigo.
Comboyne S.F.	15 km WSW of Kendall.
Conglomerate S.F.	21 km NNW of Coffs Harbour.
Dingo S.F.	30 km NW of Taree.
Donaldson S.F.	16 km N of Urbenville.
Dorrigo N.P.	3 km SE. of Dorrigo.
Doyles River S.F.	58 km W. of Wauchope.
Edinburgh Castle S.F.	10 km E of Urbenville.
Ellis S.F.	29 km NW. of Dorrigo
Ewingar S.F.	42 km E. of Tenterfield.
Forestland S.F.	15 km SW. of Tenterfield.
Gibraltar Range S.F. and N.P.	47 km NE. of Glen Innes.
Girard S.F.	32 km NE. of Tenterfield.
Gladstone S.F.	8 km SW. of Bellingen.
Glenugie S.F. and F.R.	19 km SE. of Grafton.
Goonimbar S.F.	7 km NNE. of Nimbin.
Guy Fawkes N.P.	45 km NW. of Dorrigo.
Hyland S.F.	31 km WNW of Dorrigo.
Ingalba S.F.	18 km SW of Macksville.
Kangaroo River S.F.	34 km NW. of Coffs Harbour.
Killungoondie S.F.	13 km NE. of Dorrigo.
Kiwarrak S.F.	5 km S. of Taree.
Koreelah S.F.	20 km NW. of Urbenville.
Levers Plateau F.R.	35 km NNW. of Kyogle.
Limpinwood N.R.	20 km W. of Murwillumbah.
Lower Bucca S.F.	14 km NNW of Coffs Harbour.

Forest	Location
Madman's Ck F.R.	10 km NW. of Woolgoolga.
Marengo S.F.	34 km NW. of Dorrigo.
Massey's Ck S.F.	89 km WNW of Bulahdelah.
Mebbin S.F.	24 km NNE. of Kyogle.
Minnamurra N.P.	15 km SW. of Moss Vale.
Minyon Falls F.R.	13 km SW. of Mullumbimby.
Mistake S.F.	23 km W. of Macksville.
Mobong Ck F.R.	16 km NNE. of Dorrigo.
Mooball S.F.	8 km SE. of Murwillumbah.
Moonpar S.F.	16 km NNW of Dorrigo.
Mt. Belmore S.F.	42 km SW. of Casino.
Mt. Boss S.F.	48 km NW. of Wauchope.
Mt. Lindesay S.F. and F.R.	19 km NE. of Urbenville.
Mt. Pikapene S.F.	39 km SW. of Casino.
Mt. Warning N.P.	10 km SW. of Murwillumbah.
Myall Lakes N.P.	13 km S.E. of Buladelah.
Nambucca S.F.	10 km NNE. of Macksville.
Never Never S.F.	11 km E. of Dorrigo.
New England N.P.	75 km E. of Armidale.
Newry S.F.	19 km N. of Macksville.
Norfolk Falls F.R.	25 km NE. of Coolah.
Nothofagus Mtn F.R.	20 km NNE. of Urbenville.
Nulla Five-Day S.F.	48 km NW. of Kempsey.
Nullum S.F.	16 km WSW of Mullumbimby.
Oakes S.F.	40 km NW. of Macksville.
Olney S.F.	24 km NW. of Wyong.
Orara East S.F.	10 km NW. of Coffs Harbour.
Orara West S.F.	18 km W. of Coffs Harbour.
Ourimbah S.F.	6 km SW. of Wyong.
Pine Brush S.F.	24 km NE. of Grafton.
Pine Ck S.F.	16 km SSW. of Coffs Harbour.
Red Cedar F.R.	18 km NNW. of Dorrigo.
Red Scrub F.R.	20 km SW. of Mullumbimby.
Riamukka S.F.	25 km SSE. of Walcha.
Richmond Range S.F.	35 km NW. of Casino.
Roseberry S.F.	32 km NNW of Kyogle.
Roses Ck S.F.	25 km SW. of Bellingen.
Rowley's Ck F.R.	32 km NW. of Wingham.
Royal N.P.	5 km SSW. of Sutherland.
Sea Acres Reserve	Port Macquarie.
Shea's Nob S.F.	34 km NNW. of Dorrigo.
Sherwood N.R.	20 km NW. of Woolgoolga.
Stott's Island N.R.	12 km NE. of Murwillumbah.
Strickland S.F.	64 km SSW. of Newcastle.
Styx River S.F.	53 km E. of Armidale.
Tooloom S.F.	19 km SW. of Urbenville.
Toonumbar S.F.	23 km WNW. of Kyogle.
Tuckers Nob.	13 km SW. of Coffs Harbour.
Unumgar S.F.	14 km NE. of Urbenville.
Victoria Pk N.R.	15 km SE. of Lismore.
Waihou F.R.	18 km WNW of Woolgoolga.
Warung S.F.	25 km NE. of Coolah.
Washpool S.F.	72 km WNW of Grafton.
Way Way S.F.	10 km SE. of Macksville.
Wedding Bells S.F.	19 km N. of Coffs Harbour.
Whian Whian S.F.	16 km SW. of Mullumbimby.
Wiangaree S.F.	24 km N. of Kyogle.
Wild Cattle Ck S.F.	32 km W. of Coffs Harbour.
Wilson River F.R.	37 km SW. of Kempsey.
Wollumbin S.F.	16 km WSW. of Murwillumbah.
Woodburn S.F.	42 km NNE. of Batemans Bay.
Woolgoolga Ck F.R.	5 km W. of Woolgoolga.
Yabbra S.F.	16 km S. of Urbenville.
Yarrahapinni S.F.	5 km SE. of Macksville.

Forestry Commission of N.S.W. Photofile

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25—SC 4746; 26—4766; 27—4761; 28—4744; 29—4750; 30—4740;
31—SC 4748; 32—4733; 33—4767; 34—4773; 35—4759; 36—4769.

D. West, Government Printer, New South Wales—1979

Australian National Library Card Number ISBN 0 7240 1615 5
ISSN 0085—3984