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N.S.W. RAINFOREST TREES

PART VIII

FAMILIES:

MIMOSACEAE
CAESALPINIACEAE
PAPILIONACEAE
SIMAROUBACEAE
BURSERACEAE
MELIACEAE

AUTHOR:
A.G. FLOYD

FORESTRY COMMISSION OF N.S.W.
RESEARCH NOTE No. 38
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14400K–1

Published 1977
Reprinted 1982

National Library of Australia card number
ISBN 0 7240 4985 1
ISSN 0085 3984

INTRODUCTION

This is the eighth in a series of research notes of the Forestry Commission of N.S.W. describing the rainforest trees of the State.

Other publications in this series are:-

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

Research Note No. 29 (1976)
Second Edition 1979 — 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.

In this part, a further 24 species of rainforest trees in the families *Mimosaceae*, *Caesalpiniaceae*, *Papilionaceae*, *Simaroubaceae*, *Burseraceae* and *Meliaceae* have been described and illustrated with the emphasis on field characteristics. This and future research notes in the series will deal with the families of rainforest trees in the order adopted by the National Herbarium of N.S.W. Diagnostic features are shown in italics. Standard Trade Names used are those in Australian Standard ASO2-1970 **"Nomenclature of Australian Timbers".**

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 MIMOSACEAE

CHARACTERISTICS OF THE FAMILY IN N.S.W.

Widespread throughout the tropics and subtropics of the world. Only two genera in N.S.W. reaching tree size, namely *Abarema* and *Acacia* of which four species of each are in the rainforest. In addition *Acacia maidenii* and *A. diphylla* often occur on the margins only. Medium to small trees but sometimes up to 30 m tall *(Acacia bakeri, A. melanoxylon* and *A. orites).* Trunk rarely buttressed.

Outer Bark — Smooth to scaly or fissured, dark grey, brown to red-brown.
Inner Bark — Blaze creamy-brown, pink to red with little change in colour on exposure. Mostly astringent.

Leaves — Alternate, simple phyllodes *(Acacia)* or bipinnate *(Abarema).* One pair only of secondary leaf stalks in *Abarema hendersonii* and *A. muellerana,* but up to four pairs in *A. grandiflora* and *A. sapindoides.* Glands present on the main leaf stalk or phyllode on all except *A. hendersonii* and *A. muellerana.*

Flowers — Green to white (except *Abarema grandiflora* which is pink), usually in round heads (except *Acacia aulacocarpa* and *A. orites* which are in spikes). Petals four or five and stamens numerous, conspicuous joined into a tube in *Abarema* but separate in *Acacia.*

Fruit — A pod, splitting open to expose several hard black seeds. Twisted in all except *Acacia bakeri* and *A. orites.*

Habitat — *Acacia orites* is restricted to warm temperate rainforest, whereas *A. aulacocarpa, A. bakeri, Abarema muellerana* and *A. hendersonii* are confined to lowland subtropical and littoral rainforests. The remaining species are common in both temperate and subtropical rainforests.

Distribution — *Abarema* occurs in tropical America, Australia and north to Malaysia. All four Australian species occur in N.S.W., with *A. muellerana* restricted to the Richmond-Tweed area of N.S.W. The remaining three species extend to North Queensland. Only two species extend south of the Richmond River, namely *A. grandiflora* to the Hastings and *A. sapindoides* to the Shoalhaven River.
Acacia is common throughout the tropics and subtropics of the world, those with phyllodes being mainly in Australia. In N.S.W., Only *A. bakeri* is a climax rainforest tree, the remaining three species being seral.
Only *A. aulacocarpa* extends beyond Australia to New Guinea, whilst *A. orites* is restricted to the McPherson Range, the Tweed-Nightcap Ranges and a puzzling occurrence in dry sclerophyll forest on Middle Brother and North Brother Mountains south of Port Macquarie. Only *A. melanoxylon* extends south of Taree.

Timber and Uses — Yellow, brown to dark red (except *Abarema hendersonii* and *A. muellerana* which are white and soft) with attractive stripes. Hard and tough. Ornamental timber suitable for cabinet work and fancy turnery.

KEY TO THE RAINFOREST TREE SPECIES OF MIMOSACEAE IN N.S.W.

A. USING LEAVES AND BRANCHLETS ONLY

1. Leaves bipinnate 2
   2. Stalked glands on main leaf stalk 3
      3. Peg-like glands between each pair of secondary branchlets..... *Abarema grandiflora* (Benth.) Kosterm.
      3. Small glands only below branchlet pairs on main stalk ..... *Abarema sapindoides* (A. Cunn.) Kosterm.
   2. Stalked glands absent 4
      4. Leaflets unequal at the base, not tapering ..... *Abarema hendersonnii* (F. Muell.) Kosterm.
      4. Leaflets equal at the base, tapering into the short stalklet..... *Abarema muellerana* (Maid. & Baker) Kosterm.
1. Leaves simple (phyllodes) 5
   5. Phyllodes narrow, under 1 cm wide ..... *Acacia orites* Pedley
   5. Phyllodes broad, over 1 cm wide 6
      6. Phyllodes markedly grey..... *Acacia aulacocarpa* A. Cunn. ex Benth.
      6. Phyllodes green 7
         7. Shoots and expanding leaves downy, main longitudinal veins more than three ..... *Acacia melanoxylon* R. Br.
         7. Shoots and expanding leaves smooth, main longitudinal veins two or three ..... *Acacia bakeri* Maiden

B. USING BARK ONLY

1. Outer bark hard and fissured 2
   2. Underbark brownish-black ..... *Acacia aulacocarpa* A. Cunn. ex Benth.
   2. Underbark chocolate brown..... *Acacia melanoxylon* R. Br.
1. Outer bark smooth to platy, wrinkled or scaly 3
   3. Blaze yellow with red tints..... *Acacia orites* Pedley
   3. Blaze red-brown with pale brown stripes *Acacia bakeri* Maiden

3. Blaze creamy-brown to pink-brown 4

4. Outer bark dark brown to red-brown 5

5. Outer bark smooth with corky pustules .....
Abarema sapindoides (A. Cunn.) Kosterm.

5. Outer bark shedding as square plates .....
Abarema grandiflora (Benth.) Kosterm.

4. Outer bark grey to light brown 6

6. Outer bark grey .....
Abarema muellerana (Maid. & Baker) Kosterm.

6. Outer bark light brown ..... *Ararema hendersonii* (F. Muell.) Kosterm.

ABAREMA GRANDIFLORA (Benth.) Kosterm.

Synonym — *Pithecellobium grandiflorum Benth.*

Reference — Benth. Fl. Austr. ii. 424.

Derivation — Abarema possibly from the Central American native name for the first species described; grandiflorum from Latin "grandis" large and "flora" a flower, referring to the large showy flowers.

Common Name — Pink Laceflower, Marble Wood, Tulip, Fairy Paint Brushes.

Standard Trade Name — Tulip Siris.

A small tree up to 15 m tall occasionally attaining 20 cm diameter but up to 50 cm diameter on the McPherson Range. A very attractive ornamental tree. The crimson-tipped flowers have a fine fragrance. Often there are black spots on the leaflets due to a leaf fungus.

Trunk — Somewhat irregular, slightly fluted but not buttressed.

Outer Bark — Dark brown, smooth or platy shedding irregularly as square plates, exposing *dark brown patches on the greyish* lichen-covered *bole.* Underbark creamy-fawn to yellow-brown. Outer surface of live bark purple-red.

Inner Bark — Blaze on a tree 30 cm diameter creamy-brown with fine paler horizontal lines and a pale layer next to the sapwood. Stringy. The whole blaze fades on exposure. Astringent taste and smells like sugarcane. Sapwood surface barely irregular. 8 mm thick.

Branchlets — Thick, purple-green turning fawn. No lenticels. Leaf scars large and prominent, longitudinally marked.

Leaves — Alternate, *bi-pinnate,* the primary leaf stalk bearing two to four pairs of branchlets each with two to four pairs of entire leaflets. *Leaflets opposite,* distinctly papery, *curved, ovate-lanceolate, 4-5 cm long,* blunt or bluntly pointed at the tip. Glossy on both surfaces, dark green above and paler beneath. Primary and secondary leaf stalks with their bases distinctly thickened. A *peg-like gland* 6 mm long is situated *between each pair of secondary leaf stalks and also on the primary leaf stalk.* Leaflet stalks purple-black, 3-4 mm long.

Venation — Distinct on both surfaces but most prominent beneath; midrib lateral and net veins raised on the under surface, the midrib alone raised on the upper surface.

Flowers — *Crimson* with white at the base, strongly scented at night, globular heads of showy flowers on stalks in the upper leaf-forks or near the ends of branchlets, *6-8 cm diameter.* Flowers stalkless. Sepals bell-shaped, 6 mm long, rim obscurely toothed. Petals 12-20 mm long, rim divided into four to five lobes about 6 mm long. The numerous crimson stamens project 20-25 mm beyond the petals. Flowering period December to March.

Fruit — *Pod, spiral, flattened,* about 2.5 cm wide, curling when open and exposing a *deep red inner surface. Seeds black,* shining, 6 mm diameter. Fruit ripe March to May.

Habitat — Subtropical, warm temperate and dry rainforests (littoral).

Distribution — Occasional trees only, scattered throughout the rainforests from Hastings River, N.S.W. to Thursday Island, North Queensland. Recorded in N.S.W. from Burrawan S.F., Port Macquarie, Nulla Nulla Creek, Tanban S.F., Way Way S.F., Nambucca Heads, Bellinger River, Pine Creek S.F., Boambee S.F., Orara West S.F., Bruxner Park, Woolgoolga, Wild Cattle Creek S.F., Moonpar S.F., Cloud's Creek S.F., Iluka N.R., Wiangaree S.F., Nimbin, Whian Whian S.F., Broken Head N.R., Mooball, Mt. Warning N.P., Limpinwood N.R., Eungella, Murwillumbah, North Tumbulgum and Stott's Island N.R.

Timber and Uses — Striped brown to dark red-brown, the heartwood and roots when freshly cut have a strong onion-like odour. Suitable for cabinet work and fancy turnery.

R.A.

Plate No. 1
***Abarema grandiflora* (Benth.) Kosterm.**

ABAREMA HENDERSONII (F. Muell.) Kosterm.

Synonym — *Pithecellobium hendersonii* F. Muell.
Reference — F. Muell. in Fragm V. 191, VI, 202.
Derivation — Hendersonii after J. A. Henderson who first collected this species at Ballina.
Common Name — White Lace Flower.
Standard Trade Name — Tulip Siris.

A tree attaining a height of 18 m and a stem diameter of 60 cm.

Trunk — Cylindrical, slightly buttressed.

Outer Bark — *Light brown*, corky, scaly or smooth with very numerous lenticels, scattered and arranged in vertical rows and opening vertically. Underbark creamy-fawn. *Surface of live bark red or plum*, with green and cream vertical streaks.

Inner Bark — Blaze on a tree 60 cm diameter *pale yellowish-brown* to creamy-yellow with pink vertical bands in the outer 5 mm. No rapid change in colour. No distinct taste, smells like sugarcane. About 20 mm thick.

Branchlets — Thick, *brown, often wrinkled* with numerous scattered raised reddish-brown dots, becoming green and faintly fluted towards the ends.

Leaves — Alternate, *bipinnate* each primary leaf stalk usually bearing one pair of secondary leaf stalks with *commonly six leaflets to each*. The terminal pair are usually larger than the lower leaflets which are sometimes alternate. The secondary leaf stalks often have an articulation at the base. Leaflets entire, lance-shaped or ovate. *5-10 cm long* (up to 18 cm on young growth). Protracted into a blunt or fine point at the tip, *very unequal-sided and eared on one side at the base*. Glossy above but less so below, dark green on both surfaces (or grey above and brown below when dry). Leaflet stalks indistinct, up to 2 mm long, usually very wrinkled, dark brown.

Venation — Distinct on both surfaces, more prominently raised beneath. Midrib not usually channelled on the upper surface.

Flowers — *Creamy-white*, often in terminal heads of ten or more flowers, *on short stalks* about 6 cm diameter. Petals joined, cylindrical, *twice as long as the sepals*, up to about 15 mm long with numerous stamens projecting 15-25 mm beyond the rim. Flowering period October to December.

Fruit — A *woody pod about 7-10 cm long* and 12 mm broad, markedly flattened between the seeds, *much curved, orange outside, red inside when fresh. Seeds glossy black*, about 8 mm long, oval. Fruit ripe June to December.

Habitat — Riverine and lowland subtropical rainforests.

Distribution — Richmond River, N.S.W. to Windsor Tableland, North Queensland. Recorded in N.S.W. from Tintenbar, Alstonville, Bangalow, Hayter's Hill, Broken Head N.R., Mullumbimby, Brunswick Heads N.R., Wooyung, Mooball S.F., Murwillumbah, Stott's Island N.R., Terranora and Tweed Heads.

Timber and Uses — White, medium hard and tough, somewhat coarse-grained. Liable to attack by borers. Has no particular uses.

R.A.

Plate No. 2
***Abarema hendersonii* (F. Muell.) Kosterm.**

ABAREMA MUELLERANA (Maid. & Baker) Kosterm.

Synonym — *Pithecellobium muellerianum* Maid. & Baker.
Reference — Proc. Linn. Soc. N.S.W. X, 585 t. 52, 1895.
Derivation — Muellerana after Ferdinard Mueller, one of the greatest Australian botanists and Government Botanist of Victoria.
Common Name — Small-flower Lace Flower.
Standard Trade Name — None.

A tree attaining a height of about 20 m and a stem diameter of 60 cm.

Trunk — Sometimes slightly buttressed in larger trees.
Outer Bark — *Grey to light grey*, large trees somewhat rough and scaly with vertical cracks. Underbark creamy-fawn. Outer surface of live bark apple green and biscuit brown with occasional red-brown streaks.
Inner Bark — Blaze on a tree 20 cm diameter *pale brown with purplish tints and vertical stripes* extending from the outer margin to the centre. Does not change colour on exposure. No taste or smell. 6 mm thick.
Branchlets — *Grey becoming reddish-brown* and hairy towards the ends, or sometimes almost smooth.
Leaves — Alternate, *bipinnate*, each primary leaf stalk usually having one pair of secondary leaf stalks, or only one secondary leaf stalk with *two to four alternate leaflets*. Leaflets entire, *elliptic, 4-13 cm long*, rounded or sometimes drawn out to a short blunt point at the tip, *symmetrically tapering at the base*, with the midrib sometimes ending in a minute acute point. Green both surfaces (or brown when dry), paler beneath, sometimes hairy on the underside, or completely smooth, somewhat leathery. Leaflet stalks 1-3 mm long, hairy.
Venation — Lateral and net veins distinct on both surfaces, but raised and more conspicuous on the underside. Lower surface of the midrib is often hairy.
Flowers — *Green*, in circular heads, 2.5 cm or over in diameter. Individual flowers tubular about 6 mm long, *stalkless, petals only as long as the sepals*, with numerous stamens projecting about 12 mm beyond the corolla rim. Flowering period November to December.
Fruit — A pod somewhat thick about 15 mm wide and 10-13 cm long, *wrinkled and twisted. Red or reddish-brown on the outside* with the *inner part deep orange* into which are embedded the black glossy oval seeds, 10 mm long. Fruit ripe March to July or occasionally November.
Habitat — Subtropical, riverine, littoral and dry rainforests.
Distribution — Richmond, Brunswick and Tweed Rivers, N.S.W. to Upper Tallebudgera, South Queensland. Recorded in N.S.W. from Wyrallah, Unumgar S.F., Wiangaree S.F., Corndale, Whian Whian S.F., Eureka, Victoria Park N.R., Hayter's Hill, Broken Head N.R., Goonengerry, Nullum S.F., Mooball S.F., Uki, Mt. Warning N.P., Limpinwood N.R. and Murwillumbah.
Timber and Uses — White, medium hard, open textured. Having no particular useful qualities.

0 2 4 cm.

F.S.

Plate No. 3
***Abarema muellerana* (Maid. & Baker) Kosterm.**

ABAREMA SAPINDOIDES (A. Cunn.) Kosterm.

Synonym — *Pithecellobium pruinosum* Benth.
Reference — Benth. in Lond. Journ. iii, 211, 1844.
Derivation — Sapindoides from Sapindus, a tropical American genus and from Greek "eidos" resemblance, referring to the similarity in foliage to Sapindus.
Common Name — Snow-wood, Tulip Siris, Stinkwood, Monkey's Earrings.
Standard Trade Name — Tulip Siris.

A small tree up to 15 m tall and 30-35 cm diameter. It is a suitable ornamental subject for parks and street planting, the reddish trunk and the lacy pinnate leaves giving it a pleasing appearance.

Trunk — Cylindrical without buttresses.
Outer Bark — *Dark Reddish-brown* patterned *with numerous corky pustules.* Underbark pale brown. Outer surface of live bark with pink and red vertical stripes.
Inner Bark — Blaze on a tree 30 cm diameter *light brown or pinkish-brown with paler vertical stripes*, cream near the sapwood, fibrous. No change of colour on exposure. Astringent peppery taste with a cane smell. 6 mm thick.
Branchlets — Grey, reddish in young foliage. Lenticels and leaf scars prominent.
Leaves — Alternate, *bipinnate*, the primary leaf stalk with one to three pairs of secondary leaf stalks opposite or nearly so on the main stalk, five to eleven *leaflets alternately* arranged on the secondary leaf stalks, entire, *lanceolate, 4-5 cm long*, 13-20 mm broad. Tip tapering to a fine point, very oblique at the base, smooth and green both surfaces, slightly darker above. Primary and secondary leaf stalks swollen at the base. Leaflet stalks up to 2 mm long. A small *gland* is situated *10-25 mm below the first pair of secondary leaf stalks* on the upper side of the main leaf stalk and also occasionally below the second pair of secondary leaf stalks.
Venation — Distinct, midrib raised on both surfaces.
Flowers — *Greenish-white heads* of flowers (turning yellow with age) in the forks of the upper leaves, globose, *2.5-3 cm diameter.* Stalklets of each flower about 3 mm long. Flowers 10-13 mm long; sepals joined, bell-shaped, 1 mm long, rim toothed. Petals finely rusty hairy, 4 mm long, nearly cylindrical, the four to five lobes at its rim 1 mm long. Stamens numerous, projecting 6 mm beyond the corolla rim. Flowering period October to January.
Fruit — Pod, *very much twisted, flattened*, 10-16 mm wide, *yellow but red inside*, containing several *black, shining seeds.* Fruit ripe February to June.
Habitat — Subtropical, warm temperate and riverine rainforests.
Distribution — From Shoalhaven, N.S.W. to Herberton, North Queensland. Recorded in N.S.W. from Nowra, Minnamurra Falls, Cambewarra Range, Barrenjoey, Tuggerah Lakes, Muswellbrook, Raymond Terrace, Port Stephen's, Myall Lakes N.P., Seal Rocks, William's River, Dungog, Gloucester, Wingham, Saltwater, Port Macquarie, Bellangry S.F., Kunderang Brook, Mt. Sebastopol, Macleay River Flats, Shark Island, Smoky Cape, Ingalba S.F., Way Way S.F., Upper Taylor's Arm, Bellinger River, Coramba, Woolgoolga, Wild Creek S.F., Glenugie Peak F.R., Grafton, Dalmorton, Woodford Island, Mt Pikapene S.F., Alstonville, Toonumbar S.F., Unumgar S.F., Tooloom Scrub, Acacia Creek, Moore Park, Roseberry S.F., Lynch's Creek, Goonimbar S.F., Whian Whian S.F., Wilson Park, Boat Harbour, Victoria Park N.R., Hayter's Hill, Broken Head N.R., Limpinwood N.R. and Stott's Island N.R.

Timber and Uses — Light yellow to brown with an unpleasant smell when cut, easy to work and has a figured grain. Could be used for ornamental turnery.

Plate No. 4
***Abarema sapindoides* (A. Cunn.) Kosterm.**

ACACIA AULACOCARPA A. Cunn. ex Benth.

Reference — London J. Bot. 1. 378, 1842.

Derivation — Acacia from Greek "akantha" a thorn or prickle (alluding to the spines on the many African and Asian species first described); aulacocarpa from Greek "aulac-" furrow and "karpos" a fruit, referring to the characteristic thickened transverse bands on the pod.

Common Name — Brush Ironbark Wattle, Brown Salwood, Black Wattle, Hickory Wattle.

Standard Trade Name — Brown Salwood.

A tree up to 15 m tall and 40 cm diameter with greyish foliage.

Trunk — Straight, not fluted or buttressed.

Outer Bark — *Dark grey-black, prominently fissured.* Underbark brownish-black. Outer surface of live bark dark pinkish-red.

Inner Bark — Blaze on a tree 40 cm diameter uniform deep pink, shading to creamy-pink at the sapwood margin. No change in colour on exposure. Astringent taste but no smell. 12 mm thick.

Branchlets — Slender, angular, grey and somewhat hoary. Shoots grey hoary.

Leaves — Alternate, simple, phyllodes, *usually falcate*, broad lanceolate, 5-15 cm long and *10-30 mm wide*. Tapering to a point at the tip and gradually into the stalk at the base. Thick, *dull grey* on both sides. Stalk 4-7 mm long. Gland at the base of the phyllode, inconspicuous if present.

Venation — *Three to five* conspicuous *longitudinal veins* of which *one or two of the lower ones merge with the margin.* The finer veins are parallel and do not join.

Flowers — Bright yellow in rather loose *spikes*, 2-5 cm long, either singly or up to three at the base of axillary shoots. Flowering period August to September.

Fruit — Pod straight or wavy, *thick and woody*, rounded at both ends, 3-7 cm long and *1-2 cm wide. Prominently veined and furrowed in an oblique tranverse pattern.* Fruit ripe October to November.

Habitat — On the margins of littoral rainforests on sand or in riverine subtropical rainforest on alluvium.

Distribution — From Bellinger River, N.S.W. to Iron Range in North Queensland, Northern Territory and southern New Guinea. Recorded in N.S.W. from North Beach, Kangaroo River S.F., Copmanhurst, Iluka N.R., Braemar S.F. and Brunswick Heads N.R.

Timber and Uses—Dark red, hard, heavy, tough and durable. It has been used locally for fence rails and for cabinet work.

Plate No. 5
***Acacia aulacocarpa* A. Cunn. ex Benth.**

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ACACIA BAKERI Maid.

Reference — Proc. Linn. Soc. N.S.W. X, 337, 1895.

Derivation — Bakeri after R. T. Baker, a noted wood technologist in N.S.W.

Common Name — Marblewood, Scrub Wattle, White Marblewood, Baker's Wattle, White Wattle.

Standard Trade Name — White Wattle.

A straight tree up to 40 m in height and up to 90 cm stem diameter.

Trunk — Sometimes moderately flanged at the base in larger trees.

Outer Bark — *Grey-brown,* often somewhat wrinkled and rough with small scales and vertical rows of darker pustules. Underbark dark brown to black with cream vertical streaks. Outer surface of live bark pink to red with pale pink broad vertical stripes.

Inner Bark — Blaze on a tree 35 cm diameter somewhat striking being *pink with vertical creamy-pink stripes* which darken slightly on exposure. The inner paler margin changes to orange-yellow and then dark brown after some minutes exposure. Slightly astringent taste but no smell. 12 mm thick.

Branchlets — Slender, grey, becoming green towards the ends, smooth and flattened towards the ends.

Leaves — Alternate, simple *phyllode,* entire, *lance-shaped or elliptic* in outline, *5-12 cm long,* tapering to a blunt point at the tip and to a very short (almost sessile) stalk at the base, smooth, upper and lower leaf surfaces *bright shiny green.* Margins and leaf surfaces undulate, thin but somewhat firm and tough.

Venation — *Two to three main veins extending the length of the phyllode* with the unusual feature of a vein on each side forming the thickened margin. Net veins very fine and numerous. Sometimes there is a short basal vein terminating in a gland at the margin.

Flowers — Creamy-yellow, in *dense round heads* about 5 mm diameter in racemes springing from the forks of the phyllodes with 10 to 20 minute flowers in each head. Racemes shorter or longer than the phyllodes. Flowering period September to October.

Fruit — Pod *straight, flat,* 12-20 cm long about 13 mm broad, somewhat thin, slightly contracted between the seeds. Seeds flat, shiny, oval, 6-10 mm long, joined to the pod by a short straight thread. Fruit ripe February.

Habitat — Lowland subtropical rainforest on volcanic and alluvial soils.

Distribution — From Brunswick Heads, N.S.W. to Maryborough, Queensland. Recorded in N.S.W. from Brunswick Heads N.R., Nullum S.F., Eungella and Terranora.

Timber and Uses — Yellowish, hard and tough, close-grained. Suitable for flooring, cabinet work, scantling, cases and tool handles. The sapwood is susceptible to borer attack. 900 kg. per cubic metre.

Plate No. 6
***Acacia bakeri* Maid.**

ACACIA MELANOXYLON R. Br.

Reference — Ait. Hort. Kew, ed 3, v. 462; Benth. Fl. Austr. ii. 388.

Derivation — Melanoxylon from Greek "melanos" black and "xylon" wood, referring to the dark timber of this species.

Common Name — Blackwood, Mudgerabah.

Standard Trade Name — Blackwood.

A medium to fairly large tree attaining a height of 30 m and a 90 cm stem diameter in mountain districts of southern N.S.W. Trees of 15-18 m high and exceeding 60 cm diameter have been recorded for northern N.S.W. It is a hardy, fairly fast growing, densely foliaged, shapely tree and is useful for shade and shelter.

Trunk — Usually fairly cylindrical, sometimes shortly buttressed or flanged at the base.

Outer Bark — *Grey-brown, fissured, hard and scaly*, shedding in narrow vertical pieces. Underbark chocolate brown. Outer surface of live bark pinkish-red.

Inner Bark — Blaze on a 50 cm diameter tree *bright red becoming pale pink at the inner margin*, growth rings visible, fibrous, small beads of clear sticky gum appear on the surface a few minutes after cutting. No change in colour, astringent to taste. No distinct smell, 15 mm thick.

Branchlets — Brown, hairy, often becoming sharply angular towards the ends. Young shoots minutely downy.

Leaves — *Phyllodes*, alternate, simple, falcate, *oblanceolate, 6-10 cm long*, 6-25 mm broad, rounded or rarely acute at the tip, much narrowed towards the base. *Petiole and leaf often hairy when young.*

Venation — Several longitudinal main veins with numerous connecting finer veins.

Flowers — Pale yellow heads, globular, in short axillary racemes, 2.5-5 cm long. Flowering period September to January.

Fruit — Pod, flat, *4-12 cm long* and about *8 mm wide* with thickened margins, much *twisted*. Seeds black, oval, connected to the pod by a long *red thread encircling the seed in a double fold*. Fruit ripe January.

Habitat — Rainforest of all types. Common in coastal and highland areas.

Distribution — From Tasmania through Victoria, N.S.W. to the Herberton Range, North Queensland. Recorded in N.S.W. from Nadgee, Bombala, Nimmitabel, Mt. Brown, Bermagui, Minnamurra, Royal N.P., Gladesville, Nundle, Barrington Tops, Gloucester, Bulahdelah, Dingo Creek, Boorganna N.R., Kendall, Port Macquarie, Doyle's River S.F., Shark Island, Smoky Cape, Way Way S.F., Pine Creek S.F., New England N.P., Orara West S.F., Coramba, Bruxner Park, Wild Cattle Creek S.F., Cloud's Creek S.F., Dorrigo N.P., Bostobrick, Hyland S.F., Gibraltar Range N.P., Guyra, Mt. Kaputar N.P., Mt. Spirabo, Tenterfield, Tabulam, Ramornie, Iluka N.R., Evans Head, Ballina, Tintenbar, Yabbra S.F., Acacia Plateau, Mt. Nothofagus F.R., Mt. Lindesay, Roseberry S.F., Wiangaree S.F., Cawongala, Tuntable Falls, Goonimbar S.F., Whian Whian S.F., Wilson Park, Boat Harbour, Eureka, Brunswick Heads N.R., Mt. Warning N.P., Limpinwood N.R. and Murwillumbah.

Timber and Uses — Attractive in shades of brown, but sometimes beautifully figured with stripes and fiddle back pattern togather with a beautiful surface lustre. Prized for cabinet work, panelling, inlays, bent work and staves. Has good acoustic qualities and is suitable for violin backs. 750 kg. per cubic metre.

R.A.

Plate No. 7
***Acacia melanoxylon* R. Br.**

ACACIA ORITES Pedley

Reference — Proc. Roy. Soc. Qld. 75, 32, 1964.

Derivation — Orites from Greek "oreites" a mountaineer, referring to its occurrence on the higher ranges.

Common Name — Mountain Wattle.

Standard Trade Name — None.

A tree attaining a height of about 30 m and a stem diameter of 60 cm. Crown usually not very dense.

Trunk — Generally cylindrical, not buttressed.

Outer Bark — *Dark brown rough and scaly shedding in narrow longitudinal pieces.* Underbark cinnamon brown. Outer surface of live bark pale pink-brown.

Inner Bark — Blaze on a tree 60 cm diameter *yellow*, paler towards the sapwood *with reddish tints and a few horizontal purplish wavy lines.* No change in colour. Slightly astringent taste. Bark has a cucumber-like smell. 10 mm thick.

Branchlets — Brown, becoming green towards the tips, angular.

Leaves — Alternate, simple, *falcate* occasionally straight in the broader forms, linear, *linear-lanceolate, 8-15 cm long*, 3-7 mm broad. Blunt or with a distinct point at the tip in the narrower-leaved forms. Smooth. Gland on the inner edge of the phyllode 3 mm above the base.

Venation — Several parallel veins of which two or three are often more prominent.

Flowers — Cream, in *spikes*, 2-7 cm long; one or two springing from the forks of the phyllodes. Flowering period August to September.

Fruit — Pod *straight*, flattened between the seeds, 6-10 cm long and *3-4 mm wide*, thin. Seeds round, elliptic, shiny reddish-black, 4 mm long, joined to the pod by a *fawn concertina-like thread.* Fruit ripe November to January.

Habitat — Warm temperate rainforest on acid volcanic soils, particularly coachwood rainforest on the drier ridges.

Distribution — From Middle Brother Mountain, N.S.W. to Springbrook, Queensland. Recorded in N.S.W. from Middle Brother and North Brother Mountains, Wilson's Peak, Mt. Nothofagus F.R., Wiangaree S.F., Mt. Nardi, Whian Whian S.F., Minyon Falls F.R., Rosebank and Mt. Warning N.P.

Timber and Uses — Brown, medium hard, easily worked. An excellent cabinet wood.

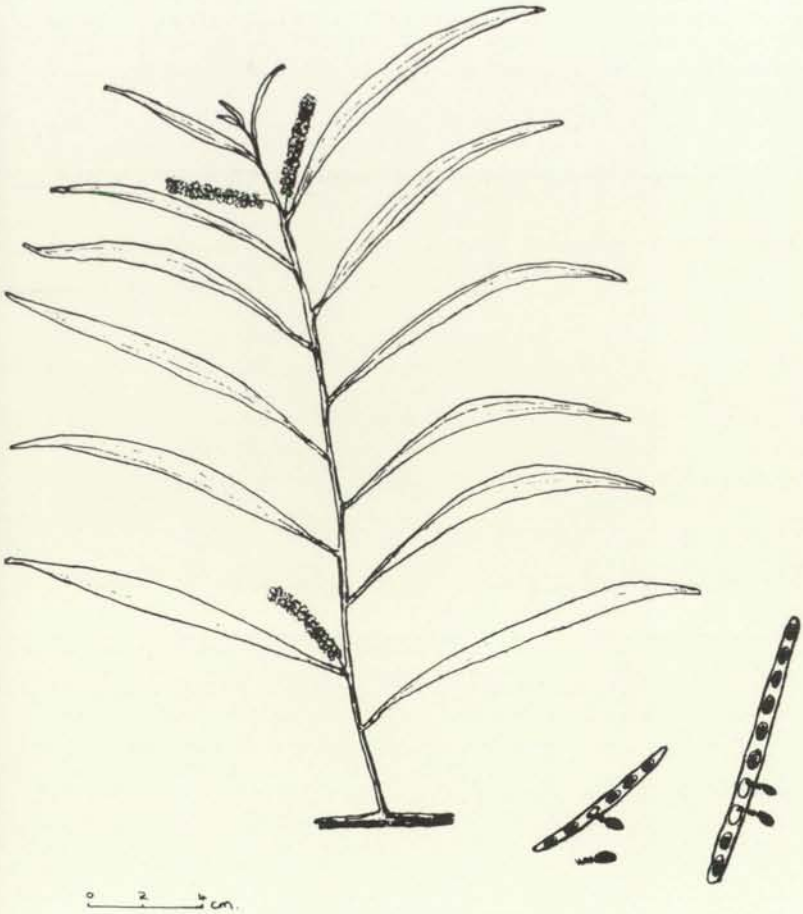


Plate No. 8
***Acacia orites* Pedley**

FAMILY CAESALPINIACEAE

CHARACTERISTICS OF THE FAMILY IN N.S.W.

This family is found throughout the tropical and temperate regions of the world; but represented in N.S.W. rainforests by a single tree species, *Cassia marksiana* which is now restricted to the alluvial flats of the lower Tweed Valley where thirteen wild trees are known of which several are in a senile state.

Leaves — Alternate, pinnate not toothed, the leaflets usually opposite and grey-green above.

Flowers — Differs from the family Papilionaceae in that the five petals are not joined; and that the posterior one is not enlarged nor more showy than the rest, being enclosed in bud by the laterals. The ten stamens are also not joined together; but some may be of unequal length and/or reduced to staminodes.

Fruit — The flattened seeds are packed transversely between partitions in a thin sausage-like pod which remains unopened.

CASSIA MARKSIANA (F.M.B.) Domin.

Synonym — *Cassia brewsteri* F. Muell. var. *marksiana* F.M. Bail.
Reference — Bail. in Qld. Agri. Journ. 1, part 1.
Derivation — Cassia from the Greek name of the plant "kassiah"; marksiana in honour of Hon. C. F. Marks M.D. an early collector of Australian plants.
Common Name — Mark's Cassia, Cigar Cassia.
Standard Trade Name — Cassia.

A tree attaining a height of about 25 m and a stem diameter of 45-50 cm.

Trunk — Often tall and slender or many-stemmed if regrowth. Not buttressed.
Outer Bark — *Grey-brown, wrinkled* and often marked by numerous paler hard wart-like lenticels. Underbark brown. Outer surface of the live bark with green and pinkish-brown mottling.
Inner Bark — Blaze on a tree 25 cm diameter *cream with pink flecks on the outer half*, translucent white on the inner half with a *bright yellow inner margin*. No change in colour on exposure. Bitter and astringent taste, sappy smell. 3 mm thick.
Branchlets — Moderately thick, dark brown ageing to grey, smooth, often angular or fluted towards the ends.
Leaves — Alternate, *pinnate* consisting of *four to sixteen leaflets*, usually opposite, entire, lanceolate, oblong-lanceolate to almost ovate, 2.5-7.5 cm long, tip rounded or bluntly pointed, occasionally unequal at the base. Upper leaflet surface *grey-green*, glossy, paler beneath. Leaflet stalk 3 mm long or less. Primary leaf stalk and leaflet stalks often with scattered hairs.
Venation — Distinct on both surfaces. Midrib raised on the underside.
Flowers — *Yellow, in terminal racemes* about 8-10 cm long. Flower stalks slender. Petals yellow with darker veins, rounded, 10-12 mm long. Flowering period September to November.
Fruit — A *pod about 30 cm long, round and 2 cm broad*, dark glossy brown with *transverse ribs between the round, flattened seeds*. Seeds fawn, shiny, domed on one side with a central darker line but flat on the other side, 5-7 mm diameter, 2 mm thick. Fruit ripe June to October.
Habitat — Littoral and riverine rainforests.
Distribution — From the Brunswick River, N.S.W. to the McPherson Range, Queensland but with an isolated occurrence at Mt. Fox, North Kennedy. Recorded in N.S.W. from Crabbe's Creek, Mooball, Tygalgah, Farrant's Hill, Stott's Island N.R. and Piggabeen.
Timber and Uses — Pink, tough and close-grained. A comparatively rare tree and little seems to be known about its timber and possible uses, although it should be suitable for cabinet and general building purposes. 850 kg. per cubic metre.

Plate No. 9
***Cassia marksiana* (F.M.B.) Domin.**

FAMILY PAPILIONACEAE

CHARACTERISTICS OF THE FAMILY IN N.S.W.

This world-wide family is represented in the rainforests of N.S.W. by two species. *Castanospermum australe* is the sole species in the genus and is found from the Orara River, N.S.W. to North Queensland, New Caledonia and New Hebrides. *Erythrina vespertilio* is one of four species of the genus in tropical Australia and extends from the Clarence River, N.S.W. to Cape York, North Queensland and Central Australia.

Bark — Brown, with short corky ridges *(Erythrina vespertilio)* or like wrinkled leather *(Castanospermum australe).* The inner bark is orange *(Erythrina)* or yellow with a distinctive cucumber smell *(Castanospermum).*

Leaves — Alternate, without teeth, pinnate (three leaflets for *Erythrina,* eight to seventeen alternate leaflets for *Castanospermum).* The branchlets of *Erythrina* have shiny black prickles.

Flowers — Differs from family Caesalpiniaceae in that the two lower petals are joined to form a keel and that the posterior petal is enlarged and showy (the standard). Yellowish-red with separate stamens in *Castanospermum;* soft orange-red with stamens joined at their bases in *Erythrina. Castanospermum* bears its flowers back along the leafless branches.

Fruit — A bean pod about 5 cm broad with brown seeds 4 cm in diameter *(Castanospermum)* or about 12 mm wide with red seeds 6 mm in diameter *(Erythrina).*

Timber — Dark brown, hard and beautifully figured *(Castanospermum)* or pale brown soft and light *(Erythrina).*

CASTANOSPERMUM AUSTRALE A. Cunn.

Reference — A. Cunn. in Hook. Bot. Misc. Vol. 1, p. 241, plates 51 and 52, 1830.

Derivation — Castanospermum from Greek "castanon" the Chestnut tree and "sperma" a seed, referring to the similarity in appearance of the seed; "australe" Latin, southern.

Common Name — Black Bean, Bean Tree, Moreton Bay Chestnut, Moreton Bay Bean.

Standard Trade Name — Black Bean.

A large tree attaining a height of 35 m and a stem diameter of 100 cm. A common riverside tree.

Trunk — Usually cylindrical, not buttressed or flanged.

Outer Bark — *Dark brown* with transverse lighter brown lines and longitudinal lines of grey pustules, *smooth* or wrinkled leathery. Underbark dark shiny brown, with raised transverse white layers. Outer surface of live bark creamy-yellow.

Inner Bark — Blaze on a tree 60 cm diameter, thin outer layer uniform creamy-yellow, then *yellow* with orange vertical stripes, granular, with a distinct watery uniform creamy-yellow layer next to the sapwood. No change in colour on exposure. No taste. The bark when cut has the *odour of* freshly cut *pumpkin* or *cucumber.* 7 mm thick. Sapwood white and thick.

Branchlets — Light brown, young shoots downy, with numerous grey raised lenticels and prominent leaf scars.

Leaves — Alternate, *pinnate, eleven to fifteen leaflets* mostly alternately arranged on the leaf stalk, margins entire, narrowly elliptical, 8-15 cm long, 4-5 cm broad, terminating in a blunt point at the tip, often unequal at the base. *Smooth and shining green both surfaces,* darker above, paler beneath. Leaf stalk swollen at the base. Leaflet stalks 6 mm long, smooth, wrinkled, thickened and jointed where attached to the main leaf stalk.

Venation — Distinct on both surfaces, midrib and lateral veins raised beneath.

Flowers — *Yellowish-red* (comparable with a pea-flower in form), in racemes 8-15 cm long, *arising from the scars of the fallen leaves.* Stalklets of flowers about 2.5 cm long. Each flower is almost 4 cm long. Calyx 12 mm long, bell-shaped with five obscure teeth at its rim. Petals mostly over 25 mm long, the broad uppermost petal (standard), being reflexed and notched in the upper part. Stamens ten, free from one another, all curved in the upper part and about as long as the petals. Flowering period October to November.

Fruit — *Pod, shiny brown,* straight, hard and heavy, *18-25 cm long* and about *5 cm broad* containing three to five round or compressed *seeds about 4 cm diameter.* Seed coat brown. The seeds are poisonous to man and beast unless first sliced or ground and then washed in water for several days to remove the saponin. Fruit ripe February to April.

Habitat — Along the banks of streams in riverine rainforest and on level terraces on mountain sides.

Distribution — From Bellinger River, N.S.W. to Cape York, North Queensland. Inland as far as the Bunya Mountains. Recorded in N.S.W. from Bellinger River, Coramba, Mt. Pikapene S.F., Wilson's Creek, Eltham, Toonumbar S.F., Roseberry S.F., Moore Park, Lynch's Creek, Kyogle, Whian Whian S.F., Boat Harbour, Eureka, Booyong, Victoria Park N.R., Brunswick Heads N.R., Mt. Warning N.P., Limpinwood N.R., Murwillumbah and Tumbulgum.

Timber and Uses — Dark walnut, hard but open grained, highly figured. Used for veneers, radio cabinets, turnery and furniture. Weight 750 kg. per cubic metre.

Plate No. 10
***Castanospermum australe* A. Cunn.**

ERYTHRINA VESPERTILIO Benth.

Reference — Benth. in Mitchell's Tropical Australia, p. 218, 1848.

Derivation — Erythrina from Greek "erythros" red, referring to the red colour of the flowers; vespertilio from Latin "vespertilio" a bat, referring to the shape of the leaflets which resemble the form of a flying bat.

Common Name — Bat's Wing Coral Tree, Grey Corkwood.

Standard Trade Name — Grey Corkwood.

A *wholly or partially deciduous tree* attaining a height of 30 m and a trunk diameter of about 85 cm when growing in rainforest; but usually smaller and shorter in open forest country, often with a more spreading crown.

Trunk — Sometimes fluted, slightly flanged or angular. *Young trees armed with stout conical prickles.*

Outer Bark — *Brown, often with short corky oblique ridges,* hard dry flakes and sometimes with holes and depressions towards the base. Underbark cream. *Outer surface of live bark mottled green and yellow.*

Inner Bark — Blaze on a tree 60 cm diameter *orange* surface pitted and flecked, paler *yellow-brown towards the inner margin.* Blaze surface does not change colour very rapidly. No taste, but has a distinct smell. 10 mm thick.

Branchlets — Brown or grey becoming green and succulent towards the ends. Armed with *shiny black prickles.*

Leaves — Alternate, pinnate consisting of *three leaflets, each commonly three-lobed* and 8-10 cm wide. Lateral lobes sometimes curved outwards, often but not always broader than long, suddenly tapering to a long blunt point at the tip, rounded at the base. Central lobe usually more pointed, but variable in size and shape or absent. Oil dots absent. Leaf stalk 5-10 cm long, stalklets of the lateral leaflets 3-6 mm long, but up to *40 mm for the odd terminal leaflet.* Sometimes stalks and stalklets armed with prickles.

Venation — Midrib and lateral veins visible on the upper surface; and together with the numerous and fine net veins visible on the underside.

Flowers — *Soft orange-red* in racemes up to 25 cm long in the forks of the leaves or at the ends of the branchlets. Individual flowers curved, pea-shaped, 4 cm long. Flowering period November.

Fruit — A *pod, bark brown,* up to about 10 cm long, constricted between the seeds, tapering at both ends, containing *one to three red or yellow hard glossy oval seeds* about 8 mm long. Fruit ripe June.

Habitat — Dry and semi-dry rainforests and also in adjoining open forest country.

Distribution — From the Clarence River, N.S.W. to Cape York, Queensland and towards Central Australia. Recorded in N.S.W. from Mt. Mullengen, Mt. Pikapene S.F., Cherry Tree S.F., Toonumbar S.F., Unumgar S.F., Beaury S.F., Koreelah S.F., Roseberry S.F., Mebbin S.F., Limpinwood N.R. and Mt. Warning.

Timber and Uses — Pale brown, very soft and light, used by the Aborigines for shields. Suitable for model aircraft, surf skis, floats.

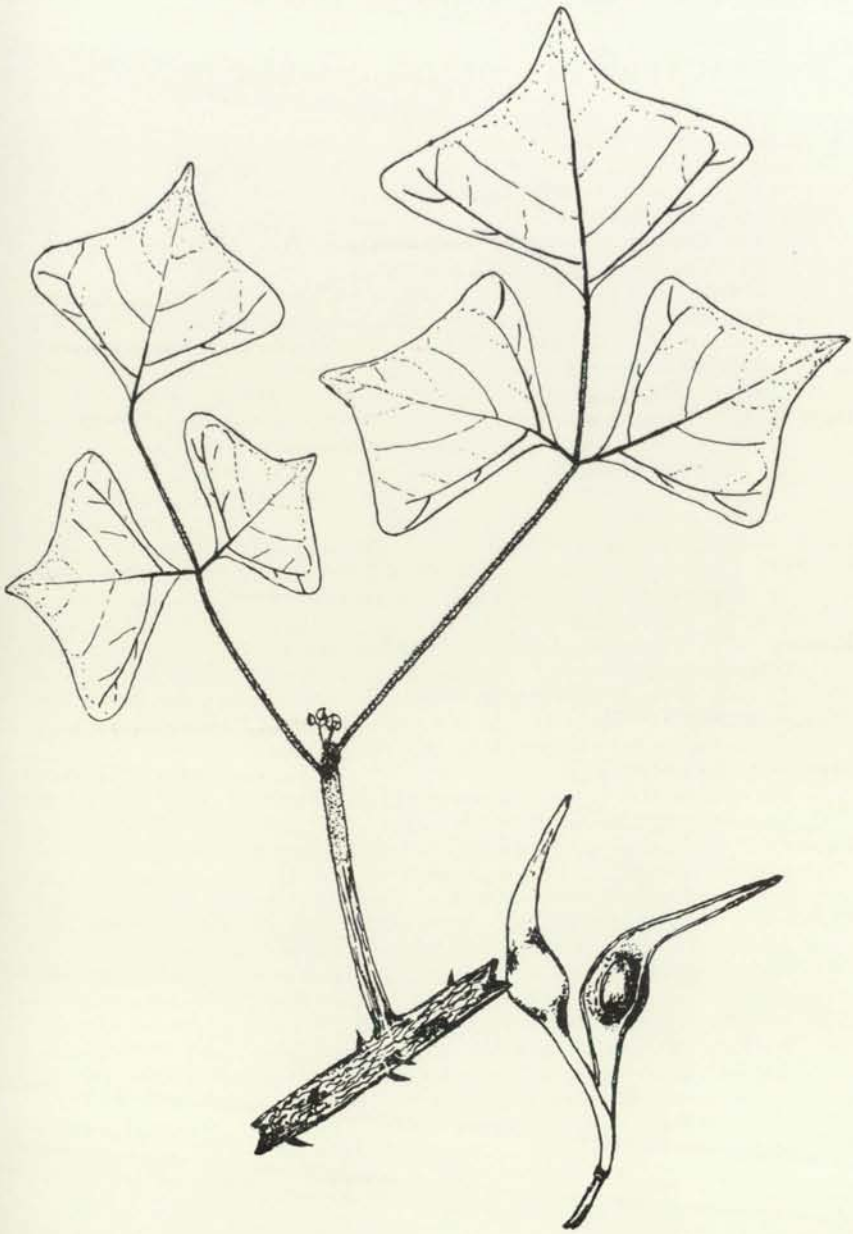


Plate No. 11
***Erythrina vespertilio* Benth.**

FAMILY SIMAROUBACEAE

CHARACTERISTICS OF THE FAMILY IN N.S.W.

Contains a diverse group of plants in most tropical countries, without any truly diagnostic characteristics. Represented in N.S.W. by a single species in each of three genera, namely *Ailanthus triphysa*, *Guilfoylia monostylis* and *Quassia* sp. aff. *bidwillii*.

Only *Ailanthus* is a medium to tall tree (up to 30 m), whereas *Guilfoylia* may reach 15 m and *Quassia* only 5 m tall.

None have been planted as ornamentals, although the Tree of Heaven *(Ailanthus glandulosa)* from China and Japan occurs as a garden escape in the cooler mountain and tablelands areas where it may become a nuisance because of its aggressive root-suckering ability. Superficially it resembles red cedar.

Outer Bark — Wrinkled, pimply or finely fissured, grey to brown.

Inner Bark — Blaze yellow-brown *(Ailanthus)*, red-brown with paler vertical stripes *(Guilfoylia)* or cream *(Quassia)*. *Ailanthus* produces a clear resin. The bark of a tropical American species of *Quassia* is extremely bitter and is used medicinally and as a foliage spray to deter browsing animals. The N.S.W. species is likewise very bitter.

Leaves — Alternate, either pinnate with 15-60 leaflets *(Ailanthus)* or simple *(Guilfoylia* and *Quassia)*, not toothed. Distinguished from *Rutaceae* by the absence of oil dots. Grey-green in *Ailanthus*. *Quassia* is yellow-green beneath with an intramarginal vein.

Flowers — Creamy-green *(Ailanthus)*, yellow *(Guilfoylia)* or greenish-red *(Quassia)* in panicles or axillary clusters often on the bare branches in *Quassia*. In *Ailanthus* there are both male and female flowers. Sepals and petals four or five, the stamens twice as many. Distinguished from *Rutaceae* by the solitary ovule (not two) in each cell.

Fruit — A single black shiny round carpel in *Guilfoylia;* but otherwise of up to five carpels (fawn, dry and winged in *Ailanthus* but shiny red, thinly succulent, without wings in *Quassia)*.

Habitat — Generally only in the more tropical types of rainforest such as riverine, lowland and littoral rainforests, but *Quassia* is also in warm temperate rainforest dominated by *Tristania conferta*.

Distribution — *Ailanthus* consists of ten species from Vietnam and India to Australia. The single species in Australia may be identical with one in India and extends south to the Clarence River, N.S.W. *Guilfoylia monostylis* is the only species in this genus, ranging from Ravenshoe, North Queensland to Gloucester, N.S.W. *Quassia* occurs in tropical America, Madagascar, Malaysia and the South West Pacific. Two species are confined to Australia, one on Mt. Bellenden Ker in North Queensland and the other from Mt. Carter, North Queensland to Gympie with the N.S.W. form or related species restricted to the Mt. Nardi-Alstonville section of the Richmond Valley.

KEY TO THE RAINFOREST TREE SPECIES OF SIMAROUBACEAE IN N.S.W.

A. USING LEAVES AND BRANCHLETS ONLY

1. Leaves pinnate ..... *Ailanthus triphysa* (Dennst.) Alston
1. Leaves simple 2
   2. Lateral veins terminating in an intramarginal vein, leaves yellow-green beneath ..... *Quassia* sp. aff. *bidwillii* (Hook. f.) Nooteboom
   2. Lateral veins not terminating in an intramarginal vein, leaves lighter green beneath ..... *Guilfoylia monostylis* (Benth.) F. Muell.

B. USING BARK ONLY

1. Inner bark cream ..... *Quassia* sp. aff. *bidwillii* (Hook. f.) Nooteboom
1. Inner bark yellow to red-brown 2
   2. Inner bark yellow-brown, granular ..... *Ailanthus triphysa* (Dennst.) Alston
   2. Inner bark red-brown, not granular ..... *Guilfoylia monostylis* (Benth.) F. Muell.

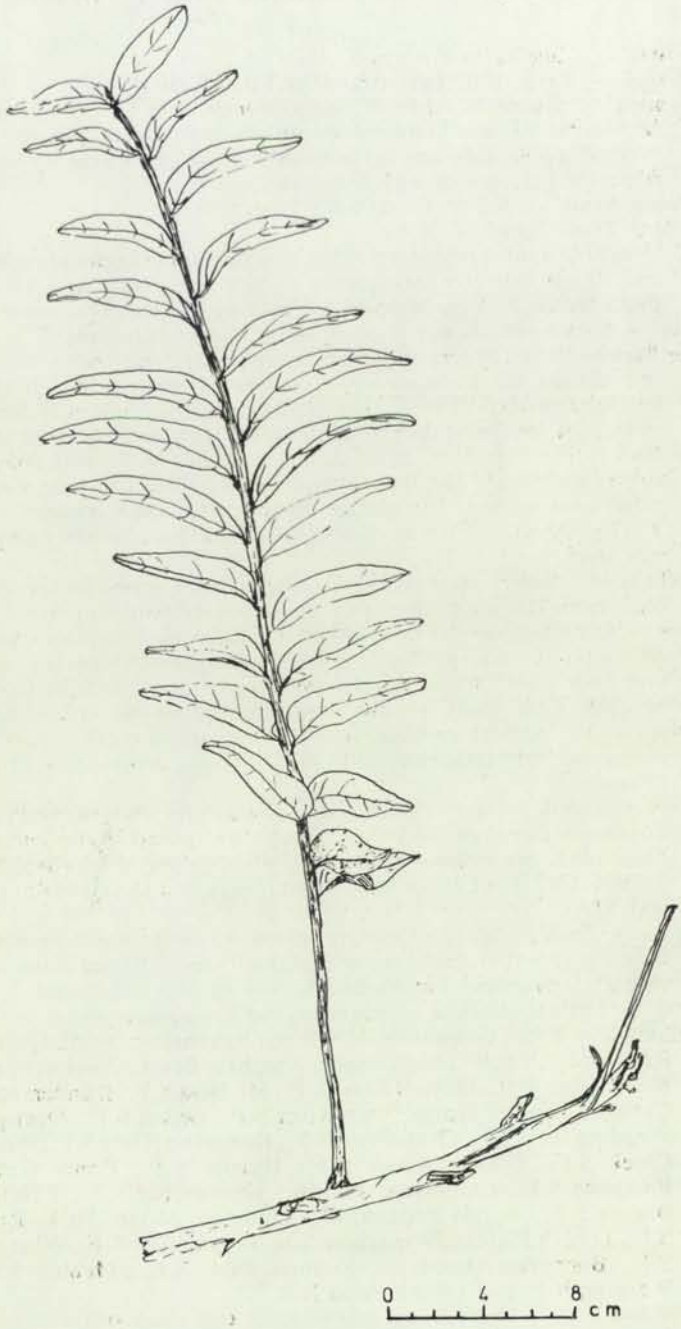
14400K–3

AILANTHUS TRIPHYSA (Dennst.) Alston

Synonym — *A. malabarica* D.C., *Adenanthera triphysa* Dennst.
Reference — Trimen, Handbook Fl. Ceylon 6, suppl. 41, 1931.
Derivation — Ailanthus from Chinese "ailanto" the Tree of Heaven, the first named species in the genus; triphysa from Greek "tri" three and "physa" bladder, perhaps referring to the flattened bladder-like fruits in clusters of threes.
Common Name — White Bean, White Siris, Ferntop Ash.
Standard Name — White Siris.

A tall tree with handsome feathery foliage attaining a height of 30 m and a stem diameter of 60 cm.

Trunk — Generally straight and cylindrical, not buttressed.
Outer Bark — Brown or grey, wrinkled or sometimes rough with a *coarse sandpaper-like surface* due to the presence of innumerable small pimples. Underbark and outer surface of live bark pinkish-fawn.
Inner Bark — Blaze on a tree 50 cm diameter *yellowish-brown*, granular with hard grains, sometimes with a darker line surrounding each grain which gives a *distinct mottled effect.* The mottled appearance disappears towards the inner margin which becomes fibrous and yellow. No rapid change in colour on exposure. A clear resin exudes from the bark when cut. Moderately bitter to taste, no distinct smell. 16 mm thick.
Branchlets — *Thick, grey,* becoming green towards the ends, smooth, marked by the *scars of the fallen leaves,* young shoots sometimes finely downy.
Leaves — Alternate pinnate, consisting of *15-60 leaflets,* alternate to sub-opposite, ovate lanceolate 5-13 cm long, *curved or sickle shaped,* drawn out into a long blunt point at the tip, very unequal at the base, glossy above, sometimes downy. *Grey-green* both surfaces, paler beneath. Leaf stalk 5-8 cm to the first leaflets. Leaflet stalks 2-5 mm long.
Venation — Midrib and lateral veins distinct on both surfaces, net veins more distinct on the underside.
Flowers — Creamy-green, separate male and female flowers, in slender panicles, 5-7 cm long situated in the forks of the upper leaves. Male flowers about 6 mm diameter when expanded. Sepals five, minute. Petals five, broad-lanceolate 2 mm long. Stamens ten, longer than the petals. Flowering period December to January.
Fruit — Samara, commonly *in threes, fawn, dry and flattened, about 5 cm long* and 18 mm wide with the seed situated about the middle in a circular thickened part. Seed round, light brown, somewhat flattened, 4-6 mm diameter. Fruit ripe April.
Habitat — Littoral, dry and riverine rainforests.
Distribution — Clarence River, N.S.W. to Claudie River, North Queensland and north to India. Recorded in N.S.W. from Woody Head, Iluka N.R., Toonumbar S.F., Acacia Plateau, Beaury S.F., Roseberry S.F., Lever's Plateau, Wiangaree S.F., Lismore, Victoria Park N.R., Brunswick Heads N.R., Mebbin S.F., Cudgen Lake and Tweed Heads lookout.
Timber and Uses — White, soft, light, easy to work, decays rapidly in the weather. Could be used for toy making. The clear resin which exudes from the cut bark has been used as an ointment on chronic ulcers. In India, the bark is used for treating dyspepsia, dysentery and bronchitis.



P Condon

Plate No. 12
***Ailanthus triphysa* (Dennst.) Alston**

GUILFOYLIA MONOSTYLIS (Benth.) F. Muell.

Synonym — *Cadellia monostylis* F. Muell.

Reference — Verh. Bot. Iwv. Brand XLVII, 41, 1905.

Derivation — Guilfoylia after W. R. Guilfoyle, one-time Director of the Melbourne Botanic Gardens; monostylis from Greek "mono" one and "stylos" a pole, referring to the single style which supposedly separated it from another species with five styles.

Common Name — Native Plum, Solo Tree.

Standard Trade Name — None.

Generally a small tree of 6-8 m but may sometimes attain a height of 15 m and 40 cm diameter. Sometimes shapely and bushy with foliage of a characteristic dark green shade. Very showy with its bright yellow flowers.

Trunk — Sometimes slightly flanged at the base when large.

Outer Bark — Brown or greyish-brown, *finely fissured* and *often* with a *pimpled* surface due to the presence of numerous lenticels which are often arranged in vertical rows. Underbark very thin, yellow-brown. Outer surface of live bark dark reddish-brown with paler vertical stripes.

Inner Bark — Blaze on a tree 25 cm diameter *reddish-brown with paler vertical stripes* and thread-like lines extending more than half way towards the paler inner margin. The surface darkens after a few minutes exposure. The freshly cut bark has no distinct taste but a characteristic sappy smell. 5 mm thick.

Branchlets — *Slender, often pendulous when in fruit*, green for some distance back from the ends, then grey or greyish-brown, smooth.

Leaves — Alternate, simple, not toothed, ovate, ovate-lanceolate to elliptical-oblong, 6-13 cm long, bluntly pointed or sometimes tapering to a longer and finer point at the tip. Glossy above, green both surfaces, paler beneath. Leaf stalks 6-9 mm long, grooved on the underside.

Venation — Visible both surfaces, midrib often sunken on the upper surface, raised on the underside with the venation generally a little more prominent.

Flowers — *Yellow*, in short panicles at or towards the ends of the branchlets, usually shorter than the leaves. Sepals five, joined in the lower half to form a bell, 6 mm long. Petals five, bright yellow, 6 mm long. Stamens eight to ten, about 4 mm long. Flowering period December to February and May.

Fruit — A *drupe, black and shining, globular, 13-16 mm diameter*. Outer covering very thin, enclosing a single hard seed 8-10 mm diameter. Fruit ripe all year round but fruiting heavily in May to August.

Habitat — Littoral, riverine, subtropical and dry rainforests.

Distribution — From Gloucester, N.S.W. to Ravenshoe, North Queensland. Recorded in N.S.W. from Coneac, Wingham Brush, Comboyne Plateau, Black Creek F.R., Doyle's River S.F., Mt. Boss S.F., Kunderang Brook, Carrai, Chandler Gorge, Styx River S.F., Oakes S.F., Dorrigo N.P., Wedding Bells S.F., Orara West S.F., Kangaroo River S.F., Wild Cattle Creek S.F., Cloud's Creek S.F., Hyland S.F., Pretty Gully, Mt. Pikapene S.F., Cambridge Plateau, Toonumbar S.F., Yabbra S.F., Beaury S.F., Acacia Plateau, Mt. Lindesay, Moore Park, Roseberry S.F., Lever's Plateau, Wiangaree S.F., Goonimbar S.F., Whian Whian S.F., Booyong, Alstonville, Victoria Park N.R., Mebbin S.F., Mt. Warning N.P. and Limpinwood N.R.

Timber and Uses — Outer wood yellow, inner core deep yellow to yellowish-brown. Hard and firm, close-grained. Would make pretty turnery, but seldom if ever used. 850 kg. per cubic metre.

P Condon

Plate No. 13
***Guilfoylia monostylis* (Benth.) F. Muell.**

QUASSIA SP. AFF. BIDWILLII (Hook. f.) Nooteboom

Synonym — *Hyptiandra bidwillii* Hook. f., *Samadera bidwillii* Oliv.
Reference — Hk. f. in Gen. Pl. 1, 294.
Derivation — Quassia the name of a tropical American tree with bitter medicinal bark, discovered by a Surinam Negro G. Quassi in 1730; bidwillii after J. C. Bidwill, Commission of Crown Lands at Wide Bay in Queensland and first director of the Sydney Botanic Gardens.
Common Name — Not known.
Standard Trade Name — None.

A rigid shrub or small tree, commonly multi-stemmed up to 5 m tall and 10 cm diameter. When sterile, it is easily confused with *Actephila lindleie* and *Hedraianthera porphyropetala* with which it cohabits.

Trunk — Cylindrical, not fluted or buttressed.
Outer Bark — Creamy-brown, smooth or with shallow vertical fissures. Underbark thin, brown and fawn vertical streaks. Outer surface of live bark apple green with brown and cream vertical streaks.
Inner Bark — Blaze on a tree 10 cm diameter uniform cream. No change in colour on exposure. *Extremely bitter.* Smells like broad bean pods. 3 mm thick.
Branchlets — Slender, brown with golden-brown hairs, turning grey and smooth when leafless, no conspicuous lenticels or leaf scars. Leaf buds with golden brown hairs.
Leaves — Alternate, simple, not toothed, broad lanceolate to ovate lanceolate, 8-16 cm long, tapering gradually to a blunt tip. More abruptly tapering at the base. Dull *dark green above*, dull *lighter yellow-green beneath.* Rather thick. Leaf stalk 4-7 mm long, smooth except on young leaves, rather thick, creamy-green.
Venation — Midrib conspicuously paler on the upper surface and darker on the lower surface. Lateral veins numerous (30-40 pairs), indistinct except on the lower surface of dried leaves, at 70° to the midrib and terminating in a *well developed intramarginal vein.*
Flowers — Greenish-red, without smell, either single or in axillary clusters of one to five on the leafless branchlets. Common stalk reduced to a lump on the branchlet. Flowers 5 mm diameter. *Flower stalks very slender, 5-10 mm long.* Sepals minute, four-lobed. Petals four or five, ovate-pointed, smooth, red with green central areas, 2 mm long. Stamens four to ten with broad flattened hairy filaments. Carpels five aborting to one to three. Flowering period July to February.
Fruit — *One to three shiny smooth orange-red to dark red carpels,* ovoid and laterally flattened, 15-20 mm long with a conspicuous attachment scar. Upon *drying,* they turn a *dull pink.* Fruit ripe December to February.
Habitat — In the rainforest understorey with *Schizomeria ovata, Ackama paniculata* and *Ceratopetalum apetalum* beneath *Tristania conferta* on rhyolitic soil at 630 m altitude and also beneath subtropical rainforest on basalt.
Distribution — Locally abundant but very restricted from Pearce's Creek, N.S.W. to Mt. Carter, North Queensland. Recorded in N.S.W. from Pearce's Creek near Alstonville and the southern slopes of Mt. Nardi on B. Walker's property and Goonimbar S.F. The N.S.W. specimens appear to differ from those in Queensland in their less conspicuous venation, cauline floral clusters, slender flower stalks and the larger smooth fruits.
Timber and Uses — Too small and rare to be of use.

Plate No. 14
***Quassia* sp aff *bidwillii* (Hook. f.) Nooteboom**

FAMILY BURSERACEAE

CHARACTERISTICS OF THE FAMILY IN N.S.W.

This family is found in tropical America, Africa and Asia; and the four Australian genera are represented in tropical Asia also. Only a single species, *Canarium australasicum* extends to N.S.W. as far south as the Richmond River. Its northern limit is Atherton, where two other species are also found.

Bark — A family characteristic is the exudation from the bark of an aromatic resin resembling balsam. The N.S.W. species is distinctive because of its mango-like smell.

Leaves — Alternate, pinnate, consisting in the N.S.W. species of three to seven opposite entire leaflets with each leaflet stalk being swollen at its junction with the leaflet blade. It differs from the family *Rutaceae* in its lack of oil dots.

Flowers — Red with three sepals and petals in *C. australasicum*. The six stamens are not fused into a tube as in most of the *Meliaceae*. The ovary is not lobed as in *Rutaceae*.

Fruit — Fleshy oval (not lobed as in Sapindaceae) drupe with a hard stone containing up to four one-seeded cells. The seeds of some species such as *Canarium indicum* or galip nut of New Guinea is a large highly prized edible nut. The species from N.S.W. is only about 9 mm long, but is said to have been eaten raw in Queensland.

CANARIUM AUSTRALASICUM (F.M. Bail.) Leenh.

Synonym — *Bursera australasica* F. M. Bail., *Protium australasicum* T. A. Sprague.

Reference — Blumea 7, 159, 1952.

Derivation — Canarium from "canari" a Malayan name for one of the species; australasicum from Latin "australasicum" Australasian, being the most southern species in this predominantly tropical genus.

Common Name — Mango Bark, Carrot Wood, Brown Cudgerie, Parsnip Wood.

Standard Trade Name — Brown Cudgerie.

A large tree reaching 40 m tall and 120 cm diameter. Crown dense and spreading.

Trunk — Cylindrical. Large trees occasionally buttressed.

Outer Bark — Brown or grey, *shedding in flakes or patches leaving irregular depressions* and patterned with numerous pustules which are small and darker in colour. Underbark pinkish-brown with a tinge of green. Outer surface of live bark green and brown with vertical stripes, or pale pink-brown on larger trees.

Inner Bark — Blaze on a tree 100 cm diameter cream or brown becoming yellow-brown next to the sapwood, fibrous. Slow exudate of *white sticky sap*. No change in colour on exposure. Astringent, with a *strong mango-like smell*. 16 mm thick.

Branchlets — Moderately thick, grey, leaf scars distinct, lenticels numerous.

Leaves — Alternate, pinnate, *three to seven leaflets*, opposite on the primary leaf stalk with a terminal odd leaflet, margin entire, ovate to elliptic, 7-15 cm long and 3-5 cm broad, tapering to a long blunt point at the tip, often broadest at the base, green and shining on both surfaces. Primary leaf stalk swollen at the base, 7-10 cm long. *Leaflet stalks swollen at the tip*, the lateral 12-15 mm long whilst the *terminal* is *20-25 mm long*.

Venation — Midrib and lateral veins distinct on both surfaces, midrib raised on both surfaces but lateral veins raised beneath only.

Flowers — *Deep red*, in panicles at the ends of the branchlets or in the forks of the upper-most leaves, the panicles mostly shorter than the leaves. Individual flowers 5 mm diameter when expanded, stalkless, in groups of two to four on very short branches. Calyx cup-shaped, about 4 mm diameter, its rim divided into three egg-shaped rounded lobes. Petals red, three, oval, about 3 mm long. Stamen six, about half as long as the petals. Flowering period November to December.

Fruit — *Drupe*, fleshy on the outside, *blue or purple, ovate, 10-12 mm long*, containing a fairly hard stone, oval or angular in shape, about 9 mm long containing three to four cells, only one or two of which are fully developed and contain seeds. Mature seeds one in each cell, 6-8 mm long. Fruit ripe March to May. Reportedly eaten raw in Queensland.

Habitat — Warm temperate and gully rainforests on poorer soils derived from rhyolite or metamorphic rocks.

Distribution — Richmond River, N.S.W. to McIlwraith Range, North Queensland. Recorded in N.S.W. from Goonimbar S.F., Whian Whian S.F., Minyon Falls F.R., Mullumbimby, Nullum S.F., Crabbes Creek, Palm Vale and Cudgera Creek.

Timber and Uses — Grey, moderately hard, close-grained, greasy. Easily worked. Could be used for cabinet work, flooring, lining, plywood and cases. The sapwood is susceptible to borers.

Plate No. 15
***Canarium australasicum* (F.M. Bail.) Leenh.**

FAMILY MELIACEAE

CHARACTERISTICS OF THE FAMILY IN N.S.W.

Represented by nine species in seven genera. *Owenia* and *Synoum* are endemic to Australia, the remaining genera are found northwards into Asia.

The family in N.S.W. contains two very large trees in *Dysoxylum fraseranum* and *Toona australis*. The remainder are of medium size, except for *Didymocheton*, *Owenia venosa* and *Synoum* which are only small trees.

Although most have not been planted widely as ornamentals, *Melia* has been used successfully as a street and shade tree from the tropical north to arid Broken Hill. *Dysoxylum fraseranum* and *Toona australis* have commonly been left in the early clearing of rainforest and made excellent shade trees for stock. Some damage is, however, done to *Melia* by leaf-eating caterpillars and to *Toona* by a shoot borer.

The trunk is strongly buttressed in *Toona*, *Dysoxylum fraseranum* and *D. muelleri*.

Outer Bark — Grey to brown, usually being shed as platy scales, except *Melia*, *Pseudocarapa* and *Owenia cepiodora* which are fissured.

Inner Bark — Pink to red in *Owenia* spp., *Pseudocarapa*, *Synoum* and *Toona:* pale brown in *Didymocheton*, *Dysoxylum muelleri* and *Melia:* white in *Dysoxylum fraseranum*. The two largest and buttressed species *Dysoxylum fraseranum* and *Toona* have fragrant bark, whereas all the remainder except *Melia*, *Owenia venosa* and *Synoum* have a strong onion smell.

Leaves — Alternate, pinnate or bipinnate *(Melia)*, entire (except *Melia* which is toothed). Distinguished from the family Rutaceae by the absence of oil dots. In the axils of the lateral veins and midrib there may be hard swellings *(Dysoxylum fraseranum)* or hairy tufts *(Didymocheton, Dysoxylum muelleri, Synoum* and *Toona). Melia* and *Toona* are deciduous each winter, the new red leaf flush of the latter in early spring being most conspicuous.

Flowers — White or faintly pink or mauve (except *Melia* which is lilac), mostly sweet-scented, in many flowered panicles in the axils of the leaves. Sepals and petals four to six. Stamens eight to ten and united into a tube around the style (except *Toona* which is four to six and separate). In *Didymocheton* and *Dysoxylum* there is also a tubular disc enclosing the ovary.

Fruit — Sometimes a capsule opening into several cells containing either dry winged seeds *(Toona)* or oval seeds surrounded by a red-brown aril *(Didymocheton, Dysoxylum, Pseudocarapa* and *Synoum).* In *Melia* and *Owenia* it is a succulent drupe which does not open to release the seeds within each cell.

Habitat — Mostly confined to subtropical and riverine rainforests except *Melia* and *Owenia* species which are restricted to dry rainforest. The littoral rainforest may contain *Dysoxylum muelleri*, *Melia* and *Synoum*. The family is represented in temperate rainforest only by *Synoum*. *Dysoxylum fraseranum* reaches its best development in the cooler subtropical rainforests at 300-800 m altitude.

Distribution — Most of the Australian species in this family are restricted to this country with the exception of two northern species of *Dysoxylum*, *Melia azederach* var *australasica* and *Toona australis* which extend further north into South East Asia. *Didymocheton* and *Dysoxylum* are large Indo-malayan genera, whereas *Pseudocarapa* has a similar range but fewer species. Two genera are restricted to Australia, namely *Owenia* with six species from Western Australia to N. Queensland and south to the

Clarence River, N.S.W. and *Synoum* with two species (one in N.E. Queensland and *S. glandulosum* from Bundaberg, Queensland to Bega, N.S.W.). It is interesting to note that whereas the family is mainly found in the tropical and subtropical rainforests, these two endemic genera have their best development in dry rainforest *(Owenia)* and temperate rainforest *(Synoum)*. It is possible that they have evolved so as to occupy these niches. Most of the N.S.W. species extend to the Atherton Tableland in North Queensland except for *Dysoxylum fraseranum* (just north of the McPherson Range) and the members of the endemic genera *(Owenia cepiodora* to north side of McPherson Range, *O. venosa* to Eidsvold west of Maryborough and *Synoum glandulosum* to Bundaberg). Their southern limits show no special groupings as all are found south of the Clarence River except *Owenia* and *Pseudocarapa. Melia* and *Toona* extend south of Sydney to the Shoalhaven River whilst *Synoum* reaches Bega.

Timber and Uses — The family is renowned for its fine timbers such as the cedars, rosewood and mahoganies of the tropics which are rich red in colour, soft and easy to work. *Dysoxylum fraseranum. Pseudocarapa nitidula* and *Toona* (also *Cedrela,* the cigar box cedar of Central and South America) have a fragrant perfume; but others such as *Didymocheton* are less attractive due to their unpleasant onion smell.

KEY TO RAINFOREST TREE SPECIES OF MELIACEAE IN N.S.W.

A. USING LEAVES AND BRANCHLETS ONLY

1. Leaves twice pinnate, leaflets toothed .... *Melia azederach* L. var *australasica* (A. Juss.) C.D.C.

1. Leaves once pinnate, leaflets not toothed 2
   2. Swellings or hairy tufts in the axils of the lateral veins and midrib on the underside of the leaflets 3
      3. Hard swellings in some axils ..... *Dysoxylum fraseranum* Benth.
      3. Hairy tufts in some axils 4
         4. Leaflets symmetric at the base, up to nine ..... *Synoum glandulosum* (Sm.) A. Juss.
         4. Leaflets unequal at the base, up to 21 5
            5. Leaflets shiny, young stem reddish with cream dots ..... *Toona australis* (F. Muell.) Harms
            5. Leaflets dull, young stem cream to grey 6
               6. Leaflets grey-green on the upper surface, main leaf stalk densely hairy ..... *Didymocheton rufum* (A. Rich.) Harms
               6. Leaflets green on the upper surface, main leaf stalk smooth or downy ..... *Dysoxylum muelleri* Benth.
   2. Swellings or hairy tufts absent in the axils 7
      7. Leaves commonly of one to two pairs of leaflets ..... *Pseudocarapa nitidula* (Benth.) Merr. & Perry
      7. Leaves commonly of more than four leaflets 8
         8. Leaflets blunt or notched, main leaf stalk slightly winged ..... *Owenia venosa* F. Muell.
         8. Leaflets pointed, main leaf stalk not winged 9
            9. Leaflets symmetrical at the base, previous seasons leaves present ..... *Owenia cepiodora* F. Muell.
            9. Leaflets unequal at the base, previous seasons leaves absent (deciduous) ..... *Toona australis* (F. Muell.) Harms

B. USING BARK ONLY

1. Blaze with some red or pink colouration 2
   2. Blaze uniform deep pink to red, not smelling of onions 3
      3. Live bark with fragrant cedar smell *Toona australis* (F. Muell.) Harms
      3. Live bark without fragrant smell 4
         4. Blaze pink ..... *Synoum glandulosum* (Sm.) A. Juss.
         4. Blaze deep to purplish-red ..... *Owenia venosa* F. Muell.
   2. Blaze with pink and white vertical stripes, onion smell 5

5. Pink stripes confined to outer third of live bark .. *Pseudocarapa nitidula* (Benth.) Merr. & Perry

5. Pink stripes over most of blaze ..... *Owenia cepiodora* F. Muell.

1. Blaze without some red or pink colouration 6

6. Blaze cream, fragrant but not like onions *Dysoxylum fraseranum* Benth.

6. Blaze pale brown, smelling of onions or cucumber 7

7. Outer bark fissured, live bark smelling faintly of cucumbers ..... *Melia azederach* L. var *australasica* (A. Juss.) C.D.C.

7. Outer bark wrinkled to scaly, live bark smelling of onions 8

8. Blaze with darker brown speckles throughout ..... *Dysoxylum muelleri* Benth.

8. Blaze with darker brown flecks towards the outer live bark margin only ..... *Didymocheton rufum* (A. Rich.) Harms

DIDYMOCHETON RUFUM (A. Rich.) Harms

Synonym — *Dysoxylum rufum* (A. Rich.) Benth.
Reference — Nat. Pflanzenfam. ed 2, XIXb1, 157, 176, 1940.
Derivation — Didymocheton from Greek "didymos" twin and "chaete" a bristle, perhaps referring to the two tubes of the disc and stamens around the ovary; rufum from Latin "rufum" reddish, alluding to the rust-coloured hairs.
Common Name — Hairy Rosewood, Bastard Pencil Cedar, Red Heart, Rusty Mahogany, False Rosewood.
Standard Trade Name — Rusty Mahogany.
A tree attaining a height of 20-25 m and a diameter of 60 cm. With its attractive foliage, this species should make a fine ornamental and shade tree.
Trunk — Usually fairly cylindrical, slightly fluted and with short spurs.
Outer Bark — Grey, finely wrinkled. Underbark thin, prettily patterned with purplish flecks and pink and brown markings. Separates readily from the live bark. Outer surface of live bark pale orange-brown.
Inner Bark — Blaze on a tree 30 cm diameter *pale brown, with* a distinct narrow band bordering the *outer* margin formed by numerous *darker brown flecks.* Inner margin white. No change in colour on exposure. No taste but has a distinct *onion-like smell.* 25 mm thick.
Branchlets — Thick, often green, hairy. *Young shoots, leaf stalks and flowering branchlets densely hairy.* Prominent leaf scars.
Leaves — Alternate, pinnate, rachis 30-60 cm long, consisting of up to nineteen sub-opposite leaflets or more, entire, lanceolate to broadly lanceolate, 9-20 cm long gradually protracted into a fine point at the tip. Usually unequal at the base, upper surface smooth, *under surface densely hairy. Dull grey-green above* but brighter below. Primary leaf stalk 4-10 cm to the first leaflets, hairy, much swollen at the base. Leaflet stalks 2-3 mm long, but *up to 25 mm long for the terminal leaflet.*
Venation — Midrib, lateral veins and net veins visible on both surfaces; but raised and more distinct beneath. *Tufts of hairs in the axils of the lateral veins and the midrib.*
Flowers — White, fragrant at first but later becoming offensive, in axillary panicles, about 25 cm long. Calyx small, rusty-hairy with five rounded lobes 1 mm long. *Petals* five, also *hairy,* 8-10 mm long, united into a tube for half their length. Stamens joined into a tube, slightly shorter than and enveloped by the petals. Flowering period January to February.
Fruit — *Capsule, globose, covered with* dense fairly *rigid irritating yellowish-brown hairs,* usually five-valved, about 2 cm diameter. Seeds angular, cream, about 5 mm diameter. The hairy fruit distinguishes it from other species of the family in N.S.W. Fruit ripe April to December but mainly May to September.
Habitat — The tree reaches its best development on red and brown basalt soils, but is also found in rainforest on the poorer soils.
Distribution — Upper William's River, N.S.W. to Atherton Tableland, Queensland. Recorded in N.S.W. from Upper William's River, Craven S.F., Bulahdelah, Wingham Brush, Boorgana N.R., Middle Brother S.F., Bellangry S.F., Port Macquarie, Carrai S.F., Lower Creek, Smoky Cape, Way Way S.F., Dorrigo, Coffs Harbour, Woolgoolga, Kangaroo River S.F., Moonpar S.F., Boundary Creek S.F., Copmanhurst, Ramornie, Susan Island, Washpool S.F., Iluka N.R., Tintenbar, Toonumbar S.F., Acacia Creek, Beaury S.F., Mt. Lindesay, Roseberry S.F., Moore Park, Lynch's Creek, Wiangaree S.F., Minyon Falls F.R., Boat Harbour, Eureka, Bangalow, Broken Head N.R. and Stott's Island N.R.

Timber and Uses — White, except for a small core of red heartwood which closely resembles the wood of *Dysoxylum muelleri*. Smells like onions. The sapwood is very liable to attack by borers. Could be used for cases and cabinets.

P Condon

Plate No. 16
***Didymocheton rufum* (A. Rich.) Harms**

DYSOXYLUM FRASERANUM Benth.

Synonym — *D. lessertianum* Benth., *D. becklerianum* C. DC. (merely a hairy form).

Reference — Fl. Aust., 1, 381, 1863.

Derivation — Dysoxylum from Greek "dysosmos" stinking and "xylon" wood, referring to the onion-like odour of some Malesian species; "fraseranum" after Charles Fraser, first Superintendent of the Botanic Gardens, Sydney who made one of the first collections of this species.

Common Name — Rosewood, Rose Mahogany.

Standard Trade Name — Rose Mahogany.

A large dominant tree attaining a height of 40 m and a diameter of 120 cm. Crown dense and very dark green. A handsome round-crowned tree when grown in the open.

Trunk — Large trees well buttressed at the base but not extending far up the trunk.

Outer Bark — *Light brown, scaly,* shedding in irregular scales or patches. *Underbark reddish-brown* with irregular lighter coloured lines. Outer surface of live bark creamy with reddish blotches, patterned with irregular lines and numerous small pits.

Inner Bark — Blaze on a tree 90 cm diameter *creamy, fibrous,* with a pale layer next to the sapwood. No change in colour on exposure. Bitter to taste, freshly cut bark has a *strong fragrance of roses.* 6 mm thick.

Branchlets — Thick, grey-brown, leaf scars prominent. Leaf-bearing branchlets green, clothed in fine hairs.

Leaves — Alternate, *pinnate with six to twelve leaflets* which are opposite or near opposite on the rachis, entire. Broadly to narrowly elliptical, often curved, 5-10 cm long, 2-4 cm broad, tapering to a blunt point at the tip, often unequal at the base. Glossy dark green on the upper surface, dull and paler underneath. Young foliage only hairy. Numerous translucent dots, irregular in shape, visible through the upper surface of the leaflet with the aid of a lens. Primary leaf stalk 4-6 cm long, swollen at the base, hairy. Leaflet stalks 3-6 mm long.

Venation — Distinct on both surfaces, midrib prominently raised on both upper and lower surfaces; *large swellings* present *in the axils of the mid and lateral veins on the underside of the leaflets.*

Flowers — Cream to light mauve, fragrant, in panicles springing from the forks of the upper leaves; and generally shorter than them. Flower stalks distinct, slightly downy. Flowers over 8 mm diameter, slightly hairy. Calyx small and cupular, about 3 mm diameter. Petals four, seldom five, about 6 mm long and adhering to the staminal tube towards the base. Staminal tube about 4 mm long with eight to ten small teeth at its rim, alternating with the anthers. Disc cup-shaped, enclosing the ovary. Flowering period mainly April to June but also till December.

Fruit — *Capsule, pink or reddish-brown, globular or somewhat pear-shaped,* 2-4 cm diameter, with three to four cells, each containing one to two ovoid-pointed *red-coated seeds* about 7 mm long. Fruit ripe February to May, August, September and November.

Habitat — Subtropical rainforest on rich alluvial or basaltic soils, reaching its best development in the mountains at 300-800 m altitude.

Distribution — Wyong, N.S.W. to Blackall Range, Southern Queensland. Recorded in N.S.W. from Wyong, Belmont, Maitland, Paterson, Muswellbrook, Glenbawn Dam, Upper William's River, Dungog, Port Stephen's, John Gould Island N.R., Myall Lakes N.P., Seal Rocks, Foster, Woko, Coocumbac Island, Boorgana N.R., Middle Brother S.F., Doyle's River S.F., Mt. Boss S.F., Bellangry S.F., Kunderang Brook, Carrai, Chandler Gorge, Macleay River, Smoky Cape, Way Way S.F., Oakes S.F., Dorrigo N.P., Mt. Coramba, Wild Cattle Creek S.F., Moonpar S.F., Cloud's Creek S.F., Hyland S.F., Guy Fawkes N.P., Grafton, Gibraltar Range N.P., Washpool S.F., Girard S.F., Ballina, Alstonville, Mt. Pikapene S.F., Toonumbar S.F., Beaury S.F., Acacia Plateau, Mt. Nothofagus F.R., Mt Lindesay, Roseberry S.F., Wiangaree S.F., Goonimbar S.F., Whian Whian S.F., Boat Harbour, Booyong, Victoria Park N.R., Hayter's Hill, Broken Head N.R., Goonengerry, Brunswick Heads N.R., Mt. Warning N.P., Limpinwood N.R. and Stott's Island N.R.

Timber and Uses — Red, sott, rose-scented, with a good figure, durable. Used for carving, furniture, cabinet work. Resistant to termites.

P. London

Plate No. 17
***Dysoxylum fraseranum* Benth.**

DYSOXYLUM MUELLERI Benth.

Reference — B. Fl. 1, 381, 1863.

Derivation — Muelleri after F. M. Mueller, Government Botanist of Victoria and early plant collector.

Common Name — Red Bean, Onionwood, Turnipwood, Pencil Cedar, Miva Mahogany.

Standard Trade Name — Miva Mahogany.

A large and handsome tree attaining a height of 30 m and a stem diameter of 90 cm.

Trunk — Usually flanged or buttressed at the base.

Outer Bark — Grey to greyish-brown, *moderately scaly* on small to medium sized trees. Old and large trees more scaly. Underbark creamy-fawn. Outer surface of live bark pale pinkish-brown and pitted.

Inner Bark — Blaze on a tree 90 cm diameter *pale brown* with numerous pale fine vertical streaks, and often with pale lateral wavy lines. The surface is also marked with *small darker brown speckles*, paler towards the sapwood. A slight deepening in colour on exposure. No taste but the freshly cut bark has a *strong onion-like smell*. 13 mm thick.

Branchlets — Thick, grey, becoming green and often hairy towards the ends.

Leaves — Alternate, *pinnate*, 30-60 cm long, consisting of *eleven to twenty-one* alternate or opposite *leaflets*, entire, ovate to lanceolate 6-15 cm long with a fairly long or short blunt point at the tip, *unequal at the base, often hairy on the underside*. Green both surfaces, paler beneath. Primary leaf stalk 10-15 cm to the first leaflets, swollen where joined to the stem. Leaflet stalks 3-8 mm long.

Venation — Visible on both surfaces, but slightly raised and more conspicuous on the underside. *Tufts of hairs* at the junction of the lateral veins with the midrib.

Flowers — Cream, no smell, small, numerous, hairy, in branched panicles about 20 cm long, situated in the upper leaf forks. Individual flowers almost sessile and nearly cylindrical, 2 mm long. Calyx cup-shaped, four-lobed, 1-2 mm long, downy. Petals four, 10 mm long, joined to the tube of stamens for over half their length, scarcely downy. Stamens joined into a hairy tube 8 mm long with the anthers inside near the top. Flowering period January to July.

Fruit — A *capsule, fawn-brown, finely wrinkled, globular*, about 2 cm diameter, two to five celled. One or two red seeds to each cell, 0.8-1.0 cm long. Fruit ripe November to February.

Habitat — Subtropical, riverine and littoral rainforests.

Distribution — Bellinger River, N.S.W. to Cooktown, North Queensland. Recorded in N.S.W. from Bundagen, Bellinger River S.F., Sawtell, Korara, Orara East S.F., Woolgoolga, Susan Island, Iluka, Toonumbar S.F., Beaury S.F., Acacia Plateau, Roseberry S.F., Lynch's Creek, Wiangaree S.F., Whian Whian S.F., Big Scrub F.R., Wilson Park, Eltham, Eureka, Victoria Park N.R., Hayter's Hill, Ballina, Broken Head N.R., Brunswick Heads N.R., Billinudgel, Burringbar, Murwillumbah, North Tumbulgum and Stott's Island N.R.

Timber and Uses — Deep reddish-brown, easy to work, suitable for cabinet and joinery work, all indoor fittings, boat building and carving. 650-700 kg. per cubic metre.

P. Condon.

Plate No. 18
***Dysoxylum muelleri* Benth.**

MELIA AZEDARACH L. VAR AUSTRALASICA (A. Juss.) C. DC.

Synonym — *Melia dubia.* Cav.

Reference — Spec. Plant, 384, 1753.

Derivation — Melia, Greek name of Manna Ash, referring to the resemblance of the leaves to those of the Ash; azedarach from Persian "Azad-darakht" the name applied to the common Indian "Neem" tree.

Common Name — White Cedar, Persian Lilac.

Standard Trade Name — White Cedar.

A large *deciduous* tree attaining a height of 45 m and a stem diameter of 120 cm. An attractive ornamental and shade species. Hardy and drought resistant.

Trunk — Mostly fairly cylindrical.

Outer Bark — *Brown, with greyish ridges* giving a striped effect when viewed from a distance, *fissured,* the fissures varying in length from 10-60 cm or more. Underbark pinkish-brown. Outer surface of live bark mottled green and yellow-brown on young trees or yellow-brown on older trees.

Inner Bark — Blaze on a tree 65 cm diameter very pale brown or almost white. The thin outer layer alone changes to brown after several minutes exposure. Bitter to taste and has a faint cucumber-like smell. 55 mm thick.

Branchlets — Thick, brown, often wrinkled with prominent leaf scars and scattered reddish-brown raised lenticels.

Leaves — Alternate, *bipinnate, leaflets* opposite, prominently *toothed,* lobed or entire, mostly ovate, sometimes lanceolate, 2-7 cm long, often protracted into a long narrow point at the tip, unequal at the base, glabrous. Green both surfaces, paler beneath. Primary leaf stalks about 40 cm long, 4-9 cm to the first branches. Leaflet stalks absent or up to 6 mm long.

Venation — More distinct on the underside, midrib raised beneath, lateral veins and midrib usually visible above but net veins often indistinct.

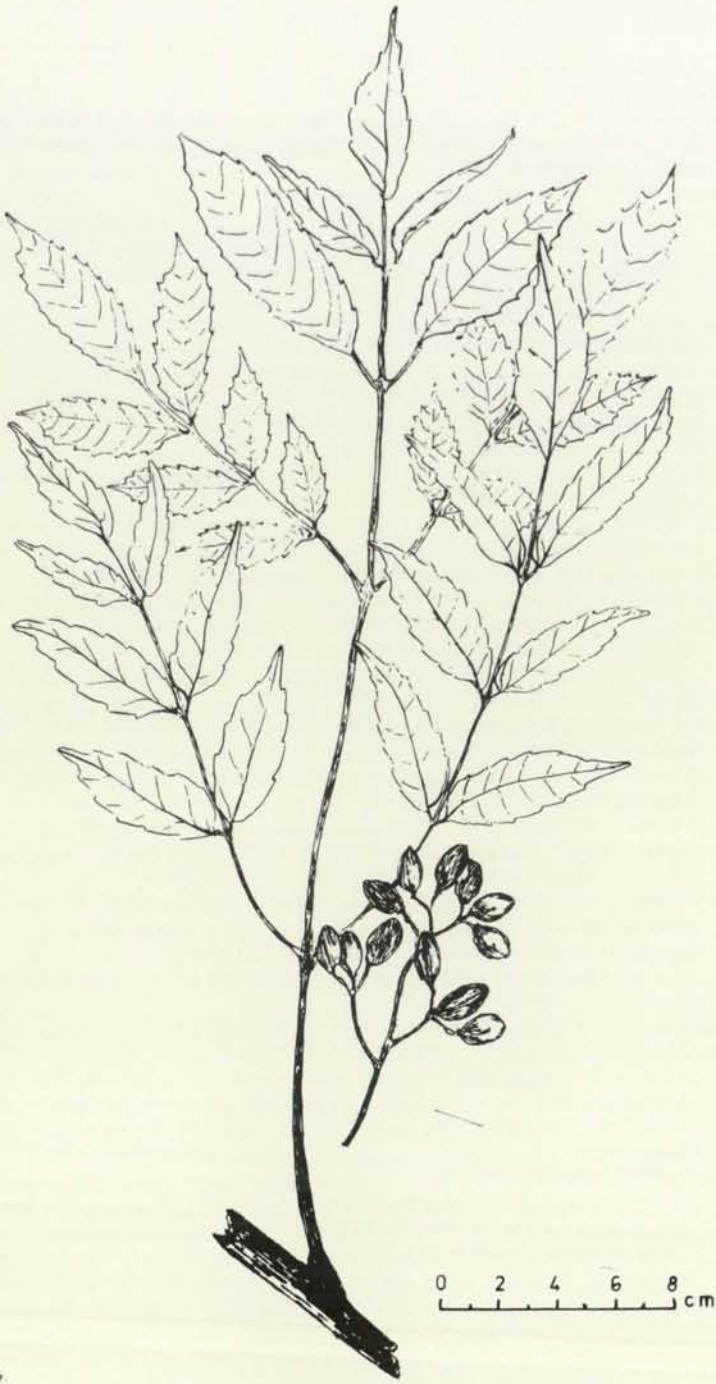
Flowers — *Lilac, fragrant,* in large loose panicles 10-15 cm long in the axils of the leaves. Individual flowers about 18 mm diameter. Sepals five, ovate pointed, 2 mm long, grey, scurfy. Petals, five, spathulate, 10 mm long, pale mauve to white. *Stamens joined into a purple tube* slightly shorter than the petals, fringed and expanded at the top. Style and stigma slightly included within the tube. Flowering period October.

Fruit — *Drupe, yellow, in bunches, oval,* 13 mm or over in length, the outer succulent part surrounding a *hard oval ribbed stone* 10-14 mm long which contains five cells, each with a seed. The fruits are poisonous to pigs, but are reputed to be the food of the Wampoo Pigeon. Fruit ripe March to June.

Habitat — Riverine, dry and littoral rainforests on good soils.

Distribution — From Shoalhaven River, N.S.W. to Cape York, North Queensland and Western Australia. Recorded in N.S.W. from Wogamia, Shoalhaven River, Minamurra Falls, Macquarie Pass, Burragarong Valley, Nepean Gorge above Penrith, Cattai, Ash Island, Woko, Wingham, Coocumbac Island, Pappinbarra, Kunderang Brook, Willi Willi, Chandler Gorge, Macleay River, Smoky Cape, Shark Island, Bellinger River S.F., Coramba, Woolgoolga, Horton's Creek, Guy Fawkes N.P., Glenugie F.R., Susan Island, Mt. Pikapene S.F., Iluka N.R., Toonumbar S.F., Unumgar S.F., Beaury S.F., Koreelah S.F., Moore Park, Roseberry S.F., Wiangaree S.F., Whian Whian S.F., Wilson Park, Boat Harbour, Booyong, Victoria Park N.R., Hayter's Hill, Broken Head N.R., Limpinwood N.R., Murwillumbah and Tumbulgum.

Timber and Uses — Pale brown, highly and broadly figured, light, soft, easily dressed. Used for cabinet work, panelling, veneers, interior joinery and decorative work. 400-500 kg. per cubic metre.



P. Condon.

Plate No. 19
***Melia azedarach* var. *australasica* (A. Juss.) C.D.C.**

OWENIA CEPIODORA F. Muell.

Reference — Fragm, XI, 81, 1880.

Derivation — Owenia after Professor Owen, comparative anatomist at the British Museum; cepiodora from Latin "cepa" an onion and "odor" a smell, referring to the smell of the bark and freshly cut wood.

Common Name — Onion Cedar, Onionwood, Bog Onion.

Standard Trade Name — Onion Cedar.

A tall tree attaining a height of 30 m and a stem diameter of 60 cm, with a dense glossy dark green crown like *Castanospermum australe.*

Trunk — Cylindrical with no pronounced buttressing.

Outer Bark — Dark brown, *vertically fissured.* Underbark dark brown. Outer surface of live bark green on small trees, red-black on large trees.

Inner Bark — Blaze on a tree 60 cm diameter *pinkish-red with white vertical streaks* but white near the sapwood. Exuding a *clear gum which later turns red.* The whole blaze darkens slightly on exposure. *Bitter taste and onion smell.* 10 mm thick.

Branchlets — *Thick, fawn,* smooth with prominent leaf scars. Young shoots hairy at the tips. Leaf buds with resinous scales.

Leaves — Alternate but grouped at the ends of the branches, pinnate with *six to nine pairs* of subopposite leaflets *without a terminal leaflet,* 30-40 cm long. Margins not toothed, broad lanceolate, 10-15 cm long, gradually tapering to a point at the tip, symmetrical and more abruptly tapering at the base. *Very shiny above,* less below, *smooth, dark green.* No distinct smell in older leaves, but *young leaves smell of garlic.* Primary leaf stalk 20-30 cm long, smooth green with a swollen base. Leaflet stalk 2-5 mm long.

Venation — Midrib and lateral veins more prominent below than above. Midrib raised on both sides. Leaflet margin transparent when held to the light.

Flowers — White, in terminal panicles, 18-23 cm long with spreading, often divaricate branches, flower stalks about 3 mm long. Sepals five, rounded, 2 mm long. Petals five, oblong-lanceolate, 3-4 mm long, soon shed. Stamens ten, joined into a tube about 2 mm long around the round red stigma. Flowering period November.

Fruit — *Drupe, red outside, pulpy white inside, globular,* 15-20 mm diameter, inner hard part with two to four cells, seeds two, rarely one, erect, ovate, basally attached. Fruit ripe January to March.

Habitat — *Confined to the dry hoop pine rainforests* of northern N.S.W. and the Queensland border region.

Distribution — Clarence River, N.S.W. to Stockyard Creek, Lamington N.P., Queensland. Recorded in N.S.W. from Braemar S.F. (planted), Tintenbar, Hayter's Hill, Unumgar S.F., Roseberry S.F., Whian Whian S.F., Mebbin S.F. and Murwillumbah. Now only known from Cedar Getter's and Sawpit Creeks on Roseberry S.F., Mebbin S.F. and Stockyard Creek, Queensland.

Timber and Uses — Used for the same purposes as red cedar which it closely resembles. Apparently it was greatly favoured by cutters in earlier days, who soaked the logs in streams to remove the characteristic onion odour. It was then sawn and sold as red cedar. This accounts for the presence of only small regrowth trees today.

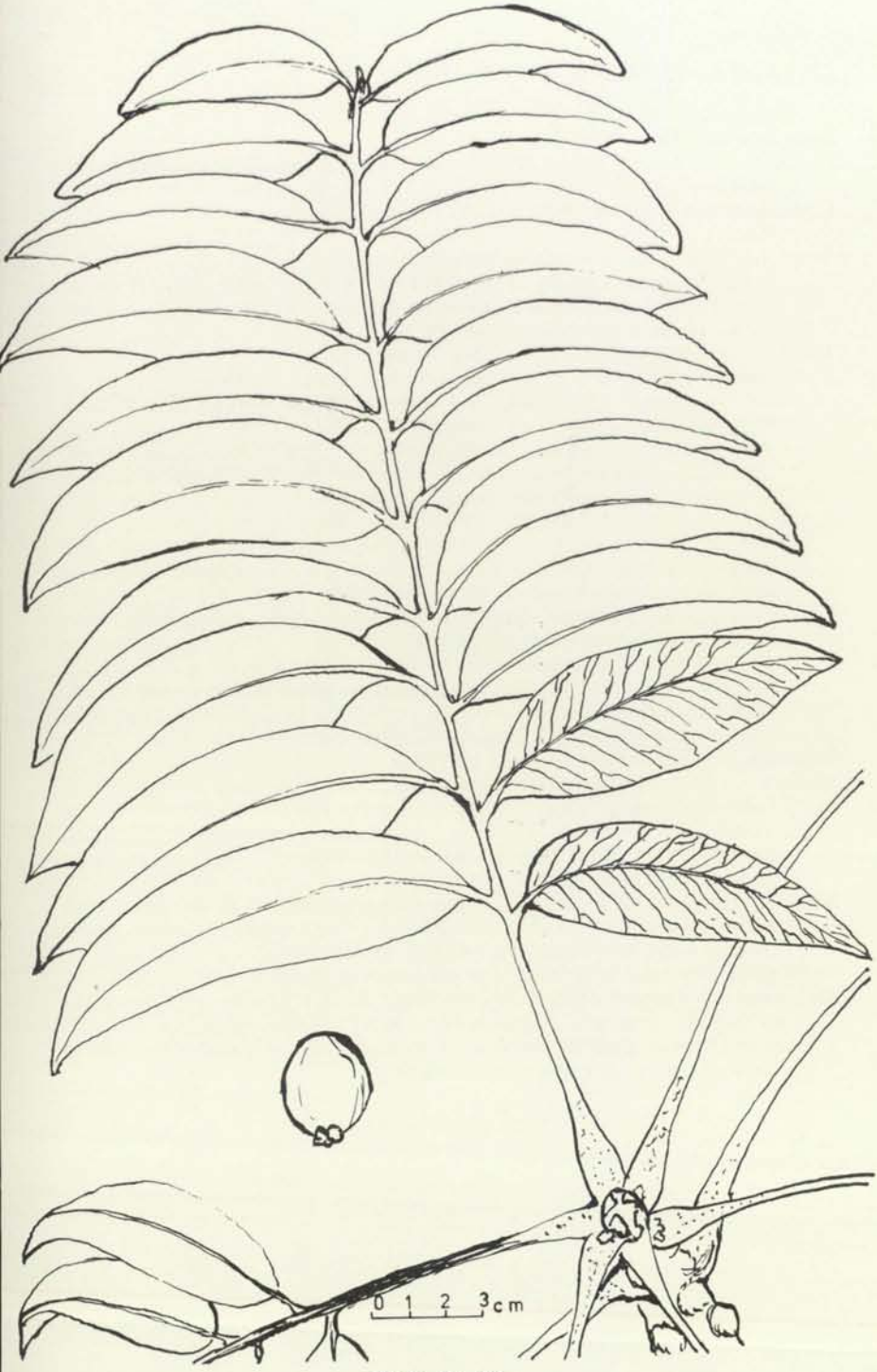


Plate No. 20
***Owenia cepiodora* F. Muell.**

OWENIA VENOSA F. Muell.

Reference — Hook. Kew Journ. IX, 304.

Derivation — Venosa from Latin "venosa" veined, probably alluding to the prominent veins of the leaves.

Common Name — Crow's Apple, Rose Almond, Tulipwood, Sour Plum, Rose Apple.

Standard Trade Name — Rose Almond.

A tree attaining a height of 20 m and a stem diameter of 45 cm. It can be an attractive species when grown in the open, usually forming a dense crown of dark glossy-green leaves.

Trunk — Usually cylindrical and not buttressed.

Outer Bark — Brown, or greyish-brown, *very scaly*, shedding in square or oblong pieces. *Underbark dark brown.* Outer surface of live bark vertically striped, dark and paler red.

Inner Bark — Blaze on a tree 35 cm diameter *deep red to purplish-red* on old trees becoming pale pink at the inner margin. No rapid change in colour. Astringent taste and sappy smell. 13 mm thick.

Branchlets — Moderately thick, sometimes reddish or purplish in colour, smooth, often marked by scattered brown lenticels. Leaf scars pale and distinct. Young shoots covered by a yellow or brownish glutinous substance.

Leaves — Alternate, pinnate, *leaflets usually six to eight* or sometimes nine, opposite or subopposite, elliptical or oblong, 4-8 cm long, *blunt or notched at the tip*, often unequal at the base, glossy above, paler and dull beneath. *Primary leaf stalk often angular with two flattened wings at the base*, particularly in young plants and coppice growth. Primary leaf stalks 4-8 cm long to the first leaflets. Leaflet stalks very short.

Venation — Visible both surfaces but more prominent on the underside.

Flowers — Probably white, in short panicles about as long as the leaves. Individual flowers about 5 mm long. Sepals of five rounded overlapping lobes, 2 mm diameter. Petals five, egg-shaped, 4 mm long. Stamens ten, forming a tube, 3 mm long but free and overlapping at the top. Flowering period October to January or irregular.

Fruit — *Drupe, red, globular, 2-4 cm diameter*, with a fleshy outer coat surrounding a hard woody stone containing two to four cells, with a single seed in each cell. Fruit ripe August to October.

Habitat — Dry rainforest bordering on eucalypt forest.

Distribution — From the N.S.W. border to Mt. Molloy, Queensland. Recorded in N.S.W. from Mt. Lindesay S.F. by H. C. Hayes.

Timber and Uses — Reddish, hard, close-grained, durable, suitable for cabinet work, handles, flooring and scantling.

Plate No. 21
***Owenia venosa* F. Muell.**

PSEUDOCARAPA NITIDULA (Benth.) Merr. & Perry

Synonym — *Amoora nitidula* Benth.

Reference — Journ. Arn. Arb. 21, 315, 1940.

Derivation — Pseudocarapa from Greek "pseudos" false and "carapa" a closely related Malasian genus, referring to its similarity; nitidula from Latin "nitidus" shining, referring to the somewhat glossy leaves.

Common Name — Bog Onion, Incensewood, Incense Cedar, Jimmy-jimmy, White Rosewood.

Standard Trade Name — Incensewood.

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

Trunk — Not buttressed.

Outer Bark — *Grey to dark grey, surface somewhat hard,* scaly and fissured, often with a few longitudinal cracks. Underbark yellow-brown. Outer surface of live bark black or dark red.

Inner Bark — Blaze on a tree 45 cm diameter *cream to pink with a few vertical pinkish or red stripes towards the outer margin,* but becoming white nearer the sapwood. The bark is arranged in numerous *thin layers* and each layer is *defined by a pale horizontal undulating line* on the surface of the blaze. Does not change colour upon exposure. *Onion*-like taste and *smell.* About 9 mm thick.

Branchlets — Moderately thick, grey, becoming green towards the ends, smooth, often marked by numerous brown dots (lenticels). Leaf scars prominent.

Leaves — Alternate, pinnate, entire, consisting of *one to three (commonly two) pairs of leaflets without a terminal leaflet,* elliptic, oblong-elliptic to almost obovate, 7-13 cm long, bluntly pointed at the tip. Leaflet blade tapering gradually from the stalklet. Upper surface shining dark green, underside paler. Thick and fleshy. Primary leaf stalks 2-4 cm to the first pair of leaflets. Leaflet stalks 2-9 mm long, flat, often angular and swollen at the base.

Venation — Visible on both surfaces, midrib and lateral veins raised and more distinct beneath.

Flowers — Cream, in small loose panicles in the forks of the upper leaves and shorter than the leaves. Calyx small with five teeth. Petals five, 4 mm long, lanceolate. Stamens united into a tube almost as long as the petals and with five small teeth, each with two anthers on the inner side. Flowering period March to May or occasionally to August.

Fruit — *Capsule, brown, pear-shaped,* on thick short stalks, opening in three valves, about 2 cm long, containing *several bright red oval seeds* about 15 mm long. Fruit ripe December to March or to June.

Habitat — The species appears to reach its best development in *subtropical rainforest* on red volcanic soils.

Distribution — Richmond River, N.S.W. to Atherton, Queensland. Recorded in N.S.W. from Woodburn, Ballina, Alstonville, Mt. Pikapene S.F., Toonumbar S.F., Beaury S.F., Tooloom, Koreelah S.F., Mt. Nothofagus F.R., Roseberry S.F., Wiangaree S.F., Goonimbar S.F., Whian Whian S.F., Minyon Falls N.R., Boat Harbour, Booyong, Eureka, Victoria Park N.R., Hayter's Hill, Broken Head N.R., Brunswick Heads N.R., Mt. Warning N.P. and Limpinwood N.R.

Timber and Uses — Yellowish drying pale-coloured, moderately hard and tough with a smell like *Dysoxylum fraseranum.* Close-grained. Subject to attack by borers. Has no particular uses but could be used for flooring and inside joinery work.

Plate No. 22
***Pseudocarapa nitidula* (Benth.) Merr. & Perry**

SYNOUM GLANDULOSUM (Sm.) A. Juss.

Reference — Mem. Mus. Par. XIX, 227, t. 15, 1830.

Derivation — Synoum from Greek "syn" growing together and "oum" an egg, referring to the two seeds in each cell of the fruit; glandulosum from Latin "glandulosum" glandular, because of the axillary tufts of hairs like glands on the underside of the leaflets.

Common Name — Scentless Rosewood, Bastard Rosewood, Red Sycamore.

Standard Trade Name — Scentless Rosewood.

Usually a small tree up to 18 m tall, but on Wiangaree S.F. up to 30 m and 50 cm diameter. Often the larger trees are hollow and the stems crooked.

Trunk — Irregular in cross-section. Not or only slightly buttressed on large trees.

Outer Bark — *Dark brown with square scales* shedding in irregular patches. Underbark brown. Outer surface of live bark purplish-brown to almost black.

Inner Bark — Blaze on a tree 22 cm diameter *pink*, becoming paler towards the sapwood which is slightly ridged longitudinally. No change in colour on exposure. Slightly astringent taste but *no* characteristic *smell*. 9 mm thick.

Branchlets — Not thick, brown, green at the tips, young shoots hairy, leaf scars prominent.

Leaves — Alternate, *pinnate, seven to nine leaflets*, opposite or almost so, entire, elliptical, 5-8 cm long, slightly broader towards the tip, bluntly tapering at the tip, but gradually to the base. *Smooth both surfaces*, dark green above and paler beneath. Primary leaf stalks 2-5 cm to the first leaflets, green, finely downy and slightly swollen at the base, slightly channelled on the upper surface. Leaflet stalks 6 mm long.

Venation — Mid and lateral veins distinct on undersurface, midrib distinctly raised on the upper surface. Midrib finely hairy beneath with *distinct tufts of hairs* where the lateral nerves join it. The lateral veins tend to be looped at their ends to form an intramarginal vein.

Flowers — *White to pale pink*, sweet-scented, in small panicles 2 cm long in the forks of the leaves. Stalklets of individual flowers about 2-3 mm long. Flowers about 6 mm diameter. Calyx about 3 mm diameter, divided for about half its length into four or occasionally five round or oval lobes with a fringe of minute hairs on the margins. Petals four, occasionally five, oval, about 4 mm long. Stamens united into a cup-shaped or broadly cylindrical tube about 3 mm long with eight to ten anthers on top. Flowering period February to August.

Fruit — *Capsule, red with some green tinges*, more or less *three-lobed* or occasionally two or one-lobed, about 2 cm diameter, containing three or occasionally two or one cell. Seeds two in each cell, brown, flattened, about 6 mm diameter, embedded one on each side of a *fleshy red aril*. Fruit ripe mainly September to December, but also in other months.

Habitat — A common small tree or undershrub in or adjoining most rainforest types. Also on poorer sandy soils near the sea.

Distribution — From Bega, N.S.W. to Ravenshoe, North Queensland. Recorded in N.S.W. from most rainforests.

Timber and Uses — Red, *lacking the sweet odour of rosewood*, close-grained and easy to work and is suitable for cabinet work, brush stocks, flooring and cases. The tree is rarely utilised however, due to its small size and the crookedness of the stem, which in some localities is often hollow towards the centre.

P Condon

Plate No. 23
***Synoum glandulosum* (Sm.) A. Juss**

TOONA AUSTRALIS (F. Muell.) Harms

Synonym — *Cedrela australis* F. Muell., *Cedrela toona* Rox. var *australis* C. DC.

Reference — Nat. Pflanzenfamilien, III, 4, 270, 1896.

Derivation — Toona from "Toon" the Indian name for the tree; australis from Latin "australis" southern.

Common Name — Red Cedar.

Standard Trade Name — Red Cedar.

A large *deciduous* tree generally with a wide spreading and handsome crown attaining a height of 45 m and a stem diameter of 210 cm.

Trunk — Buttressed, flanged or fairly cylindrical.

Outer Bark — *Brown or grey, scaly, shed in oblong or irregular pieces*, leaving slight depressions in the surface of the bark. Underbark chocolate-brown. Outer surface of live bark pinkish-red with paler vertical streaks.

Inner Bark — Blaze on a tree 150 cm diameter, *deep rose* towards the outer margin, becoming gradually paler to white next to the sapwood. There are numerous paler and darker red undulating lines running across the blaze. The inner white margin changes to brown after about five minutes exposure and the blaze generally darkens to a reddish-brown shade. Bitter taste, fragrant. 18 mm thick.

Branchlets — Thick, brown or red on the leafy section, smooth or minutely downy with a few cream raised dots. Leaf scars distinct, young shoots finely downy.

Leaves — Alternate, *pinnate*, consisting of *five to seventeen leaflets*. Leaflets opposite or irregularly alternate, ovate-lanceolate, 4-13 cm long, often drawn out to a long point at the tip, unequal at the base. Green both surfaces, paler beneath, red when young. Leaflets frequently downy. Primary leaf stalk 3-9 cm to first leaflets. Leaflet stalks 3-6 mm long.

Venation — Visible on both surfaces but more prominent on the underside. Sometimes reddish or purplish in colour. *Occasionally* there are *tufts of hairs* where the lateral veins join the midrib.

Flowers — White, fragrant, in a large pyramidal panicle at the ends of the branchlets. Individual flowers about 5 mm long. Sepals of five lobes, 1 mm long. Petals five, oval, 4 mm long. Stamens four to six, shorter than the petals. Flowering period October to November.

Fruit — A *dry capsule, light brown*, elliptical, about 18 mm long, *splitting into five valves containing four to five winged seeds* about 13-18 mm long in each valve. Fruit ripe January to March.

Habitat — Subtropical and riverine rainforests, but also on alluvial soils in warm temperate rainforest. Formerly most plentiful on the basaltically derived alluvial flats of the larger rivers.

Distribution — Coastal rainforests from Milton, N.S.W. to McIlwraith Range, North Queensland. Recorded in N.S.W. from Milton, Conjola, Bungonia Caves, Kangaroo Valley, Cambewarra Range, Barrengarry Mountain, Mt.Kembla, Otford, Warragamba, Waterfall, Kanangra, Cedar Brush Wyong, Cedar Creek, Barrington Tops, Dungog, Upper Allyn River, Woko, Wingham Brush, Boorgana N.R., John's River, Doyle's River S.F., Port Macquarie, Pappinbarra, Carrai, Mistake S.F., Bellinger River S.F., Dorrigo, Coramba, Woolgoolga, Wild Cattle Creek S.F., Moonpar S.F., Cloud's Creek S.F., Horton's Creek, Marengo S.F., Washpool S.F., Girard S.F., Eltham, Mt. Belmore S.F., Mt. Pikapene S.F., Richmond Range S.F., Toonumbar S.F., Unumgar S.F., Beaury S.F., Acacia Plateau, Moore Park, Roseberry S.F., Wiangaree S.F., Goonimbar S.F., Whian Whian S.F., Minyon Falls F.R., Wilson Park, Booyong, Eureka, Victoria Park N.R., Hayter's Hill, Mooball S.F., Mebbin S.F., Mt. Warning N.P., Limpinwood N.R., Murwillumbah and Stott's Island N.R.

Timber and Uses — Red, soft, light and durable. Probably the most favoured and valued Australian timber for furniture, cabinet work and interior decoration, but is becoming scarce. 425-550 kg. per cubic metre.

Plate No. 24
***Toona australis* (F. Mueli.) Harms**

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.	95 km W of Taree
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.	30 km SW of Port Macquarie
Boambee S.F.	6 km SW of Coffs Harbour
Bodalla S.F.	8 km NW 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.	34 km NW of Port Macquarie
Broken Bago S.F.	20 km WNW of Port Macquarie
Broken Head N.R.	20 km SSE of Brunswick Heads
Brunswick Heads N.R.	1 km N of Brunswick Heads
Bruxner Pk F.R.	6 km NW 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.	15 km NE of Casino
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.	42 km SW of Port Macquarie
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.	75 km W of Port Macquarie
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 SE 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.	25 km NNW of Macksville
Glenugie S.F. and F.R.	19 km SE of Grafton
Goonimbar S.F.	25 km W of Brunswick Heads
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
Madman's Ck F.R.	27 km NNW of Coffs Harbour

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.	28 km N of Nowra
Minyon Falls F.R.	17 km SW of Brunswick Heads
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.	57 km NW of Port Macquarie
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 SE of Bulahdelah
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.	110 km SW of Tamworth
Nothofagus Mtn F.R.	20 km NNE of Urbenville
Nulla Five-Day S.F.	48 km NW of Kempsey
Nullum S.F.	17 km WNW of Brunswick Heads
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.	24 km SW of Brunswick Heads
Riamukka S.F.	75 km E of Tamworth
Richmond Range S.F.	35 km NW of Casino
Roseberry S.F.	32 km NNW of Kyogle
Roses Ck S.F.	18 km S of Dorrigo
Rowley's Ck F.R.	39 km NW of Taree
Royal N.P.	32 km SSW of Sydney
Sea Acres Reserve	Port Macquarie
Shea's Nob S.F.	34 km NNW of Dorrigo
Sherwood N.R.	34 km NNW of Coffs Harbour
Stott's Island N.R.	12 km NE of Murwillumbah
Strickland S.F.	64 km SSE 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 S.F.	13 km SW of Coffs Harbour
Unumgar S.F.	14 km NE of Urbenville
Victoria Pk N.R.	36 km ESE of Casino
Waihou F.R.	30 km NW of Coffs Harbour
Warung S.F.	107 km SW of Tamworth
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.	21 km SW of Brunswick Heads
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.	21 km N of Coffs Harbour
Yabbra S.F.	16 km S of Urbenville
Yarrahapinni S.F.	5 km SE of Macksville

F.C. of N.S.W. Photofile

Plate 1 — SC5362; 2-5351; 3-5365; 4-5359; 5-5360; 6-5349;
Plate 7 — SC5347; 8-5361; 9-5354; 10-5368; 11-5364; 12-5366;
Plate 13 — SC5367; 14-5356; 15-5363; 16-5358; 17-5353; 18-5370;
Plate 19 — SC5348; 20-5352; 21-5369; 22-5357; 23-5355; 24-5350.

D. West, Government Printer, New South Wales—1982

National Library of Australia card number
ISBN 0 7240 4985 1
ISSN 0085 3984