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**N.S.W.
RAINFOREST TREES**

PART XII

Families:

**Loganiaceae
Apocynaceae
Boraginaceae
Verbenaceae
Solanaceae
Myoporaceae
Rubiaceae
Asteraceae**

**AUTHOR
A.G.Floyd**



**FORESTRY COMMISSION OF N.S.W.
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N.S.W. RAINFOREST TREES

PART XII

FAMILIES:

LONGANIACEAE
APOCYNACEAE
BORAGINACEAE
VERBENACEAE
SOLANACEAE
MYOPORACEAE
RUBIACEAE
ASTERACEAE

AUTHOR
A. G. FLOYD

FORESTRY COMMISSION OF N.S.W.

SYDNEY, 1983

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INTRODUCTION

This is the final part in a series of twelve research notes of the Forestry Commission of N.S.W. describing the rainforest trees of the state.

Current publications by the same author are:

- Research Note No. 3 (1960)
Second Edition 1979 — N.S.W. Rainforest Trees.
Part I, Family *Lauraceae*.
- Research Note No. 7 (1961)
Second Edition 1981 — N.S.W. Rainforest Trees.
Part II, Families *Capparidaceae*,
Escalloniaceae, *Pittosporaceae*,
Cunoniaceae, *Davidsoniaceae*.
- Research Note No. 28 (1973)
Second Edition 1979 — N.S.W. Rainforest Trees.
Part III, Family *Myrtaceae*.
- Research Note No. 29 (1976)
Second Edition 1979 — N.S.W. Rainforest Trees.
Part IV, Family *Rutaceae*.
- Research Note No. 32 (1977)
Second Edition 1981 — N.S.W. Rainforest Trees.
Part V, Families *Sapindaceae*, *Akaniaceae*.
- Research Note No. 34 (1977) — N.S.W. Rainforest Trees.
Part VI, Families *Podocarpaceae*,
Araucariaceae, *Cupressaceae*, *Fagaceae*,
Ulmaceae, *Moraceae*, *Urticaceae*.
- Research Note No. 35 (1978) — N.S.W. Rainforest Trees.
Part VII, Families *Proteaceae*, *Santalaceae*,
Nyctaginaceae, *Gyrostemonaceae*,
Annonaceae, *Eupomatiaceae*,
Monimiaceae.
- Research Note No. 38 (1979) — N.S.W. Rainforest Trees.
Part VIII, Families *Mimosaceae*,
Caesalpiniaceae, *Papilionaceae*,
Simaroubaceae, *Burseraceae*, *Meliaceae*.
- Research Note No. 41 (1980) — N.S.W. Rainforest Trees.
Part IX, Families *Euphorbiaceae*,
Anacardiaceae, *Corynocarpaceae*,
Celastraceae, *Siphonodontaceae*,
Icacinaceae.
- Research Note No. 43 (1981) — N.S.W. Rainforest Trees.
Part X, Families *Rhamnaceae*,
Elaeocarpaceae, *Malvaceae*, *Sterculiaceae*,
Eucryphiaceae, *Flacourtiaceae*,
Thymelaeaceae.
- Research Note No. 48 (1983) — N.S.W. Rainforest Trees.
Part XI, Families *Araliaceae*,
Alangiaceae, *Epacridaceae*, *Myrsinaceae*,
Sapotaceae, *Ebenaceae*, *Symplocaceae*,
Oleaceae.

In this part, 25 species of rainforest trees in the families *Loganiaceae*, *Apocynaceae*, *Boraginaceae*, *Verbenaceae*, *Solanaceae*, *Myoporaceae*, *Rubiaceae* and *Asteraceae* have been described and illustrated with the emphasis on field characteristics. Diagnostic features are shown in italics. Standard Trade Names are those used in Australian Standard AS 02 – 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.

The first five parts of this series deal with those families of greatest economic importance, whilst the remaining seven parts follow the classification of Engler and Prantl which was adopted by most state herbaria and by W.D. Francis in his book entitled “Australian Rainforest Trees”. If the twelve parts of this series are arranged in the following order, they will then be substantially in the correct natural sequence according to Engler and Prantl: – Parts VI, VII, I, II, VIII, IV, IX, V, X, III, XI and XII. There is one exception, namely that part IV should be located in the centre of part VIII rather than following it.

FAMILY LOGANIACEAE

CHARACTERISTICS OF THE FAMILY IN N.S.W.

This family of about 30 genera and 700 species occurs in tropical Africa, Asia and South America with a few species in the temperate southern hemisphere and North America. In Australia there are six genera and 68 species; but in N.S.W. there is only a single tree species, *Strychnos arborea*.

The most diagnostic features of this species are:—

Leaves – Opposite, simple, not toothed, smooth and shiny.

Venation – One or two basal veins on either side of the midrib.

Fruit – A globular berry with a flattened single seed.

Distribution – *Strychnos* consists of 200 species throughout the tropics.

Four species, of which three are endemic, extend across tropical Australia from Western Australia to North Queensland and south to the Clarence River, N.S.W. Its strong representation in Africa and South America could indicate an ancient Gondwanaland origin.

Timber and Uses – Yellowish sapwood and black, close-grained, hard heartwood with pores filled with a white deposit. The wood is useful for turnery and carving.

The main source of the poison strychnine is from the seed coat of the Indian *Strychnos nux-vomica*, whilst the South American indians used the pulped bark of *S. toxifera* to obtain the deadly poison, curare.

STRYCHNOS ARBOREA A.W. Hill

Synonym — *S. axillaris* A.W. Hill.

Reference — Kew Bull. 172, 1917.

Derivation — Strychnos, the Greek name for some poisonous members of Solanum yielding strychnine as do some species of *Strychno*; arborea from Latin "arboreus" tree-like as many other species are only shrubs or climbers.

Common Name — Strychnine Tree.

Standard Trade Name — None.

A tree up to 18 m tall and 30 cm diameter with a glossy dark green crown. Distinguished from the Queensland species *S. psilosperma* by the more downy branchlets, leaves and flower stalks and the more obscure venation of the adult leaves.

Trunk — Large trees sometimes slightly flanged at the base, moderately straight.

Outer Bark — Brown or dark grey-brown with a rough pimpled surface due to the presence of numerous corky pustules and very small scales. Underbark mid-brown. Outer surface of live bark a mixture of orange-pink and green with a somewhat pimpled appearance.

Inner Bark — Blaze on a tree 22 cm diameter salmon towards the outer margin passing through pinkish-brown to the inner margin which is pure white.

Only the inner margin darkening on exposure. Slightly bitter taste and has a smell somewhat like a sour water melon. 3 mm thick.

Branchlets — Fine, grey or brown, smooth, marked by small raised dots, becoming green and unmarked towards the ends. *Young growth armed with slender spines* up to 2 cm long.

Leaves — Opposite, simple, not toothed, from broadly ovate to egg-shaped, broadest towards the base, 3 – 8 cm long, tapering to a point or rounded at the tip, usually with a short acute point. Dark green and *glossy* above, paler and also *glossy* beneath. Leaf stalks 1 – 4 mm long.

Venation — Visible both surfaces, but a little more prominent and distinct on the underside. Generally *five veined*, however the two outer intramarginal veins extending from the base to about one third of the margin are a little indistinct in many specimens which then *appear three-veined*.

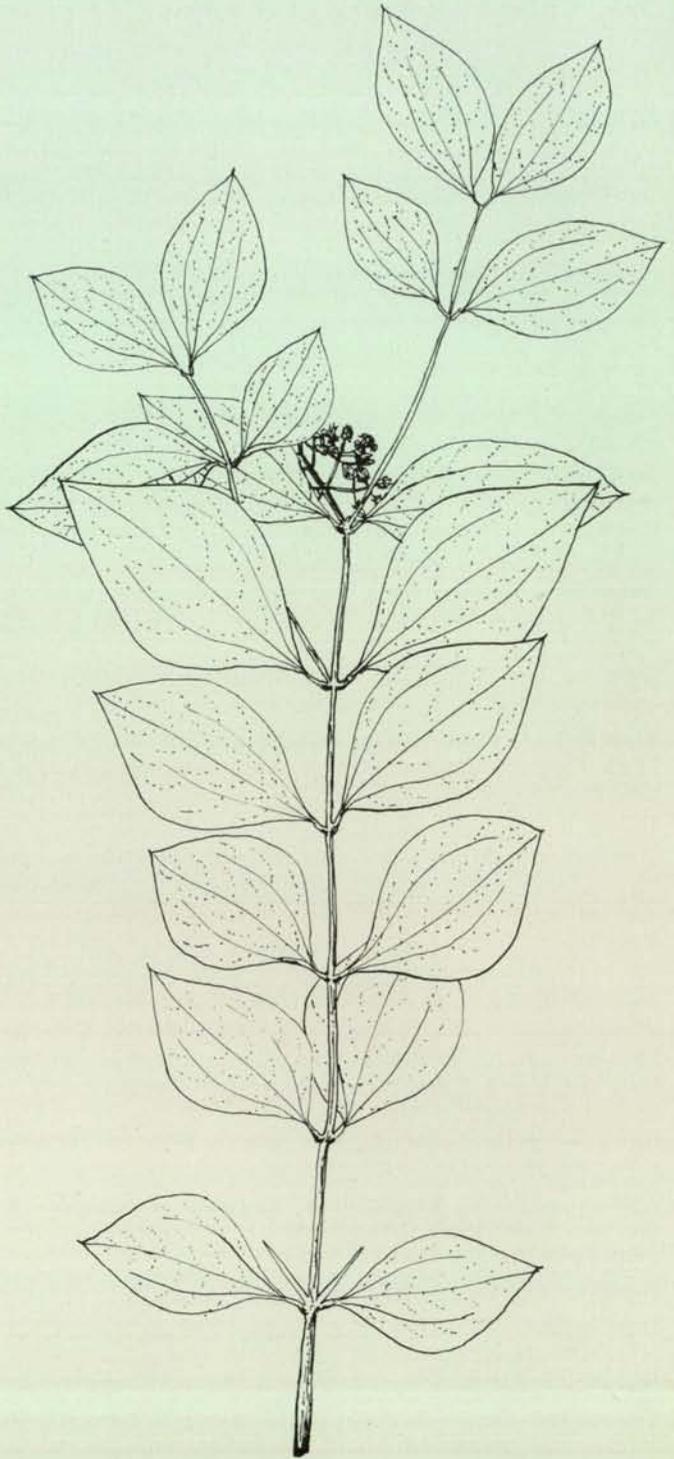
Flowers — White, in short dense axillary or terminal panicles, usually shorter than the leaves. Flowers 4 mm diameter. Sepals five, 1 mm long, downy, lanceolate, fringed. Petals five, shortly tubular, 2 – 3 mm long, downy, broad lanceolate. Stamens five shorter than and attached to the petals. Flowering period December and January.

Fruit — A berry, brown, shiny, globular, with a firm rind about 12 mm diameter with a single flattened seed, 6 mm diameter immersed in the internal pulp. Fruit ripe June to December.

Habitat — Dry rainforest. A rare species in N.S.W.

Distribution — From the Clarence River to Cape York, Queensland. Recorded in N.S.W. from Ramornie, Casino, Mt. Pikapene S.F., Cherry Tree S.F., Richmond Range S.F., Toonumbar S.F., Unumgar S.F. and Acacia Ck.

Timber and Uses — Yellowish, with fine white streaks. Heartwood dark or black, close grained and hard. Pores large and distant, filled with a white powdery deposit which shows as white dots on the end grain and as longitudinal white streaks on the planed surface. Suitable for turnery, carving, brush backs, chisel handles. About 1000 kg per cubic metre.



0 1 2 cm.

E.S.

Plate No. 1
Strychnos arborea A.W. Hill

FAMILY APOCYNACEAE

CHARACTERISTICS OF THE FAMILY IN N.S.W.

Throughout the world there are 180 genera and 1500 species, mostly in the tropics but with a few in the temperate zone. Many are vines, as are 17 of the 27 species in N.S.W.

In N.S.W. there is a single rainforest tree species in *Alstonia*, *Neisosperma* and *Ochrosia*.

They are small to medium non-buttressed trees of 10 – 18 m height and up to 30 cm diameter.

Outer Bark – Grey or yellow-brown (*Alstonia constricta*) or dark brown to black (*Neisosperma poweri* and *Ochrosia moorei*). Underbark brown. Outer surface of live bark creamy-orange to biscuit.

Inner Bark – Yellow-brown with paler vertical lines or stripes. The only darkening of the blaze is at the sapwood boundary of *Alstonia* and *Ochrosia*. All are very bitter.

Branchlets – Moderately thick and brown except for *Alstonia* which is slender and grey. All have small white lenticels.

Leaves – In pairs but in *Neisosperma* and *Ochrosia* some may be in threes, simple, not toothed. Obovate to narrow lanceolate, tapering at the tip and rather abruptly in *Neisosperma*. Shiny on the top surface except in *Neisosperma* and downy in *Alstonia* only. Leaf stalks exuding a milky latex when broken, short up to 6 mm long in *Neisosperma*, 5 – 15 mm in *Ochrosia* and 7 – 30 mm in *Alstonia*.

Venation – Midrib raised on the underside only. Lateral veins numerous (15 – 30 for *Alstonia*, over 40 for *Ochrosia*) or indistinct (*Neisosperma*).

Flowers – White or pale yellow (*Alstonia*), scented, in cymes usually at the end of the branchlets. Sepals five, pointed up to 3 mm long. Petals forming a tube 7 – 8 mm long but the five lobes twisted and overlapping when in bud. In *Alstonia* the tube is narrowed when in bud near its top. Stamens hidden within the tube. *Alstonia* flowers in September to November whereas *Neisosperma* and *Ochrosia* commence in January.

Fruit – Paired fawn follicles 8 – 20 cm long in *Alstonia* or red oval and slightly flattened drupes in *Neisosperma* (2.5 cm long) and *Ochrosia* (4 – 8 cm long). Seeds flattened, numerous with long hairs at the ends (*Alstonia*) or single without hairs (rough and 15 mm long in *Neisosperma*, smooth and 30 – 70 mm long in *Ochrosia*).

Habitat – *Alstonia* is typically in dry rainforest whereas *Neisosperma* and *Ochrosia* are in lowland subtropical rainforest.

Distribution – *Alstonia* comprises 40 species in South East Asia, Polynesia and Australia. Seven of these species occur across Northern Australia to Northern Queensland and down the coast to Northern N.S.W. Four or five of these species are restricted to Australia, including *A. constricta* which occupies the full range of the genus in Australia even into the dry interior. *Neisosperma* (18 species) and *Ochrosia* (21 species) extend from Madagascar to Australia, Hawaii and Polynesia. Five of the six species of *Ochrosia* in Australia are restricted to here, whereas *O. elliptica* is along the Queensland coast and on New Caledonia, Fiji and Lord Howe Island.

The Australian species of this family do not appear to be very primitive and are possibly derived from tropical Asian stock about 10 – 27 million years ago. The family however probably existed when Africa and South America were joined over 110 million years ago.

Timber and Uses – The yellow firm wood is generally too small to use. The bitter alkaloids in *Alstonia* and *Ochrosia* bark were mistakenly regarded by early settlers to be quinine and was therefore used ineffectively against malaria.

**KEY TO RAINFOREST TREE SPECIES
OF APOCYNACEAE IN N.S.W.**

A. USING LEAVES AND BRANCHLETS ONLY

1. Lateral veins indistinct below, leaf stalk not exceeding 6 mm long
..... *Neisosperma poweri* (F.M. Bail.) Fosberg & Sachet
1. Lateral veins clearly visible below, leaf stalk up to 30 mm long 2
 2. Leaves broadest in the middle. Lateral veins curved at 45 – 60° to the midrib
..... *Alstonia constricta* F. Muell.
 2. Leaves broadest near the tip. Lateral veins straight almost at right angles to the midrib
..... *Ochrosia moorei* (F. Muell.) F. Muell. ex Benth.

B. USING BARK ONLY

1. Bark surface grey or yellow-brown *Alstonia constricta* F. Muell.
1. Bark surface dark brown to black 2
 2. Scattered red-brown pustules, inner margin of blaze turning orange
..... *Ochrosia moorei* (F. Muell.) F. Muell. ex Benth.
 2. Pustules not red-brown, inner margin of blaze not turning orange
..... *Neisosperma poweri* (F.M. Bail.) Fosberg & Sachet

ALSTONIA CONSTRICTA F. Muell.

Reference — F Muell. *Fragm* 1,57,1858

Derivation — *Alstonia* in honour of Dr Charles Alston, Professor of Medicine and Botany, University of Edinburgh; *constricta* from Latin "constrictus" constricted, referring to the top of the corolla tube being constricted.

Common Name — Quinine Tree, Fever Bark, Bitter Bark.

Standard Trade Name — Quinine.

A tree up to 18 m tall and 30 cm diameter.

Trunk — Cylindrical, not buttressed.

Outer Bark — Grey or yellowish-brown, wrinkled and firmly scaly to corky. Underbark chocolate-brown. Outer surface of live bark pale creamy-orange with irregular green lines.

Inner Bark — Blaze on a tree 25 cm diameter yellow-brown with yellow and orange-brown vertical stripes or spots, pale yellow towards the inner margin which darkens to yellowish-brown after a few minutes exposure, as also does the surface of the sapwood. There is no rapid change in colour of the blaze surface. *Very bitter* with a sappy smell. 20 mm thick.

Branchlets — Slender, grey or yellowish-grey, becoming green towards the ends. Often dotted with small pale lenticels. Leaf buds smooth and shiny or dull fawn and softly furry. Exuding a milky sap when cut.

Leaves — Opposite, simple, not toothed, ovate oblong to narrow-lanceolate, 6 — 13 cm long, tapering to a blunt or fine point at the tip. Rapidly tapering at the base. Green both surfaces, somewhat glossy above, paler beneath with a wavy margin. Mainly downy in the coastal forms, but smooth inland where however the juvenile leaves may be downy. Leaf stalks 7 — 30 mm long, exuding a milky sap when cut.

Venation — Midrib and lateral veins visible on both surfaces but more distinct beneath. Midrib raised beneath, often channelled on the upper surface. Major lateral veins 15 — 30 at 45° to the midrib.

Flowers — Pale yellow, musk-scented, in corymbose cymes, terminal, or in forks of the branches, 8 — 12 cm long, with the individual flowers about 7 mm long. Sepals five, triangular, 1 mm long. Petals five, *overlapping in bud* which has a *narrowing about 2 mm from the base*, later becoming the top of the tube with lobes 4 mm long. Anthers enclosed and attached to the tube. Flowering period September to November.

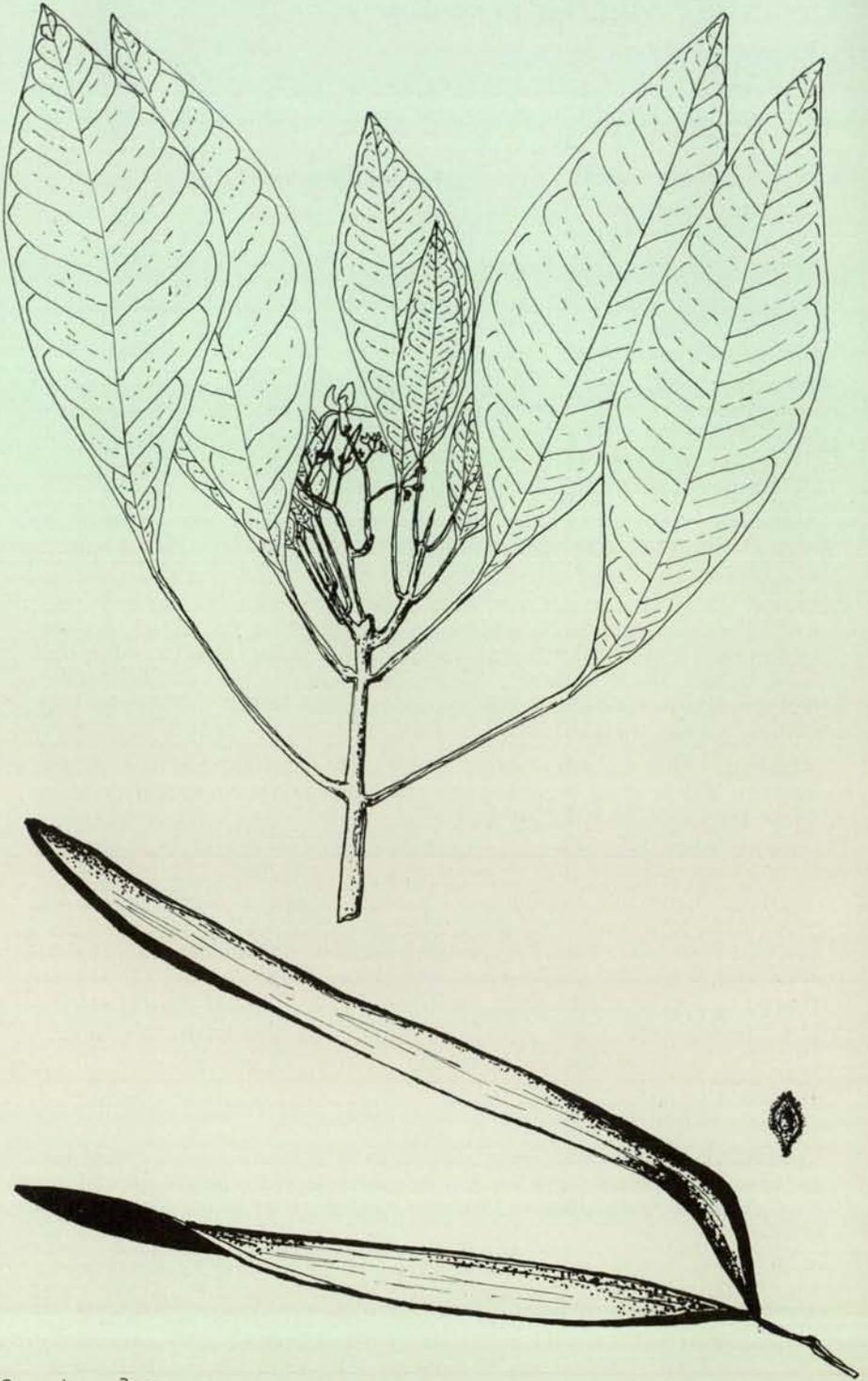
Fruit — A follicle, fawn, narrow, 8 — 20 cm long, splitting open to free the elongated, flattish, downy seeds, 8 — 12 mm long, which have long hairs at the ends. Fruit ripe October to February but mainly December.

Habitat — In littoral, dry and riverine rainforests but also in dry woodland on the Western slopes and Plains.

Distribution — From Woolgoolga, N.S.W. to Hinchinbrook Is., N. Queensland in coastal rainforests; and from Warrumbungle N.P., N.S.W. to Charters Towers, North Queensland and Western Australia west of the Great Dividing Range.

Recorded in N.S.W. from Madmans Ck F.P., Glenugie F.R., Susan Island, Mt Mulligan, Carnham, Rivertree, Iluka N.R., Mt Pikapene S.F., Cherry Tree S.F., Sandiland Range, Richmond Range S.F., Toonumbar S.F. and Acacia Plateau. West of the Great Dividing Range it is recorded from Warrumbungles N.P., Tamworth, Keepit Dam, Mt Kaputar N.P., Terry Hie Hie, Warialda and west to the Paroo River.

Timber and Uses — Pale yellow, close grained and firm, but warps on drying and has no particular use. The bitter principle in the bark has been used as a substitute for quinine in the treatment of fevers.



0 1 2 cm.
E.S.

Plate No. 2
Alstonia constricta F. Muell.

NEISOSPERMA POWERI (F.M. Bail.) Fosberg & Sachet

Synonym — *Ochrosia poweri* F. M. Bail.

Reference — *Micronesica* 8, 48–9, 1972.

Derivation — *Neisosperma* of unknown significance; *poweri* after R.D. Power a resident of the Eumundi district from whom a specimen of the fruit was first obtained.

Common Name — Milkbush

Standard Trade Name — None

A small crooked tree, 10 m tall and 15 cm stem diameter.

Trunk — Cylindrical except for flanges at the base but not buttressed.

Outer Bark — Brownish-black, wrinkled with horizontally elongated raised lenticels. Underbark dark brown. Outer surface of live bark biscuit-coloured.

Inner Bark — Blaze on a tree 15 cm diameter orange-fawn with fine paler vertical lines. No change in colour on exposure nor exudation of white milk. Exceedingly and persistently bitter. No smell. 6 mm thick.

Branchlets — Moderately thick, brown with small white lenticels. Often branching into three rather than two branchlets.

Leaves — *In pairs or occasionally three*, simple, not toothed, *obovate* being broadest towards the tip, 6 – 10 cm long but up to 15 cm if juvenile. Tapering abruptly to a short blunt point at the tip, but gradually into the leaf stalk at the base. Dull on both sides, smooth, paler green beneath. Leaf margin transparent. Leaf stalk up to 6 mm long, smooth, exuding a *milky latex* when freshly broken, grooved above and twisted through 90°.

Venation — Midrib conspicuously pale green above, sunken; less obvious but distinct and raised below. *Lateral veins indistinct* on both sides. Intramarginal vein present.

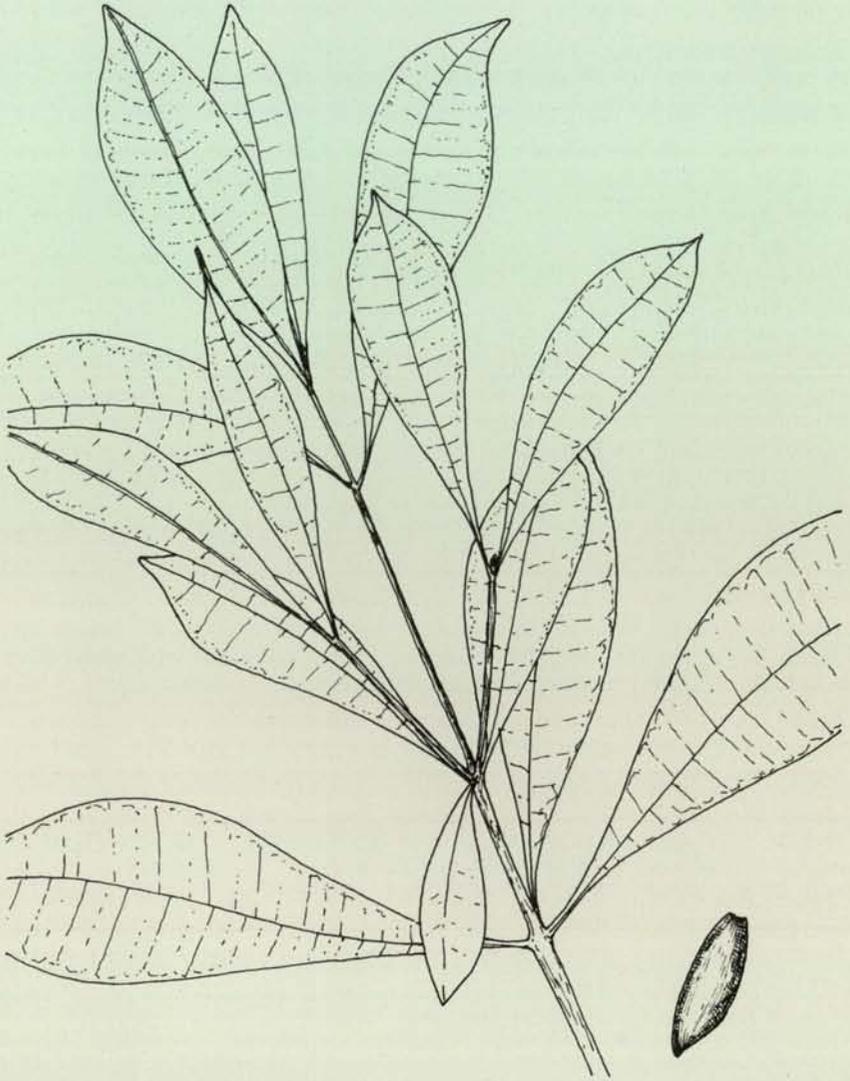
Flowers — White, scented, in forked cymes at the ends of the branchlets. Sepals five or six rounded. Petals forming a tube 7 mm long with broad lobes 5 mm long. Flowering period January to April.

Fruit — A pair of drupe-like carpels or sometimes only one developing, *bright red*, smooth, oval, slightly flattened with a *longitudinal groove*, 2.5 cm long. Seeds one, flattened, about 15 mm long with a *roughened surface* (smooth in *Ochrosia*). Fruit ripe September to November.

Habitat — Subtropical rainforest of the White Booyong — Pigeonberry association on basaltic soil at 500 – 600 m altitude.

Distribution — Rare in N.S.W. where found as infrequent groups of trees. Bangalow, N.S.W. to Atherton, North Queensland. Recorded in N.S.W. from Pearces Ck., Duck Ck., Bangalow (1896), Murwillumbah (1896), Upper Crystal Creek, Mt Cougal.

Timber and Uses — Too small to be used.



0 1 2 cm.

亦

Plate No. 3
Neisosperma poweri (F.M. Bail.) Fosberg & Sachet

OCHROSIA MOOREI (F. Muell.) F. Muell. ex Benth.

Reference — B. Fl. IV, 310, 1869

Derivation — Ochrosia from Latin "ochraceus" yellow-brown referring to the colour of the flowers and timber of some species; "moorei" after Charles Moore, one time Government Botanist of N.S.W.

Common Name — Southern Ochrosia

Standard Trade Name — None

A small tree with a milky juice. Sometimes crooked with several stems. Up to about 11 m tall and 25 cm diameter.

Trunk — Cylindrical or angular.

Outer Bark — *Very dark brown, almost black, finely wrinkled* and rough with numerous very fine lateral cracks, short vertical fissures and scattered reddish-brown pustules and lenticels. Underbark dark brown. Outer surface of live bark slightly pitted, yellowish-brown with paler vertical markings.

Inner Bark — Blaze on a tree 25 cm diameter yellowish-brown with numerous pale flecks, a few pale vertical stripes and very fine lines towards the outer margin. A few paler lateral curved growth rings visible. The inner margin only changes to an orange colour after several minutes exposure. Exudation of milk slight or absent. No distinct smell but a delayed bitter taste. 4 mm thick.

Branchlets — Moderately thick, dark brown to purple-black, smooth, shiny, sometimes with minute pale dots and fine longitudinal pale wavy lines, becoming green towards the ends.

Leaves — *Opposite or in threes*, simple, not toothed, oblong lanceolate, lanceolate or obovate, 8 – 20 cm long, tapering to a long point at the tip and gradually tapering into the leaf stalk at the base. Green and shiny both surfaces, paler beneath, somewhat fine and thin in texture. Fresh leaves have a faint cyanide smell. Leaf stalks 5 – 15 mm long, smooth, exuding a white milk when cut.

Venation — Midrib and lateral veins fine and distinct on both surfaces. *Lateral veins over forty, parallel, almost at right angles* to the midrib and looping into an intramarginal vein. Midrib sunken on the upper surface, raised on the underside.

Flowers — White in short cymes at the ends of the branchlets. Small, few, mostly without stalks. Sepals five, angular, thick, 3 mm long. Petals joined at the base into a tube about 8 mm long, the free upper portion 6 mm long, curved. Stamens five, small, within the tube. Flowering period January.

Fruit — *A drupe, shiny, scarlet with white flesh*, oblong and slightly flattened, 4 – 8 cm long. Seed single, 3 – 7 cm long and flattened on one side with a longitudinal groove, rounded on the other with one or two ribs, smooth. Fruit ripe January.

Habitat — Riverine and lowland subtropical rainforests.

Distribution — From the Richmond River, New South Wales to Springbrook, S. Queensland. Recorded in N.S.W. from Big Scrub F.R., Wilson Park, Rotary Park, Boatharbour, Johnstons Scrub, Booyong, Victoria Park N.R., Marshall Falls, Tintenbar, Mt Warning, Wollumbin Wildlife Refuge and Murwillumbah.

Timber and Uses — Wood yellow, medium hard and somewhat brittle. It does not appear to have any particular merit or use. 850 kg per cubic metre.



0 1 2 cm.
E.S.

Plate No. 4
Ochrosia moorei (F. Muell.) F. Muell. ex Benth.

FAMILY BORAGINACEAE
CHARACTERISTICS OF THE FAMILY IN N.S.W.

The family is represented by 113 genera and 2400 species throughout the tropics and temperate regions of the world. Some authorities have segregated some of the tropical and subtropical representatives into a separate family Ehretiaceae consisting of 13 genera and 400 species.

There are only two tree species in N.S.W., but only *Ehretia acuminata* is in the rainforest.

Its characteristic features are:—

Trunk — Fluted and invariably crooked.

Bark — Creamy-grey and softly fissured. The blaze is cream with darker concentric lines and turns dirty brown after one minute.

Leaves — Alternate, simple, finely toothed, somewhat like a peach tree. Deciduous.

Flowers — In dense panicles, white with five sepals, petals and stamens. The lobes of the sepals are fringed.

Fruit — Yellow, somewhat succulent globular drupes in large clusters. Each consisting of two halves which are again divided into two cells, each with a single seed.

Habitat — Common on marginal and disturbed rainforest areas of the subtropical and dry subforms.

Distribution — *Ehretia* consists of 50 species in tropical and subtropical Africa and Asia. There are six species in Australia of which four are restricted to this country. They range from north-western Australia east to N.E. Queensland and south along the east coast to Bega, N.S.W. Of the two species in N.S.W., *E. membranifolia* is a tall shrub in the dry scrubs of the north-west slopes as well as in Queensland, whilst *E. acuminata* extends from Bega, N.S.W. to New Guinea, China and Japan.

The fossil evidence suggests an ancient Laurasian (northern and southern hemisphere) origin and that it spread via Africa and Australia to South America whilst these continents were still joined.

Timber and Uses — The light brown, coarse-grained wood is easy to work and could be used for furniture.

EHRETIA ACUMINATA R. Br.

Reference — Prodr. 497, 1810.

Derivation — *Ehretia* after G. D. Ehret (1708–70), a distinguished German-born botanical artist; *acuminata* from Latin “acuminatus” drawn out into a long narrow point, in reference to the leaf tip.

Common Name — Koda, Silky Ash, Churnwood.

Standard Trade Name — Silky Ash.

A large tree up to 24–27 m tall and 90 cm diameter. The N.S.W. populations belong to var *acuminata*.

Trunk — Fluted and irregular, rarely round.

Outer Bark — Creamy-grey, fissured longitudinally. Underbark creamy-grey. Outer surface of live bark creamy brown.

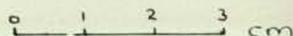


Plate No. 5
Ehretia acuminata R. Br.

Inner Bark — Blaze on a tree 35 cm diameter cream with concentric creamy-brown lines, changing in one minute to yellow-brown and then to dirty brown. No taste, but a cane-like smell. 8 mm thick.

Branchlets — Slender, green, dotted with grey lenticels. Old branchlets brown.

Leaves — Alternate, simple, finely and regularly *toothed*, elliptic, 8 — 13 cm long, tapering to a pointed tip, smooth and green on both surfaces, paler beneath.

Leaf stalks 15 — 25 mm long, smooth, channelled on the upper side.

Venation — Midrib and lateral veins distinct on both surfaces, prominently raised beneath. Major lateral veins six to nine, curved, at 60 — 80° to the midrib.

Flowers — White, strongly scented, in panicles at the ends of the branchlets and in the forks of the upper leaves. Panicles shorter or longer than the leaves. Individual flowers stalkless, about 4 mm diameter. Calyx cup-shaped, about 2 mm long, with five rounded *fringed* lobes at its rim. Petals five, united at the base in a short tube about 1 mm long, the lobes about 2 mm long. Stamens five, bristle-like, almost as long as the petals. Ovary smooth, round, surmounted by a bristle-like style about 2 mm long which is forked at the end. Flowering period September and October.

Fruit — Drupe yellow, globular, 4 — 5 mm diameter, splitting vertically into two parts, each with two cells and containing a single seed in each. Fruit ripe February and March.

Habitat — Scattered throughout subtropical, dry and riverine rainforests, particularly near the margins or in disturbed areas.

Distribution — From Bega, N.S.W. to Cape York, North Queensland and to New Guinea, China and Japan. Recorded in N.S.W. from Mimosa Rocks N.P., Wapengo Ck, Brogo Pass, Mt. Dromedary F.R., Wandella S.F., Budawang N.P., Wallaby F.P., Currowan Ck., Yadboro S.F., Milton, Cambewarra Mtn., Kangaroo Valley, Barrengarry Mtn., Berry, Saddleback Range, Belmore Falls, Jamberoo, Whispering Gallery, Minnamurra Falls, Mt. Kembla, Mt. Keira, Bowral, Cobbitty, Razorback Range, Wollongong, Grose Valley, Kowmung River, Bell Trees, Gap Ck. F.P., Newcastle, Kelaher Brush, Cedar Brush N.R., Stewarts Brook, Allyn and Williams Rivers, Coneac, Woko, Wingham Brush, Weelah N.R., Boorganna N.R., Comboyne Plateau, Ellenborough, Doyles River S.F., Mt. Seaview N.R., Port Macquarie, Pappinbarra, Mt. Boss S.F., Wilson River F.P., Bellangry S.F., Toorumbee Ck., Kunderang Brook, Carrai S.F. Willi Willi, Mt. Sebastopol, Wollomombi Falls, Smoky Cape, Ingalba S.F., Way Way S.F., Urunga, Oakes S.F., New England N.P., Bellinger River S.F., Dorrigo N.P., Bruxner Park F.R., Mt. Coramba, Wedding Bells S.F., Woolgoolga Ck. F.R., Bagawa S.F., Kangaroo River S.F., Wild Cattle Ck. S.F., Moonpar S.F., Clouds Ck. S.F., Hortons Ck., Hyland S.F., Marengo S.F., Guy Fawkes N.P., Chaelundi S.F., Blandford Ck F.P., Glenugie F.R., Munningyundo, Gibraltar Range N.P., and S.F., Washpool S.F., Carnham, Forestland S.F., Ewingar S.F., Girard S.F., Mt Pikapene S.F., Copmanhurst, Casino, Cherry Tree S.F., Sandiland Range, Richmond Range S.F., Murray Scrub, Toonumbar S.F., Unumgar S.F., Yabba S.F., Beaury S.F., Legume Rd F.P., Acacia Plateau, Mt. Lindesay, Moore Park, Roseberry S.F., Levers Plateau, Wiangaree S.F., Goonimbar S.F., Terania Ck., Whian Whian S.F., Big Scrub F.R., Minyon Falls F.R., Boomerang Falls, Rotary Park, Boatharbour, Johnstons Scrub, Booyong, Nashua, Victoria Park N.R., Tintenbar, Broken Head N.R., Hayters Hill, Mooball S.F., Burringbar, Mebbin S.F., Mt. Warning N.P., Pumpenbil Ck., Limpinwood N.R., Couchy Ck., Murwillumbah and Mt. Coughal.

Timber and Uses — Light brown, firm, coarse-grained, easy to work and resembling english elm. Used for furniture, cabinet work and lining.

FAMILY VERBENACEAE

CHARACTERISTICS OF THE FAMILY IN N.S.W.

There are 75 genera and 3000 species, mainly in the tropics and subtropics of the world. In N.S.W. there are seven genera and nine species of which three genera and four species are rainforest trees, whilst a further two genera and three species are rainforest shrubs.

Either small trees up to 20 m tall and 30 cm diameter (*Clerodendrum floribundum* and *C. tomentosum*) or large trees of 30 – 40 m height and up to 150 cm diameter (*Gmelina leichhardtii* and *Premna lignum-vitae*). All have flanged irregular butts but only in *Premna* is there a tendency towards buttressing.

Outer Bark — Brown to grey-brown (*Clerodendrum*), grey (*Gmelina*) or creamy brown (*Premna*), scaly on older trees. Underbark brown (*C. floribundum*), pale fawn (*C. tomentosum*), cream (*Gmelina*) or pinkish-fawn (*Premna*).

Inner Bark — Without pink or red colouration, being either brown (*C. tomentosum*, *Gmelina*), yellow brown (*C. floribundum*) or pale yellow with orange outer margin and flecks (*Premna*). The cut surface darkens slightly in *C. tomentosum* whilst in *Premna* it becomes a uniform pale yellow except for the sapwood margin which turns green. There is no characteristic taste and only a faint garlic smell in *Premna*.

Branchlets — Slender in *Clerodendrum* otherwise thick, four-angled on new shoots, grey with pale spots or lenticels (*Clerodendrum*) or hairy. Differs from family Rubiaceae in the absence of stipules.

Leaves — Simple, opposite, not toothed but may be lobed in the juvenile state. Elliptic to egg-shaped (except *Premna* which is elliptic to lanceolate), 8 – 18 cm long (except *Premna* 5 – 13 cm). Pointed at the tip (*Clerodendrum*) or bluntly pointed (*Gmelina* and *Premna*), rounded at the base. Dark green above and paler green beneath, drying black in *Premna*. Lower surface smooth (*C. floribundum* and *Premna*) or hairy. Leaf stalks 2 – 5 cm long, except *Premna* where it is only 1.5 – 2.5 cm and is slightly swollen below the blade.

Venation — All veins are visible on both sides, except *Premna* where the net veins are not visible above. In *Gmelina* they are very conspicuous on the lower surface because of the dense hairs. The number of major lateral veins is five to six (*C. tomentosum*), six to eight (*C. floribundum*), eight to ten (*Gmelina*) and ten to twelve (*Premna*). The lateral veins are at 45° (*C. tomentosum*, *Gmelina*), 60° (*C. floribundum*) and 70 – 80° (*Premna*) to the midrib. In *Clerodendrum* they are curved, but in *Gmelina* and *Premna* they are straight and then fork. *Premna* has hairy cavities at the junctions of the lateral veins and midrib.

Flowers — White (*Clerodendrum*), white with a purple and yellow lower petal (*Gmelina*) or light purple turning dusky pink (*Premna*). In large apparently terminal heads or a few only in the forks of the leaves (*Premna*). Calyx bell-shaped or cup-shaped (*Premna*) with five lobes. Petals five (four in *Premna*), forming a long symmetrical tube 2 – 3 cm long (*Clerodendrum*), a two-lipped wide tube 5 mm long (*Gmelina*) or 8 mm long (*Premna*). Stamens four, protruding up to 2 cm beyond the tube in *Clerodendrum*, slightly protruding in *Premna* or enclosed in *Gmelina*.

Fruit — A drupe or drupe-like capsule with four cells and only one seed in each. Black (*Clerodendrum*), blue (*Gmelina*) or red (*Premna*). Globular (four-lobed in *Clerodendrum*), 5 – 12 mm diameter (20 mm in *Gmelina*). Seated in an enlarged red basin-shaped calyx (*Clerodendrum*) or with the calyx attached to the base (*Gmelina*, *Premna*).

Habitat — In all types of rainforest (*Clerodendrum*, *Gmelina*), preferring subtropical rainforest (*Gmelina*) or subtropical and dry rainforest (*Premna*).

Distribution — Of the four rainforest tree genera in Australia, *Vitex* only occurs as a shrub in N.S.W.

Clerodendrum consists of 400 species in the tropics, mainly in Asia. In Australia there are eight species of which six are confined to this country. The genus extends from North Western Australia to North East Queensland and south into N.S.W. *C. floribundum* is found from New Guinea to the Illawarra, whereas *C. tomentosum* is from Cape York to Batemans Bay. *Clerodendrum* appears to have reached Australia from South East Asia via New Guinea only 15 million years. *Gmelina* contains 35 species of which two are in tropical Africa and the Malagasy Republic, whilst the remainder extend from East Asia south to Australia. Of the three Australian species, only *G. macrophylla* extends north into New Guinea. *G. leichhardtii* ranges from Cooktown in North Queensland to the Illawarra, N.S.W. *Premna* is represented by 200 species in tropical and subtropical Africa and Asia. In Australia, the range is similar to that of *Clerodendrum* being across tropical Australia and down the east coast to N.S.W. Nine of the ten species are restricted to Australia, *P. lignum-vitae* extending from the Richmond River, N.S.W. to New Guinea.

The Australian rainforest genera are thought to have spread from Africa via India to Asia about 55 – 85 million years ago with the breakup of Gondwanaland; and to have more recently moved south into Australia.

Timber and Uses — *Clerodendrum* has a yellow to yellow-brown soft, close-grained light timber; but being of small size is rarely used. *Gmelina* is well known for its light grey, soft, fine-grained durable timber which is excellent for ship building, cabinet work and carving. *Premna*, as its specific name suggests is hard, tough, and durable. The dark grey wood has been used for flooring and tool handles. The world renowned Burmese or Indian teak, *Tectona grandis* belongs to this family.

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

A. USING LEAVES AND BRANCHLETS ONLY

1. Small hairy tufts (foveolae) present at the base of most lateral veins on the underside *Premna lignum-vitae* (A. Cunn. ex Schau.) Pieper
1. Small hairy tufts absent 2
 2. Lower surface of mature leaves smooth *Clerodendrum floribundum* R. Br.
 2. Lower surface of mature leaves downy or hairy 3
 3. Leaves downy below, main lateral veins five to six
. *Clerodendrum tomentosum* R. Br.
 3. Leaves densely hairy below, main lateral veins eight to ten
. *Gmelina leichhardtii* F. Muell.

B. USING BARK ONLY

1. Live bark pale yellow with orange vertical flecks
. *Premna lignum-vitae* (A. Cunn. ex Schau.) Pieper
1. Live bark yellow-brown to brown 2
 2. Underbark cream *Gmelina leichhardtii* F. Muell.
 2. Underbark pale fawn to brown 3
 3. Bark surface smooth to finely scaly *Clerodendrum floribundum* R. Br.
 3. Bark surface corky and scaly *Clerodendrum tomentosum* R. Br.



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Plate No. 6
Clerodendrum floribundum R. Br.

CLERODENDRUM FLORIBUNDUM R. Br.

Reference – Prodr. 510, 1810.

Derivation – Clerodendrum from Greek “cleros” a lottery and Latin “dendrum” a tree, because of the uncertainty of its medicinal properties; floribundum from Latin “floribundus” profusely flowering, because of its large heads of showy flowers.

Common Name – Smooth Clerodendrum

Standard Trade Name – None

A small tree up to about 20 m high and 30 cm diameter. An attractive species with heads of white flowers and ornamental fruits.

Trunk – Often slightly flanged or irregular.

Outer Bark – Brown, smooth or finely and softly scaly, showing whitish patches where the scales have shed. Underbark mid-brown. Outer surface of live bark brown with cream vertical stripes.

Inner Bark – Blaze on a tree 30 cm diameter yellow-brown with paler very fine horizontal lines. Slightly paler next to the sapwood. No rapid change in colour. Faint distinctive taste, but no distinct smell. 3 mm thick.

Branchlets – Slender, grey, becoming green towards the ends, smooth, dotted with small pale lenticels.

Leaves – Opposite, simple, not toothed, elliptic or ovate, 8 – 15 cm long. Drawn out into a blunt, fairly fine point or prickle at the tip, tapering or rounded at the base. *Smooth or only the young leaves downy*. Dark green above, lighter below. Somewhat thin in texture. Leaf stalks 2 – 5 cm long.

Venation – Midrib, lateral and net veins distinct on both surfaces, but raised and more conspicuous beneath. Main lateral veins six to eight at 60° to the midrib.

Flowers – White, in *cymes in the upper axils*, or sometimes forming a broad terminal panicle. Sepals bell-shaped with five pointed lobes. Petals joined into a tube with five short lobes, sometimes sprinkled with a minute down, 2.5 – 3 cm long with arching stamens protruding by about 2 cm. Flowering period September to November.

Fruit – A drupe, black and shining, globular, with four lobes, 8 – 10 mm diameter, seated in the basin-shaped, enlarged red calyx which is over 12 mm diameter. Fruit ripe December to February.

Habitat – Rainforest of various types.

Distribution – Widely distributed from the Illawarra, New South Wales to Cape York Peninsula, North Queensland, inland to Northern Australia and Papua. Recorded in N.S.W. from Whispering Gallery, Brundee, Prowls Gap, Woko N.P., Coocumbac Island N.R., Mt Boss S.F., Kunderang Brook, Wollomombi Gorge, Chandler Gorge, Shark Island, Way Way S.F., Scotchman S.F., Roses Ck S.F., Bellinger River S.F., Dorriggo, Valery, Urunga, Coffs Harbour, Central Bucca, Moonee Beach N.R., Wedding Bells S.F., Waihou F.R., Kangaroo River S.F., Wild Cattle Creek S.F., Guy Fawkes River N.P., Toonambar S.F., Roseberry S.F., Levers Plateau, Wiangaree S.F., Goonimbar S.F., Terania Ck., Whian Whian S.F., Boatharbour, Booyong, Johnston's Scrub, Nashua, Mt Warning N.P., Upper Pumpenbil Ck., Limpinwood N.R., and Couchy Ck.

Timber and Uses – Wood yellowish-brown, close grained, medium soft. Easy to work but has no particular use.



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Plate No. 7
Clerodendrum tomentosum R. Br.

CLERODENDRUM TOMENTOSUM R. Br.

Reference – Prod. 510, 1810

Derivation – Tomentosum from Latin “tomentosus” with interwoven hairs, in reference to the hairy leaves.

Common Name – Hairy Clerodendrum, Downy Chance Tree.

Standard Trade Name – None.

A small tree up to 15 m high and 25 cm diameter.

Trunk – Cylindrical or slightly flanged.

Outer Bark – Brown or greyish-brown, *corky and scaly* on large and older trees. Underbark pale fawn. Outer surface of live bark pale green with an orange tinge.

Inner Bark – Blaze on a tree 25 cm diameter pale or biscuit brown, showing lateral growth rings which are made more distinct by a pale line on the inner edge of each ring. Inner margin pale. There is a slight darkening of the blaze after a few minutes exposure. No distinct taste or smell. 5 mm thick.

Branchlets – Slender, grey, brown or sometimes purplish towards the ends when young, and in the typical form softly and densely hairy. *Square or angular*, dotted with small raised lenticels and sometimes longitudinally wrinkled. Leaf scars prominent.

Leaves – Opposite, simple, entire, elliptical or oval, 8 – 13 cm long. Drawn out into a short point at the tip and tapering at the base also. *Softly and densely hairy on the underside*, upper surface sometimes also hairy. Dark green above, paler beneath. *Leaf stalks 2 – 5 cm long*.

Venation – Midrib, lateral and net veins visible on both surfaces, raised and more distinct on the underside. Main lateral veins five to six, at 45° to the midrib, arching.

Flowers – White, in *dense heads*. Calyx bell-shaped, softly downy, divided to about the middle into five lobes. Petals united into a tube 20 – 25 mm long with five lobes 6 – 8 mm long. Stamens four, protruding from 10 – 25 mm beyond the tube. Flowering period October to December.

Fruit – Drupe, black and shining, oblong, 5 – 8 mm diameter, four celled, nesting in the fleshy (often red coloured) enlarged five lobed calyx which may attain a diameter of 20 mm. Fruit ripe January to May.

Habitat – In sub-tropical, dry, littoral and warm temperate rainforests.

Distribution – From Batemans Bay, N.S.W. to Cape York, N. Queensland; and extending westward through the Northern Territory to Western Australia. Recorded in N.S.W. from Oaky Beach Murramarang N.P., Wallaby F.P., Yadboro S.F., Milton, Little Forest, Yalwal Rd, Comerong Island, Bombarderry, Cambewarra Mtn., Tenara, Saddleback Range, Barren Grounds N.R., Jamberoo, Whispering Gallery, Minnamurra Falls, Albion Park, Macquarie Falls, Mt Kembla, Mt Kiera, Razorback Range, Mt Wareng, Kanangra, Eastwood, Howes Valley, Blacksmiths Ck., Gap Ck. F.P., Maitland Bay, Scone, Aberdeen, Warrah Ck., Kelaher Brush, Lairds Gap, Cedar Brush N.R., Allyn and Williams R's, John Gould Is N.R., Myall Lakes N.P. Seal Rocks, Yahou Is., Woko N.P., Black Head, Harrington, Coocumbac N.R., Wingham Brush, Bulga, Weelah N.R., Point Plomer, Doyles River S.F., Mt Seaview N.R., Wilson River F.P., Toorumbec Ck, Carrai S.F., Willi Willi, Smoky Cape, Way Way S.F., Warrell Ck., Macksville, Bowraville, Oakes S.F., New England N.P., Hillgrove, Bellinger R. S.F., Dorrigo N.P., Pine Ck. S.F., Bundagen F.R., Tuckers Nob, Boambee S.F., Bruxner Park F.R., Bagawa S.F., Wild Cattle Ck. S.F., Chaelundi S.F., Blandford Ck. F.P., Gibraltar Range N.P., Washpool S.F., Boonoo Boonoo N.P., Girard S.F., Rivertree, Iluka N.R., Mt Pikapene S.F., Toonumbar S.F., Unumgar S.F., Yabbra S.F., Tooloom S.F., Acacia

Plateau, Moore Park, Roseberry S.F., Wiangaree S.F., Kyogle, Big Scrub F.R., Boatharbour, Booyong, Ballina, Burringbar, Mebbin S.F., Mt Warning N.P., and Murwillumbah.

Timber and Uses — Wood yellow, moderately soft, close-grained, light, easily worked but brittle. Does not have any particular use and is usually too small to use.

GMELINA LEICHHARDTII F. Muell.

Reference — Benth Fl., V, 66, 1870.

Derivation — Gmelina in honour of Johann Georg Gmelin (1709–55), a German botanist and traveller; leichhardtii after the German explorer Ludwig Leichhardt (1813–48), who collected many plants in eastern and northern Australia.

Common Name — White Beech, Grey Teak

Standard Trade Name — White Beech

A large tree up to 40 m high and 150 cm diameter.

Trunk — Cylindrical or flanged. Large trees usually flanged at the base and sometimes extending the full length of the bole.

Outer Bark — Light or dark grey. In smaller trees the surface is usually wrinkled and often with white powdery pustular-like markings; but large trees are more scaly. Underbark cream. Outer surface of live bark pale green.

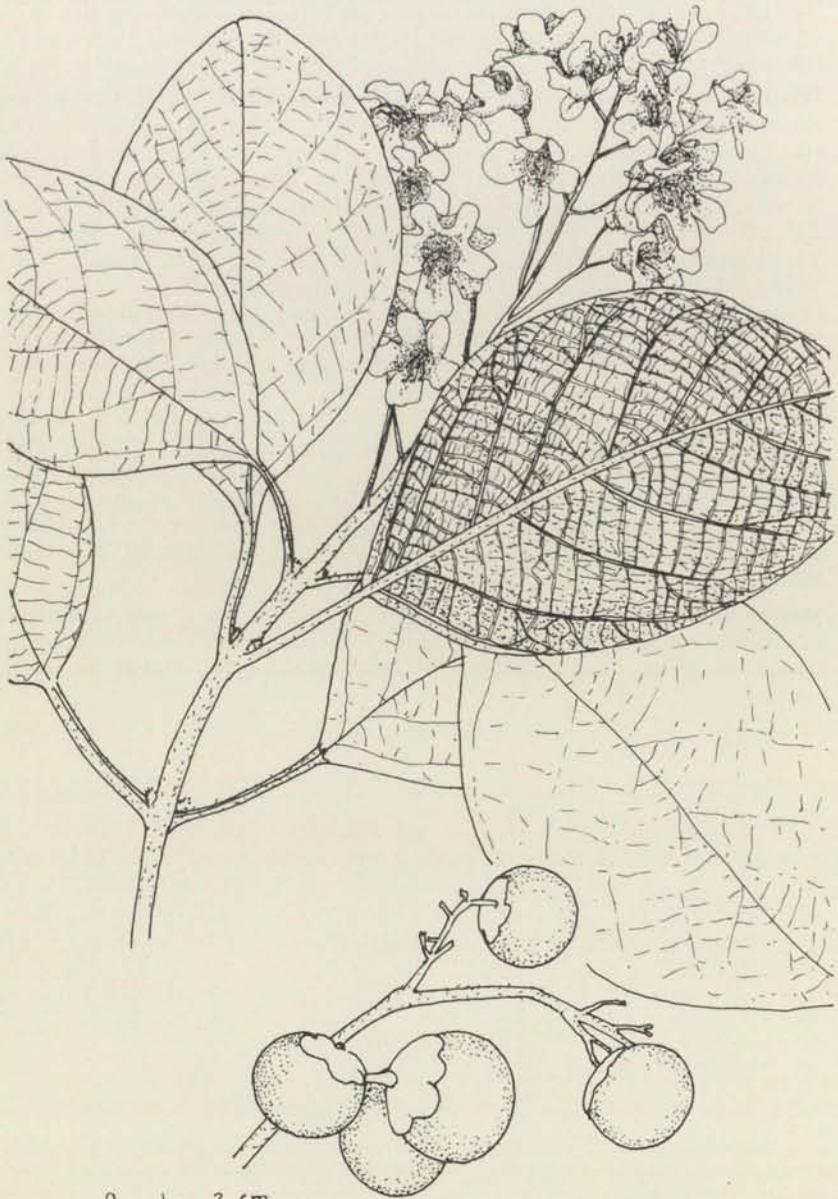
Inner Bark — Blaze on a tree 150 cm diameter brown with a few darker brown flecks and numerous small white powdery particles. Somewhat leathery. Does not change colour very rapidly on exposure. Slightly bitter. No smell. 20 mm thick.

Branchlets — Thick, grey or brown, hairy, leaf scars prominent. Young shoots densely velvety hairy.

Leaves — Opposite, simple, not toothed except when juvenile, egg-shaped, 8 – 18 cm long, bluntly pointed at the tip and rounded to heart-shaped at the base. Upper surface smooth except the midrib and lateral veins which are often hairy, dark green. Underside densely hairy and paler. Leaf stalk 15 – 37 mm long, somewhat thick, densely hairy.

Venation — Midrib, lateral and net veins distinct on the upper surface, conspicuously raised and distinct beneath due to the covering of fawn hairs. Lateral veins eight to ten, straight and forking near the margin, at 45° to the midrib.

Flowers — White, with purple and yellow markings. In large panicles at the ends of the branchlets. Flowers about 2 cm long. Calyx green, bell-shaped, up to 4 mm long with four or five obscure lobes. Petals five with dark hairs on the outer surface, partly joined into a wide tube. Lobes of basal petal purple with two yellow flight-path bars, remaining four petals white. Stamens four, located as a short and a long pair overarchng the flight paths. Flowering period November to January.



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Plate No. 8
Gmelina leichhardtii F. Muell.

Fruit — Succulent drupe, blue, slightly broader than deep, about 20 mm diameter. The persistent and enlarged calyx is flattened and attached horizontally to the base, 12 — 16 mm diameter. The single hard stone within the outer fleshy covering is about 15 mm diameter and contains four cells each with an oval seed about 10 mm long. Fruit ripe March — April.

Habitat — On the poorer soils in association with Coachwood and also in the riverine and littoral rainforests. The largest trees are generally found on the red volcanic soils.

Distribution — From the Illawarra, N.S.W. to Cooktown, North Queensland. Recorded in N.S.W. from Minnamurra Falls, Royal N.P., Woy Woy, Gosford, Gap Ck F.P., Allyn and Williams and Wangat Rivers, Seal Rocks, Cape Hawke, Weelah N.R., Boorganna N.R., Wherrol Flat, Black Ck F.R., Sea Acres, Racecourse Head, Doyles River S.F., Pappinbarra, Mt Seaview N.R., Mt Boss S.F., Wilson River F.P., Bellangry S.F., Toorumbec Ck, Shark Is., Yarrahappini Mtn., Way Way S.F., Warrell Ck., Nambucca Heads, Valla, Newry S.F., Oakes S.F., New England N.P., Bellinger River S.F., Dorriggo N.P., Dome Mtn., Pine Ck. S.F., Bundagen F.R., Orara West S.F., Bruxner Park F.R., Mt Coramba, Orara East S.F., Woolgoolga Ck F.R., Madmans Ck F.P., Kangaroo River S.F., Wild Cattle Ck S.F., Moonpar S.F., Gibraltar Range N.P., Washpool S.F., Ewingar S.F., Girard S.F., Iluka N.R., Richmond Range S.F., Cambridge Plateau, Murray Scrub, Toonumbar S.F., Yabbra S.F., Beaury S.F., Legume Rd F.R., Acacia Plateau, Mt Clunie F.P., Mt Nothofagus F.R., Mt Lindesay, Moore Park, Roseberry S.F., Levers Plateau, Wiangaree S.F., Goonimbar S.F., Terania Ck., Whian Whian S.F., Big Scrub F.R., Rotary Park, Boatharbour, Johnstons Scrub, Booyong, Broken Head N.R., Byron Bay, Mooball S.F., Mebbin S.F., Mt Warning N.P., Limpinwood N.R., and Murwillumbah.

Timber and Uses — Light grey, straight grained, soft and easy to work. A valuable all-round useful and durable timber used in house and ship building, cabinet work and wood carving, but splits when nailed. 550 kg per cubic metre.

PREMNA LIGNUM-VITAE (A. Cunn. ex Schau.) Pieper

Synonym — *Vitex lignum-vitae* A. Cunn ex Schau.

Reference — Engl. Jahrb. LXII Biebl 141, 80, 1928.

Derivation — *Premna* from Greek "premnon", a stump of a tree, referring to the dwarf habit of some species; *lignum-vitae* from the early settler's name for the timber of this tree which resembles the true *lignum-vitae* of south America.

Common Name — *Lignum-vitae*, Satinwood, Yellow Hollywood.

Standard Trade Name — Yellow Hollywood.

A medium sized tree up to 30 m tall and 75 – 90 cm diameter. The crown is dark green and spreading.

Trunk — Grey, fissured, usually fluted or irregular in shape and slightly buttressed.

Outer Bark — Creamy-brown, finely fissured vertically, shedding in small corky flakes. Underbark pinkish-fawn. Outer surface of live bark creamy-brown.

Inner Bark — Blaze on a tree 25 cm diameter pale yellow with orange vertical flecks and an orange outer margin, fibrous, consisting of fine thin layers. Changes to a uniform pale yellow on exposure except for the sapwood boundary which turns a green hue. No taste. Faint scent of garlic. 5 – 8 mm thick. Sapwood very hard, pinkish-brown.

Branchlets — Moderately thick, grey, hairy, leaf scars prominent. Young branchlets often distinctly four-angled. Leaf buds with fawn felty hairs.

Leaves — Opposite, simple, entire margins (coppice leaves often angled or lobed), elliptic to lanceolate, often broadest towards the tip, 5 – 13 cm long, terminating in a short blunt point at the tip and tapering abruptly at the base. Smooth and green on both surfaces, darker green and more glossy above. Leaves turn black on drying. Leaf stalks 15 mm – 25 mm long, hairy, channelled on the upper surface, *slightly swollen* just below the junction with the blade.

Venation — Midrib and lateral veins prominent on both surfaces, the net veins visible on the lower surface only. Lateral veins ten to twelve at 70° – 80° to the midrib, straight at first then looping to join the next vein near the margin. Veins sunken above but raised below. Small *raised hairy cavities* (foveolae) in the junction of major lateral veins and the midrib.

Flowers — Light purple ageing to dusky pink, in small forked cymes of few flowers in the forks of the leaves and shorter than them. Individual flowers about 12 mm long on stalks about 5 mm long. Calyx cup-shaped, hairy, about 2 mm long, with an entire rim, but persisting and splitting in half on the mature fruit. Petals light purple, hairy, forming a curved tube about 8 mm long with four rounded lobes. The three lower lobes are spreading or horizontal while the upper lobe is erect. Stamens four, in pairs, attached within the tube and protruding beyond the lobes. Ovary round and hairless, surmounted by a slender style about 8 mm long. Flowering period irregular with a peak in April.

Fruit — Berry, red, globular, 8 – 12 mm diameter, enclosing a round stone about 8 mm diameter with four cells, each containing a mature or aborted seed. Fruit ripe November to April.

Habitat — Dry or subtropical rainforest on stony steep slopes.

Distribution — Richmond River, N.S.W. to Cape York, North Queensland and New Guinea. Recorded in N.S.W. from Toonumbar S.F., Unumgar S.F., Roseberry S.F., Levers Plateau and Limpinwood N.R.

Timber and Uses — Dark grey, hard, close-grained, tough and durable. Could be used for flooring, tool handles and other small turnery furniture. The tree however, is not common.



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Plate No. 9
Premna lignum-vitae (A. Cunn ex Schau.) Pieper

FAMILY SOLANACEAE

CHARACTERISTICS OF THE FAMILY IN N.S.W.

There are 90 genera and over 2600 species occurring in both tropical and temperate areas of the world but particularly in Central and South America. In Australia there are 23 genera and 200 species of which 6 genera and 132 species are endemic. In N.S.W. there is only a single rainforest tree species, namely *Duboisia myoporoides*.

The most diagnostic features of this species are :—

Bark — Soft, pale grey and corky.

Leaves — Alternate, simple, not toothed, soft, dull, pale green. Leaf stalks and midrib usually dark purple. Other veins obscure.

Flowers — White campanulate, 5 mm long, in much branched terminal panicles. Calyx and petals five-lobed, but only four subequal stamens.

Fruit — A two-celled black berry about 5 mm diameter containing many seeds.

Habitat — A common regrowth species in disturbed rainforest.

Distribution — *Duboisia* consists of three species, all in Australia but absent from Victoria and Tasmania. Only *D. myoporoides* extends beyond Australia, being in New Caledonia. The genus is thought to have reached Australia via Antarctica from South America about 27 — 65 million years ago. The seed is readily dispersed by birds. *D. myoporoides* extends from the Clyde River, N.S.W. to North Queensland and New Caledonia. The other two species are in the drier inland areas of the continent.

Timber and Uses — Whereas the trees are too small to yield utilisable timber, the alkaloid hyoscyne has been extracted from the leaves for use in motion sickness tablets and in eye surgery to dilate the pupil. The aborigines obtained a narcotic from *D. hopwoodii* in arid regions.

DUBOISIA MYOPOROIDES R. Br.

Reference — Prodr. 448, 1810.

Derivation — *Duboisia* after Louis Dubois, author of a book on the botany of Orleans, France published in 1803; *myoporoides* from "Myoporum" a shrub or small tree and Greek "eidos" resembling, because its leaves are similar to those of a *Myoporum*.

Common Name — Soft Corkwood, Poison Corkwood, *Duboisia*.

Standard Trade Name — *Duboisia*

A small tree up to 6 m tall and 10 — 12 cm diameter, but reaching 35 cm diameter and 18 m height in the higher altitude rainforests.

Trunk — Crooked, slightly buttressed near the ground.



0 1 2 cm

0 1 cm



Plate No. 10
Duboisia myoporoides R. Br.

Outer Bark — Creamy-brown, corky. Underbark fawn. Outer surface of live bark fawn.

Inner Bark — Blaze on a tree 25 cm diameter mottled green, pale next to the sapwood. Quickly turns dirty brown on exposure. Slightly sweet taste and a sappy smell. 15 mm thick.

Branchlets — Thick, purplish-green, not hairy, with slight ribs. Lenticels not obvious.

Leaves — Alternate, simple, not toothed, narrow egg-shaped, broadest closer to the tip, 8 — 10 cm long, bluntly pointed at the tip, gradually tapering at the base. Dull on both sides, pale to grey green, slightly paler beneath. The flea beetle attacks the leaves; and it is generally difficult to find an undamaged leaf. Leaf stalks 5 — 12 mm long and usually dark purple.

Venation — Indistinct except for the midrib which is often dark purple.

Flowers — White, in terminal panicles, usually much branched at the ends of the branchlets. Individual flowers usually 5 mm long. Calyx broadly campanulate with five broad, blunt teeth, 1 mm long. Petals white or pale lilac, forming a tube 3 — 4 mm long with purple lines in the throat the five lobes rather short, blunt, 2 — 3 mm long. Stamens usually four, attached to the base of the tube and enclosed within it. Flowering period May — November. Often there are flowers, green and ripe fruit on the same tree.

Fruit — A berry, black, small, nearly globular, juicy, 5 — 8 mm diameter, two-celled. Seeds two to four, black sausage-shaped with a sculptured surface, 1 — 3 mm long. Fruit ripe November to January.

Habitat — Common in regrowth areas following disturbance by either natural or man-made forces. Occurs in most rainforest types but reaches its best development in subtropical and warm temperate rainforests at 600 — 900 m altitude.

Distribution — From the Clyde River, N.S.W. to Cooktown, North Queensland. Also in New Caledonia. Recorded in N.S.W. from Clyde River, Comerong Is., Nowra, Berry, Kiama, Minnamurra Falls, Albion Park, Macquarie Pass, Nepean Dam, Bulli, Royal N.P., Liverpool, Narrabeen Lake, Wisemans Ferry, Ourimbah, Grose River, Colo River, Paterson Allyn Williams and Karuah Rivers, Gloucester, John Gould Is. N.R., Seal Rocks, Cape Hawke, Black Head, Manning Head, Harrington, Boorganna N.R., Pappinbarra, Doyles River S.F., Mt Boss S.F., Cockerawombeeba F.P., Bellangry S.F., Shark Is., Trial Bay, Urunga, Bellinger River S.F., Dorrigo N.P., Killungoondie F.P., Dome Mtn., Tuckers Nob, Pine Ck. S.F., Bundagen F.R., Orara West S.F., Waihou F.P., Kangaroo River S.F., Wild Cattle Ck. S.F., Moonpar S.F., Clouds Ck. S.F., Susan Is., Munningyundo, Gibraltar Range N.P., Washpool S.F., Forestland S.F., Iluka N.R., Bundjalung N.P., Mt Pikapene S.F., Toonumbar S.F., Unumgar S.F., Edinburgh Castle S.F., Yabbra S.F., Beaury S.F., Acacia Plateau, Mt Lindesay, Moore Park, Roseberry S.F., Levers Plateau, Wiangaree S.F., Gradys Ck. F.R., Goonimbar S.F., Terania Ck., Whian Whian S.F., Big Scrub F.R., Johnstons Scrub, Victoria Park N.R., Hayters Hill, Brunswick Heads N.R., Cudgen Lake, Mooball S.F., Mebbin S.F., Mt Warning N.P., Limpinwood N.R., Couchy Ck and Hogans Scrub.

Timber and Uses — White to light yellow, soft; useful for cabinet work and carving; but rarely of sufficient size. The leaves contain the alkaloids hyoscyne and hyoscamine and have been used extensively as a source of these compounds for use in motion sickness tablets and for dilating the pupils in eye surgery. The leaves are regarded as poisonous to stock and animals. Humans have also been affected. Transference of sap from the leaves to the eyes by rubbing can affect vision temporarily and make driving hazardous. Aborigines of the Blue Mountains used to throw branches into pools to stupefy the eels which they then caught. They also produced an intoxicating drink from water poured into a hole made in the trunk and left overnight.

FAMILY MYOPORACEAE

CHARACTERISTICS OF THE FAMILY IN N.S.W.

Of the five genera in this family, three are found in Australia, one is confined to South Africa and one to the West Indies. The 90 species are mainly in Australia and the South Pacific Islands, but with a few also in South Africa, Mauritius, East Asia, Hawaii and the West Indies. In N.S.W. there are two genera and 28 species of which only *Myoporum acuminatum* is a rainforest tree.

The most diagnostic features of this species are:—

Leaves — Alternate, simple, entire or sometimes finely toothed, thick, without stipules.

Flowers — White in small axillary clusters, shortly tubular with spreading lobes and white hairs in the throat. Five sepals and petals but only four stamens.

Fruit — Blue or purplish globular drupe with a dull and roughened surface when dried.

Distribution — *Myoporum* consists of 30 species in Mauritius, China, Japan, New Guinea, Australia, New Zealand and the Pacific Islands. There are 20 species in Australia of which 19 are restricted to this country. However it is not in Tasmania. It is well dispersed throughout the Pacific and appears to have been present for up to 65 million years.

Timber and Uses — The yellow soft, non-durable, brittle timber is of little use. *Myoporum laetum* is a small tree from New Zealand which is useful for seafront conditions.

MYOPORUM ACUMINATUM R. Br.

Synonym – *M. tenuifolium* Forst. f. var *acuminatum* (R.Br.) Maid & Betche

Reference – Prod. 515.

Derivation – Myoporum from Greek “myo” to shut and “poros” a pore, referring to its ability to close its stomata on the leaves and thus exist in dry areas; acuminatum from Latin “acuminatus” tapering to a narrow point in reference to the leaves.

Common Name – Pointed Boobialla, Waterbush, Mangrove Boobialla.

Standard Trade Name – None

A glabrous shrub or tree, sometimes up to 9 m tall and 50 cm diameter. Often leaning or crooked.

Trunk – Slightly flanged or irregular at the base in large trees.

Outer Bark – Grey to fawn, corky and wrinkled in large trees. Underbark dark brown but cream towards the surface. Outer surface of live bark cream.

Inner Bark – Blaze on a tree 30 cm diameter deep yellow with reddish vertical streaks and mottled red at the outer margin. Cream with silver streaks on smaller trees. The whole surface changing rapidly to a rich reddish-brown. Cucumber smell and slightly sweet taste. 5 mm thick.

Branchlets – Moderately thick, greenish towards the ends, smooth.

Leaves – Alternate, simple, entire or finely toothed, elliptic-oblong to lanceolate, 6 – 18 cm long and 12 – 30 mm wide (5 – 7 mm wide in *M. montanum*). Usually tapering gradually into a long point at the tip or occasionally rounded and also tapering into the leaf stalk. Bright green, smooth, slightly paler beneath. Leaf stalk 6 – 20 mm long.

Venation – Midrib prominent, sunken above, raised below. Lateral veins inconspicuous, four to eight at 30° to the midrib.

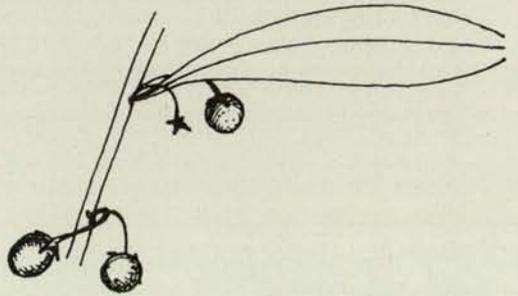
Flowers – White with four rows of purple spots, sweet-scented, in axillary clusters of two to four on stalks 4 – 12 mm long. Sepals five, lanceolate-pointed, 1 – 2 mm long, green. Petals five, joined into a tube about 4 mm long with white hairs at the top and surmounted by the triangular lobes, 2 mm long. Stamens four, attached to the tube, the anthers level with its top. Flowering period July to August in the north, but September – October in the south.

Fruit – Drupe, blue or purplish, globular, 4 – 6 mm diameter with a persistent hooked style, 3 – 4 mm long. The surface is *dull* and *roughened* to almost platey, as distinct from *M. montanum* which is shiny with folds of skin on drying. Seeds two to four. Fruit ripe October to February.

Habitat – Mostly in or near littoral rainforest; and often bordering estuaries and tidal streams at a slightly higher level than the mangroves. Sometimes also found in dry rainforest.

Distribution – Bega, N.S.W. to Atherton Tableland, North Queensland. Also on the Torres Strait Islands and in New Caledonia. Recorded in N.S.W. from Mimosas Rocks N.P., Bermagui, Mt Dromedary F.R., Narooma, Bodalla, Bendethra, Batemans Bay, Durras Mtn., Jervis Bay, Shoalhaven River, Jaspers Brush, Kiama, Saddleback Mtn., Jamberoo, Albion Park, Shell Harbour, Mt Kembla, Bulli, Towra Point, Port Hacking, Botany, Hawkesbury River, Moonee Moonee Ck, Gosford, Ash Island, Singleton, Barrington River, Gloucester, Black Head, Yahoo Island, Port Macquarie, Point Plomer, Big Hill, Racecourse, Shark Island, Repton, Harwood Island, Ballina and Stotts Island N.R.

Timber and Uses – Yellow, fairly soft, brittle and perishable.



0 1 2 cm.



Plate No. 11
Myoporum acuminatum R. Br.

FAMILY RUBIACEAE

CHARACTERISTICS OF THE FAMILY IN N.S.W.

This is one of the largest families of plants comprising 500 genera and 6000 species in the world of which the majority are in the tropics and subtropics. In N.S.W. there are 19 genera and 61 species, of which 6 genera and 12 species are rainforest trees.

Usually small trees of the lower storey with only *Canthium coprosmoides* and *Hodgkinsonia ovatiflora* exceeding 15 m in height and 25 cm in diameter to attain about 25 m tall and 50 – 60 cm diameter. Typically fluted or crooked when small. The crown of *Hodgkinsonia* is bright green.

Outer Bark — Grey-brown (*Canthium coprosmoides*, *C. sp. aff. odoratum*, *Randia chartacea*), creamy grey (*Canthium odoratum*, *C. vacciniifolium*, *Hodgkinsonia*, *Randia benthamiana*) or brown (*Ixora beckeri*, *Psychotria daphnoides*, *P. loniceroides*, *P. simmondsiana*, *Xeromphis sp.*). Finely fissured or wrinkled (*C. coprosmoides*, *C. sp. aff. odoratum*), somewhat scaly (*Hodgkinsonia*, *P. daphnoides*, *Xeromphis*) or smooth. Paler lenticels are present in *C. odoratum*, *C. vacciniifolium*, *Hodgkinsonia*, *Ixora* and *R. benthamiana*. The underbark may be cream (*R. benthamiana*), fawn to yellow-brown (*Hodgkinsonia*, *R. chartacea*), mid to pink-brown (*P. daphnoides*) or shades of brown. The outer surface of the live bark may be creamy brown to brown (*C. sp. aff. odoratum*, *R. benthamiana*), green with or without cream blotches (*Ixora*, *R. chartacea*) or green and brown.

Inner Bark — Cream, creamy brown, orange brown to pink. Yellow to cream near the sapwood (*C. coprosmoides*, *R. benthamiana*, *Xeromphis*). The blaze turning a darker brown (*C. sp. aff. odoratum*, *Hodgkinsonia*, *Ixora*), with the sapwood margin turning green (*C. sp. aff. odoratum*) or dirty brown (*C. vacciniifolium*). Astringent (*C. coprosmoides*, *P. loniceroides*, *R. benthamiana*) or bitter (*C. odoratum*, *Hodgkinsonia*, *Xeromphis*).

Branchlets — Moderately thick (*C. coprosmoides*, *C. sp. aff. odoratum*, *Ixora*, *P. loniceroides*, *R. benthamiana*) or slender. Commonly four-angled. Between the bases of the paired leaves are triangular stipules which are commonly 1 – 3 mm long, but may be minute (*C. vacciniifolium*, *Hodgkinsonia*), 3 – 8 mm long (*Ixora*, *R. chartacea*), or 7 – 20 mm long (*R. benthamiana*). Except in *Ixora* they are quickly shed as the leaves expand leaving a scar and swollen joint or node on the branchlet. The leaf buds are usually smooth, but may be downy (*Xeromphis*), slightly hairy (*Hodgkinsonia*) or with fawn or rusty hairs (*R. benthamiana* and *P. loniceroides*) respectively.

Leaves — Opposite, simple, without teeth. Mostly elliptic to egg-shaped, but may be reverse egg-shaped (*C. vacciniifolium*, *P. daphnoides*) or lance-shaped (*P. simmondsiana*, *R. chartacea*), 4 – 10 cm long, except *C. vacciniifolium* (0.4 – 1.1 cm), *P. simmondsiana* (2 – 4 cm) and *C. sp. aff. odoratum*, *Ixora* and *R. benthamiana* (8 – 20 cm). Pointed at the tip, except *C. vacciniifolium*, *P. daphnoides* which are rounded. Rusty hairy (*P. loniceroides*), sometimes furry (*R. benthamiana*), with scattered hairs (*R. chartacea*) or otherwise smooth. Dull on both sides (*C. coprosmoides*, *P. loniceroides*, *Xeromphis*), shiny on the upper surface only (*C. sp. aff. odoratum*, *R. chartacea*) or shiny on both sides. Yellow green on both sides (*C. coprosmoides*), on the lower surface only (*C. sp. aff. odoratum*) or dark green above and paler green beneath. Stalks usually 2 – 10 mm long, but under 1 mm in *C. vacciniifolium* and up to 15 mm in *C. sp. aff. odoratum* and *P. loniceroides*.

Venation — Midrib and lateral veins usually visible on both surfaces except in *C. vacciniifolium* and *P. daphnoides* where only the midrib is visible. Lateral veins four to eight, but three to four in *C. sp. aff. odoratum* and *C. odoratum* and eight to twelve in *Ixora*, *P. loniceroides*, *R. benthamiana* and *R. chartacea*.

Very oblique at 20–45° to the midrib in *R. chartacea* and *C. sp. aff. odoratum* and almost at right angles in *P. loniceroides* and *P. simmondsiana*. Hollow pits are present in the axils of *C. coprosmoides*, *C. sp. aff. odoratum*, *C. odoratum* and *Xeromphis*, whilst there are hairy tufts in *Hodgkinsonia* and *R. benthamiana*.

Flowers — White to pale yellow (turning golden brown in *C. coprosmoides*), fragrant in *Canthium*, *Randia* and *Xeromphis*. In large corymbose terminal heads (*Ixora*), cymes (*Canthium*, *Psychotria*, *Randia*, *Xeromphis*) or umbels (*Hodgkinsonia*). Petals united into a tube (swollen in *Randia*), the free lobes twisted and overlapping when in bud (except in *Canthium* and *Psychotria*). Petals, sepals and stamens five except in *C. sp. aff. odoratum*, *C. odoratum*, *C. vacciniifolium*, *Hodgkinsonia* and *Ixora* where they are only four. Tube usually 3–6 mm long, but shorter (1.5–2 mm in *C. sp. aff. odoratum*, *C. odoratum*) or longer (7–12 mm in *C. coprosmoides*, *Ixora*, *P. simmondsiana*, *R. chartacea*). Stamens enclosed within the tube in *Randia* and *Xeromphis*, otherwise of equal length or slightly protruding.

Fruit — A one to four-celled drupe with a single seed in each, or a berry in *Randia* and *Xeromphis* with several seeds in each of two cells. Creamy yellow to orange-red (*C. coprosmoides*, *Psychotria*, *Randia*) or black. Globular or oval (*Hodgkinsonia*, *Randia*, *Xeromphis*), vertically ribbed in *Psychotria* and often two lobed in *C. coprosmoides* and *C. sp. aff. odoratum*. Mostly 5–8 mm diameter except *C. vacciniifolium* (3–5 mm) and *Randia* and *P. daphnoides* (10–25 mm).

Habitat — Mainly in dry or littoral rainforest (*Canthium*, *Hodgkinsonia*, *Ixora*, *P. daphnoides*, *Xeromphis*) but also in subtropical and warm temperate rainforests (*P. loniceroides*, *P. simmondsiana*, *Randia*).

Distribution — *Canthium* contains 200 species throughout tropical Africa and Asia as well as the South West Pacific. The ten to twelve species in Australia are mostly confined to here, extending from north western Australia to the south coast of N.S.W. Of the four species in N.S.W., *C. sp. aff. odoratum* is restricted to the coastal strip from Iluka to Cooloola in Queensland. The other species extend to Cape York with *C. odoratum* also in New Guinea and south to the Manning River. *C. vacciniifolium* reaches the Hastings whilst *C. coprosmoides* alone extends south of the Hunter to Jervis Bay.

Hodgkinsonia contains only two species and is restricted to one species in North Queensland and *H. ovatiflora* from the Hastings to Mackay, Queensland.

Ixora is a large tropical genus of 400 species of which the five or six Australian species are confined to North Queensland to the N.S.W. north coast. *I. beckleri* extends from littoral rainforest at Forster to Atherton.

Psychotria consists of 700 species throughout the tropical and subtropical regions of the world. In Australia there are ten or eleven species of which six are confined to this country, including one on Lord Howe Island and the three in N.S.W. These N.S.W. species all extend to Cape York, except that *P. simmondsiana* var *exigua* as distinct from var *simmondsiana* is confined to the Mt Warning shield volcano from Alstonville to Lamington N.P. *P. loniceroides* extends well south to Bega, whilst *P. daphnoides* only reaches the Manning River.

Randia and *Xeromphis* comprise 200–300 species throughout the tropics. Of the ten species in Australia nine are confined to it, including one species on Lord Howe Island. The taxonomy of these N.S.W. species is uncertain, as it has been suggested that none belong to the genus *Randia*. *Xeromphis* sp occurs in littoral and estuarine rainforests from Byron Bay to the Logan River, South Queensland. *R. benthamiana* ranges from Forster to Gympie, whilst *R. chartacea* is more wide-ranging from Lismore to Cooktown, North

Queensland. The family is readily dispersed by birds and possibly migrated from a Gondwanaland origin in Africa via Asia and into Australia. However, this would indicate a relatively recent arrival here, which is at variance with the presence of endemic genera such as *Hodgkinsonia* and the N.S.W. *Randia*. There is also a very high number of endemic species including several on Lord Howe Island. It is likely that some of the Australian species are descended from ancient Gondwanaland stocks already present here at the time of the breakup.

Timber and Uses – Cream to yellow or with brown streaks (*C. coprosmoides*), ageing dark brown (*Ixora*), light grey (*R. benthamiana*) or pale brown (*Xeromphis*). Very hard, tough (except *R. benthamiana*) and close-grained. Where of sufficient size, they could be used for turnery.

**KEY TO RAINFOREST TREE SPECIES
OF RUBIACEAE IN N.S.W.**

A. USING LEAVES AND BRANCHLETS ONLY

1. Leaves very small, under 1 cm long *Canthium vacciniifolium*
F. Muell.
1. Leaves over 1 cm long 2
2. Leaves over 4 cm wide but less than 12 cm long
. *Canthium* sp. aff. *odoratum* (Forst. f.) Seeman
2. Leaves if over 4 cm wide then more than 12 cm long 3
3. Foveolae or hairy tufts present in the axils of lateral veins on some
leaves 4
3. Foveolae or hairy tufts absent in the axils of lateral veins on all
leaves 8
4. Stems of expanding shoots hairy 5
 5. Stipules of leaf bud up to 2 mm long *Hodgkinsonia*
ovatiflora F. Muell.
 5. Stipules of leaf bud 5 — 12 mm long *Randia*
benthamiana F. Muell.
4. Stems of expanding shoots smooth or scurfy 6
6. Upper surface of leaves glossy *Canthium odoratum*
(Forst. f.) Seeman
6. Upper surface of leaves dull 7
 7. Paired thorns absent in axils *Canthium*
coprosmoides F. Muell.
 7. Paired thorns present in some axils *Xeromphis* sp.
8. Paired thorns up to 1 cm long in some leaf axils
Xeromphis sp.
8. Not thorny 9
9. Leaf blades under 6 cm long 10
 10. Leaves glossy above, dull beneath *Canthium*
odoratum (Forst. f.) Seeman
 10. Leaves dull or satiny both sides 11
 11. Branches glandular hairy
Psychotria simmondsiana F.M. Bail. var *simmondsiana*
F.M. Bail.
 11. Branches not hairy 12
 12. Leaves lanceolate, broadest towards the tip
Psychotria daphnoides A. Cunn. ex Hook.
 12. Leaves narrow lanceolate, broadest in the middle
. *Psychotria simmondsiana* F.M. Bail.
var *exigua* F.M. Bail.
9. Leaf blades over 6 cm long 13
13. Stems with expanding leaves not hairy 14
 14. Leaves dull above, stipules shed as the leaves expand
. *Canthium coprosmoides* F. Muell.
 14. Leaves glossy above, stipules often still attached after
leaf fall *Ixora beckleri* Benth.

- 13. Stems with expanding leaves hairy 15
- 15. Hairs rusty *Psychotria loniceroides*
Sieber ex DC.
- 15. Hairs grey to yellow brown 16
- 16. Junctions of lateral veins midway along midrib up
to 10 mm apart. Leaves thick, lanceolate to ovate
lanceolate *Randia benthamiana*
F. Muell.
- 16. Junctions of lateral veins midway along midrib more
than 10 mm apart. Leaves thin, linear lanceolate to
lanceolate *Randia chartacea* (F. Muell.)
F. Muell.

B. USING BARK ONLY

- 1. Blaze cream to brown or orange-brown without pink or red tints . . . 2
- 2. Whole surface turning dark brown on exposure 3
- 3. Bark fissured *Canthium* sp. aff. *odoratum*
(Forst. f.) Seeman
- 3. Bark smooth to scaly or craterous 4
- 4. Bark smooth or wrinkled *C. odoratum*
(Forst. f.) Seeman
- 4. Bark finely scaly and craterous *Hodgkinsonia ovatiflora*
F. Muell.
- 2. Whole surface not turning darker brown on exposure 5
- 5. Outer bark dark brown *Psychotria simmondsiana*
F.M. Bail. var *exigua* F.M. Bail.
- 5. Outer bark creamy-grey to grey-brown 6
- 6. Sapwood surface turning dirty brown *Canthium*
vacciniifolium F. Muell.
- 6. Sapwood surface not changing colour *Randia*
chartacea (F. Muell.) F. Muell.
- 1. Blaze with pink or red tints 7
- 7. Surface turning deep red-brown on exposure *Ixora beckleri*
Benth.
- 7. Surface not turning deep red-brown 8
- 8. Outer bark smooth with horizontal lines 9
- 9. Outer bark dark brown *Psychotria loniceroides*
Sieber ex DC.
- 9. Outer bark creamy grey *Randia benthamiana*
F. Muell.
- 8. Outer bark scaly to fissured or wrinkled 10
- 10. Outer bark finely fissured or wrinkled *Canthium*
coprosmoides F. Muell.
- 10. Outer bark scaly or with some scales 11
- 11. Blaze yellow near sapwood *Xeromphis* sp.
- 11. Blaze pink and white lined near the sapwood
. *Psychotria daphnoides* A. Cunn. ex Hook.

CANTHIUM COPROSMOIDES F. Muell.

Reference — Trans. Phil. Inst. Vic. III, 47, 1858.

Derivation — Canthium from the Malay name “Canti” for the first species described from Malacca; coprosmoides from “coprosma” a shrub with thick rounded paired leaves and Greek “eidos” resembling, because of its similarity to that plant.

Common Name — Coprosma-leaved Coffee, Coast Canthium.

Standard Trade Name — None.

A small tree up to 25 m tall and 50 cm diameter.

Trunk — Usually straight, not buttressed but fluted on large trees.

Outer Bark — Grey-brown to dark brown, finely fissured or wrinkled with horizontal cracks. Underbark thin, dark brown. Outer surface of live bark mottled green and brown or pink.

Inner Bark — Blaze on a tree 20 cm diameter, pinkish-brown, with darker and lighter vertical streaks. Large trees with dark red and cream flecks towards the outer margin, shading to yellow-brown and cream nearer the sapwood. No change in colour on exposure. No smell, but very astringent to taste. 6 mm thick.

Branchlets — Moderately thick, often four-angled, brown, smooth, having a jointed appearance due to the scars left by the fallen leaves. Leaf buds smooth.

Leaves — Opposite, simple, not toothed, variable in shape but generally elliptical to elliptic-lanceolate, 4 — 10 cm long, drawn out into a long blunt point at the tip, gradually tapering at the base. Smooth, *dull* yellow-green. Leaf stalks 2 — 5 mm long, smooth.

Venation — Midrib alone visible and sunken on the upper surface, more conspicuous and raised below. Lateral veins four to six, faintly visible on the lower surface at 45° — 60° to the midrib and often with about four large foveolae in the axils, raised on the top surface. Net veins not visible.

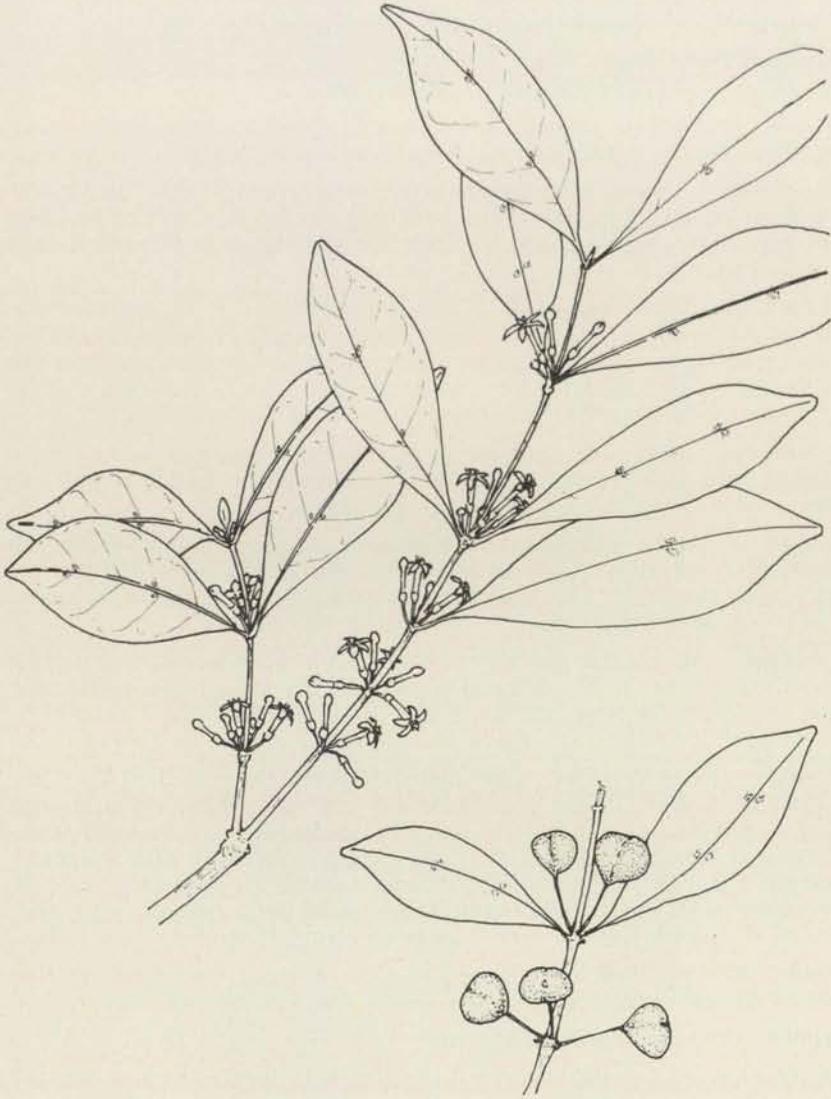
Flowers — White turning golden brown, fragrant, in groups of three to six in the axils of the leaves. Individual flower stalks 5 mm long, flowers about 8 mm long. Sepals joined into a cup, 1 — 2 mm long crowned by five small teeth. Petals united into a tube about 7 mm long, lobes five, about 3 mm long. Stamens five, slightly protruding. Flowering period January — February.

Fruit — Drupe, orange-red, glossy, globular, 8 mm broad, two-lobed; two celled with one seed in each cell. Fruit ripe October — December.

Habitat — Dry and littoral rainforests.

Distribution — Common in the rainforests of the McPherson Range and Upper Richmond River. Found from Jervis Bay, N.S.W. to Torres Strait Island, North Queensland. Recorded in N.S.W. from Beecroft Peninsula, Foxground, Minnamurra Falls, Whispering Gallery, Royal N.P., Port Jackson, Mona Vale, Hinton, Gap Creek F.P., Newcastle, William R., Gloucester R., John Gould Island N.R., Seal Rocks, Cape Hawke, Woko N.P., Black Head, Saltwater, Harrington, Black Ck. F.R., Sea Acres, Racecourse, Mt. Seaview, Bellangry S.F., Shark Is., Yarrhapinni, Way Way S.F., Warrell Ck., Pine Creek S.F., Bundagen F.R., Boambee Headland, Orara West S.F., Macauleys Headland, Mount Coramba, Woolgoolga, Madmans Creek F.R., Iluka N.R., Bundjalung N.P., Richmond Range S.F., Yabbra S.F., Roseberry S.F., Levers Plateau, Whangaree S.F., Blue Knob, Goonimbar S.F., Terania Creek, Whian Whian S.F., Minyon Falls F.R., Nashua, Wollongbar, Davis Scrub N.R., Lennox Head, Broken Head N.R., Brunswick Heads N.R., Cudgen Lake, Mooball S.F., Mebbin S.F., Mt. Warning N.P., Couchy Creek and Murwillumbah.

Timber and Uses – Dark yellow, streaked with brown and prettily marked. Suitable for turnery or cabinet work. The tree is too small to be utilised commercially to any extent.



0 1 2 cm



Plate No. 12
Canthium coprosmoides F. Muell.

CANTHIUM ODORATUM (Forst. f.) Seeman

Synonym – *Canthium lucidum* Hook. & Arn. *Coffea odorata* Forst.f.

Reference – Fl. Vitienis 132, 1865 – 73.

Derivation – Odoratum from Latin “odoratus” sweet-smelling, referring to the perfumed flowers.

Common Name – Inland Native Coffee, Shiny-leaved Canthium

Standard Trade Name – None

A small tree up to 15 m tall and 25 cm diameter.

Trunk – Crooked and irregular. Small trees are almost always vertically fluted or ridged, but the ridges disappear as the trunk becomes larger.

Outer Bark – Creamy-grey, *smooth* or vertically wrinkled with raised round lenticels. Underbark mid-brown to fawn or cream but so thin that the green live bark is exposed by a scratch of the fingernail. Outer surface of live bark streaked green and brown.

Inner Bark – Blaze on a tree 18 cm diameter pale brown or creamy-fawn with lighter vertical lines. The whole blaze rapidly turns dirty brown, whilst the paler inner margin turns a dull greenish-brown after five minutes exposure. Sapwood margin distinctly corrugated. Slightly bitter to taste and causing increased production of saliva but has no distinct smell. 3 mm thick.

Branchlets – Moderately thin, green, smooth, becoming grey on the older leafless parts with prominent stipular scars. Stipules up to 3 mm long and soon shed as the leaves develop. More or less angular.

Leaves – Simple, opposite, entire, smooth, elliptic, elliptical-oblong or obovate, 3 – 8 cm long, rounded or shortly and bluntly pointed at the tip, narrowed towards the base. Dark green, very smooth and shining above, paler and duller beneath. Leaf stalks 2 – 3 mm long, smooth.

Venation – Midrib and the three to four very oblique lateral veins usually distinct above, net veins sometimes obscure. Midrib and lateral veins are only just visible on the lower surface. Sometimes with one or two foveolae or swellings in the axils of the laterals and mid vein, raised on the upper surface.

Flowers – White to cream, sweet-scented, in cymes borne in the axils of the leaves, up to about 5 cm long. Flowers 5 mm wide when fully open and slightly smaller than the coastal form. Calyx united into a tube 1 mm long. Petals also forming a tube 1.5 mm long, the four lobes with paler thickened margins 3 mm long. Stamens four, attached to the inner side of the tube and projecting as far as the lobes. Anthers three times as long as wide. Style projecting 4 mm beyond the tube. Flowering period November – December.

Fruit – A drupe, black when ripe, glossy, globose, about 5 mm diameter. Not two-lobed as in the coastal form. Seed single. Fruit ripe April to July.

Habitat – Dry and semi-dry rainforest.

Distribution – From the Manning River, N.S.W. to the Torres Strait Islands, North Queensland and New Guinea. Recorded in N.S.W. from Woko N.P., Mt Sebastopol, Kangaroo River S.F., Hortons Ck, Guy Fawkes River N.P., Chaelundi, Blandford Ck., Washpool S.F., Rivertree, Woodburn, Mt Pikapene S.F., Richmond Range S.F., Toonumbar S.F., Unumgar S.F., Yabba S.F., Acacia Plateau, Mt Lindesay, Roseberry S.F., Levers Plateau, Wilson Park, Boatharbour, Mebbin S.F., Mooball S.F., and Mt Warning N.P. In the Upper Hunter at Glenbawn Dam, Aberdeen and Jerrys Plains there is a western slopes form with leaves gradually tapering at the base and the venation of *C. oleifolium*. Similarly at Acacia Plateau and Mt Kaputar N.P. there are intergrades with the north western *C. buxifolium*, showing small round leaves only 3 – 4 cm long.

Timber and Uses — Wood yellow, very hard and tough, close-grained. Distinct rays extend inwards from the hollows of the fluted trunk. Should be very suitable for turnery. About 2900 kg. per cubic metre.



Plate No. 13
Canthium odoratum (Forst. f.) Seeman

CANTHIUM SP. AFF. ODORATUM (Forst. f.) Seeman

Synonym — *Canthium lucidum* Hook. & Arn., *Coffea odorata* Forst. F.

Reference — Fl. Vitiensis 132, 1865–73.

Derivation — Odoratum from Latin “odoratus” sweet-smelling, referring to the perfumed flowers.

Common Name — Coastal Native Coffee, Shiny-leaved Canthium

Standard Trade Name — None

A small tree up to 10 m tall and 20 cm diameter with characteristic dull dark green foliage and cream midrib when seen from below.

Trunk — Although young trees may be vertically fluted, larger specimens are neither fluted nor buttressed.

Outer Bark — Grey to grey-brown, very hard, moderately *vertically fissured*. Underbark chocolate-brown. Outer surface of live bark creamy brown with cream stripes.

Inner Bark — Blaze on a tree 20 cm diameter creamy-brown with wide cream vertical lines. Changing to dirty brown throughout on exposure except for the sapwood margin which turns dirty green. No taste or smell. 8 mm thick.

Branchlets — Moderately thick, four-angled, dull green but grey where leafless. Stipules broad triangular, 1 – 3 mm long, shed as the leaves develop.

Leaves — Opposite, simple, not toothed, egg shaped, 10 – 15 cm long, rounded or tapering to a short blunt tip and rounded at the base. Dark green, very smooth and shiny above, but *yellow-green and dull beneath*. Leaf stalks 5 – 15 mm long.

Venation — Midrib and the three to four lateral veins distinct above but less so below. Net veins only obscurely visible above. Lateral veins at 30° to 45° to the midrib. One or two foveolae or swellings may be present at the junction of some lateral veins with the midrib.

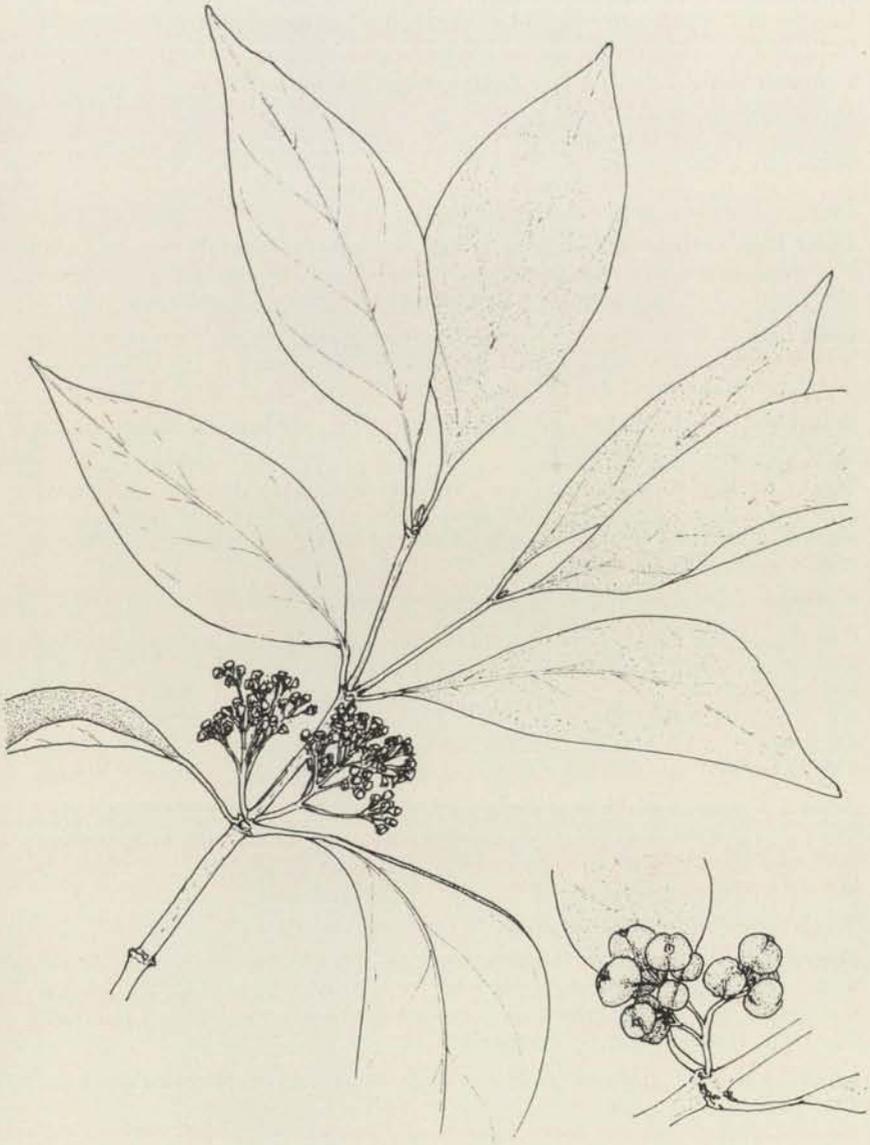
Flowers — Creamy-white in axillary cymes, 5 – 8 mm diameter. Calyx united into a tube 1 mm long with four teeth. Petals also forming a tube 2 mm long, the four lobes with pale margins also 2 mm long. Stamens four, attached to the inner side of the tube and projecting almost as far as the lobes. Anthers twice as long as wide. Style projecting 4 mm beyond the tube. Flowering period February to June.

Fruit — A drupe, black, glossy, globular but *usually two-lobed*, 7 mm diameter. A single globular seed in each lobe. Fruit ripe July.

Habitat — In littoral and subtropical rainforests near the sea bordering on salt water estuaries and sometimes overhanging the water.

Distribution — From Iluka, N.S.W. to Cooloola N.P., Queensland. Recorded in N.S.W. from Iluka N.R., Ballina, Brunswick Heads N.R., Round Mtn., Cudgen Lake, Terranora, Banora Point and Tweed Heads.

Timber and Uses — Wood cream, very hard and tough, close-grained. Distinct rays extend inwards from the grooves in the fluted stem. Should be suitable for turnery.



0 1 2 cm.

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Plate No. 14
Canthium sp. aff. *odoratum* (Forst. f.) Seeman

CANTHIUM VACCINIIFOLIUM F. Muell.

Reference — Trans. Phil. Inst. Vic. III, 47, 1858.

Derivation — Vacciniifolium from "Vaccinium" the cranberry genus of Europe and North America and Latin "folius" a leaf, referring to the leaves being like a *Vaccinium*.

Common Name — Small-leaved Coffee, Small-leaved Canthium.

Standard Trade Name — None

A shrub or small tree up to 8 m tall and 15 cm diameter with a dark green shiny crown of small leaves.

Trunk — Crooked, prominently fluted.

Outer Bark — Grey to creamy-grey, dull, smooth to vertically wrinkled with horizontal raised lenticels. Underbark creamy-fawn, becoming dark brown on older trees. Outer surface of live bark apple-green and creamy-brown.

Inner Bark — Blaze on a tree 12 cm diameter uniform cream or creamy-brown with darker vertical streaks. The sapwood margin alone turning dirty brown on exposure. No taste, doughy smell. 1 mm thick.

Branchlets — Slender but stiff and almost spiny, dark green, shiny, zig-zag in outline. Stipules very small.

Leaves — Opposite, simple, not toothed, oblong to reverse egg-shaped, rounded at the tip, 4 – 11 mm long, tapering rapidly at the base. Glossy, smooth, tough and thick as if made of plastic. Dark green. Leaf stalks under 1 mm long, smooth, dark green.

Venation — Only the midrib visible on both surfaces.

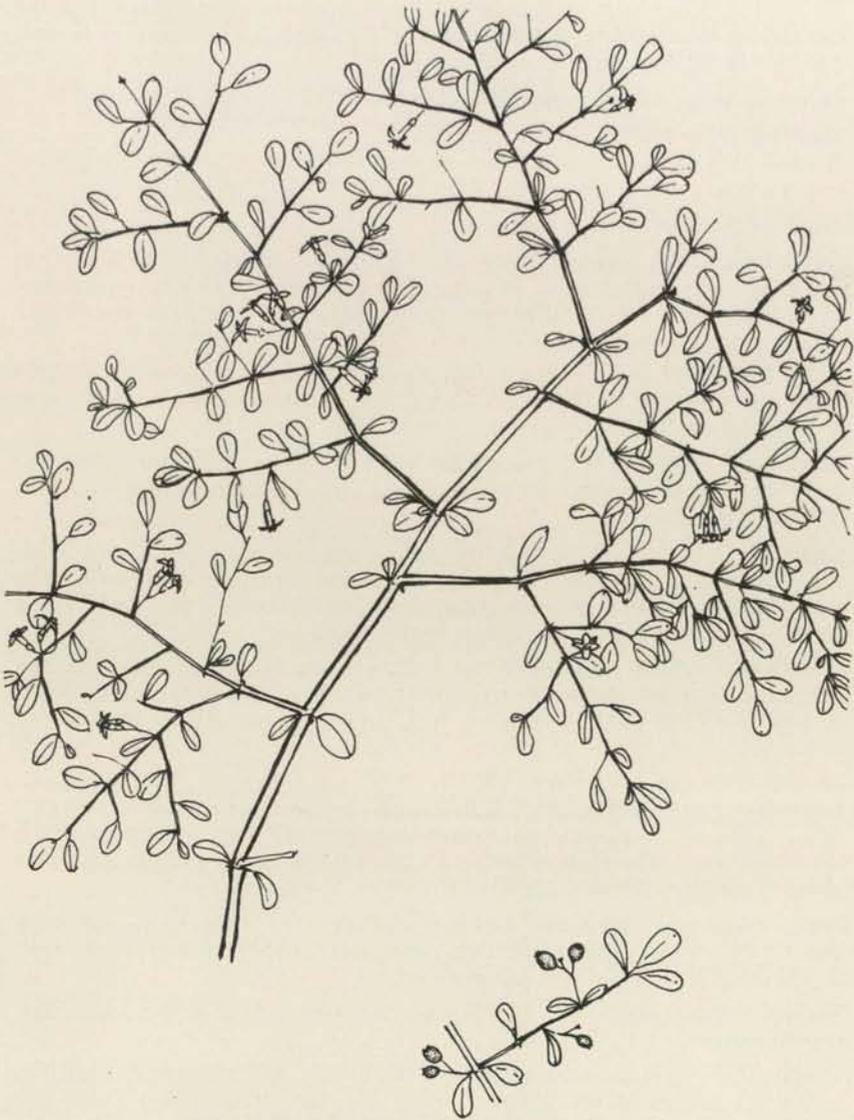
Flowers — Pale yellow with an unpleasant odour. Either singly in the leaf axils or in clusters of up to four on a common stalk 1 – 2 mm long. Individual flower stalks slender, 2 – 4 mm long. Calyx four-lobed, about 1 mm long. Petals four, forming a tube 3 – 4 mm long, swollen near the top, the lobes 1 – 2 mm long. Stamens four with four staminodes all projecting slightly beyond the tube. Style enclosed. Flowering period February to March.

Fruit — A drupe, ovoid to globular and crowned by the four persistent calyx lobes, 3 – 5 mm long. On single slender stalks 3 – 4 mm long. Either one or both of the carpels with a single fairly soft seed. Fruit ripe November and July.

Habitat — Dry rainforest only.

Distribution — From the Hastings River, N.S.W. to the Forty Mile Scrub, North Queensland. Recorded in N.S.W. from Broken Bago S.F., Mt Seaview N.R., Beechwood, Ellenborough, Totties Mtn., Hortons Ck., Chaelundi, Ramornie, Carnham and Mt Pikapene.

Timber and Uses — Wood straw-coloured, tough and close-grained but too small to be used.



0 1 2 cm

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Plate No. 15
Canthium vacciniifolium F. Muell.

HODGKINSONIA OVATIFLORA F. Muell.

Reference — *Fragm* II, 132, 1861.

Derivation — *Hodgkinsonia* after Clement Hodgkinson, Government Surveyor for the Port Macquarie to Brisbane coastline who was a keen observer of the vegetation; *ovatiflora* from Latin "ovatus" egg-shaped and "flora" a flower, referring to the egg-shaped male flowers.

Common Name — Golden Ash, *Hodgkinsonia*.

Standard Trade Name — None

A small tree up to 25 m tall and 60 cm diameter with an attractive dense bright green crown.

Trunk — Often irregular in shape.

Outer Bark — Grey-brown, finely scaly and craterous, dotted with numerous crowded corky pustules; the small pustules presenting a pimply appearance. Underbark fawn to yellow-brown. Outer surface of live bark green with creamy-brown stripes.

Inner Bark — Blaze on a tree 25 cm diameter, orange-brown with a distinct white layer next to the sapwood. The blaze darkens on exposure. Very bitter to taste, no smell. 3 mm thick.

Branchlets — Slender, grey, roughened by the presence of old protruding leaf scars. The triangular small stipules are soon shed as the leaves develop. Leaf buds with a few hairs.

Leaves — Opposite, simple, not toothed, elliptic or ovate, 4 – 6 cm long, terminating in a short blunt point at the tip and narrowed at the base. Thin and papery in texture, green and smooth on both surfaces, darker and shining above. Leaf stalks 5 mm long, finely downy, green.

Venation — Midrib and lateral veins distinct on both surfaces and raised beneath. Net veins visible on the lower surface. Lateral veins six to eight, curved, at 45° to the midrib. Hairy tufts present in the axils of the mid and lateral veins.

Flowers — Creamy-green in umbels on slender stalks in the axils of the leaves. Individual flower stalks short. Calyx tube very small. Petals united into a tube, males egg to urn-shaped, 4 mm long with the four lobes very short, thick and blunt. The females are much smaller and nearly globular. Stamens small. Style short. Flowering period November to January.

Fruit — A drupe, shiny black, oval or pear-shaped, 5 – 7 mm long, containing two to four one-seeded cells within a very thick, hard, brown three to four angled ovoid shell. Fruit ripe January to April.

Habitat — Subtropical, dry and littoral rainforests. Also in the sclerophyll forest ecotone.

Distribution — Hastings River, N.S.W. to Mackay, Queensland. Recorded in N.S.W. from Sea Acres, Point Plomer, Big Hill, Racecourse, Kunderang Brook, Smoky Cape, Yarrahapinni Mtn., Way Way S.F., Bellinger River S.F., Pine Ck. S.F., Bundagen F.R., Boambee Headland, Coffs Harbour, Woolgoolga, Madmans Ck. F.R., Waihou F.P., Bagawa S.F., Kangaroo River S.F., Wild Cattle Ck. S.F., Chaelundi S.F., Blandford Ck, Nymboida, Glenugie Peak F.R., Clarence Peak, Washpool S.F., Girard S.F., Copmanhurst, Iluka N.R., Richmond Range S.F., Toonumbar S.F., Unumgar S.F., Yabbra S.F., Acacia Plateau, Roseberry S.F., Levers Plateau, Wiangaree S.F., Goonimbar S.F., Whian Whian S.F., Minyon Falls F.R., Big Scrub F.R., Boomerang Falls F.R., Wilson Park, Botharbour, Ballina, Broken Head N.R., Byron Bay, Brunswick Heads, N.R., Round Mtn., Mooball S.F., Mebbin S.F., Mt Warning N.P., Upper Pumpenbil Ck, Mt Cougal, Murwillumbah, Stotts Is. N.R. and Hogans Scrub.

Timber and Uses — Yellow, close-grained and firm.



0 1 2 cm

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Plate No. 16
Hodgkinsonia ovatiflora F. Muell.

IXORA BECKLERI Benth.

Reference — Fl. Aust. III, 415, 1866.

Derivation — Ixora purportedly named after Iswara or Israra, a god of the Malabar people to whom the flowers of some species were offered; beckleri after Dr H. Beckler the medical officer and botanist on the Burke and Wills expedition who also collected in the Clarence district.

Common Name — Brown Coffeewood, Native Ixora.

Standard Trade Name — None.

A shrub or small tree up to about 10 m in height and 15 cm diameter.

Trunk — Often slightly angular.

Outer Bark — Brown, with a soft corky outer layer, smooth except for numerous corky pustules and some short vertical cracks. Underbark cinnamon brown. Outer surface of live bark dark green.

Inner Bark — Blaze on a tree 15 cm diameter, pale pink, green at the outer margin, paler towards the sapwood; fine grained and soft. Surface changes to a deep red-brown after a few minutes exposure, darker towards the inner margin. No distinct taste or smell. 3 mm thick.

Branchlets — Thick, brown, becoming green near the tips, smooth, often angular and flat, particularly towards the ends. Often roughened by the presence of small raised dots and prominent rings at the nodes showing leaf and stipular scars, or the base of those that have fallen off leaving small shallow sheaths. Stipules 4 — 8 mm long, triangular at the base and tapering to a long fine point. Buds smooth.

Leaves — Opposite, simple, not toothed, lanceolate or elliptical, 8 — 13 cm long, tapering at both ends, usually shortly and sharply pointed at the tip. Green both surfaces, smooth, very shiny above, paler beneath. Leaf stalks 4 — 8 mm long, with an articulation at the base.

Venation — Midrib and lateral veins visible on both surfaces but a little more distinct on the underside; the midrib alone prominent beneath; usually channelled on the upper surface. Lateral veins 10 — 15, straight, at 45° to 60° to the midrib.

Flowers — White, in terminal corymbs about 4 cm long. Sepals joined into a tube 1 — 2 mm long with four pointed lobes. Petals also forming a tube, four lobed, about 8 mm long. Stamens four, the anthers protruding beyond the tube. Flowering period November to January.

Fruit — A drupe, black when ripe, with a small circular scar at the top. Two-celled, with one seed in each cell. About 8 mm diameter. Fruit ripe April to September.

Habitat — Dry and riverine rainforest.

Distribution — From Forster, New South Wales to Mt Bellenden Ker, North Queensland. Recorded in N.S.W. from Cape Hawke, Black Head, Coocumbac Island, Carnham, Girard S.F., Mt Pikapene S.F., Sandiland Range, Toonumbar S.F., Unumgar S.F., Roseberry S.F., Kyogle, Wiangaree S.F., Minyon Falls F.R., Wilson Park, Booyong, Victoria Park N.R., Tintenbar, Hayters Hill, Brunswick Heads N.R., Mebbin S.F., Murwillumbah, Tumbulgum and Stotts Island N.R.

Timber and Uses — Yellow when the tree is first felled, but if left in the weather, it seasons to a dark brown colour. Close-grained and fairly hard. Reasonably durable and will remain sound after most of the other scrub species have rotted away. Suitable for small turnery, small tool handles and fishing rod butts. 2600 kg per cubic metre.



Plate No. 17
Ixora beckleri Benth.

PSYCHOTRIA DAPHNOIDES A. Cunn. ex Hook.

Reference — Bot. Mag. t., 3228, 1833.

Derivation — Psychotria from Greek "psyche" life, referring to the powerful healing properties of some species; daphnoides from Greek "eidos" resembling because the leaves resemble those of the *Daphne*.

Common Name — Smooth Psychotria

Standard Trade Name — None

A tall shrub or small tree up to 5 m high and 8 cm diameter.

Trunk — Crooked, not buttressed or flanged.

Outer Bark — Brown, slightly roughened with small scales. Underbark mid to pinkish-brown, outer surface of live bark apple-green or cream with brown vertical flecks on larger trees.

Inner Bark — Blaze on a tree 8 cm diameter, creamy-white outer band then pink with fine white vertical lines to the sapwood. No change in colour on exposure. No taste but a sappy smell. 2 mm thick.

Branchlets — Very thin, grey with prominent leaf scars, smooth. Stipules triangular, 1 mm long, shed as the leaves expand. Buds smooth but with a line of hairs at the base.

Leaves — Opposite, simple, not toothed, *reverse egg-shaped* or oblong, 1 — 7 cm long, *rounded* or rarely shortly pointed *at the tip*, gradually narrowed into the stalk at the base. Shiny on both surfaces, smooth except sometimes for red-brown hairs along the midrib beneath. Dark green both sides. Leaf stalk 2 — 5 mm long.

Venation — Midrib alone visible, flush with the leaf surface above but raised below.

Flowers — White or rarely pale yellow, in rather dense clusters up to 5 cm diameter, without stalks at the end of a common stalk 2 — 3 cm long at the ends of the branchlets. Sepals five, under 1 mm long, downy, joined for most of their length. Petals joined except near the top where split into five lobes, about 4 mm long, outer surface smooth, bearded inside. Flowering period November to January.

Fruit — Fleshy drupe, green, two joined hemispheres with longitudinal ribs, 10 — 12 mm diameter, containing a single prominently ribbed hemispherical seed in each. Fruit ripe April to July.

Habitat — In subtropical and dry rainforests. Usually on drier sites than *P. loniceroides*.

Distribution — From Manning River, N.S.W. to Herberton, North Queensland. Recorded in N.S.W. from Bulga, Blandford Ck., Rivertree, Cherry Tree S.F., Sandiland Range, Toonumbar S.F., Unumgar S.F., Yabbra S.F., Beaury S.F., Tooloom Scrub F.R., Acacia Plateau, Mt Lindesay, Roseberry S.F., Levers Plateau, Gradys Ck F.R., Wiangaree S.F., Blue Knob, Minyon Falls F.R., Boomerang Falls F.R., Big Scrub F.R., Mt Warning N.P., Upper Pumpenbil Ck and Limpinwood N.R.

Timber and Uses — Light colour and close grained. Too small to be used.

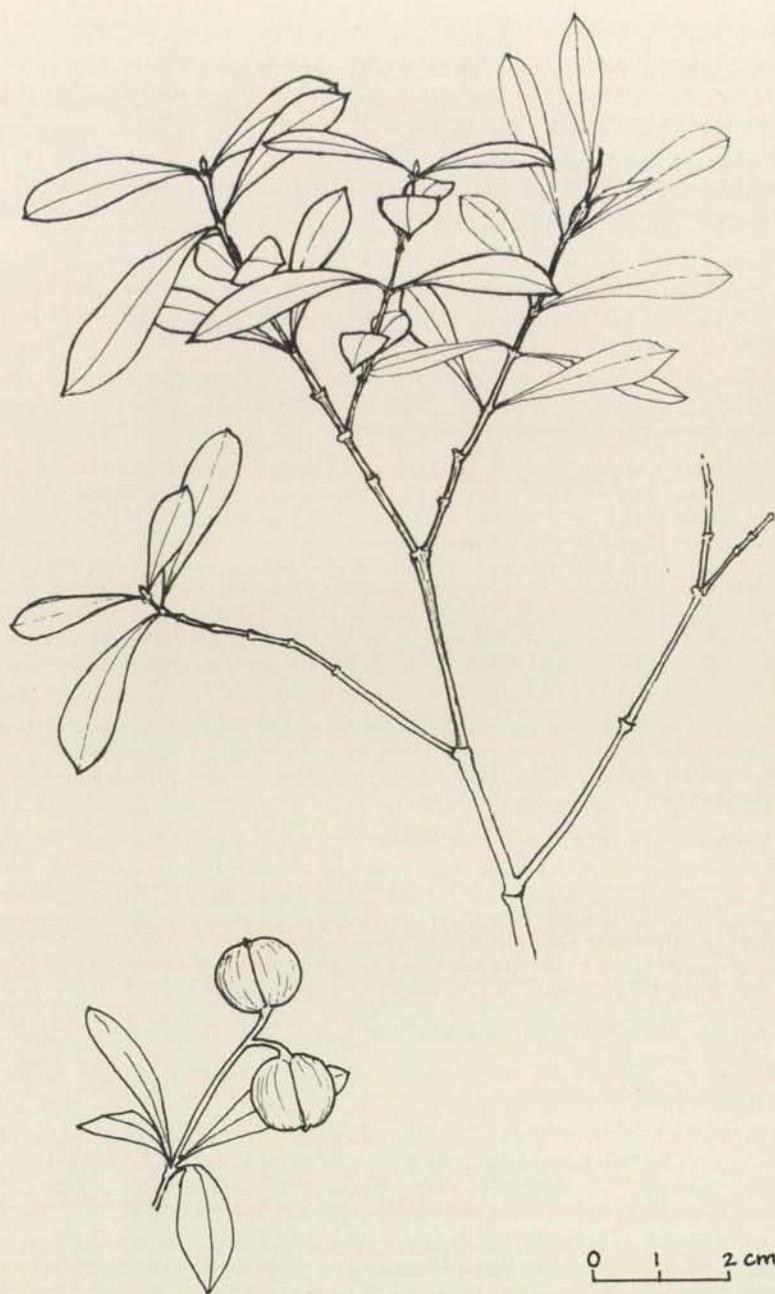


Plate No. 18
Psychotria daphnoides A. Cunn. ex Hook.

PSYCHOTRIA LONICEROIDES Sieber ex DC.

Reference — Prod. IV, 523, 1830.

Derivation — *Loniceroides* from *Lonicera* the honeysuckle and Greek "eidos" resembling, because of the similarity of the leaves to that of the honeysuckle.

Common Name — Hairy Psychotria

Standard Trade Name — None

A small tree or tall shrub up to 5 m high and 10 cm diameter.

Trunk — Usually crooked and bumpy but not buttressed.

Outer Bark — Dark brown, smooth with horizontally raised lines giving a somewhat wrinkled appearance. Dead bark very thin and brittle when removed. Underbark dark brown. Outer surface of live bark green to lime-green.

Inner Bark — Blaze on a tree 10 cm diameter pale pinkish-fawn with fine indistinct darker vertical short lines. No change in colour on exposure. Astringent taste. No smell. 5 mm thick.

Branchlets — Moderately thick, green with rusty hairs where leafy, then fawn and finally grey on the older stems. No lenticels, but pronounced scars from the fallen leaves and stipules which enclosed the bud. Stipules 1 mm long triangular, rusty-hairy. *Buds rusty-hairy*.

Leaves — Opposite, simple not toothed, egg-shaped, elliptical or oblong, 6 — 10 cm long, quickly tapering into a short point at the tip but more gradual at the base. Dull and usually softly fawn to rusty-hairy on both sides. Light green above, paler below. Leaf stalks 5 — 15 mm, slender, often densely covered in rusty-brown hairs.

Venation — Midrib and *lateral veins hairy, visible on both surfaces*, but more conspicuous below where the net veins are also visible. *Lateral veins nine to twelve*, at 70° to the midrib. Slightly raised above, but prominently so beneath.

Flowers — White, in small clusters without stalks forming a loose branching head on a common stalk 15 — 25 mm long. Sepals five, 1 mm long, densely hairy, free from midway to the base, triangular-pointed. Petals joined into a tube 4 mm long with five shorter triangular lobes, hairy. Stamens five protruding. Flowering period February to March.

Fruit — Fleshy drupe, creamy-yellow, elliptical, often in pairs with longitudinal ribs, about 6 mm diameter, containing a single oval ribbed seed about 6 mm long. Fruit February to September.

Habitat — Subtropical and warm temperate rainforest as well as in wet sclerophyll forest ecotone.

Distribution — From Bega, N.S.W. to Bamaga, North Queensland. Recorded in N.S.W. from Wapengo Ck., Mumbulla Mtn., Wandella S.F., Mt Dromedary F.R., Moruya S.F., Dampier S.F., Wandera S.F., The Burra, Kioloa S.F., Oaky Beach, Pebbly Beach, Murramarang N.P., Lyrebird F.P., Wallaby F.P., Currowan Ck., Durras Mtn., Yadboro S.F., Conjola, Comerong Is., Moss Vale, Cambewarra, Jamberoo Pass, Minnamurra, Dapto, Albion Park, Mt Keira, Mt Kembla, Bulli, Waterfall, Pittwater, Kurrajong Heights, Wyong, Olney S.F., Gap Ck. F.P., Wallsend, Paterson Allyn Williams Chichester Karuah Gloucester and Barrington Rivers, Woko N.P., Craven S.F., Bulahdelah, Black Head, Crowdy Bay, N.P., Mitchell Is., Weelah N.R., Boorganna N.R., Middlebrother S.F., Port Macquarie, Point Plomer, Crescent Head, Mt Seaview N.R., Mt Boss S.F., Banda Beech F.P., Wilson River F.P., Bellangry S.F., Toorumbbee, Kunderang, Carrai S.F., Willi Willi N.R., Smoky Cape, Oakes S.F., Scotchman S.F., New England N.P., Bellingier River S.F., Dorrigo N.P., Never Never S.F., Dome Mtn., Tuckers Nob, Pine Ck S.F., Bundagen F.R., Orara West S.F., Madmans Ck. F.R., Kangaroo River S.F., Wild Cattle Ck. S.F., Moonpar S.F.,

Hortons Ck., Mt Hyland, Ellis S.F., Chaelundi S.F., Blandford Ck., Sherwood N.R., Clarence Peak, Munningyundo Mtn., Cangi S.F., Gibraltar Range N.P., Washpool S.F., Carnham, Spirabo S.F., Forestland S.F., Ewingar S.F., Tabulam, Girard S.F., Iluka N.R., Mt Pikapene S.F., Cherry Tree S.F., Toonambar S.F., Unumgar S.F., Beaury S.F., Edinburgh Castle S.F., Tooloom Scrub F.R., Mt Clunie, Mt Lindesay, Roseberry S.F., Gradys Ck. F.R., Blue Knob, Goonimbar S.F., Terania Ck., Rotary Park, Boatharbour, Broken Head N.R., Cape Byron, Brunswick Heads, Mt Warning N.P., Cudgen and Tweed Heads.

Timber and Uses – Wood too small to be used.



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Plate No. 19
Psychotria loniceroides Sieber ex DC.

PSYCHOTRIA SIMMONDSIANA F.M. Bail. var **EXIGUA** F.M. Bail.

Reference — Bot Bull III, 12, 1891

Derivation — *Simmondsiana* after J.H. Simmonds, one time Secretary of the Field Naturalists section of the Royal Society of Queensland on which organisation's expedition the type specimen was collected.

Common Name — Small psychotria

Standard Trade Name — None

A small tree to 5 m tall and 10 cm diameter with smooth branchlets (var *exigua*). Var *simmondsiana* is a low spreading shrub up to 1 m tall with hairy branchlets.

Trunk — Crooked, not buttressed.

Outer Bark — Dark brown, smooth with horizontal cracks. Underbark dark brown. Outer surface of live bark cream.

Inner Bark — Blaze on a tree 10 cm diameter cream towards the outer margin, but with purplish-brown vertical lines becoming more numerous towards the sapwood margin. No change in colour on exposure. No taste or smell. 2 mm thick.

Branchlets — Slender, brownish-black, smooth with conspicuous raised paired leaf scars. Stipules narrow triangular, 1 mm long, shed as the leaves expand. Buds smooth or sparsely hairy.

Leaves — Opposite, simple, not toothed, lanceolate to broad lanceolate, 2 — 4 cm long, gradually tapering to a fine point at the tip and into the leaf stalk at the base. Dull and smooth on both surfaces but new leaves may be sparsely hairy. Both surfaces glandular-dotted, dark green above and paler below. Leaf stalk 1 — 5 mm long, slender, often with paler glands.

Venation — *Midrib alone conspicuous*. Lateral veins four to six at 70° to the midrib, only visible on the upper surface. Midrib and lateral veins sunken above but raised below.

Flowers — White, in pairs without stalks at the end of a slender common stalk 10 — 20 mm long at the ends of the branchlets. Sepals five, 1 mm long, sparsely hairy, free for less than half their length forming broad triangular pointed lobes. Petals also free in the upper half with five triangular lobes, 7 mm long, outer surface roughened. Stamens five extending for about half the length of the lobes. Flowering period November to February or less commonly in May and June.

Fruit — Fleshy drupe, white to pale yellow, spherical. Usually in pairs without stalks, longitudinally ribbed, 6 mm diameter containing a single globular to oval ribbed seed, 5 mm long. Fruit ripe April to July or less commonly November to January.

Habitat — Cool subtropical and warm temperate rainforest on krasnozem and yellow earths above 700 m altitude.

Distribution — From Alstonville, N.S.W. to Lamington N.P., Queensland. Recorded in N.S.W. from Gradys Creek F.R., Mt Nardi, Mt Matheson, Terania Creek, Whian Whian S.F., Minyon Falls F.R., Alstonville, Tintenbar, Billinudgel, Mebbin S.F., Mt Warning N.P., Limpinwood N.R., and Murwillumbah.

Timber and Uses — Too small to be used.



0 1 2 cm.

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Plate No. 20
Psychotria simmondsiana F.M. Bail. var. *exigua* F.M. Bail.

RANDIA BENTHAMIANA F. Muell.

Reference — *Fragm.*, IX, 180, 1875.

Derivation — *Randia* after Isaac Rand an English apothecary and curator of the Chelsea Physic Garden; *benthamiana*, in honour of George Bentham, botanist and co-author of the only Australian flora.

Common Name — Native Gardenia

Standard Trade Name — None

A shrub or small tree up to 8 m tall and 15 cm stem diameter with large broad glossy leaves and white fragrant flowers.

Trunk — Sometimes crooked, not buttressed or fluted.

Outer Bark — Creamy-grey, smooth with horizontal raised rings and elongated lenticels. Underbark cream. Outer surface of live bark brown.

Inner Bark — Blaze on a tree 15 cm diameter with a creamy-green narrow outer layer, then pinkish-cream with deep pink vertical flecks. Creamy-yellow at the sapwood margin. No change in colour on exposure. Astringent, no smell. 6 mm thick.

Branchlets — Moderately thick, fawn, felty or hairy, with conspicuous leaf and stipular scars. Stipules united into a pointed tube around the leaf bud, 7 – 20 mm long with fawn or golden hairs.

Leaves — Opposite or in whorls of three or four, simple, not toothed, obovate-lanceolate, 8 – 20 cm long, tapering gradually at the base but more abruptly to a short point at the tip. Somewhat shiny and smooth on both sides, or softly furry beneath if north of Coffs Harbour. Dark green above, paler below. Leaf stalks 3 – 10 mm long, smooth or downy if north of Coffs Harbour, green.

Venation — Midrib and lateral veins visible and raised on both surfaces, but more conspicuous below. Midrib more raised on the lower surface. Lateral veins 8 – 12 at 45° to the midrib, curved. Swellings with hairy tufts present in most junctions of the lateral veins and midrib, raised on the upper surface.

Flowers — White, fragrant, in twos or threes on a common stalk 7 – 9 mm long in the terminal leaf axils. Calyx tubular, 2 mm long with five pointed teeth 1 mm long. Petals forming a swollen tube 5 – 6 mm long, constricted at the top with five lanceolate lobes 8 – 15 mm long which are twisted in bud. Stamens hidden within the tube. Flowering period June to November.

Fruit — Berry, usually orange-yellow but reportedly sometimes red or even black, pointed egg-shaped, 1.5 – 2.5 cm long. Seeds over twenty, egg-shaped, 3 – 4 mm diameter embedded in a pulp. Fruit ripe May to September.

Habitat — In subtropical and warm temperate rainforests with high rainfall and at low to moderately high altitudes.

Distribution — From Forster, N.S.W. to Gympie, Queensland. Recorded in N.S.W. from Cape Hawke, Coocumbac Is. N.R., Way Way S.F., Oakes S.F., Bellinger River S.F., Dorrigo N.P., Pine Creek S.F., Never Never S.F., Tuckers Nob, Orara West S.F., Bruxner Park F.R., Mt Coramba, Woolgoolga Ck F.R., Waihou F.P., Kangaroo River S.F., Wild Cattle Ck. S.F., Moonpar S.F., Cambridge Plateau, Yabba S.F., Grady's Ck. F.R., Wiangaree S.F., Blue Knob, Goonimbar S.F., Terania Ck, Whian Whian S.F., Minyon Falls F.R., Big Scrub F.R., Wilson Park, Booyong, Victoria Park N.R., Uralba N.R., Ballina, Broken Head N.R., Brunswick Heads N.R., Round Mtn., Mooball S.F., Mt Warning N.P., Upper Pumpenbil Ck, Limpinwood N.R., Couchy Ck, Mt Coughal, Murwillumbah and Hogans Scrub.

Timber and Uses — Light-grey, hard, brittle, fine-grained and straight. Could be used for turnery, but generally too small.



0 1 2 cm

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Plate No. 21
Randia benthamiana F. Muell.

RANDIA CHARTACEA (F. Muell.) F. Muell.

Reference — *Fragm.*, IX, 180, 1875.

Derivation — Chartacea from Latin "chartaceus" papery, referring to the thin texture of the leaves.

Common Name — Thin-leaved Gardenia, Narrow-leaved Gardenia.

Standard Trade Name — None

A shrub or small tree up to 6 m tall and 8 cm diameter.

Trunk — Crooked and often irregular at the base.

Outer Bark — Grey-brown, smooth or wrinkled with horizontal cracks. Underbark fawn, outer surface of live bark green with cream and orange blotches.

Inner Bark — Blaze on a tree 8 cm diameter biscuit-brown with a dark red discontinuous outer band. No change in colour on exposure. No taste or smell. 3 mm thick.

Branchlets — Slender, green with fawn hairs near the tip, swollen at the old leaf junctions. Stipules forming a slender tube, 3 — 7 mm long, covered by long fawn or white hairs.

Leaves — Opposite or whorled, simple, not toothed, very variable in shape from linear in the juvenile stage to broad lanceolate being widest towards the tip. 5 — 15 cm long. Gradually tapering at the tip and base. Dark green and shiny above, light green and dull beneath with white scattered hairs. Upper surface sometimes marked by the white scribble-like channel of a leaf miner. Leaf stalk 2 — 5 mm long with long white or fawn hairs.

Venation — Midrib and lateral veins visible on both surfaces. *Lateral veins conspicuously raised* on the upper surface, but not the midrib which alone is raised on the lower surface. Lateral veins 10 — 15 at 20° to 45° to the midrib, curved.

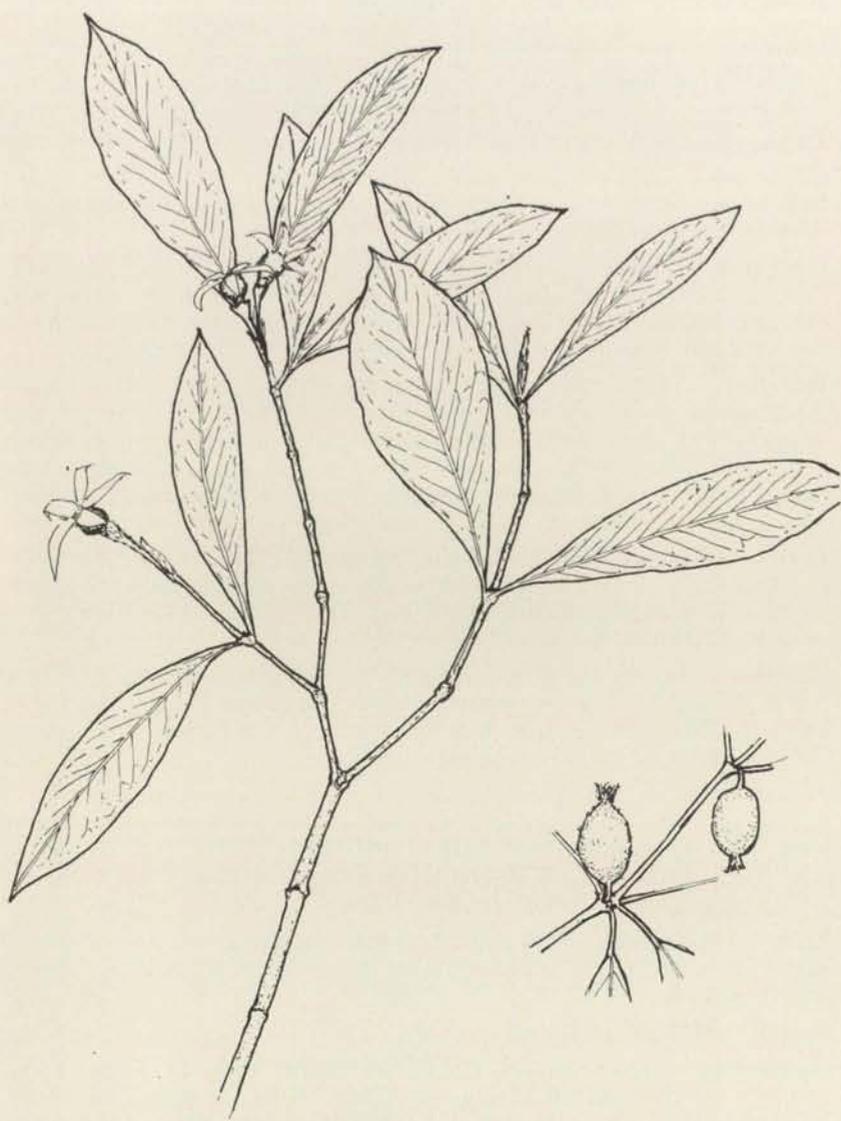
Flowers — Creamy-white, strongly perfumed like a *Gardenia*, solitary or occasionally in pairs at the ends of the branchlets on short stalks 2 — 5 mm long. Calyx tubular, silky hairy, 5 — 8 mm long including the five short pointed lobes. Petals five joined for nearly half their length into an inflated tube, surmounted by the showy wide open lobes 7 — 12 mm long. Stamens five, narrow pointed, enclosed within the inflated tube. Flowering period August to November.

Fruit — Berry, orange-red, oval with a terminal snout of calyx lobes, 1.5 — 2 cm long. Seeds numerous, triangular, 4 — 5 mm long, set in a sweet pulp. Fruit ripe May to August.

Habitat — Subtropical rainforest on basaltic or alluvial soil.

Distribution — Lismore N.S.W. to Cook district, North Queensland. Recorded in N.S.W. from Levers Plateau, Wiangaree S.F., Blue Knob, Goonimbar S.F., Whian Whian S.F., Minyon Falls F.R., Big Scrub F.R., Rotary Park, Wilson Park, Boatharbour, Johnstons Scrub, Booyong, Davis Scrub N.R., Victoria Park N.R., Ballina, Bangalow, Hayters Hill, Brunswick Heads N.R., Round Mountain, Mooball S.F., Mebbin S.F., Mt Warning N.P., Upper Pumpenbil, Limpinwood N.R., Murwillumbah, Stotts Island N.R., and Terranora.

Timber and Uses — Hard, tough, close-grained and nicely figured; but too small to be used.



0 1 2 cm

✧

Plate No. 22
Randia chartacea (F. Muell.) F. Muell.

XEROMPHIS SP.

Synonym — *Randia moorei* F. Muell. ex Benth.

Derivation — Xeromphis of obscure meaning.

Common Name — Spiny Gardenia

Standard Trade Name — None

A shrub or small tree up to 10 m and 18 cm diameter.

Trunk — Round, not buttressed.

Outer Bark — Dark brown, smooth to scaly, the scales small and thin. Underbark brown. Outer surface of live bark a mixture of green and brown with short vertical paler stripes.

Inner Bark — Blaze on a tree 18 cm diameter, pinkish-red with broad darker concentric rings and numerous very fine vertical lines. Minutely flecked near the outer margin, yellow next to the sapwood. The blaze generally tending to fade gradually on exposure. Bitter with a sappy smell. 10 mm thick.

Branchlets — Thin, brown, smooth or sometimes downy towards the ends and including the young shoots. Often flattish or angular towards the ends and generally with small protruberances at the nodes. Young growth is usually armed with slender axillary thorns which are in pairs, about 12 mm long; and may persist onto the flowering branches. Stipules broadly triangular, 1 – 2 mm long, quickly shed.

Leaves — Opposite, simple, not toothed, ovate, elliptic or elliptic-oblong, 4 – 6 cm long, drawn out to a blunt or sometimes a fine point at the tip and rounded or abruptly tapering at the base. Dull, green both surfaces, paler beneath. Leaf stalks 1 – 4 mm long, smooth.

Venation — Midrib and lateral veins visible, net veins indistinct or faintly visible. Midrib a little more prominent on the underside. Lateral veins five to seven at 45° to the midrib. Sometimes with a few hollow glands at the junction of the lateral veins with the midrib.

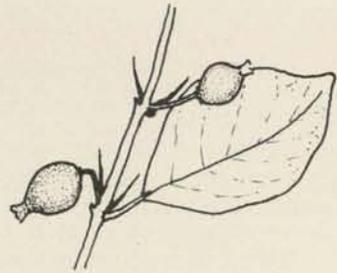
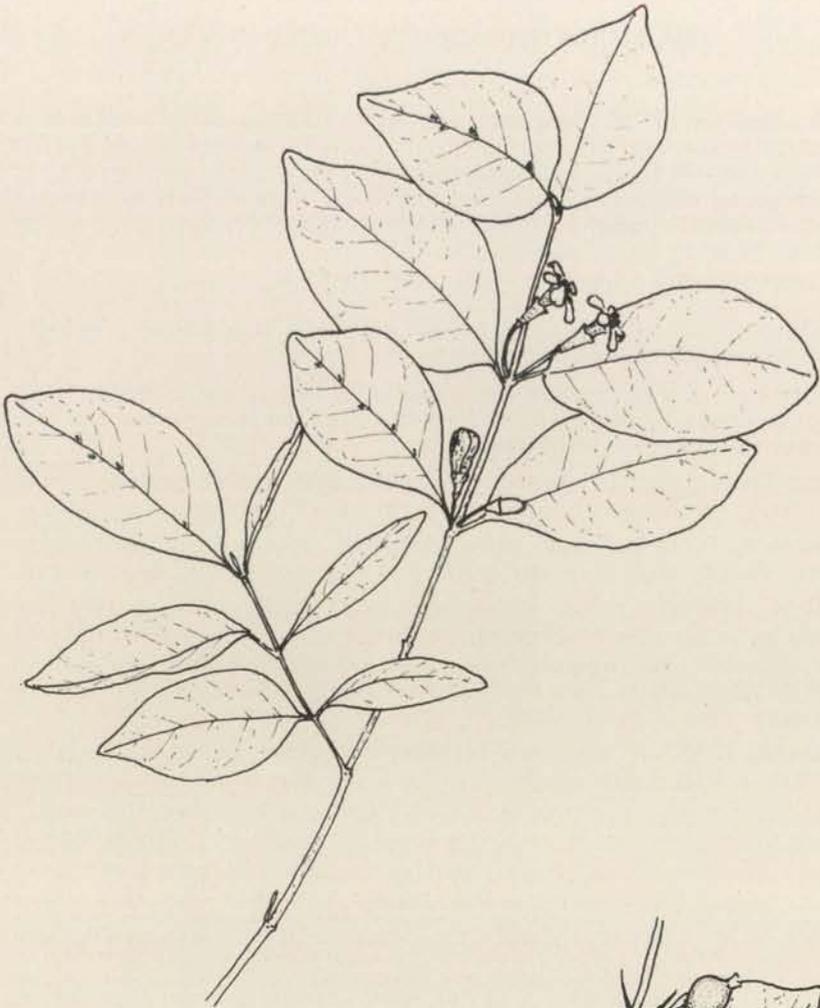
Flowers — Cream turning yellow, strongly sweet-scented, axillary, solitary or in pairs on stalks 2 – 6 mm long. Cylindrical, trumpet-shaped, 10 – 12 mm long. Calyx 4 mm long, obscurely five-lobed. Petals tubular, about 5 mm long with five blunt and slightly shorter lobes. Stamens on short stalks within the tube. Flowering period September and October.

Fruit — Berry, turning yellow and then drying black, oval with a snout or urn-shaped, 6 – 8 mm long. Seeds many, set in a pulp. Fruit ripe December and July to August.

Habitat — Riverine and Littoral rainforest.

Distribution — From Broken Head, New South Wales to Logan River, Southern Queensland. Recorded in N.S.W. from Broken Head N.R., Brunswick Heads N.R., Mooball S.F., Murwillumbah, North Tumbulgam, Terranora, Banora Point and Bilambil.

Timber and Uses — Wood pale brown when dry, close-grained and hard. Suitable for small turnery.



0 1 2 cm

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Plate No. 23
Xeromphis sp.

FAMILY ASTERACEAE
CHARACTERISTICS OF THE FAMILY IN N.S.W.

This large family of 900 genera and over 13,000 species is worldwide in distribution, but is rare in tropical rainforests. In Australia there are 100 genera and 700 species extending from the alpine to the arid areas. 55 of these genera are confined to Australia. In N.S.W. there are 74 genera and 459 species, as well as many exotic species present either as cultivated plants or as weeds. However within rainforests in N.S.W. there are only two tree species, namely *Bedfordia arborescens* and *Olearia argophylla*.

They are small trees up to 15 m high and 45 cm diameter with rounded crowns and unbuttressed crooked stems.

Outer Bark — Grey to grey-brown, lightly fissured to scaly (*Bedfordia*) to shortly stringy (*Olearia*). Underbark dark brown. Outer surface of live bark cream (*Bedfordia*) or yellow (*Olearia*).

Inner Bark — Cream to creamy-yellow turning dirty cream-brown (*Bedfordia*) or dirty green (*Olearia*). Hot taste and parsnip smell (*Bedfordia*).

Branchlets — Thick, covered in felt which may be white (*Bedfordia*) or grey (*Olearia*). Leaf buds white woolly (*Bedfordia*) or silvery white felty (*Olearia*).

Leaves — Alternate, simple, wavy (*Bedfordia*) to irregularly toothed (*Olearia*), oblong with a round tip (*Bedfordia*) or broad lanceolate with a short jointed tip (*Olearia*). Dull (*Bedfordia*) or glossy (*Olearia*) dark green and smooth above. White matted hairs (*Bedfordia*) or silvery satin shiny hairs (*Olearia*) below.

Venation — Midrib, lateral and net veins more clearly visible on the upper surface. Lateral veins visible below (*Olearia*) or only the midrib (*Bedfordia*).

Flowers — In heads (15–20 *Bedfordia*, 9–13 *Olearia*) with one row (*Bedfordia*) or several rows of involucre bracts (*Olearia*). Petals all tubular and yellow (*Bedfordia*) or with white rays (*Olearia*). The calyx of each floret enlarges to form a ring of bristles or hairs called a pappus.

Fruit — An achene or cypsela with a pappus. Light brown, ribbed, cigar-shaped.

Habitat — Usually on the edge of temperate rainforest or in the adjoining wet sclerophyll forest.

Distribution — The family may have originated in northern South America about 30 million years ago and to have spread very effectively by wind dispersal throughout the world. *Bedfordia* comprises three species of which two are in Tasmania, whilst *B. arborescens* is in Victoria and the south coast of N.S.W. to Monga. *Olearia* consists of 100 species of which 75–80 species are confined to Australia, mostly in the temperate zone. The remainder are in New Guinea and New Zealand. *O. argophylla* extends from Tasmania to Gosford. All species of *Olearia* are either trees or shrubs and appear to replace the herbaceous genus *Aster* in the Australasian region.

Timber and Uses — Timber pale, tough and too small to be used. *Bedfordia* has an attractive pine-like habit, whilst *Olearia* can be quite showy when in flower. Exotic species of value include food plants such as lettuce, artichoke and sunflower, whilst ornamental species are *Calendula*, *Zinnia*, *Dahlia* and *Chrysanthemum*.

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

A. USING LEAVES AND BRANCHLETS ONLY

- Leaves silvery satin beneath. . . *Olearia argophylla* (Labill.) F. Muell. ex Benth.
Leaves dull and woolly beneath *Bedfordia arborescens* Hochr.

B. USING BARK ONLY

- Live bark creamy-yellow turning dirty green.
Olearia argophylla (Labill.) F. Muell. ex Benth.
Live bark cream turning dirty cream-brown . . . *Bedfordia arborescens* Hochr.

BEDFORDIA ARBORESCENS Hochr.

Synonym — *Bedfordia salicina* (Labill.) DC. misapplied.

Reference — Candollea 5, 332–4, 1934

Derivation — *Bedfordia* after the sixth Duke of Bedford, 1766 – 1839, F.L.S. who was a generous patron of botany; *arborescens* from Latin “*arborescens*” becoming tree-like, in reference to its size.

Common Name — Blanket Leaf, Flannel Leaf, Blanket Bush.

Standard Trade Name — None.

An often crooked or misshapen small tree with a rounded top reaching 12 m tall and 45 cm diameter. The long narrow leaves, dark green above and woolly white below are very characteristic. The angle of the branches and the terminal clustering of the leaves imparts a pine-like appearance.

Trunk — Crooked with heavy branches close to the ground, often irregular in cross-section but not buttressed.

Outer Bark — Grey to grey-brown, lightly fissured or scaly, soft. Underbark brown. Outer surface of live bark cream.

Inner Bark — Blaze on a tree 45 cm diameter cream turning dirty cream-brown on exposure. Hot taste and parsnip smell. 8 mm thick.

Branchlets — Thick, round, covered by white wool or felt. Buds white, woolly. Leaf scars prominent.

Leaves — Alternate, simple, not toothed but wavy, oblong-lanceolate, 15 – 24 cm long, tapering to a rounded point at the tip and gradually into the leaf stalk at the base. Dull, smooth, dark green above; but densely covered in long white interlocked branching hairs matted on the underside. The related *B. salicina* of Tasmania has much shorter denser hairs. Leaf stalks 1.5 – 2 cm long, widening where attached to the branchlet, densely woolly.

Venation — Midrib visible and raised on both surfaces. Lateral and net veins only visible on the upper surface. Major lateral veins sunken, 15–20 pairs, at first straight at 60° – 75° to the midrib but curving near the margin.

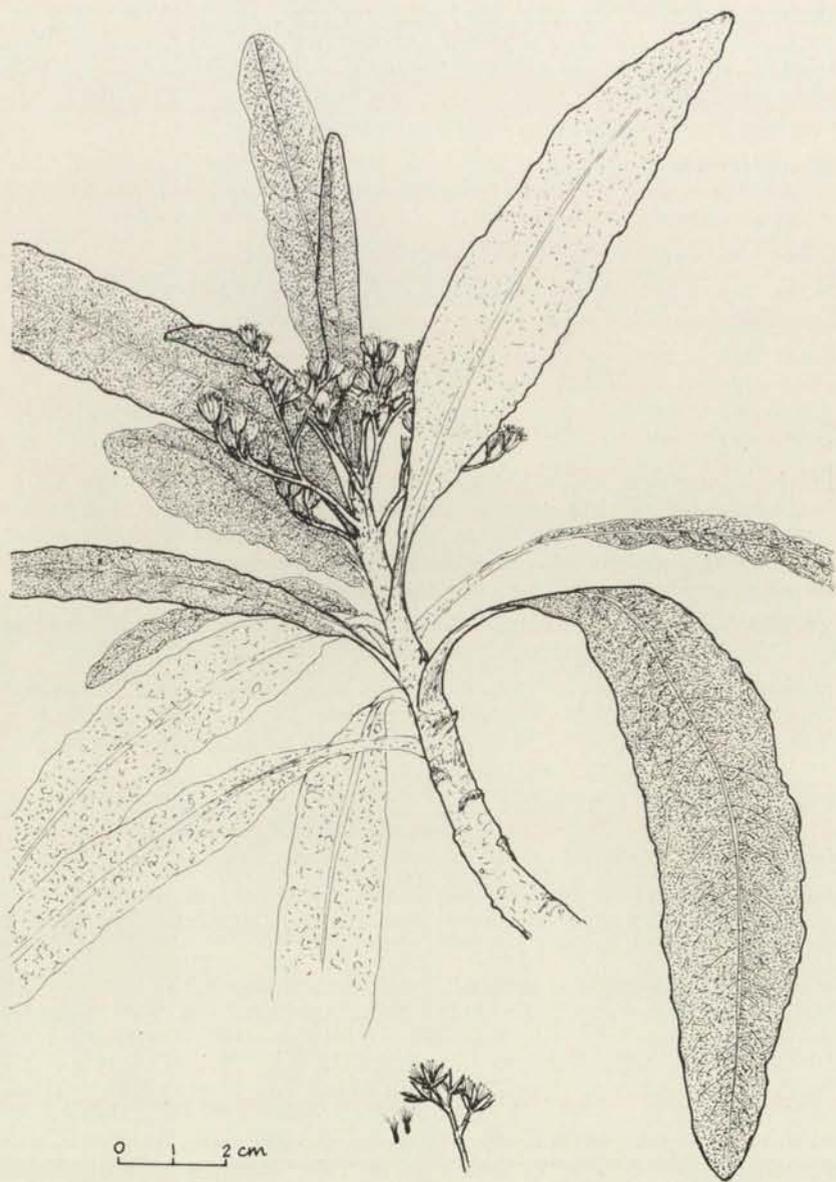
Flowers — Deep yellow, in panicles in the axils of the leaves. Stalks woolly white. A single row of about eight elliptical pointed, woolly bracts 5 – 6 mm long enclose each flower head of 15–20 flowers. Flowers tubular with five small lobes, 6 – 8 mm long. Flowering period November to December or January on the tablelands.

Fruit — A small ribbed seed-like nut or achene, whitish with brown veining crowned by a ring of silver-toothed bristles, up to 8 mm long, cigar-shaped, 2 – 4 mm long. The enclosing flower bracts spreading horizontally as the fruit ripens. Fruit ripe December to January or February on the tablelands.

Habitat — Warm temperate and cool temperate rainforests and adjoining wet sclerophyll forests in cool mountain situations.

Distribution — From the Otway Ranges and Wilsons Promontary, Victoria to Monga, N.S.W. Recorded in N.S.W. from Nadgee N.R. & S.F., Mt. Imlay N.P., Egan Peaks N.R., Glen Bog S.F., Brown Mountain F.R., Bemboka S.F., Wadbilliga Trig., Wandella S.F., Mt. Dromedary F.R., Nerrigundah, Dampier S.F., Wandera S.F., Araluen, Monga S.F., and Currawan Ck. Also in the Southern Tablelands at Hammels Spur, Yarrangobilly and Tumberumba. In the A.C.T. it is on the Brindabella Range.

Timber and Uses — Pale, moderately tough and hard. Could be used for cabinet work but generally too small and branching.



†

Plate No. 24
Bedfordia arborescens Hochr.

OLEARIA ARGOPHYLLA (Labill.) F. Muell. ex Benth.

Synonym — *Aster argophyllus* Labill.

Reference — *Fragm. Phyt. Aust.* V, 68, 1865

Derivation — *Olearia* from Latin "olea" the olive tree, because of the resemblance of the leaves of the original species to that of the olive; *argophylla* from Greek "argyros" silvery and "phyllon" a leaf, referring to the silvery underside of the leaves.

Common Name — Musk Daisy-bush, Native Musk.

Standard Trade Name — Musk.

A tall shrub or small tree up to 15 m high and 40 cm diameter with a rounded crown and a musky smell.

Trunk — Crooked, not buttressed, often multi-stemmed.

Outer Bark — Grey-brown, flaky to shortly stringy. Underbark dark brown. Outer surface of live bark yellow.

Inner Bark — Blaze on a tree 25 cm diameter creamy-yellow, turning dirty green on exposure. Slightly bitter taste, no smell. 4 mm thick.

Branchlets — Moderately thick, felty grey to grey-brown. Leaf buds silvery-white, felty.

Leaves — Alternate, simple, irregularly toothed or sometimes merely wavy, broad-lanceolate, 7 – 14 cm long, quickly tapering to a short point at the tip and also tapering at the base. Glossy dark green above, *silvery satin below* due to a close felt of shiny hairs. Leaf stalk 10 – 15 mm long, felty grey to grey-brown, channelled above and twisted through 90°.

Venation — Midrib and lateral veins prominent on both surfaces, net veins more clearly visible above. Midrib sunken above, raised below.

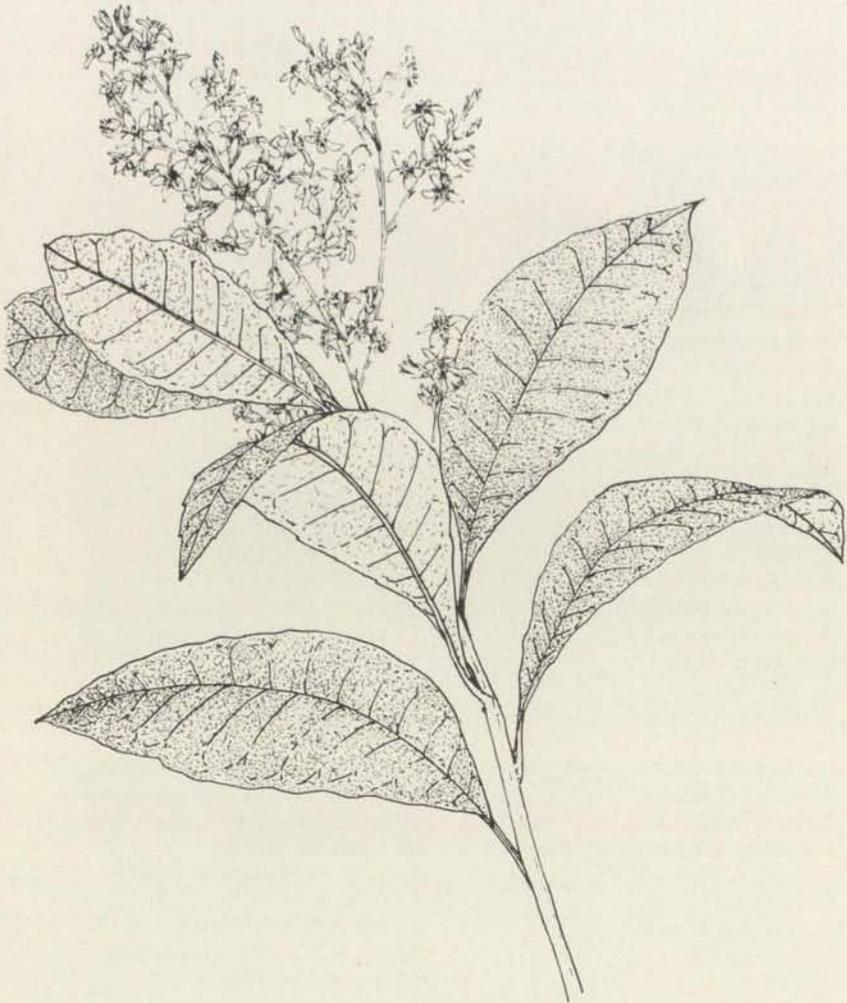
Flowers — White, small and numerous in large terminal corymbs. Flower heads narrow ovate to hemispherical with several rows of silky bracts. Ray flowers three to five with lanceolate rays 5 mm long. Disc flowers tubular, six to eight. Flowering period October and November.

Fruit — Cypsella, light brown, longitudinally ribbed, cylindrical, 1.5. mm long, sparsely hairy. Pappus hairs at the top very numerous, 5 mm long. Fruit ripe December.

Habitat — Common in wet sclerophyll forest and the margin of cool temperate rainforest associated with *Eucryphia moorei*, *Doryphora sassafras* and *Atherosperma moschatum*.

Distribution — Tasmania to Gosford, N.S.W. Recorded in N.S.W. from Nadgee N.R. & S.F., Mt Imlay N.P., Bellbird Ck N.R., Egan Peaks N.R., Tantawangalo, Brown Mountain F.R., Bemboka S.F., Wadbilliga N.P., Murrabrine S.F., Mimoso Rocks N.P., Wapengo Ck., Wandella S.F., Mt Dromedary F.R., Wandera S.F., Araluen, Monga S.F., Bundawang N.P., Morton N.P., Nerriga, Sassafras, Cambewarra Mtn., Kangaroo Valley, Minnamurra Falls, Burrawang, Robertson, Mt Kembla, Bulli, Mt Werong and Hogans Brush, Gosford. It also occurs on the Southern Tablelands at Mt Tennyson, Geehi River, Tumbarumba and at Batlow in N.S.W. Also on the Brindabella and Blue Ranges in the A.C.T. In the Blue Mountains there is a very closely related undescribed species with smaller leaves and hairless fruits. North of the Hunter River along the tablelands escarpment its ecological niche is occupied by *O. cydoniifolia* which extends into dry rainforest.

Timber and Uses — Pale yellow or light brown, moderately hard, tough, with a musky fragrance. Usually too small to be used but could be suitable for cabinet work and figured veneer from the knobby butt. 700 kg per cubic metre.



0 1 2 cm

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Plate No. 25
Olearia argophylla (Labill.) F. Muell ex Benth.

APPENDIX

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

Bagawa S.F.	23 km N.W. of Coffs Harbour
Bald Rock N.P.	22 km N. of Tenterfield
Banda Banda F.P.	40 km W.S.W. of Kempsey
Barcoongere S.F.	35 km S.E. of Grafton
Barren Grounds N.R.	25 km N.E. of Nowra
Barrington Tops N.P.	95 km N.W. of Newcastle
Beaury S.F.	20 km S.W. of Urbenville
Bellangry S.F.	40 km N.W. of Port Macquarie
Bellbird Ck. N.R.	4 km N. of Eden
Bellinger River S.F.	13 km S.S.W. of Dorrigo
Bemboka S.F.	66 km N.N.W. of Eden
Bermagui S.F.	22 km S. of Narooma
Bielsdown S.F.	4 km N. of Dorrigo
Big Fella Gum Tree F.R.	37 km S.W. of Port Macquarie
Big Scrub F.R.	24 km S.W. of Brunswick Heads
Billilimbra S.F.	35 km S.E. of Tenterfield
Black Bull F.R.	38 km W.N.W. of Coffs Harbour
Black Creek F.R.	30 km S.W. of Port Macquarie
Blandford Creek F.P.	40 km S.W. of Grafton
Boambee S.F.	6 km S.W. of Coffs Harbour
Bodalla S.F.	8 km N.W. of Narooma
Boomerang Falls F.R.	22 km W.S.W. of Brunswick Heads
Boonoo Boonoo S.F.	15 km N.N.W. of Tenterfield
Boorganna N.R.	32 km N. of Taree
Bouddi N.P.	45 km N.N.E. of Sydney
Boundary Creek S.F.	40 km N.N.W. of Dorrigo
Boyne S.F.	8 km N. of Batemans Bay
Bril Bril S.F.	34 km W.N.W. of Port Macquarie
Broken Bago S.F.	20 km W.S.W. of Port Macquarie
Broken Head N.R.	20 km S.S.E. of Brunswick Heads
Brown Mtn. F.R.	65 km N.W. of Eden
Brunswick Heads N.R.	1 km N. of Brunswick Heads
Bruxner Park F.R.	6 km N.W. of Coffs Harbour
Buckra Bendinni S.F.	27 km W.N.W. of Macksville
Budawang N.P.	32 km N.W. of Batemans Bay
Bulga S.F.	37 km N.W. of Taree
Bundagen F.R.	11 km S. of Coffs Harbour
Bundjalung N.P.	70 km N.E. of Grafton
Bungabee S.F.	15 km N.N.E. of Casino
Cangi S.F.	48 km W. of Grafton
Carraí S.F.	52 km W. of Kempsey
Cedar Brush N.R.	170 km N.W. of Newcastle
Chapmans Plain F.R.	20 km N.N.W. of Dorrigo
Cherry Tree S.F.	30 km S.W. of Casino
Chichester S.F.	53 km W.N.W. of Bulahdelah
Clouds Creek S.F.	24 km N.N.W. of Dorrigo
Cockerawombeeba F.P.	57 km W.N.W. of Port Macquarie
Comboyne S.F.	30 km N.N.E. of Taree
Conglomerate S.F.	21 km N.N.W. of Coffs Harbour
Coocumbac Island N.R.	1 km W. of Taree
Craven S.F.	40 km N.W. of Bulahdelah
Currowan S.F.	22 km N.W. of Batemans Bay

Dampier S.F.	32 km N.W. of Narooma
Davis Scrub N.R.	35 km E. of Casino
Dingo S.F.	30 km N.W. of Taree
Donaldson S.F.	16 km N. of Urbenville
Dorrigo N.P.	3 km S.E. of Dorrigo
Doyles River S.F.	75 km W. of Port Macquarie
Edinburgh Castle S.F.	10 km E. of Urbenville
Egan Peaks N.R.	20 km W.N.W. of Eden
Ellis S.F.	29 km N.W. of Dorrigo
Ewingar S.F.	42 km E. of Tenterfield
Forest Land S.F.	15 km S.E. of Tenterfield
Gap Creek F.P.	32 km W.S.W. of Newcastle
Gibraltar Range S.F. & N.P.	47 km N.E. of Glen Innes
Girard S.F.	32 km N.E. of Tenterfield
Gladstone S.F.	23 km N.N.W. of Macksville
Glen Bog S.F.	69 km N.W. of Eden
Glenugie S.F. & F.R.	19 km S.E. of Grafton
Goonimbar S.F.	25 km W. of Brunswick Heads
Guy Fawkes River N.P.	45 km N.W. of Dorrigo
Hyland S.F.	31 km W.N.W. of Dorrigo
Ingalbar S.F.	18 km S.W. of Macksville
John Gould Island N.R.	52 km N.E. of Newcastle
Kangaroo River S.F.	34 km N.W. of Coffs Harbour
Killungoondie S.F.	13 km N.E. of Dorrigo
Kiolo S.F.	20 km N.E. of Batemans Bay
Kiwarrak S.F.	5 km S. of Taree
Koreelah S.F.	20 km N.W. of Urbenville
Levers Plateau F.R.	35 km N.N.W. of Kyogle
Limpinwood N.R.	20 km W. of Murwillumbah
Little Spirabo S.F.	34 km S.S.E. of Tenterfield
Lower Bucca S.F.	14 km N.N.W. of Coffs Harbour
Lyrebird F.P.	23 km N.W. of Batemans Bay
Madmans Creek F.R.	13 km N. of Coffs Harbour
Marengo S.F.	34 km N.W. of Dorrigo
Masseys Creek S.F.	89 km W.N.W. of Bulahdelah
Mebbin S.F.	24 km N.N.E. of Kyogle
Mebbin Rock F.P.	21 km N.N.E. of Kyogle
Mimosa Rocks N.P.	55 km N.N.E. of Eden
Minnamurra Falls	29 km S.W. of Wollongong
Minyon Falls F.R.	22 km S.W. of Brunswick Heads
Mistake S.F.	23 km W. of Macksville
Mobong Creek F.R.	16 km N.N.E. of Dorrigo
Monga S.F.	27 km N.W. of Batemans Bay
Mooball S.F.	8 km S.E. of Murwillumbah
Moonpar S.F.	16 km N.N.W. of Dorrigo
Morton N.P.	35 km W. of Nowra
Mt. Belmore S.F.	42 km S.W. of Casino
Mt. Boss S.F.	55 km W.N.W. of Port Macquarie
Mt. Clunie S.F.	22 km N. of Urbenville
Mt. Dromedary F.R.	13 km S.W. of Narooma
Mt. Hyland	40 km N.W. of Dorrigo
Mt. Imlay N.P.	20 km S.W. of Eden
Mt. Kaputar N.P.	160 km W.S.W. of Glen Innes
Mt. Lindesay S.F. & F.R.	19 km N.E. of Urbenville
Mt. Nothofagus F.R.	20 km N.N.E. of Urbenville
Mt. Pikapene S.F.	39 km S.W. of Casino
Mt. Seaview N.R.	65 km W. of Port Macquarie
Mt. Warning N.P.	10 km S.W. of Murwillumbah
Mt. Wilson F.P.	25 km N.N.W. of Urbenville

Murrabrine S.F.	38 km S.W. of Narooma
Murramarang N.P.	18 km E.N.E. of Batemans Bay
Myall Lakes N.P.	13 km S.E. of Buladelah
Nadgee S.F. & N.R.	40 km S. of Eden
Nambucca S.F.	10 km N.N.E. 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 S.W. of Tamworth
Nulla Five-Day S.F.	48 km N.W. of Kempsey
Nullum S.F.	20 km W.N.W. of Brunswick Heads
Oakes S.F.	40 km N.W. of Macksville
Olney S.F.	24 km N.W. of Wyong
Orara East S.F.	10 km N.W. of Coffs Harbour
Orara West S.F.	18 km W. of Coffs Harbour
Ourimbah S.F.	8 km S.W. of Wyong
Pine Brush S.F.	24 km N.E. of Grafton
Pine Creek S.F.	16 km S.S.W. of Coffs Harbour
Red Cedar F.R.	18 km N.N.W. of Dorrigo
Red Scrub F.R. (now Big Scrub F.R.)	24 km S.W. of Brunswick Heads
Ringwood F.P.	27 km N.W. of Macksville
Riamukka S.F.	120 km W.N.W. of Port Macquarie
Richmond Range S.F.	35 km N.W. of Casino
Robertson N.R.	34 km S.W. of Wollongong
Roseberry S.F.	32 km N.N.W. of Kyogle
Roses Creek S.F.	35 km N.W. of Macksville
Rowleys Creek F.R.	37 km N.W. of Taree
Royal N.P.	30 km S. of Sydney
Scotchman S.F.	31 km N.N.W. of Macksville
Sea Acres Reserve	Port Macquarie
Sheas Nob S.F.	34 km N.N.W. of Dorrigo
Sherwood N.R.	35 km N.N.W. of Coffs Harbour
Stotts Island N.R.	12 km N.E. of Murwillumbah
Strickland S.F.	64 km S.S.W. of Newcastle
Styx River S.F.	53 km E. of Armidale
Tabbimoble S.F.	65 km N.E. of Casino
Tanja S.F.	44 km N. of Eden
Tooloom S.F.	19 km S.W. of Urbenville
Tooloom Scrub F.R.	14 km W. of Urbenville
Toonumbar S.F.	23 km W.N.W. of Kyogle
Tuckers Nob S.F.	13 km S.W. of Coffs Harbour
Unumgar S.F.	14 km N.E. of Urbenville
Victoria Park N.R.	35 km W. of Casino
Wadbilliga N.P.	42 km W. of Narooma
Waihou F.R.	25 km N.N.W. of Coffs Harbour
Wallaby F.P.	23 km N.W. of Batemans Bay
Wallingat S.F.	23 km E.N.E. of Bulahdelah
Wandella S.F.	32 km W.S.W. of Narooma
Wandera S.F.	19 km S.W. of Batemans Bay
Warung S.F.	110 km S.W. of Tamworth
Washpool S.F.	72 km W.N.W. of Grafton
Watagan S.F.	35 km N. of Wyong
Way Way S.F.	10 km S.E. of Macksville
Wedding Bells S.F.	19 km N. of Coffs Harbour
Weelah N.R.	42 km N.N.W. of Taree
Whian Whian S.F.	20 km W.S.W. of Brunswick Heads
Wiangaree S.F.	24 km N. of Kyogle
Wild Cattle Creek S.F.	32 km W. of Coffs Harbour
Willi Willi N.R.	40 km W.N.W. of Kempsey

Willowie Scrub
Wilson River F.R.
Woko N.P.
Wollumbin S.F.
Woodburn S.F.
Woolgoolga Creek F.R.
Yabbra S.F.
Yadboro S.F.
Yambulla S.F.
Yarrahapinni S.F.

70 km N.W. of Grafton
37 km S.W. of Kempsey
30 km N.N.W. of Gloucester
16 km W.S.W. of Murwillumbah
42 km N.N.E. of Batemans Bay
20 km N. of Coffs Harbour
16 km S. of Urbenville
35 km N.N.W. of Batemans Bay
40 km S.W. of Eden
5 km S.E. of Macksville

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