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A section of the wildflower garden of John Hunt on the outskirts of Sydney. From the ground upward we have *Grevillea alpina* with its red and ivory spider flowers, *Leptospermum flavescens* with its white flowers on flowing branches, *Grevillea longistyla* with its spike of red flowers that thrust well above its foliage, *Grevillea* 'Sandra Gordon' with its heads of yellow flowers reaching to the sky, and a backdrop of a "gum tree" set in a lawn, and outlined in the sky.

How do you achieve such a garden?

We propose to show many wildflower gardens in future issues, not just close-up of flower heads. Preparing the series, we came across John Hunt's garden. A magnificent garden in all respects; well grown plants artistically presented. As John has evolved a method that should assure spectacular success in any part of Australia, we requested him to prepare a book. You may obtain a copy, post free, by sending \$24.00 to the Editor, Australian Plants, 860 Henry Lawson Drive, Picnic Point 2213. This special offer is until April 1987.

You will see from the many large colour plates in the book that the scene on the cover of our issue is not unique but one of many floral spectacles. On their own, white flowered plants such as the tea-tree *Leptospermum flavescens* are very pleasing, certainly difficult to photograph. In a garden setting, white flowered plants enhance the colour of other plants, add dimension and texture to the landscape.

It would appear a ridiculous claim that the method described by John Hunt in his book would be very successful in the cultivation of wildflowers in such a range of conditions as at Cairns and Melbourne. Time will undoubtedly prove the claim is accurate. The secret is the control and use of natural water. In most situations, rainfall, what comes naturally, is all that is needed to produce results. Maintenance is a minimum. Once you establish your garden correctly and establish your plants, enjoy it. It still needs someone to cut the flowers for the vase and to prune after flowering; what a bore! — Editor.

CONTENTS

<i>Xylomelum</i> — The Genus	Alec Blombery	3
<i>Lomatia</i> — The Genus	Alec Blombery	7
Tasmanian Proteaceae	Editor	15
Dry Stone Wall Construction	Black Hill Native Flora Park	17
My Wildflower Garden	Martin Johns	18
<i>Leschenaultia biloba</i>	Allan Black	19
In My Garden	Bryan Sheridan	21
Wet-lovers — Gardening in That Wet Spot	Inez Armitage	22
Potting Media — 1	Elizabeth James	23
Dwarf Eucalypts In Tasmania	Allan Gray	28
Dwarf <i>Eucalyptus</i> — The Study	Editor	34
<i>Acacia lingulata</i> and <i>Acacia maxwellii</i>	D. J. E. Whibley	38
Study Groups	Andrew Geering and Barbara Daly	41

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Woody Pear

Xylomelum

The Genus by Alec Blombery

The English botanist James Edward Smith, who described many Australian plants, published the generic name of *Xylomelum* in 1798. It is from the Greek *Xylon*, wood and *Meion*, fruit, referring to the woody nature of the large fruit.

There are five species in the genus, two of which are confined to the south-west of Western Australia, the remainder occurring in New South Wales and Queensland. One of the species is still unnamed and was formerly included with *Xylomelum pyriforme*.

Xylomelum pyriforme

Woody Pear

This large shrub to small tree with a greyish-brown trunk and flaky bark has tough leathery opposite leaves, commonly lanceolate with distinct venation, 10 to 20 cm long and 3 to 4 cm wide. The mature leaves are usually smaller with the edges entire. Commonly there are variously shaped, sharply toothed juvenile leaves and the mature entire leaves on the same plant. The new growth has a dense covering of short woolly rusty-coloured hairs.

The flowers are about 10 mm long and densely covered with woolly, rusty-coloured hairs; in bud the flowers are tubular and when open they split into four rolled back lobes, with the club shaped style projecting. There are numerous flowers crowded to become a dense spike 4 to 5 cm long, usually with several inflorescences at the end of the branchlets. Colour photograph on page 5.

The fruit is large, woody and pear-shaped, up to 5 cm in diameter and 8 cm long; the surface of the fruit is velvety and greyish to brownish in colour. When ripe the fruit splits and releases two light brown seeds each with a long broad membranous wing. The seed and attached wing may be up to 6 cm long. A large number of flowers are produced, but only 1 to 2 fruit develop.

The Woody Pear occurs from the coastal and mountain areas just south of Sydney, NSW, to south-east Queensland and grows chiefly in deep sandy or lateritic type of soils. Growth is very slow, to 20 years before flowering.

Xylomelum species

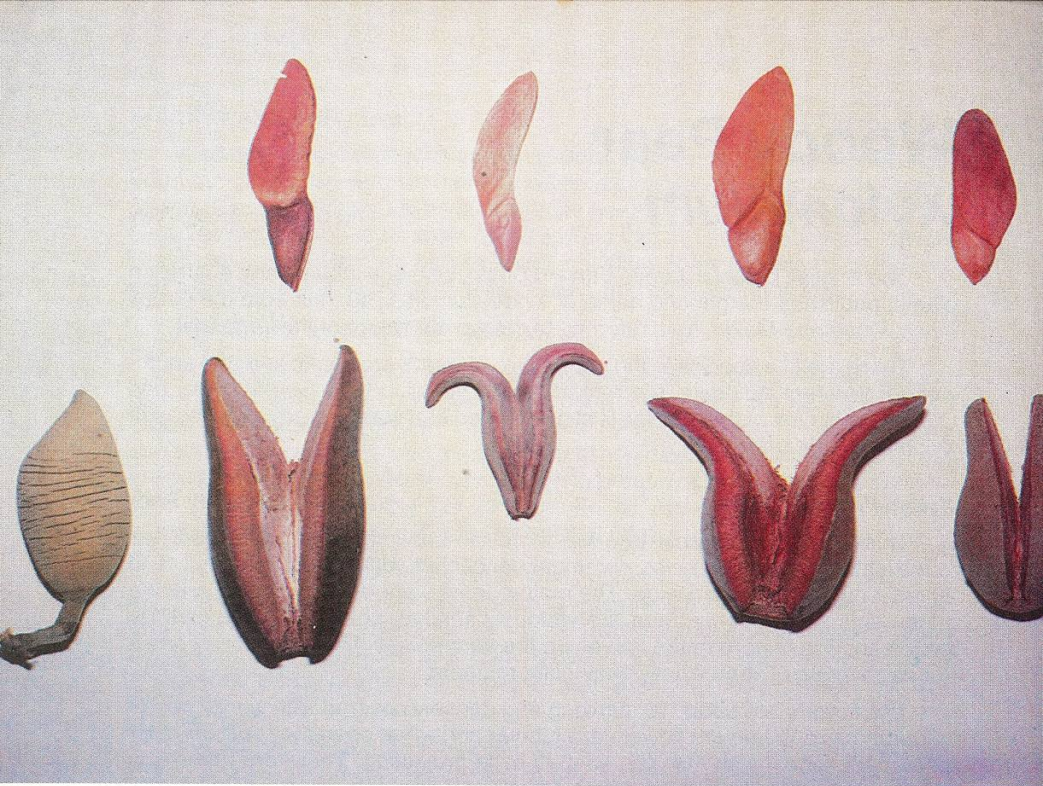
Woody Pear

Formerly included with the *Xylomelum pyriforme* and regarded as an inland form of that species, this unnamed species is a spreading tree to 10 m or more in height, with arching lower branches. The trunk, which may be up to 30 cm in diameter, has a rough furrowed flaky bark. The leaves are similar to those of *Xylomelum pyriforme* but the adult leaves are narrower and a lighter green while the juvenile leaves have a lesser number of teeth on the margins and both may be present on the same plant. The new growth has a close covering of short greyish to whitish hairs.

The flowers are similar to *X. pyriforme* but the close covering of fine hairs are whitish, the inflorescence is more slender and less dense. The fruits are similar but the seed is broader and less sickle shaped.

— Continued on page 8

Vol. 14—Page 3





The Woody Pear, *Xylomelum pyriforme* (above)

Photography by Lois Sourry

The large fruit on this unique large shrub to small tree, resembling a pear, would be 5 cm in diameter, the size of a pear. This unique photograph has also captured the flowers. As you will see the flowers are small, about one centimetre long, but held in bottle-brush-like heads. The beauty of this small tree is in its sparse habit, interesting leaves and showy new growth.

Woody Pear fruit and seed (opposite, top)

Photography by Tony Rodd

From left to right, *Xylomelum angustifolium* from Western Australia (see Vol. 7 page 52 for an excellent large colour plate), *X. occidentale*, *X. scottianum*, *A. pyriforme* and *X. sp. nov.*

Lomatia myricoides (opposite, bottom)

Photography by Alec Blombery

See page 11 for a description of this easily grown decorative plant.

This unnamed species occurs on the north-west slopes of NSW and extends to the Texas-Inglewood area of S. Queensland. It grows in sandy type soils.

Xylomelum scottianum

Hooked Woody Pear

This species was first described by von Mueller as *Helicia scottianum* but he later transferred it to *Xylomelum*. Bentham, in *Flora Australiensis*, Vol. 5, published the name of *Xylomelum salicinum* but the earlier one must apply.

Xylomelum scottianum grows as a small tree 6 to 8 m in height, with a trunk covered in rough brownish scaly bark. The leaves are pale green above and whitish beneath, varying in shape from elliptical to narrow lanceolate, often falcate, with the juvenile leaves larger and variously toothed. The new growth has a covering of close creamish coloured hairs.

The small flowers are creamish-green coloured and have a covering of very short close whitish to silvery hairs; the style apex differs from the two other species in that the fertile flower is mushroom to cushion shaped. The inflorescence is slender and 3 to 5 cm long. The fruit is about 6 to 8 cm long and 2 to 3 cm broad at the base and tapers into a distinctly curved beak. The surface of the fruit is smooth to the touch but lacks the velvety hairs of *Xylomelum pyriforme*. The seeds, which are released when ripe, are light fawn in colour with a distinctly falcate wing. *Xylomelum scottianum* occurs in north-east Queensland on Cape York near the Iron Range where it grows in shrubland in deep sandy soil.

Growing *Xylomelum*

There is little record of the cultivation of *Xylomelum*, no doubt due to the very slow growth of the species to the flowering stage and the susceptibility of the plants to root rots. Seeds are not usually available. *Xylomelum pyriforme* is a protected plant in New South Wales and fruit can only be collected on private land with permission. After picking, well developed fruit must be allowed to dry for about a week when it will split and release the seed.

Seeds are sown in the normal manner. Although they germinate readily the seedlings are very prone to damp-off and require regular treatment with a controlling agent. Little work has been carried out on propagating plants from cuttings as roots do not form readily. Hardened new growth is considered the most suitable for cuttings.

A deep well drained light soil is required for successful cultivation as well as patience and care to grow the plant to the flowering stage. ■

A Tropical Conservatory For Adelaide

As part of the Australian Bicentennial Celebrations, a Tropical Conservatory will be opened at the Botanic Gardens of Adelaide. It will feature plants from northern Australia, Papua New Guinea, Indonesia and the Philippines. We are seeking assistance in locating suitable plant material and expect much will be from known wild collections; thus all collecting data would be important to us.

The assistance of readers who may be able to assist us in our efforts to bring into cultivation a large number of under-utilized Australian plants will be appreciated. Replies direct to Dr B. D. Morley, Director, The Botanic Garden of Adelaide, North Terrace, Adelaide, South Australia 5000.

Rainforest Plants

We shall shortly produce more issues of Australian Plants on Australia's valuable rainforest flora. Among plants to be featured are the Syzygium group including Acmena, who will help with slides?

We will also feature plants in the family for Eleocharis and related genera and Hoya and related genera in the family Asclepiadaceae. I desperately need colour slides — Editor.

Lomatia

The Genus by Alec Blombery

Belonging to the family Proteaceae the genus *Lomatia* was named by Robert Brown in 1810. The name is derived from the Greek *loma* — a fringe of a robe, referring to the thickened margin on the wing of the seed.

Consisting of shrubs and trees, *Lomatia* in Australia is confined to eastern Australia extending from Tasmania to elevated northern Queensland; the genus also extends to the mountain areas of South America. There are nine species of *Lomatia* in Australia.

Lomatia ilicifolia

Holly Lomatia

This erect growing shrub has several slender stems arising from a lignotuber at ground level and grows from 30 cm to a metre or more in height. The leathery leaves are ovate-lanceolate to oblong-elliptical with coarse irregular, sharply toothed margins, 5 to 18 cm long and 3 to 5 cm wide. The new growth is an attractive reddish-brown colour.

The paired creamish-green flowers, 8-10 mm long with small green bracts are arranged along a terminal, often branched inflorescence to about 30 cm or more long. Flowering is irregular, occurring only on new vigorous growth produced from the lignotuber usually after a bushfire, or when conditions for growth are favourable and there is ample sunlight.

The fruit is a follicle, about 30 mm long, with the old style attached and contains a number of tightly packed seeds. When ripe, the follicle splits and slowly releases the seed.

This species occurs chiefly in shrub-woodland from coastal areas to hilly mountain regions, extending from south-eastern Victoria to the central highlands of New South Wales. Plants resemble young New South Wales Waratahs *Telopea speciosissima* for which it is commonly mistaken.

Lomatia silaifolia

Wild Parsely

This shrub, usually a number of slender stems arising from a lignotuber at ground level, grows to a metre or more in height. The leaves, which are 10 to 30 cm long, are finely to coarsely dissected in a pinnate to bipinnate manner into a number of segments each of which terminates in a pointed apex.

The creamish-green to white flowers, 10 to 14 mm long, occur in pairs along a terminal inflorescence up to 30 cm or more in length. Flowering, which occurs in summer, is irregular, developing on new growth from the lignotuber commonly after fire or when the plant is growing in full sunlight with favourable conditions for growth. See page 8 for a colour photograph.

The oblong-cylindrical fruit with the old style attached splits open when ripe and slowly releases a number of winged seeds.

Lomatia silaifolia occurs on the central coast and tablelands of New South Wales to the Blackdown Tablelands in Queensland in sandy type soils.



Lomatia silaifolia △

▽ *Lomatia tinctoria*





Lomatia polymorpha (above)

Photography by John Simmons

Found only in Tasmania, this slender shrub to small tree looks well in the garden. The leathery leaves vary from 2 to 8 cm long and in shape from a little narrower to that shown above to much more rounded. The flower are in heads, a little larger to that above.

Lomatia silaifolia (opposite, top)

Photography by Lois Sourry

A small straggling shrub to 0.5 m high, it carries its flowers on long stems well above leaves. The leaves are not numerous but interesting with its deeply divided pointed lobes. The flowers are quite spectacular, in heads to 20 cm long.

Lomatia tinctoria (opposite, bottom)

Photography by John Simmons

Widespread in Tasmania, this small shrub to one metre is shown full size, a valuable garden shrub.

Lomatia tinctoria

Guitar Plant

Taking its common name from the shape of the opened flattened fruit, this species is an erect shrub mostly .5 to 1 metre in height but sometimes reaching 2 m high. New growths are produced from the underground roots enabling the plant to spread over an area and form clumps or colonies. The leaves, 4 to 8 cm long, are deeply dissected in a pinnate or bipinnate manner into narrow linear segments forming up to seven lobes, each terminating in a blunt or mucronate apex. Older plants may sometimes have entire leaves. Photograph, page 8.

The small flowers, about 1 cm long, are white to creamish-green and are arranged in pairs into loose inflorescences in the upper leaf axils; the inflorescence extends above the leaves. The tough leathery follicle, about 2 cm long with the style attached, opens when ripe releasing the winged seeds.

Lomatia tinctoria occurs only in Tasmania where it is widespread from sea level to 1000 metres elevation. It grows mainly in poorer type soils in light forest and shrub-woodland. It is of interest that a painting of *Lomatia tinctoria* in "The Endemic Flora of Tasmania" was painted from a specimen collected from a plant cultivated in Sussex, England.

Lomatia polymorpha

This species occurs as a slender shrub or small tree 1.5 to 4 metres in height, but in favourable locations may grow up to 7 m high. The new growth has a close covering of silky greyish to brownish hairs. The leathery leaves, about 2 to 8 cm long, vary in shape, even on the same plant, from linear to narrow oblanceolate to elliptical. Juvenile growth may have lobed leaves; in mature leaves the margins may be entire or slightly toothed at the apex. The lower surface of the leaves have a dense close covering of hairs. Colour photograph on page 9.

The creamish-green flowers, about 1 cm long, are closely arranged in short terminal inflorescences and with other members of the genus flower in summer. The leathery fruit, about 2 cm long with the old style attached, splits open when ripe and releases a number of winged seeds.

Confined to Tasmania, this species occurs in mountain areas from about 500 to 1000 metres elevation but in the higher rainfall areas of the west coast it may occur at sea level.

Lomatia tasmanica

This rare species was only described in 1965 by Dr Winifred Curtis and differs from the other Australian species in having red flowers. This small slender tree, which may grow to about five metres in height, appears to develop from suckers on disturbed ground. The new growth is covered with reddish-brown hairs. The leaves are leathery 10 to 18 cm long and are crowded at the ends of the branches. They are pinnately divided into 7 to 11 pairs of broad leaflets which are prickly toothed or lobed; the upper surface is shiny and the lower surface has scattered hairs.

The flowers, about 8 mm long, are crimson coloured and arranged in pairs along a terminal inflorescence. The fruit does not seem to have been collected.

This rare species occurs in an inaccessible area of the south-western corner of Tasmania, where it grows in high rainfall rainforest from sea level to about 300 metres elevation. In the "Endemic Flora of Tasmania" Winifred Curtis advises that cuttings have been rooted and plants cultivated, but growth is slow.

Lomatia arborescens

This erect shrub to small tree grows from 2 to 10 metres in height.

The smooth shiny leathery leaves, 2 to 10 cm long, vary in shape from broad to narrow ovate to elliptical or lanceolate with the margins entire to coarsely toothed or sometimes lobed.

The small creamish-green flowers 7 to 8 mm long are glabrous or almost so and are arranged in pairs along axillary inflorescences 7 to 12 cm long which occur in the upper leaf axils.

The fruit is a leathery follicle about 2 cm long with the style attached and when ripe splits open and releases a number of winged seed.

This species grows in elevated moist forests to an elevation of about 1500 metres often occurring in the upper part of gorges. It occurs on the northern tablelands of New South Wales to the Queensland border.

Lomatia fraseri

This species occurs as a bushy shrub to small tree and may grow from 2 to 7 metres in height. The stiff leathery leaves, 5 to 10 cm long are densely covered on the lower surface with shiny silvery to rusty coloured hairs. The leaves vary considerably in shape and size from narrow to broad elliptical, or lanceolate, with entire or coarsely toothed margins, to slightly lobed or lobed in a pinnate manner, slightly or almost to the midrib, often with the lobes toothed.

The small cream flowers, 7 to 9 mm long, are hairy externally and arranged in pairs along axillary racemes 10 to 15 cm long. The fruit is a leathery follicle to about 25 mm long with the old style attached, and when ripe splits open and releases the seed.

This species occurs in the eastern highlands of Victoria with a large gap in its distribution as in New South Wales it occurs only on the Northern Tablelands.

Lomatia myricoides

This species grows as a bushy shrub to small tree with brownish-grey slightly rough bark. The leaves, which are 5 to 20 cm long, vary in shape from linear to oblong-lanceolate with irregular toothing or entire margins. In younger plants the leaves are much wider and the margins are coarsely toothed.

The small creamish-green flowers, about 7 to 8 mm long, occur in pairs along axillary or terminal inflorescences 5 to 8 cm long. Flowering occurs in mid-summer. The fruit is a cylindrical follicle 2 to 3 cm long with the old style attached. When ripe the fruit splits open and releases a number of winged seeds.

Extending from the eastern highlands of Victoria to coastal valleys of the higher Blue Mountains of New South Wales, *Lomatia myricoides* commonly grows along watercourses and in gullies where it grows into a small tree to 4 metres or more in height. On the sandstone ridges of the higher Blue Mountains west of Sydney, this species occurs as a bushy shrub sometimes less than 2 metres in height. See colour photograph on page 4.

— Continued on page 14



Conospermum taxifolium (above)

Photography by John Simmons

The two-lipped vase-shaped white flowers, each about 1 cm long, are held in flat clusters on long branched stalks above the plant. A valuable white flowered plant for southern gardens. See "Tasmanian Proteacea" on page 15 for other Tasmanian plants.

The Fire-Wheel Tree *Stenocarpus sinuatus* (opposite)

Photography by Lois Sourry

This magnificent large tree is also in the plant family Proteaceae. Not enough has been done to develop the best horticultural forms. Slow growing when young, it has been neglected. Will readers with good free-flowering forms please contact the Editor, Australian Plants; others, grow a plant.



Lomatia fraxinifolia

This small erect rainforest tree grows to about ten metres in height. The leathery leaves are mostly pinnately dissected with 3 to 7 ovate to lanceolate segments with entire or coarsely toothed margins.

The small creamish-green flowers, 8 to 10 mm long, are arranged in pairs on long axillary inflorescences 8 to 15 cm or more in length and in the upper leaf axils. The fruit is a leathery follicle, 2 to 3 cm long with the old style attached, and when ripe splits open to release the seed.

This rainforest species occurs in north-east Queensland on the elevated Atherton Tablelands and surrounding areas.

Growing *Lomatia*

Various species of *Lomatia* have been cultivated to a limited extent but their slow growth and the tardiness of some species to flower regularly, have no doubt discouraged general cultivation.

Under natural conditions flowering appears to fall into two patterns:

1. Those species such as *Lomatia silicifolia* and *L. silaifolia*, which produce new growth from a lignotuber and have terminal inflorescences, usually only flower when the plants are burnt to the ground during a bushfire; or when plants are growing in full sunlight with very favourable conditions for new growth and there is little competition from adjoining plants. After a bushfire, the new growths produced from the lignotuber usually flower during the first or second summer depending upon growing conditions and availability of soil moisture. When favourable conditions for new growth continue for several seasons and there is little competition from adjoining plants, flowering may occur for more than one year.
2. With the group of plants which grow as shrubs to small trees such as *Lomatia arborescens*, *L. fraseri* and *L. myricoides* and that usually grow along water-courses, gullies and in elevated areas where they receive higher rainfall and where there is a plentiful supply of soil moisture, flowering occurs regularly each year except during periods of drought.

Some Examples of Cultivation

Under cultivation a similar pattern of flowering occurs; for example, a plant of *Lomatia ilicifolia* cultivated from a transplanted lignotuber flowered in 1978 about 10 years after planting, but did not flower again until the summer of 1986 following the plant being cut back in the autumn of 1985 and the lignotuber being transplanted to a new location in an open sunny position. Further examples of this flowering habit may be cited; a plant of *Lomatia silaifolia* growing in my own garden, raised from seed first flowered in 1976 some seven years after planting. At the time of flowering there was little competition from adjoining plants and full sunlight was available. Although the plant almost flowered the following year, it has not flowered since as the plant has become overgrown with adjoining plants. A number of plants of *Lomatia silaifolia* raised from seed and planted out some 15 years ago amongst other plants with an overstorey of shrubs and trees, had reached heights of .5 to 1.5 metres but did not flower until adjoining shrubs and trees were removed allowing full sunlight. Following a year of heavy rainfall, new growths were produced from the lignotuber and flowering occurred for the first time in the summer of 1985-86.

Cultivating Plants

A well drained soil is required for satisfactory cultivation of plants. With larger growing types of shrubs and trees such as *Lomatia myricoides*, a protected partly shaded cool position is required with an ample supply of moisture being provided.

With species such as *Lomatia silaifolia* which flower on new growths produced from a lignotuber, an open sunny position should be provided with little competition from adjoining plants and new growths should be induced by the use of fertilizers such as blood and bone. Following flowering, plants should be cut back to encourage new growth and ample water applied. As forced growth can induce root rot, a fungicide such as Terrazole, at a strength of 1/4 of a teaspoonful per gallon, should be applied as a drench at 2 monthly intervals during spring and summer of the first year then reduced to 6 monthly intervals.

Propagating Plants

Seeds germinate readily and should be sown in a similar manner to that used for raising seedlings of various types. Small seedlings should be potted on and allowed to grow in a container for 12 months to 2 years before planting out in the garden as development of plants is slow.

Plants may be propagated from green hardened cuttings; roots develop slowly and growth and development is similar to seedlings. ■

Tasmanian Proteaceae

Recent issues of Australian Plants have presented eastern Australian Proteaceae and with them some Tasmanian species of *Banksia*, *Lambertia* and *Persoonia*. There are other floral gems of distinction, many confined to Tasmania. Will readers advise of their experience in cultivation and advise of any outstanding forms for horticulture. Any good colour slides?

Agastachys odorata, "White Waratah". An erect shrub with flowers in terminal spikes.

Bellendena montana, "Mountain Rocket". Yellow flower heads to 4 cm long on long stalks above a small 0.5 m high bush followed by red fruit like spurts of flame from a rocket.

Cenarrhenes nitida, "Native Plumb". A small tree with cream flower heads and large purple-bluish berries.

Conospermum taxifolium, "Yew-leaf Smoke-bush". See colour plate on page 12.

Orites — There are four species confined to Tasmania in sub-alpine and alpine areas. All of these have potential as horticultural plants.

Hakea — The nine species in Tasmania are described in Australian Plants Vol. 5, page 347.

The Magnificent *Grevillea*

Our last issue was devoted to *Grevillea* species, ideal garden subjects. We regret that the colour plate of *Grevillea saccata* was upside down and the captions for *G. cirsiifolia* and *G. aquifolium* were interchanged. One segment by Neil Marriott that missed out because of space was an important note on *Grevillea nudiflora*. This plant is also featured in colour on the next page.

Grevillea nudiflora — "Divided-leaf form"

Most readers will be familiar with the typical form of *Grevillea nudiflora* — a low mounded shrub with narrow linear leaves and red and yellow flowers on long leafless branches trailing more than a metre away from the bush.

However, the divided leaf form is quite distinct, being a fairly dense shrub to 0.7 m × 1 m with attractive trident soft leaves and mauve-pink flowers on shorter leafless stems which arch out mid air from the bush in a most pleasing manner, showing the flowers off far more attractively than the typical prostrate flowered form.

Coming from along the highway between Ravensthorpe and Esperance in SW Western Australia it surprises me that it has not been introduced into cultivation sooner. In this area it grows in gravelly clays, and in cultivation it seems to be most adaptable, striking readily from cuttings and growing vigorously in a variety of soil generally preferring full sun.



A Stone Retaining Wall At Black Hill Native Flora Reserve

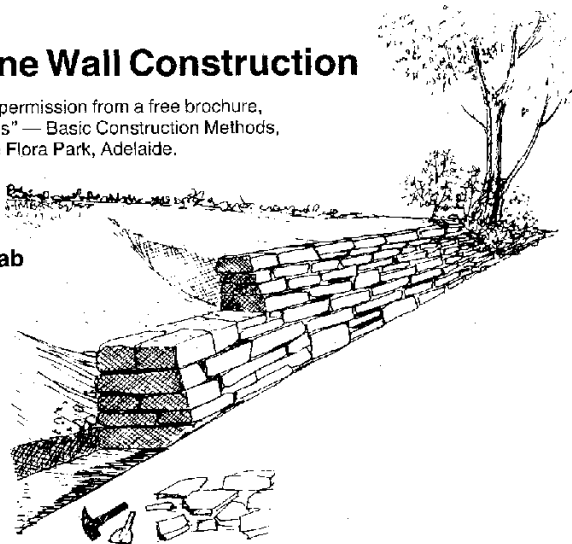
Photography by David Hockings

Grevillea nudiflora is the plant cascading down this 1.3 m high wall. Our last issue was devoted entirely to the magnificent flowering *Grevillea* and you will certainly need a copy for reference in the future. Other plants recommended by Black Hill for dry stone wall plantings are *Myoporum parvifolium*, *Pultenaea pedunculata*, *Kennedia prostrata*, *K. eximea*, *Scaevola aemula*, *Hemiandra pungens*, *Helichrysum apiculatum* 'Prostrate', *Leptospermum juniperinum* 'Horizontalis', and the species they recommend for growing in hanging baskets, Australian Plants No. 107, page 310.

Dry Stone Wall Construction

Reproduced by permission from a free brochure,
 "Garden Designs" — Basic Construction Methods,
 Black Hill Native Flora Park, Adelaide.

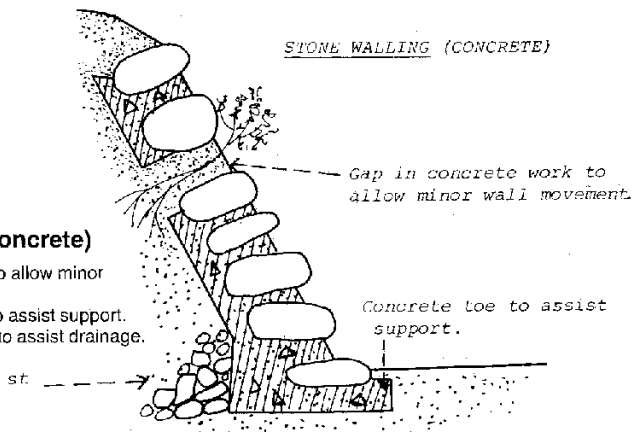
1. Stone Slab



STONE WALLING (CONCRETE)

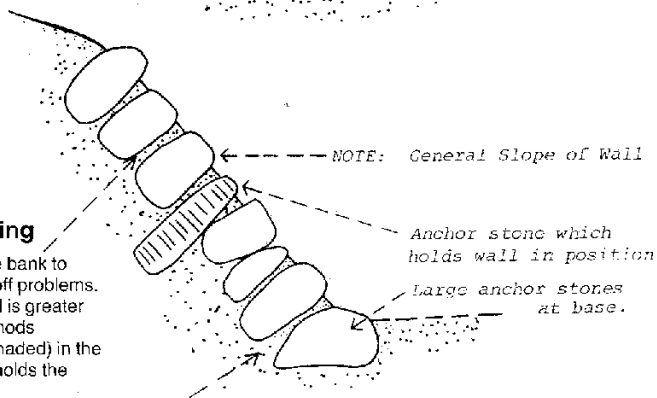
2. Stone Walling (concrete)

Gap in concrete work to allow minor wall movement.
 Concrete toe at base to assist support.
 Stones at base of wall to assist drainage.



3. Dry Stone Walling

Slope stones into the bank to reduce water run off problems.
 General slope of wall is greater than for other methods.
 The anchor stone (shaded) in the centre of the wall holds the wall in position.
 Consolidate soil behind the wall as it is built.
 Large anchor stones at base.



My Wildflower Garden

by Martin Johns, Greensborough, Victoria

I have quite a few *Prostanthera* in my garden and they are doing quite well despite my heavy clay. I have *Prostanthera ovalifolia*, *P. denticulata*, *P. saxicola* var. *montana*, *Prostanthera* 'Scheelii', *P. cuneata*, *P. cryptandroides*, *P. melissifolia*, *P. incana*, *P. aspalathoides*, *P. violacea* and *P. lasianthos* (dwarf form).

When I first moved into my house seven years ago the garden was just weeds. For the first four years I was lazy and just dug out circular patches amongst the weeds and planted shrubs and trees. It didn't take long for the weeds to smother the plants and the whole thing was very discouraging. I used to get the lawnmower out and cut the weeds down from time to time but that was hardly a permanent solution.

Starting in 1983, I have been gradually digging out all the weeds, mixing gypsum into the soil and giving a thick coverage with woodchips. As a result most of my plants are thriving.

What Else Do I Grow?

I'm afraid I have more of a collection of plants rather than a natural bush garden. In other words I have tried to grow a very wide (too wide) range of plants, sometimes with success, sometimes with disappointment. Among the successful plants have been:

Acacia pravissima, *A. iteaphylla*, *A. beckleri*, *A. paradoxa* which grows naturally here, *A. drummondii*, *A. acinacea*, *A. amblygona* (prostrate form), *A. venulosa* (which was obtained as *A. lanigera* var. *venulosa*), *Anigozanthos flavidus*, *A. flavidus* × *A. rufus*, *A. flavidus* × *A. pulcherrimus*, *Anigozanthos* 'Dwarf Delight' (last October I cut off all of the fiery orange flower spikes for my wife to dry. By Christmas as many, if not more, had reappeared on the plant);

Banksia spinulosa var. *collina*, *B. ericifolia* (this plant has many flower spikes in bud at the moment, one of which is a bit weird as it has a dozen baby spikes sprouting from the base), *Boronia denticulata*, *B. mollis*, *B. clavata*, *B. filifolia*;

Callistemon 'Kings Park Special', *Callistemon citrinus* 'Australflora Firebrand', *C. viminalis* 'Prolific', *Chorizema cordatum*, *Correa* 'Mannii', *C. baeuerlenii*, *C. reflexa*;

Dampiera diversifolia, *D. cuneata*, *D. teres*, *D. purpurea*;

Epacris impressa, *E. longiflora*, *Eucalyptus forrestiana*, *E. macrandra*, *E. caesia* (a clump of three shows promise);

Grevillea hookerana, *G. shiresii*, *G. intricata*, *G. alpina* (many forms), *G. thelemanniana*, *G. sericea*, *G. lanigera*, *Grevillea* 'poorinda Queen', *G. × gaudichaudii*, *G. dimorpha*, *G. baueri*, *Grevillea* 'Sid Cadwell', *G. barklyana*;

Hakea laurina, *H. petiolaris*, *H. multilineata* (flowered for the first time last year), *H. bakerana*, *Hymenosporum flavum*, *Hemiandra pungens*, *Hibbertia empetrifolia*, *H. scandens*, *H. dentata*;

Leptospermum petersonii, *L. nitidum*;

Melaleuca hypericifolia, *M. nesophila*, *M. thymifolia*, *M. violacea* (Prostrate form), *M. incana*;

Pandorea pandorana (I have a white form which has totally overrun a balcony and needs constant cutting back), *P. jasminoides*, *Passiflora cinnabarina*, *Pultenaea pedunculata*;
Sollya heterophylla;
Thryptomene saxicola.

They are fed only sporadically with blood and bone. I give them lots of water in their first summer but after that only water them after a long dry spell. It depends a bit though where they are in the garden, if there are any big trees nearby and where they naturally come from. I have tried to place plants with similar needs together so that while I am giving something a much needed drink I am not at the same time making the ground too wet for something else. Incidentally we had a very wet December but none of the West Australian species were lost.

To finish let me tell you my three year old son is obviously going to be a very keen gardener. Just recently it was very windy here. The following conversation took place under some large gum trees as they were swinging fairly precariously in the wind.

Jeremy: "One of the branches could fall down."

Me: "Yes. You have to be careful they don't fall on top of your head."

Jeremy: "Or even worse they could fall down on top of the plants."

Leschenaultia biloba

by Allan Black

Some years ago a few members of SGAP commended that the above species was easy to propagate from cuttings, whilst others lamented the fact that they were difficult. Up till recently my own experience supported the latter view — with one reservation — in that I have achieved some moderate success in setting the cuttings straight in the ground. This was contrary to my preference of using pots, a method which I have always favoured by virtue of my restricted environment, plus my determination to contest the challenge.

I built a small rockery about one metre $\times$ 60 cm, which was raised above the ground level to a height of 30 cm. It is semi circular in design bordering a path. One metre of galvanised iron supports the background of the media in its length, and helps to attract radiation and warmth to the area. The aspect faces north, and the ingredients of the media consists of 2 parts of river sand and 1 part clay loam, to which was added some rough German peat moss. The length of the cuttings were approximately 80 mm and in groups of 3, which were placed together under preserving jars. They were watered daily over the jars. At least one or two cuttings under each jar had rooted in 8 to 10 weeks. On very hot days the area was covered with 70% shade cloth. It was safe to remove the jars at 10 weeks, which indicated root formation. I applied Osmocote pellets as a fertilizer, while the soil surface was covered with 20 mm size gravel as a mulch.

Over recent years the propagation of this species from cuttings in containers has presented me with some problems. Failures in the following situations have added to my disappointments. They were:-

- (a) Under jars in a bush house with ample light and filtered sun.
- (b) In the open covered with jars under a layer of 70% Sarlon shade cloth.
- (c) In a small covered igloo of cloudy plastic with no jar cover.
- (d) In a plastic bag hung in a bush house.

The media in each case consisted of 80% packing sand (minute gravel), which was boiled and 20% sieved German peat moss and occasionally perlite was added.

My repeated failures in any of the above situations prompted me to seek, and adopt, what I thought to be a new technique in propagating this plant. In December, 1985, I obtained a standard size plastic bucket, which I placed on a shelf in the open, but under a layer of 70% Sarlon shade cloth. One side was also protected in the same way. A loose cylindrical cover was lowered over the bucket to shield it from the sun. The container was then half filled with 20 mm size gravel, the top half also containing 3 parts of river sand and 1 part of rough German peat moss. Having lightly compacted the media, around the edge of the bucket I stood 6 jam jars, and one in the centre, with the open end leaving its imprint on the surface of the media I progressively removed each jar one at a time, then with a small garden scoop I made a hole under each jar imprint about 8 cm in diameter $\times$ 10 cm deep. Each hole was filled independently with 95% wetted commercial pot mix and 5% sieved German peat moss, which was firmed and again the jars were replaced in position with a visible impression of their rim on the pot mix.

Early in the morning each cutting was severed from the parent plant at about 7 cm in length. The leaves were removed from the lower half of the cuttings and the bare stem dipped in Formula 20, and then the ends in white hormone powder.

With a probe 2 cuttings were set and firmed under each jar. The procedure was commenced from the centre, followed by the remainder, and when the exercise was completed the cuttings were drenched with water and an application of acid water (vinegar). Finally, string was tied around the external side of the jars to hold them stable. On very hot days a small piece of sarlon was laid over the jars to provide added shade. The cuttings were watered over the jars every evening, depending on weather conditions.

After 10 weeks each jar was removed and the area well saturated with water, after which the cuttings tested to ensure that root resistance was apparent. The extraction of the cuttings may have appeared to be complicated, but were in fact quite simple. I made 2 stainless steel spoons (for want of a better term), which were 9 cm long $\times$ 3 cm wide and slightly tapered, and quarter round with a section at the top being bent at an angle of about 60° for leverage.

With the jars removed and the media wetted, both spoons were placed in a vertical position about 2 cm on either side of each cutting, and both spoons pressed down into the media to their full depth then wobbled from side to side; at the same time allowing water from the hose to trickle down the sides of the spoons until saturation was reached, after which the spoons were levered towards each other and the ball lifted out. All the cuttings had rooted, and it was noteworthy that those under the centre jar indicated a marked growth. This was probably the result of radiation being transmitted from the sun's rays through the surrounding jars and in turn each jar radiated some heat to its neighbours; thus the entire surface of the bucket was in a constant state of warmth. As each cutting

accompanied by the ball of soil was lifted out they were transferred to a container with the same commercial pot mix. Having watered and consolidated the seedlings gently, Osmocote pellets were added as a fertilizer and finally acid water.

With this method it was not necessary to harden off, but I considered it advisable to place them under Sarlon. Today, 26th May, 1986, the 14 seedlings were all about 70 cm high, the foliage being sprinkled with water each night.

I believe that constant experimentation in propagating native plants will ultimately reward one with reasonable results. The formation of the flowers en masse of this species is a symphony of heavenly blue in spring, and the method of propagation as described above is simple and well worth the effort to attempt, for in so doing success is assured. Good luck. ■

Verticordia In My Garden

by Bryan Sheridan,
High Wycombe, WA

I have the following plants growing — *Verticordia plumosa*, *V. acerosa*, *V. chrysantha*, *V. densiflora*, *V. grandis*, *V. habrantha*, *V. huegelii*, *V. lepidophylla*, *V. lindleyi*, *V. mitchelliana*, *V. monadelphae*, *V. nitens*, *V. oculata*, *V. ovalifolia*, *V. staminosa*, *V. insignis*, *V. patens*, and a new one from Coolamia. *Verticordia* sp. (Coolamia) is a similar plant to *V. nitens* but has more foliage and longer needle like leaves than *V. nitens*.

My favourite *Verticordia* is *V. grandis* and, of course, it is the hardest to grow. I have one *V. grandis* bush growing next to my limestone foundations and that one is only 1½ years old and stands over 1.8 m tall. I think the lime really helps this *V. grandis* as the other one is only half that size and is growing on virgin grey bush sand.

I have grown all my *Verticordia* plants from cuttings as I have not had any success from seed as yet, although I will keep trying. My propagation method is very simple. I mix up my own soil one part coarse river sand, one part peat moss, local bush sand and sawdust. I place five to six cuttings in a 15 cm plastic pot after dipping the end in rooting powder. After watering the cuttings in the pot I place a plastic bag over the pot with two U-shaped wires to support the plastic bag upward in the form of a tent. The pots are then placed in a position so that they do not get too much hot sun to cook them.

It does seem a waste when I prune back my plants knowing how hard it is for people to get *Verticordia* propagating material. I'm lucky to have a friend, Dick Mills, who gives moral support. He is a member of the West Australian Wildflower Society and is a very keen propagator of *Verticordia* plants. Dick has twice as many plants as I have and seems to have a lot of luck with his propagation. He has a beautiful *Verticordia picta* and *Verticordia oculata* which I'm always envious of when I go to his place to swap some cuttings or advice.

I am also lucky to have a native plant nursery called Zanthorrea only about 2 miles from my home and Alex Hooper, who owns the nursery, is a very knowledgeable person on all Western Australian plants. He also has a section set aside in his nursery for *Verticordia* plants and his plants put on a beautiful show all year round.

Verticordia are a beautiful plant but are often short lived in cultivation so I am continually propagating cuttings to keep stock in my garden. ■

Wet-lovers

Gardening in That Wet Spot

by Inez Armitage,
2 Rivers Meadows, Kempsey 2440.

The entire five acres of land on portion of which my home is built consists of poor, heavy, badly drained grey soil to a depth of 12-20 cm over solid, impenetrable clay; grey, cream, sometimes pinkish in colour.

Due to a thoughtless builder working on additions to the house a couple of years ago one of the wettest areas became even wetter when he absentmindedly filled in the septic drainage trench.

Deciding to experiment with the area to see which of the wet lovers would also be willing to accept the effluent from the septic tank which carries all waste water from kitchen, laundry, two bathrooms and toilets I rearranged its distribution to spread over an area approximately 9 x 8 metres. Here I planted a number of *Callistemon*, *Melaleuca*, *Leptospermum*, three *Banksia robur*, *B. oblongifolia* and two *Melastoma affine*. With the exception of the latter which was badly hit by frost after putting on magnificent growth and flowering in its first year, all others are flourishing. The *Melastoma* will undoubtedly recover in spring. All three *Banksia robur* flowered in their first year after planting and at two years are now between 1.75 and 2 metres high.

But it is the lesser known in-betweens which have been such a success. These comprise blue *Artanema fimbriata*, cyclamen coloured *Lythrum salicaria*, blue *Plectranthus parviflorus*, the bluest, best and most common of the *Scaevola albida* varieties and yellow *Ranunculus lappaceus*. For months they covered the entire area between shrubs with a mass of colour so that the ground was literally invisible.

I have grown all these in Sydney but the difference in performance here in a very wet area is a valuable lesson learned. The *Artanemas* formed branching, herbaceous shrubs with 8-10 stems growing to about 80 cm and carrying an excellent show of flowers all through the six months from September to March. *Lythrum* also formed strong, branching shrubs more upright and woody than the *Artanemas*, to a height of 1 to 1.25 metres with 6-8 stems covered with closely packed flowers for one month during February and March. Both these shrubs are exceptionally easy to propagate from either seed or cutting.

Plectranthus parviflorus, the silvery, velvety leafed variety, with darkish blue flowers in long spikes flowered for four to five months and formed strong, woody stems about 1 cm in diameter. I know people who regard this as a weed. Planted en masse it made a great show, especially intermingled with the blue of *Artanema* and *Scaevola albida*.

These three herbaceous shrubs die down almost to ground level in winter and should be trimmed off for the sake of appearance. They will reappear in spring as bigger and better plants and so will a considerable number of seedlings of all three. ■

Pests, Diseases and Ailments of Australian Plants

David Jones and Rodger Elliott

Available from The Editor, Australian Plants, for \$24.99 plus \$3.51 postage. This 333-page book is good value. The author team of David Jones and Rodger Elliott has earned wide respect from their many books, each being well researched and so well presented. Readers may confidently expect to diagnose any problem that is preventing health, vigour and good floral display of their wildflowers. As you would expect in this enlightened era, the approach is to help you diagnose the problem, understand the life cycle of the creature involved and assess the degree of damage not only to the plant but to the natural environment. Control methods are suggested. Colour plate on page 44 produced by permission.

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For Tropical Areas

"Cycads of Australia", 3 — All Australian cycads and their cultivation.

"Landscaping A Tropical Garden", 287 — "Wildlife in The Garden", 291.

"Planting Procedure", 297 — "Plants from Cuttings", 295 — "Potted Plants", 306.

For Temperate Areas — Tropics to Victoria

"Transforming a Property in New England", 23. Gardening under difficult conditions.

"Colour Your Garden", 47 — "Colourful Groundcovers", 51.

"Gardens with Minimum Watering", 55 — "Drought In The Garden", 266.

"A Wildflower Garden", 49, 59, 248.

"The Native Eco-Garden", 62, 167, 278. Gardening as by nature.

"House Plants", 64. The care of potted plants in the home. — "Hanging Baskets", 310, 313.

"Palms In Containers", 298 — "Palms in Cultivation", 303.

"Plants Of The Desert — Cultivation In Sydney", 114.

"East Coastal" — A series on natives grown near Sydney, 343.

For Dry, Hot Climates

"Australian Plants In Alice Springs", 102 — "Arid Zone Garden", 106.

"White Cedar For Shade", 124.

Grow Your Own Plants

"Potting Mixes", 159, 306 — "Below ground conditions", 161, 217, 320.

"Propagation", 113, 168, 191, 258, 259, 295.

"Grafting — 1", 344.

Uses For Wild Plants

"Birds and Creatures to Share Your Garden", 118, 143, 291, 315.

"Bush Tucker", 127.

An Index By Species

- Abarema grandiflora* 68
Abrophyllum ornans 68
Acacia, Food value of seed 25
Acacia acinaceae 107
A. adunca 269
A. aneura 98, 107, 123
A. baileyana 24
A. barbinervis 121
A. boormanii, *buxifolia* 24
A. cardiophylla 24
A. cometes 266
A. conferta, *cultriformis* 24
A. dealbata, *decurrens* 24
A. depressa 266
A. estrophiolata 102, 118, 123
A. glaucoptera 107
A. hilliana 103
A. holosericea 130
A. implexa 24
A. jibberdingensis 268
A. kempeana 123
A. lasiocalyx 268
A. ligulata 107
A. melanoxylon 24
A. murrayana 102, 107
A. praviissima 266
A. pulviniformis 266
A. redolens 267
A. rossei 268
A. rubida 24
A. salicina 268
A. saligna 107, 121
A. stronglyophylla 103, 118
A. tetragonophylla 118
A. vermicillua 24
A. victoriae 96, 118, 130, 268
Acianthus exsertus 222
Agapetes meliniana 68
Agathis robusta 68
Alectryon tomentosus 68
Aleurites mouluccana 68
Alocasuarina — all species 39
A. decaisneana 102, 104, *A. muelieriana* 267
Alocasia macrorrhiza 68
Alpinia 3 spp. 68
Anigozanthos hybridising 196
Anopterus glandulosus 68
A. macleayanus 68
Araucaria 3 spp. 68
Ardisia brevipedata 69
Argophyllum leifjordanii 69
Argyrodendron actinophyllum 69
Aristida browniana, *A. contorta* 98
Aristolochia tegala 290, *A. deltantha* 69
Athrotaxis cupressoides 69
Atalaya hemiglauca 102
Atriplex nummularia 102, *A. rhagodioides* 267
Backhousia citriodora, *B. anisata* 69
Banksia audax 61
B. baueri 267
B. burdettii 40
B. canei 207
Banksia collina 24
B. conferta 205
B. integrifolia 24, 189, 190, 202
B. marginata 24, 201, 206
B. oblongifolia 204
B. paludosa 200, 207
B. plagiocarpa 205
B. robur 207
B. saxicola 200, 203
Beaufortia orbitolia 267
Blepharocarya involucrigera 69
Boea hygroscopica 69
Boronia inornata 191, 193
B. pencillata 193
B. pinnata 274, 284
B. serrulata 155, 210, 212
Bonamia rosea 102
Bowenia, all species 28
Brachychiton 4 spp. 69, 268
Brachyscome ciliaris, *iberidifolia* 179
Bulbophyllum boonjee 233
Caladenia latifolia, *menziesii* 222
Calcectasia cyanea 261
Calitris rhomboidea 268
Callistemon for arid areas 3 spp. 107
Callistemon for birds 290
Callistemon, 14 forms 296
Callistemon 'Little John' 56
Calocephalus platycephalus 99
Calotis, all species 173, 179
Calothamnus gilesii 267
Capparis mitchellii 131, *C. spinosa* 118, 129, 131
Cardwellia sublimis 69
Carissa lanceolata 134
Carnarvonia araliifolia 69
Cassia artemisioides 107, 267
Castanospermum australe 69
Casuarina all 5 species 39
Cayratia clematidea 69
Ceropegia cumingiana 69
Chamelaucium uncinatum 26, 267
Cheilanthes lasiophylla 103, 123
Cheiranthra alternifolia 266
Chiloglottis 3 spp. 222
Chorizema 3 spp. 69
Cissus 5 spp. 69
Citriobatus multiflora 69
Clerodendrum 2 spp. 69
Clinanthus formosus 69, 231, 266, 309
Colocasia esculenta 69
Conospermum taxifolium 241, 243, 247
Conostylis robustum 57
Cordylina 4 spp. 69
Correa reflexa 45, 46
Costus poterae 69
Crinum flaccidum 266
Croton insularis 69
Crowea angustifolia 260
Cucumis melo 134
Curcuma australasica 69
Cuttsia viburnea 69
Cycads of Australia 3

- Cycas* all species 31
Cynanchum floribundum 119
Cyperus bulbosus 127, 129
Dampiera 2 spp. 266
Darlingia darlingiana 69
Darwinia taxifolia 51
Davidsonia pruriens 69
Daviesia aphylla 121
Dendrobium fleckeri 236
D. tetragonum 276
Dianella tasmanica 69
Diplarrena all species 63
Dipteracanthus corynothecus 103
Dillenia alata 69
Dioscorea transversa 69
Diploglottis australis 69
Dischidia 3 spp. 69
Diuris 6 spp. 222
Dodonaea viscosa 107
Drosera 9 spp. 69
Dryandra calophylla, drummondii 88
Enchylaena tomentosa 131, 133
Eremophila 7 species 107
E. bowmanii 192
E. brevifolia 191
E. christopheri 105, 112
E. gilesii 112
E. lehmanniana
E. macdonnellii 112
E. psilocalyx 191
E. willisii 97, 99, 112
Eremophila propagation 113, 191
Eurodia elleryana 69, 290
Eupomatia bennettii 69
Eurycles amboinensis 69
E. cunninghamii 69
Eucalyptus, hard cond. 10 spp. 24, 107
E. camaldulensis 136
E. eremophila, gardenieri 268
E. gamophylla 102
E. intermedia 290
E. kruseana 107
E. lansdowneana 268
E. macrandra 268
E. pachyphylla 102
E. papuana 103
E. phoenicea 296
E. preissiana 267
E. ptychocarpa 287, 290, 296
E. sideroxylon, stricklandii 268
E. tereticornis 138
E. terminalis 99
E. websteriana 268
Ficus 7 species 69
Ficus platypoda 99, 130
Fieldia australis 69
Flindersia 8 species 69
Freycinetia australiensis 69
Gossypium all species 109
Grevillea, 4 cultivars in Armidale 24
Grevillea, 13 red flowered species 50
Grevillea, 6 ground cover species 54
Grevillea for birds 291
G. acacioides 362, *acanthifolia* 351
G. acerata 362, *acrobotrya* 362
G. acuarria 335, 336, *adenotricha* 362
G. aneura 362, *G. aquifolium* 351, 352
G. arenaria 343, 363, *argyrophylla* 359
G. australis 351, 359
G. baileyana 363, *barklyana* 363
G. batrachioides 363, *baueri* 363
G. beardiana 363, *beedleana* 364
G. bedgoodiana 350, 363
G. benthamiana 365
G. brachystylis 335, 336
G. bracteosa 259, *buxifolia* 359, 365
G. bymesii 365, *cagliana* 365
G. candolleana 335, *christinae* 365
G. concinna 365, *costata* 343, 359
G. confertifolia 348, 354, 357
G. crithmifolia 338, 354, *curviloba* 365
G. drummondii 337, 338
G. dryandroides 336, 357
G. eriostachya, extorris 338
G. fasciculata 354, *fistulosa* 339, 353
G. floripendula 348, *fulgens* 339, 377
G. hakeoides 368
G. iaspicula 368, *ilicifolia* 353, 354
G. infecunda 350, 368, *integrifolia* 368, 380
G. involucreta 339, 377
G. juncifolia 95, *juniperina* 57, 354
G. kenneallyi 368
G. lanigera 57, *laurifolia* 355
G. leucopteris 359, *leucoclada* 368
G. linsmithii 369, *lissopleura* 369
G. longicuspis 369, 373, *lullfitzii* 369
G. mackinsonii 369, *manglesioides* 359, 369
G. maxwellii 369, *microstegia* 350
G. minutiflora 369, *molyneuxii* 370
G. montis-cola 349, 355, *mucronulata* 343
G. murex 370, *myosodes* 370
G. nana 339, 370, 373, *newbeyi* 370
G. oblecta 340, 341, *olivacea* 279
G. obtusiflora 370, *oldei* 371
G. pauciflora 340, 371, *palybotrya* 359
G. petrophiloides 145, 333, 371
G. phillipsiana 371, *pilosa* 371
G. polyacida 372, *prasina* 372
G. prostrata 355, 359, *psilantha* 372
G. pteridifolia 288
G. renwickiana 355, *repens* 358
G. robusta 24, 69, *rosieri* 272
G. roycei 372, *saccata* 357
G. sarissa 372, *scortechinii* 374
G. secunda 374, *shiresii* 345
G. speciosa 348, 374, *spinossissima* 374
G. stenobotrya 99, *steligitziana* 350
G. subtiliflora 374, *tenuiloba* 340
G. tetrapleura 375
G. thelemanniana 279, 358, 375
G. thyrsoides 358, 376
G. uncinulata 375, *umbellulata* 359
G. velutinella 375, *versicolor* 375
G. vestita 376, *whiteana* 376
G. wickhamii 103, 376, *willisii* 376
G. wittweri 376, *G. 'Winpara Gem'* 279
Grevillea 'Pink Surprise' 343
G. 'Robyn Gordon' 343

- Hakea cinerea* 267
H. dactyloides 24
H. eyreana 101, 103, 118
H. leucoptera 102
H. salicifolia 24
Helicia all species 226
Helichrysum apiculatum 53
Helmholtzia acorifolia, glaberrima 69
Hemiandra pungens 54
Hibbertia pedunculata 54
Hibbertia miniata 260
H. obtusifolia 54
Hicksbeachia pinnatifolia 69, 270
Hollandaea sayerana 69
Hoya 4 species 69
Hydriastele wendlandiana 300
Ipomea costata 130, 132
Isopogon anemonifolius 148, 150
I. anethifolius 148, 150
I. dawsonii, fletcherii 151
I. mmoreifolius 151
I. peticiaris 151, 171
I. prostratus 148, 150
Jacksonia scoparia 24
Kennedya prostrata 54
K. nigricans 59
Kreysigia multiflora 69
Kunzea baxteri 58
Lambertia formosa 237, 239
Lechenaultia formosa 269, 311
Leichhardtia australis 134
Lepidozamia hopei 12, 30
L. peroffskyana 1, 12, 30, 85
Leptospermum flavescens 292, 294
L. phylloides 224
L. scoparium 292
Leptospermum 7 species for Tropics 296
Leucopogon sonderensis 123
Livistona decipiens 37
Livistona mariae 101, 103, 111, 123
Lycium australe 118
Macadamia praealta 270
M. tetraphylla 69, 240, 270
Macaranga tanarius 69
Macrozamia, all species 3
M. macdonnellii 103, 111, 123
Macgregoria racemigera 214
Mackinlaya macrosciadea, confusa 70
Melia azedarach 124, 291
Melaleuca glomerata 102
M. bracteata, elliptica 107
M. nervosa 289
M. leucadendron 287
Molineria recurvata 70
Microtis parviflora, unifolia 222
Micromyrtus flaviflora 102
Myoporum acuminatum 103
M. parvifolium 54
Neofabricia 304
Newcastlia elliptica 99
Normanbya normanbyi 301
 Orchids — Terrestrial 219, 272
Oxylobium tricuspidatum 54
 Palms 298
Pandorea doratoxylon 99
Pararchidendron pruinosum 332
Petalostylis cassioides 103
Petrophile canescens 152, 154
P. pedunculata 152, 154
P. pulchella 152, 154
P. sessilis 154
Persoonia, 7 NSW species 245, 247, 262
Persoonia, 4 Tasmanian spp. 181
P. chamacpitys 244
P. comata 260
P. cornifolia 247
P. levis 245
P. pinifolia 245
Phyllora dasyphylla 121
Podolepis jaceoides 176
Pratia pedunculata 53
Pterostylis 23 spp. 222
Pterostylis vittata 273
Ptychosperma elegans 44
Pultenaea anistata 72, 84
P. aspalathoides 75, barbata 83
P. benthamii 322, boormanii 73, 77
P. cambagei 250, campbellii 72, 84
P. canescens 253, capitata 249, 257
P. conferta 79, dasyphylla 324
P. dentata 251, drummondii 79
P. elliptica 254, euchila 256
P. glabra 73, graveolens 78
P. hispidula 71, humilis 255
P. linophylla 326, 328
P. lycopodioides 324
P. microphylla 327, 329, muelleri 254
P. myrtoides 327, 329
P. neurocalyx 76, *P. paieacea* 251
P. pedunculata 53, 322, 328
P. pauciflora 83, paludosa 251
P. petiolaris 81, pinifolia 82
P. platyphylla 327, polifolia 326
P. quadricolor 253, rosmarinifolia 323
P. setulosa 76, stipularis 78
P. subspicata 249, 256, subumbellata 255
P. viscidula 75, viscosa 74, 77
P. weindorferi 74, whiteana 82
Radyera farragei 110
Rhyncharhena linearis 133, 134
Scleranthus biflorus 48
Santalum acuminatum 129, 131
S. lanceolatum 131
Senecio gregorii 179
S. laetus 176
S. magnificus 176, 179
Smilax australis 275
Stemodia viscosa 105, 119
Symphionema all species 246
Syzygium iuehmannii, moorei 305
Storkiella australiensis 307
Tetradlea ciliata 49
Thryptomene malsonneuii 99, 102
Vigna lanceolata 130
Wodyetia bifurcata 301
Xanthorrhoea thorntonii 103, 123

Potting Media — 1

*The Physical and
Chemical Properties*
by E. James

A successful system for producing plants commercially relies on a good understanding of factors which are essential for growth and of the way those factors can be incorporated into the management of plant production. The potting medium can have an enormous effect on the growth and quality of the final product and can be "tailor-made" to provide optimum growth conditions for particular production systems. This article looks at the physical and chemical factors which affect the suitability of different materials for use in potting media and also reviews research work from the Horticultural Research Institute, Knoxville, which considers some aspects of the physical properties of potting media. Suggestions for media and fertilizer programmes will be discussed in a later article.

Components for Potting Media

Components for potting media can be selected from a wide range of materials provided their properties provide suitable physical and chemical environments for plant growth.

The preliminary requirement for a potting material is that it contains no substances toxic to plants. The material should also be readily available, of consistent quality and suitable price. If these requirements can be met, then a wide range of materials can be used successfully provided that the management (usually watering and nutrition) is adjusted to the requirements of crop and media.

PHYSICAL PROPERTIES

The various physical properties of materials largely determine their value as potting media components.

The most important physical properties to consider when designing potting media are:

1. *bulk density* — the weight of 1 cm³ material when all the water has been removed.
2. *the total pore space* — the volume of the material which is not occupied by mineral or organic particles.
3. *the air capacity* — the proportion of the volume of material which contains air after it has been saturated and allowed to drain.
4. *the waterholding capacity* — the amount of water held in the material after saturation and drainage. Not all this water will be available to plants.
5. *particle size distribution* — the distribution of particle sizes as a proportion of the range of particle sizes in the medium.

The desired physical properties are often difficult to achieve using only one material and the media will usually consist of two or more materials which, in combination, give the overall desired physical properties.

Balance Between Air and Water

The volume of a pot which is not occupied by solid particles is filled with air and water. Any increase in the volume occupied by solid particles is at the expense of total pore space thus reducing the amount of air and water which can be contained in the medium. Similarly, any increase in air is at the expense of the waterholding capacity. The ratio of air to water can be changed by altering the bulk density or the particle size distribution (and thus the range of pore sizes within the medium). The actual amount of water retained by any medium is largely dependent on the pore size distribution.

Although the bulk density of a specific mix is fixed for a given set of conditions, it can be altered by 1) changing the component ratios or their particle sizes (the smaller the particles, the higher the bulk density); 2) compacting the material which forces particles together, increasing the amount of solid material which will fit into a given volume and therefore reducing pore space. Compaction can occur over time as the mix settles after successive watering and also as decomposition occurs.

Research at the Horticultural Research Institute, Knoxville, has shown that, for the materials tested, the total pore space can be predicted fairly accurately from the bulk densities of the individual components. Therefore, if the bulk densities of materials are known, it is possible to determine the total pore space in a mixture of the materials. Table 1 shows the bulk densities and total pore space of five components individually and then in 1:1 (v/v) combinations. Washed river sand has a low total porosity which limits its ability to hold either air or water depending on the particle size distribution. Scoria has a higher total porosity, air porosity and waterholding capacity than sand. Pinebark, which has a high total porosity, also has excellent air porosity but its waterholding capacity is lower than peat moss, poppy straw and sawdust. Sawdust and poppy straw have a high total porosity, high air porosity and intermediate waterholding capacity. Peat moss has a very high total porosity, air porosity and waterholding capacity. However, as much of the water in peat moss is not strongly held it is easily lost by evaporation and transpiration by plants (Beardsell *et al.* 1979a).

Particle Size Distribution

The distribution of pore sizes in the mixture determines the amount of air and water it holds. This is a function of the particle size distribution of the potting mix components.

In a medium which has been saturated then allowed to drain, water is held in the smallest pores and as a layer on the surface of particles. The larger pores may be temporarily filled with water but as the water drains out they become filled with air. A mix with mostly small pores (as a result of small particles which can pack closely together) will hold much more water than the same proportion of ingredients with particles in the coarse range. Conversely, it will hold less air. A range of particle sizes and therefore, pore sizes, will allow for a good balance between air and water in the medium.

Further research at the Horticultural Research Institute looked at the effect of manipulating the range of particle sizes in different media on their waterholding capacities and aeration (Richards *et al.* 1986).

Table 1. Three physical properties of some potting media and components. From Beardsell *et al.* (1979a and b).

	Total porosity (Vol. %)	Bulk density (g. cm ⁻³)	Available water holding capacity (Vol. moisture %)
Sand	40.7	1.56	24.8
Scoria	59.7	1.21	34.7
Sawdust	85.7	0.16	51.9
Pinebark	77.4	0.29	38.5
Peat	95.5	0.09	50.2
Brown coal	—	—	47.8
Sandy loam	—	—	30.8
1:1 mixes:			
Sawdust/sand	63.9	0.88	—
Sawdust/scoria	74.1	0.66	—
Pinebark/sand	58.0	0.96	—
Pinebark/scoria	68.3	0.74	—
Peat/sand	68.2	0.81	—
Peat/scoria	78.2	0.61	—

Mixes made up from pinebark, coarse sand or sandy loam, with or without brown coal, were manipulated with regard to overall particle size distribution to produce combinations which varied in aeration and waterholding capacity.

The potting mix components were sieved into the fractions designated coarse, medium or fine, shown in Table II and fractions were either included or excluded from media.

By manipulating the particle sizes in the mix, it was found that inclusion of the coarse pinebark fraction, with or without the fine fraction, resulted in a substantial (30%) reduction in waterholding capacity and a corresponding 30% increase in air porosity. The inclusion of the fine pinebark fraction had no effect.

When sandy loam was used in place of coarse sand, the proportion of particles rose in the medium to fine range so that waterholding capacity increased but aeration decreased.

Mixes containing brown coal had a higher waterholding capacity and lower air porosity than the same mixes without brown coal. When the mixes were tested, by a wilting trial, those with brown coal however did not contain additional available water. Although plant growth was unaffected by differences in amount of water or aeration as a result of varying the particle size distribution, plants were larger in mixes containing brown coal. This is possibly due to the chemical properties of brown coal which reduce the leaching of nutrients from the media.

Table 2. Designation of particle size fractions for media components. From Richards *et al.* (1986).

Fraction	Particle size range (mm)	Designation
1	>9.50	Coarse
2	4.75-9.50	Coarse
3	2.00-4.75	Coarse
4	1.00-2.00	Medium
5	0.50-1.00	Medium
6	0.25-0.50	Medium
7	0.10-0.25	Fine
8	<0.10	Fine

Other Factors Affecting Aeration and Waterholding Capacity

Particles which are very small or rough have a larger surface area to volume ratio than large or smooth particles. Very fine organic materials have more sites for binding nutrients and also they are decomposed more readily by micro-organisms. As decomposition occurs, the physical structure of a mix changes and so do chemical properties. Generally, the particles settle so that, over time, aeration is reduced and waterholding capacity is increased. A further factor limiting waterholding capacity of potting media is their re-wettability after drying. Organic materials such as pinebark, peat moss and brown coal may be difficult to re-wet after drying whereas mineral components such as coarse sand are easy to re-wet. To avoid re-wetting problems potting media require at least 15% (v/v) of a mineral material such as coarse sand (Beardsell and Nichols 1982).

Pot size also affects the proportion of air and water in a mix. For the same mix, waterholding capacity will be greater and air capacity lower in a shallow compared with a deep pot and as the pot volume increases so does the aeration, Table III. It may be found that a mix which is suitable for container plants in 10 cm pots does not hold enough water for the same species grown in large, deep tubs.

Table 3. Effect of pot size on percentage air porosity 2 hours after drainage of potting media and components. From Beardsell *et al.* (1979a).

	Small (50 × 70 mm)	Medium (75 × 98 mm)	Large (130 × 130 mm)
Sand	12.6	18.6	22.9
Scoria	21.9	25.7	26.5
Sawdust	29.1	40.3	47.2
Pinebark	21.5	30.0	36.1
Peat	29.0	34.9	37.1
Sawdust/sand	19.6	29.9	35.2
Sawdust/scoria	22.7	30.5	38.5
Pinebark/sand	17.4	24.7	29.3
Pinebark/scoria	22.8	28.7	32.4
Peat/sand	12.0	20.6	25.3
Peat/scoria	16.4	24.4	29.6

CHEMICAL PROPERTIES

Chemical properties of potting media determine the availability of nutrients in the medium and the rate at which those nutrients are leached. Two chemical properties which can vary greatly between different materials are their cation exchange capacity (CEC) and their pH.

The CEC is a guide to the 'reservoir' of nutrients which can be retained by media. It is usually expressed as milliequivalents (m.e.) per 100 g of material or on a volume basis such as m.e. per litre. A material with a low CEC has few sites for holding nutrients and this limited ability to bind nutrients exacerbates the loss by leaching from the potting medium. The use of slow release fertilizers or liquid feeds reduces the requirement for media with high CEC but a moderate CEC (approx. 50-100 m.e./litre) will ensure a more even supply of nutrients and makes media easier to manage. CEC increases as materials age and also with increases in pH. Media components such as aged pinebark, composted sawdust, peat and vermiculite have high CECs and are useful in conjunction with materials such as coarse sand which has a low CEC but improves the wettability of organic matter in the media.

The importance of the pH of potting materials lies in its influence on the availability of nutrients. As a general guide, at pH values of between 5.5 and 7.0, most nutrients are available to plants, provided that the *amount* present is sufficient. Depending on the medium, as the pH drops below 5.5, nitrogen, phosphorus, potassium, sulphur, calcium and magnesium may become limiting. Above pH 7.0, manganese, boron, phosphorus and particularly iron may become unavailable although present in apparently sufficient quantities. Alternatively, some elements can become toxic with changes in pH. Plants such as azaleas and conifers often have a higher than usual requirement for iron and grow best at a pH lower than that preferred by most species because more iron is available. The pH of organic materials such as pinebark often increases as the material ages. By combining materials with high and low pH values (e.g. perlite and peat moss), a mix within the desired range can be obtained.

SUMMING UP

If you want to try out new materials for potting media, find out about their physical and chemical properties first and make up combinations which you think should have the most suitable ratio of solid particles to air and water. Then try them out on a SMALL SCALE FIRST under your own conditions. A change in one aspect of plant production such as the potting medium may necessitate changes to other practices such as frequency of watering and type of fertilizer programme. Some suggested media and fertilizer programmes which have arisen from research at the Horticultural Research Institute, Knoxfield, will be presented in a following article.

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Dwarf Eucalypts In Tasmania

by Allan Gray

Of the 30 distinct species of *Eucalyptus* native to Tasmania there are about eight which could be considered to take on a dwarf stature, given the right conditions and correct attention. Four of these are, by nature and habitat, usually less than 5 m in height whilst the other four, if not attended to as they develop, have the potential to grow into larger trees. Within the eight, there is a wide range of forms, foliage colour and tolerance to a variation of soil and climate. A brief description of each follows, including size to be expected with minimum pruning; general habit; foliage colour and density and the conditions to which each is best suited.

SPECIES NOT REQUIRING PRUNING OR LOPPING

Eucalyptus vernicosa

Varnished gum

One of the smallest of the Eucalypts, a fully mature specimen in an exposed situation might only attain a full height of about 25-30 cm. In less exposed situations a bushy, rounded shrub between one and 3-(4) metres is more the usual form. Usually very profusely branched and with an indistinct main stem; the crown is dense with the tiny leaves crowded at the ends of the numerous branches. The leaves are 1-3 cm long $\times$ 0.5-1.5 cm wide, thick and dark, glossy green. The fruits occur in umbels of 3's although one or two usually abort before maturity. Fertile seed is very scant and difficult to extract. Varnished gum occurs naturally on cold, exposed mountain slopes and ridges of the Tasmanian west and south-west. The soils are usually heavy moor peats over dolerite or quartz. These soils are mostly quite acid and with poor drainage; deep snow and heavy frosts are frequent from late autumn to late spring. Seed collected from low or prostrate plants usually produces plants with the parent characteristics. These plants are ideal for rockeries as specimen shrubs, especially where poor, acid soils are combined with drainage problems.

Eucalyptus risdonii

Risdon peppermint

This eucalypt is restricted in its occurrence to the low, dry hills of the eastern shore of the Derwent River, more or less opposite the city of Hobart. It is a shrubby tree, often twisted and straggly, mostly to about 2 m or occasionally a small tree to c 6 m. Smaller specimens have a rather dense canopy of closely arranged, very silvery leaves. The leaves are similar to those of the Spinning gum *E. perriniana*; like that species, they are joined in pairs, around the stem, the overall shape of the pair is usually broadly elliptical. When the leaves die they detach from the stem and, unable to fall right off, remain 'pierced' by the stem around which they spin and rattle in the wind. The inner canopy of the Risdon peppermint is thus often densely packed with these persistent dead leaves. Some larger, more vigorous plants, will occasionally develop alternate, stalked leaves in the canopy.



Eucalyptus risdonii

Photography by Ivan Holliday

A young cultivated tree ten years old growing on the Mount Lofty Ranges in South Australia.

The Risdon peppermint will tolerate very poor, dry, stony soils; in its natural habitat frosts and snow rarely occur. The 'informal', straggling habit of this plant and its silvery 'unusual' foliage recommend it as a specimen plant among borders and shrubberies where contrasting foliage is a desired feature. In some respects it is a more satisfactory plant than the spinning gum as constant pruning or lopping is not necessary to retain the characteristic foliage.

Eucalyptus archeri**Alpine cider gum**

A small, stunted tree closely related to the cider gum, *E. gunnii*. This species is very restricted in occurrence, found only in two limited areas, one in the northern central plateau, the other in the N.E. near Ben Lomond.

It forms a distinctive though often twisted trunk; the bark is smooth and shed in large patches, the remaining bark varying from dark green to grey with yellows, reds and bronzes between. The leaves are elliptic to lanceolate, thick, dark green; the neat canopy is rather dense. Alpine cider gum occurs above the 1000 m level, usually on heavy clay soils which may be periodically waterlogged or throughout much of the winter frozen and covered with snow. Seed is not easy to collect and is scarce. However this species adapts well to a variety of soils and conditions and with its handsome bark and deep green canopy makes a pleasing specimen tree or wind break.

Eucalyptus barberi**Barber's gum**

A shrubby eucalypt of very limited distribution on the central east coast of Tasmania. The small stands occur on rocky ground among other taller eucalypts in dry forests. The plants are usually very stunted, crooked and often of mallee habit, they range in size from c.2 m to 5 m; small distinct trees are uncommon. The branches are sparse and the canopy open, the smaller branches often semi-pendulous with broad sickle-shaped leaves which are dark green and thick. The fruits occur in umbels of 7's; the seed is profuse and easy to extract.

Barber's gum will tolerate heavy clay soils which are prone to occasional waterlogging but more commonly are rather dry. Frosts and snow are rarely encountered over the natural habitat. This is a fine, informal, small eucalypt for open shrubberies or borders where it will tolerate a wide range of good to poor soils of varying consistency. Other smaller plants would do well planted under and around this eucalypt as it is not a heavy 'shade maker'.

SPECIES WHICH MAY REQUIRE PRUNING TO MAINTAIN FORM***Eucalyptus cocclifera*****Tasmanian snow gum**

This species may be found growing well above the 1200 m level on many Tasmanian mountains. At this level it is a much branched, stunted and wind-pruned shrub. At lower, more sheltered situations it may attain the features of a well formed tree sometimes up to 18 m high. Plants raised from seed taken from the upper altitude range tend to maintain the shrubby habit and make ideal specimen shrubs for cool, damp gardens. The bark is smooth and is shed in large patches leaving behind various colours of greys, creams and pinkish-reds. The canopy is moderately dense, the small elliptic leaves thick and pale grey-blue in colour. This species belongs to the peppermint group of Eucalypts; it is however, similar in many characteristics of habit and requirements to *E. archeri*.

Should pruning be necessary, the most effective procedure is to cut back evenly, all-over, all twigs of the previous two year's growth, i.e. not just at the top of the shrub but *at the sides* as well. Twigs should be cut neatly to a lateral, which may itself require shortening. Removal of selected branches may be necessary to thin the shrub. Seal all larger cuts. This method of pruning, in general, is also recommended for the remaining eucalypts in this section.

Eucalyptus perriniana

Spinning gum

This very popular small tree or shrub is found in far southern NSW across the border into northern Victoria and in two or three very restricted localities in central south-east Tasmania. The Tasmanian populations grow on moderately high ground, on very poor wet, acid soils. The plants are of very poor form, usually mallees due to the frequency of fires in summer and frost damage.

Spinning gum is popular because of its unusual juvenile and coppice leaves. They are silvery-grey and occur in pairs but are joined at their bases around the stems; when dry they detach and spin in windy weather, making the characteristic rattling or whistling sound; in some forms, the whole leaf may be almost perfectly circular. Young plants and coppice shoots are most attractive, the lowermost circular 'pair' on a stem might be up to 10 cm in diameter ranging upward, through successive 'pairs', to 1 cm diameter. The attractive early foliage is transitory and as the twigs and branches mature and extend, the foliage becomes progressively of the adult form, i.e. stalked, alternate and lance-shaped.

A mature, well formed tree of *E. perriniana*, makes a fine specimen with its pale grey foliage, whitish twigs and colourful, smooth trunk. However, it is the juvenile leaves and shrubby forms which attract most attention and, sadly, to maintain this a fairly regular programme of lopping or pruning is necessary. Shrubs can be pruned to produce new wood which will carry the characteristic round leaves, for a few years at least! Older plants which have been allowed to advance will require more severe lopping to produce coppice shoots. A careful 'sympathetic' gardener should be able to strike a balance in maintaining the form and foliage desirable. Spinning gum will tolerate a wide range of soil conditions.

Eucalyptus pulchella

White peppermint

The white peppermint is a beautiful, graceful, small tree which is confined to the south-east of Tasmania. The trunk and branches are smooth throughout, white to creamy-yellow with greyish patches. The leaves are very narrow and relatively long 0.3-0.6 mm wide and 5.0-15 cm long, dark green and often thin; a form with bluish-grey foliage is found on the hills of the east coast.

In its natural habitat, white peppermint is almost entirely confined to soils and clays derived from dolerite rocks. These soils are usually fertile and reasonably well drained and over the area of natural distribution for this species, the rainfall varies from about 1500 mm to 3000 mm p.a. with some areas prone to a few frosts and snowfalls during the winter months.

The white peppermint will happily accommodate most soils, either clayey or sandy, and will tolerate some drying out. To form a small, compact shrub the main leader as well as the major laterals will require 'heading back' when the plant is approximately a metre high. The cuts should involve about 15 cm of the main leader and progressively smaller sections of the laterals, all neatly cut to a smaller lateral and these in turn 'tipped'. Subsequent growth can be kept trimmed as required to maintain a desirable shape. Treated as above, the white peppermint may be maintained as a compact shrub less than 2 m high or, if desired, it can be shaped into a small tree up to 5 m high. The fine foliage and graceful appearance of this outstanding plant make it ideal for single specimen, park planting or even as an informal hedge subject. It is one of the most beautiful of all the south-eastern Australian eucalypts.

See page 35 for *Eucalyptus morrisbyi*.



Eucalyptus forrestiana

Photography by Ivan Holliday





Red Flowered *Eucalyptus*

There are many. The gem of them all is *Eucalyptus ficifolia* as pictured above. Or is the best *Eucalyptus forrestiana* opposite, or *Eucalyptus ptycocarpa* from the north. We shall study them all. See next page.

***Eucalyptus ficifolia* (above)**

Photography by Ivan Holliday

This tree four years old is growing at Dernancourt, an Adelaide suburb. It will grow much larger if allowed to. The Dwarf Eucalyptus Study Project intends to develop plants that will be reliable in cultivation under a wide range of conditions, present themselves as pleasing landscape feature plants, and exceptional flowering. The normal form of *Eucalyptus ficifolia* has vermilion coloured flowers. A range of colours is to be developed.

Eucalyptus forrestiana* subsp. *dolichorhyncha

Photography by Ivan Holliday

This mature tree is growing in a roadside plantation at Lillimur in the Victorian Wimmera. It is four metres high and across. It can be grown in the typical multi trunk, mallee style or, upright with a slender habit. It is never a large tree preferring loams or clays on the limey side.

Dwarf *Eucalyptus*

The Study — by the Editor

In previous issues we proposed a study project to develop dwarf forms of *Eucalyptus* that may be reliably grown as landscaping plants. The response has been very good and we have a select team of participants living in all parts of Australia. There is a lot of enjoyment ahead for these people if they are patient and do not expect instant success. Those who have been tempted to try to grow some of the most spectacular small trees know how frustrating it can be.

The project is to develop from the most pleasing forms, even better plants that may be planted with the confidence that the tree will prosper and adorn our landscape. We need all the help we can get.

1. If you know of a tree with special characteristics, stature, leaf, flower colour, abundance or size or one that has survived to grow where others have failed, then please advise the Editor. If not, take every opportunity to look about.
2. Those with tissue culture facilities are needed to grow from selected plants. From a commercial aspect, especially with the advent of Plant Variety Rights, the rewards will undoubtedly exceed those possible with other plants such as the kangaroo paws. Security will be respected. With the promotion proposed, our seal of approval on plant varieties of *Eucalyptus* in the future, will undoubtedly reward those who will help us get started.
3. Competent selection of forms as developed.
4. Scientific research. The academics appear to be at a loss at what to do. Hopefully we will find a few capable of defining some scientific research projects for submission to The Australian Flora Foundation for adoption. I am sure that once the projects are designed we can get competent researchers to undertake them with reasonable funding — what can they do?

Dwarf *Eucalyptus* At Mt Gawler, South Australia

by Frances Reay

Eucalyptus erythrocorys

Several plants raised from seed were planted in 1976. These are all now flowering size and have been flowering for about four years. All but one are well formed with straight trunks. The other one seems inclined to bend under the weight of developing fruit and we removed some to prevent breaking.

Eucalyptus ficifolia

Three plants were planted in 1976. Two were raised from seed but these became chlorotic and died. I realize that this is not a lime tolerant species but it is such an attractive tree. The survivor was a purchased plant, two metres high with a well formed straight trunk and a rounded head of foliage. The flowers are carmine. It must have some tolerance to limestone to continue growing. It shows no signs of chlorosis and has not needed treatment with chelates. Neighbours have tried to grow plants of this species but all failed, soon yellowing and dying. My plant may be suitable for further propagation.

Eucalyptus macrocarpa

From a number of plants planted in 1976 one has grown very well and formed a striking plant. Well formed, evenly branched from the base without a main trunk, it is an even rounded bush two metres high and wide and free flowering. Seed collected some years ago yielded seedlings that appeared to be true to species but were wiped out before fully established in our fire. This would be another plant worth propagating from.

Eucalyptus pruinosa

I have included this because our trees appear to be dwarf, although literature states this species may reach six metres in height. Planted in 1976 after growing from seed, they are still less than two metres high and have been flowering for five years.

Dwarf *Eucalyptus* In Melbourne

by Richard Viostraby

They are not hard to grow. I have been growing dwarf *Eucalyptus* for five years now and have vigorous plants of *Eucalyptus aquilliana*, *E. coronata*, *E. caesia*, *E. kingsmilli*, *E. macrocarpa*, *E. oxymitra*, *E. preissiana*, *E. pyriformis*, *E. rhodantha*, *E. tetragona* and *E. youngiana*. The main "secret" is preparing the soil. Dig over with a spade until the soil is very free, then top it up with sandy loam and plant out. In my last bed I raised the bed height by one sleeper all around.

A friend in Hoppers Crossing has *E. macrocarpa* plants three metres high and wide. *E. pyriformis* and *E. macrocarpa* grow very fast. A eucalypt in flower has a certain charisma about it that cannot be matched by any other plant. ■

Dwarf *Eucalyptus* In The Blue Mountains, NSW

by Rod Julian

My best success has been with *Eucalyptus preissiana*. A tree planted on the footpath four years ago is now two metres high. It first flowered last year and this year has flowered from June to September. The soil is very poor, being heavy with a high clay content and thickly studded with shale type rocks. No treatment has been given to the soil, except at flowering time when a small amount of copper sulphate has been scattered to help overcome the problem of buds falling off. This is mentioned in the excellent reference book, "Eucalypts of the Western Australian Goldfields" by G. M. Chippendale. Colour photograph on page 16.

The large bright yellow flowers are 55 mm across when fully opened and are very productive in nectar. Bees are very numerous. ■

A Dwarf *Eucalyptus* In the North

by Jane McLean, Mt Isa

Eucalyptus pachyphylla is a low growing, mallee type eucalypt with distinctive red coloured buds and large cream to yellow flowers. In flower it is absolutely beautiful and although we have only seen it in the Northern Territory along the Barkley Highway we consider it a good tree to try in Mt Isa. ■

Eucalyptus morrisbyi

by Alan Gray, Tasmania

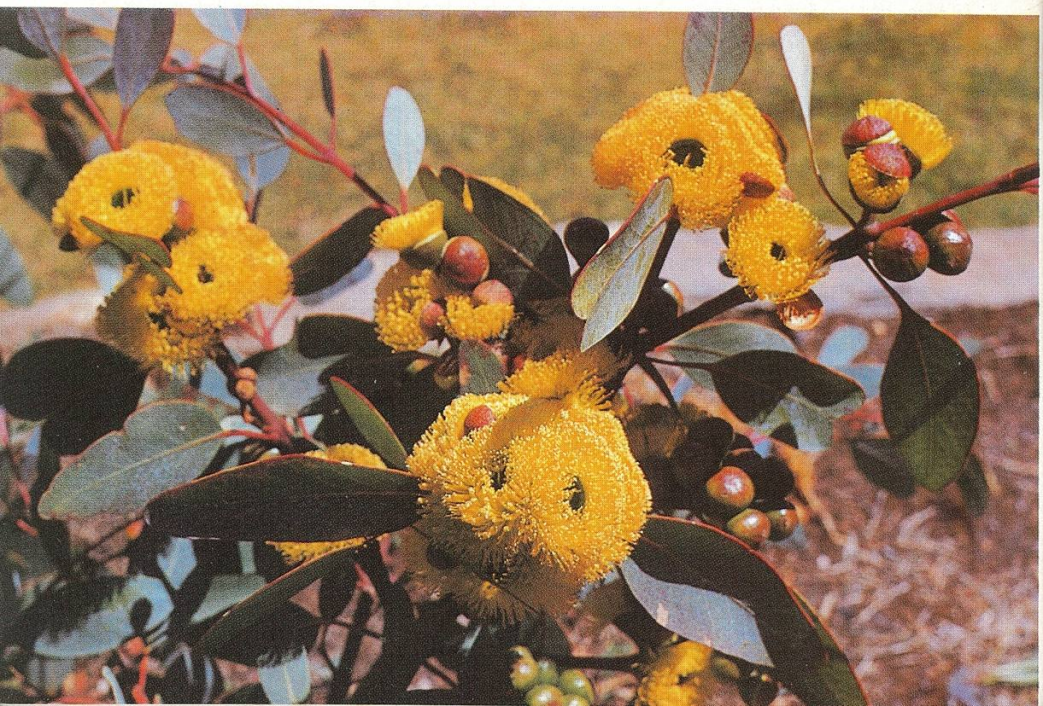
This is possibly one of the rarest of the eucalypts, the two dozen or so naturally occurring trees found only in two very small populations just south-east of Hobart, on poor, dry, sandy soils near sea level.

Morrisby's gum is a small, umbrageous tree, rather sparsely branched from near ground level. The trunk is smooth, the large flakes, as they are shed, leave various shades of greenish greys, pinks and creams. The oval leaves are greyish-green and sparsely arranged. Despite its rarity in nature, Morrisby's gum is often used as a specimen tree in roadside nature-strips and is popular among native plant enthusiasts as a garden specimen tree. A well grown plant may reach approx 6 m and have a similar spread. To maintain the plant at about 4-5 m requires some attention to early pruning as is described under notes on *E. coccifera*. Should the tree, through neglect, surpass the desired dimensions it can be treated as for *E. perriniana* excepting that the coppice shoots, when produced, should be allowed to establish a new crown which may then be regularly managed. *E. morrisbyi* will tolerate light to heavy soils and a low rainfall. It is not suited to particularly wet or poorly drained soils. ■



Eucalyptus stricklandii △

▽ *Eucalyptus preissiana*





Yellow Flowered *Eucalyptus*

There are many beautiful yellow flowered *Eucalyptus*, small in stature. See Australian Plants Issue No. 88 for a reference and fine colour plates of more yellow flowered *Eucalyptus*.

***Eucalyptus macrondra* (above)**

Photography by Ivan Holliday

This small tree is growing on the Tea Tree Gully Golf Course, South Australia, in low nutrient sand over poor draining clay. There are good specimens in the parklands near the railway yards at Bute in the mid-north of South Australia. We intend to develop good horticultural forms from the above tree using tissue culture.

***Eucalyptus stricklandii* (opposite, top)**

Photography by Ivan Holliday

A beautiful small tree we intend to develop as a dwarf horticultural subject.

***Eucalyptus preissiana* (opposite, bottom)**

Photography by Ivan Holliday

A small tree that will be developed as a reliable landscaping plant.

Acacia ligulata* and *Acacia maxwellii

by D. J. E. Whibley,
State Herbarium,
Botanic Garden, Adelaide

For many years an *Acacia* species under the name *Acacia ligulata* (prostrate form) has been grown and sold in various nurseries. Material sent to The Western Australian Herbarium produced the name *Acacia maxwellii*.

***Acacia ligulata* A. Cunn. ex Benth.**

Umbrella bush, small cooba

Syn. *A. salicina* var. *wayi* Maiden Trans. R. Soc. S. Aust. 32:277, 1908 ("Wayae") L. Pedley uses the name *A. bivenosa* subsp. *wayi* for this plant *Austrobaileya* 1(1977)25-29.

Bushy erect shrubs or small trees to 5 m, some procumbent low spreading forms along the coast. The branches are angular, ribbed, glabrous. The phyllodes are erect to spreading, linear-oblong or somewhat curved flat, rather thick, 3-9 cm long, one prominent central nerve, margins yellowish, nerve-like. There are no stipules. One gland at apex below the small mucro, one below centre towards base.

The inflorescence is arranged in a 4-6 branched raceme, the heads globular, yellow, 20-flowered. The legumes are linear 5-10 cm long, 4-10 cm broad, more or less constricted between seeds, readily breaking into 1-seeded segments. The seeds are longitudinal in legume ovoid, funicle scarlet or yellow twisted with 2-3 folds below seed.

The wattle is widespread all over South Australia occurring from coastal to far north arid areas and is found also in Western Australia, Northern Territory, Queensland, New South Wales and Victoria.

A very useful fast growing plant for a variety of situations. It is especially suitable for coastal situations in the alkaline sands and in the far north dry interior as low windbreaks assisting stabilization of drifting sands, often referred to as Dune Wattle in northern areas.

***Acacia maxwellii* Maiden and Blakely**

Previously known as *Acacia ramosissima* Benth. London J. Bot. 1:356 (1842).

A low diffuse spreading prostrate shrub or sometimes with procumbent branches forming a low rounded bush to 40 cm high. The branches are almost terete, shortly hirsute. The phyllodes are erect, thickened, flattened and wrinkled when dry, 1-4 cm long. Central nerve channelled (4-nerved in all), the nerve on side with gland sometimes not so prominent for the whole length. Stipules are present on young branches, acuminate, to 1.5 mm long, deciduous on older branches. A gland is inconspicuous on lower half of phyllode.

The inflorescence is on solitary axillary peduncles, more or less as long as the phyllodes. The flower heads are globular, 12-15-flowered and pale yellow. The legumes are linear, 1.5-4 cm long, 4-5 mm broad, straight-edged, transversely depressed between seeds. Seeds light brown, orbicular; funicle very short and thin, abruptly thickened into a prominent aril.

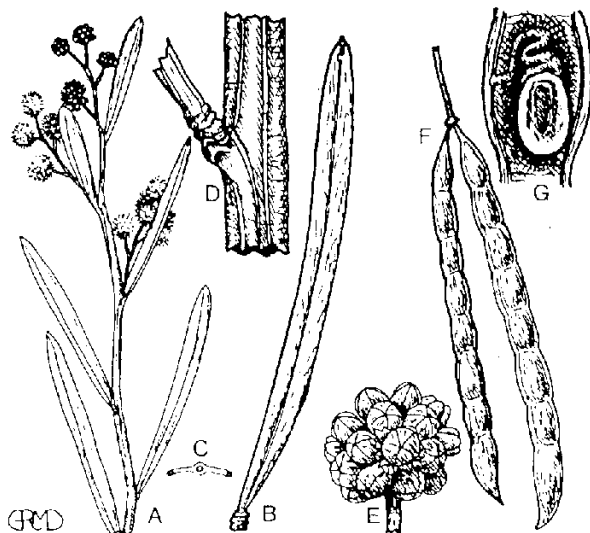


Fig 1. *Acacia ligulata* A. Cunn. ex Benth. A, Flowering twig; B, Phyllode; C, Transverse section; D, Base of phyllode on stem; E, Flower bud; F, Legumes; G, Seed and funicle.

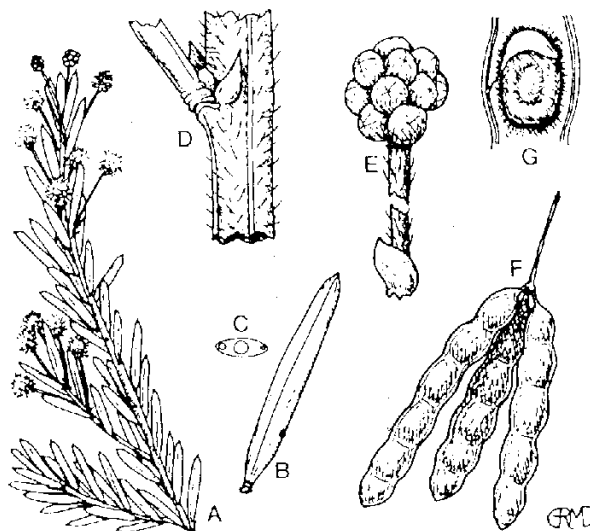


Fig 2. *Acacia maxwellii* Maiden ex Blakely. A, Flowering twig; B, Phyllode; C, Transverse section; D, Base of phyllode; E, Flower head in bud; F, Legumes; G, Seed and funicle.

This wattle is from Western Australia, occurring in the Coolgardie, Stirling and Eyre Regions mainly south of the Norseman to the Esperance area and westwards to Borden.

Very hardy and useful as a ground cover plant in coastal regions, slopes and banks and in arid areas.

The *Thysanotus* Study Group

Fringed Lilies

A small group of us have organized ourselves into a Study Group to examine "*Thysanotus* and related genera". We plan initially to restrict ourselves to the genera of the family Anthericaceae, in particular *Thysanotus*, *Arthropodium*, *Dichopogon* and *Murchisonia*, though there are many other genera of interest in this and other related families.

We have commenced collecting information on propagation and cultivation of these genera and have a general aim of promoting the species for cultivation, particularly in gardens.

Our resources are few. We have started collecting seed from South Australia and commercial sources and have several species growing in pots already. We need seed from as many species as possible and would appreciate assistance in collecting from acceptable sources. At present we have: *Thysanotus dichotomus*, *T. fraxiflexus*, *T. juncifolia*, *T. multiflorus*, *T. patersonii*, *T. tenuifolius*, and several *Arthropodium* and *Dichopogon* species. We would like to obtain seed of further species of *Thysanotus* and if possible *Murchisonia*.

We would also like to invite members to join us in our endeavours. We have set an annual fee of \$5.00 per member of the Study Group and the fee could be forwarded to: A. Geering, C/- Department of Plant Pathology, Waite Agricultural Research Institute, Glen Osmond, South Australia 5064.

Our first newsletter will be on germination of seed. — Andrew Geering.

Thysanotus patersonii

From "Mycorrhizal Associations of Plant Species In a Semi-arid Community" by P. McGee, Aust. J. Bot., 1986. 34.

Thysanotus patersonii

The monocotyledon *Thysanotus patersonii* is a climber which grows annually from a perennating bud on a cluster of tubers buried below the surface of the soil. Above ground parts flower annually and die back in unfavourable conditions. Tubers are formed below ground on adventitious roots and are completely replaced annually during vegetative growth, with an annual increase in the number of tubers (Brittan 1981; Pate and Dixon 1981). The mycorrhizal associations observed on the roots of *T. patersonii* and *T. juncifolius* were unlike other mycorrhizas observed during the study. The epidermal layer of the root has usually been shed by flowering, leaving areas of the cortex covered by a fungal 'mantle'. Further work is under way to clarify the nature of the mycorrhizal association of *Thysanotus*. ■

Trees and Shrubs For Eastern Australia

New Book

Produced by the Forestry Commission of NSW, Principal author, J. O. Park.

This is huge improvement on the first handbook by the Forestry Commission produced in 1940. A 182-page book well illustrated by 100 colour plates, this one describes 700 species of plants recommended for cultivation in NSW. A well presented little book with easily read descriptions of the trees and practical advice on their cultivation. Available from your bookseller for \$9.95 (paperback) or \$14.95 (hardback). ■

Ideas From Private Gardens

by Natalie McMaster and Jane Edmanson

This book describes 35 established gardens in Victoria. Each garden is the product of years of work and dreams by true gardeners, people who strive for a beautiful or pleasant setting for their home. A number of these gardens are wildflower gardens bringing a bushland setting to the city. Nice colour plates of each garden, a layout sketch and a brief description but no details of how to establish plants. Available for \$34.95 from your bookseller. ■

Tropical Rainforests of North Queensland

New Book

This book describes the above forest, its geology, plant life, and the creatures that live in it. For anyone interested in rainforests, you could not get a more competent overall presentation. Actually the book represents a report to the Australian Heritage Commission by the Rainforest Conservation Society of Queensland. The leading scientists in this field were commissioned to prepare the report, to be used as a submission for inclusion of the area in the World Heritage List. Too often these valuable reports are viewed only by a privileged few but in this case this valuable information is published for all to read and study. Read about this fascinating part of Australia, a unique region of our world, by purchasing a copy of the report from your book sellers.

STUDY GROUPS

by Barbara Daly, Study Group Co-ordinator, 8 Bussell Crescent, Cook, A.C.T. 2614.

One aim of the Study Groups is to introduce less well-known Australian plants into horticultural use. Many such often attractive plants are unavailable to gardeners because of difficulties in propagation or because little is known of their requirements under garden conditions. Study Groups undertake the task of studying a genus or genera in order to overcome some of these problems.

Study Groups consist of a Leader, active members who participate in any studies undertaken, and passive members who receive newsletters but take no active part in the Group's activities. Active members collect information on the plants under study and forward their observations or reports to the Leader who collates the information for the newsletters.

To join a Study Group write to the Leader (addresses below) stating whether you wish to become an active or a passive member (some of the smaller Groups are only interested in taking on active members at the moment). Their annual subscription fees are listed below. Please send a stamped envelope with correspondence as Study Groups operate on slim budgets.

Study Group Leaders	Fee
ACACIA — Mrs Marion Simmons, P.O. Box 1148, Legana, Tas. 7251.	3.00
BANKSIA — Mr Trevor Blake, 22 Vista Avenue, Ringwood East, Vic. 3135.	—
BEAUFORTIA & ALLIED GENERA — Mr David Jones, 22 Brinsmead Rd, Mount Nelson, Tas. 7007.	4.00
BRACHYCHITON & ALLIED GENERA — Mr Peter Vaughan, 38 Young Street, Croydon, NSW 2132.	3.00
CALOTHAMNUS — Mrs Barbara Graham, Nundle Road, Woolomin, NSW 2340.	2.00
CALYTRIX — Mrs Gwynne Clarke, 26 Henry Street, Cook, A.C.T. 2614.	2.00
CYCAD AND ZAMIAD — Mr Len Butt, 25 Orive Street, Yeronga, Qld. 4104.	3.00
DAISY, The AUSTRALIAN — Mrs Maureen Schaumann, 88 Albany Drive, Mulgrave, Vic. 3170.	3.00
DODONAEA — Mrs Jeanette Closs, 7 Vyella Court, Austins Ferry, Tas. 7011.	3.00
DRYANDRA — Mr Keith Alcock, 59 Gordon Avenue, Montrose, Vic. 3765.	2.00
EREMOPHILA — Mr Geoff Needham, 2 Stuckey Avenue, Underdale, S.A. 5032.	2.00
EUCALYPTUS — Mr Tony Bean, P.O. Box 397, Nambour, Qld, 4560.	4.00
FERN — Mrs Phyll Brown, 254 Edgar Street, Condell Park, NSW 2200.	3.00
FOOD PLANTS, AUSTRALIAN — Mr Rodney Barker, P.O. Box 62, Kangaroo Gd. 3097	3.00
GREVILLEA — Mr Peter Olde, 138 Fowler Road, Illawong, NSW 2234.	5.00
HAKEA — Mrs Hazel Blackney, 23 Devon Street, Eaglemont, Vic. 3084.	3.00
HIBBERTIA — Mr Bernard Dixon, 82 Gilbertson Road, Kardinya, WA 6163.	2.00
HIBISCUS AND RELATED GENERA — Mr Doug Phillips, P.O. Box 1374, Cairns, Qld. 4870.	2.00
PALMS — AUSTRALIAN INDIGENOUS — Mr Len Butt, 25 Orive Street, Yeronga, Qld. 4104.	3.00
PROSTANTHERA & WESTRINGIA — Mr Brian Timmis, 102, Lugarno Parade, Lugarno, NSW 2210.	4.00
RAINFOREST — Mr Ian Innes, P.O. Box E327, St. James, NSW 2000.	2.00
VERTICORDIA — Mr Max Hewett, 11 Harvey Place, Cherrybrook, NSW 2120.	3.00
BIRDS AND NATIVE PLANTS — Mrs Judy Smith, 44 Hawkins Parade, Blaxland, NSW 2774.	4.00
PLANTS IN CONTAINERS — Mrs Margaret Barbour, P.O. Box 818, Wagga Wagga, NSW 2650.	3.00
THYSANOTUS — REL. GENERA — M. Andrew Geering, Waite Ag. Res. Glenosmond 5064.	5.00

The Fern Study Group

We are concerned about reports that some people interested in joining our group have been told that membership of the Fern Study Group is closed. This is not correct. No limit has been placed on membership of our Group in New South Wales or in any other State. We are always pleased to extend the red carpet to any reader who has an interest in ferns. Like ferns? Want to know more about ferns? Want to mix with a friendly group of fern lovers? Come and join us — Moreen Woollett, Secretary of SGAP Fern Study Group, 3 Currawang Place, Como West, New South Wales 2226. ■

Native Gardens — How to Create an Australian Landscape Special Offer

The authors of this book are sufficient recommendation for the reliable guidance given, Bill Molyneux and Ross Macdonald. This book has been available for three years now but is still a valuable reference for anyone wishing to create an Australian garden. We still have some left and these will be available at the greatly reduced price of \$15.00 plus \$2.00 postage. Like all the books from these writers, this book is very practical going into all the procedures to be followed step-by-step in considerable detail. Excellent value at the normal price of \$25.00 this offer is double value.

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Pomonal Wildflower Nursery — Grampians. Sign opposite Grampians Store Pomonal. Garden and Nursery open most of the time but phone (053) 56-6250 to check. Browse round our gardens.

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Nindethana Seed Service — Largest selection of native seed in Australia. RMB 939 Woogenilup, W.A. 6324. Available in 50¢ pks, gram lots or kgs. Send 36¢ stamp for free catalogue. Tel. (098) 54-1066 in busines hours. Telex: AA 91938.

R. Horner — 1 Grundy St., Alice Springs, N.T. 5750. Seed of trees and shrubs of Central Australia. Send 33¢ stamp for a list.

Western Australian Wildflower Society — P.O. Box 64, Nedlands 6009. A wide selection of Western Australian seeds is available at 60¢ per packet, plus postage of 36¢ for a number of packets. Send for a catalogue for 50¢ plus 36¢ postage. A huge range of seeds at a price you can afford expertly collected, labelled and packed.