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Bicentennial — 4

The Society for Growing Australian Plants

Our bicentennial issues have focused attention on the Australian flora, that incredibly vast and unique flora that is one of nature's, one of the world's, marvels. What of the Society that has created this outstanding periodical?

Founded in Victoria in 1956, the founder, Albert Swaby, went to considerable trouble to emphasize the work of the individual rather than the Society as a whole, and the value of local groupings of enthusiasts in regions rather than a traditional state boundaries hierarchy. It is this initial impetus that has been the strength of the Society. While the Society comprises completely autonomous societies based on state boundaries, success in maintaining interest and membership is because individuals, working in isolation, are invited to feel important and part of the whole. Those in close proximity are encouraged to form local groups and it is at this level that the society really exists.

Local groups operate in an almost autonomous fashion, having a significant say in the running of the state controlling body and accepting the minimum of controls in return, but, independently "doing their own thing". There would be over one hundred of these local groups throughout Australia. They are at varying levels of activity, comprising mostly gardeners keen to grow a few of our wildflowers and exchange experiences with each other at an informal level.

A unifying force is a magazine, in fact a number of state magazines, that are distributed only to members of a state organization, and Australian Plants distributed nationally, in fact, world wide. As the local groups often have a local newsletter, members receive three publications each with a very important role. The state newsletters deal with items of interest in that state with reference to items of national interest from other state newsletters.

Australian Plants is a national publication, widely accepted as the outstanding publication on our flora. As it is regularly taken by groups outside the Society, and the nation's libraries, etc., Society matters are excluded.

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COVER PLATE

Xanthostemon chrysanthus 'Expo Gold'

Photography by G. Sankowsky

This beautiful shrub is two metres high. Refer to page 10 for further details.

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The Australian Flora

The Bicentennial Year

As our two hundredth birthday comes to a close, perhaps we should reflect on what has been achieved. How has two hundred years of occupation by "civilized" races affected our flora? Disastrously! This is beyond argument but there is room for positive comment. The history of man is one of plunder and exploitation. The natives of New Guinea have been making a thorough job of ruining their land since long before the arrival of the "civilized" races. Although the Australian Aboriginal people have more of a feeling for nature, it will never be known what ravages they, or any other occupying race, would have created as the population grew.

Modern man is more concerned with the conservation of this planet's treasures. Politically, this has been forced on our leaders because of concern for survival, even if, in many cases, it has been concern for their own comfortable lifestyle. Fortunately, the pressures are coming from the younger generation who are better informed, and in an ecological sense, more morally responsible. We know Australian Plants has played its part in the enlightenment of the new generation.

The more spectacular bicentennial achievements directly concerning the Australian flora are an encouraging sign of a growing awareness among our politicians that conservation of our nation's heritage should be as actively pursued as its exploitation.

QUEENSLAND

The Tourist Pacesetter

Landscaping of the Expo 88 site was a revelation for the use of the Australian flora in horticulture and decorative splendour and a personal triumph for the designer and director, Lawrie Smith. The awareness of the potential of the Queensland flora is reflected by the publication of two new books by the society — North Queensland Native Plants, and Plants of Central Queensland, shortly to be released. See page 11 for details.

Two new botanic gardens for presentation of Australia's flora at:

Rockhampton — the magnificent Kershaw Botanic Gardens, possibly the best in Australia. This is not overlooking the established gardens at Kings Park, Perth, or the Australian National Botanic Gardens at Canberra, both reeling, gasping, withering because of the savage reduction in funds for basic upkeep. A garden of such magnitude has to be a leading national spectacle at Rockhampton? The Director of the Botanic Garden, Rockhampton, Tom Wyatt, has shown the drive and initiative we hope to see in our leaders of the future. Tom has obviously received the support of the politicians led by the Mayor of Rockhampton and others not known to this "foreign" writer and recent visitor from the south, but there have been, and undoubtedly still are, politicians of wisdom and vision in our sunny north. The Society for Growing Australian Plants — Rockhampton Branch has also been involved. Much hard work is required to maintain the impetus that has created such a national achievement. It is now up to the people of Rockhampton, John and Jane Citizen, to give support, and an occasional few hours work. Do not let Rockhampton, indeed Australia, down with selfish apathy.



Rockhampton Australian Plants Garden

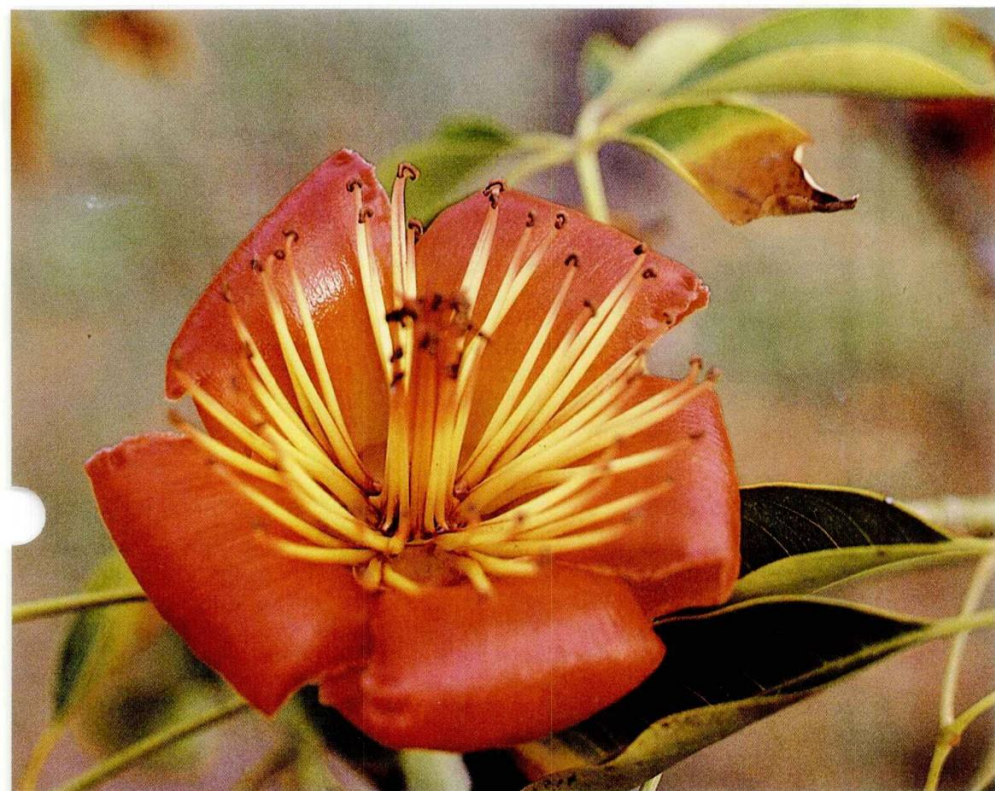
Photography W. H. Payne

Above is a portion of a rockery section of the vast new botanic garden recently opened at Rockhampton. This section of rockery has been made available to the Rockhampton Branch of the Society For Growing Australian Plants to plant out as they wish. With assistance in obtaining plants and permanent ground staff to maintain the area, this represents a major step in community relations and another example of the progressive attitude of the Director, Tom Wyatt. This photograph is, by no means, a fair example of the gardens, other areas including shaded walks with established plants, a magnificent water fall, a water cascade and feature, rainforest areas and a large stream. The group in Rockhampton are putting together their own complete issue of Australian Plants, presenting "Gardening in The Tropics" and featuring these magnificent gardens.

Bombax ceiba (opposite)

Photography W. H. Payne

Growing in the Rockhampton Australian Plants Garden, is this beautiful small tree. Yes, the flowers are 10 cm across and the tree will flower at less than two metres high. The tree is quite easily grown in tropical areas and is used as a street tree in some inland Queensland towns. It can grow quite large, to 20 metres, but can be trimmed as desired. The tree defoliates during the dry season and flowers while leafless.



Gladstone — a new botanic garden for the Australian flora in a picturesque setting. Once again this is the realization of the vision and work by a dedicated few, many of whom will never be publicly acknowledged. The support given at the political level of the Gladstone City Council, shows Queensland is blessed with some politicians of national vision, true Australians we can be proud of. Under the direction of Neil Kershaw, the Director, I have every confidence that this garden will develop and grow to become one of the many tourist features being created around what was once a semi-industrial construction town, but is now a pleasing city to visit. In the absence of knowledge of who provided the initial vision and drive one must acknowledge the contributions by Norm Gibson and Ruth Crossin with the Society for Growing Australian Plants — Gladstone Branch, for a fine national achievement.

NEW SOUTH WALES

The Conservation State of Australia

One must acknowledge that probably the founding state received a major share of the money spent to celebrate the creation of our nation, but it needed creative Australians with vision and drive to conceive and bludgeon through the projects ultimately selected. We were fortunate to have a few politicians of national conscience who appreciated the worth to the community, to the nation, indeed to the survival of the world, of the remnants of nature — politicians led by Neville Wran. Probably future generations will never know to whom they are indebted when they enjoy the beauty of the surviving natural areas of this state. The scientists, led by Lawrie Johnson, Past Director of the Royal Botanic Gardens, Sydney, and those that have followed him, can be proud of their achievement.

Mt Tomah Botanic Garden

In the Blue Mountains west of Sydney

This garden is not confined to the Australian flora but embraces the cold climate, or "elevated" flora, of the Southern Hemisphere of the world. It is to be hoped that the present administration will continue the trend to make it a spectacular scene dominated by the alpine and southern flora of Australia. Nowhere else in Australia, indeed, the world, is such an attempt being made and nowhere else is the setting more beautiful, spectacular, absolutely stunning, than that created here. The rockery and water feature area in particular, offers a setting for establishment of not only our alpine flora, but for the unique flora of Tasmania, a challenge we hope the staff will meet with spectacular success possible.

Mt Annan Botanic Garden

On the south-western fringe of Sydney

Possibly the greatest challenge of all, the creation of an extensive arboretum and botanic garden devoted to the Australian flora. A project based upon a vision of what could be achieved but founded on the hard facts of a need for a tourist and community attraction in the area and the critical importance of conservation of the Australian flora. It remains now for responsible "politicians" to show their awareness of this national need, the Premier for the finance, and the Director of the Royal Botanic Gardens, Sydney, for the continued drive and productive leadership being shown.

Coffs Harbour Botanic Garden

On the North Coast of NSW

A modest start has been made as the first in a national concept of regional botanic gardens. These are gardens to be created in various regions around Australia. The flora of the region is to be established in conditions approaching those of their natural habitat. The Coffs Harbour Botanic Garden will be a splendid tourist attraction when developed to display wildflowers of the north coast of New South Wales. With some urging by John Wrigley and others, the politicians of Coffs Harbour have shown great vision and an awareness of the development and tourist potential for such a scenic coastal area backed by spectacular ranges.

Burrendong Arboretum Many kilometres across the Ranges, west of Sydney

By listing this extremely valuable botanic garden, we show a proprietary interest. We list it not so much for its general political acceptance and support (in fact one wonders if some politicians care at all for the conservation of the Australian flora) but because **it still survives**. Many great Australians are still in there fighting — George and Peter Althofer, Jack Harris and S.G.A.P. led by Peter Olde. There are signs that politicians are becoming aware that Sydney and its industrial cities surrounding it, do not make up the whole state, in fact that New South Wales is part of Australia and there is a responsibility to conserve the unique Australian flora on a national level.

VICTORIA

The Garden State

The horticultural industry has taken the initiative and promoted a number of special garden cultivars, based on Australia's flora, for general sale to the gardening public. These are described on page 9. Traditionally, the industrious and imaginative Victorians have been trendsetters in most areas of Australian endeavour and this is particularly true in the adaptation of the Australian flora to horticulture. The development and marketing of reliable attractive plants is essential in a very discerning market. While excellent reports come from the Cranborne annexe to the Botanic Gardens, regional botanic gardens for the flora are needed.

SOUTH AUSTRALIA

The Festival State

A tropical conservatory for Adelaide. It will feature plants from northern Australia, Papua New Guinea, Indonesia and the Philippines.

WESTERN AUSTRALIA

The Wildflower State

There was a time when Australians from the west were proud to claim their state as the Wildflower State. This was acknowledgment that they were custodians of "one of the wonders of the world", their unique flora. Man (or should I say Person as I have been accused of chauvinism because of a recent reference in Australian Plants) has this alarming tendency to recognize our great works of art after the artist has departed. Will we be lamenting the passing of our nation's floral heritage after it has gone? So much of the spectacular Western Australian flora has been dependent upon the remnants along road verges and one development in this bicentennial year has been the widening of roads and the elimination of many priceless stands of treasure! ■



***Tetratheca thymifolia* 'Bicentennial Belle'** (above)

Photography by W. H. Payne

Tetratheca are commonly known as Blackeyed Susan, usually pink to red with a black centre. This bicentennial cultivar is a special selection of the species that has been widely grown for its free flowering dwarf stature. This plant was photographed at Limpinwood Gardens, Chillingham, northern NSW, and would be 40 cm high. It will grow easily in moist, open, loamy soils, has been most successful in my sandy soil, and makes a delightful container plant. Will readers advise of experiences in the cultivation of this species and other species of *Tetratheca*. Send colour slides — Editor.

***Grevillea rosmarinifolia* 'Rosy Posy'** (opposite)

Photography from Austraflo

This cultivar is a special selection from a species widely grown for hardiness and flowering. It is a compact shrub in a wide range of conditions, tolerating light or heavy well-drained soils, frost, and even extended periods of dryness. The large bunches of pink-red bird attracting flowers cover the fine foliage from winter to early summer but often at other times. It grows to one metre high and wide.

Australian Plants for the Bicentennial

Apart from 'Expo Gold' on our front cover, a plant that seems to have forced itself on the horticultural scene in the north because of its sturdy flamboyancy. The horticultural industry appears to have made little effort to produce and promote especially developed plants. The exception is the usually enterprising staff of Austraflo Nursery in Melbourne. As well as the two cultivars shown here, other plants include *Eucalyptus dives* 'Little Honey', a plant very few people know much about, *Acacia cognata* 'Fragrant Lace', another *Grevillea* developed from *Grevillea rosmarinifolia*, *Grevillea* 'Gold Rush', and a selected form of *Epacris impressa* — Editor.



'Expo Gold'

Xanthostemon chrysanthus

by G. Sankowsky
and W. H. Payne

The World Expo, 1988, was a triumph for Queensland, and the landscaping of the site, designed by Larrie Smith, a member and past office bearer of SGAP was a triumph for the Australian flora. The world was shown how our flora can be used in horticulture in very difficult circumstances.

Xanthostemon chrysanthus was one Queensland plant that was used to advantage, to such an outstanding degree, that the nursery industry selected an exceptional form and now markets this as *Xanthostemon* 'Expo Gold'.

When Golden Penda (the generally applied common name of *Xanthostemon chrysanthus*) flowers in late summer it makes a magnificent and eye-catching sight. The flowers are yellow, with small petals and very long stamens. They are borne in large bundles on ends of the branches and look like big fluffy balls. The cover photograph shows a flowering plant that is two metres high.

It is a tree of the tropical coast and rainforests of north Queensland from Cardwell to Iron Range and is commonly found along the banks of streams. It belongs to the Myrtle family, Myrtaceae, along with *Eucalyptus*, *Melaleuca* and *Callistemon* which also have flowers with masses of long fluffy stamens. It is an excellent garden subject, growing into only a small tree and flowering profusely even when quite young. It is very hardy, and grows well in both wet and dry areas. In dry areas it forms a bushy shrub rather than a tree.

Golden Penda may be propagated readily from seed. The fruit are woody capsules which split open when dry to release masses of small brown seeds. Sow the seeds on to a seed tray of potting mix and cover lightly. The seeds will germinate in about four weeks. Allow the seedlings to grow to a manageable size (about 3 cm high before potting up from the seed tray).

Xanthostemon 'Expo Gold' should not be grown from seed. This cultivar has been carefully selected from an exceptional plant and if you want an outstanding form that will flower well in two years then you must propagate from cuttings. A seed grown plant will not flower for eight years and even then can be very disappointing. Purchase from a reliable specialist nurseryman.

North Queensland Native Plants

This valuable book has been published by the Society for Growing Australian Plants NSW Ltd, on behalf of the Tablelands Branch of SGAP. As a record of plants from the native flora of north Queensland and their use in horticulture, it is an outstanding achievement. It may be obtained from leading booksellers as a Kangaroo Press publication or from the SGAP booksales in your state, the price being \$14.50 plus postage, 150 gm.

Plants from the North Queensland flora that have been tried and proven in horticulture are described in colour. The colour photograph in this issue has been produced from a colour slide used in the book and the description above has been taken, largely, from the book. However, the real value is the major part of the book that is devoted to horticulture in the tropics. Chapters headed "Planting a Nature Garden", "A Watering System for Your Garden", "North Queensland Dryland Species for Gardens", "Planting a Rainforest Plot", "Managing Your Garden", "Potting Mix and Fertilizer for Potted Plants", "Gardening in Frost-Prone Areas", "Wine-Making . . .", "Dyeing with Eucalypts", ". . . Bee-keeping", all are well written in a practical, interesting way. An outstanding contribution to horticulture and to our flora.

Plants of Central Queensland

by Steve and Alison Pearson

A dream was not lost. Some may remember the announcement in an issue in 1987, how Steven Pearson, the Ranger at Blackdown Tableland, west of Rockhampton, had prepared this fabulous book on the flora of Central Queensland but could not get it published. Why? The S.G.A.P NSW Ltd has just published "North Queensland Native Plants" produced by the Tablelands Branch of S.G.A.P. Steve Pearson's dream book is something outstanding. He has insisted that the page size be the same as Australian Plants, the size used as field guides, but the pages, all 400 pages, are filled with large colour plates. Every page has either two plates the size of these or a large full-colour photograph. He insisted that all the plants you will find in the Central Queensland area are shown in a large colour plate — **all of them.**

Wow! Five hundred large colour plates. It must have cost a fortune to publish. It did. The people of Rockhampton added to Alison and Steve's life savings to pay for it. Are we going to let them down? It is up to you now to buy a copy and see if they can get some of their money back. The book is also valuable for anyone interested in the Australian flora even if you never go to the area. There are some fabulous plants there. Many of them are growing at high elevations on the mountains and in the spectacular gorges of the area under climatic conditions resembling the temperate areas of Australia and will grow in all the major cities of Australia.

Come on, readers, send \$35.00 for a copy to Shirley Hopkins, 9 Risien Street, North Rockhampton, Qld 4701 and get it post free. ■

My Garden — 1

by Keith Moy

We purchased a block of land with a weekender on it at Vincentia, NSW, six years ago. It is on a steep hill overlooking Jervis Bay. With the small cottage built more than half-way down the hill from the street, I was left with a potentially huge "front garden" of rocks and sandy soil — more rocks than soil!

The first thing I did was to carve a path between existing plants and edge it with rocks, form steps; remove most of the *Themeda australis* (Kangaroo Grass) being careful not to disturb the natives, and thin out the *Eucalyptus haemastoma*, Scribbly Gum, and *Eucalyptus gummifera*, Bloodwood.

As a bush garden there is little maintenance. Apart from rain, it is watered only on our infrequent visits, but it is well mulched with prunings with a ground cover of Bracken fern. I have planted many plants mostly propagated from cuttings and surprisingly I have had few losses. I attribute this to using mostly small plants, ones in tumbler-size pots, and placing a teaspoonful of a nine-month slow release fertilizer under each plant at planting.

I was amazed at the plants I found, those I have been able to identify being, *Banksia spinulosa* and *B. ericifolia*, *Boronia pinnata*, *Patersonia sericea*, *Lambertia formosa*, *Viminaria juncea*, *Gompholobium latifolium*, *Pimelea linifolia*, *Actinotus helianthi*, *Acacia terminalis* (previously *A. botrycephala*), *A. suaveolens*, *A. ulicifolia*, *Bossiaea* (several species), *Isopogon anethifolius*, *Stylidium graminifolium*, *Hakea sericea*, *Epacris microphylla*, *Dianella revoluta*, *Kunzea ambigua*, *Kennedia rubicunda*, *Pultenaea* (several species), *Eriostemon buxifolius*, *Leptospermum*, *Baeckea virgata*, *Hardenbergia violacea*, *Hibbertia* and *Persoonia*.

Australian Plants for Small Gardens and Containers

by Gwen Elliot

Small gardens have a charm which is difficult to achieve in larger areas. There is room for only a limited number of plants and the choice of garden design and plants is important for the best results. We can create a delightful and extremely attractive area with a minimum of ongoing maintenance.

There are usually disadvantages to be overcome — the lack of sunlight in some parts, extremely hot in other parts due to direct sunlight plus reflected heat from walls and windows; the position of surrounding buildings dominating the site; the placing of access and through pathways; the siting of facilities such as clothes lines and garbage bins, etc. All can be overcome or their impact softened by the careful choice and placing of plants.

By following simple procedures of garden preparation, the provision of drainage, the preparation of the soil and creation of small elevated gardens or rockeries, and the position of selected plants for growing in the beds, supplemented by container grown plants that can be moved as desired, you can create a charming small garden.

For a beginner, in fact anyone who is not confident or creative, the turning of a small garden area into a place of interest and colour can be a daunting project. This book divides the operation into sections and gives guidance in each of the areas of Basic Planning, Construction and Soil Preparation, Rockery Planning and the Use of Rocks and Logs, Planning a Cottage Style Garden, Creative Courtyards, Specialized Garden Structures, Lawns, Paving and other Surface Treatments and Selecting Suitable Plants.

Good luck with your small garden creation — it can be fun.

Australian Plants for Small Gardens and Containers

Book Review by Editor

This is the second edition of a book that has proved very helpful and popular. It has been extended to 224 pages (26×17 mm) and well illustrated with sketches and colour plates. Of the many books on the market, this is the one I recommend on this subject. It is so capably and simply presented and it is based on extensive practical experience and observation.

The Orientals, Chinese and Japanese, have developed the creation of gardens in small areas as an art and using this book, anyone could rival these creations. The Australian flora is extensive and unique and ideal for creative work or for simple, pleasing garden areas. The biggest problem is getting started and this book will certainly tell you in some detail how to go about it. Do not be overly concerned about the appearance of the final project. Just pay adequate attention to drainage and soil preparation and do your best. Once finally created, sit and enjoy it, meditate, let the pleasure of the surroundings join with you. You can then give it more of yourself, a change of plants here, positioning of containers there, just a small change to that rockery. The ideas will come and give pleasure.

You do not have to know anything about plants. The book has 500 charts and simple descriptions of the 600 plants contained in them. Each chart lists a number of species with a column for height and width of the plant and a one-line description. More detailed descriptions are given in another section of the book. The charts are grouped, one group of 13 charts recommending plants that are low or layering, ground cover plants, tufting and clump-forming plants, small plants for sunny positions, larger plants for sunny positions, small plants for shadier areas, bush screen plants, plants for narrow garden beds, etc. Another group of six charts gives plants for clay soils, sandy soils, alkaline soils, etc. The group of nine charts listing plants with various flower colours — reds, pinks, purples, yellows, etc. — is especially valuable to a garden planner. As you can see you do not have to know the plants — just get the book, \$29.95 at your bookseller, or \$14.50 plus postage at your S.G.A.P. bookseller.





My Garden

by Keith Moy

Above is the rough stone steps and path to the house flanked by *Gompholobium latifolium* (the large yellow-flowered plant), *Pimelea linifolia* (white), *Boronia pinnata* (pink) and *Lambertia formosa*. The photograph on the upper left is the view down from the house with the pink/mauve splendour of *Prostanthera sieberi* in the foreground. The lower left photograph shows how the flowers complement the trunks of *Eucalyptus haemastoma*, a scribbly gum, the *Prostanthera* pink mauve in the background, the white *Pimelea*, the pink *Boronia* and the yellow *Gompholobium*.

Editor's Note: Help me to show a wildflower garden in colour in each issue. Has any reader got good colour slides of their or someone else's garden? If not have some taken over the next flowering season. ■

Garden Varieties of Australian Plants

W. H. Payne

This is an excellent little book describing in easily read terms, supplemented with a full-colour photograph, 36 plants that have been selected from our unique Australian flora for use in horticulture. They are all garden cultivars. This means they are plants that have been bred by hybridising, or selected from naturally occurring wildflowers because they have exceptional features that make them ideal for horticulture. In this issue we describe other cultivars, some especially selected for the Bicentennial Year trade, but you need the book on cultivars.

What I may not have got across to you is that you the readers (no, not someone else — do not leave it to someone else) are needed to give your support by purchasing a copy. Copies may be obtained by sending \$4.00 plus \$0.80 postage to S.G.A.P. Book Sale, P.O. Box 167, North Ryde 2113.

These small books are really excellent value so why is it necessary for the Editor to "lean on you to buy a copy". Most of you will no doubt like a copy but need a special "push" to get you to go to the trouble to obtain one. The reason is not just to get you to know about these plants, but to get your support for the Australian Cultivar Registration Authority.

The Australian Cultivar Registration Authority?

This Authority was created by S.G.A.P. many years ago, with the help of the Melbourne Botanic Gardens. It is an independent authority, S.G.A.P. being represented by just one member on its Board. The Board comprises a representative from each of the major botanic gardens in Australia and makes its own decisions without reference or approval from any interested party. Its work is to register cultivars based on the Australian flora in accordance with the International Code of Nomenclature.

A cultivar is a plant developed for horticulture by careful breeding and/or selection. They are often hybrids between two or more wildflowers, or may be based on one wildflower species selected because of some outstanding feature such as size or colour of the flower, shape or appearance of the bush, etc.

So why the push to buy a copy? The Authority has no funds or financial backing. They comprise a group of scientists devoted to serving the horticultural industry and you the gardener. They decided that what is needed is a series of small books on registered cultivars, cultivars developed for your enjoyment. Until they sell out the first issue, they cannot afford to print the next one.

Buy a copy and show your support. At \$4.00 they are excellent value.

The Registration of Cultivars

You have discovered a plant of exceptional value. The flowers are larger, or are a better or unusual colour, or more abundant, or the bush is more attractive, shape, leaf colour, new growth, prostrate, etc. The nursery industry has developed a plant that is more reliable in cultivation; most plants that the reliable native plant specialist nurseryman offers have been carefully developed for this crucial factor, reliability. How can these selections be reliably marketed? Only by giving them a unique name, a cultivar name. For registration at only \$10.00 per cultivar, contact the Registrar, the Australian Cultivar Registration Authority, Australian National Botanic Gardens, Canberra, A.C.T. — Editor.



DORYANTHES

by J. Ros. Garnet

A little to the south of Sydney — for example, in Royal National Park — in the Gymea district and on the harbour's north shore, along the Pacific Highway to a little beyond Hornsby and its environs one will be sure to see one of the two acknowledged species of *Doryanthes*. One, called *Doryanthes excelsa*, has a very limited distribution, always near the coast in eucalypt open forest on deep sandstone soils and apparently north as far as Newcastle and Port Stevens. The photograph opposite by Peter Codd is of the Gosford area. The other species, *D. palmeri*, recognized as such by Flora of Australia taxonomists, is no less restricted in its occurrence. It is to be found only in north-eastern New South Wales and south-eastern Queensland, the places cited in the Flora include Mt. Warning in New South Wales and Springbrook in Queensland.

What follows in this article is about *Doryanthes excelsa* Correa da Serra, shown opposite, a plant known to many as the giant-, spear-, or Gymea-lily. There can be no dispute about the epithet "giant" but the concept of the plant being a lily has been debated from time to time. However, that debate has been resolved by the Flora of Australia experts by them placing the genus *Doryanthes* in the family Agavaceae. Many of us will call to mind the imported *Agave americana* — the 'Century Plant' — a typical member of the Agavaceae. It, too, takes years to reach the stage of flowering (not necessarily a century) after which the huge plant collapses and dies. With *Doryanthes* the lily link is, of course, maintained because the Agavaceae belong to the large Order of lily-like plants — the Liliales.

The flowers of *Doryanthes* possess some of the general characters of lilies and amaryllids — three petals, three sepals, a single central style surrounded by six stamens each with an anther that opens inwards. The ovary is situated below the calyx and corolla, a feature of the amaryllids.

In our travels in New South Wales some years ago many plants of the southern species were seen in flower but, not being equipped with a ladder, we found no plants dwarf enough to photograph. We had to wait until 1986 when one of the two in our garden actually flowered. This time a ladder was available. In the spring of 1960 two small plants — both judged to be about a year old — of a *Doryanthes* were given to us by our daughter who had been holidaying in New South Wales and southern Queensland. They were planted in the front garden, one on the north side of the driveway at a place where, one year later, was planted a seedling of *Hakea eriantha*. Its seed had been collected during our then-recent visit to Nadgee and Mallacoota with the Caloola Club. The other *Doryanthes* was placed at the south-east corner, beside a small *Banksia spinulosa* that Norman Wakefield had given us. He had collected it somewhere in the vicinity of Womboyn. Years passed and the *Hakea*, true to its name, Tree Hakea, grew in stature to one with a trunk about 30 cm in diameter. The *Banksia* too, flourished and developed into a rather spreading and sprawling shrub about 1.5 m high and with a substantial lignotuber from which not only stems but also flower-heads emerged.

The two Gymea Lilies also thrived in their clayey-loam beds. The length of their basally-clustered, broad, fluted and multi-veined lanceolate leaves, each up to 2 m long and up to 20 cm wide but with recurved margins, became

something of an embarrassment because they grew too long to support their own weight. They bent in the middle. From one plant some of the dozens of leaves tended to sprawl over the driveway.

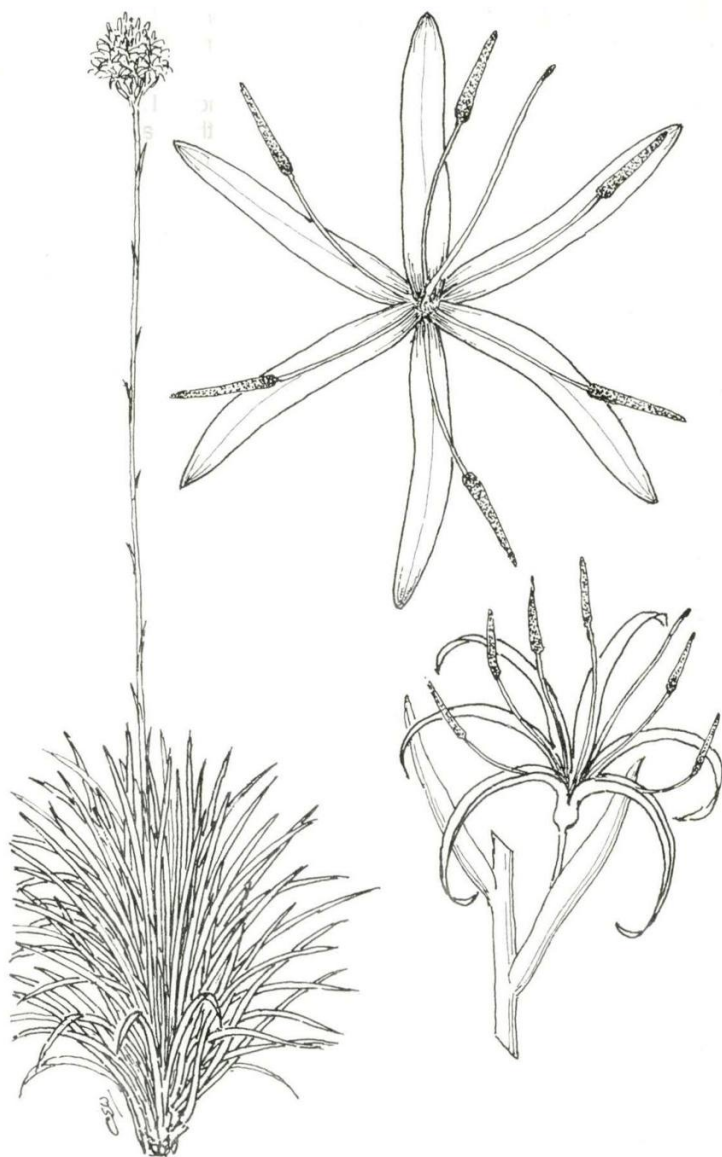
Healthy, vigorous and leafy as they were they showed no sign of flowering until early autumn of 1986 when, from the centre of the massive tuft of leaves of the plant, now **under** the *Hakea*, began to emerge a stout stalk. As the months passed it grew into a peduncle that eventually reached a length of three metres with a diameter ranging from 35 mm near the base to 30 mm at the top. On that summit was perched a cluster of flower buds about 25 cm in diameter. At first it looked rather like a cabbage on a pole but, in time, the buds opened and the clusters of crimson flowers expanded, displaying petals and sepals about 12 cm long and, perhaps, a little less than 1 cm wide. The flowerhead consisted of some twenty 15 cm-long racemes each carrying from four to eight flowers that expanded one after the other. That process was spread over five or six weeks during November and December. By mid-December several of the ovaries began to swell, indicating that fertilization had occurred. By this time the display came to a gradual end; all above-ground parts of the plant began to wither, first the petals and sepals, then the floral rachis and stem bracts and finally the leaves and the long, stout peduncle.

Like the aforementioned Century Plant, our Giant Lily "died down" after flowering and, like the *Agave*, several offshoots of the underground rootstock began to emerge at the base of the old plant which had served its purpose by providing some immediate successors just in case such seeds as its flower produced might happen to land in an unpropitious environment. In the case of our plant the seeds were collected, most of them being despatched to the SGAP seed bank (with no guarantee of viability). However, there were certainly viable seeds among them. We planted three in a small pot late in January, 1987 and, some four months later, two of the three germinated. One of the two has developed a sturdy seed leaf and looks as though it will grow into a healthy plant.

We have now only to mention that the second 1960 specimen in the south-east corner of the garden shows no sign of putting up a flower stalk. It seems as though we will have to live at least beyond 1989 to have the satisfaction of again seeing the flowers of *Doryanthes excelsa* in our suburban garden. But, so as not to discourage those who may wish to cultivate this unusual plant — more especially the elderly — it should be mentioned that it has been reported that *D. excelsa* has been known to flower within seven years of the planting of its seed. So, it seems, it all depends on habitat and climate. ■

Australian Plants — Disaster

In a commendable effort to reduce expenditure and reduce the work load on the Editor, Australian Plants, the manner in which correspondence and orders were handled was changed. The result was a total disaster. The arrangements were completely out of my control but this does not mean that as Editor, I must not share some of the responsibility and I apologise sincerely for us all. Until we can straighten out the mess, please send all correspondence, orders, payments, etc., directly to The Editor, Australian Plants, 860 Henry Lawson Drive, Picnic Point, NSW. Hopefully, you will continue to support Australian Plants. We can assure you it will continue to be produced to the same high standard and that you will receive prompt attention to your enquiries. Issues will be produced on time by the end of this year. To assist us in the task of restoring our records, will all those who have sent money since September 1987, please advise what was sent and for what service, even if you have finally received the items ordered — Editor.



The individual flower (top right) has what appears to be six petals (actually three sepals and three similar petals) and six stamens the filaments of which are attached to the 'petals' for about half their length.

There are three genera of Australian plants in the plant family Agavaceae — *Doryanthes*, *Pleomele*, previously known as *Dracaena*, and *Cordylina*. Will readers please advise of their experiences in cultivation of these plants and send good colour slides. They have been used extensively as container plants — Editor.

PITTOSPORACEAE

by Dr. E. M. Bennett*
Kings Park, Perth, W.A.

The plant kingdom has been divided into families comprising a number of plants with similar botanical features. The following paragraph describes features of the plants in the Pittosporaceae plant family.

The plant family Pittosporaceae includes trees, low to tall shrubs and twiners (H1)**. Some species are spinescent (J3). The simple leaves are alternate (H1) or clustered (C1) and lack stipules. The flowers are bisexual, typically regular (B2 J2) but in *Cheiranthra* the stamens all turn to one side of the ovary making flowers of this species slightly irregular (C2). There are five free or united sepals which alternate with five free (E2) or united petals (J2). The five stamens alternate with the petals (B2), are typically free (G3) but occasionally the filaments can be joined at the base or fused to the corolla lobes. The ovary is superior (B4, G3) and 2-5 locular. Fruit is a berry (J3) or capsule (B4, F2).

Key to Genera (Refer to sketches opposite for features used in the key)

1. Anthers linear, sagittate, equal in length to the filaments. 1. *Cheiranthra*
 - 2*. Flowers irregular. Stamens turned to one side of the ovary. 1. *Cheiranthra*
 - 2*. Flowers regular. Stamens not turned to one side of the ovary.
 3. Anthers free becoming prominently recurved with age. 2. *Pronaya*
 - 3*. Anthers cohering by apical tips especially when young, not becoming recurved with age. 3. *Sollya*
 1. Anthers ovate, much shorter than the filaments.
 4. Filaments joined to petals. Fruit globular, not dehiscent. 4. *Citriobatus*
 - 4*. Filaments free from petals. Fruit a berry or dehiscent capsule.
 5. Seeds winged. Petals up to 44 mm long. 5. *Hymenosporum*
 - 5*. Seeds not winged. Petals less than 20 mm long.
 6. Ovary and capsule distinctly stipitate. Seeds flat. 6. *Bursaria*
 - 6*. Ovary sessile or shortly stipitate. Seeds irregularly shaped but not flat.
 7. Shrubs or trees. Fruit a coriaceous or woody capsule. 7. *Pittosporum*
 - 7*. Climbers or small shrubs. Fruit a membranous or slightly coriaceous capsule or berry.
 8. Petals eventually free. 8. *Billardiera*
 - 8*. Petals remaining fused in central third. 9. *Bentleya*
- A. *Pittosporum phylliraeoides*. A1—habit, branches pendant, leaves alternate, with mature orange fruits; A2—flower, sepals fused at base, petals united for $\frac{2}{3}$ of length and then spreading lobes.
- B. *Bursaria spinosa* var *spinosa*. B1—habit, the inflorescence a raceme, spines at base of leaves; B2—a flower showing stamens of almost equal length to the narrow petals, the sepals dropping off early; B3—the anther, ovate with filament attached to the back; B4—fruit capsule nearly rounded, and stalked.
- C. *Cheiranthra cyanea* var *cyanea*. C1—habit, flowers may be solitary or in a cyme of up to six flowers, the leaves clustered at the nodes; C2—stamens all turned to one side of the ovary (making the flowers irregular) although the base of the filaments are evenly spaced around the ovary; C3—linear anthers open by a terminal pore, the filament attached to the base of the anther; C4—fruit is a capsule.

**The references quoted here refer to the sketches opposite. The sketches were prepared to illustrate the features of the botanical key above. Included in this issue is an article in a series presenting botany for the beginner. The Australian flora is so vast it is essential to use scientific names and some simple scientific terms to define the plants. If you find the article still too difficult to follow then pass on to others. One day you will find this simplified reference of great value.

*The scientific study was funded by the Australian Biological Resources Study and published in *Nuytsia* 1(3) and 2(4), the journal of the Herbarium of Western Australia.



D. *Sollya heterophylla*. D1—habit, alternate leaves and pendant inflorescence; D2—flower; D3—the filaments are free but the anthers cohere at the apices, the stigma protrudes beyond the stamen.

E. *Billardiera scandens*. E1—habit, alternate leaves and pendant flowers solitary or up to three together; E2—fruit, a pubescent (hairy) berry.

F. *Hymenosporum flavum*. F1—habit, sweetly scented flowers occur in dense terminal corymbs; F2—flower, the filaments are free from the petals, the petals are 22-40 mm long and the sepals 6-10 mm long; F3—fruit, a flattened capsule enclosing F4—winged seed.

- G. *Bentleya spinescens*. G1—habit, leaves 2-6 mm long clustered on spinescent (spiny) branches; G2—flower, the petals are fused in a tube with the stigma protruding; G3—flower with petals removed showing a densely pubescent ovary and the fleshy disc is visible between the filaments.
- H. *Pronaya fraseri*. H1—habit, twining, with alternate leaves which have recurved margins usually deflexed (bending back towards the end), anthers free becoming prominently recurved with age; H3—stamen tip enlarged.
- J. *Citriobatus pauciflorus*. J1—habit, a spiny plant with leaves toothed in the upper half, small sessile flowers; J2—flower, corolla tube (of petals) about twice the length of the lobes, anthers visible, the filaments fused to the corolla; J3—fruit, globular, sessile, 2-8 mm diameter.

9. *BENTLEYA* E. M. Bennett

This genus is readily distinguished by the solitary cream or greenish-cream flowers with the petals united in the middle third. Possibly the most diagnostic character is the green, fleshy, five-lobed intrastaminal disc at the base of the ovary. The one species in this genus is endemic to Western Australia.

Bentleya spinescens E. M. Bennett

A low shrub to 20 cm high with a similar spread, the branches ending in spines. The leaves are clustered (in fascicles) of up to seven, 2-6 mm long and ca 0.5 mm wide, scattered hairy on the upper surface and pubescent on the lower surface. The tubular flowers which reach 2 cm in length, are cream or greenish-white, with the lobes overlapping, only opening sufficiently for the maroon to pink-coloured stigma to protrude. The sepals are 6-7 mm long and 1.5-2 mm wide, with scattered white hairs on the surface. The petals are 12-20 mm long, joined for two-thirds of their length but becoming free at the base. The capsule is brown, velutinous, 10-14 mm long and 5-8 mm wide. It occurs at Newdegate, Western Australia, and flowers Sept. to Oct.

1. *CHEIRANTHERA* Brongn.

Cheiranthra is derived from the Greek "cheir" meaning a hand and "anthera" meaning anther, referring to the five stamens which all occur on one side of the ovary, like the fingers of a hand. Typically the petals are blue or purple, occasionally white, and the slightly unequal sepals are free or coherent at the base. The stamens are free and turned to one side of the ovary (although the base of the filaments is still evenly spaced around the ovary) with linear-sagittate, basifixed anthers (filament attached to the base of the anther) which open by terminal pores (C3), and a filament which is broad at the base and equal in length to the anthers. The fruit is a linear to obovate dehiscent capsule, splitting loculicidally into two (occasionally three) valves, with many smooth, brown to black seeds. The five species occur in all states except Tas. and N.T.

Key to Species of *Cheiranthra*

1. Flowers solitary.
 2. Plant pubescent. Leaves flat or with revolute margins. 1. *C. preissiana*
 2. Plant glabrous. Leaves flat or inrolled, nearly terete. 2. *C. volubilis*
1. Flowers up to 10 in a corymb.
 3. Leaves clustered at the node with one long and several smaller leaves. 3. *C. cyanea*
 3. Leaves alternate not clustered at the node.
 4. Stamens less than half the length of petals. Petals broad, lamina 5-8mm wide. 4. *C. alternifolia*
 4. Stamens greater than half the length of petals. Petals narrow, lamina 2-4 mm wide. 5. *C. filifolia*

1.1. *Cheiranthra preissiana* Putterl.

A slender twiner with alternate linear to ovate leaves 12-45 mm long and 1.5-13 mm wide, the upper surface $\pm$ glabrous, the lower surface pubescent. The flowers are solitary, with a glabrous, slender peduncle, 9-36 mm long. The free sepals are glabrous, narrow lanceolate, 0.75-2 mm long, ca. 0.5 mm wide. The petals are blue, lanceolate, 7-12 mm long and 3.5-6.5 mm wide. Flowering is in September and October. Refer to the colour photograph on page 32.

The variety *preissiana* has ovate to narrowly oblong leaves with revolute margins and may be found from Three Springs south to Katanning, W.A.

The variety *planifolia* has linear, flat leaves and may be found between Busselton and Nornalup, Western Australia.

1.2. *Cheiranthra volubilis* Benth.

A glabrous, slender twiner, the mature stems developing prominent pustules. The leaves are linear, 5-17 mm long and 0.5-1 mm wide, scattered or sometimes crowded together at the base of the inflorescence. The solitary flowers have a peduncle 15-45 mm long which often twines. The sepals are lanceolate, 4.5-5 mm long, glabrous and the petals obovate, 12-15 mm long, deep blue inside, pale on the outside. This species is found only on Kangaroo Island, South Australia flowering from November to March.

1.3. *Cheiranthra cyanea* Brongn.

Finger Flower

A $\pm$ glabrous subshrub with linear leaves 25-35 mm long and 1-3 mm wide (frequently with an axillary cluster of smaller leaves). The leaves are flat or inrolled so as to appear terete and terminate in a hooked apex. The flowers are solitary or 3-6 in lax cymes, with toothed or ciliate, free sepals 2.5-5 mm long, and purple to blue petals, 9-25 mm long and 3-10 mm wide. Flowering is November to December.

The variety *cyanea* has leaves to 25-35 mm long, usually flat. The flower cluster is $\pm$ equal to leaves or shortly exceeding them. It is widespread throughout New South Wales and Victoria. A detailed sketch is on page 21 and photograph on page 33.

The variety *borealis* has leaves to 10-22 mm long, keeled. The flower cluster is longer than the leaves. It is found in the Northern Territory and Darling Downs area of Queensland.

1.4. *Cheiranthra alternifolia* E. M. Bennett

A subshrub up to 50 cm high with alternate, linear leaves, 7-60 mm long and 0.75-1.5 mm wide. The flowers are solitary or in corymbs of 2-5 (11) flowers with peduncles 17-55 mm long and pedicels 4-25 mm long. The sepals are free, 4-8 mm long and 1-2 mm wide, the petals are pale to deep blue, 12-21 mm long and 5-8 mm wide. It occurs in South Australia and western Victoria, flowering from September to November.

There is a small leaved variant collected from Kangaroo Island and north-western Victoria but several other collections have similar small leaves towards the base of the plant and the typical longer ones higher up.

1.5. *Cheiranthra filifolia* Turcz.

A twiner or low spreading shrub with alternate, linear leaves 3-37 mm long and 0.5-2 mm wide, with an aristate apex. The inflorescence is a corymb of up to 10 flowers, with a glabrous peduncle, 4-25 mm long and pedicel 3-6 mm long. The sepals are free, glabrous 2-4 (6) mm long and ca. 0.5 mm wide and the blue petals are 7-15 (20) mm long and 2-4 mm wide. Flowering is from August to December. Refer to the colour photograph on page 32.

The type variety has leaves over 10 mm long, terete and canaliculate. It may be found from Ajana south to Gnowangerup and to the east of Esperance, Western Australia.

The variety *simplicifolia* has flat or incurved leaves which are over 10 mm long and is found from Howatharra east to Mt. Magnet south to Paynes Find, Western Australia.

The variety *brevifolia* has leaves under 10 mm long and is found from Merredin south to Albany and east to Ravensthorpe, Western Australia.

2. *PRONAYA* Hueg.

Pronaya commemorates Ladislaus von Pronay of Hungary (1837-1868) a naturalist and friend of Baron von Hugel. There is only one species *P. fraseri* which occurs in the south-west of Western Australia, in both the sandy coastal areas and the heavier soils of the Darling Scarp. This species is a twiner with the lower leaves becoming reflexed against the stem. The pink to mauve flowers occur in dense terminal corymbs, and as it is a summer flowering species is extremely showy. The anthers are linear, opening in longitudinal slits finally recurving with age, a feature that makes this species readily recognised. The fruit is a green berry with many seeds.

The type variety *fraseri* has sepals about equal in length to the petals with leaves longer than 25 mm. It is found from Piawanning east to Bruce Rock and south to Busselton, Western Australia.

The variety *minor* has sepals shorter than the petals and shorter leaves with margins closely revolute. It is found from East Mt. Barren to Duke of Orleans Bay, Western Australia.

3. *SOLLYA* Lindl.

Sollya commemorates the English plant physiologist and anatomist, R. H. Solly, 1778-1858, a friend of Lindley, who described the genus. There are two species both endemic to Western Australia, but *S. heterophylla* is naturalised in parts of South Australia and Tasmania. Both species are twiners or shrubs with flexuose branches. The blue flowers are drooping, solitary or in a few flowered terminal corymbs, but occasionally white or pink flowered plants are found. The filaments are free, with the anthers cohering at their apices before anthesis but becoming separated with age. The fruit is a cylindrical berry which turns bluish-purple when mature.

Sollya heterophylla, the commonly cultivated species, has narrow-lanceolate leaves with terminal or axillary drooping corymbs of up to five flowers. Another species *S. erecta* was described from a plant which was not flexuose and flowered in summer, but this species is synonymous with *S. heterophylla*. The variation exhibited by this species is large, from the habit of the plant, size of leaf and colour of the flowers.

Sollya drummondii, is a very delicate twiner with narrower leaves. It occurs between Denmark and Norelup, W.A. This is a summer flowering species.

4. *CITRIOBATUS* A. Cunn.

Citriobatus is derived from the Greek, "citria" meaning a citron tree and "batos" meaning a thorn, from the small orange coloured fruits and thorns. The common name "Orange Thorn" is derived from this. Four species occur in northern Australia and one in Malaysia. These species are much branched and erect, spiny shrubs or small trees with entire or toothed leaves. The white flowers are solitary or in pairs in the axils of the leaves. The petals are joined to about the middle with the lobes spreading at the tip. The fruit is a berry with several seeds embedded in a viscous pulp.

Key To Species

1. Flowers and fruit distinctly pedicellate without surrounding bracts at the base. 1. *C. linearis*
1. Flowers and fruit sessile surrounded by several bracts.
 2. Leaves obovate, less than 20 mm long with orange oil glands visible on surface..2. *C. lancifolius*.
 2. Leaves obovate, less than 20 mm long with no oil glands visible.
 3. Leaves typically toothed. Fruit less than 7 mm in diameter. 3. *C. pauciflorus*
 3. Leaves entire, apex acute. Fruit usually 15-35 mm in diameter. 4. *C. spinescens*

4.1. *Citriobatus linearis*

A small tree or compact shrub to 3 m with terminating or lateral spines 3-9 mm long on some branches. The leaves are glossy green above, 5-30 mm long and 2-6.5 mm wide. The flowers are solitary on a peduncle 1.5-2 mm long. The corolla tube is ca. 4 mm long and the lobes ca. 1 mm long. The globose fruit is 6-8 mm in diameter, dull black when ripe with 14-18 brown seeds. This is a common shrub in the drier rainforest areas of south-east Queensland, flowering in August.

4.2. *Citriobatus lancifolius* F. M. Bailey

A small tree to 8 m high with occasional spinescent branchlets. The shortly petiolate leaves are 16-40 mm long and 8.5-14 mm wide with prominent orange oil glands. The solitary or paired flowers have a corolla tube ca. 3 mm long and lobes ca. 2 mm long. The globose fruit is 7-10 mm in diameter with numerous irregularly shaped seeds. This species occurs in south-eastern Queensland and north-eastern New South Wales, flowering in September.

4.3. *Citriobatus pauciflorus* A. Cunn. ex Ettingsh.

A spinescent shrub to 2 m high with numerous lateral thorns. The petiolate leaves are 5-13 mm long and 4-8 mm wide with a dentate margin along the upper edge. The corolla tube is ca. 3 mm long with lobes 0.5-1.5 mm long. The globose fruit is 2-8 mm in diameter, orange or red with several dark brown seeds. This species occurs from northern Queensland to central New South Wales and flowers from August to December.

4.4. *Citriobatus spinescens* (F. Muell.) Druce

This spreading shrub or small tree to 5 m is known as Orange Thorn. The branches are spinescent and with lateral thorns. The shortly petiolate leaves are 6-20 mm long and 2-8 mm wide. The sessile flowers have a corolla tube 4-7 mm long and lobes 2-3.5 mm long. The yellow to green globose fruit is 14-35 mm in diameter with dark brown seeds. This species occurs in northern Australia from the Kimberley Region into southern Queensland and northern New South Wales, flowering from August to January.

5. *HYMENOSPORUM* R. Br. ex F. Muell.

This genus is readily recognised by the sweetly scented, long yellow tubular flowers and winged seeds.

Hymenosporum is derived from the Greek "hymen" meaning membrane and "spora" meaning seed, referring to the winged seed. There is only one species, *H. flavum* which occurs in Queensland, north-eastern New South Wales and New Guinea. *H. flavum* is a large shrub to a tall tree attaining a height of up to 20 m in the rainforest. The flowers are light cream to yellow up to 5 cm long and occur in terminal cymes. The alternate, dark glossy leaves contrast with the flower colour making it a very showy tree. The strongly scented flowers give this species its common name of "Native Frangipani". This species is cultivated in many suburban gardens throughout Australia.

6. *BURSARIA* Cav.

These species are readily recognised by the narrow, free petals which spread from the base of the flower and the stipitate, orbicular ovary and capsule. The capsule dehisces loculicidally around the edge releasing the numerous reniform, flat seeds.

Bursaria is derived from the Latin "bursa" meaning a pouch, being named from the shape of the fruit. Six species occur in Australia. These species are small trees or low shrubs, with typically spinescent branches and branchlets. The flowers are solitary, clustered, racemose or paniculate, white or cream in colour, with free, ovoid anthers dehiscent by longitudinal slits. The ovary is shortly stipitate, the capsule is flat, broad-orbicular with reniform seeds.

Key To Species Of *Bursaria*

1. Panicle hoary, Sepals hoary or densely hirsute, persistent or occasionally deciduous at flowering.
 2. Panicles terminal to the main branches. Sepals hoary and obscuring venation. ... 1. *B. incana*
 2. Panicle terminal to lateral branchlets. Midvein prominent on sepals. 2. *B. occidentalis*
1. Panicle or raceme glabrous or with scattered pubescence. Sepals glabrous to hirsute.
 3. Leaves petiolate, ovate to oblanceolate, up to 90 mm long. 3. *B. tenuifolia*
 3. Leaves sessile, narrow-lanceolate, occasionally ovate.
 4. Sepals persistent, more than 3-5 mm long. 4. *B. longisepala*
 4. Sepals deciduous.
 5. Leaves hoary on undersurface. 5. *B. lasiophylla*
 5. Leaves glabrous on undersurface. 6. *B. spinosa*.

6.1. *Bursaria incana* Lindl. is a shrub or small tree, 2-8 m high, branching from near the ground, unarmed except for occasional spines on vegetative branchlets. The sessile leaves are solitary or occur in clusters of up to six, 10-70 mm long and 2-12 (23) mm wide with the under surface densely white hoary (often glabrescent with age) and the upper surface with scattered hairs. The inflorescence is a sparsely to much branched, terminal, densely hairy panicle, 6-30 cm long with sweetly scented pedicellate flowers. The capsule is glabrous or pubescent, 5-11 mm tall, 3-14 mm wide, pale to dark brown apiculated by the persistent style base. The reniform seeds are dark brown 3-5.5 mm long, 2.5-3 mm wide. See the photograph on page 29.

The type variety *incana* has glabrous (hairless) fruit and a scattered hair to glabrous ovary. It is found in the Northern Territory, Queensland to northern New South Wales, flowering in January-May (June, August). The lower leaves of some plants are shorter than the upper leaves and the branchlets are very thorny.

The variety *septentrionalis* has hairy fruit and ovary and is found in north-eastern Queensland flowering from April to June.

6.2. *Bursaria occidentalis* E. M. Bennett, is a shrub or small tree 1.5-7 m high which is branched from the base. The sessile leaves are solitary or clustered, 20-65 mm long and 3-13 mm wide, with the undersurface densely white hoary and the upper surface sparsely pubescent. The terminal inflorescence is a raceme, corymbose raceme, or very sparsely branched panicle, 1-8 cm long, with sweetly scented, pedicellate flowers. The glabrous, stipitate capsule is 6-9 mm long and 8-12 mm wide, pale brown and splitting at the apex only. The seeds are irregularly shaped, pale brown, 4-5 mm long, 3.5 mm wide.

It is found from Shark Bay south to Dongarra, south-east to Queen Victoria Spring Nature Reserve, Western Australia, flowering from August to November.

6.3. *Bursaria tenuifolia* F. M. Bailey, is a tree or shrub 1-20 m high with thorny coppice branches. The petiolate leaves are solitary or paired at the nodes, 40-90 mm long, 11-35 mm wide with the upper surface glabrous to $\pm$ scattered hairy, and the lower surface hoary. The coppice leaves are 4-19 mm long and 1-8 mm wide. The inflorescence is a much branched panicle 8-19 cm long and up to 10 cm wide with sweetly scented pedicellate flowers. The glabrous capsule is 6-9 mm long and 5-13 mm wide, broader in the lower third, pale to mid-brown, with numerous brown seeds 4-5 mm long and ca. 2.5 mm wide.

It is found in the northern and eastern coastal areas of Queensland flowering from June to October.

6.4. *Bursaria longisepala* Domin., is a much branched shrub 0.5-1 m high, with many lateral and few terminal spines. Leaves sessile, 2.5-10 mm long and 0.5-1.5 mm wide, in clusters of 3-10 around the spines, varying between glabrous to densely pubescent on undersurface with thickened margins which are sometimes toothed. The pedicellate flowers are solitary or in axillary clusters. The brown capsule is 4-7 mm long and 6-8 mm wide with an acute apex and pale brown seeds ca. 4 mm long and 2.5 mm wide. Flowering is Oct. to Feb.

The type variety *longisepala* has mostly hairless leaves. The flowers have short (3 mm) sepals and petals to 5 mm. It is found in northern and central New South Wales. There is variation in the density and size of leaves and the size of the fruits.

The variety *pilosa* E. M. Bennett has leaves that are hoary underneath and flowers with larger sepals (5 mm) and petals to 7 mm. It is found in central New South Wales.

6.5. *Bursaria lasiophylla* E. M. Bennett, is a shrub up to 2.5 m high, unarmed or densely spinose with spines 4-22 mm long. The leaves occur in clusters of 2-4, 5-30 mm long and 2-10 mm wide, with the upper surface green and the lower surface grey to white or golden hoary. The inflorescence is a terminal raceme or panicle 10-50 (70) mm long and 5-30 (90) mm wide, with pedicellate flowers. The pale brown, glabrous capsule can be pubescent at base and along mid-line and is 4-7 mm long and 5-8 mm wide.

The variety *lasiophylla* from south-east New South Wales and Victoria, has a glabrous ovary and obovate leaves 6-10 mm long.

The variety *atriplicina* from coastal areas of New South Wales extending into Victoria also has a glabrous ovary but lanceolate leaves 14-30 mm long.

The variety *albicoma* from the Mt. Lofty Ranges and Murray Bridge areas of South Australia, has leaves 9-30 mm long and occasional spines.

The variety *parvifolia* of Victoria has leaves 4-7 mm long with numerous spines.

6.6. *Bursaria spinosa* Cav. is commonly known as Sweet Bursaria, Native Blackthorn or White Thorn. *Bursaria spinosa* is the most common species being widespread throughout the eastern part of Australia. It is a low, densely branched shrub or tree 1-12 m high, unarmed on the branches with terminal and lateral thorns. The sessile leaves are solitary or clustered, 4-35 mm long and 1-15 mm wide, often toothed. The inflorescence is an axillary cluster, or an axillary or terminal raceme or panicle, 2.5-40 mm long and 2-20 mm wide. The glabrous capsule is orbicular, elliptical, reniform or trilobate, 5-7 mm long, 7-9 mm wide, apiculated by the persistent style, pale to dark brown with dark brown, flat, reniform to orbicular seeds, 3-4 mm long and 2-3 mm wide. Flowering is from October to February. The varieties may be identified by:

1. Leaves greater than 2.5 cm long; branched unarmed.
 2. Trees or tall shrubs. Leaves usually 1-2 cm wide. Petals 3.5-5.5 mm long. b. var. *macrophylla*
 2. Shrubs usually less than 2 m high. Leaves usually less than 1 cm wide. Petals 2.5-4 mm long c. var. *lanceolata*
1. Leaves less than 2.5 cm long; branches spiny (rarely unarmed).
 3. Sepals deciduous. Petals 3-5 mm long, 0.5-1 mm wide.
 4. Leaves 1-2.5 cm long and more than 2 mm wide, fasciculate. a. var. *spinosa*
 4. Leaves less than 10 mm long and less than 2 mm wide. d. var. *microphylla*
 3. Sepals present at anthesis; petals 4-6.5 mm long, 1.5-2 mm wide.
 5. Leaves narrow-lanceolate, clustered in groups of varying lengths, longest up to 30 mm long, shortest 6-10 mm. e. var. *australis*
 5. Leaves obovate to lanceolate, clustered or alternate, of similar length, 6-18 mm long. Spines numerous. f. var. *obovata*

7. PITTOSPORUM

These species are trees or shrubs. The flowers have free petals or petals which are fused for part of their length into a tube with the apex spreading or recurved. The fruit is a 2-5 valved capsule which is woody or coriaceous but remains fused at the base, with the seeds immersed in a resinous viscid fluid.

Pittosporum is derived from the Greek "pitta" meaning resin and "spora" meaning seed, referring to the sticky pulp which envelopes the seed. There are about 150 species in Africa, Asia, Australia, New Zealand and the Pacific Islands, 11 occurring in Australia. Typically these are trees or shrubs with the petals free or connate at the base or united to form a tube with the apex spreading or recurved. The 1-sided fruit splits into 2-5 woody or coriaceous valves, revealing the seeds immersed in a resinous pulp.

Key To Species Of *Pittosporum*

1. Petals free or coherent at base.
 2. Inflorescence 1-15 flowered.
 3. Mature leaves tomentose beneath. Inflorescence 1-4 flowered. Sepals imbricate at base. 1. *P. bicolor*
 3. Mature leaves glabrous beneath. Inflorescence 1-5 flowered.
 4. Inflorescence 4-15 flowered. Sepals connate into a tube.
 5. Calyx tube 6-10 mm long, splitting into two parts. 2. *P. undulatum*
 5. Calyx tube 2.5 mm long, occasionally splitting down one side. 3. *P. moluccanum*
 4. Inflorescence 1-8 flowered, sepals free to the base.
 6. Pedicels 2-3 cm long. 4. *P. bracteolatum*
 6. Pedicels less than 1 cm long or flowers sessile 5. *P. tenuifolium*
 2. Inflorescence many flowered.
 7. Sepals not imbricate, free. 6. *P. venulosum*
 7. Sepals imbricate or connate.



Bursaria incana △

▽ *Pittosporum phylliraeoides* var. *microcarpa*



8. Sepals coherent at base, glabrous. Leaves rhombic to ovate, coarsely serrate or entire. 7. *P. rhombifolium*
8. Sepals slightly imbricate or connate, white tomentulose becoming glabrate, leaves oblanceolate or oblong, entire 8. *P. melanospermum*
1. Petals united into a cylindrical or urceolate tube.
 9. Inflorescence of 1-11 flowers.
 10. Leaves alternate or clustered.
 11. Spinescent shrub. 9. *P. oreillyanum*
 11. Shrub or small tree not spinescent. 10. *P. phylliraeoides*
 10. Leaves whorled. 11. *P. revolutum*
 9. Inflorescence many flowered.
 12. Petals over 10 mm long. Seeds black 15-16 per capsule. 12. *P. ferrugineum*
 12. Petals less than 10 mm long. Seeds red 3-14 per capsule.
 13. Leaves densely rusty tomentose beneath. Sepals densely ciliate and rusty tomentose. 13. *P. wingii*
 13. Leaves sparsely rusty tomentose to glabrate beneath. Sepals with scattered hairs. 14. *P. rubiginosum*

7.1. *Pittosporum bicolor* Hook

Commonly — Banyalla, Yellow-wood, Whitewood, Fallow wood, Tolosa wood, Dragon's Blood Pittosporum, Cheesewood.

Shrub or small erect tree (1.5) 3-10 m high, with slightly rough, dark grey bark. Leaves alternate to subverticillate, petiolate, coriaceous, upper surface dull glossy, lower surface brown-tomentose, 15-70 mm long and 5-16 mm wide with a tomentulose petiole 2-5 mm long. The 1-4 pedicellate flowers are clustered at the ends of the leafy branches. The puberulous sepals are imbricate at the base, 2-6 mm long and 1-3 mm wide. The petals are yellow with red veins or markings or reddish purple, free or joined at the base, spreading from above middle. The tomentose capsule is yellow, subglobose, 2-(rarely 3-) valved, 7-13 mm in diameter, with 10-20 irregularly shaped, red to reddish-black seeds. It is found in southern New South Wales, central Victoria and Tasmania. Flowering is from July to December.

7.2. *Pittosporum undulatum* Vent.

Commonly — Wave-leaved Pittosporum, Cheesewood, Engravers Wood, New South Wales Box Tree, New South Wales Mock Orange, Native Laurel, Victorian Laurel, Sweet Pittosporum, Walleendundeyren, Bart-Barb (Aboriginal).

A shrub or tree 3-13 m high, with a smooth bark which flakes off in 1 cm squares. The petiolate leaves are alternate, 6-17 cm long, 1-5 cm wide, green above, pale beneath, margins $\pm$ undulate, with petioles 6-26 mm long. The terminal inflorescence is a cluster or cyme of 4-15 flowers with pedicels 2-8 mm long and a peduncle 17-23 mm long, which is subtended by whorls of leaves and numerous brown tomentose bud scales. The sepals are connate into a tube which splits into two, each 6-10 mm long and 1-2 mm wide, which fall before the petals. The petals are 11-17 mm long and 3-4 mm wide, coherent at the base but spreading to recurved above. The glabrous capsule is subglobose, 2-valved, 8-14 mm in diameter, yellow or orange or brown, with 12-22, red to dark red or black, irregular seeds.

It occurs from Tasmania to south Queensland. Along the Dividing Range it is more luxuriant in shady gullies. It has become naturalised in the Mount Lofty Ranges of South Australia. Flowering is from August to October.

7.3. *Pittosporum moluccanum* (Lamk) Miq.

Shrub or tree to 4 m high with a smooth bark. The petiolate leaves are 5.5-15 cm long and 2.6-5.5 cm wide, alternate or crowded towards the ends of the branches, glossy green above, dull green below with a shortly acuminate apex. The inflorescence is a terminal or axillary fascicle of panicles with peduncles 1-6 cm long and pedicels 1-6 mm long. The sepals are united, rarely split to the base on one side, ca. 2.5 mm long including lobes 0.75 mm long. The cream petals are free, spreading to recurved, 10-12 mm long and ca. 2 mm wide. The orange fruits are solitary or few, ellipsoid, 2-2.5 cm in diameter, 2-valved, woody, rugose with up to ca. 25 brownish-red seeds. This is a Malaysian species now introduced into the Northern Territory and the northern Kimberley Region of Western Australia.

7.4. *Pittosporum bracteolatum* Endl.

Trees to 7 m high with alternate leaves which are frequently crowded at the ends of the branches. The leaves are glabrous, membranous, 5-11 cm long, 2-3.6 cm wide, dark green above, paler beneath. The 1-8 flowers occur in a terminal fascicle on pedicels 2-3 cm long which lengthen and become recurved in fruit. The sparsely pilose sepals are free, 10-13.5 mm long and 2-3 mm wide. The yellow-green petals are free 1.5-2 cm long and 4-4.5 mm wide, spreading from the base. The globose to pyriform capsule is 3-valved, 2-3.5 cm long, brown tomentose to glabrate, valves convex, woody, light yellow inside, with about 70, reddish-black, round to irregularly shaped seeds. It is found on Norfolk Island, flowering from June to August.

7.5. *Pittosporum tenuifolium* Banks et Sol.

Commonly called Kohuhu in New Zealand from which it comes. It is a tree to 10 m high with alternate, petiolate leaves often crowded at the ends of the branches, 1.5-12.2 cm long and 1.2-4.7 cm wide. The 1-3 flowers are axillary, solitary or in fascicles, sessile or on pedicels up to 10 mm long. The sepals are 3-7 mm long and 1.5-4.5 mm wide and overlap at the base. The petals are free 8-16 mm long and 2-5 mm wide, reflexed from the middle, dark purple, maroon, pink or white. The subglobose capsule is 3-valved, 9-14 mm in diameter with 6-31, black, irregular seeds. The species is now naturalised in South Australia and Tasmania.

7.6. *Pittosporum venulosum* F. Muell.

Trees to 10 m high with alternate to subverticillate leaves, 4.5-10.5 cm long and 1.5-4 cm wide, rusty tomentose when young, becoming glabrate, with a petiole 6-21 mm long. The inflorescence is a terminal, umbellate cyme, with the peduncle subtended by loose whorl of leaves and by numerous rusty tomentose bud scales. The sepals are free, 4-4.5 mm long and 1.5-2 mm wide, with the outer surface rusty tomentose and the inner surface glabrous. The white or yellow petals are free with spreading tips, 8-11 mm long and ca. 1.5 mm wide. The stipitate, subglobose capsule is 2- (rarely 3-) valved, 1-2 cm long, 1-2 cm wide with 6-14, reddish-black to black, irregular seeds. Found on the Coastal Ranges of Queensland. Flowering Feb. to March.





Cheiranthra cynea (above)

Photography by Frank Hatfield

Widespread throughout New South Wales and Victoria, this dainty little twiner is ideal for use in the garden. Details of the leaves, flowers and fruit are shown in the sketch on page 21. As described on page 23 the purple to blue petals may be up to 2.5 cm (one inch) long.

Cheiranthra filifolia (opposite, top)

Photography by E. M. Bennett

This is a climbing plant growing in fairly heavy soil of the Darling Ranges, Western Australia. In my garden, in sandy loam, it is climbing all over small twigs to half a metre. It does not seem to grow above one metre on bushes, but branches out. It is doing well in a fairly sunny position and flowers freely. *Cheiranthra cyanea*, the eastern "Finger-flower", is similar except that the leaves are flattened, not terete as above, and there are several flowers per inflorescence. C. F. Davies, Perth, W.A.

Cheiranthra preissiana (opposite, bottom)

Photography by E. M. Bennett

A slender twiner, the photograph shows details of the typical *Cheiranthra* flower, and in the case of this species and *C. volubilis*, five petals displayed separately on slender stalks, the stamens free, and clustered on one side of the flower. The photograph on the rear cover shows the characters peculiar to this species, solitary flowers and shiny (on top) flat leaves, some with margins turned down.

7.7. *Pittosporum rhombifolium* A. Cunn. ex Hook.

Commonly called Diamond Leaf Laurel, Burrawingee, or Queensland Pittosporum. It is a tree 13-30 m high, with dark grey scaly bark. The leaves are alternate, sometimes crowded at the ends of the branches, 4-11 cm long, 1.5-8 cm wide, shining above, dull below, with a petiole 1-2.5 cm long, with a few coarse serrations on the margin. The inflorescence is a many flowered terminal, spreading umbelliform cyme, the peduncles are 2-2.5 cm long and subtended by a single leaf and one or two minute bud scales. The glabrous sepals are coherent at the base, 1-3 mm long and 0.5-2 mm wide. The white petals are free, 1-2 mm long. The glabrous, stipitate capsule is subglobose to obovoid, 2-valved, 5-10 mm long, 5-8 mm wide, orange to yellow with 1-3, black, irregular seeds. It is found in eastern and northern Queensland to New South Wales flowering in November to January.

7.8. *Pittosporum meianospermum* F. Muell.

A slender tree, 2-7 m high with very rough, deeply fissured whitish-grey bark. The petiolate, alternate to $\pm$ crowded leaves, are 4-15 cm long and 1.1-4.5 cm wide, coriaceous with thickened, $\pm$ undulate margins. The numerous flowers occur in terminal, spreading, panicle-like cymes subtended by a whorl of 3-5 leaves and several minute bud scales. The sepals are slightly imbricate or coherent into a shallow cup, 1-2.5 mm long and 1-2 mm wide, white tomentose but becoming glabrate. The free petals are creamy yellow, 6-9 mm long and 1.5-3.5 mm wide. The stipitate capsule is obovoid to subglobose, 2-valved, 6-15 mm in diameter, orange or yellow or brownish-yellow, with 1-6, dull black, irregular seeds. Found in N.T. and northern Qld.

7.9. *Pittosporum oreillyanum* White

A shrub 1-3 m high with spinose branchlets. The leaves are alternate, $\pm$ clustered 2-20 mm long and 2-5 mm wide, paler on the undersurface, with an acute to cuspidate apex and a $\pm$ thickened margin. The flowers are solitary, axillary or terminal with a brown tomentose pedicel 1-2 mm long, subtended by one to several leaves and brown tomentose bud scales. The tomentulose sepals are $\pm$ joined at the base 1.7-2 mm long and 0.5-1 mm wide. The cream petals are 6-9.5 mm long and 1-1.5 mm wide, joined into a cylindrical or slightly spreading tube with the tips reflexed. The globose capsule is 2-valved, 7-12 mm in diameter with ca. 6 irregular, pale red seeds. It occurs at high altitudes in south-east Queensland, flowering from Sept. to Oct.

7.10. *Pittosporum phylliraeoides* DC.

Commonly known as Berrigan, Butterwood, Locket Bush, Bitterbush, Willow or Willow tree, Bell's Orange, Quinine Tree, Weeping Pittosporum, Native Willow, Poison-berry Tree, Apricot Tree, West Australian Willow, Macla, Derine, Madroo.

Pittosporum phylliraeoides was described by de Candolle from a plant collected by Leschenault. The type was collected from near Shark Bay in north-west Australia, and is a small tree with a pubescent undersurface which is restricted to coastal regions of Western Australia. The common form found throughout most of Australia is var *microcarpa*, commonly known as Native Willow, has narrow-oblong to nearly linear leaves on pendulous branches. The small flowers are axillary, solitary or up to four in a cyme. The fruits are dark-red to orange with a yellow inner surface, and red, irregularly shaped seeds.

The type variety *phylliraeoides* has broad oval to oblong leaves and flowers with linear sepals. It is found on coastal regions from Exmouth Gulf to Garden Is. off Western Australia, flowering from July to August.

The variety *microcarpa* has linear leaves with ovate sepals and is found in the inland areas of Australia, flowering from May to October. See the photograph on page 29.

7.11. *Pittosporum revolutum* Ait.

Commonly known as Wild Yellow Yasmine, Yellow Flowered Brisbane Laurel, Rough-fruit Pittosporum.

A shrub or bushy tree to 6 m high, with whorled, petiolate leaves (occasionally alternate) usually crowded at the ends of the branch, 4-19 cm long and 2-7 cm wide, with appressed golden to red hairs on undersurface. The terminal (rarely axillary) inflorescence is a cymose-umbel, each cyme is up to 11 flowered, with a brown tomentose peduncle 2-10 mm long, subtended by several leaves and a whorl of persistent bud scales. The sepals are slightly imbricate at the base, 4-6 mm long and 1.5-2.5 mm wide, with acuminate, recurved tips. The yellow petals are 10-16 mm long and 2-3 mm wide, united for ca. 2/3 of their length into a cylindrical or urceolate tube with the lobes spreading to reflexed at the apex. The 2-4 (6)-lobed capsule is 1.5-3 cm long and 1-2 cm wide, thick and corky, green maturing to brown, with 20-76, red to reddish-brown, round to irregular seeds. Distribution is from Northern Territory to Victoria flowering from July to October. See photograph on page 37.

7.12. *Pittosporum ferrugineum* Ait.

Commonly known as Kamut (Aboriginal name), this is a tree or shrub 8-20 m high with grey, scaly bark. The petiolate, leathery leaves are 4-12 cm long and 2.5-5.5 cm wide, alternate, frequently crowded at the end of the branches, rusty tomentose along the midvein on the undersurface. The inflorescence is a terminal or axillary, subumbelliform cyme on rusty tomentose peduncles 1.5-4 cm long, subtended by one to several leaves and whorls of ciliate bud scales. The sepals are free or joined at the base, 1.5-3 mm long and 0.5-1 mm wide with an acuminate apex. The cream to yellow petals are 5-8 mm long and 1-1.5 mm wide, joined into a cylindrical tube with recurved apices. The globose capsule is 2-valved, 7-10 mm in diameter, green to orange-yellow, with 15-16, black, irregular, smooth, seeds 3-4.5 mm long. It's found on eastern coastal areas of Queensland flowering from June to August.

7.13. *Pittosporum winglii* F. Muell.

A shrub or small tree 1.5-6 m high, with petiolate, subverticillate leaves, 6-15 cm long and 2.2-6 cm wide, with occasional short golden hairs on upper surface but densely golden-rusty or brown pubescent on lower surface. The inflorescence is a 3-32 flowered umbel on a rusty tomentose peduncle 4-7 cm long. The sepals are free, 4-9 mm long and 1-2 mm wide, slightly overlapping at the base, densely ciliate and rusty tomentose. The petals are 9-13 mm long and 2-4 mm wide, joined to the middle into a spreading tube. The 2-valved capsule is 13-19 mm long and 6-12 mm wide, densely rusty tomentose with 3-14 viscid, dark rusty-red, irregular seeds. It occurs in northern Queensland, flowering from August to September.

7.14. *Pittosporum rubiginosum* A. Cunn.

Commonly called Rusty Pittosporum, this is a shrub or small tree to 5 m high with alternate or irregularly subverticillate leaves, 6-33.5 cm long and 2.5-13 cm wide, with a pale green upper surface and a pale-green to reddish-purple lower surface. The inflorescence is a terminal, 3-32 flowered umbel with a rusty tomentose peduncle 4-11.5 cm long, subtended by numerous leaves and scarious bracts. The sepals are free, slightly overlapping at the base, 4-8.5 mm long and 1-2 mm wide with acute to acuminate recurved twisted tips. The creamy yellow petals are 11-17 mm long and 2-4 mm wide, joined to the middle into an urceolate or spreading tube with spreading to recurved lobes, often becoming completely free with age. The 2- (rarely 3-) valved capsules are 9-21 mm long and 6-15 mm wide, yellow to orange, minutely rugose with 3-14, dark rusty red to red, irregular seeds. It is from north-eastern Queensland, flowering from July to September. At the summit of the centre peak of Mt. Bellenden Ker (altitude ca. 1600 m), in stunted rainforest, there is a small leaved variant of this species.

8. *Billardiera*

A genus of a large number of plants to be described in a future issue. Will readers please send reports on cultivation experience and colour slides. ■

Eucalyptus orbifolia

Round-leaved Mallee
by Ivan Holliday

This is a mallee or small bushy tree up to 6 m high, but usually less, which features rounded or obcordate grey-green leaves and smooth reddish bark which curls off in longitudinal strips, eventually to reveal fresh pale green and cream bark. The reddish young branchlets are covered with a mealy bloom, as are the buds.

Bud caps are hemispherical-conical to conical, opening to expose creamy-yellow stamens, normally in autumn and winter. The fruits are powdery grey, hemispherical or short and bell-shaped, the unopened valves projecting from the centre of the disc in similar fashion to the gong of a bell.

It grows near granite outcrops of Western Australia, mainly in arid areas north of Southern Cross and west of Menzies, where rainfall is about 250 mm. This tree is easy to cultivate in and around Adelaide where I have seen excellent specimens growing in a range of soils — the limestone mallee soils of North Adelaide, the red-brown earths (heavy clays) of much of the Adelaide plains and the acid sands at Black Hill.

It is an ornamental and unusual small tree which has been occasionally cultivated over a wide range of conditions in Australia from southern Queensland to Western Australia. There is an attractive chance cultivar growing at the Point, near Jervois along the River Murray which seems to be a cross between *Eucalyptus orbifolia* and *E. caesia*. It displays the leaves of *E. orbifolia* and has attractive pink flowers.

Eucalyptus websteriana is similar to *E. orbifolia*, but usually smaller and more compact, with slightly smaller fruits and flowers. ■



Pittosporum revolution flowers △

▽ and fruit. Photography Lois Sourry



Western Australian Plants for Horticulture

Editor

Twenty years ago there was not the range of books on the Australian flora that there is today. About this time I discovered that Ken Newby was preparing detailed notes on selected plants of the unique Western Australian flora especially suitable for use in general horticulture. I was subsequently able to publish these notes in "Western Australian Plants for Horticulture — Vol. 1" and subsequently with more species in volume two. Each species has a half page description in very easily understood terms and about half have a full page, full colour plate. There are still limited numbers of these valuable volumes, each shockingly underpriced at \$4.00 each, as advised inside our rear cover. They are such a valuable work that, no doubt, when not stocked they will rocket up into the expensive rare book category; so get your copy now.

Vale, Ken Newby. It is with a deep sense of loss that we record the passing of Ken Newby on 23-7-88. Ken carried out many scientific research projects on his beloved western flora. He was engaged on a Churchill Fellowship involving work in South Africa and Britain. His ashes have been scattered in the Fitzgerald River National Park.

Wildflowers of Mount Wellington — Plant Identikit

Plant Identikits are small booklets 16 x 11 cm, produced with a stiff cover in a size that will comfortably fit into a coat or all weather parka. They are produced for visitors to specific areas to enable them to easily identify the plants of the area. Each page is devoted to a different species, a colour plate of the plant being supplemented by a simple description under the headings: Distinguishing Features, Description, Flowering Period, Distribution, Locality (where you will find a good specimen), Cultivation Notes and Related species.

The Plant Identikit for Mount Wellington, Tasmania, describes and illustrates 55 plants, many of which occur in other areas of Tasmania. It may be obtained from the Publications Officer, S.G.A.P., Tasmania, 2 Garnett Street, Blackmans Bay, Tasmania 7052, for \$4.00 plus 80¢ postage. A very well presented and valuable little book.

Wildflowers of the Sydney Region and the Blue Mountains — Plant Identikit

Similar to the plant identikit for Mount Wellington, Tasmania (above), there are three more now being marketed, one on the Blue Mountains west of Sydney and one on each of the northern and southern areas of Sydney. Each of these retail at \$4.95

Australian Irids in England

by J. Irons, Heswall, Wirral, England

I have had no difficulty in growing *Diplarrena*, *Libertia* and *Patersonia*. Both species of *Diplarrena* were imported but my own seed germinates readily as does *Patersonia*. *Libertia* would not germinate until we had a mild winter with no frost at all, just one in November and one in May. *Libertia* sown in April the previous year came up at the end of April, over 100 seedlings. I cannot agree with the statement that all Australian irids need sun. *Libertia pulchella* is a plant from the floor of mossy forests. I have seen *Diplarrena* in dry sclerophyll forest and in England it will grow and flower anywhere except very deep shade.

Banksia Studies

Everyone should be very impressed with Report No. 8 of the Banksia Study Group. I have lifted out two short items of interest but the comprehensive detail presenting what amounts to scientific research, in such a clear manner is a feature of the report. There are numerous short notes from members of the group but the larger reports are outstanding: Occurrence of multiple flowerheads, 2 pages — A grafting cultivation study at Macquarie University, 3½ pages — Irrigated approach grafting, 4 pages — Twelve years of experience of cultivation of eastern and western *Banksia* at Cranbourne, Victoria, 17 pages — Grafting of Banksia, a detailed report of a study and reports of grafted plants growing up to five years old.

An Australian Gardener's Notebook

by Ninette Dutton

This unusual small book is a collection of articles in a series by this author in the periodical "Your Garden". I suggest you obtain a copy of "Your Garden" and see if you like the author's unusual style before buying a copy of the book. Available from your bookseller for \$19.95

East Coastal — 8

Kangaroo Paw by Brian Walters

If *Grevillea* were the Australian plants of the 70's then *Anigozanthos* (Kangaroo Paw) hybrids must be the plants of the 80's. Many new hybrids have been released during the past three or four years but, unfortunately a few apparent "duds" among them have started to give the genus a bad name.

The only truly hardy Kangaroo Paw species is *Anigozanthos flavidus* which, in its commonly available form, is a vigorous grower with tall flower spikes up to 2.5 m high and in a particularly uninteresting shade of green. It's a good, reliable plant but it's a bit, aah . . . ho hum, if you know what I mean. Certainly not one that you'd flog the family heirlooms to get hold of!

The aim of hybridization is to combine the reliability of *Anigozanthos flavidus* with the beauty of some of the other 10 species, few of which are long-term propositions on the east coast. Of course, this sort of work doesn't always go to plan . . . producing a hybrid with the reliability of *Anigozanthos manglesii*, say, and the beauty of *Anigozanthos flavidus* is not guaranteed to improve the hybridist's sense of humour!

A feature of some of the Kangaroo Paws, other than *Anigozanthos flavidus*, is a tendency to die down in summer and then to reshoot from the rhizome in autumn. Some of the hybrids appear to have inherited this feature and it should not be regarded as cause for concern . . . it may look a bit untidy for a while, but there is no rule that says that you can't clean up the plants if the dried out foliage is offensive.

More serious, however, are the "inkspot" and "rust" foliage diseases that attack a few of the hybrids. These diseases are apparently caused by the fungi *Alternaria* sp. and *Puccinia haemodori*, respectively (Sivasithamparam, 1983). Inkspot, particularly, can be a very debilitating problem as it appears to result in the breakdown of the cell structure of the leaves. It is characterized by black spots on the leaves which gradually increase in size.

There is no real cure for either disease. However, certain cultural methods may assist in control. Plants should, for example, be grown in sunny, open positions where there is good air circulation. Overhead watering should be minimized. A suggestion made to me recently seems to have merit (and should, at least, appeal to any pyromaniacs out there!). This involves setting fire to the foliage after flowering to destroy the diseased leaves and fungal spores and to stimulate new growth from the rhizome.

It is probably advantageous also to keep the clumps at a reasonable size. Very large clumps impede air circulation and leaves do not dry rapidly after watering or rain. These conditions can be minimized by dividing the clumps after one to two years growth, depending on their vigour.

Some of the earliest hybridizing work was carried out in Western Australia by Keith Oliver and Stephen Hopper (Oliver, 1971, 1972; Hopper, 1979) and three of the Hopper hybrids were the first to be widely released for sale. These are known as 'Dwarf Delight', 'Regal Claw' and 'Red Cross', and they are described in the booklet "Australian Cultivars" published by the Australian Cultivar Registration Authority.

The best of the three for east coast conditions is undoubtedly *Anigozanthos* 'Red Cross' which is a magnificent plant with burgundy coloured flowers on stems 1.5 m high. *Anigozanthos* 'Dwarf Delight' is spectacular but, in my experience, very susceptible to inkspot.

Some more recent hybrids have been produced by the late Merv Turner of Bush Gems Nursery. Although bred for disease resistance, some of the smaller "Bush Gems" hybrids certainly vary in their susceptibility to disease. Perhaps the best of these smaller varieties is *Anigozanthos* 'Bush Ranger' with its bright red flowers. The taller hybrids such as *Anigozanthos* 'Bush Dawn' (yellow) and *Anigozanthos* 'Bush Sunset' (deep red) are very hardy and attractive.

There are so many other cultivars that it is difficult to select a representative sample. Certainly, *Anigozanthos* 'Early Spring' (small, red) and *Anigozanthos* 'Gold Fever' (tall, orange/yellow) are worth seeking out.

It would be entirely useful to develop a database of the various kangaroo paw cultivars and their success in various districts. I'm prepared to co-ordinate it, not as a formal study group (been there, done that, don't want to do it again!) but just as a data collection and compilation centre.

Come on! You don't have to write an essay. Just a list of the paws you've grown, the age of the plants and an assessment of their performance (send to me at R23 West Wilchard Road, Castlereagh, NSW 2750). ■

How to Know Western Australian Wildflowers — Part 1

The Western Australian flora is unique and staggering in its variety. A visit to the wildflower areas provokes a feeling of wonder at the spectacle, a greater appreciation of man's place in our rapidly vanishing natural world, and a desire to know more, to even identify the plants. Fifty years ago, Dr William Blackall published an illustrated key to species, Part 1 of a rather ambitious work. The work was carried on by Professor Brian Grieve and developed through many editions to the latest one recently released. One cannot speak too highly of the dedication and competence of Brian Grieve and the excellence of his work.

The objective is to enable the amateur botanist to be able to identify plants by referring to a series of simple sketches. The sketches are so easily followed, with a little patience, that any beginner to plants can become an amateur botanist. As the western flora is so magnificent, a book of thousands of sketches can be a little daunting to an amateur, especially as the first section outlines the botanist's view of the plant kingdom. However, a section "Aids to Identification" provides a short cut such that general features of the flower, readily discernable, leads you straight to the plant family of interest. With just a little knowledge of wildflowers, most people can make a guess as to the genus; that is a *Banksia*, that looks like a *Grevillea*. Then by turning to the section dealing with *Banksia* or *Grevillea*, you can decide from the sketches what the name of a particular plant is.

The book is a treasure of knowledge and excellent value at \$50.00 from your bookseller.

The Orchids of Asia — An Introduction

M. L. Isaac-Williams

An excellent book for the orchid enthusiast. One hundred and sixty species of orchids native to Asia are described and well illustrated in beautiful colour. Available from your bookseller for \$37.95.



Anigozanthos 'Bush Dawn'

Photography by Brian Walters

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Australian Plants Needs YOUR Help

Without your help Australian Plants will not survive. How strongly do you feel that it should? I need comments from readers and good colour slides of the following plants that will be featured in issues in preparation. Plants in the family Liliaceae and related genera; this includes *Blandfordia* (Christmas Bells), *Arnocrinum*, *Johnsonia*, *Chamaescilla*, *Dianella*, *Stypandra*, *Bulbine*, *Hypoxis*. Most Myrtaceae but especially *Calytrix* and *Leptospermum*. Plants in the plant family Sapindaceae, especially *Dodonaea*, *Euphorbia*, etc. Plants in the plant family Rutaceae, especially *Eriostemon*.

Most importantly, I need colour slides of native gardens — Editor.

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Cheiranthra preissiana (see page 33).

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