

Australian Plants

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Photography by M. W. Hodge

GRAPTOPHYLLUM EXCELSUM

A shrub 2-3 metres, the brilliance of the dark red flowers against the glossy green of the leaves is not done justice above. It can form a compact bush and is very easily cultivated over a wide range of conditions with good reports from Sydney. Free flowering forms need to be selected.

CENTRAL QUEENSLAND PLANTS

Perhaps one of the most familiar plant communities to many people who travel through the Central Queensland area is the dry sclerophyll vegetation between Rockhampton and Marlborough. The distinctive stands of brigalow (*Acacia harpophylla*) and unfortunately decreasing numbers of the "Narrow-Leaved Bottle Tree", *Brachiton rupestre*, are supplemented in certain localities by several interesting plants.

*Atalaya hemiglauc*a "Whitewood" with its narrow glaucous foliage and large pyramidal heads of small white flowers is a very useful tree for warm dry climates. The tree develops into a wide canopied, excellent shade tree.

Acacia harpophylla, "Brigalow", can become a very attractive and useful tree which should be used more widely in garden plantings. The silver foliage, forming an attractive dense canopy and the dark rough trunk make it a useful subject for the larger bush-garden setting.

Acacia salicina, "Native Willow", forms a small to medium sized slender tree with distinctive narrow phyllodes on weeping branches.

Capparis mitchellii, "Native Pomegranate", is of dense, somewhat erect habit as a small tree. The large whitish flowers which consist of masses of large prominent stamens are followed by curious globular hardy woody fruits on long stalks. This small tree tolerates heat and dryness.

Carissa ovata may be used as a barrier or background to prevent animals from encroaching, its dense habit and spiny branches being ideal for this. The leaves are oval, 2.5 to 3 cm long and contrast with the white star-shaped flowers.

Cassia brewsterii. This outstanding tree has been described elsewhere in this publication. It is somewhat slow to establish in cultivation and would benefit from its natural micorrhizal associations.

Cassia tomentella has pinnate foliage with oval, undulate dark green leaflets. The flowers are yellow in pendulous racemes, followed by cylindrical brown buds 15-20 cm long. This attractive small bushy tree is found on the black soil area associated with *Acacia harpophylla* and *Casuarina cristata*.

Eucalyptus species such as *E. populnea*, *E. raveriana*, *E. terminalis* and *E. citriodora* form attractive specimens for a medium sized native garden. *Eucalyptus populnea*, "Bimble Box", with its oval to orbicular dark green glossy foliage which gives a lustrous appearance to the light compact canopy, is a useful subject. The trunk has light grey, box-like fissured bark. *E. raveriana*, "Iron Tree", is a large tree with flaky, hard, box-like bark attractively blotched with white and light brown. With narrow foliage this tree is useful for creek margins or other well watered areas. *E. terminalis*, "Long Fruited Bloodwood", is an inland species with greyish white flaky bark producing large heads of conspicuous flowers.

Erythrina vespertilio, "Bats Wing Coral Tree", with its curiously shaped bluish-green foliage produces a blaze of orange red pea flowers.

Gyrocarpus americanus is a large tree with curious lobed, dull green, tomentose leaves and clusters of dull grey to black winged fruits. The stout trunk and upright habit resembles that of a *Brachychiton* superficially.

Eremophila, "Emu Bush", are represented by *E. mitchellii* with its narrow foliage in compact bushes and white flowers, and *E. maculata*, that widely distributed compact low growing shrub with tubular reddish spotted flowers.

Eustrephus latifolius var. *angustifolius* is a small rambling climber growing through grassland or over shrubs. The leaves are narrow, yellowish green and held on thin wiry stems. The small white starry lily-like flowers are followed by globular yellow berries to 1 cm diameter.

Terminalia thozetii is a medium to large tree with a dense horizontal branching habit. The foliage is dark green, oblong to elliptical and will make an attractive, useful shade tree. It grows naturally near the margins of creeks and well watered areas.

The wealth of flora cannot be adequately mentioned here but it would be appropriate to mention such unique plants as *Macrozamia moorei* with its massive trunk forming a tall stem to 6 metres and fronds to 3 metres long. The large reddish seed is contained in heads one metre long. *M. miquelii* is a "stemless" species, the stem being subterranean. The crown of numerous fronds to 2 metres long are a medium green. The short female fruiting heads contain reddish seeds approx. 2.5 cm diameter.

TALL TREES FOR TOWNSVILLE

There is some confusion about just what is meant by a tall tree, and many people find it hard to comprehend just how tall a 20 m tree really is. This is probably one of the reasons why there are so few of our very handsome larger trees grown in Townsville gardens. Another reason is that the size of our building allotments has been steadily diminishing. It is not always possible to grow larger trees and in some instances, such as between dwellings, it is often undesirable, but tall trees do contribute much to the aesthetic appeal of a neighbourhood. It is very difficult to frame a typical high blocked residence with shrubs and, in many cases, a suitable tall tree can make a vast difference.

These trees should, where practical, be set away from the dwelling and placed in such a position as to offer some protection from our hot afternoon sun. It is wise to remember that incorrectly sited trees may have to be removed or pruned at some later time. This is a difficult, dangerous and expensive job and careful thought should go into the selection and positioning of all large trees so that this problem can be avoided.

In order to give the reader some idea of vertical height, it can be assumed that the average high set dwelling is 7 m from ground level to the top of the roof line. The heights specified for each of the species described is meant as a guide only. Most large trees, particularly those from rain forest areas, do not grow as large in a garden situation as they do in their natural environment.

Alstonia scholaris—"Milky Pine"

"Milky Pine" is a tall, narrow, symmetrical tree to 30 m, sometimes more, but usually smaller. The light grey trunk is smooth and branches are typically whorled in horizontal layering, which is a characteristic feature of this tree. Foliage, in whorls along the shoots, is dark green and leathery. The leaves are broad, lanceolate, deep green, shining (glabrous), shortly petioled to 15 cm long by 4 cm broad. A milky sap is present in all parts of the tree.

The small white flowers, approximately 8 mm in diameter, are arranged in large terminal clusters. Fruits are papery and thin, up to .20 cm long by 8 mm wide, containing papery seeds which are wind distributed.

This fast growing tree prefers plentiful moisture and deep friable soil, although able to withstand dry conditions (with reduced growth rate). A spectacular specimen tree, it is useful for group planting in the higher rainfall and moist or swamp areas. Its habitat is the coastal rainforest of Northern Queensland.

Brachychiton rupestris—Queensland Bottle Tree" or "Narrow Leafed Bottle Tree"

A most unique, slow growing tree, unfortunately disappearing from the landscape in the wild. It is found in the drier areas of Southern and Central Queensland in dry scrub and rocky areas, where it may attain a large size. It is found locally on limestone outcrops at Fanning River. Trees to 20 m high, with a trunk diameter to 2 m, have been observed. This tree is of great value in cultivation for its unusual appearance and attractive foliage. Although reputed to be slow growing, it is useful both as a specimen plant and for landscape work in moderate to large gardens provided the soil is well drained. It prefers well-drained soils and responds to artificial watering where this is present. The trunk is swollen, bottle-shaped, light to medium grey, finely fissured, and tapers abruptly into a dense, large canopy. The

leaves are dark grey-green, about 13 cm long, very narrow and lobed on young trees, but simple and lanceolate in adult specimens. The small white flowers are borne in short panicles. The flowers have no petals, but the downy calyx is divided into five lobes. Fruits are woody, pod-like follicles with a prominent beak, 3-5 being joined to a short stalk. They open to reveal the dark grey seeds on the inner walls.



BUCKINGHAMIA CELSISSIMA

A tree from the Atherton Tableland and tropical coastal rain forests. No reference to Queensland trees would be complete without featuring this world famous tree. The near white cylindrical flower spikes grow to 20 cm long and cover the tree in a spectacular display during summer. Growth rate is not fast. By trimming the lower limbs to leave a bare trunk it produces a rounded shape ideal for a street tree as it is used in Brisbane. It grows to 10 metres in height in a rain forest but in Townsville in garden conditions it rarely reaches 6 m so is listed in the section for smaller trees.

EUCALYPTS

There are some very fine Eucalypts around Townsville, the colourful flowering species being shown below.



Photography by D. Hockings

EUCALYPTUS MINIATA

On the road west from Townsville to Torrens Creek you will see fine stands of this beautiful tree. Under cultivation it is a smaller tree and so has been listed in that section. Taller eucalypts for specimen trees are described on the next page.

Eucalyptus miniata may be found growing in suitable habitats right across Northern Australia to Darwin. The trees near Darwin have larger, more decorative seed capsules but the bark on the Qld. trees is most attractive.

Callitris columellaris—"Cypress Pine"

This widely distributed tree is well known for its valuable timber, which has been much used in building. This magnificent, stately tree can grow to over 30 m but is usually much smaller, particularly in drier areas. Most of the old giants have disappeared. Its symmetrical pyramidal shape, persistent branches and attractive green or grey-green foliage make it a most desirable tree to plant as a specimen in a large formal garden or a park. It is also useful as a shade or shelter tree, though the shade is not dense.

The furrowed bark is rough, dark grey and persistent; the leaves, small and scale like in whorls of 3 to 4 on the young branchlets. The opened 6-lobed woody fruits are particularly attractive and could be used as "flowers" in dried arrangements.

Castanospermum australe—"Moreton Bay Chestnut" or "Black Bean"

A tall evergreen tree with a smooth grey slightly buttressed trunk. In the rainforests of Queensland and New South Wales it grows to 25 m, but in cultivation is usually much smaller and may also be pruned. It has glossy dark green pinnate leaves up to 50 cm long. The 11-15 leaflets are ovate-elliptical or broadly oblong. It makes an excellent shade tree, except that it should not be planted to overhang a house or play area, as it drops huge dark brown woody seed pods, 20 cm long, sharply pointed and weighing around .25 kg each. The large, chestnut-like seeds, up to six in a pod, are poisonous if eaten, though the aborigines are said to have known how to process them for food. See colour plate and report on plants for cyclone areas.

Casuarina cunninghamiana—"River Oak"

A tall, erect, evergreen, pyramidal tree, sometimes growing as tall as 30 m in its natural habitat. It occurs along streams in the Townsville area as well as other coastal and inland watercourses in relatively high rainfall areas of Queensland and New South Wales.

This is a fast growing, symmetrical and attractive tree, adaptable to a wide range of conditions in cultivation. It makes an excellent specimen tree. Once established with artificial watering it will tolerate clay conditions very satisfactorily.

The bark is rough, finely furrowed, dense and an attractive grey-brown. The branchlets, or cladodes, which comprise the canopy, are very slender and dense and are green to brownish green in colour. The true leaves are reduced to small scale leaves in whorls at intervals along the cladodes. The trees are dioecious, that is the male and the female flowers are separate and distinct individuals. Male flowers are borne in terminal spikes at the tips of the shoots. Female flowers are small, reddish and cone-shaped. They are followed by woody cylindrical cones 5-8 mm long. The tiny seeds are winged.

Casuarina equisetifolia—"Dune Sheoak"

A large, spreading, evergreen tree with a light canopy of pendulous, slender, needle-like, green or greyish-green branchlets. The bark is rough, scaly and light brown and the globular shaped flowers are red. The 2 cm diameter spherical fruit contains small seeds each bearing a transparent wing.

This is a good shade tree for large areas in coastal regions; it is fast growing and is particularly useful for seaside planting. It occurs naturally on sandy coastal dunes in Queensland, but succeeds well under a variety of soil conditions.

Eucalyptus citriodora—"Lemon Scented Gum"

This popular species has adapted well to Townsville, preferring well-drained situations, but growing also in the clays. It is fast growing to 15 m, with a smooth deciduous bark and foliage which gives off a distinct lemon scent when crushed. It is at its best when grown amongst other Eucalypts, which enhance the tall straight nature of the trunk.

Eucalyptus grandis—"Flooded or Rose Gum"

In Townsville this is a tall fast growing tree which will grow to 30 m. The bark is rough and persistent at the base, deciduous, smooth, white above, falling away in ribbons. This beautiful and stately tree should only be planted in the very large garden

Eucalyptus robusta—"Swamp Messmate"

A medium sized tree growing to 15 m with rough somewhat stringy bark. It occurs in S.E. Queensland and has adapted very well to Townsville clay soils. It is generally fast growing and bears attractive dark glossy leaves as well as small white flowers which appear from September to October.

Eucalyptus tereticornis—"Forest Red Gum"

This small tree to 20 m here has many forms, all of which are proving satisfactory under garden conditions. A glaucous form from the Charters Towers district is becoming very popular because of its stately habit and fast growth. The small white flowers appear in Spring and are much sought after by birds.

Eucalyptus tessellaris—"Moreton Bay Ash"

A medium sized to fairly large small tree with a rough tessellated and persistent bark on the lower part of the trunk and smooth and white in the upper portion. It occurs naturally on a range of soil types in the Townsville area and is recommended for most situations. Smaller plants grow well under its light dappled shade. The small white blossoms appear in Spring and attract nectar eating birds.

Eucalyptus torelliana—"Cadagi"

A tall, fast growing tree from the edge of the Tableland rainforests that is growing very satisfactorily on well drained sites in Townsville. It is grown primarily for its attractive pink tipped new foliage, although it does flower well from November to February, when the large white inflorescences attract many birds. It is somewhat susceptible to insect attack when young, but seemingly becomes more resistant with age. The new bark is an attractive light green. Leaves are broad and appear smooth and shiny, but are rough to the touch. Requires plenty of water during the young stages.

Melaleuca leucadendron

A large, widely distributed, weeping paperbark that grows on the banks of our local rivers. It can grow into a large tree 20 m high under good conditions. In spring this tree produces masses of white bottle brush flowers which are full of nectar. Lorikeets and the colourful honey-eating birds native to this area are attracted to the flowers. The bark peels off in large papery sheets and is often used to line hanging baskets for ferns. It grows quickly in good conditions and will also grow in the clay areas of Townsville, but does not attain the same height. A good tree for the larger allotment.

A narrow leafed form of *M. leucadendron* found locally in the Ross and Black Rivers is much smaller than the commoner broad-leafed form. It reaches a height of 10 m and is considered more suitable for the suburban garden.

Sarcocephalus coadunatus—"Leichhardt Tree"—(previously known as *Nauclea orientalis*)

A tall stately deciduous tree with large, shiny, medium green leaves, and a horizontal branching habit, which produces a tiered effect. The flower heads are cream in colour, 5 cm across, and unusual in shape, resembling pendulous round pincushions. The juicy fruits are round and warty, about 5 cm in diameter. They may make quite a mess on the ground beneath the tree. It can be expected to grow in cultivation to at least 15 m, with a spread of 10 m, and may be used as a shade tree. It is common along rainforest creeks and also in swamps and creeks around Townsville. A fine specimen can be seen in Anderson Park. For swampy conditions, where it has room to develop, this is a good and reasonably fast growing tree; in drier conditions it will grow more slowly. The fruits are attractive to birds.

QUEENSLAND GREVILLEA

The most famous and widely grown are *Grevillea robusta* "Silky Oak" and *Grevillea banksii*, both hardy and floriferous



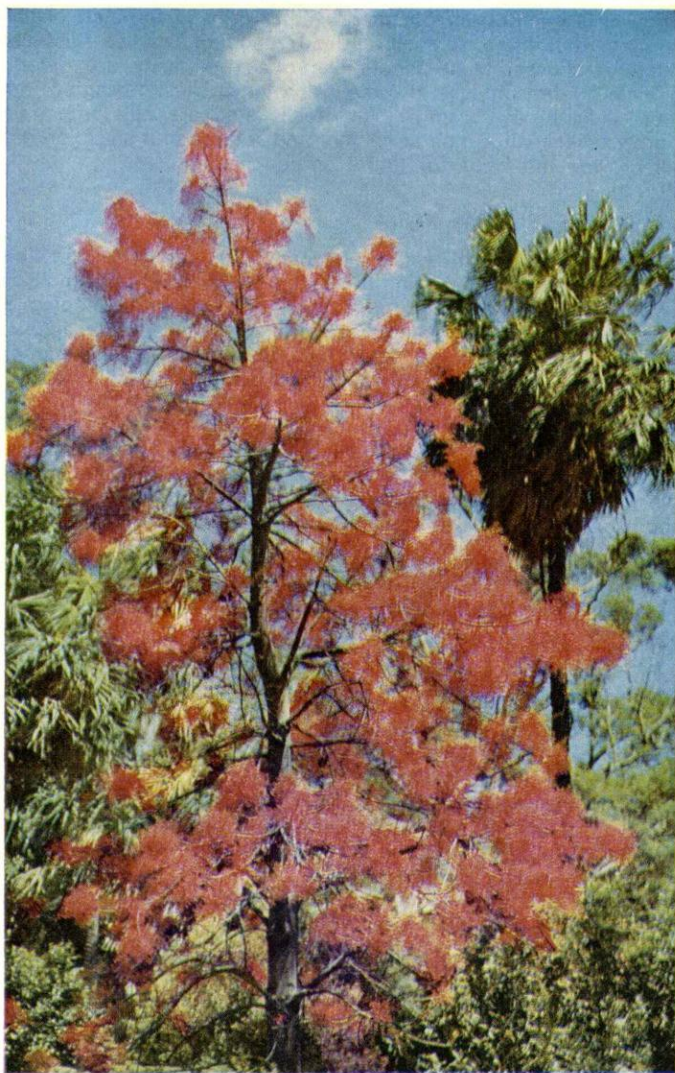
Photography by M. W. Hodge.

GREVILLEA LONGISTYLA

This is one of the most attractive *Grevillea* recommended for Townsville conditions. The magnificent red-orange flowers are produced in profusion during winter. The colour varies a little from area to area in the wild as it does with all wildflowers. In some it is a more brilliant red than that above and in others the yellow portions of the flower are more prominent.

THE BRACHYCHITONS

Beautiful trees of which the North may be proud. "The Bottle Tree" *Brachychiton rupestre* is listed with the tall trees. The "Flame Tree" must be regarded as a "prince" among the smaller trees, especially for garden use.



BRACHYCHITON ACERIFOLIUM

The world famous "Flame Tree" may be found in scrub from Innisfail south to central N.S.W. In the rain forest it may grow to 30 metres high but in the garden it rarely grows above 10 metres. Flowering is often erratic but a specimen in flower as above is a magnificent sight. The fresh green foliage produced after flowering provides a cool shade so welcome in the hot dry months.

OTHER TREES FOR TOWNSVILLE

Townsville needs more trees and too often standing trees in all but the newest developing areas have been removed. The intending home builder was almost always shown a block of bare dirt on which to build his hopes and dreams. Trees provide much needed shade and coolness which are so very desirable in our hot dry Summer weather prior to the start of the "Wet". It is fortunate that there is such a good range of smaller Australian trees from which to choose. Most people like trees but many are deterred from planting them by the thought of large trees falling and damaging their home in another "Althea" or "Tracey". The trees listed are not large trees (most will not grow taller than a high set home) and with careful selection and placement will provide the basis for future garden planting.

Acacia fimbriata—"Brisbane Wattle"

A Southern Queensland wattle with pendulous branches and light green foliage. Experience has shown it doubtful in flowering in Townsville, but is worthwhile for its excellent foliage and graceful weeping habit. A height of some 6m can be obtained in good soils with supplementary watering. This is a very good small tree for the Townsville garden, as it is very fast growing and will tolerate a wide range of soil types.

Acacia flavescens

A small to medium tree with large dark green sickle-shaped phyllodes. It is a very widely distributed plant which occurs naturally in the Townsville area. Good specimen may be seen growing on the base of Castle Hill.

Large showy heads of cream ball flowers appear between January and May. This very quick growing small tree responds well to cultivation and can be grown from seed. Treatment of seed, such as scarification or boiling, is necessary to assist germination.

Acacia mangium

This is a tree of open forest or of rain forest margins in regions of high rainfall (usually in excess of 1,500 mm). In its natural habitat it can grow to 30 m, but most specimens are around 15 m. Like most wattles it is fast growing and this species makes an ideal shade tree in the garden. It is adaptable to almost all soil types. Seed has proved difficult to acquire, as it is parasitised rather badly and it forms a major part of the diet of a number of native rodents. However there are now a number of specimens well established in Townsville gardens. It has large heavily veined phyllodes, 25 mm broad and 2-4 times as long. The white flowers appear in rather loose spikes to 8 cm long. The main flowering period appears to be from March to May.

Banksia dentata

A native of the so-called heath land of Cape York Peninsula in Queensland is *Banksia dentata*, a small tree 5-7 m high. It also occurs in coastal areas of the Northern Territory and North Western Australia. The leaves are usually 10-20 cm long, irregularly toothed, green above and white underneath. The flowers are usually larger than those of *B. integrifolia* but in all other aspects appear similar. There are a number of specimens now growing in Townsville but none have yet flowered. A well drained and well watered situation would seem to be essential.

Banksia integrifolia

This small tree grows to 5 m and has a fairly open form in Townsville. The juvenile leaves are serrated but the mature leaves are smooth. The deep green on the upper side of the leaves contrasts with the silvery grey underneath. In Autumn it bears brushes of creamy yellow and up to 15 cm in length. Grows in variable aspects from full sun to half shade, tolerates clay but prefers good drainage. It needs to be pruned to retain a suitable shape and both foliage and flowers dry well for floral work.

Brachychiton acerifolium—"Flame Tree"

A medium to tall conical tree with large attractive deeply divided light green leaves. Flowering time is erratic, usually in early summer, when the whole tree, or those branches which are in flower, shed their foliage, revealing a spectacular tracery of brilliant scarlet flowers. This tree usually starts flowering when 3 or 4 years old. At this stage they are usually about 4 m high. The fresh green foliage produced after flowering provides a welcome "lift" to the garden in the dry months. The soft green trunk is sometimes attacked by scale. An attractive median tree for specimen planting which will grow to 10 m.

Brassaia actinophylla—"Umbrella Tree"

A medium sized evergreen tree which can grow to 10 m but is very often smaller. It has a dense, wide spreading canopy with numerous secondary smooth dark grey trunks. The long (30cm) bright green leaflets are symmetrically arranged terminally around a thick petiole. Flowers, which are held horizontally in terminal whorls of racemes, are deep red with conspicuous white stamens. These are followed by a 1 cm flattened circular drupe.

This adaptable tree from rainforest areas of Queensland is a valuable ornamental species both in Australia and overseas. It is widely used as a street tree and can be grown in most situations although it prefers a deep soil and plentiful moisture. It has an aggressive root system and should not be planted close to water mains or sewers. The tree, which is one of the best bird attracting trees for Townsville, can be pruned heavily if required.

Buckinghamia celsissima—Ivory Curl

This small rainforest tree is widely used for ornamental and street planting. In cultivation it rarely reaches 6 m which makes it an ideal choice for the smaller garden. It has large variable leaves which have silky grey-bronze hairs on the underside. The long spike-like creamy flowers which appear in Summer are carried conspicuously on the outside of the canopy. In good conditions this tree does not shed lower branches and the canopy extends to ground level. An outstanding tree for the well drained fertile garden where supplementary watering is carried out. Highly recommended.

Bursaria incana

The conspicuous creamy white flowers of this attractive small tree with semi-pendulous foliage appear in late Summer. It is a slender tree rarely exceeding 5 m and the huge bunches of sweetly scented blossoms make it a most desirable garden subject. It may be seen in many locations around Townsville and there are some very good specimens growing on the top bank of Ross River in Kelso. This plant has not been grown widely but as it becomes available through nurseries it should become very popular. The flowers are followed by conspicuous brown seed capsules which remain on the tree for some time.

The closely related species *Bursaria spinosa* also occurs within the Townsville district.

Calophyllum inophyllum—"Mastwood"

The flowers and foliage of this small to medium evergreen tree are most attractive. It is found in coastal areas, particularly associated with rainforest, and is often seen colonizing stabilized dunes at high water mark. It is a slow-growing hardy tree, very useful in coastal sandy areas subject to salt winds, provided moisture is available for its establishment.

EUCALYPTUS FOR THE GARDEN

What Australian garden is complete without a *Eucalyptus* or "Gum Tree"? The species chosen must naturally suit the position, the landscaping scheme and not be a nuisance or hazard in the future. Suitable species are described in these notes. Even if you chose a large growing tree for its beautiful trunk or leaves it can be kept to size by cutting off at ground level when it gets to 10 metres, say, and allowing it to sucker up to repeat the young tree look.

However, there are many trees that do not grow tall.



EUCALYPTUS PACHYPHYLLA

Eucalyptus pachyphylla — Red Capped Mallee

A shrubby mallee, 1-3 m high forming a dense shrub with glaucous leaves. It occurs naturally in well drained soils in the semi-arid areas of the Northern Territory and Western Queensland and although only recently introduced into Townsville gardens it grows and flowers readily. The unopened buds are bright red and very attractive and the flowers are a clear lemon yellow.

QUEENSLAND EUCALYPTUS

Trees with blue-grey foliage are always popular.



UPPER PICTURE: A scene west of Townsville over the Dividing Range showing a stand of *Eucalyptus melanophloia*. This tree is widely distributed in Queensland and may be seen near Townsville at Reid River, Mingela, Pentland, the Burra Range and on the Ewan Road behind Mt. Spec.

LOWER PICTURE: *Eucalyptus pruinosa* is found from the Mount Isa district in Queensland right across Northern Australia to the Ord River in W.A. The flowers and blue-grey leaves are characteristic of many small Eucalyptus trees. The best way to deal with the grub shown, and with most pests is to encourage the birds or to remove or squash them by hand.

The trunk is often crooked and has rough, scaly dark grey or black bark. The canopy is very dense and bushy. The attractive glossy leaves, which are bright green, thick and leathery, may be up to 20 cm long. Individual flowers, 4 cm in diameter, have white petals and somewhat fleshy, conspicuous golden stamens. They are borne in clusters up to 45 cm across. The globular fruits are about the same size as the flowers and have a large woody inner shell. The sap may be a skin irritant.

Cassia brewsteri — Bicoloured Cassia

A slow growing small to medium tree, mature specimens developing a bushy broad canopy of slightly weeping habit. There are a number of forms available, but probably the best for Townsville originated in the Burdekin River valley. This tree is found on a range of soil types in the dry inland scrub areas of Central and Northern Queensland.

The bark is dark grey to black, rough, scaly and thick; and the attractive medium to light green pinnate leaves have 4-12 leaflets each about 8 cm long. It is very conspicuous in flower and flowering is profuse during the Spring months when the sweet-scented reddish brown and yellow blossoms literally cover the tree. The cylindrical pods are 20-45 cm long and have transverse ribs between the seeds which are small, shiny and light brown in colour. Seed is fairly easily germinated but trees may be slow to become established, possibly requiring rhizobium inoculation for faster establishment. Colour variants may be found.

Casuarina inophloia — "Thready Barked Sheoak"

A small to medium evergreen bushy tree growing 8 or 9 m high. The many erect branches support a dense canopy of slender green branchlets. The bark is dark brown, fibrous and thready. Male and female flowers are produced on separate trees. The female flowers are red, whereas the male flowers give a striking brownish-red hue to the tree. The woody cones, 20-25 mm long by approximately 15 mm wide, release the deep brown winged seeds as the cones mature. A moderately fast growing hardy tree of particular value in low to moderate rainfall areas, as it grows along creek beds of semi-permanent waterways and also along dry inland ranges bordering the coastal divide. An excellent specimen tree for planting as a foundation for a native garden.

Casuarina littoralis — Black She-Oak

A very variable species with a number of forms found throughout the better watered areas of North Queensland. Generally a small tree to 6 m with dark green needle-like foliage and a pyramidal shape, often multi-stemmed. Adapts well to all soil conditions.

Casuarina torulosa — "Mountain She-Oak"

A common tree on the edge of the mountain rainforests growing to 10 m. Semi-pendulous soft needle-like foliage which develops a bronze colour when the tree is in flower. Prefers a well-drained situation and grows particularly well on Castle Hill with supplementary irrigation.

Cochlospermum gillivraei — "Native Kapok"

A medium sized deciduous tree which can grow to 12 m but is usually much smaller. It has a light grey, finely fissured trunk with large deeply lobed leaves on long petioles.

The 10 cm diameter flowers are produced on the leafless branches. They are a brilliant golden yellow with a reddish blotch at the centre of the flower. Stamens are yellow. Fruits are globular, 8 cm in diameter, and have a papery outer covering composed of two layers which split at maturity so that the capsule, when ripe, has alternatively light and dark segments. These segments enclose the black seeds, which bear white kapok-like fibrous material.

It occurs in Coastal North Queensland on low rocky ranges and can be seen on Magnetic Island and the foothills of Mt. Elliott.

A good ornamental tree, spectacular in flower, it is useful in a garden, as it is deciduous during the winter months and provides light dappled shade for much of the hot summer months. The capsules, if lacquered to prevent them opening completely, are useful in floral work.

Cupaniopsis anacardioides — Cashew Cupania

In Townsville this grows to a dense evergreen bushy tree of 6 m or more. The canopy is broader than it is high, with the outer branches sometimes slightly pendulous. Foliage is concentrated towards the ends of the branches. The large compound leaves are composed of 6-10 dull green somewhat leathery leaflets. The small greenish white flowers are in pendulous panicles near the ends of the branches and are followed by orange-brown capsules containing the seeds.

A slow growing tree preferring plentiful moisture for optimum development. It will grow in moist scrub as well as in more open situations and will withstand extreme exposure to coastal winds. In these situations however its height is much reduced. It makes a good compact street tree where good soil and moisture are available.

Erythrina phlebocarpa

A deciduous tree growing to 4 m, which occurs in the sandy coastal regions in the higher rainfall areas of North Queensland. Like other members of the genus it is fast growing and easy to establish from either seed or large cuttings.

The red flowers are large and showy and are attractive to honey-eating birds. When this tree is in flower along northern beaches it is common to see many lorikeets feeding on the blossoms. Any well drained and regularly watered spot seems to suit this species, but like other *Erythrina* it is prone to attack by mealy bug which, unless eradicated, can completely spoil the appearance of the tree.

Erythrina vespertilio — "Batwing Coral Tree"

A widely distributed tree which occurs locally. It grows to 7 m and shows a preference for well-drained situations. In good soil growth is very fast and the branching is strong and dense, forming a shapely crown. The leaflets are smooth, pale green with 3 lobes, so that each resembles a bat in flight. The flowers are pea-shaped, densely held in erect racemes, bright orange-red, often with a black centre. This spring flowering tree may be completely deciduous or, if conditions are good, it may retain some of its leaves. Flowering is best when the tree is completely deciduous. A good bird-attracting tree. Grows readily from seed.

Eucalyptus abergiana — "Rockingham Bay Bloodwood"

This medium tree to 10 m occurs naturally in the Mt. Spec area. It has a rough, persistent bark and extremely large and showy heads of creamy white flowers. The lanceolate leaves are a shiny dark green with a leathery texture. It has a reputation for being difficult unless grown in ideal conditions, i.e., a well-drained rocky situation.

Eucalyptus camaldulensis — "River Red Gum"

There are many forms of this species available, but the one from Yarromere Station is highly recommended for the heavy, clay soils of the Townsville coastal plain. It is a medium-sized tree to about 10 m, with a smooth white bark and long drooping branches and blue-grey leaves. It is extremely fast growing and flowers profusely in March-May, when it is covered with small white blossoms. Some northern forms also flower in spring.

Eucalyptus curtisii — Brisbane Mallee — Plunkett Mallee

A mallee-like shrub to 6 m high with silvery grey stems and attractive semi-pendulous foliage. The small cream flowers appear during the summer months and a good specimen can be eye-catching. The old bark falls away in long strips to reveal the beautiful pale green new bark. A native of the Brisbane area, it seems to prefer a well drained situation in Townsville

EUGENIA

A large number of species have "pom-pom" or "powder puff" type flowers followed by colourful berries. They have been known as "Lilli-Pilli" or "Native Cherry" to the bush rambler and to the botanist as *Acmena*, *Eugenia* and *Syzygium*. The correct naming is not resolved but all are called *Eugenia* here.



TOP PHOTOGRAPH: *Eugenia coolminiana* showing the typical flowering of these plants. Another colour plate in this book shows the red flowering *Eugenia wilsonii*.

LOWER PHOTOGRAPH: *Eugenia australis*, another tree of the rain forest showing the typical fruits of this plant indicating why it is often called the "Native Cherry". Other species have white fruit while *Eugenia coolminiana* has purple-blue berries, all of which attract the birds.

THE UMBRELLA TREE



Photography by M. W. Hodge

BRASSAIA ACTINOPHYLLA

This is probably the most widely grown North Queensland tree throughout tropical and sub-tropical, even to temperate areas, of the world. It is one of the leading foliage plants also for indoor decoration. It is called "Umbrella Tree" because of its compound digitate leaves. This beautiful and hardy tree needs no introduction.

Eucalyptus melanophloia—"Silver Leafed Ironbark"

This ornamental, medium-sized tree to 8 m is common west of the Dividing Range. The bark is very rough and deeply furrowed, virtually black and very persistent. The rounded glaucous, silvery-blue leaves and masses of white flowers in Summer make this a most attractive plant, especially in a dry situation. Growth in the early years is somewhat straggly, but the plant develops well with time.

Eucalyptus miniata—"Darwin Woollybutt"—"Melaleuca Gum"

This small tree growing to 10 m is found in suitable habitats right across Northern Australia. There are a number of forms available, some of which can be rather difficult subjects if drainage is inadequate. It is a very ornamental tree with large, bright orange flowers during late Summer. The interesting large capsules are sought after for floral work. Generally, the fibrous bark is grey brown to half way up the trunk and the top branches smooth and white. The grey-green lanceolate leaves form a very light canopy which provides dappled shade for smaller shrubs. A closely related species is *E. phoenicca*, another tropical eucalypt which has brilliant orange red flowers and urn shaped seed capsules. Both varieties grow readily from seed.

Eucalyptus nicholii

A fast growing, ornamental small tree from New South Wales that has adapted to Townsville conditions fairly well. It has narrow pendulous leaves and is often best kept in its juvenile form by repeated lopping.

Eucalyptus peltata—"Rusty Jacket"

A medium sized tree to 10 m which commonly occurs west of the Dividing Range in North Queensland. The bark is flaky, light yellow to yellowish-brown persistent throughout. This tree has proved most amenable to garden conditions and flowers readily in the Spring months.

Eucalyptus pruinosa—"Kullingal"

A small "box", resembling *E. melanophloia*, from the dry inland region of Queensland and the Northern Territory. This tree usually grows to 7 m, but sometimes reaches 10m.

It has glaucous foliage and rough grey fibrous bark persistent to the upper branches. The white flowers are borne in terminal inflorescences.

This is a very striking small specimen tree which seems adaptable to most soil types, but grows best in a well drained elevated location.

Eucalyptus ptychocarpa—"Swamp Bloodwood"

A medium sized tree with rough bark persistent throughout and huge 30 cm leaves. This beautiful species is usually found along the banks of watercourses in the Northern Territory but it has proved most satisfactory on the heavier soils in Townsville as well as on those that are better drained. It is sometimes slow to start and often suffers from insect damage in the juvenile stage. However, once established, it grows very fast. Initial growth is very spindly and too often it is supported by a stake. This encourages the spindly habit and a free guard should be used instead.

It responds to light applications of fertiliser and can tolerate excessive soil moisture. The very large inflorescences are evident from October to March, with occasional flowers throughout the rest of the year. Flower colour is usually pink, often red and occasionally white. This species is proving to be one of the most popular trees for Townsville gardens and may become the northern counterpart of *E. ficifolia* which has not proved successful here.

Eucalyptus similis—"Desert Yellow Jack"

This medium sized tree with rough flaky orange-yellow bark and lanceolate alternate leaves is a species from the low rainfall areas of inland Queensland. It has adapted surprisingly well to Townsville conditions and is at home on the heavier clay soils. The small white flowers appear in April. This tree appears to be particularly suitable for growing as a mallee, since many specimens at the Burra Range which have been bulldozed or otherwise damaged have developed a most attractive multi-trunked habit.

Eugenia coolminiana—"White Apple"

A medium sized tree to 10 m with bold- glossy leaves. It requires regular watering, rich soil and a well drained situation. Like other members of the genus, this species is susceptible to pink wax scale and regular spraying is required for control. Flowers are white followed by purplish-blue berries which attract birds.

Eugenia australis—"Scrub or Brush Cherry"

This plant in its natural habitat is a tree to 20 m high but as a garden subject it can be maintained as a shrub or allowed to develop into a small tree. It is a good screen tree having dense lustrous foliage and a profusion of slender white flowers in September followed by attractive red oval fruits about 135 mm long. This tree grows best in deep fertile soils and requires regular watering.

Eugenia tierneyana — Water Cherry

A medium sized evergreen tree growing to 16 m. It has a dense canopy with shining leaves, pendulous branches and smooth grey bark. The conspicuous pinkish-white flowers which are followed by fleshy white or purplish red fruits 30 cm long, occur in dense compact clusters along the lower portion of the branchlets. It occurs naturally in coastal North Queensland and grows, usually at water's edge, along the permanent creeks along rainforest margins.

This fast growing dense tree prefers deep, well drained soil and abundant moisture. In cultivation, it is an excellent specimen tree and is particularly recommended for growing with other rain forest species. Grows easily from fresh seed.

Euodia elleryana

This is a most attractive small rain forest tree which extends from Northern New South Wales to North Queensland. In Townsville it grows into an open, pyramidal small tree which rarely exceeds 6 m. It has grey bark and shining leaves comprising 3 large leaflets. The foliage is concentrated on the ends of the branches and the conspicuous mauve flowers which are carried on large branched inflorescences make a splendid show in summer. It grows easily from fresh seed and does best in deep fertile soil although good specimens have been reported growing on heavier clay soils.

Lorikeets and honey eating birds are attracted to this tree which is also the host plant for the magnificent Blue Ulysses butterfly which is seen in the rain forests. Regular watering is necessary for best results. This small tree is very highly recommended as a specimen and lawn tree or it may be grown in company with other rain forest plants.

Ficus platypoda var. *augustata* — "Rock Breaker Fig"

A hardy, medium sized tree, 12-20 m high, which withstands both heat and drought. The wide umbrella-shaped canopy makes it a useful shade tree in warm climates. It may be found growing amongst rocks on coastal and inland ranges in the lower rainfall areas of Queensland. It has smooth, light grey bark and attractive glossy dark green oval leaves 10-15 cm long. The small globular yellow fruits are often eaten by birds.

Gardenia ochreata — Native Gardenia

A small tree to 4 m which has large tomentose leaves crowded towards the end of the branches and pleasantly scented white terminal flowers in late Spring and Summer. This plant is a slow grower developing a rugged trunk and tends to be deciduous during dry periods. A very common tree along the banks of creeks in the Townsville area which is worthwhile introducing into the garden if only for the highly perfumed flowers and its pale green foliage which contrasts with that of other garden plants.

Grevillea pteridiifolia — Golden Grevillea

A local small tree which occurs naturally on heavy soils near Bluewater. It is proving to be one of the most reliable trees for Townsville gardens and is grown both for its pleasing form and for the masses of brilliant orange, toothbrush flowers in the cooler months. The finely divided foliage makes an interesting contrast to other plants in the garden. This magnificent *Grevillea* is possibly the best bird attracting tree available. Highly recommended.

**GREVILLEA GLAUCA**

An interesting, small tree with glaucous foliage, and cylindrical, creamy flowers which are followed by large woody follicles much sought after for floral work. The gnarled, twisted habit of the adult trees always attracts attention and this tree, which, at maturity, has a height of 6 m, is being used increasingly for landscaping work.

BEAUTIFUL RAINFOREST PALMS



Photography by G. Maclarlane

LICUALIA MUELLERI

Sea level rainforests of North Queensland are fascinating areas to explore. They contain many of the magnificent plants and trees described and pictured here. It has been found that these are ideally suited for garden cultivation much further south of the areas where they occur. Naturally the rainforest has some interesting palms including *Normanby normanbii* with its slender trunk and long pinnate leaves, and the fan palm *Licuala muelleri*.

Grevillea robusta—"Silky Oak"

A tree growing to 12 m with vivid orange toothbrush type flowers. It is one of the very few *Grevilleas* which grow well on the heavier clay soils in Townsville. It is very quick growing with handsome deep green foliage. This is one of the very best bird attracting trees available and with its symmetrical shape is well worth a place in the suburban garden.

Hibiscus tiliaceus—"Cottonwood"

This bushy evergreen tree with wide spreading, densely branched canopy and very short trunk grows to 10 m. It has large 12 cm heart-shaped leaves paler on the under-surface and smooth dark grey bark. The large (10 cm) deep yellow flowers have a reddish brown throat which changes to a tawny colour as the flowers age.

It is found growing along the banks of creeks and watercourses, and also just behind the mangroves along the margins of rainforest bordering coastal deltas and shoreline regions.

A moderately fast grower especially suited to sandy coastal areas of moderate rainfall. This tree will successfully thrive in exposed salt-laden windy areas where moderate moisture is available and is often planted for shelter and shade on stabilized dune areas. However, being rather brittle, it will not stand up to cyclones or gales. It is a good tree for the larger garden.

Lagerstroemia archeriana

A small tree with loose thin smooth bark which is usually found as a shrub in the ranges north of Mt. Molloy, North Queensland. In cultivation it attains a height of 5 m with a similar spread, with the older branches almost touching the ground. The large showy lilac purple flowers appear in terminal panicles during October and November. This is a fairly new introduction to Townsville gardens and specimens are growing in both sandy well drained situations and also on fairly heavy clays. The plant produces copious quantities of seed which are quite easy to germinate.

Livistona decipiens—"Cabbage Palm"

This tall, slender, graceful palm, has an average height of 20 m but sometimes may be higher. The trunk is approximately 15 cm diameter, reddish-brown and free of leaf bases when older, while the canopy is dense and compact. The light green fan-like fronds have slender segments divided almost to the midrib and have long pendulous tips. Cream coloured flower heads form on long narrow spikes up to 1.5 m long, they protrude beyond the fronds, and attract bees.

Fruits are globular, reddish-brown, 1 to 2 cm diameter, while the smooth seeds are of similar shape but half the size of the fruits.

This North Queensland palm is common along watercourses and other moist areas, usually associated with lowland rainforest or moist river scrub.

It is a very attractive, graceful palm, especially when older, highly recommended, particularly in association with rainforest plantings and in creekbed areas.

Lysiphyllum carronii (previously known as *Bauhinia carronii*)

An attractive tree, similar to *L. hookerii* but larger, with attractive grey-green butterfly-like foliage and red flowers along the branches. It occurs in the dry inland, where it develops into a large rounded shade tree. Growth is very slow, but specimens in Townsville are developing into very attractive small trees.

Lysiphyllum hookerii (*Bauhinia hookerii*)

A spreading tree to 10 m high, with a very heavy canopy of typical butterfly shaped leaves 4 cm across. In spring it produces numerous large white orchid-like flowers with contrasting red stamens. Further flowers appear sporadically during summer. The heavy canopy and shallow root system make it susceptible to damage in high winds.

It occurs naturally in the Townsville area and can be seen growing along watercourses.

Macadamia integrifolia and *M. tetraphylla*—"Queensland Nut"

A medium to large, dense, bushy tree from the rainforests and moist scrublands of N.S.W. and Queensland. It grows to 10 or 20 m with a spread of 7 m and has grey-brown bark. *M. integrifolia* has smooth edged adult leaves 8-12 cm long and usually arranged in whorls of 3 while *M. tetraphylla* has shiny toothed leaves up to 20 cm long and usually arranged in whorls of 4. The cream or pink flowers are borne in long decorative pendulous racemes as long as the leaves. The smooth globular fruit which falls when ripe is extraordinarily hard, containing one spherical or two hemispherical edible nuts with a high oil content. Seedlings are easy to raise but result in trees of variable fruiting performance, and grafted trees are recommended. Both flowers and fruit may be attacked by insect pests. The tree is slow growing and needs a rich deep soil with plenty of water.

Melaleuca argentea

A medium sized tree reaching 10 m with silvery green weeping foliage. It bears creamy-green bottlebrush flowers in Winter. This tree, when grown under good conditions, is fast growing and makes an excellent screen tree. It also attracts birds into the garden.

Melaleuca bracteata

There are many forms of this very variable small tree or large shrub. It can be seen growing in dry creeks between Mingela and Charters Towers where it is an attractive small tree with sharply pointed soft grey leaves and rough black bark. It has small cream white bottlebrush type flowers. Other forms more commonly grown in Townsville are large upright shrubs with dense green foliage. A recent introduction which is growing very well is *Melaleuca bracteata*—"Revolution Green" which is noteworthy for its very pale green foliage.

Melaleuca genistifolia

A rounded bushy tree growing to about 7 metres in height, usually near dry creek beds in the low rainfall areas of the State. It has dark grey fibrous bark and small narrow dark green leaves 2 to 3 cm long. It has masses of white flower heads with conspicuous feathery stamens, borne at the tips of the shoots. A young tree often has slightly weeping branchlets with a bluish grey foliage. It is useful as a street or shade tree, and is sufficiently dense in habit to plant as a screen. While it is drought resistant and moderately fast growing, it responds well to increased watering.

Melaleuca linariifolia — Snow in Summer

This beautiful small tree with white paper bark and bright green lanceolate leaves produces numerous white, claw shaped flowers in Summer. It will grow to 5 m and the canopy may spread to 3 m. This is a good tree for attracting insect eating birds into the garden. It has been grown successfully in most areas of Townsville and is fast growing if planted in a damp situation.

There are several local forms available which are considered superior to the southern variety described above. One form, collected from the Fanning River near Charters Towers, N.Q., is particularly attractive. It is a low growing dense shrub 1.5 m high and 2 m wide with the foliage extending to ground level. The new growth is a deep rich pink and small cream bottle brush flowers cover the shrub several times a year.

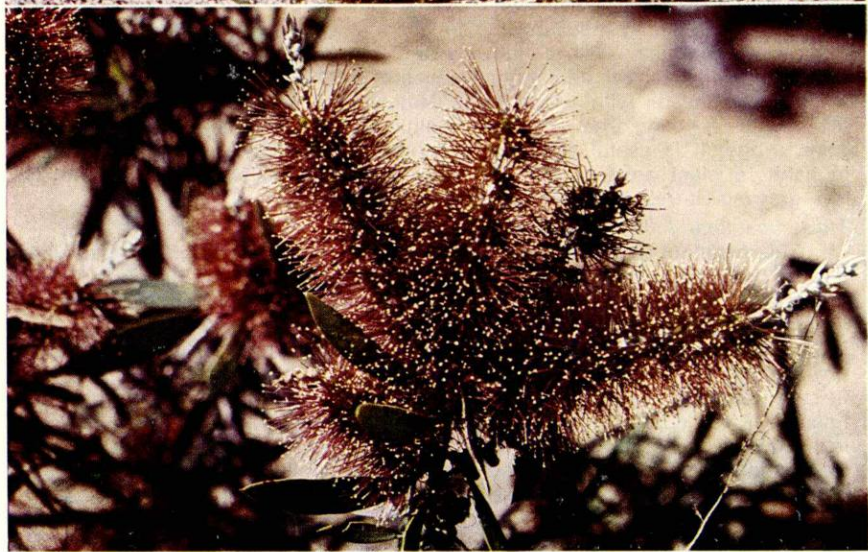
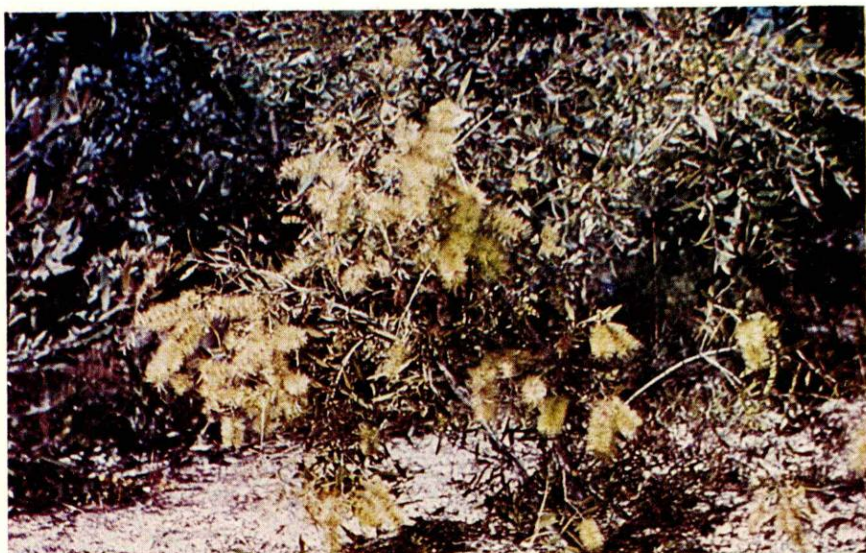
Other forms originating in the Burdekin River and Reid River, N.Q., are more open and upright but are very attractive shrubs. The new growth is pink red. The local forms are highly recommended for Townsville gardens. These shrubs propagate readily from cuttings or from seed.

Melaleuca nervosa

This local paper bark species which grows to about 5 m is available in red and white flowering forms. It is a slow growing tree which has attractive silver green leaves, and produces small bottle brush flowers which are full of nectar and attract birds and butterflies into the garden.

This tree is still growing naturally on the edges of Castle Hill.

MELALEUCA — Hardy Shrubs

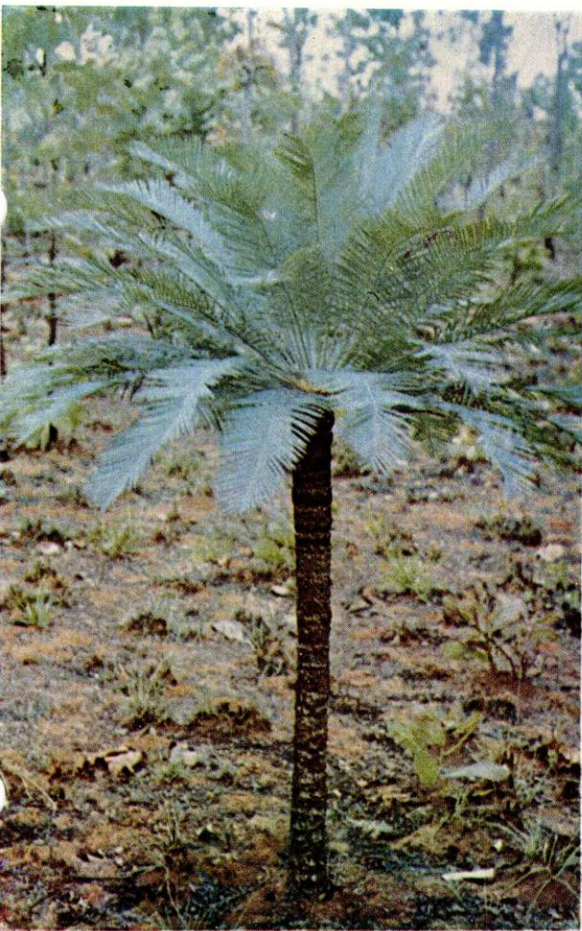


MELALEUCA NERVOSA

Normally growing to 5 metres high the upper photograph illustrates how they will flower when quite small and can be kept to any height by pruning. The usual form is white to yellow. The lower photograph shows a red form. Unfortunately the vibrant colour of this deep claret flower has not been reproduced to full effect.

NORTH AUSTRALIAN PLANTS — I

By Jenny Harmer



CYCAS MEDIA

The cover picture of a new book to be available in October 1975. The introductory price of this unique 136-page book is \$4.50 plus 50c postage. This is the first book giving a reasonable coverage of the flora in Northern Australia around Darwin and Arnhem Land. Each right-hand page has a full colour plate as above showing the plant, a close-up of the flower and often the fruit. Opposite is a description of the plant with a short description of all other species in the area of the same genus. More details in the next issue of Australian Plants.

Cycas media "Zamia Palm" occurs across the North to Townsville.

Melaleuca tamarascina—"Bonsai Tea Tree"

A highly recommended plant for Townsville as it has been grown successfully in all areas. It will grow to about 5m with a spread of 2m and can be pruned into a dense shrub. The small bright green leaves are attractively highlighted by the white papery bark. Small cream coloured, open bottle-brush flowers are produced throughout the summer months.

This very attractive small tree earns the name "Bonsai" from the gnarled twisted shape of the trunk. The landscape gardener will find this a very useful tree.

Melaleuca viridiflora

A small broad leaved tree which grows on the coastal plain around Townsville. It will grow to 8 m high with a canopy 3 m wide and produces large greeny-cream bottle-brush flowers in autumn. There is also a red flowered form available. The flowering spike is frequently up to 10 cm long.

This is the host tree for the native orchid *Dendrobium canaliculatum* "Tea Tree or Onion Orchid" and can be used as the host plant for most of the native coastal Dendrobiums. This is a good bird attracting tree. The dense canopy, and in clay areas, shallow rooting system make this plant susceptible to cyclonic winds.

Mimusops elengi

A small to medium sized tree which may occasionally reach 15 m in height with a scaly almost black bark. The leaves are smooth, thick and shiny, about 7 cm long and form a dense canopy. The creamy flowers up to 2 cm across borne on long-stalked axillary peduncles. The fruit is a yellow to orange ovoid berry about 2 cm long and edible. This species is widely distributed throughout the coastal area of North Queensland and the East Indies. It is hardy but slow growing, providing good shade and shelter once established. For the best results it requires plenty of moisture.

Pandanus whitei—"Screw Palm"

A very common and unusual palm found growing along beach fronts around Townsville. In the garden this plant is used either for effect or for drainage of soil. Easy to grow, quickly reaching three metres. While young the foliage has very sharp rough edges but with maturity the leaves have much less offensive edges. Long blue green leaves developing as a whorl around the trunk, hence the name. Can be made to branch by pruning and lower leaves should be pruned in order to keep the plant attractive. The unusual foot-ball like fruit (often called breadfruit) is a talking point in the garden because of its size and it develops a most attractive red colour.

Persoonia falcata

This is a common, widely distributed small tree which grows to 5 m. It appeals to many people because of its rugged appearance. The small yellow proteaceous flowers are carried towards the ends of branches and the long thin curved leaves hang pendulously. It is very difficult to obtain seed from this tree and the only successful method of propagation to date is by means of root cutting. The width and length of the leaves varies considerably from area to area.

Petalostigma quadriloculare—"Quinine Bush"

A fast growing tree to 6 m in height, it is found in and around Townsville. The flowers are insignificant, but the general habit makes it a worthwhile light shade tree. Small yellow fruits, about the size of a marble, are produced from October to December. The bark has a bitter taste and has occasionally been used as a dye. The tree has been suspected of causing stock losses when cut as fodder.

Pleiogynium cerasiferum—"Burdekin Plum"

A dense, medium sized, evergreen tree growing to 12 m with rounded compact canopy and rough dark fissured bark. The compound leaves, consisting of 4-6 pairs of leaflets are dark shiny green with bronze new growth.

Flowering is inconspicuous but the fruits are large and fleshy. When ripe they are purple-black and are quite palatable.

This tree is common along coastal rocky areas and on sand dunes, as well as along inland watercourses. Its range is from Central Queensland to New Guinea.

A very useful, though fairly slow growing, shade and shelter tree for coastal as well as dry inland areas. It is extremely hardy and will withstand hot conditions if water is available during the establishment period.

Pongamia pinnata—"Poonga Oil Tree"

A shapely upright tree, fairly fast growing. It is widely distributed throughout tropical Asia, and in Queensland may be found in coastal areas especially along the banks of creeks. Beside permanent water, it may reach 15 m in height, but is usually much smaller, and in drier situations may be only a large shrub. It forms a dense rounded canopy of dark glossy green pinnate leaves up to 25 cm long. The pale lilac pea flowers are borne in racemes among the foliage. It is sometimes deciduous, the leaves turning deep yellow before falling in August. The tree may be bare for a few days, and then the pale green new growth appears, which rapidly changes to bronze before finally assuming its mature dark green colour. One of the most attractive trees for this area and one of the very few trees in tropical Australia which have "autumn" tints. There are some magnificent specimens growing in the picnic area at Mt. Elliott National Park.

Terminalia muelleri—"Coastal Almond"

This small to medium sized deciduous tree grows to about 10 m in good conditions but may be smaller in exposed situations. It has a light canopy with a characteristic tiered branching habit and has medium green leaves which are smooth above. The creamy flowers, which are followed by fleshy fruits, are in spikes up to 60 cm long.

Occurring naturally on coastal sand dunes in North Queensland, this tree is recommended for coastal and sandy areas. It is a useful tree for providing shelter in a newly planted garden as it is quite fast growing.

Tristania conferta—"Brush Box"

A tall densely foliated tree, growing to 30 m, but usually much less. The lower bark is rough and reddish, becoming smooth on the upper branches. The large leaves are dark green, shiny above and hairy below.

In spring the tree produces dense globular heads of white flowers with projecting feathery stamens, followed by hemispherical three-celled woody fruits about 1 cm across. This tree occurs naturally in the forests and moist gullies of Northern N.S.W. to North Queensland.

It prefers good soils and plenty of moisture, but will withstand drier conditions. Frequently used as a street tree, it makes an ornamental specimen for a large garden, or for group planting in a bushland setting.

Xanthostemon chrysanthus—"Black Penda"

A large spreading tree which can grow to 30 m in its native North Queensland rainforest, but will be much smaller in a more open garden situation. The bark is scaly and the leaves large, shiny and an attractive mid-green. It bears showy rounded heads of yellow flowers with stamens about 2 cm long, followed by rather woody globular seed capsules 1 cm in diameter. Given moisture and shelter it is fairly fast growing. Where a medium tree is required, and particularly where a rainforest area is to be established, this should prove a handsome and unusual specimen.

TROPICAL VINES

Photography by M. W. Hodge

PANDOREA DORATOXLON — "Wonga Vine"

A vigorous scrambling creeper from North Queensland. This vine can cover a large tree and flower abundantly. However it may be confined to an area for use as a special effect or shade plant. The first section of this booklet describes many plants that may be used for special effect or are unusual garden plants. No reference to tropical plants would be complete without an illustration of a useful colourful vine.

ACACIA — WATTLE TREES

What garden is complete without a wattle tree? It is possible to obtain *Acacia* to meet any height requirement from prostrate species that hug the ground and give ground cover to large trees. The foliage also ranges from large broad "leaves" to thin reed-like "leaves" or even to apparently leafless shrubs. They are especially easy to propagate from seed that is widely available.



ACACIA LEPTOSTACHYA — Townsville Wattle

Some very fine species grow in the Townsville area. This plant may reach 3 metres in the garden. All wattles are quick growers and will fill that vacant spot.

UPPER PHOTOGRAPH: *Acacia leptostachya* growing not far out of Townsville.

LOWER PHOTOGRAPH: The flowers and foliage of *Acacia leptostachya*.

LARGE SHRUBS FOR TOWNSVILLE

Townsville does experience very hot monsoonal weather but for most of the year the climate is quite mild. Many people are now taking advantage of our tropical nights and magnificent Winter weather to entertain outdoors. Large shrubs are being used more frequently to provide screen and shelter for entertainment areas as well as to provide focal points in an overall garden design.

Acacia bidwillii — Cork Wood Wattle

This is a most interesting wattle found around Townsville having soft bipinnate leaves with up to fourteen pairs of pinnae and also a prominent elongated gland immediately below the lower pair of pinnae. It grows to about 3 m high and bears globular greenish yellow flowers in January and February, when flowers are scarce in the garden. The bark is dark brown and somewhat corky and furrowed.

Acacia dictyophleba

A shrub approximately 3 metres high with shiny, scented foliage. Yellow ball flowers appear from Winter through to Summer. It likes a well drained situation and occurs from the Burra Range through to inland Northern Australia. The resinous phyllodes are lanceolate and leathery with the veins usually prominent. An interesting feature of this plant is the unusual papery seed capsules that rustle in the wind.

Acacia holosericea

A large rounded shrub to small tree to approximately 4 m high with large white phyllodes which are covered with fine silky hair. This local acacia is quick growing and is used for screen planting. The cream flowers appear in mid-Winter and are followed by unusual twisted seed pods. Red winged parrots are attracted to this tree to feast on the seeds.

Acacia leptostachya — Townsville Wattle

This northern acacia has been successfully introduced into the home garden. A fast grower, it reaches a height of 3 metres in two years possibly flowering in its first year. The flowers are produced from May to August in long deep yellow spikes which are strongly perfumed. Preferring an open situation, this *Acacia* has an attractive but variable habit. If grown in a dry situation it is much more compact than those bushes grown with supplementary watering.

Baeckea virgata

One of the best plants for the beginner, or for the new garden, as it is both beautiful and dependable. This shrub has slender arching branches, small deep green leaves and grows to 3 m. In Summer it is covered with dainty white flowers on the upper side of the branches and gives off a spicy perfume at dusk. It will grow in a variety of conditions ranging from half shade to full sun. Both flowering and habit are affected by the position. In the shade the foliage is lush but the plant tends to be scraggy and flowering occurs in one spectacular show. In full sun the plant is more compact, the foliage is harder and the flowering spread over a longer period. This plant is grown commercially for cut flowers and propagates readily from seed. It can be pruned into a large dense shrub.

Callistemon formosus

This large shrub grows slowly to about 3 m high and at least 2 m wide. It has light green leaves and masses of small pale lemon flowers throughout the year. The frequent flushes of red tipped new growth make a pleasing sight in the garden. The light, bright clean colours of this shrub make it a delightful contrast with the darker shades of other bottle-brushes. A red flowered form of this species is known but has proved disappointing in Townsville.

Callistemon polandii

This is the most popular *Callistemon* among Australian plant enthusiasts in Townsville.

It bears large, rich deep red brushes with delicate gold tips, highly suitable for floral work. It makes a sturdy, erect shrub to 5 m with semi-pendulous flowers and is adaptable to all soil types.

A superior form, grown from seed and collected in a local garden, has proved a superb specimen for Townsville conditions and it does particularly well on heavy clay soils. This locally grown form produces a tremendous display of flowers in successive flushes throughout the dry Spring and Summer months. The brushes do not last well during wet weather. This shrub should be pruned after flowering.

An exciting new form of *C. polandii*, found growing in water courses on the seaward slopes of the Cardwell Range, is being garden tested in Townsville at this time.

Callistemon rigidus — Stiff Leafed Bottlebrush

This rather open and rugged looking plant is useful for a special effect but does not mix well with other plants. It can reach a height of 3 m but is extremely slow growing. The best specimens have large, very dark red flowers, which are erect and long lasting. It will tolerate very harsh conditions and has been used as a footpath shrub in areas with heavy clay soils.

Callistemon salignus

This tall species grows well and has good shape, pleasing foliage with beautiful pink new growth, and interesting papery bark. In Townsville it occasionally flowers well but this is the exception.

It is best grown for its form and foliage with the occasional bonus of small white bottle-brush flowers which contrast with the more common red brushes of other species. This large 4 m shrub grows best in full sun and is tolerant of all soil types.

Callistemon sp. 'Tinaroo'

This species reputedly came from the Tinaroo Falls area in North Queensland. The flowers look like a smaller version of *C. polandii*. The shrub has a sparse, open habit with sharply pointed leaves which are copiously dotted with oil glands. Even under adverse dry conditions it can reach a height of 2 m, has colourful new growth, and flowers well.

A local form of *C. 'Tinaroo'*, known here as *C. sp. 'Running River'* and found also at Ewan Rd, does not have such attractive flowers, but it is very floriferous and can be kept quite small, to under 1 m. The flowers are much more open than in the commoner variety but the brushes are produced in large clusters. This form will withstand dry conditions and has soft, hairy, bronze new growth. It grows into a very nice dense shrub, responding well to pruning. It grows from cuttings.

Callistemon viminalis — Weeping Bottle Brush

A shrub to small tree, dense growing, and in some specimens, quite pendulous; useful as a screen. The flower has been adopted as the official floral emblem for Townsville. In Summer it produces a copious supply of typical red bottlebrush flowers, especially when well watered. Whilst it will tolerate most conditions it flowers best in full sun.

Various forms of this species exist, not all being suitable for Townsville. One form, grown locally, has proved very successful in that its flowers withstand our hot humid summers particularly well. Two superb deep red forms from Running River and the Wild River should be available in the future. The popular cultivar "Captain Cook" is not as successful in Townsville as was initially hoped, but it responds well to good garden conditions with light shading.

The local forms of *Callistemon viminalis* eventually grow into small trees up to 8 m high with a dense canopy and pendulous foliage. Grows very well on heavy clay soils with supplementary watering.

Cycas media — Cycas Palm

This slow growing primitive plant, with a rough stout trunk and very ornamental palm-like leaves, is a most effective feature plant. The female tree has ornamental, orange fruits which are poisonous to cattle and humans.

In late summer the feathery new growth appears, bronze-grey at first, gradually changing to bright green as it matures. The new growth should be carefully guarded as any damage at this stage will be evident later as damaged, or deformed, leaves. A plant with a trunk 1 m high may have mature fronds reaching 1.5 m in length.

This plant has a wide distribution and can be seen locally on the lower slopes of Mt. Elliott and the Paluma Range where some specimens reach a height of 5 m. It grows readily from fresh seed. It may be used as a very effective pot plant before planting out in the garden.

Dodonaea filifolia — Hopbush

A spectacular upright shrub growing to 3 m with sparse long narrow sticky leaves. The flowers are small and inconspicuous, but are followed by large red winged fruits that remain on the shrub for a long period.

It grows readily from seed, but in cultivation is difficult to grow through the first hot humid summer. As there are male and female shrubs, it is necessary to grow more than one shrub to ensure a female shrub.

Dodonaea viscosa — Hop Bush

A widely distributed, viscid shrub, 2-4 m high, is suitable for dry areas. The small, insignificant, greenish flowers are followed by attractive cream to light brown, long-lasting, fruits 10-18 mm long and usually broader. This plant has a most attractive appearance with a slender black trunk and a dense canopy of branches, heavily laden with the papery brown fruiting capsules. This species can be seen growing on the foothills of Mt. Elliott. Propagation is by seed; scarification or heat treatment is necessary for best results.

Eugenia wilsonii — Red Lilly Pilly

This is a delightful garden shrub well known to Australian gardeners. Even though this plant has been known to horticulture for some time, it is in general not grown to the best advantage. It comes from the North Queensland rain forests where it grows to a considerable height, arching over to display its large red pom-pom flowers, sometimes as much as 8 cm in diameter, with white tipped stamens.

If unattended in the garden it will become a sprawling ungainly shrub about 1 metre high. Plant it in proximity to other plants and as it grows remove the plant protection; by this method it can be introduced to relatively exposed positions. Cut away suckers and force this plant to grow upwards. This develops a very interesting arching form up to 3 m high and most suitable for viewing the beautiful pendant flowers. This shrub may also be trellised.

Plants in exposed positions flower more profusely but those in shade produce the most outstanding individual blooms. Flowering months are mainly August/September tapering off by January. It is subject to wax scale which can disfigure the plant if not controlled.

The bright pink new growth is one of the most pleasing features of this shrub.

Grevillea banksii — Red Silky Oak

This very useful, quick growing large shrub, with attractive grey foliage is one of the most reliable for Townsville conditions. The deep pink, cylindrical flowers, tipped with yellow, are very beautiful and attract honey-eating birds. It is a very hardy shrub which will grow to 4 m but can stand heavy pruning, and grows best on fertile well drained soils. The usual form, *Grevillea banksii* "Forsteri" is a garden cultivar which has a rounded habit, whilst those occurring naturally are more erect and pyramidal. There is a white flowered variety available which has the same characteristics as the more common pink flowered form.

Grevillea sp. "Coochin Hills"

A recent introduction from Southern Queensland with finely divided soft green foliage and velvety brown buds followed by brilliant lemon flowers in Winter. This pest free shrub to three meters prefers an open, well drained situation for best results. It shows promise of being one of the very best large shrubs for Townsville conditions.



GREVILLEA Sp. from "Coochin Hills", Qld.

Grevillea decora

This magnificent large shrub, growing to 3 m prefers an open well drained situation where it can develop without competition. It produces masses of deep rich pink flowers for most of the year and the interesting grey foliage has attractive bronze new growth. The shrub is reliable, pest free, a good bird attracting plant and is one of the most outstanding of the new introductions to Townsville. The local (Burra Range) form is superior to those from southern areas. Highly recommended.

Grevillea hookerana

An attractive West Australian species which has adapted surprisingly well to Townsville conditions. It is a large shrub at least 4 m high which, if grown in full sun, assumes a symmetrical shape which is most attractive. The maroon flowers are not conspicuous and this handsome, large shrub, with its finely divided pinnate leaves and bronze new growth, must be considered as a specimen plant grown for its magnificent foliage and form.

Grevillea longistyla

One of the most attractive *Grevilleas* recommended for Townsville conditions. The magnificent red-orange flowers are produced in profusion during the cooler months. It is an upright shrub growing to 2 m and it requires a dry, well drained, sunny position for best results. There are two forms available, and of these the Queensland form is more floriferous, whilst the New South Wales form has the more attractive foliage.

Grevillea sessilis

This recent introduction from the Burra Range is a large shrub with attractive deeply dissected foliage and cylindrical, creamy, white flowers which appear throughout the cooler months. It tolerates heavy soils but grows best in well drained situations. The new growth is a striking bronze colour and the erect habit makes this plant a most desirable addition to the native garden. It grows to 4 m, but can be pruned to induce a more bushy shape.

Hakea orthorrhyncha — Bird Beak Hakea

This species grows into a fairly dense bush 2 m high and wide with needle-like, but not sharp, leaves. The red flowers appear through Winter and Spring in loose clusters, but on the old wood and are somewhat concealed among the foliage. It makes moderate growth and withstands hard dry conditions and tropical sun.

Hakea sericea — Silky Hakea

An erect shrub to 2 m high by 2 m wide. It has spiky needle-like leaves and pink to red flowers throughout the year. A fast grower, it is bushy enough for a hedge or for birds to nest in. This is a hardy shrub which stands sun but is sometimes attacked by stem borers.

This plant is easily grown from seed.

Leptospermum flavescens

This is a very variable species with at least three forms being found in close proximity to Townsville. Those recommended for this area are two particularly interesting forms, one from the dry open country behind Mt. Spec, and one from Cardwell. The Cardwell form is a shapely small shrub with fine leaves resembling those of *L. juniperinum* and pendulous branches which arch and droop gracefully. Small white flowers 15 mm across are clustered in such a way that they almost cover the leaves during August. The normally bright green foliage in the drier months has a distinctive bronze tint. This shrub grows well in Townsville conditions and is very highly recommended.

The Mt. Spec form is very similar in appearance but the flowers are smaller, the plant is more sparse and it can grow into a small tree of 4 m whereas the Cardwell form rarely exceeds 1.5 m.

Some southern forms of *L. flavescens* have not been successful in Townsville gardens so it is recommended that local forms be grown.

There are several other attractive *Leptospermum* species from this area which are not mentioned here because of the lack of authoritative data.

Melaleuca armillaris — Bracelet Honey Myrtle

A large shrub growing to 3 m with soft deep green foliage and small white bottlebrush flowers. An excellent windbreak or screen plant with dense growth down to ground level.

This plant needs pruning to keep its tidy shape.

Melaleuca decussata — Cross Leaf Honey Myrtle

A large shrub growing to 2 m with a lanky habit which can be corrected by pruning. It produces lilac pink flowers in late winter. Most years, the silvery-green foliage is its main attraction as it flowers sparsely, but in colder Winters it can flower heavily.

Melaleuca sp. aff. *M. symphyocarpa*.

This is a slender shrub to 3m which occurs naturally on the tropical headlands of Northern Cape York. The dense globular heads of red flowers are carried on the wood of the previous year's growth.

It has flowered well in Townsville and should prove to be a popular garden shrub. A well drained but well watered situation is required. This shrub is very useful in attracting nectar feeding birds into the garden.

Vitex trifolia "Purpea"

A large dense vigorous shrub with attractive foliage which is grey green on the upper surface and purple on the underside. It bears small lilac flowers throughout the year and tolerates most soil conditions. It will compete vigorously with neighbouring plants when planted in a group and will reach a height of 6 m under these conditions.

In most situations it needs heavy pruning to contain growth and is useful for screening or as a fill in plant. It is widely grown on beachfront situations and is easily grown from cuttings.

SMALL SHRUBS FOR TOWNSVILLE

Small shrubs to 2 m high are not very common in the Townsville area. Many plants have been imported from the south or from Western Australia, and only a few have proven successful in Townsville. Much more experimentation is needed in this area with plants available in North Queensland.

Small shrubs are very much sought after as undershrubs, ground covers, borders and rockery plants. Many of the plants listed here will exceed the height indicated if grown in shade or partial shade. Small shrubs in general have some interesting forms and often most showy flowers.

Acacia calyculata

A small open shrub to 1 m which is found in a number of localities throughout North Queensland, but seems to prefer well-drained situations. The branches and phyllodes are very flat and the white sweet-scented flower spikes appear in October-November. This plant is likely to be more widely grown as it fits well in the low mixed shrubbery and it blooms at a time when other flowers are in short supply. The phyllodes all appear to arise in the same plane.

Acacia simsii—"Sims Wattle"

This widely distributed shrub with at least two North Queensland varieties requires a dry position. It occurs naturally in the Townsville area. A fast grower, it often flowers in its first year and soon attains a mature height of 2 m. This completely reliable shrub bears its attractive yellow pom pom blooms between January and March, outside the usual wattle flowering period. The blossoms are carried along the stem between the phyllodes. Highly recommended for Townsville conditions.

Banksia robur

Banksia robur is a low growing shrub developing a thick gnarled trunk. The leaves are very large in comparison with those of other *Banksias* and have a serrated edge which makes this plant stand out in the garden. It may be planted as a feature plant. The flowers are in erect cylindrical brushes on the top of the bush. The brushes are from 12 to 15 cm long and half as broad. An interesting and distinctive feature of the plant is that the dead flowers are retained on the bush; they contrast well with the new

flowers which are deep green, maturing to gold before going brown. It is possible for one branch to hold the whole range of colour at the one time. With such attractive dried flowers it is a very popular subject for arrangements. In Townsville the plant is growing well even under very well-drained conditions, even though it is native to South Queensland, where it grows in swampy areas. It is propagated from seed.

Callistemon sp. "Boorandah Station"

This erect shrub, growing to 2 m high, has narrow lanceolate leaves, 6 cm long, and a graceful weeping habit. It has adapted to a wide range of soils and appears to be completely pest free. Delicate, pale pink bottle brush flowers are produced throughout the year. The shrub is useful in group planting because it contrasts with the coarser foliage and red flowers of many of the other *Callistemons*.

Callistemon—"Guyra Hybrid"

A small open *Callistemon* to 2 m with an attractive pink to red flower forming when the plant is young and less than 0.5 m high. Flowers frequently throughout the year if grown in an exposed position.

Callistemon sp.—"Injune"

A small *Callistemon* growing to 1.5 m. Its upright habit, combined with weeping foliage, is very attractive. It grows best in a moist situation in fertile soil. The small pale pink brushes appear all over the bush several times a year. This shrub responds well to cultivation, but the attractive weeping effect is lost if the shrub is pruned heavily.

Callistemon pachyphyllus

This southern species, in Townsville gardens, grows to 2 m high and has leathery, narrow lanceolate leaves up to 4 cm long. The attractive flowers are borne in erect spikes in contrast to the pendulous habit of most *Callistemons*. Both the light green and red flowering forms have been grown with equal success. The light green flowering form has a more open appearance than the recently introduced red flowering plant. The latter is considered to be one of the most promising *Callistemons* for Townsville and best suited to open or specimen type planting.

Calytrix estipulata

One of the showiest shrubs of the Burra Range, it is in fact one of the most spectacular native plants in North Queensland. It is a small plant sometimes growing to 1 m, with many small leaves closely adpressed to the branches. The mauve-pink star-shaped blossoms with golden anthers appear in October and cover the entire bush.

It must have a well drained, preferably elevated site, and grows best in soils which have been mulched with humus collected from under mature shrubs.

Cassia artemisoides

The pleasing silver foliage of this desert cassia is reason enough to include this exciting plant in the native garden. An added bonus is the mass of golden yellow flowers which cover the bush twice a year. It is a medium-sized shrub growing to 1 m high and the same in diameter. Because of its desert origin it requires a dry, well-drained site

Cassia sturtii

A small open fresh green shrub to 1 m. Flowers yellow, 2-3 cm across, occurring as terminal clusters, flowering almost all the year round. This plant comes from very dry inland areas and can be grown in the driest area of your garden. Takes pruning and shaping and appears to be a most robust and easily managed plant.

Crotalaria laburnifolia

A local species growing to 2 m high. It has large green-yellow pea flowers for long periods of the year. A particularly hardy plant which is found in most areas around the city. Does well in coastal situations.

FENZLIA**FENZLIA OBTUSA**

This bushy shrub is usually about one metre in height but sometimes is taller and is widely distributed along the northern foreshores. The 2-2.5 cm leaves are tough and leathery, green above and grey beneath.

The other two species of *Fenzlia* also occur in the North.

Fenzlia microphylla may be seen in several arid spinifex areas inland including patches south of Charters Towers and in the Burra Range. The small 6-8 mm leaves and pink flowers give the 20-40 cm bush a superficial resemblance to a *Boronia*.

Fenzlia retusa resembles *F. obtusa* above but the leaves are usually smaller and narrower with a notch at the end. The flowers too are smaller. It is recorded from the islands of the Gulf of Carpentaria.

Crotalaria trifoliastrum — "Bright Rattle Pod"

Very attractive displays of this plant can be seen in November on the dune areas along the coast near Townsville. This is the most suitable of the local *Crotalaria* species for garden use. It grows to 40 cm and has a variable spread, as some plants tend to sprawl. The trilobed foliage is probably the most attractive in the *Crotalaria* genus. Flowering is very dense with most attractive bright yellow flowers. In nature the plant appears to be an annual, but in the garden it has been held over for several years, usually as dormant root stock. It grows well from cuttings.

Eremophila maculata — "Native Fuchsia"

A variable plant which occurs as a densely branched shrub 60-90 cm high. It has dark green, slightly glossy leaves. Flowers are usually red on slender curved peduncles. Plants collected at Balfes' Creek, west of Charters Towers, are growing well in Townsville and some specimens have flowered when quite small.

Considerable experimentation remains to be done in order to find the best garden conditions. It occurs naturally in heavy clays and it is felt that this shrub has a great potential for Townsville conditions. This shrub also occurs naturally just north of Bowen in shallow solodic soils and near Dotswood homestead on soils similar to some areas of Townsville.

Gastrobium grandiflorum — "Poison Bush"

This small shrub with leathery blue-grey leaves and hairy new growth is poisonous to stock. It grows naturally on sandstone and deep sands. The large showy red pea flowers are conspicuously displayed. Although this shrub grows readily from seed it is not widely grown. It is possible that the common name, "Poison Bush", deters many people from giving it a well deserved place in a garden situation. Flowers during the winter months, growing to 1.5 m.

Graphophyllum excelsum

A medium shrub 2 m high and 1 m wide with small glossy green leaves and bright red, waxy, tubular flowers. Although it can be grown in full sun, best results are obtained if this shrub is grown in a semi-shaded position. Ample watering and good soil are necessary if this plant is to be grown successfully.

Grevillea biternata

A prostrate *Grevillea* which grows easily in very well drained situations such as Castle Hill. It grows quickly and soon covers an area of several metres square. The brilliant, soft green foliage is the attractive feature of this plant, as it does not flower well in Townsville. Regular watering and good growing conditions are essential if this plant is to grow well. During prolonged humid conditions it is susceptible to fungal attack, which usually proves fatal. Careful site selection and attention to drainage are the only solutions to this problem. Despite all the difficulties, *Grevillea biternata* is a magnificent prostrate plant and those fortunate to live in elevated well-drained areas have every chance of successfully growing this lovely shrub.

Grevillea sp. aff *G. decora*

This useful small shrub, growing from 1-2 m high and 1 m across, has adapted well to a number of Townsville gardens. It occurs naturally in the Herberton, Irvinebank and Watsonville areas of the Evelyn Tableland, North Queensland, where it grows on well-drained granite skeletal soils. The leaves are similar to those of *G. decora*, but lack the bluish lustre and are narrower. The flowers are terminal and are orange and yellow in colour. This *Grevillea* flowers virtually all year round in cultivation and attracts some of the smaller honeyeaters to the garden.

Grevillea dryandri

Grevillea dryandri is a low spreading shrub 0.5 to 1.0 m high with a

width varying from 0.5 m to 2 m. The leaves are deeply divided and grey-green in colour. It has huge flower spikes 10-25 cm in length and the flowers have a pink or cream perianth with a red style. Cream coloured forms are not uncommon. The plant occurs in a number of localities right across Northern Australia, but it was not until recently that it began to appear more often in enthusiasts' gardens, as it has a reputation for being difficult to grow. The seed follicles are sticky and the seed itself is difficult to germinate. Most people have to resort to carefully peeling the testa and sowing in a sterile medium. All Townsville growers agree that it must have ideal growing conditions, i.e., a well-drained situation with little supplementary watering. Those people who can grow Sturts Desert Pea, *Clianthus formosus*, are the ones with suitable conditions for growing *G. dryandri*.

Grevillea "Robyn Gordon"

This magnificent shrub is one of the very best *Grevilleas* available. A garden cultivar, it has won a well deserved place in the nursery trade. It is a spreading shrub growing to 1 m high, with prickly foliage and masses of pale red flowers for most of the year. Full sun and good drainage are required to grow this highly recommended *Grevillea* to perfection.

In Townsville, all *Grevilleas* are susceptible to leaf miner. Unfortunately, the only effective remedy is spraying with a systemic spray.

Hakea plurinerva

A widely distributed shrub growing to 2 m. It occurs in the dry, open forest behind Mt. Spec. In August the bush is covered with cream ball-shaped flowers. The harsh, leathery leaves with heavy venation makes an interesting contrast to other garden shrubs. It propagates easily from seed and prefers a dry open position.

Hakea purpurea—"Purple Hakea"

A fairly compact bush 1 m high and wide, with branching needle-sharp leaves and pink to red flowers in late spring. It makes moderate growth, stands sun and is pest free. It flowers young and can be propagated from seed or cuttings.

Leptospermum flavescens

See "Cardwell Form" under *L. flavescens* in the large shrub section.

Leptospermum petersonii—"Lemon Scented Tea Tree"

A small dense shrub displaying light green foliage which is a very attractive and pleasing sight in any garden. The leaves, when crushed, give off a lemon scent as indicated by the plant's common name. This plant can be pruned heavily and it produces white flowers 2 cm in diameter. The bronze new growth is an added feature of this plant.

Lomandra longifolia

This much neglected plant, which grows in clumps, is one of the very best herbaceous plants for Townsville conditions. It is common in local watercourses but it is only in a garden situation that its potential becomes apparent. Growing to at least 1 m it has very long strap-like leaves which arch gracefully almost to ground level. The large cream flower spikes appear in December. They are spiny and have a distinctive perfume. It will tolerate the hardest of conditions and is completely at home in very heavy clay soils. The unusually long leaves are sought after for use in floral work.

Melaleuca erubescens—"Pink Paper Bark"

A small shrub which grows to 2 m high and spreads to 1.5 m wide. The attractive bright green foliage is its main feature, as it does not flower well in Townsville. This shrub is recommended as a hedge plant.

Melaleuca minutifolia

Grows to 2 m with approximately a 2 m spread. This is another plant which is grown for its attractively different foliage. The small, green, scale-like leaves tightly enclose the fine branches.

This shrub prefers a well-drained situation in full sun.

Melaleuca thymifolia—"Thyme Honey Myrtle"

A highly recommended plant for all areas in Townsville. Available in two forms; prostrate, which grows to half a metre in height with a spread of 1 m., or an erect form which grows into an attractive shrub of approximately 1.5 m high by 1 m wide and can be pruned to the shape and size desired.

This beautiful shrub has grey green foliage and will produce mauve claw-shaped clusters of flowers in its first year of growth, with its heaviest flowering in spring, although it will continue to flower throughout the year.

This is a plant of many uses. The upright form is suitable in a large pot for patio or courtyard, though not in full shade, whereas the prostrate form is best in a rockery or terraced garden.

Melaleuca viminea

A well-shaped shrub with beautiful apple green foliage and small greenish white flowers. This plant, which flowers in spring, grows to 2 m high by 1 m wide and it requires a well-drained situation.

Melastoma malabathricum—"Pink Lasiandra"

This attractive local native thrives well under damp to boggy conditions. In the garden this plant grows to less than 1 m and displays beautiful pink to mauve large flowers regularly throughout the year. Unusual dark fruit speckled with seed follow flowerings. The attractive blue grey foliage is also attractive. The plants will not take drying out, which means that in many garden positions it might better be used as an annual. Grows from cuttings.

Pavonia hastata

One of the hardiest of plants for Townsville gardens. This shrub grows 1 m high, with a diameter of 1 m, and produces masses of pale lilac hibiscus-like flowers for most of the year. It grows quickly and is best treated as an annual. Seed germinates readily and new plants are always appearing to replace older specimens. Harsh dry growing conditions are suitable for this very useful and adaptable shrub. Presentation can be improved by growing against a fence and threading the branches through the wire as in a trellis.

Vitex ovata—"Coastal Vitex"

A vigorous creeping plant which roots at the nodes, it can form a thick ground cover to .5 m high. It occurs naturally along Townsville's foreshores and in very good conditions will form a large shrub, but in the open it remains prostrate. The ovate leaves are about 5 cm long by 3 cm wide, are green on the upper surface, but vary from grey to mauve underneath. Small, pale blue flowers appear in Summer and are followed by green berry-like fruits. This plant will grow in most soils, including sand, and though it will tolerate half shade it flowers best in full sun. It is useful as a ground cover in any area, but is particularly suited to seafront planting. It will benefit from regular pruning, grows easily from cuttings and does not appear to attract any pests.

Xanthorrhoea johnsonii—"Black Boy"

A peculiarly Australian plant having a single rough trunk about 2 m in height and in nature usually fire blackened. The foliage springs from the top of the trunk in a vivid green shaggy grass skirt, and from this again projects the tall rigid flower stalk, terminating in a huge cylindrical flower spike consisting of many hundreds of individual cream flowers which are very rich in nectar. Propagates easily from seed.

Xanthorrhoea media

This species is easily mistaken for a juvenile *X. johnsonii*, as it has no trunk, the leaves springing from ground level. For this reason it is generally less useful as a garden subject. There is a natural hybrid of the two species which is preferable to both on account of increased vigour. It is larger in all respects than either of the parental species.

ANCIENT EARTHLINGS

An introduction to ferns for the young by Nuri Mass

Mankind began living on this Earth less than a million years ago. Ferns were here almost 400 million years before him. They were here many thousands of years before pines, firs, cypresses, and all of those other plants that produce cones — and many more thousands of years again before the first appearance of flowers.

Way back in the barely imaginable past, when plant life was just beginning to come out of the sea on to land, there were simple little algae and fungi, then liverworts, then mosses — growing on land, to be sure, but only in very watery places.

The next thing to happen, in the story of plant evolution, was the appearance of ferns — lovely, graceful plants which also looked for damp places, while gradually adapting themselves to drier ones as well. And of course, all of this took place very slowly indeed — over hundreds and thousands of years.

It is hard to imagine a world without any flowers whatever, yet this was how it was during long ages of geological time. Ferns were then the most dominant plants on Earth, sometimes growing to huge sizes — and the great forests and entanglements of them which covered enormous areas of land, must have looked very beautiful indeed.

Today, ferns have been somewhat overshadowed by other types of plants that came after them, particularly by the flowering ones, which are now the most important group in the plant kingdom. But there could still be scarcely anything lovelier than a ferny gully or a forest of treeferns. And it's interesting to realize that the ferns of today, although often much smaller than they used to be, still have the same general forms that they had way back in prehistoric ages.

We take it for granted that all plants have roots, stems and leaves, but this is altogether wrong. Roots, for instance, have two important jobs to do — to hold their plant down firmly in the soil, and to pass through into other parts of it the water and minerals that they absorb from the soil. Roots which do only one of these jobs — which hold their plants down but don't feed them — are not considered true roots, and this applies even to mosses.

Ferns, however, have gone a stage farther. They do have true roots. They also have real stems, which look like trunks in the case of treeferns, while taking the form of long climbing trailers for those many types of ferns that look so pretty twining all around the trunks of rainforest trees. But often they stay completely out of sight below the surface of the ground — and when they do this, we call them rhizomes.

Rhizomes may be short and stocky, or they may run along underground for quite fair distances, branching as they go, and every now and then sending up groups of beautiful little coiled-up things called fronds, which unroll and spread themselves out into the ferny leaves that we know so well.

Fern stems do not grow thicker year after year, the way tree-trunks do, but they are able to channel water and foodstuffs around between the leaves and the roots attached to them, which is something that more primitive plants cannot do.

One of the most exciting things about ferns is their great variety. In the tropics, tree ferns may grow up to 60 feet high, with huge "umbrellas" of fronds on top, about 30 feet across. Then on the other hand, there are ferns so small and fragile that they look like mosses. And there seems to be no end to the differences in their leaves — toothed, feathery, clover-shaped, oval, or long and straight-edged like sword-blades.

Then, just as the leaves themselves differ in shape, so also do the groups of spores that form underneath them, spores being what ferns have instead of seeds. (It was only a great deal later that seeds came into being — with cones and flowers).

Treeferns, maidenhair and many others produce spores just on the backs of their ordinary leaves, whilst others grow special leaves for spore-carrying, different in shape from the ordinary ones.

If you look closely at as many kinds of ferns as you can find, you'll be surprised at all the different ways they have of grouping their spores — sometimes right along the margins of their leaves with the edges turned under as protection, sometimes in little dots or lines hooded over by a filmy skin called an indusium, sometimes covering the entire under-surfaces of their leaves, and so on. And, as often happens in nature, a fern plant will produce many thousands of spores that go to waste, just to make sure that at least a few will find a suitable place to grow in.

Then, when a spore does germinate, it grows into a tiny heart-shaped plant — low down on the ground — that very few people ever see. Yet, if it were not for this tiny plant, we would never have any ferns at all.

On its under-surface, it has two different kinds of tiny structures with long names — archegonia and antheridia. Out of the antheridia come even tinier sperms, which can wiggle about and swim in the thinnest films of water. When one of these sperms finds its way to an archegonium, it joins together with a special cell there, and the result is a tiny thing called a zygote, which quickly grows larger, and sends out the first shoots of a new little fern plant. Meanwhile, the small heart-shaped plant which started all this, dies away unnoticed. But what an important part it has played in the life story of that fern!

I dreamed a dream of bushland and glens,
With ferny fronds on every hand —
Surrounding streams and bright cascades,
Entwining trees in shadowed glades —
And lo! my dream was fairyland.

LIFE CYCLE OF A FERN — opposite

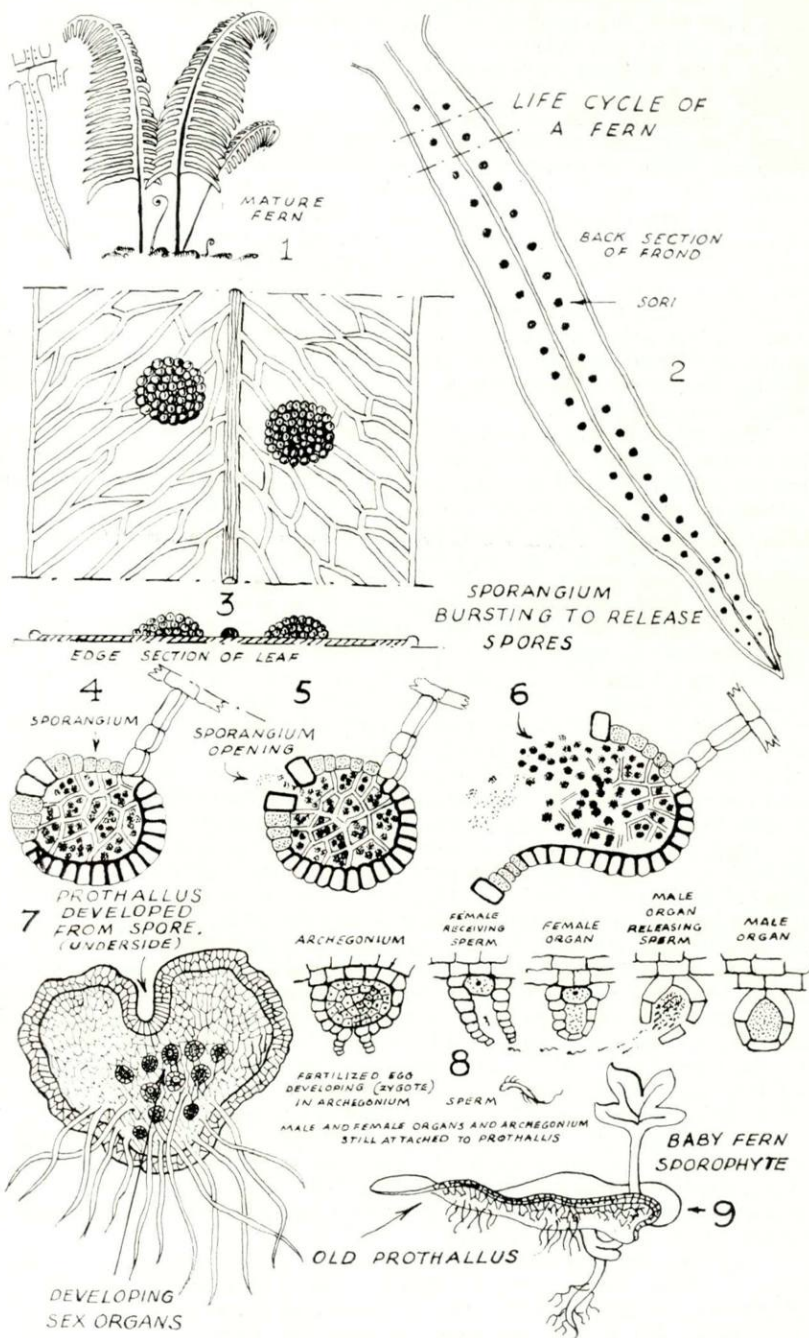
Ferns are related to horsetails and club mosses that preceded them in the evolutionary scale. They have an elaborate structure with roots, stems and leaves. In their life cycle they pass through distinct changes—spore to prothallus and fern plant itself.

Leaves are called fronds, leaf stalks stipes, the first division of divided fronds are pinnae, subdivisions pinnules. Reproduction results from spores which are formed in cases—sporangia, which grow in clusters called sori on the undersides of fronds. Often the sorus is covered by a semi-transparent scale or indusium. Fronds arise from stems which when creeping are known as rhizomes. They can be either deciduous or evergreen. Most are terrestrial (of the earth) rooting in soil. Others are epiphytic (plant growing on another deriving only support, not nutrition from it).

PROPOGATION OF FERNS

by S. Clemisha

Quite a large number of ferns cannot be propagated by a vegetative means or are so slow doing so that it is not practical. These have to be either raised from spores or collected from the bush. Unfortunately many of the more popular ferns belong to this group and still more so they almost all have been collected and not raised in cultivation. Because of the extraordinary laws of this country certain people are able to sell such



plants from their own property to nurseries who sell them at such staggering prices as \$30 for one staghorn or \$60 for a medium sized tree fern. Whether or not these licensed collectors do confine their collecting to their own property in many cases is doubtful.

The desirable way of growing these and many other ferns is from spores. These form on the backs of the fronds and when mature are commonly brown or yellow or more rarely green as in the case of *Todea barbara*. When mature the spores remain on the frond for quite a while before they are released. In the case of *Todea* they are released as they mature and must be picked while they can still be seen to be green inside the spore case. In most ferns however, a section of a frond can be collected with mature spores on it and wrapped in a piece of paper. Within hours or up to 3 weeks according to the species and weather the spores are shed into the paper and should be sown as soon as possible as the time spores hold their viability varies greatly and work in this field is desirable. Species should be handled one at a time, as mixing can occur very easily without one realising it.

They then are sown in specially prepared clay or cement pots in which the growing medium is placed. As different species require different medium and the spores are hard to replace it is best to try several. Sand suits many species but peat moss seems better. Tree fern fibre is better still at least with some species while sphagnum moss seems to be the best medium of all. The pot should then be sterilised to kill all foreign spores (of other ferns, moss and algae). This can be done by placing the pot in the oven at about 250°F or more for about ½ hour (more does no harm). If excessive drying out occurs, pour boiling water over it. When cool the spores should be sown. It is a disadvantage if they germinate too thickly but this only happens if the spores are very fresh. The pot should then be covered with glass or clear polythene and if the later tie it on. Stand it in water in a place which receives light but little or no sun. Germination will follow in 3 weeks or more commonly more. If it is very sparse (say 12 or less plants to a pot), one should suspect that "ring-ins" could be responsible as these get in despite precautions. Algae usually gets in after a time but does little harm if the prothali have germinated.

After germination, small to heart-shaped thin textured structures called prothali form. Often fungi will appear. Most fungi are harmless and disappear after a time but a few are damp-off types or otherwise harmful. The healthy prothali farthest from the infected area should be taken out and placed on another pot. Infection is most common in overcrowded pots.

After 3 months or often more the prothali which lacks leaves and stems and true roots will form small female structures and also male structures. When the male sperm matures it swim across the moist surface in search of another prothali. If found then one of the female structures is fertilised and from it a new plant arises. In this manner fertilisation is usually by crossing though selfing can occur. Because the sperm can only move on a moist surface ferns are largely confined to damp areas.

In cultivation this all occurs microscopically and the first evidence of it is the prothali produces a tiny frond. In staghorns and *Asplenium* and many epiphytic ferns it is short and blunt while tree ferns and many others produce a small 2 or 3 finger like frond on a distinct stalk. Soon progressively larger fronds and roots appear.

Any time after the first frond appears plants can be moved into community pots (I prefer peat moss for most). These need to be covered with plastic for a time. Gradually they can be given more light after the cover is removed and thinned out more as they grow larger.

Care must be taken to harden plants gradually as if not the central bud of the plants will die. If this happens the plant will eventually die even if not for some time after as the existing fronds enable it to survive until they deteriorate.

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Preparation of this book has been a very fine effort by a group of Townsville citizens known as the Townsville Group of the Society for Growing Australian Plants. Their efforts justly deserve the admiration and respect of the Townsville people and its Civic Dignitaries.

What is this Society for Growing Australian Plants?

People from all parts of Australia interested in our Natural Heritage — the Flora of Australia, are members. Where there is a number of such people in towns and cities, they form a group as in this case of Townsville. The groups are largely autonomous, certainly on local matters, but receive support from the autonomous Regional Society operating in each State. These State organisations in turn co-operate at a National level where necessary such as to publish a periodical on wildflowers — Australian Plants. The whole organisation is constituted to serve the needs of its members where they are not in a group, and there are thousands reaching to the remotest parts of this great land of ours, and to support the local groups such as that at Townsville.

Membership or Subscriber

Members have a common interest in the Australian wildflowers and comprise bushwalkers, tourists and conservationists. The major interest is in the preservation of the Australian Flora by cultivation. There is little doubt that civilization and the will of mankind to survive, will encroach on what is still left unspoiled of our beautiful, often austere but always magnificent country. What is still not adequately realised by many Australians is the magnitude and diversity of the unique flora. Grazing and development has made wildflowers less easy to find such as the lowlands around Townsville, but some very fine plants still exist, often in isolation, as shown in the publication.

Our civic leaders still have not come to realise that preservation of our flora and fauna will not be achieved by simply setting aside parcels of land such as the Townsville Common. Careful study and planting is necessary to encourage our wildlife, birds, animals and plants, to live with us in the years ahead in harmony and peace.

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