

Dear Members,

Hard to believe that another four months have flown by! It would appear that most areas continue to receive above average rainfall and mild temperatures, except in Tasmania, where they are still in the grips of drought.

Response to requests for information on the 20 listed species was quite poor this time, particularly from NSW members. I wonder if members feel this part of the N/L is worthwhile? Please let me know how you feel, or offer suggestions. If most members feel these information summaries are of little use, I will delete this section. Welcome to our newest members, listed below. Other current members are listed on the last page.

A Summary of Info received on the 20 species listed in the March newsletter

E.robusta (Swamp Mahogany) 10 reports. Grown widely in Qld, NSW, Vic, SA and WA. Where annual rainfall is less than 1000mm, some supplementary watering is necessary. Light frosts tolerated. Will grow on any soil type and has some salt tolerance. Very tolerant to waterlogging. Growth rate slow ($\frac{1}{2}$ m/year in Melbourne) to fast (2m/year in Springsure). Fls March-April (Rockhampton) or May (Ipswich). Leaves severely attacked by caterpillars in some areas, and "burnt" when grown near the coast.

E.camaldulensis (River Red Gum) 9 reports. Grown in all states (except Tas?). A tremendously variable species, and growth rate and vigour depend greatly on provenance of seed. Can be grown in coastal or arid areas. Salt tolerant, withstands waterlogging, frost tolerant. Drought tolerant, but slower growing on dry sites. All soil types suitable.

E.tetragona (Silver Marlock) 9 reports. Reported from coastal and subcoastal areas from Adelaide to Springsure. Growth rate slow to moderate, reaching about $2\frac{1}{2}$ metres, straggly. Moderately drought tolerant. Leaves often subject to insect attack. Soil type unimportant, only moderately frost resistant. Flowers in its second year.

E.orbifolia (Round leaved Mallee) 6 reports. Reported from Tas, Vic, and sth Qld. Growth rate about $\frac{1}{2}$ metre per year, reaching 3m at maturity. Frost and drought tolerant. Fls June-October (near Grampians), first flowers at 2 or 3 years of age. Prefers sandy or loamy soils, but will grow in clay. Leaves subject to insect attack. Rather untidy in habit.

E.annulata (Open fruited Mallee) 5 reports. Vic and Qld. Frost and drought tolerant. Growth rate about $\frac{1}{2}$ metre/year, width similar, bushy species. Soils loam or clay-loam. First flowers at 2 or 3 years old.

E.goniantha (Jerdacuttup Mallee) 5 reports. SA and Vic. Shapely mallee with a growth rate of about $\frac{1}{2}$ metre per year, reaching approx 4m. Will grow in many soil types, including limestone. Very tolerant to drought and frost. First flowers at 2 or 3 years of age.

E.desmondensis (Desmond Mallee) 4 reports. Vic, Tas and Qld. Growth rate moderate, but plant itself is usually spindly and lop-sided. Only moderate frost tolerance. Sandy or clay soils suitable, if drainage is good. May commence flowering in two years from planting out.

E.gunnii (Cider Gum) 4 reports. SA, Vic and Tas. Small tree with glaucous juvenile leaves, which are often attacked by leaf eating caterpillars. Very frost hardy, moderately drought tolerant. Sandy, clay loam or limestone soils suitable. Leaves "burned" when planted near the coast.

E.griffithsii (Griffith's Grey Gum) 2 reports. SA and Vic. A bushy tree, growth rate about 40cm a year. Soils clay-loam and limestone. Frost tolerant. Flowering starts in 4th year.

E.baeuerlenii (Dwarf Cliff Gum) 2 reports. NSW, Vic. A slender tree, growing $\frac{1}{2}$ -1 metre/year; prefers sandy soils, tolerates drought and light frosts.

E.radiata (Narrow leaved Peppermint) 1 report. Vic. 3 x 2 metres in 3 yrs, has flowered; frost tolerant, no pests or diseases.
E.paniculata (Grey Ironbark) 1 report. Qld. Slow growing, successful on light soils, frost and drought resistant.
E.fastigata (Brown Barrel) 1 report. SA. 7 metres in 5 years, rainfall 710mm annually; sandy soil, well drained. Frost tolerant.
E.exilis (Boyagin Mallee) 1 report. Melbourne. Possibly frost tender; well drained site, not yet flowered at three years of age.
E.cambageana (Dawson River Blackbutt) 1 report. NSW. 1 metre in 2 years, drought and frost tolerant, growing in sandy soil.

Nothing on *collina*, *cullenii*, *leucophloia*, *maidenii* or *uncinata*.

Below is the list of 20 spp for consideration before the November 84 newsletter.

A.subvelutina	andrewsii	bancroftii	bicostata
burgessiana	conglomerata	doratoxylon	gracilis
kitsoniana	macrandra	melanoxylon	muelleriana
oxymitra	pimpiniana	saligna	setosa
tessellaris	thozetiana	urnigera	watsoniana

If you have grown any of these species, or have knowledge of specimens in your neighbourhood, please let me know. Remember to tell me about your failures as well as your successes. Try to include the following information:-

1. Climatic/soil data - rainfall, frost; slope, aspect, drainage, soil type, salinity.
2. Physical data - age, height x width, age to flowering, flowering period, vigour, tolerance to drought, frost, waterlogging, salinity; appearance (healthy or sickly).
3. Cultural data - fertilization, supplementary watering, insect/fungal problems.

The Roots of Trees - Aeration

Because tree roots are not readily visible, their importance is often overlooked. They have two major functions: to obtain water and minerals from the soil and to anchor the tree. Some tree roots may penetrate the soil deeply, but it is in the top 60cm or so that they are most abundant and where they obtain most of their water and minerals. The roots of a tree spread laterally at least to the extent of the branches and often a lot further. The spread of the roots depends on the characteristics of the particular tree species and also on the local environment.

To survive and remain healthy, roots require three things: water, minerals, and oxygen.

One very common cause of tree deaths is the result of building up of soil around a tree. This occurs when land is terraced or levelled, or where gardens are constructed around trees. Several years may elapse before the tree finally dies and the original cause is overlooked.

Build up of soil around a tree causes it to die because the roots of a tree require a supply of oxygen which they get from spaces within the soil. When extra soil is placed over the root system of an established tree, the aeration of the soil around the roots is disrupted and they can no longer obtain sufficient oxygen. This effect is more pronounced when several metres depth of soil is added or when the soil is of a heavy clay type, but with some species, even a few centimetres of extra soil is enough to slowly kill the tree. A tree affected in this way becomes susceptible to attack by phloem-cambial feeders such as longicorns and wood moths which may hasten its death. Symptoms include a thinning crown, branches dying and the incidence of borers. When landscaping, every effort must be made to retain the original soil level around trees, to the area at least out as far as the drip line (the area covered by the spread of the crown). Of course when soil level changes have occurred, any trees planted after the event will not be affected.

Trees are also affected by the removal of soil. This is not surprising when it is remembered that the tree gets most of its nutrient requirements through fine roots in the top 60cm or so of soil.

Eucalyptus oils

The only oils currently produced in N.S.W. are Eucalyptus polybractea oil and Ti tree oil (Melaleuca alternifolia).

We import more Eucalyptus oil than we export. Australia produces 5-7% of world Eucalyptus oil whilst Spain and Portugal produce 60-65% between them and Brasil 10%.

Mr Peter Fisher, an SGAP member from Melbourne has for sale seedlings of the two non-Australian eucalypts, namely E.deglupta (Mindanao Gum) and E.urophylla (Timor Gum). Phone (03) 418 8317 (Bus.)

A New Peppermint species

Eucalyptus willisii Ladiges, Humphries & Brooker has recently been described in the Australian Journal of Botany (1983).

It is a mallee or small tree to 15m high with some rough bark at the base, and smooth above. Juvenile leaves are stalkless, broad-lanceolate, cordate, to 8 x 3cm. Adult leaves are lanceolate to narrow-lanceolate, light green, dull, to 14 x 1.9cm. Inflorescences occur in the leaf axils, with 11 or more buds per group. Buds are 5-6 x 2-3mm, on short stalks, operculum hemispherical. Flowers white, in spring. Fruit shortly stalked, 4-5 x 4-6mm, with three or sometimes four loculi.

This species had formally been known as E.vitrea or E.nitida. The name E.vitrea applies to a hybrid, and true E.nitida is restricted to Tasmania and the Bass strait islands. Mr Alan Gray of Tasmania recognized several years ago, that the mainland populations were quite distinct and worthy of species status. E.willisii is most closely related to E dives (Broad-leaved Peppermint), while E.nitida is closest to E.coccifera (Tasmanian Snow Gum).

Distribution:- Euc willisii is widely, though sporadically distributed in southern Victoria and adjacent areas of South Australia. Localities include: near Mt Gambier, lower Glenelg River, the southern Grampians, Lorne-Apollo Bay district, Wilsons Promontory, Lakes Entrance. It usually grows in sandy coastal soils adjacent to heathland.

The meaning of eucalypt names

The botanical names given to all eucalypt species (and to all living things for that matter), are derived from latin or greek roots. It is useful to know what these botanical names mean, as it often enables you to learn a little about species which you have never seen. In a series of articles, I will run through the different groups of species, name-wise.

First of all, every member should know the meaning of the name Eucalyptus. eu means "well" and calyptos means "covered". "Well covered" refers to the flowers which, before anthesis, are enclosed by an operculum or budcap.

About 20 eucalypt species have names referring to the leaves in some way. The latin for leaf is folium, and several species' names end with -folia

grandifolia = large leaf latifolia = wide or broad leaf
longifolia = long leaf brevifolia = short leaf
amplifolia = ample or large leaf parvifolia = small leaf
ficifolia - refers to resemblance of leaves to some species of Ficus.
cneorifolia - refers to the supposed likeness to the leaves of Cneorum tricoccum
diversifolia - possibly refers to the difference between the various stages of the leaves (juv to adult).

The greek for leaf is phyllon and several species names end with -phylla

drepanophylla - sickle shaped leaf pachyphylla - thick leaf
brachyphylla - short leaf sclerophylla - hard leaf
zygophylla - refers to the opposite sessile leaves zygos = yoke.
calophylla - meaning beautiful leaf calos = beautiful
gamophylla - refers to the connate juvenile leaves gamos = marriage (united)
urophylla - refers to the "drip tips" on leaves ura = tail
cosmophylla - ornamental leaf cosmos = order, form, ornament
apodophylla - refers to the sessile leaves a = without pous = foot phyllon = foot
cyanophylla - blue grey leaves cyaneos = dark blue

A greek word of similar spelling, but totally different in meaning is the word philos, which means "loving". Four species end with -phila.

nesophila - island loving nesos = island Refers to Melville Is, where it grows
eremophila - desert loving eremos = desert, wilderness
orgadophila - refers to the habitat orgados = a meadow, a well-watered fertile spot
niphophila - snow loving niphos = snow

These species are among the most commonly misspelt, due to the resemblance between -phylla and -phila.

NOMENCLATURE NOTES

Due to a recently discovered mix-up of type specimens, the Dongara Mallee (formally E.dongarraensis) is now correctly known as E.obtusiflora. The Port Jackson Mallee, which was formerly known as E.obtusiflora, will be renamed as E.obstans.

A wonderful new reference book is available on Eucalypts. It is called "Field Guide to Eucalypts - Volume 1" by Ian Brooker and David Kleinig. It is published by Inkata Press.

This new book deals with all eucalypts (one species per page) which are indigenous to south-eastern Australia, that is, roughly speaking, the area from Port Augusta to Brisbane, and taking in all of Tasmania and Victoria and most of New South Wales.

About 240 species and subspecies are succinctly described and superbly illustrated with colour photographs of the tree, bark, buds and fruits. There are seven dichotomous keys to aid in the identification of unknown eucalypt species.

The eucalypt plant and all its parts are expertly and interestingly described at the front of the book. Careful examination of this section will allow greater appreciation and understanding of the keys and species descriptions.

The many hundreds of colour photographs means that the book is rather expensive, but I'm sure it will be eagerly sought after by Euc study group members.

Three volumes in all are planned. Volume 2 will deal with S.A. (west of Port Augusta) and southern W.A. Volume 3 will deal with northern W.A., N.T. and Qld.

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Members Letters

Marj Bowyer from Warrnambool comments that staking of plants is necessary in some cases. Marj speaks from personal experience on her block of land near the Grampians, where the soil is gravel over clay and becomes waterlogged in winter. She writes "We have put in young plants in the autumn and continuous wind and rain have literally flattened them into the mud. Without a stake and loose tie there is no way they would have grown. Again, because of the poor drainage, the ground is so quickly waterlogged the roots have little to hold them and the first strong wind blows the tree out of the ground." Marj finds that some species are more susceptible than others. A 3 year old E.pulverulenta, not previously staked, blew right over, exposing half of the roots. After being pulled upright and staked, it did recover.

Lindsay Daniels from Biloela comments on the quality of timber. He says that posts made from a hollow tree may not last as long as those from a solid tree, due to the presence of cavities, which allow the entry of fungal organisms and termites. Split posts made from species such as E.populnea and E.cabbageana are durable, but round posts made from young trees have a very short life.

Phyllis Dadswell of Gawler(SA) recently sent some bright yellow eucalypt flowers. They belong to a form of Euc. leucoxyloides ssp megalocarpa. The rich yellow colour is an exciting addition to the more usual red or pink. Are any other members familiar with this yellow flowered form?

Extremist Eucalypts!

Politically no, but geographically yes! Eucalypts are found right throughout the continent from Cape York to southern Tasmania and from Cape Byron to Dirk Hartog Island. But this brings to mind - which species occupy these rather special sites?

Well, Australia's northernmost eucalypt is E.tessellaris (Moreton Bay Ash or Carbeen), of which there is a specimen only a matter of metres from the tip of Cape York. However, E.tessellaris is not the most northerly eucalypt of all, as there are eucalypts on the Torres Strait islands, New Guinea and further north. The world's most northerly occurrence of a eucalypt is that of E.deglupta (Kamarere), which grows as far north as Mindanao, the large southern island of the Philippines (9°N latitude).

Australia's most southerly point is an island off the coast of Tasmania called Maatsuyker Is. This island supports two eucalypts, E.nitida (West coast Peppermint) and E.ovata (Swamp Gum). It is not known which species occurs furthest south, and it will be a "tape-measure job" to determine Australia's (and the world's) southernmost euc.

Cape Byron, Australia's most easterly point, is devoid of eucalypts, but about a kilometre to the west, there are dwarf forms of E.intermedia (Pink Bloodwood) and E.siderophloia (Grey Ironbark).

Who knows the westernmost eucalyptine occurrence?

Mountain Ash (E.regnans) of the Styx R valley in Tasmania are the tallest hardwoods in the world. The tallest is 98.7 metres high, and eight others are taller than 90m. It's estimated that these trees are about 250 years old.

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Autumn Gum Moth

The larval stage of this moth is a serious pest of eucalypts in southern Australia, particularly Tasmania. The Autumn Gum Moth (Mnesampela privata) is a problem between late summer and early spring, feeding on the leaves of many eucalypts, but preferring those which have a blue-grey or silvery leaf colour.

The grub stage is a greenish-brown caterpillar with two conspicuous yellow spots on its back and a reddish-brown head. The grubs reach a maximum length of about 35mm.

The adult moths emerge in summer and quickly lay their eggs. While very small, the grub produce a skeletonising effect on the leaves, but as they grow, the entire leaf tissue is eaten. Most feeding takes place at night, and during the day the larvae cluster together in shelters formed from leaves webbed together with silk. When they are fully fed, they burrow into the soil near the base of the tree and pupate.

Damage is most common on young trees up to three metres in height which may often be completely defoliated. Eucalypts favoured by the moth are *Eucs globulus*, *delegatensis*, *perriniana*, *risdonii*, *gunnii*, *cinerea*, *crenulata*, *archeri*, *cordata* and *rubida*.

Both the eggs and larvae of the autumn gum moth are parasitised by wasps, but control is probably best achieved by manually removing the shelters containing the grubs. Frequent inspections may be necessary during the peak period.

Rare Eucalypts of the Blue Mtns - compiled by Judy Smith,
Blaxland.

The Blue Mtns are a spur of the Great Dividing Range to the west of Sydney. The mountains rise gradually to an altitude of 1094m and are a series of plateaux broken by deep gullies. Within the region about 40 species of eucalypt and 5 species of angophora have been recorded. Of these, three are considered to be endangered or potentially endangered

1. E.bauerlenii "Dwarf Cliff Gum"

This species was named by Mueller in 1870. The species occurs in two separate and very limited areas, one near Wentworth Falls in the Blue Mtns and the other near Braidwood, NSW. It is thought that the two populations have a common origin and are remnants of what was once a wider, though not necessarily continuous distribution. *E.bauerlenii* is a small, pendulous tree with smooth bark, mottled with green, cream and brown. The bark reddens in summer before it is shed. Leaves are long and narrow (up to 17 x 2cm) and of a dull, dark green colour. The flower buds occur in umbels of three on short stalks. The bell-shaped fruit (1 x 1cm) is unusual in that two distinct forms are found. The flowering season is variable but usually August - September.

2. E.pulverulenta "Powdered Gum" or "Silver-leaved Mountain Gum"

This tree also occurs naturally in only two small disjunct areas, one near Cooma, NSW and the other in the western Blue Mtns. It was first described and named in England by Sims in 1819, only six years after the first crossing of the Blue Mountains. *E.pulverulenta*, a straggly tree to 7m high, has a particularly unusual appearance with its silvery colouring and stem-clasping juvenile leaves which it retains throughout its life. Flowering is from May to October, the blossoms showy and creamy white. This eucalypt is cultivated on a large scale in California where its foliage is used in the cut flower trade. Seed germinates readily and seedlings have been found to grow vigorously in varied soils and altitudes, from sandstone at 1000m to heavy clay at sea level. It makes an attractive and unusual garden specimen.

3. E.burgessiana "Faulconbridge Mallee Ash"

This eucalypt was described in 1972. It grows in a restricted area on the ridges around Faulconbridge and Springwood. It grows as a mallee to a height of 6m. The bark peels in summer revealing attractive tan-coloured stems. Its leaves are large and leathery, and the fruits are large, about 12 x 12 mm. While it is clearly close to other mallee-ashes, it is quite a distinct taxon. Flower buds number about seven per umbel, on a flattened peduncle. Flowers are cream and showy.