

Dear Members,

Greetings. For most of us, the harshness of the Australian climate will be only too apparent at the present time. Following the very cold winter of 1982, this summer has been very hot and dry, at least in eastern Australia, with terrible bushfires raging in Vic. and S.A. I sincerely hope none of you has suffered loss of property from the fires. Many thousands of hectares of eucalypt forest has been devastated, but the eucalypts will recover and the process and rate of recovery should be a source of wonder to all of us.

I've received many interesting letters over the last few months, with many valuable reports on cultivation of the species included in the list of 20 last time. There was a very favourable response to the inclusion of Angophora in the Eucalyptus Study Group. Several new members have joined the group since November. They are:-

A Summary of Information received on the 20 spp from last newsletter.

E.lehmannii (18 reports) Widely grown in southern WA, SA, Vic, eastern NSW, and inland Qld south of the tropic. Also suitable for the less frost prone areas of Tas, being less frost resistant than related species. Drought tolerant. Useful for shade, shelter, salt reclamation and seaside planting. Many of those mentioned are actually E.conferruminata (Bald Island Marlock). Tolerates a wide range of soil types including limestone, and flowers for much of the year. Generally forms a bushy tree, but becomes less attractive with age, and can lose limbs and split.

E.grandis (10 reports) Widely grown in eastern Qld, NSW, and Vic. Fast growing in all cases, up to 3m/yr, always of good form, conical shape. In low rainfall areas it requires supplementary watering. Will grow on all soil types, tolerates light frosts. Subject to insect attacks, most notably borers which weaken the tree; also scale insects. Growth rate of this species appears to be proportional to the soil moisture level; climate and soil type having little effect.

E.grossa (10 reports) Successful in Perth, Adelaide and subcoastal areas of NSW and Vic; possibly southern inland Qld. Tas unknown. Severe leaf spot reported in some coastal areas. Slow growing. Tolerates limestone. Drought and frost tolerant. Flowers Aug-Sept (Perth).

E.gillii (9 reports) Grown widely in Adelaide and nearby areas of SA, north to inland Qld. Typically of a twisted mallee habit, up to 3m high. Flowers at 2-3 years of age. Soil type unimportant, but requires good drainage; somewhat susceptible to frosts, extremely drought tolerant. Apparently suitable for many areas of inland Australia, and well drained sites on the coast.

E.papuana (7 reports) Successful in many areas of Qld, but often a failure in Vic and SA. However, successfully established at Jervois, SA, growing 5m in 9yrs in sandy loam. Also at Mt Gambier. Slow in the early stages; can be rather spindly.

E.pilligaensis (4 reports) Grown successfully in Qld. No reports from elsewhere. Prefers heavy clay soils, withstands poor drainage. Drought and moderately frost tolerant. Flowers Feb (Ipswich). Subject to defoliation by cup moth larvae.

E.baxteri (3 reports) No reports outside Vic. Needs good drainage, but adaptable to various soil types. Withstands salt spray. Prostrate forms near the ocean.

E.blakelyi (2 reports) Vic and Qld. Drought tolerant, will grow in heavy soil. Growth rate around 1m/yr in early stages.

E.pulchella (2 reports) Tas and SA. Frost and drought tolerant. 1½m in 3yrs. Attacked by autumn Gum Moth. Both in sandy soil, one over limestone.

E. parvifolia (2 reports) Vic and SA. 2.2x1.8m in 4yr and 2.5m in 3-4yrs. One growing in clay. Tolerates salt spray and frost. No major pests/diseases.  
E. trachyphloia (1 report) From Brisbane, 1 $\frac{1}{2}$ m in 1yr. Needs well drained soil, drought tolerant.

I received no information on the following species :- abbreviata, considieniana, eudesmoides, jucunda, mamensis, mitchelliana, pachyloma, patens and rossii.

Here is the list of 20 spp for consideration before the July Newsletter.

baileyana	banksii	behriana	caliginosa
citriodora	cordata	coronata	dongarraensis
dundasii	dwyeri	gomphocephala	herbertiana
leptopoda	melanophloia	nicholii	patellaris
regnans	rigidula	rodwayi	steadmanii

If you have grown any of these species, or have knowledge of specimens in your neighbourhood, please let me know. Try to include the following information;-  
 1. Climatic/soil data - rainfall, frost; slope, aspect, drainage, soil type, salinity.  
 2. Cultural data - fertilization, supplementary watering, insect and fungal problems.  
 3. Physical data - age, ht and width(shape), age to flowering, flowering period.

#### NOMENCLATURE NOTES

The Blue-leaved Mallee, previously known as 'E. fruticetorum' and occurring in southern NSW and central Victoria is now E. polybractea. The River Peppermint, still sold in some nurseries as 'E. andreana' is in fact E. elata. The Dwarf Apple, which was known for many years as Angophora cordifolia, is now correctly known as Angophora hispida. The old names are invalid and should not be used.

EUC NEWS \* \* \* \* \*

Mr Jamie Hoare and his colleagues of the CSIRO Division of Forest Research have been studying the effects of fire on the forests and woodlands in the "Top End" of the Northern Territory.

Fire has always been a dominant force in the ecology of these tropical forests, and all species growing there have developed a high resilience to fire, but too-frequent fires can severely damage communities and in the long term, extinction of species is quite possible.

Since European settlement of the N.T., the severity and frequency of fire has increased dramatically. High intensity fires late in the dry season occur nearly every year, lit by people wanting to "open up" the bush eg. pastoralists and buffalo hunters. The result of 100 years of repeated clearing burns is that recruitment of young eucalypts into the overstorey has been seriously disrupted. Eventually the canopy trees will die, and there will be no young eucalypt saplings to take their place.

Mr Hoare has completed a six year experiment concerned with the timing and frequency of fires and the resultant vegetation changes. He found that early dry season annual burns, which reflect the practices of the Aborigines before European settlement, cause relatively little damage, and do allow some saplings to grow and potentially replace aging canopy trees; while in an area from which fire was excluded for just five years, the tall open forest developed a multi-layered structure above an almost continuous thick mat of leaf litter and twigs with considerable growth and regeneration of all species. The reappearance of vegetation in the two to eight metre layer is a vital sign. Late season fires stop this growth almost totally. Mr Hoare estimates that burns conducted about every four years early in the dry season under carefully prescribed conditions, would give the area the chance it needs to recover, while maintaining the risk of 'wildfire' at an acceptably low level. Such a management program is now being implemented in the Kakadu N.P., where the presently degraded forests will hopefully regain their former tropical splendour. However for the vast areas outside the National Park, the outlook is much more bleak.

\* \* \* \* \*

Mr George Chippendale of the CSIRO Division of Forest Research, has recently published a book called "The Natural Distribution of Eucalyptus in Australia". For the purposes of studying the distribution of the various species, he has divided the continent into "grids" of 1° latitude x 1 $\frac{1}{2}$ ° longitude. If any member would like a list of the species recorded as naturally occurring in his/her grid, just let me know, and I will be only too happy to oblige.

Mr Chippendale has indicated to me that he would be very pleased to receive eucalypt specimens from us, particularly of species not recorded for a grid. This is your chance to contribute to the better understanding of eucalypt distribution throughout the continent.

## Connate foliage in Eucalyptus.

The juvenile leaves of the various eucalypt species vary greatly in shape and size, and also petiole length and mode of attachment. Many species have juvenile leaves which are sessile (without stalks), some are cordate (sessile and stem clasping) while about a dozen species display the highly unusual and decorative connate foliage. In this case, the leaf completely surrounds the stem, and has evolved by the joining of two opposite sessile leaves.

This distinctive characteristic is not restricted to any particular section of the genus, and examples occur in all of the four largest subgenera, and in three sections of the largest subgenus. It is a very striking feature, and species possessing connate foliage deserve to be cultivated for this feature alone.

Unfortunately in most cases, it is only a temporary event, usually not persisting on plants beyond one metre in height.

"Connates" in this category include Sturt Creek Mallee (E. odontocarpa), White Peppermint (E. pulchella) and Hook-leaved Mallee (E. uncinata).

The Spinning Gum (E. perriniana) does retain its perfoliate leaves for a considerable period, sometimes until the flowering stage. The dead leaves which have become detached from the stem, often spin around in the wind, hence the common name. Normal stalked adult leaves eventually develop, but heavy pruning will promote the juvenile foliage at any time.

Two species from opposite ends of the continent which retain connate foliage throughout their lifetimes are the Twin-leaved Bloodwood (E. perfoliata) from the Kimberleys and the Risdon Peppermint (E. risdonii) from southern Tasmania. Both are very attractive species in their own right, but the unusual leaves make them even more desirable wherever they can be successfully grown.

The following is a list of species which do, at some stage, exhibit this characteristic.

Subgenus	Corymbia	<u>E. perfoliata</u>
"	Eudesia	<u>E. odontocarpa</u> , <u>E. gamophylla</u>
"	Monocalyptus	<u>E. dives</u> , <u>E. risdonii</u> , <u>E. tenuiramis</u> , <u>E. pulchella</u>
"	Symphomyrtus	(Bisectaria) <u>E. uncinata</u> (Maidenaria) <u>E. sturgissiana</u> , <u>E. perriniana</u> (Adnataria) <u>E. leucoxydon</u> (some forms only).

I would be interested to hear from any member who knows of any other species which possess connate foliage at some stage of development, or has observed or had experience with connate-leaved species.

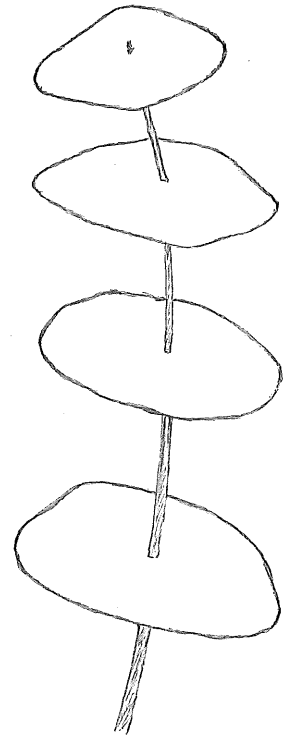
### Members Letters

Mrs Trix Nickolls from Mt Gambier tells me that their local SGAP branch has presented the local schools with data on sowing and planting eucalypts, and the children have been given seed to try and grow, to eventually plant up around Lake Edward outside the town.

Mrs Roxaine O'Toole of Katanning, WA reports that there is a wide interest locally in tree planting, mainly for reclamation of salt affected land. The local Lions club has planted 2300 salt tolerant eucalypts around the town! Roxaine's personal efforts include the planting of 100 E. sargentii on "a bare salt-encrusted area". The 25 which survived the wet winters and the sheep "are now good sized trees and the bare ground is now covered by vegetation".

A 'Tree Farm' in the town sells seedlings of native trees at reasonable prices to farmers and other interested persons. Over 120 spp of eucalypts are available.

Mr Warwick Bates who teaches farm apprentices at Bendigo Tech. College, has started a 'Tree establishment program'. Each apprentice is given 10 eucalypt seedlings each year to take home and plant, and later report on. Warwick says that many of them are "very enthusiastic". The main species used is E. camaldulensis (salt tolerant provenance); as well as E. microcarpa, E. melliodora, E. occidentalis, and E. froggattii. The last mentioned species whose common name is Kamarooka Mallee, occurs naturally in the 'Whipstick', just north of Bendigo. This species is very rare and considered by Prof. Pryor to be close to extinction!



Juvenile foliage of E. perriniana

Those of you planning a trip to the "Top End" are in for a thrill, for although there are relatively few eucalypt species, many of those present are very beautiful. E.odontocarpa is a small mallee from the arid parts of N.T. In contrast to most trees in the area, its foliage is shiny apple-green, and it always seems bushy. From the same area, E.pachyphylla features large red sculptured buds and even larger fruits. The flowers are yellow (and spectacular). Of the Kimberleys species, I was most impressed by: E.miniata and E.phoenicea- orange flowers and beautiful papery bark; E.bigalerita- large glossy leaves and smooth orange bark; E.ferruginea- dense crown of large leaves and new growth rusty-orange in colour; E.zygophylla- sessile leaves and very large fruits. Large specimens quite 'weeping' in appearance. Quite common around Broome.

E.brachyandra- a small tree with small oval leaves, and having the ability to grow out of pure rock! Common in the Lake Argyle-Kununnura area.

E.perfoliata- stunning connate foliage and large bunches of fruits.

#### Seed Collection and Extraction

When collecting fruits from a eucalypt, it is, of course important that you know the identity of the species. If you are unsure of its identity, a specimen of leaves, buds and fruits, plus notes on bark, habitat and height can be sent to your state herbarium.

The choice of the tree for seed collection is important. Avoid the temptation of collecting from trees of unhealthy appearance or those apparently lacking in vigour, even though such trees often fruit more prolifically than their healthier neighbours.

Eucalypt seeds are usually mature when the fruits become brown and hard. The lines of dehiscence on the capsule become pronounced as the fruit matures and once fully mature, the valves usually open partially although the seeds are not shed. The time between fruit maturation and seed shed varies considerably between species. However in the majority of species, seeds are held for some months at least, so that the timing of collection is not critical. There are exceptions, most notably tropical monsoonal species, including all of the Blakella (eg E.papuana and E.tessellaris, the Moreton Bay Ash). Other species which shed their seed with little warning include E.torelliana, E.raveretiana, E.brachyandra, E.microtheca and E.deglupta.

Small mallees are easy to collect from, but larger trees require more determined techniques.

1. Climbing - difficult and often not practical, particularly as eucalypt fruits are normally borne at the ends of the branchlets.
2. Rope throwing - a useful technique especially for fairly low horizontal branches. One end of the rope should be weighted to assist in accurate placement.
3. Commando saw - similar to above except with a flexible saw in the middle of the rope. With one person at each end, quite large branches can be brought down.
4. Rifle with telescopic sights - can be quite effective even with very tall trees depending on the skill of the marksman, however large quantities of seed are rarely obtainable.
5. Pole pruner - very useful devices for severing branches up to 8m from the ground. Consists of a secateur device operated via a rope. (I have one!)
6. Search for a tree with a low branch! Generally only found on trees that are growing out in the open eg. in a paddock.

Once you have the branches in hand, all that remains is to strip off the fruits remembering that collections free of foliage dry more rapidly and take up less storage space. Next the fruits must be dried, a process which may take a day or a month depending on the species. This can best be achieved by spreading the fruits out in a warm dry place, even in the sun provided there is adequate ventilation. After drying, the fruits need to be shaken vigorously. The fertile seeds are always located at the bottom of the capsule, so it is necessary to expel the entire contents of the fruit. Any foreign matter eg. stray capsules, twigs etc. may be easily removed by sieving, leaving a mixture of seed and chaff. In some cases, the chaff can also be removed by sieving, but in the case of Stringybarks, Ashes and others of the Subgenus Monocalyptus, the seeds are often indistinguishable from the chaff.

The ESG seedbank relies largely on donations from members, so I urge all of you to send in seed when you can. As a guide, the bottles I use for storage hold 17mls, and this amount is generally sufficient, except for the large seeded species where more would be desirable. Collections from cultivated plants are very acceptable, but one should note any related species growing nearby in case hybridization is likely.

The following is the seed currently held in the seedbank. The species are listed according to their natural affinity.

## S.G.A.P. Eucalyptus study group Seedlist - March 1983.

A.costata	1	curtisii	2	pauciflora	2	sargentii	1
A.floribunda	0	tenuipes	2	gregsoniana	0	stowardii	0
A.woodsiana	0			stenostoma	0	macrandra	2
A.bakeri	0	cloeziana	1	fraxinoides	1	annulata	2
A.subvelutina	0			triflora	2	nutans	2
A.melanoxylon	0	megacarpa	1	dendromorpha	0	platypus	2
A.hispida	0	aquilina	2	obtusiflora	1	spathulata	2
		preissiana	2	burgessiana	0	ssp.grandiflora	0
tessellaris	2	coronata	1	stricta	1	steedmanii	0
papuana	0	acies	0	apiculata	0	eremophila	0
grandifolia	1	ligulata	0	rupicola	0	cylindriflora	0
confertiflora	2	calcicola	1	approximans	0	erythronema	2
clavigera	0	pachyloma	1	paliformis	0	dielsii	2
kombolgiensis	0	diversifolia	2	kybeanensis	0	cerasiformis	0
gilbertensis	2	patens	1	mitchelliana	0	wandoo	1
aspera	0	todtiana	2	stellulata	2	redunca	1
aff.aspera(BAA:J)	0	buprestium	1	moorei	1	gardneri	0
		sepulcralis	2	var.latiuscula	0	desmondensis	2
setosa	2	pendens	0			laeliae	1
ferruginea	2	exilis	0	risdonii	0	accedens	1
abbreviata	0	johnsoniana	0	tenuiramis	2	trivalvis	0
zygophylla	2	insularis	0	pulchella	2	prominens	0
perfoliata	2	brevistylis	0	amygdalina	1	grossa	2
ptychocarpa	1	marginata	1	simmondsii	1	stricklandii	2
collina	1	staeri	1	nitida	1	carnei	0
bleseri	2	jacksonii	1	radiata	1	salubris	2
foelscheana	1			ssp.robertsonii	0	campaspe	2
latifolia	2	umbra	1	elata	1	diptera	0
dichromophloia	1	ssp.carnea	1	dives	0	effusa	0
terminalis	0	acmenoides	0	coccifera	2	kruseana	0
polycarpa	0	muellerana	1	piperita	2	brachyphylla	0
intermedia	2	laevopinea	1	andrewsii	0	loxophleba	2
porrecta	1	macrorhyncha	2	haemastoma	1	doratoxylon	1
cliftoniana	1	ssp.cannonii	1	sclerophylla	0	decurva	0
abergiana	0	youmanii	1	signata	2	goniantha	2
ficifolia	1	baxteri	0	racemosa	1	falcata	1
calophylla	2	alpina	0	rossii	1	decipiens	2
haematoxylon	0	blaxlandii	1			micranthera	0
gummifera	0	camfieldii	1	deglupta	0	cneorifolia	0
trachyphloia	2	capitellata	2	raveretiana	1	angustissima	0
nesophila	2	agglomerata	0	brachyandra	0	squamosa	1
jacobsiana	0	tindaliae	2			pachycalyx	1
peltata	1	eugenoides	2	guilfoylei	2	jutsonii	0
ssp.leichhardtii	0	nigra	1	diversicolor	1	mammensis	0
bloxsomei	1	phaeotricha	0	deanei	0	bakeri	2
watsoniana	0	caliginosa	2	grandis	1	cladocalyx	2
eximia	0	globoidea	2	saligna	2	cladocalyx'nana'	1
torelliana	2	cameronii	1	botryoides	2	brockwayi	1
citriodora	0	conglomerata	2	robusta	2	longicornis	0
maculata	0	oblonga	1	pellita	1	grasbyi	0
henryi	0	ligustrina	2	notabilis	1	oleosa	2
		mckieana	2	resinifera	2	kochii	0
tetragona	2			propinqua	0	plenissima	0
erythrocorys	2	pilularis	2	major	0	peeneri	0
eudesmoides	0	pyrocarpa	0	punctata	2	transcontinentalis	1
gittinsii	0	sphaerocarpa	2	canaliculata	1	socialis	2
ebbanoensis	2	planchoniana	2	longifolia	2	yalatensis	0
roycei	0	olsenii	0	cosmophylla	2	gillii	2
jucunda	1	obliqua	2			yumbarrana	0
gongylocarpa	1	delegatensis	0	gomphocephala	2	oleosa v.borealis	1
odontocarpa	2	regnans	1	cornuta	2	eremicola	0
gamophylla	1	fastigata	1	macrocera	1	cooperana	0
tetrodonta	0	oreades	1	burdettiana	2	flocktoniae	1
similis	2	luehmanniana	0	megacornuta	2	balladoniensis	0
lirata	2	consideniana	1	lehmannii	1	salmonophloia	1
baileyana	2	remota	0	conferruminata	0	leptopoda	2
miniata	0	sieberi	1	occidentalis	1	beardiana	0
phoenicea	0	multicaulis	0	astringens	0	oxymitra	0

ewartiana	0	forrestiana	2	angophoroides	0	behriana	2
orbifolia	0	ovularis	0	bridgesiana	1	sparsa	0
websterana	0	myriadena	0	banksii	1	cabbageana	1
crucis	2	cylindrocarpa	0	goniocalyx	2	intertexta	1
caesia	2	oraria	0	nortonii	1	orgadophila	2
lanepoolei	1	brachycorys	1	cypellocarpa	1	thozetiana	1
drummondii	2	dundasii	0	nitens	1	ochrophloia	0
macrocarpa	2			maidenii	1	moluccana	2
rhodantha	0	urophylla	0	pseudoglobulus	0	woolsiana	1
oldfieldii	0	alba	0	bicostata	1	microcarpa	2
burracoppinensis	0	bigalerita	1	globulus	1	pilligaensis	1
pyriformis	2	brevifolia	0	globulus'compacta'	1	albans	1
youngiana	1	confluens	1	quadrangulata	1	argophloia	2
pachyphylla	2	umbrawarrensii	1	vernica	0	bosistoana	1
kingsmillii	1	leucophloia	1	subcrenulata	0	porosa	2
sessilis	0	mooreana	0	johnstonii	2	landsdowneana	0
gracilis	0	houseana	0	imlayensis	0	odorata	2
calycogona	2	apodophylla	1	macarthurii	1	var.angustifolia	2
celastroides	0	herbertiana	0	smithii	1	polybractea	1
rigidula	0	cupularis	1	viminalis	1	froggattii	2
foecunda	2	hallii	2	pryoriana	1	viridis	0
fruticosa	0	seeana	2	huberana	0	fibrosa	1
formanii	1	bancroftii	2	badjensis	0	ssp.nubila	1
uncinata	0	parramattensis	2	baeuerlenii	2	decorticans	1
discreta	0	pumila	2	benthamii	1	drepanophylla	0
albida	0	amplifolia	1	kartzoffiana	0	siderophloia	0
		tereticornis	2	dalrympleana	1	cullenii	1
woodwardii	2	glaucina	2	rubida	2	whitei	2
georgei	0	blakelyi	1	chapmaniana	0	staigerana	1
sheathiana	1	sp.'Mt Beerwah'	2	glaucescens	0	crebra	2
dongarraensis	0	dealbata	0	gunnii	0	jensenii	1
striaticalyx	1	flindersii	0	saxatilis	0	melanophloia	1
dumosa	2	dwyeri	2	morrisbyi	0	shirleyi	1
pileata	1	gillenii	0	urnigera	1	pruinosa	2
calcareana	0	incurva	0	perriniana	0	rudderi	1
cyanophylla	0	camaldulensis	2	cordata	1	conica	1
conglobata	2	rudis	2	pulverulenta	1	bauerana	1
anceps	0	brassiana	2	nova-anglica	2	polyanthemus	0
fraseri	1	exserta	2	cinerea	2	dawsonii	2
kondininensis	0	morrisii	2	cephalocarpa	1	fasciculosa	2
clelandii	0	michaeliana	1			lucens	0
lesouefii	1			howittiana	0	melanoleuca	1
SLE:0"pterocarpa"	2	camphora	2			tetrapleura	2
rugosa	1	ovata	1	rummeryi	2	paniculata	1
brachycalyx	0	yarraensis	0	leptophleba	1	beyeri	0
melanoxyton	0	barberi	1	patellaris	2	panda	0
comitae-vallis	1	brookerana	0	oligantha	1	caleyi	0
deflexa	0	aggregata	0	koolpinensis	0	melliadora	1
concinna	0	rodwayi	1	tectifera	0	leucoxyton	2
griffithsii	1	aromaphloia	1	argillacea	2	ssp.megalocarpa	2
carrugata	1	acaciiformis	1	microneura	1	sideroxyton	2
torquata	2	nicholii	1	microtheca	2	microcorys	2
merrickiae	0	mannifera	2	cyanoclada	0		
platycorys	1	scoparia	0	distans	0	HYBRIDS	
leptocalyx	0	neglecta	1	largeana	1	"Torwood"	1
pimpiniana	0	kitsoniana	2	normantonensis	1		
incrassata	2	sturgissiana	1	lucasii	1		
angulosa	2	parvifolia	1	populnea	1		
stoatei	1	crenulata	2	brownii	1		
tetraptera	2	dunnii	1	largiflorens	2		

'0' means that there is no seed of that species in stock

'1' means that there is a limited quantity in the seedbank, but more is needed.

'2' means that, at present, there are adequate quantities of seed in stock.

Please send a SAE with seed orders, with an envelope sufficiently large for the number of packets required.