



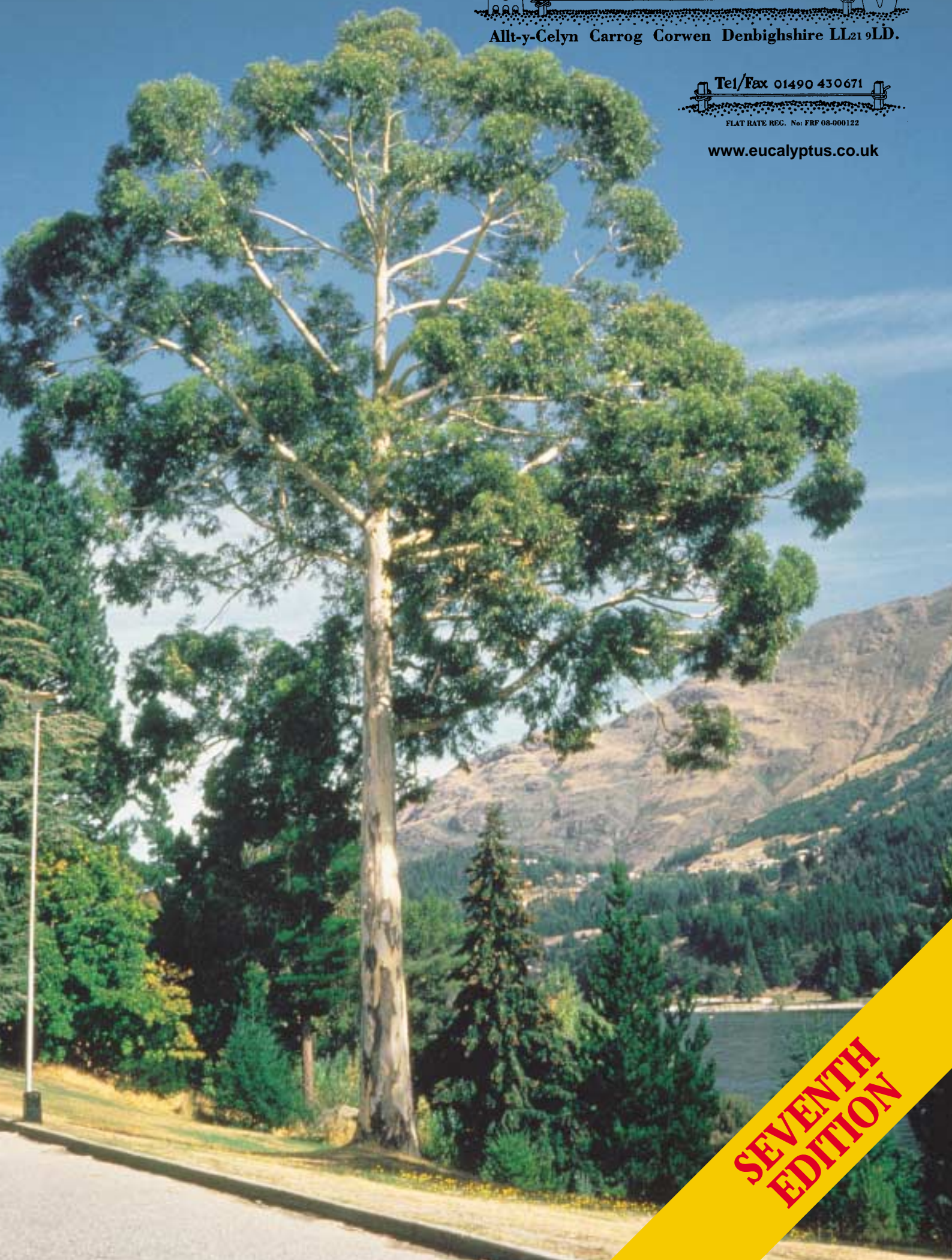
Celyn Vale Nurseries

Allt-y-Celyn Carrog Corwen Denbighshire LL21 9LD.

Tel/Fax 01490 430671

FLAT RATE REC. No: FRF 08-000122

www.eucalyptus.co.uk



**SEVENTH
EDITION**



All-y-Celyn Carrog Corwen Denbighshire LL21 9LD.

Dear Grower or Gardener,

Thank you for your interest in Eucalyptus. I am sure you'll be pleased with the results of growing them in your garden.

The Eucalyptus offered have a great variety of evergreen leaf form and colour. In fact the juvenile and adult foliage are often completely different. Both types appearing on the same tree. They have delicate clusters of white or cream flowers and often highly patterned and multi-coloured bark. The various species offer silver-blue, blue-white, glaucous, silver-grey, scarlet or purple-pink juvenile or immature leaves. Eucalyptus are amongst the finest sources of cut ornamental foliage for the floral artist. For this purpose, they should be coppiced. The resulting young growths are very suitable for cutting between October and April, and will last a long time in winter.

Their growth rates vary from between 3ft to a startling 8ft a year. Some remain as shrubs, others grow to majestic trees very quickly. Most can, however, be kept as shrubs by cutting back each or every other year. This does no harm to the plant or its form and their powers of regeneration are simply remarkable. They have this ability due to natural regeneration after fire or grazing in their native Australasia. The resulting young leaves that continue to unfold from spring to summer can be more beautiful than many flowering shrubs.

A sense of maturity can quickly be brought to a new garden and the rapid growth of Eucalyptus can soon cover an eyesore. During autumn or winter the lovely evergreen leaves remain to cheer one on a dull day.

There are more than seven hundred species that originate from Australia and Tasmania. Our endeavour has been not only to find the most interesting, but also the very hardiest of species based on provenance (exact place of origin) trials. They will not just survive but thrive in the sometime severe climate that we experience in the British Isles. Different provenances of the same species differ considerably in their performance and survival. For example a particular species may grow at altitudes between 300ft and 3900ft. There is also considerable variation in survival between provenances of the same altitude but of different latitudes. Little attention has been given to these essential details in the past. In general only stock of high altitude Australasian origin is offered where much of the winter is spent under snow or severe frost. The importance of our correct selection of provenance cannot be over-emphasised.

Culture is easy and providing the simple recommendations are carried out, your new plants will be establishing vigorously during summer.

Smaller plants establish and grow away much faster than taller "leggy" pot bound plants. For that reason container grown plants between 35 and 45cm high, hardened off in the Welsh climate at 800ft are offered.

Also detailed is information on promising hardy species of Acacia (Mimosa) for wider planting in Britain.

Naturally orders will be safely packed.

I am sure you will agree to the advantage of growing the, at present, uncommon and unusual Eucalyptus and look forward to taking care of your gardening needs.

PAUL YOXALL (Manager)

P.S. Don't forget—order promptly to ensure your plants establish in the best conditions.



You may be interested to read some of the comments we have received from many of our satisfied customers. They are all genuine testimonials and were unsolicited.

This is far from being an ideal garden . . . being cold and exposed. However young specimens from you planted out in spring 1989 (E. archeri, cocifera, debeuzevillei, parvifolia, pauciflora, perriniana) and spring 1990 (E. aggregata, delegatensis, glaucescens, nicholii, nitens, stellulata, urnigera, viminalis) survived unscathed a temperature of -17°C on the night of 13th-14th February 1991. I am surprised, impressed and pleased . . ." Mr E.E., Stanley, Co Durham.

" . . . The trees were beautifully packed and arrived safely within a few days of despatch . . . and withstood the horrendous gales of this weekend (Oct '89). They are fine specimens . . ." Mr D.R., Ammanford, Dyfed.

" . . . the chosen plants arrived . . . so beautifully packed . . . planted the same day they withstood a very severe night frost and came up smiling . . ." Mrs W.S., Cullompton, Devon.

"Great Sport . . . G'd on yer . . . and all other Aussie sayings . . . Being an Aussie myself I can say that. The packing . . . well . . . thus proving you care about the plants . . . and treat them as special individuals that will live longer than the purchaser. The plants . . . we expected small plants in thin nursery tubes . . . but these well . . . mate . . . you've done the hardest bit . . . getting good roots and strong stems. The plants arrived on a day of family gloom the perfect pick-me-up . . ." Mr R.H., Norwich, Norfolk.

"The 1100 Eucalypts you supplied last May have done remarkably well. I am told there are four dead due to thermats blowing over them: I cannot blame you for that. No other losses. So you have a satisfied client . . ." Mr J.B., Craven Arms, Shropshire.

" . . . the Eucalyptus archeri planted two years ago took off like a rocket and is now some 10 feet and a robust tree. The others are also doing fine. Our elevation and extremes of temperature make selection of nursery difficult but we shall have no hesitation in purchasing any plants from you . . ." Wing Cmdr D.B., Tweeddale, Scotland.

"You may like to know how successful the three plants I bought from you about three years ago are proving. All three have flowered for the first time this year. Acacia pravissima . . . is marvellous and the Acacia rubida has flowered well—the buds were unaffected by the hard frosts last November. The young leaves are a beautiful red bonus . . ." Mr M.N., Cranleigh, Surrey.

" . . . once again you have excelled yourselves . . . if you get much quicker you will be sending them before I give you the order . . . all are stocky young plants . . . in perfect condition . . . with individual labels . . . I write this not as an amateur but as someone with many years experience in the Nursery trade, so I know good plants when I see them . . . keep up the good work . . ." Mr B.K., Newbury, Berks.

" . . . in thirty three years . . . I have never felt the urge to write and compliment the suppliers . . . However I must tell you how amazed I am at your low prices and how pleased I am with the beautiful condition of the trees . . . Delivery was jet-propelled too . . ." Mrs B.G., Preston, Lancs.

"I thought you might like to know how the plants purchased from you two years ago have fared . . . E. aggregata 6ft and 9ft, E. glaucescens 7ft and 15ft, E. pauciflora 5½ft and 6ft, E. nitida 7ft, E. fraxinoides 9ft . . . and in one year A. dealbata subalpina 63 inches, A. melanoxylon 66 inches, A. pravissima 55 inches . . . not a bad record at all . . ." Mr R.L., Gatehouse-of-Fleet, Scotland.

"Just to let you know that the Gunii you sent me have overtaken the one bought locally . . . that had a foot start on what you sent me . . . and which I've had for a whole season longer than your trees . . ." Mrs D.X., Rayleigh, Essex.

" . . . I have always been impressed by the prompt deliveries, the adequate labelling and the excellent packing so that all the trees always arrive in prime condition. None have ever failed to give real satisfaction and I consider your service to be amongst the very best." Mrs J.H., Sittingbourne, Kent.

" . . . It is unusual for me to write to the supplier commenting on the quality of plants received and the few occasions when I have done so have been over some kind of complaint. This letter is therefore an exception. I was most impressed by the speed of your service and also more than happy with the quality of the packing. The plants are of superb quality, far superior to any I have purchased by mail order and certainly amongst the best I have seen in Garden Centres . . ." Mr J.C., Northolt, Middx.

"I have become rather disenchanted with mail order . . . since one large order taken at Chelsea was a dreadful disappointment with dreadful plants . . . which failed . . . a totally unresponsive Nursery. This year I ordered two cherry trees, payment in advance, so far no sign of my order. It is therefore a pleasure to find a Nursery as good as their word . . ." Mrs M.R., Sherbourne, Dorset.

"I am so used to plants, even bulbs, arriving in various stages of distress that my family takes cover when I'm opening the packages. They were as disconcerted as I was when I opened yours. I have never received plants in such good condition . . . I am now desperate to find something to gripe about, and have had to settle on the state of the delivery van! . . ." Mr A.H., Lochgilphead, Argyle.

" . . . Over the years I have bought a variety of plants from all types and sizes of Nurseries but I can honestly say that I have never had such consistently good plants as you supply nor ones that are packaged so carefully and sensibly to ensure their safe arrival in good condition nor that are so well descriptively labelled . . ." Mr J.M., Cheltenham, Glos.

You may wish to let us have your comments/suggestions as to how we may improve our service.

Front cover: Mature *E. viminalis* in Queentown, New Zealand.



The 'Snakeskin' bark of *Eucalyptus niphophila*.



A 24ft six-year-old *Eucalyptus glaucescens*.



Juvenile foliage and stems of a two-year-old 10ft *Eucalyptus gunnii*.



An 18ft four-year-old *Eucalyptus coccifera* in the hills of North Wales.



The juvenile leaves, after two years growth of a coppiced *Eucalyptus perriniana*.



The adult leaves of a mature *Eucalyptus perriniana* on a cold February day.



Eucalyptus parvifolia.

HISTORY



The honey scented flowers of *Eucalyptus coccifera* in May.

The first Eucalypt introduced into the British Isles was the Stringy Bark (*E. obliqua*) in 1774 at Kew from seed collected by Tobias Furneaux at Adventure Bay on Captain Cooks second voyage of 1773. On Cook's third voyage of 1777 a number of specimens were collected and it was from this that the genus was described by L'Heritier in 1778. The name Eucalyptus is derived from the Greek eu, well; calyptos, covered which refers to the cap on the flower bud.

For a long time the only species collected were coastal and they naturally had a low frost tolerance and did not survive long. From 1836 until 1847 some of the hardier species from inland Tasmania were sent to the British Isles and interest increased into the late 19th century with the establishment of private collections on certain estates. There was interest in establishing Eucalypts as plantation trees but there were many problems due to growth stresses of splitting of the bases at felling, cupping, twisting and collapsing.

After World War II interest increased for uses for the cut foliage trade and ornamental planting. Barnards of Bovey Tracy, Devon and Taudevins of Willaston, Cheshire specialised in Eucalypts and were largely responsible for developing propagation in the U.K. Particularly the importance of avoiding root restriction, the use of small plants and cutting back after planting to promote a better root/shoot balance.

By 1980 the understanding of Eucalypt physiology and genetics had advanced greatly. Their extreme variability within a species, the frequency of hybridisation and the importance of provenance was known and began to be applied to the problems of establishment in cold climates.

In 1981 the then Forestry Commission under Dr Julian Evans commenced trials of 102 species, provenances and seed origins on nine sites. The hardest provenances that survived the winter of 1981/2 were planted out in 1983 but further commercial forestry use has not resulted. Their work, however, has been extremely valuable for the selection of suitable species and provenances for ornamental and cut foliage planting. There are more than 700 species of Eucalyptus but only a few will thrive in this country. In fact there are usually only two species available if at all.

At Celyn Vale Nurseries, few trees had been planted on the hillside. In 1982 we planted native trees and a number of *Eucalyptus gunnii* (Cider Gum)—the most commonly available Eucalypts which in favourable conditions, can grow very fast indeed. Being impatient for trees this sounded very good. But they did not survive their first winter, nor did a selection planted the following year. Then 200 young trees were grown from seed offered in a catalogue from supposedly hardier plants but only two survived that third winter.

We then realised that the key to success would

lie in obtaining seed direct from wild plants growing in very cold and exposed areas.

Plants living high on mountains, on exposed plains or in frost pockets have to be tougher than those of the sheltered lowland hills and valleys. If the Eucalyptus Cider Gums originally planted had come from the colder reaches of the species range surely they would have survived. We have worked with the U.K. Forestry Commission's very helpful research into Eucalypts in Britain and other Australian specialists have given invaluable advice on very precise areas where various naturally occurring species experience extreme cold, out of season frosts, wind-chill and exposure.

HARDINESS

To encourage wider successful planting most of the species offered are from parent trees in these rugged areas. In some cases the environment they experience here is kinder than their natural habitat. U.K Forestry Commission research and our experience shows that the majority are hardy down to between minus 14°C and minus 18°C. In the Snowy Mountains some parent trees experience up to 215 frosts a year with no month completely frost free. In fact dur-



A two-year-old, 8ft high row of *Eucalyptus archeri* already providing good screening.

ing the severe winter of 1981/2 when Britain experienced some of the lowest winter temperatures ever recorded *Eucalyptus debeuzevillei* and *Eucalyptus niphophila* survived -23°C in Northumberland. You may remember that many other so called hardy plants did not survive that exceptional winter, which was the worst for 36 years.

Hardiness increases as the leaves change from juvenile to adult and the stem girth increases.

PROVENANCE

Provenance is the name given to a very particular location or parent trees. It is important because these trees will impart particular hereditary characteristics to their progeny that will enable them to flourish in similar parts of the world.

Various seed lots of different provenances have been compared by the U.K. Forestry Commission to assess their vigour and tolerance to wind exposure, minimum temperatures, wind chill and rapidly falling temperatures. Variation is considerable. For example in *E. glaucescens* a provenance that was only 400ft higher than another had a survival factor eight times greater. Also there can be considerable variation in hardiness between parent trees of the same species growing within 10ft of one another.

The comments on a particular species hardiness, description and growth rate therefore apply only to the provenances listed in this catalogue and not to species of unknown provenance.

Seed harvested from parent trees in an inverted treeline in certain areas promise to be hardier than those several thousand feet higher. An inverted treeline is where temperatures are much lower in an almost treeless valley than on

the mountains above where trees grow. This knowledge is used to select outstanding provenances where possible.

CULTIVATION

PLANT SIZE

The ideal plant size is 35-45cm otherwise the shoot may be out of balance with the roots and the plants will be unstable. At this ideal size they do not usually require staking since any rocking motion will serve to strengthen the young trunk. On exposed sites it is nevertheless recommended to use a short sturdy stake, minimum of 5cm (2 inches) in diameter and tied no higher than 30cm (12 inches) to prevent initial socketing which can tear the roots around the root collar and lead to later instability.

Large Eucalyptus plants grown conventionally in round pots are a liability. The roots continue to grow in a spiral direction (see section on 'Semi-mature Trees'). Polybags help to prevent this spiralling by trapping the roots in the folds of the bag. Large plants in small pots are usually pot-bound, take a few years to recover and are often subsequently unstable. In rudimentary experiments plants of the same species that had been grown on for two years in 30cm (12 inch) pots and were about 1.5 metres (5ft) high were planted out and compared with younger plants of 35-45cm high that had experienced no check due to root restriction. The smaller plants overtook the larger pot-bound plants in less than one season and continue to out grow them. The plants that were planted smaller are also more erect and wind-firm.

Also the common problem with Eucalypts planted too big with a small root system is that there is an imbalance of root and shoot and the root fails to catch up with the top growth. They will grow very 'leggy'. This can be compounded if they are planted in shade. The tree begins to lean, rocks around and will eventually blow over. It is certainly not advisable to plant large Eucalypts grown in round containers for these reasons. Also by the end of their first season smaller plants will already have outgrown larger pot-bound trees. Our nursery practice ensures the plants will not be 'leggy' or pot-bound but will have a good strong young trunk and a good root-shoot ratio.



A four-year-old *Eucalyptus debeuzevillei* with peeling bark and silvery-blue twigs and stems.

PLANTING TIME

The plants are container grown and hardened off therefore they can be planted between mid March and October. Watering may be necessary a few times until they are established. Between November and mid March, unless in a mild area, do not plant outside, you can, however, order and upon receipt repot in an eight inch pot and overwinter in a greenhouse or conservatory that receives direct sunlight. Ensure that the roots do not freeze. Water occasionally. The plants will get off to a quick start when you plant out in April.

In mild areas with low summer rainfall, if you are unable to water, it is advisable to plant September or October so that the still warm soil will allow them to make useful root growth and some top growth before winter.

In very cold, exposed areas plant in April/May or June to allow plants to make a seasons growth before their first winter.

PLANTING AND AFTERCARE

Immediately upon receipt of your plants soak them in a bucket of water for fifteen minutes. Make a hole not much larger than the rootball. Do not incorporate peat or other soil 'improvers' because this can cause a barrier to water movement either by exaggerating drought in the summer on light soils or causing waterlogging in heavy soils during winter. The sooner the roots are growing into pure soil the better for the plant's stability and health.

Nitrogen increases top growth in Eucalypts, but not root growth, resulting in a reduced root/shoot ratio. Excessive Nitrogen can also encourage instability and reduce frost resistance. Phosphate enhances height growth, root collar diameter and root weight but does not alter the root/shoot ratio. Therefore the addition of phosphate in the form of bone meal in the planting hole or Superphosphate as a top dressing is most beneficial.

It is most important to completely eliminate any weed or grass competition at least 60cm (2ft) around the plant for the first two years to achieve good growth rates. Use a hoe in bare soil or tree mats. Be very careful if using contact or systemic herbicides as any spray drift can easily damage the young plants and the bark of older Eucalypts.

When you are ready to plant them remove the container, taking care not to damage the roots and plant with the root collar 2.5cm (1 inch) below the soil surface and firm. If dry thoroughly water again. Thereafter no further watering should be necessary (except in drought years) as long as competing weeds are checked.

DISTANCE FROM BUILDINGS

If you want to allow them to grow to a tree, plant away from buildings and ensure there is no overhead shade. They should be at least two thirds the potential mature height away from a building (more on clay soils) unless they are to be coppiced regularly which restricts the root growth. Eucalyptus roots are not as aggressive as poplar roots, but root growth is very rapid. They are mainly shallow rooting depending on soil type and rainfall. About 90% of the roots are concentrated in the top 12 inches of soil. For maximum growth it is absolutely essential to keep the plant free of weed competition, particularly grass root competition for at least the first two years. This point cannot be over emphasised.

PROTECTION FROM ANIMALS

Some protection from browsing animals and Rabbits is advisable. Most species are palatable to cattle, sheep and horses. The author is not

SEMI-MATURE TREES

Several years ago after unsuccessfully trying to grow large specimen Eucalypts in above ground containers we abandoned the idea. The reason being a tendency for the plants to grow leggy with only a small stem diameter, also their proneness to becoming very easily pot bound and their inherent instability and difficulty in establishing afterplanting out on site.

We looked at how Eucalypts were grown in the U.S. and in Australia and found the advantages of using the U.S. Accelerooter Fabric Container System.



Semi-mature Eucalyptus coccifera.

The unique fabric restricts root expansion causing multiple branching within the container. It also blocks energy moving from the leaves to the root tips. Consequently the roots inside the container contain large quantities of stored energy that support the tremendous burst of new root growth following transplanting. The nurse roots growing outside the container in the soil support the tree but receive little energy. Their loss after lifting imposes very little stress.

The extensive root system with the capacity to establish quickly in a limited volume of soil, allows a larger tree to be harvested and transplanted successfully with a smaller and lighter rootball than the ball & burlap technique. It is not the size of the rootball but what is in it that counts. We found that more roots and more energy to produce new roots enabled the growing and transplanting of excellent quality Eucalypts.

Also because the tree roots are contained within the fabric after lifting they make a more attractive plant for retail display. Trees can be held for one season or more after lifting, on drip irrigation, but growth will be reduced until they are planted at their final site and the fabric container removed. Trees must be put on drip irrigation for their first season according to our instructions.

Only the reliably frost and exposure tolerant provenances of species are available. Please enquire for species availability and prices which depend on quantity and destination.



Semi-mature Eucalyptus gunnii divaricata.

The Eucalypts are 2½ to 3½ metres in height (depending on species) and have a 1 to 1½ metres crown width. The stem diameter is 3 to 6 inches. They have been pruned each year to keep the trees bushy and multi-stemmed. Grown in a 24 or 18 inch container each tree weighs approx. 120kg.

Price depends on quantity at between approximately £190 and £100 each plus delivery. Please enquire for a separate price list.

Availability is between October and the end of March. This is when Eucalypts are mainly dormant and is the best time for harvesting the trees. For sales of trees after the end of March it is important that your order is received in good time so that the trees can be lifted before the end of March. Please allow for some delay after prolonged wet or frosty periods. The trees are lifted to order only. February and March are the best months for transplanting Eucalyptus because there is less transplant stress as they are soon to break dormancy.



Semi-mature Eucalyptus debeuzevillei.

aware of any cases of poisoning of stock caused by browsing. There is little known damage from squirrels. Do not plant in plastic tree shelters, unless they have many drilled holes, because Eucalypts do not have an over winter resting bud therefore growth can take place whenever it is warm enough and temperature variations inside these shelters can be very large on warm days with frosty nights in early spring or late autumn causing damage to the young buds. Also these extreme temperature variations with high humidity and no ventilation in unvented tree shelters can encourage the disease of botrytis. Well ventilated wider shrub shelters are successful for protecting Eucalyptus.

PESTS & DISEASES

In the U.K. Eucalypts are relatively free of pests and diseases.

Overwatering combined with poor ventilation will lead to high humidity which can induce 'galls' or Oedemia on the leaves. Although often confused with a disease it is not a disease but is caused by the rupturing and subsequent callousing of some cells in the leaves. It will not kill the plant and is merely cosmetic. To avoid this ensure the humidity is reduced. If affected the leaves will be shed and new healthy growth will replace them

There is a species of psyllid (*Ctenarytaina eucalypti*) which has been in Britain since at least 1922 which lives exclusively on some species of Eucalypts. Both adults and nymphs can become established on the bloom of glaucous tender juvenile or immature leaves, normally on the most recent new growth. They surround themselves with a woolly excretion which is a mixture of honeydew and cast skins. They do not attack the adult leaves. The adults overwinter on host plants. The Snow Gums or *E. parvula* (formerly *parvifolia*) or *E. subcrenulata* are not affected. Young trees or coppice regrowth not at the adult leaf stage is mainly at risk. The damage is mainly cosmetic but can be a problem in cut foliage production. Because both this pest and Eucalypts are not native to this country none of the psyllid's natural enemies were present.

In 1994 in conjunction with Prof. Ian Hodgkinson of Liverpool John Moores University a licence was received from the Department of the Environment to release a parasitic wasp (*Psyllaephagus pilosus*) into the wild at this Nursery. The female wasp (about 1mm in size) lays a single egg in the psyllid nymph. The hatching larva feeds on the psyllid eventually killing it. Pupation takes place within the remains of the nymph from which a single adult wasp emerges. This parasitic wasp parasitizes the Eucalypt psyllid exclusively. This biological control method has been carefully monitored and has so far been extremely successful. The parasitic wasps have subsequently spread throughout the U.K.

In areas where Silver leaf disease is prevalent on Prunus species, if a Eucalyptus tree has been cut back for the first time, it is advisable to paint the cut with a wound paint and to do so on a dry day. This should prevent the disease. The symptoms are papery and unnatural silvery foliage and die-back of the shoots. The spores enter through a wound.

There are a few diseases which can affect young plants in the Nursery but once planted out as individuals the plants are not susceptible.

TRANSPLANTING

Unless the plant has been growing for less than two seasons it is extremely difficult to successfully transplant Eucalypts without the correct machinery. To transplant younger trees they require both undercutting and side root pruning the year before moving. Cut a circle into the soil of 1ft radius around the trunk with a long spade blade. Do this in March one year and move the following spring taking a rootball of 1½ft radius. It is also helpful to remove about



Immature leaves of *Eucalyptus nitens*.

half the leaf area to reduce transpiration losses. Ensure they are well irrigated for at least 6 weeks afterwards. The success rate on larger trees is low. It is therefore important to ensure that they are planted where they are to grow to maturity in the first place.

SCREENING & PLANTING DISTANCE

Broadly the Eucalypts offered are either sub-alpine trees or high altitude forest trees. The subalpine trees are not so fast growing, occur as more isolated individuals but are multi-branching and more wind firm to withstand exposure in their native environment. The high altitude forest trees occur in groups and grow much faster but protect one another from wind. If grown as isolated specimens in an exposed area the leverage exerted by the wind is much greater and can lead to leaf tear, wind scorch or even worse windthrow. So the trees can be divided into two categories of growth habit:

- 1) Fast growing at 1.5 to 2.5 metres a year, tall and tending to shed their lower branches after 3 to 5 years. They will usually be open at the bottom with a single trunk when mature. These species should be selected where an early rapid growing screen is required and where it will not matter that they will eventually be bare at the bottom. Such a situation would be where the screen is some way from the property, e.g. *E. dalyrpleana*, *E. glaucescens*, *E. gunnii* and *E. urnigera*.
- 2) Less fast growing at 1 to 1.5 metres a year (which is fast compared to most trees), multi-branching with a wider crown and lower leaf cover. They have a smaller mature height. These species should be selected where you require a screen much nearer your property, e.g. *E. coccifera*, *debeuzevillei* or *kybeanensis*. Bear in mind that most of these species will not have leaf cover right down to the ground when mature.

E. archeri, *E. parvula* (formerly *parvifolia*) and *E. subcrenulata* fall in between these two categories being moderately fast growing in the early stages but also remaining more bushy and branching.

As a screen, where low shelter is not required, plant the faster growing species at 1.8 to 2.5 metres (6ft to 8ft) spacing. Within four years the crowns will have joined. Later it may be necessary to thin them out. Alternatively coppice every other plant on alternate years to keep a thick lower screen.

A popular planting method is to mix slower growing and faster growing alternately at 1.8 to 2 metre spacing as a single row. Alternatively plant as a double row staggered 2.8 metres apart and 2.8 metres spacing. The rapid growers providing much earlier screening but then as they open out at the base the slower growers are filling the gaps with their wider crowns. The faster growers are then removed or coppiced.

If you wish to establish a copse or spinney; plant at 3 to 4.6 metres (10ft to 15ft) spacing inter-planting with shade tolerant shrubs or small trees. It is probably more interesting to mix faster growing and taller species with slower growing smaller species. For single ornamental specimens use a spacing of at least 4 metres.

The distance that you decide upon will influence their final crown habit. This is because of the competition between trees for the available light. Planted closer together the trees will tend to grow more narrow and have a higher crown than those planted at a wider spacing. Bushy trees will be less bushy at a close spacing. Tall, narrow trees will have a wider crown when planted wide apart.

Occasionally because of their very rapid growth the crown development may appear to be in advance of stem thickening. The tops may lean and be floppy after the first year. If this occurs prune back the leading shoot in September to thicker growth lower down the stem. This is preferable to staking and should cure the instability.

SUITABILITY FOR DIFFERENT SITES & SOIL TYPES

LIME TOLERANCE

Eucalypts do not require fertile soils and will thrive on both acid and moderately alkaline soils from pH 4.5 to 7.5. The subalpine species naturally grow on thin poor rocky soil and grow much faster when grown in this country on better soil. On dry shallow chalk or limestone soils with a pH above 7.5 only grow *E. cordata*, *dalyrpleana*, *macarthurii*, *nitens* and *parvula* (formerly *parvifolia*). However, feedback from customers who have grown a large range on soils of pH up to 8.5, suggest that after initial chlorosis growth is acceptable from non lime tolerant species. The author cannot confirm this point.

SHADE TOLERANCE

It has been pointed out that the Eucalypts and Acacia should be planted in direct sunlight. The importance of this must be re-emphasised. The closer Eucalyptus are planted together the more the competition for available light. (Please see penultimate paragraph of "Screening & Planting Distance"). If planted in shade or semi-shade they will tend to grow 'leggy' and not make good specimens. Also heavy side shade from surrounding taller trees or buildings will also tend to force the growth upward. The best specimens are made in direct sunlight. Having said this there are two species hardy enough to grow in the U.K. that occur as an understory species in their natural environment. These are *E. crenulata* and *E. neglecta*. They can therefore be planted in semi-shade and still make reasonable specimens.



Three months regrowth of juvenile leaves from a coppiced *Eucalyptus subcrenulata*.



Eucalyptus delegatensis.



Eucalyptus perriniana bark.



Adult foliage of *Eucalyptus stellulata*.



A young 6ft *Eucalyptus nicholii* with fine pendulous foliage.



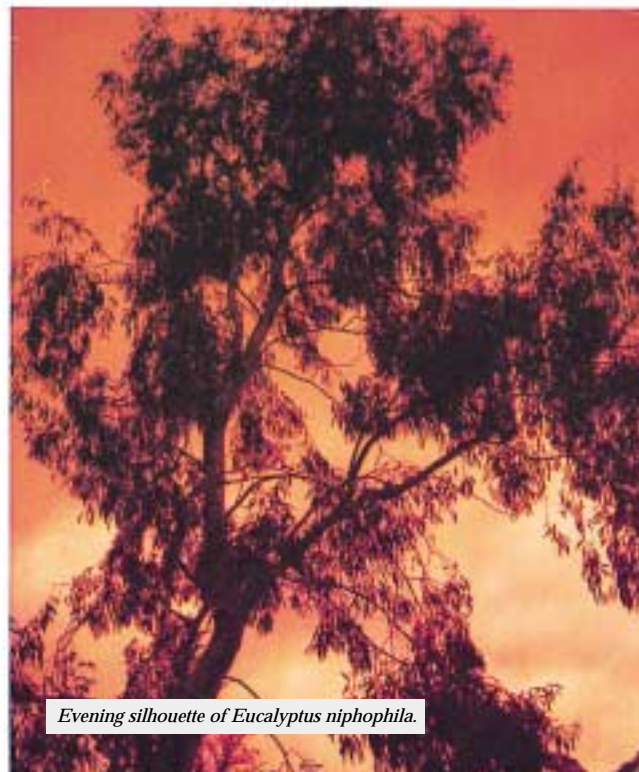
Eucalyptus dalrympleana.



Eucalyptus urnigera.



Mottled bark of *Eucalyptus pauciflora*.



Evening silhouette of *Eucalyptus niphophila*.

COASTAL SITES

Where salt wind is a problem feedback from customers who have planted Eucalypts as close as 100 metres from the sea has indicated the tolerance of *E. debeuzevillei*, *niphophila* and *pauciflora* to direct exposure to salt winds without scorching. (These species actually occur 150km inland) *E. kitsoniana* and the coastal provenance of *E. globulus* are also very promising. In the future it is hoped to find further species that show both salt as well as cold tolerance.

Several large plantings of Eucalyptus have been established on or near the West and South West coasts e.g. Kilmum Arboretum (Argyll), Inverewe and Lyme Regis. These conditions approximate the marine cool temperate climate of Tasmania. But most other species of Eucalypts will not withstand high exposure coupled with salt spray and suffer desiccation under these conditions. Therefore, near the coast with the exception of the above named species it is important to plant where there is existing shelter for the plants. If there is shelter from salt winds your choice will be considerable. If the shelter is not very high it is recommended to coppice the plants, otherwise the trees will make poor specimens. Most species will grow given these conditions.

These comments also apply to the East coast, but only the very hardiest species should be grown, because of easterly airflows during winter bringing extreme cold.

INLAND EXPOSURE

As mentioned the Nursery is on a cold, exposed site with frequent high winds. This means particular attention has been paid to encourage root establishment in Eucalypts for anchorage. Initially there were problems with windthrow and instability of the Eucalypts. Staking low down with a short sturdy stake a minimum of 5cm (2 inches) in diameter and tied no higher than 30cm (12 inches) from the ground and using smaller plants will help to prevent basal sweep and help stability. Also, in the authors experience it is well worth removing at least half each seasons growth for the first two or three years in September before the worst of the winter storms to reduce the 'sail' area of the crown. Prune as described in the hedging section. Although this may seem drastic this short term sacrifice of growth makes a substantial contribution to the trees long term stability on exposed sites. In storms the evergreen 'sail' area of the tree's crown catching the wind, particularly in vigorous bushy trees, exerts considerable leverage on the lower stem and root system. If there is not a well balanced root/shoot ratio the tree will become unstable. Cutting back in this way will not affect the mature appearance of the wind tolerant species.

Some species e.g. *E. nitens* & *E. urnigera* not mentioned as being exposure tolerant will survive quite well on these hostile sites by allowing the wind to tear and remove a substantial part of the crown over winter. Consequently the remaining leaves of the crown present very little resistance to the severe winds and the tree remains windfirm. It does however look somewhat unattractive until the new spring growth replaces the damage.

On sites with extreme exposure the exposure tolerant species will tend to make less growth each year and have a smaller mature height than those grown on a sheltered site. There will also be more growth on the leeward side and less on the windward side, as with other tree species, but they will still make acceptable specimens. In Australia they grow on the tree line and experience extremely harsh conditions.

DROUGHT

The recent dry summers in the U.K, particularly in the South East, have caused problems to many established native trees causing



Eucalyptus gregsoniana flowers.

stress and premature leaf fall or even death. The hardy Eucalypts grow naturally in areas that have either an even distribution on rainfall or a winter maximum. They usually receive a minimum rainfall of 800mm (31 inches) per year but are able to tolerate lower rates. Like all trees they initially need sufficient moisture to establish. However, once established, they seem to be well able to withstand the sort of droughts recently experienced in the U.K.

This may be because of the hanging nature of the adult leaves of most of the Eucalypts which can reduce transpiration loss by avoiding some overhead solar or sky radiation. Whereas conifers or broad leaf trees, because of their leaf arrangement, will shed leaves as a response to drought.

CLAY SOILS

It is important to distinguish between a slow or poorly drained clay soil and one that is waterlogged. This depends on: the depth of clay, the amount of sand or silt or loam mixed in the topsoil, the presence of drainage pipes, the type of subsoil and underlying rock, the water table height, the amount of compaction and the amount and distribution of rainfall.

If the soil is slow to drain or has occasional surface water during winter but drains the rest of the year then all species of eucalyptus will grow. If water is present on the surface for longer than this grow those species that are tolerant of waterlogging.

WATERLOGGING

In Tasmania or New Zealand *E. aggregata* (*syn E. rodwayi*), *E. camphora*, *E. crenulata*, *E. gunnii* & *E. gunnii divaricata* are tolerant of waterlogging. They grow naturally on undrained peat moors with water above the surface for at least six months of the year. They will also tolerate stagnant water just below the surface unlike poplar and willow which require fresh water. They are, however, stunted on soils waterlogged all the time. In New Zealand Southland *E. aggregata* (*syn E. rodwayi*) & *E. gunnii* are planted on very poor sites on which no other trees will grow.

In New South Wales *E. stellulata* grows under similar conditions.

All the above species will adapt to well drained dry soils.

On poorly drained sheltered areas, to help the trees to establish, plant on small 'dollops' of soil above the water table. This is not so successful in windy poorly drained sites.

HOUSEPLANTS

Although very hardy outside, Eucalyptus make easy and attractive specimens as houseplants as long as a few instructions are followed to keep a compact form. They have no overwintering resting bud and warmth in the house will continue to encourage growth throughout the winter.

Repot upon arrival into an eight or nine inch pot with a normal potting compost adding slow release osmocote, and water well. Place the plant(s) in a SOUTH facing window with bright light in direct sunlight. They will not thrive if they are not in this position. Average room temperature is not important, but growth will only continue above 8°C. The higher the temperature the faster growth. Continue to water throughout the winter when room temperatures are above 8°C, otherwise water sparingly.

If you purchased the plants in Late Autumn/Winter by April the plant should have grown 20cm to 40cm. Prune back all growths by about 10cm and also any leggy growth. Repot into the next sized pot. Alternatively you may treat the plants as house plants just for the first winter and then plant out in the garden in March/April.

If you purchased the plants in Spring/Summer repot as directed before. You may either keep the plant inside during summer or place outside in a sunny position. Ensure that it is continually well watered as growth accelerates at this time. Do not stake. Depending on species by the end of the summer the plant will have made 30cm to 60cm growth whilst in the pot.

Cut back new growths if the plant is getting oversize. Liquid feed when necessary and cut hard back every two years.

GROWING IN TUBS

If you wish to grow Eucalyptus in tubs it is important to remember that most of the species grow fast. To accommodate the related root growth you must be prepared to repot in larger pots or tubs as the plant grows or alternatively to prune, as described in the section on hedging but on a smaller scale, every other year in September or April, so that the top growth does not get too out of balance with the root.

Soil-less compost can be used but a John Innes number 2 or 3 gives a better leaf colour. The soil based compost although heavier are less difficult to water incorrectly. Alternatively if you have good quality garden soil mix half with a soil less compost.

However quite large specimens can be grown in large (minimum 2ft diameter) tubs, dustbins or half barrels. Remember to liquid feed during the growing season, or alternatively use slow release osmocote fertiliser mixed in with the growing medium. In winter, in cold areas, it is essential to prevent the roots from freezing by wrapping the tub with straw and hessian or similar insulating material or bringing the tub into a greenhouse. The best species are the more bushier i.e. *E. cocifera*, *E. crenulata*, *E. glaucescens*, *E. kybeanensis*, *E. nicholii*, *E. parvula* (formerly *parvifolia*), *E. perriniana*, *E. pulverulenta* & *E. vernicosa*.

BONSAI

Eucalypts are not easy Bonsai subjects but if done correctly are very rewarding. Select those with smaller adult leaves. They are best as large Bonsai subjects 2 to 3ft high in twelve inch

pots (they cannot be grown smaller successfully). Because they are fast growing it is important to continually pinch out the top and side shoot growths as they appear during the growing season. Otherwise carry out the normal Bonsai culture. Overwinter in a greenhouse or conservatory and do not let the root ball freeze. Do not bring into the house for long during the winter as this will encourage new tender growth. Decent specimens will be ready after five years.

PRUNING METHODS

COPPICING

When a Eucalyptus leaf falls a small shaft of tissue with bud producing properties grows outwards at the same rate as the mother stem. This has the potential to produce shoots but is prevented from so doing by the effect of substances made by the upper leaves and shoots. When these are removed or destroyed so too is the inhibition, and these dormant buds will produce new shoots from the stem. Coppicing overcomes this inhibition by cutting back the stem above the ground. The position of the dormant buds on the stem corresponds with the original position of the base of the leaves before they fell. Since the distance between leaves increases as the young plant grows there is a greater amount of shaft producing tissue nearer the stem base and therefore more dormant buds will break at this position than slightly higher up the stem.

Coppicing is necessary if you require the juvenile foliage for cut foliage, or to keep a tall species small, or for biomass production. *E. delatensis*, *fraxinoides*, *nitens*, *debeuzevillei*, *niphophila* and *pauciflora* have poor coppicing ability. Although the last three species mentioned may regrow from their underground stem swelling (lignotuber) if cut back. All the other species offered will respond to being cut back. Cut back to the stump, removing all side branches from the beginning of March to end of April. Never do this in the autumn as heavy frosts can cause separation of the bark from the stump. Do not do this until the tree has made two full seasons growth and the stem diameter is at least 5cm (2 inches). This is an indication that the tree has made a good enough root system to regenerate well and that it will not be struggling to revive. There are two preferred heights for different purposes.

1) For juvenile or cut foliage: cut at about 45cm (18 inches) from the ground with a slightly sloping cut facing south. Remove all side shoots. After about a month the dormant buds break all the way up the stump and the young shoots can be seen by about six weeks. These develop vigorously during July/August/September because of the already substantial established root system and there will be very many 0.6 to 1.2 metres (2 to 4ft) long. Shoots from the upper buds may develop more vigorously than the lower buds and this gives the variation in regrowth length. The foliage can either be cut from the stump between October and March when the shoots have hardened off or left another full season and repeat the procedure.

2) To restore a tree that has grown 'leggy', or leaning, or is unstable, or is too tall, or for biomass production: Quite old and large trees can be treated this way. If the stump is cut too high the chances of survival over the long term is less. Conversely if cut at ground level the bark may loosen. In this case the recommended height is 10 to 13cm (4 to 5 inches) above the ground. Make a smooth cut slanting slightly to the south to facilitate water run-off. The coppice shoots develop from the dormant buds in the live bark or from lignotuberous buds near the junction of the root and stem. A great many shoots grow from the stump but they gradually thin them-

selves out. Finally two or three remain and the best may be selected. Stems grown on the windward side are preferred as they are less likely to be windthrown. As mentioned the upper buds develop more vigorously and soon suppress the lower ones. If the purpose is to allow the plant to regrow to a tree the callous developing some distance up the stem is weaker and cannot give such good support to a new trunk therefore these shoots are less stable. The developing callous must grip the top of the stump for good stability.

POLLARDING

This can be done to trees between about 3 and 6 years old. Beyond that age the tree can look quite unattractive for some time if pollarded. It is commonly done to Eucalypts of the faster growing species to lower crown height and encourage branching at the top of the tree. The faster growing species will tend to make a single trunk, shed their lower branches and the crown advances up the tree. Cut off in March/April between 1.8 and 3 metres (6 and 10ft) from the ground. Do not, in this case, remove any remaining side branches. The development of epicormic shoots is encouraged below the cut. The leaves that grow will usually be intermediate or adult or pass through the juvenile stage very quickly. These will develop vigorously at first restoring a more branching crown but eventually one branch may gain dominance and stability and it will suppress the other shoots. Thus pollarding is a temporary solution to a problem where a slower, smaller and more branching species should have been selected in the first place.

If you require a specimen tree with a single trunk for the first 2 metres do not prune away any lower branches until the tree has had two seasons growth in the case of the more branching species. Even after pruning they may have a tendency to grow new lower branches so remove these as well. However, the natural habit of these trees is multi-stemmed. No pruning should be necessary with the faster growing species because they will, as mentioned, shed their lower branches naturally.

HEDGING OR 'A' PRUNING

This method can also be used to keep most Eucalyptus small and bushy. For an example of a Eucalypt pruned in this way see the picture of *E. coccifera* on page 5.

Certain species with the smaller size of adult leaf and a tendency to keep their lower branches can make an attractive 6 to 10ft (2 to 3 metres) hedge. They are not suitable for a lower hedge as they will open up to some extent at the bottom after a while. Particularly good is *E. archeri*. Also *E. coccifera*, *E. parvula* (formerly *parvifolia*) and *E. subcrenulata* are well worth considering. It is essential to prune the plants at the end of their second seasons growth to begin to shape them for a hedge. Remove a third of the height and cut to an inverted 'V' shape removing some of the side branches in September. By hedging at this time the naked buds are able to develop before the end of the growing season so that new growth starts immediately in spring. Alternatively trim back in the same way in April. This will delay regrowth for about six weeks but the hedge will look better over winter.

The following year remove a quarter to a third of the height again and in a similar way shape the sides to an inverted 'V'. Once the hedge has reached the height you require then cut back in the same way every year either in September or April. By so doing you prevent the upper leaves from shading the lower leaves and will discourage the plant from shedding its lower branches. Plant at 5 to 6ft (1.5 to 1.8 metres) apart and cut the hedge to a width at the bottom of about 4ft (1.2 metres).

GROWTH HABITS & FEATURES

UNIQUE GROWTH CHARACTERISTICS

Eucalypts have evolved particularly successful ways of producing shoots which helps to explain their capacity for rapid growth or regeneration. These habits are quite unlike our native trees.

Buds are present in the axil of every Eucalyptus leaf as it unfolds from the parent growing tip. These are called naked buds and are capable of rapid growth as soon as the parent leaf unfolds. The ones nearer the tips continue to produce new growth without limit and in the axil of each new leaf is another naked bud. The number of leaves that can separate from the growing tip is indefinite and the naked buds expand simultaneously.

Also present at the base of the naked buds is an area which, if the naked buds and stem leaves are damaged, can take over growth. They are called accessory buds. These can replace the original buds within a few weeks. Should these be damaged further shoots will develop. They do not require a resting period before they form new shoots. This is a very successful mechanism to ensure growth.

Conversely the buds of our native trees contain the complete annual shoot in embryo form. When these buds open in the spring they unfold and the whole annual shoot reaches its final size in a few weeks. The buds that will make next years shoots are slowly made in the leaf axils and they usually require a resting period before they expand.

Most Eucalypts also develop lignotubers. They start life as swellings in the axils of the cotyledons or first few seedling leaves and tend to fold down the stem and bury themselves beneath the soil. They can produce very many leafy shoots if the crown of the tree is destroyed and will replace the original stem. In Australia they are most important because the lignotubers are usually undamaged by fire or browsing and will allow the tree to regenerate.

Added to this ability to grow indefinitely during the growing season is their relative freedom in the U.K. from native pests and diseases, also their evergreen leaves are available to photosynthesis immediately weather conditions are suitable.

JUVENILE AND ADULT FOLIAGE

Perhaps it is not fully understood that there is a substantial difference between the juvenile, intermediate and adult foliage in some of the Eucalypts e.g. *E. perriniana* or *E. gunnii*. After 2 to 3 years the tree will stop making juvenile foliage altogether. If you require only the juvenile foliage e.g. for cut foliage the only way is to cut back as described to a single stump at the end of March after at least two full seasons growth. The young buds will break from the base after 4 to 6 weeks. See the notes on coppicing. It is not successful to just cut the top off as this causes the tree to produce more adult foliage. A signal has to be sent to the tree that it has been severely damaged and it will then go through its succession of leaf production again starting with the required juvenile foliage.

Why do the leaves change shape at different stages of maturity? It has been suggested that the juvenile leaf is the ancestral form and in passing from the juvenile to the mature stage the plant is repeating the historical evolutionary development of the species which would have taken place as the continent of Australia separated from the Antarctic and South America and moved towards the tropics over a period of many millions of years.

CRITICISMS OF EUCALYPTUS

There has been criticism recently of the effect of large scale planting of Eucalypts in the Mediterranean countries, India and Brazil. This is because their rapid growth requires large amounts of water and nutrients. In the drier areas, where they have unwisely been planted in a village water supply catchment area, this has led to the lowering of the water table, the drying up of streams that originate in the areas planted and the impoverishment of the soils.

This would suggest a more intelligent approach to planting is needed in these dry conditions. Because of their rapid growth in the UK there has been criticism over their planting in small urban gardens. The author agrees with this point. Planting a tree on a small plot that will grow at 8 foot a year and achieve a mature height in excess of 80 foot and just leaving it can lead to many problems. In these circumstances it is essential to either coppice, pollard or hedge the Eucalyptus regularly or to plant one of the slower growing much smaller species which will suit a small garden.

If intelligently planted ornamental Eucalyptus are not a problem. Unfortunately, all too often, not enough information is given about the growth rates, mature size and after care of the plants. The endeavour here is to give our customers that important information.

The other objection is that they are not native to the U.K. and do not belong here. Not native meaning they were not growing in the U.K. immediately after the last Ice Age. About 80% of the plant species grown in British Gardens have been introduced since Roman times by plant collectors from all over the world. If we follow this argument to its conclusion we would substantially reduce the variety, beauty and diversity of our countryside and gardens.

As all Eucalyptus trees are evergreen to accommodate the increase in stem girth some of the older leaves and small branches are shed during the growing season. In young plants and trees this is quite noticeable whilst the tree is actively growing. Depending on species the leaves turn brown, yellow, spotted, pink or red before falling.

IMMATURE FOLIAGE

The naked buds begin to expand at the beginning of the growing season giving rise to the immature foliage. This immature foliage often gives a stunning colour contrast to the background of mature juvenile, mature intermediate or mature adult foliage. Here are examples of some of the contrasts:

	immature		mature
E. archeri	- pink or red	against	blue /grey
E. dalyrpleana	- yellow or pink	against	green
E. delegatensis	- bright red or scarlet	against	green
E. glaucescens	- silver pink	against	silver grey
E. neglecta	- red/green	against	purple green
E. nicholii	- orange or red	against	dark green
E. nitens	- purple or pink	against	blue/green
E. perriniana	- purple grey	against	green/grey
E. subcrenulata	- yellow or red	against	glossy green

All species show this striking colour difference to a greater or lesser extent.

As the immature leaves mature their colour darkens to that of the mature foliage but further out along the branch new coloured immature foliage is growing. The contrast continues until the end of the growing season but is most noticeable in the Northern Hemisphere in May to August.

BARK

Eucalypts have a very wide variety of bark colour. The colour will change through the growing season. As the tree grows in diameter the outer bark stretches and finally cracks. A new periderm is then formed further in and the tissue outside this dies and dries out. On the smooth barked Eucalypts in the early stages of growth the young bark keeps pace with the increasing stem size by radial cell division. Later the cells cannot keep pace with the internal division and splitting or peeling occurs. Some trees shed this in patches others shed it in long strips during hot weather. This process continues throughout the growing season until the old bark has been shed.

As this happens the older bark changes in colour and the new bark is revealed as a completely contrasting colour. This contrast is often particu-

larly beautiful. This is not usually seen for the first 2 years, thereafter it is most noticeable in July/August/September.

FLOWERING

All Eucalypts will flower. All those offered, except *E. leucoxylon rosae* (which has red flowers), have white to cream flowers. Unfortunately the species that have the very large attractive red flowers are not hardy in the U.K. Species may be divided into those that have flowers in groups of three, or those with groups of seven or more.

E. pauciflora, *niphophila*, *debeuzevillei* and *delegatensis* have more significant and attractive flowers in rosette bunches of seven or more. They will usually flower after 5 years. *E. gunnii* and *perriniana* have flowers in groups of three and usually will flower after 4-5 years. *E. archeri* will make flower buds in the second year for flowering in the third year. The flower buds of *E. coccifera* are particularly attractive being very glaucous throughout the winter. *E. stellulata* has attractive star shaped flowers. Coppicing or pruning will obviously inhibit flowering. Flowering time for some species is unpredictable occurring any time during the growing season. Whereas others are predictable e.g. *E. coccifera* flowers in May, *E. perriniana* in August, *E. subcrenulata* in September. The flower buds are commonly made the season before flowering. It is not uncommon to see new flower buds, flowers and seed capsules on the same branch.

AROMA

All Eucalyptus have oil producing glands in their leaves which give their characteristic odour. They may also be in the bark and in the flowers. There are more than 15 essential oils found in the Eucalyptus genera. Usually between one and four are found in different combinations and quantities in each species which, in turn produces a slightly different aroma for each one. The Aborigines found that oils from certain Eucalypts had a beneficial effect on colds, influenza, toothache, headaches, fevers, diarrhoea and skin sores. Certain oils are used in perfumery, drugs, disinfectants and deodorants.

Some are 'fruity' e.g. *E. glaucescens*, *E. nitens* and *E. macarthurii*, others pungent e.g. *E. crenulata*, *E. globulus* and *E. gunnii*, others have a pleasant mixed peppermint and Eucalyptus aroma e.g. *E. coccifera*, *E. nicholii* and *E. nitida*. One of the strongest is the lemon scent of *E. citriodora*. The concentration of these oils are usually higher in the juvenile and immature leaves.

MISCELLANEOUS

QUICK RESULTS

Your plants should grow 0.9 to 2.5 metres (3 to 8ft) in a year depending on species. Plants can be controlled to the height you want by coppicing, pollarding or, with the branching species, by pruning or hedging.

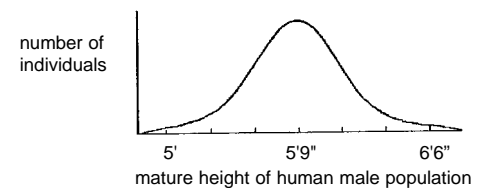
CARBON SINK

This is the fashionable term given to forests because of their major role in the planetary recycling of carbon, nitrogen, and oxygen. Through photosynthesis plants will combine carbon dioxide and water to produce sugars needed for growth. They are therefore critical in the absorption of the rising levels of carbon dioxide which lead to the 'greenhouse effect'. Eucalyptus plantations can produce as much as ten times as much sustainable harvest as can native virgin forest and consequently absorb much higher amounts of carbon dioxide.

VARIATIONS BETWEEN INDIVIDUALS

The Eucalyptus offered are not clonally propagated and therefore will exhibit some differences between individuals within a species. Characteristics such as growth rate and bushiness may be the most obvious.

To understand how much difference there may be we must understand the normal distribution of a population. This describes the likely outcome of random events. It is represented by a standard deviation curve. e.g. The mature height of a human male population



As you can see about 95% of the population will be between 5ft 3ins and 6ft 3ins and about 66% will be between 5ft 6ins and 6ft. There will be very few dwarfs and very few giants.

The growth rate of Eucalyptus are affected by soil type & fertility, length of growing season, amount of exposure, weed competition and availability of water. On the same site with identical growing conditions the vast majority of individuals of the same species, once established, will grow at a very similar rate. However, because of natural variation there will always be a few that noticeably grow faster or slower. This is the way things are.

COMMERCIAL USES

1) Cut foliage: A great deal of the cut Eucalyptus foliage sold in this country is imported. By the time it arrives in this country and is distributed around the markets and shops it can already appear somewhat tired. There are a number of large growers of Eucalyptus cut juvenile foliage in the U.K. and the numbers are increasing each year producing fresher foliage with more variety than just *E. gunnii*. At present this market is far from being saturated.

Although the main production areas are in the South West there are other successful producers in most parts of the U.K. A sheltered site is a prime requirement without which the young foliage, as it meets in the rows can rub against one another causing damage to the growing tips. Also over winter, if not sheltered, there will be wind scorch or leaf tear reducing the amount of saleable material. Complete weed control is necessary for good growth and again to avoid damage by large weeds by friction to the

juvenile foliage. Planting distance is commonly 1.5x1.5 metres (5ftx5ft) or 1.2x1.8 metres (4ftx6ft) giving 5,102 plants/hectare (1,742/acre). It is important to leave headlands and access drives unplanted. See the notes on coppicing. Fertilise the whole planting area with 20-10-10 depending on the soil nutrient status. Irrigation is beneficial on dry sites. If the plants are growing too vigorously and leaning pinch out the top growth a few times during the season. Pinch back to a short sturdy side shoot which will then become the new leader.

After two seasons, cutting commences in October and continues to March in mild sheltered areas or is completed by December in colder unsheltered areas. This first cut will yield less marketable foliage than subsequent years because some of it will not be juvenile. The shoots are graded into different sizes and bunched together. Returns are more or less double if you can sell direct to the florists rather than into the markets. At present the major demand is for foliage of *E. parvula* (formerly *parvifolia*) followed by *E. gunnii* but mixing in some of the other different leaf forms can increase marketability. *E. coccifera* is grown for its adult leaves and for this purpose it should be pruned and not coppiced.

2) Glycerined foliage: Successful methods have been developed for preserving Eucalyptus foliage through the use of Glycerine and dyes. These techniques are not widely known.

3) Biomass: There have been a number of successful biomass trials with the faster growing hardier Eucalypts. Their value for firewood varies between species owing to the initial moisture content, rate of drying and final moisture content. The relative density of fast grown Eucalypts (0.42-0.44) is superior to Poplar (0.35-0.39) and Willow (0.34-0.36). In trials 2-4 year old *E. archeri* has achieved a mean annual increment of between 6-10 tonnes (dry) per hectare per year depending on site.

4) Forestry: At present plantings of Eucalypts in the U.K. on a Forestry scale, apart from experimental purposes, have been limited to amenity planting around the edges of coniferous plantations to improve their appearance and interest. There is also interest in Eucalypts as a short rotation (10 to 12 years) pulp crop. The best timber trees with the straightest form are not reliably hardy on a forest scale in the U.K. and at present there is not a short fibre pulp mill for production of quality paper and board in the U.K. However we have initiated research that initially selected the hardest individuals from about 5000 plants from already hardy provenances and these are at present being clonally propagated. Individuals that show outstanding hardiness will be combined by various genetic fusion processes with the hardest of the good timber, rapid growth and straight form individuals. These will then be evaluated in the field. At the same time selection for good form and hardiness is being undertaken from trees growing at our Nurseries and a new technique of grafting and hedging will be used to propagate these individuals. Full results from this research is not yet available. This work continues slowly because of the high cost of research.

5) Shooting cover: The bushier species that will keep their lower branches and leaves are increasing in popularity for planting because of the much shorter timescale to grow and become useful cover.

COMMERCIAL SALES

Eucalyptus Trees Ltd supplies garden centres, nurseries, landscape contractors and other trading companies with the following:

1) **2 litre (6inch) rigid pots with picture and plant care labels.**

These are available ex stock for immediate resale. Plant height is 1.5 to 2 feet. Payment would be pro forma or 28 days subject to satis-

factory bank or trade references. Sales are subject to our standard terms and conditions of sale. Eucalyptus offered are reliably hardy for most areas, have different coloured leaves and stems and various leaf shape. They are species which will sell themselves at garden centres. Hexagonal rootamer pots will be offered subject to availability.

2) 8 inch deep fleet rootainers.

These are available for commercial planting or cut foliage, biomass production and for potting on for resale. Plant height in rootainers is between 20 and 30cms (as recommended by the forestry commission) depending on species.

They are well hardened off. The minimum order is 520 plants in units of 40. They can be planted directly or as mentioned earlier potted on into 3 litre containers.

Because of the many varied requirements of customers in terms of the species and availability and the prolonged stratification times of some species they are not available ex stock.

Rootrainer

Availability:

March
April/May
Sept/Oct

Orders to be received by:

beginning of June the previous year
.. .. Nov the previous year
.. .. March the same year

EXPORT ORDERS

We send plants throughout the world. Depending on destination a phytosanitary certificate, import permit or other permits may be necessary, also the plants must be sent air-mail to ensure they arrive in good condition. Consequently there is an extra cost involved in the postage. No phytosanitary certificate is required for destinations within the E.E.C. There are also restrictions at present on the import of Eucalypts into Greece, Portugal and the U.S.A. If you require plants sent to a U.K. address which you intend to take outside the E.E.C. we can supply a phytosanitary certificate at cost. Please enquire for export details stating the number of plants required and the extra air-mail cost will be quoted.

Alternatively visit our web site at www.eucalyptus.co.uk. This will inform you which countries we can supply without a phytosanitary certificate. Depending on the number of plants ordered and the destination it will calculate the airmail cost as you place your order online.

SUMMARY OF SUITABILITY OF EUCALYPTS FOR VARIOUS CONDITIONS

Salt wind Tolerant

E. debeuzevillei
E. globulus (coastal)
E. kitsoniana
E. niphophila
E. pauciflora

Lime Tolerant

E. cordata
E. dalrympleana
E. macarthurii
E. nitens
E. parvula

Houseplant & Tub Specimens

E. coccifera
E. crenulata
E. glaucescens
E. kybeanensis
E. nicholii
E. perriniana
E. pulverulenta
E. vernicosa

Exposure Tolerant & Very Hardy

E. archeri
E. coccifera
E. debeuzevillei
E. kybeanensis
E. lacrimans
E. niphophila
E. parvula
E. perriniana
E. subcrenulata

Coppicing for cut foliage

E. archeri
E. glaucescens
E. gunnii
E. gunnii divaricata
E. nicholii
E. parvula
E. perriniana
E. subcrenulata

Very Fast growing

a)Some exposure & Hardy:
E. dalrympleana
E. gunnii
E. gunnii divaricata
E. glaucescens
b)More sheltered:
E. camphora
E. deanei
E. delegatensis
E. fraxinoides
E. globulus (inland)
E. nitens
E. rubida
E. urnigera
E. viminalis

Smaller trees

E. coccifera
E. goniocalyx
E. gregsoniana
E. kybeanensis
E. neglecta
E. niphophila
E. parvula
E. pulverulenta
E. vernicosa

Attractive bark

E. aggregata
E. coccifera
E. dalrympleana
E. deanei
E. delegatensis
E. debeuzevillei
E. fraxinoides
E. glaucescens
E. gregsoniana
E. lacrimans
E. niphophila
E. pauciflora
E. subcrenulata
E. viminalis

Partial Shade Tolerant

E. crenulata
E. neglecta

Poor drainage Tolerant

E. aggregata
E. camphora
E. crenulata
E. gunnii
E. stellulata

Hedging

E. archeri
E. coccifera
E. parvula
E. subcrenulata

E. lacrimans formerly *E. niphophila pendula*
E. parvula formerly *E. parvifolia*

We invite feedback from customers on their experience of pollution tolerance, lime tolerance, extraordinary cold etc.

HOW TO GROW MIMOSA (ACACIA)

The best known Acacia in this country is Mimosa (Acacia Dealbata). Advice has been sought from different experts in Australia on the viability of certain relatively high altitude provenances to enable the wider planting of Acacia in the U.K.

Provenance is the name given to a very particular location of parent trees. It is important because those trees will impart particular hereditary characteristics to their progeny that will enable them to flourish in parts of the world with a similar climate.

Conventionally they are grown outdoors in Devon and Cornwall and sheltered parts of the South and West coast of England. However, the high altitude provenances offer promising hardiness for planting outside in other sheltered areas and are tolerant of minus 10°C or lower. The subalpine provenances of Acacia promise to be even more frost hardy. It is believed that these provenances have not been grown here until recently.

Some available species have not been included because they are of poor form and no ornamental value.

FLOWERING

Many species have the similar delightful perfume and cascading flowers of Mimosa and are various shades of yellow. Flowering usually commences after 2 or 3 years growth but it is recommended to pinch out the young flowering buds until the plant is 5 years old to encourage leaf and stem growth.



Close up of *Acacia dealbata* flowers and foliage.

LEAF COLOUR

There is a great variation of leaf shape and colour and they are sought after for cut foliage, particularly the fern-like leaves. They

vary between glaucous, creamy yellow, silvery-white, red or purple. The leaves of Acacia in many species after the juvenile stage become reduced to a development of the leaf stalk: known as phyllodes, they are flat, leaf-like and often of considerable size.



The leaves and young phyllodes of *Acacia melanoxylon*.

INDOOR SPECIMENS

The smaller species make excellent greenhouse or conservatory plants and are also successful pot specimens, where flowering is enhanced by being brought out of doors between June and September. To encourage branching and discourage 'legginess' pinch out the leader whilst the plant is small and repeat this throughout the growing season.

FLOWER ARRANGING

If cut back hard, Acacia will send out root suckers but this cannot be relied upon for regeneration. Similarly, some species will send out coppice shoots from the stump but they seldom survive. If the adult phyllodes or leaves are desired for flower arranging a maximum of a quarter of the tree should be cut each year, leaving the remainder to regrow.

PRUNING

If you wish to keep the plants from growing too tall and to encourage bushy growth pinch out the leader(s) once the plant is about 1m (3ft) high. Do this two or three times during the growing season. If the plant has become too tall



Part of flower of *Acacia pravissima* showing triangular leaves.

prune to an inverted 'V' shape in September or April. It will look somewhat unsightly initially but after a seasons growth it should regain its form.

COASTAL PLANTING

Usually the provenances available in this country are from the lower coastal areas of Tasmania and New South Wales where they experience to some extent coastal winds but have lower frost tolerance. All offered are from inland areas and have higher frost tolerance but lower tolerance to salt winds. However, *Acacia melanoxylon* and *pravissima* show promise for coastal planting whilst also exhibiting higher frost tolerance.

PLANTING

Acacia are all evergreen leguminous nitrogen-fixing trees and shrubs; they will pick up the rhizobia from contact with soil when planted, thereby generating their own nitrogen fertility. They require direct sunlight and an open loam, peat or mildly alkaline soil.

Outside planting is best done in April, May or June to allow for maximal establishment before any heavy winter frost. If ordering in the autumn they should be over-wintered in a greenhouse or conservatory. They will make some useful growth before planting out in the spring.

They should not be planted in frost pockets or on exposed sites.

Growth rate is comparatively fast and varies. Some of the tall species when established will grow at up to 5ft a year. Pinch out the growing tips from the first year to encourage more bushy specimens.

Please remember Acacia do not occur at such high altitudes, or tolerate the amount of cold or exposure that some Eucalypt species do. However, every effort has been made to offer promising provenances. We can provide you with plants that will give you the greatest opportunity of successful Acacia growing ever offered in the U.K.

FULL SPECIES LIST

AREA X:

The author has endeavoured to define areas where the less hardy species will grow. The words 'Area X' occur after the description in the Full Species list that follows. This is based on Meteorological Office figures of annual minimum temperatures likely to occur once in 50 years (Climatological Memorandum No. 73). Grow E. *approximans*, *camphora*, *cinerea*, *cordata*, *crenulata*, *deanei*, *fraxinoides*, *globulus*, *goniocalyx*, *gregsoniana*, *johnstonii*, *macarthurii*, *mannifera*, *nitida* and *rubida* in the following areas IF THERE IS SHELTER: All regions up to 10 miles from the south and west coasts. Also London area, all of Devon, Cornwall, Hampshire, Dorset, Gloucestershire, Pembrokeshire, Northern Ireland, Eire and all islands. They can all, of course, be grown in a greenhouse or conservatory in all areas.

The provenances from New Zealand are not native to that country. They have been selected from established trees growing in Southland. Some of these areas often experience winter temperatures of down to -20°C. Altitude is relatively unimportant for an introduced species. More important is the natural selection that has allowed certain individuals parent trees to survive in a more severe climate than that species experiences in Australia.

Cat No	Species	Common Name	Description	Growth	Seed Origin
E04	<i>Eucalyptus aggregata</i> (<i>syn E. rodwayi</i>)	Black Gum	Spreading crown & arching branches. Fine willow like green foliage. Yellow/grey bark. Tolerates poor drainage.	M	Tasmania 2,600ft
E06	<i>Eucalyptus approximans</i>	Barren Mountain Mallee	Small tree or mallee. Bark smooth & whitish grey. Young stems bright red. Green narrow glossy adult leaves. Area X.	S	New South Wales 4,670ft
E09	<i>Eucalyptus archeri</i>	Alpine Cider Gum	Smooth white/grey bark with green patches. Small grey-green leaves & purple young stems. Immature leaves pink. Very Hardy. Coppices well. Tolerates exposure.	M-F	Tasmania 3,600ft
E11	<i>Eucalyptus camphora</i>	Mountain Swamp Gum	Juvenile leaves reddish, short stalked & very aromatic. Smooth ash or brown-grey bark. Tolerates poor drainage. Area X.	M	New South Wales 2,700ft
E14	<i>Eucalyptus cinerea</i>	Argyle Apple or Silver Dollar	Attractive silver-grey glaucous foliage. Compact dense crown. Numerous branches. Area X.	M	New Zealand Southland
E16	<i>Eucalyptus citriodora</i>	Lemon Scented Gum	Powdery white bark. Fine long narrow adult leaves. Very strong lemon-scented leaves. Popular greenhouse or conservatory specimen. Do not plant outside in U.K.	F	Queensland
E18	<i>Eucalyptus coccifera</i>	Tasmanian Snow Gum	Juvenile leaves smelling of peppermint. Silver flower buds. Glistening young shoots, willow-like blue adult leaves. Patchwork grey and white bark. Very hardy. Tolerates exposure.	S-M	Tasmania 3,950ft
E20	<i>Eucalyptus cordata</i>	Heart Leaved Silver Gum	Smooth white or green bark. Blue-grey heart shaped leaves. Good timber. Lime Tolerant. Area X.	M	Tasmania 2,000ft
E23	<i>Eucalyptus crenulata</i>	Silver Gum or Buxton Gum	Very glaucous buds, twigs and leaf under-sides which contrast with bright green upper surfaces. Adult and juvenile foliage very similar. Beautiful perfumed flowers. Tolerates poor drainage. Area X	M	New Zealand Southland
E25	<i>Eucalyptus dalrympleana</i>	Mountain Gum	Young shoots orange or scarlet. Cream, brown or grey patchwork bark. Lime tolerant.	F	Tasmania 3,450ft
E27	<i>Eucalyptus deanei</i>	Round-leaved Gum	Bark smooth creamy yellow weathering to light grey with red flakes. Juvenile & intermediate leaves broad. Immature leaves light red. Area X.	F	New South Wales 3,250ft
E29	<i>Eucalyptus delegatensis</i>	Alpine Ash	Juvenile leaves large, curved & blue-green. Adult leaves crinkled pink or striking red when old. Good Timber.	M-F	New South Wales 4,875ft
E32	<i>Eucalyptus debeuzevillei</i>	Jounama Snow Gum	Beautiful patterned bark & shapely crown. Twigs & buds very glaucous. Juvenile leaves large green. The hardiest of all Eucalypts. Tolerates exposure & salt winds.	S-M	A.C.T. 5,750ft
E34	<i>Eucalyptus fraxinoides</i>	White Mountain Ash	Juvenile leaves pale or blue-green, long and pendulous. Immature leaves pink or red. Bark smooth white at top of tree. Good timber. Area X.	F	New South Wales 4,300ft
E36	<i>Eucalyptus glaucescens</i>	Tingiringi Gum	Blue/white 'fruity' aroma juvenile leaves. Young adult leaves glaucous or pink. Green bark when young, white or silver when older. Coppices well.	F	New South Wales 4,500ft
E38	<i>Eucalyptus globulus</i>	Tasmanian Blue Gum	Tall tree with rapid growth. Glaucous juvenile leaves and twigs. Juvenile stems square. Yellow to green smooth bark. Good Timber. Grow only in mild areas.	F	Tasmania 2,000ft
E39	<i>Eucalyptus globulus</i> (coastal)	Tasmanian Blue Gum	Coastal provenance of above. Salt wind tolerant.	F	Tasmania 300ft
E41	<i>Eucalyptus goniocalyx</i>	Long-leaved Box	Small tree. Thick shaggy bark. Light green to glaucous & circular juvenile leaves. Area X.	S	New South Wales 2,145ft
E43	<i>Eucalyptus gregsoniana</i>	Wolgan Snow Gum	Small multi-branched mallee with thin stems. Bark smooth white or light grey. Leaves grey green, buds emerald. Profuse white balls at flowering time. Seldom exceeds 15ft. Area X.	S	New South Wales 3,950ft
E45	<i>Eucalyptus gunnii</i>	Cider Gum	Silver-blue, glaucous juvenile foliage. Flaking grey, cream or green bark. Blue adult leaves. Very hardy. Coppices well.	F	New Zealand Southland
E46	<i>Eucalyptus gunnii</i> <i>divaricata</i>	Cider Gum	Juvenile leaves more pointed and silvery-white than gunnii. Silvery young stems & bark. More vigorous and even hardier. Coppices well.	F	Tasmania 3,650ft
E48	<i>Eucalyptus johnstonii</i>	Tasmanian Yellow Gum	Shiny green leaves. Exposed bark streaked yellow-green or -orange red, particularly attractive when wet. Good timber. Area X.	F	Tasmania 2,500ft
E50	<i>Eucalyptus kitsoniana</i>	Gippsland Mallee	Small tree or mallee. Smooth yellow bark weathering to white or ashy grey. Light green leaves. Grow only on coastal sites. Tolerates salt winds.	S-M	Victoria 195ft
E53	<i>Eucalyptus kybeanensis</i>	Kybean Mallee Ash	Multi-stemmed small tree. Thin dark shiny leaves. Smooth green bark. Tolerates exposure. Hardy. Seldom exceeds 20ft.	S	New South Wales 4,200ft
E54	<i>Eucalyptus lacrimans</i> <i>formally</i> <i>niphophila pendula</i>	Weeping Alpine Snow Gum	Weeping form of <i>E. niphophila</i> . Leader grows upright, side branches pendulous. Young stems purple or silver. Narrow Crown. Small tree from a solitary parent in the Kiandra Plain which has recorded some of the lowest temperatures in Australia. Tolerates exposure.	S-M	New South Wales 4,300ft
E55	<i>Eucalyptus leucoxylon</i> <i>rosae</i>	Yellow Gum	Small tree. Blue-green juvenile leaves high in essential oil (cineole). RED FLOWERS. Smooth mottled white, yellow & blue bark. Grow only in very mild areas.	S-M	Western Australia 1,800ft
E57	<i>Eucalyptus macarthurii</i>	Camden Woollybut	Leaves high in geraniol (used in perfumes) very aromatic. Tree heavily branched. Bark rough. Area X.	F	New South Wales 3,900ft
E59	<i>Eucalyptus mannifera</i> <i>ssp. elliptica</i>	Brittle Gum	Bark peels to yellow or pale orange becoming white & powdery. Juvenile leaves & buds glaucous. Soft pink immature leaves. Adult leaves blue-green. Area X.	M	New South Wales 2,860ft
E62	<i>Eucalyptus mitchelliana</i>	Mount Buffalo Gum	Bark entirely smooth with some ribbons, white to greyish. Heavily branched with a dense crown.	S-M	Victoria 5,135ft
E64	<i>Eucalyptus neglecta</i>	Omeo Gum	Small bushy tree growing fast initially. Twigs and base of leaves glaucous. Young leaves broad. Young stems square & blue. Useful for shade tolerance. Good specimen tree.	S	New South Wales 2,500ft

Cat No	Species	Common Name	Description	Growth	Seed Origin
E66	<i>Eucalyptus nicholii</i>	Narrow-leaved Black Peppermint	Easily pruned to keep as an attractive small tree. Fine drooping branches & pendulous foliage. Young trees retain foliage to ground level. Juvenile leaves blue-green, narrow & willow-like. Requires shelter. Particularly beautiful.	S-M	New Zealand Southland
E68	<i>Eucalyptus niphophila</i>	Alpine Snow Gum	Young snakeskin bark, bright grey, green and cream. Silvery-white or green scimitar shaped leaves on orange stalks. The 2nd hardiest eucalypt. Tolerates exposure & salt winds.	S-M	New South Wales 5,600ft
E71	<i>Eucalyptus nitens</i>	Shining Gum	Large dark glossy juvenile and adult leaves. Smooth shining grey bark. Young trees have green bark. Juvenile stems square. Good timber. Remarkably rapid growth.	F	New South Wales 4,300ft
E73	<i>Eucalyptus nitida</i>	Smithton Peppermint	Juvenile leaves blue-green or grey-green. Shiny adult leaves with acute venation. Smooth bark. yellow-green or grey. Area X.	M-F	Tasmania 2,500ft
E75	<i>Eucalyptus parvula</i> <i>formerly parvifolia</i>	Small leaved Gum	Small leaves. Feathery juvenile foliage. Grey or brown bark. Lime tolerant. Very hardy. Coppices well. Tolerates some exposure.	S-M	New South Wales 3,250ft
E77	<i>Eucalyptus pauciflora</i>	Snow Gum	Large juvenile green leaves. Mottled 'giraffe skin' white to grey bark. Very hardy. Tolerates exposure & salt winds.	M	Victoria 5,600ft
E79	<i>Eucalyptus perriniana</i>	Spinning Gum	Stem grows through blue-grey or green circular leaves. When leaves loosen their hold they can spin round the stem in the wind. Creamy flowers. Very hardy. Coppices well. Tolerates exposure.	M	New South Wales 4,900ft
E82	<i>Eucalyptus pulverulenta</i>	Silver leaved Mountain Gum	Small tree. A disappearing species, only a few acres remain naturally in Australia. Juvenile foliage very glaucous, silvery-white, heart-shaped & clasps the stem. Adult foliage very similar.	S	New South Wales 3,750ft
E84	<i>Eucalyptus rubida</i>	Candle Bark Gum	Immature leaves pink, purplish or bronze & elongated. Drought tolerant. Area X.	F	New South Wales 3,600ft
E86	<i>Eucalyptus stellulata</i>	Black Sally	Small tree. Large kidney shaped juvenile leaves. Greenish-white bark. Star shaped flowers. Tolerates poor drainage.	S-M	New South Wales 4,000ft <i>(Inverted tree line)</i>
E88	<i>Eucalyptus subcrenulata</i>	Tasmanian Alpine Yellow Gum	Bushy tree tending to keep branches to ground level in direct sunlight. Glossy-green adult leaves. Juvenile leaves red-edged and good for flower arranging. Pale grey smooth bark with yellow and green patches. Coppices well. Tolerates exposure.	M-F	Tasmania 3,600ft
E90	<i>Eucalyptus urnigera</i>	Urn Gum	Glaucous grey-green glossy foliage. Blotched bark of different colours. Urn shaped seed capsules. Very vigorous.	F	Tasmania 2,600ft
E93	<i>Eucalyptus vernicosa</i>	Varnished Gum	Small or prostrate branching shrub with small shiny leaves. Very slow growing but very hardy.	S	Tasmania 3,100ft
E96	<i>Eucalyptus viminalis</i>	Manna Gum	Graceful tree with narrow, soft leaves and often purple stems. White or blotched red/pink and white trunk and branches except at the base. Rapid Growth.	F	New Zealand Southland
A07	<i>Acacia alpina</i>	Alpine Wattle	Multi-branched, bushy, prostrate shrub with oval grey-green leaves which zig-zag up the stem. New growth purple. Flowers: Short pale yellow spikes singly or in pairs in April-May. Tolerates exposure.	S	Victoria 4,900ft
A14	<i>Acacia dealbata</i> <i>subalpina</i>	Silver Wattle or Mimosa	Subalpine tree. Young shoots clothed with fine silvery-white or creamy yellow down as are all parts of the leaves. Feathery. Also thrives in large conservatories. Flowers: Fragrant. Bright yellow. 30-40 flowers per head extending beyond foliage in Feb-April. Tolerates some exposure.	M-F	Tasmania 3,000ft
A18	<i>Acacia filicifolia</i>	Fern Leaf Wattle	Young foliage white to creamy yellow and fern like. Brown smooth bark. Flowers: Medium size and bright clear yellow in Feb/Mar.	M	New South Wales 3,250ft
A19	<i>Acacia frigeszens</i>	Montane or Forest Wattle	Small subalpine forest tree with dense branches and olive bark. Greyish phyllodes. Flowers: Bright yellow.	S	Victoria 3,400ft
A21	<i>Acacia Kybeanensis</i>	Kybean Wattle	Dense small shrub. Branches and branchlets covered in fine grey-white hairs. Narrow phyllodes. Flowers: Bright golden yellow in April	S	New South Wales 2,600ft
A23	<i>Acacia mearnsii</i>	Late Black Wattle	Dark green feathery foliage with soft yellow young shoots. Branchlets velvety hairy. Flowers: Pale primrose-yellow in April-June.	M	New South Wales 3,200ft
A25	<i>Acacia melanoxylon</i>	Blackwood	Dark green leaves branching from ground. Grey bark. Very large young leaves tapered at both ends. Tall tree. Has become naturalised in the Blackpool area. Some salt wind tolerance. Flowers: Large, dense, cream to pale yellow in groups of 30-50 in Jan-April.	F	A.C.T. 4,225ft
A33	<i>Acacia obliquinervia</i>	Mountain Hickory Wattle	Branchlets reddish or purple, often glaucous. Phyllodes have lopsided veins and are large. Flowers: Bright yellow and globular. 20-24 flowers per head in Mar-May.	S	New South Wales 5,350ft
A36	<i>Acacia pravissima</i>	Ovens Wattle	Triangular or wedged shaped phyllodes ending in a small point. Smooth grey bark. Bushy habit. Withstands slight coastal exposure. Flowers: Dense masses of small bright yellow balls in Feb-April.	S	A.C.T. 1,800ft
A40	<i>Acacia rubida</i>	Red Stem Wattle	Thick. Smooth blue-green sickle-shaped phyllodes with reddish margins. Stems often red. Bushy shrub or small tree. Flowers: Numerous deep, bright yellow balls in Jan-April.	S	A.C.T. 1,950ft

PLEASE NOTE THAT ALL EUCALYPTS AND ACACIA ARE EVERGREEN.

GROWTH PER YEAR & POTENTIAL MATURE HEIGHT

One of the reasons the growth rate of Eucalypts is so rapid in areas outside Australia is the freedom from attack by diseases and leaf eating pests. In Australia a large number of insects and fungi live on Eucalyptus leaves and buds and consequently reduce their growth. Except for Psyllids and Silver Leaf disease which can occur in commercial cut foliage production, once a healthy young plant is planted out, there is unlikely to be any pest or disease problem.

IMPORTANT: Potential Mature height corresponds approximately with the growth rate of the species i.e. the faster the growth the larger the tree. There is a close correlation between their growth rates and mature height. Trees that grow rapidly will in general make tall trees. Slower growing species will make smaller trees. Some customers would like a species that will grow rapidly for two or three years, get to about 15ft, and then stop. This

is not the way that Eucalypts grow. Please choose the species with a mature height that you require or you must be prepared to coppice, pollard or hedge them.

S - Slow less than 1.0 metre/year & less than 10 metres mature height.
S-M - Slow to moderate. 1 metre/year & less than 15 metres mature height.
M - Moderate 1.0 to 1.5 metres/year & less than 20 metres mature height.
F - Fast 1.5 to 2.0 metres/year & Over 20 metres mature height.

These heights and growth rates will be less in exposed areas, on infertile soil or in areas with a short growing season.

The growth rates relate to trees in their second and subsequent seasons growth after planting. Growth whilst establishing in the first season will not be quite so fast.

COLLECTIONS:

In case you are having difficulty with your choice we offer collections for specific requirements. Four plants per collection.

Collection A: Moderately exposed and/or particularly frosty:
E. archeri, E. debeuzevillei, E. niphophila and E. subcrenulata.

Collection B: Slower growing and smaller Eucalypts for small gardens:
E. neglecta, E. kybeanensis, E. niphophila and E. parvula.

Collection C: Very fast growing and hardy to hide an eyesore or bring a sense of rapid maturity to your garden:
E. dalrympleana, E. glaucescens, E. gunnii and E. urnigera.

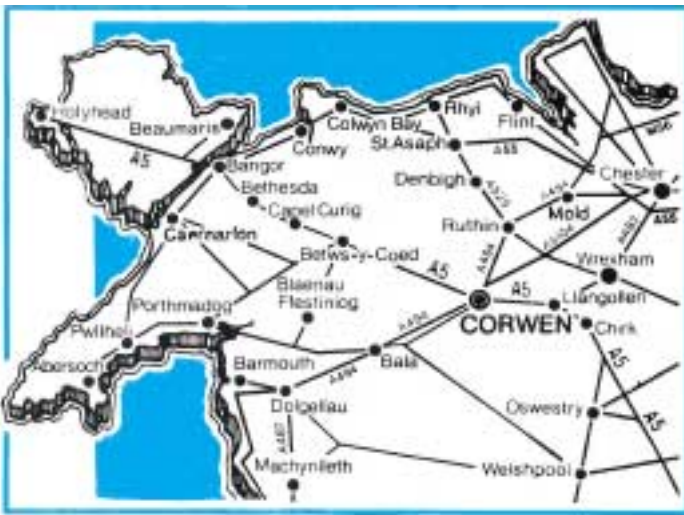
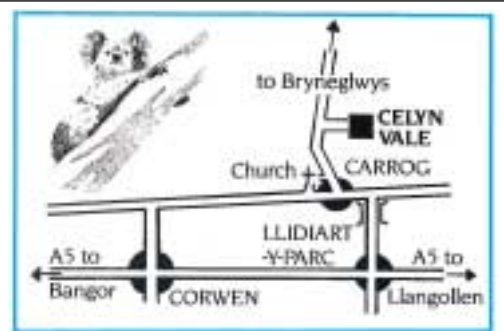
Collection D: Especially good species for flower arranging:
E. glaucescens, E. nicholii, E. perriniana and E. subcrenulata.

Collection E: Species for flower arranging in more exposed areas:
E. coccifera (adult foliage), E. gunnii, E. parvula and E. perriniana.

VISITORS

The Nurseries are one mile from the village of Carrog and are signposted from the village. Carrog is just off the A5 trunk road and four miles from Corwen. You are welcome to wander amongst the trees growing on the hillside at 800ft and select container-grown plants from the Nursery beds. There is a discount available if you collect. The Nurseries are open Monday to Friday from January to November between 9 a.m. and 4 p.m. If you are unable to visit on these days please telephone first. Also telephone if you require specific technical advice.

Unfortunately because of the steepness of the hillside and Nursery area it is not suitable for those with a mobility disability.



HELP & ADVICE

We are happy to give advice on choice of species, suitability of site, etc. However, it is often very difficult to do this by correspondence because of the number of variables involved and letters can flow to and fro for some time. Whereas advice given on the telephone can address all the relevant points immediately.

The author is a grower but not a taxonomist. There are more than 700 species of Eucalypts of which about 50 can be grown in the U.K. There is often a great difference between immature, juvenile, intermediate and adult leaves of the same species. Many Eucalypt species hybridise readily and there are clines within species showing different physical characteristics. Hybrids and plants not true to type are rogued out at our Nurseries but others may not do this. For these reasons it may be impossible to identify a species if we have not grown it.

GUARANTEE. The plants offered are of good quality, healthy and true to name and if given due care and attention should give every satisfaction. We can not replace plants lost due to neglect of our planting and culture instructions or due to abnormal weather conditions. Every effort has been made to offer the most suitable hardy species based on our own experience and U.K. Forestry Commission research.

SUBSTITUTION. Occasionally a species may have sold out. We will substitute a similar species of the same or higher value unless we have been instructed otherwise.

ACCEPTANCE OF ORDERS. Orders are dealt with in strict rotation. Please ensure that there is someone to receive the plants at the delivery address. We cannot accept liability for loss if there is no recipient present. You should receive your plants within twenty days from our receipt of your order.

Don't forget in order to get your plants established as soon as possible send your order promptly.

WE ARE HAPPY TO TAKE CARE OF YOUR PLANTING NEEDS.

Back cover: *Silver bark and immature leaves of Eucalyptus glaucescens.*

Eucalyptus Trees Ltd.

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