Suitable trees for the streetscape

A selection of comments from Study Group members.....

From the November 2005 issue of the Study Group Newsletter.

I think such a list is much needed. I also think we have looked at this in the past so it might be worth checking old newsletters. It will depend so much on the particular area of course. Another aspect could be considered too. I am always annoyed by the futility of planting trees which will obviously grow far too tall underneath power lines. Symmetry is not achieved with the same trees on both sides of the road when those on one side have to be horribly lopped. It's extra, unnecessary work. So as well as a list of trees I think we also need a list of small trees or large shrubs suitable for under those pesky powerlines. (If only they were underground. It is 45 years since Robin Boyd wrote his book '*The Australian Ugliness*' and those powerlines are still there, and often worse. I'm in danger of becoming a grumpy old woman!

Diana Snape

Here is a list of my favourite trees for street and park planting:

First favourite for street planting is the Paper Bark (*Melaleuca quinquenervia*) - an Australian icon.

It's surprising that NSW Christmas Bush (*Ceratopetalum gummiferum*) is not used more.

Also, Ivory Curl Tree (*Buckinghamia celsissima*), Water Gum (*Tristaniopsis laurina*), Rough barked apple (*Angophora floribunda*) and *Callistemon viminalis* all stand out.

Unfortunately *Syzygium* species and Blueberry Ash (*Elaeocarpus reticulatus*) are probably unsuitable as street trees because of their berries which may be an Occupation Health and Safety issue but they would obviously work well in parks.

Michele Pymble

- *Acacia glaucescens*
- *Acmena hemilampra, Acmena smithii*
- *Backhousia myrtifolia*, Nutmeg Myrtle
- *Callistemon* 'Kings Park Special'
- *Cryptocarya triplinervis*,Brown Laurel or Three-veined Laurel. 8m. Takes salt winds. The oily fruit are important for some birds. (Attracts Blue Triangle Butterfly and so is an alternative to Camphor Laurel)
- *Cupaniopsis anarcardiodes*, Tuckeroo
- *Melaleuca stypheliodes*, White paper bark. Excellent small habitat tree)
- ***Eleocarpus reticulatus*, Blue Berry Ash
- *Eucalyptus curtisii*
- *Eucalyptus eximia 'Nana'*
- *Eucalyptus ficifolia* (Grafted)
- *Eucalyptus ptychocarpa*
- *Evodiella elleryana*
- *Jacksonia scoparia* (only about 3m though)
- *Leptospermum madidum* subsp. *sativum* 2-3m. Like a miniature, fine-leaved willow with smooth bark like a gum. Very weepy and beautiful. Silver form or green forms. (Often incorrectly sold as *L. brachyandrum*). Frost tender
- *Macadamia*
- *Melaleuca decora* small tree to 6m or bushy shrub to 3m. White papery bark. Profuse white flowers Spring to Summer. Very hardy in most soils but likes moisture. Good Screen plant. Insects attracted to flowers encourage birds. Frost tolerant to -7^{o}C.

- *Melaleuca styphelioides* Variable height 3 to 10m tall. White papery bark with dense foliage. Excellent habitat tree. -7ºC.
- *Melaleuca viridiflora* 'Weeping' form or 'Upright' form - 8m flowers pink, purple or red, with gold tips. Silvery new growth. White papery bark.
- *Pittosporum phylliraeoides*
- *Podocarpus elatus* - timber for boat-building. Fruit like purple snowmen. Frost tolerant to -7ºC.
- *Podocarpus grayae* slow-growing tree that is wonderful as an indoor plant. Red fleshy fruits about 1.5cm long. Shiny leaves hang down from branches.
- *Stenocarpus sinuatus* Fire-wheel 6-8m, narrow. slow-growing tree. Large, showy red flowers in shape of a wheel. Glossy dark green foliage.
- *Syzygium leuhmanii*

We also might add that a speaker at a Birds Australia AGM, Geoff Barrett, gave some very interesting statistics that can be disseminated to the wider public in the interests of bird habitat creation and/or preservation: there is a 43% increase in diversity of bird species if trees planted are local to the area; there is a five-fold increase in exotic birds if exotic trees are planted.

Maree McCarthy

The healthy establishment and growth of street trees is limited by several factors, of which compaction, drought and low soil oxygen are the most significant.

One way of mitigating the adverse effects of these factors is through regular maintenance. With increasing costs - including water costs - and inadequate public funding, this approach is no longer practical. (I doubt it ever was.)

An alternative approach is to grow selected forms or ecotypes of desired species, especially those indigenous to the same locality or bio-region.

Many Australian rainforest trees are resistant to compaction, surprisingly drought tolerant, and both beautiful and long lived. They also exhibit wide genetic variation. Plant breeders may need to develop selected forms or ecotypes with the most desired characteristics for urban planting.

Most commercially available species are propagated from stock originating in high rainfall coastal areas. With the recent introduction of Level 3 water restrictions in Sydney, and the likelihood of permanent restrictions and escalating water costs, it will be easier and less expensive to establish the same species propagated from low-rainfall ecotypes.

Research has shown that trees tolerant of waterlogging are usually resistant to compaction too. As a number of Australian rainforest species thrive in and between the extremes of well-drained sands and Melaleuca swamps, it is important to select individual plants from stock appropriate to the conditions in which they are to be installed.

The ultimate aim is to select forms tolerant of all conditions likely to be encountered.

A VCAH Burnley research project that started in 1992, involved 90 forms of 29 species, with seed collected between Cairns in Queensland and Wilson's Promontory in Victoria. The species included: *Backhousia sciadophora* (Shatterwood), *Brachychiton discolor* (Lacebark), *Cupaniopsis anacardioides* (Tuckeroo), *Elaeocarpus obovatus* (Hard Quandong), *Ficus rubiginosa* (Port Jackson Fig), *Flindersia australis* (Australian Teak), *Glochidion ferdinandi* (Cheese Tree), *Melia azedarach* var. *australasica* (White Cedar), *Rhodosphaera rhodanthema* (Tulip Satinwood), *Tristaniopsis collina* (Mountain Water Gum), *Tristaniopsis laurina* (Water Gum), *Waterhousea floribunda* (Weeping Lilly Pilly).

Flindersia australis was propagated in five different forms, from 'dry' rainforest to wet subtropical rainforest.

One of the researchers, Geoff Williams, states: "*In respect to specific characteristics such as drought tolerance, ignoring the differences between populations can be equivalent to ignoring the differences between species. "Australian rainforest trees are an under-utilised genetic resource for use in urban horticulture. In relation to the many forms we already have in cultivation, many species require improvement in only one or two genetic characteristics to become reliable urban trees of the highest quality, capable of succeeding in even the most hostile urban sites.*" *

'Elite' Native Trees

As some species of native trees, notably *Eucalyptus* species, cannot be vegetatively reproduced, they are propagated by seed, the progeny often displaying wide variations in leaf form and flower. Commercially produced trees are also liable to decline in vigour through inbreeding.

A number of studies involving *Eucalyptus* species have shown that seed orchards of between thirty and fifty trees, grown together in isolation, are needed to ensure adequate cross-pollination and genetic diversity, thus preventing such decline.

In 1992 the Institute of Plant Sciences and the Melbourne City Council agreed to co-sponsor a project to develop 'elite' native park and street trees. Some were vegetatively propagated from stock of known origin, while those that have to be propagated from seed were produced in 'elite' seed orchards.

Selected species included: *Allocasuarina torulosa* (Forest Oak), *A.verticillata* (Drooping She-Oak), *Angophora costata* (Sydney

Red Gum), *Brachychiton populneus* (Kurrajong), *Callistemon salignus* (Willow Bottlebrush), *Callitris rhomboidea* (Port Jackson Cypress), *Corymbia citriodora* (Lemon-scented Gum), *C.ficifolia* (Red-flowering Gum), *C.maculata* (Spotted Gum), *Eucalyptus leucoxylon* (Yellow Gum), *E.nicholii* (Small Leaf Peppermint), *E.scoparia* (Willow Gum), *Persoonia levis* (Broad-leaf Geebung), *Tristaniopsis collina* (Mountain Water Gum), and *T.laurina* (Water Gum).

Increased use of native trees, especially in the eastern suburbs of Melbourne, has dramatically increased the number and diversity of native birds. It has also resulted in improved tree health due to the increase in birds that feed on insects. #

References

* Geoff Williams (1993) 'Selection can improve amenity of rainforest trees.' Australian Horticulture (12) pages 53 - 57

David Beardsell, Peter Yau and Peter Harrison (1993). 'Elite native trees for streets and parks' Australian Horticulture (8) pages 48 - 53

Gordon Rowland

From 'Gumnuts' a now discontinued emaoil newsletter

Peter Vaughan has had an interest in street trees for many years and he was asked to provide some thoughts about appropriate trees for Newcastle City Council as part of a submission to Council by the Newcastle Group of APS. I thought others might find Peter's ideas both interesting and useful, so here's what he had to say.....

"Street trees are something I feel strongly about. A few quick ideas are: The best Eucalypt is *Eucalyptus robusta* (Swamp Mahogany). It is not a tall tree, it flowers spectacularly, and the nectar appears to be higher in protein (for reasons stated below) as the bee keepers reports it builds up hive strength, but more importantly the birds such as the Regent Honeyeater (one of Australia's rarest and most endangered birds) migrate to flowering *E.robusta*. Regent Honeyeaters spend much of the year in the Capertee Valley (Mudgee area), but migrate to the coast each year. They have been reported in the lower Hunter region a number of times and as the recovery plan for the Regent Honeyeater improves their numbers (assuming they don't go extinct) we can expect to see more Regent Honeyeaters in our region. The Swamp Mahogany has the historical significance of being the first street tree planted in Australia, and some of the original plantings are still alive and growing in Sydney Botanical Gardens.

Another Eucalypt is *E.curtisii*. There are a few growing as street trees. It is a mallee that can be grown under power lines and never need trimming. It flowers every year, is hardy. It is really a great plant.

Elaeocarpus - *E.obovatus* and *E.reticulatus* - both great trees to keep bower birds, figbirds, orioles and larger honeyeaters in urban areas. Both have great flowers and easy to grow. They are not attractive to fruit bats which may make them more user friendly.

Native Frangipani (*Hymenosporum flavum*) - great tree but short lived, expect about 10 years. Is that acceptable?

Palms - we should be growing the local species, the Cabbage Tree Palm and Bangalow Palm (but the Alexander Palm is acceptable if desired, it does appear to grow stronger). If the site is correct they will do well. Palms are important as a number of fruit pigeons are nomadic following the fruiting of palms, in particular the Cabbage Tree Palm. We should not be planting date palms or Washington Fan Palms.

Lilly Pillys are important trees. Councils have the concept that we should live in the valleys, and preserve the bush on the ridgelines for scenic beauty. Nature wants it the other way around. The nutrients, ie soil and fallen leaves, wash down into the gullies, and so this is where the best trees grow, and on the ridges few animals can survive. In the valleys the trees receive enough nutrients so they can afford to give some away with their nectar and fruit. Therefore the trees from valleys are sought after by fruit and nectar eating birds and these are the important conservation areas (proven in studies by NSW Forestry). However we have cleared the valleys, consequently to compensate we should be planting some of these trees in our streets. Very important local species are the Lilly Pillys, and there is a wide range of forms now available. They can be grown from cutting so the size and form can be pre determined.

Cupaniopsis anarcardioides is another great tree for local birds. The figbirds migrate to our area when they fruit. It is a species that tolerates and grows well in poor soils and harsh conditions.

Brachychitons should also be considered of course, but not the flame tree. Perhaps the lacebark, but I would suggest hybrids for improved form. I would recommend lacebark rootstocks and grafting hybrids on top. This is a very easy procedure and I would readily supply the hybrids and teach the council nursery staff how to graft. Perhaps they may wish to try with about 10 plants, and then review the results after a few years.

White Cedar (*Melia azeradch*) is ideal for carparks because of its umbrella shape. Please use local sourced plants, not the common plant grown that is Indian or Chinese in origin. The local plant appears to have smaller fruit, and so is more attractive to local birds. Importantly, the White Cedar should not be mulched around as this allows the leaf stripping caterpillar to attack it. The caterpillar lives in the mulch during the day and eats the leaves at night. I have watched the trees next to the Newcastle Museum and they are not mulched and the caterpillars do not seem to be able to survive to attack them (but I haven't been in there this year, so a check wouldn't hurt). Therefore if you grow White Cedar, have bare earth around them. They perform very well in the hot dry situation that car parks provide. Council may worry that the fruits of the White Cedar may attract birds that will crap on the cars in car parks. However the White Cedar fruits ripen when there are no leaves on the tree, which means the birds don't hang around in the tree but eat their fill and go and sit somewhere safer. Also the fruits are rather large, so the birds cannot eat many anyway,

and have to move on. The tree is using the old gambit "don't put your fruits all in the one bird" as that bird may get eaten and they never know where the seeds will end up!

Also note that Council seems to like *Grevillea* 'Robyn Gordon'. Inform them that *Grevillea* 'Superb' grows much better and should replace 'Robyn Gordon' on Council's lists."

PS. from Leigh Murray: To his suggestions, I'd add *Eucalyptus viridis* (small, very hardy indeed, flowers prolifically in summer, attracts insects). I don't grow *E.robusta* but it certainly sounds ideal. I do grow *E.curtisii*, and I second his views on it. I love eucalypts and would like to see small ones used as street trees and in home gardens. And I like his other suggestions, especially the Cabbage Tree Palm (*Livistona australis*), the Lilly-pillies and *Elaeocarpus*.

Leigh Murray NSW