

Eucalyptus Study Group Newsletter

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Eucalypts along the Anne Beadell Highway (track)

By Phil Hempel

I completed a trip along the Anne Beadell Highway which goes from Coober Pedy in SA to Laverton in WA, a distance of 1350km. It crosses the Great Victorian Desert and although I did it alone I would not recommend it unless all the necessary gear is carried. There were several broken down vehicles and an abandoned caravan along the way. The track is very rough and the corrugations pound the vehicle hour after hour even with tyres deflated.

There are a huge number of plant species growing in the Great Victorian Desert, many not yet described, some areas are the most pristine and undisturbed regions in Australia, and since the Anne Beadell Highway passes almost through the middle, many plant species can be seen, too many to record in one trip. A few months ago a new, never seen before *Grevillea* was discovered, as well as other species in the desert. The WA Conservation Dept is carrying out more plant surveys in the remote areas.

The ones of special interest to me were the Eucalypts, *E youngiana*, (Large Fruited Mallee) with red, pink and yellows flowering forms, there were tree after tree covered and laden down with massive flowers. I finally managed to find the form that has the very tall peaked operculum that is more the 4cm from the scar. It looks like a very large *E kingsmillii* without the more pronounced ribs. Different areas have different forms growing, the majority are multi stemmed mallees to about 4m high whereas other stands are single

trunked to about 6m. This could just be as a result of fire never burning some areas out. The multi trunked mallee form look iconic with the bark falling away , partly clinging to the trunks.

E. socialis (Red Malleee) grow throughout the area and the desert forms seem to be even more floriferous the others I have seen, covered in brilliant yellow flowers, *E. kinsmillii*, Red Bud Mallee (this is about its most southern populations) and the flowers are not as large as they are further north in Western Australia. The character tree of the desert, *E. gongylocarpa* (Marble Gum) which grow on the western end of the desert. The tree varies in size and can get to 20m tall, a strange sight in a desert dominated by Acacias and small shrubs. It is easy identified by the white bark with reddish/brown patches.



The tall peaked buds of *E. youngiana* and more normal rounded bud caps with red flower form.

Novel Eucalypt Hybrids

By Phil Hempel

The project “Development of Novel Eucalypt Hybrids” conducted by the Rural Industries Research and Development Corporation by Dr Kate Delaporte and Professor Margaret Sedgley has progressed to the point where some of these hybrids will be released to nurseries within twelve months. The project originally started fifteen years ago and has crossed some fifty ornamental Eucalyptus mallees in a controlled manner. Not only have all the crosses been done and grown to flowering stage but they have also trialed many root stock for grafting and finally settled on a successful species.

They have crosses *E. macrocarpa* with *E. youngiana* and both of these with *E. pyriformis* and then *E. erythronema* with *E. stricklandii* and *E. grossa* and many other crosses have been done. They have crossed both ways (ie A x B and B x A) with each trial and plants grown out to select the most appealing plant in flower colour, flower size, leaf colour and shape and overall plant compact shape and it’s resistance to mould and insect attack, proving it’s suitability for southern Australia. All the crosses have been done within particular Eucalyptus sections. Trials on scion selection have been completed, trialing terminal shoots and by coppicing and using re-growth material. The effect of coppicing of the hybrids has been trialed for re-growth structure. Various rootstocks have been tested starting with *E. camaldulensis*, which was not successful through to even *E. caesia* which works but is not robust enough for commercial sales. Trials have also been done to see which rootstock is less invasive. *E. drummondii* has been selected as the root stock.

The flowers look great and the hybrids that will be released by Humphris Nursery will make an exciting time. Even if it works out that *E. drummondii* is a suitable rootstock for pure *E. youngiana* and *E.*

pyriformis, this just in itself is a great advancement as these fabulous tree struggle in less than ideal condition in SE Australia. It has also been discovered during the trials that some Eucalyptus will not grow from cutting at all while other species will. It is believed, but not proven, that some Eucs may have an inhibitor that prevent roots growing from cuttings. A lot will come out from these trials. To view the full publication just put *Development of Novel Eucalypt Hybrids* into your search engine and there you will see a detailed description with photographs.

I have been fortunate enough to get hold of some plants for trial and below are some photos. The first set is *E youngiana* x *E macrocarpa* called Nullarbor Rose (Red flowers), the second is *E pyriformis* x *E macrocarpa* called Nullarbor Lime. Some members have similar crosses growing on their own root and I am unsure of their origin if are natural hybrids or seed was obtained early in the “Novel Hybrid Trials”, although I have what appears to be a hybrid of *E stricklandii* x *E erythronema* grown from seed that I collected. The buds are as per *E stricklandii* but the flower colour is red and the trunk resembles *E erythronema*. When it matures a bit more the full details will be revealed.



Climate-resilient restoration of box gum grassy woodlands

By Michele Sabto

Published: 16 April 2012

Box gum grassy woodlands are an iconic part of the eastern Australian landscape and once extended across large parts of inland south-eastern Australia. On trial sites on farmland in southern and central New South Wales, CSIRO is looking at ways of restoring these unique ecosystems to improve their resilience to a drying, warming climate.



Box-Gum grassy woodland at Mulligans Flat on the outskirts of Canberra.

Credit: [Brett Howland](#)

Box gum grassy woodlands are characterised by widely spaced eucalypts above a ground layer of native grasses and wildflowers. The trees are primarily white box (*Eucalyptus albens*), yellow box (*Eucalyptus melliodora*), and Blakely's red gum (*Eucalyptus blakelyi*). Healthy box gum grassy woodlands support more than 400 plant species, and animals such as squirrel gliders, goannas, regent honeyeaters and bush stonecurlews.



Historical distribution of box gum grassy woodlands across South Eastern Australia
 Credit: [Caring for Country, Environmental Stewardship: Australian Government Department of Agriculture, Fisheries and Forestry](#) and [Department of Sustainability, Environment, Water, Population and Communities](#)

However, the lower fertile foot slopes and flats that support these woodlands have also been the areas preferred for cropping, pasture, and infrastructure development. Widespread clearing, grazing, cultivation and fertiliser application have resulted in box gum grassy woodlands being nationally listed as an endangered ecological community.

‘A huge amount of money has been invested in revegetation and restoration and increasing understanding of the status of ecosystems. However climate change makes the outcomes of these projects uncertain,’ says Dr Suzanne Prober of CSIRO’s Ecosystem Sciences.

With a focus on climate-resilient restoration, Dr Prober and team members Dr Saul Cunningham, Jacqui Stol and Melissa Piper, are looking at the functioning of soil in these woodlands.

‘Given predictions for a drying climate in south eastern Australia, the capacity of soils to capture and store moisture will become increasingly important for the success of revegetation efforts. We are targeting restoration of soil functioning in depleted native pastures, which are a common starting point for revegetation,’ says Dr Prober.

The trial sites are near Wagga Wagga, Cowra and Boorowa in New South Wales.



A member of the project team sows *Eucalyptus melliodora* seeds, Binalong, 2011.
Credit: CSIRO

The trial sites are areas that were grazed, often heavily, in the past, and have not had substantial fertiliser applications. Dr Prober explains that the low-input history of the sites is important given that too many soil nutrients, particularly phosphorus and nitrogen, are an even greater problem in maintaining a healthy woodland than too few. This is because high nutrient levels tend to favour exotic species, such as introduced pasture grasses, making them more competitive over the indigenous plants.

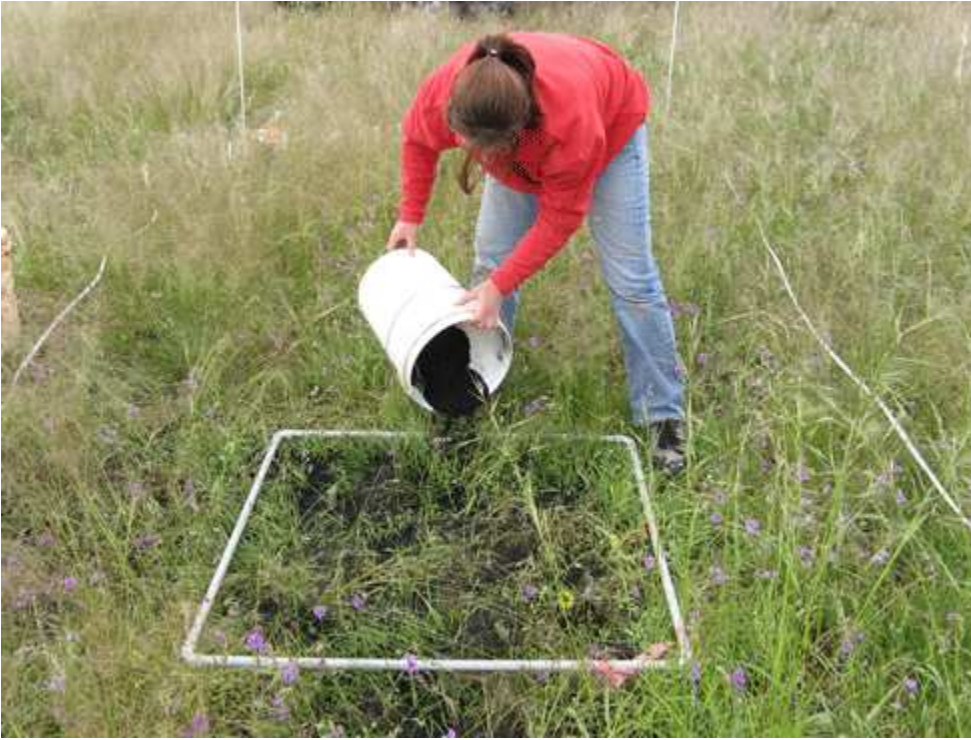
Compaction associated with grazing can reduce water infiltration and water storage capacity of the soil. Grazing can also reduce the quantity of perennial native grasses and forbs, which contribute to soil structure by providing year-round ground cover, and organic matter additions to the soil in the form of decaying vegetation.

‘We are trialling five treatments to help increase soil carbon, soil biological activity, and soil water retention: biochar addition, soil aeration, phosphorus fertilisation, mulching, and sowing of native red leg grass (*Bothriocloa macra*), which is a good coloniser of harsh sites,’ says Dr Prober.

The biochar for the trials is being provided by Sydney Company Pacific Pyrolysis (PacPyro). Pac Pyro’s pilot plant recycles waste organics into biochar and bioenergy.

‘The biochar we are supplying to this project is low in nutrients and has a high stable carbon content,’ says Dr. Adriana Downie, Chief Technology Officer at PacPyro.

Most past biochar trials have involved application in cropping or horticultural contexts where it is incorporated into the soil: for example, in cultivation prior to sowing of the crop. The CSIRO project however, has needed to develop a way to apply the biochar with minimal disturbance to the soil, so as not to unduly disturb existing native grasses.



Applying biochar treatment.
Credit: CSIRO

The phosphorus treatment has been used as a comparison to mimic what might be a typical management strategy for improved pastures in the region. Dr Prober explains that while they expect the phosphorus may improve soil carbon and biological activity, it could favour exotic plants rather than natives.

It is clear that many box-gum grassy woodlands already have many champions among farmers in south eastern Australia. The Grassy Box Woodland Conservation Management Network, established in 1998, has 1500 landholder participants. The network works with organisations across 7 catchments (including the Murray, Murrumbidgee, Lachlan and Namoi) to provide field days, forums and workshops, as well as supporting on-the-ground works.

One of these landholders is Janice Schultz of Binalong. She and her husband Michael run a superfine wool and fat lamb enterprise on their property, and are members of the Harden-Murrumburrah Landcare Group (Binalong subgroup). One acre of their property is in the CSIRO trial.

Separately to the CSIRO project, Mr and Mrs Schultz have been involved with the creekline fencing and planting of indigenous trees, including box gums, and bushes around Binalong.

‘You definitely see improvements over the 10 years we’ve been involved. Before we started it was a sad sight in many of the areas. There was erosion on the steep hills and the banks of creeks were all grassed up,’ says Mrs Schultz.

‘Now, ten years on, we’re seeing higher bird numbers, and birds we haven’t seen before.’



The bush stone-curlew (*Burhinus grallarius*) is still widespread and common in northern Australia but is listed as endangered across south-eastern Australia. Bush stone-curlews inhabit open grassy woodlands, with grey box woodlands being preferred habitat.

Credit: [Drew Douglas](#). Rights: Licensed under a Creative Commons Attribution Non-Commercial License <http://creativecommons.org/licenses/by-nc/2.0/deed.en>

The CSIRO project is part of a larger Communities in Landscapes (CIL) project led by Landcare NSW and funded under the Australian Government's Caring for Our Country program. CIL is an outreach program that aims to increase landholder engagement in land stewardship activities that benefit box-gum woodland landscapes.

Cowra farmer John Rankin who runs cattle and sheep on his property, is also a participant in the trial and describes the patch on his property that is being used as 'box woodland with native understorey, but reasonably degraded from grazing. It's native pasture country which hasn't been fertilised and is probably very low in phosphorous and nitrogen.'

Mr Rankin is no stranger to conservation. As chair of the Cowra Woodlands Bird Group, he has been involved in many on-the-ground works helping to restore box gum grassy woodlands on local farms as bird habitat. On his own property, he has spent a great deal of time and effort establishing a rotational grazing system on some of the less-fertile areas. It aims to assist with the recruitment and persistence of native grasses, box gums, and other plants from box gum grassy woodland ecosystems. This system rests the pasture from grazing in spring to allow native grasses to set seed.

'We're finding that with a rotational grazing system we're getting a much better regeneration of native pasture, and recruitment of grey box and yellow box, and we're also finding that some of the scald areas [patches of land severely affected by salinity and therefore typically denuded of vegetation] are covering over with native herbs and grasses.'

Mr Rankin believes that two keys to unlocking more farmer participation in on-farm conservation are education and adequate remuneration for land stewardship.

‘Most people you meet are interested in conservation. But most people don’t actually have the knowledge required to carry it forward,’ says Mr Rankin.

‘The other important aspect with on-farm conservation is that people running farms have got to make money. Somehow or other, we’ve got to make the conservation of our flora and fauna a financial proposition for farmers.’

Pollen morphology of the Myrtaceae. Part 1: tribes Eucalypteae, Lophostemoneae, Syncarpieae, subfamily Psiloxylloideae

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Abstract

A family-wide palynological study of Myrtaceae was conducted using scanning electron microscopy (SEM) and light microscopy (LM). In this part of the study, the pollen morphology of 18 genera and 150 species from the Myrtaceae tribes of subfamily Myrtoideae, Eucalypteae, Lophostemoneae, Syncarpieae, Xanthostemoneae and subfamily Psiloxylloideae are presented. It was found that the most commonly observed pollen in these groups was parasyncolpate with a rugulate exine, whereas some species possessed an apocolpial island. The large, and sometimes syndemicolpate, pollen of Eucalypteae genera *Angophora* and *Corymbia* differed from all other genera. Most *Eucalyptus* pollen had endopores with a thickened exine.

Dryland Eucalyptus arboretum project at Melton

I thought that the Eucalyptus Study Group members might be interested in our project at Melton to establish a dryland Eucalyptus arboretum on a 4 hectare site within the Melton Botanic Garden.

Since commencing on site work last year, we have planted almost 600 Eucalypts representing 90 or so species, and have commenced planting an understorey of shrubs and groundcovers. The arboretum has been designed as a garden.

There are details of this community project on the website of the Friends of the Melton Botanic Garden: fmbg.org.au

Regards, David

Barb & David Pye

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A putative hybrid of *Eucalyptus largiflorens* growing on salt- and drought-affected floodplains has area and leaf nitrogen

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Abstract

A putative hybrid between *Eucalyptus largiflorens* F.Muell. and *Eucalyptus gracilis* F.Muell., called green box, has attracted attention for its ability to grow on the salt- and drought-affected Chowilla floodplain of the Murray River in South Australia. Relationships between carbon isotope discrimination ($\Delta^{13}\text{C}$) and the ratio of substomatal to ambient CO_2 (c_i/c_a) indicated that green box was not as water use efficient as *E. largiflorens*. Specific leaf area of green box and *E. gracilis* was significantly lower compared with *E. largiflorens* (38.38 and 36.96 versus 43.71 $\text{cm}^2 \text{g}^{-1}$). Leaf nitrogen for green box and *E. gracilis* was significantly lower compared with *E. largiflorens* (12.66 and 11.35 versus 15.07 mg g^{-1} dry weight, $P = 0.004$ and 0.001, respectively) and leaf carbon of *E. gracilis* was significantly higher compared with green box and *E. largiflorens* (541.75 versus 514.90 and 519.82 mg g^{-1} dry weight, $P = 0.002$ and 0.011 respectively). There were significantly ($P = 0.016$) more occurrences of elevated c_i/c_a below a minimum g_s in *E. gracilis* compared with *E. largiflorens*, with green box being intermediate (means = 21.6, 6.8 and 9.4). After 10 years, *E. largiflorens* trunk circumference had significantly increased ($P = 0.017$) and height had significantly decreased ($P = 0.026$) due to visible dieback. Green box and *E. gracilis* grew slower, conserving resources, illustrating a useful strategy to consider when choosing plants for revegetation efforts.

Eucalypts At RBG Cranbourne

By Elspeth Jacobs

Have you been to the Royal Botanic Gardens Cranbourne yet approximately 50 minutes from Melbourne, Victoria)? Apart from all the hundreds of other plants, it is a wonderful place to visit to see a number of Eucalypts.

At the head of the Rockpool waterway is a *Eucalyptus victrix* (prev. Coolabah). In the Diversity garden are examples of Eucalypts representing some of the bio-regions in Australia eg. *Euc. caesia subsp caesia*, *conferruminata*, *eremophila*, *lehmannii*, and *macrocarpa subsp macrocarpa*. In the Exhibition Gardens, which focus more on what home gardeners can do, we find *Euc. caesia subsp magna*, *leucoxyton 'Rosea' dwarf*, *Corymbia ficifolia x ptychocarpa*. On the western side of the gardens is the Eucalyptus Walk which moves through the Stringybark Garden (*E.baxteri*, *cephalocarpa*, *globoidea*, *macrorhyncha*, *oblique*), Bloodwood Garden (*Corymbia citriodora*, *maculata*) Peppermint Garden (*E. morrisbyi*, *risdonii*, *tenuiramis*, *viridis*, *willisii*), Box Garden (*E bridgesiana*, *largiflorens*, *melliadora*, *polyanthemos*), Ironbark Garden (*E caleyi*, *crebra*, *sideroxyton*, *tricarpa*) and the Gum Garden (*E mannifera*).

Stage 2 which is opening later in 2012 will have many more examples, particularly smaller mallee eucalypts from WA

Each Easter there is a special Eucalyptus Festival. So, why not plan to make the trip to Cranbourne sometime this year.

Request for cultivation information on some Eucalyptus species

By James Martin

G'day all

Our property is situated 15Km north east of Tamworth NSW with half of it being natural bushland & the other half mostly bare paddocks covered with Coolatai grass with the soil being granite sand. Our garden is only young with the majority of plants only being planted out in the last year or two. Currently we have around 450 different plant species (no hybrids except naturally occurring ones) with the majority (70-80%) being from Western Australia & Central Australia. We have 45 different Eucalyptus species & 5 Corymbia species with 41 of these being from WA & Central Australia, & 36 species being mallees.

Only one has flowered as yet (*E. orbifolia*) although another three are in bud (*E. bakeri*, *E. lansdowneana* & *E. pachyphylla*). I will be growing many more species of Eucalypts in the near future to add to the garden as there seems to be an endless number of species with great horticultural potential.

There are however a number of species that I can't find any or very little information on their cultivation requirements. So if anyone has had any success or failures or have any helpful cultivation requirements regarding the species listed below I would love to hear from you (Particularly from people on heavier soils & frosty areas). It is hard to sell & promote these lesser known species with little or no information about them. My email is info@tamworthnativenursery.com.au

Corymbia deserticola

Corymbia hamersleyana

Eucalyptus doratoxylon

Eucalyptus exilis

Eucalyptus extrica

Eucalyptus gamophylla

Eucalyptus leucophloia

Eucalyptus sepulcralis

Eucalyptus suggrandis subsp. suggrandis

Eucalyptus talyuberlup

Eucalyptus vesiculosa

Eucalyptus wyolensis

The Australian Tree Seed Centre (ATSC)

is a national facility for source-identified seed of Australia's trees and shrubs. It is managed by CSIRO Plant Industry as a collection and research centre. Seed is also available for purchase. For over 40 years ATSC has been collecting, researching and supplying quality, fully documented tree seed to both domestic and overseas customers. Collections of seed are sourced from wild populations and genetically improved seed from our domestication and improvement programs.

Contact Sarah Whitfeld; Ph. 02 6246 4857, atsc@csiro.au,

www.csiro.au/Organisation-Structure/National-Facilities/Australian-Tree-Seed-Centre.aspx

Articles and questions are most welcomed (actually they are wanted).
Please send all correspondence to my;
email address; tallowwood@hotmail.com
or postal; PO Box 456, Wollongong 2520

Membership

New members wishing to subscribe to the *Eucalyptus Study Group*, please fill out the following application and forward to Sue Guymer at;
Email: aitchguy@gmail.com
Postal: No. 13 Conos Court, Donvale Vic. 3111

Annual membership costs are;

- \$A 10 per year national members, newsletter mailed(black and white).
- \$A 20 per year international members, newsletter mailed(black and white).
- \$A 5 per year, national and international, newsletter emailed, full colour PDF.

All subscriptions can be mailed via a cheque (made out to the *Eucalyptus Study Group*) or payment made via direct deposit into the account listed below. For payments made via direct deposit, please add your name as reference.

Post address; Eucalyptus Study Group c/- 13 Conos Court, Donvale Vic. 3111

Bank details:

BSB No: **033-044**

Account No: **289 847**

Account name: **ASAGP Euc. Study Group**

Application for membership to the *Eucalyptus Study Group*

Date:

Name:.....

Postal address: post code.....

Contact Phone number:.....

Email:

Payment method: Cheque Direct Deposit

