

Management of Oil Mallee Demonstration at Golden Valley Tree Park

June 2019

When this stand was planted in 2003 an Oil Mallee industry was gaining momentum in the Western Australian Wheatbelt, and the planting reflected the industry standard layout. The high planting density, a combination of double hedgerow and very close tree spacing, was designed to facilitate maximum efficiency for harvest operations.

This density could only be supported by the site if the trees were harvested on a regular cycle to match their demand to the site. In the climate of Balingup this probably equates to a harvest every three years on average. Without harvest, the hedgerows will initially slow down in their growth, and then start to self-thin as they adjust to the capacity of the site.

At the time of planting it was assumed that harvesting operations, and the equipment needed to do that harvesting, would become commonplace by the time these plants had grown. This has not proven to be the case, and while some small niche operations have developed in the WA Wheatbelt to take advantage of the resource, the industry is otherwise languishing despite the remarkable potential of these species for producing a range of renewable products and benefits including electricity, eucalyptus oil and even jet fuel, as well as assistance to curb landscape salinity.

The GVTP mallees were eventually harvested in 2018 in a cut to waste operation to mimic the original proposed harvest regime. The harvested material was chipped for use within the Park to mulch trees and paths. While this resource is valuable, the operation proved to be time consuming and expensive, and cannot be repeated every three years.

The result is that a significant area of the Australian Collection is occupied by an over representation of very few species which, without ongoing intervention, are planted too densely to be sustainable with the available rainfall and other site resources.

Exacerbating this situation, one of the Oil Mallee species, the only one from Eastern Australia, *Eucalyptus polybractea* (Blue mallee), has become weedy. While mallee eucalypts do not commonly regenerate freely from seed this species is proving to be the exception in the two known higher rainfall sites where it has been planted; namely at Collie and at GVTP. As much of our human resource is taken up controlling woody weeds elsewhere in the Australian collection, we are wary about adding to that burden.

As a result of these three factors: that we cannot reasonably manage the harvest cycle, that one of the species is become a weed, and that the planting does not demonstrate an emerging industry as we hoped it might, the decision has been made to reduce the existing planting and redevelop the balance of the area.

This work involves removing all the *Eucalyptus polybractea* from the Tree Park, reducing the number of hedges, and thinning the remaining hedges to allow specimen trees of each of the remaining species to remain and be grown out.

The area currently planted to *E. polybractea* inside the area retained for the mallees will be replanted with other mallee species known for their high eucalyptus oil content, keeping the story of this historic and potential industry alive.

The use of the remaining area is under review. It is a valuable part of the Park, having good soil, and being flatter and lower in the landscape than most of the Australian Collection. One possibility is to

continue the theme of economic botany represented by the oil mallees, but expand it to other fields, such as medicinal plants, resins, gums, cabinet timbers, etc.

Species originally planted in 2003

Eucalyptus angustissima subsp. *querenda*
Eucalyptus kochii subsp. *borealis*
Eucalyptus kochii subsp. *kochii*
Eucalyptus kochii subsp. *plenissima*
Eucalyptus loxophleba subsp. *lissophloia* (Smooth barked York gum)
Eucalyptus polybractea (Blue-leaved mallee)
Eucalyptus vegrandis (Swamp mallee)

Proposed species retained, and taxonomic update

Eucalyptus angustissima
Eucalyptus kochii subsp. *borealis*
Eucalyptus kochii subsp. *kochii*
Eucalyptus kochii subsp. *plenissima*
Eucalyptus loxophleba subsp. *lissophloia* (Smooth barked York gum)
Eucalyptus vegrandis (Swamp mallee)

Potential additional species for infill of retained hedgerows

Eucalyptus angustissima Narrow leaf variant
Eucalyptus brachycorys
Eucalyptus eremophila
Eucalyptus erythronema var. *erythronema*
Eucalyptus hypochlamydea subsp. *hypochlamydea*
Eucalyptus loxophleba ssp. *gratiae*
Eucalyptus leptopoda
Eucalyptus misella
Eucalyptus myriadena

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