River Red Gum Fact Sheet

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River red gum (eucalyptus camaldulensis) is the most widespread member of the eucalypt family in Australia.
It is not endangered; it is certainly not rare In fact it is the most invasive of all eucalypts.
It is also the most widely grown eucalypt in plantations worldwide. Huge plantations in South America are grown almost exclusively for making charcoal, the quality of which is superior to most other timber.
In California river red gum is now classed as an environmental weed. The Barmah-Millewa group of forests is the largest river red gum forest in Australia and the largest eco-system of its kind in the world.

It is natural that there are no other tree species in the forest

Red gums are unique in the tree world in that they can tolerate both flood and drought. That is why the forest is largely a mono-culture. It has nothing to do with silvicultural practices. It is rare to find trees of another species in the forests except where the soil and moisture are adequate for red gums but flooding is infrequent.

The Barmah-Millewa region is arid country with low natural rainfall compared to our coastal areas. River red gums require a good, reliable water source to survive. So how does this region support such a large forest of the species?

The Cadell Tilt, a block of uplifted land running from near Echuca almost to Deniliquin, is the reason the forest is so large. When the uplift occurred about 20,000-30,000 years ago it blocked the course of the Murray, creating an enormous wetland delta. Over time the wetland silted-up and drained.

Before the arrival of humans the Murray River was fringed by woodland that was wiped out by the aboriginals' use of fire. It remained grassland for thousands of years until about 6,000 years ago when the River Red Gum invaded.

The indigenous fire regime then maintained a generally open woodland of large old trees. This encouraged more game, improving bio- diversity. There used to be large open areas of plains within the forest. The aborigines also used fallen timber for their campfires which burned day and night. Keeping the forest floor clean helped reduce the severity of naturally-occurring wildfires. So it is not unreasonable to say that the Barmah-Millewa forest has benefitted humans and been influenced by them since it began.

Although red gums prefer regular watering to survive, too much can drown them. They are also vulnerable to bushfire. But they can survive long periods of drought. They do this by shedding leaves and even large branches which reduces their water intake. They may look terrible but when another flood comes through they quickly recover.

The timber industry is not firewood-driven

Harvesting is government controlled to ensure sustainability. There are now many more trees in the Barmah-Millewa forests than when white settlement began. The formerly open plains within the forest, like Boyeo Plain and Porters Plain both near Mathoura are now mostly covered with trees. Government foresters decide which trees may be felled. This is done on a rotating basis so that harvested areas have many years to grow on or regenerate before more trees are removed. When the saw millers cut them down they pay royalty for the timber.

Since saw log royalty is higher than the price of the equivalent amount of firewood it should be obvious that the industry, which incidentally supports hundreds of families, could not be firewood- driven.

Harvesting is 100% resource efficient. There is no waste. Red gums vary widely in quality. The very best timber is needed for restoring the old river boats; otherwise the best logs are milled and kiln dried to provide fine timber for furniture, flooring and timber paneling. Lower grades are used for bridges and wharves, fencing timber, railway sleepers, house stumps and landscape timbers. Only the mill and logging residues and some environmental thinning's are used for firewood, wood chips and other such uses. This may amount to up to 77% of the total of trees harvested so it is important not to waste it. With such a high proportion of residues there is little incentive to fell trees just to produce more unless there is a real silvicultural advantage. Due to active marketing and industry efficiency, what was once unmeasured debris on the forest floor, or burnt waste at the sawmill, is now measured as a low value product. Since the bulk of nutrients in trees is in the bark and leaves, not the wood itself, what is left in the forest serves as mulch and thus is not waste at all. Environmental thinning is necessary to promote the best kind of open forest with large trees. A careful spacing of trees will grow saw logs and large habitat trees more reliably and quickly than otherwise.

Red gums can regenerate prolifically. Under ideal conditions they form dense thickets of saplings which never attain the size of the forest trees we are used to seeing. Dense forests are far more prone to drought stress - fewer trees use less water.

The new Yanga National Park near Balranald NSW was until recently a privately owned forest managed by a professional forester and harvested by a large sawmill. The NSW government is promoting it as an excellent example of river red gum forest yet millions of dollars worth of timber was cut from it over several decades.

Only about 1% of the total area of the Barmah-Millewa group of forests is harvested each year. Because large trees (over 150cm diameter) and known habitat trees are protected, the annual volume of timber harvested is no more than the forest's growth. Hollow trees, used as habitat by birds and animals, are of no use to saw mills as they contain very little quality timber.

Concrete sleepers are not the best option

In the 1870s millions of red gum sleepers from the Murray were exported to India. The river banks were clear felled until the NSW government stepped in and made the river front a conservation reserve. Today that area is healthy forest and it is impossible to tell where the clear felling took place. Although concrete sleepers last longer than timber ones, they are more expensive to produce. For each tonne of carbon emitted as CO_2 in production of concrete sleepers, the timber equivalent stores

4.8 tonnes of carbon in sleepers and in the forest. Timber sleepers store carbon until they rot or are burned. While this is happening new trees have grown to replace them, soaking up more carbon from atmospheric CO_2 from which they produce cellulose by photosynthesis.

Forests are like solar-powered factories producing an endless supply of a renewable resource. Concrete contains no carbon but uses considerable quantities during manufacture.

Because they are less flexible than timber, concrete sleepers cannot be used to replace timber in routine maintenance programs. A whole section of line must be laid at the one time making the operation very expensive. They also require more ballast, another extractive industry using a non- renewable resource and adding to the expense (though this is rarely factored in when supporters of concrete argue their case).

There may be times when it is better to lay a complete section of line on concrete sleepers but most of the time routine maintenance requires the replacement of only about one in five sleepers so for established railway lines timber is really the only economical option.

Researched and written by David Joss using information from Forests NSW, Victorian Department of Sustainability and Environment, Victorian Association of Forest Industries, professional forester Vic Eddy, the Deniliquin Pastoral Times, Recollections of Squatting in Victoria by Edward M Curr, and scientific and government sources.

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