

**Victor I.P. Eddy B.Sc. (For). MIFA.**

5 Dr. Abramowski Court, Mildura 3500

(P.O. Box 394 Merbein 3505)

Ph.. 03 5025 2131 A.H. 03 50234795

Fax. 03 5025 2143 Mobile 0428 502035 e-mail [vipe@merbeinsawmills.com.au](mailto:vipe@merbeinsawmills.com.au)

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**Submission on the Preliminary Assessment Report**

**Riverina Bioregion Regional Forest Assessment**

**River Red Gums**

I would like to congratulate the NRC on the depth and quality of this Preliminary Report. However it does reflect the extremely tight schedule in the subtle misunderstandings, minor omissions, and misinterpretations of the information gathered. While these may appear minor, they do have the potential to have a significant bearing on your recommendations and the subsequent decisions the Government will make based on your recommendations.

I regret that your tight schedule and my other obligations have not allowed me to be as thorough as I would like. I have now been involved in river red gum forest management for 25 years. In that time, I have seen many foresters and other professionals come and go, but few stay long enough to speak with a genuine understanding as a basis for their wisdom. Even after 25 years I am constantly learning.

**Page 10, para.2, last sentence:** refers to 75 years of river regulation and 120 years of silviculture. Of equal impact has been the 150+ years since the exclusion of the indigenous peoples influence. Since *E. camaldulensis* invaded their environment for 6,000 years they were part of “the natural forest” first seen by the European explorers.

**1.5 para.4 etc:** This may be somewhat simplistic. I suggest that generally the real floodplain has not been successfully and permanently cleared. The inconvenience of flooding and the constant battle to keep river red gum regrowth at bay has prevented or overwhelmed most who have tried.

There are many stands of river red gum forest where there were serious attempts to clear the forest for grazing and/or cropping that are now “old forest”. I am told that in the late 1800s, early 1900s ringbarking teams were common. The remnants of those ringbarked trees are still quite evident on both public and private lands, as most State Forests were not dedicated till later.

I have seen numerous examples illustrating that if river red gum forest has been cleared for agriculture, unless it is constantly worked, river red gum forest reclaims it.

River red gum distribution is still, and constantly evolving due to changes, in river management, land management, and land-forming, as they occur. One of the most obvious examples is the invasion of intermittent lakes and wetlands by river red gum. The new growth that doesn't drown in the next inundation becomes established, accumulates silt, and creates a new shoreline, floodplain creeks block up and new ones develop, river bends move and new cuts turn old bends into oxbow billabongs.

**Pages 14, "Key issues":** To me the question is relatively simple. Do you leave these forests to the forces of nature and accept whatever changes occur naturally? Or, do you manage them to maintain a wide range of biodiversity in as healthy a condition as each site allows?

In the first instance we need to determine to what extent external pressures need to be controlled to allow the "right degree of naturalness" (whatever that is?).

In the second instance, should management be a total cost to the government, or should the management take advantage of commercial enterprise to achieve the same end profitably? Active management needs to be based on clear and stable protection/conservation priorities. Not overlooking that conservation of any one species will impact adversely on others.

We need to be mindful that all these forests have been managed in the past with a central purpose of commercial production of timber and other forest products. Even so selected areas have been reserved exclusive of any direct disturbance. There has always been care and concern for a wide range of other environmental factors. That so many species have been conserved is borne out by current concerns that so many species are present and at risk. In recent years outside observers have succeeded in placing misguided impositions on management, largely fuelled by a perception that forests are devastated by logging. They overlook the fact that these forests exist in a boom and bust environment of flood and drought. Logging only occurs when a forest is dry, which is a time when much of the flora is only seeds in the ground. During a flood only, aquatic species, and tall plants including trees are seen to be alive. For most species a flood is also devastating at the time. However, what appeared to be devastated forest rejuvenates miraculously as a flood recedes.

**Page 15, Issue 8:** Assumes declining wood yields based on an expectation of sustained deterioration of the floodplain environment. This may be so, but we should not be too pessimistic. There have been long droughts before though probably not the same stand densities. Forests generally have not been silviculturally treated adequately, partially through fear of adverse criticism, and partially through cost of non-commercial treatment. If silviculture catches up, we may well find that lower water supply is offset by less inter-tree competition.

Anecdotally there have been pessimistic forecasts of declining forest yield in the past that have not eventuated. Such forecasts may have contributed to the sawmilling industry becoming more versatile. In the last 20 years the industry has certainly adapted to processing poorer quality logs into marketable products.

In all types of forest both native and plantation, the recovery of merchantable product from small and low grade log is a major problem. Prior to the use of efficient slow combustion domestic heaters, river red gum was not a preferred firewood, but it is now. So much so that the recovery of firewood from logging and forest thinning residues has led critics to claim that it is firewood that drives much of the river red gum logging industry.

**Page 16, para.2:** The reference to “high ecological values” resulting in Ramsar listing should also note that the past and present forest management has been acknowledged as “wise use” that has not compromised those ecological values. In fact the wise use may have contributed to the maintenance of those values.

**Page 17, 2.1.1:** The reference to over 60% of the bioregion being cleared for agriculture and grazing, without further qualification is misleading. Table 4 on page 41 indicates only a 20% drop in river red gum area compared to pre European estimates.

**Page 20, 2.2.2:** There is a subtle but distinct difference between the concept that a Property Vegetation Plan must be approved by DECCW to harvest timber from private lands, and the actual process. A private native forest owner cannot legally harvest timber from a private native forest without a Private Native Forestry Property Vegetation Plan(PNF PVP). However when a private forest owner applies for a PNF PVP he/she effectively agrees to comply with the Private Native Forestry Code of Practice for that type of forest, and then DECCW cannot refuse to issue that PNF PVP.

**Page 21, 2.2.3:** DEWHA and the EPBC Act 1999. In 1985 & 86 this Department funded a study of the Superb Parrot's breeding habitat. As with the closely related Regent Parrot, there was a belief that river red gum logging was a threat to the survival of this species. As soon as the study indicated that foraging habitat was the limiting factor and not logging, funding stopped, and unfortunately the study's findings were not published. This study's unpublished naturalist reports must be held somewhere in the Department's archives.

**Pages 24 or 25, 2.3 Landscape Evolution:** While I haven't found a peer reviewed reference, a presentation by an MDBC staff member to an annual conference of the Murray Darling Association held in Cobram about 20 years ago, referred to research that had analysed pollen in alluvium. This work had found that a non-Eucalypt woodland fringing the Murray River had disappeared around 40,000 years ago, coinciding with the arrival of the first aboriginals. The vegetation on the floodplain for the next 30,000+ years was grassland. Then about 6,000 years ago *Eucalyptus camaldulensis* invaded turning the grasslands into woodlands.

If this is indeed the case, then I believe it has a significant bearing on the evolution of the floodplain landscape.

Even though *E. camaldulensis* is a fire sensitive gum barked species, its physiological abilities, that give it drought and flood tolerance over rode the affects of fire, enabled it to develop the open woodlands reported in the explorers' journals of the 1800s.

Had river red gum been a floodplain species 20,000 years ago I would have expected the Willandra Lakes to have had fringing stands them. Archaeologist Harvey Johnson of the NPWS advised me that they have found no evidence of river red gum being present when these lakes held water and significant populations of aboriginals lived there.

It is also borne out by Major Mitchell's journal referring to there being no fringing line of trees along the river at Swan Hill, though there is today.

It indicates to me that where these river red gum forests exist today they have never existed without interference by man. Therefore to exclude or minimise human interference in these forests should be considered as completely unnatural.

**Page 24, 2.3.1, para.2:** The first sentence infers a total dependence on flooding. River red gum can be found growing naturally and happily on lands that never flood. In 2.2.1 you make reference to the occurrence sandy alluvial soils. In places these soils are sufficiently porous that they form aquifers. If an aquifer is replenished directly from stream flows even at

low flow levels, the associated forest stands show no signs of drought stress. The best forest stands are often aquifer associated. These sites may only require a flood or suitable rainfall event to regenerate as once established the trees drink freely at all times from the aquifer.

**Page 25, 2.3.2 penultimate para.:** Neglects to make reference to regulation of the other three rivers. The impact of Burrinjuck Dam followed by the Snowy Mountains Scheme on the Murrumbidgee River; Wyangala Dam and to a lesser extent Carcoar Dam on the Lachlan River; and the Menindie Lakes development on the Darling River.

One positive note has been the Lowbidgee Controlled Flooding Scheme on the Murrumbidgee, for which Maude and Redbank Weirs were built in 1940. These two weirs were compensation to offset the impacts of regulation by Burrinjuck for the MIA. The operation of the Lowbidgee Scheme is so simple that most people have trouble understanding it. This scheme suffers by having no allocation of, or prior right to, any water flow in the Murrumbidgee.

Since NPWS acquired Yanga NP they have shared in several environmental flows but as these water diversions are small by comparison to a flood, they have had minimal impact on the forests of that National park as a whole. NPWS are still only beginning to learn how to manage controlled flooding through their forests.

**Page 29, Yanga National Park:** paragraph 4, line 1 :- should this read “..... 17,000ha of river red gum forests,.....” or is the 76,000ha meant to refer to an estimate of the total of all native vegetation classes?

**Page 32, Summary of Values:** The fact that these values are still recognisable and worthy of conservation after 100 years of production focussed management is indicative that continued management as State Forest or Crown-timber land is not exclusive of their continued conservation. Forest harvesting today is more caring than ever before because all recognised values can be, and are, given consideration.

**Page 36, 2.8.4, para.1:** A third large lowland area worthy of mention is at and near the mouth of the Murrumbidgee River. This area is the Murrumbidgee Delta, bounded by the Murrumbidgee River, Manie & Peacock Creeks and the Murray River. The flows that service this delta floodplain are almost entirely of Murrumbidgee origin. This is not part of the

Lowbidgee Floodplain which terminates at, or upstream of, Balranald where high ground comes to the river.

**Page 39, para.2, 1<sup>st</sup> sentence:** While the size of the river red gum forest industry may not be of great regional or state importance, I believe there is a factor that is overlooked. These river red gum forests are supplying durable sawn timber from an area where annual rainfall is less than 500mm. Few forests are considered commercial where annual rainfall is less than 750mm. The floodplains where these river red gum forests occur have the inconvenience of being flood prone, having heavy clay soils, and a most persistent and invasive tree species, so there is generally little competition to use this land for other purposes. At the same time they are maintaining a suite of environmental values that are highlighted throughout the preliminary report.

**Page 40/41, 3.1.2 vegetation types and extent:** Based on personal experience in the field and as a one time member of the Western Riverina Vegetation Planning Committee, I treat most estimates of pre-European vegetation type areas compared to current type areas with a degree of caution. The motivation and funding to undertake these assessments has generally been associated with vested interests in reservation of native vegetation for exclusive conservation.

An initial comparative assessment of river red gum vegetation type areas for the Western Riverina Vegetation Plan in 2002/3 found the type area had actually increased by 1%. A review was promptly undertaken that used methodology to reduce “pixel leakage” which reduced the current area by over 20%. I believe that if similar methodology had been applied to the pre-European estimates there may have been little, if any, percentage change in comparative area.

The Victorian Environment Assessment Council (VEAC) in their October 2006 River Red Gum Forest Investigation Discussion Paper recognised 169 separate “ecological vegetation classes”(EVCs), of which over 80 could include river red gum. While very difficult to challenge for accuracy, it was relatively easy to infer that most types were so fragmented that reservation was justified. Then in their Draft Proposals Paper they inferred that an EVC with an estimated 384.9% remaining had a “depleted” status.

**Page 51, 3.2 Vegetation condition:** This section refers to comparison of current tree health to a benchmarked or reference vegetation condition. Unfortunately when broad area

tree health assessments have been conducted in the current flood drought they have been benchmarked to a referenced vegetation condition and not to the “normal condition” for each site.

River red gum is an opportunist species that will establish on any site where seed, seed bed, and moisture come together. It is not uncommon to see a “high tide” mark of dense regrowth marking a major flood peak. When a flood recedes rapidly it has a tendency to leave a “high water” mark of regrowth. When it recedes slowly even aged regrowth over wide areas occurs. Thus significant areas of marginal river red gum woodland are common.

I managed and assessed the 17,000ha of river red gum forests and woodlands on Yanga Station for 17 years. Of that total river red gum area I estimated about 8,000ha to be sub-merchantable due to site quality not tree age. Even many of the best forest stands on that property showed evidence of experiencing drought stress from time.

So substantial areas used to raise concern in the drought stress assessment always look that way. While looking drought stressed, many of those individuals are actually among the most drought hardy or they would have died years ago..

The reference to species richness of 23+ taxa as a parameter for a benchmark stand of EVC 56 needs to be qualified. On Yanga a lake shore inventory plot (0.6ha) contained only 15 native taxa had never been logged or disturbed. Nor did it qualify for the fallen log length parameter either. Dense stands of very healthy river red gum often have minimal diversity of taxa as the only ground cover is litter fall of leaves, twigs, and bark. Not unlike an unthinned pine plantation.

### **3.3.1 Ecologically Sustainable Forest Management Framework:**

If Table 6 is the complete list of stages of EFSM it is a worry. EFSM appears to have everything to do with harvesting and little to do with silviculture. In years past when there was less pressure from conservation critics the silvicultural well being of the forest was paramount. Is it pressure from Treasury and the Greens that has wrought this shift in emphasis?

**5.2.1, para. 1:** “.....large volumes of water temporarily banked up behind the Barmah Choke.” This statement is either a misunderstanding or poorly worded as it infers a false situation. The Barmah Choke is a river reach with very low banks by comparison to much of the Murray River. Low banks limit channel capacity, so that when the flow volume

exceeds channel capacity the river overflows onto its floodplain. Unlike a narrow gorge through high mountains, which does bank water up when the flow exceeds the normal channel capacity. However, banking water up is one thing “The Barmah Choke” cannot do, it merely spills excess flows onto the floodplain. When regulated flow escapes from the channel during transit it effectively ceases to be “regulated water”.

At times if the Mulwala Channel in NSW has spare capacity, it can be used to bypass “The Choke”. The Mulwala Channel can release water to the Edwards River near Deniliquin.

### **General Philosophy:**

- In framing the private native forestry codes of practice I have experienced the influence of unqualified “forestry experts”. In order to prescribe protective actions rules are often written that become “one size fits all”. Unfortunately forests are dynamic and widely variable so that what suits one situation does not suit others.
- Anyone can frame an environmental law. Very few environmental laws actually serve their intended purpose in practice. For environmental laws to be successful in practice, the environmental feature must be seen as an asset by all involved, not just the remote rule writers who have little or no practical field experience.
- Once you allow active intervention to achieve a conservation aim there is potential for abuse that is very difficult to prosecute. Prosecution deals in black and white because it is almost impossible to define shades of grey.
- In my 23 years as a practicing Public Servant I witnessed numerous subtleties of how to dodge forestry and bush fire laws with minimal risk of prosecution. I found that it was most preferable environmentally to gain a landholder’s respect and co-operation than to punish every misdemeanour.
- Pure conservation may have the ability to undertake specific active intervention if it can be shown to deliver a positive environmental benefit. However to avoid criticism of being heavy handed, experience shows that the usual approach is almost always too tentative to be affective. Incidentally I think this is a criticism that could be levelled at some Forests NSW silviculture due to the impact of external pressures.

Victor Eddy

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**Victor I.P. Eddy B.Sc. (For). MIFA.**

5 Dr. Abramowski Court, Mildura 3500

(P.O. Box 394 Merbein 3505)

Ph.. 03 5025 2131 A.H. 03 50234795

Fax. 03 5025 2143 Mobile 0428 502035 e-mail [vipe@merbeinsawmills.com.au](mailto:vipe@merbeinsawmills.com.au)

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The following notes are points raised during the NRC Public meetings, field trip to Barmah and River Red Gum Industry meeting.

1. The areas of river red gum vegetation types in table 4 page 41 are difficult to reconcile with data from other sources.

**Resource Assessment Commission (RAC) “Forest and Timber Inquiry Final report” 1992** found 456,000ha of river red gum forest, of which 178,000ha was State Forest; 117,000ha other Crown land; 61,000ha (13.4%) Conservation reserves; and 100,000ha freehold.

**Bureau of Resource Sciences (BRS) 1994, “Australian Forest Profiles No.3 River Red Gum”** found NSW had 105,000 ha in SF; 13,000ha in NP and conservation reserves; 82,700ha in other Crown timber-lands; and 123,300ha freehold; Giving a total of 324,000ha. **The combined NSW + Victoria totals:** SF = 198,000ha; NP & conservation reserves = 78,000ha (14.7%); other Crown = 82,700ha; and freehold = 173,000ha; total = 531,700ha.

Your ‘Preliminary Report’ Table 4 indicates a current area of 236,000ha of river red gum types in NSW, a decrease of 119,000ha (33.5%) from pre-European estimates. This would appear to be in line with the final figures used for the final draft of the Western Riverina Vegetation Plan under the Native Vegetation Conservation Act 1997. For that plan the original estimate of current area was reduced by attention to “pixel leakage” which eliminated a mosaic of small areas of other types. Had the same methodology been applied to the pre-European estimates the comparative areas may have had the same relativity as the first estimates.

2. **Investment needed for future value adding.**

The popular image of value adding has always been at the top end of the product range. While the highest priced products such as high quality furnishings have charisma they usually represent a poor return to the sawmiller.

The most significant “value adding” in the last 30 years has been that which has turned low grade and waste into saleable product. In the 1970s the acceptance of “ex-

quota” low grade logs by sawmills was about 2%. By the mid 1980’s it had risen to 10%. By the mid 1990s acceptance of low grade logs had risen to 50% and the so called “sleeper logs” had become low grade sawlogs. Today the red gum sleeper grade devised for the privatised sleeper market excludes many of the sleepers previously accepted by the Victorian Railways.

The trend now is not only to accept low grade medium to large logs but to also utilise small diameter logs from silvicultural thinnings. Logs under 35cm centre diameter under bark (cdub) are wastefully processed by saws intended to handle logs up to 120cm cdub.

For Merbein Sawmills to handle the potential supply of small logs <30cm cdub profitably, the following investment would have to be considered.

- Mechanical harvester - \$650,000
- Log optimiser - \$2,500,000 to \$3,000,000 (these are used by most mills handling significant quantities of small diameter logs)
- Small log processing line capable of handling river red gum with its inherent variation in timber properties - \$5,000,000

For any member of the river red gum timber industry to risk this sort of investment the climate of uncertainty that has shrouded the last 10 years must be overcome.

Much of the investment that has been witnessed in the last 10 years was made in the vain hope that it would engender confidence and security of supply. How misguided we seem to have been!

3. In the Millewa Group of State Forests SQ III forest may often be regarded as sub-merchantable. However the forests of the lower Lachlan River and the Darling River between Wentworth and Menindee are predominantly SQ III and quite productive. One of the problems with river red gum forest management is the variability of forest character from place to place. All too often data is extrapolated way beyond its valid application.

Stand height is probably the safest guide to growth rate and was used successfully in the NSW Murray Management Survey in the 1950s.

My rule of thumb relates to diameter. While individual trees can maintain an annual diameter growth of 3 to 4cm/annum, the average growth is 1cm dbh/annum.

In Yanga’s forests many trees lost diameter due to the drought. While the wood cannot shrink, the bark becomes thinner. Healthy, vigorous trees may have bark up to 5cm thick while desperate survivors bark may be as thin as a few mm.

4. Recommended conservation aim for river red gum forests: **“That are managed to maintain healthy, biodiverse forests to the limits of each site. Where stand density needs to be controlled, tree removal to be carried out commercially. It shall be the managing authority’s responsibility to regulate the flow of timber yield to sustain a stable and viable industry.”**

However it is beholden on the NRC to put to rest the perception that low value products drive the native forestry industries. The timber industry and informed forest growers are not so naïve as to sell high quality logs at prices well below their true value. Firewood production does not drive the river red gum industry but it has certainly provided the commercial means to make some vital silviculture affordable. At present Forests NSW have accounting problems as royalties are required as revenue and works such as silviculture must be done under contract. Not every logging operator wants to be directly involved in the specialised firewood industry. But logging and silviculture should occur simultaneously.

The full silvicultural operation could be integrated with sawlog logging if Forests NSW hired the harvester and the harvester paid royalty + felling for logs recovered. While revenue would fall initially, the lack of silviculture in the last 20 years could be overcome. Silviculture fell behind in the years before red gum became popular for firewood as cutting to waste could not be justified.

For your consideration

Vic Eddy

10<sup>th</sup> November 2009