

Analysing Options for the Red Gum Forests Along the Murray River*

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Abstract

The Victorian Environmental Assessment Council is conducting an investigation into the management of the public land River Red Gum Forests of the Murray River Valley in Victoria. In this paper the authors apply the results of an earlier Choice Modelling exercise commissioned by VEAC to estimate the non-use values of the forests. A Benefit Cost Analysis of VEAC's draft recommendations included assessment of the market and non market values associated with different River Red Gum forest management strategies. It is concluded that the use of water for environmental flows is competitive with its use for irrigation. Other economic values associated with timber harvesting, grazing and duck hunting are small in comparison with the water values.

Key words: Choice Modelling, Environment, River Red Gums, Benefit Cost Analysis, Water Resources

Preface

This paper is based on the report of a consultancy for the Victorian Environmental Assessment Council (VEAC). The consultancy assessed economic implications of preliminary draft proposals for the River Red Gum Forests Investigation. This work was carried out in 2007 and published with VEAC's Draft Proposals Paper in July 2007.

A revised benefit-cost analysis consultancy will be carried out by the authors before VEAC's final report in 2008. This will incorporate data recently released and analysed from the 2006 Census, and additional information relating to water, timber, duck hunting, grazing and tourism in the River Red Gum area.

VEAC is in the process of developing its final report following extensive public consultation, and accordingly this paper should not be taken to represent VEAC's current position.

* Paper presented at the 52nd AARES Conference, Canberra, Australia, February 2008. The research presented in this paper was commissioned by the Victorian Environmental Assessment Council. The full report on which this paper is based may be found at <http://www.veac.vic.gov.au/riverredgumdpp.htm>. The results presented here are preliminary and should not be quoted without contacting the lead author. The authors are due to assess VEAC's final recommendations.

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1. INTRODUCTION

A reduced incidence of flooding, primarily due to regulation and storage of water, has left the River Red Gum (RRG) forests along the Murray River in a diminished and degraded state. Timber harvesting and cattle grazing in the forests have also had adverse impacts on their condition (VEAC 2006). Numerous policy initiatives have been taken to redress the declining state of the forests including the Living Murray initiative at the Commonwealth level.

The Victorian government asked VEAC to undertake an Investigation into the River Red Gum Forests of the River Murray and its Victorian tributaries in 2005.⁴

As an input into that investigation, a Benefit Cost Analysis (BCA) was commissioned to assess the marginal benefits and marginal costs of moving to a range of alternative RRG management options, including the provision of environmental flows. To enable such a BCA to be performed, estimates of the marginal values associated with improved RRG condition were required. Because these are largely non-marketed, non-use environmental values, a stated preference method, Choice Modelling (CM), had been selected by VEAC for an earlier project in the RRG area, given its capacity to provide value estimates for a range of management scenarios from one data collection exercise (Bennett and Blamey 2001)⁵.

2. BENEFIT COST ANALYSIS

The Victorian RRG forests, wetlands and floodplains of the Murray Valley are valuable resources with many, sometimes competing, uses giving rise to benefits for a wide range of people. Determining the appropriate balance of these uses from a society-wide perspective requires information about their relative values to be incorporated into the conceptual framework of a benefit cost analysis. Under this framework, alternative resource management scenarios (Scenarios 2, 3 and 4) are compared against the base case or do-nothing new option (Scenario 1) to identify if any of the alternative options will lead to an improvement in well-being for the people of Victoria. The scenarios are:

- Scenario 1* BASE CASE - No new management changes over the next 20 years (including 500 GL of environmental water per annum already identified for the Living Murray icon sites, and 127 GL per annum for existing annual environmental allocations)
- Scenario 2* All VEAC's draft proposals including new national parks but with no additional water

⁴ The draft findings of the Investigation along with various commissioned reports can be found at: <http://www.veac.vic.gov.au/riverredgum.htm>. The ecological importance and uniqueness of the forests is described in these reports.

⁵ The specific report containing details of the CM application outlined in this paper is available at: <http://www.veac.vic.gov.au/eefea.htm>.

- Scenario 3* All VEAC's draft proposals including national parks but with 2,000 GL additional water every five years on average
- Scenario 4* All VEAC's draft proposals including national parks and VEAC's estimated 4,000 GL additional water every five years on average

Information about the commercial values of forest uses such as timber production and grazing in the RRG forests and the cost of water to be used under Scenarios 3 and 4 is available from the markets in which outputs are exchanged. Forest protection benefits arise from recreation and tourism activities, ecosystem and cultural heritage conservation. Quantification of these non-market values was the focus of an earlier study for VEAC on the Non-Use Values of Victorian Public Land (Bennett, Dumsday, Lloyd and Kragt 2007).

3. ESTIMATING MARKET-BASED VALUES

VEAC draft proposals for public land use mainly affect the timber and grazing uses of the RRG forests. The implications of the proposals for water allocations to improve the health of the RRG forests are dealt with separately.

3.1 Timber Industry

The economic impacts on the timber industry were based on the results of a financial survey of participants in the industry, including mill operators, sleeper cutters and commercial firewood licensees. Interviews were held in person and included open ended discussion of issues. A total of 19 operators were interviewed out of approximately 22 licensees in the study area. Around 10 operators provided financial information in sufficient detail to allow extrapolation to the rest of the industry, based on licensed volumes of four categories of timber.

The direct gross annual value of the RRG-based timber industry is currently about \$9.3m with a net economic contribution to the Victorian economy of about \$2.5m per year. Assets dedicated to the industry total approximately \$11.3 m.

VEAC has advised that the timber harvest to be expected over the next 20 years for the Base Case (Scenario 1) will be about 30 per cent of current yields (as a result of lower tree growth rates due to reduced forest flooding), resulting in a net economic contribution of \$0.75m per year. The calculated contributions for the other three scenarios, respectively, are \$0.27m, \$0.33m and \$0.50m per year, reflecting the impacts of VEAC's draft proposals, and increased water availability for Scenarios 3 and 4.

3.2 Grazing

VEAC's draft proposals include cessation of grazing in the Barmah forest (about 30,000 ha) and exclusion of grazing over a five year period in other public land (about 55,000 ha), including water frontage reserves (about 15,000 ha). It is assumed in the BCA that only the water frontage areas will require provision of fencing and watering points. Graziers were not surveyed as part of this study. The analysis is based largely on other studies conducted for the Victorian (Read Sturgess & Associates 2000, URS

2005) and NSW Governments (Hassall & Associates 1998) and on area estimates provided by VEAC.

For the Barmah forest it is estimated that the annual net economic contribution of grazing is \$0.14 m in the base case scenario (Scenario 1), based on grazing of 2,000 head of cattle in the summer six month period and 800 head in the winter six month period. For the other three scenarios (Scenarios 2, 3 and 4) the net economic contribution is zero.

For the other public land, including water frontage areas, grazing annual net economic contributions were estimated at \$0.77m in the base case, with annual net costs of \$1.32m per year for the other three scenarios – due to the need for fencing, watering points and increased pest management. It is assumed, conservatively, that these costs are incurred immediately, even though they will not be due for five years.

4. ESTIMATING THE NON-MARKET ENVIRONMENTAL VALUES

4.1 Choice modelling

CM, a *stated preference* non-market valuation technique, was used to estimate the protection values associated with the RRG forests (Bennett et al 2007). The CM technique involves a sample of people being asked to make a sequence of choices between different forest management strategies described in terms of their impacts on particular attributes.

For the RRG forests, the attributes and the ranges over which they may vary over the next 20 years under the various management scenarios, are summarised in Table 1.

Table 1 Attributes and their levels for River Red Gum forests

Attribute	Description	Levels
Cost	Compulsory annual payment (\$)	0; 20; 50; 100
Healthy RRGs	Area in hectares	54,000; 67,000*; 74,000; 80,000
Threatened Parrots	Number of breeding pairs (Regent and Superb Parrots)	900; 1,200; 1,500; 1,800
Murray Cod and other threatened native fish	Percentage of pre-European numbers	10; 20; 40; 60
Recreation Facilities	Number of campsites with facilities	6; 9; 12; 18

* The current extent of healthy River Red Gum forest is approximately 67,000 ha. Without additional resources and management, this is expected to decline to about 54,000 in 20 years.

Descriptions of the survey materials used and survey logistics are provided by Bennett et al.(2007). The six samples used in the surveys are shown in Table 2.

Table 2 Selection of Samples

REGION			
Melbourne (out of region)	Murray Region		Gippsland Region
1. Metro	2. Echuca 3. Mildura 4. Wodonga	5. Rural*	6. Bairnsdale (out of region)

* The rural sample involved respondents living on farms, outside urban areas.

The surveys were conducted using a drop-off-pick-up process in November 2006.

4.1.1 Results for River Red Gum forests

Models explaining respondents' choices between alternative forest management options are used to estimate the marginal values of the Healthy RRGs, Parrots, Cod and Recreation attributes. These values are expressed in terms of *implicit prices*: the marginal willingness to pay for the average respondent household (per year) over a 20 year period for a unit increase in the attribute.

The results set out in Table 3 show that respondents in the Bairnsdale and Melbourne sub samples are willing to pay \$3.29 and \$1.45 (per annum per household for 20 years) respectively for a 1,000 hectare increase in the area of healthy RRG forest. 'Within region' respondents (an aggregate of the Echuca, Wodonga and Mildura samples) recorded values that are not significantly different from zero. People in those areas were prepared to accept the status quo with respect to that attribute.

Respondents were found to attach positive values to increasing the numbers of breeding pairs of threatened parrots, ranging from around \$4 to \$8.40 per 100 pairs. The implicit price for a one-percent increase in the populations of Murray Cod and other threatened native fish species varies across the sub samples from about \$1 to \$1.40. Implicit prices for the recreation attribute were not significant for any of the sub samples.

Table 3 Implicit Price Estimates for River Red Gums

Sub sample →	Melbourne (\$/yr/hh)	Bairnsdale (\$/yr/hh)	Within region (\$/yr/hh)
Attribute ↓			
Healthy RRGs /1,000 ha	1.45*** (0.46)	3.29** (1.29)	0.0677 (0.47)
Parrots /100 pairs	4.39*** (1.04)	8.39*** (2.76)	3.96*** (1.04)
Cod /1 per cent increase	1.02*** (0.17)	1.37*** (0.44)	1.09*** (0.17)
Recreation /campsite	-0.11 (0.62)	-0.85 (1.53)	-0.24 (0.66)

Notes: Significance levels indicated by: * 0.1, ** 0.05, *** 0.01. Standard Errors in parentheses.

Based on comments made in the questionnaires, the non-significance of the recreation/ campsite attribute may be due to a conflict of preferences between those seeing positive outcomes (eg. more facilities providing a better camping experience) and those seeing negative outcomes (eg. more facilities leading to more congestion and environmental damage).

4.1.2 Application to Benefit Cost Analysis

The implicit prices estimated from the choice data are directly applicable to the consideration of alternative forest management options. Specifically, they are compatible with the principles of BCA. The process of employing implicit prices in the BCA involves four basic stages:

1. Predicting the impact of a management change on the attributes used in the choice modelling exercise relative to the predicted continuation of the 'status quo'.
2. Multiplying the implicit prices by the respective predicted attribute change to estimate the per respondent household willingness to pay for each attribute change.
3. Aggregating the per respondent household willingness to pay across all attribute changes.
4. Extrapolating across the relevant population, using the survey response rate, to estimate the societal willingness to pay for the management change.

4.1.3 Assumptions for Environmental Outcomes

The assumptions for environmental outcomes under each scenario were specified by VEAC and are summarised in Table 4. It is emphasised that these assumptions will be revisited in light of the flood modelling recently commissioned by VEAC.

Table 4 Assumptions for Environmental Outcomes

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Healthy RRGs ('000 ha)	54	60	65	80
Threatened parrots ('00 pairs)	9	10	14	16
Murray Cod & other threatened native fish	10	10	20	30

Non-market issues that are not addressed in this analysis include implications for Indigenous cultural heritage, and the cultural heritage value of the Barmah muster and other red gum related heritage issues. The environmental benefits of excluding grazing from riparian areas have not been explicitly calculated. The implications of different forest management regimes for emissions of greenhouse gases have not been considered.

VEAC has indicated that there will be no net recreation and tourism benefits or costs associated with their proposals over the next 20 years or so. However, a brief overview of the contribution of tourism to the study area is provided in Section 4.3.

The VEAC draft proposals may have positive environmental impacts outside Victoria and these are considered later.

It was assumed that additional management costs for the public land areas, including new national parks, would be \$3m per year. This is a rough estimate based on other studies of the establishment of national parks (Dumsday 2001) and has not been explicitly calculated for this study. The costs are net of any reductions in DSE management costs due to the removal of timber harvesting and grazing.

4.1.4 Demographic data

Demographic data (approximate for 2006, based on ABS 2001 Census data) and survey response rates relevant to estimating the environmental values are summarised in Table 5. Victorian rural areas outside rural cities and towns are not included due to the low survey response rate for these areas.

Table 5 Demographic Data

	Number of households (m)	Survey response rate
Melbourne	1.3	50
Murray region cities and towns	0.1	80
Out of region cities and towns	0.3	70

4.2 Estimating the Non-Market Environmental Values Associated with Wetland Protection

In addition to the above environmental outcomes assessed using the Choice modelling results, the VEAC draft proposals involve increased protection of about 7,475 ha of wetlands and restrictions affecting approximately 3,950 duck hunters. A study in South Australia (Whitten and Bennett 2005) estimates the economic value (measured as consumer surplus) of duck hunting at about \$48 per trip, with 95per cent confidence limits of about \$30 and \$120. These values are consistent with the economic values estimated for other recreational pursuits such as fishing.

Duck hunting is increasingly taking place along rivers and streams and the hunting season normally runs for 12 weeks, mid-March to mid-June.

Conservative estimates put the value of wetland protection at about \$1,000 per hectare (Whitten and Bennett 2005). However, the wetlands in the study area already benefit from protection, for example by being located within wildlife reserves. Based on somewhat arbitrary assumptions concerning the percentage of duck hunters who could find alternative sites (75per cent) within Victoria and the degree to which moderate increases in the level of wetland protection is reflected in environmental value (50per

cent), it was calculated that the net economic loss for Scenarios 2 through 4 is \$0.082 m per year, compared with the base case.

It should be emphasised that no original survey work was undertaken in this study with respect to wetlands and duck hunting, the values were extrapolated from other studies and therefore provide only approximate estimates. In addition, the other studies have not explicitly considered the extent to which duck hunting and wetland protection are in conflict in economic terms.

4.3 Tourism and Recreation

Tourism Victoria's 'Murray Region' corresponds roughly to VEAC's study area. In the year ending December 2006 it was estimated that a total of almost 5 million people visited the region, with 2.2m overnight visitors, and 2.7m day visitors. Estimates for the year ending December 2005 showed that the Murray Region received expenditure by overnight and daytrip visitors of \$868m, the second highest regional total in Victoria behind the Great Ocean Road Region. Expenditure by domestic overnight visitors totalled \$597m while domestic daytrip visitors spent \$271m (Tourism Victoria 2006,2007a, 2007b).

VEAC advised that there may not be net benefits or costs arising from their draft proposals for 20 years or so. Tourism and recreation in the study area is strongly based on the Murray River itself rather than on the RRG forests along the river. However, it should be noted that data on visitation to the RRG Forests showed that nearly 75 per cent of all respondents had visited the forests at least once in the past ten years (Bennett et al. 2007).

There are only crude estimates of the total numbers of tourists and visitors going to the forest areas each year but they are likely to be small in relation to the total visitation to the study area. In addition, it will take several years for the changes recommended by VEAC to have significant impacts in terms of offsetting future problems of congestion and pollution in the forests and along the river. For these reasons tourism and recreation benefits and costs were not included in the BCA.

5. AN ASSESSMENT OF VEAC DRAFT PROPOSALS

A summary of undiscounted annual benefits and costs for each scenario relative to the base case is shown in Table 6. The benefits include the non-marketed environmental protection values and wetlands. The costs include the foregone value of timber and grazing production and duck hunting.

Table 6 Undiscounted Benefits and Costs of Draft Proposals

Scenario	Benefits (\$m/year)			Costs (\$m/year)
	Low	Average	High	Average
Scenario 2 (no additional water)	9.07	14.73	24.06	5.80
Scenario 3 (2,000GL every 5 years)	23.36	53.01	82.66	5.73
Scenario 4 (4,000GL every 5 years)	41.86	97.75	153.65	5.57

The Low, Average and High results reflect the 95 percent confidence limits placed on the estimates of the environmental values.

It is apparent from the above table that the environmental benefits of the VEAC draft proposals dominate the costs in terms of lost timber, grazing and duck hunting opportunities. *However, it is important to note that the costs do not include the costs of provision or storage of water for Scenarios 3 and 4.*

Assuming a planning horizon of 20 years and a real discount rate of six percent and in the absence of water costs, annuities and Net Present Values for all three scenarios are strongly positive.

However, this result must be considered in the light of the cost of water under Scenarios 3 and 4. This is achieved by estimating the break-even water prices which would set the Net Present Values equal to zero. In other words, these prices would represent the upper limits to the prices that could be paid for water before the costs of the draft proposals outweighed the benefits. The results of these calculations are shown in Table 7.

Table 7 Breakeven Prices for Environmental Flows

1	Break-even water prices (\$/ML/yr)		
	Low	Average	High
Scenario 3 (2,000GL/5 years)	\$44	\$118	\$192
Scenario 4 (4,000GL/5 years)	\$45	\$115	\$185
2	NPVs for water value (\$/ML/20 years)		
Scenario 3 (2,000GL/5 years)	\$505	\$1,356	\$2,206
Scenario 4 (4,000GL/5 years)	\$520	\$1,322	\$2,123
3	NPVs for water value (in perpetuity)		
Scenario 3 (2,000GL/5 years)	\$734	\$1,970	\$3,205
Scenario 4 (4,000GL/5 years)	\$756	\$1,921	\$3,085
4	NPVs for water value (in perpetuity @ 4per cent discount rate)		
Scenario 3 (2,000GL/5 years)	\$1,102	\$2,955	\$4,808
Scenario 4 (4,000GL/5 years)	\$1,134	\$2,881	\$4,628

The first sub-table shows break-even prices in the range of \$44 to \$192 per ML per year and fall approximately within the range paid by irrigation farmers for annual charges (assuming that their water entitlements are delivered). They are also comparable with the prices paid in water markets for temporary water, except in times of severe drought where prices can be higher.

The second sub-table shows the break-even prices that might be paid for a once-off purchase of water needed over the next 20 years and ranges from \$505 per ML to

\$2,206 per ML. These ranges are comparable with market prices for permanent trade of entitlements for irrigation water in 'average' years.

To provide further evidence of sensitivity, sub-tables 3 and 4 present the results for considering net benefits in perpetuity rather than over 20 years, and for a discount rate of 4 percent in the fourth sub-table.

A number of important qualifiers must be attached to these observations.

First, to our knowledge, there have been no transactions over 20 GL in the past and VEAC proposals involve acquiring 40 times that amount each year. There is no analysis which informs us of the likely impacts on water prices of these quantities being withdrawn from irrigation.

Second, none of the 500 GL per year of water under the Living Murray agreement has been recovered to date and only about half of it has appeared on the Eligible Measures Register. The political economy of acquiring the equivalent of up to an additional 800 GL per year (4,000 GL/5 years) would require extensive analysis and negotiation between three State governments and the Commonwealth.

Third, while the quantities involved represent about seven per cent of the average annual total inflows to the Murray River below the junction with the Darling River (about 11,200 GL), they represent 30 percent of Victoria's 2004/05 total allocation (although the benefits of overbank flows would accrue to all three States).

Fourth, the implications for storage of the environmental water have not been addressed – the requirements of the draft VEAC proposals represent about 40 percent of the total storage available in the system.

Fifth, the logistics of storing and delivering the quantities of water suggested will require extensive analysis of a complex system. For example, environmental flooding is likely to be implemented by 'topping up' natural floods in wet years, when water is less limited.

Sixth, any re-allocations of water in the Murray Darling Basin will need to take account of forecasts made about the effects of global warming.

Seventh, the social and economic impacts of withdrawing large quantities of water from other uses, primarily irrigation, have not been assessed. Approximately 60 percent of the benefits of VEAC's draft proposals are enjoyed by people in Melbourne while only about 5 percent accrue to those in the study area. In contrast, most of the costs of the draft proposals are incurred by those living in the study area.

In summary, the figures that we present should be seen as part of a pre-feasibility analysis which suggests that further work is warranted before making decisions on the allocation of water in the Murray Darling Basin.

It should be noted that the benefits of VEAC's draft proposals considered in this analysis are only those enjoyed by Victorians. The management regimes considered will inevitably also benefit ecosystems in NSW and SA with consequent environmental benefits to people in those States. In the above analysis all costs (in

terms of water) are effectively debited to Victorians. Present estimates of the extent of these spillovers is that only about 60 percent of the environmental water required under the VEAC draft proposals will flood Victorian ecosystems.

A possible source of over-estimation of both the benefits and costs of the VEAC draft proposals is associated with the annual 500 GL Living Murray allocation and the annual 125 GL (approximately) already allocated to the Barmah Forest. Applied once in five years these flows would provide up to 3125 GL towards flooding regimes, yet in the BCA we have ignored their possible contribution. Clearly they will need to be considered in conjunction with VEAC's final proposals once the flooding analyses commissioned by VEAC have been completed.

6. CONCLUSIONS

The BCA showed that the net economic benefits of VEAC's draft proposals fall mostly outside the study area, with approximately 60 percent going to Melbourne, 35 percent going to regional urban areas, and 5 percent going to the study area.

In the absence of government intervention, most of the direct costs of VEAC's draft proposals are borne by those living in the study area, particularly those in the timber and grazing industries. It has been assumed that any recreation and tourism benefits of the proposals will not be felt for at least 20 years.

Assessment of the impacts of VEAC's draft proposals on irrigators was beyond the scope of this study and would require considerable resources and the cooperation of three State governments and the Commonwealth Government. Nevertheless, it is likely that mitigation measures would require a combination of market measures – including purchasing water entitlements; water savings schemes; and structural adjustment of irrigation areas. These measures also need to be examined in the context of climate change.

Mitigation measures for those in the timber industry could be similar to those implemented for the case of the Box-Ironbark National Parks (eg. see Dumsday 2001). Many in the industry would have difficulty in adjusting to new forms of employment and some live in towns that are already in decline. Adjustment in rural areas is generally more difficult than that in the capital cities and a regional impact assessment, also prepared for VEAC, addresses this issue for the timber industry. Financial assistance would be based on lost income and loss of assets that have no alternative uses.

Mitigation of the losses imposed on graziers in the Barmah Forest and other public land could be similarly based on lost income, but in this case most assets would have alternative uses and may not require the same level of assistance. Graziers on water frontage reserves in particular may also have access to Landcare and other funding to meet some of the costs of providing fencing, watering points and pest control. The transaction costs of negotiating with graziers outside the Barmah Forest could be substantial and would need to be considered when drawing up mitigation measures.

For these graziers it may be better to work through the relevant Catchment Management Authorities.

Increased expenditure and employment in the management of the new proposed parks and reserves would also mitigate the losses imposed on people living in the study area.

It is apparent from the BCA that two items dominate the analysis – the environmental benefits and assumptions made about those and the water costs and their assumptions. The other benefits and costs assessed are small in comparison with these two items.

It is generally accepted that the waters of Murray Darling system are over-allocated and most economists agree that the most efficient way of dealing with this problem and at the same time making more water available to the environment is by buying back irrigation water entitlements.

This is possibly the first study of its kind which attempts to quantify the economic values associated with the two main competing uses of water in the Murray Darling Basin. It shows that the draft VEAC proposals provide significant environmental benefits that may be competitive with other uses of water.

REFERENCES

- Australian Bureau of Statistics (2007), *1301.0 Year Book Australia*, ABS, Canberra.
- Bennett, J.W. and R.K. Blamey (2001) *The Choice Modelling Approach to Environmental Valuation* (Cheltenham: Edward Elgar Publishing).
- Bennett, J., Dumsday, R., Lloyd, C. and Kragt, M. (2007), *Non-Use Values of Victorian Public Land: Case Studies of River Red Gum Forests and East Gippsland Forests*, Report prepared in conjunction with URS Australia for the Victorian Environmental Assessment Council, Melbourne.
- Dumsday, R.G. (2001), *Potential Social and Economic Effects of Recommendations for Victoria's Box-Ironbark Forests & Woodlands Area*, report prepared for the Environment Conservation Council, Melbourne.
- Hassall & Associates Pty Ltd (1998), *A Report on the Profile and Economic Assessment of Grazing in State Forests: Upper North East and Lower North East NSW RFA Regions*, A project undertaken as part of the NSW Comprehensive Regional Assessments Project No. NA64/ES.
- Murray-Darling Basin Commission (2006), *Water Audit Monitoring Report 2004/05*, MDBC, Canberra.
- Read Sturges & Associates and Essential Economics (2000), *Social and Economic Studies in the Box-Ironbark Forests and Woodlands Area. Stage 2 – Assessments of the Effects of Proposals in the Draft Report*, Environment Conservation Council, Melbourne, October.
- Tourism Victoria (2006), *Domestic Tourism Expenditure in Victoria, Year Ending December 1999-2005*.
- Tourism Victoria (2007a), *Domestic Visitation to Victoria, Year Ending December 2006*.
- Tourism Victoria (2007b), *International Overnight Visitors to Victoria, Year Ending December 2006*.
- URS (2005), *Socio-Economic Assessment of Cattle Grazing in the Alpine National Park*, report prepared for the Department of Sustainability and Environment on behalf of the Alpine Grazing Taskforce, Melbourne.
- Victorian Environmental Assessment Council (2006), *River Red Gum Forests Investigation: Discussion Paper*, VEAC, Melbourne.
- Whitten, S. and Bennett, J. (2005), *Managing Wetlands for Private and Social Good*, Edward Elgar, Cheltenham.