Fires p.53

Actions should include mention of managing fuel reduction burns to maintain ecological communities. There is much evidence of adverse impact in the forest from alterations to fire regimes ie; increased incidence of fire for fuel reduction increase in intensity brought about by increased ground fuel loads.

5.5 Groundwater p.53

High groundwater recharge occurs on the rocky crests of sedimentary hills in the Upper Loddon Catchment when cleared, ground disturbances must be minimised in recharge areas.

The impact of forest harvesting operations on mineral springs recharge areas is poorly understood. What is the impact on aquifers of changing the age class of forests on mineral springs recharge areas from older to younger fast growing regeneration? What is the impact on soil permeability following fuel reduction burns, compaction by heavy machines and changes hydrologic patterns? More research is required in this area before meaningful management strategies can be put in place to protect this unique resource.

Actions should include a precautionary approach to activities in mineral springs recharge areas whilst further investigation is undertaken.

5.6 Monitoring p.55

Actions proposed to ensure water quality is monitored appear to be very fragmented especially given that C&NR are responsible for both water and forest management. Surely C&NR can set up both permanent and random monitoring stations to assess changes in water quality and flow in forested catchments, as the responsible management authority they should not be relying on data, where available, from other authorities to carry out proper analysis.

Attachments

1... J. McClelland, March 1996
The Catchment and Land Protection Act 1994
It's place in the Proposed Midlands
Forest Management Plan.

2... D. Haywood, Jan 1996
Comments on the Lerderderg Catchment
Report.

3... Australian Heritage Commission, April 19
Register of the National Estate Database
Acknowledgment of Nomination

fax 9326 5637

The Catchment and Land Protection Act 1994 etc.
Its Place in the Proposed Midlands Forest Management Plan

John McClelland

The definition of catchment

- in the Catchment and Land Protection Act (CALP), s3, '"catchment" means an area which through run-off or percolation contributes to the water in a stream or stream system'. They are listed at the back, e.g. Stony Creek. Catchments are not defined elsewhere, with one exception, though numerous documents refer to the CALP Act, perhaps assuming its definition by default. The Proposed Code of Forest Practices (the exception) defines a "water catchment" as "a catchment from which water is used for domestic supply purposes". This ignores a catchment's rôles such as protecting animal and plant habitats and, as some research suggests, reducing drought risks. The CALP definition is better in its wider definition, and I would prefer its use. The Proposed Code of Forest Practices' approach echoes that of the Forests Act 1958 and the Timber Harvesting Regulations of 1989 which view catchments as resources, and despite their regulations, do not actually set out conservation intentions.

Integration of the CALP Act and the Plan

-It is suggested that water production criteria be integrated into the planning process by the Timber Industry Strategy Victoria of 1986, and the very name of the CALP Act, as well as its purposes, support this. Although there is provision for the CALP Act to be part of planning schemes, it is underused in the Proposed Midlands Forestry Management Plan and gets nowhere near the attention of the Forests Act 1958 and the Flora and Fauna Guarantee Act 1958.

-The Proposed Midlands Forestry Management Plan (the Plan), at p47, unfortunately only gives special area plans (SAPs) to 5 of the 24 deserving special water supply catchment areas (by s 27(2, 7) p.1145 and Schedule 4 part 3 (f) p.1207 of the CALP). In s 27 of the CALP Act the comment "the Board may classify the special area as a special water supply catchment area (SWSC) or in any other way it considers appropriate" suggests an area must be a SAP before it is a SWSC. In Schedule 4(3) all former Water Supply Catchment Areas from the Soil Conservation and Land Utilisation Act 1958 become SWSCs and all s23 notices become special area plans. However the Midlands Plan got it wrong even at the first step. Rather than referring to the old classification as WSCAs they call them Proclaimed Catchments. These are not mentioned as superseded references in the CALP Act.
I would recommend all 24 SWSCs should have SAPs.

-This denial of special area plan status is excused in the Plan by reason of of the great variety amongst the catchments (p47), which is surely the reason for SAPs in the 1st place.

-It is also surprising considering the National Forest Policy Statement's "precautionary principle" (p.12) which encourages caution if little is known of a catchment's durability.

-The Plan features its own duplication of a SAP idea with its special managment zones, explained from 48-54. These are not subject to the goals of the CALP Act at s20 (considering land and water quality) nor subject to Board examination, although whether they are actually deficient I could not say from a Doncaster private home. They cover things like coupe sizes and logging times, similar to examples of SAP conditions lie drainiage organisation (Hansard 1622). There are also special protection zones in the Plan, which simply disallow logging. This duplication is unnecessary, and integrating the CALP Act would have been better, although as I will mention in the overview, Special Area Plans may be easily circumvented by DCNR and the Ministry.

Other duplications

-There is also duplication in the existence of the water boards, although since they are independent of DCNR they can be of some help. Although in a different area, the Friends of Mallacoota Inc. case is worth considering. The Mallacoota Water Board helped put forward locals' complaints but the East Gippsland Water Board, which absorbed it, did not. The East Gippsland River Management Board

was supportive, but is simply run by Landcare groups and had little clout. This is despite the National Forest Policy Statement's (NFPS's) reference to Landcare being a basis for improved catchment management (p 33, to which Kennett has made a commitment, ppii-iii). The CALP Act has no mention of Landcare, which was criticised by Marple in Hansard. In this case the catchments were nowhere near being adequately tested by the NFPS's "precautionary principle", as flow meters had never even been fitted. The NFPS statement is not being adhered to, despite Victoria being a signatory.

-We cannot refer to the regional strategies of the CALP Act because the first of these drafts won't be ready until April 1996 (Keith Turnbull, (03) 9785 0111, DCNR, helped me here). Unfortunately they may make the situation more difficult, because Wombat Forest, part of one of 15 areas in the proposed Code of Forest Practices, borders on 5 of the 10 CALP Act regions which are at least roughly divided by catchment rather than by forests as in the Plan (presumably following the old divisions of the Forests Act 1958, where it seems anything goes). This flies in the face of the definition in s3 of the CALP Act of catchment management as "the co-ordinated management of land and water resources, using catchments as a basis". The CALP regions would be preferable geographic units because of their catchment basis.

The Flora and Fauna Guarantee Act and the Plan

-The Flora and Fauna Guarantee Act 1988 has a similar structure to the CALP Act with its plans, action statements and notices, but has only one board for the whole of Victoria. This is quite reasonable because its board has more of a scientific emphasis. The Midlands Plan does not go out of its way to conserve all flora and fauna, but tries to protect at least some of each species, e.g. it lays aside reserves of some older trees for animals to shelter in. This is an understandable logging/conservation payoff.

ESD and the Plan

-As regards Environmentally Sustainable Development (ESD), the Plan makes various half-hearted references. Page one talks about the need to conserve animals and page two the need to regularly monitor sawlog amounts, determined by a Forests Service Technical Report- 'Review of Sustainable Swalog Yield- Midlands Forest Management Area'. I have not found this document yet.

OVERVIEW

According to its summary (iii), the Plan was set up to address demands of the Acts and the NFPS I have mentioned, except the CALP Act is only mentioned later in the Plan. There are problems with the Plan- special area plans have been all but ignored, they have been duplicated with special managment zones, catchments are separate within forests, Landcare groups are ignored. At least the Plan is there, not up to the whim of the Director and Minister to carry it out as is the CALP Act (ss 33 & 32), for which we are still awaiting regional plans. However, in the intersts of Intergrated Catchment Managment, the CALP Act and the NFPS could have been used much more than they were.

Comments on the Lerderderg Catchment Report

A Critical Examination of 'A Report on the Effects of Forest Harvesting on Water Yield and Water Quality in the Lerderderg Catchment'

D Haywood
January 1996

1. Introduction

The Lerderderg Catchment report (1) purports to present evidence and arguments to show that timber harvesting has not affected water yield and water quality in the Lerderderg River catchment. The report also attempts to develop a worst case water yield model for the Wombat Forest.

This study was commissioned by the Department of Conservation and Natural Resources (DCNR) following complaints from the Wombat Forest Society that timber harvesting was affecting the water yield and water quality of streams in the Wombat Forest catchments.

Although the Lerderderg catchment is the least disturbed catchment in the Wombat Forest, DCNR has made no attempt to assess the impact of timber harvesting on other catchments.

There are a number of problems with the analysis of data in this report which do not justify the unqualified conclusion of the report that water yields and water quality have not been affected by timber harvesting.

The report consists of two main sections:

(a) A main report prepared by the joint authors which depends for some of its conclusions on the statistical report; and

(b) The statistical analysis report prepared by Tim Fletcher from Benchmark Environmental consulting

and these reports are discussed in detail below.

2. Main Report

(a) Water Yield Model

There is now a large body of evidence showing that timber harvesting can have an impact on water yields and water quality in streams and this report relies heavily on work conducted by Melbourne Water in the Central Highlands.

In 1989, the Victorian Department of Water Resources studied the effects of timber harvesting on stream flows in the Otway Ranges(2) and like the Lerderderg Catchment report, the Otways report draws on the work done by Melbourne Water in the Central Highlands Catchments.

(b) **Historical hydrological patterns**

On page 9, the report concludes that 'the current hydrological patterns could be similar to those prevailing before 1960'. This claim is astonishing given the total lack of evidence provided to substantiate this statement. Indeed, the claim is not even supported by the statistical analysis report which states that (p3)

> it is not possible to extrapolate back into the past based on these findings..it does not determine whether these parameters are in 'as natural' condition since the natural condition is not known

3. Statistical Analysis Report

(a) **Rainfall as a control**

The analysis strategy adopted by the report required a stable baseline against which the other variables could be compared. The report states that rainfall could be used as the control variable and claims to show that rainfall is 'stable', especially in the period 1960-1995.

As discussed by Gottman (4) , a time series x_t can be represented as

x_t = Trend + Deterministic cycles + Stationary stochastic process

Deterministic cycles are sinusoids which have regular periodicities and are often present in rainfall time series. For example, in a review of long series of rainfall data collected at different sites across Australia, Coughlan (5) found statistically significant periodicities of 2.2 and 3.1 years. If the series contains either a linear trend of deterministic cycles, the series cannot be considered to be stable.

In appendix B of the report, least squares fit is used to obtain the linear trend in the annual rainfall series which found a small positive trend, with the value of the linear trend component at 1960 998 mm/yr and at 1994, 1042 mm/yr i.e an increase of 4% over the 35 year period i.e. according to this analysis, the rainfall time series is not stationary.

Although the presence of deterministic cycles in rainfall is disputed by many meteorologists (6), the report comments that 'there is some evidence of short and long term cycles' in the data. However, having made this observation, it then dismisses them as irrelevant. If deterministic cycles were present in the data, this is an additional reason for rejecting the 'stability' of the rainfall series.

Contrary to the assertion made in the report that the flow:rainfall ratio is stable, the data actually shows wide variation in this ratio. For example, the mean annual flow:rainfall ratio is 0.19 and the standard deviation is 0.09.

If the assumption of simple proportionality is not satisfied, the double mass plot technique could mask trends which are actually present in the data. For example, it is possible that data which contains a trend could plot as a straight line if the relationship between the variables is not linear.

Searcy & Hardison (8) state that when the data are not governed by a relationship of simple proportionality, variables should be transformed before the technique is used. When the relationship is more complex (for example a linear relationship with an intercept $Y=b+aX$ or a nonlinear relationship such as $Y=aX^b$), the shape of the double mass curve can be quite different after the variables have been transformed.

An examination of the monthly stream flow data used in this report shows that the relationship between the rainfall and stream flow data does not satisfy a relationship of simple linear proportion.

For example, when a simple linear model is fitted to the stream/rainfall data, residuals show a distinct dependency on the predictor variable (stream flow). As shown by Goodall (9), this pattern in the residuals is indicative of nonlinear relationship.

Other variables in this study also fail to fit the model of simple proportionality assumed in the report. For example, salinity is generally a decreasing function of stream flow and rainfall (since stream flow and rainfall are positively correlated). This relationship exists because as rainfall increases, stream flow also increases and this tends to dilute the amount of salt in the water. Suitable models for variables such as salinity are discussed in [10].

The incorrect use of this technique is difficult to understand because the authors claim to have read the relevant section of 'Stream Hydrology', which is written by the Cooperative Research Centre for Catchment Hydrology.

Apparently, the authors were aware that the relationship between rainfall and stream flow is not linear because when they explain the departure of the double mass curve from a straight line, they state that a possible cause for this departure is the fact that the 'relationship between rainfall and flow [is not] perfectly linear'.

(e) **Lack of control catchment**

Commenting on suitable experimental designs to assess the effects of land use change, a recent report from Monash University(3) states that only two approaches are feasible:

> (a) One catchment is used and the response is predicted by a model calibrated in the pretreatment period;
>
> (b) At least two catchments are used. One of these undergoes land us changes while at least one is used as a control. (This is the 'paired catchment' approach.)

The Monash report states that 'it is usual to prefer the paired catchment approach to the single catchment approach because of greater errors involved with the later'.

The Lerderderg study design is even weaker than the single catchment approach because no calibrated model was developed in the pre treatment period. Consequently, the comment made about errors is applicable to the Lerderderg study.

(f) **Examination of the stream flow and water quality data**

In reaching the conclusion that there has been no change in stream flow, the report has relied on only the most basic analysis of the stream flow record.

Additional analysis of the record should have included

(i) Changes in the occurrence of extreme events (high and low flow)

Periods of zero flow may affect down stream users e.g. irrigators. There is some evidence to suggest that the incidence of months with zero flow has increased slightly since the introduction of shelterwood harvesting in the Wombat Forest. The incidence of high flows is also different in the period before and after the introduction of shelterwood harvesting. (This is examined in appendix B).

(ii) Examination of seasonal components of stream flow

A recent report (3) noted that 'the effect of land use change on flows may be seasonal and not identified in the annual totals' (p 57). This report has not examined changes to seasonal stream flows. Keeping in mind the limitations of the data, it appears that the data used in the study does have some seasonal trends.(see 3(c)(i)).

Statistical results in the report are presented without any error analysis or indication of the accuracy of the results such as confidence intervals. Recent reports which have used double mass curves (e.g [3]) always plot confidence envelopes with the data so that the accuracy of the data can be assessed. None of the double mass plots used in the Lerderderg River report show any confidence envelopes and claims that there are 'no significant trends' in any of the double mass plots appears to be a subjective assessment.

An examination of raw turbidity data using bootstrap methods (12) found quite wide confidence envelopes for the double mass plot of turbidity and time. For example, the 95% confidence interval is a band roughly 20% above and below the double mass curve. Consequently, it would be difficult to detect changes in turbidity using double mass plots if the change was less than 20%.

(h) **Effect of timber harvesting on water yield and water quality**

Although this report claims to be investigating the effect of timber harvesting on water yield and water quality, the report appears to exclude outright the possibility of these activities affecting water yield and water quality.

For example on page 16, it attempts to account for some anomalies in his stream flow data and concludes that all the divergence from a perfect linear relationship between the variables (cumulative rainfall and cumulative flow) can be explained by climate, changes in water abstraction ,depletion of soil water storage, measurement errors , slight departures from a linear relationship between flow and rainfall but not, so it seems, timber harvesting.

Since flow records were kept at O'Briens Crossing, more than half the Lerderderg Catchment has been subjected to logging but despite this, the authors of the report do not seem prepared prepared to consider the effects of logging as a cause of the anomalies in the data.

The reluctance to consider the possible effects of logging is demonstrated again when the report attempts to explain the increase in cumulative turbidity in August/September 1989:

> the large increase in cumulative turbidity [..] associated with storm events may be due to any number of causes. Localised bank erosion or collapse, or upstream works on or near the waterway are possible explanations. So is the explanation of the importance of sample timing. Perhaps these readings were taken right at the peak of sediment transport while readings during other storm events were not

The report is apparently willing to consider a wide range of possible explanations which could explain the anomalous data but the authors seem to be completely closed to the possibility of logging causing these anomalies.

(ii) Seasonal trends

Trends in the time series appear to have been analysed using only simple linear regression. While this may be adequate for some time series, when there is a strong seasonal component a more robust should be used. (For example, the seasonal Kendall test [10,11,13]). This analysis has the same limitations as described for the water yield data.

(j) Typical flow:rainfall ratios

The report claims that because the mean flow:rainfall ration for the Lerderderg Catchment is about 15%, no land use effects are present because

> the mean catchment yield for the Lerderderg Catchment for the study period was approximately 15%. This figure is typical of the type of forest/land use contained in the Lerderderg Catchment (p13)

and a reference is given to the recent work conducted by Monash University (3) to support this claim.

In the Monash report, data for mean annual catchment loss (the difference between rainfall and stream flow) is presented for several catchments in table 5.9. This data has been converted to flow:rainfall ratios and is shown in the table below:

Catchment	Ratio
Stewarts Ck 4	19%
Reefton 1-6	14%
Black Spur	32%

In the Lerderderg report, the authors compare the average monthly ratio to the Monash data, which is for annual data. The average annual flow:rainfall ratio for the Lerderderg Catchment is actually about 19%.

Despite its use of the Monash study, that report does not support the concept of a 'typical' flow:rainfall ratio:

> the annual catchment loss is dependent on a number of climatic, catchment and vegetative characteristics. It is difficult to obtain a general relationship between [annual catchment loss] and land use because of interaction between these characteristics.

The Monash report also contains data for Stewarts Ck 2 catchment (a catchment converted to pasture). The average annual flow:rainfall for this catchment is 22% (i.e. similar to the forested Stewart Ck 4 catchment).

- Figure 1 includes incorrect site codes on the map. Water quality data site is shown as 232 213 and flow data is shown as 232 213A. (The correct site identifiers are given in the caption to this diagram)

- Incorrect location identifiers appear again on page 11 when the Bureau of Meteorology rainfall site (087017) at Blackwood is given the stream flow recording site.

- Label for axis of Fig 13 is incorrectly placed on p23.

- In Figure 14, labels for turbidity and flow are transposed (The graph gives the impression that turbidity increases before stream flow increases).

5. Conclusions

The lack of suitable data places constraints on finding any relationship between land use changes and water quality and yield. These limitations would have been apparent at the start of the project and it is not clear why the methodology used in this study was adopted.

The Lerderderg Catchment report claims that water yield and water quality have not been affected by logging but these claims are based on a flawed methodology which has included the inappropriate use of a number of statistical techniques with inadequate data. The conclusions made in the report have not been adequately justified and consequently the report lacks credibility.

When other statistical techniques are used to analyse the data, it is possible to find some statistically significant trends.

From the number of errors in the report, it appears unlikely that anybody bothered to proof read it or subject it to any form of peer review.

This report should not be used as a basis for decision making in the Wombat Sate Forest and DCNR should undertake further studies to assess the impact of logging on water yield and water quality in the Wombat Forest Catchments.

Speaking in the 'New Scientist' recently (15), Peter Cullen from the Cooperative Research Centre for Freshwater Ecology claimed that environmental research in Australia is often second rate and misleading. He was reported as saying that

> While scientists might be able to pick out the garbage in environmental research, the studies often ended up in official reports. People without adequate training believe it and act upon it. There is a danger of making misguided policy decisions

6. References

(1) O'Shaughnessy, P., Fletcher, T and Bren, L 'A Report on the Effects of Forest Harvesting on Water Yield and Quality in the Lerderderg Catchment' DCNR 1995

(2) Moran, R 'The effects of timber harvesting on streamflows in the Otway Ranges', Department of Water Resources 1989

(3) Nandakumar, N, Mein RG, 'Analysis of paired catchment data to determine the hydrologic effects of changes in vegetative cover on yield' Monash University Department of Civil Engineering project report UMO10 1993

(4) Gottman, J M 'Time Series Analysis', Cambridge University Press 1981

(5) Coughlan, M J 'Changes in Australian rainfall and temperatures' in Pittock, A B et al 'Climate Change and Variability', Cambridge University Press 1978

(6) Burroughs, W J 'Weather Cycles - Real or Imaginary' Cambridge University Press 1992

(7) Gordon, N., McMahon, T.,Finlayson, B 'Stream Hydrology' , Wiley 1992

(8) Searcy, J K , Hardison, C H, 'Double Mass Curves' ,Geol Survey Water-Supply Paper 1541-B, USGPO 1960

(9) Goodall, C 'Examining Residuals' in Hoaglin D, Mosteller F , Tukey J 'Understanding Robust & Exploratory Data Analysis' Wiley 1983

(10) Hirsch Robert M, Slack James R, Smith Richard A 'Techniques of trend analysis for monthly water quality data' ,Water Resources Res 18(1) 1982

(11) Hirsch Robert M, Alexander Richard B, Smith Richard A 'Selection of Methods for the Detection and Estimation of Trends in Water Quality' Water Resources Res 27(5) 1991

(12) Efron, B ,Tibshiranini, R J, 'An Introduction to the Bootstrap', Chapman&Hall 1993

(13) Kendall M,Ord J Keith 'Time Series' Arnold 1990

(14) Petroski, H 'Soft Graphics', American Scientist 83(1) 1995

(15) Anderson.Ian 'Shoddy Research could shape environmental policy' New Scientist 7/10/95

Flow adjusted salinity

The examination of salinity trends in the Lerderderg report did not include an analysis of the flow adjusted salinity data. However, as Hirsch et al (10) note, concentrations are often correlated with stream discharge and in these situations, trends in concentrations can be masked by patterns of stream discharge. They provided a methodology for adjusting the original data for flow which consists of

(a) Finding a suitable relationship between the concentration and stream discharge;

(b) Examining the residuals from this regression (this is the flow adjusted data) .Trends are detected using the seasonal Kendall test and slope estimator.

Using linear regression a relationship $Y=123.1 + 89.5/X$, where Y is salinity and X is the stream discharge (mm) was found. (Regression results are $F=65.7$, $R2 = 0.25$, both regression constants significant at 0.001)

The Seasonal Kendall test results are ($S=316$, $Z=3.69$, $p<<0.001$) and the Kendall slope estimate B is 1.46 /yr. (This is an increase of about 1% each year).

Although the Lerderderg report found no increase in salinity in the raw data, examination of the flux and adjusted salinity data suggests that a small increase in salinity is occurring.

Australian Heritage Commission
Register Of The National Estate Database
Acknowledgment of Nomination

Nominator: Wombat Forest Protection Society 100253
PO Box 51
Trentham VIC 3458

Name of Place: Wombat Forest Mineral Springs Recharge Area

Other Names:

Database No: 100273

File No: 2/03/094/0023

Legal Status: Indicative Place

Admin Status: Not Assessed

Property Information
Mainly State Forest

Location/Boundaries
The Mineral Spring Recharge Areas lie along either side of the Great Dividing Range, as identified in the journal paper of Dr Andrew Shugg.

Nominator's Statement of Significance
The Mineral Springs Recharge Areas have significant environmental and economic values. Dr Shugg's research makes it plain that there is a direct link between the recharge areas and the mineral water around which the entire regional tourism industry is based.
The recharge areas probably represent only 1% of the total forested area remaining in the Victorian Midlands region, and the recent DFA draft admits that less that 10 % of this forest type remains from pre-European days. Added environmental significance includes the fact that the mineral spring recharge areas closely relate to the remaining forested catchment headwaters of vital rivers supplying domestic and agricultural waters. These include: the Hoddon River and the Werribee River.

Bibliographic references
Shugg, A. 1994. "Hydrogeology of the Mineral springs of Central Victoria", in Water Down Under, Adelaide, SA.

Description
The area mainly consists of regrowth native eucalypt forest, which was originally cleared during the post goldrush era of 1851 to the late 1890's. A 1899 Royal Commission halted most forest logging operation in the area until the resumption of the forest industry in the 1940's. With continuous logging until the present day virtually all the forest is regrowth on its second or third cutting rotation.
The forest type is variously described as "foothill mixed species" eucalypt forest, "moist foothill forest" and consists of 4 or 5 dominant eucalypt species:
E. obliqua (Messmate stringybark)
E. radiata (Narrow- leaved peppermint)
E. viminalis (Manna gum)
E. rubida (Candlebark)
A. Melanoxylon (Blackwood)
Lesser extent in wet gullies E. orata (Swamp gum).

Description (continued)

Part of this high rainfall(800-1100 mm /yr) area has been gazetted as a water catchment area.

Condition

High intensity 2 Stage clearfelling over the past 22 years has affected most of the area. Smaller areas have been selectively felled since the 1940's. A tiny area has not been harvested since the turn of the century.
The over all condition of the area is medium to high quality regrowth in a high rainfall area (800-1100 mm/ yr).

Missing Information

• • • End Of Report • • •

Proposed Midlands Forest Management Plan

Midlands Forest Management Area

Timber Production

Tim Anderson
April 15 1996.

Introduction:

I would like to put forward some comments in relation to the proposed Midlands Forest Management Plan. The form that I will be presenting these comments will not be following the order that is used in the Draft FMA Plan. Instead I will be following the cycle of the trees through the production cycle and an overview of the Wombat Forest and some issues I see relevant. I acknowledge that the Midlands FMA is a wider area than just the Wombat Forest but these comments will relate to the Wombat. Given that a large proportion of the Midlands' productive forests are formed by the Wombat State Forest it is vital that this forest is well managed.

Comments:

Marking Out of the Coupes:

In most coupes the marking out of the forest appears to be adequate. The main concern is the quantity and quality of the retained "habitat" trees. In almost every coupe that the Wombat Forest Society has examined the prescribed three habitat trees per hectare does not seem to be met. Were trees have been marked, alot of these trees appear to be potential habitat trees fifty years in the future. This is not catering for wildlife NOW.

The trees that are currently providing hollows are often the trees that were ringbarked by the 'sustenance gangs' of the Depression. In the event that there are insufficient trees to be found in a coup, it is the duty of the Dept to provide artificial nesting boxes.

The other area that is not up to scratch is in the area of Drainage Lines and Filter Strips . The Wombat is an important catchment and it is unacceptable that anything but the highest standard of care be taken with Drainage Lines and Filter Strips. I believe that if the line occurs on a 1:25,000 Topographical Map , it should receive due care.

Harvesting:

Most harvesting operations witnessed recently in the Wombat have seen major and minor Filter Strips up to ten foot deep with heads etc . This is disappointing and again shows a casual attitude to water management in the forest. It has been argued that while it is technically legal under the Code of Practise it is not in the spirit of the Code and should not be permitted.

The coupe that was cut two years ago on the east side of Boundary Rd. is only a few hundred meters up stream of the Loddon River. The coup has a gully running north/south in the middle and a number of secondary drainage lines running into it the length of the coupe. EVERY one of these lines including the central gully where deep with heads. Trees up to B Class had been cut out of the bottom of the gully. Murray Goulburn Water where not impressed at the debris nor the tree removal.

The amount of elevated fuel , particularly in Shelterwood Two cuts is a concern. It leaves an unacceptable fire danger and it makes it difficult for the public to access these pieces of forest for recreation.

The scale of the skidders has a lot to do with the problems observed in logged coupes. Severe soil disturbance, the retained seed trees scarfed, and in operation they do an unacceptable amount of destruction to the ground cover and middle story vegetation. It is legitimate to extract the timber but it isn't acceptable to leave a desert behind. It may be easier to drive over small trees and plants than take a couple of bites at turning , but it ignores the rights of other forest users.

My youngest son was observing the logging currently being done behind my place. He had no problem with the falling , he pointed to the skidder driving through and over what was left and asked me to tell them to stop driving the machine. The objective eye of a three year old has a problem with this type of harvesting.

This could also be a comment on the production pressures that the timber people are being put under.

The way that the bark is being managed around the log landings is far from adequate. piles 2 meters high are left sometimes in long rows , sometimes carried back into the coupe and dumped . Leaving the bark in such ways means that it is unlikely that it will be disposed of in the regeneration burn, yet another obstacle in the bush and an effective mulching layer to hinder the regeneration.

Other means of extracting the timber should be explored. Bill Caruish's excavator extraction system should be examined as it has the potential to leave the forest in a much better state .

If the upper branches of the falled trees were docked off in the coupe (in order to put the available nutrients from the tree back into the ground). The rest of the tree could then be snigged out to the landing for processing. The sawlog could be docked off, the residual

wood taken and the rest of the tree processed on the landing for firewood etc. This would mean not just the trunk of the tree is used but alot of the head as well.

Silvicultural Systems:

The Shelterwood System has so many questions hanging over it that it is disappointing to see it the dominant Silvicultural System. I believe that it has been retained only because it is the only option that gives the sustainability figures any credibility.

The debate seems to be polarised between the accademic side of forestry vs the people that live and work in and around the forest. I understand the aims of Shelterwood and the need to open the canopy because Messmate is the least shade tolerant for revegetation etc. It would be interesting to see a cost analysis for correcting all the failures in the system.

Unlike Mountain Ash, Messmate does not have the necessary mechanism to allow for the strong trees to get ahead of the rest of the regeneration. This means that the coupes that have come up too thick, as well as the Ash Wednesday areas, will struggle and be held back for up to fifteen years before the young trees sort themselves out. This is too long a time for a tree that is being managed on an eighty year rotation and will probably mean that it will take more like one hundred years.

POISONING TREES:

The prefered option being used now for the thining is the 'nip and squirt'. Injecting to stems with herbicide and leaving the treated stem to die and fall over. The Wombat Forest Society has looked into this issue, the current research suggests that the glysophate goes up into the tree on injection and is evevtually broken down before it reaches the soil. Other resaearch has highlighted the mounting evidence may cause harm to the environment. If herbicide is to be used it should not be Roundup etc that contain the wetting agent. Peter Buthcher , Environment Officer for Goulburn Murray Water recomends a half dilution of staight glyphosate If one looks at an area that has been treated a few months before, we see around four in five trees standing dead and browned off. Is this an acceptable fire risk? What is the "one in so many years" risk of wildfire? Is it too greater risk on the remaining prime sawlog stock that is left? Is it an acceptable risk on adjacent land holders? Sometimes the most cost effective way isn't necessarily the best way. It woukld be better to see the poisned trees removed.

OTHER SILVICULTURAL SYSTEMS:

The Seedtree System seems too vunerable to the variability in seed loads of the messmate. If seed trees are rto be retained, then they need to be retained long enough to average out the this

variability. The other concern would be in regards to the seedlings. After one year the seedlings would only be just visible and therefore it would be difficult to see them to avoid damage during the removal of the retained trees.

The Silvicultural Selection System is the locally preferred option. In the article by Graeme Gooding in the Courier 15/2/95 , there is support for a properly designed Selection System as being viable.

It should be noted that the coupe in Back Settlement Rd Korwieguboora, cut for the first time under Shelterwood two summers ago, had a SW2 cut first off. This coupe had been selectively cut by the Howards since the forties. Anyone that looks at this coup will see trees of all ages including a large number of good young trees. The sawlogs harvested from this coupe would have been the biggest in the Wombat. This coupe is proof that it is possible to get good regeneration under Selection. This coupe will be back on line with sawlogs quicker than probably any other coupe. A request was made of the Dept to not cut a fifty to one hundred meter strip along the east side in order to allow time for an examination of the results achieved from selection by people who know the forest and have a good eye. We will all be long dead before we could see such results again and it is disgracefull that the Dept did not leave some of this coupe intact for examination. Perhaps it is better to remove the evidence if it runs contrary to the current Foresters line?

Group Selection would seem to be a good way to have a minimal impact on the remaining forest. You don't have to open up sixty hectares to get the sun onto the ground, to overcome the shading problem.

HABITAT:

With regards to Habitat provisions, the current method of leaving three habitate trees per hectare does not seem to be working. Rarely do you find that three trees per ha have been left and in too many instances the trees left do not survive the regerneration burn. Once the burn has taken place the coupe is a virtual desert for up to a year and it is not likely to provide for wildlife requirements.

There is alot of talk about having 'Clumps' left in coupes as an alternative to isolated habitat trees. In most coupes there are areas that due to a number of factors will not be a good productive area, as well as the filter strips etc. These sites may be more suitable for leaving as ' Habitat Clumps'. It would be vital that these areas do not have trees felled into them and the regeneration burns must not enter them. With so little understanding of the complexities of the natural eco-systems in the Wombat, these 'Islands of diverse life in a virtual desert', may become the reservoirs necessary to correct environmental shortfulls that may occcur in the future.

Regeneration:

With the Shelterwood System the retained trees represent the prime stock, as a source for seed that should throw good trees and as premium timber for the sawmills, ten to twenty years later when harvested. Regeneration burns are the primary means to establishing the desired restocking of the coupes.

The regeneration burns over the past three or four years have shown a better control of the fire . The early nineties saw some disastrous burns with the retained stock severely effected.

Having observed most burns in the last number of years , and walked through the coupes in the days after the burns, I feel the problems that occur relate to doing the burn in one operation. It is unacceptable if the future restocking and care for the retained timber are compromised through inadequate resource levels for the Department. If the burns were carried out over a number of days doing small sections thus allowing better control of the fire. The costs for remedial works to either thin or seed coupes must surely far exceed that of doing the burns with optimal resources to get it right the first time.

SUB-REGIONAL VARIATIONS:

One of the variables in the equation is the seed loads in the trees year by year. Messmate moves between heavy seed loads to minimal seed over about a ten year period. This no doubt accounts for some of the extremes in regeneration results. Coupes so thick with young trees that you can virtually lie on them through to the too numerous failed regeneration coupes.

The instances of too thick and too thin regen. results tend to occur in the same area despite the coupes being cut in different years.

The section of forest that lies between Glenlyon and Bullarto seems to tend towards too thick regeneration. The forest immediately south of Lyonville has some shockers for failed regeneration , in some cases despite a number of treatments. These areas are generally on the redder dirts of the forest and it is possible that the quality of the soil means that all sorts of vegetation is established after the burns and scalping treatments. The result is that the slower growing trees seedlings are chocked out by the competing vegetation and this factor should be taken into account in designing regeneration operations.

The practise of 'Scalping' coupes is cowboy stuff. Huge windrows of tree debris and the precious top soil mounded up , reseeded and yet still the forest refuses to grow back.

The forest around Barkstead seems to be the ideal site for Shelterwood. The regeneration is good and the trees respond well.

There is also an observable suppression effect from the retained overwood on regeneration as well as areas of virtually no regeneration in large areas (up to 1/2 acre) in alot of otherwise successfully regenerated coupes. These areas represent lost productivity and with the question of an overcut forest, it is important to get all areas back into production in the shortest period of time.

Around Blackwood the rain shadow means poorer forest. With the soil so poor the regeneration burns destroy the few nutrients that are left. In this situation it would seem that perhaps a Selection System of harvesting would put less demand on the soil and with selection done with a good eye, it may be possible to grow some good trees on the sites.

With the Wombat growing for the most part on poor soils it is essential that when fire treatments are done that they are designed to have the very least impact on the nutrients in the soils. Studies have shown that the nutrients are converted to soluble salts that are then transported from the site and not helping with the downstream water quality.

Most of the ridges through the middle and southern ends of the Wombat , have Peppermints as the dominant species along the tops of the ridges. The peppermints are the species in the Wombat that favour the poorer soils. How successfully and at what costs of treatments , will the Dept be able to swing the dominant species to messmate?

NUTRIENT CYCLE:

A theory that the WFS has been investigating is the whole question of Nutrients and the Nutrient Cycle in the forest. The typical stratification of trees in the forest are Peppermints on the ridges and therefore the poorer soils, The Messmate favour the mid-slopes and the Swamp Gums and Blackwoods the nutrient rich gullies. If there is a problem of `nutrient mobility in the forest from logging activities, regeneration burns etc, one indicator would be a change to these bands of tree species. It is obsevable and backed up with anecdotal evidence to say that the Peppermints are coming down the ridges. It was dissappointing that Kellas's Shelterwood Review did not look at the question of nutients and nutrient cycling. The WFS would like to see an objective study into this as one of the factors in the regernation responses happening in the forest.

Retained trees:

As previously discussed the Shelterwood System leaves around 25% of the trees for a further ten to twenty year period. The theory being that by leaving these trees under perfect conditions they will respond to the release and put on good growth.

Observation in most coups show that the retained trees take varying amounts of bark scarfing etc during the harvesting operation that has the potential to compromise the trees.

The amount of waste material left on the floor of the coups and too often around the bases of the retained trees, means that during the regeneration burn the fires regularly burn or scorch the trees. Creswick Forestry School research has shown that there is a definite

retardation in the growth response of the retained trees relative to the degree of crown scorch. This translates into lost productivity.

The intensity of the fires up the trunks of these trees also has resulted in gum veins in the outer wood that has meant a devaluing of the timber as a final product. If the last eighty to one hundred years has been spent growing these trees to produce premium timber it is ridiculous to have this compromised at the end by failure to control the regen. burn and too much fuel left at the bases of the trees.

The amount of windfall that is occurring in coupes between the SW1 cut and the SW2 cut is significant and again results in lost timber.

In the more exposed coupes there is a noticeable deteriation of the crowns in the retained trees possibly the result of wind burn. This would have to have an effect of slowing down the growth of the tree and therefore result in lost production potential.

The other factor touched on earlier is the shadowing effect that the retained trees have on the regeneration . The effect is larger than the diameter of the retained trees. With the prescription for Shelterwood leaving twenty five trees per hectare the suppression effect the retained trees have is considerable.

The final harvesting of the retained trees sees alot of the regeneration destroyed or knocked about. The species of trees that are knocked down or spared seems to be too arbitrary. The coupe on Telegraph Rd that had the SW2 cut about five years ago had alot of the Messmate knocked down and a high proportion of the retained trees were either gums or peppermint. Hardly the preferred species.

With the removal of these trees large holes are left in the forest that could have the effect of having the regen. growing into the available light space with the potential of producing curved sawlogs.

With no burn after the SW2 cut ,the heads of the trees removed stay in the coups and all too often are not adequately ' let down' thus leaving an unacceptable fire risk as well as rendering the coupe virtually unusable by the public for recreation.

Future Forest Management:

I have been involved with the debate on the management practises within the Wombat over the last six or seven years, and I have looked at the Shelterwood System in progress across the Wombat State Forest as it should be and as it is. I am amazed that a system that has such a huge variability in response in almost all silvicultural criteria has been retained as the principle system.

It may be convenient to have a blanket system in place, but with such noticeable sub-regional variations it would seem that a number of

systems may bring about a better result. I believe that because such a huge proportion of the Wombat have been subjected to the Shelterwood System (approx. 70%.) , with Sustainable Sawlog Yield based on skewed CFI Plots, that in order to have the Sustainability Figures look presentable the Shelterwood System must be retained warts and all. It is unfortunate that a previously untried system in Victoria was almost universally adopted here. While a tree stands it is growing , once it is cut down you are back to square one. The Wombat is now in the unfortunate position of having had seventy percent of the forest with at least the SW1 cut on it. The numerous flaws that are emerging with Shelterwood coupled with the extent the System has been implemented mean that alot of potentially good trees have been cut down, we are back to square one.

If we are stuck with Shelterwood ,study should be immediately implemented to fine tune the System to address the above repeating failures. The cost of having to do further remedial action in coupes does not seem to be available in adequate quantities.

The Silvicultural System that is being talked about by people within Midland Logging and as suggested by Ron Liversidge to the FMA Committee should be investigated for the remaining Thirty percent of the Wombat.

The sizes of the coupes over the last twenty two years have been a disgrace. A forest that has so many other values and in particular as mostly gazetted catchments should not be managed with one resource so dominant over the others. The coupe sizes suggested in the Draft FMA Plan of up to forty hectares are still too big. In order not to cut off the options for future uses of the Wombat, it would seem better to limit the sizes of the coupes to no more than twenty hectares and preferably ten.

WATER:

The Lerdederg Report on catchment implications for the Wombat on page 5 says :

(c) The retention of a shelterwood which dampens any regrowth effect. If a retention rate of say 25 tree per ha and with an average crown diameter of 15m is assumed this results in a residual crown cover of about 4400m/2 per ha. This dominating canopy would limit the influence of the regrowth canopy by reducing the radiation load on the regrowth crowns and therefore transpiration."

This statement shows a misunderstanding of the Shelterwood System as the retained trees are only there for ten to twenty years then the full radiation effect will be a reality.

The retained seedtrees , origanally left for around twenty years under the original Shelterwood System, are now being cut at around the ten year mark. They won't be there to stop the above radiation effect.

Referring now to the graph on page 8 shows that there would not be a noticeable effect on water yield until around the twenty year

mark. This is how long the Shelterwood System has been around and therefore any effect is yet to be apparent.

If you extrapolate the Worst Case Scenario into say the Loddon or Werribee catchments and look at the extent of harvesting that has taken place , there will be some quite significant impacts on water yields. One can only wonder what the value of lost water to irrigators and towns for the next eighty to one hundred years will be . What will the equation look like if the value of leaving all the remaining forest as water yield compensation would be compared to the value of the timber? One crop of trees per eighty years compared to eighty years of water yield?

FOREST FORM:

With the shift now taking place from predominantly SW1 to predominantly SW2 cuts the look or form of the forest will change dramatically. Anyone that currentlty looks at the Wombat from most vantage points will see what looks like a tall forest. As most of the coupes have the retained trees removed under the SW2 cuts , the whole look of the forest will change and we will be looking at areas of young trees over most of the forest. Apart from the above water yield concerns, what will this change in forest form have on future tourism potential . With Tourism the fastest growing industry in the world, with the Daylesford and surrounds in one of the fastest growing Tourist Region in the State, again I ask , has the Wombat been managed over the last twenty years to accommodate future requirements of the forest.

The nature of the soils in coupes pre and post logging and regen burn appears to be quite different. Prior to logging the soils are buried under a layer of mulch and even in summer are moist not far down. After the logging and regen burn, the soils are baked , exposed, and a significantly poorer for this process.

The talk of the need for fertiliser in the forest and the requirement for State Forests to be managed sustainably seen to be a contradiction. The volume harvested can be in relation to the standing volume of the forest, the increment of growth and the area , but there is also the carrying capacity of the soils. If it has been found that we now have a nutrient deficient forest, one has to ask the question "has the forest been managed in a fully sustainable way?"

The current debate has had a lot to do about the role of Midways in the Wombat. With the change over to predominantly SW2 cuts , the volume of residual wood will decrease. With the capital investment that CSR has at Bacchus Marsh and the associated jobs, it is essential that the future resource for this plant be secure. Midways had a dubious role in the Wombat and are not well liked within the timber community. If there is a future for a second residual wood user, it must be on the basis of taking all the waste from the coupes. This would solve so many of the problems in the bush. The people who wish to recreate in the forest would have a clean forest floor. There

would not be the up to 50 tonnes per ha of fuel to get the regen burns so hot and the fuel would be removed from the bases of the retained trees , thus reducing the chance of crown scorch and damage to the standing timber.

It has been talked about within the timber families of having the coupes auctioned or tendered out, from the time that the logging has finished up until the regeneration burn. Within that time the successful party could remove as much timber as possible from the ground. It could open up the possibility of a consortium of people after different forest product. These could include firewood cutters , mobile chippers, portable sawmill operators etc. SEE ATTACHED " WOMBAT WOOD".

FERTILIZATION:

There seems to be an argument that spot applications of fertilisers around selected trees can get the legumes/wattles to grow and fix the nitrogen and start off a mini eco-system at the base of the tree and make available the nutrients that are locked up in the clays etc. I propose that a Committee be formed that would be made up of people from a number of fields. Foresters, Soil Science, Permaculture/ Organic Sustainability Sector, Water Authorities, Community/WFS etc. The aim being to explore all options and techniques for improving the vigour of the forest.

On the question of sustainability a number of questions arise. It `has taken twenty two years to cut seventy percent of the Wombat. The Wombat makes up all the high to medium quality forest, and a significant part of the low grade. A Dept map that shows the coupes that have had the SW1 cut show that most of the high and medium grade forest has had a least one cut. Timber Workers all agree that it will take less than half of time to do the SW2 cuts, that is it will take around twelve years. that leaves the low grade forest, that will yield less volume and less quality. It is hard to see there being much more than twenty five years worth of wood in the sort of volumes extracted today.

Bill Mc Cashney. the founder of the Wombat Forest Society, says "It takes a lifetime to grow a saw log." This statement is true enough but over the eighty to one hundred years we are talking about, three generation will reach the age of needing timber to build their homes and furnish them. Looking at the Age Class Distribution Tables , the type of forest still standing, and the treatment prescriptions for the cycle of a coupe under the Shelterwood System, it seems that two of the three future generations will be denied their right to timber from the Wombat Forest and probably the Midlands FMA. If and when the timber runs out twenty five or thirty years from now, that will deny that generation. The thinning prescribed around the sixty year mark in the cycle will produce mainly PULP. How are the management failures of the past going to compensate our children, our grand children and possibly their children?

ACCOUNTABILITY:

We have the Water Yield probably effected and the Timber Yield probably effected. What forms of accountability should there be for poor management practices? Within the Dept of Many Name Changes there is a high degree of transience that has had the effect of not having the people responsible for management decisions around to see the implications. Perhaps these decisions and the ensuing outcomes should be tied to the person's career record and bad decisions will follow the people around. The effect of this may be to have decisions made on thorough research and thought and long term ramifications well considered.

The Wombat Forest Society recognises that the Dept , like most Government Departments has seen massive downsizing and resource stripping. It has placed a heavy burden on the remaining staff and no doubt brought about some of the problems. The WFS believe that as the Midlands Forest Area is the only area that makes a profit, that the various State Govts have been negligent in allowing that some of the $1.5 Mil that goes into Consolidated Revenue be diverted into ensuring that over stocked coupes are thinned (good to see this is happening) ,the many coupes that have failed on a number of attempts to regenerate adequately should have the funds to be successfully retreated to ensure that the coupe is bought back into full productivity as soon as possible.

One way of seeing this done might be to change the way that the royalties flow back into Consolidated Revenue. At the time a coupe is cut and the Royalties are paid by the Sawmillers and CSR, the monies collected should be put into a trust fund and held there until the coupe has gained a "Successfully Regenerated Certificate". This Trust would accrue interest. This would normally take around three to four years before the Royalty becomes available for Consolidated Revenue. If problems arise in getting the coupe to regenerate then the funds would be available from the Royalties in Trust. This system sees that some of the revenue from each coup goes back into itself safeguarding the future generations' Rights to a forest.

The inconsistent and sometimes secretive approach that DC&NR has taken to requests and queries about forest and associated land management from our community has been disappointing. The Wombat State Forest is a public resource and the public have a right to question management practises.

Conclusion:

The Wombat Forest Society is committed to seeing that all the values that go to make up the Wombat State Forest are properly managed for not only the current generations but also for future generations. The Wombat is not a plantation nor owned by a sector of the econonomy. The WFS has looked extensively at most of the issues attached to the forest. We feel that at present the forest is being run primarily as a timber resource. This in't good enough.

As the debate over practises in the forest have preogressed over the past two years it has become apparent that most players involved in the issue would like to see the Wombat run as a model forest. For this to come about all of these players and the broader community will have to concede some points in order to gain in other areas.

Unlike forest debates in other parts of Victoria and Australia, the debate here has seen long standing timber families unite with committed conservationists , in questioning the way the Wombat has been managed for the last ten or more years. The Timber Industry, the Timber Community and the General Community all have a problem with the Shelterwood System.

At present DC&NR's Sustainability Figures are based on a continuation of the Shelterwood System. This system may provide the best looking sustainability figures but what will the future ecconomic and environmental costs be? With WFS's studies into catchment implications based on the worst case scenario in the Lerderderg Report showing that the intensity of logging in the Loddon and Werribbee Catchments will have a negative effect on water yield. Who will offset this cost?

The Wombat Forest Society is not into petty " I told you so " media. The WFS is committed to seeing that the management and practises in this improtant forest are of the highest standard and we will settle for nothing less.

The Wombat Forest Society would like to see a thorough examintaion of the impact of current management practices on all aspects of our forest , not just Sustainable Yield Figures. If it is found that the future costs of Shelterwood are too high then lets work together to find what is the best system .

 COURIER 15/2/95

Foresters reject old 'take best' felling

A number of people have been expressing their genuine concern that the selection harvesting of the old days should be practised, rather than the current clear-felling in the Wombat Forest.

Clearly the Government forest experts who determine management systems have not done a very good job of explaining the current practice, and the level of concern is such that this needs to be addressed.

I understand that "sawmiller's selection" logging in Victoria was abandoned in the 1950s, as in general it involved picking the eyes out of the bush, gradually depleting the quality trees and leaving the defective, poorly-formed trees as the genetic resource.

In the 1960s in East Gippsland they introduced a "cull felling" system and paid the fallers to cut down or ringbark the poorly-formed trees at the same time as the sawlogs were harvested.

This resulted in a high sawlog-yielding future forest. Today cull payments are not required as there is a market for pulp-logs for chips.



The new-look electricity supply.

The following extract from a recent Conservation and Natural Resources Department report on East Gippsland illustrates this point:

"It is necessary to draw a distinction between true selection silvicultural systems and what is known as 'sawmiller's selection' where only those trees with better form and quality, and of the desirable species, are selected. There is little or no utilisation of cull trees or others of poor form or undesirable wood properties and little or no effort expended on creating a receptive seedbed.

"Consequently, over a number of felling cycles, the structure and species composition of the forest changes. In contrast, under true selection systems, cull trees and others of poor form are felled and receptive seedbed is created by burning or mechanical disturbance.

"Sawmiller's selection was the main system employed in the early years of timber harvesting in East Gippsland."

While I have an open mind regarding the proper use of selection logging or small patch logging, we do not want to go back to the pre-1960 practices of taking the best and leaving the rest. These selection systems, if properly managed, will still result in the production of pulp-logs suitable only for woodchips.

— GRAEME GOODING, Deputy Executive Director, Victorian Association of Forest Industries.

LETTERS TO THE EDITOR

Letters should be no more than 300 words, and sent or delivered to: The Editor, *The Courier*, 110 Creswick Road, Ballarat, or faxed to 053 331651. Letters may be edited for length or clarity. Preference will be given to shorter letters which are typed or clearly written and double-spaced. They must be signed, whether the name is intended for publication or not, and the writer's name and address clearly written. Letters making personal attacks will NOT be printed anonymously. Home or business telephone numbers should be provided so that letters can be verified.

WOMBAT WOOD

By: Tim Anderson.

RMB 3473

Daylesford. 3461.

A business concept that is aimed at bringing about win/win scenarios in the Wombat State Forest.

OVERVIEW:

It is now abundantly clear that twice now in a hundred years, mismanagement has compromised the short and long term sustainability of the Wombat. With only around fifteen years of timber left out in the forest, unless some dramatic cuts in quota are made now then we will see a virtual demise of the timber industry in the region. The obvious consequence will be substantial job losses. The approach that the Dept of Conservation and Natural Resources has taken to utilising the Forest product has been piecemeal and out of date. In most coups that have had a Shelterwood One cut on them, around fifty tonnes per hectare of waste wood is left behind to usually be burnt within two years. The result of this renders the waste wood useless and because of the huge fuel loads left , the burns often damage or wipe out the second cut, down valuing the timber when it is finally sawn. Parallel to this we have firewood cutters being made to pay six dollars a meter for firewood royalty, and other people who would like access to the waste wood prior to the burn, having their access denied with pitiful excuses like "we can't spare a supervisor to make sure you only take what you pay for." . So the DC&NR prefer to derive no royalty at all, and then burn it. This is a disgraceful mis-use of a public resource. Add to this scenario the fact that the amount of waste pre burn and post burn make it impossible for people who wish to use the forest for recreational purposes.

SOLUTION:

The solution to the above problems lies with the formation of a business/marketing structure similar to the old Diary Co-ops etc. This Structure would have two distinct areas of operation and focus. One arm would be based on the marketing and distribution of firewood and of woodchip/mulch. The other arm would be aimed at the value adding end of the market. It would be involved in producing quality timber , both seasoned and unseasoned , supplying the domestic professional and hobby woodwork market. It would also establish a woodwork facility for use by local woodworkers and as an access workshop for schools.There are also a number of small private sawmills in the district keen for access to small quantities of timber from the post logging coups. These mills provide pallet

material, garden stakes , fence palings and small amounts of sawn timber to ,the private market. The emergence of the portable saw mills also open up the avenue of milling on site.

FIREWOOD/WOODCHIP/MULCH:

With the arrival of the double and triple burn systems in home heaters ,Coonara Style Heaters, over the past few years, the obvious spin off is the rise in demand for firewood. The traditional source has been the redgum and box/ironbark. With these supplies fast running out, replacements will be needed. The Wombat State Forest lies one hour from Melbourne and is ideally suited to supply this market. The marketing angle for this would run along the lines of: Most wood heater manufacturers do not recommend redgum or box because it burns too hot and the shelves and baffles in the heaters burn out in around two years. If the owners use mixed species (messmate/peppermint) the heat difference in their houses is virtually the same but your heaters will last five years or more. The timber truck drivers that are currently carting logs to Midways only have to change the trailers on the back of their trucks to bins to cart the firewood.

The fire wood cutters would only have to cut the wood in the bush and should have access to the timber in a logged coup at the royalty rate of one dollar a meter. In return for the reduced royalty the firewood cutters would have to clear away the heads from the remaining seed trees and surrounds, thus stopping the damage to the retained seed trees.

Mobile chippers should be used in the forest to help chip alot of the tops of the tree trunks not currently used. This product could be sold to either CSR Particle Board in Bacchus Marsh or as mulch to nurseries, garden supplies or councils.

The end result of this phase of the operation would be to leave the coups ready for regeneration burns (if necessary), the fuel load and therefore the chance for a wildfire would be significantly reduced and for the public that wish to use the forest for recreation, the forest floor would be clean.

Wombat Wood would need to hire a sales/marketing person to work the wood merchants, nurseries, garden supplies etc. selling the products. It would mean that the firewood cutters would have a distribution network and the truck operators retain work.

SPECIALTY TIMBERS/ SAWN TIMBER & QUALITY CRAFTED WOOD PRODUCTS.

This arm of Wombat Wood is aimed at the value adding end of the scale. At present most coups have alot of trunks of trees left and portions of heads that are suitable for milling purposes. One small mill operator I know recovered fourteen truck loads of timber from a post logging coup. This timber he milled and sold. At present it is criminal that there is this level of wastage. Woodworkers are crying out for good quality Australian timber to work with.

With the process that the Timber Industry Strategy put into place nearly ten years ago, most of our local sawmills have installed kilns, and are selling kiln dried messmate for up to $3000 a cubic meter. The Central Highlands region of Victoria, and particularly centred around the town of Daylesford, are some of this countries best artists and craftspeople. The Convent Gallery in Daylesford, repeatedly wins tourism awards , and has helped establish the identity or this region as the home of Victorias rural Art.

If the craftsman of the region , the reputation of the district and the valuable timber now being wasted, can be put together and coupled to a marketing/sales structure, again we would see a far better situation than we see at present. A workshop and sales point could be established to help facilitate this end. It may be possible to get sponsorship to help establish this end.

As stated earlier there is currently being left behind large volumes of timber that the operators of portable sawmills are not being given access to. The Training Mill in Creswick is about to start a Forest Operators licence for the use of these mills in State Forests. This would ensure safe and proper use. The timber they recover can be used by craftspeople when dried, by the broader woodworking fraternity or sawn into structural dimensions for building.

A number of craftspeople in the area have been working towards establishing a facility that comprises a workshop that is available to schools in the area and beyond, for students to be able to learn and interact with the professional craftspeople. In an area based on Arts and a new Shire that has Tourism as its main industry and employer, it is madness that our children only get two hours each fortnight for art & craft.

As part of its contribution to the Wombat State Forest , Wombat Wood should deduct a percentage of the gross turnover, to be used to educate forest workers in enviromentally sound ways of operating within the forest. It could be used to fund some of the rehabilitation in the forest i.e. thinning and tree planting. It could also be used for establishing recreational facilities within the forest.

In other parts of the world silvicultural practices are aimed at full utilisation of forest products. Why are we wasting up to half of the timber and forest products we produce. If we are heading towards world's best practise then let the Wombat rise from the ashes of near destruction the second time round, to be at the forefront of forest practises. I do not believe that we have to face massive job loses in our timber industry, all it takes is some lateral thinking. If the upshot of the mismanagement in the Wombat is to be compensation, then I propose some of it be incorporated into a feasibility study of the above proposal. If the numbers from that study look good then clearly this is a better outcome than redundancies and relocation packages.

SUBMISSION FOR the WOMBAT FOREST SOCIETY Revised 30 April 1996
In response to the Proposed Midlands Forest Area MANAGEMENT PLAN

NOTE: Due to the current confusion about the re-structuring of the Government Department responsible for the management of our State Forests, throughout this submission for simplicity we refer to the Department of Conservation and Natural Resources (D.C. & N.R.) as the responsible authority.

Flora and Fauna

Compiled by John Endacott

[This section has been prepared from a perspective which encompasses a broad view of different (often competing) values, some of which are largely ignored in planning the management of Our Public Forests.]

[This section is a distillation of information and ideas from a variety of sources, combined with personal observations in many parts of the forest by several people.]

[This submission assumes that D.C. & N.R. or its successors will continue to harvest timber from the forests of the Midlands Forest Area. The key questions seem to be How Much?, over What Area?, and For What Purpose?]

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PREAMBLE

1. There is a definite need for a Reservation process which recognises the impacts of adjacent areas on the quality of Reserved areas.
2. The adverse effects of the "Shelterwood" harvesting system include the displacement of many wildlife species from harvested coupes. Many animals may have died unnecessarily as a result of the competition for reduced amounts of food and shelter.
3. The territorial instincts of most vertebrate forest dwellers means that many wildlife species will NOT relocate when their patches of bush become "Shelterwood" logging coupes and their homes are destroyed.
4. "Shelterwood" must be considered a failure particularly considering BioDiversity conservation values.
5. The Midlands Forest Area needs management systems which allow a place in the forest for fully mature, old, and senescing trees of all species; to foster the provision of long-term habitat for the sake of over-all forest health. This is necessary for the welfare of the many hollow-dependent species of the forests. It is preferable to have the whole forest usable by all wildlife, rather than have the wildlife restricted to narrow or possibly inadequate reserves within a forest which is largely unsuitable for its natural flora and fauna. There is insufficient knowledge of the requirements of our forest wildlife.

VOLCANIC SOIL VEGETATION COMMUNITIES

6. Colonies of intact native vegetation indigenous to volcanic soils are rare in this district. Such reference areas are hard to find, and are often vulnerable to the pressures of weed invasion and other impacts of European settlement. Some representative forested areas on volcanic soil must be protected from logging operations. (see the report of Lincoln Kern, attached)
7. Because volcanic soil areas were cleared for cultivation very early in the history of the colony, the values of the vegetation of these areas has been little understood. As community interest develops, and the needs of the LandCare movement increase, the future importance of undisturbed remnants of volcanic soil vegetation cannot be over-estimated. Some of the recognised remnants are in busy areas surrounded by farmland, and are adulterated by the presence of some exotic weeds; for example: Trentham Falls Reserve.
8. It is of the greatest importance that the best forest sites on volcanic soils are Reserved in perpetuity as Flora and Fauna Reserves, and are protected from any forms of disturbance which will disrupt their ecological integrity. The composition and quality of floristic and faunal communities which they support is of great importance. These communities must be regarded as a vital genetic base, an insurance policy contributing to a future gene pool for future dynamic ecological stability. They must be protected from environmental degradation by appropriate reservation. Such reserves must be sufficiently large to support the faunal communities which belong in them.

9. It is surprising that D.C. & N.R. has not included Soil-Type maps in the issue of the Draft Management Plan.

FOREST SITE CONDITIONS

10. Throughout the Wombat Forest there is such wide variation in a number of determining factors, that it is probably NOT possible

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to develop a single silvicultural and harvesting system which will be satisfactory over the entire forest area.

Some of the determining factors are:
- ECOLOGICAL
- SOIL TYPES
- GEOLOGICAL
- RAINFALL
- TOPOGRAPHICAL
- ASPECT.
- VEGETATION TYPE
- MINING HISTORY
- LOGGING HISTORY
- FIRE HISTORY

11. This creates a forest comprising a mosaic of areas of widely different site quality and silvicultural potential.
12. It is inevitable that there will be sites where silvicultural ambitions are in conflict with ecological imperatives.
13. It will be important that forest managers are aware of the importance of over-all forest health to the realisation of their long-term silvicultural objectives.
14. It is therefore necessary that forest managers develop a range of silvicultural and harvesting systems which can be reasonably expected to be successful over a range of sites of various quality throughout the forests of the Midlands Forest Area.

15. It is necessary that timber production must be strictly limited to a range of carefully selected sites, from which timber will be harvested in the future, and from which the timber industry cannot stray. This will probably mean a reduction of the total volume of timber which can be extracted from the forest. It will be necessary for EVERYONE involved to ACCEPT this as the limit of the productive capacity of the forest. It will then be necessary that a high recovery rate of quality timber products is achieved from both the harvested sites and the sawmills.
16. A reasonable proportion of High Quality sites must be reserved from logging operations - because the quality of these sites will be reflected in the composition of tree species and their size, vigour and health; the complexity of other vegetation species, the variety and numbers of invertebrate wildlife, and hence the breadth of composition of fauna species and their population numbers.

17. A bio-diverse forest structure and species composition remain in some areas of the Wombat Forest by default rather than by good management. The forests suffer because of poor implementation and lack of enforcement of the provisions of existing legislation.
18. It is not realistic to rely solely on inaccessability for the protection of some primary forest ecosystems, generally found in steep and rugged terrain and on the poorest of soils. As the supply of sawlogs diminishes in the Wombat Forest, the timber industry will exert tremendous pressure to gain access to any remaining sawlogs. The development of more sophisticated forest machinery, and the increasing use of 4-wheel-drive vehicles and trail bikes emphasise the need for specified protection of such areas. (e.g.: see the recommendations of Barry Traill: some species are sensitive to minor disturbances, and require remote nesting sites. These are most likely to be found in rugged and inaccessable places which must be protected.) For soil conservation and water quality reasons steep slopes must not be logged or subjected to disturbance.

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CODE of FOREST PRACTICES

19. An unfortunate record of breaches of the Code of Forest Practices indicates that D.C. & N.R. is either unwilling or unable to satisfactorily monitor and control forest operations. Considering the poor performance of D.C. & N.R. on the issues of biodiversity and values other than timber production, many people have lost confidence in the Department's ability to manage the forests. The D.C. & N.R. has suffered a succession of relentless cuts to its funding and staffing levels, reducing its capacity to fulfil its obligations. This is grossly unfair when the community expects from the Department better, more enlightened performance where it matters - in the forest.

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NOTE: WHERE REFERENCE IS MADE DIRECTLY TO PARTICULAR SECTIONS OF THE 'PROPOSED MANAGEMENT PLAN', THE DETAILS ARE NOTED IN SQUARE BRACKETS [ ] BEFORE THE RELEVANT COMMENTS ON THE PLAN.

[SCOPE AND AIM, Chapter 1.1]

20. It is gratifying to note the recognition of Planning as a "continuing process, responsive to changing community expectations.." The Wombat Forest Society hopes that this is reflected in actual improvements in the protection of the native flora and fauna of our forests.

21. The ideal for wildlife is a mixed-species, mixed-age forest with the full complex of living organisms which naturally belong in it, free from introduced alien pests; and sensitive management which allows only activities with minimal, short-term disturbances.

22. "Shelterwood" has been demonstrated to reduce the densities of arboreal mammals (see attached report by Barry Traill).

23. It is of vital importance that if no Environmental Impact Statement is conducted of logging in the Wombat State Forest, then at least individual E.I.S. studies should be undertaken on a coupe-by-coupe basis prior to timber harvesting operations.

[HARVESTING AND REGENERATING SYSTEMS, 1.3]

24. It is recognised that the result of forest exploitation in late 19th Century was an Even-Aged Regrowth forest. Also, since the 1970's new harvesting systems have been imposed on the forests which reduce it yet again to an Even-Aged Regrowth forest. There is no recognition in the Plan that this is contrary to the general requirements of the wildlife of the forests.

25. "Shelterwood" logging sometimes results in dense regrowth and/or regeneration. Some species of wildlife can adapt to these conditions, and their populations may increase after logging. Some of these opportunistic species may not be forest dwellers.

26. Regrowth from logging does provide food and habitat for some birds and animals. However, it has been well established and documented that there are many species which are absent from young regrowth "Shelterwood" coupes. There are NO wildlife species which are dependent on logging regrowth for their survival.

27. Immediately after Regeneration Burns, coupes become mostly deserts until re-vegetation is sufficient to provide fodder for birds and animals. Even then there may be insufficient safe

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refuges for many small creatures to take advantage of these foraging opportunities.

28. There has been an inexplicable failure of Messmate regeneration in some "Shelterwood-1" coupes. It is possible that there is an unfortunate lack of synchronisation of logging and tree flowering cycles. If the harvesting operation follows a season during which the trees produced few flowers, then after the regeneration burn the chance of an abundant seed supply being released over the coupe will be most unlikely. Pity about the wildlife displaced from their homes as a result of this failure. With adequate staff levels and budget resources, and a suitable management system, such problems may be avoidable.

29. When it is considered that Messmate Regeneration does NOT necessarily require burnt coupes for its establishment, the whole concept becomes very wasteful and unnecessary. Messmate seedlings require unobstructed sunlight and no competition. But why is it necessary to have bare soil over the entire coupe? The Wombat Forest Society knows of forest coupes which have regenerated without being burnt. Burning coupes to create the environment for Messmate Regeneration is a lazy, wasteful and inappropriate way of achieving the result; and it must stop.

30. The natural cycles of wildfire occurrences provide forest burns frequently enough. The time frames of the natural forest nutrient cycles are of long duration, and result in the gradual build-up of very small quantities of new topsoil.

31. The "Shelterwood" system is closely linked in the public mind with destructive burning practices. The application of a forest management system so reliant on the destruction of soil fertility may doom the forest to a slow decline.

32. The persistence of D.C. & N.R. with destructive regeneration burns makes no economic sense, as the damage done to retained trees often jeopardises their future commercial value. The formation of gumveins and a profusion of epicormic shoots does not add value to the trees, and does nothing to realise the potential of one of our most useful native timbers.

[ZONING SCHEME, Chapter 2.1]

33. Our community is forced to accept that significant areas of available 'productive forest' have been intensively (often insensitively) harvested in the last 20 years; and that this is projected to continue indefinitely.

34. Therefore we need to ensure that in the immediate future logging is managed so that areas between coupes are protected, particularly between large coupes. Because many coupes have exceeded the prescribed maximum sizes, destroying much wildlife habitat over large areas, it is important that all coupes are surrounded by forest areas which have been subjected to minimal disturbance. Large coupes which have already been subjected to "Shelterwood-1" logging must be broken down by sub-division into smaller harvesting areas, separated by buffer strips where Seed and Habitat trees are retained after "Shelterwood-2" harvesting. Sub-divided large coupes should be harvested over a number of years to reduce the impact of logging operations. This should be planned to retain interlinked wildlife corridors of forest of maximun maturity and habitat potential. This network should function as an informal extension of prescribed SPECIAL PROTECTION ZONE linear reserves.

35. Referring to Map 5, it appears that the S.P.Z. reserves are inadequate in area and complexity. The linear reserves are not sufficiently inter-connected. There need to be additional linear

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reserves intersecting the ones shown on the map. If the illustrated linear S.P.Z. reserves were marginally narrower, then the equivalent area could be stretched, and with additional linear reserves could make a more inter-connected network of forest corridors - breaking down the mosaic of harvested coupes. This may enable the inclusion of ridge tops and mid slopes in S.P.Z. reserves - something which they currently lack.

36. The advice of independent ecologists, botanists, zoologists and field naturalists should be sought in relation to the zoning of forest reserves and timber production areas. More discussion is needed on this important issue.

[BIO-DIVERSITY CONSERVATION, Chapter 3.]

37. The introductory statements seem in contradiction to the impact of forest activities on forest wildlife. The more intensive the disturbance, the more likely that wildlife will be displaced or its natural cycles disrupted. "Shelterwood" logging amounts to an intense disruption of forest eco-systems.

38. It is good that there is recognition of the importance of BioDiversity Conservation, and of the various statutory obligations to protect it.

39. There is an assumption (P. 9, p. 3) that there is an understanding of the capacity of forest eco-systems to overcome disturbance. This seems quite fanciful. The initial natural resilience of some fragile forest eco-systems may have depended on the resources of an unlogged forest larger than its current size.

40. D.C. & N.R. must stop thinking of forest management as a matter of sawlog yields and woodchip volumes; and start to respect the forests as complex networks of eco-systems. Our forests need to be actively managed for maximum Bio-Diversity (MAXIMUM HEALTH) There can be no certain long-term future for an unhealthy (un-balanced) forest. All forest creatures belong in their own places in an intricate web of food-chains and inter-dependencies; from the least significant and understood, to the most studied and emotionally endearing. We cannot possibly understand the long-term consequences of the loss of any part of this biological complex.

41. It is certain that the effects of the exploitation of the Wombat Forest, until its closure in 1900, included the loss or displacement of many plant and animal wildlife species. It is unlikely that the subsequent re-colonisation of the forest is understood even now. How many species of wildlife were unable to survive that disruption? How different from the pre-Gold Rush forest is the Wombat Forest of today?

42. Can we assume that nature can again miraculously re-colonise the forest with its existing species mix if we allow it to be over-cut again? The Wombat Forest Society believes strongly that the Wombat State Forest IS being over-cut. The reduction of the over-all forest area, and the pressures of a generally larger and more mechanised human population may now limit the capacity of nature to replenish depleted wildlife numbers if they become scarce and/or isolated. This may be critical in linear forest reserves when the Edge / Area Effect reduces the usefulness of some of the habitat values of those narrow configurations.

43. For CONSERVATION RECOMMENDATIONS for PARTICULAR WILDLIFE SPECIES, details are included in the report to the Wombat Forest Society by Barry Traill, attached to this submission. The importance of this report must be emphasised.

44. There is an obvious lack of reliable information on the

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locations, range and numbers of many minor wildlife species, particularly invertebrates, in the Wombat Forest. It is imperative that this deficiency is remedied as soon as possible, and certainly before logging is allowed to proceed further. The "Shelterwood" system is perceived by many people to be very destructive of wildlife values.

45. Many wildlife species found in the Wombat Forest are at the extremity of their range. This makes them vulnerable to disturbance on adjoining land. The fragmentation of forest habitats may result in the overall decline of such species.

[CLASSIFICATION OF ECO-SYSTEMS, 3.1]

46. The Action statement (to identify and map the variety of forest eco-systems) is admirable, but is it achievable in the brief time between publication and review of the Proposed Management Plan? It is important that this work is thoroughly rather than quickly done. Is this work to be done by trained ecologists inspecting the forest on foot? Decisions on Reserved areas made in haste and based on incomplete research may not be easily reversed, and their effects may be irreversible.

[GUIDELINES FOR CONSERVATION OF ECOSYSTEM DIVERSITY, P. 13]

47. The explanation of the calculation of percentages of vegetation communities is confusing. It appears that proportions of existing (remnant) vegetation communities are derived from the estimated original (pre-European) total forest areas; but then we are told that privately owned forest (freehold) is excluded from the calculations. Does this enable the calculation of smaller areas of reservation than some vegetation communities deserve or require?

48. Referring to the last para. (Selection of Vegetation Communities):
- Point 6.: the 'selection...from areas of mature forest that has not been recently disturbed' will become increasingly difficult, as "Shelterwood" logging changes the structure of the forest to even-aged young regrowth.
- Point 8.: establishment of an 'interlinked protected area network' does not seem to have been realised in the plan, according to Map 5. The S.P.Z. reserves are admirable in principle, but do not form enough of a network.
- Point 9.: to select (for protection) vegetation comunities from areas mostly unsuitable for timber production may be to condemn some vegetation communities on good quality sites.

[MANAGEMENT OF THREATENING PROCESSES, 3.2]

49. The ACTUAL threatening processes are not specified, other than by reference to Schedule 3 of the Flora & Fauna Guarantee Act 1988. This reference lists several potentially threatening processes, most of which are not relevant to the management of State Forests.

50. Timber harvesting operations may in the long term be detrimental to the natural cycles of wildlife population variations.

51. Timber harvesting is not listed as a potentially threatening process. This is an unfortunate omission; as some of the effects or results of logging are definitely threats to the conservation of BioDiversity. These include: - increasing sediment input to

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rivers and streams due to human activity
- alteration of the natural flow regimes or natural temperature regimes of rivers and streams
- loss of hollow-bearing trees from native forests.

52. There is more wildlife conservation required than mere compliance with the Flora & Fauna Guarantee Act 1988. Some of the rare, threatened and endangered species listed under the Flora & Fauna Guarantee Act 1988 may have been once abundant; but 150 years of continuing environmental degradation of their habitats has reduced them to vulnerable populations with very uncertain futures.

[LOSS OF HOLLOW-BEARING TREES, P. 15]

53. Comparatively small areas must now provide for the habitat needs of the wildlife of the entire forest.The forests need planning processes which allow some of the oldest trees to age, so that they can provide an abundance of hollows of different classes. This is an urgent need, as hollow formation is a slow process, and this requirement is apparently incompatible with the planned "Shelterwood" harvesting of the remainder of the Wombat Forest.

54. The studies of Calder, Golding and Manderson (1979, Forest Technical Report # 16, Monash Uni. Environmental Science) clearly indicated the acute shortage of natural hollow habitat in the Wombat Forest. What is significant about this is that:
* Those studies were conducted after "Shelterwood" had been in operation for only 5 years
* Those studies were conducted in the most structurally diverse area of the Wombat Forest; and were calculated to yield the most reliable data on the needs of the forest's arboreal wildlife population
* Since those studies were conducted the integrity of the overall forest has been disrupted by a further 15 years of "Shelterwood" logging, with its scorched earth regeneration burns, its failure to retain sufficient habitat trees and its failure to protect those habitat trees which are retained.

55. There is an urgent need to ACTIVELY PROTECT all hollow-bearing trees; and large numbers of specimens of suitable tree species (gums and peppermints) exhibiting crown damage, which may in the near future yield significant numbers of tree hollows which will endure for long periods of time.

[STRUCTURAL DIVERSITY, P. 14]

56. Considering the general deficiency of tree hollows pre-"Shelterwood", it is too much to expect adequate hollow-provision by remnants of mature forest around the margins of an increasing number of logged coupes.

[FRAGMENTATION OF MATURE FOREST, P. 16]

57. As with other sections of this plan, there is interesting recognition of the values of mature natural forests, and of the

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desire to protect such areas from degradation by a number of threatening processes. Yet unnecessarily intensive timber harvesting has contributed to the threats and degradation of forests which are still in the process of recovering from the indiscriminate onslaughts of over a century ago. This is not giving nature much of a chance.

[FIRE, P.17]

58. There is no mention in this section of nutrient losses from forest sites as a result of fire. Some research has been done in this field, in South Australia (1983) and by the C.S.I.R.O..

59. REGENERATION BURNS are a particularly contentious issue in the communities close to the Wombat Forest.

60. There is considerable objection to the profligate waste of useful timber which is:

* Un-necessarily cut down,
* Not utilised,
* Burnt indiscriminately,
* Denied to the lesser life forms whose job it is to return such organic matter to the soil, and
* Rendered useless, even for firewood

61. The Wombat Forest Society believes that trees which are not required for sawlog production should not be cut down, but should be left standing to grow on to be future sawlogs or habitat trees. If some trees need to be felled for silvicultural thinning, a reasonable proportion of them should be left unburnt in the coupes in a low-fire-risk condition.

62. Wildfire is a natural feature of the Australian landscape, and may be regarded as part of the natural nutrient cycles. But it makes no sense to subject the forest to unnecessary damage by fire, particularly considering the difficulty of controlling the severity of the fire.

63. On the evidence of past performance, D.C. & N.R. has not helped its own cause with its apalling inability to control both logging operations and regeneration burns.

64. There are five striking phenomena which are evident on most "Shelterwood" logging coupes :

- A noticable shortage of real habitat trees
- A totally unacceptable amount of harvesting debris left lying where it fell, mostly amongst young saplings or heaped around the bases of retained trees. Nothing is done to reduce this logging slash to ground level and/or remove this fire risk to open areas where it can do little damage to retained trees.
- A tendency to uncontrolled burns. This is a natural outcome of the excessive quantity of flammable refuse, much of it large branches of tree heads left lying as they fell, with large quantities of waste suspended in air - grossly increasing the severity of the regeneration burns.
- A total failure to prevent retained trees and habitat trees from being burnt. Many retained trees have been carelessly damaged. In particular habitat trees are likely to have been severely

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wounded when young, and are often hollow or otherwise vulnerable to fire around their bases.
- Frequently an unacceptable level of disturbances to riparian areas. Opening of the canopy to increased light levels, and soil disturbances increasing the flow of nutrients and sediments into streams, with adverse impacts on aquatic environments.

65. The natural outcome of this combination of circumstances is for many otherwise healthy trees to be severely burnt, permanently wounded and have their growth checked; and for many potential habitat trees to be destroyed by fire. It is within the power of D.C. & N.R. to avoid this outcome, but there has been no evidence to date of any interest or concern from D.C. & N.R. staff regarding this issue.

66. In addition, there is little consideration for the loss of precious organic matter. This humus will mostly be found on or near the surface of the soil, is light and combustible, and is the habitat and food source of countless unknown microbes, moulds, fungi and invertebrates; and is the nutrient-rich component of the soil. It is also the part of the soil composition which actually catches fire.

67. The consequence of burning the forest is to turn this precious biological resource into smoke, ash and charcoal. The smoke is mostly lost from the site immediately. The ash being light is vulnerable to being blown away, and what remains will mostly be washed away by the first rains - contributing sediment, chemical and nutrient loads to the streams flowing from the burnt areas.

68. Also, the heat of the fire may char the ground to varying depths, depending on the intensity and duration of the fire. This probably kills most of the soil microbes, leaving the soil more or less sterile. It is the presence of such simple life forms which makes many mineral nutrients available to plants, and helps to break organic litter down to humus - making it available again to plants. The net result is basically to export nutrients off the sites.

69. Soil charring may also kill the feeder roots of trees and shrubs which are close to the soil surface. Since root systems generally mirror the branch superstructure of their trees, perhaps it is not surprising that under the "Shelterwood" system retained trees generally decline and become scraggy with poor crowns, and seldom produce the growth increment expected of them. The fine feeder root system of a tree is generally closest to the surface directly underneath the foliage canopy dripline, and so is vulnerable to damage when the soil is charred by fire.

70. It is often forgotten that one of the most important functions of organic litter is to protect the soil from the erosive effects of rain. So by burning off this biological resource we are :
- depleting the soil of nutrients, and of its capacity to continue re-cycling the remaining nutrients,
- charring (sterilising) the soil, and
- exposing the soil to primary erosion by the direct action of raindrops.

This erosive potential is compounded, as sediment laden run-off may scour out channels by accelerated flow. The permeability of baked clay may be different from that of protected soil, changing the volumes of run-off.

71. Underneath ground litter the microclimate is more favourable than bare soil to microbial, worm and insect activity, which keeps

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the soil surface open and enables water to be more readily absorbed into the soil, which means less initial run-off; and the litter also reduces the speed of the run-off.

72. Our native aquatic biota have evolved to depend on specific aquatic environmental conditions. Changes to the amounts of light, temperature, nutrients and sediment may alter these aquatic eco-systems

73. Increased fire frequency may result in simplification of the forest vegetation strata. Short-lived understorey species may be eliminated from sites as soil-stored seed is exhausted and seed supply is reduced, if young plants are not allowed to mature.

74. It is relevant to consider the principles of Organic Farming. which are based on the wise application of appropriate practices with the prime objective of naturally increasing the fertility of the soil. This may be accomplished by conserving the organic material which is generated on the site, and sometimes processing it to hasten the natural cycles which build up the fertility of the soil; or sometimes carefully calculated applications of mineral fertilisers.
These practices are generally sufficient to enrich soil and produce healthy crops. Fertility cannot be acheived by chemical means, as they alter soil chemistry and unbalance soil ecology.

75. It can be seen that the fundamental principles of these two land management systems are at opposite ends of the spectrum of possibilities.

76. Nutrient losses through regeneration burns may be responsible for the phenomenon of Species Shift.

77. Deliberate burning of the forest is recognised as a DISTURBANCE, and as one of the recent historical disturbances which have resulted in large-scale changes to the forests. (Statement of Resources, Uses and Values, for the Midlands Forest Management Area; D.C. & N.R. December 1995, p.7.)

78. Personal observations in the forest will probably confirm that logs which are charred by burning do not break down as readily as undamaged logs. It seems that the charcoal layer is a barrier to the natural biological processes which ordinarily return dead wood to the soil from whence it came. In effect this food source in large tonnages is rendered unavailable to the simple life forms and invertebrates which need it.

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ECO-SYSTEM PROTECTION FROM LOGGING

79. Good timber production does not necessarily equal good forestry. So far timber industry-dominated management has been aiming at Messmate dominance to maximise the returns from the most commercially desirable tree species growing in the Wombat Forest. Intentional results of this quest for Messmate dominance include the poisoning of Blackwoods and Peppermints - great for timber production but disastrous for Bio-Diversity. The unintentional result of this trend (if it is successful) will be a Messmate Monoculture. A tree farm is not a forest; and it is misrepresentation to pretend otherwise. The Powerful Owl belongs in the Wombat Forest, but its future may be uncertain unless it can enjoy large tracts of BioDiverse forest. Blackwood trees are favoured for day roosting sites by the Powerful Owl.

80. Instead of considering timber and woodchip volumes D.C.& N.R.

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should start considering the areas logged, which have been expanding at an increasing rate in recent years.

81. It is a mistake of unbelievable naivete to suggest that the wildlife displaced from a logging coupe can move across the track to the block opposite and live there. The problem is that the availability of unoccupied nesting and roosting sites is extremely unlikely, and will diminish as "Shelterwood" gradually consumes more and more of the forests. Often it will be found that the block opposite has also been subjected to "Shelterwood-1" treatment; so what will the wildlife do then?

SHELTERWOOD FOLLIES

82. If "Shelterwood" is allowed to consume the whole of the Wombat Forest, the result will be to return to a young regrowth forest deficient in natural habitat hollows - the repetition of historical mistakes through earlier inaction. In this case, from where will the wildlife eventually re-colonise the forest?

83. The need for the retention of hollow-bearing trees has been known for many years, yet the performance of both the timber industry and D.C. & N.R. has not improved with regard to flora and fauna values. The briefest visit to any logging coupe will confirm, even to the uninitiated, that forest operations are driven almost entirely by timber production values, invariably to the detriment of forest wildlife. The loss of hollow-bearing trees has been allowed for too long, and it STILL CONTINUES. The recognition of the critical importance of habitat tree hollows (e.g.: p. 16, Draft Management Plan) is small comfort to those concerned for the welfare of forest wildlife, while the destruction of precious habitat continues. The flora and fauna of our forests need improved performance, not platitudes.

84. It must be recognised that the training of supervising staff is only part of the problem, and that the management system itself is at fault.

85. If "Shelterwood" is retained it will continue to displace many key wildlife species into smaller and more fragmented forest remnants, forcing them into more desperate competition with the existing inhabitants of those areas. (see the work of Calder, Golding & Manderson; 1979)

86. "Shelterwood" has demonstrably failed:

a] by Forestry Objectives :-
- mostly failed regeneration (expensive re-treatment)
- generally poor performance of retained trees
- apparent inability to avoid damage to retained trees
- excessive wastage of logging refuse
- environmentally severe impact of harvesting
- excessive damage of regeneration burns
- unacceptable to local communities.

b] by the requirements of wildlife :-
- Failure to undertake Flora & Fauna Surveys before and after logging operations
- over-cutting, leading in effect to short harvesting rotations
- destruction of habitat
- adjacent coupes being harvested within short times of one another, leading to large blocks of forest which are all in the infancy of their regrowth cycles.

87. The relative longevity of the Messmate has not been reconciled with harvesting rotations which match the life cycles

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of lesser tree species.

88. The result of "Shelterwood" logging is to render large areas of forest unusable to many forms of wildlife, because the remaining habitat and refuge is then too distant from the centres of the recently logged areas.

89. It is important that Flora & Fauna Surveys are conducted in logged coupes for several years after the harvesting operation. This is necessary to establish a database which allows realistic assessment of the impacts of various management systems.

90. The Wombat Forest Society and the local community expect the D.C. & N.R. to develop more acceptable management systems which give equal weight to the protection of Native Flora & Fauna, Recreational and Water Catchment values, and timber production and harvesting.

TIMBER EXTRACTION RATES

91. There are serious problems with the concept of INTEGRATED LOGGING. Fundamentally the problems reduce to ;
   - the continuing over-all loss of nutrients from the forests, by erosion, burning, and the export of timber and woodchips from coupes; and
   - alternatives which D.C. & N.R. is reluctant to consider, which could result in the retention and re-cycling on site of most of the organic matter produced by the forest (wood).

92. Integrated logging may be acceptable under a management system other than "Shelterwood".

93. Export woodchipping has provided an economic justification for patently unsustainable forest management. Now that there is a Federal ban on the export (overseas) of woodchips from the Wombat Forest, this economic pressure has been removed. There now exists a chance to develop a new silvicultural / harvesting system which does not rely on the extraction of unsustainable timber volumes from ever-increasing areas of the forests of the Midlands Forest Area. The removal of woodchipped "forest waste" must be considered as nutrients removed from forest coupes.

94. If fewer trees are felled, but they are more fully utilised, then there will be less organic matter exported from the forest in total, and less disruption to the fabric of forest life. Some genuine sawlog residue may be exported from the forest as woodchips [e.g.: to Bacchus Marsh] if they are produced on site by portable chippers.

95. After the local sawmills, the portable sawmills can extract specialty timbers from remnants unsuitable for the big sawmills; the firewood cutters can then extract a modest amount of the usable remainder, and only then can the portable chipmills be allowed to operate in two stages. Firstly a limited quantity of clean, solid residue can be chipped for transport to Bacchus Marsh; then the same portable chippers should be obliged to chip a portion of the remaining residue of the logging operation, sufficient to be re-distributed throughout the coupe to re-habilitate the areas disturbed by the harvesting. There must be a large proportion of the logging residue left intact in the coupes; in a form which reduces fire risk and obstruction of debris to a minimum, and which is in a mixture of forms from leaves through bark to solid branch wood. This is to provide the full range of organic matter needed to maintain the populations of all microbes, fungi and invertebrates involved in forest nutrient re-cycling. This may be our best chance of at least maintaining soil fertility and thus forest health.

96. Instead of "waste on the forest floor", this organic residue

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should be considered as "BioMass Re-cycled On-Site", providing the opportunity for natural cycles to be completed for the maintenance of soil fertility.

97. It is often stated that most of the forest nutrients - the leaves and fine branches - are in the heads of the trees (the parts which the mills leave behind). This conveniently justifies the extraction of vast tonnages of forest produce. The leaves, bark and fine branches are composed of less dense material than the desirable timber component of the tree, and are the first materials to de-compose. On a healthy tree cut for sawlog yield, the mass of fine nutrients may amount to a few tonnes; this may be considerably less than the tonnages extracted for sawn timber production. If "waste" wood and bark are chipped and distributed around the forest floor, their condition may be similar to the fine nutrients. They may help to maintain soil moisture (a mulch) preventing erosion, and providing nutrients in a form which enables their rapid re-cycling. Some of the remaining logs and branches should be distributed on the contours of steep slopes, to reduce erosion potential and act as silt and seed traps.

98. There is a long-standing community dislike of the amount of debris left as "waste" to clutter the forest floor of logged-out coupes. This is because more trees have been cut down than can be used. There is anecdotal evidence that the logging debris is an impediment to the movement of kangaroos and wallabies. There will always be an unused portion of harvested trees, but the level of wastage to date is totally unacceptable, particularly when it is burnt. The answer is to harvest fewer trees, but utilise more wisely those which are felled.

AVOIDABLE FOREST DEGRADATION

99. RE-HABILITATION of forest coupes is a demanding issue which has not been adequately addressed by D.C. & N.R.. There are many aspects of timber harvesting operations which are unsatisfactory. For example:
* many "Shelterwood" coupes with failed attempts at regeneration, these urgently need to be seeded or planted.
* some "Shelterwood" coupes with excessively thick regeneration, these urgently need to be thinned.
* Unacceptable quantities of logging waste, left in grossly unsatisfactory condition.
* Retained trees either damaged and requiring maintenance, or requiring clearing of debris to reduce fire risk in adjacent areas.
* Habitat Trees requiring clearance of debris to protect them from damage by fire.

100. It can be seen that the last three of these problems are avoidable, yet the cost of undertaking corrective works is considerable.

101. It is of critical importance that ALL forest harvesting and re-habilitation activities be closely supervised by personnel qualified in environmental assessment.

NEW WORK OPPORTUNITIES

102. The Wombat Forest Society has endorsed a scheme devised by Tim Anderson in 1992, now promoted as a New Work Opportunity Scheme to engage a number of teams (including displaced forest workers and un-employed people) to employ manual labour to re-habilitate the Wombat Forest. This is to correct the problems of past mismanagement, and should not be seen as an excuse for continuing with a defective management system which has created these problems.

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103. There appears to be a choice of two courses of action. One is to engage Re-Habilitation Teams to repair the damage of past logging activities and increase the availability of wildlife habitat. The other is to train forest logging operators in environmentally sensitive forest operations, and compel them to :

1. -Minimise the environmental impact of their timber harvesting operations, and
2. -Carefully re-habilitate their coupes BEFORE they are allowed to commence work in another coupe.

104. For both Economic and Enviromental reasons, both courses of action must be engaged in the Wombat Forest, and presumably in all other forests of the Midlands Forest Area.

105. Forest managers still face the additional problems of silvicultural re-habilitation of the forest which was burnt in the Ash Wednesday fires of February 1983. This is a second reason for supporting the N.W.O. scheme.

106. It is obvious that a new Royalty system is required, because:

* the timber resource has been so under-valued that it has been scandalously wasted, and
* the cost of the losses due to resulting environmental degradation have been under-estimated.

Therefore it may be necessary to introduce a modified revenue system which encourages forest operators to adhere to strict criteria for the sensitive harvesting and careful and complete re-habilitation of logging coupes. If the logging contractors default on environmental guidelines, then there should be some financial penalty which provides the Department with the funds to engage Re-Habilitation Teams to correct the damage done during the harvesting operations.

107. It is most important that assessment of the environmental performance of forest operators should be conducted by Ecologists, Botanists, and Zoologists, and NOT by foresters who have no qualification nor interest in such assessments.

108. There should be minimal mechanised re-habilitation. Most environmental damage is caused by the inappropriate use of machinery. Re-habilitation must be conducted by hand, this is the superior method.

109. Environmental damage must be avoided in the first instance. Conservation guidelines must be applied before forest harvesting operations commence.

110. Many people perceive D.C. & N.R. to lack initiative, and to reluctantly respond to its own shortcomings only when embarassed by the public revelation of its failures. D.C. & N.R. should be leading the way, actively pursuing and promoting the most enlightened and visionary environmental principles and practices. It is responsible for the future survival of our public forests, and the public is entitled to expect a higher level of performance than has been delivered in recent decades.

111. There has been some improvement in the field performance of D.C. & N.R. and its forest contractors in recent times, but generally there is still considerable room for improvement according to environmental principles.

UNCLEAR OBJECTIVES

112. The objectives of forest management have been given insufficient attention in discussion and in the Draft Management Plan. The question often asked is 'For what purpose is the forest being managed as it is?' but the answer is not clear.

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113. The evidence of recent decades is that the objective was to develop a Messmate-dominated Wombat State Forest. Under the "Shelterwood" system, the last 20 years have seen an unacceptably large proportion of the Wombat Forest harvested with the intention of regenerating it to mostly Messmate trees. Now we are advised that the responsible department intends to reserve sensitive areas and worthy wildlife species in Special Protection Zones, from which timber harvesting will be excluded. We also learn that the currently employed management system is to be retained, yet there is a strong community belief that this system is unsuitable and unacceptable for our forests.

114. For the areas exempt from logging, the objectives do not seem clear. If they are to be reserved for nature, to preserve BioDiversity, should they be managed to return them to their pre-European condition in the shortest possible time? Or are we going to leave them alone and let nature sort it out? These areas are of the greatest importance, as the timber production areas may in future depend on these reserves; yet we see no clear policy considered for their management. There can be no doubt that today's forest is considerably different from that which our pioneers exploited in the 19th century. Perhaps we have a duty to manage a careful but speedy return of reserved areas to their original state. How will this be funded? The planning and management objectives need to be publicly discussed and clarified.

SELECTIVE HARVESTING OPTIONS

115. "SELECTION" harvesting is regarded in forestry circles as a failure from the Regeneration perspective. It was also recognised by Calder, Golding & Manderson (1979) that "Selection" logging was a failure in terms of habitat retention for arboreal wildlife.

116. The problem was obviously that the application of "Selection" logging was inappropriate for wildlife habitat, despite its benefits for sawmilling. Too many defective trees of the less desirable species were culled from the forest, removing both existing and potential habitat hollows. It is a serious mistake of logic to discredit the principle of SELECTIVE harvesting because its previous application was unbalanced.

117. Our forests desperately need a management system which can discriminate in timber production areas; enabling silvicultural thinning to grow better quality sawlogs - WITHOUT the extraction of excessive volumes of woodchips for export overseas - as well as the careful retention of existing and potential hollow-bearing trees and nesting sites in suitable areas and numbers.

118. The Wombat Forest Society expects D.C. & N.R. to have the expertise and intelligence to devise a number of different silvicultural and harvesting systems which can be run as experimental trials at several different sites throughout the forests. Only by conducting such experiments scientifically will sensible decisions on forest management be possible. It is to the discredit of all decision-makers in D.C. & N.R. and its pre-decessors that when "Shelterwood" was adopted there was an abandonment of almost all other harvesting systems. This has resulted in a review of 20 years of "Shelterwood" with no other basis for comparison. There can be no other conclusion than the fact that this is poor science. Twenty years of lost forest production, resulting in failure, and no idea of a better system more suited to our particular forests - this cannot be regarded as good science. D.C. & N.R. should be ashamed that this situation has been allowed to continue without remedy.

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THE USE OF OUR FOREST TIMBERS

119. Despite the protestations of forest managers and the timber industry, the question of WOOD UTILISATION is of great importance. The Wombat Forest Society will not accept the continuation of unsustainable logging, with its consequent degradation of forest ecology; if most of the trees are felled unnecessarily and turned into woodchips for production of inferior products of no strength or durability. The sacrifice of our wildlife is a totally unacceptable price for us to pay for the waste of potentially high grade hardwood timber.

120. Our local sawmills are endeavouring to upgrade the timber products of their mills, and extract more useful components of the sawlogs which they have been allocated; but they are struggling against the inequity of increasing allocations of inferior logs in combination with the imposition of strict value-adding criteria. When it is realised that this has been occurring in parallel with increasing volumes of quality logs extracted as woodchips for exportoverseas, the unfairness of the current system is apparent. This must be rectified for the sake of community welfare and of our local economy. These sawmills employ local workers, and their families depend on the future supply of sawlogs which appears very doubtful.

121. Local sawmills and their local employees and local contractors should be allowed to exercise greater responsibility in management of our forests. They have generations of local forest experience, and genuine concern for the long term viability of timber production; therefore they qualify admirably for an important place in forest operations. Sadly more and more of these experienced people are being excluded from timber harvesting, in favour of large contracting companies which have no respect for our forests. The evidence on the ground in forest coupes is indisputable - continuing disregard for sensible environmental conservation measures, and the wilful but avoidable damage to retained trees [the future growing stock = productive capacity of the forest]. Everyone knows that the greatest damage is done by the big contractors and their big employers; this is really a lack of responsible behaviour and an absence of supervision by D.C. & N.R.. The Wombat Forest Society knows of coupes previously managed by local contractors which have produced better quality sawlogs than other forest areas known to us.

BEEKEEPING

122. There is some debate regarding the place of the alien honey bee in our native forests; however it appears there is insufficient research on which to base any worthwhile conclusions.

123. The Wombat Forest Society recognises that Beekeeping is one of the few industries which can harvest from the forest with little evidence of its activities. This is commendable.

124. The presence of the alien honeybee may be permissible in modified forest dedicated to timber production; but it may be unsuitable for Reserved forest zones.

125. More research may need to be conducted on potential competition for nectar between honeybees and nectar-feeding native birds and pollinators.

126. The installation of a Messmate Monoculture will result in more pronounced gaps in the seasonal nectar flows in the forest.

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The BioDiverse forest comprised of mixed-species, mixed-age trees will have the capacity to even-out the fluctuations of nectar flow resulting from the seasonal variations of different tree species. The wildlife species which are vulnerable to altered environments will stand a better chance of survival in un-modified forests.

127. There needs to be consideration of the consequences of occupation of tree hollows by feral honeybee swarms.

FORGOTTEN FORESTS

128. The box forests at the N.W. extremity of the Wombat Forest has been shamefully neglected for too long. Attention and resources have been attracted to the higher-rainfall, higher-elevation "production" forest areas, while these drier forest areas have been suffering for want of good management.

129. It has become increasingly difficult over recent years to scrounge a trailerful of good firewood in these areas. What should be an area for production of the best premium quality durable hardwood, has managed to produce mostly rubbish. There are plenty of logs lying around, but most are not worth picking up, even for firewood. A few patches have been managed to grow some potential Red Box sawlogs, but harvesting rotations need to be doubled in these areas. However, generally this section of forest is in poor condition. Many of the trees have been so seriously damaged when young by careless forest operations, that although they are forming hollows at relatively young ages, they are so rotten that they are falling over before reaching maturity - so their habitat potential is being wasted. The desirable species, the Red Box has been almost selected out of some areas.

130. These areas desperately need restoration of their potential to grow supreme durable hardwood, as well as durable wildlife habitat; but it will be a job with no returns in this lifetime. It will take a lot of work to restore a suitably diverse ecology.

131. There is a need to re-think the closure of this forest area to timber production under S.P.Z.. The labour requirement for re-habilitation of these areas will be high. There is a place for local private contractors to be engaged in this work, strictly supervised by environmental scientists, to undertake a lot of silvicultural maintenance and improvement. It is possible to develop a system that offers concessions to these local contractors in the form of free permits for extraction of limited quantities of firewood resulting from this silvicultural maintenance programme.

INFORMATION SHORTFALL

132. It is unfortunate that there was so little information available to us on the Flora & Fauna of the Wombat Forest that we had to engage the services of two consultants to enlighten us on the needs of our native wildlife.

133. We spent $2,000 of voluntary community money to gain an understanding of our forest's ecology which D.C. & N.R. could not provide. We recognise the shortcomings of this work, limited by our slender budget; and hope that this leads the way for D.C. & N.R. to build up a Comprehensive data base on forest flora and fauna. We believe that we got excellent value for our money, and hereby express our gratitude to our advisers for their valuable assistance.

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134. Mr Lincoln Kern provided the report on "INDIGENOUS FLORA OF THE WOMBAT FOREST" which we attach as an appendix to this submission, and it is highly recommended. We will be pleased to discuss these technical matters with forest managers, planners and advisors.

135. The Wombat Forest Society commissioned Mr Barry Traill to review the effects of logging operations in the Wombat State Forest, and make recommendations for the conservation of the forest's fauna. We emphasise here the importance of his report, which is attached as an appendix to this submission. Here is a summary of some of the key points made in Mr Traill's report:

* There is an urgent need for a comprehensive flora and fauna survey of the Wombat State Forest.
* Logging operations are a continuing threat to native animals and birds.
* There are problems with the plant and animal species which cannot adapt to the changes in forest ecology brought about by intensive logging operations.

136. All forest workers must develop a COMMITMENT to environmental conservation in the forests. Until this is readily acknowledged as the only acceptable way for logging to be conducted, strict discipline MUST be imposed on all forest operators.

137. The timber industry must accept that the degradation of OUR forests is the direct result of its actions. There can be no comfort in this for D.C. & N.R., as it has had the responsibility for the supervision of all forest operations, and must accept the blame for all failures. Regrettably its successes seem to be outweighed by its failures. We can only hope for better performances in future from the timber industry and our forest managers and planners.

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SUMMARY OF OTHER ISSUES OF CONCERN in the
Proposed Management Plan for the Midlands Forest Area

1. There is an error in the location (on Map 5, State Forest Management Zones, EAST SHEET) of a SPECIAL PROTECTION ZONE ribbon between Wheatsheaf and Lyonville. From the S.E. corner of the Wombat Forest Estate, the ribbon should aim acrosss Boundary Rd for the "R" of Loddon River, as well as bending back towards the junction of Loddon River Rd./ Kangaroo Creek Rd. / Boundary Rd. This will allow a wildlife corridor between various "Shelterwood" coupes, linking Kangaroo Creek with Loddon River. This matter is

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URGENT, as the coupe south of No Name Track is being logged NOW; and part of this potential forest corridor may be destroyed for want of adequate planning.

2. Most S.P.Z. wildlife corridors run NORTH-SOUTH; these need to be connected by a network of EAST-WEST S.P.Z. corridors to eliminate barriers to the movement of wildlife.

3. Most forest reserves are Streamside Reserves, or as blocks which are already burnt, already heavily logged, or are poor quality forest.

4. Most of the large forest blocks reserved are in the dry, scrubby, unproductive block in the N.W extremity of the Wombat Forest; and in the S.E. Bullengarook extremity. There appear to be insufficient reserves of forest blocks within the main, productive wet eucalypt forest areas. A network of blocks of reserved forest is necessary to complement the linear Streamside Reserves, to include some ridges and mid-slopes, to ensure the provision of the full range of forest habitats in areas protected from logging.

5. The Plan does not commit D.C. & N.R. to a comprehensive flora and fauna survey of any kind. All flora and fauna measures in the Plan are based on existing 'Victorian Atlas of Wildlife' sightings, with no new information about the extent or variety of rare plants or wildlife in the Wombat Forest.

6. The cuts proposed to sawlog quotas may be targeted at small, less powerful sawmills. This is totally unacceptable to the Wombat Forest Society. The larger sawmills may be able to absorb some quota reductions.

7. The plan allows for a 43% increase in total woodchip levels, compared to studies which measured woodchip availability in the Wombat Forest for the Timber Industry Strategy in 1986. It is the woodchip quotas which MUST be reduced, not the sawlog quotas to local sawmills.

8. The Plan includes S.P.Z.'s (wildlife protection zones) in areas which were devastated by the Ash Wednesday bushfires of 1983, and then salvage-logged to remove the mature forest habitat potential for over a century.

9. The Plan makes insufficient amendment to the management / harvesting systems to lessen the adverse environmental impact of their forest operations. This fails to take advantage of the end to export woodchipping from the Wombat State Forest.

10. The Plan claims that regeneration failure is irrelevant to calculating the sustainable sawlog yield. This is absurd.

11. Generally, the Plan exposes a large credibility gap between the Departmental rhetoric and the action on the ground. This demonstrates that foresters who are 'desk jockeys' at computer terminals are far less needed than foresters in the forest, managing the forests according to the principles of a revised and improved Management Plan which offers better protection for the forests' flora and fauna.

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