SUBMISSION

by E. J. ENDACOTT

to the INDEPENDENT PANEL of the

Western **Vic**toria **R**egional **F**orest **A**greement

Wednesday 1st March, 2000

in response to

Western Victoria Regional Forest Agreement

C.R.A. and CONSULTATION PAPER

This submission is made as : - a member of the Wombat Forest Society Committee

- an interested citizen, with 10 years' involvement in the local community forest campaign

Note : reference to COMMUNITY means the community of DAYLESFORD

reference to COMMUNITIES means the various communities around and directly affected by the forests of Western Victoria.

Although I cannot pretend to represent those communities, I feel qualified to reflect on my observations of the responses of those communities to the development of local forest issues and our campaign.

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It is appropriate to recognise some recent improvements in performance by DNRE staff and forest workers; however, most people who visit the Wombat Forest expect a higher standard of management and practices in the forest.

This submission is concerned principally with the Wombat Forest, and is presented from a CONSERVATION and COMMUNITY point of view.

Two major points must first be made, loud and clear :

The RFA timetable is still too short, and must be extended to allow all interested parties the proper chance to absorb and come to terms with the information now available. This is necessary for the sake of peace and harmony in our communities, considering the passions raised over forest issues. If the RFA is to work, and not be a waste of money and time, it must be acceptable to all sides. The process here has been of sufficient duration to enable this.

The RFA Team is to be congratulated for the excellent work which has already been done in the West. Vic. RFA; there have been some excellent syntheses of disparate information systems which have provided new insight into land management problems. However my concerns are with the gaps and shortfalls in information which indicate problems in management.

The thrust of my submission is that forest management as currently practised is not ecologically sustainable, and it seriously compromises Wildlife values. In addition other values of general amenity, recreation and water catchments are often disadvantaged by current forest management..

C.A.R. RESERVES SYSTEM

Although the principles sound admirable, as espoused in the RFA documents, there are problems with their application to the maps.

In reference to P59 of the Consultation Paper, it must be remembered that the Flora and Fauna Guarantee Act does not offer protection to species or eco-systems which are not listed under that Act

Two key areas of concern which I have identified are :

- the need to reserve some representative Volcanic Soil areas
- the inadequacies of the linear nature of most of the SPZ 's in the Midlands FMA Management Plan.

VOLCANIC SOILS.

The maps included in the West Vic RFA 'CONSULTATION PAPER' are of too small a scale to be meaningful. There has been insufficient time to establish the adequacy or otherwise of the representative EVC's and whether or not their inclusion protects a representative sample of forest volcanic soils. This is a most important issue.

The arguments supporting this stand are found in summary on Page 2 of Appendix A., and in detail in the report by Mr Barry Traill which is a part of the Wombat Forest Society submission to DNRE IN April 1996.

A modest sample of volcanic soil areas must be reserved, as I have argued in Appendix A.. The map scale in the Consultation Paper does not enable assessment of whether or not this has ben achieved. It is disappointing that Soil Maps were not included in the CRA documents. Although it has been explained to me by Mr Ian Miles that the Soil Mapping has been integrated with other information databases (e.g.: Flora and Fauna info.) this is not satisfying. We the public do not have the chance to determine for ourselves the adequacy or otherwise of the work of the RFA Team in integrating all of this information. What if the conclusions drawn are wrongly calculated, or based on faulty assumptions ? Some of us are not interested in head-kicking, but in just making sure that we get it right this time. There is no benefit in embarking on the wrong course.

SPZ PROBLEMS.

The increases in Reserved areas are commendable, but I question their nature and distribution. Perhaps the same aggregate areas could be reserved in different arrangements, and achieve more in terms of conservation outcomes.

Considering the inadequate scale of the maps presented with the consultation Paper, it is difficult to interpret some of the reserved areas.

In general, for forest areas with which I am familiar, the basic reserves framework of the Midlands FMA Management Plan are still there, and I find parts of these to be inadequate. Most of the SPZ's are narrow linear reserves, and add to the numerical weight of that reserve system. If the production forest continues to be harvested as in the recent past, then the linear SPZ's will be of only marginal benefit to the wildlife of the forest.

One of the problems with these narrow SPZ's is that most of them seem to be Riparian in nature, following rivers and major tributary streams. I believe that this will only protect the one sort of ecosystem (Riparian). This ignores the place of other environmental areas which are equally deserving of protection. In addition to such reserved Riparian areas, there needs to be a connecting network of other linear SPZ's which cross contours, spanning mid-slopes and ridge-tops to bridge the spaces between the valley riparian SPZ'S with a range of other forest ecosystems. This is necessary to protect all types of environments and EVC's, and their species of plants and animals .

EVC's.

I find no indication of reservation of representative Volcanic soil plant communities. This is of great importance in terms of floristic diversity. Unfortunately I do not have confidence that the various EVC's listed will adequately protect volcanic soil areas

I find no recognition of the different condition of Some EVC'S which have been altered by past management.. For example, the Tree Fern gully intersecting Cooper's Rd., Lyonville South, which would seem to be dooomed because logging has cleared the forest down to theRiparian zone. This does not afford enough protection to such a sensitive, shade-loving plant species, but the problem is unlikely to be fixed when the surrounding forest regrowth reaches a suitable height sufficient to offer protection. The tree-ferns (rare and threatened (?) in the Wombat Forest) may be dead from exposure by then.

Theoretically such areas, few and scattered as they may be, exist and deserve to survive in the forest; but management and logging practices may already have sealed their fate. This serves to highlight the dependence of reserved areas on the nature of management of the areas of forest which are available for timber harvesting.

Forest Zones.

In relation to the SMZ's, what are the prescriptions for logging which account for the Other Values to be considered in planning the timber harvesting operation? Judging by on-ground experience in the forest there appears to be no feature to distinguish between coupes in GMZ's and SMZ's.

Catchments.

The latest advice from top hydrologists is that stricter protection measures are required in the very upper reaches of headwater gullies, for the sake of downstream water quality. Yet the latest coupes marked for imminent logging show no recognition of these requirements.

More areas protected for water catchment values = less area available for logging. The Timber Industry must be getting used to being under pressure from all sides, but it has had almost free reign for too long.

ECOLOGICALLY SUSTAINABLE FOREST MANAGEMENT

Forest Management for Timber Production

Beyond the scope of the CAR Reserves system, it is of fundamental importance that the management of the Production Forest (the Nett Productive Area remaining after exclusion of the Reserved areas) needs to be conducted better than it has in the recent past. this is recognised in the Consultation Paper, with the explicit requirement for Old Growth areas to be protected, not just in their own areas, but with protective buffers between them and harvested areas. This principle must be applied to all Production Forest areas and reserves.

Generally, in the Wombat Forest timber harvesting has been incompatible with wildlife needs. Community feeling wants non-timber values given real consideration.

Wildlife considerations

In the forest the evidence available to the interested public is that the application of the Shelterwood system has been too exploitative. We have seen the areas harvested increase at an alarming rate, and this scale combined with two other problems has resulted in considerable disadvantage to the wildlife of the forest. The two complicating factors are : the intensity of the timber harvesting under the Shelterwood system, and the adjacency of coupes harvested within short times of one another.

The wildlife of the forest needs a forest mosaic rather than a patchwork quilt effect.

What this means is that when adjacent coupes have been harvested within short times of one another, the area denuded of all but a few trees is effectively doubled, making it

inhospitable to many species of wildlife which require the protection of the forest cover. If they did not require protective forest cover, why would they be living in the forest rather than in open paddocks? The felling and removal of trees on the scale currently conducted is not in the interests of the forest's wildlife. Refer to the report by Barry Traill in the Wombat Forest Society Submission of April 1996.

By the 'Shelterwood' harvesting system the impacts of logging are exacerbated. This is because there are no protective buffers between adjacent coupes, to provide continuity of habitat and food supplies for the forest's wildlife. This is the 'Patchwork Quilt' effect; the whole forest being converted to young, even-aged regrowth, with no protective wildlfie corridors between coupes.

Even-aged sawlog coupes on an 80 year rotation, under current management practices, are incompatible with long-term wildlife habitat requirements. To pursue the Old Growth analogy, the Wombat Forest (with no Old Growth) equivalent of Old Growth could be seen as its Habitat Trees (in short supply). If ALL Old Growth MUST be protected, with buffers, then in the Wombat Forest all Habitat Trees must be protected, with buffers.

Bearing in mind the desire in suitable areas (NOT the entire forest) to have some even aged coupes for quality sawlog production, another method of wildlife habitat provision is needed. Where EVEN-AGED stands are grown, all coupes must be surrounded by reserved buffers of adequate width to negate the adverse effects of the abrupt rotational harvesting cycles.

If uneven-aged systems are employed then the same problems may not arise, providing that the systems are planned and implemented for compatability with wildlife requirements.

Shelterwood Problems

The Shelterwood system is very unpopular with the public, for a number of reasons. *Refer to Appendix A, particularly the chapter "Shelterwood Follies"; and to Appendix B.*

Doubtful / unreliable regeneration

I contend that there has been an unacceptably high rate of failure of Shelterwood coupes to regenerate after the first harvest. Some of these failed coupes have escaped re-treatment, some for considerable times. Besides the implications for the failure of the supply of future sawlogs anticipated in the Sustainable Sawlog Yield forecasts; The inability of the DNRE and its predecessors to afford the necessary re-treatment indicates that something is seriously wrong with either the Harvesting System, the forest management generally, or with the commitment of Governments to resource the forest managers.

Regeneration need not rely on the free seed-fall of the cheap-and-nasty 'Shelterwood' system. The concept of actually planting trees has been well tried and tested. If it was seriously pursued here there would be little justification for the 'Shelterwood' system. *Refer to Appendix B.*

Reliance on fire for regeneration

Besides the problems of the frequent failure of regeneration, the Regeneration Burns often have seriously damaging effects. They have previously been uncontrollable

due to high fuel loads. They have generally damaged the retained trees, thereby defeating one of the two main purposes of the system. By their intensity they char the ground and kill the beneficial microbial ground flora which are ordinarily responsible for soil fertility. They convert most of the biomass to smoke and ash, the majority of which is lost from the site, thereby contributing to nutrient losses.

Many people see this system as being unnecessarily wasteful, exploitative and unsustainable.

My often expressed concerns regarding the destructive nature of Slash Burns (so essential to the 'Shelterwood' sysem) seem to be borne out in large part on reading the Chapter 5 ("Site Fertility" by Stewart, Flinn & Hopmans; 1983 - Reference # 7, Appendix B.) The section *"Nutrient Losses Due to Harvesting"* is most informative.

There are some fundamental questions raised in consideration of this issue. The nature of this continent, its history, the impact of aboriginal occupation and white man's invasion must be considered. But ultimately we need to question what will be achieved by deliberate burning practices which result in the loss of nutrients and fertility, on a regular (rotational) basis.

The reliance of management on slash-burns for regeneration of Eucalypts is contrary to contemporary thinking derived from the Organic Agriculture and Permaculture movements. Those systems are based on the natural maintenance of soil fertility, as opposed to the depletion of soil fertility by reckless, exploitative practices. The often-stated dependence of our native ecosystems on fire needs to be questioned. It may be that the natural frequency of fires is lower than is commonly believed. Perhaps, in the long term, the Eucalypt Epoch is an intermediate step on the path to declining bio-diversity and desertification; after eucalypts have displaced those plants more reliant on higher soil fertility.

There are examples of native plant communities that exist in the absence of Eucalypts, so long as fire does not occur on the site; for example a public reserve on the Bellarine Peninsular which has not experienced fire in about 100 years.

The problem we face is the economic imperative to harvest the commercially desirable Messmate tree, which our forest grows naturally to produce high quality timber. This is a legitimate enterprise so long as it does not compromise the ability of the whole forest ecosystem to maintain a healthy, dynamic equilibrium. Our harvest must also not consume the whole forest for the sake of current economic wants.

Our misfortune is that our commercial timber tree species are fire tolerant, fire promoting, and to some degree favoured in regeneration by fire. Australia's continental history has favoured eucalypts, which have developed evolutionary adaptation to low fertility soils. However, we must not forget that these trees will regenerate without fire. Perhaps the seedlings may not experience a rapid initial growth spurt, fuelled by the availability of soluble nutrients from the ash-bed effect, but is this such a problem ? The most valuable timbers are naturally slow-grown, old-growth durable timbers. If we can overcome our short-sighted economic imperatives, and manage our forests to produce high quality durable timber timber from old trees, we may leave succeeding generations the legacy of long-term economic and ecological stability. If you refer the the Age / Yield graph in the Sustainable Sawlog Yield Review, 1995, you will notice that the sawlog

volumes at age 80 years is only half that at age 120 years. Leaving the trees to grow for another half of the rotation time doubles the timber yield ! It may also increase the quality and value of the timber.

I urge forest managers to read Chapters 2, 4, & 5, of Reference #7, Appendix B; and also "The Future Eaters" by Tim Flannery.

Contrary to needs of wildlife

Our forest is / was a Regrowth forest approaching maturity, and as such is generally deficient in habitat for the full suite of wildlife faunal species which belong in it. The wildlife does not need the imposition of a harvesting system which removes 80% of the oldest trees at once, and then a decade later removes the majority of the remaining old trees

Until recently our forest managers have been reluctant to consider any alternatives to the Shelterwood system. This needs to change for the sake of Biodiversity, Water Catchment, Recreational, Economic, and Amenity values.

Refer to the section "Loss of Hollow-Bearing Trees" in Appendix 1.

Forest Industries

The nature of all things being connected means that a number of seemingly unrelated matters are actually interwoven; this makes it difficult to deal effectively with any particular issue in isolation.

Utilisation

Contrary to the views of some people engaged in the Timber Industry and Forest Management, what is done with the logs which come out of our forest does matter.

The public generally does not approve of the current level of woodchips extracted from our forests for export. Some people who currently totally disapprove of the Timber Industry and forest management, may find acceptable a more benign forest management and a less exploitative Timber Industry. We need new management systems which can function with smaller available areas of forest which are harvested less intensively, and with the forest produce used more wisley and less wastefully.

More intensive management and less intensive harvesting would be more acceptable to most people.

Woodchips

The Wombat Forest Society believes that the Wombat Forest can sustain a rational supply of sawlogs to local sawmills. Woodchips derived from genuine sawmill waste are a legitimate by-product of timber processing.

The removal from the forest of standing trees for woodchip export defies logic, particularly in the volumes currently extracted. Most people in our communities find the current woodchipping policies to be wasteful, objectionable and unacceptable. Unfortunately we face a situation which has echoes of the chicken-and-egg conundrum, which I will briefly try to simplify.

- The management system currently employed in the Wombat Forest is 'Shelterwood', which is designed, after an initial complete harvest, to regenerate the next crop of sawlogs (the previous Selective system failed to do this). 'Shelterwood' relies on the removal of almost all of the trees on the coupe, in 2 stages. After the second harvest the only mature trees left standing should be Habitat Trees, (if any exist).
- On any coupe, not all of the trees will be of Sawlog Quality.
- The trees harvested which are not of Sawlog quality will be sold as Residual Grade, most of which will be woodchipped and exported.
- The Woodchip market provides an economic return for the waste of an unsustainable system; justifying the removal of too many trees, in a brutal assault on the forest ecology.
- The 'Shelterwood' management system relies on the woodchip market to provide a top-up for the logging industry, and extra Royalties for the Government. The sawlog industry could not bear the costs of removing all the trees. The 'Shelterwood' system principle is that the Residual grade trees are in the way, and must be removed to make way for the next crop of sawlogs.
- Unfortunately the track record of 'Shelterwood' is not good in terms of regeneration, with many examples of failure. This leds to the inescapable conclusion that the destruction of the last 25 years has been in vain. This is a doubly bitter pill for our communities to swallow.
- If the problems of Timber Harvesting are separated from the problems of Regeneration, the the 'Shelterwood' system seems unnecessarily wsteful and counter-productive.

Marketing

Due to the changes in recent decades, the timber market has been swamped by a saturated supply of cheap, plantation-grown rubbish - *Pinus radiata*. This does not mean that our native hardwoods have declined in quality and are less desirable for some traditional uses. It means that supply and marketing have conspired to distort demand. Although current policies force new softwood plantations onto cleared land, we must remember that the current timber market is rewarding the destructive forest clearing of 30 years ago. The hardwood timber processors are being expected to supply expensive quality products in competition with cheap and inferior, non-durable rubbish.

The investments of many small sawmills in the future of value-added native hardwoods must be rewarded with a serious marketing campaign to remind the buying public of the superior quality of the processed timbers which will be sustainably extracted from our forests. If more is to be made from less, as seems to be the intention of the Timber Industry Strategy, then we need broad and sweeping changes to ensure that prices accurately reflect all values.

Royalties

As had been suspected by many observers, the investigation by KPMG group in 1998 revealed and quantified the degree of public subsidy of the Timber Industry.

Besides the matter of Government Revenue foregone, there seem to be problems with some sawmills / timber processors who face cashflow problems, and who are struggling to compete in markets which are changing - to the detriment of the hardwood timber industry. Rather than unleashing a desperate timber Industry onto a diminishing forest resource base, we need imaginative solutions to these problems

With the increased areas of forest reserved for numerous purposes, there will be an increase funding burden for management of these Reserves. It is fair to expect that some revenue raised by timber sales should contribute to such management costs

Royalties charged need to reflect the true social and environmental costs, as well as the management costs of production; but the buying public also needs to be educated to pay for the quality of the timber products extracted from our limited forests. The Government has a decisive role to play in this.

Resource Security

In principle this is problematic. The concept of Resource Security would seem to rely in large measure on Resource Certainty. Problems arise when certainty is replaced by uncertainty in terms of the timber available in the forest. The Wombat Forest Society has been arguing for some years now that the anticipated supply of logs is not there. We believe that our analysis is correct and that the Standing Volumes have been over-estimated for several years. Therefore it is difficult to take the concept of Resource Security seriously.

There have been further reductions recently to the Sustainable Sawlog Yield. This would appear to vindicate our concerns. The W.F.S. also has serious concerns about EQUITY in this matter. As an absolute minimum, it is imperative that these cuts be shared at least by the whole Timber Industry. Any unfair disadvantage to small, local sawmills is unacceptable. My preference is for the biggest sawmill to shoulder the lion's share of these latest reductions in Yield; considering that the forest has been plundered in recent decades to supply unsustainable volumes of timber, for the benefit of one processor. During this time the small local sawmills have had to suffer the reductions in their desired grades, in order that the shortfall in supply did not adversely affect the big processor. This has been most unfair, and must be rectified wherever possible.

CONCLUSION

Ultimately the problems of forest management boil down to a matter of Management Objectives. This is where we appear to have lost our way.

Many people involved in the forest debate here want a more benign and selective forest management system, which fully balances all competing interests. We seem to face a blockage which derives from entrenched prejudice against earlier less intensive management.

Despite its failure to regenerate future tree crops, the earlier Selective harvest of the Wombat Forest was quite successful at meeting its main objective - the development of its then current stock into production of good quality sawlogs. Their future is our today. We are currently enjoying the fruits of that earlier system. It must not be forgotten that the

quality sawlogs currently available to sawmillers are the product of the uneven-aged Selective (Timber Stand Improvement) system, not of 'Shelterwood' .

If such a system can be made to work in this forest to produce sawlogs; it can surely be made to work for a different set of Management Objectives - to also produce Wildlife Habitat, Clean Catchments and Recreational Opportunities.

I believe that the future resolution of our differences and conflicts over our forests rests in greater Community Involvement in forest management. For this to be effective our Communities need to be forest literate. The Wombat Forest Society has been working towards these two goals, to achieve trully sustainable forest management.

Community Forestry is a concept which is steadily gaining support in western Victoria. It is my hope for the future of our forests.

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APPENDIX B

REGENERATION

Summary of Presentation by John Endacott

(Wombat Forest Society)

for **Wombat Forest FIELD DAY**
conducted on Saturday 22nd May, 1999

Revised : February 2000

Wombat Forest Society welcomes this broadening of the forest debate in our region. We also recognise many improvements in the performance of D.N.R.E. and forest workers in recent years, but still believe that forest management in the Wombat Forest is not sustainable.

Key Points for discussion :

Silvicultural options - reasons for change to present system

A decade ago when many people in the community began questioning the management of our forest, the 'Shelterwood' system was explained to us by various CF&L staff. The public was unimpressed, greatly preferring the previous system which had evolved, of stand improvement and Single Tree Selection. As the regrowth forest had matured public perception had likewise developed, and despite the constant harvesting the forest continued to grow and mature. In response to the question : what was wrong with the old system? we were told that in most respects the old system was quite satisfactory, except that it did not produce adequate levels of tree stock of the next generation. There were many things that we were told which did not make sense, and there was a lot which we were not told; so we set about trying to sort the wheat from the chaff.

By the late 1960's the Forest Commission's research had progressed, the objective being to define "cheap and effective regenerative techniques". [1] It was also stated that " It is important that any techniques used be readily practicable and regularly effective". [1] Since 1974 experience in the Wombat Forest suggests that the 'Shelterwood' system has been cheap and practicable for those who have to implement it, but in terms of establishing the next generation of trees it has definitely not been regularly effective.

Although the forest was considered overstocked in 1968, the young trees were regarded as generally being of poor quality. For instance, in the Trentham District, out of a cull of 10% of Basal Area on average there was only one cull tree > 24" (600mm) diameter per acre, and 27% of Basal Area was suitable only for pulp. [2] At 24" diameter those trees would only just be mature, and only beginning to develop useful habitat - a slow process. [4] This probably indicates how few habitat trees there were, even then.

Commercial considerations seemed to dominate the agenda even then. Because the objective was Stand Improvement, to produce future sawlogs, the programme was to gradually 'cull' defeective trees from the forest. At the heart of the problem is the apparent belief that the non-merchantable trees were wasting valuable space and must be disposed of. This completely ignored the ecological requirements of the forest.

It is interesting to note that catchment values were given serious consideration in those days. The main objectives governing the search for a better silvicultural system seemed to be : to maintain sawlog allocations, to supply the needs of Hardboards Australia Ltd, and to protect water catchments.[2]

Timing of logging operations vs natural tree cycles of seed production [28]

It is apparent when driving through the Wombat Forest that the next generation of trees is absent from many coupes. It has been difficult reconciling many different and sometimes conflicting bits of information on this subject. There often seem to be inconsistencies in / between some documents, and there are some doubtful basic assumptions.

The objective of efforts to regenerate the forest after Shelterwood I harvests has been to achieve a dominance of the desired commercial tree species, the Messmate (*Eucalyptus obliqua*). In earlier years the regeneration failures were inexplicable (by DNRE). Changes were made to correct the failures and the syndrome of 'species shift' towards the less commercially attractive Peppermint species.

It is possible that there has been an unfortunate lack of synchronisation of logging and tree flowering cycles, although this is difficult to prove conclusively. 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 unlikely. It is re-assuring to note that now DNRE claims to conduct more thorough pre-logging surveys, to assess the flowering potential of the stands on proposed coupes; however this does not correct the past failures. It's a pity about the wildlife displaced from their homes as a result of theses failures.

There are some coupes in the Wombat Forest which have failed to produce the necessary Messmate regeneration, and have been untreated for several years. Refer to the presentation by Tim Anderson for an explanation of the implications of this phenomenon for Sustainable Yield. In recent years there have been some desultory and isolated attempts to regenerate a few of these failed coupes, but generally to no avail. In one area, Bullarto South where there is an unacceptably high incidence of regeneration failure, many of the failed coupes were subjected to costly and damaging re-treatment by bulldozer - 'mechanical disturbance'- in autumn 1999. It is not yet possible to draw any conclusion about the effectiveness of these remedial works.

Regeneration Burns -

- Are they required ? There is sufficient evidence to doubt their necessity. The hot burns desired by DNRE do not always achieve the expected result, and more often than not cause damage to the retained trees and Habitaat Trees

- Are they controllable ? Evidence suggests not. Because of the demand to clear out the coupes, with around 80% of the tree trunks removed, the logging slash left lying aroundcontibutes to enormous fuel loads, which often result in uncontrolled fires.

- vs Ground Disturbance. Does failure of one justify the other ? Both are environmentally disastrous.

- Does it produce reliable results ? Evidence suggests not. There is sime small comfort in statements by DNRE tht logging operations are now timed to co-incide with natural cycles; but it is too early to know to know if the problems have been solved.

- Effect on growth response of retained trees. Often dramatically negative.

Besides the shortage of decent Habitat Trees on most 'Shelterwood'-logged coupes, there is generally an unacceptable degreee of damage to retained trees; both from the logging operations and from the Slash Burn. There is generally an excessive quantity of heavy fuel - logging slash - left where it fell, often amongst saplings or heaped around the bases of retained trees. It is often the case that the retained trees are blackened for most of their height, and in many coupes they suffer sever crown scorch. This sets their growth back until they can re-establish a full canopy of foliage. In some coupes the trees are so shocked that they take several years to recover, only to be logged for the

second cut ('Shelterwood' II) without being vigorous enough to put on worthwhile volume increment. This is not what the 'Shelterwood' system is supposed to do. When it is considered that Messmate regeneration does NOT necessarily require burnt coupes for ite re-establishment, the losses and damage seem very wasteful and unnecessary.

There is a classic coupe on Osborne Road, about 4 Km north of the Daylesford-Trentham Road, which was logged in the early 1990's; and the retained trees are still recovering from the shock. So the system sometimes lets us down,; producing less than the expected volume yield at the Second Cut, and with the increased risk of defects due to scorch from the Regen. Burn. There has consistently been failure to protect the retained trees from such damage by fire

- Effect on wildlife habitat. Often damaging

Some Habitat Trees are vulnerable to damage by fire; and their risk of severe damage is increased by the policy of deliberate Regeneration Burns. Many times I have seen good Habitat Trees (of which there are too few) blazing away well into the night, long after the DNRE fire crews had gone home. In a forest deficient in natural hollows, this is inexcusable.

The microbes and invertebrates in the topsoiol and ground litter are necessary to complete the forest nutrient cycles, by returning organic matter to soil nutrients for re-use by plants and other life forms. The Regeneration Burns slow these processes, by killing off large numbers of these low life forms and sterilising the soil; often requiring extended times for the re-colonisation of the site.Some of the many fungi in our forests exist to feed on and break down dead wood, but there is only one species of fungi which lives on charcoal.

- is D.N.R.E. sufficiently resourced to conduct such operations satisfactorily ? In the past, no. However, only in the last year (1999) has there been a concerted attempt to address this problem, due to the availability of a $100,000 budget for re-treatment works each year for 3 years. This budget is largely to address the problems of Regeneration which is exceesive, particularly in the 1983 Ash Wednesday areas near East Trentham.

Can we bear the costs of the remedies for failure of the system? On past experience - definitely not.

If the 'Shelterwood' system is so prone to occasional / frequent regeneration failure, the remedies for which could not be afforded; then the suitability of the system must be questioned.

We must also question : -

- - the commitments of Governments and their responsible Authorities (from the Forests Commission of Victoria to DNRE).
- - The ROYALTY structures which have proven inadequate sources of revenue to accommodate the losses incurred by the regeneration failures of the 'Shelterwood' system.
- - government financial structures which have received the Timber Royalties in the past, yet released insufficient funds to enable the forests to be properly managed.

Criteria for assessing Regeneration success or failure.
Are they adequate, reasonable and properly applied ?

Various types of imaginative manipulation of statistical data can distort our perception of reality and render what is a deficient result as if it is acceptable. In some ways the coupe-by-coupe argument over the success or failure of regen. is relative to the expectations of a distorted system and the people involved in the debate, and may become an irrelevant statistical exercise.

There are reasons for concerns that erroneous changes to the criteria for assessment of Regeneration Stocking rates have been uncritically adopted, and that the statistical picture presented differs from the on-ground reality in the forest. Investigation and research is required to satisfy these concerns, and ensure that the reporting of Regeneration is accurate and trustworthy.

However we must not lose sight of the overall picture. After the whiteman's onslaught during the late 19th Century the Wombat Forest was reduced to a 'clean slate' on which was written the next 100 years of regrowth. "Almost clear felling of the forest (pre-1900) .....has resulted in the present more or less even-aged crop of overwood trees ...." [3] Unfortunately it seems to take nearly a century for a forest such as ours to develop its tendency to diversity of structure, age and species composition. It is also unfortunate that humans often have the tendency to repeat past mistakes. Now we have seen the forest subjected to the intensity of 3/4 of a clearful cut, reducing about 3/4 of it again to young even-aged forest, and all within only the last 25 years. This dramatic change has ocurred during less than $^1/_3$ of the stated rotation period for this forest. Do you want the forest managed largely as a succession of even-aged stands of mostly the commercially desirable tree species? Does the forest need this sort of treatment?

Fertiliser use on regenerating trees (often discussed but not yet in wide use)

This subject is referred to here because it is inevitably raised in public discussions of the problems of regeneration under the 'Shelterwood' system. It is a very contentious issue and will be opposed by many people , often on philosophical grounds, if its use is proposed. The need to fertilise the regenerating tree crop will indicate a fundamental problem with the management system.

Effects of current management system on other values / uses of the forest

WATER VALUES

The hydrological implications of the conversion of the forest to even-aged structure are interesting, with the majority of the forest currently in the early stages of its regrowth cycle. The basic Water Yield graph in the Lerderderg Report would suggest that the water yield of any area will only just have recovered from deficit to positive yield, when its crop of trees reach 'economic maturity' and are removed at the completion of the rotation period. Trees are a stabilising influence in the Hydrological Cycle; in sufficient numbers they tend to mitigate the effects of extremely wet and dry weather events. To remove such a large perecentage of forest cover in such a short time must surely lead to disruption of that essential natural cycle. This suggests a "yo-yo" effect, with unreliable water yield from forested catchments over decades. Perhaps this will even out; with coupes at various stages of their rotation cycles scattered throughout the forest, either releasing flooding run-off from un-regenerated coupes, or solid stands of sapling growth using every drop of rain. Considering the forest history, after waiting a century for the forest to re-grow to maturity and for the natural cycles to stabilise, this hardly seems like good management.

In reference to the Wombat Forest, Tim Fisher, from the Australian Conservation Foundation, maintained that more money would be made from the forest by closing it to logging and supplying water of good quality and reliable yield, than can be made from timber harvesting.

WILDLIFE VALUES

The wildlife implications are disturbing. Historical records seem to suggest that the Wombat Forest was not an even-aged forest, yet after 100 years of regrowth and comparatively little disturbance it was recognised by the late 1970's as being deficient in natural hollow habitats.[4] This was after only 5 years of operation of the 'Shelterwood' system, and at a less intense level than has been applied during the last decade. The onslaught of a revved-up 'Shelterwood' extraction during the 1990's has increased the pressure on the wildlife of the Wombat Forest, by continuing the removal of the generation of trees which were approaching maturity and probably only beginning to become habitable to the many wildlife species which rely on natural tree hollows for nesting and roosting. As all things are connected, it is a perilous course to take - disrupting the fabric of forest ecology so intensively, for so long, over such a large proportion of the whole productive forest, and with so little understanding of its consequences.

It pays to remember that "there are no species of forest wildlife which are dependent on logging for their survival." [5]

Sustainability implications of failed / excessive regeneration

Excessive regeneration requires thinning, and this requires labour and money. D.N.R.E. has recently announced the intended expenditure of $300,000 per annum on thinning operations. Is this sufficient to do the job? In addition to many overstocked 'Shelterwood' coupes there is a substantial area around East Trentham which was burnt in 1983 and also requires treatment.

Out of this meagre Re-Treatment budget must come the funds to remedy the regeneraation failures of the system. The accepted practice is to 'mechanically disturb' the soil by use of a bulldozer, and hope for better luck with seed fall and conditions. This is an expensive and 'hit-or-miss'approach, and sometimes it fails - again. It must also be admitted that this compounds the problems of the failure of the Selective system of the past to adequately provide the succeeding crop of sawlogs.

However, DNRE must be commended for admitting these failures and for securing the budget to attempt the re-treatment works.

In a small forest with a limited (and diminishing) Nett Productive Area, any coupe which fails to regenerate amounts to a significant loss to the productive capacity of the forest; and the longer such areas remain un-treated, the more the problem is compounded. With the damage already done, the future shortfall in timber production must be planned for, and its impact on the local timber industry minimised.

It is salutory to recall the advice from the introduction (page iii) of a 1983 Forests Commission Victoria document [7] : "The principal requirement to be established ... is whether variations in the current system will also consistently produce a new well-stocked, healthy forest. Failure is unacceptable now and would be disastrous to the next generation of Victorians."

Assessment of 'Shelterwood' system, after 25 years' application

Does it fulfill its objectives ? We think not

Considering that one of the prime reasons for the introduction of 'Shelterwood' was to ensure the regeneration of future tree crops, and considering the frequent failure or excess of regen., it must be concluded that the system itself is a failure. This may not be an absolute condemnation as there are undoubtedly a few successes with 'Shelterwood'; unfortunately the successes are too few, and the Wombat Forest Society maintains that the failures have been too numerous.

It is a real shame that a cheap and nasty solution was chosen for our forest. Our forest needs a reversal of priorities. There are good arguments in favour of a less intensive and disruptive 'harvesting' system, and more intensive regeneration systems. For one, if such a management regime was operating here we would have the next generation 'tree crop' now established, instead of a significant portion of the forest being now devoid of regenerated tree stock. The cost of the regeneration work would ultimately be offset by the accumulation of the desired annual increment of merchantable timber.

Because it is a small forest isolated by developed land, and has been logged with increasing intensity over the last 25 years, the slightest failure of regen. has serious implications for the sustainable future of the Timber Industry. The tendency to reduce large areas of the forest to even-aged stands has serious implications for wildlife, and ultimately for the whole forest ecosystem. In the natural web of life all components rely implicitly on all the other living organisms. Nature is

resilient, and we have been stretching its capacity to restore itself - but we do not understand its elastic limits.

What are the alternatives ?

Many observers believe that a more benign management system is desirable in the Wombat Forest. There is room for a number of different systems to be run concurrently, and this is necessary to discover which system is most applicable in each area. On visible evidence 'Shelterwood' seems to work well in some areas, but fails in others. What system is to be used where 'Shelterwood' fails? What comparisons can be made to determine a more suitable option in such cases.

Comparison with other silvicultural systems

All of our eggs have been in the 'Shelterwood' basket for too long. For 25 years we have had blanket application of an untried system, to the exclusion of all but a few trial plots of other systems. This has resulted in mystification when 'Shelterwood' has failed to meet expectations, and the persistence with a failing system, perhaps because of a lack of reliable bases of comparison. I can only conclude that in a general sense this is bad science.

For a number of reasons a 'Group Selection' system would have a less disruptive effect on the forest ecology, would provide more shelter for the next generation of trees, and would provide a matrix of undisturbed and mature forest surrounding all productive sites. This natural buffer would enable long term ecological sustainability which is not provided by 'Shelterwood' .

'Single Tree Selection' could also be employed in some areas, and if conducted with diligence and care would be even more benign in its impact on forest ecology, particularly considering some of the improved modern logging machinery and practices.

Alternative Regen. strategies

No matter how good the efforts of D.N.R.E. staff to get a better regen. result, we may eventually have to accept that the problems faced are greater than can be resolved by tinkering with an unpopular system which is based on some fundamentally flawed principles. The basis of current management is to use free land and an essentially free resource - forest produce - to make money. In some ways this is not earned, if the full costs of production are not paid. When regeneration fails and is not remedied, this amounts to a shirking of responsibility. Unfortunately this has been the case for most of the history of 'Shelterwood' in the Wombat Forest.

D.N.R.E. and its predecessors have repeatedly used the terms 'harvest' and 'tree crop', so the agricultural comparison is worth consideration. Amongst the farming community tree planting is now widely accepted as being a responsibility of land holders, for both environmental and economic reasons. Current LandCare advice to farmers is to treat trees as a crop, and to do all that is necessary in preparation to ensure the establishment and optimum growth of the trees. In contrast, the application of 'Shelterwood' in the Wombat Forest sees regeneration after harvest treated almost as an optional extra, and left very much to chance. But farmers who are determined to re-establish trees on their properties know that it is an expensive business, and requires serious application of effort, and vigilance over time to ensure success. Many farmers believe that the results will be worth the effort.

The value of a mature merchantable tree far exceeds its planting and establishment costs. It is certain that if our current crop of 'B-grade' sawlogs had been planted 80+ years ago, the cost would have been correspondingly low in 1920 currency values. But today a 'B-grade' sawlog may yield a few cubic metres of quality timber valued (at year 2000 prices) of >$1,000 / m^3; and would earn

the Government royalties in year 2000 values. This would surely be a worthwhile return on the meagre investment in planting and establishing costs for a single seedling.

Compare this with the potential loss of revenue by allowing un-regenerated coupes to stand untreated for considerable portiions of the next rotation period - i.e.: sites remaining unproductive for perhaps a decade. Refer to the presentation by Tim Anderson for an outline of the implications for SUSTAINABILITY OF TIMBER PRODUCTION.

D.N.R.E. and its predecessors have until recently been reluctant to even discuss alternatives to 'Shelterwood' and its regeneration methods which rely on FREE SEED FALL and the receptivity of the seed bed after the SlashBurn. The results are hit-or-miss effects and seem unpredictable. It would be reasonable to expect that a more reliable method of establishing the next crop of trees at the earliest opportunity would be seriously considered. It is reassuring to note that in recent months amongst DNRE staff there is a welcome willingness to discuss alternatives in a constructive and helpful way. This is to be applauded and encouraged.

Landcare Comparison

In LandCare activities, current costs are around $1 per planted tree, with another $1 required for staking and guarding; and current nursery practices reputedly produce trays of seed-injected cells which yield seedlings with good root systems. Under LandCare schemes, Direct Seeding machinery is cheap to hire, so the greatest cost is that of the seed. After direct seeding another $1 per selected seedling would be required for staking and guarding. It is reasonable to expect that relative to these planting costs today, the trees at maturity will be worth a sum proportionally similar to that mentioned above.

Regeneration by planting would be much more feasible in smaller areas, either to replace single trees or in 'Cells' of only a few Hectares under a 'Group Selection System'.

Community perception of regeneration of the Wombat Forest

Particularly because of the large scale of clearing of the forest, and of the wasteful nature of the Slash Burns, 'Shelterwood' is very unpopular in local communities. It has demonstrably failed to deliver the reliable regeneration which was assured, and so is not a credible system to be applied to all of our forest.

D.N.R.E. and its predecessors have been blinded by science and driven to manage an unsustainable system to supply unsustainable volumes of timber and pulpwood from our forest. Our communities have had the intricacies of the 'Shelterwood' system explained to them on many occasions over many years, and they are still not convinced of its merits. Many local people have applied themselves to the task of understanding forest management, but there is a gulf between the expectations of the community and the wishes of the forest managers. These must be reconciled if we are to find a satisfactory resolution to these issues. There is a mistaken belief in Timber Industry and Department circles that the problem has been in not properly explaining the system to the public, that more needs to be done to enable the public to understand the benefits of 'Shelterwood' . The problem is simply that, having heard the debate to date, the public is still not convinced, and still does not like what it sees in the bush. It is time to return to a larger proportion of Common Sense in the forest management equation.

Probably the most fundamental mistake was the choice of an even-aged management system, apparently driven by the demand for more sawlogs, with the consequence that more pulpwood was available. Economics then took over and distorted the whole forest mmmanagement system.

In the early 1970's nature conservation did not have the public support which it now enjoys. Had the forest planners of that time been at the crossroads now they might take a different path.

Ultimately the decisions of how the forest is to be managed will be political ones. We at Wombat Forest Society have done our best, but often have difficulty getting through to those in authority. We will continue to work for sustainable forest management; but it is really up to you - the citizen - to maintain the pressure, to achieve an ecologically sustainable forest supporting a sensibly run and sustainable Timber Industry.

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