FOREST MANAGEMENT

in the

MANJIMUP AREA

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CONTENTS

INTRODUCTION

Last month the South-West Forests Defence Foundation (S.W.F.D.F.) published a paper alleging certain non-compliance on the part of the Forests Department (the Department) with provisions for environmental protection of the forests as outlined in the 1973 Marri Wood Chip Project Environmental Impact Study (E.I.S.).

This report is the answer to that publication. It has been prepared after considerable field inspection and discussion and a visit to the areas concerned by Departmental officers experienced in karri operations.

In essence the result arrived at was that in totality the Department believes that the objectives of the E.I.S. have been achieved despite some instances where, with hindsight, different action might have been taken.

The Department and its officers would have no qualms whatsoever regarding a detailed, objective and technical investigation of the project and in fact would welcome and be pleased to assist it.

The initial point that should be made, and it will be referred to later, is that the E.I.S. was not a management plan, nor was it ever intended to be or required to be.

A large scale timber industry has been operated in Western Australia for over 100 years and in the Manjimup area for nearly 70. Given successful regeneration following cutting and careful control over the rate of cut there is no reason why the industry should not continue indefinitely. The industry is important to the State in that it supplies construction and other product needs of the people. The employment and economic activity it generates is the lifeblood of associated towns.

Sawmilling is one only of the forest management related activities. Others are conservation of flora and fauna, protection from fire, management of water catchments and provision for tourism and recreation.

Sawmilling is inherently a wasteful process and without woodchipping it would be difficult to make it otherwise.

It requires logs that are large, straight, sound and within a limited species range. Less than half the trees standing in the forest can yield logs to this specification.

Proven regeneration procedures require that all or most trees be removed to make way for the new crop and thus a large quantity of surplus wood material, after cutting for saw logs, has to be disposed of either by sale or by burning.

The volume of sawn timber obtained from the karri/marri forest in the past was only about 15 per cent of the total forest log content.

Prior to woodchipping 85 per cent - including residue in the forest and at the mills - was burnt.

Over the years there had been continuing efforts to find or create a market for the residue. When one, in the form of woodchips for paper making in Japan, was eventually located it was welcomed because of the part it could play in a fully integrated forest management situation.

The Western Australian woodchip industry has operated since September 1975 to utilise some of this residue which was previously not able to be used.

ENVIRONMENTAL IMPACT STUDY

As required by the Federal Government prior to the granting of an export license an Environmental Impact Statement was written by the Forests Department in 1973.

This statement was the first of its kind in Western Australia. It described the proposed project, predicted the main environmental risks and gave guidelines as to how these risks could be contained.

It was not a management plan, nor was it ever intended to be or required to be.

PLANNING

Planning and management of the integrated forest industry is a continuing and evolving process.

Management changes have to be made in changing circumstances and in the light of new knowledge gained.

Not to make such changes would be irresponsible and in a manner the report of the S.W.F.D.F. accepts this.

Such changes of course need to be made so that no guidelines are ignored or objectives sacrificed.

Subsequent to the E.I.S. there have been four quite substantial forest policy changes.

1. In 1974 substantial areas of the forest were quarantined to control dieback thus precluding cutting in certain areas.

2. In 1976 the Government decided to substantially reduce the overall hardwood cut over a period of time. Three major sawmills have closed in the license area in the past three years.

3. At the request of the Environmental Protection Authority the Department agreed to reduce the rate of cut in the Shannon River Drainage Basin. It will be limited to nine per cent of the total area in the first five years.

4. Working Plan No. 86 of 1977 set aside a further 30 000 ha plus within the woodchip license area for Management Priority Areas on which cutting is not permitted. Management for conservation and recreation is paramount in these areas.

These major changes could not be incorporated in the E.I.S. either because they had not been foreshadowed or had not been formulated and accepted as policy.

This necessitated major revisions of the draft cutting plans for the sawmill and associated woodchip industry.

Management changes were made accordingly, in line with the undertaking in the E.I.S. to do so, if monitoring of the situation suggested that it should be done.

Forest management is not a simple black and white situation for which a formula can be established and abided by forever. It is a changing dynamic thing with conditions varying, techniques improving and new ones being discovered continually.

REGENERATION

Regeneration of the cutover forest with an adequate stocking of useful species is the most important single obligation in forest management. In karri areas the preferred system remains the seed tree system which continues to work as well and reliably now as it has in the past.

This was the major system specified in the E.I.S. but mention was also made of hand planting.

Subsequent operations proved hand planting so successful that the Department will continue to use it whenever considered necessary.

On average the karri forest produces enough seed in only two years in five for the reliable use of the seed tree system.

Total reliance on this system would mean that areas to be regenerated would have to accumulate and form a sizable and dangerous fire hazard.

Annual burning of coupes for regeneration facilitates planning and keeps to a minimum the time during which the area is bare of permanent vegetative cover. This has environmental benefits.

As a result of the techniques employed there is no question that regeneration in association with the woodchip industry is better than ever in the past. This opinion is based on forestry experience spanning many years.

UTILISATION

So far the woodchip industry has been confined in the most part to the karri and karri/marri forest to the best advantage of the integrated forest industry whereas the E.I.S. dealt with the industry operating in the overall forest. This has affected short term results which cannot

therefore be related simplistically to long term predictions.

In a typical karri/marri stand, without woodchipping, about 70 cubic metres per hectare would be removed for sawmilling.

With woodchipping this may be increased to about 80 cubic metres because all trees are fallen and can be more thoroughly inspected for sawmill suitability.

Furthermore about 150 cubic metres of marri and karri per hectare not suitable for sawmilling and which otherwise would have been burnt goes to the woodchip industry which pays a royalty for it.

The result is that only about 20 cubic metres a hectare instead of 170 needs to be burnt. Much of this is small diameter material which contains a large proportion of the nutrients which are recycled by the regeneration burn.

Table 1 illustrates the monetary benefits gained through integration.

Further economic benefit is gained by the diversion of karri sawmill residue, previously burnt, to the chip process.

About 15 per cent of the total woodchip output now comes from this source.

Sawmills cutting karri and sending the residue for chipping have increased percentage recovery from the logs from 40 per cent to 80-90 per cent.

Table 2 shows the progressive output in tonnes of chips and the various raw material inputs.

TABLE 1

Woodchipping v Non Woodchipping

Returns + Costs/ha

Typical KM	+ Woodchips	- Woodchips
Sawlog royalty $78m^3$ @ $5.70	444.60	444.60
Chipwood royalty $150m^3$ @ 74¢	111.00	-
Gross Return/ha	555.60	444.60
Option 1		
Seedtrees Cost of regeneration	90.00	140.00
Net Return/ha	465.60	304.60
Option 2		
Hand planting Cost/ha	177.60	227.60
Net Return/ha	378.00	217.00
Option 3		
Seeding Cost/ha	102.00	152.00
Net Return/ha	453.00	292.00

TABLE 2

chips produced (approximately)

tonnes (m^3 x 1.197 = tonnes)

Year	K logs	M logs	K Sawmill Residues	Total
1975-76	24 000	92 700	-	117 500
1976-77	162 600	288 700	36 600	487 900
1977-78	125 900	394 400	*93 000	613 000
	313 300	775 800	129 600	1 218 700

* This is near the maximum possible.

ENVIRONMENTAL IMPACT

The E.I.S. nominated the main environmental risks associated with integrated sawlog-chipwood logging.

It also forecast that the risks could be contained and gave guidelines as to how this could be done.

STREAMFLOW

Changes to the streamflow were considered by the Environmental Protection Authority (E.P.A.) to be the prime risk.

A comprehensive and inter-disciplinary research and monitoring organisation (the Kelsall Committee) was set up by the E.P.A. and periodic reports on its findings have been published, the most recent being E.P.A. Bulletin No. 31 in April, 1978. Salinity, sedimentation and turbidity are the main factors being measured.

Erosion is a natural process which takes place, albeit slowly, even in undisturbed virgin forest. Any natural disturbance such as wildfire or windthrow which damages the vegetative cover increases the soil erosion rate until regrowth restores the former equilibrium. Likewise logging must inevitably cause some increase in erosion, which then reduces as regrowth reclothes the logging coupe. It becomes a question of judgement whether an observed level of erosion is acceptable or not. The Department is satisfied that, while there is no room for complacency, soil erosion is not a problem of dominating concern in integrated sawlog-woodchip cutting. The speed with which the areas revegetate following the regeneration burn plays a major part in reducing the significance of the erosion risk. Prompt, planned regeneration of coupes, if necessary by planting or seeding, thus has an important bearing on erosion risk. Post-poning the regeneration burning of areas until seed trees carry enough seed extends the time during which a coupe remains in an erosion-prone condition.

Exceptions have occurred. A particular instance is the coupe Graphite 8 which was the subject of publicity in the Daily News in January this year.

While this situation was given quite some prominence in fact only 1.5 per cent of the coupe showed erosion damage. A subsequent independent assessment of Graphite 8 was made by Mr. C.R. Coffman, from the Soil Conservation Division of the Department of Agriculture and he reported that "no erosion of significance has been observed".

In the coupes logged as part of the monitoring programme of the Kelsall Committee only a slight increase in sediment level was noted. No change in the salinity of streams was measurable.

The results were as predicted in the E.I.S. and monitoring is continuing.

STREAM AND ROAD RESERVES

To ensure that conservation, recreation and other non-wood values are retained, and to physically protect water course banks, the E.I.S. proposed that 20 per cent of each forest block be withheld from cutting.

The E.I.S. guidelines for the setting aside of reserves for particular purposes are quite extensive but it should be noted that there was no undertaking made to provide reserves along all or any particular water course.

As with other provisions the setting aside of reserves is kept constantly under review by the Department and, within the overall guidelines and objectives, alterations made to best suit the particular circumstances prevailing at the time.

Further work has largely confirmed the statements of the E.I.S. regarding fauna.

MANAGEMENT PRIORITY AREAS

Management of the forest is carried out in conformity with regularly revised General Working Plans and the one introduced in 1977 detailed a series of areas called Management Priority Areas in which management for conservation of flora and fauna and recreation was paramount.

These entailed the removal from cutting of further tracts of forest, quite apart from and additional to the 20 per cent of each forest block mentioned in the previous section.

A further 30 000 hectares plus of forest within the woodchip license area has thus been withdrawn from calculation with regards permanent timber supply. Approximately 30 per cent of the karri forest within State Forest has now been withdrawn from cutting and will remain in a substantially mature condition indefinitely.

CONSERVATION AND RECREATION

Measures described above and the undoubted value of regrowth forest as it grows and matures, ensure that conservation and recreation values are retained.

DIEBACK

For the period under review integrated sawlog-woodchip cutting has been largely confined to the karri-marri forests, both of which show tolerance to Phytophthora cinnamomi. The impact is therefore not significant.

SUMMARY

In summation the Department believes that it is reasonable to say that the integrated sawmill/woodchip industry enhances utilisation of the forest, improves the economies of the overall forest industry, extends the life of sawmills and helps forest regeneration.

All this is achieved while containing the risks outlined in the E.I.S.

COMPLIANCE WITH THE PROVISIONS IN THE E.I.S.

The S.W.F.D.F., in its report, alleged non-compliance by the Department with specific provisions of the E.I.S. It surveyed 9 coupes in what apparently was only one three day visit although its investigations do date back to 1975.

The allegations were under four headings:

- Protection of Water Catchments
- Karri Regeneration
- Preservation of Fauna
- Other provisions for Environmental Protection

Rebuttal of these allegations follow in the same order.

Rather than quote each allegation in full a description of it will be given together with the S.W.F.D.F. reference.

PROTECTION OF WATER CATCHMENTS

The following information is provided after research and practice dating back to the preparation of the E.I.S. and a comprehensive inspection by professional forestry officers of the coupes concerned subsequent to the publication of the S.W.F.D.F. report.

It is pointed out that the water courses in all coupes are producing clear water of excellent potable quality.

This supports the Department's contention that erosion is not a problem which cannot be controlled.

Logging Steep Slopes Ref. 4.1.1 Page 4

"The suggestion made was that the Department permitted logging slopes too steep to prevent erosion."

The E.I.S. stated that steep slopes would be avoided.

There were no specifications given as to what constitutes a 'steep slope'. This was not indeliberate as forestry experience has proved that the degree of slope by itself is not the sole criterion of susceptibility of an area to erosion.

A gentle slope in one area could be much more susceptible than a much steeper one elsewhere.

Erodibility of soil, the length of the slope, its location relative to a watercourse and other factors need to be taken into consideration.

In all the instances quoted in the S.W.F.D.F. report the slopes were short steep pinches of basically stable karri forest soil comprising only a very minor proportion of the coupe itself.

In practice these areas are identified by the Department in advance of logging and treated as "special care areas".

Had the trees been left standing they would have been decimated by the regeneration burn, leaving little alternative than to fall them before they deteriorated further.

Records show that there are only 7 ha with a slope of over 20 degrees present in the coupe areas examined. This is less than one per cent of the total area.

The frequency table contained on page 4 of the S.W.F.D.F. report could lead to gross misinterpretation.

The unanimous decision of the Departmental inspection team of foresters experienced in karri forest management was that the steep pinches in question should have been logged. There was no significant erosion and the water-course flow in every case was clear. Some of the areas inspected had been logged prior to the 1978 winter.

Cross drains *Ref. 4.1.2. Page 7*

"No cross drains were observed on temporary roads or skid trails in any of the nine coupes, with the exception of South-Western corner of Fly Brook 4."

Cross drains have been installed in much more of the area in question than just the south west corner of Fly Brook as suggested in the Report.

Indeed one is situated just outside the area portraye in Plate 1 on page 5 of the S.W.F.D.F. report.

It is difficult to see how the survey team could have missed this.

Cross drains should only be put in when they are an aid to preventing erosion. There are instances where cross drains have not been put in when maybe they could have been but in not one of these situations was there seen to be serious erosion due to their omission. A revised approach to cross drains is warranted as a consequence of inspections carried out and observation over the period of the operation.

The evidence in the caption attached to Plate 6 on page 10 of the Report is not factual. The track is not a logging track but a Department track built to assist the regeneration operation and there should be no reflection on logging operators in this regard.

As stated earlier watercourses are running clear and fresh.

Stream Reserves *Ref. 4.1.3 Page 7*

"Permanent streams (those having a steady flow of water in mid-April 1979) running through the coupes have no strip of untouched vegetation on one or both sides at ..... 6 locations."

The E.I.S. does not commit the Department to put a stream reserve along all watercourses or any watercourse be they permanent or ephemeral.

Of the 14 allegedly permanent watercourses, 12 most certainly do not carry flowing water during the summer months.

To claim permanent flow in gullies and watercourses which carried water in mid-April when 40mm of rain had fallen in the previous four weeks portrays an ignorance of basic forest hydrology or suggests a change of ground rules to support an allegation.

It is well known that watercourse flow increases temporarily both from surface and underground sources when a forested catchment is clear fallen. Run off increases by as much as 30-50 per cent immediately but reduces to normal over 5-6 years as the regrowth takes hold. Under these circumstances it would be surprising if these drainage lines did not carry water this mid-April.

When these coupes were inspected and treemarked in summer prior to cutting, these 12 watercourses carried no water.

Similarly they will be equally dry in summer in 5-6 years time. They will remain this way until a wildfire or further cutting removes vegetation temporarily again.

Of the other two watercourses one - Brockman 7 - may possibly have carried some water during very mild summers. The other - Fly Brook 4 - was not considered to warrant a stream reserve.

Logging Debris in Creeks *Ref. 4.1.4 Page 9*

"Large quantities of branches, crowns and tree trunks of small, medium and large sizes have been felled or pushed into 10 of ... 14 permanently running streams."

Limbs and logs in waterways are a natural occurrence. Favourable habitat is thereby created for a number of fauna species.

Because of the permanency situation outlined above there have been no stream reserves retained for the watercourses mentioned.

Where no stream reserve is retained it is impossible to keep logging debris out of watercourses and its extraction once there would cause more environmental damage than by leaving it lie.

In no place inspected by the Departmental team has debris given rise to significant erosion.

Two cases were observed where advance mop up operations using bulldozers had created unnecessary concentration of debris in watercourses in Brockman 7 and Fly Brook 4. Instructions have been given to avoid this situation in future.

Road Fills in Creeks *Ref. 4.1.5 Page 9*

"Road fills have been left in permanently running streams in ... five coupes."

In all instances quoted except one the watercourses were not permanent.

Fly Brook 4 is the result of an extended logging history prior to woodchipping and is still in use. Amelioration will be considered on completion of logging.

However, this whole subject needs further research, preferably with the Public Works Department and the Soil Conservation Section of the Department of Agriculture.

Log Roads on Steep Slopes and Across Creeks
Ref. 4.1.6 Page 10

"Log roads running up and down steep slopes and/or across creek beds are to be found ... in five locations."

The roads referred to are not log roads. Most are temporary tracks put in by the Forests Department after logging to subdivide the area for burning and subsequent planting. Others are snig tracks, particularly those crossing creeks. The reason why creek crossings were not removed was because removal would cause more damage than retention.

KARRI REGENERATION

Hand Planting Ref. 4.2.1 Page 11

"In the three years the woodchip industry has been operating approximately 60 per cent of the regeneration in karri forest has been by means of hand-planting."

The Department makes no apology for this but firmly believes that it is in the best interests of the environment.

It is interesting to note that the S.W.F.D.F. report, in this section, has been selective in its inclusion of the E.I.S. guidelines referring to this subject.

It omits the part which says "Flexibility in falling and burning in KM stands will be provided by annual planting of karri seedlings as necessary."

The reasons why hand planting is practised are

- to avoid the accumulation of unburnt coupes waiting for seed years which results in a sizeable dangerous fire hazard.

  There can be four to five years between seed years.

- Systematic annual regeneration of coupes minimises the delay between the completion of logging and the establishment of new permanent vegetation, with benefits environmentally and financially.

The Department sees no basic disadvantage in hand planting or hand seeding karri. Rather the way lies open to improve the genetic makeup of the new crop by using only the best seeds and seedlings. The development of the ground flora and recolonisation of flora goes on in exactly the same way irrespective of whether the karri is planted, seeded artificially or seeded naturally.

Results so far have proved that the alternatives to the seed tree system open to the Department are so successful that they should be used to the maximum where necessary.

Species other than Karri *Ref. 4.2.2. Page 12*

"Seedlings other than Karri are being planted."

Nowhere in the E.I.S. is the statement made that exotics will not be planted.

Indeed it is the stated intention of the Department to experiment with a wide range of exotic trees. It would be very remiss for it not to do so, particularly in view of the presence of the introduced pathogen Phytophthora cinnamomi, which can kill out a range of native species, and as a precautionary measure against similar future possible introductions.

The Forests Department has every intention of continuing to experiment with exotic trees, especially in sites such as compacted landings, worked out gravel pits and other mined over areas where regeneration generally is difficult.

PRESERVATION OF FAUNA

Stream Reserves *Ref. 4.3.1 Page 13*

"Some reservation measures were identified ..... However ..... eleven permanent streams have no strips of untouched vegetation on either side and a further three boundary streams have been cleared to the water's edge on the coupe side. No permanent stream has been protected within a coupe."

The major stream, road and conservation reserves are defined in a block (4 000 hectares) before any consideration of coupe size and layout is made. They are one of the major constraints to be considered in coupe design which are then planned so that they fit within or between such major constraints.

One would not normally expect to find stream reserves within a coupe.

As has been stated before, the question of watercourse permanency as outlined by the S.W.F.D.F. report is not accepted by the Department and the streams mentioned would not warrant a reserve.

Scrub left undisturbed alongside gullies acts as a filter strip, even when burnt.

The provision for 20 per cent of each block to be withheld from cutting has been scrupulously abided by.

Swamp Reserves Ref. 4.3.2 Page 13

"Swamps, as denoted by marshy ground, by the presence of flowing water in mid-April, and by their flora, have no fringe of vegetation or only burnt vegetation ... in five coupes."

Wet areas do occur after falling and rain but these are not swamps. As regrowth takes hold and more of the rainfall is used, so these wet areas will disappear and become part of the high forest community again.

The bare area depicted in plate 10 on page 14 of the S.W.F.D.F. report is in fact a landing where logs were loaded onto trucks. A permanent swamp would be the last place an operator would select for a landing, even in mid-summer.

Swamps are naturally wet areas which support characteristic vegetation which does not include marri or karri forest.

Vegetation around Rocky Outcrops Ref. 4.3.3 Page 14

"A rocky outcrop in Nairn management block has had the vegetation removed from around it on all sides. A granite outcrop in Weld management block has had all vegetation removed from two sides."

The initial falling on and around the rocky outcrop in Nairn management block predated the E.I.S.

Whether a particular rocky outcrop warrants reservation on its periphery is a matter for local judgement Generally, outcrops bigger than that referred to in Weld Block were envisaged as warranting reservation.

OTHER PROVISIONS FOR ENVIRONMENTAL PROTECTION

Coupe Size Ref 4.4.1 Page 15

"To October 1978, three coupes had been clear felled and regenerated that exceeded the recommended maximum size."

The S.W.F.D.F. Report quoted a Forests Department information sheet to the effect that to October, 1978 three coupes had exceeded 200 ha in extent. As it did in "hand planting", the S.W.F.D.F. omitted to quote in full. The full paragraph is given below:

"Coupe size

52. The size distribution of cutting coupes in the K and KM forest since the commencement of the operation is -

Finished, regenerated, coupes

Size	Number	Per cent
50 ha	34	43
51-100 ha	24	29
101-150 ha	15	18
151-200 ha	5	6
*201-250 ha	3	4
	81	100

* The boundaries of the three coupes exceeding 200 ha were established prior to the acceptance of the Environmental Impact Statement."

Falling had been in progress prior to the writing of the E.I.S. and the commencement of the woodchip industry. The planning had been completed, the roads and landings established, the fallers' coupes blazed, and falling well in progress on these 3 coupes when the woodchip industry commenced.

Coupe Dispersal Ref. 4.4.2 Page 16

"The Report criticises the Department for not abiding by the E.I.S. in regard to maximum dispersal, restricted size and rotational cutting of coupes in Weld 1 and 3, Fly Brook 2, 3 and 4."

It is sometimes not possible to disperse coupes and this was recognised in the guidelines where the "if possible" was inserted. Each sawmill has its own permit or license on which it has sole cutting rights for sawlogs. If the area of karri on a permit is limited (e.g. Fly Brook) it is difficult to disperse cutting. The actual natural dispersion of karri also limits the planners' capacity to disperse cutting. Where cutting commenced prior to the E.I.S. coupe dispersal objectives cannot be met. The Weld area fits into this latter category. Changes in policy such as those previously mentioned by withdrawing large tracts from cutting limit the capacity of the planner to disperse cutting in the remainder.

Where coupes are adjacent, as in Fly Brook 2 and 3 (page 28 of the Report) the combined totals do not exceed the maximum coupe size of 200 ha. Separate coupe numbers were given for planning purposes, but for practical purposes the two coupes could have been one.

The matter of stream reserves is treated earlier.

Coupe Location Ref. 4.4.3 Page 16

"Woodchipping operations have been carried out in the first 3 years of operations in certain management blocks none of which were scheduled for woodchipping during the first 15 years."

The plan in attachment 4 of the E.I.S. was one of the early drafts in planning and was put in simply to give some idea of the dispersion of cutting through the license area.

As stated previously, the E.I.S. is not a management plan, nor was it ever intended or required to be. Management has to be flexible to absorb the impact of continuing change.

The four substantial forest policy changes which necessitated management changes are explained earlier in this report but it is pointed out here that one of the major areas affected was coupe location.

It is completely unrealistic to suggest strict adherence to original concepts despite changing circumstances which make those concepts invalid.

Chip Resource Ref. 4.4.4 Page 17

"Between 1975 and 1978 (the first three years of operations), of the chips produced 36 per cent were karri and 64 per cent marri."

The E.I.S. suggested that karri would constitute 5 per cent and possibly up to 20 per cent of the supply. The information on which the S.W.F.D.F. based statement was obtained from a Departmental publication sheet and the actual table was -

Quantity Produced 50.

CHIPS PRODUCED

APPROX. WT. IN TONNES (m^3 x 1.197 = tonnes)

YEAR	K. LOGS	%	M. LOGS	%	K. SAWMILL WASTE	%	TOTAL	%
1975-76	28,800	(21)	92,700	(79)	--		117,500	100
1976-77	162,600	(33)	288,700	(59)	36,600	(8)	487,900	100
1977-78	125,900	(20)	394,400	(64)	93,000	(15)	613,300	100
	313,300		775,800		129,600		1,218,700	
%	26		64		10		100	

The wide ranging estimate of 5-20 per cent of the total production being from karri reflected the uncertainty at the time of how much of the karri would be acceptable as chipwood and how quickly the sawmills would chip their production surplus. Until the operation got under way there was no way of knowing precisely what the proportion would be.

However, it is believed that over the 15 years period the percentage will equate with the estimate. Figures quoted in the S.W.F.D.F. Report are over three years only and there are good reasons for the difference:

1. Chips were produced only from areas of karri and karri/marri which had been clearfelled.

2. A backlog of chippable material was held in karri areas clearfelled prior to the mill commencing operations.

3. Earlier use of karri sawmill residues than was expected. The source is now being practically fully exploited and will not expand to any great extent.

The S.W.F.D.F. has repeatedly but unsuccessfully attempted to prove that karri sawlogs are being chipped, and no doubt drawing attention to the amount of karri being chipped is another attempt to do this.

No karri logs of sawmill standard are chipped. A dual inspection system exists whereby all karri logs are inspected both in the bush and on the chipmill landing. In any case it is economically absurd for a wood processing organisation to chip logs which can be sawn because the monetary return on a sawlog is much the greater. This is even more pertinent when the actual supply of karri sawlogs is diminishing, as it has since the commencement of the woodchip industry. This is due to a planned reduction by the Forests Department in the permissible sawlog intake, which is part of a long term programme designed to reduce the sawlog cut to a level sustainable by growth.

<u>Waste Utilisation</u> Ref. 4.4.6 Page 18

"The industry was presented to the public as a waste utilisation industry. In fact, it is creating large amounts of waste in the form of branches, crowns and tree trunks that remain on the ground after the intense regeneration burn."

The suggestion that the industry is 'creating waste' is typical of the unrealistic attitude of the S.W.F.D.F.

Even without woodchipping clearfelling would be practised in karri and karri/marri forests.

If we take for example a typical mixed karri/marri forest of good quality, the propostion of utilisable material coming therefrom is as follows:

	per hectare	%
Sawlog	78 cubic metres (mostly karri)	32
Woodchip	150 cubic metres (mostly marri)	60
Left in the forest	20 cubic metres	8
	248	100

Had no woodchip industry been in existence all of the 150 cubic metres of potential chipwood material would have remained in the forest. If the area was to be regenerated to a productive condition most or all of it would have to be fallen and burnt to allow new growth to replace decadent senescent trees. This must happen irrespective of whether the forest is clear fallen or selectively cut.

Rather than being criticised the industry should be complimented on its record in utilisation of sawmill residue.

Waste Disposal Ref. 4.4.6 Page 18

"Bark and tree butts are being burnt...."

The disposal of bark at the chipping site is a matter which is under negotiation between the West Australian Chip and Pulp Company and the Department of Industrial Development. It is outside the direct responsibility of the Forests Department.

PHOTOGRAPHS

The following photographs are produced to illustrate some of the points made in the text and to refute certain points made in the S.W.F.D.F. Report.

Plate 1. A different view of the 'severe slope' illustrated in plate 1 of the S.W.F.D.F. Report. The slope referred to is on the right of the above picture. It is a short sharp pinch which is only a small proportion of the overall coupe. There is no erosion on the slope. It would be impossible to withhold this small area from cutting without it being damaged. This type of country is treated as a 'special care' situation.

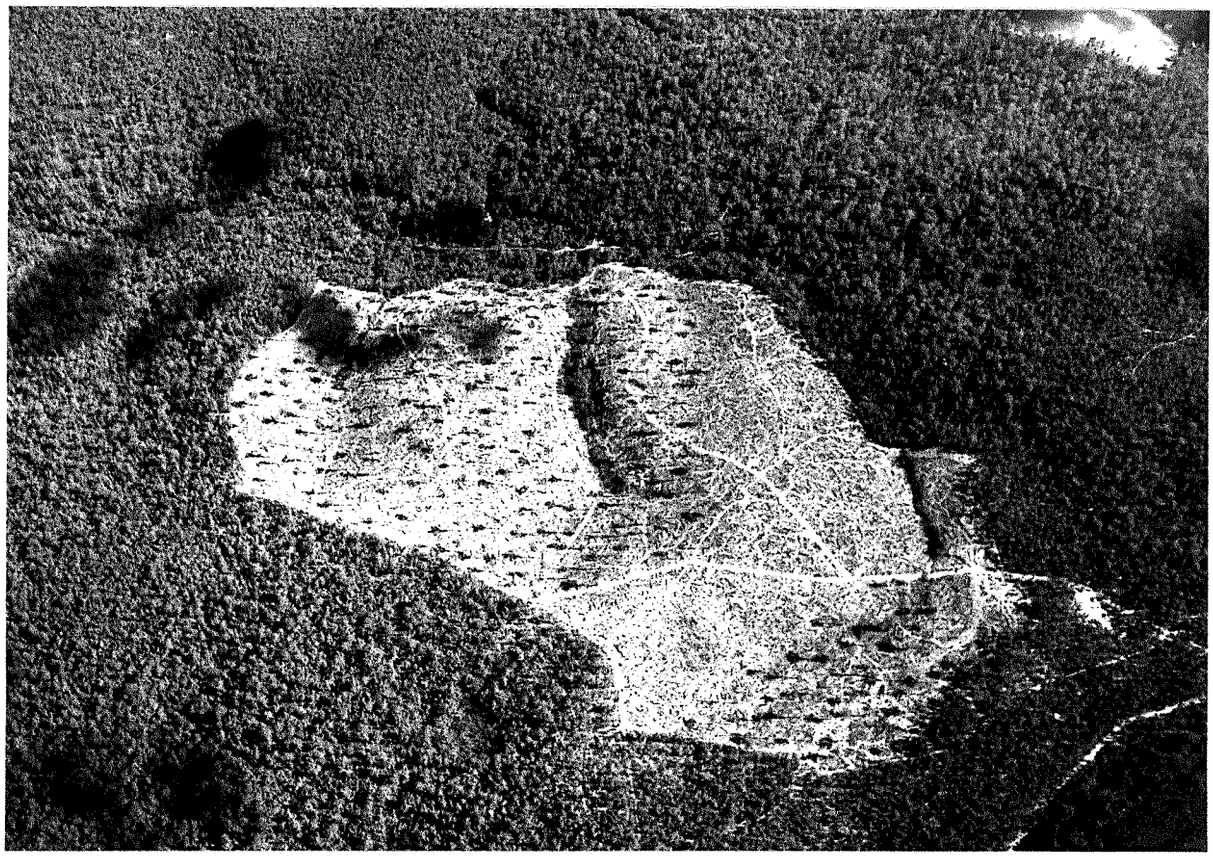

Plate 2. An aerial view of Brockman 14 coupe as above showing the 'steep' area centre top. The top left hand dark spots are cloud shadows. It forms only 1.6 per cent of the coupe. Degree of slope is not the only factor in erosion.

Plate 3. An erosion barrier on the snig track on the eastern end of the pinch illustrated on plate 1 of the S.W.F.D.F. Report. The course of the cross drain is outlined in the centre of the picture. Careful attention has been given to the question of erosion caused by snig tracks.

Plate 4. An area in Fly Brook 2 which illustrates the error in the S.W.F.D.F's. plate 10 which suggests that the area is a swamp. It is a loading site and the stumps and snig tracks are clearly evident. In the middle distance is a short pinch described on page 5 of the S.W.F.D.F. report as one of the steepest valley-side slopes - 21 degrees. Apart from the shallowness of the pinch, it only amounts to 0.7 per cent of a total 70 hectares.

Plate 5. This log was claimed in Plate 13 page 18 of the S.W.F.D.F. Report as having been rejected for either sawmilling or chipping. The tree was not felled in the initial operation for safety reasons. It was subsequently felled after the stem with which it had been interlocked was pushed over by a special bulldozer at the time of scrub rolling. That portion of the log suitable for chipping will be removed with other material in a nearby stockpile. The history of the log is well known to departmental officers and industry representatives and would have been conveyed to any interested party requesting the reason why it has not been used.

REGENERATION

The whole forest industry revolves around successful regeneration and the following plates illustrate the results achieved through clearfelling and hand planting in the karri and karri/marri forests.

Plate 6. A clear felled area after burning and during hand planting. The Department makes no apology for hand planting. It is carried out the winter following the burn and normally within 12 months of felling. With the seed tree method the time span could be 4/5 years.

Plate 7. A recently planted karri seedling.

Plate 8. One year old planted regeneration. This area is referred to in the S.W.F.D.F. Report as "two year old hand planted seedlings." This would suggest that, to the eyes of the Foundation surveyors, the system is successful.

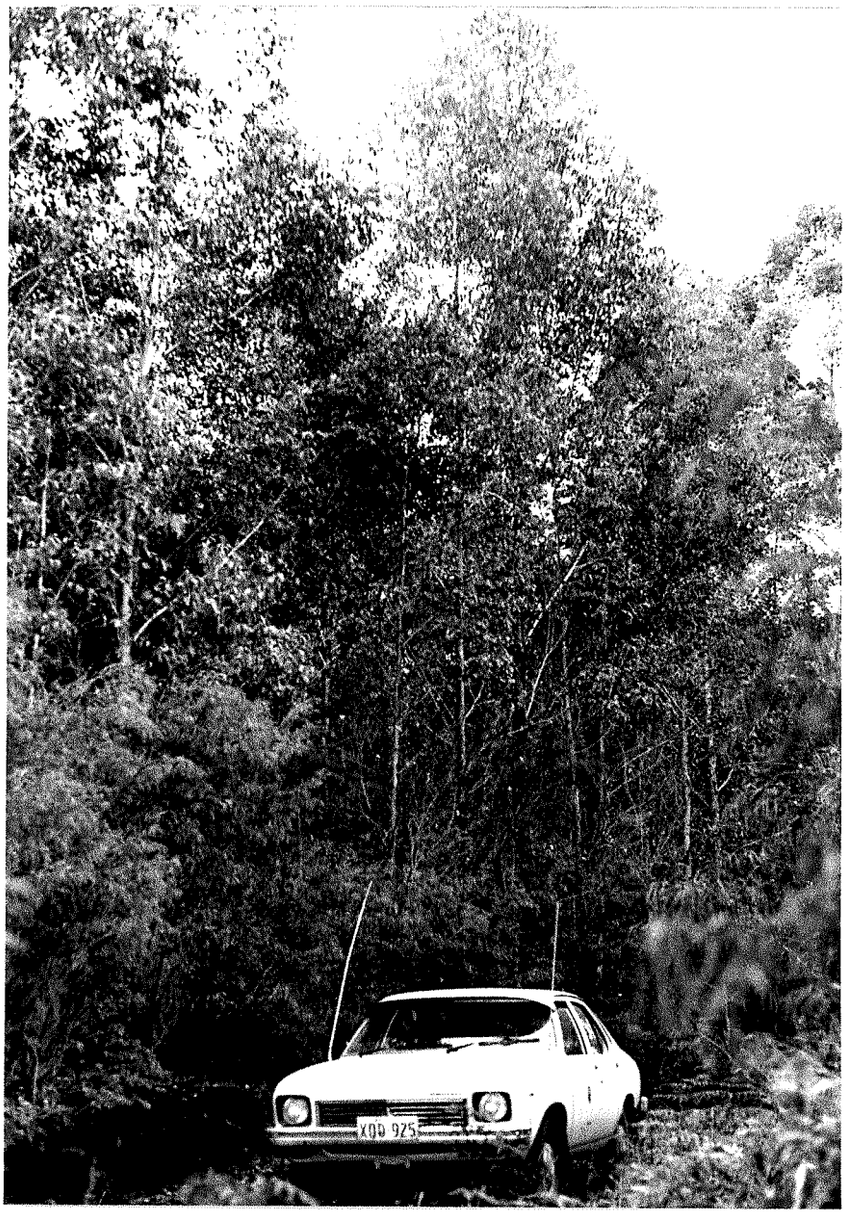

Plate 9. An 8 year old stand of karri planted near Quininup

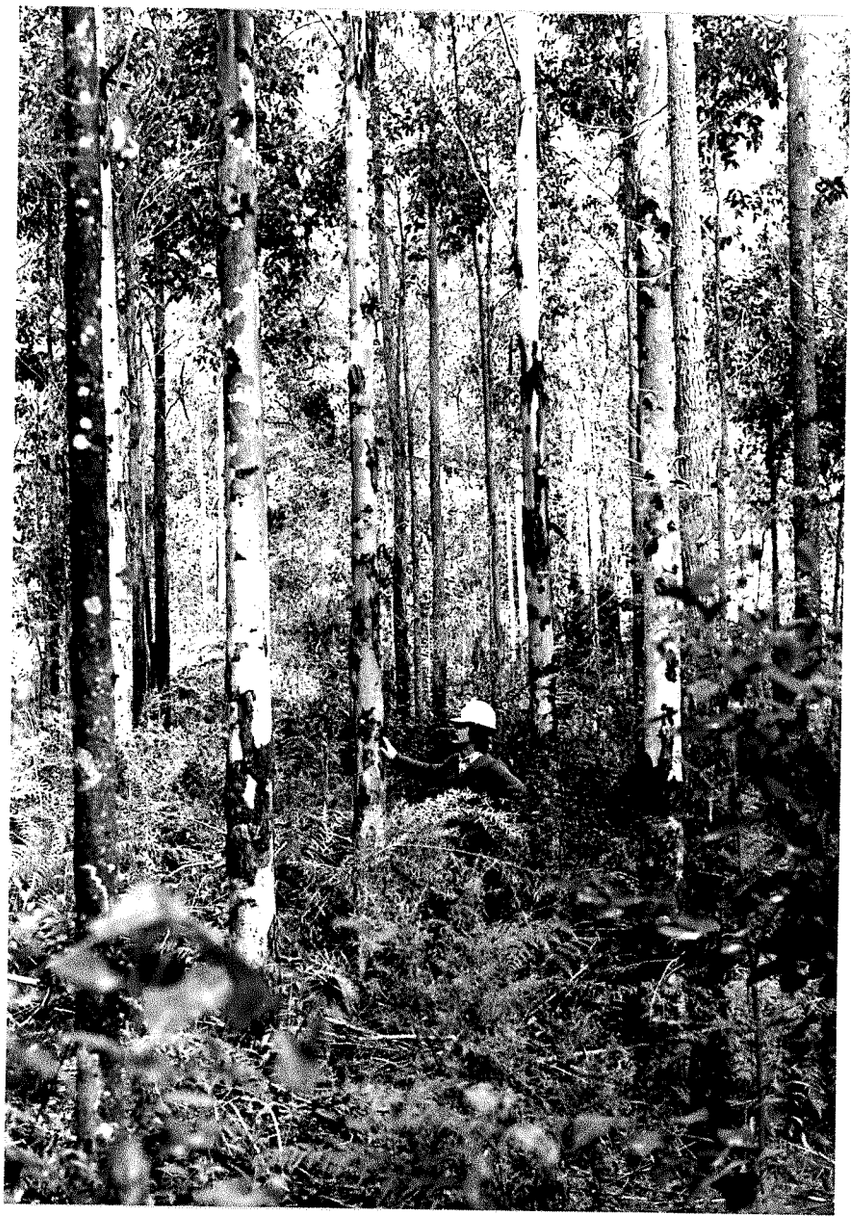

Plate 10. A 13 year old karri plantation at Moon's Crossing. Note occasional marri interspersed, originating from advanced growth.

CONCLUSION

It is not intended in this paper to comment on the recommendations of the S.W.F.D.F. Report because it is considered that they are based on misconceptions and lack of proper technical appreciation of the integrated sawmilling - woodchip industry.

Also it is believed that many allegations would not have been made if those who carried out the survey and compiled the Report had sought explanation from the Department and had taken it into proper consideration.

As has been said earlier the Department has spent considerable time with members of the Foundation and, to its knowledge, has not refused any reasonable request for information, advice or explanation.

The Department strenuously denies that it has failed to properly manage forest activities including environmental aspects of the sawmilling-woodchip industry in the Manjimup region.

On the contrary it is considered that overall the environmental and practical achievements have been better than was anticipated. This applies particularly to regeneration.

There is no evidence that the karri forest is being irreversibly changed by any forest activities including woodchipping and the Department would welcome any objective, competent and detailed investigation to judge the validity of this.

A recent statement by the Hon. H.D. Evans, M.L.A. a previous Labor Minister for Forests endorses the Government's viewpoint that the karri forest is not being irreversibly changed.

He said that "The South West Forests Defence Foundation claim to present conclusive evidence of substantial non-compliance with the provisions for environmental protection in the Environmental Impact Statement is misleading in its presentation".

He disagreed with the implied reflection upon the Forests Department and said that "If the Forests Department had improved regeneration by the use of artificial seeding methods, as they have, they should be applauded, not criticised".

Mr. Evans said further that "The South West Forests Defence Foundation had a right to be critical. This helped to ensure that proper management controls of the chip industry were being carried out. But the Foundation also had a responsibility to be factual and objective. To this end it would be desirable for the researchers of the Foundation to travel the areas of which they are critical with officers of the Forests Department and operators of the bush workings of the Company".

This proposal supports the invitation already issued by the present Minister for Forests, the Hon. David Wordsworth, M.L.C., that he would be pleased to have his Department arrange a visit of the areas concerned for media representatives, together with S.W.F.D.F. representatives.