EVIDENCE OF THE ENVIRONMENTAL IMPACT OF THE OPERATION OF THE CHICHESTER MANAGEMENT\_PLAN\_IN\_WHISPERING\_GULLY (UPPER\_KARUAH\_RIVER).

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#### BACKGROUND.

The information presented below analyses the likely impacts which would result from the application of management prescriptions contained in the Forestry Commission's Chichester Management Plan (1980) to the area known as Whispering Gully. The area is identified on the attached map. From the analysis it is argued that the activity proposed by the Forestry Commission is likely to have a significant impact on the environment and that the preparation and display of an Environmental Impact Statement is therefore required, as laid down in Section V of the Environmental Planning and Assessment Act.

<u>Please note:</u> Analytical comments appear as bold print in what follows.

### PART\_1\_\_\_SUMMARY\_OF\_FACTS\_ON\_WHICH\_PROPOSALS\_ARE\_BASED

Chapter 1.1 Location\_and\_Land\_Status

1.1.1 Location

1.1.2 Area

1.1.3 Land\_Status

Chapter 1.2 Local Conditions

1.2.1 Configuration

(para 2): "The Paterson, Allyn and Williams Rivers and Boonabilla Creek drop off very sharply from the Barrington Plateau and these streams are separated by relatively high mountain ranges. In their upper reaches they are deeply entrenched..."

(para 3): "The upper reaches of the Karuah River closely resembe the above streams, the catchment being particularly precipitous in the Whispering Gully area. However, the Telegherry River, or the right hand branch of the Karuah River, differs in that slopes, even in the upper parts of the catchment, are only moderate."

The document upon which the Commission have based their decision not to produce an Environmental Impact Statement for their operations is Environmental Review No. 310 (October 1984), which is for the Karuah River section generally (including the Telegherry River). To have attempted to comply with the EP&A Act it must be concluded from this document that there is no likelihood of a significant impact occurring on the environment. The Commission has refused to make this document available. Recent correspondence from the Commission has stated that standard erosions mitigation techniques will be applied to logging of the Upper Karuah. Justice Hemmings has noted (in Bailey vs. Forestry Commission, 1989) that the standard techniques were inadequate to protect steep parts of the catchment involved in the case.

1.2.2 Climate

1.2.2.1 General

1.2.2.2 Rainfall

(para 1): "...Rainfall in the areas above 700m is therefore in the vicinity of 2000mm per year."

(para 3): "The rainfall distribution throughout the year is relatively uniform, although the area tends to experience the North Coast rainfall pattern of a summer peak and a drier late winter and spring."

(para 4): "The light, but consistent and penetrative rains of winter, together with greatly reduced evaporation, give rise to more serious harvesting problems than the summer rains."

The rainfall pattern suggests that harvesting, and hence initial soil disturbance, will be more prevalent in the summer months, at the same time as the heavier rainfalls. The normal timber production regime can be viewed as having a peak at the time of year in which the area is most susceptible to erosion. Evidence to support the rainfall pattern could be obtained from the Commission's rainfall records for it hydrological project in the Telegherry River.

1.2.2.3 Temperature

1.2.2.4 Other Factors

Paragraphs 2 and 3 of this section contain statements on the role of wind in the fire regime.

1.2.3 Geology\_and\_Soils

(para 1): "...there has been no geological survey of the Chichester Management area..."

The lack of a geological survey limits the Commission's understanding of the complex relationships between underlying geology, soils and forest types. The relationship between lithology and scils is likely to be complicated by the fact that relatively large altitudinal changes exist over small distances. The geology is further complicated by a fault line which runs north-south through the area.

1.2.4 <u>Sites</u>

### 1.2.4.1 <u>Site Type 1: Dry Hardwood Forest</u>

None of the forest types in this category occur in the upper Karuah.

#### 1.2.4.2 <u>Site Type 2: Moist Hardwood Forest</u>

(para 1): "This site type occupies the greater part of the Management Area and includes all the moist hardwood types including those dominated by Silvertop Stringybark, Tallowwood, New England Blackbutt, Sydney Blue Gum, and Brush Box. These areas tend to receive higher rainfall than Site Type 1. Soils are red and yellow podsolics with a significant organic horizon."

All the commercial forest types in the upper Karuah which have been mapped by the Commission fall into the "moist hardwood" category. The extent and importance of rainforest species in these forest types is described in Sections 1.3.4, 1.3.6, 1.4.7, 1.4.13, 1.5.2, 1.7.6, and 1.7.8.

Relative proportions of each of the forest types in the upper Karuah have been calculated from vegetation mapping carried out by the Commission.

RN17*_	_Name	S.Q. **	Chich.	Glouc.	App. Area	App. %
3	Rainforest (ST)		RF	RF	938ha	39.9
16	Rainforest (CT)		RF	RF	230	9.8
23/26	Rainforest (Scrub)	[Dry RF	]RF	RF	73	3.1
47a	Tallowwood	High	MHF	MHF	355	15.1
47b	Tallowwood	L-M	MHF	MHF	21	0.9
53	Brush Box		MHF	MHF	2	0.1
163b	New England B/butt	L-M	MHF	EHF	14	0.6
168a	Silvertop S/Bark	High	MHF	EHF	595	25.3
168b	Silvertop S/Bark	L-M	MHF	EHF	125	5.3

Forest Types Source: Forestry Commission (1965) \* RN17 = Forestry Commission Research Note 17 \*\* S.Q. = site quality. L=low, M=medium Chich.= Broad forest types from Chichester Management Plan (1980) Glouc.= Broad forest types from Gloucester Management Plan (1984) RF=Rainforest, MHF=Moist Hardwood Forest, EHF=Escarpment Hardwood Forest

Some of these forest types occur in the Gloucester Management Area to the north. The Gloucester Management Plan (1984) breaks this category of types down further into Moist Hardwoods and Scarpland Hardwoods. This may reflect more up to date forest typing by the Commission. The updated Chichester Management Plan, due for release by July 1990, may adopt at least this higher standard. Correspondence from the Commission of 4 July 1988 states that: "On present indications the reviewed Plan will be approved and published well before the June 1990 deadline."

# 1.2.4.3 <u>Site\_Type\_3:\_Rainforest</u>

(para 1): "This site type occurs in 2 different situations. The first comprises the broad areas of Negrohead Beech and subtropical rainforest at higher altitudes on deep red loams derived from basalt flcws. These areas receive the highest annual rainfall in the forest, generally in excess of 1500 mm per annum."

(para 2): "In the second situation, subtropical rainforest occurs, mainly as a ribbon of variable width along the major watercourses; in some cases it is depauperate rainforest. Soils are generally of the rich alluvial type."

The ecological relationships between the two types is discussed in detail elsewhere. However, the rainforest elements in all the Forestry Commission-defined non-rainforest types is particularly well developed and are earmarked throughout the Chichester Management Plan for treatments designed to eliminate the rainforest component. (See Section 1.4 especially).

An analysis of the sharing of species between the different forest types has been extracted from species lists contained in the Gloucester Management Plan (1984) and is attached as Appendix 1.

The important point argued in Appendix 1 is not whether an area should or should not be called "rainforest", but rather that recognition is needed of the habitat requirements of the considerable proportion of flora whose distribution extends along ecological gradients which spatially are not consistent with the arbitrary delineation of forest types used by the Commission (RIRG, 1985:31-32).

Chapter 1.3 History

- 1.3.1 General
- 1.3.2 Dedication
- 1.3.3 Harvesting
- 1.3.4 <u>Silviculture</u>

(para 1): "Prior to 1965, the only silvicultural treatment undertaken on the Management Area was a culling operation whereby the unmerchantable overstorey remaining after logging was removed by ringbarking."

(para 2): "Foresters have been aware of the problems of naturally regenerating the moister forest types since the early days of forestry on the North Coast. Although conversion to plantations of fast growing Eucalypts has been suggested from time to time as the best means of maintaining the productivity of these sites, it was not until 1966 that a Eucalypt plantation establishment program was implemented on the Management Area..."

This section illustrates a history of problems with regenerating moister forest types. The question of overstorey is not necessarily restricted to rainforest-related types in general, although it is the case in Whispering Gully. Subsequent sections of the Management Plan specifically earmark the big, old habitat trees as suitable for use in woodchip production (See Sections 1.5.5 & 2.2.3.9). However, doubt has been expressed by executives of the company holding the woodchip export license that these trees are of sufficient quality for use in woodchip production (Pers. comm. 10-4-89).

The latter paragraph seems to be more generally related to the problem of growing Eucalypts through what remains of the rainforest understorey after logging. The management practices applied in these situations form the basis of the argument that the Commission's activities in the area <u>are</u> likely to have a significant impact. Clearing for plantations in the upper Karuah does not appear to be a concern, with correspondence from the Forestry Commission of 4th July 1988 stating that: "...present indications are that establishment is unlikely...".

1.3.5 <u>Management Plan History</u>

1.3.5.1 <u>General</u>

1.3.5.2 <u>Subdivision</u>

(para 2): "Accurate and detailed Compartment History Records and logging/treatment maps have been maintained since the [Management] plans were implemented in, since 1968, annual reports on these plans have been submitted regularly."

Correspondence from the Commission of 4th July 1988 refused access to the information outlined above on the basis of them being "internal documents".

1.3.5.3 Maps and Aerial Photographs

1.3.6 Effects of Injurious Agencies

1.3.6.1 <u>Fire</u>

(para 1): "Wildfire has been a major cause of damage to the forests. Details of the severe wildfires that have occurred in recent years are as follows:

. . .

1968/69:The most severe fire season so far experienced, the most serious outbreak being a fire of 12 000 hectares in the Karuah River Section. However, the silvicultural benefits of this fire, in burning through moist types, removing undergrowth and promoting regeneration, are considered to have far outweighed the growing stock and increment losses sustained."

The bulk of the upper Karuah shows no evidence of severe fire. It would seem likely that it escaped the 1968/69 fire. The tops of ridges in this area, which correlate with the drier areas of forest and the presence of greater numbers of eucalypts, have evidence of localised burning having taken place, probably as a result of lightning strikes. For the 1968/69 fire to have affected this area would have required it burning large areas of surrounding rainforest. This would be easily detectable in the present day. No areas such as this occur.

It is reasonable to conclude that severe fire is an extremely rare event in the upper Karuah, though infrequent low intensity localised fires form an obvious part of the natural fire regime. The vegetation pattern reflects this, in particular the development of significant rainforest elements close to the tops of ridges in Forestry Commissiondefined non-rainforest types.

The latter sentence shows quite clearly that the Commission regards the use of fire as a silvicultural tool, ie., one which is of use in encouraging growth of commercial timber (ie. <u>Eucalyptus</u> spp., <u>Lophostemon\_confertus</u>) of uniform age and size. This is not the way in which forests naturally occur, particularly those in the upper Karuah, and it must be concluded that the difference between natural forest and fire-induced silvicultural forests is likely to be brought about only through a significant impact on the environment.

(para 2): "...Almost 60% of recorded fires can be attributed to neighbours, either as escapees from burning off, or deliberate ignition for grazing purposes. Tourists account for 10% of fires, whilst escapes from Forestry Commission hazard reduction burning represent a further 10%."

Put another way, 80% of the number of fires which occur in the Management Area are not of a natural origin.

(para 3): "Prior to the mid 1950's, burning to reduce fuel accumulation or promote growth of green grass shoot for grazing was carried out regularly in the forests and little attempt was made to suppress wildfire outbreaks..."

(para 4): "During the late 1950's and early 1960's, there was a period when fire was almost completely excluded from sections of the Management Area. The reduced fire occurrence in these sections was obviously a major factor in promoting development of the mesic understorey and generally inhibiting the development or regeneration of Eucalypts and related hardwoods."

It is again apparent from the above that the Commission's attitude to fire is that it is a tool for use in establishing commercially useful forests <u>at\_the\_expense\_of</u> rainforest species which would naturally occur within them.

Paragraph 4 (above) is particularly misleading. A feature of most of the commercial forest types in the Management Area, and particularly those in the upper Karuah, is the presence of an extremely well developed rainforest component within an ageing Eucalypt forest. It is conceivable that large individual rainforest trees could be of considerable age, up to several hundred years old. The forests of the upper Karuah contain many examples of medium to large size rainforest trees in areas mapped by the Commission as non-rainforest types.

It would be wrong to conclude that the exclusion of fire in the late 1950's and early 1960's had anything but the most insignificant impact on the development of mesic elements in the forests of the upper Karuah. Their prevalence there is clearly a natural phenomenon, and one which will be significantly altered by the application of management techniques arising from the Commission's unsupportable conclusions as to the role of fire.

### 1.3.6.2 Browsing Animals

"...There have been isolated instances where wallaby browsing has caused a noticeable edge effect, and this is particularly the case where small coupes have been located adjacent to habitat favourable to wallabies, such as densely vegetated, rocky areas."

Amongst the most favourable wallaby habitat in the upper Karuah are the ridge tops, which provide virtually the only areas of grass growth for their grazing and at the same time have good shelter nearby. Where small areas are logged, eucalypt regrowth may lead to an unnaturally large wallaby population. This would not, however, revert to "normal" once the trees become too large for grazing as, once large enough, the Plan provides that areas of regrowth will be regularly burnt in order to promote the growth of grasses instead of rainforest elements.

The population ecology of certain species could conceivably become linked to the fire regime imposed by management. The fire regime proposed by the Plan involves much larger areas being subject to fire than would naturally be the case, providing for large fluctuations in the population of those species between fires, with consequent effects on related or dependent species such as predators.

It is contended that large scale changes to the population of animal species and to the factors which influence that population amount to a significant impact on the environment.

1.3.7 Works\_of\_Improvement

### 1.3.7.1 Roading

The complete roading network to be constructed in Whispering Gully has not been provided by the Commission. Although no specific information or analyses are available for the area, the fragmenting effect of road construction on the habitat of animal species is widely recongnised and is certain to be a part of the impact of the Commission's operations on the environment.

# 1.3.7.2 Fire Trails

"...However, the virgin areas are still in need of further trail development, particularly the upper reaches of Boonabilla Creek and the ridge system surrounding Whispering Gully."

This type of development is necessitated by the way in which the use of fire is proposed. The adjacent catchment of the Wangat River in Barrington Tops National Park has been proposed for declaration as wilderness in the Draft Management Plan for Barrington Tops National Park released on 16 June 1989. The possibility of escaped fires and their impact on the Wangat, which is also a domestic water catchment, requires consideration which to date has not been carried out by the Commission.

Chapter 1.4 Ecological and Silvicultural Considerations

1.4.1 Forest Types

1.4.2 Sydney\_Blue\_Gum

(para 2): "Where the type has been repeatedly burnt, the understorey is usually dominated by Bladey Grass, with scattered shrub species. Few promblems have been experienced in adequately regenerating these drier sites by natural means."

(para 3): "However, in areas where fires have been a rarity, the understorey has usually developed a dense layer of mesophytic shrubs. This is generally the case where this type occurs at higher altitudes. In the absence of periodic fires, the understorey tends to develop into rainforest which may ultimately replace the Eucalypt type."

(para 4): "Regeneration of these moister sites by natural means is difficult and generally depends on the amount of soil disturbance caused by logging, and also on the effectiveness of the post-logging slash burning. Whilst effective burning of the logging debris produces a favourable seed bed, experience has shown that excessively hot burns can give rise to a weed problem in this forest type."

The Sydney Blue Gum forest type has not been mapped by the Commission in the upper Karuah, although the dominant species (<u>Eucalyptus\_saligna</u>) is widespread in a number of forest types, including as remnants in areas mapped as rainforest. In addition, at least one area mapped as Tallowwood (<u>E.\_microcorys</u>, which the Commission lists as having Sydney Blue Gum as co-dominant, has been located in which Sydney Blue Gum is overwhelmingly dominant. Section 1.4.4 refers to the forest type described there as having similar regeneration problems as the Sydney Blue Gum type. The natural regeneration described in para 2 presupposes a regular fire regime, and the subsequent statements indicate that burning to promote Eucalypt regrowth is likely to be at the expense of the rainforest species which naturally occur on these sites. When considered with other factors, this type of operation must represent a significant impact on the environment.

# 1.4.3 Tallowwood - Sydney Blue Gum

(para 1): "Tallowwood and Sydney Blue Gum generally make up 60% of this type with White Mahogany, Brush Box, Turpentine and Silvertop Stringybark being the minor associates. The understorey tends to be dense and has a high rainforest element, particularly on the better soil areas."

(para 3): "Natural regeneration of this type can be difficult but, nevertheless, every effort should be made to achieve a satisfactory stocking and, if possible, to increase the proportion of tallowwood."

The desire expressed in the latter paragraph is to change the proportion of Tallowwood in regrowth forest for commercial reasons, rather than to maintain the proportion which would be found naturally. More importantly, there are a number of examples of logged Tallowwood sites in the Karuah and nearby which show that this forest type is generally severely debilitated by logging, with dead and dying rainforest trees of medium and even large stem-size scattered across the burnt sites.

It is worth noting that, with the possible exception of certain occurrences of the Brush Box (Lophostemon\_confertus) forest type, the Tallowwood type in many instances, especially in the upper Karuah, has a significant development of both rainforest species (in size and in diversity) and a rainforest canopy. Structural and floristic characteristics of one 0.2ha plot with an increasing proportion of <u>Eucalyptus</u> spp. upslope are attached as Appendix 2.

Logged Tallowwood sites invariably have no canopy remaining, and generally show evidence of having been burnt by very intense fires as a post logging operation.

# 1.4.4 <u>Silvertop Stringybark with Blue Gum</u>

(para 2): "This type is often associated with fertile soils. the associated species being Sydney Blue Gum, Brush Box, Turpentine and White Topped Box. Here the type is a wet sclerophyll forest with a dense understorey verging on rainforest. Similar regeneration problems are experienced as with the moister areas in the Sydney Blue Gum type. This type has the added problem of Silvertop Stringybark seeding irregularly." (para 3): "In areas of poorer shaley soils, generally associated with the higher, more exposed sites, New England Blackbutt is the main associated species. These sites typically have a drier understorey, a fair grass cover and regenerate quite readily. The resulting regrowth stands tend, however, to be dominated by New England Blackbutt."

The implications of logging of the moister sites are generally as for Tallowwood and other moister types. In the case of the drier sites there is the added impact that the forest which regrows after logging is dominated by a different species. The drier sites in the upper Karuah tend to be more exposed and frequently contain gnarled old trees which would provide excellent nesting habitat for birds, arboreal mammals and bats. Despite the conclusion not to institute an EIS, no studies of the utilisation of this habitat by native species have been undertaken.

The habitat value of these drier sites is enhanced by their almost universal proximity to rainforest, or forests with a strong rainforest element, and the higher proportion of fleshy-fruited species which occur there. The older habitat trees are more susceptible to fire than healthy specimens and those which survive the logging operation would be likely to die as a result of the fires used in management.

# 1.4.5 Brown\_Barrel\_-\_Messmate

# 1.4.6 New England Blackbutt

(para 3): "Regeneration is readily promoted by soil disturbance, fire and canopy removal. The main problems are the over-dense or "wheatfield" nature of the regeneration and the prolific growth of Bladey Grass that characteristically follows either severe fire or logging disturbance and subsequently cures to become a fire hazard..."

This forest type makes up only about 1% of the mapped types in the upper Karuah, although there are small unmapped areas all over the ridges associated with the Silvertop Stringybark (<u>E. laevopinea</u>) type. Logging clearly has the impact of increasing fire frequency and eliminating the rainforest component of those areas which have developed a significant mesic stratum.

#### 1.4.7 Brush\_Box

(para 1): "This is an important log yielding type which is restricted in its occurrence to the Karuah River section of the Management Area. The type is generally located in sheltered gullies bordering the rainforest type and in basin areas at the heads of major gullies."

There is only one mapped stand of Brush Box in the upper Karuah, which makes up less than 0.5% of the total area. There are, however, unmapped occurrences as noted above, particularly in gullies, where logging tends to to be on moderate to steep slopes with frequent clogging of watercourses both from the felled tree and other components of the canopy brought down in the process. (para 2): "Associated species are Turpentine, Sydney Blue Gum and Tallowwood with various rainforest species in the understorey."

This statement grossly understates the predominance of rainforest species in this type, which is floristically almost (if not equally) as diverse in composition as climax rainforest. The named species are all found only on moister sites. In the upper Karuah they are also all found in strong association with rainforest species.

There is considerable debate as to whether Brush Box is in fact a rainforest tree itself. In the opinion of Webb (in Prineaus and Elinius, 1981), this species is found only on certain site types, where it represents a late stage in the development of a climax rainforest, from which it would ultimately disappear in the absence of disturbance.

In any case, the important point is the almost universal association of with a forest which includes a canopy of accepted rainforest species, and which must be significantly affected by the extraction of species like Brush Box. This would occur regardless of whether they are a part of the canopy or present as an overstorey. The argument also applies to all the forest types which can include a mesic canopy, which is all those in the upper Karuah.

(para 3): "After logging, the sites are usually invaded by rainforest elements and often by weed growth. Because these are very moist sites, effective logging slash burning can be difficult and, even when successful, generally promotes a prolific growth of weeds."

In an undisturbed forest, where do the weeds come from? Assuming the weeds referred to are exotic, they must be imported by the Commission in the course of logging and hence represent part of its impact on the environment. If they are natives then it shows fairly clearly that the Commission consider that certain species which naturally occur in this forest type are not a desirable part of the environment.

Whether or not a species is or isn't a desirable part of the environment is irrelevant. What is relevant is that the Commission is required to consider the impact of forestry operations on the full range of species and their ecological relationships. In a context other than the current one, the statement that sites are "invaded by rainforest elements" could be interpreted to have scientific foundation. In the context of what the Commission considers a desirable part of the environment, it does not.

(para 4): "The ability of Brush Box to regenerate in openings caused either by natural disturbance or logging is not spectacular but, given due time, it is reliable enough..."

Regeneration characteristics of any species are a very inadequate way in which to assess the impact of logging on the environment since they are based on the number of young specimens and not on any natural distribution of size and form. Brush Box in particular is a very slow growing and long-lived species. Its slow growth rate means that it may be centuries before a particular area possesses the similar ecological relationships to those which existed prior to logging. This could only take place in any case if logging was a once-off operation, which clearly it is not intended to be. In this regard the Commission's impact on the environment is both significant and long term.

Also important with any large, long-lived species is the stabilising effect which they can have on populations of animal species which depend on them for nesting or shelter, particularly during periods in which nearby parts of the forest canopy may have been disturbed, either naturally or by human intrusion. A similar argument applies to epiphytic plants and orchids, whose populations and distribution will quite conceivably fluctuate over time in reaction to changes in climatic conditions and fire regime.

1.4.8 Spotted Gum - Grey Gum - Ironbark

1.4.9 Grey Gum - Grey Ironbark - White Mahogany

1.4.10 Forest\_Red\_Gum\_-\_Grey\_Gum\_-\_Roughbarked\_Apple

1.4.11 <u>Subtropical Rainforest</u>

(para 1): "This rainforest community of mixed composition is widely distributed, the main occurrence being as a ribbon strip of variable width along the streams and creeks on alluvial soil."

Subtropical rainforest in the upper Karuah generally occurs as large stands, although these are almost invariably associated with the stream pattern, with stonger development on sites with a more sheltered aspect. There are, nonetheless, extensive extensive riparian strips which are susceptible to damage. The upper Karuah is significant for the presence of a number of interfluves of rainforest skirting a drier site and connecting to another catchment. A number have been mapped by the Commission, though due to the criteria applied, namely defining vegetation type on the presence of absence of a few (mainly <u>Eucalyptus</u>) species, their presence is likely to be more prevalent than shown.

(para 2): "Broad areas of this type occur at higher altitudes on richer, deeper, basalt-derived soils. This occurrence is at altitudes too low to support the Negrohead Beech rainforest."

This is not strictly so. Around The Mountaineer, for example, (the site of current road construction) subtropical rainforest species occur at altitudes as high as Cool Temperate, in a mosaic in which the Cool Temperate Rainforest can often be found at altitudes lower than the subtropical. Mixtures of dominant species from the two types are not uncommon in the upper Karuah, and they frequently contain Eucalypts of commercial size. Further information on the interaction between the two rainforest types is found in Section 1.4.12.

(para 3): "...A species list for the subtropical rainforest of the upper Williams River is included as Appendix VII (a)."

The list to which reference is made by the Commission is inadequate and incomplete. It covers tree species only. A database of all species lists compiled on the Barrington rainforests has been established (data from over 25 sites is included at varying degrees of detail) and, although the whole picture is drastically unresearched, there are species which have been recorded in the upper Karuah which have not been recorded either within the National Park or on other recorded sites.

This is likely to reflect more the lack of knowledge than the true occurrences of species, but it is clearly the Commission's responsibility as the determining authority to gather additional information if that which exists is inadequate to objectively determine the likely impact on the environment or, more accurately, to provide an initial inventory. A list of species recorded from Whispering Gully, but not from Barrington Tops National Park, is attached as Appendix 3.

(para 4): "Sub-tropical rainforest in the Management Area is close to the southern limit of its natural occurrence. Where this type occurs in the far north of the State, it is not normally susceptible to crown dieback after a moderate reduction of canopy cover due to logging or natural disturbance. This is not the case in the Management Area, where conditions for the development of this type tend to be less favourable, and some dieback can be expected after a similar canopy reduction."

Many would argue that dieback <u>does</u> occur in the north of the State as a result of logging. The Commission's understanding of the impact of disturbance on subtropical rainforest is clearly predicated on there being a distinction between pure rainforest and transitional vegetation types, something for which there is strong scientific evidence to the contrary. The transitional types, ie., all forest types from the upper Karuah not mapped as rainforest, are likely to be significantly more susceptible to dieback because they either occur in sub-optimal ecological conditions or they have been subject to some natural disturbance in the past.

Disturbance of the edges of broad areas of rainforest and larger disturbance of riparian strips associated with logging of remnant or isolated Eucalypts is not inconsistent with the dieback scenario described. The areas affected include access tracks as well as the actual logging sites, and the high proportion which are subsequently burned to eliminate species with strong mesic affiliations.

It would appear that dieback is a likely consequence of logging operations such that its extent and impact might be expected to be addressed by the Commission.

## 1.4.12 Negrohead Beech

(para 1): "This high altitude rainforest type occurs above 1200m elevation on the deep red basalt-derived soils..."

(para 2): "...This type reaches its best development in the Mountaineer and Mt. Allyn - Mt. Lumeah areas."

None of the prominences listed are over 1200m elevation. In the upper Karuah there are examples of the dominant species (also called Antarctic Beech, <u>Nothofagus moorei</u>) at elevations as low as 390m, though as the elevation decreases so does the predominance of the species on the sites.

Fully developed Cool Temperate Rainforest occurs north from The Mountaineer (1050m) down to Whispering Gully (600m). In this vicinity it forms an unusual association with Yellow Carabeen (<u>Sloanea</u> <u>woollsii</u>), which is generally considered a climax species of subtropical rainforest. Stands of a dozen or so Beech occur down to about 450m. Two isolated trees occur on a site at 420m, and a lone isolate occurs at 390m. Similar distribution patterns have been observed in a number of streams draining the Barrington Tops.

The distribution of <u>Nothofagus moorei</u> in Barrington Tops is of scientific interest in the context of changes in plant distributions. and associations. Its occurrence on The Mountaineer is of particular significance as it is one of four known locations of identical latitude which represent the species' southern limit. The species itself is of additional significance as a relic Gondwanic species - an important factor in the acceptance of Barrington Tops National Park onto the World Heritage list (Adam, 1987).

The Commission's EIS for logging in the Hastings catchment (1981) notes the susceptibility of this rainforest type to dieback as a result of disturbance, and it must be recognised that the more unusual, lower altitude occurrences would be more susceptible. Should they die as a result of disturbance, it is unlikely that present climatic conditions would favour their replacement, which in any case would take several hundred years to reach maturity.

The higher altitude sites in the upper Karuah around the Mountaineer have road construction proposed through them, posing an obvious risk of dieback. The likely impact on this forest type is compounded by the Commission's use of fire which normally burns upslope.

# 1.4.13 Extent of Logging in Rainforest Types

No logging in rainforest types has been carried out in Whispering Gully yet, although examples can be found in surrounding areas of State Forest of areas of rainforest mapped by the Commission having been subject to disturbance. The figures provided in this section of the. Plan would tend to suggest that rainforest logging ended with the cessation of brushwood quotas.

It is contended that any classification of rainforest or otherwise will have its usefullness limited by the use to which the classification is applied. For the Commission the use is determining areas for commercial logging. What is more important than the classification is the habitat requirements of particular species. In the present context the habitat of a large number of species extends beyond that classified by the Commission as rainforest and is therefore likely to be affected.

1.4.14 Species Proportions - Hardwoods and Brushwoods

(para 1): "Species proportions of both hardwoods and brushwoods have been calculated...and these are tabulated in Appendix VII (b)."

The upper Karuah is approximately 50% rainforest as defined by the Commission. This is much more than any other part of the Management Area, as shown below, and should require special consideration by the Commission.

Comparison of Forest Type Proportions for Upper Karuah River and Chichester Management Area as a Whole

No.	Name	%M.A.	%Karuah
3, 23/26	Subtropical rainforest	22	43
16	Negrohead Beech	4	10
		_26	53
47	Tallowwood - Sydney Blue Gum	26	16
53	Brush Box	1	0
163	New England Blackbutt	2	1
168	Silvertop Stringybark	27	31
		56	48

The higher proportion of Silvertop Stringybark probably reflects the inadequacy of the Commission's assessment of what constitutes rainforest, with the sites being overwhelmingly those with a high rainforest component. In any case, the difference is insignificant in comparision to the much greater predominance of rainforest which, it must be remembered, is underestimated because it is based on the Commission's vegetation classification, which gives a high priority to timber production over ecological considerations.

On many floristic, faunistic and ecological grounds, the Upper Karuah area supports rainforest proper.

Chapter 1.5 Economic and Market Considerations

1.5.1 Economic\_Location

1.5.2 <u>Sawlog\_Market</u>

(para 8): "The effect of the recent termination of brushwood quotas in accordance with "Indigenous Forest Policy" is that very little of the rainforest resource will be available for logging. In fact brushwood logging is now largely restricted to removal of the rainforest understorey component of the hardwood stands. These logs are generally of small size and poor quality, with a high proportion of less desirable species, and would obviously suit only a salvage sawmilling operation, producing mainly low value products."

The first sentence does not guarantee that rainforest will not be logged, only that it will not be logged for rainforest species, and even then, this is not guaranteed. More importantly, the above shows clearly the extent to which rainforest species occur in what the Commission improperly regards as non-rainforest. The affinity of these forests with rainforest habitat is correspondingly high but, as noted above, the rainforest species are not considered desirable.

On some sites, particularly those in the upper Karuah, the rainforest species present in moist hardwood forest (especially Tallowwood and on sites containing Brush Box and Turpentine, <u>Syncarpia glomulifera</u>) reach what would generally be regarded as their mature size and form. This is generally believed to be a function of the period of time since disturbance, particularly fire, and may frequently be in the hundreds of years. Eucalypts, and even Brush Box, may eventually disappear from these sites as the rainforest continues to develop.

A good example of this progression exists adjacent to the crossing of the Karuah River on the Karuah Road, where a series of very large Sydney Blue Gum (ca. 50m) are found within a fully developed rainforest community. Amongst these are some very old, dead spars which have probably died only in the last few decades (judged on the retention of quite small branches). The Commission has mapped this area as rainforest, though other sections of the plan provide that these trees could be extracted if commercially feasible. The rainforest component in this case would not be small, defective trees, but large rainforest species worth far in excess of the hardwood. Evidence to this effect is presented in Appendix 2.

1.5.3 Pole, Pile and Girder Market

- 1.5.4 Mining\_Timber\_Market
- 1.5.5 Pulpwood\_Market

(para 2): "...The NSW Government approval and the Export License issued by the Federal Government authorise the export of up to 350,000 tonnes per annum of woodchips produced from sawmill and logging waste; the approvals do not extend to silvicultural residues or thinnings produced from plantations or regrowth stands..."

The Woodchip Export License has since been altered to include all the categories of timber listed, as well as roundwood harvested on private land. This change makes it more the case that harvesting is likely to be akin to clearfelling than to selective logging. Correspondence from the Forestry Commission has confirmed that the harvesting of pulpwood from the upper Karuah can be expected.

(para 3): "The virgin areas of the Chichester Management Area contain a significant proportion of overmature, highly defective stems which are totally unsuitable for sawmilling purposes. Following logging, much of this material is currently wasted in silvicultural practices such as culling and clearing, and consequently would be available profitably to help support a woodchip project without prejudicing sawmill industry commitments."

A significant impact on the environment is more likely with woodchip production as it is both oldgrowth forest areas and habitat trees which are specifically targetted. Habitat trees in the upper Karuah tend to occur on the same locations as the other commercial timber, in particular around ridge-tops. Habitat trees are a feature of the ridge proposed for the route of the Catbird Road, for example.

Use of the term "habitat trees" in this context is selective. All trees are habitat trees of some sort. What the Commission call habitat trees are trees with hollows that provide for hollow-breeding and dwelling fauna. No consideration seems to have been given to the habitat value of trees which do not fall into this category, despite them forming a very major part of the environment to be affected.

(para 6): "In summary, most of the Chichester Management Area is located within the economic range of the port facilities at Newcastle and part of it is on terrain suitable for the economic harvesting of small round timber..."

This is misleading as a summary statement on a number of grounds. Firstly the terrain of the upper Karuah is arguably unsuitable for any type of logging and, secondly, it is clear from previous sections that harvesting of pulpwood from virgin areas would be of large, ecologically important trees, not small regrowth trees. It is clear from this that the environmental impact of harvesting which includes pulpwood in relatively undisturbed areas is considerably greater than in areas which have been logged previously.

1.5.6 <u>Miscellaneous Markets</u>

1.5.7 Labour and Plant Considerations

Chapter 1.6 <u>Statistics and Growing Stock Increment</u>

1.6.1 Previous Assessments

1.6.1.1 The Royal Milli Assessment

1.6.1.2 <u>Summary of Results</u>

1.6.1.3 Accuracy of Assessment

1.6.2 <u>1975/76\_Assessment</u>

(para 4): "Allowing a reduction factor of 10% for inaccessibility, steepness, filter strips, reserve areas etc., the available volume becomes..."

Although the 10% figure is only being used for a volume of timber calculation, the low figure for areas not suitable for logging is quite disturbing and certainly does not apply to the upper Karuah. More than 30% of the upper Karuah has a gradient in excess of 25 degrees (analysis of CMA 1:25,000 map sheet).

1.6.3 Stand\_Condition

1.6.4 <u>Quota Sawlogs - Sustained Yeild Considerations</u>

1.6.5 Mining\_Timber

1.6.6 Eucalypt\_Plantations

(para 2): "It is estimated that ultimately some 4000ha of forest will be converted to plantation on the basis of the programme being restricted to areas of suitable terrain where adequate natural regeneration is unlikely to occur."

Although correspondence from the Commission says that plantation establishment in Whispering Gully is unlikely, it is worth noting that other areas of mesic mixed forest have been clearfelled and replanted in monoform monoculture. More importantly, Section 2.1.3.2 states that areas for plantation establishment are only determined on a yearly basis.

Chapter 1.7 Other Facets of Management

1.7.1 Recreation

1.7.1.1 The\_Resource

1.7.1.2 Demand

1.7.1.3 Conflicts and Problems

1.7.2 <u>Catchment\_Values</u>

(para 4): "Consequently, the forests of the Management Area have a

vital role to play as catchments, providing water supplies for domestic as well as irrigation requirements. The forest cover is important in maintaining stream flow, preserving water quality and ensuring a high level of erosion control, and care is required in all forest operations to ensure that these values are preserved."

This is an extremely cursory examination of catchment values. While forested catchments undoubtedly provide greater catchment value than those with less cover, there is no attempt by the Commission to prove that their operations do not have a significant impact.

It is worth noting, however, that increased fire frequency, which is an integral part of the Commissions operations, is generally thought to impair streamflow reliability by destroying ground litter which would otherwise hold moisture and assist in the control of erosion. These considerations are particularly important in the upper Karuah as, not only is the area very steep and prone to erosion from disturbance, it is the only part of the entire catchment of the Karuah River in which there has been no major human disturbance.

The impact of logging on the hydrological response of a catchment is also significant. The general effect is that streamflow increases more rapidly after rain, persists for a shorter period and produces a much lower baseline flow. The first of these is likely to produce greater erosion and silt-flow.

- 1.7.3 Aesthetic\_Values
- 1.7.4 Educational Values

### 1.7.5 Flora Preservation Values

(para 5): "...Preserved within the [Barrington Tops National] Park are fine examples of all vegetation types that occur within the Management Area. These range from sub-alpine peat bogs, grassland and Snow Gum communities on the high plateaux to cool temperate and subtropical rainforest in the valleys and on the ridges beneath the escarpment."

This statement was made prior to the addition of over 22,000 ha (including over 8,000ha of State forest from the Management Area) to the National Park. That the Government saw fit to make these additions, and that the Park was subsequently accepted onto the World Heritage list because of them, clearly demonstrates that the statement at the time was misdirected. The upper Karuah was considered among the extensions, but was omitted. It is thought that it was excluded in order to provide timber resources rather than it having less conservation value than other areas that were added to the Park.

Under these circumstances, if the value of the area is not disputed, it is all the more important that adequate environmental assessment be undertaken. However, correspondence from the Commission has confirmed that no floristic survey of the area has ever been prepared. Information from the TWS database on the Barrington rainforests shows some plants in the upper Karuah which have not been recorded within the existing National Park, including some which are at or near the southern limit of their range.

# 1.7.6 <u>Wildlife Values</u>

(para 1): "Because of the wide diversity of habitats and management systems, it is not surprising that the Chichester Management Area has abundant wildlife, although the knowledge of the species and their preferred habitats is limited."

There seems to have been little attempt by the Commission to overcome the deficiency in faunal information, despite its importance in satisfying obligations under the EP & A Act. Correspondence from the Commission has confirmed that no detailed faunal survey of the upper Karuah has been undertaken.

(para 3): "In the management of this forest for wildlife preservation, the aim should not be to maintain populations of all existing species of native fauna on every hectare of forest. Forest operations should, however, be undertaken is such a way as to ensure that sufficient habitat of every variety is preserved, so that populations of any one species are not seriously reduced over the whole forest."

This approach would be reasonable only on two grounds. Firstly it requires adequate knowledge to ensure that the objective can be met. There is a clear admission in paragraph one that this is not the case.

Secondly and more importantly, it implies that large scale alterations to a species' population biology and structure does not constitute a significant impact on the environment. Unfortunately, the strategy outlined in paragraph three has not ensured that significant habitat of every variety is preserved. There is not, for example, a single large area of the Brush Box forest type remaining intact in the entire Management Area, and the effect of this on local fauna is clearly not known.

(para 4): "Forest operations, including logging, clearing and silvicultural work, extend over less than 2% of the Management Area each year..."

Although only a small proportion of the total Management Area is logged each year, its impact is concentrated in small areas, frequently in complete catchments as in the current case. As the Management Area is still overwhelmingly dependent on the logging of old-growth forest, it can be concluded that production from the Management Area is essentially geared to production from those forests which are of most value for native fauna.

More importantly, this statement implies that the effect of logging of each two per cent disappears as soon as logging process moves to another location. There is a distinctive ecology in the moist forest types in the upper Karuah (and in the Management Area generally) which requires long periods for the forest to recover from disturbance, whether it be natural or man-induced. Where large-scale disturbance occurs the effect on faunistics (species present, population size and structure, etc) must be correspondingly large.

(para 4): "...These operations in most cases retain a residual stocking of large trees containing hollows, and it is expected that these will be sufficient to maintain viable populations of animals dependent on habitats of this type."

This statement is unsupported. How can the Commission draw conclusions such as this when it does not even know in detail what is in the area. If a residual stocking of trees is retained then the following scenarios, among others, could occur. Either:

 (i) residual populations of arboreal-dwelling species will remain; and
 (ii) those species which can more successfully compete will exclude less competitive species.

In either case, the result is a significant impact on fauna, and this is without consideration of what the animals will be feeding on in a forest which has had a very large proportion of its canopy, subcanopy and ground strata eliminated by fire and massive disturbance. Very few fauna are known to feed on the leaves of Eucalypts.

It must also be borne in mind that that the statement refers only to arboreal habitat. There is no consideration to the faunal value of dense understorey or to fruiting subcanopy or canopy rainforest trees in moist hardwood forest, both of which are important features of the upper Karuah. Dense understorey is a known habitat of the Rufous Scrub Bird (<u>Atrichornis rufescens</u>), a species listed in the 1981 CCNCOM list of Australian Endangered Vertebrate Fauna. Areas of habitat suitable for the Rufous Scrub Bird have been mapped in the upper Karuah. (See Appendix 4)

(para 5): "The least robust habitats are the sub-tropical and cool temperate rainforest but, as a result of the curtailment of the brushwood sawlog commitment, they will remain largely undisturbed."

More correctly, only those forests which contain no commercially harvestable hardwood will remain totally undisturbed. Rainforest as recognised by the Commission will remain largely undisturbed by the direct impact from logging but will suffer considerable disturbance from fire associated with the forestry operations. Rainforest which occurs within moist hardwood forests is likely to be greatly diminished as a consequence of deliberate management practices.

The distinction between rainforest and moist hardwood forest by the Commission is in no way based on a consideration of faunal habitats yet, like the flora, animal species are likely to be found in a number of different habitats, with some species likely to be dependent on, for example, one forest type for shelter and another for food. If only the rainforest areas are to remain undisturbed, this is not sufficient reason to assume that the rainforest fauna will not be significantly affected. In fact, it is wrong to assume there to be distinctive rainforest and non-rainforest fauna. It is right to assume that there exists multiple, complex ecological gradients which transgress the forest boundaries of the Commission which are based on a very limited analysis of an even more limited component of the forest flora only. The concept of biologically nomadic species (Smith and Guyer, 1983) can be applied here, although this is a concept of which the Commission seem unaware.

The whole of the Commission's analysis of wildlife values (a total of a half a page) is characterised by generalisations which are inconsistent with the current state of knowledge of the ecology of sites such as those in the upper Karuah. In failing to produce an EIS, it must be assumed that the Commission concluded, among other things, that its operations would not have a significant impact on the faunal parts of the environment, yet at the same time there is insufficient knowledge to reach such as conclusion. Existing models suggest that the opposite is more likely to be true.

# 1.7.7 Grazing/Apiary\_Values

# 1.7.8 Fuel\_Management

(para 1): "In the dynamic equilbrium between wet sclerophyll types and true rainforest, fire plays a most significant role. Occurrence of even a light fire, repeated at long intervals of years, may be sufficient to kill most rainforest elements and, subject to the presence of canopy openings of sufficient size, would favour regeneration of moist Eucalypts and associated wet sclerophyll species."

It is significant, and disturbing, that the recognition of the dynamic relationship between pure rainforest and moist hardwoods is made in reference to management practices and not with respect to conservation values. Its context here is part of outlining a mechanism to kill rainforest species within moist hardwood forests in order to promote the growth of species which are commercially valuable at the expense of those which are not.

(para 2): "These concepts can be applied in a program of fuel management. Broad area hazard reduction burning and pre-logging and post-logging burning not only provide fuel-reduced buffer zones as a fire protection measure, but heavily favour the wet sclerophyll types and grass cover against possible invasion by rainforest elements..."

This section outlines application of a management practise designed to suppress rainforest species. It is again evident through use of the term "invasion" that the Commission's assessment of rainforest has as its reference point what is desirable from a commercial point of view rather than what is integral to the environment. (para 2): "...Where protection of young regeneration is not a limiting factor, low intensity burns may be repeated at intervals of about 4 to 6 years to promote open stands with grass cover, a condition where continued fuel management is far easier to achieve than in stands with moist understorey; in this way fire protection problems in the long term can be significantly reduced."

It is the clear intention of this section that, once logged, forests will be managed to deliberately exclude the rainforest species which would otherwise form a significant proportion of the regenerating flora. The effect would be a gross simplification of the forest ecosystem in comparison to that which existed prior to logging. As the upper Karuah has a very significant rainforest component, the likely impact is correspondingly high.

Regrowth forests of the type described are also more susceptible to fire (rainforest elements tend to inhibit fire) and hence will amount to a further effect on the fire regime, regardless of whether fires are deliberate as part of management or of a natural origin. It is contended that the process outlined amounts to a significant impact on the environment over an protracted period of time with the intention of permanently altering the environment.

1.7.9 <u>Research Projects</u>

1.7.9.1 Projects Maintained by Subdistrict Staff

1.7.9.2 Projects Maintained by Silvicultural Research Organisation

1.7.9.3 Projects Conducted by Outside Organisations or Individuals

1.7.9.4 The Karuah Hydrology Research Project

(para 2): "The primary object of the study is to provide quantitative information on the effects of various forest management and operational techniques on water quality and yield in steep, coastal moist hardwood forest...

(para 3): "The eight research catchments comprise small tributaries of the Telegherry River...

A previous section of the Plan notes that the Telegherry is unlike other catchments in the Management Area in having only gentle slopes.

(para 4): "...The treatments to be applied with a single replication are:

(a) Control.

(b) Logging with 50% canopy removal.

(c) Logging followed by burning and treatment for natural regeneration.

(d) Logging followed by tractor clearing, burning and planting for hardwood plantation establishment.

Although not within the upper Karuah, the project is clearly being undertaken in comparable forest types, with the likely exception of Cool Temperate Rainforest. Because of the more moderate terrain involved, applying the results to the upper Karuah is likely to produce a more conservative picture of the effect of logging there.

# PART 2 - PRESCRIPTIONS FOR FUTURE MANAGEMENT

# Chapter 2.1 General Plan of Management

#### 2.1.1 Management\_Objectives

(para 1): "The management objectives for the Chichester Management Area are:

1. To supply sawlogs at commitment level for as long as possible, subject to periodic review in the light of resource data and progressive adjustment, if possible under suitable industry conditions, to a level that can be sustained in perpetuity."

Justice Hemmings noted in Jarasius (Hemmings, 1987) that the Commission's preoccupation with this management objective blinded them to their obligations under the law.

"2. To supply part of the pulpwood requirements for a possible future paper pulp industry."

The high emphasis which the Commission place on this aspect of their operations is disturbing in light of the fact that pulpwood operations had only been given approval at around the time which the Plan appeared. It is disturbing that a low value product such as pulpwood would be placed above poles, piles, mining timber and other timber products.

"4. To maintain the State Forests generally under natural forest vegetation adequate to:

(a) Conserve the soil resources and water catchment capabilities;

(b) Maintain a diversity of habitat suitable for wildlife indigenous to the area;

(c) Retain an aesthetic forest environment acceptable to the public generally.

It is unlikely that any of these objectives could be met under the management practices outlined in the Plan.

"5. To minimise, to the extent practicable, damage to the State Forests by wildfire and prevent the escape of fire to adjoining lands."

Other sections of the Plan show that the Commission's attitude to fire is purely predicated on its impact on commercial aspects of their operations, which is not necessarily, and in the upper Karuah certainly is not, consistent with a concern for the impact on the natural environment. "6. To maintain any unique or rare, ecological, historical, floral, faunal or other scientific values occurring within the State Forests."

In general, and for the upper Karuah in particular, the Commission does not make an adequate assessment of the situation to ensure that this objective is met. These values are only just being discovered in the case of the upper Karuah, despite nine years since the commencement of operation of the Plan. There is a real risk of impairing faunistic values in ignorance.

2.1.2 Managment\_Strategy

(para 1): "Management strategy is derived from the Forestry Commission's "Indigenous Forest Policy"; particularly from the policy guidelines for:

(a) Broad forest type categories of Coastal Hardwoods and Rainforest

(b) Indigenous Species Planting.

(para 2): "This provides a basic strategy of maintaining the values of the original resource in perpetuity, at the same time providing for continued multiple use of the area to the extent compatible with this long-term objective..."

The values which are important to the Commission are demonstrated in the Plan to be primarily commercial ones, not those associated with the natural environment or, more importantly, obligations under the EP&A Act.

"...Inherent in this strategy is the requirement to maintain the forest formations that occurred in the original resource with a similar range of diversity in vegetation and habitats. This must be achieved by a continual renewal of vegetation elements as they are harvested."

Again the environment is being defined only from the point of view of the minor component of the vegetation assemblage, ie., those large straight stems which are harvested for sawlogs, plus trees with hollows for pulpwood in the case of the Upper Karuah.

The use of fire described in the Plan is of such an intensive nature that this could not be achieved, and it is admitted in certain sections that this is not the objective. As argued above, the attitude to fire, and its application, is deliberately designed to ensure that this objective only applies to those species which are of commercial value.

(para 4): "Harvesting of the old growth timber crop and associated silvicultural treatment is at a much higher rate than natural mortality and new growing stock increment. Without adjustment, this must eventually lead to an abnormally high proportion of immature tree growth on those parts of the Managment Area used for timber production. Thus, the bread strategy for maintaining the full range of forest values will consist of:

\* Retaining a substantial area of relatively undisturbed forest at a low use level..."

Identified in Section 1.6.2 as only 10% of the non-rainforest component of the Management Area.

"\* Managing the area intended for timber production under a regime directing it in the long term towards a normal distribution of timber growing stock at a rotation for full maturity..."

Overcutting of the Managment Area suggests that this consideration has been given scant consideration. The Forwood report of 1974 predicted a decline in sawlog availability from the Dungog region of 75% by 2020, yet record quota levels were subsequently adopted and maintained through until the early 1980s (Scobie, 1982). The chances of maintaining a normal distribution of commercial species under such a regime are slim.

In any case, the environment is again being defined only from the point of view of commercial timber. The management prescriptions outlined essentially exclude rainforest species which occur in moist hardwood forest (and most do, according to the Commission's more recent Gloucester Management Plan, 1984). The flow-on effect on fauna cannot be disputed.

"\* Constraining timber production development - except where full plantation establishment is intended - to an intensity which will allow survival of a component of mature or over-mature stock for its contribution to non-wood values."

This section conflicts seriously with the one above. These old-growth trees have been identified specifically for use as pulpwood, thereby amounting to a reduction in their overall proportion to less than that which is part of the normal distribution of sizes described in the preceeding section. It must be remembered that the high rainforest component of the forests of the Management Area, and particularly those in the upper Karuah, is associated with a large number of these big, old trees. In any case, this is limited to hardwood species as rainforest species, even if they are large, are susceptible to exposure and dieback as described in Section 1.4.11.

(para 5): "The area of undisturbed forest can be in the form of:

 \* Areas preserved for particular scientific values, eg Flora Reserves.

\* Areas protected from significant environmental change through local management emphasis on flora and fauna. catchment, visual resource and other such values. \* A substantial area inaccessible for economic timber production development."

Undisturbed areas are normally defined in the Commission's Preferred Management Priority Maps. Correspondence from the Commission has admitted that these classifications for the upper Karuah have not been approved, despite a statement in Section 2.1.3.1 that their preparation would be completed by 31st January 1981. The correspondence refused to make these maps available on the basis of them being internal documents.

The preservation of flora reserves is worth noting here. There are at least four Flora Reserves in the Barrington area which have been subject to logging. One of these, Jerusalem Creek, is the only known occurrence of Coachwood (<u>Ceratopetalum apetalum</u>) in the entire area of Barrington Tops.

(para 6): "Timber yield regulation strategy should comprise:

\* Continued harvesting of mature and overmature trees for sawlogs at the level of present commitments for the immediate future..."

Quotas from the Management Area have been reduced since the Plan was published, though the current level is unknown. However, the deviation from the strategy described in paragraph 4 is obvious.

(para 7): "Other features of the timber production strategy are:

\*Constraints in harvesting necessary to maintain soil, catchment, visual resource and other special site values.

\* \* \*

\* Constraints on harvesting rainforest types to limit operations in unlogged stands to very minor salvaging of individual trees in special circumstances..

Disturbance to other areas of mapped rainforest types suggests that special circumstances is often defined by the presence cf commercial hardwoods which can be economically recovered.

(para 8): "Objectives in the maintenance of catchment, visual resource, wildlife habitat, archaeological and historical values will be met in part by preservation of sites of specific value, but mainly through constraints in the timber production strategy."

This effectively dilutes the Commission's approach to protecting the environment. It assumes the compatability of intensive logging activities, including pulpwood harvesting, with conservation objectives has been demonstrated and, more importantly, that the values of old growth forest can be readily maintained after logging has occurred. The Australian Heritage Commission have made public statements that the latter is not the case (Galvin, 1987).

2.1.3 Preferred Management Priority Classification

2.1.3.1 General

2.1.3.2 Identification of Eucalypt Plantation Sites

Correspondence from the Commission has stated that plantation establishment in the upper Karuah is unlikely, however,...

(para 2): "The precise location and extent of plantation areas will not be known each year until after site preparation and survey. Accurate charting of these areas on the Preferred Management Priority Classification Map as "Native Species Plantation" (Category 1.4) will not, therefore, be possible until this stage is reached."

In other words, plans for the most environmentally damaging operation carried out in the Management Area are beyond the reach of the public until it is too late to properly evaluate the likely impact. More importantly, it throws into serious doubt the adequacy of the Commission's Section 111 Review as the nature of the activity in the area has not yet been fully declared.

2.1.4 Division\_of\_the\_Area

2.1.5 Period\_of\_the\_Plan

(para 1): "The Chichester Management Plan <u>will</u>\_operate for a period of five years from 1st July, 1980 to 30th June, 1985. It should be revised before the latter date."

A request was made to the Commission to see whether the Plan had been revised following the National Park extensions in 1984. Correspondence indicated that the only change was to extend the period of the Plan to June 1990. The correspondence also indicated that a first draft of the replacement Plan has been completed and that it should be finalised "well before" the June 1990 deadline.

Chapter 2.2 Plan\_for\_the\_General\_Working\_Circle

- 2.2.1 Constitution
- 2.2.2 Yield\_Regulation
- 2.2.2.1 Quota\_Sawlogs
- 2.2.2.2 Salvage Sawlogs
- 2.2.2.3 Poles and Piles
- 2.2.2.4 Round\_Mining\_Timber

2.2.2.5 Pulpwood

2.2.2.6 Other Forest Products and Materials

2.2.3 <u>Timber Harvesting Operations - State Forests</u>

2.2.3.1 <u>Harvesting Plans</u> (para 1): "A timber harvesting plan shall be prepared by the supervising Forester on a Compartment/Logging Area basis for sawlog and other major harvesting operation... The plan shall incorporate prescriptions designed to protect aesthetic, catchment protection, recreation, wildlife and other values as considered appropriate."

Corresopondence from the Commission states that harvesting plans are normally prepared immediately prior to the commencement of operations. At the time (July 1987) no plan had been prepared.

(para 2): "In preparing the harvesting plan for any logging area on State Forest, the Preferred Management Priority Classification for that area should be considered and any Special Emphasis requirements reviewed."

This must be very difficult to achieve without any approved PMP classifications.

# 2.2.3.2 Areas for Exclusion of Modified Prescription

(para 1): "No timber harvesting operations shall be permitted in areas classified "Preserved Natural Forest" (Category 1.3). These comprise existing and likely future Flora Reserves and Forest Preserves."

There are a number of Flora Reserves in the Chichester and Gloucester Management Areas which have been logged, though probably before dedication. See Section 2.1.2

(para 2): "In areas classified "Undeveloped Natural Forest" (Category 1.2), timber harvesting shall be restricted to, at most, minor selective harvesting involving temporary surface access tracks."

(para 6): "Harvesting opeations in rainforest types - as distinct from rainforest understorey beneath wet sclerophyll hardwood types - shall not be permitted except for:

[salvage operations]"

The commercial distinction between the rainforest and moist hardwood types is again evident. The extent of logging of rainforest permitted in the scope of salvage operations is described in Section 2.2.3.6.

2.2.3.3 Erosion\_Mitigation\_Conditions

2.2.3.4 Orders\_of\_Working

#### 2.2.3.4.1 <u>General</u>

(para 1): "An order of working for quota sawlog operations and mining timber operations shall be determined by the Forester each year for the following two years and submitted for approval by the District Forester. The orders of working shall be outlined in the Annual Report..."

The Commission was requested in correspondence to provide information from Annual Reports on the order of working in order to more clearly define the nature of the proposed operations in the upper Karuah. This information was withheld on the basis of Management Area Annual Reports being "internal documents".

# 2.2.3.4.2 Quota Sawlogs - Order of Working

(para 1): "The order of working shall be determined in accordance with the following principles:

2. For reasons outlined in Section 1.6.3, the quota sawlog cut should on the average comprise not less than 40% from previously cut-over areas, the balance to come from virgin stands."

Put another way, some 60% of the Management Area production is from old growth areas like the upper Karuah. The Commission's assessment of its obligations under the EP & A Act should reflect this.

2.2.3.4.3 Mining Timber - Order of Working

2.2.3.4.4 <u>Salvage Sawlogs, Poles and Piles, Pulpwood, Other Forest</u> Products and Materials - Order of Working

2.2.3.5 Prescriptions for Quota Sawlog Harvesting

"1. Where there are generally 4 trees or more per hectare judged capable of significant net sawlog increment over the cutting cycle, these shall be retained.

2. Where conversions to Eucalypt plantation is not proposed and any trees retained under 1. above are judged inadequate for the purpose, up to 5 mature or over mature trees per hectare, depending on their size, should be retained as an emergency seed source, and for wildlife habitat and for aesthetic reasons; generally this requirement should adequately be met by better-crowned unmerchantable trees."

This gives a strong indication of the <u>maximum</u> impact which is likely to occur in a given area. The forests of the upper Karuah are closed forests with, in the commercial forest types, large emergents. The prescriptions outlined involve major canopy disturbance leading to their replacement by open forest. If additional material is removed, as described in the prescriptions for other categories of timber below, the resultant landscape is more akin to one which has been clearfelled. "4. Subject to 1, 2 and 3 above, harvesting of hardwood forest shall aim at the sale of all trees considered to be merchantable..."

The Commission's emphasis on commercial considerations is again evident in this section. The prescriptions are, on the whole, at significant variance with the approaches described for maintaining natural values of the forests. Such a reduction in tree cover as provided by these prescriptions must increase the likelihood of the operation having a significant impact on the environment.

### 2.2.3.6 Prescriptions for Salvage Sawlog Operations

(para 1): "Harvesting of salvage sawlogs shall be permissible only where a quota sawlog operation cannot be sustained economically in circumstances as follows:

- Removal of salvage material subsequent to quota sawlog operations and prior to silvicultural treatment.

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- Removal in conjunction with quota sawlog operations of the rainforest understorey, which otherwise would be destroyed or damaged in logging and would impede the satisfactory regeneration of Eucalypts.

.....

Salvage of any dead, dying or badly damaged trees from rainforest stands where this can be achieved without significant damage to the canopy and structure.
Salvaging of any trees that must be removed in the course of road construction.

- Any other similar type situation, where removal of salvage sawlogs is deemed by the District Forester to be advantageous in meeting the management objectives outlined in this Plan."

The scope for additional, intensive reduction in forest cover is evident from the prescriptions available for the harvest of salvage sawlogs, particularly from rainforest and from the discretionary provisions of the final prescription.

2.2.3.7 Prescriptions for Pole and Pile Harvesting

2.2.3.8 Prescriptions for Mining Timber Harvesting

2.2.3.9 Prescriptions for Pulpwood Harvesting

(para 1): "Subject to a market for pulpwood developing during the Plan period, trees in the categories as listed below may be harvested for this purpose: - Trees of any species, size or maturity encountered in timber harvesting operations already prescribed in this Plan, which are judged to have no present or potential value as sawlogs, aesthetic or wildlife habitat requirements and would otherwise be culled in cultural operations..."

The extent to which material is to be made available for woodchips is disturbing, especially when it is considered that at the time the Plan was written, conditions applying to export restricted pulpwood material to sawmill residues and logging waste. Logging waste is the heads, limbs and butts of trees already felled for sawlogs and hence is a considerably more restricted category than that listed above.

Combined with the other logging prescriptions, the potential impact on the old growth forests of the upper Karuah is potentially as much as their complete destruction in any areas which are PMP classified "Multiple Use Natural Forest". Correspondence from the Commission has stated that the harvesting of pulpwood from the upper Karuah can be anticipated.

2.2.4 <u>Timber\_Harvesting\_Operations - Crown\_Timber\_Lands\_Other\_Than</u> <u>State\_Forest</u>

2.2.5 <u>Cultural Operations</u>

2.2.5.1 General

2.2.5.2 Areas Suitable for Treatment

(para 1): "Cultural operations shall be restricted to areas classified "Multiple Use Natural Forest - General" (Category 1.1.1) and are specifically excluded from areas classified "Undeveloped Natural Forest" (Category 1.2), "Preserved Natural Forest" (Category 1.3) and all areas included in Special Emphasis Categories..., unless cultural operations are covered by a special prescription for that Special Emphasis Category."

The unavailability of the (unapproved) PMP maps prevents accurate information being obtained on this aspect of the operation. When a map was viewed, however, the bulk of the area was observed to be classified 1.1.1 Multiple Use Natural Forest.

(para 3): "...cultural operations shall in general be restricted to recently harvested areas of reasonable site quality on gentle to moderately steep topography."

Ridge tops in the upper Karuah would fall into this category.

2.2.5.3 <u>Natural Regeneration Techniques - Moist Hardwood Types</u>

(para 1): "The techniques outlined below shall be limited to the moister forest types as listed and any minor type not listed of similar site quality: [MHF's listed] "i) After completion of logging, every available opportunity should be taken to dispose safely of logging slash by burning, thereby establishing a suitable seed bed for germination. The burn should be of sufficient intensity to remove as much as possible of the undergrowth, which otherwise would provide a barrier to the germination and development of seedlings of Eucalypts and associated hardwoods."

The inclusion of deliberately lit, post-logging fire as a natural regeneration technique is problematic. The effect of these postlogging fires is to encourage a weed-like flush response amongst eucalypts while at the same time killing the rainforest species which are a natural part of these forests, regardless of whether they are labelled by the Forestry Commission as rainforest or not.

"iii) Where the regeneration is considered adequate to ensure a stocking of at least 200 stems per hectare, the unmerchantable overstorey left behind in logging, subject to (iv) below, may be culled. Culling may be either felling or ringbarking..."

This process effectively completes clearfelling of the logged site. The overstorey left on sites near the upper Karuah generally contains a high proportion of rainforest trees, although these frequently die as a result of the exposure and, more particularly, as a result of the use of fire.

"v) Culling treatment should be limited to slopes not exceeding 25 degrees."

In the upper Karuah, this co-incides with ridge-tops made up cf the non-rainforest types. The intention of the burning is clearly to force the regeneration to favour Eucalypts, whereas natural disturbance would generally only favour this if the disturbance resulted from fire, which has probably always been infrequent and very limited in the upper Karuah.

2.2.5.4 Planting\_Techniques

2.2.5.4.1 <u>General</u>

(para 1): "On moist hardwood sites where, due to the presence of a moist understorey, adequate seedling regeneration following logging and slash burning cannot reasonably be expected, re-establishment shall be achieved by the planting of Eucalypt seedlings in jiffy pots. The species shall be Silvertop Stringybark and Sydney Blue Gum..."

The intention is again to force the regrowth to favour eucalypts, though with the species identified the effect would be to further reduce the diversity of non-rainforest species to even less than would frequently occur in a moist hardwood forest which does not have a significant rainforest component. (para 2): "This treatment may be extended to areas of subtropical rainforest, where the rainforest structure - due to indiscriminate harvesting in bygone years or natural disaster - has suffered long term damage."

2.2.5.4.2 Full\_Plantation\_Establishment

Correspondence from the Commission has indicated that plantation establishment in the Upper Karuah is unlikely.

2.2.5.4.3 Enrichment Planting

(para 1): "The planting with Eucalypt seedlings of areas bared in harvesting operations or subsequent slash burning at an espacement adequate to produce a sawlog crop should be carried out in circumstances as follows:

(ii) Where slopes do not exceed 250 and adequate seedling regeneration, following logging and slash burning, could not reasonably be expected, because of the moist understorey, but the minimum requirementss of a plantation block - ie. not less than 20ha on slopes not exceeding 150 - cannot be met. Culling of the overstorey, as prescribed in Section 2.2.5.3, should be carried out prior to or in conjunction with planting."

A considerable area of the ridge tops in the upper Karuah would be suitable for this treatment. It is evident that this is another response to the presence of rainforest species and the objective clearly is to disfavour the rainforest species, including direct physical destruction.

2.2.5.5 Natural Regeneration Techniques - Dry Hardwood Types

Chapter 2.3 <u>Miscellaneous Plans</u>

2.3.1 Capital Improvements

2.3.1.1 Road\_Construction

2.3.1.2 Fire\_Trail\_Construction

(para 1): "Additional fire trails will be required in the as-yetunlogged parts of the Management Area, not only for fire protection access, but also to provide access for road survey and construction. During the period of the Plan, the trails as listed below should be constructed:

iv) To provide access into the hardwood ridges north and south of Whispering Gully."

Construction of the first of these fire trails was carried out in late 1987 on the ridge running north-east from the Mountaineer. Road survey work has also commenced. 2.3.1.3 <u>Signposting of Roads</u>

- 2.3.1.4 Buildings
- 2.3.2 Maintenance
- 2.3.2.1 <u>Roads</u>
- 2.3.2.2 <u>Trails</u>
- 2.3.2.3 Buildings
- 2.3.3 Fire Protection Plan
- 2.3.3.1 Fire Detection
- 2.3.3.2 Hazard\_Reduction

2.3.3.2.1 Plantation Areas

(para 1): "...The low intensity burn should, where possible, be repeated at intervals of about 4 years, so as to progressively reduce the moist understorey elements in favour of a ground cover of grass, in which a continuing programme of control burning should not present undue problems."

Although the Commission has indicated that plantation establishment in the upper Karuah is unlikely, the use of fire to exclude rainforest species to favour eucalypts with a grassy understorey is again evident. It amounts to quasi-plantation establishment in which the original floristic diversity is replaced with a simplified system dominated by commercially useful species. It is contended that this constitutes part of a significant impact on the environment.

# 2.3.3.2.2 <u>Regrowth Areas</u>

(para 1): "...hazard reduction should be considered for regrowth stands as soon as the co-dominants are large enough to safely withstand a low intensity burn. A prescription generally similar to that for plantation areas should apply."

Using a similar fire regime to that applied to plantation areas amounts to having a substantial effect on rainforest species which would otherwise naturally form part of the regrowth.

### 2.3.3.2.3 Strip\_Burning

(para 1): "Regular strip burning or perimeter burning should be undertaken in the State Forests, particularly along the more vulnerable northern and western boundaries and along major access roads. Because of the moist nature of most of the types, this type of burning may only be possible every 2 to 4 years." (para 2): "The following areas should be included in the program:

e) Northern boundary of the Karuah section along the Mountaineer-Berrico trail."

Parts of the northern rim of the upper Karuah show clear evidence of having been regularly burnt, with the rainforest elements in their understorey having been almost entirely replaced by Bladey Grass (Imperata cylindrica) and Bracken Fern (Pteridium esculentum). A request to obtain access to the Commission's compartment histories for the area, and a more general request for information on previous fire history, was not met with detailed information on the fires of the last few years. Suffice to say, a fire every two to four years bears no similarity to the natural fire regime as it is generally understood for forests such as those of the upper Karuah.

2.3.3.2.4 Broad Area Hazard Reduction

(para 1): " A planned program should aim at fuel reduction by low intensity burning of virgin forest areas in the western part of the Allyn/Paterson section and the northern part of the Karuah River section."

(para 2): "Although the vegetation of these areas is a mosaic of hardwood and rainforest, hazard reduction of the main hardwood ridges on a cycle of about 4 years should provide a most valuable protection buffer for the entire State Forest area."

(para 3): "By so doing, some reduction in the extent of moist understorey beneath wet sclerophyll types - a major problem in regeneration treatments - should be achieved."

(para 4): "Areas that should be included in this program are:

v) Hardwood ridges north of the Mountaineer."

Imposition of this intensive fire regime will have a very detrimental effect of rainforest areas. In addition to removing the rainforest component of what the Commission wrongly call moist hardwood forest, broad area burning such as this may progressively reduce the edges of climax rainforest areas and gradually reduce their occurrence to smaller areas than they previously occupied.

The current understanding of the role of fire in forests such as those of the Upper Karuah is that it is an infrequent occurrence and, more importantly, that it very rarely involves broad areas. Small, isolated fires resulting from lightning strikes are thought to play a major role in the natural fire regime. Evidence of lightning strikes on trees along the ridge proposed for the Catbird Road is widespread, though most of the visible (and presumably more recent) strikes do not appear to have resulted in fire. Fire is only likely to result during drier periods. 2.3.3.3 <u>Fire\_Trail\_Network</u>

2.3.4 Recreation\_Plan

2.3.5 Education

2.3.6 Catchment\_Protection

(para 1): "Protection of catchment values should be satisfactorily achieved for the present by:

- Implementation of the Standard Erosion Mitigation Conditions (refer Section 2.2.3.3)

The fire protection measures outlined in Section 2.3.3"

The conclusion that the fire protection measures outlined will preserve catchment values is, in all likelihood, false. By reducing the understorey, the reliability of stream flow is likely to be reduced. Regular fires will provide ash and new surfaces on which erosion can occur, both of which contribute to siltation. It is also possible that regular burning will actually increase the risk of wildfire by removing the rainforest elements which are both resistant to fire and which provide moist microclimate that limits the ability for fire to spread.

### 2.3.7 <u>Wildlife Habitat</u>

(para 1): "As far as is known, the operations prescribed in this plan will not have a significant adverse effect on habitat in the broad sense."

It is contended that the Commission do not have sufficient information available to draw this conclusion, and nor has it made appropriate efforts to secure that information. Even if sufficient information was available, the prescriptions outlined would make it virtually impossible to demonstrate the basis of the conclusion.

Of particular concern is the possible presence of the endangered Rufous Scrub Bird in the upper Karuah. The species has been recorded in the Gloucester River immediately to the north and an area satisfying the Scrub Bird's habitat requirements has been mapped in the western end of Whispering Gully (See Appendix 4).

2.3.8 <u>Visual Resource Protection</u>

- 2.3.9 Grazing
- 2.3.10 Apiary
- 2.3.11 Research
- 2.3.12 Labour and Plant Provision

2.3.13 Management\_Plan\_Control

2.3.13.1 Administration

2.3.13.2 Annual\_Report

(para 1): "As soon as practicable after the close of the financial year, a report on plan progress shall be prepared..."

A request to the Commission for copies of Management Are Annual Reports from recent years was refused on the basis of them being "internal documents".

2.3.13.3 Records

2.3.13.3.1 Local\_Office

(para 1): "The following records shall be maintained in Dungog Subdistrict Office.

a) <u>Preferred Management Priority Classification</u> To be available for public inspection after 31st January, 1981.

b) <u>Compartment\_History\_Records</u>"

Item (a) still not approved, although have been viewed, but copies have been refused. Access to item (b) refused on the basis of them being "internal documents".

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