Clearing of 197ha of land for agriculture - Williams location 13895 North Kukerin

Matthew King

Report and recommendations
of the Environmental Protection Authority

Environmental Protection Authority
Perth, Western Australia
Bulletin 689
July 1993

THE PURPOSE OF THIS REPORT

This report contains the Environmental Protection Authority's environmental assessment and recommendations to the Minister for the Environment on the environmental acceptability of the proposal.

Immediately following the release of the report there is a 14-day period when anyone may appeal to the Minister against the Environmental Protection Authority's report.

After the appeal period, and determination of any appeals, the Minister consults with the other relevant ministers and agencies and then issues his decision about whether the proposal may or may not proceed. The Minister also announces the legally binding environmental conditions which might apply to any approval.

APPEALS

If you disagree with any of the contents of the assessment report or recommendations you may appeal in writing to the Minister for the Environment outlining the environmental reasons for your concern and enclosing the appeal fee of $10.

It is important that you clearly indicate the part of the report you disagree with and the reasons for your concern so that the grounds of your appeal can be properly considered by the Minister for the Environment.

ADDRESS

Hon Minister for the Environment
12th Floor, Dumas House
2 Havelock Street
WEST PERTH WA 6005

CLOSING DATE

Your appeal (with the $10 fee) must reach the Minister's office no later than 5.00 pm on **26th July 1993**

Environmental Impact Assessment (EIA)

Process Timelines in weeks

Date	Timeline commences from receipt of full details of proposal by proponent	Time (weeks)
5 April 1993	Proponent Document Released for Public Comment	4
3 May 1993	Public Comment Period Closed	
11 May 1993	Issues Raised During Public Comment Period Summarised by EPA and Forwarded to the Proponent	1
27 may 1993	Proponent response to the issues raised received	2
12 July 1993	EPA reported to the Minister for the Environment	6

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Summary and recommendations

The Environmental Protection Authority received a proposal by Mr Matthew King to clear 197 hectares of remnant native vegetation on his farm located at North Kukerin in the Shire of Dumbleyung (Figure 1). Remnant vegetation is the native vegetation that has been left after clearing for other land uses.

The Environmental Protection Authority initially decided that it should provide informal advice on the proposal to the Commissioner of Soil and Land Conservation who could make the decision on whether or not the clearing proceeded, and if so under what conditions. However, following appeals the Minister for the Environment determined that the proposal should be formally assessed at the level of Consultative Environmental Review. This decision by the Minister means that the Environmental Protection Authority's advice on the proposal is given to Government, in this report, and it is the Government which makes the decision about whether, or not, the clearing proceeds.

Documentation describing the proposal was released for a four week public review period during which eighteen submissions were received from the public and Government agencies. Of these submissions approximately one third were in support of the proposal, and two thirds either equivocal, or firmly opposed to it. Many submitters acknowledged that at a local level the proposal was well thought out and the proponent was aware of many of the key environmental issues. Submissions both for and against the proposal also acknowledged the issue of equity if the burden of past clearing practices should fall on one who has not yet cleared.

Submissions addressing the broader regional and State context raised the wider issues of land degradation including increased salinity, increased water logging and erosion, the scarcity of remaining native vegetation and the problems associated with maintaining the viability of small remnants, and questioned traditional farming practices in relation to these issues.

From the Authority's evaluation and from the issues raised in submissions, the key points of concern were:

- conservation value of the native vegetation;
- scarcity of the natural resources inherent in native vegetation;
- potential for soil degradation from increased salinity, water logging and erosion; and
- equity for the proponent.

Recent data from the Department of Agriculture show that in the Dumbleyung Shire, in which this proposal is located, only 6.8% of native vegetation on private land remains uncleared. Of this figure the remaining stands of remnant vegetation are often small isolated patches which have little chance of long term survival under current conditions. Less than 1% of remnant vegetation in the Shire is of sufficient size and condition to be of ecological significance. The area proposed for clearing has been assessed for its ecological value and is regarded as being of very high ecological importance.

An increasingly important function of remnant native vegetation is its ecological function. The larger areas of remnant vegetation provide habitats for the threatened flora and fauna of the Wheatbelt region and even the smaller remnants are valuable for preserving genetic diversity and providing seed for replanting. These remnants are under increasing pressure from salinity encroachment from cleared areas, spray drift from weed control, fertiliser, stock grazing, weed invasion and frequent burning.

Owing to the overclearing of native vegetation in the Wheatbelt there are few high quality examples of native ecological systems that are protected by inclusion in the conservation estate as national parks or nature reserves. Thus remnant vegetation on private land has become an extremely valuable resource from the aspect of nature conservation as well as being important in reducing the impact of land degradation.

Soil and water salinisation is a major problem in the agricultural areas of Western Australia and is largely a result of clearing practices.

The impact of soil salinity has been, and continues to be, particularly damaging to the productivity of soils in the agricultural region. Surveys by the Australian Bureau of Statistics have reported an increasing trend in area affected by salinity from 0.5 per cent of cleared land in 1955 to 2.8 per cent in 1989. Some shires in the Great Southern Region of Western Australia have 7 to 8 per cent of the arable land in a saline condition. The Department of Agriculture estimates between 30 percent and 50 percent of the cleared land in the Great Southern Region could become salt affected within 20 years under current land use. The broad shallow valleys in the Dumbleyung area make it particularly susceptible to salinisation and waterlogging.

The problem of soil salinity is one that continues to worsen. Before the land was cleared, the deep rooted native trees and shrubs kept the groundwater level relatively deep. The broadscale clearing that accompanied agricultural development removed this control and over the years the groundwater level has risen, reaching the surface in many places. As the groundwater has risen through the soil profile it has dissolved a large store of salt which had accumulated in the deeper layers of the the soil, and brought it to the surface. There the salt kills the vegetation and destroys the agricultural productivity of the land.

The importance of native vegetation has been recognised and many farmers are now planting deep rooted vegetation including native trees in an attempt to lower groundwater levels and to slow the salinisation of their soils. The limited areas of remnant vegetation that remain on farms continue to help in the essential function of maintaining the water table at a level which will not contribute to salinisation of the upper zone of the soil.

The proponent Mr King, has a land holding of 1,921 hectares of which 1,537 hectares are cleared and are currently being farmed. Mr King proposes that a further 197 hectares be cleared of the remaining block of 384 hectares of remnant vegetation on the property. This would mean that 90% of Mr King's land holding would be cleared. Mr King has produced a farm plan for the area proposed for clearing that retains a significant proportion of native vegetation .

In assessing notices of intent to clear land the Department of Agriculture currently uses guidelines which indicate that in areas of less than 500 mm rainfall, 20% of native vegetation should be retained in each sub-catchment. The farm plan, which has the Department of Agriculture's support, meets the guidelines, though submissions questioned the way in which the sub-catchments had been designated.

The Authority acknowledges Mr King's genuine attempt at a compromise between conservation values and agricultural production, however, the problem extends well beyond the boundaries of Mr King's farm. In this wider area any proposal to further reduce the decimated remnant vegetation of the area raises concerns for the maintenance of biodiversity in the area, as well as contributing to the problem of land degradation through salinisation. The Environmental Protection Authority has, primarily as a result of the probable impact on biodiversity — loss of flora and fauna through habitat destruction — concluded that the vegetation should not be cleared.

Recommendation 1

The Environmental Protection Authority has been requested by the Minister for the Environment to assess the proposal for clearing of native vegetation on Williams location 13895 North Kukerin. The Authority has concluded that the clearing would result in the loss of an increasingly scarce and important natural resource. The Authority recommends that the Government should ensure that the remnant vegetation on Williams location 13895 is adequately protected in the long term.

Recommendation 2

The Environmental Protection Authority recommends that the Government should acquire the uncleared portion of Williams location 13895 and reserve it for the purposes of conservation of flora and fauna with appropriate recompense to the proponent for both the land acquisition and the effects on farm viability. Should this be unachievable, consideration should then be given to providing the proponent with assistance to allow the area to remain uncleared and be managed for conservation of flora and fauna.

Submissions both for and against the proposal raised the issue of equity. In this context the Authority notes that:

- there may be inequity if the burden of past clearing is borne by someone who has not yet cleared;
- if clearing the land would result in profitable production for Mr King from this land then prevention of clearing may result in inequity; and
- similarly, inequity exists if this clearing proceeds when others are now retaining remnant vegetation and replanting areas of farmland in other parts of the catchment.

In view of these considerations the Environmental Protection Authority recommends that the Government address the issue of equity.

Recommendation 3

The Environmental Protection Authority recommends that the Government address the issues of equity to determine the relative position of current landholders of uncleared land to other landholders, the expected profitability of clearing and farming currently uncleared land, and the overall economic impact of clearing remaining vegetation on the agricultural community as well as the broader community.

1. Introduction

The Environmental Protection Authority received a proposal by Mr Matthew King to clear 197 hectares of remnant vegetation for Agriculture on Williams location 13895 in the Shire of Dumbleyung (Figure 1). This area forms part of Mr King's land holding of 1,921 hectares of which 1,537 hectares is currently cleared for farming. Remnant vegetation is the native vegetation that has been left after clearing for other land uses.

The Environmental Protection Authority initially decided that it should provide informal advice on the proposal to the Commissioner of Soil and Land Conservation who could make the decision on whether or not the clearing proceeded, and if so under what conditions. However, the Minister for the Environment determined that, after considering the arguments raised in appeals, the proposal should be formally assessed at the level of Consultative Environmental Review (CER). This decision by the Minister means that the Environmental Protection Authority's advice on the proposal is given to Government, in this report, and it is the Government which makes the decision about whether, or not, the clearing proceeds.

The major environmental concerns associated with this proposal was the contribution of clearing to land degradation in the agricultural region of Western Australia and the lack of quality representative native ecosystems in the Wheatbelt. Land degradation is the primary environmental issue concerning both the agricultural and pastoral regions of the State and requires decisive action to prevent continuing loss of ecosystems and farm productivity.

The Environmental Protection Authority also recognised that there are important issues of equity relating to this proposal, both for and against clearing, which are beyond the scope of the Environmental Protection Authority but which should be considered by Government.

2. The proposal

The proponent wishes to clear 197 hectares of the remaining block of 384 hectares of remnant vegetation of a significant size on the property. Mr King has submitted information in the CER document outlining measures to reduce the environmental impacts of the clearing. These include, leaving vegetation on creeklines, ridgelines and potential water recharge areas, and fencing remnant vegetation left after clearing prior to introducing stock.

3. Issues raised in submissions

During the four week public review period for the proposal eighteen submissions were received. Many submitters were of the view that at a local level the proposal was well thought out and the proponent was aware of the environmental issues, however, viewing the proposal from the regional and state level the majority of submitters raised the serious issue of land degradation. This included the issues of salinity, waterlogging, erosion, lack of remnant native vegetation in the Wheatbelt and the problems associated with maintaining these remnants.

Most submissions recognised the issue of equity for the proponent and the burden of past clearing practices being borne by those with a greater awareness of the need to conserve native vegetation on farms.

The submissions were summarised by the Authority and the summary provided to the proponent for his response. The Authority's summary and the proponent's response are included in respectively Appendix 1 and 2 of this report.

4. Assessment of the proposal

The Authority considered that the clearing of 197 hectares of Mr King's property could not be assessed in isolation from the clearing that has taken place in the surrounding area. The issues of the conservation value of remnant vegetation and land degradation through over clearing are serious issues for the whole agricultural region, and, it is important to consider any clearing proposal in the wider regional perspective.

4.1 Role of remnant vegetation

In the Wheatbelt, remnant vegetation is very important for a number of inter-related purposes such as nature conservation, land and water conservation, recreation and amenity, and farm productivity.

The role of remnant vegetation in protecting land from salinity and waterlogging by keeping the water table from rising over time is well recognised. Similarly, remnant vegetation plays an important role in protecting water resources by maintaining saline groundwater levels and controlling stream salinity.

The importance of remnant vegetation in nature conservation does not have the same immediate economic impact but is becoming increasingly recognised. Through the almost complete clearing of native vegetation in the agricultural region many species of native flora and fauna have been driven to extinction. Western Australia's record for protecting fauna species is very poor with a reputed 70 species lost out of the 97 lost Australia wide (Select Committee into Land Conservation, 1990).

Less than half of flora and fauna species that are gazetted as rare and endangered are afforded some degree of protection by being in conservation reserves. This means that viable stands of remnant vegetation in the agricultural region play a significant role as conservation areas for rare and endangered species. These areas have an essential function as a source of food, habitat, and sustainable ecosystems for the remaining native flora and fauna, not just those on the rare and endangered list. The reality is that biological surveys have not been able to establish the status of all species, particularly invertebrate fauna and lower plants. Therefore, because of our lack of detailed knowledge, protection of the remaining habitat in the agricultural region is necessary to retain biodiversity.

Remnant vegetation has a role in farm productivity. Aside from its essential role in protecting land from salinity and waterlogging it can also act as a shelter for stock, a windbreak for crops and habitat for predators of agricultural pests. Most farmers have recognised the important role native vegetation plays and are re-planting a range of vegetation on an annual basis.

4.2 Scarcity of remnant vegetation

Development of the agricultural region has resulted in the removal of the majority of native vegetation. This has occurred through direct clearing or indirectly through salinity encroachment, grazing, spray drift, fertiliser, and frequent burning.

The area of remnant vegetation in the Wheatbelt that is contained within conservation reserves is small and it is often on areas of land that were considered not suitable for agriculture because of the position on rocky outcrops or on poor quality soils. Only 6.7% of the area of Wheatbelt is protected as conservation reserves; this compares poorly with over 15% of the area of the South Coast and South West Forest that are protected as part of the conservation estate.

Data from the Department of Agriculture show that in the Shire of Dumbleyung, in which this proposal is located, only 10.4% of the Shire area has remnant vegetation. This comprises 4.1% for public land, which includes the conservation reserves, as well as areas of little conservation significance such as recreation reserves, salt lakes, cemeteries and shire road reserves, and 6.3% for private land. Of the figure for private land many of the remnants are small isolated patches which have little chance of long term survival under current conditions of, generally, minimal management. Less than 1% of private land remnant vegetation in the Shire of Dumbleyung is of sufficient size and condition to be of ecological significance. The remnant which is the subject of this proposal comprises a significant proportion of this remaining 1%.

4.3 Salinity and waterlogging

The relationship between salinity of streams and land clearing has been recognised since the early 1900s when the increasing salinity of water in railway reservoirs in catchments used for agriculture was observed. Since that time various committees and reports have re-affirmed the relationship between clearing and increasing salinity of surface soils.

The problem of soil salinity is one that has been with us for many years and continues to worsen. Before the land was cleared, the deep rooted native trees and shrubs transpired more water than the annual crops and pasture which replaced them and kept the groundwater level relatively deep. The broadscale clearing that accompanied agricultural development removed this control and over the years the groundwater level has risen, reaching the surface in many places. As the groundwater has risen through the soil profile it has dissolved a large store of salt which had accumulated in the deeper layers of the the soil and brought it to the surface. There the salt kills the vegetation and destroys the agricultural productivity of the land.

The Australian Bureau of Statistics has carried out six surveys of the agricultural region of Western Australia. These surveys, based on information supplied by farmers, report an increase in the percentage of land affected by salinity from 0.5% in 1955 to 2.8% in 1989 (Select Committee into Land Conservation, 1990). In the Great Southern Region an average of 4% of all arable land across all Local Authorities is saline with some shires having 7% to 8% of the arable land in a saline condition (ibid).

The Department of Agriculture estimates that between 30% and 50% of the cleared land in the Great Southern Region could become salt affected within 20 years under current land use (Select Committee into Salinity, 1988). Land capability classification by the Department of Agriculture places the eastern portion of the Dumbleyung Shire in the extreme salinity risk category.

Waterlogging of soils is becoming a significant land degradation problem causing restrictive plant growth. Soils subject to waterlogging become saturated either temporarily or permanently. This problem is exacerbated by excessive clearing of native vegetation causing a rise in the water table.

4.4 Environmental assessment of Mr King's remnant vegetation

The remnant vegetation proposed for clearing was surveyed for its ecological significance by Mollemans in 1991 as part of a remnant vegetation survey of the Great Southern Region of Western Australia funded by the Save The Bush programme (Mollemans 1992). The survey devised a method of measuring the ecological significance of the remnant vegetation by examining the complexity of the remnants and the degree of disturbance.

Native bush is inherently complex with a range of different vegetation communities making up the bush. When looking at remnant vegetation the greater the complexity of the remnant the more ecologically significant it was considered. The degree of disturbance relates to the condition of the remnant vegetation. A remnant that has been highly disturbed has a low level of ecological significance.

Other factors which were taken into account during the assessment were the occurrence of gazetted rare flora and inadequately conserved plant communities.

With regard to the assessment of the area proposed for clearing (Remnant 53 in the Mollemans survey) the survey gave it the highest level of significance, that of "very high ecological significance". The survey found that Remnant 53 exhibited a complex structure which had been hardly disturbed. The flora survey noted a rare species, *Nemcia carinata* , two priority 2 species (species under threat) *Astroloma mycrophyllum* and *Gastrolobium rigidum,* a possible new species of Daviesia, a probable new sub-species of blister plant *Phebalium aff, filifolium sp. B,* and a mallee with similarities to *Eucalyptus platycorys* which was not recorded elsewhere.

An important consideration is the size of Remnant 53; although this does not directly influence the ecological significance it is important in terms of its viability. All remnants are subjected to the effects of human activity such as drift of fertiliser, herbicide and insecticide and weed invasion. These so called "edge effects" are more pronounced on small areas of remnant vegetation, whereas larger remnants such as Remnant 53 are not as badly affected owing to the buffer that the size of the remnant provides. Therefore, the protection of larger remnants such as Remnant 53 are more worthwhile in terms of success in the long term.

Mr King owns an area of 1,921 hectares of which 1,537 (80%) has been cleared for farming The proposal to clear a further 197 hectares would result in the area cleared for farming increasing to 1,734 hectares or 90% of the farm.

Prior to clearing land farmers are required by the Soil and Land Conservation Regulation of 1992 to give notice of their intention to clear to the Commissioner of Soil Conservation. The Commissioner reviews the clearing application and, if it is likely to result in land degradation, may protect the land by refusing the application by serving a soil conservation notice. Notices of intention to clear land are assessed by officers of the Department of Agriculture in consultation with the local Land Conservation District Committee. Guidelines are produced by the Department of Agriculture for the assessment of clearing applications.

Mr King's clearing application was assessed and found to meet the requirements of the guidelines and the Commissioner for Soil Conservation had no objection to the proposal to clear. Submissions to the Environmental Protection Authority on the CER question the use of the guidelines for this application, particularly the designation of the "sub-catchments" in the farm plan. The guidelines require that for the agricultural region having less than 500 mm of rainfall 20% of native vegetation should be retained within a sub-catchment. The farm plan states that there is an average of almost 30% of native vegetation (15%, 36% and 38% in each of the respective sub-catchments) presently existing in the sub-catchments. This appears to be at odds with the total area of vegetation left on the farm (if the clearing goes ahead) of approximately 10% and one of the sub-catchments mentioned has less than the required minimum of 20% native vegetation remaining. This highlights one of the problems of the narrow use of guidelines to assess clearing applications without taking into account the broader issues of previous clearing, the sustainability of further clearing and nature conservation.

Mr King has produced a farm plan for the area of proposed clearing that has left vegetation on sensitive areas such as creeklines and ridgelines and high risk areas such as shallow ironstone and potential recharge area . It also provides for a strip of vegetation around the areas to be cleared and leaves vegetated corridors within the cleared area. This is regarded as a sensitive clearing proposal within the limits of the farm boundary but does not take into account the previous clearing that surrounds it, or the downstream effect of the additional water the clearing would generate. Thus although this proposal is cognisant of the need to restrict the amount of clearing it cannot counterbalance the result of historical poor clearing practises.

The Environmental Protection Authority recognised the issues of equity that apply to proposals of this nature. In the first place there is the need to recognise that Mr King should not be penalised for not previously clearing almost all the native vegetation on his farm as was the common farming practice, and in many cases Government requirement, until relatively recently. In contrast there are the equity considerations for the general community and future generations who value an increasingly scarce and important resource of native vegetation. The whole community is moving towards contributing to the protection and re-establishment of native vegetation through Landcare funding programmes and from the contribution of individual farmers, and it is inequitable that remnant vegetation should be destroyed.

5. Conclusion

Land degradation is one of the most important environmental issues in Western Australia. A major contributor to land degradation in the agricultural region has been and continues to be overclearing of native vegetation.

Salinity of the soil, wind and water erosion and waterlogging of soils all result from overclearing of native vegetation. Often the full impacts of salinity and waterlogging are not manifest until decades after the clearing was carried out. This means that much of the arable land in some areas of the agricultural region could be rendered unproductive by salinisation and waterlogging.

The sparse remnant native vegetation that remains in the agricultural region is extremely important to maintain biodiversity and reduce the impacts of past clearing.

Remnant vegetation serves an essential function of conserving ecosystems that have been almost wiped out in the Wheatbelt through overclearing. The area of land devoted to the conservation estate is minimal in the Wheatbelt and therefore remnant vegetation of suitable quality on private land is of great value. The native vegetation which Mr King proposes to clear provides a valuable habitat for flora and fauna species, some recognised and others not adequately surveyed, which is not currently available in secure reserves or other protected land.

Mr King has acted responsibly in the management of clearing on his property and it may appear to be unjust to prevent him from clearing according to traditional practice, however, the situation has become so serious that any remnant vegetation in the Wheatbelt is a scarce and important resource, particularly one which exhibits the ecological values of Remnant 53 on Mr King's property.

The Environmental Protection Authority has been requested by the Minister for the Environment to provide advice on the clearing proposal by Mr King. The Authority considers that the Government should ensure that the remnant vegetation is preserved and afforded some long term protection. The Authority also considers that the Government should recognise the issues of equity involved and ensure that Mr King is not penalised.

Recommendation 1

The Environmental Protection Authority has been requested by the Minister for the Environment to assess the proposal for clearing of native vegetation on Williams location 13895 North Kukerin. The Authority has concluded that the clearing would result in the loss of an increasingly scarce and important natural resource. The Authority recommends that the Government should ensure that the remnant vegetation on Williams location 13895 is adequately protected in the long term.

Recommendation 2

The Environmental Protection Authority recommends that the Government should acquire the uncleared portion of Williams location 13895 and reserve it for the purposes of conservation of flora and fauna with appropriate recompense to the proponent for both the land acquisition and the effects on farm viability. Should this be unachievable, consideration should then be given to providing the proponent with assistance to allow the area to remain uncleared and be managed for conservation of flora and fauna.

Recommendation 3

The Environmental Protection Authority recommends that the Government should address the issues of equity to determine the relative position of current landholders of uncleared land to other landholders, the expected profitability of clearing and farming currently uncleared land, and the overall economic impact of clearing remaining vegetation on the agricultural community as well as the broader community.

6. References

Select Committee into Land Conservation 1990, *Discussion Paper No. 2 Agricultural Region of Western Australiaa*. Parliament of Western Australia.

Legislative Council, Select Committee on Salinity, 1988. Final Report and Discussion Paper 1988: Parliament of Western Australia.

F. Mollemans, 1992: *Distribution and Ecological Significance of On-Farm Bushland Remnants in the Great Southern Wheatbelt Region of Western Australia*. Division of Resource Management, Western Australian Department of Agriculture. (unpublished).

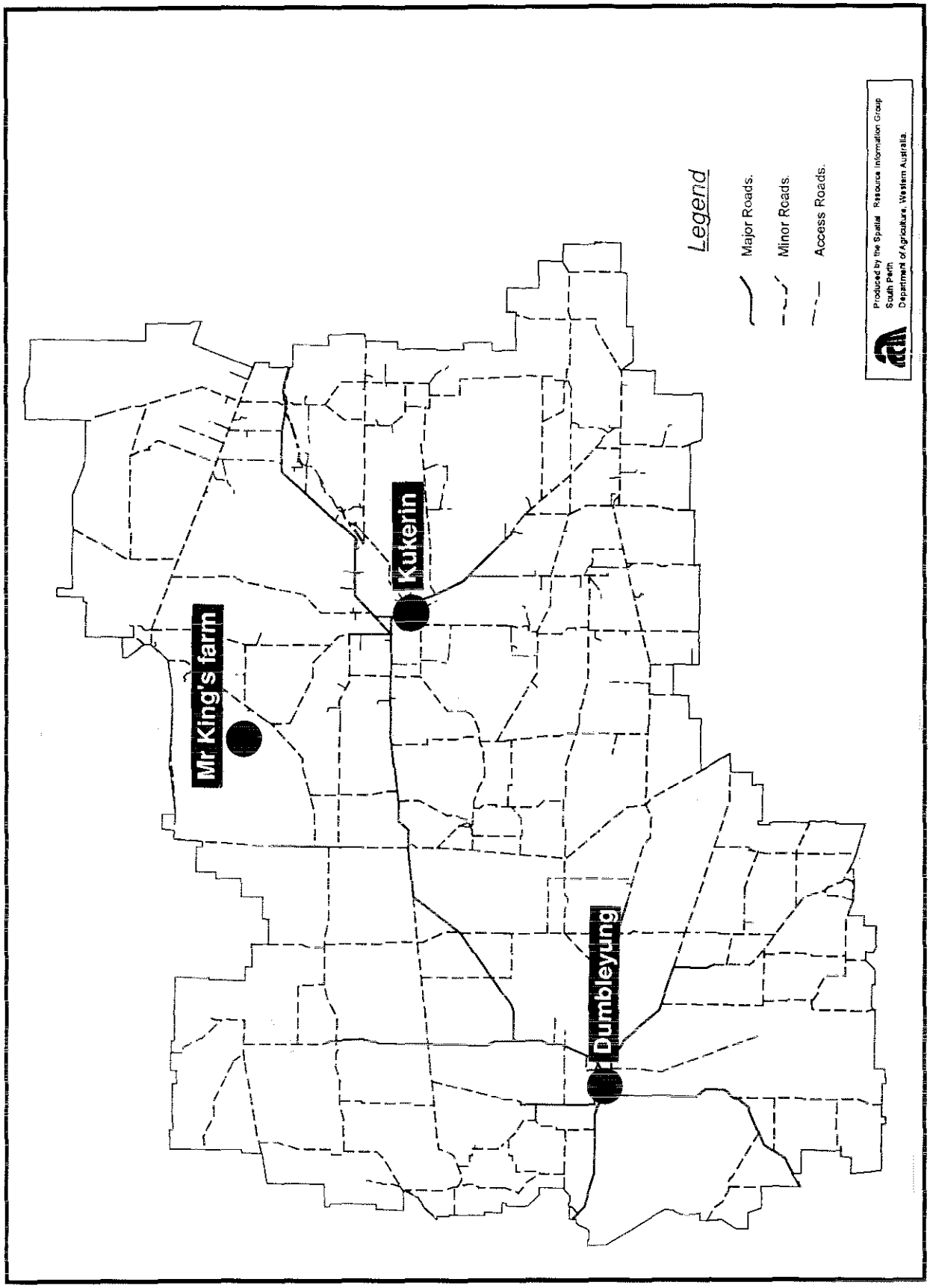

Figure 1: Location of Mr King's farm

Appendix 1

Summary of submissions

Summary of submissions

The environmental issues raised in the submissions have been collated, and so there may be duplication of comment, and discrepancies in the information provided in the different submissions. However, the issues of general environmental concern raised with the Authority include:

1. Clearing the land is likely to result in increased land degradation, including increased salinity, water logging and erosion, both on-site and off-site within the catchment. In addition, roaded catchments should not be put on land that has not already been cleared, as the hydrological contribution to the degradation of the Blackwood Catchment is likely to be greater per unit area than land cleared for crops and pastures.

2. The remnant of native vegetation it is proposed to clear has significant conservation value. In particular, it appears that at least one species of *Nemcia*, not fully described, two priority 2 species with restricted distributions, (*Astroloma microphyllum* and *Gastrolobium rigidum*) a possible new species, (*Daviesia*) a probable new subspecies of blister plant, and a mallee with restricted distribution (*Eucalyptus* aff. *platycorys*) could all be affected by the proposed clearing. Entire populations of some of these plants may be lost by this clearing.

3. In order to maintain biological diversity the remnant vegetation should not be cleared. The viability of remnant vegetation areas less than 100 metres in width is limited because the areas will degrade rapidly through grass and weed invasions and from crop spray-drift. In addition, adjacent bushland areas will also degrade through the use of fertilisers, and the construction of firebreaks. Much of what is proposed to be left is in relatively long narrow strips. Because of the impacts of 'edge' effects, weed invasions, stock and insect predations and detrimental climatic effects will mean that the long term survival of these remnants must be in doubt.

4. Clearing this remnant will reduce the remnant vegetation on the property to less than 10%. The remnant appears to be a link between other remnants and thus has local and regional significance. The area is already overcleared with on average only 5% of remnant vegetation on private land. It appears that natural intact on-farm vegetation accounts for less than 1% of the land area of the Dumbleyung Shire, and this remnant accounts for a considerable proportion of this meagre total. The area is thus of enormous local and regional value, both in terms of its flora, and as it provides a significant and unique habitat for wildlife in the region.

5. Clearing of this remnant would almost certainly add to the waterlogging, salinity, rising water tables, and increased surface run-off adding to the problems on adjoining farms, at the shire level, and for the whole Blackwood River catchment. Clearing of native perennial vegetation for agriculture has been responsible for the conversion of the Blackwood River from a relatively steady flow of clear potable water to a sharply varying seasonal flow of turbid water barely fit for livestock.

6. The cumulative effects of clearing this last remnant of bushland have not been adequately assessed. Clearing applications should not be addressed in isolation.

7. Insufficient alternatives have been considered. Some of the submissions referred to the marginal nature of the economics of wheat and sheep farming in the area, in particular with low prices and high costs. However, other submitters referred to issues of the lack of sustainability of current farming practices, and the resultant degradation of the land while not providing a living for the landholder. Some alternatives suggested included buying already cleared land, while others suggested such alternative uses as wildflower picking, seed collections, firewood and specialty wood collections, eco-tourism, landcare education and so on.

In summary, it can be said that the majority of submitters were sympathetic to your social and financial situation, but were concerned that clearing the land in question could have severe environmental consequences, such as land degradation, soil erosion, water-logging and salinity, as well as resulting in the loss of valuable natural heritage. Your previous retention of the land as native bushland was applauded by many submitters, who recognised the equity issues involved for you and your family. The Environmental Protection Authority is obliged to undertake its assessment of proposals submitted to it in terms of the expected significance of environmental impacts. Any further information or response you would like to forward would be appreciated.

Appendix 2

Proponent's response to submissions

PROPOSED CLEARING OF 197 HA OF LAND FOR AGRICULTURE. WILLIAMS LOCATION 13895 NORTH KUKERIN, SHIRE OF DUMBLEYUNG.

Area Owned	1921 HA
Area cleared for farming	1537
Area uncleared on farm	384
Area proposed for clearing	197

I wish to reply to your letter of the 11th May 1993 concerning the above clearing and respond to the issues raised. Most of them have been addressed in my previous letter but I will summarise my concerns again.

1. This farm plan has been designed with the land degredation hazards in mind. It is an Ag Deptartment design plan taking into account the clearing guidelines of leaving 20% vegetation in a sub catchment to reduce the effects mentioned. High water using rotations such as lupin wheat rotations are also proposed.
I also fail to see how a roaded catchment can contribute to the hydrological system when it is purely designed to catch and channel water.

2. The issue here says "could" be affected by the proposed clearing. I am sure the plant communities involved could be identified and a suitable area left it their conservation value is considered significant. It seems unreasonable to penalise a large area (400ha) when only a smaller area is needed to protect a 1ha community for example.

3. I believe biological diversity can be maintained by having connected areas of bush and 60m is a large enough area for the type of plant community involved. In Calms report on guidelines for Bush corridors they say that 100m is needed for rainforest communities, but only 30m is needed for health communities such as found in the proposed area for clearing. No corridors lead nowwhere and they are all interconnected. There are no creeklines through the proposed area so the arguments of fertiliser and weed invasion are not relevant.
The bush areas remaining are roughly alighned to perfect land against prevailing winds so the effect of wind erosion are minimised also. Fences will keep the stock out.

4. Again I point to the fact that the proposed clearing retains 20% of vegetation for the sub catchment. Its the old argument of one farmer carrying the bush for everyone else.

5. I believe this clearing would have minimal effect of the Blackwood system. The water from these catchment areas flows into the Dumbleyung Lake which does not have a history of flooding having overflowed in volume just 2-3 times since 1945. I believe it is highly unlikely that any run-off water from these areas would enter the Blackwood.

6. The application has been assessed with regard to the 3 sub catchments it is part of and has not been addressed in isolation.

7. Most of the alternatives suggested are idealistic rather than praticai. I also question the assumption about the marginal nature of wheat and sheep farming. If this was the case, then all the efforts into research, Landcare etc to attain a sustainable farming system in the face of economic circumstances are in vain.

land in the area is far too expensive to purchase and could not be done without compensation. It also doesn't come in suitable sizes and isn't readily available.

In summary I feel that I have addressed all the issues raised in respect of this clearing and firmly believe my proposed farm plan has the best intentions to prevent land degredation.

If the EPA feels that my farm plan is not suitable, can they please propose one that is.

Yours Sincerely
Matthew Kay.